

**Fast Facts**

BMW  
Professional  
Development



# **Fast Facts**

## 2003-2004





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## BMW for 2003-04: How to use the Fast Facts Handbook

Another year, another record broken. In calendar 2002, U.S. BMW sales reached 232,032 units, up an impressive 8.9% from the previous year.

Of course, BMW is not resting on its laurels: As this midyear edition of Fast Facts is published, the 3 Series Coupes and Convertibles are appearing in '04 form; the 745i/Li models are available with a new Sport Package; and the Z4 is now available with its optional Sequential Manual Gearbox as well as new colors. This edition covers the entire 2003-04 line as of spring '03:

**7 Series.** After its successful debut for 2002 the **745i** and **745Li** got new standard equipment and options for '03. As of January '03 production, the 12-cylinder **760Li** joined the Series to extend its market reach upward, and a STEPTRONIC 6-speed automatic transmission became standard on all models. The newest update is that, as of March '03 production, a Sport Package became available for both 745 models.

**5 Series.** Evolutionary but significant refinements for the "middle" BMW Sedans and Sport Wagons. All models offer the newly re-engineered Onboard Navigation System, and the popular moonroof becomes standard in the **525i** and **530i** models. All Sedans now have the rear Head Protection System as standard equipment, and the **540i Sedan** and **Sport Wagon** offer exciting new Sport Packages. This Series continued to enjoy great success during '02, with an 2.1% sales increase (including M5) in calendar '02 over '01.

**3 Series.** Still the core BMW product, the 3 Series (including M3) enjoyed an 11.8% sales increase during calendar '02 and

accounted for almost 50% of total U.S. BMW sales. This Series also gets the updated Navigation System, and the in-dash CD player is now available in combination with it. **325i/xi** models have added standard equipment (front center armrest and, in the Sedans, a rear center head restraint), and the Premium Package for these models adds rain-sensing windshield wipers as well as automatic headlight control.

The Sedans and Sport Wagons continue as '03 models, while all 3 Series Coupes and Convertibles become '04 models as of 3/03 production. All models, whether '03 or '04, get a new climate-control panel, and all 330 models get a new 6-speed manual transmission as standard equipment; a new Performance Package becomes available for the 330i Sedan as of the same production date.

**Z4 Series.** The virtually all-new successor to the Z3 Series makes its debut with two models: **Z4 Roadster 2.5i** and **3.0i**. With a bold new look, advanced powertrain and chassis engineering, and a broad array of new amenities, the Z4 offers Roadster customers advances on every front. Z4 sales are already running well ahead of the Z3, and it would be reasonable to expect strong Z4 sales for its first full year.

**M Cars.** The M Roadster and Coupe are no longer with us, but the **M3 Coupe** and **Convertible** and the **M5** continue as compelling offerings from BMW M. They share in the refinements of their "parent" Series; the M3s also add some new standard and optional equipment of their own.

**Z8.** As of December production, a new Z8 version, developed in

collaboration with the ALPINA performance specialists, replaced the existing Z8 model. It's called the **ALPINA ROADSTER V-8**, and gives enthusiasts the opportunity to acquire a Z8 with automatic transmission.

**BMW Fast Facts 2003-04** continues in the evolved form introduced in '02. Because of the ever-expanding BMW model line and ever more extensive features, we modified the **BMW features** section to hold the line on the handbook's size; it now describes all key features shared by two or more Series or models. This enabled us to reduce repetition – for example, detailed descriptions of 6-cylinder engines found in three Series occur only once. Many other features – among them automatic and manual transmissions, auto-dimming mirrors, Xenon headlights and the front Head Protection System – are also treated this way. Where such features are mentioned in the various Series sections, the reader is referred to the detailed material in **BMW features** with a page number; otherwise the Series sections focus on those elements and features that are exclusive to the particular Series.

As always with Fast Facts, this new edition has been designed and produced to put a wealth of information literally at your fingertips – information on these six Series of BMW automobiles (the X5 is not included) and on many other areas of the BMW presence:

### Background

- The BMW heritage and brand values
- Fully Integrated Road Safety Technology (F.I.R.S.T.)
- The BMW M brand
- BMW in America

- BMW Manufacturing Corporation
- BMW awards

### BMW features

- Features found in more than one BMW Series

### Other BMW products

- BMW Certified Pre-Owned Vehicles
- BMW Accessories
- BMW Motorcycles

### Warranty/misc.

- The BMW Warranty
- Summary of BMW Limited Warranties
- BMW Maintenance Programs
- BMW Roadside Assistance
- BMW Assist (a new section)
- Warranty & Roadside Assistance, BMW vs. the competition
- European tourist delivery

The final section of **Fast Facts** is the **2003-04 price comparison**. Arranged in “ladder” style, this listing positions each BMW model against the competition in order of ascending price.

In the back cover is a pocket for the **2003-04 Suggested Retail Prices** sheet. There is room here for business cards as well.

**This handbook was produced by BMW Professional Development** with your specific needs in mind. We know from your comments how much you use Fast Facts, and endeavor to make it as concise and easy-to-use as possible. If you have suggestions as to how we might improve it further, let us know at:

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Thank you!

BMW of North America, LLC.  
May 2003

## The BMW heritage & brand values

BMW's history as a company goes back 86 years, as a car-maker 74 years. After introducing its first motorcycle in 1923 and its first car in 1929, BMW quickly established the tradition that lives on today in the 7, 5, 3 and Z4 Series as well as the Z8 and the M Cars: Sport Sedans, Coupes, Sport Wagons, Convertibles and Roadsters that deliver a unique combination of driving pleasure, practicality and quality. With each new generation of BMW since then, each of these essential BMW qualities has been elevated to new heights.

"BMW" stands for Bayerische Motoren Werke or, in English, **Bavarian Motor Works**. Munich, the home of BMW, is the capital of the German state of Bavaria, and "Bavarian" is an important element of the BMW heritage. Just being **European** implies elements of tradition, of a special human-machine relationship. Being **German** means BMWs are developed in an environment where workmanship is virtually an obsession; designed for the rigors of *Autobahn* driving at unlimited speed, for traversing the nearby Alpine passes with surefooted confidence. These factors alone set BMW apart from many of its competitors – including those who continue their attempts at grafting a European image into products whose heritage is not European.

But BMWs aren't just European or just German. They are **Bavarian**. In Bavaria there's a certain joy of living that must be experienced to be fully understood. Bavaria is the south of Germany; those who know it best say it combines German perfectionism with the more outgoing and exuberant spirit of Italy.

No wonder, then, that the traditional BMW slogan is **Freude am Fahren** – "Joy in Driving." The creators of BMW express this joy in quality of construction, performance, handling, quietness – plus a less tangible, but easily discernible, quality BMW calls "driving character." Essential elements of this character include:

- **Sound.** BMW engines have a distinctive, almost musical sound.
- **Feel.** A BMW responds with precision and agility to its driver's commands and supports his or her skills at the wheel.
- **Driver involvement.** Of the 24 automobile models currently offered by BMW in the U.S., fully 19 are available with manual transmission. No other luxury marque matches this.
- **Look.** You can't mistake a BMW for anything else.

As the vehicle, so its buyer: The world over, BMW owners are themselves dynamic people. BMW has always attracted people from life's fast lane, and that is the synergy upon which the BMW philosophy is built: exceptional people, creating outstanding motor vehicles for special people to enjoy.

It is possible, at least for the casual observer, to look at a BMW and ask, "But why does that car cost so much? Aren't there comparable cars for less?"

Superficially, it may seem that way. But a BMW's appeal runs much deeper. Much of what one pays for in a BMW is under the skin, or of a subtle nature. An engine with lots of power, or supposedly racing-inspired suspension, may be a powerful selling feature. There's no guarantee, however, that such **features produce results.**

In a BMW, every **feature** is backed by a heritage of engineering, design, quality, experience, testing, development and, yes, those unlimited-speed *Autobahnen* all over Germany and the Alpine passes just to the south of Munich. It's a heritage unique to BMW, unmatched by other carmakers. And the BMW heritage, product attributes and quality are offered today at thoroughly competitive, even compelling, prices.

A thorough test drive will demonstrate the exceptional value built into every BMW.

### **The BMW Performance Center Driving School**

This unique operation, located in Spartanburg, South Carolina near the BMW Manufacturing Corp., adds a special dimension to BMW's traditional focus on the benefits of skilled driving.

The BMW Performance Center Driving School was created to develop skills for everyday driving, including active safety instruction and exercises. Its state-of-the-art facilities include –

- a unique “water wall” for teaching accident avoidance in rainy driving conditions
- a polished wet-surface skidpad to simulate slippery surfaces such as ice and snow
- track sections for autocross and slalom exercises.

Altogether, there are 35 different course variations on the 0.9-mile circuit; this can be expanded to 1.7 miles using connecting roads that simulate everyday driving conditions.

At the school, drivers learn from professional driving instructors to train and test their reflexes in everyday and emergency driving situations. Available programs include:

**New Driver School.** Two programs – a 1-day course and a 2-day camp – teach young people car-control techniques that they may not have learned elsewhere, providing reassurance for their parents while letting them fulfill a dream of driving a new BMW themselves. These courses are designed especially for inexperienced licensed drivers, ages 16-18; they learn with their peers.

**Car Control Skills Clinic.** A step up from the New Drivers School, this 1-day program offers practice in accident avoidance on several areas of the driving circuit, including water wall, skidpad, slalom, autocross and a “lifestyle” course. Participants are taught a wide variety of subjects, from vehicle dynamics and the significance of vehicle weight distribution and seating position to effective cornering in controlled and panic braking situations.

**Women-only Car Control Clinic.** This newest program offers women a chance to learn real-world driving skills among their peers. The instructors are championship-winning competitors; subjects covered are essentially the same as for the Car Control Skills Clinic.

**Advanced Car Control Skills Clinic.** A 2-day session picking up where the Car Control Skills Clinic leaves off. Participants get more time on the skidpad, and gain hands-on experience with active-safety technology to become safer, more responsible drivers.

**Z4 Drive.** Participants experience the dynamics of these new, super-responsive Roadsters; emphasis is on car-control techniques. Open to all licensed drivers, not just Z4 owners, the Z4 Drive begins with a half-day driving

## The BMW heritage & brand values

program, including an exercise in which water walls appear without warning for drivers to maneuver around. Participants then take on the winding curves of Southern back roads that afternoon en route to a historic bed and breakfast. In the evening, dinner is hosted by a BMW driving instructor.

After dinner, participants compete in a timed event that requires drivers to maneuver their Z4 into a very tight area, developing skills on how to change direction quickly in a short space while competing with others for the quickest times. The next day, participants drive back on winding roads to the BMW Performance Center for lunch and an afternoon of more challenging driving exercises.

**M School.** A 2-day course in M3 Coupes and the M5. Participants push M3 Coupes and M5s safely to their limits while learning fundamental car-control techniques.

**M5 Driving Experience.** 1-day course, included in the purchase price of a new M5. Participants hone their driving skills at the wheel of this awesome performance Sedan.

**BMW ALPINA ROADSTER V8 Driving Experience.** Also a 1-day course, included with every new BMW ALPINA ROADSTER V8.

In classes other than those for the Z4, M3, M5 and BMW ALPINA ROADSTER V8, participants drive 3 Series models provided by BMW. More information is available through the Performance Center's toll-free number, 888-345-4BMW (4269).

## F.I.R.S.T.:

### BMW's Fully Integrated Road Safety Technology

This is another theme that the BMW Client Advisor can use effectively, because it addresses a top customer priority: Safety.

With F.I.R.S.T., we are saying two things:

- That safety – active safety and passive safety – is integrated into the design and engineering of each new BMW.
- That safety is a primary concern at BMW; that it is part of the conception of any BMW model, and applies at every stage of its development right up to final assembly and quality control.

Every BMW is designed to be **agile and controllable**, to support its driver's ability to avoid danger; and then **crash-worthy** so that its occupants are appropriately protected when an accident does occur.

The scope and sophistication of features affecting both of these safety categories grows and evolves constantly. Examples of BMW's ceaseless activity found in this edition of Fast Facts include the advanced Dynamic Traction

Control function of Dynamic Stability Control, now extended to the new Z4 Series after earlier introduction in the 7 and 3 Series; Active Roll Stabilization in the 7 Series; expanded availability of run-flat tires and tire-pressure monitoring; the Intelligent Safety and Information System (ISIS) and Advanced Safety Electronics (ASE) that now manage safety systems in the 7 and Z4 Series; and newly standard rear Head Protection Systems (HPS) in the 7 and 5 Series Sedans. For details on these developments, see the appropriate Series section or **BMW features**.

This handbook's descriptions of BMW safety features begin on page 37, and thanks to such new developments the features are more fascinating and customer-relevant than ever. As you review these concepts and features and present them to your clients, please keep in mind that BMW safety features aren't mere **features**. Instead, they are all part of BMW's **Fully Integrated Road Safety Technology**.

## The BMW M brand

The letter “M” has traditional significance to BMW, going all the way back to the “M” of the Bayerische Motoren Werke (Bavarian Motor Works) and the company’s long-fabled expertise in engines. Since 1994, BMW M GmbH<sup>1</sup> had been the name of BMW’s subsidiary for racing and high-performance cars, with the BMW Motorsport name applied to the racing activities within the subsidiary. Now, BMW M is a separate entity, a “company within a company” that designs and produces custom and high-performance cars as well as related products. As such it is a “brand within a brand” and an industry icon as purveyor of the finest line of versatile, value-packed machines.

### **High-performance automobiles: the M Cars**

These are BMW M’s best-known products. Over the years, M, M3, M5 and M6 models have offered performance enthusiasts very special, uniquely BMW interpretations of what a sports automobile should be. BMW M is responsible for the development, production<sup>2</sup> and marketing of these spectacular high-performance cars.

The 2003 M Cars line includes the M3 Coupe and Convertible, continuing one of the great legends of performance automobiles, and the M5, a luxury sport sedan. All M Cars are powered by a thoroughbred M engine with an individual throttle for each cylinder and equipped with Dynamic Stability Control – features that enhance the already stellar BMW M reputation for ultimate performance automobiles.

### **M School**

Also mentioned on page 6, the 2-day driving program is held at the BMW Performance Center and the Michelin Proving Grounds. Here, participants push M3 Coupes (6-speed and Sequential Manual Gearbox) and M5s safely to their limits while learning fundamental techniques such as skid control, optimum seating positions, car balance, and “heel-and-toe” shifting of the manual transmission. There will be nine M Schools this year, plus two sessions of the new Advanced M School.

### **M Driver posting**

Enthusiastic personnel at our BMW Centers will be happy to learn that M Driver is now being posted on Owners Circle every other month.

### **BMW Systems Technology**

Through BMW Systemtechnik – in English, BMW Systems Technology – BMW M develops technology for clients, whether the client be BMW AG itself or an outside firm.

### **BMW Motorsport Ltd.**

Now separate from BMW M but based in Munich, the BMW Motorsport group develops cars and strategies for BMW’s racing programs. Among these activities in the recent past have been 320i racing in the European Touring Car Championship, and BMW’s return to Formula 1 racing. After 13 years away from Formula 1, BMW re-entered the arena of what many consider international racing’s premier series, and had a highly successful first season. At this writing, the ’03 season is beginning.

Also recently, BMW Team PTG has worked tirelessly restoring some of BMW NA's most treasured race cars: the 1975 Sebring-winning CSL, 2002 tii and M1. And BMW participated in several vintage-racing events at Watkins Glen, Monterey and Lime Rock.

For the 2002 racing season, the sanctioning organization changed the rules radically, rendering the M3 GTR (which had been the 2001 GT class champion) uncompetitive. BMW then "sat out" the year while deliberating what new activity to launch. In late '02, the decision was made to re-enter U.S. sports-car racing in a series that is more closely production-based, the SPEED World Challenge.

The current M3 SPEED World Challenge M3 is 75% stock. Its engine, based on the production S54 cylinder block and head, employs special pistons, valve-gear and other componentry to achieve approximately 420 hp. In this form, the M3 is an important facet in continuing BMW NA's long history in U.S. road racing and supporting BMW's performance image.

It also gives BMW M people the opportunity to meet hundreds of BMW owners at the race track, putting to use BMW's racing resources to further strengthen

owner loyalty. Personally appearing often at Motorsport venues, BMW M representatives work intensely to get the M message out to those for whom it matters most: that we compete at high levels, even against brands that truly stake their reputation on racing. For BMW enthusiasts, and especially M Car owners, racing the M3 is a natural extension of the car's purpose. It was born to race – and to win.

Racing is the background behind last year's introduction of a new, specifically race-bred technology for contemporary sport driving: the Sequential Manual Gearbox (SMG) with Drivelogic, currently available on both M3 models. This "new way to drive" is winning new converts to the BMW M family, and garnering the admiration of those who value progress in the art and science of automotive performance. "On the freeway," wrote Sam Mitani in the September '02 *Road & Track*, "SMG provides a luxury that you just can't get with a conventional stick shift, and at the track, well, it makes you feel like a race driver." Another winner for BMW M, then.

All M Cars are born to win – to win the hearts of dedicated performance enthusiasts, the world over.

- 1 – "GmbH" is the German abbreviation for a limited-liability company (LLC), normally associated with companies smaller than the AG (stock-corporation) type such as BMW AG. In fact, BMW of North America is now an LLC.
- 2 – Although BMW M once produced M5s in its small plant north of Munich, Germany, today's M Cars are produced at regular BMW factories under the aegis of BMW M.

## BMW in America

BMW of North America (BMW NA) has been present in the United States since 1975. Since then, the BMW Group in the United States has grown to include marketing, sales and financial service organizations for the BMW, MINI and Rolls-Royce brands; a South Carolina factory; DESIGNWORKS/USA, an industrial design firm in California; a technology office in Silicon Valley and various other operations. The BMW Group is represented in the U.S. through networks of 340 BMW car, 327 BMW Sports Activity Vehicle and 148 BMW Motorcycle retailers, 70 MINI car dealers and 27 Rolls-Royce motorcar dealers. BMW US Holding Corp., the Group's headquarters for North, Central and South America, is located in Woodcliff Lake, New Jersey.

BMW NA has a comprehensive system of support for BMW owners and Centers in the U.S., covering activities as varied as specific engineering for American needs and tastes, the BMW Warranty, Consumer Services, and the Roadside Assistance and Maintenance Programs. There are three regional Vehicle Preparation Centers; each new BMW arriving from Germany receives a thorough Pre-Delivery Inspection there.

To help the Centers provide optimum service after the sale, BMW NA maintains five regional Service Training centers, staffed by full-time technical instructors. Service technicians who continue their training and improve their proficiency are certified by ACT, the BMW Association of Certified Technicians. BMW NA even offers training in body repairs to BMW quality standards with a nine-month program offered at the BMW Performance Center in

South Carolina; at the Vehicle Processing Center at Oxnard, California; and at BMW facilities in Montvale, New Jersey. Shorter courses in collision repair are also offered to employees of BMW body shops at the California and New Jersey locations. To underpin all this service training, BMW NA has established six fully equipped Service Technician Education Program (STEP) facilities: one each in Arizona, California, Florida, New Jersey, Ohio and Texas. These entities function as "graduate schools" within the United Technical Institute, a leading teacher of automotive technology. Each of these offers (to service technicians already graduated from the institute) 720 hours of intensive classroom and lab instruction in BMW technology.

For efficient access to parts, each U.S. BMW Center's computer system is linked to BMW NA national headquarters. In turn, BMW NA is linked by computer to the International Parts Depot in Germany. BMW's stock of parts covers the more than 1.3 million BMWs on the American road.

In case of a customer complaint, the BMW Center will make a good-faith effort to resolve it. For those times when this process does not achieve satisfactory results, a BMW Customer Assistance Center Representative can be reached by calling a convenient toll-free number. This and many other services, such as BMW Roadside Assistance, BMW Assist, the BMW Maintenance Program and the extensive 4-year/50,000-mile limited warranty, are typical of the many efforts BMW NA makes to ensure that BMW ownership is a satisfying experience.

For BMW NA telephone numbers, please see page 337.

# BMW Manufacturing Corporation

Ten years ago the BMW Group decided to establish a plant in Spartanburg, South Carolina. Since then, more than 500,000 vehicles have been manufactured at the Spartanburg plant, and the facility has continued to make history – for BMW and for the motor-vehicle industry generally. Operated by the subsidiary BMW Manufacturing Corp., the plant is located on a 1039-acre site in Spartanburg County, South Carolina, and is an integral part of BMW's international production and logistics network. Currently the Spartanburg plant produces all Z4 and X5 models for not only the North American market, but all export markets.

Originally, the Spartanburg factory encompassed 1.2 million square feet under one roof and represented an investment of more than \$600 million. Initial expansion to accommodate X5 production brought the facility to more than 2.1 million sq ft. and total employment of approximately 3,000 associates, and attracted several more new automotive suppliers.

Since X5 production began in 1999, strong demand has led to a further expansion at Spartanburg; total vehicle production at the facility has grown from 51,878 units in 1999 to 121,680 in calendar 2001. Production is projected at more than 150,000 units for 2003.

To accommodate this ongoing uptrend, BMW is once again investing in BMW Manufacturing Corp. On the same day when the Z4 Roadster was introduced, BMW announced that it will invest an additional \$400 million in the factory, creating another 400 jobs. With more than 4,400 employed there now, this newest expansion will bring total employment at Spartanburg close to 5,000.

BMW Manufacturing Corporation's plant configuration results in markedly higher production capacity and one of the most flexible manufacturing bases in operation today. Increased production and employment and new models, however, are only part of the expansion story: A 60,000-sq. ft. analysis center adds engineering capabilities as well.

Also located in Spartanburg are the **BMW Zentrum** and the BMW Performance Center Driving School described on pages 5-6. The Zentrum, a 28,000-sq ft. visitor's center, serves as the gateway for visitors to BMW Manufacturing Corp.; and customers can take delivery of any new BMW (including those produced abroad) at the Performance Center. For a nominal admission fee, at the Zentrum (German for "center") one can –

- See legendary BMW cars, motorcycles and aircraft engines from the past.
- Get a glimpse of BMW technology for the present and future.
- View some of the famous BMW Art Cars – BMW automobiles transformed by noted artists such as David Hockney, Andy Warhol and Alexander Calder.
- Experience the creation of a new vehicle by "riding the line" on a Virtual Factory Tour.

The Zentrum includes a 238-seat auditorium and conference rooms (available for rental), a gift shop and the Boxer Cafe. It also serves as a staging point for actual factory tours, which are offered by reservation. For information:

- Call 888-Tour BMW
- Fax 864-989-5298
- Write to –  
BMW Plant Tour  
P.O. Box 11000  
Spartanburg, SC 29304-4100.

## BMW, the award-winner – again and again

BMW and its products are a phenomenon without parallel. The frequency and number of awards bestowed upon BMW are a significant indicator of how those “in the know” are recognizing the special position of BMW in the world of automobiles. Here is a mere sampling of the recognition BMW has received in recent times:

In its latest staff-selected All-Stars, announced in February '03, *Automobile Magazine* once again proves that BMW is unbeatable:

- Best Luxury Car under \$40,000 – 3 Series
- Best GT – M3
- Best Luxury Car Over \$40,000 – 7 Series

And in naming the 3 Series to its Reader's' Choice All-Stars, this magazine's May '02 issue quoted a reader: “If the 3 Series is not the best car in its category, why do all these manufacturers try so hard to build one themselves?”

*Car and Driver* names its 10Best choices every January. BMW has been among them since 1992:

- 1992 – 325i Sedan
- 1993 – 325i Sedan
- 1994 – 325i Sedan and 325is Coupe
- 1995 – 325i models and M3
- 1996 – 328i models and M3
- 1997 – 328i models, M3 and 5 Series
- 1998 – 328i models, M3 and 5 Series
- 1999 – 328i/M3, 5 Series and M Roadster/Coupe
- 2000 – 3 Series, 5 Series
- 2001 – again 3 Series, 5 Series.
- 2002 – yet again, 3 Series (including M3), 5 Series (including M5).

And to bring us right up to date, *Car and Driver* has once again named the 3 Series to its 10Best list, in its January '03 issue.

Not just BMW vehicles, but also BMW engines, garner their share of awards. For example:

- In the **International Engine of the Year Awards**, an international panel of engine experts from 17 countries chose the 4.4-liter Valvetronic V-8 engine that powers 745i and 745Li models as Best New Engine. It was the second successive year that BMW landed this major award, after its win with the 3.2-liter M3 engine in 2001. BMW's 3.0- and 3.2-liter 6-cylinder engines again won their respective categories.

*Robb Report* regularly recognizes winners. Recent picks include:

- Best Everyday Car 1997 – 540i
- Special Merit Award Winner 1998 – Z3 Roadster 2.8
- Car of the Year 2000 – Z8
- Best of the Best Sedans, June 2002 – 7 Series.

The **J.D. Power APEAL study**, which ranks vehicles on the basis of emotional and esthetic appeal, honors BMW repeatedly:

- Most Appealing Entry Luxury Car 1999 – 3 Series
- Most Appealing Premium Luxury Car 1999 – 7 Series
- Most Appealing Entry Luxury Car 2000 – 3 Series.

**J.D. Power and Associates** is well known for its extensive surveys and ratings of various facets of automotive achievement. In Power's Customer Service Index Study for 2000, for example, BMW was up by another 8 points over the previous year, scoring 783 out of a possible 1000 points; this put U.S. BMW Centers' service departments well above the industry average of 692.

In 1999, the J.D. Power organization had extended its recognition of BMW excellence by ranking BMW Financial Services above

all other financial institutions, both independent and captive, for initial customer satisfaction with automotive leases. This was on the basis of consumer experiences in the setup and billing processes as well as perceived value.

In November 1999, the **Industrial Designers Society of America** named the best Designs of the Decade – not just automotive designs, but from a variety of fields. Choosing from 189 entries, the jury honored 12 designs with IDSA's top honor, the Gold Award; the 3 Series received the Gold Award in the transportation category. "Classic and elegantly sporty," said IDSA jurist Dr. Lorraine Justice of the Georgia Institute of Technology.

Another professionally oriented authority bestowed a dramatic honor on BMW in its most recent round of awards: *Automotive Engineering International* named the new 7 Series the Best Engineered Vehicle for 2002 in its March '02 issue.

And as if all this weren't enough: In June 1999 the International Brain Injury Association presented BMW with its **Safe Car of the Millennium** award for the Head Protection System (HPS) that is now standard in all 7, 5 and closed-body 3 Series models. "As motor-vehicle crashes are the leading cause of brain injury worldwide," explained the Association's President, "BMW is to be applauded for their achievement in making automobiles safer." BMW now offers Head Protection for rear-seat passengers as well: it is newly standard in the 7 Series and in 5 Series Sedans (including the M5).

**Strategic Vision**, a San Diego-based consumer-research firm, accorded BMW a quadruple honor just as this issue of *Fast*

*Facts* was being completed. Strategic Vision's Total Delight Awards – the first automotive awards measuring the emotional bond between owners and their cars – put an official stamp on what we've known for a long time: people who love to drive love to drive BMWs. The awards are:

- Near Luxury Car, 1st place – 3 Series
- Luxury Car, 2nd place – 5 Series
- Luxury Car, 1st place – 7 Series
- Luxury SUV, 1st place – X5 Series.

Other recent awards include:

- *Automobile Magazine*, January '03, Design of the Year, BMW Z4.
- *Car and Driver*, October '02, comparison-test victory over five key competitors, BMW 330i Sedan.
- *AutoWeek*, July 1, 2002, America's Best Sports Sedan, BMW M5: "The M5 remains the benchmark for sports sedans, adding a sharp high-performance edge to the already splendid 540i." Also America's Best Sedan, BMW 3 Series.
- *Fortune Small Business*, February 2003, Sports Roadster, from "My eight favorite autos for 2003" by Alex Taylor III: "It might be hard to justify spending this kind of money on a sports car these days, but the Z4 will be the one to own in 2003."

One could go on and on, but **Fast Facts** must be kept compact enough to fit in one of your pockets. For further Series-specific awards and for quotes from road tests of the various BMW models, please see the individual Series sections of this edition.

## BMW features

The following key features appear in more than one BMW Series:

### Performance & efficiency

#### Aluminum cylinder block and head(s)

(Aluminum head/heads all models; aluminum block all except M3 models)

The engines of all BMW models except those named above have an aluminum cylinder block and cylinder head or heads. (6-cylinder engines have one cylinder head, V-type engines two.)

Compared to traditional cast iron, aluminum saves weight, enhancing vehicle performance and handling. Block construction is as follows:

- 6-cylinder engines of 3, Z4 and 5 Series – aluminum block with cast-iron cylinder liners.
- V-8 engines of M5, 5 and 7 Series – aluminum block with integral silicon-impregnated aluminum cylinders (not liners). In the M5 and 5 Series block, just enough aluminum is chemically etched away to leave silicon crystals as the cylinders' working surfaces; in the 7 Series engine, a "soft honing" machine removes aluminum for the same purpose.

Both construction types achieve excellent engine life; the type with silicon-impregnated cylinders is somewhat more costly and saves more weight, making it especially appropriate for the high-end V-8 engines.

#### Dual overhead camshafts (DOHC) and four valves per cylinder

(all models)

All current BMW engines have DOHC and four valves per cylinder, one of the most efficient valve mechanisms in use today. This means two camshafts in the 6-cylinder engines, four in the V-8s.

### Chain camshaft drive

(all models)

The camshafts of some competitors' engines (notably most Acura, Audi, Lexus and Volvo models) are driven by a toothed belt, which requires periodic replacement. All current BMW engines have chain drive, automatically maintained at the correct tension and engineered to last the life of the car.

### VANOS variable valve timing

(all models)  
All current BMW engines employ VANOS, a system of variable valve timing. VANOS derives from **V**ARIABLE **N**Ockenwellen **S**teuerung, German for "variable camshaft control" or variable valve timing.

By varying valve timing according to operating conditions, VANOS enhances low- to medium-speed torque and emission control, and may have a positive effect on fuel economy. Valve timing is varied "steplessly" between the system's "earliest" and "latest" settings rather than having simply low- and high-speed settings. Hydraulically actuated, the VANOS system is electronically controlled in response to engine speed, load and temperature.

VANOS is applied to the various engines as follows:

- Intake camshafts – 4.4-liter V-8 of 5 Series models.
- Intake and exhaust camshaft(s) – All other current engines.

Systems operating on the intake camshafts only are termed Single VANOS; those operating on the intake and exhaust camshafts are called Double VANOS. On the M engines, VANOS has its own high-pressure oil pump rather than operating on pressure from

the engine oil pump; these M systems are referred to as High-Pressure Double VANOS.

The 7 Series' N62 V-8 engine adds Valvetronic, which varies the intake valves' lift to regulate engine output, replacing the conventional throttle. For details on this revolutionary system, see the 7 Series section of this handbook.

### **Hydraulic valve adjustment (all except M3 models)**

This maintains zero clearance between the valves and their actuating mechanism, virtually eliminating valve noise and making periodic adjustment unnecessary.

Two systems of hydraulic valve adjustment are used in current BMW engines. The regular-production 6-cylinder and all V-8 engines except that of the 7 Series have bucket-type hydraulic valve lifters between the camshaft lobes and valves, with no rocker arms. In the 7 Series V-8, there are rocker arms, and the hydraulic elements are not "lifters," but rather stationary adjusters that position the rocker arms' pivots to maintain zero valve clearance.

In the M3s' S54 6-cylinder engine, low-mass finger-type rocker arms and mechanical valve adjustment are employed and do require periodic inspection; see **BMW M S54 3.2-liter DOHC 24-valve 6-cylinder engine**, page 254, for details.

### **Electronic throttle system ("drive-by-wire") (all models)**

Having superseded mechanical throttle linkage, this system allows precise tuning of throttle action to driving conditions. Influences on the throttle other than the driver's foot, such as cruise control, traction control,

stability enhancement and Hill Descent Control, are integrated into the engine-management system and applied directly to the electronic throttle system, reducing complication. M engines have electronically controlled individual throttles, one for each cylinder; see the description of the M3 engine on page 254 for details.

### **Direct ignition system (all models)**

Instead of a single coil, each cylinder has its own ignition coil. This reduces the number of moving parts, and allows more precise control of ignition timing for the individual cylinders. The BMW M 6-cylinder engine uses ultra-thin "pencil" coils of a type originally developed for BMW racing engines. (See also **knock control**.)

### **DME engine management (Digital Motor Electronics) (all models)**

This digital microprocessor system continuously monitors a wide variety of operational data, calculates the ideal fuel metering and ignition timing, and adjusts them several hundred times per second.

Signals from the Lambda oxygen sensors (in the exhaust system) are processed by the DME computer with adaptive logic. The engine's idle speed is also controlled adaptively to compensate for engine break-in and wear. You could call this the ability to "learn."

### **Electronically controlled engine cooling (all except M models)**

Also referred to as "map cooling." Controls the engine thermostat in response to a complex matrix of operating data – coolant and outside temperature, engine load

## BMW features

The following key features appear in more than one BMW Series:

and driving speed – rather than just coolant temperature. This allows operating the engine at higher temperatures under light-load conditions, which can increase fuel economy and benefit heater effectiveness.

### Knock control

(all models)

Knock sensors in the engine block detect any incipient knocking in the cylinders, then signal the DME system to retard ignition timing at the affected cylinder(s) only until the knocking ceases. Thus timing can always be optimum unless knocking actually begins to occur. Knock control allows a higher compression ratio to be used (all current BMW engines have a ratio of 10.0:1 or higher), further improving performance and efficiency.

### Hydraulic engine mounts

(all models)

These employ oil as well as rubber to reduce engine vibration felt inside the car – an especially important point in highly refined BMWs.

### Low-restriction exhaust system

(all models)

All BMW exhaust systems are designed for relatively free, efficient flow of exhaust gases to enhance performance. All current engines have a partial or full dual system. To facilitate their engines' very high power outputs, M models' exhaust systems are especially voluminous and free-flowing.

### Underhood beauty

(all models)

All BMW engines and engine compartments are designed to be not only logical and straightforward to service, but to look attractive. Be sure to show every prospect BMW's distinctive engine and engine-compartment design.

### M54 2.5-liter DOHC 24-valve inline 6-cylinder engine

(all 325 models, Z4 Roadster 2.5i & 525i models)

As the smaller of the two M54 inline 6-cylinder engines, this 2.5-liter unit provides these more affordably positioned models with smooth, willing and esthetically pleasing performance. Highlights of this engine family include:

- **Dual resonance intake system**, with additional turbulence passages for very low throttle openings. The two basic intake-path lengths (one for lower speeds and loads, the other for higher speeds and loads) are optimized for excellent performance in all speed ranges.
- **Double VANOS variable valve timing**. Intake timing is varied by 40°, exhaust by 25° in terms of crankshaft rotation to enhance the engine's torque, fuel efficiency and emission control.
- **Aluminum block and cylinder head**, for an excellent power-to-weight ratio.

The 2.5-liter engine delivers 184 hp @ 6000 rpm. Torque output is 175 lb-ft. @ 3500. As BMW's "entry" engine, the M54 2.5 makes it clear that every current BMW is powered by a high-caliber engine of at least six cylinders. For performance data specific to the various models it powers, see the appropriate Series section of this handbook.

### M54 3.0-liter DOHC 24-valve inline 6-cylinder engine

(all 330 models, Z4 3.0i & 530i)

Though sharing the 2.5-liter engine's basic engineering features, this engine, by virtue of its larger displacement, delivers 22.3% more power and torque, lending the top 6-cylinder models

a thrilling edge in performance. It produces 225 hp @ 5900 rpm and 214 lb.-ft. of torque at 3500 rpm in all models where it is used, except for the 330i Sedan with Performance Package. In that unique form, it develops 235 hp and 222 lb.-ft. of torque, both at the same peaking speeds as for the standard engine. (See page 171 for details on how this increased output is achieved.) Whatever the model it powers, it always delivers outstanding and enjoyable performance.

All models powered by this engine are certified as a ULEV (Ultra-Low Emissions Vehicle).

### **BMW manual transmissions** (19 of 24 models)

Of 24 automobile models currently offered by BMW in the U.S., fully 19 are offered with a manual transmission. Of these, 10 come with a 5-speed, nine with a 6-speed. Each BMW manual transmission is engineered to provide what buyers want when they choose a manual transmission: precise control and a high level of driving pleasure. With the 6-cylinder engines of 3, Z4 and 5 Series models, two 5-speed transmission models are used: Getrag B for rear-drive 2.5-liter models, heavier-duty ZF Type C for all-wheel-drive 2.5 models and the 530i. Two types of 6-speed manual are also used: Type D in the M models, Type H in the 330s and Z4s.

### **BMW automatic transmissions** (21 of 24 models)

All current BMW automatic transmissions include at least the following features:

- Five forward speeds
- Full electronic control
- Adaptive Transmission Control, which automatically selects shift modes according to

driving style and operating conditions (during normal automatic operation only)

- A choice of driver-selected shift modes, as described below.

Specific features are as follows:

- **3 Series, Z4 Series, 525i and 530i models, 540i Sedan with Sport Package, 540i Sport Wagon.** 5-speed STEPTRONIC. The primary shift quadrant or "gate" offers Park, Reverse, Neutral and Drive positions. A second gate, to its left, is labeled M/S for Manual/Sport and joins the primary gate at the Drive position. Moving the lever from Drive into this gate activates the Sport mode, which causes shifts to occur at higher speeds for a livelier performance feel. From this position, the driver can make upshifts and downshifts by "flicking" the lever rearward or forward; this is reversed from previous years, and consistent with the Sequential Manual Gearbox of M3s and Z4s.
- **540i Sedan without Sport Package.** A single shift gate includes Park, Reverse, Drive, 4, 3 and 2 positions. 4, 3 and 2 give automatic shifting from 1st through 4th, 3rd and 2nd gears respectively. Selecting 4 or 3 engages the Sport mode.
- **7 Series.** STEPTRONIC 6-speed transmission with electric selectors and other advanced features. See the 7 Series section for details.

For further details, see the **performance & efficiency** section for each Series.

### **Sequential Manual Gearbox (SMG)** (Z4 & M3 Series)

This new type of transmission, which applies electrohydraulic shifting and electronic controls to

## BMW features

The following key features appear in more than one BMW Series:

a 6-speed manual transmission, offers sport-oriented drivers a choice of manual control or automated shifting. As the two Series offer distinctly different SMG versions, these are described in the M3 and Z4 sections.

### Handling, ride & braking

#### Ultra-rigid chassis-body structure

(all models)

Solidity and minimum squeaks and rattles are obvious benefits; this also provides a “stable platform” for the suspension and brake systems, helping them work precisely as they were designed to do.

**Dynamic rigidity.** To achieve excellent structural dynamics – a critical factor for riding comfort – BMW body engineers carefully tune the structure’s natural frequencies<sup>1</sup> to be different in torsion and bending, and to be relatively high. These high frequencies are an important factor in achieving BMW bodies’ typically great resistance to vibration; the different frequencies for torsion and bending help ensure that the structure never takes on “a life of its own” when subjected to vibration influences, such as sharp bumps or “wash-board” road surfaces.

**Static rigidity,** critical to a feeling of solidity and precise operation of the suspension system, is always high in a BMW. Taken together, dynamic and static rigidity plus the difference in torsion and bending frequencies are essential elements of the truly remarkable level of riding comfort and handling precision every BMW offers. Two quotes from published road tests support this point:

- *Motor Trend*, September '01: “The BMW [540i] just begs to be driven, athletically responds to the driver’s every command, and clearly communicates what it’s doing and what the road is all about... We figured this much cornering prowess would return a punishing ride, but not so. In fact, the 540i’s overall ride quality is our favorite of the bunch: firm and controlled, yet somehow comfortably supple without ever being mushy.” (From a comparison test with key competitors.)
- *Automobile Magazine*, January '01: “The chassis wizards in Munich have not only imbued the 3 Series with an athlete’s reflexes but also managed to provide a supple ride.”

The body structure also enhances passive safety; for information on its safety qualities, see **safety & security**, page 37.

#### Rear-wheel drive

(all except all-wheel-drive models)

BMW has not followed the widespread trend to front-wheel drive. Although front-wheel drive can yield more space for passengers and luggage, we believe our customers prefer the handling benefits of rear-wheel drive in BMW passenger-car applications.

Among upscale automobiles, a rear-wheel-drive revival is setting in. Two years ago, Lincoln introduced its LS series, which attempted to bring European qualities to an American luxury sedan; Cadillac, whose automobiles have all had front-wheel drive for a long time, is offering rear-wheel-drive cars again and plans to add more in the future. Infiniti’s new G35 and M45 and Lexus’ IS 300 have rear-wheel

drive as these makes attempt to compete with the 3 Series. Dare we say, “We told you so”?

BMW now offers all-wheel drive on three 3 Series models, and all X5 models have essentially the same system. BMW’s AWD system provides additional traction that is of significant benefit under slippery road conditions, and is engineered to preserve the same basic handling characteristics as rear-wheel drive. For details, see pages 158-159.

### **Optimum weight distribution (all models)**

All current BMW models have their front wheels relatively far forward and their engine as far rearward as practical. BMW even positions the battery – a heavy component – at the rear of the vehicle (and low, to help keep the center of gravity low). This gives excellent weight distribution – closer to the ideal 50% front/50% rear than most cars. In fact, on no current model does the weight bias at one end of the car depart more than 3.3% from this ideal. For actual weight distribution of each model, see the Specifications for the various Series.

### **Subframe construction (all models)**

All current BMW front and rear suspension systems are carried primarily on subframes, which help isolate vibration and road noise from the body structure by virtue of precisely tuned rubber mounts or bushings. See also **acoustic decoupling**, below.

### **Acoustic decoupling (all models)**

Reduces unwanted vibration and noise. In the multi-link rear suspension systems of the 3, 5, 7 and Z4 Series (and M derivatives of the 3 and 5 Series), the sus-

pension subframe is mounted to the main structure with rubber mounts; the differential is then mounted to this subframe with further rubber mounts. (In the 3 and Z4 Series, a hydraulic mount is used here.) By thus acoustically decoupling the differential from the main structure, transfer of gear noise from the differential into the car’s structure (and hence its interior) is effectively minimized.

### **Unique 4-wheel independent suspension system (all models)**

Every BMW model has fully independent suspension at all four wheels. Each wheel reacts independently to bumps; if the left rear wheel hits a bump or hole while cornering, the right one stays in contact with the road and stability is retained. With a “live” or “beam” rear axle – as still found in many trucks – when one side hits a bump, the other side is directly affected.

Each BMW suspension system is unique, tailored specifically by BMW’s talented engineers to the model in which it’s installed. No other manufacturer offers Integral Link rear suspension (5 and 7 Series, M5, Z8) or Central Link rear suspension (3 and Z4 Series, M3). See the Series sections for descriptions of these systems.

### **Twin-tube gas-pressure shock absorbers (all models)**

Instead of air, an inert gas under pressure fills space inside the shock absorber not occupied by the working fluid. This prevents foaming, which can occur with

1 – A natural frequency is that frequency at which any object tends to vibrate of its own accord once set into motion by some disturbance or input.

## BMW features

The following key features appear in more than one BMW Series:

conventional shock absorbers in fast driving on rough roads.

The twin-tube feature means two separate sets of valves, which provide relatively soft control of gentle undulations but firmer control when the car encounters more serious bumps. You can feel this in the remarkable compliance of BMW suspension over small, sharp bumps, yet its equally remarkable firmness when you're driving hard. It's almost like two suspension systems in one.

### M sport suspension

At least one model of all BMW Series<sup>2</sup> is available with M sport suspension, which in every application enhances handling at some minimal loss in riding comfort. The "M" stands for BMW M, the competition and high-performance division of BMW, whose philosophy of chassis tuning is applied to every sport suspension system. Essential elements of every optional M sport suspension system (except that for Z4 models) include:

- Lowered ride height
- Firmer springs and shock absorbers
- Differently sized anti-roll (stabilizer) bars (usually larger and firmer than the standard ones).

The Z4's sport suspension includes only the lowered ride height.

For details on the M sport suspension systems of individual models, see the **handling, ride & braking** or **options & accessories** section of the appropriate Series.

### Variable-assist power steering

Every BMW power-steering system gives the driver natural road feel. However, there are differences in the way this assist varies to reduce steering effort further at low speeds:

- **3, 5 and M3 Series, BMW ALPINA ROADSTER V8** – Assist is increased at very low engine speeds (below 1500 rpm); this means greater assist for parking and low-speed maneuvering without any modification of assist at most driving speeds.
- **Z4 and 7 Series, M5** – Via electronic control, assist varies according to vehicle speed: greatest at low speeds, least at high speeds. This vehicle-speed-sensitive system allows a greater increase in power assist for parking and low-speed maneuvers than the engine-speed-sensitive system. In the Z4, steering assist is provided electrically instead of hydraulically; see page 222 for details on this new system.

Whichever system is used, BMW steering is virtually universally praised for its outstanding precision and road feel.

### Dynamic Driving Control

Previously offered only on M Cars, this sport-oriented feature is now available on the Z4 Series as well. Via electronic controls and a Sport button, it offers drivers a choice in driving dynamics as follows:

**M5 and Z4** – 2 levels of throttle action (Normal and quicker Sport) and 2 levels of power-steering assist. The latter is possible in these models because of their electronically controlled, vehicle-speed-sensitive power steering. With the Z4's available Sequential Manual Gearbox or automatic transmission, the button also activates a Sport transmission mode.

**M3** – 2 levels of throttle action (Normal and quicker Sport).

#### 4-wheel disc brakes

BMW brakes are generously dimensioned compared to those of most competitors. To enhance fade resistance, the front discs (rotors) of all models are ventilated. All 3, 5 and 7 Series models, M Cars, the Z4 3.0i and the Z8 have ventilated rear discs as well.

As part of the Dynamic Stability Control system, all current BMW models have antilock braking (ABS) and Dynamic Brake Control (DBC); for explanations of these functions, see **Dynamic Stability Control**, next.

#### Dynamic Stability Control (all models)

Since the 2001 model year, all BMW models have been standard-equipped with Dynamic Stability Control. DSC encompasses the functions of traction control, braking enhancements and cornering stabilization, as follows:

**All-speed traction control** (all models). Controls engine power and the brakes to limit wheelspin and thereby improve the driver's control of the vehicle under conditions where a wheel or wheels might spin, primarily on slippery roads. The DSC system continually processes data from the wheel-speed sensors. Anytime a drive wheel begins to lose traction (rear wheels on most models, any wheel on all-wheel-drive models), the system senses this and acts on the engine's electronic throttle(s) and ignition timing to reduce engine torque. It also acts on each brake individually as necessary to help bring wheelspin under control, enhancing driving stability on slippery surfaces (or even on dry roads under extreme acceleration or cornering).

BMW's traction control is an **all-speed** system. Engine intervention is possible at any speed. Below 25 mph, the brakes are also applied selectively and separately as necessary to optimize traction very quickly. Above 50 mph, traction control operates entirely through engine intervention.

**Dynamic Traction Control (DTC)** (3 Series rear-wheel-drive models, 7 and Z4 Series). It has always been possible to de-activate Dynamic Stability Control functions (except antilock braking) via a console switch. In the current 3, 7 and Z4 Series, a capability called Dynamic Traction Control is also incorporated.

DTC improves utilization of available road traction under specific conditions –

- on sand, gravel, deep snow or packed snow
- climbing hills with deep or packed snow
- when there is deep snow on only one side of the road
- when driving with tire chains.

In the 7 Series, via the iDrive configuration menu the driver may either fully de-activate DSC (except ABS) or activate the DTC mode. With DTC selected, engine intervention is de-activated at low speeds, leaving only the individual wheel brakes to control wheelspin. When the vehicle reaches a speed of approximately 43 mph, normal DSC operation is re-instated until speed once again drops below this threshold, at which point DTC operation resumes. In the 3 and Z4 Series, DTC is selected via a brief push

2 – M Cars and the BMW ALPINA ROADSTER V8 come standard with such a calibration. The 3 Series "xi" models (AWD) do not offer sport suspension.

## BMW features

The following key features appear in more than one BMW Series:

on the DSC console switch; full de-activation of DSC requires a longer (2 sec.) push on the switch; even then, however, ABS remains functional.

**Electronic brake proportioning** (3, 5, 7 and Z4 Series, M3 and M5). Anytime the brakes are applied, a vehicle's front end becomes more heavily loaded; the rear "gets lighter." To deal with this, vehicles generally have devices that adjust the front-to-rear proportioning of braking force according to braking severity. Via the wheel-speed sensors, EBP actually measures the amount of slip at each wheel when the brakes are applied<sup>3</sup>, and regulates pressure accordingly to the front and rear brakes. Braking force is thus apportioned optimally at all times, making best use of the available braking traction at the tires and helping distribute brake and tire wear more evenly.

**Antilock braking (ABS)** (all models). During braking, anytime a wheel begins to lock up (slide), DSC releases and re-applies (cycles) the individual wheel brakes to prevent this from occurring. As only a rotating tire can deliver effective braking power to the road, the antilock function helps the driver achieve quick, controllable deceleration or stopping when necessary, helping avoid skidding.

**Dynamic Brake Control** (all models). Reinforces the driver's brake-pedal effort in emergency braking. The system recognizes when the driver has made a "panic" brake application, and increases the level of assistance. By forcing the ABS to function optimally, this helps ensure that the most effective braking is achieved.

**Cornering stabilization** (all models). For this most sophisticated DSC function, the following inputs are employed:

- The wheel-speed sensors
- A steering-angle sensor (measures turning of the steering)
- A lateral-acceleration sensor (measures how "hard" the vehicle is cornering)
- A yaw sensor (measures the vehicle's rotation around its vertical axis)
- A brake-pressure sensor (informs the system of any application of the brakes by the driver).

Together, these sensors precisely measure the vehicle's cornering motion. With their inputs feeding into the powerful DSC micro-processor, the system detects any deviation from the normal cornering path (abnormal understeer or oversteer) and gently applies individual wheel brakes to help the driver keep the vehicle on the intended path. (DSC is able to act selectively on the front and rear brakes at either side of the car to accomplish this.) Thus in these critical situations, when the driver may be attempting a maneuver beyond the normal control range of the vehicle, he or she is more likely to retain control and avoid an accident.

Although it obviously affects the vehicle's handling, this function should be considered primarily a safety feature; in other words, it should not be interpreted as a feature that allows faster cornering or more abrupt maneuvers.

**Hill Descent Control** (all-wheel-drive models only). Helps the driver maintain speed and stability on steep downhill runs. The driver needs only to press a dedicated

button on the console; HDC then takes over, gently applying the brakes as necessary to keep the speed to a brisk walking pace.

### **Alloy wheels** (all models)

BMW alloy wheels are strong, weight-efficient and tastefully styled for each model. In every case, the wheels are sized generously: Diameters (at least 16-in. on every model, 17-in. and 18-in. on some models; 19-in. standard on 760Li, optional on 745i/Li and M3) are large enough to provide plenty of space around the brakes for air cooling, and widths provide a solid “footprint” for excellent cornering and braking.

### **Speed-rated wide radial tires** (all models)

Every BMW model is equipped with premium steel-belted road tires. Speed ratings vary according to model, ranging from standard H-rated equipment on some 3 and 5 Series models to the W- and Z-rated tires of BMW's sportiest models and Packages.

The rated speed is the highest sustained speed the tire is designed for, and is designated by a letter: T=118 mph, H=130 mph, V=149 mph, W = 167 mph, Z = over 149 mph (open-ended; dependent upon vehicle application).

### **Flat Tire Monitor** (standard Z4 Series, BMW ALPINA ROADSTER V8 & M Cars; optional 7 Series)

Whenever tire pressure drops by 30% or more, the tire's rolling radius changes significantly and the wheel rotates at a different speed from the other tires. Via DSC's wheel-speed sensors, the Flat Tire Monitor recognizes any such major deviation. Within a short time of 1-3 minutes, this

system triggers a pressure-loss indication in the instrument cluster, plus an audible warning.

### **Tire Pressure Monitor** (optional 3 Series 330 models)

The Tire Pressure Monitor improves on the function of the Flat Tire Monitor by actually measuring each tire's pressure. A tiny sensor/radio-frequency transmitter at the inboard end of each tire's valve stem continually monitors tire pressure; should there be significant loss of pressure in any tire, TPM triggers a pressure-loss signal via an indication in the instrument cluster. Also recognizes and indicates normal loss of pressure in all tires over longer periods of time, which the Flat Tire Monitor does not do.

The Tire Pressure Monitor is included with the optional run-flat wheel-tire system (below) on all 3 Series 330 models.

### **Run-flat wheel-tire system** (standard Z4 Series, optional 3 Series 330 models & 7 Series)

BMW's run-flat wheel-tire system is an important step forward in safety, convenience and space utilization. The system consists of self-supporting tires, special wheel rims, and –

- on the Z4, 7 Series and BMW ALPINA ROADSTER V8, the Flat Tire Monitor (at left)
- on the 3 Series 330 models, the Tire Pressure Monitor (above).

The self-supporting tires are distinguished primarily by their special sidewalls, which include specific inserts and highly heat-resistant rubber compounds.

3 – Tires always slip as they transmit acceleration, braking or cornering force; this is not skidding, which is an extreme form of slip.

## BMW features

The following key features appear in more than one BMW Series:

These features allow a deflated tire to maintain its essential shape and guidance characteristics for a considerable distance, so that when confronted with a flat the driver can continue on at reduced speed until reaching a place to have the tire repaired or replaced.

While maintaining essentially the handling and safety standards expected of performance tires, the run-flat system offers the following advantages:

**No roadside tire changes.** The driver does not have to stop and change a damaged tire. Even with no air in the tire – a condition revealed to the driver by the Flat Tire Monitor or Tire Pressure Monitor – one can continue driving at 50 mph for up to about 90 miles.

**Tire stays on rim,** thanks to specially developed Extended Hump wheel rims.

**Stability systems remain functional.** All Dynamic Stability Control functions remain fully functional, even with a deflated tire.

**Increased trunk space.** A spare wheel and tire take up considerable space. With the run-flat system, no spare is needed, so this space is available for a larger trunk. In the Z4, where the system is standard, the trunk is configured to take advantage of this.

**Weight savings.** The weight of a spare tire is eliminated.

### Exterior & aerodynamics

#### The BMW look

Every BMW is designed to communicate an identifiable, consistent “BMW look” – have you ever met anyone who cares about cars who couldn’t recognize a BMW? And each BMW is designed with restraint, good

taste and an avoidance of fads or fashions that could outdate it quickly.

At the same time, a BMW’s basic shape is largely determined by its engineering. For example, when BMW decided over a decade ago to have front-to-rear weight distribution as close as possible to 50% front/50% rear (for ideal handling), this dictated a distinctive look, with a long hood and the front wheels set well forward. In fact, this look is also closely related to BMW’s choice of rear-wheel drive. (Compare, for instance, the short front overhang of BMWs vs. the long front overhang of most front-wheel-drive vehicles.)

Specific elements of the BMW look include:

- **Traditional “kidneys” grille,** consisting of dual grille openings with vertical slats. Over the years these have evolved from tall ovals into low, wide, essentially rectangular shapes; yet the lineage to BMWs all the way back to the Thirties is clear. Only one current model departs from this element: the BMW ALPINA ROADSTER V8, with horizontal-format dual grilles that relate to the classic Fifties BMW 507.
- **BMW logo,** with blue-and-white color scheme (from the Bavarian flag) and rotating-propeller motif (from BMW’s early history as a maker of aircraft engines).
- **Four headlights.** Became a BMW tradition in the Seventies. Today, the headlights are behind glass covers on all models except the BMW ALPINA ROADSTER V8, where the high beams are mounted in the grille.

- **Large glass areas**, as both a functional (for good outward vision) and design element<sup>4</sup>.
- **“Reverse kink”** in the rear side-window shape of closed-body models<sup>4</sup>.
- **A dynamic feeling** to the overall design that visually communicates BMW’s dynamic performance.
- **Restrained use of trim**, always within bounds of good taste. This is especially evident in the 7 and Z4 Series.
- **Timelessness**. Fads and fashions are avoided, so that a BMW looks good for many years to come. Indeed, if BMW has any connection to fads and fashions at all, it is that BMW sets trends, not follows them.

#### **Integrated front spoiler** (all models)

Reduces the amount of air flowing underneath the car, and hence reduces front-end lift at speed. BMW designs openings in the spoiler to direct air efficiently to the radiator, engine compartment and front brakes. Foglights (standard on most models) are integrated into the spoiler for clean appearance. Sportier models and Center-installed BMW aerodynamic kits feature deeper, more aggressive-looking front spoilers, usually with large air intakes.

#### **Low aerodynamic drag** (all closed-body models)

Each closed-body BMW model has been engineered for a low coefficient of aerodynamic drag ( $C_D$ ). Air thus flows smoothly and efficiently over the body, so the engine has relatively little aerodynamic drag to overcome. Less turbulence in the airflow also means less wind noise heard inside the car.

Even BMW’s open-bodied cars show excellent progress in aerodynamics: The 3 Series Convertibles and Z4 Roadsters both have a  $C_D$  of just 0.35.

#### **Low aerodynamic lift** (all models)

BMW devotes just as much attention to this less widely recognized aspect of aerodynamics. BMW bodies manage airflow to minimize its lifting effect on the body, so a BMW “hugs the road” at higher speeds for excellent stability.

#### **Xenon headlights with auto-leveling**

(Bi-xenon optional 3 & Z4 Series & M3, standard 7 Series; Xenon low-beam lights optional 525i & 530i models, standard 540i models; standard M5 & BMW ALPINA ROADSTER V8)

Compared to conventional halogen headlights, Xenon lamps produce even brighter, more daylight-like illumination. For its Xenon lights, BMW employs ellipsoid or “projector-type” lamps that are small in diameter, and thus compact; other BMW headlights are of the Free Form type, with computer-generated reflector surfaces.

A different bulb concept is what creates the especially bright, white Xenon illumination. The bulb contains a mixture of Xenon gas and various metal halides (mercury, sodium and others) that vaporize under the heat of operation. Instead of the conventional glowing filament, an arc of light between two electrodes produces the light. Some manufacturers call this type of headlight “High Intensity Discharge” or HID.

<sup>4</sup> – Roadster models necessarily depart from the tradition of large glass areas; all open-bodied models (also necessarily) depart from the “reverse kink” theme.

## BMW features

The following key features appear in more than one BMW Series:

Because of their more intense illumination, it is crucial that Xenon lamps be aimed correctly to avoid undue glare to oncoming motorists. For this purpose, BMW employs two types of auto-leveling:

- **3 Series, Z4, M3** – static auto-leveling. After the engine is started and with the headlights on, the headlights are leveled automatically every 25 seconds. Thus passengers, trunk loading and constantly changing fuel quantity are always compensated for in the headlight aiming.
- **5 and 7 Series, M5, BMW ALPINA ROADSTER V8** – dynamic auto-leveling. Within milliseconds, the headlights are leveled in response to any change in vehicle attitude, whether static or dynamic; thus even transitory acceleration and braking are compensated for.

**Automatic headlight control**  
(optional 2003 3 Series, Z4 Series, 525i & 530i models; standard 540i models, M3, M5, 7 Series & 2004 3 Series)

This feature is included in all vehicles with rain-sensing windshield wipers; thus it is included with the Premium Package of 3 Series (2003) and 525i models and the Convenience Package of Z4 models; it is standard on 540i models, M3, M5, 7 Series and 2004 3 Series. Automatically switches on the headlights and all related lighting when ambient light drops below a certain level.

**Park Distance Control**  
(optional 3,5 & 7 Series, M3 & M5)  
Park Distance Control helps drivers avoid colliding with unseen obstructions. On current BMW automobile models, it comes in two forms:

- 3 Series, M3 – rear only
- 5 and 7 Series, M5 – front and rear.

The system employs four ultrasonic sensors in the front (5 and 7 Series, M5) and four in the rear bumper to warn the driver when the vehicle is approaching objects or obstructions that may not be visible to the driver. All forward sensors and the rear corner sensors trigger a warning beep at approximately 2 ft. distance to the object. The beeping becomes faster as the bumper approaches the object, turning into a constant tone when the distance closes to less than 1 ft. The center sensors in the rear bumper first trigger beeping at about 5 ft.; when the distance is less than 1 ft. the beep becomes a constant tone. The front sensors cause a higher-pitched tone; those at the rear trigger a lower-pitched tone. (The tones emanate from the appropriate end of the interior.) PDC activates anytime the ignition is on and reverse gear is engaged, or it can be activated manually by pressing the console switch.

The system automatically deactivates when the car is driven approximately 50 m (164 ft.) or reaches a speed of about 18 mph, or can be de-activated with the switch.

**Automatic tilt-down of right exterior mirror**

(3, M3 & Z4 Series with power seats; all 5 & 7 Series, M5)  
This small but much-appreciated feature is standard on the 325Ci Convertible and all 330 models, all 5 and 7 Series models and the M5; and included with optional power seats in closed-body 325 models, the Z4 Series and the M3 Coupe. When reverse gear is

engaged the right-side mirror tilts down for a view of the curb or other obstacles not normally visible to the driver. Placing the power-mirror selector switch in its right-mirror position de-activates this feature.

## Ergonomics & luxury

### Heated outside mirrors and windshield-washer jets

(optional Z4 2.5i, otherwise standard)

When the outside temperature drops below a specific level, the mirrors and windshield-washer jets are automatically heated if the ignition switch is on (position 2). On the Z4 2.5i, these features are available with the stand-alone foglights option and included in the Sport Package; on all other models they are standard.

### Vehicle & Key Memory

(3, 5, 7 & Z4 Series, M3 & M5)

The capabilities of microprocessor control enable BMW to offer users some appealing choices. Although these choices stem from the same electronic system, BMW has divided them into two categories: functions that react the same to all remote controls; and those that are influenced by individual remote controls. (Two remote controls are provided with the vehicle; Key Memory can accommodate up to four remotes.)

The system actually provides many more possibilities than outlined here; BMW believes these are the important ones for most customers. Those who desire more detailed information may obtain it from their BMW Center. An asterisk (\*) indicates the choice selected by BMW at the factory.

### Identical function for all remotes (Vehicle Memory):

- Audible confirmation (siren chirp) when the alarm is armed; can be activated or de-activated\*. Visual confirmation (via signal lights) is always active.
- Daytime running lamps. On or off\*.
- Pathway Lighting. Allows use of headlight flasher switch to turn on headlights and interior lights for 40 seconds, or not\*.
- Automatic locking of central locking system once vehicle is in motion (locks at 10 mph, or does not lock\*).
- Selective unlocking. Unlocks only driver's door on first actuation\* of "unlock" button on remote, then other doors, trunk or tailgate and fuel door upon second actuation; or unlocks all doors and trunk or tailgate at once.

### Controls functions according to which remote (i.e. which user) is involved (Key Memory):

- Automatic climate control<sup>5</sup>. Sets temperatures to key user's last setting when vehicle is unlocked by that user's remote. Always active.
- Radio-station presets (3 and Z4 Series only); presets return to those last set by key user\*.
- Seat/mirror/steering-wheel memory. Sets driver's seat (Z4 Series) plus outside mirrors (3 Series and M3 with power seats) plus steering wheel (5 and 7 Series, M5) to last setting of particular user when the vehicle is unlocked by that user's remote, or does not\* set them.

A Customer Selection Form is available for customers to indicate their specific and detailed preferences, including further choices not described here.

5 – Optional Z4 Series, otherwise standard.

## BMW features

The following key features appear in more than one BMW Series:

Programming of the system will then be performed by the BMW Center's service department.

### Keyless entry with multi-function remote control (all models)

Locking, unlocking and alarm functions are controlled by a multi-function remote integrated with the keyhead. Functions of the 3-button remote include:

- **Unlock vehicle/disarm alarm** – Press unlock button once to unlock driver's door and disarm alarm; press a second time to unlock the other door(s), trunk/tailgate and fuel-filler door.
- **Lock vehicle/arm alarm** – press lock button.
- **Release trunklid or tailgate** – press release button. If alarm system is armed, it will be disarmed while trunk is open, then re-armed as it is closed.
- **Panic function** – Press trunk/tailgate release button and hold until alarm sounds. To de-activate panic function, press unlock button.
- **"Car finder"** – With vehicle locked, press lock button. This switches on the interior lights and (7 Series only) exterior door illumination, which can help locate the car at night.
- **De-activate tilt sensor and motion detector** – With vehicle unlocked, press lock button twice. This arms the alarm, but with the tilt sensor and motion detector de-activated. Useful on ferries, for example.
- **Open windows and moonroof** – press and hold unlock button.

The remote's battery is charged by the vehicle electrical system anytime the key is in the ignition switch (7 Series: anytime the remote is in the switch), and thus does not have to be replaced

periodically. (If a particular remote is not used for a long period of time, the battery may discharge, however.)

The remote is standard on all models; the alarm is standard on all 5 and 7 Series models and the M5. The alarm system is available for Center installation on 3 Series, Z4 and M3 models.

### Automatic-dimming mirrors (interior, 3 & 5 Series, Z8, M3; interior & exterior, 7 & Z4 Series, M5)

Auto-dimming mirrors employ electrochromic action to reduce glare from the headlights of following vehicles. The reduction occurs progressively and almost imperceptibly; rearward vision is preserved, but potentially glaring lights appear in a soft, non-disturbing green tint. The system can adjust from its minimum 15% reduction of glare to its maximum 70% reduction in just 5 seconds. Auto-dimming mirrors are available as follows:

- 3 Series – interior, included in optional Premium Package of all models
- Z4 Series – interior and exterior, included in Convenience Package of both models
- 5 Series – interior; included in optional Premium Package of 530i, standard in 540i models
- M3, BMW ALPINA ROADSTER V8 – interior, standard
- M5, 7 Series – interior and exterior, standard.

### BMW Universal Transceiver (3, 5, 7 & Z4 Series, M3, M5)

According to Series, the BMW Universal Transceiver is positioned either in the roof above the windshield or in the interior rearview mirror's housing. As part of the Homelink® system, the Transceiver can control up to

three functions external to the vehicle, such as a garage-door opener or a home lighting system. Many refer to this feature as a “garage-door opener,” but it is much more than that.

### **Leather-covered tilt/telescopic multi-function steering wheel (3, 5 & 7 Series, M3, M5)**

This concept puts numerous frequently used controls within the driver’s fingertip reach. On the 3 and 5 Series version, up to 11 controls on the steering wheel provide fingertip operation of many functions:

Left side:

- Search up/down (2 buttons):
  - Radio stations
  - CD tracks
  - Cassette titles
  - Memory phone numbers<sup>6</sup>
- Audio or hands-free phone<sup>6</sup> volume (rocker switch, up/down)
- Radio/phone<sup>6</sup> selector
- Phone<sup>6</sup> (to begin or end a hands-free call)

Right side:

- Cruise control:
  - Set or accelerate
  - Set or decelerate
  - Resume
  - Cancel or on/off
- Air recirculation (not in 3 Series; not on any sport steering wheels)
- Heated steering wheel if present (replaces air-recirculation switch); not on sport wheels

The 7 Series steering wheel adds further functions; see page 65 for details.

Steering-wheel adjustments are as follows:

- 3 Series, M3 – manual tilt/telescopic (Z4 Series also has manual tilt/telescopic adjustment, but not multi-function controls)

- 5 Series, M5 – power tilt/telescopic with automatic tilt-up for entry/exit, memory
- 7 Series – power tilt/telescopic with automatic tilt-away, memory. (Tilt-up means the steering wheel moves to its uppermost position when the key is removed, then returns to the preset position when it is re-inserted. Tilt-away means that it moves to its uppermost and full-forward position.)

The BMW ALPINA ROADSTER V8 has a power telescopic wheel without multi-function controls or memory.

### **Ergonomic control center (all models; 7 Series and BMW ALPINA ROADSTER V8 concepts differ)**

A masterpiece of design and ergonomics. Immediately in front of the driver (except in the BMW ALPINA ROADSTER V8) is the main cluster, with the principal instruments (speedometer, tachometer, fuel and temperature) and the most urgent warning lights (ABS, brake fluid, check engine and others).

BMW’s “secondary” control and display zone is always above the center console. This zone includes less urgent displays and warnings (such as the Onboard Computer), climate-control system and audio system. Infrequently used controls, such as for hazard flashers, DSC de-activate, and automatic-transmission mode selector, are on the center console.

With its iDrive system, the 7 Series control center follows the same basic philosophy but differs significantly from the traditional BMW approach; please see the 7 Series section for details.

6 – If vehicle is equipped with BMW Cellular Phone System.

## BMW features

The following key features appear in more than one BMW Series:

### Electronic analog instruments

Every BMW main instrument cluster has large round analog dials for speedometer and tachometer. The fuel and coolant-temperature gauges are also here, and relatively large. This arrangement provides not only easy reading but a distinctive, BMW-only look. The instruments are electronically driven, with no mechanical cables or connections to wear out.

### Check Control

(all models)

Placement and the extent of monitored functions vary from model to model, but the purpose of this system is always to help the driver be aware of the operational readiness of important functions, such as the lighting system and fluid levels. See the appropriate Series section for details under either **Check Control** or **Multi Information Display**.

### On-board Computer

(optional 325i/xi & Z4 2.5i; standard 325Ci & 330 models, 5 & 7 Series, Z4 3.0i, M5)

Two versions are offered:

- “Basic” with 4 functions (3 & Z4 Series, 525i/530 standard). The functions are –
  - Outside-temperature display with acoustic freeze warning
  - Average fuel economy since last reset
  - Average speed since last reset
  - Expected range on remaining fuel.
- “Premium” with at least 8 functions; optional 525i/530i; standard 540i, M5; included in optional Onboard Navigation System of 3 & Z4 Series, 525i/530i; included in iDrive system of 7 Series. Functions include –
  - Memo – reminder signal can be set to sound at a particular time

- Timer (stopwatch function)
- Speed limit – alert signal can be set to sound at a chosen speed
- Distance to destination, estimated time of arrival
- Expected range on remaining fuel
- Average fuel consumption for two distances
- Average speed since last reset
- Security code.

In models equipped with automatic ventilation (5 and 7 Series), the timer function is used to program this feature.

### BMW Ambiance Lighting

(3, 5, 7 & Z4 Series, M3, M5)

In the 3 and 5 Series as well as the M3 and M5, BMW Ambiance Lighting, or “waterfall” lighting, consists of two small LED lamps in the ceiling over the center console area. These lamps, themselves barely noticeable, bathe the console area in soft orange light, helping occupants find controls at night and adding a warm, subtle touch to the cabin.

Ambiance Lighting is more extensive in the 7 Series; see that Series’ **ergonomics & luxury** section for details.

### Automatic climate control

(standard 3, 5 & 7 Series, M3, M5; optional Z4 Series)

BMW’s automatic climate control provides both automatic control and a high degree of manual “override” control should users desire it. In the 5 Series system, the driver and passenger can choose separate left/right temperature settings; the 7 Series system provides full left/right control of most functions, plus additional functions that are programmable in the iDrive system.

Key features of BMW automatic climate control include –

- **Activated-charcoal microfilter ventilation** – adds a layer of active-charcoal particles to an electrostatically charged microfilter. Active charcoal has a gigantic surface area relative to its mass (over 16,100 sq ft. per gram!), which enables it to absorb and hold substances such as carbon monoxide, sulfuric acid, nitrogen dioxide and ozone. Many odors are also reduced. The electrostatic action of BMW microfilters captures atmospheric particles down to a size of 5 microns, removing pollen, plant dust and spores; cement, coal and asphalt dust; and others. One or two filters depending upon Series; they are to be changed periodically according to the BMW maintenance schedule.
  - **Independent left/right-side temperature control** (5 and 7 Series). The 3 and Z4 Series systems have a single temperature setting.
  - **Versatile override controls.** When users have specific preferences other than their temperature settings, they can override automatic functions. Air distribution to windshield, dash and footwells can be combined as desired; users can adjust fan speed manually. In the 7 Series, independent left/right controls are provided for air distribution and fan speed; in the 3, Z4 and 5 Series, these overrides have single controls.
  - **Temperature- and volume-controlled air for rear compartment** (5 and 7 Series, M5), via controls at the outlets in the rear of the center console.
  - **Fuzzy logic** (5 and 7 Series, M5) – improves temperature control by better incorporating human comfort perceptions.
  - **LED temperature and fan-speed displays** – showing the temperature settings and current fan speed.
  - **Automatic recirculation control** – recognizes a high level of air pollution and automatically switches to recirculating air. Manual selection of recirculation is also possible, from the climate-control panel or steering wheel. (In 3 and 5 Series models with sport wheel and the M3 and M5, this steering-wheel control is not present.)
  - **Max. A/C** (Z4, 5 and 7 Series, M5) – this button provides 1-touch selection of maximum air-conditioning output.
  - **Heat at rest** (5 and 7 Series, M5) – uses engine heat to warm the interior for up to 16 minutes after the engine is turned off. In the 5 Series and M5, it is activated at low ambient temperatures via the Max. A/C button; in the 7 Series, separate Max A/C and REST controls are provided and heat-at-rest is activated via the REST button.
  - **Compressor-off default.** The “compressor on” switch (snowflake symbol) is an item of BMW philosophy: Its default setting is with the compressor off, encouraging driving with the a/c off and therefore reduced fuel consumption. When the user wants to use the a/c, he or she simply presses this switch and the compressor then cycles on and off as needed to cool the interior.
- The many air outlets can also be adjusted individually – all of them for airflow, the ones at dash center (in the 5 and 7 Series and M5) for both temperature and airflow. A thoughtful design for

## BMW features

The following key features appear in more than one BMW Series:

the outlets' grille slats allows them to be fully closed too.

Standard in the Z4 Series and BMW ALPINA ROADSTER V8 is a highly effective manual climate-control system with ergonomically pleasing rotary controls.

### AM/FM/CD audio system

(all models)

Every BMW model's audio system includes at least the following features:

- An attractive and legible display
- Programmable memory for at least 12 FM and 6 AM stations
- Autostore of 6 FM and 6 AM stations
- Search, seek and manual tuning
- Radio Data System (RDS), including Program Type (PTY)
- In-dash single-disc CD player
- Audio muting for telephone use (with BMW Cellular Phone Systems)

A cassette player remains a no-cost option; the two exceptions to this are the M5 and BMW ALPINA ROADSTER V8, which have a 6-disc CD changer and the cassette player as standard equipment.

Some models' standard or optional audio systems have significant additional features, such as operation of certain functions from steering-wheel controls; Digital Sound Processing (DSP); sub-woofers; Spatial Enhancement; and the numerous special features of the 7 Series' Logic 7 system. For details on the standard and optional systems of each model, see the appropriate Series' ergonomics & luxury section.

### Diversity antenna system

(all models)

Multiple antenna lines (in various locations according to model and body type) independently

receive FM signals; these signals differ from each other because of the lines' separate routing. A system computer continuously monitors the signals and selects the best one.

A diversity antenna system improves FM reception significantly over a single-circuit antenna. See audio-system information in the Series' ergonomics & luxury sections for locations of the various models' diversity antenna circuits.

### Sirius Satellite Radio (Center-installed, selected models)

As of the 4th quarter of calendar 2002, Sirius Satellite Radio hardware will be offered as a Center-installed accessory on select models. Together with Sirius, BMW will thus be offering our customers the latest in radio technology.

The Sirius system beams programming to satellites orbiting the earth; in turn, Sirius-equipped vehicles receive the programming. Except for locations where reception is physically blocked, users can enjoy the same programs anywhere in the U.S. Sirius provides 60 original channels of commercial-free music of virtually every genre, and 40 sports, news and entertainment channels.

Sirius hardware for the vehicle consists of -

- an activated Sirius Satellite Receiver
- a Satellite Antenna
- a Sirius-compatible audio system.

Once the equipment is installed and activated, the customer simply selects the satellite radio mode (example: AM/FM/CD/Satellite). As with FM and AM, users will be able to scan and

set their favorite presets. The audio display can show the channel name, channel number and (in the case of music channels) artists and music title.

Installation will be possible on model-year 2003 BMWs, except for the BMW ALPINA ROADSTER V8. The initial launch will introduce equipment for only the following models **with** in-dash CD player and **without** the Onboard Navigation System:

- 3 Series Sedans and Coupes
- 5 Series Sedans.

Equipment for further models (again with in-dash CD player and without the Navigation System) is planned for the 2nd quarter of 2003:

- 3 Series Sport Wagons and Convertibles
- 5 Series Sport Wagons.

Equipment for X5 models with Navigation System is also planned for the 2nd quarter of 2003.

Availability for further models will be phased in as calendar 2003 progresses; retrofitting earlier models will eventually be possible on most vehicles with in-dash CD player from 9/01 production and later.

### **CD changer**

A 6-disc CD changer is either standard or available in all models.

### **BMW Cellular Phone Systems (standard 7 Series & BMW ALPINA ROADSTER V8, otherwise Center-installed)**

BMW of North America is constantly active in developing new BMW Cellular Phone Systems that meet customers' needs and expectations in terms of technology, convenience, integration into the vehicle, and price. For the 2003 model year, a new system, utilizing the Motorola

V60c handset, became available for BMW Center installation (see appropriate Accessories brochure for applicability to BMW models).

This advanced system includes the following features –

- Light and compact silver handset, just 3.9 ounces
- LCD Full Matrix display, 96 x 64 pixel, backlit
- Improved navigation keys
- Customizable main menu
- Voice-activated dialing
- Auto redial
- 40 alphanumeric phonebook entries
- Credit-card dialing
- Standard headset jack.

Antenna configurations and the extent of vehicle pre-wiring for phone installation vary by Series.

### **Telematics**

For information on BMW's telematics hardware and programs for '03, see **BMW Assist**, page 342.

### **BMW On-board Navigation Systems**

(optional 3, 5 & Z4 Series, M3; standard M5; standard 7 Series within iDrive system)

The BMW On-board Navigation System is a multi-faceted system offering a wide range of information, customer-assistance and entertainment functions, all operated from a cleanly designed, ergonomically efficient control center in the instrument panel. If the vehicle is equipped with a CD changer or integrated BMW Cellular Phone System, some of their functions are also controlled from the Navigation System monitor. Most functions served by the monitor are controlled by simple, intuitive turn-and-push motions of a single knob, fundamentally similar to the point-and-click operation of a computer mouse.

## BMW features

The following key features appear in more than one BMW Series:

The user can control the following systems and features:

- Satellite-based **GPS** (Global Positioning System) Navigation
- **Emergency and Roadside Assistance** calls (telematics)<sup>7</sup>, with latitude, longitude, cell-phone number and VIN automatically transmitted to BMW Roadside Assistance
- **Phone memory and dialing** functions
- **The audio system** –
  - Radio
  - In-dash CD or cassette player
  - CD changer (if present)
  - Digital Sound Processing (DSP) if present
- 8-function **On-board Computer**<sup>8</sup>
- **Language and units of display** (miles/kilometers, °F/°C, etc.)
- A supplemental **security code** (5, 7 and Z4 Series)

In the '02 model year, the Navigation System for the 3 and 5 Series and their derivatives received significant improvements to its user interface:

- A new, easier-to-read 16:9 color monitor
- Newly arranged and optimized controls
- Swing-out panel to reveal cassette player; this allows more space for the controls.

For '03, the system offers numerous “behind-the-scenes” enhancements –

- **DVD database.** A single DVD covers the entire United States; users don't have to change CDs for use in various regions.
- **Faster processor** (by 2-3 times in terms of customer perception).
- **Dynamic calculation of Estimated Time of Arrival** (more accurate).
- **Address-book capacity** is increased to 100 entries.

- “Last destination” capacity is increased to 20 entries.
- **Monitor brightness control** (in Settings menu).
- **Larger map scales** available.
- **Optimized mixing of audio volume and navigation voice guidance.**

In the 5 Series, the Navigation System continues to require the cassette player, optional at no extra cost; in the 3 and Z4 Series the Navigation System can now be combined with the standard CD player.

Standard in the BMW ALPINA ROADSTER V8 is a simplified non-monitor version of the Navigation System, as part of that model's Multi Information Radio; see the BMW ALPINA ROADSTER V8 section, pages 311-312.

### Glovebox flashlight

(3, 5 & 7 Series, BMW ALPINA ROADSTER V8, M3, M5)

This handy flashlight charges when the ignition is on so that it will be ready for use when needed.

### Multi-zone seat construction (all models)

All BMW seats are built around a complex inner structure based on the latest orthopedic knowledge; in fact, BMW always aims at having some of the best seats in the industry. Over a base of steel springs (tuned to the suspension characteristics of each BMW Series), multi-zone polyurethane foam cores provide various degrees of support and vibration damping at different points in accordance with human anatomy.

### Power front seats

(optional 325 models & Z4 Series, standard all other models)

Ergonomically designed controls on the seats' outboard sides or

(in the 7 Series) inboard of the seats enable occupants to find the optimum seat position quickly and easily. Optional or standard in all models; please see the appropriate Series section for details on the power seats of each model.

### **Sport seats**

(3 Series Sport Package; 5 Series Sport Package or 540i Sedan 6-Speed; standard Z4 Series, M Cars & BMW ALPINA ROADSTER V8)

All BMW sport seats incorporate at least the following two features:

- **Differentiated backrest** contours. The backrests have prominent side bolsters near the bottom, then a narrower upper backrest section. The idea is to provide the desired lateral support, but without possible constriction around the shoulders.
- **Flared cushion side bolsters**, for additional lateral support.

Most models' sport seats also include **adjustable thigh support**, via a movable front cushion segment. In 3 Series and M3 models, this is manually adjustable; in the 5 Series it is powered. Z4 sport seats do not have this adjustment.

3 and Z4 Series and M3 sport seats are available in manual or power form; 5 Series, M5 and Z8 sport seats are power. The M3 Coupe offers two additional features: optional 4-way power lumbar support and adjustable-width backrest bolsters, the latter adjustment also being powered.

### **Heated seats**

(optional or standard in all models)

Offering 2- or 3-stage heating depending on Series, heated front

seats provide quick, welcome warmth in cold weather. Heated rear seats are available in the 7 Series. The 7 Series' heated front seats include special features; see the 7 Series section for details.

### **Leather upholstery**

(standard or optional all models)

Leather is available in all BMW models, either standard or optionally. Extended Leather interior trim, with leather appearing on areas such as instrument panel, console, doors and the back sides of front-seat backrests, is standard in the M3 Convertible and M5, available optionally in the Z4 3.0i and M3 Coupe. Although the 7 Series leather interiors are not officially described as Extended Leather, they do have extensive and ultra-luxurious leather upholstery, and the 760Li includes additional leather coverage even beyond that of the 745 models.

### **Genuine wood interior trim**

(standard or optional all except M3 models)

Whether standard or optional, factory- or Center-installed, BMW's wood interior trim is always genuine wood – not simulated, not imitation, not “wood-grain” as is offered by some competitors.

7 – When vehicle is equipped with BMW Cellular Phone System, the BMW Response Center can be reached simply via the system monitor; in the 7 Series, it can also be reached via the iDrive monitor or a dedicated SOS button over the windshield. Telematics functions that do not require the Navigation System or a phone system will be available for all models at some point in the future.

8 – This is an upgrade over the 4-function On-board Computer of 3 and Z4 Series and 525i/530i models, and identical in functions to the On-board Computer that is optional in 525i/530i models and standard in 540i models.

## BMW features

The following key features appear in more than one BMW Series:

### Power windows with 1-touch and key-off operation, closing from driver's door lock, opening from remote

Every BMW includes at least 1-touch open operation of both front windows and key-off operation of all power windows. All except 3 Series/M3 Convertibles, Z4 Series and BMW ALPINA ROADSTER V8 have 1-touch open/close operation of both front windows. All Sedans and Sport Wagons have 1-touch open/close operation of all door windows. 3 Series/M3 Convertibles have 1-touch open for their right door window and rear side windows; the Convertibles add all-window 1-touch open operation from a single switch. The Z4 Series and BMW ALPINA ROADSTER V8 have 1-touch down for their right door windows. With 1-touch opening, the driver can reach for money or an electronic garage card while the window glides down; BMW's 1-touch closing allows the driver to leave a toll booth with both hands on the wheel.

### Power door-window sealing system

(3 Series Coupes & Convertibles, Z4 Series, BMW ALPINA ROADSTER V8)

When a door is opened, the window (if closed) drops slightly; when the door is closed, it rises to seat firmly into the weatherseal. Compared to arrangements that rely on the window merely pressing against the weatherseal, this system improves sealing when the windows are up.

### 2-way power glass moonroof or steel sunroof with 1-touch opening, closing from exterior door lock

(all closed-body models)

Either optional or standard

equipment as follows:

- 3 Series – moonroof optional, except standard on 325i/xi Sport Wagon
- 5 Series – moonroof currently standard on all models
- 7 Series – moonroof standard on all models.

All moonroofs have 2-way action, offering a choice between tilting the panel up for extra ventilation or opening it for extra ventilation and light. They also include a manual sliding interior shade, which moves forward approximately 3 in. as the glass panel closes to make it easier to reach back and pull it closed. It is also possible to close the windows from the driver's door lock by holding the key in its "lock" position for a few seconds; the windows can be opened from the remote control. (Closing from the remote is omitted for safety reasons.)

The moonroof has 1-touch opening and closing – still not found in all competitive models. It is also possible to close the moonroof from the driver's door lock by holding the key in its "lock" position for a few seconds; the panel can be opened from the remote control. (Closing from the remote is omitted for safety reasons.)

### M Mobility System

(all M Cars)

In M Cars, the exhaust system's volume precludes space for a spare tire, and these models do not have run-flat tires<sup>9</sup>. If a tire is punctured – a rare event these days – the M Mobility System provides a way to get home.

M Mobility consists of a container of rapid sealant, an integrated microcompressor, and a hose to connect the compressor to the damaged tire. All this is carried

in a container in the trunk. (The compressor, plugged into the console power socket, can also be used for leisure purposes, such as pumping up an inflatable boat or tent.) The system can seal punctures up to approximately 1/4 inch across.

Should a tire ever be completely destroyed, BMW Roadside Assistance will be available for the life of the vehicle.

### **Onboard toolkit**

Every BMW model comes standard-equipped with at least a basic onboard toolkit. In the 3 Series Sport Wagon, a kit is provided in the spare-tire compartment; in the Z4 Series a tool bag is stored near the battery tray at the rear of the car. In the BMW ALPINA ROADSTER V8, it is under the trunk or cargo floor. In all other models, the toolkit is in a convenient drop-down tray on the underside of the trunklid (Sedans, Coupes and Convertibles) or in the tailgate (Sport Wagons). Contents vary according to model.

## **Safety & security**

### **Active safety**

It is a long BMW tradition to endow our automobiles with exceptional qualities and capabilities in this area. BMW strengths include:

- Suspension, steering and brakes that communicate road conditions accurately to the driver, and respond precisely to the driver's commands
- Powerful, fade-resistant 4-wheel disc brakes
- Ergonomically correct and efficient controls, with excellent tactile feel
- Excellent outward vision for driver through large glass areas, slender roof pillars.

### **Dynamic Stability Control (all models)**

This all-encompassing traction, antilock and stability system is an important safety feature. It is described in detail on pages 21-23.

### **Dual brake circuits (all models)**

Even if one hydraulic circuit is ruptured and brake fluid is lost, the other circuit provides partial brake operation.

### **Halogen foglights (all models)**

Mounted close to the road, BMW foglights "reach under" fog to provide extra illumination.

### **Speed-controlled windshield wipers**

(all models except with rain-sensing wipers)

This BMW feature adapts the wiping speed or interval to driving speed, ensuring effective windshield wiping at changing speeds and reducing unnecessary blade wear. All BMW wiper/washer systems include at least the following features:

- Intermittent setting plus two constant speeds (normal and fast)
- Single-wipe or "flick" operation, activated by pressing wiper control stalk downward against spring pressure
- Automatic windshield washer. Activated by pulling the control stalk toward the steering wheel. Brief activation sprays washer fluid onto the windshield; holding the stalk longer activates the wipers for a few strokes.

**BMW ALPINA ROADSTER V8 only:** In the intermittent setting, the interval is varied automatically

9 – They have Z-rated performance tires, which are not yet available in run-flat form.

## BMW features

The following key features appear in more than one BMW Series:

according to vehicle speed. When the vehicle comes to a stop, the wipers stop. If set to normal speed, the wipers switch to intermittent mode when the vehicle stops. If set to fast speed, the wipers go to normal speed when the vehicle stops.

**3 Series (2003) and Z4 Series, 525i/530i standard.** The stalk includes a rotary control for varying the intermittent interval; in addition, the interval is varied automatically according to vehicle speed. If set to normal speed, the wipers go into intermittent mode when the vehicle stops; if set to fast speed, they go to normal speed when the vehicle stops.

### Rain-sensing windshield wipers

(Premium Package 525i models & 530i, 2003 3 Series; Convenience Package Z4 Series; standard 540i models, 7 Series, M5 & 2004 3 Series)

A sensor mounted on the inside of the windshield measures the amount of rain hitting the windshield. Moving the control stalk to its first "on" position puts the wipers in their rain-sensing mode; the sensitivity to moisture can be adjusted by turning the rotary control on the stalk. In this mode, the wipers adjust their wiping action automatically according to the amount of rain the vehicle is encountering.

The user can leave the wiper control permanently in its rain-sensing position. With the ignition switch in position 1, the wipers can then be activated by turning the rotary control briefly, or by activating the windshield washer. Users should take care to ensure that the system is not activated when in an automatic car wash.

The 7 Series wiper/washer system has special features; please see page 60.

### Rear-window wiper/washer (3 & 5 Series Sport Wagons).

Briefly pressing the control stalk forward (away from the steering wheel) activates intermittent wiping of the rear window; holding it longer activates the washer as well. After the stalk is released, the wiper continues to wipe for a few strokes.

The Sport Wagons add two further rear-wipe/wash functions:

- When reverse gear is engaged, the intermittent wiping switches to continuous operation.
- The interval can be programmed, by a procedure described in the Owner's Manual.

### Shift/starter interlock

(all models with automatic transmission)

In vehicles equipped with an automatic transmission, the interlock prevents shifting out of Park unless the engine is running and the brake pedal is applied. The shift lever must be in Park before the ignition key can be removed. In vehicles equipped with a manual transmission, the clutch must be depressed before the starter will operate.

### Body structure with energy-absorbing front and rear ends (all models)

The front and rear ends of each current BMW model are carefully engineered to manage impact energy in a controlled way.

In a frontal or rear-end collision, this means that the energy is absorbed smoothly, and the forces on occupants' bodies (with safety belts fastened) are kept relatively moderate. Naturally, all this occurs within a split-

second – but the difference between a well engineered automobile body and one that's not so well engineered is critical.

To help achieve optimum front-end energy absorption in a variety of real-world front impacts, BMW employs extensive crash testing in its development of each new model (see below and right).

### **Interlocking door anchoring system**

(3, 5 & 7 Series, M3, M5)

In each door is a diagonal aluminum reinforcing bar. The rear end of this bar is anchored to a hook-like member that, in the event of a serious side impact, "grabs" the body pillar. Thus in 4-door models the front door is hooked into the B-pillar, the rear door into the body's rear quarter; in 2-door models the door is hooked into the rear quarter. This helps hold the body side together as a unit for increased resistance to a side impact. The system is designed so that after most impacts, elastic "snap-back" releases the hook and the door(s) can be opened.

### **BMW safety testing**

The list of safety tests to which a new BMW model or Series under development is subjected is staggering; each upcoming BMW vehicle must survive an exhaustive matrix of tests that simulate virtually any conceivable type of crash impact. As the most recent example of this intense effort, the new 7 Series underwent the following crash tests during its 5-year development program:

#### **Frontal impacts –**

- Straight into barrier at 30 mph, belted and unbelted occupants
- Into barrier at 30°, 30 mph, belted and unbelted occupants

- The *auto motor und sport* test, named after a prominent German auto magazine that actually conducts its own crash tests; 64 km/h (almost 40 mph), with just 50% of the front end contacting the crash barrier (an "offset" crash).
- Offset crash, 35 mph into barrier with 40% of front end (driver's side) contacting rigid barrier
- Offset crash, 64 km/h with 40% of front end contacting deformable barrier
- Frontal impact into pole at 35 mph
- NCAP (New Car Assessment Program) test, frontal at 35 mph. This is the test whose results are reported to the U.S. public in terms of "stars": 5 stars, 4 stars, etc. for driver and passenger.
- Vehicle-into-vehicle side-impact test
- Pole into side of vehicle at 25 mph –
  - At front seating area
  - At fuel tank

...and more.

#### **Rear impacts:**

- Offset at 50 km/h (31 mph), 40% coverage, battery or fuel-filler side, with rigid barrier
- Straight impact at 30 mph
- Offset at 50 km/h (31 mph), 40% coverage on fuel-filler side with deformable barrier.

#### **Rollovers:**

- Straight rollover
- Angled rollover (one side of vehicle goes up ramp, vehicle rolls).

As any entirely new BMW Series or model is being developed, the latest knowledge is incorporated into the vehicle structure and safety features to achieve optimum occupant protection.

## BMW features

The following key features appear in more than one BMW Series:

### Compressible bumper mountings ("crush tubes")

(all models)

The bumpers of all BMW models, clad in high-quality deformable plastic, provide protection with essentially no damage at a barrier impact speed of at least 2.5 mph.

In addition to hydraulic energy absorbers that absorb the initial impact energy, the front bumpers are backed by BMW's unique compressible tubes. These tubes deform in a controlled manner at impact speeds greater than that for which the bumper and hydraulic absorbers are designed, helping avoid expensive damage to the body-chassis unit at impact speeds up to 9 mph.

### Ergonomic safety-belt system

(all models)

In 5 Series models and the M5, as each power front seat is moved rearward, the belt's upper anchor point rises to adjust to a taller driver, and vice versa. In closed-body 3 Series models, this adjustment is accomplished manually. The inboard latches of all front safety belts are attached to the seat, so they adjust with the seat position and thus also help achieve an optimum belt fit on the occupant. In the Z4 Series, BMW ALPINA ROADSTER V8 and all Sedan models, the outboard lap-belt anchor is also attached to the seat for the same reason.

In the 3 Series/M3 Convertibles, the front safety belts are fully integrated with the seat structure itself. This concept virtually eliminates belt stretch between the belt mounting and seat, and

always positions the belt consistently relative to the occupant for ideal restraint performance. It also means that the front belts do not impede persons entering the rear seats. The belt and head-restraint height are power-adjustable in these models.

BMW's ongoing safety research has resulted in a new upper front belt mounting that is fixed, yet provides optimum belt geometry for virtually all occupant statures. This concept appeared first in the new 7 Series and will be seen in other models in the future.

### Automatic front safety-belt tensioners and force limiters

(all models)

Automatic tensioners tighten the front<sup>10</sup> belts in a collision impact, further optimizing the restraint of occupants. They are integrated into the belt latches, mounted to the inboard side of each front seat. Upon impact the mechanism moves the latch downward to tighten the shoulder and lap belt portions directly. (Generally, other makers' systems act on the upper belt anchor point, so the tightening effect must pass through a loop to reach the lap belt.)

All current BMW front safety belts are also equipped with force limiters, which once the belts are tensioned place an upper limit on the amount of force they can exert on the occupant's body. For maximum safety relative to the deployment of airbags, all adult occupants should fasten their safety belts at all times.

In long-wheelbase 7 Series models with the rear Comfort Seats (optional 745Li, standard 760Li), the outboard rear safety belts have automatic tensioners.

### **Automatic-locking retractors on all passenger safety belts (all models)**

Each safety belt, except that for the driver, is equipped (in addition to all the other features which help make BMW safety belts effective in accident impacts) with an automatic-locking retractor, which facilitates the attachment of a child restraint seat.

However, do not install a child-restraint device on the front passenger's seat<sup>11</sup>. Children under 12 years of age should only sit in the back. Please see the airbag warning label on the sun visors.

### **Child-seat tether anchors**

Manufacturers of child restraint systems provide restraint tether straps for some of their products. All BMW models are now equipped with anchors for the tethers. This arrangement helps achieve secure attachment of the child seats.

### **2-stage front-impact airbags (Smart Airbags) (all models)**

This feature is in addition to the dual-threshold feature described at right. To ensure that the force of airbag inflation is appropriate to the severity of the impact, both front-impact airbags are designed to provide "softer" deployment in lower-speed impacts, "harder" deployment only in higher-speed impacts.

### **Front Head Protection System (standard, all closed-body models)**

A hollow, flexible tube about 5 feet long is anchored inside the windshield pillar and roof rail, and concealed by interior trim.

Upon severe side impact, an inflator unit fills the tube with inert gas. The expanding tube pops out to form a straight tube of approximately 5-in. diameter, stretched in a straight line from the lower windshield pillar to above the rear door or side window. Thus the inflated tube is in just the area where a front occupant's head could contact the side of the car – windshield (A-) pillar, window, center (B-) pillar. Because of the tube's sloping position, it protects persons of small or large stature. The inflated tube is also firm enough that it can retain much of its effectiveness even if the window is broken by the impact.

### **Rear Head Protection System (standard 5 Series Sedans, 7 Series & M5)**

These models incorporate inflatable rear-seat head protection as standard equipment. In 5 Series Sedans and M5, rear head protection is provided by separate airbags that deploy downward over the C-pillars; in the 7 Series, the tubular front HPS is extended rearward to provide rear-seat occupants with head protection.

### **Differentiated deployment of front-impact restraint systems (dual-threshold deployment) (all models)**

This sophisticated electronic control strategy is truly advanced technology. BMW's differentiated deployment of passive restraint systems manages deployment as follows:

- There are two thresholds of frontal impact severity.
- At the lower threshold, if the occupant is belted, only the

10 – In Roadster models, "front" seats are the only seats.

11 – Z4 Roadsters have a passenger-airbag de-activation switch that provides for carrying a child in an approved child seat attached to the passenger's seat.

## BMW features

The following key features appear in more than one BMW Series:

belt tensioner is deployed. If the occupant is not belted, the front-impact airbag deploys.

- At the higher threshold, the front-impact airbag and belt tensioner are deployed. If the occupant is not belted, only the airbag is deployed.
- If the passenger seat is not occupied, neither the belt tensioner, front-impact airbag, Head Protection System nor side-impact airbag for that seat will be deployed.

In cases where the car can be repaired after an accident, this differentiated deployment strategy can save repair costs (and therefore be favorably reflected in insurance rates).

The deployment strategy for unbelted occupants must not be seen as a rationale for not fastening one's safety belt. Maximum protection of occupants can only be achieved if the occupants are wearing their safety belts.

### **Integrated deployment logic, including post-impact safety measures**

(all models)

All sensing and triggering functions for the front-impact airbags and safety-belt tensioners are combined in a single highly sophisticated electromechanical unit that facilitates differentiated deployment and 2-stage airbags. Side-impact airbags and the Head Protection System are controlled by additional "satellite" sensors, one for each side of the vehicle.

Another function of this technology is that in case of accident, the doors are automatically unlocked, the interior lights and 4-way hazard flashers are switched on and the fuel pump is switched

off. Thus even after an accident, BMW's safety strategy is still at work.

The Z4 and 7 Series incorporate a further developed form of integrated deployment logic, called ISIS, or Intelligent Safety & Information System; for information on that system, see pages 72 and 73.

### **Side-impact airbags**

(front – standard all models; rear – optional 3, 5 & 7 Series, M3; standard M5)

All current models are equipped with BMW's system of front-door-mounted side-impact airbags<sup>12</sup>. Rear side-impact airbags are optional in all 2- and 4-door models except the M5, where they are standard.

The rear side-impact airbags are built into the doors of 4-door models, the rear side panels of 2-door models. Vehicles equipped with them come from the factory with the rear airbags de-activated.

The BMW Center should discuss the issue of rear-seat side-impact airbags with the customer, pointing out that they are of clear benefit to adults riding in the rear compartment, but pose potential risks for infants or small children riding there. To have the airbags activated, the customer must sign a release.

Whenever the customer wishes, the rear airbags of vehicles so equipped will be activated or de-activated, free of charge and independently of the age or mileage of the vehicle. With this strategy, BMW is doing everything possible to offer the protection of these side airbags to customers, yet minimize the potential risks.

## Energy-absorbing padding of pillar and roof areas

(all closed-body models)

As a further element of head protection, every closed-body model incorporates specific padding in the A-, B- and (in models with rear seats) C-pillars as well as along the roof above the doors.

## Battery Safety Terminal

(all models)

Another BMW safety innovation is the Battery Safety Terminal, which in case of a severe accident impact fires a tiny pyrotechnic charge to break the connection between the battery and starter cable. This helps prevent a possible short circuit at a high-current point in the electrical system. (Because of the high power carried by the starter cable, unlike most electrical circuits in the vehicle this connection is not protected by a fuse or circuit breaker.) The device triggers whenever an airbag deploys. Once the connection is severed, the engine cannot be cranked; but separate wiring provides power for all operating and safety systems (such as power windows, central locking system and emergency flashers).

## Central locking system with double-lock feature

(all models)

BMW's electric central locking system includes a double-lock anti-theft feature, which prevents the individual door-lock buttons from being pulled up; thus even if a thief has broken into the car, it isn't possible to open the doors if the car has been locked from the outside.

A central interior switch locks or unlocks all doors and the trunk (or hatch or tailgate) at a single touch. With the system locked in this manner (that is, from the inside with the central switch), the fuel door remains unlocked and the doors can be unlocked from the inside. This offers two benefits:

- **Freedom to exit.** Though the double-locking feature applies when the vehicle is locked from the outside, those wishing to remain inside a locked vehicle can then unlock and exit the vehicle if necessary or desired.
- **Security while fueling.** Occupants can remain inside with the car locked while having an attendant fill the tank.

There is a way to get out in case one is locked inside the vehicle from the outside: Push the central lock switch, then pull any door handle twice. That door will be unlocked; the trunk and other doors remain locked and the alarm (if present) is triggered.

## Coded Driveaway Protection

(all models)

All current BMW models have a sophisticated key-and-lock system. The key is equipped with a tiny transponder which stores an electronic code transmitted by a ring antenna around the ignition switch. Each time the key is removed, this code is changed; the next time, the car can be started only if the key matches the new code. This feature is called Coded Driveaway Protection, and it has been shown to be highly effective in reducing the frequency of theft of BMW vehicles.

12 – All 2-door models: "front" doors are the only doors.

## BMW features

The following key features appear in more than one BMW Series:

### Alarm system

(all models)

All models from 525i upward are standard-equipped with the BMW alarm system, controlled from the multi-function remote described on page 28; on 3 and Z4 Series models, the remote is standard but the alarm system is BMW Center-installed.

### Anti-theft audio system

(all models)

All current BMW audio systems are designed to discourage theft. The in-dash unit is functional only if connected to the electrical system of the vehicle in which it was originally installed.

### Fuel-tank features for safety

(all models)

In each model, the fuel-tank location has been chosen to provide protection from impacts.

### Durability & reliability

#### Outstanding corrosion protection

BMW's thorough treatment for corrosion resistance is impressive. Dependent upon Series and model, up to 85% of the body panels are galvanized on both sides. A substantial additional portion is galvanized on one side. Galvanizing is used only where it is worthwhile, however, because it does consume a natural resource (zinc) and makes recycling somewhat more difficult.

#### Reliable electrical connectors

Many electrical connectors in current BMWs incorporate a lever locking mechanism that precludes incorrect assembly, holds tightly, and yet can be disconnected without a tool. Such connectors are widely used in aircraft, and hence are referred to as aircraft-type connectors.

### Onboard diagnosis

Onboard diagnosis continuously monitors various sensors for operational faults. Faults can be recognized and stored in the system memory, then read out by the service technician on a sophisticated diagnostic machine.

### Quality

#### BMW quality processes

In BMW production, computer-controlled techniques are combined with traditional handwork to achieve top assembly and finish quality. Although BMW production is planned to ensure that the car is built right the first time, there is also a rigorous inspection system. At BMW's largest plant (Dingolfing, Germany), some 1000 quality-control employees work to ensure that every BMW meets the company's exacting standards. Each day, four complete body shells are pulled from the production line and their dimensions are checked completely by sophisticated measuring machines.

#### Modular assembly

In this advanced assembly technique, individual elements of the car are to a large extent pre-assembled before being combined or installed on the vehicle; all their functions can thus be tested before installation. Depending upon model, elements built this way may include the instrument panel, doors and sunroof/moonroof assembly.

Production techniques for the BMW ALPINA ROADSTER V8's aluminum space frame and body are unique; for details see pages 303-304.

### Ultrasonic test for leaks

Each BMW body is subjected to an exhaustive ultrasonic test for leaks, both wind and water, before being released for shipment.

### Fit and finish

“Fit and finish” are partially covered by the items above, in the sense that production precision and the control of body surfaces are the foundation of BMW’s body quality. But a great deal more goes into ensuring that every aspect of a new BMW is fitted and finished with great precision and care. With each introduction of a new Series, BMW body engineers strive to improve the fit and finish further.

The Client Adviser can point out BMW’s quality fit and finish to prospective customers by accompanying them around the vehicle, calling attention to the –

- smooth and consistent luster of painted surfaces
- narrowness and consistency of gaps between adjacent panels (hood, bumpers, doors, trunklid and main body panels)
- fit of attached components such as logos, lights, mirrors and handles.

This quality of fit and finish naturally extends to the interior of each BMW.

### BMW paint quality

A look down the side of any new BMW will reveal the precise metal stamping and expert surface preparation that preceded painting, and the care with which the paint was applied. Before a BMW body is painted, its surface quality is measured electronically. Panels such as hoods, doors and trunk are hand-fitted and all surfaces are again checked – this time by hand. Then, and only then, does the body begin

its long journey through numerous chemical baths and washing operations, spraying booths and drying/baking ovens. In all, more than 20 pounds of primer, color and clear coats go onto each BMW.

### Low maintenance

#### Service Interval Indicator (SII) (3, 5 & Z4 Series, BMW ALPINA ROADSTER V8, all M Cars)

Traditionally, routine maintenance has been performed according to a rigid schedule – 7500 miles, 15,000 miles, etc. This ignores the fact that freeway driving is easier on a car than stop-and-go traffic; that hard driving and cold starts increase wear.

Recognizing that each owner uses a car differently, BMW developed SII to recommend routine maintenance specifically for that use. The SII micro-processor tracks the vehicle’s fuel consumption, which BMW engineers have found is an accurate predictor of service needs (higher fuel consumption = harder use); on this basis SII calculates when maintenance will be needed. As time for service approaches, fewer and fewer green LEDs illuminate in the SII; when it is time for service, the single yellow LED illuminates, along with either the OIL SERVICE (minor service) or INSPECTION (major service) indicator. If service becomes overdue, a red LED to the right of the yellow one illuminates as a reminder.

In the 3 and Z4 Series and BMW ALPINA ROADSTER V8, instead of the green LEDs the SII is presented as a digital display of the number of miles remaining to required service. If service becomes overdue, the miles are

## BMW features

The following key features appear in more than one BMW Series:

displayed with a minus sign. The service required (OIL SERVICE, etc.) is also displayed.

In the 7 Series, SII takes on a new form and new, more specific service recommendations (Condition-Based Service) are communicated via the iDrive system. See pages 63-64 for details.

Owners should follow the recommendations of the SII or Condition-Based Service and ignore anyone who recommends servicing at fixed intervals.

### **Full Maintenance Program included in base price, now 4 years/50,000 miles**

All models come standard with the BMW Full Maintenance Protection Program. As of the '03 model year, coverage is increased to 4 years/50,000 miles, whichever comes first.

The Full Maintenance Program includes all factory-recommended maintenance as listed in the BMW Service and Warranty Information booklet, plus replacement of wear-and-tear items like brake linings, brake rotors, engine drive belts and wiper blades. Adjustments required by normal operating conditions are also covered.

### **Extended service intervals**

All current BMW models are engineered to require less frequent routine maintenance:

- The basic Oil Service (change engine oil and filter and air filters, plus a short list of other maintenance items) can be performed at extended intervals. As always with BMWs, this is not a fixed interval; instead, the Service Interval Indicator (described nearby) determines the interval on the basis of actual vehicle usage.
- Longer-life sparkplugs are designed for a service life of 100,000 miles.

### **Low-maintenance engines**

Every current BMW engine except that of the M3 has hydraulic valve adjustment or lifters, so that valve adjustments are never needed. And BMW engines' camshafts are driven by self-adjusting chain, so there is no timing belt to be replaced periodically.

### **Self-adjusting clutch**

The clutch of manual-transmission models has been engineered to keep pedal effort essentially constant over the unit's life and enhance clutch life significantly.

### **Stainless-steel exhaust system**

Typically exhaust systems have been subject to corrosion, especially if the engine was started frequently from cold without being fully warmed up before being shut off again. In all BMWs, most exhaust-system components are of stainless steel, which though more costly is more resistant to corrosion than normal steel and thus results in a longer-lasting exhaust system.

## The environment

### Emission status of current production models: at least LEV

All regular-production BMW models now satisfy at least the U.S. requirements for Low Emissions Vehicle (LEV). All models equipped with the 3.0-liter 6-cylinder engine meet the more stringent Ultra Low Emissions Vehicle (ULEV) standards; 325i Sedans and Sport Wagons and 325Ci Coupes with automatic transmission sold in California, Massachusetts, New York and Vermont now meet the even more demanding SULEV (Super Ultra-Low Emissions Vehicle) standards. BMW's super-performance V-8 engines (M5 and BMW ALPINA ROADSTER V8) meet Transitional Low Emissions (TLEV) standards.

### No CFCs used in manufacture

Typically, CFCs are used in the manufacture of plastic components, such as seat foam and instrument-panel moldings. BMW has discontinued their use in all manufacturing operations.

### Water-based paints

BMW has replaced solvent-based color coats with water-based paints. This change was phased in on a plant-by-plant basis; BMW's U.S. plant, in South Carolina, has used water-based paints from the beginning of its operation.

To avoid any misunderstanding: Yes, you can wash a car with water-based paint. Water is merely the dispersant, just as a conventional solvent would be; either dispersant evaporates in the drying process. The replacement of solvent-based with water-based color coats sharply reduces chemical emissions at the factory, helping protect the local environment.

An advanced type of clear coat, called powder-coat, reduces waste and emissions while further enhancing resistance to acid rain; it is already used on some vehicles produced in the Dingolfing, Germany plant and is being phased in at the other BMW factories. Modern clear coats in general, with their ultra-violet protection, have been a significant factor in the excellent durability of today's paints.

### BMW Recycling Centers

BMW was the first automobile manufacturer to establish recycling centers in the U.S.; at these facilities, BMW of North America offers a \$500 certificate, applicable toward the purchase of any new BMW or BMW Approved Used Car, to owners who deliver their scrapped BMWs to one of the centers.

## 2003 BMW 7 Series, phase 2: The new 760Li, plus STEPTRONIC for all models and a new Sport Package for the 745s

A very successful launch of The New 7 is now behind us. The Series' advanced technology and design were so convincing – and so well presented via innovative communications and effective advertising – that it truly hit the market running. To quantify: In its first full calendar year, 2002, fully 22,006 New 7s were delivered to customers: that's 64.4% up from calendar 2001, when the predecessor 7 Series was still going strong most of the year.

A certain level of controversy has surrounded The New 7. Indeed, anything as new and different as this automobile is bound to generate differing opinions. And yet its overall reception by the media – and, as proven by the robust sales numbers, by our customers – has been very positive. Here are some samples from the multitude of positive reviews:

- *Automobile Magazine*, February '03: named to the magazine's annual All-Stars, Luxury Car over \$40,000. "It drives with more verve than its rivals. The dynamic similarities between the 7 and 3 Series are stupefying. Both are strong, agile, and composed, and both drive small. But only the 7 has iDrive, which takes the car out of the mainstream and into the realm of the personal. The iDrive system is not easy, but beneath its intimidating experi-

mentalism lie pathways known only to its owner. It repatches emotional links between man and machine that have all but evaporated with the commodification of the luxury car. If this magazine's All-Stars exist to award the risk-taking spirit of the auto business at its best, then the 7 is this year's definitive All-Star. It's not perfect, but perfection in cars, as in people, is boring. In fact, the 7 Series is the opposite of boring: it's challenging, demanding, even addictive. This is the automotive equivalent of first class: Once you go up, you can't go back."

- In the **International engine of the Year** awards, an international panel of 38 engine experts from 17 countries chose the 745i/Li Valvetronic V-8 engine as the Best New Engine.
- *Car and Driver*, March '03, on the 760Li: "This new V-12 is pure magic, with a seamless power curve and an extremely satisfying muted roar. Like the V-8-powered 745i/Li, the 760Li uses a six-speed automatic that almost completely masks shifts. The power is so smooth that in some ways the nearly 5000-pound 760Li doesn't feel as fast as it is."
- *Road & Track*, March '03, on the 760Li: "More of a good thing."

- *European Car*, February 2002: “So how does it drive? On Mini-sized Italian roads, often with broken pavement, the big 7 was perfectly controlled and capable at all times. Several of BMW’s engineers present expressed both surprise and pleasure that journalists were driving the new 7 Series as if it were a 3 Series. That, in the end, is the genius of BMW: To make cars that drive exactly the way cars should, combining comfort and performance with little compromise between the two.”
  - *Car and Driver*, June 2002: “Hey, nobody is forcing you to unload \$69,350 on a luxury sedan, much less \$14,111 for all of the 745i’s available options (a 745Li starts at \$73,470 with 5.5 more inches of wheelbase and a few extra comfort frills). Serviceable ground transport is a commodity available at a third of the price and with far fewer liquid-crystal distractions. But if you are willing to dash off a check this heavy, the 745i may be the best driving tool in its opulent class, even with the flaws.”
  - *Robb Report*, June 2002: “Uh, 850 AM,” I say softly and with uncertainty. ‘Pardon me?’ the car’s voice asks. ‘Sorry. 850 AM,’ I repeat, this time with more confidence. “The radio clicks on to WEEI, the local sports radio station, and I catch the final out of the Red Sox game. Final score: Boston 4, Baltimore 1. Life is good – in most ways. I’m driving the BMW on the day after we have set our clocks forward for daylight savings. I’m pleased with the extra 60 minutes of sunshine, but disappointed that I have one less hour to master the car’s technology and enjoy the 745i’s performance.”
  - *Automotive Engineering International*, March 2002: “With help from its suppliers, BMW has produced a vehicle that blazes the engineering trail with innovations that will influence passenger vehicles for years to come. The new BMW 7 Series was selected by the readers and editors of AEI as **Best Engineered Vehicle for 2002** because it points the way for not only luxury/performance sedans but also other vehicle segments. Company product developers integrated many new technologies into the fourth-generation BMW flagship in an effort to set new standards in performance and efficiency, as well as luxury, design, and safety.”
  - *Automobile Magazine*, December 2001: “The 745i is a refined car that covers ground with deceptive speed and with a minimum of fuss, drama, and effort.”
  - *AutoWeek*, October 22, 2001: “BMW’s new flagship has everything, and more.”
- That was from The New 7’s first model year, 2002. Now, for 2003, BMW – typically never resting on its laurels – has added further appeal to this ultimate luxury automobile in several ways, not the least of which is the addition of a third, top-of-line model, the 760Li.

## What's new for 2003

### All models

As of 9/02 production:

- Run-flat tires offered as a new option at no extra cost; same size as standard 18-in. tires, with unique Multi-Spoke wheel design (#94); include Flat Tire Monitor (running change), Tire Pressure Monitor no longer available. The tires have the same V speed rating as the standard ones.
- Rear Head Protection System (AHPS II), formerly optional, becomes standard
- Active Cruise Control offered as a new option

As of 3/03 production:

- New GPS Navigation within iDrive system, with DVD data base and improved functionality

### 745i & 745Li

As of 1/03 production:

- STEPTRONIC version of automatic transmission adopted

As of 3/03 production:

- Sport Package becomes available

### 745Li

During 2002 model year:

- Chrome roof moldings added

As of 9/02 production:

- Active Ventilation added to optional rear Comfort seats
- Optional Luxury Seating Package and rear Comfort seats now available in combination with each other (formerly mutually exclusive options)

### 760Li

As of 1/03 production:

- New top-of-line model, powered by all-new 6.0-liter V-12 engine
- STEPTRONIC 6-speed automatic transmission
- 19-in. wheels and performance tires standard, two types of 18-in. equipment available
- Unique wheel designs (except with run-flat option)
- "V12" emblems on front fenders
- High-gloss black on exterior mirrors' edging and B-pillars
- Grille surrounds wider at top
- Chrome roof moldings as on 745Li
- Unique color for light band across trunklid
- Higher level of standard equipment than 745Li (see pages 82-91 for details)
- Rear climate control with cool-box offered as option

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

### Performance & efficiency

#### 4.4-liter DOHC (4-cam) 32-valve V-8 engine with Valvetronic and Double VANOS

(745i & 745Li)

Under the aluminum hood of the 745i and 745Li is a technologically advanced and unique V-8 engine. Compared to conventional engines, this amazing powerplant – designated N62, N for “new” – makes dramatic strides in torque, power and efficiency. There are state-of-the-art engineering details throughout, but two major new technologies are the main driving force behind the engine’s remarkable capabilities.

The N62 engine produces approximately the same power as the previous 7 Series’ 750iL V-12 engine, or 325 horsepower (at 6100 rpm); this is a good 15% more than the previous V-8 too. Torque went up as well, from 324 to 330 lb-ft. – all this with no increase in displacement. Equally remarkably, fuel economy is significantly improved – EPA city/highway ratings of 18/26, vs. the previous models’ 17/23. And response to the accelerator pedal – we can no longer say “throttle” – is markedly livelier, more spontaneous. How BMW achieved all this follows.

**Valvetronic: revolutionary new “breathing” concept.** Many automotive engines now have variable valve timing, including all of BMW’s. A number of manufacturers, including BMW, achieve variable valve timing – the valves do not always open and close at the same point in the combustion cycle – by rotating the camshaft relative to its driving sprocket<sup>1</sup>. Others, notably Honda, vary valve timing via a mechanism involving more than one cam lobe per valve; Honda (including

Acura) also uses this mechanism to change valve lift – the distance the valve is opened from its seat in the top of the combustion chamber.

Varying valve lift is a step beyond varying timing. Valvetronic varies lift – but to a far greater, and more fundamental, degree than any other system. Indeed, Valvetronic varies lift so extensively that it replaces the traditional engine throttle. Engine breathing is controlled entirely by the valves, and the traditional throttle simply goes away. Thus we can no longer call that right-hand pedal on the floor a “throttle pedal.” We might as well go back to the old term “accelerator pedal.”

The Valvetronic mechanism sits atop the intake valves on each of the V-8’s two cylinder banks. Each of the engine’s 32 valves (4 valves per cylinder; 16 intake, 16 exhaust) is actuated as the camshaft lobe deflects a finger-type rocker arm. On the intake side, there is an additional element between the cam lobe and rocker arm, an intermediate follower.

Upon contact by the camshaft lobe, this intermediate follower actuates the rocker arm and, in turn, the valve. The follower is held in place by an eccentric shaft that can be rotated by a small servo motor. This shaft, which rotates in response to the driver’s accelerator-pedal movements, determines the intermediate follower’s pivot point and thus varies the valve lift.

Like many ingenious developments, Valvetronic is straightforward in principle, though someone had to think it up in

1 – Or, in engines with a timing belt instead of chain drive, camshaft pulley.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

the first place. BMW engine engineers thought it up; BMW has patented Valvetronic. The system's highlights:

- **Intake valves assume function of throttle.** Engine breathing – air intake – is controlled by varying this lift. The driver's foot gives the commands; valve lift varies accordingly. At minimum lift, the engine is idling or decelerating; at maximum lift, it produces full power.
- **Greater efficiency.** As a throttle closes, it imposes a restriction that incoming air must snake around. This causes so-called “pumping losses,” which take an increasing portion of engine power in lower-speed driving. By eliminating the throttle(s)<sup>2</sup> and letting the valves control the breathing, Valvetronic essentially does away with pumping losses. This is reflected in the higher EPA mileage ratings.
- **More spontaneous engine response.** Drivers are impressed by how spontaneously and quickly the engine responds to the accelerator pedal.
- **More power.** High valve lift contributes to high power output; yet in a traditional engine, one cannot simply increase valve lift, as too-high lift would degrade operation at low speeds and loads. With Valvetronic, valve lift is tailored precisely to operating conditions – and is extra-high at the top end. This helps the N62 engine achieve its amazing power.
- **Refined engine operation.** In light-load driving, operation is especially smooth because of the relatively small valve lift of 0.5 to 2 millimeters. Customers may notice the engine's ultra-smooth idling.
- **Excellent cold starting.** The small valve opening promotes highly effective vaporization of fuel, even when the engine is being started from cold. The auxiliary throttle<sup>2</sup> further enhances cold starting.
- **No mechanical throttle linkage.** All current BMW engines have electronically controlled throttles, so-called “drive-by-wire.” With Valvetronic, this feature is even more natural: Via the pedal, the driver's call for power is transmitted electronically to the eccentric shaft's electric servo motor.
- **Stepless variation of valve lift.** Valve lift is varied continuously and smoothly all the way from minimum to maximum lift.
- **Lightning-fast system response.** The system can vary lift all the way from minimum to maximum in just 300 milliseconds, or 0.3 sec. To achieve this, BMW developed a dedicated Valvetronic micro-processor, which networks with the 40-megahertz/32-bit primary engine computer.
- **Low friction, precision components.** Every “rubbing point” in the Valvetronic mechanism is not a rubbing (friction) point at all. Instead, a low-friction roller transmits the motion: from cam lobe to intermediate follower, from intermediate follower to rocker arm, from eccentric shaft to intermediate follower. The follower itself is a precision casting in the first place, machined to virtual perfection. Its “boomerang” contour – the working surface that actuates the rocker arm – is machined to a tolerance of 8/1000ths of a millimeter. To ensure quiet operation, zero valve clearance is maintained by a hydraulically adjusted pedestal on which the rocker arm pivots.

**Double VANOS.** Double VANOS steplessly variable valve timing is now in all BMW engines except the 5/X5 Series V-8. Responding to operating conditions and the driver's demands for power, Double VANOS rotates the intake and exhaust camshafts steplessly between "earliest" and "latest" valve timing.

As in other engines with Double VANOS, this feature enhances the engine's torque, fuel efficiency and emission control. Here it operates in combination with Valvetronic to help achieve heretofore unknown levels of performance, efficiency and general operational excellence.

**Fully variable intake manifold: another major new technology.**

Some current engines, including BMW's 2.5- and 3.0-liter inline 6-cylinder units (3, Z4, 5 and X5 Series), employ 2-stage intake manifolds. Generally, these have a flap mechanism that switches between two paths for air entering the engine: one tuned for low- to medium-speed operation (improving torque and response), the other for high-speed operation (improving top-end power).

For the N62 engine, BMW engineers evolved this concept into a fully, steplessly variable intake manifold. The engine team conceived an internal mechanism consisting of two intertwined helical elements which, rotated by an electric servo motor, vary the effective intake length steplessly between 215 and 607 mm (8.5–23.9 in.). Like Valvetronic and stepless Double VANOS, this manifold concept dispenses with traditional compromises to achieve truly optimum performance.

**The proof is in the driving: media praise.** All this ground-breaking technology pays off in real-world

performance, as media critics have found in their test drives:

- *Road & Track*, June 2002: "With all this neat technology you'd expect this N62 engine to be excellent, and it is. The new 7's V-8 responds instantaneously to the driver's right foot as it delivers dose after dose of pure unadulterated acceleration."
- *AutoWeek*, February 25, '02: "It's one of the most robust powerplants on the road today and a joy to operate, especially since it meshes so effortlessly with the 745i's smooth-shifting six-speed automatic transmission."
- *Car and Driver*, January 2002: "This 325-hp Valvetronic V-8 is nothing short of magnificent. Smooth and silent at idle and cruising speeds, it sings a lovely muted tenor note on the boil. And it flat gets up and flies, the transmission handing off from one cog to the next as seamlessly as an Olympic relay runner."
- *auto motor und sport*, Germany, November 14, 2001: "The new 4.4-liter V-8 with Valvetronic is a superior powerplant. In terms of acoustics and vibration, it moves on silky-quiet paws, reacts quickly to the accelerator pedal, and puts out strong power."
- *AutoWeek*, October 22, 2001: "The powertrain felt seamless, too, laying down its 325 hp and 330 lb-ft. of torque across a wider band than anything short of a supercharged engine."

2 – Actually there is an auxiliary throttle, for certain specific functions only: as a fail-safe measure for the unlikely event of Valvetronic malfunction; for diagnostic purposes; to control fuel-tank ventilation; and to improve cold starting. Under virtually all normal operating conditions, this throttle is open.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

**Other advanced features: liquid-cooled alternator, aluminum block.** Continuing an advanced 7 Series underhood feature, the electrical/electronics system is powered by a liquid-cooled alternator. Compared to conventional air-cooled types, the liquid-cooled alternator is more compact, produces more electrical power, and is fully encapsulated for exceptional quietness.

As before, the engine's cylinder block is of Alusil – silicon-impregnated cast aluminum – for light weight and long-wearing durability. New is that instead of the aluminum being chemically etched away (as in the previous 7 and current 5/X5 Series V-8), a so-called “soft honing” machine removes just enough of the aluminum to leave silicon crystals as the ultra-hard cylinder surfaces.

**6.0-liter DOHC (4-cam) 48-valve V-12 engine with direct fuel injection, Valvetronic and Double VANOS** (760Li)

The 760Li's model designation comes from its 6.0-liter V-12 engine, which shares the V-8 engine's basic architecture; this is a dramatic step up from the previous 750iL's already potent 5.4-liter V-12, which delivered 326 hp.

The V-12 engine's Valvetronic and Double VANOS systems are essentially like those of the N62 V-8, and in turn a major departure from the previous V-12's single-overhead-cam valvetrain with 2 valves per cylinder. Unlike the V-8, it does not have the fully variable intake manifold; on the other hand, it adds an innovation of its own: Direct Fuel Injection. In contrast to conventional fuel injection in gasoline engines, direct

injection delivers the fuel directly into the cylinder. This brings advantages in fuel efficiency, power, torque and emission control; together with Valvetronic, Double VANOS, an extra-high compression ratio (11.5:1) and many other detail innovations, the direct injection helps the new V-12 engine attain 438 hp and 444 lb-ft. of torque. Like the 745iLi models' V-8, the V-12 also delivers impressive fuel efficiency considering its performance: EPA ratings of 15 mpg city/23 mpg highway.

**Major evolutionary step: the first 6-speed automatic transmission**

The New 7 leapt forward with an all-new 6-speed automatic transmission that was the first of its type when introduced<sup>3</sup>. Compared to the 5-speed automatics of other BMWs, the ZF transmission's six ratios provide –

- Numerically higher 1st and 2nd gears, enhancing off-the-line response
- Essentially equal gearing in 3rd
- Numerically higher 4th and 5th gears, enhancing response at medium speeds
- A numerically lower 6th gear, for even more relaxed high-speed cruising.

Remarkably, the new unit is lighter and more compact than the 5-speed it replaces, thanks mainly to a new type of planetary gearset called Lepelletier. A new type of control system, called Mechatronic, combines the hydraulic and electronic controls inside the transmission case and thus reduces external wiring.

In addition to sheer improved performance, there are innovative aspects to the transmission's

operation. Most obvious to the driver is a new transmission selector, just ahead of the steering-wheel rim. The connection between this selector and the transmission is electric, not mechanical as in most other automatic transmissions. The driver moves the selector in the desired direction; whenever the selector is released, it returns to its middle position:

- Park – push inward (to the left) on the Park button
- Neutral – transmission will be in neutral anytime the engine is first started. To reach Neutral from Reverse or Drive, push downward or upward to the pressure point.
- Reverse – press upward past the pressure point.
- Drive – press downward past the pressure point.

To move the selector up or down, the driver first pulls it toward the steering wheel. The current position is shown in the instrument cluster. Park is automatically engaged anytime the remote is removed from the ignition switch.

As of January '03 production, all '03 7 Series models adopted a new STEPTRONIC version of this automatic transmission. Though available in Europe, this version had been kept unavailable in U.S. models because of a peculiarity in EPA test procedures that caused such a “manumatic” transmission to achieve a lower EPA mileage rating than a conventional automatic. In the case of the 745i and 745Li, this mileage “penalty” – essentially irrelevant to real-world driving – would have also incurred a Gas Guzzler tax.

Fortunately, the Environmental Protection Agency has changed its testing rules; a vehicle with

STEPTRONIC is now tested exactly as one with a conventional automatic.

The original version had an L/D (Limit/Drive) button on the steering wheel and provided driver-controlled downshifting (but not upshifting) via shift buttons near the wheel's rim. In the new version, downshifts are effected by the same buttons on the steering wheel's face near the rim; upshifts are triggered by corresponding buttons on the forward side (away from the driver). The L/D button is replaced by an S/M/D (Sport/Manual/Drive) button, and operation is essentially the same as with other STEPTRONIC transmissions except that this one is a 6-speed:

- Starting from operation in Drive, the first press of this button switches the transmission to its Sport mode, in which shifts occur automatically but at higher engine speeds than in Drive. (6th gear does not engage in this mode.)
- When pressed a second time, the button selects the Manual mode, after which upshifts and downshifts are controlled by the driver.

## Handling, ride & braking

### Body engineering

The unitized body/chassis structure is a decisive influence on the ride, handling and crash safety of any motor vehicle. BMW has been at the forefront of body construction for a long time, yet there are evolutionary

- 3 – Audi is offering a Continuously Variable Transmission (CVT) in the A4 and A6, in which 6 “artificial” ratios are available to the driver. The MINI's available CVT offers the same capability. And '03 Jaguar S-Type models have a 6-speed automatic similar to BMW's.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

improvements over the outstanding predecessor Series:

- **More extensive use of high-strength steels**, fully 85% of the total steel in the “body in white.” This means greater strength without a corresponding weight increase.
- **Increased use of ultra-strong adhesives.** Called “spot-weld adhesives” by the body engineers, these epoxy materials are applied at various points to bond steel to steel. In combination with conventional welding, they optimize structural strength to a degree that would have been impossible a decade ago.
- **The result: an even stronger shell.** Torsional rigidity is up 10% over the predecessor and, so say BMW body engineers, 30% greater than that of the Mercedes S-Class.
- **Dynamic rigidity: still outstanding.** The “natural frequencies” of the body (i.e. the frequency at which the structure would vibrate naturally if set in motion) are essentially unchanged at a high 26 Hertz in bending, 29 Hertz in torsion. That these two frequencies differ is an important factor in maintaining resistance to vibration.

### Aluminum suspension system

While continuing BMW's proven system of struts and double-pivot lower arms, the **front suspension** is essentially all-new, employing more weight-saving aluminum than that of the previous 7 Series. Aluminum components include:

- Subframe
- Lower arms (links)
- Strut housings
- Steering knuckles.

The **rear suspension**, also evolutionary in that it retains the 4-link Integral system of its

predecessor, makes the evolution to aluminum in –

- Its subframe
- All links.

Furthermore, The New 7 employs **aluminum brake calipers** all around, replacing steel in suspension and brake components that move up and down with the wheels. As with the aluminum suspension, this reduced unsprung weight improves the suspension's response to bumps and other road irregularities; it can markedly improve riding comfort and, on any irregular road surface, handling as well. Here's what some media reports have had to say about The New 7's road capabilities:

- *Automobile Magazine*, April '02, in a comparison test of the 745i, Lexus LS 430 and Mercedes-Benz S500: “Now BMW has built a large car that drives as adeptly as an M5. The steering wheel talks to you. You can place the car within an inch of every cornering apex.”
- *Car and Driver*, January 2002: “All U.S.-bound 7s will be equipped with BMW's new active anti-roll-bar system that virtually eliminates all body roll in moderate driving regardless of EDC mode. Even in quick transient maneuvers, we couldn't outdrive the system; that is, it wouldn't zig while we were zagging. The ability to effectively disconnect the anti-roll bars when driving in a straight line smoothes the ride immensely, especially on narrow lanes with uneven shoulders as on our test loop.”

And not to be neglected here is that the **hood and front fenders are of aluminum**, contributing to the excellent front/rear weight distribution for which BMWs have long been known. All 7 Series

models come very close to the optimum 50/50 front/rear weight distribution.

### Active Roll Stabilization

A distinctly high-tech suspension innovation, ARS (the “active anti-roll-bar system” *Car and Driver* commented on) reduces body roll, also known as body “lean,” in cornering. This improves handling by virtue of improved suspension geometry (wheel angles relative to vertical), but there is a psychological component as well: Drivers and passengers alike will marvel at The New 7’s “flat cornering.” ARS consists of –

- **Active anti-roll bars**, replacing conventional purely mechanical (“passive”) front and rear bars. Each bar consists of left and right portions, twisted in opposite directions by a hydraulic motor between them.
- A **valve/sensor block** containing various system valves and sensors.
- A **lateral-acceleration sensor** to detect how hard the vehicle is cornering.
- An **electronic control unit (ECU)** regulating the entire system.
- A **tandem oil pump** which, via its two sections, provides hydraulic pressure for ARS and the power steering.
- An **oil cooler**, reservoir, filter, oil-level sensor and the various hoses, mounting brackets and other minor components.

Whenever the vehicle enters a corner or curve, or begins an avoidance maneuver, “lateral acceleration” is generated. This is read by the sensor, which transmits a signal to the ECU. The ECU processes this signal and transmits it to the valve/sensor block. In turn, the valve/sensor block determines the hydraulic

pressure applied to the active anti-roll bars to control body roll.

The key word here is “active.”

Active Roll Stabilization –

1. Generates resistance to body roll by twisting the front and rear anti-roll bars.
2. Does so in a stronger and more highly “tailored” way than can conventional anti-roll bars.
3. Does not offer resistance to bumps in straight-ahead driving, as conventional anti-roll bars inevitably do<sup>4</sup>.
4. Increases the vehicle’s maximum cornering capability.
5. Improves steering response, particularly in the range of cornering where body roll is most tightly controlled.

Though it delivers similar benefits, ARS differs from the Active Body Control (ABC) system Mercedes-Benz offers on its CL coupes (standard) and S-Class sedans (optional at \$3,020).

Mercedes’ system is more complex; it employs a hydraulic actuator at each wheel, eliminating anti-roll bars altogether. The actuators are “rams” or plungers atop each spring strut; in a corner, these rams push downward on the outside wheels’ struts and pull upward on those at the inside wheels. ABC offers the driver a choice between two levels of roll control, Sport and Comfort – the latter allowing more body roll. ABC also influences riding qualities in a certain range. Over a road surface that might set the body into gentle pitching or heaving motions – called “float” – ABC plays a role in controlling the

4 – BMW has achieved great sophistication in the way conventional anti-roll bars work – as evidenced by the superb handling and riding comfort of all contemporary BMWs.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

body; over road surfaces that would generate more nervous, “jiggly” body movements, ABC does not act.

With its application directly to the components most affecting cornering – the anti-roll bars – BMW feels that ARS is an appropriate solution for BMW’s dynamic handling. And in contrast to ABC’s option status in the S 430 and 500 models, ARS is standard in every New 7.

An **Adaptive Ride Package**, consisting of new-generation Electronic Damping Control and self-leveling rear air suspension, is available on both 745 models and standard on the 760Li; see **options & accessories** for details.

### **Rack-and-pinion steering**

Japanese makers adopted rack-and-pinion steering systems for their luxury cars early on, but BMW worked longer to achieve the advantages of the rack-and-pinion mechanism while overcoming its one drawback: greater road shock felt at the steering wheel. Rack-and-pinion’s advantages are:

- Precision of road feel
- Lack of “free play” at the steering’s center position
- Lower weight, because there is no center arm.

BMW’s 3 and Z Series, 5 Series 6-cylinder models and X5s have long used rack-and-pinion steering. Now, development has produced a rack-and-pinion system that brings the above advantages to the 7 Series, while isolating road shock from the steering wheel to the degree expected in a large luxury car.

To enhance the weight advantage, the rack-and-pinion housing is made of aluminum. It also includes a feature first seen on

the 5 Series and Z8, a **variable steering ratio**. The rack-and-pinion gear teeth are profiled to make the steering ratio<sup>5</sup> “quicker” as the wheel is turned away from the center position. This fine-tunes steering response according to conditions, be it on an Interstate at today’s high cruising speeds or maneuvering into a parking space.

The 7 Series continues with **Servotronic** vehicle-speed-sensitive variable power assist, which significantly reduces steering effort in parking and at low road speeds. Variable steering ratio and variable power assist are not the same thing; they are two separate features, here optimally complementing each other.

### **BMW’s biggest, most powerful brakes ever**

All 7 Series models have ventilated discs all around, with hefty 13.7-in./348-mm front discs and 12.9-in./345-mm rear discs.

Additionally, **aluminum calipers** reduce unsprung weight; these can be seen as part of the overall “aluminum suspension system.” Further notable brake features include:

### **Electromechanical parking brake.**

A first in a production automobile; applied electrically rather than by human effort. To engage it, the driver presses a button at the lower left side of the instrument panel. This brake also functions as an emergency brake in the unlikely event of a failure of both circuits of the wheel brakes: In this instance the driver presses the brake button, and the parking brake then retards the vehicle at a moderate rate of deceleration.

**Automatic Hold.** As part of the iDrive system (see pages 61-64), this function holds the brakes anytime the vehicle comes to a stop, then releases them when the driver steps on the accelerator pedal.

**Brake-wear display.** Instead of a simple warning indicating that it's time to renew the brake pads, the iDrive monitor offers within its OB Data menu a display of the estimated mileage at which replacement of the pads will be due.

### **Generously dimensioned wheels and tires on all models**

Every 7 Series model is standard-equipped with very generously dimensioned wheels and tires: 18-in. on the 745i and 745Li, 19-in. on the 760Li.

On the two 745 models, 18 x 8.0 wheels carry 245/50R-18 V-rated all-season tires. Optional on the 745i/Li (now as a stand-alone option or part of the Sport Package) and standard on the 760Li are 19 x 9.0 front/19 x 10 wheels with 245/45R-19 front / 275/40R-19 rear W-rated performance tires. This equipment further enhances handling and sporty appearance.

All models are available optionally with run-flat tires in the 18-in. size; see **7 Series options & accessories** and **BMW features** for details. For customers who prefer a less sporty wheel-and-tire combination, the 760Li is also available with 18-in. wheels and all-season tires.

Wheel designs are as follows:

- **745i/Li standard 18-in.** – Double Spoke, design #93
- **760Li standard 19-in.** – Star Spoke, design #89
- **Run-flat 18-in., optional all models** – Multi-Spoke, design #94, with special run-flat rim design

- **745i/Li optional 19-in.** – Star Spoke, design #95
- **745i/Li Sport Package 19-in.** – V Spoke, design #126M
- **760Li optional 18-in. with all-season tires** – forged 760Li Exclusive, design #91.

### **Dynamic Stability Control with Dynamic Traction Control function**

It has always been possible to de-activate All Season Traction (earlier models) or Dynamic Stability Control (all current BMW models) via a console switch. The 7 Series DSC system adds a newer capability called Dynamic Traction Control or DTC. (This function was also added to 3 Series in 2002 and is included in the Z4 Series.)

DTC improves utilization of available road traction under specific conditions, including –

- on sand, gravel, deep snow or packed snow
- climbing hills with deep or packed snow
- when there is deep snow on only one side of the road
- when driving with tire chains.

Via the iDrive Configuration menu, the driver may either fully de-activate DSC (except that antilock braking remains active), or activate the DTC mode. With DTC selected, engine intervention is de-activated at low speeds, leaving only the individual wheel brakes to control wheelspin. When the vehicle reaches a speed of approximately 43 mph, normal DSC operation is re-instated until speed once again drops below this threshold, at which point DTC operation resumes.

5 – The steering ratio is the number of degrees the steering wheel must be turned to steer the front wheels by 1 degree.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

When DTC is selected (as also when DSC is de-activated), the DSC indicator in the instrument cluster flashes to remind the driver. When the engine is shut off and re-started, the system defaults to full DSC operation.

### Exterior & aerodynamics

#### The look:

##### a keyword is “presence”

Christopher Bangle, Director of Design at BMW AG, and his design team set a progressive direction for the E65 look. “The dynamic is all BMW. But the presence is new. The ‘green-house’ – the passenger cabin, that is – is set back, making it clear that there is Power up front. The wheels are big,” continues Bangle, referring to wheels and tires that, together with increased vehicle height, reinforce the new models’ presence. Bangle also points out that the “rocker panels” or side sills underscore the big-wheel look by in essence “pointing” toward the wheels at the front and rear.

#### See and be seen

Bangle describes the typical BMW “kidney” grilles and headlights flanking them as a “captivating face, with low, eagle-like eyes.” These eyes, also in the BMW tradition with four round lamps, are set relatively low with the turn indicators (eyebrows) above them. The outboard beams are Bi-xenon, with high-intensity-discharge low and high beams; inboard are conventional Free Form lights that serve the flash-to-pass and Daytime Running Lamps functions. All four beams have light rings, which function as parking lights and illuminate anytime the parking- or headlights are switched on. High-intensity liquid headlight-

washer nozzles are recessed into the front bumper, emerging only when actuated.

#### Elaborate windshield wiper/washer system

Wipers and washers are critical to safety and driving ease; BMW engineers have devoted a lot of attention to them. The reversing of direction that occurs each wiping cycle is accomplished by an electronically controlled reversing motor rather than conventional wiper linkage; this allows the system to bring the wiper right up to the driver’s-side A-pillar at all vehicle and wiping speeds, and with less noise and impact. The actual wiped area is up 10% from that of the predecessor models, improving the driver’s field of vision in the rain.

When parked, the wipers periodically (every three days or so) move, so that the rubber wiper blades do not get “set” into a distorted position from long stationary periods.

The washer nozzles are on the wiper arms themselves, saving washer fluid by applying it right where needed. There are yet more innovations here, but these are the most significant from the customer’s viewpoint.

The windshield itself is of the infrared-reflecting Climate Comfort type to reduce solar heat in the cabin.

#### At the rear

The main taillight units are outboard, and incorporate high-tech 3-dimensional LEDs for their tail- and brakelights. The 3rd brakelight is also in LED, as are the rear reflectors. Additional taillamps and the backup light are in a light band across the trunklid, extending from the sides of the license-plate recess. A “world first” feature here is adap-

tive brakelights, which signal the intensity of the 7 Series driver's braking to following drivers:

- Under normal braking, the outboard and 3rd brakelights illuminate as usual.
- Under hard braking or when the ABS is activated, the taillights join the brakelights (at the same lighting intensity as the brakelights) for a significant increase in visibility of the brakelights.

Adaptive brakelights also appear on the Z4 and the 2004 3 Series Coupes and Convertibles.

### **Functional “redundancy”**

Another lighting innovation is that in case of burnout of certain exterior bulbs, a nearby bulb (one normally used for a different function) is “commandeered” automatically until the defective bulb is replaced. The Check Control monitor system alerts the driver to the burned-out bulb.

### **A dramatically clean design**

Another striking element is a relative lack of exterior trim. With no body-side moldings at all, The New 7 is notable for utter purity of line. Overhangs – distances from wheel centers to the ends of the vehicle – are compact, contributing to the substantial, yet sporty look.

Among functional elements, BMW has adopted the convenient, clean “push-push” fuel-filler door: Press inward on its rear edge and the door pops out so that it can be opened. To close it, simply press inward again. No lip is required. The door's movement is even damped for smoothness: attention to detail.

The New 7 is one of the boldest design steps BMW has taken in decades. It is dramatic...exciting ...a new exercise in functional esthetics and esthetic functionality.

## **Ergonomics & luxury**

### **iDrive: the new way to command a BMW**

Contemporary luxury automobiles pose an ever-growing challenge to their designers: how to accommodate the extensive functions that modern technology offers without an array of controls that overwhelms the driver. iDrive is BMW's solution to this challenge.

By dividing the vehicle's control environment into two areas – Driving and Comfort – iDrive separates those functions that pertain directly to vehicle operation from those that relate more to occupants' comfort and well-being.

### **The Driving Zone**

Basic driving functions have not changed in any fundamental way. As always in BMWs, all primary driving controls are clustered around the steering wheel – now including the automatic-transmission selector, which has been moved to a position that allows fingertip operation from the steering wheel. Similarly, functions that drivers and front passengers use often – basic climate and audio controls – are in their customary places, and operate in familiar ways. Prospects should be encouraged to get in, buckle up and drive, just as one has always done naturally in a BMW.

The “primary area” of iDrive, that area most directly associated with driving and general vehicle use, is composed of the following elements:

#### **New multi-function remote control.**

The remote control omits a conventional key for insertion into the ignition switch. Instead, the driver inserts the remote itself into a slot. The remote includes all familiar BMW functions (see **BMW features**).

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

**Reserve key.** A small “reserve key” is carried inside each remote. Its main function is to lock the center-console compartment separately; it may also be used in a conventional lock in the driver’s door, but it is not designed for constant use.

**Start/Stop button.** After inserting the remote into the slot, the driver actuates the adjacent Start/Stop button to start the engine and turn on the instrument lighting. 1-touch starting, which allows the driver to start the engine with just a quick touch of the button, continues as a 7 Series feature. The Start/Stop button is also used to switch off the engine.

The brake pedal must be depressed for the Start/Stop button to start the engine. If it is not, the button can be pressed alternately to switch on the accessory or ignition current (these correspond to BMW’s traditional “1” and “2” positions) and to switch everything off again.

**Electric transmission selector.** Includes the transmission selector on the steering column and shift buttons on the steering wheel. Note: electric, not electronic.

**Other steering-column stalks.** Like the transmission selector, the other control stalks operate electrically rather than mechanically, always returning to their central position after being actuated in one direction or the other.

On the left side are the –

- Turn-signal/lighting/Onboard Computer stalk.
- Cruise-control stalk. The Resume function is via an additional button on the stalk, which one tips inward.

On the right side, in addition to the transmission selector, is the wiper/washer stalk.

**Main instruments with LCD displays.** In a perfect combination of BMW tradition and iDrive future, virtually the entire instrument cluster – including speedometer and tachometer faces – is available for the many warnings, indicators and displays that help keep the driver aware of what’s going on with the vehicle and environment.

Odometers, fuel level, Service Interval Indicator, Onboard Computer, Check Control and GPS Navigation indications can all appear in the instrument faces; those for GPS Navigation give visual instructions and location information closer to the driver’s direct line of sight than the more extensive GPS display in the monitor. Many other indicators, including those for the transmission range and gear, turn signals, high beams, outside temperature, and clock, are displayed as appropriate in the cluster.

Illumination of the cluster automatically adjusts to ambient light levels: transmissive at night, reflective in daylight. As in the M5 and M3, the tachometer’s warning segment varies according to engine temperature, indicating a low rpm limit when the engine is cold and increasing this limit as the engine warms up.

**Electromechanical parking brake and Automatic Hold.** Also part of the iDrive system’s Driving area.

**Programmable cruise control.** With the vehicle stationary, the driver can pre-program up to six desired speeds, corresponding to various speed limits or driving preferences, and then retrieve them at any time by pushing the stalk forward or pulling it rearward past a detent. The current speed can be captured as one of the programmed speeds.

## The Comfort Zone

For this extensive set of functions, a “secondary zone” is positioned centrally in the front occupant compartment. For simplicity, we call it the Comfort Zone; actually it encompasses a wide range of comfort, convenience and informational features and also presents users with useful and interesting choices in how certain features and functions operate.

Here, BMW has applied the Navigation System’s proven concept: a color monitor with control menus, and a controller. More functions than ever are controlled in this manner, and the controller has migrated from the monitor panel to a central position between the front seats. Also, the controller includes force feedback: According to the functions it is controlling, it gives the user an appropriate tactile feedback. The controller is equally accessible to the driver and front passenger, and is finished in satin aluminum.

### The menus: eight “compass points”

Each time the remote control is inserted into the ignition lock (there is no conventional key for the ignition lock), the monitor displays its Orientation Menu, indicating the eight directions the controller can be moved to select the eight control menus.

Beginning at “north” (top), the four **primary menus** and their basic functions are:

**Communication.** Memory dialing, display of missed calls, and other functions.

**GPS Navigation.** Unique to the 7 Series is a simplified version of the route instructions that appears in the tachometer face. A new DVD database, improved func-

tions and freshened graphics were phased into the 7 Series as of 3/03 production.

**Entertainment.** In addition to the basic audio controls on the instrument panel, extensive audio-system functions (FM/AM/CD selection, radio tuning and station presets, tone, DSP of optional Logic 7 system, etc.) are available on this screen.

**Climate.** Frequently used climate controls are permanently located at dash center; less frequently used settings are here. One may override the automatic airflow settings by setting preferred flow levels and relative temperature levels to defroster, dash vents and footwells – separately for the driver’s and passenger’s side. Airflow and temperature scales are depicted graphically. Via “individual” and “store” menu choices, one can even store a user’s preferred set of airflow adjustments and recall them later. A unique feature here is the ability to vary the relative heating levels of the available<sup>6</sup> heated front seats’ cushions and backrests by as much as 5°F; the heating levels are depicted in a graphic of the seat as this is done.

The **secondary menus** are at diagonal compass positions. Beginning with “northwest” (top left), these are:

**OB Data.** This section consists of –

- Onboard Computer – with familiar functions including arrival time, distance, range, two consumption (fuel economy) averages and two speed averages; speed limit; and stopwatch.
- Service/Check – exclusive to 7 Series. 6 rows of service items, 5 items each; click on

6 – Optional 745i/Li, standard 760Li.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

each one to get mileage remaining to required service. (The familiar Service Interval Indicator shows the distance to the next overall service operation in the display at the bottom of the speedometer each time the ignition is switched on.)

**Help.** Explains monitor functions with short texts. The help screen appears in a split screen with other screens; the user puts the cursor on a function on the screen in question, and sees its explanation on the adjacent help screen.

**Settings.** The user can choose the units in which information is displayed – choices like mpg, liters/100 km or km/liter; miles or km; °F or °C; lb./sq in. or bar; 12- or 24-hour clock, etc. – and the language in which all displays read (English, French and Spanish are available in U.S. models).

This is also the screen where one can –

- Activate or de-activate DSC and DTC
- Select the (optional) EDC Sport or Comfort settings
- Initialize the available Flat Tire Monitor
- Select or de-select Automatic Hold (called “Auto P” on the monitor)
- Select a Park Distance Control graphic, which depicts in color on a vehicle plan view the fields that PDC (optional on 745 models, standard on 760Li) monitors around the front and rear of the vehicle and shows where actual obstacles are encountered by the system.
- Vehicle & Key Memory settings chosen by the driver (i.e. not BMW Center), such as –
  - Selective unlocking
  - Automatic locking when vehicle reaches 5 mph

- Operate a number of other features and functions. There's even a button by which the user can program a desired function for a “blank” switch on the steering wheel.

These functions automatically become associated with which remote is currently inserted in the ignition switch (Key Memory).

**BMW Assist.** Basically familiar from the current Navigation System screen, this screen is the simplest of all, offering three choices:

- **Roadside Assistance.** When selected, the vehicle's actual location is shown on the monitor and an Activate button appears. Clicking on the Activate button connects the user with the BMW Roadside Assistance Center and transmits the location to the Center. Requires cellular service.
- **Your BMW Center and Customer Relations.** Users can place a voice call to their preferred BMW Center or to BMW Customer Relations by selecting the appropriate button. The selling BMW Center programs these numbers into the system as part of the pre-delivery preparation. Require cellular service.

Emergency calls are placed via the SOS button above the windshield.

### Stepless door checks

Even with the excellent 2-position door checks of current BMWs, how many times have we wished there were another place to hold the door open? The 7 Series' door checks are hydraulic and stepless, holding the door at any position to which the occupant opens it; they are effective with the vehicle pointing uphill up to 10°, or leaning to one side or the other up to 6°.

Soft-close doors are available as part of the Convenience Package for 745 models and standard on the 760Li; see **options & accessories**.

### **A roomy cabin**

Model for model, The New 7 is slightly longer (1.8 in.), wider (1.6 in.) and taller (2.2-2.6 in.) than its predecessor; its wheelbase (117.7 in. for 745i, 123.2 in. for 745/760Li) is a substantial 2.3 in. longer. These gains in vehicle size translate to 0.9 in. greater shoulder room and fully 1.8 in. more head room in the front compartment; 1.5 in. more rear leg room; and 0.6 in. more rear head room. "There is so much leg room in the rear seat that one hardly feels a need for the long-wheelbase version," commented Germany's auto *motor und sport* magazine in its November 14, 2001 issue.

### **Multi-function steering wheel with expanded functions**

The multi-function steering wheel, described in **BMW features**, appears in evolved form.

Controls that distinguish it from versions in other models are:

- Voice Activation on/off.
- Transmission mode (S/M/D, Sport/Manual/Drive)
- An individually programmable button, which can be set by the user to control various functions quickly and easily:
  - Automatic Hold (Auto P)
  - Recirculating air
  - Display navigation information in tachometer face
- STEPTRONIC upshift buttons near the steering-wheel rim, facing the driver; downshift buttons on the forward side of the wheel (away from the driver).

The steering wheel is power-adjustable by 2.0 in. in tilt, 3.1 in. telescopically, included in the

memory system, and equipped with auto tilt-away for entrance and exit.

### **Auto-dimming inside and outside mirrors**

An auto-dimming electrochromic inside rearview mirror was long standard in the 7 Series; now auto-dimming outside mirrors are also standard.

### **Seating: many choices, unique controls**

The 745i's standard front seats include the following power adjustments:

Both seats:

- Fore-aft
- Head-restraint height
- Seat height
- Backrest angle
- Lumbar-support firmness
- Lumbar-support height

Driver's seat only:

- Cushion angle

The head restraints are coupled with fore-aft seat adjustment: farther forward (shorter driver), lower head restraint and vice versa. (Fine adjustment of the head restraints is manual.)

Counting the coupled head-restraint movement as a power adjustment, the front seats can thus be termed 14-way driver/12-way passenger, including 4-way power lumbar. The standard memory system captures two preferred positions for the driver's seat, steering wheel, outside mirrors and safety-belt height.

### **20-way front Comfort seats (standard 745Li & 760Li, optional 745i)**

Comfort front seats are standard in both long-wheelbase models and optional in the regular-wheelbase 745i model. While retaining the distinctive adjustable upper backrest section from

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

previous models, they add significant new features:

### Adjustable thigh support.

Familiar from BMW sport seats, this fore-aft adjustment of the seat cushion's forward section tailors the seat to occupants' various desires for support under the thighs.

**Adjustable backrest width.** The backrests' side bolsters spread or narrow to accommodate the occupant's back and shoulders.

Power adjustments are thus as follows (asterisks denote upgrades over the standard 745i seats):

- Fore-aft
- Cushion angle on both seats\*
- Seat height
- Backrest angle
- Angle of upper backrest\*
- Fine adjustment of head-restraint height \*
- Firmness of lumbar support
- Height of lumbar support.

Head-restraint height is coupled with the fore-aft position as on the standard 745i seats, but fine adjustment by the occupant is powered (standard 745i seats: manual). Head-restraint angle is manually adjustable.

**Memory for both front seats** rather than only the driver.

**Active head restraints,** described on page 72. These head restraints also include adjustable side extensions that help support the head of an occupant using them as head-rests, as for example when sleeping.

### Active Support front heated and ventilated seats (standard 760Li, optional 745i & 745Li)

The 760Li comes standard with three additional features that are available optionally in the 745 models:

**Active Support feature.** Employs two stretchable hollow cavities, filled and emptied alternately with a freeze-proof liquid. This slow, gentle process (repeating about once a minute) creates a cyclical raising and lowering of the seat cushion's left and right halves by about half an inch; the driver and passenger can switch it on or off as desired. The movement is virtually imperceptible, yet it helps relieve fatigue and discomfort during extended trips.

**Active Ventilation.** A fan inside each front seat gently blows air upward through an internal web and the microperforated leather to provide ventilation that helps keep occupants' clothes free of perspiration.

**3-stage heating,** controlled by switches on the console sides. Beyond the 3-stage heating, the front seat heating incorporates two functional and sophisticated capabilities:

- **Rapid heating.** Each seat incorporates four heating zones: center of cushion and backrest, edges of cushion and backrest. When the heating is first switched on, the center zones heat at full power almost to their regulated heat level; then the outer zones join and all are brought up to the regulated level.
- **Balance control.** The relative heating level of cushions and backrests can be varied by as much as 5°F from each other via the iDrive Climate screen; the heating levels are depicted in a graphic of the seat as this is done. Included in Key Memory.

Front-seat heating is available in 745 models as either a stand-alone option or part of the Luxury Seating Package or the Cold Weather Package. The front

Active Support and Active Ventilation features are available in 745 models in the Luxury Seating Package, and standard in the 760Li.

### **Heated rear seats**

(standard 760Li, optional 745i & 745Li)

The rear-seat heating has 3-stage heating and switches as at the front, but without the balance control. It is included in the Cold Weather Package and Luxury Seating Package of both 745 models.

### **Comfort rear seats**

(standard 760Li, optional 745Li)

This ultimate rear seating, newly including Active Ventilation for 2003, is described in **options & accessories**.

### **Seat controls**

Power seat controls, both front and rear, are located on the outboard sides of the front center console and rear center armrest. Each group consists of a "menu" and a "motion switch."

The "menu" pushbuttons represent the various portions of the seat; the portion to be adjusted is selected by pressing its button. (That button then illuminates.)

The motion switch can be pressed upward or downward, or rotated as appropriate to the desired motion.

Preferred seat settings for individual users can be programmed by the BMW Center in the Key Memory system. The memory buttons are also on the console sides, as are controls for seat heating and ventilation.

### **Multifaceted console compartment**

Between the front seats is a very spacious compartment with dual, opposite-opening, lockable lids. The compartment includes the following features:

- Climate control, via air from the climate system
- Illumination
- Coinbox
- Phone handset mounting
- Trunk-release lockout.

The dual lids are locked with the reserve key, which the vehicle user can then take while leaving the remote with a parking attendant or service personnel. This secures the phone and belongings, plus (if the trunk release is locked out) the trunk. The dual lids also enable the driver or passenger to continue using his or her half as an armrest while the other opens the compartment – useful when one is using the controller. Air volume into the compartment is varied by adjusting the air grille there; when the climate control is heating the interior, users may want to close off the air.

### **Unique power-window features**

The New 7 has BMW's lift-to-close, push-to-open switch style, and adds a unique refinement: As each window approaches fully closed or open, it slows down gradually. This reduces any noise at these points, and helps the mechanism last longer.

### **Automatic climate control**

In its range of functions, the climate-control system is BMW's most comprehensive. It includes –

- Left/right temperature controls
- Left/right automatic airflow volume and distribution
- User override of airflow volume and distribution
- Activated-charcoal microfilter ventilation
- Automatic recirculation control (2 gas sensors)
- Solar sensor for front compartment
- Temperature-controlled rear air outlets, left/right controllable

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

- Heat at Rest function
- Automatic ventilation system
- Preferred override settings for individual users via Key Memory.
- Climate-controlled front console compartment
- Air outlets in the B-pillars (for rear passengers, airflow adjustable)
- Stronger-than-ever air-conditioning performance.

Basic climate controls, as used for normal (predominantly automatic) operation, are positioned conventionally at the instrument panel's center:

- AUTO selector (for normal automatic airflow distribution), left and right
- Selector for automatic or user-selected recirculation
- Defrost button, for maximum clearing of windshield and side windows
- Temperature knobs, left and right
- Air volume (blower speed), left and right; overrides AUTO control
- REST button (Heat at Rest)
- Max A/C button
- A/C compressor on/off
- OFF button.

The switch for rear-window heating is also in this panel.

For overriding the automatic airflow distribution, adjusting relative temperature and flow of air from the dash vents, adjusting the distribution of seat heating (where present), and setting the automatic ventilation function, users select the CLIMATE screen on the color monitor and adjust intuitively using the controller.

### Audio systems

As in other current models, the base audio system comes standard with an in-dash single-

disc CD player; a cassette player can be specified in place of the CD player at no extra cost.

Consistent with the climate system, the most frequently used audio controls are "out in the open" on the dash: on/off, volume, CD eject; other, less frequently used, controls are selected in the monitor via the ENTERTAINMENT screen.

The standard system's 10 speakers are as follows:

- 100-mm midrange in each front door
- 44-mm tweeter in mirror triangle of each front door
- 100-mm midrange at each side of rear shelf
- 44-mm tweeter at each side of rear shelf
- 210-mm central bass (sub-woofer) under driver's and front passenger's seats.

### Premium Sound Package (standard 760Li, optional 745 models)

This state-of-the-art audio system upgrades sound quality to a true audiophile level, and includes a 6-disc CD changer:

**Logic 7 audio system.** Upgrades the entire audio system with –

- Increased audio power
- Even higher-caliber speakers throughout, plus additional speakers (total 13 speakers, vs. standard 10)
- Digital Sound Processing (DSP)
- Surround Sound simulation.

DSP is adjusted on the color monitor. Speakers are as follows; an asterisk (\*) denotes additional speakers over the standard system –

- 100-mm midrange fill speaker, center of dash\*
- 100-mm midrange in each front door
- 44-mm tweeter in mirror triangle of each front door

- 100-mm midrange in each rear door\*
- 100-mm midrange surround speaker at each side of rear shelf
- 44-mm tweeter at each side of rear shelf, inboard of surround speakers
- 210-mm central bass (sub-woofer) under driver's and front passenger's seats.

Developed by Lexicon, Logic 7 incorporates an exciting Surround Sound process, as in current Harman Kardon home A/V receivers. Exclusive to Harman International brands, this process provides truly unique and realistic reproduction, generating a 360° sound field and accurately re-creating the acoustic intent of the original studio master. Logic 7 offers –

- The world's first automotive application of a multi-channel format
- A new benchmark for the automotive industry
- Unparalleled acoustic realism and clarity
- A significant point of differentiation for our customers.

**In-dash 6-disc CD changer**, mounted above the glove compartment. It retains a magazine, as opposed to one-disc-at-a-time insertion/ejection of other in-dash changers offered by BMW.

### **Standard BMW Cellular Phone System with Telecommander**

The CPT 8000 Timeport phone system is standard in E65 models. It features:

- **Tri-mode, dual-band phone** with 1900-MHz CDMA/TDMA, 800 MHz CDMA/TDMA, or analog operation.
- **Telematics.** Automatic notification of BMW Roadside Assistance upon airbag deployment or triggering of

alarm system. 1-touch assistance calls via the iDrive monitor or a dedicated button above the windshield.

- **Telecommander.** A unique second phone keypad, carried in a convenient pull-out tray in the dash near the driver, with which one can –
  - Manually dial calls
  - Send or end calls
  - Turn the phone system on or off
 – more easily than with the handset in the center console compartment. For safety, the console handset is inoperable when the vehicle is in motion.

### **Voice Command System**

Via the phone system's hands-free microphone, voice activation can be used to activate a number of functions, including –

#### **Phone system:**

- Dial phone numbers stored in the phone book, using voice tags (example: "work")
- Dial spoken phone numbers (such as 1-201-307-4000)
- Redial phone number last called
- Store new names and numbers in phone book, up to 50 entries
- Delete numbers from phone book

#### **Navigation system:**

- Activate destination guidance
- Adjust volume of navigation instructions
- Get information on current location or destination (examples: hotel, fuel station)
- Select map scale (400 ft., 800 ft., 1/4 mile, 1/2 mile, etc.)
- Save current location
- Select "New Route"

#### **Notepad:**

- Record several short notes or one long note, up to 5 minutes total time
- Playback of voice notes
- Delete voice notes.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

So that conversations can be held inside the vehicle without accidentally activating the phone or other systems, this feature must be activated before each use by its “voice icon” control on the multi-function steering wheel.

### Interior lighting

Includes the greatest range of lighting amenities ever offered in a BMW. Features include:

- Left/right front reading lamps (in headliner)
- Front courtesy lamp (in rearview-mirror housing)
- Footwell lighting front and rear
- Vanity-mirror lighting above sun visors
- Glovebox, center-console and trunk lighting
- Exit/entry lighting in door panels (in addition to ground lighting/handle illumination at exterior door handles)
- BMW Ambiance Lighting, now bathing all four door panels as well as the front center console in soft LED light
- Rear roof console with left/right reading lamps, illuminated and swiveling visor vanity mirror, courtesy light and Ambiance Lighting
- Ambiance lamps in the C-pillars (760Li only).

A new feature is that via Key Memory, the BMW Center can program the interior lighting to suit different customer preferences, in brightness and functional details. BMW believes The 7 offers class-leading interior and exit/entry lighting.

### Upholstery and trim

Standard in all models is a high-quality leather grade called Nasca with microperforations, which promote natural ventilation and facilitate the Active Seat

Ventilation that's now available for the front and rear seats. All models have this leather on their seats and door panels; the 760Li adds leather to the dash and the backs of the front seats, and includes a leather bag for vehicle documents. Alcantara headliner and sun visors are also exclusive to the 760Li.

Elegant wood trim is applied all the way across the instrument panel; on the center console, front and rear; and on all four doors (shoulder level and arm-rests). In the 760Li, wood also appears on the backs of the front seats and on the roof grab handles.

Counting the two colors available for each of two types of wood in the 745 models, altogether five wood trim schemes are offered: **745 models, standard.** Matte-finish Black Cherry wood is standard. With Beige, Flannel Gray, Natural Brown and Stone Green interiors, the wood is light in color; with Black, it is dark.

**745 models, optional at no extra cost.** High-gloss Ash; light finish with Beige interior, dark with all other interior colors.

**760Li.** High-gloss light and dark Ash, with inlays separating the two wood tones.

745i/Li models with Sport Package are upholstered in a distinctive Pearl leather grade, available in four colors (no Natural Brown); the light high-gloss wood is not available with this Package.

Metal finishes occur in two contrasting forms on many interior elements, including door handles, dash and door trim, control panels and escutcheons, buttons, air outlets, cupholders and the transmission selectors.

### Trunk features

The trunk accommodates four golfbags transversely: four 45-in., or three 46-in. plus one 45-in. It is also configured for five standard Samsonite pieces: two large, two medium and one small. Trunk lining is in a new textured material called Moleskin II.

A new concept in trunk hinging, the single-link tubular hinge, eliminates any intrusion of the hinges into the trunk space and facilitates both the standard full opening (via a spring pack) and the automatic trunk opening/closing (optional 745 models, standard 760Li; see **options & accessories**).

### Safety & security

#### “World’s safest car” was BMW’s goal

According to Josef Mahalek, Manager of Development of Safety-Systems Electronics, BMW’s goal was to develop “the safest automobile in the world.”

The New 7 embodies all the BMW safety features described in **BMW features**, plus its own special equipment and engineering. Some of these are unique; some appear for the first time in a BMW; others appear for the first time in any motor vehicle.

#### Active Knee Protection

To meet U.S. safety regulations, all U.S. BMW models incorporate specific knee protection in the lower instrument-panel areas. With The New 7 (and now the Z4 Series), BMW advances this feature with Active Knee Protection: dedicated airbags backing up the padded surfaces that meet occupants’ knees in a frontal impact. This accomplishes several things:

- Reduces the amount of space occupied by the knee protec-

tion, leaving room for features customers value.

- Increases the knee protection’s effectiveness.
- For belted occupants, allows finer “tuning” of the other restraint systems (safety belts and front airbags).

#### Front and rear Advanced Head Protection System (AHPS II)

Front HPS, described in **BMW features**, continues in all 5 Series and closed-body 3 Series models and their derivatives (M3 Coupe and M5). Unique to the 7 Series is the extension of this concept to the rear-seat passengers with the 2nd-generation Advanced Head Protection System, or AHPS II<sup>7</sup>. Whereas the familiar front HPS is an inflatable tube from the A-pillar to a point over the rear door, AHPS II extends all the way from the A-pillar to the C-pillar, with a “sail” connecting it to the roof structure between these two points. The sail is of airbag-type material; between it and the long inflatable tube itself, essentially all body-side and side-window areas likely to be impacted by an occupant’s head are covered by the sail and inflatable tube.

According to BMW safety engineers, the new front/rear system –

- Combines the best protective attributes of BMW’s HPS and competitive “curtain”-type systems.
- Offers the same advantage as the front-only HPS in extended crash sequences (such as a rollover) in that after deployment, it remains inflated for approximately 7 seconds.

7 – A rear HPS is now standard in 5 Series Sedans, but it is composed of separate airbags at the C-pillars rather than being a continuous front/rear system.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

- Because of its relative rigidity once inflated, provides protection against shattered glass and intrusions from the outside.
- Can protect persons of small or large stature.
- Deploys in the desired sequence, that is from front to rear.
- Requires only one gas generator per side, as compared to two for some competitive curtain-type systems.

APHS II is not merely the addition of a rear HPS to the standard front one; instead it is an integrated system from front to rear.

### Active Head Restraints

(standard 745Li & 760Li, optional 745i)

Although Saab and Volvo offer a similar feature, BMW's version employs pyrotechnic activation that is faster-reacting than their mechanical deployment. Via two additional impact sensors at the rear of the vehicle, a rear-end collision causes the front head restraints to pivot forward into close proximity with the occupants' heads. Thus occupants are able, if they prefer, to adjust the restraints away from direct contact with their heads, yet gain optimum protection against whiplash or more serious neck/head injuries.

Active Head Restraints are included with the front Comfort seats, which are part of the optional Luxury Seating Package for the 745i and standard in both long-wheelbase models.

### Automatic belt tensioners, also in the rear

(standard 760Li, optional 745Li)

This feature automatically tensions safety belts in the event of a frontal collision. Until The New 7 was introduced, only the front

belts included tensioners; they now appear in connection with the rear Comfort seats that are optional in the 745Li and standard in the 760Li.

### ISIS, the Intelligent Safety and Information System

A familiar BMW feature is Integrated Deployment Logic, a system of sensors and deployment strategy for the various restraint systems. ISIS is an evolution that further improves the restraint systems' response to real-world accidents. Safety engineers at BMW's Engineering and Research Center in Munich aimed not merely to meet governmental safety regulations, but to surpass them and to tailor the restraint systems' response to a more precise reading of each accident sequence<sup>8</sup>.

To achieve this, ISIS employs fully 14 sensors. Together, these sensors achieve the "tailoring" goal; they also help minimize unnecessary deployment of airbags. The count of 14 includes –

- A number of deceleration sensors.
- A sensor that reads collisions under the front of the vehicle, that is, running over an obstruction.
- Two "delta-V" sensors that analyze the change in velocity that occurs during the collision.
- An intrusion sensor in each front door.

Thanks to this elaborate constellation of sensors, airbag deployments can be more finely tuned to actual accident circumstances. Much of the progress is due to faster, more powerful electronics and the use of fiber-optic cables that are not susceptible to extraneous electromagnetic disturbances.

System software can be updated over the life of the vehicle; data useful to researchers can be retrieved from accident vehicles.

## Options & accessories

### Factory-installed options

#### Sport Package

(optional 745 models, not available 760Li)

Newly available (as of 3/03 production) in the 745i and 745Li, the Sport Package is sure to be a popular option. It consists of:

- **Sport suspension** – firmer springs and shock absorbers, lowered by 15 mm/0.6 in. With the standard Active Roll Stabilization already providing ultra-flat cornering, this calibration achieves an even more amazing level of agility and cornering prowess.
- **19-in. wheels with performance tires** – with differentiated front/rear sizes. Though sized like those that continue to be available as a stand-alone option, they are of a new and even sportier design: V Spoke (#126M, the “M” referring to BMW M). The wheel sizes are 19 x 9.0 front/19 x 10.0 rear, carrying 245/45R-19 front / 275/40R-19 rear W-rated performance tires.
- **High-gloss Satin Chrome exterior trim** around the side windows. On the 745Li, the standard chrome roof moldings are deleted.
- **Sport steering wheel** – with 3 spokes instead of the standard 4, but with a large center hub that accommodates all the multi-function controls.
- **Sport front seats** – with 12-way + 4-way lumbar (16-way) power adjustment, including thigh support.

- **Specific upholstery/trim scheme** with different seat pattern (cross-pleating only), in Black/Black, Basalt Gray/Flannel Gray, Dark Beige/Beige II and Basalt Gray/Stone Green (4 colors vs. the standard choice of 5, omitting the Dark Blue/Natural Brown combination). Sport Package interiors are coded “V” (standard: “U”).

The Sport Package is not available in combination with –

- Adaptive Ride Package
  - Cold Weather Package
  - Luxury Seating Package
  - Heated steering wheel
  - High-gloss wood trim in light color
  - Front Comfort seats
  - Run-flat tires
- and only with the following exterior colors –
- Alpine White, Jet Black, Titanium Silver, Sterling Gray, Black Sapphire, Toledo Blue and Titanium Gray.

#### Adaptive Ride Package

(optional 745 models, standard 760Li)

In standard 745i/Li form, The New 7’s combination of ride and handling is already nothing short of amazing. As the *Robb Report* put it in February ’02, “Befitting a BMW, the new 745i quickly reveals itself as perhaps the world’s finest-handling full-size sedan, thanks to an all-new, light-alloy suspension system and standard Active Roll Stabilization (ARS).” Yet this

8 – And an accident truly is a “sequence,” not just the crash-bump heard and felt by the human ear and body. All progress in making motor vehicles safer in crash impacts has been facilitated by an increasing understanding of what happens during the crash, i.e. the millisecond-by-millisecond transfer of the vehicle’s kinetic energy through the vehicle body as it absorbs and manages that energy.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

Package adds still greater road capabilities. It consists of two highly sophisticated systems:

**Electronic Damping Control.** Now in “stepless” form, EDC controls the shock absorbers to any level of firmness between their softest and firmest settings, more precisely adapting their firmness to the conditions at hand than did the previous 7 Series’ 3-stage system:

- Ride firmness is always at the optimum level for the current road conditions, vehicle speed and the load the vehicle is carrying (passengers and luggage).
- On smooth roads, the shock absorbers are kept “soft” for best riding comfort.
- When the vehicle is rounding a sharp corner or curve, the shock absorbers are automatically and instantly adjusted to a firmer, just-right level.
- When the vehicle encounters any irregular road surface, the shocks automatically and instantly adjust to the optimum level of firmness to control ride motions, preserve riding comfort and maintain adhesion to the road.
- Additionally, there is (as before) a Sport setting via a console switch that increases firmness under all conditions for a sportier driving feel.

According to BMW Engineering, the new EDC is “dramatically better” at combining firm handling with a high level of riding comfort. In particular, the Sport mode is more sophisticated: EDC now varies the shock absorbers according to conditions (like the Normal mode) but always keeps them at a higher level of firmness than does the Normal mode. Of the new Sport setting, Germany’s *auto motor und sport* wrote,

“The new 7 Series is transformed from a polite Autobahn cruiser to a hot-blooded curve conqueror.”

A user’s preferred EDC setting can be captured in his or her Key Memory settings.

**Self-leveling rear suspension with air springs.** The E65’s self-leveling system is completely new. Air springs replace the standard rear coil springs; the self-leveling effect is achieved by an electrically powered air compressor and ride-height sensors that recognize changes in vehicle loading. Whenever the sensors detect a longer-term change in ride height at the rear (as when a full passenger load is aboard or heavy loads are carried in the trunk), the air pressure is increased to bring the vehicle back to its normal attitude.

Self-leveling rear suspension has the following advantages:

- Maintains full ground clearance and headlight aiming regardless of vehicle load
- Preserves the designed aerodynamic characteristics regardless of vehicle load
- Helps keep rear tire wear within normal bounds
- Preserves ride and handling qualities even when vehicle is fully loaded.

**Luxury Seating Package** (optional 745 models, standard 760Li)

This Package brings together the enhanced front Comfort seats; the familiar (and highly appealing) Active Seats feature; and the new Active Ventilation feature. As the front Comfort seats are standard in the 745Li, that model’s Package carries a lower price than that for the 745i.

- **Front Comfort seats.** 20-way power adjustment, including articulated upper backrests,

thigh support and backrest width, cushion angle on the passenger's seat, and powered fine adjustment of head-restraint height. These are described in more detail on pages 65-66.

- **Active Support feature.** Described on page 66.
- **Active Ventilation.** Described on page 66.
- **Heated front and rear seats,** with special front-seat features described on pages 66-67.

The Luxury Seating Package also cannot be ordered in combination with the Cold Weather Package, Sport Package, ski bag or stand-alone optional heated front seats.

### **Convenience Package** (optional 745 models, standard 760Li)

This package consists of two ultra-luxurious features:

- **Soft-close doors.** The user closes the door gently and the electric mechanism then draws it fully in. Easier, quieter door closing is one benefit; also, if the user fails to close the door completely, the mechanism takes over and completes the job. Helps ensure perfect weathersealing.
- **Automatic trunk opening/closing.** Trunk opening from the remote or dash is standard. This option adds power opening and closing of the lid. To close the lid, one presses a button in the light strip across the trunklid; for safety reasons it cannot be closed remotely or from inside the vehicle.

### **Cold Weather Package** (optional 745 models, standard 760Li)

This Package consists of four features:

- **Heated steering wheel.** Controlled by a switch on the

left side of the steering column. Also available as stand-alone option in the 745 models.

- **Heated front seats,** as described on page 66.
- **Heated rear seats.**
- **Ski bag** for carrying skis "indoors."

As the Luxury Seating Package includes heated front and rear seats, the Cold Weather Package cannot be ordered in combination with it. Also not available in combination with the Sport Package, or with any stand-alone options that are part of the Package.

### **Premium Sound Package** (optional 745 models, standard 760Li)

This Package encompasses the audiophile-quality Logic 7 sound system and an in-dash 6-disc CD changer. It is described on pages 68-69.

### **Active Cruise Control** (optional all models)

Conventional cruise control remains standard and has special 7 Series features; see page 62. In addition to the speed-maintaining, acceleration and deceleration functions of the standard cruise control, ACC can adjust the BMW driver's speed according to traffic conditions.

Employing a radar sensor at the front of the vehicle, ACC senses the speed of vehicles traveling ahead, and adjusts the BMW driver's speed to maintain a safe following distance. Operation is as follows:

**When the road is clear,** operation is essentially as with standard 7 Series cruise control, though with certain specific nuances and without the programmable features:

- The current speed is captured by tipping the cruise-control

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

stalk forward or rearward.

Thereafter, each time the stalk is tipped forward or rearward, the set speed is increased or decreased by 5 mph.

- The driver can also adjust the set speed (upward only) in increments of 1 mph by pressing inward on the slider button at the left end of the stalk. When cruise control has been cancelled (by braking, for example), this button is used to resume.
- The set speed is indicated by an arrow at the speedometer scale and a digital display in the instrument's center field.

**When traffic is encountered ahead**, ACC's special capabilities come into play:

- The driver can choose from 4 following distances by adjusting the rotary dial on the control stalk. Via four bars below the vehicle icon in the speedometer dial, the chosen following distance is displayed briefly after selection (more bars = greater distance).
- When the radar sensor detects a vehicle ahead, the "vehicle" icon in the speedometer dial illuminates. ACC adjusts the BMW driver's speed to maintain the selected following distance.
- In adjusting vehicle speed, ACC may apply the brakes. It may also apply the brakes when the driver changes the set speed abruptly. If the brake application causes DSC or ABS to activate, a specific warning indicator in the dial face illuminates.
- When a vehicle pulls into the BMW driver's lane, ACC recognizes that vehicle only when it has fully moved into the lane. If the vehicle cuts suddenly into the lane, ACC may not be able

to adjust speed quickly enough, in which case the vehicle icon is surrounded by a blinking triangular warning signal indicating that the driver should take evasive action. ACC does not react to stationary vehicles or other objects ahead.

- When traffic ahead clears, ACC automatically resumes the previously set cruising speed.

ACC can also reduce vehicle speed when a curve is entered at too high a speed. However, the system does not "look ahead" to curves, so any such adjustment occurs only after the curve is entered. In sharp curves, ACC may react briefly to oncoming vehicles; the driver can cancel this action by stepping on the accelerator.

ACC is a technologically advanced driving enhancement – meaningful, welcome and stress-reducing, particularly in fast-moving yet congested traffic. The buyer of a 7 Series vehicle so equipped should be given a careful and thorough explanation of ACC's functions and benefits, and should be advised to study the system's operation. **The capabilities of ACC in no way relieve the driver of the responsibility to devote full attention to driving, to traffic and to all aspects of the driving environment!**

**19-in. wheels with W-rated performance tires**  
(optional 745 models, standard 760Li)

Wherever they appear, the 19-in. wheels and tires are in differentiated front/rear sizes: 19 x 9.0 front/19 x 10.0 rear, with 245/45R-19 front / 275/40R-19 rear W-rated performance tires. As a stand-alone option for the 745 models, the wheels are in Star Spoke design #95.

### **18-in. run-flat wheels and tires with Flat Tire Monitor**

(optional at no extra cost, all models)

This new-for-'03 option includes 18-in. Multi-Spoke wheels (design #94) with run-flat rim design and run-flat all-season tires. As a running change, the Flat Tire Monitor (see **BMW features**) is now included in the option.

### **Park Distance Control**

(optional 745 models, standard 760Li)

PDC employs four ultrasonic sensors each in the front and rear bumpers to warn the driver when the vehicle is approaching obstacles that may not be visible to the driver. The front sensors cause a higher-pitched tone that emanates from the front of the cabin; the rear ones trigger a lower-pitched tone at the rear.

A significant 7 Series enhancement is a plan-view vehicle diagram in the iDrive monitor, which graphically and colorfully depicts the obstacle's location relative to the vehicle.

### **Heated steering wheel**

(optional 745 models, standard 760Li)

Though included in the Cold Weather Package, the heated steering wheel is also available as a stand-alone option. It is controlled by a button on the left side of the steering column. In 745 models, this option requires heated front seats or Luxury Seating Package.

### **Front Comfort seats**

(stand-alone option, 745i only; standard 745Li & 760Li)

Described in detail on pages 65-66, these seats incorporate 20-way power adjustment and memory for both driver and passenger.

### **Heated front seats**

(optional 745 models, standard 760Li)

Though included in the Luxury Seating and Cold Weather Packages, heated front seats are also available as a stand-alone option. The balance control, adjusting relative heat between the cushion and backrest via the iDrive monitor, is included in the stand-alone option as well.

### **Cassette player**

(no-cost option, all models)

A cassette player may be substituted for the standard in-dash single-disc CD player at no extra cost.

### **Rear Comfort seats with Active Ventilation**

(optional 745Li, standard 760Li, not available 745i)

This option brings most benefits of the front Comfort seats to rear passengers, and is enhanced for '03 by the addition of Active Ventilation. The outboard rear seats are configured as individual seats with the following adjustments:

- Fore-aft, 100 mm/3.9 in.
- Cushion angle, adjustment range 6.2°.
- Backrest angle, from 2° in upright "work" position to 6° in "recline" position; with the seat in its fully forward position, the backrest can be leaned back a further 9°.
- Angle of upper backrest, 20° adjustment range.
- Firmness of lumbar support.
- Height of lumbar support.
- Head-restraint height, 65-mm/2.6-in. adjustment range; also, the head restraint rises automatically to its preset position when an occupant sits in the seat and retracts when the seat is not occupied.

## 7 Series key features

Except as noted, all current 7 Series models offer the following features:

These are thus **14-way power seats** (10-way + 4-way lumbar). As a convenience bonus, the front passenger's seat can be adjusted from the right rear seat's power controls by pressing a switch for the purpose, and there is a switch that returns the rear Comfort Seat to its "home" or base position. Finally, like the front seats, the rear Comfort seats include a 2-position memory system. The center seat is fixed. Included in this option are **automatic safety-belt tensioners** for the Comfort seats (not the middle seat). The belt receptacles move with the seat cushions, helping occupants obtain optimum belt fit and effectiveness.

### **Power rear/side sunshades** (optional 745 models, standard 760Li)

This option includes power shades for the rear window and rear door windows. Each rear door even gets two sunshades: one for the movable window, one for the fixed rear quarter glass. Controls for these five shades are very sophisticated:

- The driver can raise or lower the rear-window shade by a quick 1-touch of the single switch on the driver's door; if the switch is held down, the side shades join in the motion.

- In each rear door are switches for the rear-window and both door-window shades, plus a left/right switch so that either passenger can operate either set of door-window shades. Also, rear passengers can raise or lower all shades at once with a quick 1-touch of their rear-shade switch.
- A door shade will rise only if its window is closed. If their switch is pressed while the window is down, the shades will start up, then go back down.
- If the child safety switch is set, none of the shades will operate.

### **High-gloss Ash wood trim** (optional 745 models, no extra cost)

As an alternative for the standard matte-finish Dark Cherry, high-gloss light or dark Ash trim is available. The optional wood includes an additional wood trim strip just behind the rear seats; its color is keyed to the interior color scheme. The light color is not available in combination with the Sport Package; the dark color is not available with the Dark Beige/Beige interior. (See **exterior/interior color combinations**, page 322.)

## **BMW Break-resistant Security Glass**

(optional all models)

The purpose of this special glass is to hinder or prevent theft via breaking windows or the moonroof. The side windows and moonroof have a specific glass/polycarbonate layer construction that not only resists violent impacts, but also –

- Improves insulation from heat and cold
- Reduces the tendency to fog up
- Adds protection from ultraviolet rays.

## **Rear climate control with coolbox**

(optional 760Li only)

This new and exclusive 760Li option includes two ultra-luxurious features:

**Rear climate control.** Regulated by separate left/right controls in the rear ceiling, this unit delivers cooled air via ducts in the C-pillars to left and right outlets.

**Coolbox.** Accessible when the center rear armrest is folded down, the coolbox offers space for two sizable bottles and some

snacks or sweets. Although its source of cold air is shared with the rear climate control, it operates independently and is controlled by an on/off switch below the coolbox's door; an LED indicator illuminates when it is on.

Full 3-passenger rear seating is retained. When in use, both units continue "on" when the engine is switched off for up to 15 minutes, but default to "off" if the engine is switched off for longer periods of time.

## **Rear-seat side-impact airbags**

(optional all models)

Like the standard-equipment front side-impact airbags, the rear ones are built into the doors. Now that the front and rear Head Protection System is standard, this option includes only the rear door airbags.

## **Ski bag**

(optional 745 models, standard 760Li)

Though included in the Cold Weather Package, the ski bag is also available as a stand-alone option.

## 7 Series specific features by model

This information helps position and distinguish the models in the Series.

### 745i

#### 4.4-liter DOHC (4-cam) 32-valve V-8 engine with Valvetronic and Double VANOS

As described on pages 51-54.

#### “Regular” wheelbase

The 745i is built on the “regular” 117.7-in. wheelbase. While offering the same front-seat and trunk space as in the longer-wheelbase 745Li and 760Li, the 745i is more compact and maneuverable, and can be offered at a lower price.

#### Standard power front seats

The 745i's standard front seats have 14-way power adjustment of the driver's seat, 12-way for the passenger's seat; the driver's extra adjustment is for cushion angle. Both include 4-way power lumbar support. The 20-way Comfort front seats that are standard in the 745Li are available two ways in the 745i: as part of the Luxury Seating Package or as a stand-alone option.

### 745Li

In addition to or in place of the features listed for the 745i, the 745Li offers:

#### Long wheelbase

At 123.2 in., the 745Li's wheelbase is 5.5 in. longer than that of the 745i. This is reflected in 6.2 in. of additional rear leg room – the slightly smaller increment of leg room being due to the 745Li's standard Comfort front seats.

The 745Li's turning circle is larger than that of the 745i: 41.3 ft., vs. 39.7 ft.; at 4464 lb., the 745Li weighs 88 lb. more than the 745i.

#### Distinctive exterior details

Chrome roof moldings and discreet chrome framing of front and rear bumper sections help distinguish the 745Li from the 745i.

### Standard Comfort front seats

Compared to the 745i's standard front seats, the 745Li's standard Comfort seats add –

- Cushion-angle adjustment on the passenger's seat
- Articulated upper backrest, power-adjustable separately from overall backrest angle
- Adjustable thigh support
- Adjustable backrest width
- Power fine adjustment of head-restraint height, vs. manual
- Memory for passenger's seat
- Active head restraints.

Because these seats are standard, the 745Li's Luxury Seating Package carries a lower price than that for the 745i.

### 760Li

#### 6.0-liter DOHC (4-cam) 48-valve V-12 engine with direct fuel injection, Valvetronic and Double VANOS

This ultimate automobile engine is described on pages 54-55.

#### Long wheelbase

The 760Li rides on the same long wheelbase as the 745Li.

#### Standard self-leveling rear suspension and Electronic Damping Control

These two premium suspension features, offered as the Adaptive Ride Package on the 745 models, are standard on the 760Li. For details see pages 73-74.

#### Unique wheels and tires

Except for the run-flat option, which is identical on all models, all 760Li wheel designs are different from those on the 745 models, and 19-in. wheels/tires with differentiated front/rear sizes are standard on the 760Li, vs. optional on the 745s:

- **Standard 19-in. wheels** – Star Spoke design (#89). On the 745s, 19-in. Star Spoke #95

wheels are a stand-alone option and a new 19-in. V Spoke design (#126M) comes with their Sport Package.

- **Available 18-in. wheels with all-season tires** – This no-cost option is equivalent to the 745s' standard equipment, except that the Star Spoke design (#91) is exclusive to the 760Li, and is forged (instead of cast) alloy.

### **Distinctive exterior details**

In addition to its specific wheel sizes and designs, the 760Li is further distinguished by –

- Grille surrounds wider at top
- Roof trim moldings as on 745Li
- Chrome bumper framing as on 745Li
- “V12” logo on front side panels
- High-gloss black finish on exterior mirrors' edging, mirror triangles, B-pillars and rear-door window dividers (745 models: matte black).

### **Standard soft-close doors and automatic trunk opening/closing**

These two ultra-luxury features, included in the 745i/Li Convenience Package, are standard.

### **Standard power rear/side sunshades**

These fully powered features are optional in the 745 models and standard in the 760Li.

### **Standard Active Ventilation and Active Support front-seat features**

Described on page 66 and included in the 745 models' Luxury Seating Package, these ultimate comfort features are standard in the 760Li.

### **Standard ski bag**

Available in the 745s as part of the Cold Weather Package or a stand-alone option; standard in the 760Li.

### **Standard heated front and rear seats**

Variably available in the 745 models as a stand-alone option (front) or in Packages (front and rear), heated front and rear seats are standard in the 760Li, including the unique iDrive balance control for the front ones.

### **Standard Logic 7 audio system**

This state-of-the-art, audiophile-quality system, optional in both 745 models, is standard, as is the 6-disc in-dash CD changer.

### **Unique wood trim**

High-gloss Ash wood trim, consisting of two colors (both relatively dark) plus inlays separating the two colors, sets the top 7 Series model apart from its stablemates. Additional wood (over the 745Li) appears as described below.

### **Other unique interior details**

In addition to those already described, further elegant details distinguish the 760Li interior from that of its V-8 counterparts:

- Illuminated “V12” door-entry trim
- Alcantara headliner and sun visors
- Leather trim on instrument panel
- Leather bag for vehicle documents
- Four foldable roof grab handles with wood trim
- Rear sides of front-seat backrests in leather, with folding pockets and wood trim
- BMW Ambiance Lighting on C-pillars
- Matte-finish metal trim on trunk's loading ledge.

### **Available rear climate control and coolbox**

Offered only in the 760Li, this option is yet another indicator of the model's ultimate luxury status. It is described on page 79.

# Standard & optional features

## 2003 7 Series

**Bold** within table indicates new feature for 2003.

### Performance & efficiency

4.4-liter DOHC (4-cam) 32-valve V-8 engine

**6.0-liter DOHC (4-cam) 48-valve V-12 engine**

Engine features:

#### **Direct fuel injection**

Valvetronic system

Steplessly variable intake system

Double VANOS<sup>1</sup> steplessly variable valve timing

Aluminum block & cylinder heads

Electronically controlled engine cooling (map cooling)

Digital Motor Electronics engine-management system with adaptive knock control

6-speed **STEPTRONIC**<sup>2</sup> automatic transmission with:  
Adaptive Transmission Control (ATC)

Electric selectors

Steering-wheel downshift & upshift controls<sup>2</sup>

#### **Selectable Sport & Manual modes**<sup>2</sup>

Mechatronic internal controls

Liquid-cooled alternator

### Handling, ride & braking

Aluminum double-pivot strut-type front suspension

Aluminum 4-link integral rear suspension

Aluminum front & rear subframes

Active Roll Stabilization (ARS) front & rear

Twin-tube gas-pressure shock absorbers

Self-leveling rear suspension with air springs

Electronic Damping Control, stepless

#### **Sport suspension calibration**

Vehicle-speed-sensitive variable-assist, variable-ratio rack-and-pinion power steering

4-wheel ventilated disc brakes with electronic brake proportioning

Electromechanical parking brake

Automatic Hold

Dynamic Stability Control (DSC), encompassing all-speed traction control, Dynamic Traction Control, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement

18 x 8.0 alloy wheels:

Double Spoke design #93, cast

**Multi-Spoke design #94 for run-flat tires, cast**

**760Li Exclusive design #91, forged**

1 – VANOS = **V**ARIABLE **N**OCKERWELLEN  
Steuerung = variable camshaft control,  
or variable valve timing.

2 – STEPTRONIC transmission standard on  
all models as of 1/03 production.

745i	745Li	760Li
S	S	—
—	—	<b>S</b>
NA	NA	<b>S</b>
S	S	S
S	S	NA
S	S	S
S	S	S
S	S	S
S	S	S
<b>S</b>	<b>S</b>	<b>S</b>
S	S	S
S	S	S
745i	745Li	760Li
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
ZAR	ZAR	<b>S</b>
ZAR	ZAR	<b>S</b>
<b>ZSP</b>	<b>ZSP</b>	NA
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	—
<b>NC</b>	<b>NC</b>	<b>NC</b>
NA	NA	<b>NC</b>

S – Standard  
 OPT – Optional  
 NC – No extra cost  
 NA – Not available

— – Not applicable  
 ZAR – Adaptive Ride Package  
 ZSP – Sport Package (available as of 3/03  
 production)

## Standard & optional features

### 2003 7 Series

**Bold** within table indicates new feature for 2003.

#### Handling, ride & braking (continued)

19 x 9.0 front / 19 x 10.0 forged-alloy wheels:

Star Spoke design #95

**Star Spoke design #89**

**V Spoke design #126M**

245/50R-18 V-rated all-season tires

245/50R-18 V-rated **run-flat** all-season tires & Flat Tire Monitor

245/45R-19 front / 275/40R-19 W-rated rear performance tires

#### Exterior & aerodynamics

Body-color bumpers with hydraulic energy absorbers & (front only) compressible elements

Aluminum hood & front fenders

Bi-Xenon low & high beams in outer headlights with dynamic auto-leveling

Halogen ellipsoid front foglights

High-intensity headlight cleaning system

Adaptive brakelight system

Rain-sensing windshield wipers with:

Electronically controlled, reversible wiper motor

Wiping sweep regulated for optimum coverage<sup>3</sup>

Variable parking position to reduce blade wear

Articulated passenger-side wiper arm

Single-wipe control

Washer jets in wiper arms, heated fluid supply

Heated wiper parking area

Choice of standard or metallic paints

Illuminated exterior door handles & ground illumination

Park Distance Control with graphic display

Smooth underbody

Chrome roof moldings

**Chrome bumper framing**

**V12 logo on front side panels**

**High-gloss black trim on exterior mirrors' edging, mirror triangles, B-pillars & rear-door window dividers**

**High-gloss Satin Chrome side-window trim**

3 – Driver's side only.

S – Standard

OPT – Optional

NC – No extra cost

NA – Not available

— – Not applicable

ZSP – Sport Package (available as of 3/03 production)



## Standard & optional features

### 2003 7 Series

**Bold** within table indicates new feature for 2003.

#### **Ergonomics, luxury & convenience**

Vehicle & Key Memory

Keyless entry with multi-function remote control:

Selective unlocking

Remote trunk release

Soft-close doors

#### **Illuminated "V12" door-entry trim**

Dual power/heated auto-dimming outside mirrors

Automatic tilt-down of right outside mirror for visibility of curb when backing up

BMW Universal Transceiver (garage-door opener), integrated into rearview-mirror housing

Comprehensive interior lighting system, including:

Front & rear left/right reading lamps

Footwell lighting front & rear

Exit/entry lighting on interior door panels

BMW Ambiance Lighting – front, rear & door panels

– **C-pillars**

Illuminated visor vanity mirrors front & rear

Locking glove compartment with rechargeable take-out flashlight

Leather-wrapped power tilt/telescopic steering wheel with fingertip cruise, audio & phone controls, programmable control, auto tilt-away for entry & exit

#### **3-spoke sport steering wheel with same features as standard wheel**

Heated steering wheel

14-way power driver's/12-way passenger's front seats (include automatic head-restraint & safety-belt height adjustment, 4-way lumbar support)

Memory system for driver's seat, steering wheel, safety-belt height & outside mirrors (2 positions)

20-way power front Comfort Seats, including articulated upper backrests, passenger's-seat memory, active head restraints with adjustable side support

#### **16-way power sport front seats**

Active Support feature, front seats

Active Ventilation feature, front seats

3-stage heated front seats with fast heating & balance control

14-way power rear Comfort seats, including articulated upper backrests, 4-way lumbar support, head-restraint height & auto retraction, **Active Ventilation**

Heated rear seats

Climate-controlled front console compartment with coinholder, trunk-release lockout, illumination & phone handset

4 – Selectable via Vehicle & Key Memory.

S – Standard

OPT – Optional

NA – Not available

— – Not applicable



## Standard & optional features

### 2003 7 Series

**Bold** within table indicates new feature for 2003.

#### **Ergonomics, luxury & convenience (continued)**

Electronic analog speedometer & tachometer

LCD main & trip odometers

Service Interval Indicator with miles-to-service readout<sup>5</sup>

Expanded Check Control vehicle monitor system

iDrive system including:

Driving area –

Multi-function remote control

Start/stop button

Electric transmission selectors & shift buttons

Electric control stalks

LCD displays & warning indicators in dial faces

Electromechanical parking brake & Automatic Hold

Programmable cruise control

#### **Active Cruise Control**

Comfort, convenience & choices area (monitor & controller) –  
BMW Assist/Emergency functions

Communications/phone functions

Vehicle functions (maintenance, monitoring, Onboard Computer)

GPS Navigation

Help screen

Entertainment functions (audio system)

Settings

Climate-control functions

Nasca leather upholstery with microperforated seating surfaces

#### **Additional leather trim on instrument panel, rear sides of front-seat backrests**

Matte-finish Black Cherry wood trim, light or dark<sup>6</sup>

High-gloss Ash wood trim, light or dark<sup>7</sup>

#### **High-gloss Ash wood trim with inlays, extended application**

#### **Alcantara headliner & sun visors**

Power windows with key-off operation, 1-touch open/close

Automatic climate control with full separate left/right controls, solar sensor, automatic recirculation, heat-at-rest feature, left/right temperature-controlled rear outlets, automatic ventilation

#### **Rear climate control & coolbox**

Activated-charcoal microfilter ventilation

Power 2-way moonroof with key-off & 1-touch operation, conceal panel & wind deflector

Window & moonroof opening possible from remote control

5 – Additional functions accessible through iDrive system.

6 – Light wood with Beige, Flannel Gray, Natural Brown & Stone Green interiors; dark wood with Black interior.

7 – Light wood with Beige interior; dark wood with all other interior colors.



## Standard & optional features

### 2003 7 Series

**Bold** within table indicates new feature for 2003.

#### **Ergonomics, luxury & convenience (continued)**

AM/FM stereo radio/CD audio system with 10 speakers, Radio Data System (RDS), in-dash single-disc CD player & FM diversity antenna system; includes 2 subwoofers

Logic 7 audio system with 13 speakers, Digital Sound Processing & 6-disc in-dash CD changer; includes 2 subwoofers, upgraded componentry throughout & all features of standard system

BMW Cellular Phone System, portable with digital-analog operation, Telecommander & Voice Activation

Power outlet in passenger's-side footwell area

Dual cupholders front & rear

Rear center armrest with storage compartment

Power rear-window & rear door sunshades with driver & rear-passenger controls

Ski bag

Fully finished trunk with space for 4 golfbags, release inside trunk

Automatic trunk opening & closing

#### **Safety & security**

Dual front-impact airbag Supplementary Restraint System (SRS) with dual-threshold deployment, 2-stage Smart Airbags

Front safety belts with automatic height adjustment, automatic tensioners & force limiters

Rear safety belts with automatic tensioners at outboard seating positions

Automatic-locking retractors (ALR) on all passenger safety belts (for installation of child restraint seats)

Front- & rear-seat Head Protection System (AHPS II)

Front-seat side-impact airbags

Active Knee Protection

Rear-seat side-impact airbags

Active front head restraints

Intelligent Safety & Information System (ISIS) for deployment of safety systems

Battery Safety Terminal

Automatic fuel-pump shutoff upon severe accident impact

Central locking system with double-lock anti-theft feature, selective unlocking

Coded Driveaway Protection

Pathway Lighting feature

Alarm system with operation from remote, interior motion detector

BMW Break-resistant Security Glass

4 – Selectable via Vehicle & Key Memory.

8 – Included in optional rear Comfort Seats.

9 – Vehicle delivered from factory with rear side-impact airbags de-activated.

745i	745Li	760Li
S	S	–
ZPS	ZPS	<b>S</b>
S	S	S
S	S	S
S	S	S
S	S	S
OPT	OPT	<b>S</b>
OPT/ZCW	OPT/ZCW	<b>S</b>
S	S	S
ZCV	ZCV	<b>S</b>
745i	745Li	760Li
S	S	S
S	S	S
NA	OPT <sup>8</sup>	<b>S</b>
S	S	S
<b>S</b>	<b>S</b>	<b>S</b>
S	S	S
S	S	S
OPT <sup>9</sup>	OPT <sup>9</sup>	OPT <sup>9</sup>
ZLS	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S <sup>4</sup>	S <sup>4</sup>	S <sup>4</sup>
S	S	S
OPT	OPT	OPT

S – Standard  
 OPT – Optional  
 ZCV – Convenience Package

ZCW – Cold Weather Package  
 ZLS – Luxury Seating Package  
 ZPS – Premium Sound Package

# Specifications

## 2003 7 Series

**Bold** within table indicates new specification for 2003.

### General

Curb weight, lb.

Weight distribution, front/rear, %

Wheelbase, in.

Track, front/rear, in.

Length, in.

Width, in.

Height, in.

### Accommodations

Seating capacity, persons

Shoulder room, front/rear, in.

Head room, front/rear, in.

Leg room, front/rear, in.

EPA interior volume, cu ft.

EPA cargo volume, cu ft.

### Body

Type

Aerodynamic drag coefficient ( $C_D$ )

EPA size classification

### Engine & electrical

Engine type

Cylinder block & heads

Bore x stroke, mm/in.

Displacement, cc/cu in.

Compression ratio

Power @ rpm, hp

Torque @ rpm, lb-ft.

Engine-management system

Fuel requirement

Fuel capacity, U.S. gal.

Battery capacity, amp-hr.

Alternator output, amp./W

1 – Specification applies to 745Li & 760Li.

2 – Specification applies to all models.

3 – Specification applies to 745i & 745Li.

4 – Optional rear climate control & coolbox  
reduce cargo volume.

<b>745i</b>	<b>745Li</b>	<b>760Li</b>
4376	4464	4872
50.4/49.6	50.6/49.4	<b>51.6/48.4</b>
117.7	123.2 <sup>1</sup>	
<b>62.1/62.3</b>		
198.0	203.5 <sup>1</sup>	
74.9 <sup>2</sup>		
58.7 <sup>2</sup>		
<b>745i</b>	<b>745Li</b>	<b>760Li</b>
5 <sup>2</sup>		
59.3/58.7	59.3/58.9 <sup>1</sup>	
39.2/38.5 <sup>2</sup>		
<b>41.3/37.2</b>	<b>41.3/43.4<sup>1</sup></b>	
104.0	111.0 <sup>1</sup>	
18.0 <sup>3</sup>		<b>18.0<sup>4</sup></b>
<b>745i</b>	<b>745Li</b>	<b>760Li</b>
4-door sedan <sup>2</sup>		
0.29 <sup>2</sup>		
Large <sup>2</sup>		
<b>745i</b>	<b>745Li</b>	<b>760Li</b>
DOHC 32-valve (4-cam) V-8, Valvetronic variable valve lift & Double VANOS <sup>5</sup> steplessly variable intake- & exhaust-valve timing <sup>3</sup>		<b>DOHC 48-valve (4-cam) V-12, direct fuel injection, Valvetronic variable valve lift &amp; Double VANOS<sup>5</sup> steplessly variable intake- &amp; exhaust-valve timing</b>
Aluminum <sup>2</sup>		
92.0 x 82.7/3.62 x 3.26 <sup>3</sup>		<b>89.0 x 80.0 / 3.50 x 3.15</b>
4398/268 <sup>3</sup>		<b>5972/364</b>
10.5:1 <sup>3</sup>		<b>11.3:1</b>
325 @ 6100		<b>438 @ 6000</b>
330 @ 3600		<b>444 @ 3950</b>
Motronic ME9 <sup>3</sup>		Motronic <b>MED9</b>
Premium unleaded <sup>2</sup>		
23.3 <sup>2</sup>		
110 <sup>2</sup>		
180/2520 <sup>2</sup>		

5 – VANOS = **V**ARIABLE **N**Ockenwellen  
**S**teuerung = variable camshaft control,  
or variable valve timing.

# Specifications

## 2003 7 Series

**Bold** within table indicates new specification for 2003.

### Drivetrain

Drive system

Automatic transmission

Ratios: 1st

2nd

3rd

4th

5th

6th

Reverse

Final drive ratio

### Chassis

Body/frame construction

Front suspension

Rear suspension

Steering type

Overall ratio

Turns lock-to-lock

Turning circle, ft.

4-wheel ventilated disc brakes:

Front discs, diameter x thickness, mm/in.

Rear discs, diameter x thickness, mm/in.

Assist

Wheels: standard

optional

Tires: standard

optional

Stability-enhancement system

1 – Specification applies to 745Li & 760Li.

2 – Specification applies to all models.

3 – Specification applies to 745i & 745Li.

ZAR – Adaptive Ride Package

745i	745Li	760Li
Front engine/rear drive <sup>2</sup>		
ZF 6HP26, 6-speed <sup>2</sup>		
4.17:1 <sup>2</sup>		
2.34:1 <sup>2</sup>		
1.52:1 <sup>2</sup>		
1.14:1 <sup>2</sup>		
0.87:1 <sup>2</sup>		
0.69:1 <sup>2</sup>		
3.40:1 <sup>2</sup>		
3.38:1 <sup>3</sup>		
<b>3.15:1</b>		
745i	745Li	760Li
Unitized all-steel structure with aluminum hood & front fenders <sup>2</sup>		
Strut-type in aluminum; double-pivot lower arms, coil springs, twin-tube gas-pressure shock absorbers, Active Roll Stabilization; aluminum subframe <sup>2</sup> (745i/Li w/ZAR, <b>760Li std.:</b> Electronic Damping Control) ( <b>745i/Li w/ZSP: sport suspension calibration</b> )		
4-link Integral suspension in aluminum, coil springs, twin-tube gas-pressure shock absorbers, Active Roll Stabilization; aluminum subframe <sup>2</sup> (745i/Li w/ZAR, <b>760Li std.:</b> Electronic Damping Control, self-leveling air springs) ( <b>745i/Li w/ZSP: sport suspension calibration</b> )		
Rack & pinion, vehicle-speed-sensitive power assist <sup>2</sup>		
Variable; mean ratio is 13.1:1		
3.07 <sup>2</sup>		
39.7 <sup>1</sup>		
41.3 <sup>1</sup>		
348 x 30/13.7 x 1.18 <sup>2</sup>		
345 x 24/13.6 x 0.94 <sup>2</sup>		
Vacuum <sup>2</sup>		
Cast alloy, 18 x 8.0 <sup>3</sup>		
Cast alloy, <b>19 x 9.0 front/ 19 x 10.0 rear</b>		
Cast alloy, 18 x 8.0 for <b>run-flat tires</b> <sup>3</sup>		
Forged alloy, 19 x 9.0 front/19 x 10.0 rear <sup>3</sup>		
<b>Forged or cast alloy, 18 x 8.0</b>		
245/50R-18 V-rated all-season <sup>3</sup>		
<b>245/45R-19 F / 275/40R-19 R W-rated perform.</b>		
245/50R-18 V-rated all-season <b>run-flat</b> <sup>2</sup>		
245/45R-19 front / 275/40R-19 rear		
W-rated performance <sup>3</sup>		
<b>245/50R-18 V- rated all-season</b>		
Dynamic Stability Control (DSC), encompassing all-speed traction control, Dynamic Traction Control, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance stability enhancement		

ZSP – Sport Package (available as of 3/03 production)

# Specifications

## 2003 7 Series

**Bold** within table indicates new specification for 2003.

### Performance data

Acceleration, 0-60 mph, sec.

Top speed, mph

Fuel economy, EPA est. MPG, city/highway

2 – Specification applies to all models.

3 – Specification applies to 745i & 745Li.

6 – BMW NA, LLC test results. Actual acceleration results may vary depending on specification of vehicle; road and environmental conditions; testing procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

<b>745i</b>	<b>745Li</b>	<b>760Li</b>
5.9 <sup>6</sup>	6.0 <sup>6</sup>	5.4 <sup>6</sup>
<b>150</b> (electronically limited) <sup>2</sup>		
18/26 <sup>3</sup>		15/23

## 2003 5 Series: More standard features for 525i/530i, new Sport Packages for 540i models

The 5 Series has competitors today, but it is still the undisputed leader among midsize sport sedans and wagons – as the latest round of comparison tests confirms.

This is a segment that BMW created, ‘way back in the 1960s before anyone else was thinking about it. Since its European debut in 1972, the 5 Series has appeared in four generations. The present generation, the E39, made its debut in 1997; in 2001, it received a subtle design freshening and its 6-cylinder models were divided into two new engine sizes, 525 and 530. For 2003, the 6-cylinder models (525i and 530i) get expanded standard equipment with minimal price increases, and the V-8 models (540i) are offered with exciting new Sport Packages. (See **what’s new**, page 100, for details.)

Independent experts continue to confirm this Series’ leadership in its segment:

- Declaring the 525i Sedan and Sport Wagon “best luxury car under \$40,000,” *Automobile Magazine* (February 2002) explained, “Although the 525i is first in the 5 Series lineup, nothing at all about it feels entry-level. The magic of the 5 Series family – of every BMW product, perhaps – is that each variant has a distinct and compelling personality. So choosing the 525i, with its smaller engine, can be justified by something greater than its smaller price tag.”
- “Still the textbook definition of ‘midsize sport sedan’” is how *Motor Trend* described the entire 5 Series in its “Pre-Owned” series on used cars in the February ‘02 issue. “Now in its fourth generation...the 5 Series

represents quality and performance in the midsize lux/sport-sedan segment.”

- Once again, *Car and Driver* has named the 5 Series to its 10Best list (January ‘02). In explaining this virtually annual award to the Series, the magazine raved: “There’s a section of road on our 10Best loop that is heavily crowned and afflicted with a long series of severe bumps on the right side of the lane. Even well above 70 mph, the BMW 540, with its suspension pumping furiously, glided over this jangling stretch as serenely as if it were on freshly rolled pavement.

“Yet a mile farther down the road, when the pavement combines a diabolical series of lateral wiggles with a selection of severe dips and humpback rises, the 540 hunkered down, planted its tires, and negotiated the corners securely with no extraneous body movements.

“This combination of comfort, control, and capability is unmatched in our experience. The available powertrains mirror this well-rounded capability. Both the six- and eight-cylinder engines are noted for their vigor and also for their velvety smoothness and refined sounds. All these overachieving engines are offered with manual or automatic gearboxes.”

“When you combine such mechanical excellence with a luxury-laden cockpit, a beautifully finished interior, and timelessly beautiful styling, you can see why the 5 Series remains our luxury sedan or wagon of choice.”

- Naming the 540i Sedan winner of a September 2001 comparison test with Audi A8, Cadillac DTS, Infiniti Q45, Jaguar S-Type 4.0, Lexus GS 430 and Mercedes-Benz E 430, *Car and Driver* declared the V-8 540i “a perfect 10,” raving about its “Dream Street powerplant” and “sensational balance between handling and comfort.”
- Also in September '01, *Motor Trend* compared the 540i Sedan with the Audi A6 4.2, Lexus GS 430 and Mercedes E 430 and declared BMW the winner: “If you’re in search of a satisfying, performance-flavored do-it-all sport sedan, any or all of these four belong on your shopping list. And so far, **the BMW 540i Sport remains at the top of ours.**”
- Looking at the other end of the 5 Series, *Automobile Magazine* drove the 525i Sedan for its August '01 issue and described it this way: “Coupled with the STEPTRONIC transmission, the 525i does not jump out of the gate, but power is strong at the engine’s upper reaches, providing ample acceleration where it matters: merging into freeways...With the economy on a downward slope, the timing is perfect for a less expensive 5 Series model.”
- A publication that does not allow itself to be quoted recently declared the 530i the **best car it had ever tested!**

If all this were claims coming from BMW, we might be accused of hyperbole. Fortunately, we don’t really need to make them: The independent experts simply report the facts, and they sound like advertising!

For 2003, the Series continues with five models:

- **525i Sedan** – “entry” 4-door Sedan with 2.5-liter 6-cylinder engine, the object of *Automobile Magazine’s* “raves. Available with 5-speed manual or STEPTRONIC automatic transmission, the 525i enables BMW to compete effectively in the midsize luxury segment that includes Audi A6, Lexus GS 300, Saab 9-5 and Volvo S80 2.9.
- **525i Sport Wagon** – 5-door wagon with same engine as 525i Sedan. Also available with manual or automatic, an especially rare choice in luxury wagons.
- **530i Sedan** – Distinguished from the 525i by its larger (3.0-liter) 6-cylinder engine, upgraded brakes and distinctive wheel design; its available Sport Package is somewhat more extensive of the 525i models.
- **540i Sedan** – 4-door Sedan with 4.4-liter V-8 engine. A brand-new and very extensive Sport Package adds optional spice for '03. Equipment configurations for the 5-speed automatic and 6-speed manual versions continue to be sufficiently distinct that they can be considered two separate models: **540i Sedan** and **540i Sedan 6-Speed**. The 6-speed model comes standard with most features of the new automatic model’s Sport Package.
- **540i Sport Wagon** – 5-door wagon with same engine as 540i Sedan; 5-speed STEPTRONIC automatic transmission only, with special performance features. Still one of the highest-performing, sportiest wagons available in the U.S.

## What's new for 2003

### All models

As of 9/02 production:

- Available BMW Onboard Navigation System upgraded to DVD-based system; functional improvements as well

As of 3/03 production:

- Steel Blue and Toledo Blue phased out, Orient Blue phased in (all metallics)

### 525i Sedan

- New standard alloy wheel, Radial Spoke design (#50)
- Power moonroof now standard; formerly optional
- Rear Head Protection System (HPS) newly standard; formerly optional (rear side-impact airbags remain optional)
- Rain-sensing windshield wipers and automatic headlight control added to Premium Package

### 525i Sport Wagon

- All 525i Sedan changes, except rear HPS not available

### 530i Sedan

- Power moonroof now standard; formerly optional
- Rear Head Protection System (HPS) newly standard; formerly optional (rear side-impact airbags remain optional)

### 540i Sedan

- Rear Head Protection System (HPS) newly standard; formerly optional (rear side-impact airbags remain optional)
- New, more extensive Sport Package. Features with an asterisk (\*) are new for '03:
  - M sport suspension II\*
  - 18-in. M Parallel Spoke wheels (design #37M) in differentiated front/rear sizes with 235/40 front / 265/35 rear performance tires\* (formerly 17-in. equipment)

- STEPTRONIC automatic transmission with high-stall-speed torque converter
- Performance final drive ratio
- M aerodynamic body components (front and rear bumper/spoiler ensembles)
- Black body-side moldings
- High-gloss Shadowline body trim
- Limited exterior color choice\*
- Visible exhaust outlet\*
- M sport steering wheel
- Titanium-finish rings around instruments\*
- Anthracite-color headliner\*
- Sport seats
- M footrest for driver's left foot\*

### 540i Sedan 6-Speed

- Rear Head Protection System (HPS) newly standard; formerly optional (rear side-impact airbags remain optional)
- All new features of 540i Sedan Sport Package standard on this model

### 540i Sport Wagon

- New Sport Package, as for Sedan except:
  - 17-in. Radial wheels (design #32), unchanged from '02. Wheel and tire sizes here remain the same front and rear, as the sport wagon's bodywork does not allow the wider rear sizes of the sedan.
- STEPTRONIC transmission with high-stall-speed torque converter and performance final drive ratio standard on this model

## 5 Series key features

Except as noted, all current 5 Series models offer the following features:

### Performance & efficiency

#### 2.5-liter DOHC 24-valve inline 6-cylinder engine

(525i Sedan & Sport Wagon)

As the smaller of two versions of the new-generation M54 inline 6-cylinder engines, this 2.5-liter version helps position these models at very appealing price points. With 184 hp @ 6000 rpm and 175 lb-ft. of torque @ 3500 rpm, the 2.5 engine propels the Sedan to 60 mph in 7.8 sec. with manual transmission, 8.3 sec. with automatic. The Sport Wagon's figures are 8.3 and 8.9 sec. EPA city/highway mileage ratings are –

- 525i Sedan – manual 20/29, automatic 20/28
- 525i Sport Wagon – manual 19/26, automatic 19/26.

For a detailed description of this engine, see **BMW features**, page 16.

#### 3.0-liter DOHC 24-valve inline 6-cylinder engine

(530i Sedan)

Though identical to the 525i engine in all its basic engineering features, the 530i engine employs larger displacement to deliver 22.3% more power and torque. With 225 hp @ 5900 rpm and 214 lb-ft. of torque at 3500 rpm, it is one of the strongest engines in its class. 0-60-mph times are 6.8 sec. with manual transmission, 7.0 sec. with automatic. The 530i also achieves remarkable EPA mileage ratings of 21/30 with manual transmission, 19/27 with automatic.

#### 4.4-liter DOHC (4-cam) 32-valve V-8 engine

(540i Sedan & Sport Wagon)

All 540i models are powered by BMW's superb 4.4-liter V-8 engine. It is smooth, powerful, quiet – but not too quiet to be

enjoyed actively. In its September '01 comparison test (where the 540i Sedan with Sport Package won over Audi, Cadillac, Infiniti, Jaguar, Lexus and Mercedes-Benz competitors), *Car and Driver* had this to say about its power and sound: "Not only did the 540i wax the competition at the drag strip, but the visceral offerings from its DOHC 32-valve V-8 were positively spellbinding..." The magazine measured 0-60 mph in 5.7 sec., quite a bit quicker than BMW's own official 6.1-sec. data.

This engine develops a hearty 290 hp @ 5400 rpm and robust torque of 324 lb-ft. @ 3600 rpm. As confirmed by *Car and Driver* and other publications, both 540i models offer class-leading performance even if they no longer have the top on-paper power ratings.

Key engine features include:

- **Aluminum cylinder block and heads**, which reduce weight
- **Silicon-impregnated cylinder walls**, for excellent wear resistance and long life
- **Sintered connecting rods**, which do not require locating sleeves; lighter and more consistent in weight than conventional rods, helping make the engine smoother.
- **Hot-film air-mass measurement**. A metal film on a ceramic substrate measures the mass of air entering the engine so as to regulate the fuel injection. Helps ensure precise fuel delivery, excellent fuel efficiency and low emissions.
- **Fully electronic throttle system**. Similar in principle and operation to that of the 6-cylinder engines.

## 5 Series key features

Except as noted, all current 5 Series models offer the following features:

- **Thermoplastic intake manifold** – helps save weight, and has smoother air passages than a conventional aluminum manifold, which improve airflow and thus contribute to efficiency.
- **Electronically controlled engine cooling**, or “map cooling.” As on the 6-cylinder engines.
- **Double-wall exhaust tubing** from the engine to the catalytic converter. Improves heat insulation, helping the two pre-catalyst oxygen sensors (there are also two sensors aft of the catalytic converter) reach operating temperature quickly after a cold start for effective emission control. Also reduces underhood heat, making it easier on wiring and electrical components.
- **Liquid-cooled alternator.** Compared to conventional air-cooled alternators, this advanced version is more compact, produces more electrical power, and is fully encapsulated so that it operates more quietly. Standard on all BMW V-8 engines. Its output is a generous 150 amperes/2100 watts; for comparison, the alternator used in 525i/530i models is rated at 120 A/1680 W.

### Manual transmission

Few automobiles in the 5 Series' class offer a manual transmission. BMW, honoring its rich heritage of sports sedans, offers a manual transmission in four of the five 5 Series models. In 525i and 530i models, it's a 5-speed; in the 540i Sedan, it's an even sportier 6-speed. Either way, the driver enjoys optimum gear ratios and precise shifting.

### 5-speed automatic transmission

BMW teams a premium 5-speed automatic transmission with every 5 Series engine. The September '01 *Car and Driver* comparison test rated the 540i's transmission a solid 10, vs. just 9 or 8 for the other models' automatics; and the August '01 *Automobile Magazine* article quoted earlier praised the 525i's STEPTRONIC automatic too.

Three transmission versions are offered in 5 Series models:

**540i Sedan, standard.** The Sport mode can be selected manually by selecting 4 with the shift lever; pulling back further to 3 or 2 limits upshifts to 3rd or 2nd gear, respectively. In D, Adaptive programming tracks the driver's actions and environmental factors (slick roads, up- and downhill driving) and tailors shift programming accordingly.

**540i Sedan with Sport Package, 540i Sport Wagon.** STEPTRONIC version, with Sport or Manual mode selected by moving shift lever into 2nd (left-hand) gate. Manual shifts then effected by “flicking” the lever forward for downshifts, rearward for upshifts. This transmission version also includes a high-stall-speed torque converter, and is teamed with a “performance” final drive ratio of 3.15:1 (2.81:1 is standard on the non-Sport Package Sedan).

**525i Sedan and Sport Wagon, 530i Sedan.** STEPTRONIC; functionally similar to 540i models' STEPTRONIC transmission, but actually a different unit that's tailored to the 6-cylinder engines.

Basic descriptions of BMW 5-speed automatic transmissions are found in **BMW features**, page 17.

## Handling, ride & braking

### Ultra-rigid body structure

The 5 Series body structure is “typically BMW”: immensely solid and strong. To achieve excellent structural **dynamics** – a critical factor for riding comfort – BMW body engineers carefully tuned the structure’s natural frequencies to 29 Hertz in torsion and 26 Hertz in bending<sup>1</sup>. These relatively high frequencies are an important indicator of the body’s great resistance to unpleasant vibrations; the different frequencies for torsion and bending help ensure that the structure never takes on “a life of its own” when subjected to vibration influences.

**Static rigidity**, critical to a feeling of solidity and precise operation of the suspension system, is also impressively high. Taken together, these factors – dynamic and static rigidity, plus the difference in torsion and bending frequencies – are essential elements of the truly remarkable level of riding comfort and handling precision the 5 Series achieves. As *Road & Track* reported in a February 1998 comparison test with the Cadillac STS, Lexus GS 400 and Mercedes E 430, “of our quartet, the 540i [Sedan] handles like a unified piece of machinery. Twist the steering wheel, and the front and rear suspension react in perfect concert. The car moves like an animal; it feels like a razor blade for fast driving with a handle wrapped in leather and wood trim – not a luxury car that’s been sent out for sharpening.” The masterful 5 Series body structure has everything to do with these qualities.

The body structure also enhances passive safety; for information on its safety qualities, **see safety & security**.

### Aluminum front suspension

All 5 Series models have a refined form of BMW’s unique double-pivot strut-type front suspension. Though the system’s design is a major factor in the outstanding handling – particularly in vehicle response to the steering wheel and stability in smooth-road cornering – the materials of which it is made are revolutionary, and beneficial to the customer in terms of:

- **Riding comfort**, particularly on rough road surfaces
- **Handling**, also particularly on rough road surfaces
- **Fuel economy**
- **Performance**.

The front suspension system is essentially **all-aluminum**, with the following major components made of this weight-saving metal:

- Steering knuckles
- Lower suspension arms<sup>2</sup>
- Strut tube
- Spring pad.

Additionally, on 6-cylinder models the front subframe, which carries the entire suspension system and the engine, is made of weight-saving aluminum. However, a major proportion of the weight reduction is in components that move up and down with the wheels, or **unsprung weight**: the ideal place to reduce weight, for this also improves the suspension’s ability to respond to bumps and other road irregularities. This is a significant contribution to active driving safety, and does not compromise passive safety in any way.

1 – The description here applies to the Sedan structure. That for the Sport Wagons is fundamentally similar, except that wagons typically lose some torsion rigidity relative to their Sedan counterparts.

2 – Each side has two lower control arms, each with its own pivot points. These form BMW’s exclusive double-pivot system.

## 5 Series key features

Except as noted, all current 5 Series models offer the following features:

### Aluminum 4-link Integral rear suspension

Essentially the same in concept and function as that in the 7 Series, except that it does not have that Series' Active Roll Stabilization, the 5 Series rear suspension is a multi-link system with 4 links per side, designed to control rear-wheel angles precisely. This system minimizes unwanted effects under load changes (such as lifting off the gas while cornering) and achieves a remarkably comfortable ride.

The aluminum construction not only saves weight overall, but (as with the front suspension) reduces unsprung weight very significantly to improve ride and handling, particularly on rough road surfaces. Aluminum components include:

- All links of the 4-link system
- Shock-absorber tubes
- Spring pads
- Subframe.

The subframe, which carries the entire rear suspension system and final drive (differential), is mounted to the main structure with four large rubber bushings which help absorb road shocks. The final drive unit is mounted to the subframe through its own rubber bushings. Thus with two stages of vibration and noise absorption between it and the body, the differential is **acoustically decoupled** from the body, reducing any gear noise to a minimum inside the car.

### Front suspension and rack-and-pinion steering (6-cylinder models)

There are significant differences in the front suspension and steering system between the 6-cylinder and V-8 5 Series models.

The 525i/530i models' front suspension is laid out to accom-

modate a rack-and-pinion steering system, in itself a weight-saving factor. But this is no "ordinary" rack-and-pinion system; rather, it has a variable ratio (not to be confused with variable assist, which all current BMW power-steering systems have). The rack's teeth are profiled in such a way that the steering ratio becomes quicker (that is, more steering effect for a given steering-wheel motion) as the wheel is turned outward from the center position. The result is a fine-tuning of steering response according to the situation one is in, be it on a fast straightaway or maneuvering into a parking space.

Aside from this specific variable-ratio feature, the fundamental argument for rack-and-pinion steering is that it virtually eliminates any slack or "free play" at the steering's center position, enhancing steering precision.

### Front suspension and recirculating-ball steering (V-8 models)

540i models have their own distinct front subframe, suspension system and steering. They have a recirculating-ball steering mechanism, which uses a gearbox with ball bearings (instead of a rack and pinion) to translate steering-wheel motion to the front wheels. This system transmits less road shock back to the steering wheel, and is thus more "luxurious." The recirculating-ball mechanism is also heavier, and in some competitive systems it has allowed a small amount of free play at the center steering position. But the 540i models' steering mechanism is refined to reduce this free play to a minimum. This system is truly "the best of both worlds."

### **Altogether, an amazing suspension system**

The 5 Series is alone among normal production automobiles in having a suspension system so extensively made of aluminum. In the Audi A8, an aluminum body shell saves weight, and since its model-year 2000 facelift the A8 now has more aluminum in its suspension. But road tests reveal that the A8 still lacks the supple suspension behavior of the 5 Series, mainly because its suspension travel is limited by its front-wheel-drive components. (Current A8s have all-wheel drive, but their basis is still a front-drive platform.)

The overall benefit of the 5 Series' complete suspension system is an absolutely amazing combination of precise, agile handling and a controlled, comfortable ride. "Most important," wrote *Car and Driver* in naming the 5 Series to its 10Best list in January 2000, "is the superb chassis that not only delivers what many of us regard to be the world's finest ride but also provides grip and precision that even sports-car aficionados find satisfying."

### **Weight-saving 4-wheel ventilated disc brakes**

In the brake system, too, aluminum reduces both unsprung and total vehicle weight. On 525i models, ventilated front brakes of 11.7-in. diameter are acted upon by aluminum calipers that are 25% lighter than comparable cast-iron ones. At the rear, the discs are also of 11.7-in. diameter and ventilated, though of slightly less width, and have aluminum calipers.

The 530i and 540i models' brakes are upgraded appropriately for their higher performance, with

ventilated discs of 12.8-in. diameter at the front (iron calipers here). Rear brakes are the same as on the 525i models.

### **Wheels and tires: many choices for handling and design**

Some of the many choices of wheel sizes and designs have changed for '03. Wheel and tire equipment is as follows:

**525i models.** A new standard Radial Spoke design (#50) now graces both 525i models. These relatively open, straight-spoked wheels are sized 16 x 7.0 and carry 225/55R-16 H-rated all-season tires.

**530i Sedan.** Elegant, open-look Parallel Spoke wheels (design #82) are standard; wheel and tire sizes are the same as on the 525i models.

**525i models with Sport Package.** A Star Spoke wheel design (#81), in 17 x 8.0 size, carries 235/45R-17 W-rated performance tires.

**530i Sedan with Sport Package.** Ultra-sporty bolted 2-piece Cross Spoke Composite II wheels (design #42) appear here, in the same size and with the same performance tires as in the 525i Sport Package.

**540i Sedan and Sport Wagon.** 16 x 7.0 wheels in a Radial Spoke design (#48) carry 225/55R-16 H-rated all-season tires.

**540i Sedan 6-Speed, 540i Sedan with Sport Package.** The wheels for these 540i versions are significantly upgraded for '03, to 18-in. equipment. New M Parallel Spoke wheels (design #37M, not the same as last year's stand-alone option) are sized 18 x 8.0 front/ 18 x 9.0 rear, and carry 235/40R-18 front / 265/35R-18

## 5 Series key features

Except as noted, all current 5 Series models offer the following features:

W-rated performance tires<sup>3</sup>. There is no longer a stand-alone option of M Parallel Spoke wheels.

**540i Sport Wagon with Sport Package.** Because the wagon's body does not accommodate the wider rear size, this model's Sport Package continues with 17 x 8.0 wheels all around, carrying 235/45R-17 W-rated performance tires. The tastefully aggressive Radial wheel design is unchanged for '03.

### Exterior & aerodynamics

#### The 5 Series look:

##### as only BMW can create

BMW's mastery of the art of changing and progressing in design without losing marque identity is one reason for the marque's enduring image and prestige. When first introduced, the current 5 Series illustrated this mastery perfectly. At the front, its dual grille openings are integrated into the hood for a clean frontal appearance; the four headlamps are under covers for aerodynamic smoothness. Free Form foglights, set into the wide lower-front air intake, are standard. In side view, the proportions are subtly evolved. Everywhere, there is a feel of leanness, efficiency, no extraneous bulk or shapes.

From the outside, all 5 Series Sedan models look essentially the same and have the same dimensions, except as follows:

- Different wheel designs distinguish the various models and Packages; see page 105 and above.
- The 540i Sedan with manual transmission and all models with Sport Package are lowered.

- 530i and 540i Sport Packages and the 540i Sedan 6-Speed have Shadowline trim (matte-black window frames and doorsill trim strips on 530i, high-gloss black on 540i models).
- 525i and 530i models have black vertical grille slats, 540i models chrome slats.
- 540i models add discreet chrome trim to the side moldings, except 540i Sedan 6-Speed or when equipped with Sport Package.
- Each model level (525i, 530i, 540i) is identified by a badge on the trunklid or tailgate.

#### The Sport Wagon

The Sport Wagon is the perfect companion to the Sedan design, conceived in the BMW wagon tradition to preserve the handling, maneuverability and visual appeal of the 5 Series Sedan while adding valuable extra cargo space and versatility. From the B-pillars rearward, the roofline, rear doors and rear quarters are completely distinct, concluding in a gracefully angled rear window that is part of a lift-up tailgate but can also be opened separately. For details, see **5 Series specific features by model**.

#### Aerodynamics

The front and rear bumpers are shaped to optimize aerodynamics; so are the outside mirrors, and the underbody is engineered to be as smooth as possible. The aerodynamic performance of the 5 Series bodies reflects these features. The 6-cylinder Sedans' coefficient of aerodynamic drag ( $C_D$ ) is just 0.30; the 540i Sedan, with its larger engine, cooling system and wheels/tires, comes in at a very respectable 0.31.

For the 525i and 540i Sport Wagons, the  $C_D$  figures are 0.31 and 0.33.

### **Articulated right-side windshield wiper**

An articulated right-side wiper increases the wiped area of the windshield, contributing to the driver's outward vision in inclement weather.

### **Ergonomics & luxury**

#### **Power tilt/telescopic steering wheel with multi-function controls, automatic tilt-up & memory**

All 5 Series models have a power tilt/telescopic steering wheel with 3-position memory and automatic tilt-up for exiting and entering the vehicle. For more on BMW's tilt/telescopic steering wheels, see **BMW features**, page 29.

Two styles of steering wheel are available in the 5 Series: a 4-spoke version, standard in all models except the 540i Sedan 6-Speed; and the sport version. The sport 3-spoke M steering wheel is included with all Sport Packages, and is standard in the 540i Sedan 6-Speed model.

#### **Extensive 1-touch functions**

All four door windows have 1-touch opening and closing, with anti-trapping feature (if a window on its way up is obstructed, it automatically reverses motion). The available moonroof has 1-touch opening and closing.

#### **Onboard Computer**

The Onboard Computer appears in two forms in the 5 Series:

- "Basic" in 525i/530i models, offering outside temperature, average fuel economy, expected range on remaining fuel, and average speed (readouts in LCD in instrument cluster)

- "Premium," standard in 540i models and included in the 525i/530i models' Premium Package. Here an 8-function Onboard Computer is included in the Multi Information Display in the center dash area (see below).

#### **Multi Information Display (MID)**

In all models, a display in the center dash area serves the audio system. As standard equipment in 540i models, and part of the Premium Package for 525i and 530i models, it becomes the Multi Information Display for the following additional features:

- The 8-function "premium" Onboard Computer
- Some BMW Cellular Phone System functions (system BMW Center-installed).

All 5 Series models with the MID and Premium Onboard Computer also include the "high" instrument cluster with Check Control of wider functional scope & alphanumeric display. When the vehicle is so equipped, the optional BMW Onboard Navigation System includes these and other functions.

#### **Power front seats**

10-way power front seats are standard in all models but the 540i Sedan 6-Speed, which comes standard with 12-way power sport seats. The 10-way power seats include the following adjustments:

- Fore-aft position
- Front-of-cushion height
- Rear-of-cushion height
- Backrest angle
- Head-restraint height.

3 – Snow chains cannot be fitted to these tires. Some loss in riding comfort results. With different front/rear sizes, the spare wheel and tire correspond to the front wheels and tires.

## 5 Series key features

Except as noted, all current 5 Series models offer the following features:

Sport front seats are available as follows:

- standard in the 540i Sedan 6-Speed
- as part of the Sport Package for all 525i and 530i models and the 540i Sedan with automatic transmission.

These handsome, highly supportive seats feature more prominent side and backrest bolsters and power-adjustable thigh support, in addition to the power adjustments given above. They are not available in combination with the 4-way power lumbar support that is available as a stand-alone option for the 530i, 540i Sedan and 540i Sport Wagon.

### Memory system

This system captures three settings for the driver's seat and safety-belt height, the tilt/telescopic steering wheel and the outside mirrors.

### Interior trim levels

In base 525i and 530i models, seats and door trim are in leatherette; there are color-keyed high-gloss trim panels on the instrument panel, doors and center console (in Sand or Black for corresponding upholstery colors).

The 525i/530i Premium Package includes an interior trimmed in BMW's rich Montana leather, with gathered surfaces on the seats and door inserts, and Vavona redwood. In 540i models, the standard leather trim is the same, but the wood is high-gloss burl walnut.

When leather is ordered as a stand-alone option for the 525i and 530i models without the also available stand-alone wood trim, the standard color-keyed high-gloss trim is retained. When the vehicle is equipped with wood trim, it is extensively

applied to dash, console and doors. On the instrument panel, the wood panel conceals the tape deck and audio tone controls, which are less frequently used than the openly positioned main audio controls and displays.

In all versions, the steering-wheel rim, handbrake grip and handbrake boot are leather-covered. In versions with wood, the shift grip is trimmed in leather and wood.

### Automatic climate control with separate left/right temperature settings and other special features

The 5 Series automatic climate-control system includes individual left/right temperature settings. The set temperatures are displayed in a central LCD; fingertip-touch controls allow users to select automatic control of the system, or to select air distribution and volume manually.

Automatic recirculation control is included. This function recognizes a high level of air pollution outside, and automatically switches to recirculating air – although it is also possible to select “recirc” manually via the climate-control panel or a control on the steering wheel<sup>4</sup>. Another important refinement is **twin activated-charcoal microfilters** that significantly reduce air pollutants and odors entering the cabin. Positioned at the cowl air intakes, these filters are easily accessible for periodic replacement from under the hood. A **solar sensor** enhances the system's response to changing sun conditions.

### Power 2-way moonroof

Now standard on all 5 Series models, BMW's moonroof is described in detail under **BMW features** on page 36.

### Standard audio system

Standard in all models is a 10-speaker audio system; speakers include two bass, two midrange, two middle-high-frequency, two tweeters, and two woofers. For excellent FM stereo reception, a 4-channel diversity antenna system is standard. The antenna circuits are glass-mounted: in the rear window of sedans, in the left-rear quarter window of sport wagons. For a description of the available super-premium audio system, see **options & accessories**.

### Dual cupholders front and rear

Dual front and rear cupholders are standard; the front ones, which can be pulled out singly, are in the center console; the rear ones are at the rear of the center console for convenient access by rear passengers.

### Split folding rear seats (standard Sport Wagons, optional Sedans with leather upholstery)

The seats are split 1/3 – 2/3 and are lockable in the Sedans. A ski bag is included with the Sedan option. When the vehicle is equipped with the folding seats, the front seats' backrests contain internal steel reinforcements to guard against objects that might race forward in a collision. (With or without the folding rear seats, a fold-down rear center armrest is standard, and child restraint seats can be fitted.)

### Safety & security

All 5 Series models come standard-equipped with a full complement of BMW safety and security features. These are described under **BMW features**; only those safety and security features specific to the 5 Series are described here.

### 3-point safety belts and head restraints at all seating positions

All three rear seating positions are equipped with 3-point belts; all passenger belts (not the driver's) are also equipped with automatic-locking retractors, which accommodate the fitting of child restraint seats. As the front seats are adjusted fore and aft, the belts' upper anchor point moves down or up to accommodate shorter or taller occupants. In addition to automatic tensioners, the 5 Series' front safety belts also include force limiters. The rear seats are equipped with anchors for child-seat tethers.

### Rear-seat Head Protection System (HPS)

(standard all Sedans)

New for '03 is standardization of HPS airbags that deploy downward over the C-pillars; these are not available in the Sport Wagons. Door-mounted rear side-impact airbags remain optional in all models, for reasons explained in **BMW features**, page 42.

### Options & accessories

#### Factory-installed options

##### Premium Package

(525i Sedan & Sport Wagon)

Though less extensive than that for the 530i, this Package upgrades the 525i models' appearance and luxury significantly. It includes:

- **Leather upholstery.** Rich Montana leather on the seating surfaces and doors. Also available as a stand-alone option.
- **Vavona Redwood interior trim.** This unusual and highly distinctive wood is applied

4 – These controls not available with sport steering wheel of 540i Sedan 6-Speed and models with Sport Package; heated wheel requires Cold Weather Package.

## 5 Series key features

Except as noted, all current 5 Series models offer the following features:

- generously to the instrument panel, doors, center console and shift knob.
- Rain-sensing windshield wipers, new for '03.
- Automatic headlight control – switches on headlights and related lighting according to ambient light conditions; also new for '03.
- **BMW Universal Transceiver**, conveniently integrated into the control panel above the windshield.
- **Multi Information Display with premium Onboard Computer.** 8-function computer replaces standard 4-function type and shares a Multi Information Display with the audio displays and controls. The instrument cluster changes from “low” to “high” and therefore matches that of the 540i models, with Check Control of wider functional scope and alphanumeric display.

### Premium Package

(530i Sedan)

This Package upgrades appearance, luxury and convenience aspects of the 530i, and includes the following features:

- **Leather upholstery.** As described for the 525i Premium Package.
- **Vavona Redwood interior trim.** As described for the 525i Premium Package.
- **Auto-dimming inside rearview mirror.** Electrochromic action automatically reduces glare from following vehicles. This is a feature that's not available on the 525i models.
- Rain-sensing windshield wipers.
- Automatic headlight control.
- **BMW Universal Transceiver**, with its 3-function controls conveniently integrated into the roof above the windshield.

- **Multi Information Display with premium Onboard Computer.** As in 525i Premium Package.

This Package brings 530i equipment up to approximately the same level of design appeal, luxury and convenience as the standard-equipped 540i Sedan Automatic and 540i Sport Wagon.

### Sport Package

(525i Sedan & sport wagon)

Like these models' Premium Package, this Package is of lesser extent than that for the 530i, which helps keep 525i pricing competitive in its field. Yet the true essentials of a BMW Sport Package are there:

- **BMW M sport suspension.** Sharpens handling response and driving pleasure, while minimizing sacrifices in riding comfort. Elements include:
  - Firmer springs and shock absorbers
  - Specific anti-roll (stabilizer) bars front and rear
  - Lowered by 20 mm front/ 15 mm rear (overall height 0.8 in. lower)
  - Self-leveling rear suspension (Sport Wagon only).
- **17-in. wheels and tires.** 17 x 8.0 Star Spoke design (#81) wheels with 235/45R-17 W-rated performance tires<sup>3</sup> for top handling.
- **Power front sport seats.** 12-way power adjustment including power-adjustable thigh support. Power lumbar support is not available with these seats.
- **M sport steering wheel.** Smaller in diameter than the standard 4-spoke wheel (375 mm/14.8 in. vs. 385/15.2); 3-spoke configuration. Includes most of the same multi-function controls as the standard wheel.

- **BMW M shift knob** if vehicle is equipped with manual transmission.

This Package can be ordered only in combination with leather upholstery (stand-alone option or Premium Package).

### **Sport Package** (530i Sedan)

This Package enhances the inherent sportiness of the 530i in a major way with the following features:

- **BMW M sport suspension.** As described for the 525i Sport Package.
- **17-in. wheels and tires.** One of BMW's sportiest wheel designs, the Cross Spoke Composite II (design #42) with 2-piece bolted construction; as on 525i models, mounting 235/45R-17 W-rated performance tires.<sup>3</sup>
- **Shadowline exterior trim.** Matte-black trim replaces chrome on side-window frames and doorsill trim strips. A feature not available on 525i models.
- **M sport steering wheel,** as in 525i Package.
- **Power front sport seats,** as in 525i Package.
- **BMW M shift knob** if vehicle is equipped with manual transmission.

This Package can be ordered only in combination with leather upholstery (stand-alone option or Premium Package).

### **Sport Package** (540i Sedan & Sport Wagon)

This Package, which comes in two forms, aggressively enhances the 540i models' innate sporting qualities. In the case of the **540i Sedan**, it essentially brings the automatic-equipped Sedan into line with the 6-Speed model's

standard sport equipment, and adds performance-enhancing drivetrain features. For the **540i Sport Wagon**, the Package has less content because these drivetrain features are standard. Wheel-and-tire equipment also differs between the two 540i models' Sport Package. Content is greatly expanded for '03; new features are indicated by an asterisk (\*):

- **M sport suspension II\*.** The latest refinement of the sport-suspension concept described for the 525i Sport Package.
- **18-in. wheels and tires\*** (540i Sedan). New in size and design: M Parallel Spoke wheels (design #37M), 18 x 8.0 front/18 x 9.0 rear with 235/40 front / 265/35 rear W-rated performance tires<sup>3</sup>. Replacing the former 17-in. equipment, this bold new running gear approaches that of the M5.
- **17-in. wheels\* and tires** (540i Sport Wagon). Because the sport wagon's body does not accommodate the larger wheel/tire sizes, it continues with 17 x 8.0 wheels carrying 235/45R-17 W-rated performance tires<sup>3</sup> all around. The tastefully aggressive Radial wheel design (which is not the same as the standard Radial Spoke wheels) is unchanged for '03.
- **STEPTRONIC automatic transmission.** STEPTRONIC, included in this Package for the Sedan and standard on the Sport Wagon, combines the best of both worlds – manual and automatic transmission.

<sup>3</sup> – Snow chains cannot be fitted to these tires. Some loss in riding comfort results. With different front/rear sizes, the spare wheel and tire correspond to the front wheels and tires.

## 5 Series key features

Except as noted, all current 5 Series models offer the following features:

- Torque converter with higher stall speed<sup>5</sup>, for enhanced acceleration response. Included in Package for Sedan, standard on Sport Wagon.
- Shorter<sup>6</sup> final drive ratio (3.15:1, vs. standard 2.81:1), also for enhanced acceleration. Included in Package for Sedan, standard on Sport Wagon.
- M aerodynamic body components\* – unique, sporty front and rear bumper/spoiler ensembles.
- Black body-side moldings in place of the standard body-color ones.
- High-gloss Shadowline body trim on side-window frames and doorsill trim strips.
- Limited exterior color choice\*: Alpine White, Jet Black, Topaz Blue, Titanium Silver, Sterling Gray, Black Sapphire and Toledo Blue.
- Visible exhaust outlet\*.
- M sport steering wheel, as in 525i Sport Package.
- Titanium-finish rings around instruments\*.
- Anthracite-color headliner\*.
- Sport seats, as in 525i Sport Package.
- M footrest for driver's left foot\*.

### Cold Weather Package

(all models)

The Package includes:

- 3-stage heated front seats
- High-intensity liquid headlight cleaning system. Activates automatically every fifth time the windshield washers are activated.
- Ski bag (Sport Wagons only).

### 5-speed automatic transmission

(optional 525i Sedan & Sport Wagon, 530i Sedan; standard 540i Sedan & 540i Sport Wagon)

In 525i and 530i models, where the automatic transmission is optional, it includes the STEPTRONIC system of transmission control, which allows the driver to control upshifts and downshifts directly by flicking the lever rearward or forward. For details, please see page 17.

In the 540i Sedan, a non-STEPTRONIC transmission offers a Sport mode and manual selection of gears via selection of the 4, 3 and 2 positions. STEPTRONIC is included in the 540i Sedan's Sport Package. The 540i Sport Wagon comes standard with the STEPTRONIC transmission.

### Self-leveling rear suspension

(optional 525i Sport Wagon, standard 540i Sport Wagon)

The 5 Series Sport Wagons have the same basic rear suspension concept as the Sedans, but with a specific configuration to enhance their carrying capacity. They also offer self-leveling air springs: as part of the Sport Package or as a stand-alone option on the 525i Sport Wagon, standard on the 540i Sport Wagon.

With this system, air springs replace the rear coil springs; the self-leveling effect is achieved via an electrically powered air compressor and ride-height sensors that recognize changes in vehicle loading. Whenever the sensors detect a longer-term change in the ride height at the rear (as when heavy loads are carried in the cargo area), the pressure in the rear air springs is increased to bring the vehicle back to its normal attitude.

### **Xenon low-beam headlights** (optional 525i & 530i models, standard 540i models)

Xenon headlights produce an even brighter, more daylight-like illumination than BMW's already powerful halogen low beams. Within the same basic projector configuration as ellipsoid lamps, a revolutionary bulb concept is what makes the difference.

The 5 Series Xenon lights include **dynamic auto-leveling**. Details on all BMW Xenon headlights can be found under **BMW features**, pages 25-26.

### **Park Distance Control (PDC)** (all models)

Recently expanded on the 5 Series to include sensors at the front and rear of the vehicle (previously rear only), PDC employs four ultrasonic sensors in the front and four in the rear bumper to warn the driver when the vehicle is approaching objects or obstructions that may not be visible to the driver. For a more detailed explanation of Park Distance Control, see **BMW features**, page 26.

### **BMW On-board Navigation System**

The BMW On-board Navigation System is a multi-faceted in-dash system offering a wide range of information, convenience, security, customer-assistance and entertainment functions, including GPS Navigation. All are operated from a cleanly designed, ergonomically efficient control center in the instrument panel that was updated and refined as of the '01 model year. For '03, the system adopts a DVD data base and other functional improvements. Full details on the system can be found under **BMW features**, pages 33-34.

### **Super-premium audio system** (all models)

This audiophile system features:

- Increased audio power
- Dual-coil subwoofer(s)
- Digital Sound Processing (DSP).

The top-quality speaker system includes two subwoofers in Sedans and one band-pass subwoofer in Sport Wagons. Each subwoofer has dual voice coils, so each gets 2 amplification channels; thus Sedans have 14 channels, Sport Wagons 12. The total number of speakers in Sedans is 12, in Sport Wagons 11.

The subwoofers are positioned as follows:

- Sedans – two, under rear parcel shelf
- Sport Wagons – one, band-pass type, behind cargo-area trim panel on right side above wheelwell.

(In the Sedans, the subwoofer housing reduces usable trunk height.)

Digital Sound Processing (DSP) gives the user the possibility of selecting from three preset acoustic environments (concert hall, cathedral, jazz club). Or the user can custom-tailor three environments on the basis of acoustic parameters such as room size, reverberation time and equalizer characteristics, and capture them in three memory settings for future use. There's also a DEMO function to demonstrate the system's capabilities. The DSP menu appears in the audio or Multi Information

- 5 – Torque converter allows a higher engine speed when accelerating from a standstill.
- 6 – "Shorter" gearing means higher engine speed for a given road speed, and a possible increase in both engine sound and fuel consumption.

## 5 Series key features

Except as noted, all current 5 Series models offer the following features:

Display or, if the vehicle is so equipped, in the Onboard Navigation System.

### **Cassette player**

**(no-cost option, all models)**

With the in-dash single-disc CD player now standard in all models, BMW offers a cassette player in its place as a no-extra-cost option. In vehicles with the Onboard Navigation System, the cassette player is a mandatory option as an in-dash CD player compatible with that system is not yet available in this Series.

### **16-way Comfort power front seats with articulated backrests**

**(530i & 540i models)**

These unique seats are available in the 530i<sup>7</sup> and 540i models.

Their backrests are adjustable in two different modes. The basic backrest angle is adjusted in the same way as the standard seat, via the backrest/head-restraint switch. The upper portion of the backrest can be adjusted independently via an additional rocker switch. 4-way power lumbar support is included, so these seats offer 16-way power adjustment as follows:

- Fore-aft
- Cushion angle
- Seat height
- Primary backrest angle
- Upper-backrest angle
- Height of head restraint
- Firmness of lumbar support
- Height of lumbar support.

### **Power front-seat lumbar support**

**(530i & 540i models without Sport Package)**

4-way power lumbar support is an option for the standard (not sport) power front seats; this allows the driver and passenger to adjust both the firmness and vertical position of their backrests' lumbar support. In the 540i Sedan, it is available only in the automatic-transmission model; and it is not available in combination with any equipment configuration that includes sport seats or Comfort seats.

### **Heated steering wheel**

**(all models except 540i Sedan 6-Speed; requires Cold Weather Package)**

This option is omitted from the Cold Weather Package so that Sport Package-equipped models and the 540i Sedan 6-Speed (all of which have the M sport steering wheel) can be ordered with the Cold Weather Package.

### **Split folding rear seats and ski bag**

**(Sedan models)**

The backrests are split 1/3–2/3 and are lockable in the Sedans. A ski bag is included with the Sedan option.

When the vehicle is equipped with the folding seats, the front seats' backrests contain internal steel reinforcements to guard against objects that might race forward in a collision. (With or without the folding rear seats, a fold-down center rear armrest is standard, and child restraint seats can be fitted.)

In 525i and 530i models, this option is available only in combination with leather upholstery. In Sport Wagons, similarly configured split folding rear seats are standard, but are not lockable; a ski bag is included in the wagons' Cold Weather Package.

**Power-operated rear sunshade and pull-up rear side-window sunshades**  
(Sedans only)

From a switch on the front center console, the rear-window shade can be raised electrically. Rear-seat passengers can easily raise or lower the manual shades for their side windows. These shades reduce glare and sun heat and enhance privacy, yet preserve the driver's rearward view.

**Pull-up rear side-window sunshades**  
(Sport Wagons)

These shades are essentially the same as the ones included in the Sedan option, though configured to the different rear door windows of the Sport Wagons. A power-operated rear-window sunshade is not offered for the Sport Wagons.

**Rear-seat side-impact airbags**  
(all models)

Now that the rear Head Protection System is standard in Sedans (and therefore no longer included in the Sedans' rear-airbag option), this option becomes the same for all models. Like the standard front side-impact airbags, the rear ones are built into the doors. Please see **BMW features**, page 42, for an explanation of why rear airbags are optional.

**BMW Center-installed accessories**

**Aerodynamic kits and components**

(available for all models)  
Aerodynamic kits and individual aerodynamic components are available for 5 Series sedans and sport wagons. For details and availability, see the latest **Original BMW Accessories** catalog.

**BMW Cellular Phone System**  
(available for all models)

Available BMW Cellular Phone Systems are described in **BMW features**, page 33.

**6-disc CD changer**

(available for all models)  
All 5 Series models are pre-wired for straightforward installation of the trunk- or cargo area-mounted, magazine-type changer.

**Wood/leather steering wheel**  
(available for all models)

Available with Vavona Redwood or Burl Walnut wood, this elegant 4-spoke steering wheel enriches and harmonizes with the luxurious materials of 5 Series interiors.

**Other items**

A wide range of other accessories is available for the 5 Series; for a list of the possibilities, see **BMW accessories**, page 333.

7 – Available in 530i only in combination with leather upholstery.

## 5 Series specific features by model

This information helps position and distinguish the models in the Series.

### 525i Sedan features

#### 2.5-liter DOHC inline 6-cylinder engine

As described on pages 16 and 101.

#### 5-speed manual transmission

525i models' standard manual transmission is a 5-speed unit, with direct-drive 5th gear for high efficiency.

#### 5-speed STEPTRONIC automatic transmission

Though operationally similar to that of the 540i Sedan with Sport Package or 540i Sport Wagon, the 525i's 5-speed STEPTRONIC unit is actually a different unit.

There is only one transmission version, with no differentiation (as in the 540i Sedan) between with and without Sport Package. Basic operation is described on page 17.

#### Variable-ratio rack-and-pinion power steering

As described on page 104.

#### Standard Radial Spoke wheels

Truly a premium item of standard equipment for the most accessible 5 Series model, these sporty and purposeful alloy wheels (design #50) are dimensioned 16 x 7.0 and carry robust 225/55R-16 H-rated all-season tires.

#### Free Form low-beam headlights

In contrast to the 540i models' standard Xenon headlights, the 525i and 530i models have Free Form low beams, which employ a computer-generated reflector to determine their lighting pattern. They are powerful and effective.

#### Basic On-board Computer with liquid-crystal display

Offers outside temperature, average fuel economy, expected range on remaining fuel, and average speed (readouts in LCD). Controlled from the left-hand steering-column stalk.

#### Check Control vehicle monitor with pictogram display

Via a pictogram under the speedometer, alerts driver to malfunctioning light bulbs, or to doors or trunklid left ajar.

#### Standard interior with color-keyed high-gloss trim

The 525i Sedan's standard interior is upholstered in leatherette and has color-keyed high-gloss trim panels on the dash, doors and other surfaces.

#### Package availability

Like other 6-cylinder models, the 525i Sedan offers three option Packages: Premium, Sport and Cold Weather. Approximately 60% of 525i customers take the Premium Package.

#### Features not offered

In the interest of value pricing for the 525i models, certain features are deleted from the optional Packages and are not available:

- Shadowline exterior trim
- Auto-dimming inside rearview mirror.

The following stand-alone options are not available:

- 16-way Comfort power front seats
- 4-way power lumbar support for front seats.

## 525i Sport Wagon features

In addition to or in place of the features listed for the 525i Sedan, the 525i Sport Wagon includes:

### Completely distinct rear body

From the B-pillar rearward, the sport wagon's body is completely distinct from that of the sedan. Specific features follow.

### Roof rails

The sport wagon's standard-equipment roof rails are designed to accommodate an extensive selection of BMW roof carrier systems.

### Rear roof spoiler

A body-color spoiler is integrated into the tailgate, above the rear window.

### Rear-window wiper and washer

The wiper and washer are activated via additional motions of the wiper/washer control stalk on the steering column.

### Soft-close tailgate

The lift-up tailgate incorporates a soft-close feature; that is, it does not have to be slammed, but rather set down gently, whereupon the electric closing mechanism draws it tight. Like the Sedan's trunklid, the tailgate may be opened from an interior or exterior release or the remote control. The tailgate is finely counterbalanced; when open, its hinges disappear into the headliner. BMW's traditional toolkit is mounted inside the tailgate, and drops down conveniently when the tailgate is open. A thoughtful safety feature: When the tailgate is up, a red light on its left side faces rearward.

For easy loading of smaller objects into the cargo area, the rear window can also be opened separately from the tailgate.

## Velour-lined cargo area

The spacious, variable and easily accessible cargo area has elastic tie-down straps on its floor to keep smaller objects from sliding around when the vehicle is in motion. It is completely finished in velour: floor, sides and backs of seats. A retractable cargo cover is standard; it can be removed for maximum carrying capacity.

### Retractable/removable luggage net

The net is carried in a removable roller assembly, and can be positioned three ways to help keep items of cargo separate from the passenger compartment:

- Behind the upright rear seats
- Behind the folded rear seats
- From the front edges of the folded rear seats, to partition off the extended cargo area.

### Concealed storage tray

Under the cargo floor is an essentially round storage tray, with eight slots in a central post for radial dividers to help organize and stabilize items stored there; by moving these dividers, one can create compartments as narrow or as wide as desired. The full-use spare wheel/tire is below this tray. For convenience in accessing the tray or spare tire, the cargo floor can be hooked into the tailgate opening's upper lip.

### Standard split folding rear seats

Optional in the Sedan, folding rear seats are standard in the Sport Wagon and maximize the versatility of people- and cargo-carrying capacity. Unlike the sedan's folding seats, those of the sport wagon do not include locks, as they would serve no function here. The split seats include a folding armrest and three adjustable head restraints.

## 5 Series specific features by model

This information helps position and distinguish the models in the Series.

### Rear HPS not available

Unlike that of the Sedan, the Sport Wagon's C-pillar and roof configuration do not accommodate a rear Head Protection System.

### Optional rear side-window sunshades

These shades are similar to those included in the Sedan option, though of course they are configured to the different rear door windows of the Sport Wagon. They reduce glare and sun heat and enhance privacy. A power-operated rear-window sunshade is not offered for the Sport Wagon.

### Sport wagon rear suspension

The Sport Wagons have the same basic rear suspension system as the Sedans, but with a different layout to enhance the wagons' carrying capacity. Distinct features include:

- **Angled shock absorbers.** Where the Sedans have struts combining the shock absorbers and coil springs, the Sport Wagons mount their springs and shock absorbers separately; the shock absorbers are angled sharply so that they do not require "spring towers" reaching into the cargo area. The subframe is modified to include top mounts for the shock absorbers. Greater cargo volume is the result.
- **Different subframe.** The subframe, made of aluminum on both Sedans and Wagons, is configured differently; a particularly distinct element of the Wagon subframe is its shock-absorber mount. In the Sedans, the shock absorbers do not mount to the subframe.
- **Different springs and mounting.** Whether coil or air (see below), the springs are carried on modified lower mounts in a considerably lower position than on the Sedans.

### Optional self-leveling rear suspension

To maintain satisfactory suspension geometry when heavier loads are carried, self-leveling suspension is available as a stand-alone option. Air springs replace coil springs; the self-leveling effect is achieved via an electrically powered air compressor and ride-height sensors that recognize changes in vehicle loading. Available as part of the Sport Package or as a stand-alone option.

### Cold Weather Package

Compared to the Sedan's Package, that for the 525i Sport Wagon adds a ski bag.

### 530i Sedan features

In addition to or in place of the features listed for the 525i Sedan, the 530i Sedan includes:

#### 3.0-liter DOHC inline 6-cylinder engine

This more powerful, higher-torque engine is the principal difference between the 530i and 525i. It is described on pages 16-17 and 101.

#### Upgraded brakes

The 530i's front brakes are upgraded to 540i level, with 12.8-in. disc diameter (525i models: 11.7-in.).

#### Distinctive wheel design

The 530i's standard alloy wheels and all-season tires are of the same 16-in. size as those of the 525i models, but are in a highly distinctive Parallel Spoke design (#82).

#### More extensive Package contents

Compared to the 525i Premium Package, the 530i Package adds the auto-dimming inside rearview mirror.

Compared to the 525i Sport Package, the 530i Package adds or substitutes –

- Shadowline exterior trim
- A more premium wheel design, Cross Spoke Composite II (design #42).

All 525i and 530i Sport Packages employ 17 x 8.0 wheels with 235/45R-17 W-rated performance tires.

### **Additional options**

Beyond those available for the 525i Sedan, the 530i offers the following stand-alone options:

- 16-way Comfort power front seats
- 4-way power lumbar support.

### **540i Sedan features**

In addition to or in place of the features listed for the 530i Sedan, the 540i Sedan includes:

#### **4.4-liter DOHC (4-cam) 32-valve V-8 engine**

As described on pages 101-102.

#### **Automatic model**

The automatic-transmission model (540iA) is distinguished by the following features:

- 5-speed automatic transmission with Adaptive Transmission Control (not STEPTRONIC)
- Normal suspension settings
- 16 x 7.0 Radial Spoke cast-alloy wheels, not same as on 6-Speed model or 525i Sedan
- 225/55R-16 H-rated all-season tires
- 10-way power front seats

#### **6-Speed model**

The 540i Sedan with manual transmission is more than just a transmission variation. In addition to the 6-speed gearbox, it includes the following special features that distinguish it from the model with automatic transmission. Features with an asterisk (\*) are new for '03.

- M sport suspension II\*. The latest refinement of the sport-suspension concept.
- 18-in. wheels and tires\*. New in size and design. M Parallel Spoke wheels (design #37M), 18 x 8.0 front/18 x 9.0 rear with 235/40 front / 265/35 rear W-rated performance tires. Replacing the former 17-in. equipment, this bold new running gear approaches that of the M5.
- M aerodynamic body components\* – unique front and rear bumper/spoiler ensembles
- Black body-side moldings in place of the standard body-color ones
- High-gloss Shadowline body trim on side-window frames and doorsill trim strips
- Limited exterior color choice\*: Alpine White, Jet Black, Topaz Blue, Titanium Silver, Sterling Gray, Black Sapphire and Toledo Blue
- Visible exhaust outlet\*
- M sport steering wheel
- Titanium-finish rings around instruments\*
- Anthracite-color headliner\*
- Sport seats
- M footrest for driver's left foot\*.

#### **Recirculating-ball steering**

All 540i models have recirculating-ball steering, which provides a more "luxurious" steering feel than the 525i/530i models' rack-and-pinion steering and does not have the variable ratio of the 6-cylinder models.

#### **Xenon headlights with dynamic auto-leveling**

Standard on all 540i models, vs. optional on 525i/530i models. For details, see pages 25-26.

## 5 Series specific features by model

This information helps position and distinguish the models in the Series.

### **Rain-sensing windshield wipers**

Standard on all 540i models, vs. Premium or Sport-Premium Package on 530i, not available on 525i models. For details, see page 38.

### **Multi Information Display with 8-function Onboard Computer**

Occupying the same space as the 525/530i models' audio-system and clock display, the 540i Multi Information Display encompasses controls for a premium (8-function) Onboard Computer and automatic ventilation system. In any 5 Series model with the available BMW Cellular Phone System installed, this display also includes certain phone memory and dialing functions.

### **Automatic-dimming inside rearview mirror**

A standard 540i feature, vs. Premium Package in 530i; adjusts automatically and progressively to reduce glare from the headlights of following vehicles.

### **Montana leather interior with Burl Walnut trim**

The 540i standard interior is essentially the same as that which is optional in 525i/530i models – Montana leather on seating surfaces and doors – but the wood trim is high-gloss Burl Walnut rather than the Vavona Redwood of the optional 525i/530i leather interior.

### **Sport Package**

Available for the 540i Sedan with automatic transmission, this Package essentially brings the automatic model into line with the manual-transmission model's standard sport equipment, and adds performance-oriented drivetrain features as well. In addition to the features listed on page 119 for the 6-Speed model, this Package includes:

- STEPTRONIC automatic transmission with high-stall-speed torque converter
- Performance final drive ratio (3.15:1 vs. standard 2.81:1).

## 540i Sport Wagon features

The 540i Sport Wagon includes all features of the 540i Sedan, and all specific features listed for the 525i Sport Wagon, with the following additions or exceptions:

### **STEPTRONIC automatic transmission and performance final drive ratio**

The 540i Sport Wagon is available only with the STEPTRONIC 5-speed automatic transmission. In contrast to the 540i Sedan, the Sport Wagon also includes as standard the high-stall-speed torque converter and “shorter” 3.15:1 final drive ratio for sportier performance. For this reason, the 540i Sport Wagon’s Sport Package does not include these features.

### **Self-leveling rear suspension**

Standard, vs. stand-alone option or Sport or Sport-Premium Package on 525i Wagon.

### **Sport Package**

The Sport Wagon’s Sport Package is similar to that of the 540i Sedan, except –

- STEPTRONIC, high-stall-speed torque converter and performance final drive ratio are not included as they are standard on the Sport Wagon.
- The wheels are 17 x 8.0 Radial (design #32) all around, with 235/45R-17 tires.

### **Cold Weather Package**

Compared to the Sedan’s Package, that for the 540i Sport Wagon adds a ski bag.

## Standard & optional features

2003 5 Series 525i & 530i models

**Bold** within table indicates new feature for 2003.

### Performance & efficiency

DOHC 24-valve inline 6-cylinder engine with Double VANOS <sup>1</sup> steplessly variable valve timing:
2.5-liter
3.0-liter
Aluminum block & cylinder head
Dual resonance intake system with 3rd (turbulence) intake passages
Electronic throttle system
Electronically controlled engine cooling
Direct ignition system with knock control
5-speed manual transmission
5-speed STEPTRONIC <sup>2</sup> automatic transmission with Adaptive Transmission Control & selectable Sport mode

### Handling, ride & braking

Aluminum double-pivot strut-type front suspension
Aluminum 4-link integral rear suspension
Front & rear anti-roll (stabilizer) bars
Rear subframe on 4 mounts, with acoustically decoupled mounting of final drive (differential)
Twin-tube gas-pressure shock absorbers
Self-leveling rear suspension with air springs
Sport suspension calibration
Engine-speed-sensitive variable-assist, variable-ratio power steering
4-wheel ventilated disc brakes
Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement
16 x 7.0 <b>Radial Spoke</b> cast-alloy wheels (design #50)
16 x 7.0 Parallel Spoke cast-alloy wheels (design #82)
17 x 8.0 Star Spoke cast-alloy wheels (design #81)
17 x 8.0 Cross Spoke Composite II cast-alloy wheels (design #42)
225/55R-16 H-rated all-season tires
235/45R-17 W-rated performance tires

### Exterior & aerodynamics

Body-color bumpers
Halogen Free Form low-beam headlights
Xenon low-beam headlights with dynamic auto-leveling
Automatic headlight control
High-intensity liquid headlight cleaning system

S – Standard  
OPT – Optional  
— – Not applicable  
NA – Not available

ZCW – Cold Weather Package  
ZPP – Premium Package  
ZSP – Sport Package

525i Sedan	525i Sport Wagon	530i Sedan
S	S	-
-	-	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
OPT	OPT	OPT
525i Sedan	525i Sport Wagon	530i Sedan
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
NA	OPT/ZSP	NA
ZSP	ZSP	ZSP
S	S	S
S	S	S
S	S	S
S	S	-
-	-	S
ZSP	ZSP	-
NA	NA	ZSP
S	S	S
ZSP	ZSP	ZSP
525i Sedan	525i Sport Wagon	530i Sedan
S	S	S
S	S	S
OPT	OPT	OPT
<b>ZPP</b>	<b>ZPP</b>	ZPP
ZCW	ZCW	ZCW

1 - VANOS = **VA**riable **NO**ckenwellen  
Steuerung = variable camshaft control,  
or variable valve timing.

2 - BMW's system of manual shift control  
for an automatic transmission.

## Standard & optional features

2003 5 Series 525i & 530i models

**Bold** within table indicates new feature for 2003.

### Exterior & aerodynamics (cont.)

Daytime Running Lamps

Halogen Free Form foglights

Park Distance Control, front & rear

2-speed + intermittent windshield wipers with articulated right-side wiper, adjustable & car-speed-sensitive wiping interval, single-wipe control, windshield-washer system with heated washer jets

Rain-sensing windshield wipers<sup>4</sup>

Body-color side moldings

Rear-window wiper/washer

Roof rails (accommodate various BMW roof carrier systems)

Choice of standard or metallic paint

Shadowline exterior trim

### Ergonomics, luxury & convenience

Vehicle and Key Memory

Keyless entry with multi-function remote control

Selective unlocking

Remote trunk or tailgate release

Dual power/heated outside mirrors

Automatic tilt-down of right outside mirror for visibility of curb when backing up

Automatic-dimming inside rearview mirror

BMW Universal Transceiver (garage-door opener)

Courtesy lights with fade-in/fade-out feature, actuation from remote control, automatic switch-on when engine is turned off

BMW Ambiance Lighting

Front & rear reading lights, separately controlled left/right

Lockable glove compartment with rechargeable take-out flashlight

Power tilt/telescopic leather steering wheel with fingertip cruise, audio & phone<sup>5</sup> controls:  
385 mm/4 spokes

375 mm/M sport, 3 spokes

Heated steering wheel

10-way power front seats with power head restraints

12-way power sports seats with adjustable thigh support

4-way power lumbar support, both front seats

16-way Comfort front seats w/articulated upper backrest adjustment

S – Standard

OPT – Optional

NC – No extra cost

NA – Not available

ZPP – Premium Package

ZSP – Sport Package (requires leather upholstery)

3 – Selectable via Vehicle Memory System (programming by BMW Center).

4 – Include all features of standard wipers.

5 – BMW Cellular Phone System Center-installed.

6 – Requires Cold Weather Package; not available in combination with Sport Package.

<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
S <sup>3</sup>	S <sup>3</sup>	S <sup>3</sup>
S	S	S
OPT	OPT	OPT
S	S	S
<b>ZPP</b>	<b>ZPP</b>	ZPP
S	S	S
NA	S	NA
NA	S	NA
NC	NC	NC
NA	NA	ZPP
<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
S	S	S
S	S	S
S <sup>3</sup>	S <sup>3</sup>	S <sup>3</sup>
S	S	S
S	S	S
S	S	S
NA	NA	ZPP
ZPP	ZPP	ZPP
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
ZSP	ZSP	ZSP
OPT <sup>6</sup>	OPT <sup>6</sup>	OPT <sup>6</sup>
S	S	S
ZSP	ZSP	ZSP
NA	NA	OPT <sup>7</sup>
NA	NA	OPT <sup>8</sup>

7 – Not available in combination with Sport Package; included in Comfort seats.

8 – Require leather upholstery. If combined with Sport Package, Comfort seats replace sport seats.

## Standard & optional features

2003 5 Series 525i & 530i models

**Bold** within table indicates new feature for 2003.

### **Ergonomics, luxury & convenience (cont.)**

Memory system for driver's seat & safety-belt height,  
steering wheel & outside mirrors (3 settings)

3-stage heated front seats

Front center armrest with provision for phone installation

Electronic analog speedometer & tachometer

LCD main & trip odometers

Service Interval Indicator

Check Control vehicle monitor with pictogram display

Analog fuel-economy indicator

4-function On-board Computer with liquid-crystal display

Multi Information Display with 8-function On-board Computer

BMW On-board Navigation System

Leatherette upholstery & color-keyed high-gloss interior trim

Leather shift knob, handbrake grip & handbrake boot

Montana leather upholstery (seating & doors)

High-gloss genuine Vavona Redwood interior trim

Power windows with key-off operation; 1-touch opening & closing  
of all windows, anti-trapping feature, opening from remote, closing  
& opening from exterior door lock

Automatic climate control with separate left/right temperature  
settings, automatic recirculation control, Heat at Rest feature &  
solar sensor

Activated-charcoal microfilter ventilation (dual filters)

Automatic ventilation system (can be programmed  
to ventilate interior while car is standing)

2-way power moonroof with key-off & 1-touch opening & closing,  
anti-trapping feature, opening from remote, opening & closing  
from exterior door lock, sliding interior sunshade

Anti-theft AM/FM/CD audio system with 10 speakers, Radio Data  
System (RDS), 4-channel FM diversity antenna system

Anti-theft AM/FM/CD audio system with Digital Sound Processing (DSP)<sup>12</sup>:  
12 speakers including 2 subwoofers

11 speakers including 1 band-pass subwoofer

Cassette deck instead of CD player

Pre-wiring for CD changer

6-disc CD changer

Pre-wiring for BMW Cellular Phone System

BMW Cellular Phone System

Dual cupholders front & rear

S – Standard

OPT – Optional

NC – No extra cost

C – BMW Center-installed

— – Not applicable

ZCW – Cold Weather Package

ZPP – Premium Package

9 – Includes "high" instrument cluster with  
Check Control system of wider functional  
scope & alphanumeric display.

525i Sedan	525i Sport Wagon	530i Sedan
S	S	S
ZCW	ZCW	ZCW
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
ZPP <sup>9</sup>	ZPP <sup>9</sup>	ZPP <sup>9</sup>
OPT <sup>10</sup>	OPT <sup>10</sup>	OPT <sup>10</sup>
S	S	S
S	S	S
OPT/ZPP	OPT/ZPP	OPT/ZPP
ZPP	ZPP	ZPP
S	S	S
S	S	S
S	S	S
ZPP <sup>11</sup>	ZPP <sup>11</sup>	ZPP <sup>11</sup>
<b>S</b>	<b>S</b>	<b>S</b>
S	S	S
OPT	–	OPT
–	OPT	–
NC	NC	NC
S	S	S
C	C	C
S	S	S
C	C	C
S	S	S

10 – Includes 8-function Onboard Computer with automatic ventilation system (same functions as with Multi Information Display); requires cassette player.

11 – Included with 8-function Onboard Computer, whether in Multi Information Display or Onboard Navigation System.  
12 – Includes all features of standard audio system.

## Standard & optional features

2003 5 Series 525i & 530i models

**Bold** within table indicates new feature for 2003.

### **Ergonomics, luxury & convenience (cont.)**

Coinholder

Dual front sun visors with illuminated mirrors

Open storage compartments in front & rear doors

Rear center armrest

Seatback storage compartments

Split folding rear seats

Ski bag

Power-operated rear-window sunshade & manual rear side-window sunshades

Manual rear side-window sunshades

Rear-window defroster

Interior trunk or tailgate release, electrically operated

Fully finished trunk or cargo area with luggage straps & drop-down toolkit

Retractable cargo cover

Retractable/removable luggage net with variable positioning

Concealed storage under cargo floor & each side of cargo area

Full-use spare wheel & tire

### **Safety & security**

Dual front-impact airbag Supplementary Restraint System (SRS) with dual-threshold deployment & 2-stage Smart Airbags

Front safety belts with automatic height adjustment, automatic tensioners & force limiters

Automatic-locking retractors (ALR) on all passenger safety belts (for installation of child restraint seats)

Interlocking door anchoring system for side impacts

Front-seat Head Protection System (HPS)

Front-seat side-impact airbags

Rear-seat side-impact airbags

Rear-seat Head Protection System

Integrated deployment logic for safety-belt tensioners, airbags & post-impact safety measures

Battery Safety Terminal

Central locking system with double-lock anti-theft feature, selective unlocking<sup>3</sup>

Coded Driveway Protection

Pathway Lighting

Alarm system with operation from keyhead remote, interior motion detector

S – Standard

OPT – Optional

— – Not applicable

NA – Not available

ZCW – Cold Weather Package

3 – Selectable via Vehicle Memory System (programming by BMW Center).

13 – Included with optional folding seats.

<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
OPT (lockable)	S	OPT (lockable)
OPT <sup>13</sup>	ZCW	OPT <sup>13</sup>
OPT	NA	OPT
NA	OPT	NA
S	S	S
S	S (soft-close)	S
S	S	S
-	S	-
-	S	-
-	S	-
S	S	S
<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
<b>OPT</b>	<b>OPT</b>	<b>OPT</b>
<b>S</b>	NA	<b>S</b>
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S <sup>3</sup>	S <sup>3</sup>	S <sup>3</sup>
S	S	S

## Standard & optional features

### 2003 5 Series 540i models

**Bold** within table indicates new feature for 2003.

#### Performance & efficiency

4.4-liter DOHC (4-cam) 32-valve V-8 engine with  
VANOS<sup>1</sup> steplessly variable valve timing

Aluminum block & cylinder head(s)

Electronically controlled engine cooling

Direct ignition system with knock control

Liquid-cooled alternator

6-speed manual transmission

5-speed electronically controlled automatic transmission with  
Adaptive Transmission Control:  
Selectable Sport mode

STEPTONIC<sup>2</sup> & selectable sport mode

High-stall-speed torque converter

Performance final drive ratio

#### Handling, ride & braking

Aluminum double-pivot strut-type front suspension

Aluminum 4-link integral rear suspension

Front & rear anti-roll (stabilizer) bars

Rear subframe on 4 mounts, with acoustically decoupled  
mounting of final drive (differential)

Twin-tube gas-pressure shock absorbers

Self-leveling rear suspension with air springs

Sport suspension calibration

Engine-speed-sensitive variable-assist power steering

4-wheel ventilated disc brakes

Dynamic Stability Control (DSC), including all-speed traction control,  
electronic brake proportioning, antilock braking (ABS), Dynamic  
Brake Control & cornering/avoidance-stability enhancement

16 x 7.0 Radial Spoke cast-alloy wheels (design #48)

17 x 8.0 Radial cast-alloy wheels (design #32)

**18 x 8.0 front/18 x 9.0 rear M Parallel Spoke cast-alloy wheels  
(design #37M)**

225/55R-16 H-rated all-season tires

235/45R-17 W-rated performance tires

**235/40R-18 front / 265/35R-18 rear W-rated performance tires**

#### Exterior & aerodynamics

Body-color bumpers

**M aerodynamic body components (front & rear bumper/spoiler  
ensembles all models; trunklid spoiler sedans only)**

Xenon low-beam headlights with dynamic auto-leveling

Automatic headlight control

S – Standard

OPT – Optional

— – Not applicable

NA – Not available

ZSP – Sport Package

540i Sedan	540i Sedan 6-Spd.	540i Sport Wagon
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
NA	S	NA
S	-	-
ZSP	-	S
ZSP	-	S
ZSP	S	S
540i Sedan	540i Sedan 6-Spd.	540i Sport Wagon
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
NA	NA	S
ZSP	S	ZSP
S	S	S
S	S	S
S	S	S
S	-	S
-	-	ZSP
ZSP	S	NA
S	-	S
-	S	ZSP
ZSP	S	NA
540i Sedan	540i Sedan 6-Spd.	540i Sport Wagon
S	S	S
ZSP	S	ZSP
S	S	S
S	S	S

1 - VANOS = **V**ARiable **N**Ockenwellen  
Steuerung = variable camshaft control,  
or variable valve timing.

2 - BMW's system of manual shift control  
for an automatic transmission; includes  
selectable Sport mode.

## Standard & optional features

### 2003 5 Series 540i models

**Bold** within table indicates new feature for 2003.

#### Exterior & aerodynamics

High-intensity liquid headlight cleaning system
Daytime Running Lamps
Halogen Free Form foglights
Park Distance Control (front & rear)
Rain-sensing windshield wipers with articulated right-side wiper, single-wipe control, windshield-washer system with heated washer jets
Body-color side moldings with chrome accents
Rear-window wiper/washer
Roof rails (accommodate various BMW roof carrier systems)
Choice of standard or metallic paint
High-gloss Shadowline exterior trim

#### Ergonomics, luxury & convenience

Vehicle & Key Memory
Keyless entry with multi-function remote control (no battery replacement required)
Selective unlocking
Remote trunk or tailgate release
Dual power/heated outside mirrors
Automatic tilt-down of right outside mirror for visibility of curb when backing up
Automatic-dimming inside rearview mirror
BMW Universal Transceiver (garage-door opener)
Courtesy lights with fade-in/fade-out feature, actuation from remote control, automatic switch-on when engine is turned off
BMW Ambiance Lighting
Front & rear reading lights, separately controlled left/right
Lockable glove compartment with rechargeable take-out flashlight
Power tilt/telescopic leather steering wheel with fingertip cruise, audio & phone <sup>5</sup> controls:
385 mm/4 spokes
375 mm/M sport, 3 spokes
Heated steering wheel
10-way power front seats with power head restraints
12-way power sport seats with adjustable thigh support
4-way power lumbar support, both front seats
16-way Comfort front seats with articulated upper backrest adjustment
Memory system for driver's seat & safety-belt height, steering wheel & outside mirrors (3 settings)
3-stage heated front seats

S – Standard  
OPT – Optional  
NC – No extra cost  
— – Not applicable

NA – Not available  
ZCW – Cold Weather Package  
ZSP – Sport Package  
3 – 6-Speed or with Sport Package: black moldings.



## Standard & optional features

### 2003 5 Series 540i models

**Bold** within table indicates new feature for 2003.

#### **Ergonomics, luxury & convenience (cont.)**

Front center armrest with provision for phone installation

Electronic analog speedometer & tachometer

#### **Titanium-finish rings around instruments**

LCD main & trip odometers

Service Interval Indicator

Check Control vehicle monitor with alphanumeric display

Analog fuel-economy indicator

Multi Information Display incorporating audio, phone controls, premium Onboard Computer

BMW Onboard Navigation System **with DVD database**

Leather shift knob, handbrake grip & handbrake boot

Montana leather upholstery (seating & doors)

High-gloss genuine Burl Walnut interior trim

Power windows with key-off operation; 1-touch opening & closing of all windows, anti-trapping feature, opening from remote, closing & opening from exterior door lock

Automatic climate control with separate left/right temperature settings, automatic recirculation control, Heat at Rest feature & solar sensor

Activated-charcoal microfilter ventilation (dual filters)

Automatic ventilation system (can be programmed to ventilate interior while car is standing)

2-way power moonroof with key-off & 1-touch opening & closing, anti-trapping feature, opening from remote, opening & closing from exterior door lock, sliding interior sunshade

Anti-theft AM/FM/CD audio system with 10 speakers, Radio Data System (RDS), 4-channel FM diversity antenna system

Anti-theft AM/FM/CD audio system with Digital Sound Processing (DSP)<sup>®</sup>:  
12 speakers including 2 subwoofers

11 speakers including 1 band-pass subwoofer

Cassette deck instead of CD player

Pre-wiring for CD changer

6-disc CD changer

Pre-wiring for BMW Cellular Phone System

BMW Cellular Phone System

Dual cupholders front & rear (total of 4-cup capacity)

Coinholder

Dual front sun visors with illuminated mirrors

#### **Anthracite-color headliner**

#### **M footrest for driver's left foot**

Open storage compartments in front & rear doors

S – Standard

OPT – Optional

NC – No extra cost

C – BMW Center-installed

— – Not applicable



## Standard & optional features

### 2003 5 Series 540i models

**Bold** within table indicates new feature for 2003.

#### **Ergonomics, luxury & convenience (cont.)**

Rear center armrest

Seatback storage compartments

Split folding rear seats

Ski bag

Power-operated rear-window sunshade & manual rear side-window sunshades

Manual rear side-window sunshades

Rear-window defroster

Interior trunk or tailgate release, electrically operated

Fully finished trunk or cargo area with luggage straps & drop-down toolkit

Retractable cargo cover

Retractable/removable luggage net with variable positioning

Concealed storage under cargo floor & each side of cargo area

Full-use spare wheel & tire

#### **Safety & security**

Dual front-impact airbag Supplementary Restraint System (SRS) with dual-threshold deployment & 2-stage Smart Airbags

Front safety belts with automatic height adjustment, automatic tensioners & force limiters

Automatic-locking retractors (ALR) on all passenger safety belts (for installation of child restraint seats)

Interlocking door anchoring system for side impacts

Front-seat Head Protection System (HPS)

Front-seat side-impact airbags

Rear-seat side-impact airbags

Rear-seat Head Protection System

Integrated deployment logic for safety-belt tensioners, airbags & post-impact safety measures

Battery Safety Terminal

Central locking system with double-lock anti-theft feature, selective unlocking<sup>4</sup>

Coded Driveaway Protection

Pathway Lighting

Alarm system with operation from keyhead remote, interior motion detector

S – Standard

OPT – Optional

— – Not applicable

NA – Not available

ZCW – Cold Weather Package

4 – Selectable via Vehicle Memory System (programming by BMW Center).

9 – Included with optional folding seats.

10 – On 6-Speed model & with Sport Package, spare wheel & tire correspond to front wheels & tires.

<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
S	S	S
S	S	S
S (lockable)	S (lockable)	S
OPT <sup>9</sup>	OPT <sup>9</sup>	ZCW
OPT	OPT	NA
-	-	OPT
S	S	S
S	S	S
S	S	S
-	-	S
-	-	S
-	-	S
S <sup>10</sup>	S <sup>10</sup>	S

<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
<b>OPT</b>	<b>OPT</b>	OPT
<b>S</b>	<b>S</b>	NA
S	S	S
S	S	S
S	S	S
S	S	S
S <sup>4</sup>	S <sup>4</sup>	S <sup>4</sup>
S	S	S

# Specifications

## 2003 5 Series 525i & 530i models

**Bold** within table indicates new specification for 2003.

### General

Curb weight, lb.:

Manual transmission

Automatic transmission

Weight distribution, front/rear, %:

manual transmission

automatic transmission

Wheelbase, in.

Track, front/rear, in.

Length, in.

Width, in.

Height, in.

### Body

Type

Aerodynamic drag coefficient

EPA size classification

### Accommodations

Seating capacity, persons

Shoulder room, front/rear, in.

Head room, front/rear, in.

Leg room, front/rear, in.

EPA interior volume, cu ft.

EPA cargo volume, cu ft.

### Engine & electrical

Engine type

Bore x stroke, mm/in.

Displacement, cc/cu in.

Compression ratio

Power @ rpm, hp

Torque @ rpm, lb-ft.

Engine-management system

- 1 – Specification applies to all models.
- 2 – With standard wheels. Track varies with optional wheels.
- 3 – With standard suspension. With sport suspension (Sport Package), height is 0.8 in. lower. Height measurement for Sport Wagon does not include roof rails.
- 4 – Can be expanded via available folding rear seats.

- 5 – Rear seats upright/folded.
- 6 – VANOS = **V**ARIABLE **N**OCKENWELLEN **S**TEUERUNG = variable camshaft control, or variable valve timing.
- 7 – Specification applies to both 525i models.

<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
3450	3682	3494
3505	3736	3549
50.2/49.8	46.7/53.3	50.5/49.5
50.6/49.4	47.2/52.8	50.9/49.1
111.4 <sup>1</sup>		
59.5/60.1 <sup>1,2</sup>		
188.0	189.2	188.0
70.9 <sup>1</sup>		
56.5 <sup>3</sup>	56.7 <sup>3</sup>	56.5 <sup>3</sup>
<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
Unitized all-steel structure <sup>1</sup>		
<b>0.29</b>	0.31	0.30
Compact	Small station wagon	Compact
<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
5 <sup>1</sup>		
56.8/55.9 <sup>1</sup>		
37.4/37.2	37.4/37.4	37.4/37.2
41.7/34.2 <sup>1</sup>		
<b>92.5</b>	<b>92.6</b>	<b>92.5</b>
11.1 <sup>4</sup>	<b>32.1/63.9<sup>5</sup></b>	11.1 <sup>4</sup>
<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
DOHC inline 24-valve 6-cylinder, Double VANOS <sup>6</sup> steplessly variable intake- & exhaust-valve timing <sup>1</sup>		
84.0 x 75.0/3.31 x 2.95 <sup>7</sup>		84.0 x 89.6/ 3.31 x 3.53
2494/152 <sup>7</sup>		2979/182
10.5:1 <sup>7</sup>		10.2:1
184 @ 6000 <sup>7</sup>		225 @ 5900
175 @ 3500 <sup>7</sup>		214 @ 3500
Siemens MS 43 with knock control (2 sensors); variable valve timing, electronic throttle system, dual resonance intake system, engine cooling & other functions included in control strategy <sup>1</sup>		

## Specifications

2003 5 Series 525i & 530i models

**Bold** within table indicates new specification for 2003.

### Engine & electrical (cont.)

Fuel requirement

Fuel capacity, U.S. gal.

Battery capacity, amp-hr.

Alternator output, amp./W

### Drivetrain

Drive system

Manual transmission

Ratios: 1st

2nd

3rd

4th

5th

Reverse

Final drive ratio

Automatic transmission

Ratios: 1st

2nd

3rd

4th

5th

Reverse

Final drive ratio

### Chassis

Body/frame construction

Front suspension

Rear suspension

Steering type

Overall ratio

Turns lock-to-lock

Turning circle, ft.

1 – Specification applies to all models.

7 – Specification applies to both 525i models.

8 – Specification applies to 525i Sport Wagon & 530i Sedan.

525i Sedan	525i Sport Wagon	530i Sedan
Premium unleaded <sup>1</sup>		
18.5 <sup>1</sup>		
90 <sup>1</sup>		
120/1680 <sup>1</sup>		

525i Sedan	525i Sport Wagon	530i Sedan
Front engine/rear drive <sup>1</sup>		
Getrag Type B, 5-speed	ZF Type C, 5-speed <sup>B</sup>	
4.23:1	4.21:1 <sup>B</sup>	
2.52:1	2.49:1 <sup>B</sup>	
1.66:1	1.66:1 <sup>B</sup>	
1.22:1	1.24:1 <sup>B</sup>	
1.00:1	1.00:1 <sup>B</sup>	
4.04:1	3.85:1 <sup>B</sup>	
3.15:1	3.23:1	2.93:1
5-speed STEPTRONIC with Adaptive Transmission Control & selectable Sport mode <sup>1</sup>		
3.42:1	3.45:1	3.42:1
2.22:1	2.21:1	2.22:1
1.60:1	1.59:1	1.60:1
1.00:1	1.00:1	1.00:1
0.75:1	0.76:1	0.75:1
3.03:1	3.17:1	3.03:1
3.46:1 <sup>1</sup>		

525i Sedan	525i Sport Wagon	530i Sedan
Unitized steel <sup>1</sup>		
Struts, double-pivot lower arms, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar; aluminum suspension system & aluminum subframe <sup>1</sup> (ZSP: sport suspension calibration)		
4-link Integral suspension in aluminum, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar; aluminum subframe <sup>1</sup> (ZSP: sport suspension calibration) (525i Sport Wagon ZSP or optional: self-leveling air springs)		
Rack & pinion, engine-speed-sensitive power assist <sup>1</sup>		
Variable; mean ratio is 14.2:1 <sup>1</sup>		
3.0 <sup>1</sup>		
37.1 <sup>1</sup>		

## Specifications

### 2003 5 Series 525i & 530i models

**Bold** within table indicates new specification for 2003.

#### Chassis (cont.)

4-wheel ventilated disc brakes:

Front discs, diameter x thickness, mm/in.

---

Rear discs, diameter x thickness, mm/in.

---

Assist

---

Wheels: standard

---

optional

---

Tires: standard

---

optional

---

Stability-enhancement system

#### Performance data

Acceleration, 0-60 mph, sec.,  
manual/automatic<sup>9</sup>

---

Top speed, mph

---

Fuel economy, EPA est. MPG, city/highway:

---

manual transmission

---

automatic transmission

ZSP – Sport Package

1 – Specification applies to all models.

7 – Specification applies to both 525i models.

9 – BMW AG test results. Actual acceleration results may vary depending on specification of vehicle; road & environmental conditions; test procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

10 – Electronically limited.

<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
296 x 22/11.7 x 0.87, aluminum calipers <sup>7</sup>		324 x 30/ 12.8 x 1.18, aluminum calipers
298 x 20/11.7 x 0.79, aluminum calipers <sup>1</sup>		
Vacuum <sup>1</sup>		
Cast alloy, 16 x 7.0 <sup>1</sup>		
Cast alloy, 17 x 8.0 (ZSP) <sup>1</sup>		
225/55R-16 H-rated all-season <sup>1</sup>		
235/45R-17 W-rated performance <sup>1</sup>		
Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement		
<b>525i Sedan</b>	<b>525i Sport Wagon</b>	<b>530i Sedan</b>
7.8/8.3	8.3/8.9	6.8/7.0
128 <sup>1, 10</sup>		
20/29	19/ <b>26</b>	21/30
<b>20/28</b>	19/26	<b>19/27</b>

# Specifications

## 2003 5 Series 540i models

**Bold** within table indicates new specification for 2003.

### General

Curb weight, lb.

Weight distribution, front/rear, %

Wheelbase, in.

Track, front/rear, in.

Length, in.

Width, in.

Height, in.

### Body

Type

Aerodynamic drag coefficient

EPA size classification

### Accommodations

Seating capacity, persons

Shoulder room, front/rear, in.

Head room, front/rear, in.

Leg room, front/rear, in.

EPA interior volume, cu ft.

EPA cargo volume, cu ft.

### Engine & electrical

Engine type

Bore x stroke, mm/in.

Displacement, cc/cu in.

Compression ratio

Power @ rpm, hp

Torque @ rpm, lb-ft.

Engine-management system

Fuel requirement

Fuel capacity, U.S. gal.

Battery capacity, amp-hr.

Alternator output, amp./W

1 – Specification applies to all models.

2 – With Sport Package, tracks are 59.5/59.6 in.

3 – With standard suspension. Height with sport suspension is 0.8 in. lower. Height measurement for Sport Wagon does not include roof rails.

4 – Can be expanded via available folding rear seats.

5 – Rear seats upright/folded.

6 – VANOS = **V**ARIABLE **N**OCKENWELLEN **S**TEUERUNG = variable camshaft control, or variable valve timing.

<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
3803	3748	4056
52.5/47.5	52.1/47.9	50.0/50.0
111.4 <sup>1</sup>		
59.5/60.1 <sup>2</sup>	59.5/59.6	59.5/60.1
188.0	188.0	189.2
70.9 <sup>1</sup>		
56.5 <sup>3</sup>	55.7	56.7 <sup>3</sup>
<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
Unitized all-steel structure <sup>1</sup>		
0.31	0.31	0.33
Compact	Compact	Small station wagon
<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
5 <sup>1</sup>		
56.8/55.9 <sup>1</sup>		
37.4/37.2	37.4/37.2	37.4/37.4
41.7/34.2 <sup>1</sup>		
92.5	92.5	92.6
11.1 <sup>4</sup>	11.1 <sup>4</sup>	32.1/63.9 <sup>5</sup>
<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
DOHC 32-valve (4-cam) V-8 VANOS <sup>®</sup> steplessly variable intake-valve timing <sup>1</sup>		
92.0 x 82.7/3.62 x 3.26 <sup>1</sup>		
4398/268 <sup>1</sup>		
10.0:1 <sup>1</sup>		
290 @ 5400 <sup>1</sup>		
324 @ 3600 <sup>1</sup>		
Bosch Motronic M 7.2 with adaptive knock control <sup>1</sup>		
Premium unleaded		
18.5 <sup>1</sup>		
90 <sup>1</sup>		
150/2100 <sup>1</sup> (liquid-cooled alternator)		

## Specifications

### 2003 5 Series 540i models

**Bold** within table indicates new specification for 2003.

#### Drivetrain

Drive system

Manual transmission

Ratios: 1st

2nd

3rd

4th

5th

6th

Reverse

Final drive ratio

#### Drivetrain

Automatic transmission

Ratios: 1st

2nd

3rd

4th

5th

Reverse

Final drive ratio

#### Chassis

Body/frame construction

Front suspension

Rear suspension

Steering type

Overall ratio

Turns lock-to-lock

Turning circle, ft.

ZSP – Sport Package

1 – Specification applies to all models.

7 – 540i Sedan has selectable Sport mode.

540i Sedan with Sport Package & 540i

Sport Wagon have STEPTRONIC, which

includes selectable Sport mode &

manual shift capability.

8 – 3.15:1 with Sport Package.

<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
Front engine/rear drive <sup>1</sup>		
NA	Getrag Type D, 6-speed	NA
–	4.23:1	–
–	2.53:1	–
–	1.67:1	–
–	1.23:1	–
–	1.00:1	–
–	0.83:1	–
–	3.75:1	–
–	2.81:1	–

<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
ZF 5 HP 24 EH, 5-speed, with Adaptive Transmission Control & selectable Sport mode or STEPTRONIC <sup>7</sup>		
3.57:1	–	3.57:1
2.20:1	–	2.20:1
1.51:1	–	1.51:1
1.00:1	–	1.00:1
0.80:1	–	0.80:1
4.10:1	–	4.10:1
2.81:1 <sup>8</sup>	2.81:1	3:15:1

<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
Unitized steel <sup>1</sup>		
Struts, double-pivot lower arms, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar; aluminum suspension system <sup>1</sup> (ZSP, 540i Sedan 6-Speed: sport suspension calibration)		
4-link Integral suspension in aluminum; coil springs (Sedans), self-leveling air springs (Sport Wagon); twin-tube gas-pressure shock absorbers, anti-roll bar; aluminum subframe <sup>1</sup> (ZSP, 540i 6-Speed: sport suspension calibration)		
Recirculating ball, engine-speed-sensitive power assist <sup>1</sup>		
17.9:1 <sup>1</sup>		
3.0 <sup>1</sup>		
37.4 <sup>1</sup>		

## Specifications

### 2003 5 Series 540i models

**Bold** within table indicates new specification for 2003.

#### Chassis (cont.)

4-wheel ventilated disc brakes:

Front discs, diameter x thickness, mm/in.

Rear discs, diameter x thickness, mm/in.

Assist

Wheels: standard

optional

Tires: standard

optional

Stability-enhancement system

#### Performance data

Acceleration, 0-60 mph, sec.<sup>9</sup>

Top speed

Fuel economy, EPA est. MPG, city/highway

F – Front

R – Rear

ZSP – Sport Package

1 – Specification applies to all models.

9 – BMW of North America, LLC test results. Actual acceleration results may vary depending on specification of vehicle; road & environmental condi-

tions; test procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

10 – Standard/Sport Package.

<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
324 x 30/12.8 x 1.18, cast-iron calipers <sup>1</sup>		
298 x 20/11.7 x 0.79, aluminum calipers <sup>1</sup>		
Vacuum <sup>1</sup>		
Cast alloy, 16 x 7.0	Cast alloy, <b>18 x 8.0 front/ 18 x 9.0 rear</b>	Cast alloy, 16 x 7.0
Cast alloy, <b>18 x 8.0 front/ 18 x 9.0 rear (ZSP)</b>	<b>NA</b>	Cast alloy, 17 x 8.0 (ZSP)
All-season radials, 225/55R-16 H-rated	Performance radials, <b>235/40R-18 front/ 265/35R-18 rear</b> W-rated	All-season radials, 225/55R-16 H-rated
Performance radials, <b>235/40R-18 front/ 265/35R-18 rear</b> W-rated (ZSP)	<b>NA</b>	Performance radials, 235/45R-17 W-rated (ZSP)
Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement <sup>1</sup>		
<b>540i Sedan</b>	<b>540i Sedan 6-Spd.</b>	<b>540i Sport Wagon</b>
6.2/6.1 <sup>10</sup>	6.0	6.3
128/155 <sup>10</sup>	155	128
18/24 / <b>17/21</b> <sup>10</sup>	15/23	<b>17/21</b>

## 2003-04 3 Series: freshened Coupes and Convertibles for '04, 6-speed manual transmission for all 330s, and the new 330i Performance Package

The 3 Series described in this edition of Fast Facts consists of two model years: 2003 Sedans and Sport Wagons, and 2004 Coupes and Convertibles. The Coupe/Convertible freshening for '04, described on pages 152-153, is extensive; but the '03 Sedans and Sport Wagons get some appealing updates too, and the 330i Performance Package is an exciting addition to the 3 Series Sedan offering.

Such evolution is aimed at keeping the 3 Series the leader in its field, which has been growing as other manufacturers try ever harder to imitate it. Admittedly, some of them are pretty good; but the 3 Series remains the leader and benchmark for sport sedans and wagons, coupes and convertibles in this "entry luxury" segment. The experts, the critics, recognize this. Thus as an introduction to the 2003-04 line of ten 3 Series models, let us once again recap some of the many awards and glowing descriptions recently bestowed on the 3 Series by independent experts:

"What is it that's made the 3 Series the object of envy and imitation among its contemporaries, as well as a perennial 10Best car?" asked *Car and Driver* rhetorically in the annual 10Best awards presented in its January '03 issue. "Torquey straight-six engines smoother than satin? Snick-snick manual transmissions? Prizefighter reflexes? Indeed – along with proportions so pure even BMW is afraid to tamper with them.

"But with its 12th consecutive award here, we've long since isolated BMW's critical ingredient: ride quality. Beyond its world-class athleticism, this distinguished family of Sport Sedans (and Wagons) stands out from the crowd for ride character that manages to be supple without being soft. The cars deliver the tight, action-ready feel that goes with *Autobahn* breeding, but they stop short of communicating every surface imperfection to their occupants. After all, where is it written that agility has to equate with discomfort?"

*Automobile Magazine*, in its February '03 All-Stars, concurs in naming the 3 Series its choice for Luxury Car Under \$40,000. "BMW has sweated every detail to perfect the driving experience."

The readers of *AutoWeek*, in its July 1, '02 issue, accorded the 3 Series an even wider-ranging honor: simply, America's Best Sedan. "Credit the turbine-smooth six-cylinder powerplants, the wonderful feel of the shifter, the class-leading handling ability and vault-like construction."

And now some comments from recent published reports, road tests and crash tests:

- *Automobil Revue*, Switzerland, February 20, 2003: "In contrast to built-in, fixed 'cornering lights' that project light to the side (for example Audi A8 and Porsche Cayenne), BMW's Adaptive Light Control improves vision around corners at normal to high speeds."

- *Road & Track*, July '02: "Remember that guy in high school who was a natural athlete, who excelled at any sport he tried? The BMW [330i] is his automotive equivalent, with its sublime inline-6, catlike reflexes and superb interior."
- *Car and Driver*, July '02, declaring the 330Ci Coupe winner of a comparison test with the Acura 3.2Cs Type-S: "A beautifully integrated amalgam of high performance, comfort, and sinful pleasure," concluded the magazine about the 330Ci.
- After conducting its own offset crash test of a 3 Series sedan for its March 11, '99 issue, Germany's *auto motor und sport magazine* concluded, "Occupant protection by the new 3 Series is already at such a high level that only marginal improvements can be imagined."
- And in the U.S., the Insurance Institute for Highway Safety, after conducting its own crash test of the 3 Series Sedan, concluded simply: "A Best Pick."
- **2003 330i Sedan** – same profile as 325i Sedan but with more power, new 6-speed manual transmission, additional standard equipment and design distinctions. Available with a new Performance Package for even more dazzling performance and handling.
- **2003 330xi Sedan** – the 330i Sedan with all-wheel drive.
- **2004 325Ci Coupe** – 2-door format for added sport and elegance; yet also quite practical, thanks to standard split folding rear seats.
- **2004 325Ci Convertible** – all of BMW's contemporary design and engineering for style, enjoyment and safety in a Convertible.
- **2004 330Ci Coupe** – larger engine, the new 6-speed transmission and other upmarket features take it beyond even the sport and elegance of the 325Ci Coupe.
- **2004 330Ci Convertible** – leather-upholstered top of the line.

## What's new for 2003-04

### All models

As of 9/02 production:

- Mileage ratings for automatic-transmission models improved, as result of more realistic EPA testing procedure for STEPTRONIC-equipped vehicles
  - Available BMW Onboard Navigation System upgraded to DVD-based system; functional improvements as well
  - In-dash single-disc player now available in combination with Navigation System
- As of 3/04 production:
- Newly configured climate-control panel
- For this 2003/early-2004 chapter in the ongoing 3 Series story, BMW has again carefully built on the heritage and qualities that make this BMW Series unique. The ten models are as follows:
- **2003 325i Sedan** – "entry" model, powered by a 2.5-liter, 184-hp engine.
  - **2003 325xi Sedan** – all-wheel-drive version of 325i Sedan.
  - **2003 325i Sport Wagon** – a 5-door that adds space and versatility while maintaining the Sedan's innate sportiness.
  - **2003 325xi Sport Wagon** – with all-wheel drive to make it an ideal vehicle for winter activities.

### **325i/xi Sedan**

As of 9/02 production:

- Front center armrest now standard; formerly included in Premium Package
- Center rear head restraint added as standard equipment; formerly not available
- Rain-sensing windshield wipers and automatic headlight control added to Premium Package
- 325i with automatic transmission sold in California, Massachusetts, New York and Vermont now meets SULEV (Super Ultra-Low Emissions Vehicle) standards

As of 3/03 production:

- Park Distance Control becomes available (optional)

### **325i/xi Sport Wagon**

As of 9/02 production:

- Front armrest now standard; formerly included in Premium Package
- Moonroof newly standard; formerly available in Premium Package or as stand-alone option
- Rain-sensing windshield wipers and automatic headlight control added to Premium Package

### **325Ci Coupe**

As of 9/02 production ('03 model):

- Rain-sensing windshield wipers and automatic headlight control added to Premium Package
- Vehicles with automatic transmission sold in California, Massachusetts, New York and Vermont now meet SULEV (Super Ultra-Low Emissions Vehicle) standards

As of 3/03 production ('04 models):

- Emission control for states other than California, Massachusetts, New York and Vermont (manual and automatic transmissions) upgraded from LEV to ULEV2

- Rain-sensing windshield wipers and automatic headlight control now standard
- New front-end design, with –
  - lighting units that sweep upward as they wrap around to sides
  - wider grilles and modified hood contours
  - more prominently flared wheel openings
  - side character line beginning aft of wheel openings, with side turn-signal “repeater” as its starting point
- Optional Xenon low- & high-beam headlights now include new Adaptive feature, which “steers” the headlights into roadway curves
- New front and rear bumper contours
- Wider trunk lift grip
- New taillights, incorporating BMW’s innovative Adaptive brakelights
- New wheel designs, both standard and optional
- Park Distance Control becomes available (optional)
- New exterior colors

### **325Ci Convertible**

As of 9/02 production ('03 model):

- Rain-sensing windshield wipers and automatic headlight control added to Premium Package

As of 3/03 production ('04 model):

- All changes as for 325Ci Coupe, except no change in trunk lift grip

### **330i/xi Sedan**

As of 9/02 production:

- Center rear head restraint added as standard equipment; formerly not available
- Available run-flat tires now include Tire Pressure Monitor, a higher-tech approach to monitoring tire pressure

- Run-flat tires and Tire Pressure Monitor newly included in 330xi Sport Package (also still available as stand-alone option)

As of 3/03 production ('03 model year continues):

- 6-speed manual transmission replaces 5-speed
- New Performance Package offered for 330i, including:
  - Modified engine (235 hp, 224 lb-ft. torque)
  - 155-mph top-speed limiter
  - 6-speed manual transmission with shortened shift lever
  - BMW M sport suspension
  - Unique 18-in. wheels and tires
  - BMW M aerodynamic body components
  - Specific exterior trim and color selection
  - Unique upholstery and interior trim

### **330Ci Coupe**

As of 9/02 production ('03 model):

- Available run-flat tires now include Tire Pressure Monitor

As of 3/03 production ('04 model):

- Emission control upgraded from ULEV to ULEV2
- 6-speed manual transmission replaces 5-speed
- Optional Xenon low- & high-beam headlights now include new Adaptive feature
- All other changes as for 325Ci Coupe

### **330Ci Convertible**

As of 9/02 production ('03 model):

- Available run-flat tires now include Tire Pressure Monitor

As of 3/03 production ('04 model):

- Emission control upgraded from ULEV to ULEV2
- 6-speed manual transmission replaces 5-speed
- Optional Xenon low- & high-beam headlights now include new Adaptive feature
- All other changes as for 325Ci Coupe, except no change in trunk lift grip

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

### Performance & efficiency

#### 2.5-liter DOHC 24-valve inline 6-cylinder engine

(all 325 models)

As the smaller of two versions of the M54 inline 6-cylinder engine, this 2.5-liter version powers the most accessible 3 Series models with silken smoothness, pleasant sound and lively performance. With 184 hp @ 6000 rpm and 175 lb.-ft. of torque @ 3500 rpm, the 2.5 engine propels the 325i Sedan to 60 mph in 7.1 sec. with manual transmission, 8.1 sec. with automatic; EPA mileage ratings are 20 mpg city/29 mpg highway with manual transmission, 20/28 with automatic. For acceleration data and EPA ratings on all 325 models, see **specifications**, pages 208-209.

New for 2003 is an SULEV (Super Ultra Low Emissions Vehicle) status of automatic transmission-equipped 325i Sedans and 325Ci Coupes for sale in California, Massachusetts, New York and Vermont. Remarkably, this ultra-clean version of the 2.5-liter engine achieves the same performance and EPA mileage as the regular LEV version, and entails no price penalty to the customer.

For a detailed description of the 2.5-liter engine, see **BMW features**, page 16.

#### 3.0-liter DOHC 24-valve inline 6-cylinder engine

(all 330 models)

Though identical to the 325 engine in all basic engineering features, the 330 unit employs larger displacement to deliver 22.3% more power and torque. With 225 hp @ 5900 rpm and 214 lb.-ft. of torque at 3500 rpm, it gives the 330 models class-leading performance. "One

punch of the throttle tells you the larger 3.0L version of BMW's stellar DOHC inline-six is a masterpiece: sultry, sinewy and sonorous," raved *Motor Trend* in its six-car "Sport Sedan Road Trip" of May '01. BMW's official 0-60-mph times for the 330i Sedan are 6.4 sec. with the new 6-speed manual transmission, 7.0 sec. with automatic. The 330i also achieves remarkable EPA mileage ratings of 20/30 with manual transmission, 20/28 with automatic.

A new variation of this engine, exclusive to the 330i Sedan, appears as part of the new Performance Package. Available only with the new 6-speed transmission and delivering an additional 10 hp and 8 lb.-ft. of torque, it propels the 330i to 60 mph in just 5.9 sec., and achieves the same EPA ratings of 20 mpg city/30 mpg highway. See **options & accessories** for full information on this engine and other Performance Package features.

For acceleration data and EPA ratings on all 330 models, see **specifications**, pages 214-215. A more detailed description of this great engine can be found on pages 16-17.

#### 5-speed manual transmission (standard all 325 models)

A manual transmission is often preferred by enthusiastic drivers. This "gearbox" complements the sporty performance of the 2.5-liter engine and provides precise, enjoyable shifting; in January '02, *Car and Driver* called it "one of the slickest-shifting manual gearboxes on the market."

#### 6-speed manual transmission (standard all 330 models as of 3/04 production)

A new 6-speed manual transmission is now standard in all

330 models, including the 330i and 330xi (all-wheel-drive) Sedans that continue as 2003 models. Weighing no more than the 5-speed it replaces, this unit – the ZF Type H – incorporates refinements that add driving pleasure:

- New, even more effective synchronization of shifting
- Sportier shift action, via 10-mm (0.4-in.) shorter shift “throws” from neutral to each gear.

Compared to the 5-speed that continues in the 325 models, the 6-speed’s ratios for 1st through 5th gears are approximately the same; 6th gear provides an 0.85:1 overdrive for quieter, more relaxed and potentially more fuel-efficient cruising. This transmission, with the additional feature of a shorter shift lever, appears in the 330i Performance Package.

### **5-speed STEPTRONIC automatic transmission**

(optional all models)

The available automatic is a state-of-the-art 5-speed STEPTRONIC unit. Augmenting either engine’s strong low- and mid-range torque, relatively high numerical ratios provide excellent flexibility and response in 2nd, 3rd and 4th gears; in 5th, overall gearing is numerically low for quiet, potentially fuel-efficient cruising. With STEPTRONIC, a Sport mode is selected by moving the shift lever into a left-hand gate. Manual shifts then effected by “flicking” the lever forward for downshifts, rearward for upshifts (the Manual mode).

Although all current 3 Series models offer essentially the same automatic-transmission concept, the actual units vary: All rear-wheel-drive models employ the ZF 5 HP 19 unit; the all-wheel-

drive (xi) models have a GM5 unit. Basic descriptions of BMW 5-speed automatic transmissions are found in **BMW features**, page 17.

## **Handling, ride & braking**

### **An immensely strong body structure**

In any automobile, the rigidity of the body/chassis structure is critical to handling, in that the more rigid the structure the more precisely the suspension system can operate. In the BMW tradition, the 3 Series body/chassis structure is immensely strong and rigid.

The structure’s natural frequencies in torsion (twisting) and bending (end-to-end) must be sufficiently different from each other that the body has “no life of its own” when subjected to road disturbances. The 3 Series Sedan meets this criterion with natural frequencies of 29 Hertz in torsion, 26 Hertz in bending. These indications of dynamic rigidity help explain the excellence of the 3 Series’ platform as a foundation for the suspension system.

To attain high strength without undue weight, high-strength steels are employed for more than 50% of the sedan’s body shell by weight. And to help ensure long-lasting structural strength, galvanized steel (which resists corrosion) is used for 85% of the body on the basis of surface area.

And how do the other 3 Series body types compare? In terms of natural frequencies in torsion (dynamic), the Coupe measures 28 Hertz, the Sport Wagon 29, the Convertible 18. In terms of static torsional rigidity, the figures are as follows:

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

Sedan – 18,000 Newton-meters per degree of twist (Nm/°)

Sedan with folding rear seats – 13,000 Nm/°

Coupe (folding rear seats standard) – 12,500 Nm/°

Sport Wagon (folding rear seats standard) – 14,000 Nm/°

Convertible – 10,500 Nm/°

In any context, these are outstanding levels of rigidity. An interesting sidelight is that folding rear seats always entail some loss of rigidity. Another is that a convertible is necessarily less rigid than its closed-body counterpart; the BMW convertible is nonetheless relatively rigid for an open-bodied vehicle, and reports by critics confirm this.

### **Front suspension: a unique system that has proved itself**

This Series' front MacPherson struts and arc-shaped lower arms are an elegantly simple, effective system whose handling and ride characteristics speak for themselves. The system's advanced features include:

- **Forged-aluminum lower arms.** Lighter than steel, for reduced unsprung weight. Their arc shape, which allows a single arm on each side to handle longitudinal and lateral forces, is itself an efficient, weight-saving concept too.
- **Hydraulic cushion** at rear end of lower arms, for reduced road vibration.
- **Wide track** – for capable cornering.
- **Aluminum brake shield** – replacing sheet steel for reduced unsprung weight.

The aluminum components save 2.5 kg (5.5 lb.) of unsprung weight in the front suspension system compared to steel.

### **Rear suspension: advanced multi-link system**

Called Central Link, the 3 Series rear suspension is a multi-link concept that is a key factor in these vehicles' amazing road capabilities.

The Central Link is a large, curved longitudinal arm, pivoted directly ahead of the rear wheel's vertical and horizontal centerpoint (hence the name) on a rubber bushing of highly sophisticated design. Each wheel also has an upper and a lower lateral arm, for a total of three links per wheel. The system helps give remarkable handling and riding comfort, yet is simpler than many multi-link concepts.

Highlights include:

- **Aluminum link.** The upper transverse link on each side is of cast aluminum, saving more than 1 lb. in unsprung weight per vehicle over steel.
- **Wide track** – as at the front.
- **Vibration-reducing subframe** carrying the suspension and differential. Composed of sheet-metal sections and tubes, it is exceptionally rigid. The subframe is attached to the main structure through four vibration-absorbing rubber mounts.
- **Acoustically decoupled final drive.** The final drive (differential) is attached to the subframe via vibration-absorbing mountings; with the subframe itself attached to the main structure through such mountings, this amounts to "acoustically decoupled" mounting.

### **Total suspension system: superior handling and ride**

The 3 Series suspension system is a perfect example of BMW's constant, intense development process. Aluminum components make up 21.3% of total suspen-

sion weight, reducing unsprung weight – that mass which moves up and down with the wheels. By reducing the suspension's inertia, this improves its ability to keep the tires firmly planted on the road, particularly over rough surfaces. The aluminum is thus a major factor in achieving firm handling along with a very high level of riding comfort.

Often, driving reports and road tests remark on these very capabilities: A typical example is found in *Automobile Magazine's* February '03 issue, in connection with the magazine's naming the 3 Series its All-Star Luxury Car Under \$40,000: "The chassis not only forms a rigid platform for knife-edged handling but also allows for the damping required to soak up road irregularities."

A sport suspension calibration is standard on the 330i sedan and both coupe models. Otherwise, this relatively firm setup is included in the Sport Package of the 325i sedan and sport wagon and both convertible models. The all-wheel-drive xi models have their own specific suspension calibration; their Sport Packages do not include a sport calibration.

A new, even sportier M sport suspension setup is part of the 330i Performance Package, described on pages 172-173.

### **3 Series steering: always a great system, now even better**

The 3 Series' engine-speed-sensitive variable-assist power rack-and-pinion steering system has generated universal praise.

Recently, BMW phased into the 3 Series an exacting detail refinement of the suspension and steering, consisting of –

- Firmer suspension bushings
- A firmer flexible coupling

between the steering-column shaft and the rack-and-pinion steering gear

- A "quicker" steering ratio, reducing the amount of steering-wheel motion for any given turning of the vehicle.

This quicker ratio reduces steering turns lock-to-lock from 3.4 to 3.0, which along with the other changes results in an even higher level of precision and driving enjoyment for the Series.

The steering column is specially designed for safety; for details see **safety & security**, page 167.

### **4-wheel ventilated disc brakes and other premium features**

All models have an outstanding 4-wheel disc-brake system. Not only are the discs generously dimensioned compared to competitive models, they are also specifically dimensioned to match each model's performance level and weight. Here is a summary of braking features:

- **Ventilated disc brakes front and rear.** All current 3 Series models have this premium feature, which helps reduce fading under hard use. Disc diameters are as follows:

	<b>325 models</b>	<b>330 models</b>
Front discs, mm/in.	300/11.8	325/12.8
Rear discs, mm/in.	294/11.6	320/12.6

- **Evolved brake design:** extra-rigid calipers, large pads and advanced pad materials combine to enhance the individual wheel brakes.
- **Fast response time.** Refinements to the pedal linkage and hydraulic system enable the system to respond exceptionally quickly to the brake pedal.

### 3 Series key features

Except as noted, all current 3 Series models offer the following features:

- **Dynamic Brake Control.** Reinforces the driver's pedal effort in emergency braking.
- **Electronic brake proportioning.** Along with Dynamic Brake Control, EBP is an element of the standard Dynamic Stability Control system. For details on these and other functions of DSC, please see Dynamic Stability Control, **BMW features**, pages 21-22.

In the February '02 *Car and Driver* comparison test of the 330i sedan and six competitors, only the BMW's brakes earned a full 10 points; those of the six competitors ranged from 7 to 9.

#### **All-wheel drive**

(325xi & 330xi models)

BMW's all-wheel drive system offers enhanced traction – particularly under conditions of marginal grip – while preserving typical BMW handling feel.

The heart of BMW's all-wheel drive (AWD) is a transfer case with planetary center differential. So-called because they resemble a sun with planets orbiting around it (sun gear, planet gears), planetary gearsets are almost universally used to achieve gear ratios in automatic transmissions; they can also be employed to apportion torque to two output shafts in a predetermined way, as is done here.

This predetermined split is 38% to the front wheels, 62% to the rear wheels. Because the system includes all-speed traction control – here operating on all four wheels – this basic split can be modified, as required by road and weather conditions. The advantages of the 38/62 split are:

- **Basically neutral handling**, with mild “transition effect” when the driver lifts the accelerator while cornering. The xi models handle essentially like

rear-wheel-drive BMWs under normal traction conditions.

- **Minimal steering effects** from the front-wheel drive system (absence of the torque steer exhibited by many front-wheel-drive vehicles).
- **Equal-length axle shafts** (outboard of constant-velocity joints) also help minimize torque steer.
- **Excellent directional stability**, because more than half the driving torque goes to the rear wheels.

Audi's quattro AWD system and the Mercedes AWD system (currently available on S-, E- and C-Class models) have a basic 50/50 front/rear split, also variable as the system acts to maximize traction. Thus with AWD (or, for that matter, with their standard drive systems), these brands lack the fine edge of handling that BMW consistently cultivates.

**How it works.** From the center differential just behind the transmission, torque proceeds straight back to the rear differential. Via a gear drive and open driveshaft (running along the left side of the transmission and engine), torque is transmitted to the front. The front differential is at the left side of the engine pan; from there, axle shafts run –

- via a constant-velocity (CV) joint to the left front wheel
- through the engine pan (but sealed from the engine oil supply) and another CV joint to the right front wheel.

Dynamic Stability Control functions with AWD essentially as with RWD, with these exceptions:

- All functions involving engine intervention, such as traction control and cornering stabilization, affect all four wheels rather than just the rear ones.

- Because of AWD's superior all-around traction, the Dynamic Traction Control is not provided.
- Hill Descent Control helps the driver maintain speed and stability on steep downhill runs. The driver needs only to press a dedicated button on the console; HDC then takes over, gently applying the brakes as necessary to help keep the speed to a brisk walking pace.

*AutoWeek* (April 9, 2001) summed up a 325xi Sport Wagon just as we would: "This wagon drives, then, pretty much like any other driver-pleasing 3 Series but offers tailgate cargo utility and all-weather traction."

### **Wheels and tires: generously dimensioned, many choices**

BMW offers a wide range of wheel and tire equipment for the 3 Series, from the 325i's standard 16-inchers to the all-out sportiness of the 18-in. equipment that is optional in combination with the 330Ci Sport Package and now also part of the 330i Performance Package. All 330 models have at least V-rated tires. All available combinations are shown in the table below; several wheel designs for the '04 models are new and are denoted with bold type in the table.

Model/version	Wheel design/ design number	Wheel size	Tire size/speed rating/type
325i/xi Sedan & Wagon standard	Star Spoke #45	16 x 7.0	205/55R-16 H-rated all-season
'04 325Ci Coupe & Convertible standard	<b>Double Spoke #88</b>	16 x 7.0	205/55R-16 H-rated all-season
325i Sedan & Wagon Sport Package	Star Spoke #96	17 x 8.0	225/45R-17 W-rated performance
325xi Sedan & Wagon Sport Package, 330i/xi Sedan std.	Radial Spoke #73	17 x 7.0	205/50R-17 V-rated all-season
'04 325Ci Coupe & Convertible Sport Package	Star Spoke <b>#119</b>	17 x 8.0	225/45R-17 W-rated performance
'04 330Ci Coupe & Convertible standard	Double Spoke <b>#98</b>	17 x 7.0	205/50R-17 V-rated all-season
Run-flat option with Tire Pressure Monitor, all 330 models; 330xi Sport Package	Double Spoke #98	17 x 7.0 <sup>1</sup>	205/50R-17 V-rated run-flat <sup>1</sup>
330i Sedan, '04 330Ci Coupe & Convertible Sport Package	M Double Spoke #68M	17 x 7.5 F/ 17 x 8.5 R	225/45ZR-17 F/ 245/40ZR-17 R performance
'04 330Ci Coupe & Convertible option with Sport Package	<b>Double Spoke Composite #71</b>	18 x 8.0 F/ 18 x 8.5 rear <sup>1</sup>	225/40ZR-18 F/ 255/35ZR-18 R performance <sup>1</sup>
<b>330i Sedan Performance Pkg.</b>	<b>M Double Spoke #135M</b>	18 x 8.0 F/ 18 x 8.5 rear	225/40ZR-18 F/ 255/35ZR-18 R performance <sup>1</sup>

F = Front; R = Rear.

<sup>1</sup> – Space-saver spare.

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

Sedans and Coupes come standard with a full-use spare wheel and tire; their spare is identical to the road wheels and tires. Sport Wagons and Convertibles come standard with a space-saver; a full-use spare is optional on the Sport Wagons. 330i/Ci models with Sport Package have a spare that matches their front 17-in. tires and wheels; 330i/Ci models equipped with the run-flat and 18-in. options come with a space-saver spare.

The run-flat option, available on all 330 models, comes with a more sophisticated system of monitoring tire pressure for 2003; for details, see [options & accessories](#).

### Exterior & aerodynamics

#### The front end

The grille (formed as BMW's traditional "kidneys") is set into the hood, which sweeps right down to the front bumper. At the same time, the grille thrusts forward to symbolize the way these cars move ahead. It's a wonderfully clean, strong "face."

The headlights' free-form reflectors are clearly visible behind smooth, break-resistant aerodynamic covers. The high beams' outboard periphery sports a discreet, decorative touch of three small chrome rings. Finally, a distinctive cutout beneath each of the lamps lends visual interest to the 4-lamp scheme.

As interesting as the headlights are to look at, they also provide outstanding forward illumination. For even more effective lighting, Xenon low- and high-beam headlights are optional (with the new Adaptive Light Control on '04 models, without on '03s). For details on this new Adaptive feature, see page 162.

Certain details distinguish the front ends of the various body types, as well as 330 from 325 models:

- Different headlight clusters for Sedans/Sport Wagons ('03) and Coupes/Convertibles (new '04 design brings the two body-type groups closer together)
- Front bumpers have one design for Sedans/Sport Wagons ('03) and Coupes/Convertibles (new '04 design).
- Grilles differ subtly between the Sedans/Sport Wagons and Coupes/Convertibles, the latter's grille shape having a new shape for '04.
- Sedan and Wagon hoods have character lines running from the outer upper grille corners to the A-pillars; on Coupes and Convertibles, these lines run almost straight rearward.
- On the 330i and all Sport Wagon, Coupe and Convertible models, the grille slats are chrome; those of the 325i/xi Sedan are black.
- Sport Wagons, Coupes and the 330i/xi Sedan have chrome side-window trim; the 325i/xi Sedan has all-black trim.
- 330 models have Titanium-finish headlight surrounds; on the 325s these are black.
- 330 models and all xi models have chrome exhaust outlets.

#### In profile

All models have a low and sloping hoodline, graceful roofline and harmonious "conclusion" at the rear. BMW traditions are there – side character line running from front to rear, "reverse kink" at the base of the Sedan and Coupe rear side windows. Bold wheel arches accent the available 16-, 17- and 18-in. wheels. On the Sedans and Wagons, the front

wheel flares were made more prominent for '02 and the side character line begins aft of them; similar changes apply to the '04 Coupes and Convertible.

Notable eye-catchers include a flare-out at the doors' bottom edges; a spear-like ridge in the side sill; the almost straight rear edge of the Sedan and Wagon rear doors; safety-oriented door handles (in body color) that can be pried open in a post-crash emergency. Large taillight wrap-arounds can improve side visibility of the vehicle at night. Even the fuel door (on the right side, as always) includes a thoughtful detail: Press inward on its rear edge, and it pops out so that you can open it. No "lip" is required.

A consistent BMW element is that these cars are tightly dimensioned, in both appearance and reality. There is absolutely no flab. Front-wheels-forward, short-overhang proportions visually represent the engineering virtues of rear-wheel drive: sporty handling, steering that's free of powertrain influences, and excellent traction under hard acceleration. (Though their front wheels do transmit torque, the all-wheel-drive models maintain this principle by apportioning only 38% of the torque to the front wheels.)

On Sport Wagons, Coupes and the 330i/xi Sedan, the side windows are outlined in chrome trim (325i Sedan: all-black). On Coupes and Convertibles, side moldings are in body color; on Sedans and Sport Wagon they are black. The 330i and all Sport Wagons, Coupes and Convertibles have body-color cowl air intakes and roof-seam trim strips; the 330i and all Sport Wagons and Coupes have body-color

roof-seam trim strips. On 325i/xi Sedans, all these elements are black.

#### **At the rear**

L-form taillight units look great, and give the always-important function of the turn signals a top priority. Following a theme set by the headlights, their lenses are highly transparent, revealing much of their "inner workings." The integrated rear spoiler of sedans, coupes and convertibles is high and prominent, yet subtle.

As at the front, certain details distinguish the models. The backup lights are configured differently on the different body types, and in the Coupes and Convertibles the rear reflectors are set into the bumper rather than the main lighting units. The 325i/xi Sport Wagon, 330i/xi Sedan, and all Coupes and Convertibles have body-color tailgate or trunk grips; on the 325i/xi Sedan this element is black.

#### **New Coupe and Convertible exterior features for '04**

Three new standard features of the '04 Coupes and Convertibles contribute to safer, more convenient driving. Of these, the most innovative is BMW's **adaptive brakelights**, which first appeared on the 7 Series in '02 and have since been adopted for the Z4 roadster Series.

Each taillight unit's tail- and brakelight segment consists of clusters of LEDs. In normal braking, the central cluster illuminates more brightly. Under heavy braking or anytime the ABS goes into action, additional LED clusters, in- and outboard of the main one, illuminate to enlarge the total brakelight area. Following drivers are thus alerted automatically to sharp braking by the BMW driver, potentially lessening

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

the likelihood of a rear-ender. Even in normal braking, the LEDs have the advantage that they light up more quickly than conventional bulbs.

Rain-sensing windshield wiper remain optional on the '03 Sedans and Sport Wagons (as part of their Premium Packages) but become standard on the '04 Coupes and Convertibles. The same applies for the **automatic headlight control**. (See **BMW features** for information on these features.)

Low- and high-beam Xenon headlights continue as an option on all models. On the '04 models, this feature comes with the new **Adaptive Light Control** feature, which is literally "aimed" at making night driving safer. With the headlight switch in its Automatic position, as soon as the vehicle is moving forward, the outboard Xenon lights steer with the vehicle, guided by an electronic control system and swiveled up to 15° to the right or 7° to the left (to avoid blinding oncoming drivers) by small servo motors. The system responds not simplistically to the steering angle, but also to vehicle speed and the yaw rate (the rate at which the vehicle's direction is changing). At speeds below 20 mph, the headlights' steer angle is sharply reduced to avoid blinding pedestrians. The tangible benefit for customers is enhanced night vision around corners and curves. Xenon lights are available without the Adaptive feature on the '03 models.

Why all this differentiation? First, because the two "sets" of models (Sedans and Wagons, Coupes and Convertibles) are design and character distinctions that deserve all-around expression; and second,

to give subtle yet definite evidence of the larger-engined, more extensively equipped 330 models.

### Ergonomics & luxury

#### The control center

As the focal point of the driver's control center, the instrument panel presents an upscale look, with the following elements:

- **Typical BMW instrument cluster**, contemporary in appearance and technology. A 4-function Onboard Computer is standard in all but 325i/xi models. Also in the cluster's lower portion: Check Control in pictogram form, with indicators for door or trunk ajar and defective bulbs in parking, head-, fog-, tail-, brake- and license-plate lamps. For reliability, LEDs are used for illumination and pointers are driven by tiny servo motors. The Service Interval Indicator (SII) displays the remaining miles to the next required service. Instrument dials are black with white Roman-style (sans serif) lettering and numerals in Sedans and Wagons, gray with white italic lettering and numerals in Coupes and Convertibles.
- **Easy-to-use audio and climate controls**. In all models, a revised climate-control panel improves on what was already a very satisfactory arrangement: The temperature and blower-speed keys are now more widely separated; increases are effected by pressing the upper key, decreases by pressing the lower one. Salient features of the automatic climate control remain:
  - LED display of temperature setting and current blower speed

- Automatic recirculation control
- Large-area, soft-touch keys for all functions.

Cooling and heating output is ample; a variable-displacement air-conditioning compressor eliminates noticeable on/off cycling.

- **Attractive upper dash section** including instrument nacelle, ventilation outlets and passenger airbag in a premium leather-like grain. This upper section is always black; with interior colors other than black it contrasts to the lower section for a pleasant “floating” visual effect.
- **Trim panel across dash.** Titanium finish is standard in all models; genuine Myrtle wood is available in Premium Packages or as a stand-alone option. The trim material used here is repeated in an attractive inset strip on each door of Sedans and Wagon, and on the side armrests of Coupes and Convertibles.
- **Leather-trimmed tilt/telescopic steering wheel**, with 30 mm (1.2 in.) of vertical and longitudinal adjustment. Includes function keys for cruise control, audio and (if present) the Center-installed BMW Cellular Phone System.
- **Console compartment**, with “glide-open” door. In Convertibles this is configured as a sunglasses holder. Not present in vehicles equipped with the Onboard Navigation System.
- BMW’s familiar temperature- and volume-controlled **center air outlets** (face vents).
- **Curve-away right dash section** to give the front passenger a feeling of greater space; also an interesting visual effect.

- **Intuitive power-window switches:** pull up to raise windows, push down to lower. 1-touch operation varies according to model (see **standard & optional features**); the switches are illuminated at night.
- **Dual cupholders** in center console; open-style, capable of holding different-sized containers. A roll-over coinholder is also provided here.

### **Front seats:**

#### **many choices, always comfortable and convenient**

BMW seats provide firm but not-too-firm support and comfort. Their internal construction is engineered to work together with the vehicle suspension to absorb vibration; they offer adequate lateral support without constricting the occupant.

The front seats incorporate an internal ventilation system: As the car’s ride motions cause the occupant to move slightly up and down in the seat, cylindrical cavities in the cushions and backrests generate a “pumping” effect which removes moisture and feeds in fresh air.

In the 325i/xi and 325Ci Coupe, the standard front seats offer 6-way manual adjustment for:

- fore-aft position
- backrest angle
- cushion height.

The controls are easy-to-use levers on the side of each front seat.

8-way power front seats are standard in the 330i/xi models and 330Ci Coupe, are included in the 325i/xi and 325Ci Coupe Premium Packages, and are available as a stand-alone option as well.

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

Both Convertible models come standard with 10-way power front seats, adding a vertical head-restraint adjustment. All power seats include a memory system, capturing three preferred settings for the driver's seat and outside mirrors. In all models with power seats, when reverse gear is engaged, the righthand outside mirror tilts down for visibility of the curb.

Power lumbar support (4-way, adjusting for height and firmness) is available in all 330 models' Premium Package. For details on the available sport seats, see **options & accessories**. In closed-body models, the front head restraints are manually adjustable for height and angle; those for the rear outboard seating positions are height-adjustable. In Convertibles, the front head-restraint height is power-adjusted, along with the safety-belt height.

A fold-up center front armrest is now standard in all models; it includes a useful tray that is lined with soft, slide-resistant surfaces.

### **Rear seating: space and comfort**

**Sedans and Sport Wagons.** Seatback nets, on the backs of the front seats, are convenient storage places for rear- and front-seat occupants alike.

Split folding rear seats (including a ski bag) are optional in Sedan models (stand-alone or Cold Weather Package); they are split 1/3 right / 2/3 left. In Sedan models with the available leather upholstery and/or folding seats, a fold-up rear center armrest is provided. In the Sport Wagon, a more elaborate fold-up armrest is standard, and includes two

cupholders, a storage compartment and a center rear head restraint. A center head restraint is newly standard in the Sedans as well.

**Coupes and Convertibles.** When a front backrest is folded over, the entire seat can be moved 90 mm/3.54 in. forward to facilitate access to rear seating; this is called the **easy-entry feature**. In convertibles, easy-entry is powered; upon actuation of a switch at the backrest's upper outer edge, the seat moves forward at double its normal power adjustment speed. Actuating the switch in the other direction returns the seat to its previously adjusted fore-aft position.

Split folding seats are standard in the Coupes. The Convertibles' rear seats do not fold. A ski bag is available in the Sport Wagon, Coupes and Convertibles as part of the Cold Weather Package. Seatback nets are standard in all Coupe and Convertible models.

### **Upholstery: standard leatherette, optional leather**

Continuing a popular, distinctive BMW theme (few Japanese models offer it), standard leatherette upholstery is available in two colors: Black and Sand. For details on the available leather interior (standard in 330Ci Convertible, stand-alone option for all other models, 330i/xi/Ci Coupe Premium Package), see **options & accessories**.

### **Interior lighting amenities**

Premium interior lighting is now standard in all models. This includes front footwell illumination, separately controlled left/right reading lights front and rear, and illuminated visor vanity mirrors.

(Convertibles have the same lighting scheme, except of course without the rear reading lights unless equipped with the optional hardtop.)

### **A quiet cabin**

BMW engineers have kept noise levels low inside the 3 Series cabin, although not the ultra-silent, characterless ambience favored by some of our competitors. Measures that help quiet the cabin include:

- Engine, suspension and differential-mounting refinements, including hydraulic mounts in front suspension and at the differential.
- Ultra-rigid body structure (see **handling, ride & braking**).
- Highly effective sound-insulation strategy; reduces noise levels without undue weight.
- Low wind noise outside the body (carefully shaped A-pillars and outside mirrors; ribs on mirror housings of Coupes and Convertibles to reduce wind noise further).
- Premium door-sealing system, with 3-segment seals in the window areas.
- Reduced transmission of outside noise via flow-through cabin ventilation.
- Smooth-finished window tracks.
- Refined front wind deflector for the moonroof of Sedans, Sport Wagon and Coupes (reduces wind noise and buffeting with moonroof open).

### **Audio systems:**

#### **attractive and functional design**

A spacious, ergonomically designed in-dash audio panel is the user interface of an appealing set of audio choices.

**325 standard system.** All 325 models come standard with a 10-speaker sound system with the following speaker specifications:

- Front midrange (2) – middle of front door panels (Sedans, Wagons), in midrange/tweeter combination, upper front door panels (Coupes, Convertibles)
- Rear midrange (2) – rear door panels (Sedans, Wagons), rear-compartment side panels (Coupes, Convertibles)
- Front tweeters (2) – mirror triangles (Sedans, Wagons), in midrange/tweeter combination, upper front door panels (Coupes, Convertibles)
- Front woofers (2) – lower front door panels (all models), though location differs between Sedans/Wagons and Coupes/Convertibles
- Rear woofers (2) – in rear shelf (Sedans, Coupes), above rear wheelwells (Wagons), rear-compartment side panels (Convertibles).

Speaker type, quality and placement, specifically engineered for each body type, combine with refined equalization and adequate audio power to produce excellent standard sound.

#### **Harman Kardon system**

(optional 325 models, standard 330 models). Audio power is increased by approximately 40%, components are upgraded, and vehicle-speed-dependent equalization helps keep sound quality consistent with changing noise levels – a particularly important feature for the Convertibles.

All speakers are of premium quality, and include –

- Front midrange (2) – locations as for standard system
- Rear midrange (2) – locations as for standard system
- Front tweeters (2) – locations as for standard system
- Front woofers (2) – locations as for standard system

### 3 Series key features

Except as noted, all current 3 Series models offer the following features:

- Rear woofer (2) – locations as for standard system (Sedans, Coupes); dual-coil woofers (4) in same locations as for standard system (Wagons); in deck behind rear seats (Convertibles)
- Subwoofers (2) – under rear shelf (Sedans, Coupes), dual-coil subwoofer in ski pass-through door (Convertibles). No subwoofers in Wagons.
- RDS (Radio Data System), including PTY (Program Type)
- 12 FM presets (FM1/FM2) and 6 AM presets
- Autostore of strongest stations
- Dolby® B and C noise reduction for tape deck
- Anti-theft design – unit is functional only if connected to a BMW 3 Series electrical system
- 6-disc CD changer – available for BMW Center installation.

The number of speakers for all body types is thus 12:

- Sedans and Coupes – standard 10 plus 2 subwoofers
- Convertibles – standard 10 plus dual-coil subwoofer (counts as 2)
- Sport Wagons – standard 10 plus 2nd coils of dual-coil rear woofers.

Spatial Enhancement adds richness to the sound. In Sedans, Coupes and Sport Wagons there is a console switch to turn this feature on or off; in convertibles it is always on. The Harman Kardon logo appears on front-door and (in Sedans and Coupes) rear-shelf speakers.

All 3 Series audio options include at least the following premium features:

- Standard in-dash single-disc CD player, with a cassette player available to replace this CD player at no extra cost.
- Diversity antenna system. In Sedans and Coupes, all circuits are imprinted on the rear window; in the Sport Wagon, they are on the rear window and rear side window; on Convertibles, they consist of a mast antenna on the left rear fender and antenna circuits in the softtop cover.

#### **Advanced electronic convenience and choices: Vehicle and Key Memory**

BMW's sophisticated Vehicle and Key Memory System is standard on all 3 Series models, and is described in **BMW features**, page 27.

#### **Thoughtful trunk features**

With any BMW, the trunk – though usually out of sight – is designed and finished with quality. So it is that the 3 Series trunk includes many thoughtful features:

- Remote and interior trunk releases on all models.
- Reversible mat on floor (Sedans and Coupes): flock on one side, slide-resistant rubber finish on the other to secure smaller objects from sliding around when the vehicle is in motion.
- Configured for two golfbags transversely; bags don't have to be positioned diagonally.
- Hook to hold up floor panel while getting to spare tire.
- Releases for folding rear seats (standard in Coupes, optional in Sedans), just ahead of trunk opening and clearly labeled.

For special features of the Convertible trunk and Sport Wagon cargo area, see **specific features by model**, pages 177-183.

## Safety & security

### Dynamic Stability Control

As on all other current BMW models, Dynamic Stability Control, BMW's comprehensive system of traction and stability enhancement, is standard on every 3 Series model, with special features for the all-wheel-drive xi models. DSC is described in detail in **BMW features**, pages 21-22.

### Body structure designed for energy management

Like every current BMW, the 3 Series has a rigid, yet energy-absorbing body structure; BMW's approach to structural design is described in **BMW features**, pages 18-27.

Independent critics and testing agencies have confirmed the 3 Series' outstanding performance in crash tests. Germany's highly respected *auto motor und sport* magazine, which actually runs its own crash tests, conducted an offset frontal impact at 64 km/h (almost 40 mph) and a side-impact test at 32 km/h (20 mph) against a massive iron pole. Both tests were survived by the BMW "occupants" (test dummies) largely without injury. The vehicle's stable passenger compartment, effective restraint systems and front- and side-impact airbags made for such good crash results that the magazine concluded: "Occupant protection in the new 3 Series is at such a high standard that only marginal improvements are conceivable."

In the U.S., the Insurance Institute for Highway Safety also confirmed the Series' crash performance. In its actual 40-mph offset tests of five models in the 3 Series' competitive class, the 3 Series sedan earned the

Institute's **Best Pick** rating. BMW's occupant compartment held its shape, with low likelihood of injury. In the same test, the Audi A6, Cadillac Catera (now obsolete), Saab 9-5 and Volvo S80 earned "good" or "acceptable" ratings, but were not rated Best Picks.

### Optimized steering-column design

A motor vehicle's steering column plays a key role in protecting the driver from the forces of a severe frontal impact. From its very bottom (at the steering rack) to the steering-wheel hub, the steering column has been engineered for optimum protection. It is designed as a 2-section system (lower and upper); features include:

- 3-piece aluminum lower spindle capable of absorbing major frontal deformation
- Upper column housing of magnesium, for strength combined with light weight
- Steering-wheel mounting capable of moving forward in a controlled manner
- Foam padding integrated into bottom of upper steering column, as knee protection.

The entire column has been designed to "decouple" its lower and upper portions and thus improve its protective behavior in a severe frontal impact, while providing the highly desirable tilt/telescopic adjustment.

### Height-adjustable front safety belts with automatic tensioners and force limiters

Front safety belts in the 3 Series are height-adjustable; those in closed-body models are adjusted manually, those in Convertibles power-adjusted along with the head-restraint height. For details on the safety belts of all current models, see **BMW features**, pages 40-41.

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

### Head Protection System (HPS)

All 3 Series models except Convertibles come standard with BMW's pioneering, highly effective inflatable-tubular front Head Protection System. For details, see **BMW features**, page 41.

"HPS" lettering on the windshield pillars signifies the presence of this unique BMW safety feature.

### Optional rear-seat side-impact airbags

Like the standard-equipment front side-impact airbags, the rear ones are built into the doors of the Sedans and Sport Wagon. In Coupe and Convertible models they are in the rear side panels.

Details on BMW's various rear-seat side-impact protection systems, as well as our policies in offering them to customers, are presented in **BMW features**, page 41.

### Rollover Protection System (RPS)

(Convertible models)

Basic occupant protection is afforded by the convertibles' strong body, reinforced windshield frame, front- and side-impact airbags, interlocking anchoring of the side doors, seat-integrated front safety belts and 3-point rear belts. This system, which offers additional, Convertible-specific protection, consists of:

- Two interdependent modules, one behind each rear seat, each with a mechanical actuator and a deployable rollbar
- A highly sophisticated rollover sensor/control module.
- A g-sensor to detect the vehicle's becoming airborne, also included in the control module.

The rollover sensor's action is based on a clinometer, with three level floats to detect body tilting

as well as transverse deceleration (such as hitting a curb) for deployment of the rollbars. LED transmitters and phototransistor receivers are positioned to read the floats' air bubbles as they move in their glass tubes.

Normally, the liquid in the floats prevents transmission of the LED signal. If the vehicle starts to roll over sideways or end-to-end beyond critical angles, an air bubble will move enough to allow transmission of the LED signal. The control-module electronics then trigger the rollbar actuators. There is also a g-sensor to trigger the rollbars should the vehicle become airborne.

If either sensor system is triggered, the two electromagnetic rollbar actuators are supplied with electric power. Normally held in their retracted position, the rollbars are then deployed upward by powerful springs, and locked into position to sustain the rollover forces. All this occurs in just a fraction of a second.

The rollbars and deployment modules are entirely of aluminum, and each bar has a molded pad at its top. When retracted, they are concealed by the head restraints. After deploying, the rollbars can be reset by a BMW technician.

### Security features

Locking and unlocking of the vehicle as well as the available alarm system are controlled by a multi-function remote in the keyhead, as described in **BMW features**, page 28.

The Vehicle and Key Memory system provides 3 Series vehicle users with important choices regarding security functions. See page 27 for a summary of available functions.

## Options & accessories

### Factory-installed options

#### Premium Packages

Each 3 Series model is available with a Premium Package that upgrades its level of luxury and convenience at an attractive price.

The 325i/xi Sedan Premium Package consists of –

- Rain-sensing windshield wipers, new for '03 (see BMW features, pages 40-41)
- Automatic headlight control, also new for '03 (see BMW features, pages 40-41)
- Power front seats with memory. 8-way power seats replace the standard 6-way manual seats, adding a cushion-angle adjustment. 3-position driver's-seat and outside-mirror memory included.
- Automatic tilt-down of right outside mirror when reverse gear is engaged
- Wood interior trim. Distinctive Myrtle on the instrument panel, console, doors and shift knob.
- Onboard Computer with 4 functions:
  - outside temperature, acoustic freeze warning
  - average speed since reset
  - average fuel economy since reset
  - expected range on remaining fuel.
- Auto-dimming inside rearview mirror
- 2-way power moonroof.

The 325i/xi Sport Wagon Premium Package is like the Sedan's, except that it omits the moonroof (now standard on the wagons) and is priced accordingly lower.

The 325Ci Coupe Premium Package is like the Sedan's, except that it omits the On-board Computer, rain-sensing wipers and automatic headlight control (all standard in the '04 Coupe) and is priced accordingly lower.

Because power seats, memory and mirror tilt-down feature are standard on Convertibles, the 325Ci Convertible Premium Package differs from those of the closed-body models. It includes:

- Fully automatic power softtop (a manual softtop is standard)
- Wood interior trim
- Auto-dimming inside rearview mirror
- BMW Universal Transceiver, conveniently integrated into the inside rearview mirror's housing.

The 330 models have more standard equipment than their 325 counterparts, so the 330i/xi and 330Ci Coupe Premium Packages are quite different from those for the 325i/xi and 325Ci models. To elevate these top models' level of luxury and convenience, they include:

- Rain-sensing windshield wipers (Sedans only; standard in '04 Coupes)
- Automatic headlight control (Sedans only; standard in '04 Coupes)
- Montana leather upholstery, including door and (in the coupe) rear side-panel trim
- Wood interior trim
- 4-way power lumbar support, with adjustable firmness and vertical position of lumbar support on both front seats
- Auto-dimming inside rearview mirror
- 2-way power moonroof.

As leather upholstery is standard in this model and of course a moonroof isn't offered, the 330Ci

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

Convertible Premium Package is differently composed. It includes:

- Wood interior trim
- 4-way power lumbar support
- Auto-dimming inside rearview mirror
- BMW Universal Transceiver.

### Sport Packages

A Sport Package is also available for all models. Like the Premium Packages, these are model-specific and purposeful. The 325i Sedan/Sport Wagon Sport Package underscores these value-packed models' inherent sportiness with the following features:

- **Sport suspension.** Following the established BMW philosophy, the sport suspension is lowered 15 mm/0.6 in. and firmed-up all around.
- **17-in. wheels and performance tires.** 17 x 8.0 wheels in Star Spoke design (#96), carrying 225/45R-17 W-rated tires.
- **3-spoke leather sport steering wheel** of smaller diameter (375 mm/14.8 in. vs. 385/15.2) than standard 4-spoke wheel.
- **10-way sport seats, manual.** If the Sport Package is combined with the Premium Package or stand-alone power-seats option, the 8-way manual adjustments (that is, all except thigh support) are powered.

The 325xi Sedan/Sport Wagon Sport Package differs from that for the "i" models. Sport suspension is not included, as the AWD models have their own specific suspension tuning, and all-season tires are specified in the interests of optimum bad-weather traction:

- **17-in. wheels and updated all-season tires.** A different Star Spoke design (#73) for 17 x 7.0 wheels, carrying 205/50R-17 V-rated tires.

- **3-spoke leather sport steering wheel** as in 325i Package
- **10-way sport seats,** also as in 325i Package, and again powered if combined with the Premium Package or stand-alone power-seats option.

Because the Coupes come standard with sport suspension and sport steering wheel, the 325Ci Coupe Sport Package does not include those features. Package contents are:

- **17-in. wheels and performance tires.** With a new 5-spoke Star Spoke design (#119) for '04, the 17 x 8.0 wheels carry the same 225/45R-17 W-rated tires as in the 325i Package.
- **White turn-signal lenses**
- **10-way sport seats,** also as in 325i Package, and again powered if combined with the Premium Package or power-seats option.

As Convertible models do not come standard with sport suspension, the 325Ci Convertible Sport Package adds this element to the Coupe's Package contents. Because 10-way power seats are standard in the Convertible, the sport seats here have 10-way power/2-way manual adjustment.

With sport suspension standard on the 330i Sedan, the 330i Sport Package does not include that feature. Its contents are:

- **17-in. wheels and performance tires with differentiated front/rear sizes.** 17 x 7.5 M Double Spoke front wheels (design #68M) carry 225/45ZR-17 performance tires at the front; 17 x 8.5 wheels carry 245/40ZR-17 tires at the rear.
- **M aerodynamic body components.** Distinctive front bumper and foglight design, special rocker panels and rear apron.

- **Sport steering wheel**
- **8-way power/2-way manual sport seats.**

Parallel to the 325xi models, there is a specific **330xi Sport Package** for this AWD-equipped sedan. It is identical to the 330i Sport Package, except that it retains the standard 17-in. wheel and tire sizes and (new for '03) V-rated run-flat tires plus the new Tire Pressure Monitor. The wheels here are also new for '03: the same Double Spoke design (#98) that is also included with the stand-alone run-flat option.

The '04 **330Ci Coupe Sport Package** is like that for the 330i Sedan, but without the aerodynamic body components and (because it is standard) the sport steering wheel:

- **M Double Spoke wheels**, 17 x 7.5 front/17 x 8.5 rear, with 225/45ZR-17 front / 245/40ZR-17 rear performance tires.
- **White turn-signal lenses.**
- **8-way power/2-way manual sport seats.**

The **330Ci Convertible Sport Package** is the same as for the 330Ci Coupe, except that it adds sport suspension because that feature is not standard on the convertibles. The sport seats here have 10-way power/2-way manual adjustment.

### **Performance Package (330i Sedan only)**

This dazzling new Package takes the 330i Sedan to its highest level of sportiness ever. Developed by BMW M, it includes very extensive enhancements to performance, roadability, exterior design and interior features:

- **Engine modifications** that add 10 horsepower, 8 pounds-feet of torque, 300 rpm at the top end, even quicker throttle

response and more aggressive sound. The changes include revised camshafts, specially programmed electronic engine management and larger-diameter exhaust pipes.

- **155-mph maximum-speed limiter** instead of other 330 models' 128-mph limiter.
- **Short shift lever**, which enhances the newly standard 6-speed transmission's already ultra-precise, short-throw shift mechanism.
- **Performance final drive ratio (3.07:1, vs. the standard 2.93:1)** – optimally translates the new engine and transmission capabilities into impressive road performance. With this Package, the 330i accelerates from 0 to 60 mph in just 5.9 sec., vs. the standard model's 6.4.
- **New BMW M sport suspension system** that bonds the 330i even more intimately to the road than its standard sport suspension. It includes –
  - Firmer springs, by approximately 6% at the front and 8% at the rear
  - Specially calibrated shock absorbers: front 50% firmer in jounce, 35% in rebound; rear 20% firmer in jounce, 8% softer in rebound
  - Larger-diameter anti-roll (stabilizer) bars: front 23.5 mm/rear 18.5 mm, vs. standard 18.5/18.0
  - More rigid forward bushings for the lower suspension arms
  - 15-mm lower ride height (compared to the standard 330i sport suspension)
- **Unique 18-inch wheels in differentiated front/rear sizes** – M Double Spoke wheels of 18 x 8.0 front/18 x 8.5 rear dimensions, in Double Spoke design #135M, carrying

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

225/40ZR front / 255/35ZR rear performance tires. The sizes are the same as those of the former stand-alone 18-in. option, which is no longer available on the Sedan; the wheel design is new and unique to this Package.

- **Unique BMW M body components**, including front bumper/spoiler, rocker panels, rear bumper/apron/air diffuser and trunklid spoiler.
- **Special exterior trim elements** – Anthracite (charcoal-gray) headlight and foglight surrounds, high-gloss Shadowline trim around the side windows.
- **An additional exterior color**, the rich and sporty Imola Red, is available with the Package. (Imola is an Italian race track, best known as a Formula 1 venue.) Two new metallic colors, Mystic Blue and Silver Gray, become available on the 330i and other 3 Series models as well. (Three colors from the regular 3 Series palette are not available with the Performance Package.)
- **Large-diameter stainless-steel dual exhaust outlets**, vs. the standard smaller chrome outlets.
- **Sport steering wheel** with its extra-thick rim wrapped in Alcantara, a suede-like material that is popular in Europe in high-end vehicles.
- **Sport seats** of essentially the same configuration as those in the Sport Package, though differently upholstered.
- **Unique upholstery** that combines Alcantara and a new, attractive cloth in Anthracite color (leather remains available as a stand-alone option)
- **Special interior trim materials**: Black Cube standard, Silver Cube available at no extra cost.

- **Anthracite-color headliner.**
- **Special instruments**, with red needles and (on the tachometer) a red warning zone corresponding to the engine's greater "revving" capability.

### **Cold Weather Package**

Available on all models, this Package comes in two forms: with split folding rear seats for the models that do not come standard with them, and without split folding rear seats for those that either have them as standard or do not offer them. It includes:

- **Headlight cleaning system.** High-intensity jets, normally retracted, pop out to spray the lights with washer fluid.
- **Heated front seats**, also available as a stand-alone option
- **Split folding rear seats** for sedans only (standard in Sport Wagons and coupes, not available in convertibles)
- **Ski bag**, for carrying skis "indoors" without soiling the interior.

### **5-speed STEPTRONIC automatic transmission**

(all models)

A state-of-the-art 5-speed unit with STEPTRONIC manual shifting and Sport mode, this is the perfect companion to the Series' state-of-the-art 6-cylinder engines, providing satisfying response and acceleration in the "lower" gears (1st through 4th) and a "tall" 5th gear for quiet, fuel-efficient cruising. See **BMW features**, page 17, for details.

### **Run-flat wheels and tires with Tire Pressure Monitor**

(all 330 models)

Sized and speed-rated like the standard 330 tires, thus 17 x 7.0 wheels with 205/50 "V" tires, this option includes –

- Special wheels with rims designed to hold a deflated tire securely (these wheels are now standard on the 330Ci Coupe and Convertible)
- Self-supporting tires
- Tire Pressure Monitor, new for '03.

The run-flat tires and their specially shaped wheel rims form a system that helps protect BMW owners from the necessity of roadside tire repairs. The new Tire Pressure Monitor is an upgrade in technology and function over the Flat Tire Monitor included with this option in '02. Both features are described in **BMW features**, on page 23.

With this option, the spare wheel/tire is a space-saver. The run-flat equipment is not available in combination with the Sport or Performance Package.

**18-in. sport wheels with performance tires**  
(330Ci models; require Sport Package)

This option for the Coupe and Convertible consists of 18 x 8.0 front/18 x 8.5 rear wheels in a new 2-piece bolted Double Spoke Composite design (#71) that is even sportier than the previous V Spoke design. These wheels are connected to the road through 225/40ZR-18 front / 255/35ZR-18 rear performance tires.

The wheel and tire sizes and speed rating are identical to those of the 330i Performance Package equipment, but the design is different. The option is no longer available on the 330i Sedan, and was never offered on the 330xi Sedan.

**Metallic paint**  
(all models)

An appealing selection of metallic colors – some containing mica pigment – is offered on all models at moderate extra cost. For details on selection and availability, see the **exterior/interior color combinations** on pages 324-325.

**Xenon low- and high-beam headlights**  
(all models)

The outer lamps provide high-intensity-discharge illumination on low and high beams, while the inner ones are used for flash-to-pass and Daytime Running Lamps. Auto-leveling of the Xenon lights continues to be included.

For an explanation of Xenon headlights, see **BMW features**, pages 28-29.

**Park Distance Control**  
(all models)

Because 3 Series models are more compact, their PDC operates at the rear of the vehicle only, vs. front and rear on the 7 and 5 Series. Four ultrasonic sensors in the rear bumper detect when the vehicle is approaching objects or obstructions, sometimes not visible to the driver. They trigger a warning beep, repeating more frequently as the vehicle backs toward the obstruction and finally becoming a steady tone when the rear bumper is about a foot from the obstruction.

**Removable hardtop**  
(Convertibles)

With the hardtop installed, the Convertibles take on a distinctive coupe appearance and the winter snugness of a coupe.

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

Made of aluminum, the hardtop weighs only 65 lb., and thus can be attached or removed fairly easily by two persons. It includes separately switched left and right reading lights front and rear, retractable coat hooks, and (like the softtop) an electrically heated rear window.

### Full-use spare wheel

(optional 325i/xi Sport Wagon, standard Sedans and Coupes) Optional on the Sport Wagon so that customers who put extra priority on cargo space can make the choice; the standard space-saver spare frees up additional storage space under the cargo floor. A full-use spare is not available on Convertibles, nor on any 3 Series model equipped with differentiated front/rear wheel-and-tire sizes.

### Power front seats with memory

(Premium Package or stand-alone option 325i/xi models & 325Ci Coupe; standard 330 models & both Convertibles) The memory system captures three preferred positions of the driver's seat and exterior mirrors, and includes automatic tilt-down of the right mirror for visibility of the curb when backing up.

When combined with the Sport Package on models that do not have power seats as standard equipment, this option specifies power sport seats. Power adjustments are as follows:

Standard seats –

- Closed-body models – 8-way (fore-aft, height, cushion angle, backrest angle)
- Convertibles – 10-way (add head-restraint/safety-belt height).

Sport seats –

- Closed-body models – 8-way power (fore-aft, height, cushion angle, backrest angle) plus 2-way manual (thigh support)
- Convertibles – 10-way power (add head-restraint/safety-belt height) plus 2-way manual (thigh support).

### Heated front seats

(Cold Weather Package or stand-alone option, all models) Features include 3-stage heating, high heating capacity and thermo-static control, which automatically regulates seat temperature even though surrounding interior temperature may be changing. Also available in the Cold Weather Package for all models.

### Leather upholstery

(Premium Package 330i/xi Sedan & 330Ci Coupe, standard 330Ci Convertible; also stand-alone option, all models except 330Ci Convertible)

High-quality Montana leather covers the seating surfaces plus a large area of each door and of the coupes' rear side panels. A leather manual-shift boot and handbrake grip and boot are also included, as is a folding rear center armrest in the sedans. (Both coupe models and the sport wagon have a rear center armrest as standard equipment.) All models come standard with a leather-wrapped steering wheel. Available in four colors: Sand, Natural Brown, Black and Gray.

### Wood interior trim

(Premium Package or stand-alone option all models) Rich Myrtle wood adds luxury and warmth to every model. In addition to generous application on the dash, the wood trim also appears on the upper portions

of all four doors of sedans and sport wagons, and on the shift knob of all models. In coupes and convertibles, wood trim forms the base of the door armrests and the entire door pulls. Not available in combination with the 330i Performance Package.

**2-way power moonroof**  
(Premium Package or stand-alone option, all closed-body models, except standard 325i/xi Sport Wagon)

Includes 1-touch opening and closing, with anti-trapping protection for anything that might get in its way during 1-touch closing. BMW's moonroof design is described fully in **BMW features**, page 36.

**Harman Kardon audio system**  
(optional 325 models, standard 330 models)

Premium system, described on pages 165-166.

**Cassette player**  
(no-cost option, all models)

With a single-disc CD player standard in all models, the cassette player is offered as a no-cost substitute for customers who use cassettes. The CD player is now compatible with the On-board Navigation System, so the cassette deck is no longer required with that option.

**BMW On-board Navigation System**  
(all models)

BMW's On-board Navigation System, which embodies not only GPS navigation but audio, trip-computer and (if the vehicle is so equipped) phone functions, got a new user interface for '02 with –

- An enlarged, easier-to-read color monitor in 16:9 format

- Rearranged controls for easier operation
- A panel that pivots outward to reveal the cassette or CD player.

The concealed cassette or CD player frees up more space on the unit's face panel, allowing the larger monitor and an improved arrangement of controls within the same overall panel size as before. For '03, the system is further improved with a new DVD database and improved functions. For details, see **BMW features**, pages 33-34.

For 325i/xi models, this option requires either the Premium Package or the stand-alone Onboard Computer option.

**4-function Onboard Computer**  
(optional 325i/xi Sedan & Sport Wagon, standard other models)

Offers the following functions:

- Outside-temperature display with acoustic freeze warning
- Average fuel economy since last reset
- Average speed since last reset
- Expected range on remaining fuel.

Standard in the 330i/xi and all Coupe and Convertible models, this feature is available in 325 models either as part of the Premium Package or as a stand-alone option.

**Split folding rear seats and ski bag**

(Cold Weather Package or stand-alone option, Sedan models)

The backrests are split 2/3 left / 1/3 right, with a fold-down armrest and ski bag in the left portion. They are released via convenient levers in the trunk of the Sedans and Coupes, atop the seats themselves in the Sport Wagon.

## 3 Series key features

Except as noted, all current 3 Series models offer the following features:

### **Rear-seat side-impact airbags** (all models)

Like the standard-equipment front side-impact airbags, the rear ones are built into the doors of the sedans and sport wagons. In coupes and convertibles, they are in the rear-compartment side panels.

### **BMW Center-installed accessories**

#### **BMW Cellular Phone System** (available for all models)

The CPT 8000 Cellular Phone System is available for all 3 Series models until current inventories are depleted.

#### **Alarm system**

(available for all models)  
Keyless entry and a multi-function, keyhead-integrated remote control are standard on all models. Except for convertibles, the alarm system includes an interior motion detector.

Electronic control logic for the alarm system is included in every model, so only the actual alarm elements must be added by the BMW Center in a simplified, minimally intrusive installation.

### **Sirius Satellite Radio** (available as described below)

As of the 2nd quarter of calendar 2003, Sirius Satellite Radio hardware and services are available for all 3 Series models as follows:

- Sedans and Coupes produced 9/02 or later with the in-dash CD player and without the Navigation System
- All models produced 3/03 or later with the Navigation System.

For information on the 100-channel Sirius system, see **BMW features**, pages 32-33.

### **6-disc CD changer**

(available for all models)  
All models are pre-wired for straightforward installation of the changer. Can be combined with the standard in-dash CD player for a total of 7-disc capacity.

### **Aerodynamic body components**

(available for all models)  
Available components include special front and rear bumper/spoiler ensembles, side sills with downward-sloping fins, and handsomely prominent rear spoilers.

### **Wind deflector** (for convertibles)

Crafted from mesh material, the deflector mounts behind the front seats to cut turbulence for front occupants.

## 3 Series specific features by model

This information helps position and distinguish the models in the Series.

### 325i Sedan features

#### 2.5-liter DOHC inline 6-cylinder engine

As described on page 154.

#### 16-in. wheels and tires

This model comes standard with 16-in. wheels and tires as one of the distinguishing elements between it and the 330i Sedan, which has standard 17-in. equipment.

#### Exterior details

Compared to other 3 Series models, the following exterior details are specific to the 325i Sedan:

- Black grille slats, cowl air intakes, roof-seam trim strips and trunk lift grip
- Full-width air-intake opening in front spoiler, with lateral slats
- All-black side-window trim (Coupes and 330i add chrome)
- Rubber doorsill trims (visible when doors are opened).

#### 6-way manually adjustable front seats

Both front seats include convenient manual adjustment for fore-aft position, backrest angle and cushion height.

#### Premium Package

The 325i Premium Package is configured to upgrade various aspects of 325i equipment to 330i level and beyond. In particular, power front seats and a 4-function Onboard Computer are standard 330i features that are in the 325i Premium Package. For details, see page 169.

#### Sport Package

Like the Premium Package, the 325i Sport Package includes features that are standard on the 330i, such as sport suspension and 17-in. wheels and tires. For details, see page 170.

### 325xi Sedan features

In addition to or in place of the features listed for the 325i Sedan, the 325xi Sedan includes:

#### All-wheel drive

This is the chief distinguishing feature between 325xi and 325i models. It is described in detail on pages 158-159.

The AWD system adds 242 lb. to the 325i Sedan with manual transmission, 220 lb. with automatic; performance data and EPA mileage ratings are affected, as summarized on pages 208-209.

#### Sport Package

The 325xi Sport Package differs from that for 325i models as follows:

- **No sport suspension.** BMW AWD models have a specific suspension calibration, the same for standard- and Package-equipped vehicles. It works: In a July 16, 2001 driving report on the 325xi Sport Wagon, *AutoWeek* commented, "Combine the awd with BMW's Dynamic Stability Control and the 325xi feels foolproof."
- **All-season tires.** Instead of the 325i's 17 x 8.0 wheels with 225/45R-17 W-rated performance tires, the 325xi Sport Package includes 17 x 7.0 wheels with 205/50R-17 V-rated all-season tires. The Package wheels have a distinctive design (Radial Spoke #73), and the V-rating is a performance upgrade from the standard H-rating.

## 3 Series specific features by model

This information helps position and distinguish the models in the Series.

### 325i Sport Wagon features

In addition to or in place of the features listed for the 325i Sedan, the 325i Sport Wagon includes:

#### Sport Wagon body

5-door Sport Wagon body with:

- 8 mm/0.3in. greater length
- 6 mm/0.2 in. lower height
- Distinctive shape from B-pillar rearward
- Upward-opening tailgate with separately, also upward-opening rear window and rear-window wiper/washer; includes light; body-color lift grip (sedan: black)
- Standard roof rails
- Standard moonroof, new for '03.

#### Distinctive interior features

- Standard split folding rear seats with fold-up center armrest, vs. optional
- Fold-up rear center armrest has storage compartment and dual cupholders
- Rear center armrest also includes center rear head restraint, which is out of driver's view when armrest is folded down; center seating position includes 3-point safety belt. (325i/xi Sedan now has a center rear head restraint, but of different design.)
- Variable cargo compartment with retractable cargo cover and net, accessory electrical outlet, three lights
- More than 2 cu ft. of concealed storage space under cargo floor
- Space-saver (temporary) spare wheel and tire standard, vs. Sedan's standard full-use spare; full-use spare optional.

#### Package contents

The Sport Wagon's Premium and Sport Packages are identical to those of the Sedan, but its Cold Weather Package omits folding rear seats because they are standard.

### Stand-alone options

Stand-alone options for the 325i Sport Wagon are as for the Sedan, with the addition of an available full-use spare tire.

### 325xi Sport Wagon features

Differences between the 325xi and 325i Sport Wagons are parallel to 325i and 325xi Sedans, except that here the weight differences are 222 lb. with manual transmission, 177 lb. with automatic. Differences in performance data and EPA mileage ratings are found on pages 208-209.

### 325Ci Coupe features

As of 3/03 production, the 325Ci Coupe becomes an '04 model. In addition to or in place of the features listed for the 325i Sedan, the 325Ci Coupe includes:

#### Standard sport suspension

The Coupe comes standard with sport suspension; on the 325i Sedan it is part of the Sport Package.

#### Different wheel style

The 325Ci's 16-in. wheels and H-rated all-season tires are sized like those of the Sedan, but the wheels are in a Double Spoke design rather than the sedan's Star Spoke design.

#### Coupe body

Sportier 2-door Coupe body with:

- 17 mm/0.67 in. greater length
- 18 mm/0.71 in. greater width
- 46 mm/1.8 in. lower height (including lower sport suspension)
- Distinctive grille shape and headlight design
- Distinctive front spoiler

- “Flatter” (3° more rakish) windshield angle
- Unique roofline, rear deck and overall proportions
- Sashless doors with power door-window sealing system (for description, see **BMW features**, page 36)
- Power swing-out rear quarter windows
- Distinctive rear styling with reflectors in bumper
- Trim outline around side windows: chrome, vs. black on 325i Sedan
- Body-color cowl air intakes, side trim, roof-seam trim strips & trunk grip (Sedan: black)
- Doorsill trims: aluminum/rubber, vs. all-rubber

#### **Coupe interior**

- Main instruments with italic numerals and lettering, vs. white Roman-style (sans serif) in Sedan; dial faces gray vs. black
- 3-spoke sport steering wheel standard, vs. Sport Package in Sedan and Sport Wagon
- 4-function Onboard Computer, standard vs. optional (Sedan Premium Package or stand-alone)
- Front seats 10 mm/0.39 in. lower; more pronounced side bolsters
- Distinctive door-panel design
- Backrest easy-entry feature (when front seats' backrests are folded over for entry into rear seating, entire seat can be moved 90 mm/3.54 in. forward)
- Split folding rear seats, standard vs. optional (Sedan Cold Weather Package or stand-alone option).

#### **Additional distinctions for '04**

As an '04 model (while the 325i Sedan continues as an '03), the 325Ci Coupe adds these distinctions from the Sedan:

- Standard rain-sensing windshield wipers and automatic headlight control; these features are part of the Sedan's Premium Package
- Adaptive brakelights

#### **Premium Package**

As the On-board Computer is standard in the coupe, this feature is omitted from its Premium Package. So are the Coupe's newly standard rain-sensing wipers and automatic headlight control.

#### **Sport Package**

Because sport suspension is standard on the Coupe models, it is not part of this model's Sport Package. White turn-signal indicators are an additional feature of the Package.

#### **325Ci Convertible features**

In addition to or in place of the features listed for the 325Ci Coupe, the '04 325Ci Convertible includes:

#### **Convertible body**

Though it shares its front-end and door sheet metal and body-color side trim with the Coupe, the Convertible body is otherwise completely different. Highlights include:

- Fully lined softtop with magnesium hard cover (manual top standard, power top in Premium Package)
- Power front seats, with power easy-entry feature and power head-restraint/belt-height adjustment (Coupe: all adjustments manual, power seats optional)

## 3 Series specific features by model

This information helps position and distinguish the models in the Series.

- Memory system for driver's seat and outside mirrors, standard vs. optional (includes right-mirror tilt-down feature)
- Power windows: 1-touch open/close driver's window only, vs. both front windows open/close; rear side windows 1-touch open as on Coupe, but windows lower instead of opening outward
- All-window switch (lowers or raises all windows simultaneously; 1-touch open)
- Seat-integrated front safety belts, fully attached to front seats for easier rear-seat entry and exit, vs. conventional body-mounted belts
- 2-passenger rear seat, vs. Coupe's 3-passenger configuration
- Split folding rear seats not offered
- Variable softtop compartment in trunk; allows increased cargo space when top is up
- Rollover Protection System, with bars behind seats that deploy automatically in case of rollover accident (Coupe has fixed roof)
- Trunk mat not reversible
- Glove compartment included in central locking system
- Space-saver spare tire (full-use spare not available).

### Different gearing

To compensate for the Convertible's greater weight, the final drive ratio with manual transmission is 3.46:1, vs. 3.15:1 for the Coupe.

### Package contents

Whereas the Coupe's Premium Package includes a moonroof and power seats, the Convertible's Package includes a fully automatic power softtop and the 3-function BMW Universal

Transceiver. The Convertible's Sport Package includes sport suspension, which is standard on the Coupe, and its sport seats include 10-way power adjustment vs. the Coupe's 10-way manual.

### 330i Sedan features

In addition to or in place of the features listed for the 325i Sedan, the 330i includes:

#### 3.0-liter DOHC inline 6-cylinder engine

Essentially identical in all engineering features to the 325i engine, but larger and more powerful. Described on page 154.

#### Standard sport suspension

Sport suspension became standard on this model during the '01 model year, and remains a distinguishing standard feature over the 325i Sedan.

#### Larger brakes

Like those of the 325i, the 330i's brakes are ventilated all around, but their dimensions are larger: Front – 12.8-in. diameter, vs. 11.8. Rear – 12.6-in. diameter, vs. 11.6.

#### Standard 17-in. wheels and V-rated tires

The 330i comes standard with 17 x 7.0 alloy wheels and 205/50R-17 V-rated all-season tires, vs. the 325i's 16 x 7.0 wheels and 205/55R-16 H-rated all-season tires.

#### Exterior details

- Titanium-finish headlight surrounds, vs. black
- Chrome grille slats, vs. black
- Lower air intake in front spoiler: Titanium-color screened center section, vs. full-width opening with lateral slats in black
- Trim outline around side windows: chrome, vs. black

- Body cowl air intakes, roof-seam trim & trunk lift grip
- Doorsill trims: aluminum/rubber, vs. all-rubber (visible when doors are opened)
- Chrome-tipped exhaust outlets.

### **Power front seats with memory**

Available in the Premium Package or as a stand-alone option for the 325i Sedan, 8-way power seats are standard in the 330i Sedan.

### **Harman Kardon audio system standard**

The Harman Kardon audio system is standard in the 330i and other 330 models, optional in the 325 models. For details on this premium system, see pages 165-166.

### **4-function On-board Computer**

Another 325i option (Premium Package or stand-alone) that is standard in the 330i.

### **Premium Package**

Because 330i standard equipment is more extensive than that of the 325i, the 330i's Premium Package is composed differently. It includes leather upholstery as well as front-seat power lumbar support, which is not available in the 325i. For full details, see page 169.

### **Sport Package**

Even sportier than the 325i Sport Package, with 17-in. wheels and Z-rated tires of differentiated front/rear sizes and M aerodynamic body components as upgrades specific to the 330i Package.

### **Performance Package**

This new Package, described on pages 171-172, is offered exclusively on the 330i Sedan.

### **Additional options available**

Two additional stand-alone options are available for the 330i Sedan that are not offered on the 325i Sedan:

- Run-flat tires/wheels with Tire Pressure Monitor.
- Silver Cube interior trim, available only in combination with the Performance Package.

With the run-flat option, the spare wheel/tire is a space-saver.

### **330xi Sedan features**

In addition to or in place of the features listed for the 330i Sedan, the 330xi Sedan includes:

#### **All-wheel drive**

This is the chief distinguishing feature between the 330xi and 330i. It is described in detail on pages 158-159.

The AWD system adds 198 lb. to the 330i Sedan with manual transmission, 176 lb. with automatic; performance data and EPA mileage ratings are affected, as summarized on pages 214-215.

#### **Sport Package**

The 330xi Sport Package differs from that for the 330i as follows:

- **No sport suspension.** 3 Series AWD models have a specific suspension calibration, the same for standard- and Package-equipped vehicles.
- **Run-flat tires.** The 330i's Sport Package comes with 17 x 7.5 front/17 x 8.5 rear M Double Spoke wheels carrying 225/45ZR-17 F / 245/40ZR-17 R performance tires. That for the 330xi retains the standard 17 x 7.0 wheel size and adopts the special wheels (Double Spoke, #98) and 205/50R-17 V-rated run-flat tires of the run-flat option.

## 3 Series specific features by model

This information helps position and distinguish the models in the Series.

### 330Ci Coupe features

In addition to or in place of the features listed for the 325Ci Coupe, the 330Ci model includes:

#### 3.0-liter DOHC inline 6-cylinder engine

Essentially identical in all engineering features to the 2.5-liter engine, but larger and more powerful. Described on page 154.

#### Larger brakes

The 330Ci offers the same upgrade in brake dimensions over the 325Ci as the 330i vs. 325i:

Front – 12.8-in. diameter, vs. 11.8  
Rear – 12.6-in. diameter, vs. 11.6.

#### Standard 17-in. wheels and tires

Like the 330i Sedan, the 330Ci Coupe comes standard with 17-in. wheels and 205/50R-17 V-rated all-season tires. The wheels are in a Double Spoke design (#98) that is newly standard for '04 and is shared with the 330Ci Convertible. (This is also the same wheel that's used with the optional run-flat tires.) The 325Ci comes with 16-in. wheels and 205/55R-16 H-rated all-season tires.

#### Exterior details

The following exterior details distinguish the 330Ci from its 325Ci counterpart:

- Titanium-finish headlight surrounds
- Lower air intake in front spoiler: Titanium-finish screened center section, slats and foglight shells, vs. full-width opening with lateral slats and foglight surrounds in black
- Chrome-tipped exhaust outlets.

Note that these differences are less extensive than for the 330i vs. 325i Sedans; this is because both Coupes include many of the exterior upgrades that distinguish the 330i Sedan.

#### Premium Package

Compared to the 325Ci Coupe's Premium Package, that for the 330Ci adds leather upholstery and power lumbar support, and omits power seats (which are standard here). For full details, see **options & accessories**, page 169.

#### Sport Package

In addition to power front sport seats (325Ci: manual), the 330Ci Coupe's Sport Package includes a sportier set of wheels and tires: 17-in. wheels and Z-rated performance tires in differentiated front/rear sizes. For full details, see page 171.

#### Additional wheel-and-tire options

The 330Ci is offered with two stand-alone options that are not available on 325 models:

- 17-in. run-flat wheels and tires with Tire Pressure Monitor
- 18-in. wheels and Z-rated performance tires in differentiated front/rear sizes, available in combination with the Sport Package. New 2-piece Double Spoke Composite design for '04.

With each of these options, the spare wheel/tire is a space-saver.

## **330Ci Convertible features**

In addition to or in place of the features listed for the 325Ci Convertible, the 330Ci Convertible includes:

### **3.0-liter DOHC inline 6-cylinder engine**

Essentially identical in all engineering features to the 325i engine, but larger and more powerful. Described on page 154.

### **Larger brakes**

The 330Ci Convertible offers the same upgrade in brake dimensions over the 325Ci Convertible as the 330i vs. 325i:

Front – 12.8-in. diameter, vs. 11.8  
Rear – 12.6-in. diameter, vs. 11.6.

### **Standard 17-in. wheels and tires**

Like the 330Ci Coupe, the Convertible comes standard with 17-in. wheels and 205/50R-17 V-rated all-season tires, vs. the 325Ci Convertible's 16-in. wheels and 205/55R-16 H-rated all-season tires. The wheels for both models are called Double Spoke, but are different designs: 325Ci #88, 330Ci #98.

### **Exterior details**

The following exterior details distinguish the 330Ci Convertible from its 325Ci counterpart:

- Titanium-finish headlight surrounds

- Lower air intake in front spoiler: Titanium-finish screened center section, slats and foglight shells, vs. full-width opening with lateral slats and foglight surrounds in black
- Chrome-tipped exhaust outlets.

### **Standard power softtop**

The fully automatic power softtop, available for the 325Ci Convertible via its Premium Package, is standard on the 330Ci model.

### **Standard leather upholstery**

This is the only 3 Series model that comes standard with leather upholstery. In the 325Ci Convertible, leather is a stand-alone option.

### **Additional wheel-and-tire options**

The 330Ci Convertible is offered with two stand-alone options that are not available on 325 models:

- 17-in. run-flat wheels and tires with Tire Pressure Monitor
- 18-in. wheels and Z-rated performance tires in differentiated front/rear sizes, available in combination with the Sport Package. New 2-piece Double Spoke Composite design for '04.

With each of these options, the spare wheel/tire is a space-saver.

## Standard & optional features

### 2003-04 3 Series 325 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

<b>Performance &amp; efficiency</b>	<b>2003 325i/xi Sedan</b>
2.5-liter DOHC 24-valve inline 6-cylinder engine with – Double VANOS steplessly variable valve timing <sup>1</sup>	S
Aluminum block & cylinder head	S
Dual resonance intake system	S
Electronic throttle system	S
Electronically controlled engine cooling	S
Direct ignition system with knock control	S
5-speed manual transmission with direct 5th gear	S
5-speed STEPTRONIC <sup>2</sup> auto. trans. with Adaptive Transmission Control & Selectable Sport mode	OPT
<b>Handling, ride &amp; braking</b>	<b>2003 325i/xi Sedan</b>
Strut-type front suspension with forged-aluminum lower arms, hydraulic cushions	S
Central Link rear suspension with aluminum upper transverse links	S
Rear subframe on 4 mounts, with acoustically decoupled mounting of suspension system	S
Acoustically decoupled final drive with hydraulic rear mount	S
Front & rear anti-roll (stabilizer) bars	S
Twin-tube gas-pressure shock absorbers	S
Sport suspension calibration	ZSP/NA <sup>3</sup>
Engine-speed-sensitive variable-assist power steering	S
4-wheel ventilated disc brakes	S
Dynamic Stability Control (DSC), including all-speed traction control, Dynamic Traction Control (325i/Ci models) or Hill Descent Control (325xi models), electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance stability enhancement	S
Fulltime all-wheel drive	S <sup>3</sup>
16 x 7.0 cast-alloy wheels: Star Spoke design #45	S
<b>Double Spoke design #88</b>	NA
17 x 7.0 cast-alloy wheels, Radial Spoke design #73	ZSP <sup>3</sup>
17 x 8.0 cast-alloy wheels: Star Spoke design #96	ZSP
Star Spoke design <b>#119</b>	NA
205/55R-16 H-rated all-season tires	S
205/50R-17 V-rated all-season tires	ZSP <sup>3</sup>
225/45R-17 W-rated performance tires	ZSP

S – Standard OPT – Optional NA – Not available ZSP – Sport Package

1 – VANOS = **V**ARIABLE **N**OCKENWELLEN **S**TEUERUNG = variable camshaft control, or variable valve timing.

2 – BMW's system of manual shift control for an automatic transmission.

3 – Specific data for 325xi Sedan/Sport Wagon.

2003 325i/xi Sport Wagon	2004 325Ci Coupe	2004 325Ci Convertible
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S

OPT

OPT

OPT

2003 325i/xi Sport Wagon	2004 325Ci Coupe	2004 325Ci Convertible
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
ZSP/NA <sup>3</sup>	S	ZSP
S	S	S
S	S	S

S

S

S

S<sup>3</sup>

NA

NA

S

NA

NA

NA

**S****S**ZSP<sup>3</sup>

NA

NA

ZSP

NA

NA

NA

**ZSP****ZSP**

S

S

S

ZSP<sup>3</sup>

NA

NA

ZSP

ZSP

ZSP

## Standard & optional features

### 2003-04 3 Series 325 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

<b>Exterior &amp; aerodynamics</b>	<b>2003 325i/xi Sedan</b>
Front & rear body-color bumpers	S
Halogen Free Form low-beam headlights	S
Xenon low- and high-beam headlights w/auto-leveling	OPT
Xenon low- & high-beam <b>Adaptive</b> headlights with auto-leveling	NA
<b>Automatic headlight control</b>	<b>ZPP</b>
Daytime running lamps	S <sup>4</sup>
High-intensity headlight cleaning system	ZCW
Halogen Free Form front foglights	S
<b>Adaptive brakelights</b>	NA
2-speed + intermittent windshield wipers, adjustable & car-speed-sensitive interval, single-wipe operation	S
Heated windshield-washer jets	S
<b>Rain-sensing windshield wipers</b>	<b>ZPP</b>
Park Distance Control	<b>OPT</b>
Metallic paint	OPT
Chrome grille slats	NA
Body-color cowl air intakes	NA
Body-color roof-seam trim strips	NA
Body-color trunk or tailgate lift grip	NA
Chrome side-window trim	NA
Body-color side moldings	NA
Chrome-tipped exhaust outlets	NA/S <sup>3</sup>
Roof rails	NA
Tailgate with separately opening window, spoiler, wiper/washer	—
Fully lined softtop with magnesium hard cover & heated rear window	—
Fully lined, fully automatic power softtop with heated rear window	—
Convertible wind deflector	—
Removable hardtop	—
<b>Ergonomics, luxury &amp; convenience</b>	<b>2003 325i/xi Sedan</b>
Aluminum/rubber door-sill trim plates w/BMW lettering	NA
Vehicle & Key Memory	S
Keyless entry with multi-function remote control:	S
Selective unlocking	S <sup>4</sup>
Remote trunk/tailgate release	S
Dual power/heated outside mirrors	S

S – Standard OPT – Optional NA – Not available — – Not applicable

C – BMW Center-installed ZCW – Cold Weather Package ZPP – Premium Package

3 – Specific data for 325xi Sedan/Sport Wagon.

4 – Selectable via Vehicle Memory System (programming by BMW Center).

<b>2003 325i/xi Sport Wagon</b>	<b>2004 325Ci Coupe</b>	<b>2004 325Ci Convertible</b>
S	S	S
S	S	S
OPT	-	-
NA	<b>OPT</b>	<b>OPT</b>
<b>ZPP</b>	<b>S</b>	<b>S</b>
S <sup>4</sup>	S <sup>4</sup>	S <sup>4</sup>
ZCW	ZCW	ZCW
S	S	S
NA	<b>S</b>	<b>S</b>
S	S	S
S	S	S
<b>ZPP</b>	<b>S</b>	<b>S</b>
OPT	<b>OPT</b>	<b>OPT</b>
OPT	OPT	OPT
S	S	S
S	S	S
S	S	-
S	S	S
S	S	-
NA	S	S
NA/S <sup>3</sup>	NA	NA
S	NA	-
S	-	-
-	-	S
-	-	ZPP
-	-	C
-	-	OPT
<b>2003 325i/xi Sport Wagon</b>	<b>2004 325Ci Coupe</b>	<b>2004 325Ci Convertible</b>
NA	S	S
S	S	S
S	S	S
S <sup>4</sup>	S <sup>4</sup>	S <sup>4</sup>
S	S	S
S	S	S

## Standard & optional features

### 2003-04 3 Series 325 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

<b>Ergonomics, luxury &amp; convenience (cont.)</b>	<b>2003 325i/xi Sedan</b>
Automatic-dimming inside rearview mirror	ZPP
BMW Universal Transceiver (garage-door opener)	C
Courtesy lights with fade-in/fade-out feature, actuation from remote control, automatic-switch-on when engine is turned off, separately controlled left/right front & rear reading lights, front footwell lighting & illuminated visor vanity mirrors	S
BMW Ambiance Lighting	S
Locking glove compartment with rechargeable take-out flashlight	S
Leather-covered tilt/telescopic steering wheel: With fingertip cruise, audio & phone <sup>5</sup> controls, 385 mm/4 spokes	S
With fingertip cruise, audio & phone <sup>5</sup> controls, 375 mm/3 spokes	ZSP
6-way adjustable front seats	S
8-way power front seats with 3-position driver's-seat & outside-mirror memory <sup>6</sup>	OPT/ZPP
10-way power front seats with 3-position driver's-seat & outside-mirror memory <sup>6</sup>	NA
10-way front sport seats	ZSP
8-way power + 2-way manual front sport seats with 3-position driver's-seat & outside-mirror memory <sup>6</sup>	OPT/ZPP + ZSP <sup>7</sup>
10-way power + 2-way manual front sport seats with 3-position driver's-seat & outside-mirror memory <sup>6</sup>	NA
Easy-entry feature for rear seating	—
Fold-up front center armrest with storage compartment	<b>S</b>
3-stage, thermostatically controlled heated front seats	OPT/ZCW
Electronic analog instrumentation with servo-motor operation	S
LCD main & trip odometers	S
Service Interval Indicator with miles-to-service readout	S
Check Control monitor system (pictogram display)	S
4-function Onboard Computer	OPT/ZPP
BMW Onboard Navigation System <b>with DVD database</b>	OPT <sup>8</sup>
Montana leather upholstery (seating surfaces, door trim, handbrake grip & boot, manual shift-lever boot)	OPT
Leather shift knob	S

S – Standard OPT – Optional NA – Not available — – Not applicable  
 ZCW – Cold Weather Package ZPP – Premium Package ZSP – Sport Package  
 5 – When equipped with BMW Cellular Phone System (BMW Center-installed).  
 6 – Also includes automatic tilt-down of right outside mirror for backing up.

2003 325i/xi Sport Wagon	2004 325Ci Coupe	2004 325Ci Convertible
ZPP	ZPP	ZPP
C	C	ZPP
S	S	S
S	S	S
S	S	S
S	-	-
ZSP	S	S
S	S	-
OPT/ZPP	OPT/ZPP	-
NA	NA	S
ZSP	ZSP	-
OPT/ZPP + ZSP <sup>7</sup>	OPT/ZPP + ZSP <sup>7</sup>	-
NA	NA	ZSP
-	S	S (power)
<b>S</b>	S	S
OPT/ZCW	OPT/ZCW	OPT/ZCW
S	S	S
S	S	S
S	S	S
S	S	S
OPT/ZPP	S	S
OPT <sup>8</sup>	OPT	OPT
OPT	OPT	OPT
S	S	S

7 – When Premium & Sport Packages are combined, or when stand-alone power-seats option & Sport Package are combined.

8 – Requires Premium Package or Onboard Computer.

## Standard & optional features

### 2003-04 3 Series 325 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

<b>Ergonomics, luxury &amp; convenience (cont.)</b>	<b>2003 325i/xi Sedan</b>
Titanium-finish interior trim	S
Genuine Myrtle wood interior trim	OPT/ZPP
Power windows with 1-touch operation <sup>9</sup> , anti-trapping feature, opening from remote, opening & closing from exterior lock	S
All-window switch with 1-touch open	NA
Automatic climate control with microfilter ventilation & automatic recirculation control	S
2-way power moonroof with sliding interior shade, wind deflector, 1-touch open/close, opening from remote, opening & closing from exterior lock	OPT/ZPP
Anti-theft AM/FM/CD audio system with Radio Data System & diversity antenna system	S
Harman Kardon audio system with upgraded speakers including subwoofer(s), vehicle-speed-sensitive equalization & Spatial Enhancement <sup>10</sup>	OPT
Cassette player instead of in-dash CD player	NC
Pre-wiring for CD changer	S
6-disc CD changer	C
Pre-wiring for BMW Cellular Phone System	S
BMW Cellular Phone System	C
Dual front cupholders	S
Console storage compartment	S
Seatback storage nets	S
Fold-up center rear armrest	OPT <sup>12</sup>
Split folding rear seats	OPT
Ski bag	OPT <sup>14</sup> /ZCW
Fully finished trunk:	S
Reversible floormat to keep smaller cargo from sliding	S
Drop-down toolkit	S
Fully finished, carpeted variable cargo compartment with floor straps, retractable cover, cargo net & accessory electrical outlet	—
Interior trunk or tailgate release	S
Variable softtop compartment	—
Full-use spare wheel & tire (alloy wheel)	S

S – Standard OPT – Optional NA – Not available — – Not applicable

C – BMW Center-installed ZCW – Cold Weather Package

ZPP – Premium Package

9 – Sedan & Sport Wagon – all door windows 1-touch open/close; Coupe – door windows 1-touch open/close, rear side windows 1-touch open; Convertible – driver's window 1-touch open/close, all other windows 1-touch open.

10 – Includes all features of standard audio system; speaker configuration & number of speakers vary according to model.

2003 325i/xi Sport Wagon	2004 325Ci Coupe	2004 325Ci Convertible
S	S	S
OPT/ZPP	OPT/ZPP	OPT/ZPP
S	S	S
NA	NA	S
S	S	S
<b>S</b>	OPT/ZPP	-
S	S	S
OPT	OPT	OPT
NC	NC	NC
S	S	S
C	C	C
S	S	S
C	C	C
S	S	S
S	S	S <sup>11</sup>
S	S	S
S <sup>13</sup>	S	NA
S	S	NA
ZCW	ZCW	ZCW
-	S	S
-	S	NA
-	S	S
S	-	-
S	S	S
-	-	S
OPT	S	NA

11 – Configured as sunglasses compartment.

12 – Included with leather upholstery and/or folding rear seats.

13 – Includes storage compartment, dual cupholders & center head restraint.

14 – Included with optional folding rear seats.

## Standard & optional features

### 2003-04 3 Series 325 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

<b>Safety &amp; security</b>	<b>2003 325i/xi Sedan</b>
Dual-airbag Supplementary Restraint System with 2-stage Smart Airbags	S
Height-adjustable front safety belts with automatic tensioners & force limiters	S
Seat-integrated front safety belts	NA
Automatic-locking retractors (ALR) on all passenger safety belts (for installation of child restraint seats)	S
Head restraints at all seating positions	<b>S</b>
Interlocking door anchoring system for side impacts	S
Front-seat Head Protection System (HPS)	S
Rollover Protection System (RPS)	—
Front-seat side-impact airbags	S
Rear-seat side-impact airbags	OPT
Integrated deployment logic for safety-belt tensioners, airbags & post-impact safety measures	S
Battery Safety Terminal	S
Central locking system with double-lock anti-theft feature, selective unlocking	S
Coded Driveaway Protection	S
Pathway Lighting	S <sup>4</sup>
Pre-wiring for alarm system	S
Alarm system with operation from keyhead remote, motion detector	C

S – Standard OPT – Optional NA – Not available

— – Not applicable C – BMW Center-installed

4 – Selectable via Vehicle Memory System (programming by BMW Center).

15 – Combined power adjustment of head-restraint & belt height.

16 – Includes glove compartment.

17 – No motion detector in Convertible.

2003 325i/xi Sport Wagon	2004 325Ci Coupe	2004 325Ci Convertible
S	S	S
S	S	S <sup>15</sup>
NA	NA	S
S	S	S
S	NA	S
S	S	S
S	S	NA
-	-	S
S	S	S
OPT	OPT	OPT
S	S	S
S	S	S
S	S	S <sup>16</sup>
S	S	S
S <sup>4</sup>	S <sup>4</sup>	S <sup>4</sup>
S	S	S
C	C	C <sup>17</sup>

## Standard & optional features

### 2003-04 3 Series 330 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

#### Performance & efficiency

3.0-liter DOHC 24-valve inline 6-cylinder engine with –  
Double VANOS steplessly variable valve timing<sup>1</sup>

Aluminum block & cylinder head

Dual resonance intake system

Electronic throttle system

Electronically controlled engine cooling

Direct ignition system with knock control

Special camshafts, engine management & exhaust pipes,  
155-mph top-speed limiter

**6-speed** manual transmission

**Short shift lever**

5-speed STEPTRONIC<sup>3</sup> automatic transmission with Adaptive  
Transmission Control & Selectable Sport mode

#### Handling, ride & braking

Strut-type front suspension with forged-aluminum lower arms,  
hydraulic cushions

Central Link rear suspension with cast-aluminum upper transverse links

Rear subframe, w/acoustically decoupled mounting of suspension sys.

Acoustically decoupled final drive with hydraulic rear mount

Front & rear anti-roll (stabilizer) bars

Twin-tube gas-pressure shock absorbers

Sport suspension calibration

**BMW M sport suspension calibration with extra-rigid forward  
bushings in front suspension**

Engine-speed-sensitive variable-assist power steering

4-wheel ventilated disc brakes

Dynamic Stability Control (DSC), including all-speed traction control,  
Dynamic Traction Control (330i/Ci) or Hill Descent Control (330xi),  
electronic brake proportioning, antilock braking (ABS), Dynamic  
Brake Control & cornering/avoidance stability enhancement

Fulltime all-wheel drive

17 x 7.0 cast-alloy wheels:

Radial Spoke design #73

Double Spoke design #98

17 x 7.5 front / 17 x 8.5 rear alloy wheels, M Double Spoke design #68M

**18 x 8.0 front / 18 x 8.5 rear alloy wheels:  
Double Spoke Composite design #71, 2-piece**

**M Double Spoke #135M**

205/50R-17 V-rated all-season tires

205/50R-17 V-rated run-flat tires & **Tire Pressure Monitor**

225/45ZR-17 front / 245/40ZR-17 rear performance tires

225/40ZR-18 front / 255/35ZR-18 rear performance tires

S – Standard    OPT – Optional

NA – Not available

ZHP – Performance Package

ZSP – Sport Package

1 – VANOS = **VA**riable **NO**ckenwellen

**St**euering = variable camshaft control,  
or variable valve timing.

2003 330i/xi Sedan	2004 330Ci Coupe	2004 330Ci Convertible
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
ZHP <sup>2</sup>	NA	NA
<b>S</b>	<b>S</b>	<b>S</b>
<b>ZHP<sup>2</sup></b>	NA	NA

OPT

OPT

OPT

2003 330i/xi Sedan	2004 330Ci Coupe	2004 330Ci Convertible
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
S/NA <sup>4</sup>	S	ZSP
<b>ZHP<sup>2</sup></b>	NA	NA
S	S	S
S	S	S

S

S

S

S<sup>4</sup>

NA

NA

S

NA

NA

OPT/ZSP<sup>4</sup>

**S**

**S**

ZSP/NA<sup>4</sup>

ZSP

ZSP

NA

OPT<sup>5</sup>

OPT<sup>5</sup>

**ZHP/NA<sup>4</sup>**

NA

NA

S

S

S

OPT/ZSP<sup>4</sup>

OPT

OPT

ZSP/NA<sup>4</sup>

ZSP

ZSP

**ZHP/NA<sup>4</sup>**

OPT<sup>5</sup>

OPT<sup>5</sup>

2 – 330i Sedan only.

3 – BMW's system of manual shift control for an automatic transmission.

4 – Specific data for 330xi Sedan.

5 – Require Sport Package.

## Standard & optional features

### 2003-04 3 Series 330 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

#### Exterior & aerodynamics

Front & rear body-color bumpers

Halogen Free Form low-beam headlights

Xenon low- & high-beam **Adaptive** headlights with auto-leveling

Automatic headlight control

Daytime running lamps

High-intensity headlight cleaning system

Halogen Free Form front foglights

#### Adaptive brakelights

2-speed + intermittent windshield wipers, adjustable & car-speed-sensitive wiping interval, single-wipe operation

Heated windshield-washer jets

Rain-sensing windshield wipers

Park Distance Control

Aerodynamic body components:

Distinctive front bumper and foglight design, special rocker panels & rear apron

**BMW M front bumper/spoiler, rocker panels, rear bumper/apron/air diffuser & trunklid spoiler<sup>7</sup>**

Metallic paint

Chrome grille slats

Titanium-finish headlight surrounds

#### Anthracite-color headlight & foglight surrounds

Titanium-finish screen & slats in lower air intake

Titanium-finish foglight shells

Chrome side-window trim

#### High-gloss Shadowline side-window trim

Body-color side moldings

Chrome-tipped exhaust outlets

#### Large-diameter stainless-steel exhaust outlets

Fully lined, fully automatic power softtop with heated rear window

Convertible wind deflector

Removable hardtop

#### Ergonomics, luxury & convenience

Aluminum/rubber door-sill trim plates with BMW lettering

Vehicle & Key Memory

Keyless entry with multi-function remote control:

Selective unlocking

Remote trunk release

Dual power/heated outside mirrors

S – Standard    OPT – Optional    NA – Not available    — – Not applicable

ZCW – Cold Weather Package    ZHP – Performance Package (available only on 330i)

ZPP – Premium Package    ZSP – Sport Package

2003 330i/xi Sedan	2004 330Ci Coupe	2004 330Ci Convertible
S	S	S
S	S	S
OPT	OPT	OPT
ZPP	<b>S</b>	<b>S</b>
S <sup>6</sup>	S <sup>6</sup>	S <sup>6</sup>
ZCW	ZCW	ZCW
S	S	S
NA	<b>S</b>	<b>S</b>
S	S	S
S	S	S
ZPP	<b>S</b>	<b>S</b>
OPT	OPT	OPT
ZSP	NA	NA
<b>ZHP</b>	NA	NA
OPT	OPT	OPT
S	S	S
S	S	S
<b>ZHP</b>	NA	NA
S	S	S
NA	S	S
S	S	-
<b>ZHP</b>	NA	NA
NA	S	S
S	S	S
<b>ZHP</b>	NA	NA
-	-	S
-	-	C
-	-	OPT
2003 330i/xi Sedan	2004 330Ci Coupe	2004 330Ci Convertible
S	S	S
S	S	S
S	S	S
S <sup>6</sup>	S <sup>6</sup>	S <sup>6</sup>
S	S	S
S	S	S

6 – Selectable via Vehicle Memory System (programming by BMW Center).

7 – Spoiler may be deleted at no extra cost.

## Standard & optional features

### 2003-04 3 Series 330 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

#### **Ergonomics, luxury & convenience (cont.)**

Automatic tilt-down of right outside mirror for visibility of curb when backing up

Automatic-dimming inside rearview mirror

BMW Universal Transceiver (garage-door opener)

Courtesy lights with fade-in/fade-out feature, actuation from remote control, automatic-switch-on when engine is turned off, separately controlled front & rear reading lights, front footwell lighting & illuminated visor vanity mirrors

BMW Ambiance Lighting

#### **Special instrumentation with red needles**

Aluminum-finish instrument trim rings

Locking glove compartment with rechargeable take-out flashlight

Tilt/telescopic steering wheel with fingertip cruise, audio & phone<sup>8</sup> controls:

385 mm/4 spokes, leather-wrapped

375 mm/3 spokes, leather-wrapped

375 mm/3 spokes, **Alcantara-wrapped M Sport**

8-way power front seats with 3-position driver's-seat & outside-mirror memory

10-way power front seats with 3-position driver's-seat & outside-mirror memory

8-way power + 2-way manual front sport seats with 3-position driver's-seat & outside-mirror memory

10-way power + 2-way manual front sport seats with 3-position driver's-seat & outside-mirror memory

4-way power lumbar support

Easy-entry feature for rear seating

Fold-up front center armrest with storage compartment

3-stage, thermostatically controlled heated front seats

Electronic analog instrumentation with servo-motor operation

LCD main & trip odometers

Service Interval Indicator with miles-to-service readout

Check Control monitor system (pictogram display)

4-function Onboard Computer

BMW Onboard Navigation System **with DVD data base**

Leatherette upholstery

#### **Cloth/Alcantara upholstery**

#### **Anthracite-color headliner**

Montana leather upholstery (seating surfaces, door trim, handbrake grip & boot, manual shift-lever boot)

Leather shift knob

S – Standard OPT – Optional NA – Not available

— – Not applicable C – BMW Center-installed

ZCW – Cold Weather Package ZHP – Performance Package (available only on 330i)

ZPP – Premium Package ZSP – Sport Package

2003 330i/xi Sedan	2004 330Ci Coupe	2004 330Ci Convertible
S	S	S
ZPP	ZPP	ZPP
C	C	ZPP
S	S	S
S	S	S
<b>ZHP</b>	NA	NA
S	S	S
S	S	S
S	NA	NA
ZSP	S	S
<b>ZHP</b>	NA	NA
S	S	-
NA	NA	S
ZSP/ <b>ZHP</b>	ZSP	-
NA	NA	ZSP
ZPP	ZPP	ZPP
-	S	S (power)
S	S	S
OPT/ZCW	OPT/ZCW	OPT/ZCW
S	S	S
S	S	S
S	S	S
S	S	S
S	S	S
OPT	OPT	OPT
S	S	-
<b>ZHP</b>	NA	NA
<b>ZHP</b>	NA	NA
OPT/ZPP	OPT/ZPP	S
S	S	S

8 - When equipped with BMW Cellular Phone System (BMW Center-installed).  
9 - Requires Performance Package.

## Standard & optional features

### 2003-04 3 Series 330 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

#### **Ergonomics, luxury & convenience (cont.)**

##### **Short shift lever with M shift knob**

Titanium-finish interior trim

Genuine Myrtle wood interior trim

**Black Cube interior trim**

**Silver Cube interior trim**

Power windows with 1-touch operation<sup>10</sup>, anti-trapping feature, opening from remote, opening & closing from exterior lock

All-window switch with 1-touch open

Automatic climate control with microfilter ventilation & automatic recirculation control

2-way power moonroof with sliding interior shade, wind deflector, 1-touch open/close, anti-trapping feature, opening from remote, opening & closing from exterior lock

Harman Kardon anti-theft AM/FM stereo radio/cassette audio system with premium speakers<sup>11</sup>, subwoofer(s), vehicle-speed-sensitive equalization & Spatial Enhancement

Cassette player instead of in-dash CD player

Pre-wiring for CD changer

6-disc CD changer

Pre-wiring for BMW Cellular Phone System

BMW Cellular Phone System

Dual front cupholders

Console storage compartment

Seatback storage nets

Fold-up center rear armrest

Split folding rear seats

Ski bag

Heated rear window

Fully finished trunk:

Reversible floormat to keep smaller cargo from sliding

Drop-down toolkit

Variable softtop compartment

Full-use spare wheel & tire (alloy wheel)

S – Standard    OPT – Optional    NA – Not available    — – Not applicable

C – BMW Center-installed    ZCW – Cold Weather Package

9 – Requires Performance Package.

10 – Sedan – all door windows 1-touch open/close; Coupe – door windows 1-touch open/close, rear side windows 1-touch open; Convertible – driver's window 1-touch open/close, all other windows 1-touch open.

2003 330i/xi Sedan	2004 330Ci Coupe	2004 330Ci Convertible
ZHP	NA	NA
S	S	S
OPT/ZPP	OPT/ZPP	OPT/ZPP
ZHP	NA	NA
NC <sup>9</sup>	NA	NA
S	S	S
NA	NA	S
S	S	S
OPT/ZPP	OPT/ZPP	-
S	S	S
NC	NC	NC
S	S	S
C	C	C
S	S	S
C	C	C
S	S	S
S	S	S <sup>12</sup>
S	S	S
OPT <sup>13</sup>	S	S
OPT/ZCW	S	NA
OPT <sup>14</sup> /ZCW	ZCW	ZCW
S	S	S
S	S	NA
S	S	S
-	-	S
S <sup>15</sup>	S <sup>15</sup>	NA

11 – Sedan & Coupe – 12 speakers incl. 2 subwoofers; Convertible – 11 speakers incl. 1 subwoofer.

12 – Configured as sunglasses compartment.

13 – Included with leather upholstery and/or folding rear seats.

14 – Included with optional folding rear seats.

15 – 330i/Ci models: With 17-in. Sport Package wheels, spare matches front wheels & tires; with run-flat & 18-in. equipment, spare is a space-saver.

## Standard & optional features

### 2003-04 3 Series 330 models

**Bold** within table indicates new feature relative to corresponding previous year's model.

#### Safety & security

Dual-airbag Supplementary Restraint System with 2-stage Smart Airbags

Height-adjustable front safety belts with automatic tensioners & force limiters

Seat-integrated front safety belts

Automatic-locking retractors (ALR) on all passenger belts (for installation of child restraint seats)

Head restraints at all seating positions

Interlocking door anchoring system for side impacts

Front-seat Head Protection System (HPS)

Rollover Protection System (RPS)

Front-seat side-impact airbags

Rear-seat side-impact airbags

Integrated deployment logic for safety-belt tensioners, airbags & post-impact safety measures

Battery Safety Terminal

Central locking system with double-lock anti-theft feature, selective unlocking

Coded Driveaway Protection

Pathway Lighting

Pre-wiring for alarm system

Alarm system with operation from keyhead remote, motion detector

S – Standard    OPT – Optional    NA – Not available    — – Not applicable

6 – Selectable via Vehicle Memory System (programming by BMW Center).

16 – Combined power adjustment of head-restraint & belt height.

17 – Includes glove compartment.

18 – No motion detector in Convertible.

2003 330i/xi Sedan	2004 330Ci Coupe	2004 330Ci Convertible
S	S	S
S	S	S <sup>16</sup>
NA	NA	S
S	S	S
<b>S</b>	NA	S
S	S	S
S	S	NA
-	-	S
S	S	S
OPT	OPT	OPT
S	S	S
S	S	S
S	S	S <sup>17</sup>
S	S	S
S <sup>6</sup>	S <sup>6</sup>	S <sup>6</sup>
S	S	S
C	C	C <sup>18</sup>

## Specifications

### 2003-04 3 Series 325 models

**Bold** indicates new specification relative to corresponding previous year's model.

<b>General</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Curb weight, lb.:		
Manual transmission	3219	3461
Automatic transmission	3307	3527
Weight distribution, front/rear, %:		
Manual transmission	50.3/49.7	52.6/47.4
Automatic transmission	50.9/49.1	53.0/47.0
Wheelbase, in.	107.3 <sup>1</sup>	
Track, front/rear, in.	57.9/58.4	57.9/58.3
Length, in.	176.0	176.0
Width, in.	68.5	68.5
Height, in.	55.7	56.5

<b>Body</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Type	Unitized all-steel structure <sup>1</sup>	
Aerodynamic drag coefficient	0.31	0.31
EPA size classification	Compact	Compact

<b>Accommodations</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Seating capacity, persons	5	5
Shoulder room, front/rear, in.	54.4/54.2	54.4/54.2
Head room, front/rear, in.:		
without moonroof	38.4/37.5	38.4/37.5
with moonroof	37.0/37.4	37.0/37.4
Leg room, front/rear, in.	41.4/34.6	41.4/34.6
EPA interior volume, cu ft.	90.8	90.8
EPA cargo volume, cu ft.	10.7 <sup>3</sup>	10.7 <sup>3</sup>

<b>Engine &amp; electrical</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Engine type	DOHC inline 24-valve 6-cylinder, Double VANOS steplessly variable valve timing <sup>1</sup>	
Bore x stroke, mm/in.	84.0 x 75.0 / 3.31 x 2.95 <sup>1</sup>	
Displacement, cc/cu in.	2494/152 <sup>1</sup>	
Compression ratio	10.5.1 <sup>1</sup>	
Power @ rpm, hp	184 @ 6000 <sup>1</sup>	
Torque @ rpm, lb.-ft.	175 @ 3500 <sup>1</sup>	
Engine-management system	Siemens MS 43 with knock control (2 sensors); variable valve timing, electronic throttle system, dual resonance intake system, engine cooling & other functions included in control strategy <sup>1</sup>	

1 – Specification applies to all models.

2 – With softtop raised.

3 – Can be expanded via folding rear seats (optional Sedans, standard Coupe, NA Convertible).

<b>2003 325i Sp Wg</b>	<b>2003 325xi Sp Wg</b>	<b>2004 325Ci Coupe</b>	<b>2004 325Ci Conv.</b>
3362	3594	3197	3560
3450	3627	3285	3627
47.7/52.3	50.1/49.9	50.4/49.6	48.9/51.1
48.4/51.6	50.0/50.0	51.1/48.9	49.2/50.8
57.9/58.4	57.9/58.3	57.9/58.4	57.9/58.4
176.3	176.3	176.7	176.7
68.5	68.5	69.2	69.2
55.5	56.3	53.9	54.0 <sup>2</sup>
<b>2003 325i Sp Wg</b>	<b>2003 325xi Sp Wg</b>	<b>2004 325Ci Coupe</b>	<b>2004 325Ci Conv.</b>
0.32	0.32	0.32	0.35
Small station wagon	Small station wagon	Sub-compact	Mini-compact
<b>2003 325i Sp Wg</b>	<b>2003 325xi Sp Wg</b>	<b>2004 325Ci Coupe</b>	<b>2004 325Ci Conv.</b>
5	5	5	4
54.4/54.2	54.4/54.2	54.5/52.7	54.5/45.9
–	–	37.5/36.5	38.0/36.4 <sup>2</sup>
37.0/37.6	37.0/37.6	36.3/36.2	–
41.4/34.4	41.4/34.4	41.7/33.2	41.7/32.0
90.7	90.7	84.4	80.0
25.7 <sup>4</sup>	25.7 <sup>4</sup>	9.5 <sup>3</sup>	7.7 <sup>5</sup>
<b>2003 325i Sp Wg</b>	<b>2003 325xi Sp Wg</b>	<b>2004 325Ci Coupe</b>	<b>2004 325Ci Conv.</b>

4 – Rear seats upright, cargo loaded to ceiling. With standard space-saver spare, an additional volume of 2 cu ft. is available under the cargo floor. More volume available with rear seats folded.

5 – With softtop lowered. Volume with softtop raised & variable softtop-compartment floor adjusted is approximately 15% greater.

## Specifications

### 2003-04 3 Series 325 models

**Bold** indicates new specification relative to corresponding previous year's model.

<b>Engine &amp; electrical (cont.)</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Fuel requirement	Premium unleaded <sup>1</sup>	
Fuel capacity, U.S. gal.	16.6 <sup>1</sup>	
Battery capacity, amp-hr.	80 <sup>1</sup>	
Alternator output rating, amp./W	120/1680 <sup>1</sup>	

<b>Drivetrain</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Drive system	Front engine/ rear-wheel drive	Front engine/ all-wheel drive
Manual transmission	5-speed <sup>1</sup> Getrag B	ZF C
Ratios: 1st	4.23:1	4.21:1
2nd	2.52:1	2.49:1
3rd	1.66:1	1.66:1
4th	1.22:1	1.24:1
5th	1.00:1	1.00:1
Reverse	4.04:1	3.85:1
Final drive ratio	3.15:1	3.23:1
Automatic transmission	5-speed STEPTRONIC with Adaptive Transmission Control & selectable Sport mode <sup>1</sup> : ZF 5 HP 19	
		GM 5
Ratios: 1st	3.67:1	3.45:1
2nd	2.00:1	2.21:1
3rd	1.41:1	1.59:1
4th	1.00:1	1.00:1
5th	0.74:1	0.76:1
Reverse	4.10:1	3.17:1
Final drive ratio	3.46:1 <sup>1</sup>	

<b>Chassis</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Body/frame construction	Unitized steel <sup>1</sup>	
Front suspension	Struts, arc-shaped forged-aluminum lower arms with hydraulic cushion, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar <sup>1</sup> ; 325Ci Coupe std., Sport Package except 325xi models: sport suspension calibration	
Rear suspension	Multi-link system with Central Links, upper & lower lateral links (upper link of cast aluminum), coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar <sup>1</sup> ; 325Ci Coupe std., Sport Package except 325xi models: sport suspension calibration	

<sup>1</sup> - Specification applies to all models.

2003 325i Sp Wg	2003 325xi Sp Wg	2004 325Ci Coupe	2004 325Ci Conv.
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2003 325i Sp Wg	2003 325xi Sp Wg	2004 325Ci Coupe	2004 325Ci Conv.
-----------------	------------------	------------------	------------------

Front engine/ rear-wheel drive	Front engine/ all-wheel drive	Front engine/ rear-wheel drive	Front engine/ rear-wheel drive
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Getrag B	ZF C	Getrag B	Getrag B
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4.23:1	4.21:1	4.23:1	4.23:1
--------	--------	--------	--------

2.52:1	2.49:1	2.52:1	2.52:1
--------	--------	--------	--------

1.66:1	1.66:1	1.66:1	1.66:1
--------	--------	--------	--------

1.22:1	1.24:1	1.22:1	1.22:1
--------	--------	--------	--------

1.00:1	1.00:1	1.00:1	1.00:1
--------	--------	--------	--------

4.04:1	3.85:1	4.04:1	4.04:1
--------	--------	--------	--------

3.46:1	3.23:1	3.15:1	3.46:1
--------	--------	--------	--------

ZF 5 HP 19	GM 5	ZF 5 HP 19	ZF 5 HP 19
------------	------	------------	------------

3.67:1	3.45:1	3.67:1	3.67:1
--------	--------	--------	--------

2.00:1	2.21:1	2.00:1	2.00:1
--------	--------	--------	--------

1.41:1	1.59:1	1.41:1	1.41:1
--------	--------	--------	--------

1.00:1	1.00:1	1.00:1	1.00:1
--------	--------	--------	--------

0.74:1	0.76:1	0.74:1	0.74:1
--------	--------	--------	--------

4.10:1	3.17:1	4.10:1	4.10:1
--------	--------	--------	--------

2003 325i Sp Wg	2003 325xi Sp Wg	2004 325Ci Coupe	2004 325Ci Conv.
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## Specifications

### 2003-04 3 Series 325 models

**Bold** indicates new specification relative to corresponding previous year's model.

<b>Chassis (cont.)</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Steering type	Rack & pinion, engine-speed-sensitive power assist <sup>1</sup>	
Overall ratio	13.7:1 <sup>1</sup>	
Turns lock-to-lock	3.0 <sup>1</sup>	
Turning circle, ft.	34.4	35.8
4-wheel ventilated disc brakes:		
Diameter, front, mm/in.	300/11.8 <sup>1</sup>	
Diameter, rear, mm/in.	294/11.6 <sup>1</sup>	
Wheels (standard)	Cast alloy, 16 x 7.0 <sup>1</sup>	
Wheels (optional)	Cast alloy <sup>1</sup> : 17 x 8.0 (ZSP)	17 x 7.0 (ZSP)
Tires (standard)	All-season, 205/55R-16 H-rated <sup>1</sup>	
Tires (optional)	All-season, 205/50R-17 V-rated <sup>6</sup> Performance, 225/45R-17 W-rated <sup>7</sup>	
Stability-enhancement system	Dynamic Stability Control (DSC), including all-speed traction control, Dynamic Traction Control (325i/Ci models) or Hill Descent Control (325xi models), electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance stability enhancement <sup>1</sup>	
<b>Performance data</b>	<b>2003 325i Sedan</b>	<b>2003 325xi Sedan</b>
Acceleration, 0-60 mph, sec., man./auto. <sup>8</sup>	7.1/8.1	7.6/8.8
Top speed, mph	128 <sup>1,9</sup>	
Fuel economy, EPA est. MPG, city/highway:		
manual transmission	20/29	19/27
automatic transmission	<b>20/28</b>	19/26

ZSP – Sport Package

1 – Specification applies to all models.

6 – Specification applies to 325xi models.

7 – Specification applies to all rear-drive models.

2003 325i Sp Wg	2003 325xi Sp Wg	2004 325Ci Coupe	2004 325Ci Conv.
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34.4	35.8	34.4	34.4
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17 x 8.0 (ZSP)	17 x 7.0 (ZSP)	17 x 8.0 (ZSP)	17 x 8.0 (ZSP)
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2003 325i Sp Wg	2003 325xi Sp Wg	2004 325Ci Coupe	2004 325Ci Conv.
-----------------	------------------	------------------	------------------

7.4/8.5	7.8/9.0	7.1/8.1	7.7/8.9
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20/29	19/26	20/29	19/27
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<b>20/28</b>	19/26	<b>20/28</b>	<b>18/26</b>
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8 – BMW AG test results. Actual acceleration results may vary depending on specification of vehicle; road and environmental conditions; testing procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

9 – Electronically limited.

## Specifications

### 2003-04 3 Series 330 models

**Bold** indicates new specification relative to corresponding previous year's model.

<b>General</b>	<b>2003 330i Sedan</b>
Curb weight, lb.:	
Manual transmission	3285
Automatic transmission	3362
Weight distribution, front/rear, %:	
Manual transmission	50.1/49.9
Automatic transmission	50.6/49.4
Wheelbase, in.	107.3 <sup>1</sup>
Track, front/rear, in.	57.9/58.4
Length, in.	176.0
Width, in.	68.5
Height, in.	55.1

<b>Body</b>	<b>2003 330i Sedan</b>
Type	Unitized all-steel structure <sup>1</sup>
Aerodynamic drag coefficient	0.31
EPA size classification	Compact

<b>Accommodations</b>	<b>2003 330i Sedan</b>
Seating capacity, persons	5
Shoulder room, front/rear, in.	54.4/54.2
Head room, front/rear, in.:	
without moonroof	38.4/37.5
with moonroof	37.0/37.4
Leg room, front/rear, in.	41.4/34.6
EPA interior volume, cu ft.	90.8
EPA cargo volume, cu ft.	10.7 <sup>3</sup>

<b>Engine &amp; electrical</b>	<b>2003 330i Sedan</b>
Engine type	DOHC inline 24-valve 6-cylinder, Double VANOS steplessly variable valve timing <sup>1</sup>
Bore x stroke, mm/in.	84.0 x 89.6 / 3.31 x 3.53 <sup>1</sup>
Displacement, cc/cu in.	2979/182 <sup>1</sup>
Compression ratio	10.2:1 <sup>1</sup>
Power @ rpm, hp	225 @ 5900 <sup>1</sup> <b>(330i ZHP: 225 @ 5900)</b>
Torque @ rpm, lb-ft.	214 @ 3500 <sup>1</sup> <b>(330i ZHP: 222 @ 3500)</b>
Engine-management system	Siemens MS 43 with knock control (2 sensors); variable valve timing, electronic throttle system, dual resonance intake system, engine cooling & other functions included in control strategy <sup>1</sup>

ZHP – 330i Performance Package (available only on 330i)

1 – Specification applies to all models.

2 – With softtop raised.

3 – Can be expanded via folding rear seats (optional Sedans, standard Coupe, NA Convertible).



# Specifications

## 2003-04 3 Series 330 models

**Bold** indicates new specification relative to corresponding previous year's model.

<b>Engine &amp; electrical (cont.)</b>	<b>2003 330i Sedan</b>
Fuel requirement	Premium unleaded <sup>1</sup>
Fuel capacity, U.S. gal.	16.6 <sup>1</sup>
Battery capacity, amp-hr.	80 <sup>1</sup>
Alternator output rating, amp./W	120/1680 <sup>1</sup>

<b>Drivetrain</b>	<b>2003 330i Sedan</b>
Drive system	Front engine/ rear-wheel drive
Manual transmission	<b>ZF Type H, 6-speed<sup>1</sup></b>
Ratios: 1st	<b>4.23:1<sup>1</sup></b>
2nd	<b>2.50:1<sup>1</sup></b>
3rd	1.66:1 <sup>1</sup>
4th	<b>1.23:1<sup>1</sup></b>
5th	1.00:1 <sup>1</sup>
6th	<b>0.85:1<sup>1</sup></b>
Reverse	<b>4.04:1<sup>1</sup></b>
Final drive ratio	2.93:1 ( <b>330i ZHP: 3.07:1</b> )
Automatic transmission	5-speed STEPTRONIC with Adaptive Trans. Cntrl. & selectable Sport mode <sup>1</sup> : ZF 5 HP 19
Final drive ratio	2.93:1 <sup>1</sup>
Ratios: 1st	3.67:1
2nd	2.00:1
3rd	1.41:1
4th	1.00:1
5th	0.74:1
Reverse	4.10:1
Final drive ratio	3.38:1

<b>Chassis</b>	<b>2003 330i Sedan</b>
Body/frame construction	Unitized steel <sup>1</sup>
Front suspension	Struts, arc-shaped forged-aluminum lower arms with hydraulic cushion, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar <sup>1</sup> ; 330i Sedan/330Ci Coupe std., 330Ci conv. ZSP: sport suspension calibration; <b>330i ZHP: M sport suspension calibration</b> )
Rear suspension	Multi-link system with Central Links, upper & lower lateral links (upper link of cast aluminum), coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar <sup>1</sup> ; 330i Sedan/330Ci Coupe std., 330Ci conv. ZSP: sport suspension calibration; <b>330i ZHP: M sport suspension calibration</b> )

ZHP – 330i Performance Package (available only on 330i) ZSP – Sport Package



## Specifications

### 2003-04 3 Series 330 models

**Bold** indicates new specification relative to corresponding previous year's model.

<b>Chassis (cont.)</b>	<b>2003 330i Sedan</b>
Steering type	Rack & pinion, engine-speed-sensitive power assist <sup>1</sup>
Overall ratio	13.7:1 <sup>1</sup>
Turns lock-to-lock	3.0 <sup>1</sup>
Turning circle, ft.	34.4
4-wheel ventilated disc brakes:	
Diameter, front, mm/in.	325/12.8 <sup>1</sup>
Diameter, rear, mm/in.	320/12.6 <sup>1</sup>
Wheels (standard)	Cast alloy, 17 x 7.0 <sup>1</sup>
Wheels (optional)	Cast alloy, 17 x 7.5 front/ 17 x 8.5 rear (330i/Ci Sport Package)  Cast alloy, 17 x 7.0 (run-flat option <sup>1</sup> & <b>330xi Sport Package</b> )  Cast alloy, 18 x 8.0 front/ 18 x 8.5 rear (330i/Ci sport option) <sup>5</sup>
Tires (standard)	All-season, 205/50R-17 V-rated <sup>1</sup>
Tires (optional)	Performance, 225/45RZR-17 front / 245/40ZR-17 rear (330i/Ci Sport Package)  Run-flat, 205/50R-17 V-rated (run-flat option <sup>1</sup> & <b>330xi Sport Package</b> )  Performance, 225/40ZR-18 front/ 255/35ZR-18 rear ( <b>330i ZHP</b> , 330Ci sport option <sup>5</sup> )
Stability-enhancement system	Dynamic Stability Control (DSC), including all-speed traction control, Dynamic Traction Control (330i/Ci) or Hill Descent Control (330xi), electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance stability enhancement <sup>1</sup>

<b>Performance data</b>	<b>2003 330i Sedan</b>
Acceleration, 0-60 mph, sec., man./auto. <sup>6</sup>	6.4/7.0 ( <b>330i ZHP, manual only: 5.9</b> )
Top speed, mph	128 <sup>1,7</sup> ( <b>330ZHP: 155<sup>7</sup></b> )
Fuel economy, EPA est. MPG, city/highway:	
manual transmission	<b>20/30</b>
automatic transmission	20/28

1 – Specification applies to all models.

5 – Require Sport Package.

6 – BMW AG test results. Actual acceleration results may vary depending on specification of vehicle; road and environmental conditions; testing procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

7 – Electronically limited.

**2003 330xi Sedan****2004 330Ci Coupe****2004 330Ci Convertible**

35.8

34.4

34.4

**2003 330xi Sedan****2004 330Ci Coupe****2004 330Ci Convertible**

6.9/7.5

6.4/7.0

6.9/7.5

**20/29****20/30****19/28**

18/25

**19/27****18/25**

## 2003 Z4 Roadster Series: Not just a successor to the Z3, but a whole new class of sports car

Much of the world may expect the Z4 to be a direct successor to the hugely successful BMW Z3. Indeed, as the Z3 came to the conclusion of its production life at the end of September 2002, the Z4 began its career with a production start the next month. But there is much more to the Z4's debut than just "successor replaces predecessor," for the Z4 puts BMW in a significantly more sophisticated position in the roadster market.

Built on a longer wheelbase, the Z4 is also notably wider and somewhat longer than the Z3, while employing advanced engineering to keep its weight increase to a minimum (+33 lb. for the 2.5i, +88 lb. for the 3.0i). More importantly, the Z4 expresses a popular traditional concept – that of the sport roadster – in utterly new terms of unique design, contemporary engineering and comprehensive features. The Z4 is the first of the next-generation premium roadsters – and as such gets a valuable head start on the upcoming next generations of its key competitors.

Where the Z3 had a vintage simplicity about it that helped position it at lower price points than the SLK and Boxster, the Z4 places BMW in the heart of the field of sophisticated, full-featured sport roadsters. The Z3 began life (in 1996) with a 4-cylinder engine; the Z4 comes exclusively with 6-cylinder power, right from the start. Beyond this basic sophistication, the Z4 offers many amenities and options that were not available for the Z3. Yet the Z4 sacrifices none of the performance edge that made the Z3 so elementally appealing: quite the contrary!

The Z4's concept encompasses not just BMW's wonderful 6-cylinder engines, but new transmission choices, including a 6-speed manual and a 6-speed Sequential Manual Gearbox that reflects technology first seen in the M3. Its brand-new chassis is an evolution of the current 3 Series platform, arguably one of the world's greatest connections between drivers and the road. New electric power steering, standard run-flat tires in dimensions up to 18 inches, and expanded DSC functions are firmly anchored in a remarkably rigid, strong roadster body structure.

All this is clothed in an exciting new look, featuring fascinating interplays of concave and convex surfaces that lend new-age character to traditional long-hood proportions. Inside, the driver enjoys the Z4's innate sportiness to the fullest, while also savoring many new and welcome comfort and convenient features.

Finally, building on safety-oriented progress already introduced in the 7 Series, the Z4 is comprehensively engineered and equipped to provide occupants a high level of roadster safety.

Now that customers and critics have had a few months' opportunity to experience the Z4, proof of the Z4's success is rolling in. In the first three months of calendar '04, fully 4,632 Z4s were sold in the U.S.; this compares with 1,642 Z3s in the comparable '03 period. And here's what the independent experts have been writing about the new BMW Roadster:

- *Automobile Magazine*, January '03, naming the Z4 its Design of the Year: "We also think that this car and the forthcoming

1 Series BMWs, of which we got a glimpse from the CS1 show car at Geneva last year, will be enormously influential. “We think that the Z4 will tempt many designers to break old ‘rules’ about fair surfaces and create other cars with nonlinear shapes.”

- *Car and Driver*, January '03: “What we know for sure is that the Z4 is a premium sports car in a way the Z3 never was.”
- *Motor Trend*, January '03: “Overall, this is an even better, if controversial, Z Roadster.”
- *Road & Track*, January '03: “Hitting the highway, you are reminded that the BMW straight-6 is simply a classic engine – turbine-smooth, free-revving and quite torquey once the revs climb above about 2500 rpm. “The 6-speed Getrag shifts with nice, mechanical precision, and the pedals can be heel-and-toed...with a little practice. “The Z4’s ride is firm but not punishing. And in the corners, the BMW is absolutely planted. A combination of high grip, good balance and flat weight transfer without body roll give the car a sure-footed, reassuring feel in rapid transitions.”
- *AutoWeek*, December 16, '02: “The throttle responds in lightning-quick BMW fashion, steering feels razor-sharp and the suspension carves the curves like the Z3 could only dream of doing.”
- *Automobile Magazine*, December '02: “The Z4 is a wonderful driver. The 3.0i is as stable as the Swiss franc and without cowl shake, even on seriously pockmarked pavement. “The 3.0-liter in-line six is just about perfect.

“The new six-speed shifter is gorgeous, with short, precise throws and a honed fluency that reminds you that these people genuinely know how to tailor cars to enthusiast drivers. The brakes are fantastic, stopping the car with alacrity and great feedback.

“The Z4 grips like a mad dog; it has immediate turn-in and a virtually neutral handling balance.”

## What's new for 2003

### Both models

The Z4s are essentially all-new models; what follows here is a listing of their key new features. Except as noted, this information applies to vehicles produced from the 10/02 start of production:

### Performance & efficiency

- Evolved versions of BMW's strong, turbine-smooth inline 6-cylinder engines, both meeting ULEV (Ultra-Low Emissions Vehicle) standards for exhaust emissions
- Available 6-speed Sequential Manual Gearbox (SMG) as of 4/03 production
- Available Dynamic Driving Control (Sport button)<sup>1</sup>, offering two stages of throttle response and sporty transmission modes (Sequential Manual Gearbox and automatic transmission)

### Handling, ride & braking

- High-rigidity Roadster body/chassis unit with aluminum hood
- Strut-type front suspension with aluminum lower arms
- Central Link rear suspension with aluminum upper transverse links

1 – Included in Sport Package.

- Front and rear thrust plates, front strut braces and rear subframe braces for reinforcement of suspension attachments
- Vehicle-speed-sensitive electric power steering
- Available Dynamic Driving Control (Sport button)<sup>1</sup>, offering two stages of steering assist
- Upgraded brake systems
- Latest Dynamic Stability Control generation, including Dynamic Traction Control, electronic brake proportioning and Dynamic Brake Control
- Run-flat wheel-tire system with Flat Tire Monitor, standard (no spare tire)
- All-new selection of alloy wheels in 16-, 17- and 18-in. sizes
- All Sport Package tires W-rated (previously Z-rated)

### **Exterior & aerodynamics**

- Standard ellipsoid (projector) low-beam headlights
- Optional Xenon low- and high-beam headlights with auto-leveling
- Optional automatic headlight control<sup>2</sup>
- Optional rain-sensing windshield wipers<sup>2</sup>
- Side turn indicators behind BMW logos
- Adaptive brakelights
- Easier-to-operate manual softtop with heated glass rear window
- Optional fully automatic power softtop<sup>2</sup>

### **Ergonomics, luxury & convenience**

- Vehicle & Key Memory
- Multi-function remote control with selective door unlocking, remote trunk release
- BMW Ambiance Lighting
- Optional automatic-dimming inside and outside mirrors<sup>3</sup>

- Leather-covered tilt/telescopic sport steering wheel
- Standard 6-way adjustable sport seats
- Optional 8-way power sport seats with driver's-seat memory
- Optional 3-stage heated seats
- Service Interval Indicator with miles-to-service readout
- New-look, new-technology instrument cluster
- Optional BMW On-board Navigation System with DVD database, faster processor speed and other improvements
- Four available interior upholstery and trim treatments (different for 2.5i and 3.0i models)
- Power side-window sealing system
- Standard manual climate control with microfilter ventilation
- Optional automatic climate control with activated-charcoal microfilter ventilation, automatic recirculation control<sup>3</sup>
- New standard and optional audio systems
- Electric interior trunk release
- Variable softtop compartment to enhance available trunk space

### **Safety & security**

- Active Knee Protection
- Disable switch for passenger's-side airbag, with indicator light
- Intelligent Safety & Information System (ISIS) for deployment of safety systems

### **Z4 2.5i**

- Top speed not electronically controlled
- Optional Active Sport cloth/leather interior

### **Z4 3.0i**

- Specially tuned engine sound
- 6-speed manual transmission standard

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

### Performance & efficiency

#### 2.5-liter DOHC 24-valve inline 6-cylinder engine (Z4 2.5i)

As the smaller of two versions of the M54 inline 6-cylinder engine, this 2.5-liter version powers the more accessible Z4 model with silken smoothness, pleasant sound and lively performance. Though the official power and torque ratings (184 hp @ 6000 rpm, 175 lb-ft. @ 3500) are unchanged from earlier versions, fine-tuning of the intake system and an all-new exhaust system enhance the engine's response at low to medium speeds. This engine propels the Z4 2.5i to 60 mph in 7.1 sec. with the 5-speed manual transmission and just 7.2 sec. with automatic; top speed is 146 mph with manual, 141 with automatic (these are no longer electronically limited). EPA mileage ratings are 20 mpg city/28 mpg highway with manual transmission, 20/30 with SMG and 21/28 with STEPTRONIC automatic. The 2.5i engine meets LEV (Low Emissions Vehicle) standards with regard to exhaust emissions.

For a detailed description of this engine, see **BMW features**, page 16.

#### 3.0-liter DOHC 24-valve inline 6-cylinder engine (Z4 3.0i)

Here too, the official power and torque ratings (225 hp @ 6000 rpm, 214 lb-ft. @ 3500) are unchanged from earlier versions of this engine. But with a newly tuned intake system and new exhaust system plus special refinements to enhance its sound, this larger member of the M54 engine family not only responds even more strongly to the driver's commands, but also sounds especially exciting. Acceleration

figures for 0-60 mph are 5.9 sec. with the 6-speed manual transmission or SMG and 6.0 with the 5-speed automatic; top speed is electronically limited to 155 mph with manual, 152 with automatic. The 3.0i engine meets ULEV (Ultra Low Emissions Vehicle) standards; EPA mileage ratings are 21/29 with manual transmission, 20/29 with SMG and 20/28 with SMG and 20/28 with automatic.

For a detailed description of the 3.0-liter engine, see **BMW features**, pages 16-17.

#### 5-speed manual transmission (standard Z4 2.5i)

A manual transmission is very frequently preferred by enthusiastic sports-car drivers. This "gearbox" complements the sporty performance of the 2.5-liter engine and, with a shorter shift lever and shorter "throws" from gear to gear, the 5-speed transmission takes BMW's tradition of precise, enjoyable shifting to a new level.

#### New 6-speed manual transmission (standard Z4 3.0i)

Standard in the Z4 3.0i is a brand-new 6-speed manual transmission, called the "H" type. It weighs no more than BMW's strongest 5-speed, and incorporates refinements that mean greater driving pleasure for the top Z4 model:

- New, even more effective synchronization of shifting
- Sportier shifting, via a 20-mm (0.8-in.) shorter shift lever and 10-mm (0.4 in.) shorter shift "throws" from neutral to each gear.

1 – Included in Sport Package.

2 – Available in option Package or as special-order option.

3 – Available in option Package.

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

The H-type transmission is the basis for the Sequential Manual Gearbox that's now available in both models.

### 5-speed STEPTRONIC automatic transmission

(optional both models)

The available automatic is a state-of-the-art 5-speed STEPTRONIC unit. Augmenting either engine's strong low- and mid-range torque, relatively high numerical ratios provide excellent flexibility and response in 2nd, 3rd and 4th gears; in 5th, overall gearing is numerically low for quiet, potentially fuel-efficient cruising. With STEPTRONIC, a Sport mode is selected by moving the shift lever into a left-hand gate. Manual shifts then effected by "flicking" the lever forward for downshifts, rearward for upshifts (the Manual mode).

A description of BMW 5-speed automatic transmissions is found in **BMW features**, page 17.

### Sequential Manual Gearbox: a new way to drive

(optional both models)

First offered in the M3s, SMG is available in both models as of April '03 production. The Z4's SMG is not exactly like that in the M3s; rather, it is tailored to the more earthbound (yet still strong!) performance of the Z4 engines. For details, see **options & accessories**, page 234.

### Dynamic Driving Control: new dimensions in driving

(Sport Package, both models)

Another available Z4 feature first seen on BMW M models, Dynamic Driving Control is included in either Z4 model with the Sport Package.

Via its Sport button on the console, DDC affects powertrain feel by offering two stages of throttle response and by selecting a Sport mode for either the SMG or automatic transmission. For details, see **options & accessories**, page 234.

## Handling, ride & braking

### Body/chassis structure: a quantum leap in rigidity

With each new vehicle generation, BMW further improves this "stable platform" of chassis rigidity as well as the suspension systems attached to it, producing major steps forward in vehicle dynamics. For the Z4, the structural engineers set out to develop a body/chassis structure with exceptional stiffness for a roadster.

To achieve this level of rigidity, the following features were incorporated:

- **Y-form front longitudinal members.** Each of the two chassis rails that carry the engine (one per side) branches into a "Y" to form the side sills and half of the central tunnel. In this respect, the Z4 structure is similar to that of the Z8.
- The **side sills** (rocker panels) were designed for maximum rigidity within acceptable bulk.
- The **underbody** (floor pan) was designed to spread its strength evenly over its entire length and width.
- The underbody is further reinforced by two **thrust plates**, similar to those of M3 models. The front one is of aluminum, the rear of steel. Also like M3s, there is a **V-shaped brace** that adds rigidity to the rear sub-frame's attachment points.

- As on current M3s, there are **reinforcing braces** running from the front suspension's strut towers to the cowl area; these can be seen under the hood.
- **High-strength steels** were employed extensively to achieve the best strength without excess weight.
- Also to save weight, **the hood is aluminum**.

Despite its increases in size and rigidity, the new body weighs no more than that of its predecessor<sup>4</sup>. The Z4 structure is more rigid than those of its chief competitors, the Mercedes SLK and Porsche Boxster.

### Z4 front suspension

The Z4's front and rear suspension systems are evolutions of the technology that has given the 3 Series its award-winning road capabilities. At the front, this means an all-new suspension system featuring –

- **Forged aluminum lower arms**, vs. steel, to reduce unsprung weight and thus improve ride and handling on rough road surfaces.
- **Hollow strut rods**, vs. solid, for a 10% weight savings in these components.
- **Evolved geometry** – greater positive caster to improve straight-line stability.
- **Wider track**, by fully 60 mm/ 2.4 in.

The front suspension system is strut-type, with upright struts carrying the coil springs and shock absorbers and curved lower arms taking both lateral and longitudinal loads. This system is simpler than the double-pivot type found in the 5 and 7 Series, M5 and Z8; it speaks for itself with amazing handling.

### Z4 rear suspension

In adopting an evolution of the 3 Series' Central Link rear suspension system, the Z4 gets a multi-link system, capable of keeping the rear wheels at virtually ideal angles relative to the road and completely distinct from the simpler semi-trailing-arm system of the Z3.

Here, Z4 engineers incorporated more Z4-specific changes than at the front:

- **Track widened** by 40 mm/ 1.6 in. over rear-drive 3 Series models, and 29 mm/1.2 in. greater than that of recent Z3s.
- **Increased negative camber angles**, which enhance maximum cornering ability. Z4s have a 2.25° negative camber angle at rest, which is visible in a slight inward tilt of the tops of the rear tires.
- **Modified toe-in characteristics**, for greater agility in cornering.
- **Firmer forward bushings** for the subframe which carries the suspension.

Unsprung weight at the rear is reduced by aluminum upper transverse links.

### Overall suspension calibration and capabilities

With the proven, and now evolved, capabilities of these front and rear suspension systems, the Z4 arrives with the very best qualifications for an awesome-handling sports car.

To underscore its sports-car character, relatively firm springs, shock absorbers and anti-roll bars have been adopted. All this means –

- **Amazingly stable and predictable handling**, for example

4 – The modest weight increases mentioned on page 216 are attributable to feature and equipment enhancements.

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

changing direction very little when the driver lets off the accelerator while cornering.

- A **firm ride**, communicating clearly that the Z4 is a serious sports car.
- Remarkably **flat cornering**, achieved via a low center of gravity and the firm suspension calibration.

Because the base suspension is so firm, the available M sport suspension (Sport Package) does not employ firmer springs, shock absorbers and anti-roll bars as is customary with BMW sport suspension. Instead, its only difference is a 15-mm (0.6-in.) lower ride height.

The rigid body structure and advanced chassis combine to achieve a remarkable combination of exciting handling and excellent riding comfort. The structural rigidity eliminates most of the “shake” associated with open-bodied vehicles, bringing the Z4 close to sedan standards in this respect. Thus even though the Z4 is very firmly sprung, its riding comfort benefits from a reassuring feeling of solidity.

*Automobile Magazine* (December '02) summed up the Z4's road capabilities this way: “The only roadster that comes close to the Z4 in terms of handling, fluency, and feedback is the Porsche Boxster, which has one of the best chassis out there.”

Even the engine's response characteristics are a brilliant compromise between spontaneous reactions to the accelerator pedal and smooth power-on/power-off transitions – and the optional Dynamic Driving Control gives sport-oriented drivers the possibility of influencing this compromise in the sporty direction.

### Electric power steering: innovation with clear benefits

For the first time in a BMW, the steering is assisted by an electric servo motor instead of a conventional hydraulic pump. Benefits of this feature, all important to sport-minded drivers, include these:

- Facilitates specific tuning of steering characteristics, achieved via software.
- Vehicle-speed-sensitive power assist (Servotronic). Until now, this desirable capability has been available only in the 7 Series and M5 among BMW passenger cars in the U.S. (See **BMW features**, p. 20, for an explanation of benefits.)
- Reduced vehicle fuel consumption, because the electric motor operates only when the steering wheel is turned. A conventional hydraulic pump runs all the time.

Although some competitive vehicles are equipped with electric power steering – the Acura NSX and Honda S2000 are two of them<sup>5</sup> – BMW believes the Z4's system is the first to attain BMW standards for road feel, self-centering and freedom from road shocks.

### Upgraded brake systems

All Z4 brake systems are upgraded over their predecessor Z3 models. In both cases, the rear brakes are larger; on the 3.0i they are ventilated vs. the previous solid. Specifications are:

- **Z4 2.5i** – front 286-mm/11.3-in. diameter, ventilated; rear 280-mm/11.0-in. diameter, solid. The rear brakes are larger than those of the predecessor (Z3 2.5i: 272 mm/10.7 in.).
- **Z4 3.0i** – front 300-mm/11.8-in. diameter, rear 294-mm/11.6-in. diameter; all ventilated. The rear discs are even larger than

those of the Z4 2.5i; both Z3 models had solid discs of the same diameter.

### **Run-flat tires and Flat Tire Monitor, standard**

Every Z4 comes standard with BMW's Run-Flat Combination (RFC) wheel-tire system, an important step forward in convenience and space utilization. The system consists of self-supporting tires, special wheel rims, and a Flat Tire Monitor that indicates to the driver any significant loss in tire pressure.

For details on the wheel-tire system and Flat Tire Monitor, see **BMW features**, pages 23-24.

### **Wheels and tires: beefy running gear, from 16- to 18-in.**

Each Z4 model comes standard with generously dimensioned standard wheels and tires, and offers an upgrade as part of its Sport Package. All wheel designs are new.

**2.5i standard.** Ultra-open Cross Spoke wheels (design #104) are dimensioned 16 x 7.0 and carry 225/50R-16 V-rated run-flat performance tires. These wheels are low in weight, saving about 2 lb. each and thus contributing to the low unsprung weight already promoted by the aluminum suspension components.

**2.5i Sport Package.** 17 x 8.0 Turbine wheels (design #106) wear 225/45R-17 W-rated run-flat performance tires for this upgraded equipment.

**3.0i standard.** Wheel and tire sizes and the tires' speed rating are equivalent to those of the 2.5i Sport Package; the wheel design is Twin spoke, #103.

**3.0i Sport Package.** This ultimate Z4 equipment consists of Ellipsoid wheels (design #107), sized

18 x 8.0 front / 18 x 8.5 rear, and 225/40R-18 front / 255/35R-18 rear W-rated run-flat performance tires.

### **State-of-the-art Dynamic Stability Control**

Yet another Z4 advance is the upgrading of DSC to its latest state of the art, with the new Dynamic Traction Control as recently introduced in the 7 and 3 Series. For details, see **BMW features**, page 23.

Z4 engineers point out that this vehicle's new chassis engineering is so good, so capable, that the Z4 would handle better **without** DSC than many sports cars handle **with**. Everything here – suspension, steering, wheels, tires, the fine-tuning and calibration of all systems – works harmoniously to achieve a new high in sports-car handling and driving artistry.

### **Exterior & aerodynamics**

#### **BMW's roadster tradition**

As new as it is, the Z4 is also an expression of a longstanding BMW tradition.

This tradition began in 1935 with the **315/1** and **319/1**, two versions of a perky little 2-seater powered by a small 6-cylinder engine. In 1936, the tradition became legend with the **328** roadster, which began as a successful race car, went on to become a beloved sports car, and is now one of the great collectibles of its era.

Another great BMW classic was the **507**, of which only about 250 were built in the mid- to late 1950s. Today, this elegantly designed, V8-powered roadster

5 – The MINI has electrohydraulic power steering, with a hydraulic pump driven by an electric motor. This too operates only "on-demand," and is an excellent system.

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

commands high six-figure prices at collector-car auctions. Elvis Presley owned one.

Unknown in America, yet important to BMW roadster evolution, was the **Z1** – conceptually amazing, with its fiberglass body and electrically retracting doors. Powered by the 2.5-liter 6-cylinder engine of its time (1988-91), it offered sweet performance, excellent handling, sleek and innovative design, and a unique ability to be driven with its doors open. The Z1 was expensive, built in small numbers, and offered only overseas – and yet it was an attractive sports car.

In 1996, BMW introduced a roadster that would be affordable to many more customers, including those in the U.S.: the **Z3**. It was an instant, international hit. Beginning with a single 4-cylinder model, the Z3 evolved with more power, features and variations. It will be fondly remembered as a relatively simple, elemental, fun-to-drive machine with BMW quality.

With its design inspired by the classic 507, the **Z8** made its debut in 2000 as BMW's highest-performing, highest-technology roadster. It continues to command the respect of the world's elites – those who test-drive and report on it in the media, and those with the means to own it.

The new **Z4** not only takes its place in this illustrious historical line, but brings the design and technology of the popular-priced BMW roadster to a new level that, in many ways, is comparable with what the Z8 offers.

### Z4 design: the “second direction” of BMW’s new design strategy

Within an overall strategy of Active Surfacing, BMW design is moving in essentially two directions as new generations are introduced. The new 7 Series represents the **formal** direction; the new Z4 represents the **informal** direction, which focuses on –

- A pure driving experience
- Bold and unique surface dynamics
- An image of powerful sportiness.

In either design direction, “Every BMW must be a rolling sculpture,” explains BMW Design Communicator Katharina Mack. And, says Mack, “Every BMW design rests on two indispensable pillars: **tradition and the future.**” Thus every BMW of the future will be at once recognizable as a BMW, and exciting in its newness. We have already seen this in the 7 Series; now we see it in the Z4.

### Proportions: essence of a Roadster

Perhaps more than any other factor, it is **proportions** that define a roadster. Traditionally, a roadster –

- Is an open-bodied, 2-seater car.
- Has a very long hood<sup>6</sup>.
- Seats its driver and passenger low and far rearward, thus close to the rear wheels.

Historically, a roadster focuses on **pure driving**, the interaction of driver and machine and road. “Wind in the face” when the roadster’s roof is lowered is an essential element of this highly active driving experience.

The Z4 takes roadster proportions to the extreme. In addition to mere length, its front end visually represents the long, powerful, front-mounted 6-cylinder engine with design details that emphasize the essential elements: engine, wheels and driver.

### **Z4 contours: “revolutionary” is not an exaggeration**

What is most remarkable about the Z4's exterior design is a new concept of surface development from BMW Design, directed by the charismatic and future-oriented Chris Bangle. Bangle's unique touch first became evident in the current 3 Series, introduced in 1998; is fully in evidence in the Z8; and came to full fruition in the new 7 Series of 2002.

In the Z4's surface development, **twisting planes** create highlights that **cross the surfaces**, leading to a certain “out-of-control energy” reminiscent of the dancing of flames. The forms are highly 3-dimensional. The more you look, the more you discover new details, new impressions.

To be fully revealed to the viewer, the Z4 design must be seen in three dimensions, studied carefully, contemplated. As a guide to assessing it, here are some of its highlights, both literal and figurative:

- **Two beltlines.** The lower, stylistically primary line begins above the outer headlight, curves upward and then downward into the door, then “hikes” sharply upward and finally downward again to conclude at the rear edge.

This line recalls the prominent front and rear fenders and cut-down doors of classic roadsters of the 1930s through 1950s. The other, higher beltline is more in the idiom of modern roadsters; it forms the ledge of the cockpit.

- A “**twisting shoulder.**” Just inboard of the lower beltline, this starts above the inboard headlight and changes curvature as it works from front to rear.
- Numerous **transitions from convex to concave** and back again: over/under the lower beltline; at the provocative diagonal line that visually carries the A-pillar angle downward; at the integral rear spoiler; in the front and rear bumper/apron contours; on the exterior mirrors; even in the grille's vertical slats.
- Fascinating **cut lines** that don't just separate sections of the body, but are visual treats in themselves:
  - Hood's outer edges, running from the front lighting units' inner edges to the A-pillars.
  - Running across the front end, down to the front wheelwell; picking up behind the wheelwell to become the door's curving bottom and rear edge.
  - From top of rear bumper straight around to rear wheelwell.
  - Curving lower outer edge of trunklid, aiming down to align with license-plate opening.

6 – If the engine is front-mounted. Roadsters with a midship engine exist; these of course do not have such a long hood.

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

### Other fascinating exterior details

In addition to mastery of proportion and basic shapes, BMW Design is also strongly rooted in **perfection of detail**. Some of the Z4 highlights in this regard are:

- **Four headlights under aerodynamic covers.** This typical BMW element, newly configured for the Z4, places ellipsoid (projector) low beams outboard, compact free-form high beams inboard. Amber turn signals run along the lower edge, sweeping upward to form the side markers. For details on the optional Xenon lights, see **BMW features**, pages 25-26.
- **Additional turn indicator.** As on all recent BMWs, a “repeater” turn signal is placed on the body sides aft of the front wheels for visibility to drivers in adjacent lanes. On the Z4, the amber flasher is placed at the approximate midpoint of the diagonal line and behind a BMW logo, radiating its light outward from the logo.
- **M-type mirrors.** Although the concave/convex-surfaced exterior mirror housings are new, the actual mirror shape is the oval also found on M3s. For optimum function with the Z4 body contours, the mirrors are positioned a half-inch farther outward.
- **Taillights.** At once recalling the BMW 2002’s round lamps and relating to the more recent L-theme of BMW taillights, the Z4’s taillights at first seem graphically simple, but on closer examination are a complex construction. They sit offset inside the rear panels, and help allow a deep functional rearward projection of the bumper without visual awkwardness.

- **Adaptive brakelights.** After the 7, the Z4 is the second BMW Series with this important new feature. Under hard braking, the brakelights illuminate more intensely, communicating a critical safety signal to following drivers.
- **The optional hardtop.** To be available about a year after production began, the hardtop too has fascinating contours, including an integral rear spoiler.

### Aerodynamics: outstanding for a roadster

It is more challenging to achieve efficient aerodynamics with an open-body car than with a closed one. With the top down, the interior cavity forms a major interruption of the shape; with the top up, it is of necessity a “cap” rather than integral to the body.

Yet BMW’s designers and aerodynamicists achieved major progress here. With its softtop in place, the Z4 has an aerodynamic drag coefficient ( $C_D$ ) of just 0.35 – dramatically better than that of the Z3. And with the top down, extensive development in BMW’s aerodynamic wind tunnel has minimized drafts around the faces and upper bodies of Z4 occupants. Even at relatively high cruising speeds, those in the Z4 with its top down will enjoy relative comfort.

A newly designed wind deflector is available; see **options & accessories**.

### Ergonomics & luxury

#### Interior design: as new as the exterior

Everywhere you look in the Z4 cockpit, it’s new: new concepts, new esthetics, new artistry of design.

Most prominent is the dash, which together with the center console forms an overall “T” configuration. Overall clarity and simplicity of layout, lines and surfaces relate to the 7 Series, although the iDrive concept has not been adopted here. Highlights include –

**Sweeping dash panorama**, spanning from left to right. A large trim panel reaches from the left air vents to the right ones, encompassing lighting controls, the audio system and BMW’s traditional center air vents.

**Totally new instrument cluster**, with the two main dials housed in “visors” that minimize unwanted reflections.

**Centrally located climate controls** – for the first time in a BMW roadster, there’s a choice of manual or automatic systems.

**Integral cupholders** at the outer ends of the dash. After a light push, the sturdy cupholder swings out. The cupholders are adjustable in six steps to accommodate beverage sizes up to 0.75 liter.

**Switch panel.** Below the dash, at the head of the console, is an attractively presented array of controls for up to seven functions such as DSC/DTC, initializing the Flat Tire Monitor, available seat heating and power softtop, and others.

**Design spice: convex and concave, everywhere you look**

Aiming at pleasing harmony of design inside and out, the designers applied the convex/concave interplay to the interior too. You’ll see it in –

- Metallic-trimmed spokes of the sport steering wheel
- Door pulls

- Door handles
- Dash trim panel – subtly complex; concave from top to bottom, convex from side to side
- Shift knob.

**Seat design and construction**

Standard sport seats have prominent cushion and backrest side bolsters to support occupants during sporty driving. They offer an expanded scope of adjustments:

**Manual.** Standard is 6-way manual adjustment of fore-aft position, backrest angle and cushion height.

**Power.** Available in both models’ Premium Package or as a stand-alone option are 8-way power seats, with the same adjustments as the manual seats plus cushion angle. For the first time in a BMW roadster, driver’s-seat memory (capturing three preferred positions) is included.

The seat cushions are notably close to the floor, enhancing occupants’ feeling of low, sporty roadster seating.

**Tilt/telescopic steering wheel**

For the first time in a BMW roadster, the Z4’s steering wheel is adjustable for tilt and reach, with 30 mm (1.2 in.) of manual adjustment in both modes.

**Esthetically pleasing, informative instruments**

The dial layout, with speedometer at left and tachometer at right, is traditional. Everything else about the instrument cluster is excitingly new:

**White scales, gray faces.** The dial faces, including new italic numerals, are dark-toned, the scales surrounding them white.

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

**LED displays in speedometer.** In the dial's lower portion, LED displays present main and trip odometers, the Service Interval Indicator with miles-to-service readout, and the available Onboard Computer. In the dial proper, one sees the cruise-control indicator when it is on.

**Warning and indicator lights between the dials.** Extensive warnings and indications appear here as called for by operating conditions and driver choices.

**More indicators in tachometer face.** Information is presented here as in the 7 Series.

**Fuel and temperature gauges** are set into the tachometer's lower portion.

### **Upholstery and trim: appealing new materials**

The Z4 offers four interior upholstery schemes and various choices of trim materials. All complement the fresh and contemporary cockpit design.

**Leatherette – 2.5i standard.** Black leatherette seat upholstery, molded and leatherette door panels. Leather steering-wheel rim and handbrake grip. Standard velour floor mats. Graphite-finish dash trim panel, console trim, steering-wheel spokes, shift knob (combined with leather), steering-wheel shift paddles if SMG-equipped, door handles and pulls, safety-belt guides on seat backrests, rollbar cladding.

**Active Sport interior – 2.5i optional.** In this unique and energetic treatment, seats are in 2-tone leather and high-tech synthetic cloth. Upper door-panel inserts are in the cloth, dash kneepads in the leather. A leather armpad is added to the center console. The dash trim panel

and console trim are brushed aluminum; other trim is in the standard metallic finish. Available in Pearl Gray with Black, or Maldives Blue with Gray.

**High Performance leather – 3.0i standard, 2.5i Premium Package.** Leather seats, upper door-panel inserts and dash kneepads. Also includes the leather armpad and brushed-aluminum trim. Available in Black, Beige and Dream Red.

**Extended High Performance leather – 3.0i optional.** Upgraded leather on seats (with distinctive stitching), upper door-panel inserts, kneepad area and center armpad. Leather also on windshield frame, sun visors, larger door area. Same colors as High Performance leather. Includes premium Anthracite Chrome trim on steering-wheel spokes, SMG shift paddles, gearshift-boot surround, shift knob, door pulls and rollbar cladding.

**Wood trim** is offered as a stand-alone option with the Active Sport or either leather interior; in keeping with BMW's tradition of distinctive, uncommon woods, it is Sycamore.

### **Softtop: new design, choice of manual or power**

The Z4 offers manual and power softtops, the latter available on both models as a stand-alone option or in the Premium Package.

**Standard manual top.** A completely new design endows the standard top with easier operation and enhanced functionality:

- **1-hand release/lock.** A centrally positioned single-hand grip releases the top from the windshield header or locks it in place. Similar to that of the 325Ci Convertible.

- **Top header becomes cover.** Thanks to a new “parallel” folding sequence, the top’s forward header remains upright as the top folds, and then serves as the cover for the folded top. This eliminates the former separate molded cover and makes folding or raising the top essentially a 1-step process. The header completely covers the folded top and is flush with the body for a clean appearance.
- **Easy operation.** Gas-filled struts reduce the effort required to lower and raise the top.
- **Heated glass rear window.** No more scratches or periodic replacement; improved rearward vision in cold or inclement weather.
- **Interior lining** for weather protection and low wind noise when the top is up.
- **Aluminum and magnesium frame** for low weight and inertia.
- **Variable stowage compartment.** As in 3 Series convertibles, the softtop compartment is adjustable for additional trunk space when the top is up. Easily adjusted via two knobs, this feature (first of its kind in a roadster) increases trunk space by more than half a cubic foot. Altogether larger than the Z3 trunk because of its greater depth and lack of a spare tire, the Z4’s compartment will accommodate two golfbags, four soft-drink crates and many other cargo combinations.

**Fully automatic power top.** To lower the top, the user simply presses a button on the switch panel at the front of the center console. The top unlatches elec-

trically from the header and folds down. Raising the top is just as easy; both occur lightning-fast. If raised, the side windows drop about halfway down during lowering or raising; when lowering or raising is complete, if the user continues holding the button they return to their original positions.

The power top includes all the features of the standard one, plus a choice of colors. In addition to the standard top’s Black, the power top is available in Gray and Dark Beige; see the color chart on pages 326-327 for the available combinations.

#### **1-touch power windows with power sealing feature**

The driver’s window has 1-touch open and close, the passenger’s window 1-touch open. Power side-window sealing is a standard feature: When a door is opened, its window (if closed) drops slightly; when the door is closed, it rises to seat firmly into its weatherseal. This improves sealing when the windows and top are up.

#### **Upgraded interior lighting (standard Z4 3.0i, Convenience Package Z4 2.5i)**

An extra touch of luxury and functionality is provided by upgraded interior lighting, standard in the 3.0i and included in the 2.5i Convenience Package. In addition to the standard interior courtesy light with BMW’s usual soft-on/soft-off and automatic switch-on when the engine is turned off, this group includes –

- Lights in the door panels
- Footwell illumination, both sides
- Separately switched left/right reading light
- Lighted storage compartments.

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

### Special locking and storage features

The Z4's central locking system secures the doors, trunklid, fuel-filler door and the multi-section storage compartment centered behind the seats. In a standard-equipped Z4, this compartment encloses more than a quarter cubic foot of space; adding the Navigation System and/or CD changer reduces the available storage space. These systems are then also secured by the central locking system.

Other storage spaces include:

- The glove compartment, which locks but is not included in the central locking system
- A long open tray in each door
- An open cavity behind each seat. If the premium sound system is present, these are occupied by its two subwoofers.

Additional storage is provided in the Convenience Package for both models:

- An elastic net on the center tunnel's right side
- An elastic net on the back of each seat.

### Climate control, manual or automatic

Standard in both Z4 models is a manual climate system with evolutionary improvements. Its 4-speed fan control resides in a central panel, with the air-conditioning and recirculation buttons newly grouped around it. There is a button here for the new heated rear window. Also new: a ventilation microfilter.

Automatic climate control is a new BMW roadster feature, included in the Convenience Package for each model. Its controls occupy the same space as those of the manual system; the central panel contains buttons for automatic operation, air-

conditioning compressor, automatic and manual recirculation, and the heated rear window. A stepless rotary fan-speed control is placed here as well for user override of this normally automatic function.

The left-hand rotary control provides for user selection of airflow (to override the automatic regulation), and a defrost/demist button is centered inside it; the right one sets the desired temperature and has a Max A/C button at its center. The ventilation microfilter is upgraded to the activated-charcoal type, with the ability to filter noxious gases and odors, as well as particles, out of incoming air.

### 2.5i standard audio system

A brand-new, handsomely integrated audio system with single-disc CD player is standard. Its 10-channel amplifier feeds a 3-way front/2-way rear speaker system, with a total of 10 speakers and 310 watts:

- 160-mm bass, in footwell side panels and behind seats – 4 speakers x 40 watts
- 100-mm wide-range, in doors and behind seats – 4 x 25W
- Tweeters, in the doors' mirror triangles – 2 x 25W.

### Premium audio system (standard 3.0i, optional 2.5i)

The new premium system is a significant step forward. Compared to the 2.5i standard system, the premium system offers the following upgrades:

- Upgraded speakers throughout (same sizes and locations as in 2.5i standard system); the 160-mm bass speakers (made by Philips) incorporate Carver long-stroke technology, making its first appearance in a motor vehicle.
- Two subwoofers, by Carver

- A powerful Carver amplifier with 7-band Digital Sound Processing

The speakers and their shares of the 430-watt amplification power are:

- 160-mm bass, in footwell side panels – 2 speakers x 40 watts
- 100-mm wide-range, in doors and behind seats – 4 x 25W
- Tweeters, in the doors' mirror triangles – 2 x 25W
- Carver subwoofers, behind seats – 2 x 100W.

The subwoofers occupy what is otherwise storage space behind the seats. Digital Sound Processing functions are identical to those offered in the 5 Series; they are controlled from the audio panel or (if the vehicle is so equipped) the Navigation System monitor.

Both Z4 audio systems include a reception-enhancing diversity antenna system.

### **Other new Z4 features, standard or optional**

In addition to those already described, a number of other features make their first appearance in a regular-production (i.e. not Z8) BMW roadster:

- **Auto-dimming mirrors**, inside and outside, are included in the Convenience Packages.
- **Heated outside mirrors and windshield-washer jets**, standard on the 3.0i and included in the 2.5i Sport Package.
- **Xenon low- and high-beam headlights**, a stand-alone option for both models.
- **Automatic headlight control**, included in the Convenience Packages.
- **Navigation system**, a new system with DVD database and faster performance, is a stand-alone option that's available in combination with the standard single-disc CD player.

- **Outside-temperature display**, standard.
- **3-stage heated seats**, vs. 2-stage in the Z3; stand-alone option.

See **options & accessories** for details on the optional features.

## **Safety & security**

### **Optimized Smart Airbags**

The dual front-impact airbags continue the Smart Airbag technology now employed in all BMW models. (See **BMW features**, page 41, for explanation.) Both airbags have been further optimized for inflated shape, deployment characteristics and interaction with surrounding surfaces and components. The driver's-side airbag is notable for its compactness, fitting into the relatively small center hub of the sport steering wheel.

### **Active Knee Protection**

To meet U.S. safety regulations, all U.S. BMW models incorporate specific knee protection in the lower instrument-panel areas. With the Z4 and 7 Series, BMW advances this feature with Active Knee Protection: dedicated airbags backing up the padded surfaces that meet occupants' knees in a frontal impact. This accomplishes several things:

- Reduces the amount of space occupied by the knee protection, leaving room for features customers value
- Enhances knee protection
- For belted occupants, allows finer "tuning" of the other restraint systems (safety belts and front airbags).

### **Floor mats as part of safety system**

A unique Z4 feature is a passenger's-side floor mat nearly 2.5 in. thick at its forward end. This provides a surface against

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

which an unbelted passenger's feet can brace in a frontal collision and is an integral part of the Z4 safety concept.

### **New technology for side-impact sensors**

Like all other current BMWs, the Z4 comes standard with door-mounted side-impact airbags. The "satellite" sensors for these are sophisticated and costly: By sensing pressure change within the door structure, rather than actual deformation as is conventional, they are able to signal for deployment very early in an impact, yet minimize the chance of an unwanted deployment.

### **Passenger-airbag de-activation switch**

Because a roadster seats just two persons, the Z4 is standard-equipped with a disable switch for the passenger's-side airbag to facilitate carrying a child in an approved infant seat on the right side. The switch, which requires a vehicle key to change over, is visible on the outboard side of the instrument panel when the passenger's door is open; a "passenger airbag off" indicator on the center console illuminates when the passenger's-side airbag is de-activated.

### **Rollover Protection**

Between the reinforced A-pillars and windshield frame and the standard rollbars, the Z4 roadster has what it takes to maintain a "survival space" above its open cockpit.

The A-pillars' high-strength tubular reinforcement is anchored in a massive structure that reaches all the way down to the body sills. Positioned behind the occupants' heads, the rollbars are anchored in the very strong bulkhead that

contributes to lateral body strength and provides separation between passenger compartment and trunk.

### **ISIS, the Intelligent Safety and Information System**

A familiar BMW feature is Integrated Deployment Logic, a system of sensors and deployment strategy for the various restraint systems. ISIS is an evolution that further improves the restraint systems' response to real-world accidents. Safety engineers at BMW's Engineering and Research Center in Munich aimed not merely to meet governmental safety regulations, but to surpass them and to tailor the restraint systems' response to a more precise reading of each accident sequence.

To achieve this, ISIS employs a much larger number of sensors than a conventional deployment system. Together, these sensors achieve the goal of tailoring the performance of safety systems more precisely than ever to the actual impact than before, while minimizing unnecessary deployment of airbags.

### **Fiber optics for safety**

Thanks to this elaborate constellation of sensors, airbag deployments can be more finely tuned to actual accident circumstances. Much of the progress is due to faster, more powerful electronics and the use of fiber-optic cables that are not susceptible to extraneous electromagnetic disturbances. System software can be updated over the life of the vehicle; data useful to researchers can be retrieved from accident vehicles.

## Options & accessories

### Factory-installed options

#### Premium Package

(both models)

Each Premium Package is composed as a value-priced set of desirable upgrade features.

The 3.0i Premium Package includes:

- **Fully automatic power softtop.** As described on page 229.
- **8-way power seats with driver's-seat memory,** as described on page 227.

The 2.5i Premium Package includes the above content and adds the following features, which are standard in the 3.0i:

- **Cruise control,** managed by a steering-column stalk
- **High Performance leather upholstery** as described on page 228.

#### Convenience Package

(both models)

These Packages bundle several features that enhance convenience and comfort for Z4 occupants.

The 3.0i Convenience Package includes:

- **Auto-dimming inside and outside mirrors,** electrochromically reducing glare from the lights of following vehicles.
- **Rain-sensing windshield wipers,** replacing the standard wipers' intermittent mode with one that varies wiping action according to moisture impinging the windshield.
- **Automatic headlight control,** which switches on the headlights and all related lighting when ambient light drops below a certain level.
- **Automatic climate control** as described on page 224.

- **Additional storage** – elastic net on the right side of the center console and on the back of each seat.

The 2.5i Convenience Package includes the above content and adds two features that are standard in the 3.0i:

- **On-board Computer.** This includes the clock and outside-temperature readout (both of which are standard) plus –
  - Average fuel economy since reset
  - Range on remaining fuel
  - Average speed since last reset.

On-board Computer readouts appear in the odometer window at the bottom of the speedometer; pressing the BC<sup>7</sup> button on the left-hand steering-column stalk calls them up in succession.

- **Upgraded interior lighting** as described on page 230.

#### 2.5i Sport Package

This Package enhances the Z4 2.5i's innate sportiness with the following features:

- **Dynamic Driving Control** (Sport button). Includes quicker throttle action, reduced power-steering assist and (if the vehicle is so equipped) the Sport program for the Sequential Manual Gearbox or an additional Sport mode for the STEPTRONIC automatic transmission.
- **M sport suspension.** Lowers the vehicle by 15 mm/0.6 in. No firming-up of springs or shock absorbers as on other BMW models.

7 – BC = Bordcomputer, German for On-board Computer.

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

- **17-in. wheels and tires.**  
17 x 8.0 Turbine wheels (design #106) with 225/45R-17 W-rated run-flat performance tires.
- **Front foglights.** Round free-form lamps, recessed into the front bumper/spoiler.
- **Heated outside mirrors and windshield-washer jets.**

### 3.0i Sport Package

In contrast to the 2.5i Package, this one substitutes 18-in. wheels in differentiated front/rear sizes, while omitting the foglights and heated mirrors/washer jets because they are standard on the 3.0i. Its content is thus:

- **Dynamic Driving Control** (Sport button)
- **M sport suspension**
- **18-in. wheels and tires.**  
18 x 8.0 front / 18 x 8.5 rear Ellipsoid wheels (design #107) with 225/40R-18 front / 255/35R-18 rear W-rated run-flat performance tires.

### 6-speed Sequential Manual Gearbox

(both models)

SMG endows the 2.5i with 6 speeds vs. the standard 5; on both models it adds electrohydraulic shifting, both manual and automated. There is no clutch pedal; the driver selects the desired operating range (N, R, D, M) with a console-mounted selector lever, and can execute manual shifts via that lever or two "paddles" on the steering wheel.

With M selected, the driver can also select the Sport mode via the Sport button on the console, in which shifts take place with quicker clutching/declutching and shifting action. In or out of Sport mode, shifting is initiated

strictly at the driver's discretion, with two exceptions:

- If the driver takes the engine up to its rpm limit, SMG will automatically shift to the next higher gear.
- Upon deceleration, as the engine comes down to approximately 1100 rpm, SMG automatically selects the next lower gear. When the vehicle comes to a stop, SMG selects 1st gear automatically; upon moving off, however, the driver again controls the shifting.

In D, the shifts are programmed for "normal" driving, with the accent on a relaxed, unaggressive style – though of course one can drive quickly in D and the SMG adapts its shift points automatically to this use. When the Sport button is activated in D, shifts are not only sharper, but also occur at higher road speeds as with the Sport mode of BMW's automatic transmissions.

As with the M3 SMG's A mode, D is not to be interpreted as a substitute for the D of a fully automatic transmission, but rather a convenient operational mode for those times when the driver's purpose is not to extract the Z4's maximum performance.

### 5-speed STEPTRONIC automatic transmission

(both models)

This is the more familiar form of "manumatic" shifting, via a conventional automatic transmission with torque converter and planetary gearbox. Automatic shifting occurs in the D or S position; in M, shifting is controlled by the driver via the shift lever. A full description is found in **BMW features**, page 17.

**Cruise control**

(optional 2.5i, standard 3.0i)  
In addition to being part of the 2.5i Convenience Package, cruise control is available as a stand-alone option.

**Xenon low- and high-beam headlights**

(both models)

Of the four headlights, the outer lamps provide high-intensity-discharge (HID) illumination on low and high beams, while the inner ones are used for flash-to-pass and Daytime Running Lamps. Auto-leveling of the Xenon lights is included. On the 2.5i, this option requires the foglights option or the Sport Package, which includes foglights. See **BMW features**, pages 25-26, for a description of BMW's Xenon lighting.

**Front foglights**

(optional 2.5i, standard 3.0i)

Besides being part of the 2.5i Sport Package, foglights are available as a stand-alone option. The option includes heated outside mirrors and windshield-washer jets.

**Fully automatic power top**

(both models)

This brand-new BMW roadster feature is available in the Premium Packages or as this stand-alone option. Details on page 229.

**Active Sport cloth/leather interior**

(optional 2.5i, not available 3.0i)

This unique and appealing option is described on page 228.

**High Performance leather upholstery**

(optional 2.5i, standard 3.0i)

This more traditional, luxurious interior treatment is described on page 228.

**Extended High Performance leather upholstery**

(optional 3.0i, not available 2.5i)

The most luxurious Z4 cockpit treatment is described on page 228.

**On-board Computer**

(optional 2.5i, standard 3.0i)

Also included in the 2.5i Convenience Package; includes the standard clock and outside-temperature readouts plus –

- Average fuel economy since reset
- Range on remaining fuel
- Average speed since last reset.

**BMW On-board Navigation System with DVD database**

(both models)

Making its first appearance in a BMW Roadster, the On-board Navigation System advances over its predecessors in several appealing ways:

- It employs a DVD database. A single DVD covers the entire United States; thus users do not change CDs for use in various regions.
- Faster processor (by 2-3 times from customer viewpoint).
- Dynamic calculation of Estimated Time of Arrival (more accurate).
- Address-book capacity is increased to 100 entries.
- "Last destination" capacity is increased to 20 entries.
- Monitor brightness control added (in Settings menu).
- Larger map scales available.
- Optimized mixing of audio volume and navigation voice guidance.

A full description of the system appears in **BMW features**, pages 33-34.

## Z4 Series key features

Except as noted, both Z4 models offer the following features:

### Premium audio system

(optional 2.5i, standard 3.0i)

This outstanding new audio system is described on pages 230-231.

### Wood interior trim

(both models)

Beautiful and distinctive Sycamore trim is available with any Z4 interior except the standard 2.5i leatherette. It consists of a large dash panel and console trim.

### Power seats with driver's-seat memory

(both models)

In addition to being part of the Premium Packages, the 8-way power seats are available as a stand-alone option for both models.

### Heated seats

(both models)

These provide 3-stage, thermostatically controlled heating that provides a wide range adjustability and steady heat under changing temperature conditions.

### Special-order options

(both models)

Two features may be specified separately on a special-order basis. They are:

- High-intensity headlight cleaning system
- Rain-sensing windshield wipers and automatic headlight control as a stand-alone option.

### BMW Center-installed accessories

#### Alarm system

(available for both models)

Z4s come standard with BMW's multi-function remote control; the available alarm system is Center-installed.

#### 6-disc CD changer

(available for both models)

Both Z4 models are pre-wired for straightforward installation of the changer in the trunk. Combined with the standard in-dash player, this results in 7-disc capacity.

#### BMW Cellular Phone System

(available for both models)

During model year '03, a new BMW Cellular Phone System becomes available. This is the system that will be available for installation in Z4 models; it is described in **BMW features**, page 33.

#### Wind deflector

(available for both models)

A completely new design in three parts: one between the two rollbars and one inside each bar. The sections install as follows:

- Center section – net with frame; mounts easily from above by simply pushing downward, removed easily by pressing two releases. Stores in the trunk.
- Rollbar sections – permanently installed.

The center section can also serve as a sunshade when the sun is low and behind the vehicle, even with the top up.

**Aerodynamic components**

(available for both models)

Available components include a front spoiler, rear apron and more prominent side sills/rocker panels.

**Clear light lenses**

(available for both models)

Clear lenses for the body-side turn signals and all three brake-lights are available.

**Front foglights**

(2.5i only)

Standard on the 3.0i and available as a factory option for the 2.5i, front foglights can also be retrofitted to 2.5i Roadsters by any BMW Center.

**Wood/leather steering wheel and shift knob**

(available for both models)

Both of these items add elegance to the Z4 interior.

**Carrier rack**

(available for both models)

Designed for mounting on the trunklid, the rack is finished in Z4-compatible gray anodized aluminum. After being installed by the BMW Center, it can accommodate carriers for skis, snowboards and luggage.

**Removable hardtop**

(available for both models)

Designed to complement the unique Z4 shape, the hardtop transforms BMW's Roadster into a snug coupe for the winter.

**Trunklid handle**

(available for both models)

This discreet brushed-stainless handle helps keep the trunklid free of fingerprints.

**Chrome exhaust outlets**

(2.5i only)

Standard on the 3.0i, these handsome dual outlets lend elegance and finish to the 2.5i.

**Other accessories**

The extensive selection of Z4 items also includes a car cover, mud flaps, nose mask, fitted windshield sunshade, clear protective coating for body surfaces and other items. See **Original BMW Accessories, The New Z4.**

## Z4 Series specific features by model

### **Z4 2.5i**

#### **2.5-liter DOHC inline 6-cylinder engine**

As described on page 219.

#### **5-speed manual transmission**

The 2.5i's standard 5-speed transmission benefits from the improved shift linkage developed for all Z4s.

#### **Sequential Manual Gearbox**

This option upgrades the 2.5i to the 6-speed transmission that is standard in the 3.0i while also including the SMG operational features.

#### **Wheel and tire equipment**

The 2.5i comes standard with 16-in. wheels and tires; 17-in. equipment is part of the optional Sport Package. Differentiated front/rear wheel and tire sizes are not offered on the 2.5i. For details on all wheel/tire combinations, see page 223.

#### **Leatherette interior**

The 2.5i comes standard with black leatherette upholstery and metallic-finish interior trim. Wood trim is not available in combination with this interior, but is available with either of the optional interior treatments.

#### **Optional Active Sport interior**

Only the 2.5i is available with this interesting cloth/leather interior.

#### **Premium Package**

The 2.5i Package includes two features (cruise control and leather upholstery) that are standard in the 3.0i. For details, see page 233.

#### **Convenience Package**

The 2.5i Package includes two features – the On-board Computer and upgraded interior lighting – that are standard in the 3.0i. For details, see page 233.

#### **Sport Package**

The 2.5i Package differs considerably from that for the 3.0i. For details, see pages 233-234.

## Z4 3.0i

### 3.0-liter DOHC inline 6-cylinder engine

As described on page 219.

### 6-speed manual transmission

The 3.0i comes standard with this newly developed, performance-enhancing transmission.

### Sequential Manual Gearbox

Applies the SMG operational features to the 6-speed transmission that is standard in this model.

### Wheel and tire equipment

The 3.0i comes standard with 17-in. wheels and tires; 18-in. equipment in differentiated front/rear sizes is part of the optional Sport Package. For details on all wheel/tire combinations, see page 223.

### Other additional standard equipment

The 3.0i includes the following additional standard equipment over the 2.5i:

- Front foglights
- Heated outside mirrors and windshield-washer jets
- Anthracite-finish vertical grille slats and headlight surrounds (2.5i: black)
- Chrome exhaust outlets
- Upgraded interior lighting

- Cruise control
- Center armpad
- On-board Computer
- High Performance leather upholstery (including brushed-aluminum interior trim)
- BMW lettering in chrome on door sills
- Premium audio system with Carver technology.

### Optional Extended High Performance leather upholstery

This most luxurious of Z4 interior treatments is available only in the 3.0i model.

### Premium Package

The 3.0i Package is less extensive than that for the 2.5i, in that it omits two features (cruise control and leather upholstery) that are standard in the 3.0i. For details, see page 233.

### Convenience Package

The 3.0i Package is less extensive than that for the 2.5i, in that it omits one feature (On-board Computer) that is standard in the 3.0i. For details, see page 233.

### Sport Package

The 3.0i Package differs considerably from that for the 2.5i. For details, see page 234.

## Standard & optional features

### 2003 Z4 Roadster Series

**Bold** within table indicates new feature relative to corresponding 2002 Z3 model

<b>Performance &amp; efficiency</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
DOHC 24-valve inline 6-cylinder engine with – Double VANOS steplessly variable valve timing <sup>1</sup> :		
2.5-liter	S	–
3.0-liter	–	S
Aluminum block & cylinder head	S	S
Chain camshaft drive (requires no periodic maintenance)	S	S
Dual resonance intake system	S	S
Electronic throttle system	S	S
<b>Dynamic Driving Control (Sport button)</b>	<b>ZSP<sup>2</sup></b>	<b>ZSP<sup>2</sup></b>
Electronically controlled engine cooling	S	S
Direct ignition system with knock control	S	S
<b>Specially tuned engine sound</b>	NA	<b>S</b>
5-speed manual transmission with direct 5th gear	S	–
<b>6-speed manual transmission</b>	NA	<b>S</b>
5-speed STEPTRONIC <sup>3</sup> automatic transmission	OPT	OPT
<b>6-speed Sequential Manual Gearbox (SMG) with Automated, Manual &amp; Sport programs</b>	<b>OPT<sup>4</sup></b>	<b>OPT<sup>4</sup></b>
<b>Handling, ride &amp; braking</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
High-rigidity roadster body/chassis unit <b>with aluminum hood</b>	S	S
Strut-type front suspension with <b>forged- aluminum lower arms</b> , hydraulic cushions	S	S
<b>Front thrust plate, aluminum</b>	<b>S</b>	<b>S</b>
<b>Strut braces</b>	<b>S</b>	<b>S</b>
<b>Central Link rear suspension with cast- aluminum upper transverse links</b>	<b>S</b>	<b>S</b>
Rear subframe on 4 mounts, with acoustically decoupled mounting of suspension system	S	S

<b>Handling, ride &amp; braking (cont.)</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Rear thrust plate, steel	S	S
Subframe mounting braces	S	S
Acoustically decoupled final drive with hydraulic rear mount	S	S
Front & rear anti-roll (stabilizer) bars	S	S
Twin-tube gas-pressure shock absorbers	S	S
<b>Sport suspension with lowered ride height</b>	<b>ZSP</b>	<b>ZSP</b>
Vehicle-speed-sensitive electric power steering	S	S
<b>Dynamic Driving Control (Sport button)</b>	<b>OPT/ZSP<sup>2</sup></b>	<b>OPT/ZSP<sup>2</sup></b>
4-wheel disc brakes, vacuum-assisted:		
Ventilated front/solid rear	S	—
Ventilated front & rear	—	S
Dynamic Stability Control (DSC III), including all-speed traction control, <b>Dynamic Traction Control, electronic brake proportioning</b> , antilock braking (ABS), <b>Dynamic Brake Control</b> & cornering/avoidance-stability enhancement	S	S
<b>Run-flat wheel-tire system with Flat Tire Monitor</b>	<b>S</b>	<b>S</b>
16 x 7.0 <b>Cross Spoke</b> cast-alloy wheels (design #104)	S	—
17 x 8.0 <b>Twin Spoke</b> cast-alloy wheels (design #103)	NA	S
17 x 8.0 <b>Turbine</b> cast-alloy wheels (design #106)	ZSP	NA
18 x 8.0 front/18 x 8.5 rear <b>Ellipsoid</b> cast-alloy wheels (design #107)	NA	ZSP
225/50R-16 V-rated performance radial tires	S	—
225/45R-17 W-rated performance radial tires	ZSP	S
225/40R-18 front/255/35R-18 rear W-rated performance radial tires	NA	ZSP

S – Standard  
 OPT – Optional  
 NA – Not available  
 — – Not applicable  
 ZSP – Sport Package

- 1 – VANOS = **V**ARIABLE **N**OCKENWELLEN **S**TEUERUNG = variable camshaft control, or variable valve timing.
- 2 – Provides Normal & Sport settings for throttle, steering and (if vehicle is so equipped) Sequential Manual Gearbox or STEPTRONIC automatic transmission.
- 3 – BMW's system of manual shift control for an automatic transmission.
- 4 – Requires Sport Package.

## Standard & optional features

### 2003 Z4 Roadster Series

**Bold** within table indicates new feature relative to corresponding 2002 Z3 model

<b>Exterior &amp; aerodynamics</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Front & rear body-color bumpers	S	S
4-headlight system within aerodynamic covers: Halogen <b>ellipsoid</b> low beams/free-form high beams	S	S
<b>Xenon low &amp; high beams with auto-leveling</b>	<b>OPT</b>	<b>OPT</b>
<b>Automatic headlight control</b>	<b>ZCV</b>	<b>ZCV</b>
Daytime Running Lamps	S <sup>5</sup>	S <sup>5</sup>
<b>High-intensity headlight cleaning system</b>	<b>SPEC</b>	<b>SPEC</b>
Front foglights	<b>OPT/ZSP</b>	S
2-speed + intermittent windshield wipers, <b>adjustable</b> & car-speed-sensitive interval, single-wipe operation	S	S
<b>Rain-sensing windshield wipers</b>	<b>ZCP/SPEC</b>	<b>ZCP/SPEC</b>
Heated windshield-washer jets	<b>OPT/ZSP</b>	<b>S</b>
Heated outside mirrors	<b>OPT/ZSP</b>	<b>S</b>
<b>Side turn indicators behind BMW logos</b>	<b>S</b>	<b>S</b>
<b>Adaptive brakelights</b>	<b>S</b>	<b>S</b>
Metallic paint	OPT	OPT
Vertical grille slats & headlight surrounds	Black	<b>Anthracite</b>
Easy-to-operate manual softtop with <b>heated glass rear window</b> , interior lining	S	S
<b>Fully automatic</b> power softtop with <b>heated glass rear window</b> , interior lining	<b>OPT/ZPP</b>	<b>OPT/ZPP</b>
Removable hardtop	C	C
Wind deflector	C	C
<b>Ergonomics, luxury &amp; convenience</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
<b>Vehicle &amp; Key Memory</b>	<b>S</b>	<b>S</b>
Keyless entry with <b>multi-function</b> remote control: <b>Selective unlocking</b>	<b>S</b>	<b>S</b>
<b>Remote trunk release</b>	<b>S</b>	<b>S</b>
Courtesy lights with fade-in/fade-out feature, <b>actuation from remote control</b> & automatic switch-on when engine is turned off	S	S
<b>Upgraded interior lighting</b> <sup>6</sup>	<b>ZCV</b>	<b>S</b>

<b>Ergonomics, luxury &amp; convenience (cont.)</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Cruise control	OPT/ZPP	S
Locking glove compartment	S	S
Storage space in doors & behind seats, coinholder	S	S
Elastic nets on right side of center tunnel & on back of each seat	ZCV	ZCV
Dual power outside mirrors	S	S
Heated outside mirrors	OPT/ZSP	S
<b>Automatic-dimming inside &amp; outside mirrors</b>	<b>ZCV</b>	<b>ZCV</b>
Leather-covered <b>tilt/telescopic</b> sport steering wheel, 358 mm/14.1 in.	S	S
<b>6-way</b> adjustable sport seats	S	S
<b>8-way</b> power sport seats with driver's-seat memory (3 memory positions)	OPT/ZPP	OPT/ZPP
<b>Center ampad</b>	<b>ZPP</b>	S
<b>3-stage</b> , thermostatically controlled heated seats	OPT	OPT
Electronic analog instrumentation	S	S
LCD main & trip odometers	S	S
Service Interval indicator with miles-to-service readout	S	S
<b>Extensive warning &amp; indicator lights in dial faces &amp; between instruments</b>	<b>S</b>	<b>S</b>
<b>Outside-temperature display</b>	<b>S</b>	<b>S</b>
4-function Onboard Computer	ZCV	S
<b>BMW Onboard Navigation System</b>	<b>OPT</b>	<b>OPT</b>
Leatherette upholstery	S	–
<b>Cloth &amp; leatherette upholstery (Active Sport)</b>	<b>OPT</b>	NA
Leather upholstery ( <b>High Performance</b> )	ZPP	S
<b>Extended Leather upholstery (Extended High Performance)</b>	NA	<b>OPT</b>
Leather handbrake grip & shift knob	S	S
<b>Graphite-finish interior trim</b>	<b>S</b>	–
<b>Brushed-aluminum interior trim</b>	<b>OPT/ZPP<sup>7</sup></b>	<b>S</b>

S – Standard

OPT – Optional

SPEC – Special-order option

NA – Not available

– – Not applicable

C – BMW Center-installed

ZCV – Convenience Package

ZPP – Premium Package

ZSP – Sport Package

5 – Selectable via Vehicle Memory System (programming by BMW Center).

6 – Includes door panels, footwells, separately switched left/right reading lights &amp; storage compartments.

7 – Included with optional Active Sport &amp; High Performance leather interiors.

## Standard & optional features

### 2003 Z4 Roadster Series

**Bold** within table indicates new feature relative to corresponding 2002 Z3 model

<b>Ergonomics, luxury &amp; convenience (cont.)</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
<b>Sycamore</b> wood interior trim	OPT <sup>a</sup>	OPT
<b>Velour</b> floor mats	<b>S</b>	<b>S</b>
Power windows with 1-touch open/close driver's window, 1-touch open passenger's window, <b>push-to-lower/pull-to-raise switches</b> , opening & closing from exterior door lock	S	S
<b>Power side-window sealing system</b>	<b>S</b>	<b>S</b>
Manual climate control <b>with microfilter ventilation</b>	S	S
<b>Automatic climate control with activated-charcoal microfilter ventilation &amp; automatic recirculation control</b>	<b>ZCP</b>	<b>ZCP</b>
Anti-theft AM/FM/CD audio system with Radio Data System, 9 speakers including subwoofer	S	S
Premium audio system with upgraded audio power, <b>Carver technology, 10 audiophile-quality speakers including 2 subwoofers</b>	OPT	OPT
Pre-wiring for CD changer	S	S
6-disc CD changer	C	C
Pre-wiring for BMW Cellular Phone System	S	S
BMW Cellular Phone System	C	C
Dual cupholders	S	S
<b>Electric interior trunk release</b>	<b>S</b>	<b>S</b>
<b>Variable softtop compartment</b>	<b>S</b>	<b>S</b>

<b>Safety &amp; security</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Dual-airbag Supplementary Restraint System with 2-stage Smart Airbags	S	S
Automatic safety-belt tensioners & force limiters	S	S
<b>Active Knee Protection</b>	<b>S</b>	<b>S</b>
Isofix attachment of child-restraint safety seat	S	S
<b>Disable switch for passenger's-side airbag with indicator light</b>	<b>S</b>	<b>S</b>
Side-impact airbags	S	S
Rollover Protection	S	S
Battery Safety Terminal	S	S
Automatic fuel-pump shutoff upon severe accident impact	S	S
Daytime Running Lamps	S <sup>5</sup>	S <sup>5</sup>
<b>Intelligent Safety &amp; Information System (ISIS) for deployment of safety systems</b>	<b>S</b>	<b>S</b>
Central locking system with double-lock anti-theft feature, <b>selective unlocking &amp; interior locking switch; also locks interior storage compartment</b>	S	S
Coded Driveaway Protection	S	S
Pre-wiring for alarm system	S	S
Alarm system with operation from keyhead remote	C	C

S – Standard

OPT – Optional

NA – Not available

C – BMW Center-installed

ZCP – Convenience Package

5 – Selectable via Vehicle Memory System (programming by BMW Center).

8 – Requires Active Sport or leather interior (stand-alone option or Premium Package).

## Specifications

### 2003 Z4 Roadster Series

Except for engines, virtually all specifications are new relative to 2002 Z3 models

<b>General</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Curb weight, lb.:		
Manual transmission	2932	2998
Sequential Manual Gearbox (SMG)	2976	3020
Automatic transmission	2998	3042
Weight distribution, front/rear, %:		
Manual transmission	50.2/49.8	50.4/49.6
Sequential Manual Gearbox (SMG)	50.2/49.8	50.4/49.6
Automatic transmission	50.5/49.5	50.7/49.3
Wheelbase, in.	98.2 <sup>1</sup>	
Track, front/rear, in.	58.0/60.0 <sup>1</sup>	
Length, in.	161.1 <sup>1</sup>	
Width, in.	70.1 <sup>1</sup>	
Height, in. (with softtop up)	50.1 <sup>1</sup>	
<b>Body</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Type	2-seat roadster <sup>1</sup>	
Aerodynamic drag coefficient	0.35 <sup>1</sup> (with softtop up)	
EPA size classification	2-Seater <sup>1</sup>	
<b>Accommodations</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Seating capacity, persons	2 <sup>1</sup>	
Shoulder room, in.	52.5 <sup>1</sup>	
Head room, in.	37.3 (with softtop up)	
Leg room, in.	42.0 <sup>1</sup>	
EPA interior volume, cu ft.	TBA <sup>1</sup>	
EPA cargo volume, cu ft.	TBA <sup>1</sup>	
<b>Engine &amp; electrical</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Engine type	DOHC inline 24-valve 6-cylinder, Double VANOS <sup>2</sup> steplessly variable intake- & exhaust-valve timing <sup>1</sup>	
Bore x stroke, mm/in.	84.0 x 75.0/ 3.31 x 2.95	84.0 x 89.6/ 3.31 x 3.53
Compression ratio	10.5:1	10.2:1
Power @ rpm, hp	184 @ 6000	225 @ 5900
Torque @ rpm, lb-ft.	175 @ 3500	214 @ 3500

<b>Engine &amp; electrical (cont.)</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Engine-management system	Siemens MS 45 with knock control (2 sensors); variable valve timing, electronic throttle system, dual resonance intake system, engine cooling & other functions included in control strategy <sup>1</sup>	
Fuel requirement	Premium unleaded <sup>1</sup>	
Fuel capacity, U.S. gal.	14.5 <sup>1</sup>	
Battery capacity, amp-hr.	55 <sup>1</sup>	
Alternator output, amp./W	120/1680 <sup>1</sup>	
<b>Drivetrain</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Drive system	Front engine/rear drive <sup>1</sup>	
Manual transmission	Getrag Type B+, 5-speed	ZF Type H, 6-speed
Ratios: 1st	4.23:1	4.35:1
2nd	2.52:1	2.50:1
3rd	1.66:1	1.66:1
4th	1.22:1	1.24:1
5th	1.00:1	1.00:1
6th	–	0.85:1
Reverse	4.04:1	4.04:1
Final drive ratio	3.46:1	3.07:1
Sequential Manual Gearbox (SMG)	Electrohydraulic/electronic controls applied to ZF Type H 6-speed transmission; same ratios as for 3.0i 6-speed	
Automatic transmission	ZF 5 HP 19, 5-speed STEPTRONIC with Adaptive Transmission Control & selectable Sport mode	
Ratios: 1st	3.67:1 <sup>1</sup>	
2nd	2.00:1 <sup>1</sup>	
3rd	1.41:1 <sup>1</sup>	
4th	1.00:1 <sup>1</sup>	
5th	0.74:1 <sup>1</sup>	
Final drive ratio	3.64:1	3.46:1

TBA – To be announced

1 – Specification applies to both models.

2 – VANOS = **V**ariable **N**ockenwellen

**S**teuerung = variable camshaft control,  
or variable valve timing.

## Specifications

### 2003 Z4 Roadster Series

Except for engines, virtually all specifications are new relative to 2002 Z3 models

Chassis	Z4 2.5i	Z4 3.0i
Body/frame construction	Unitized steel structure with aluminum hood <sup>1</sup>	
Front suspension	Struts, arc-shaped forged-aluminum lower arms with hydraulic cushions, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar; aluminum thrust plate & strut-dome braces <sup>1</sup>	
Rear suspension	Multi-link system with Central Links, upper & lower lateral links (upper link of cast aluminum), coil springs, twin-tube gas-pressure shock absorbers, anti-roll, steel thrust plate & V-brace <sup>1</sup>	
Steering type	Rack & pinion, vehicle-speed-sensitive electric power assist <sup>1</sup>	
Overall ratio	13.7:1 <sup>1</sup>	
Turns, lock-to-lock	3.0 <sup>1</sup>	
Turning circle, ft.	33.1 <sup>1</sup>	
4-wheel disc brakes, vacuum-assisted:		
Diameter, front, mm/in.	286/11.3 (ventilated)	300/11.8 (ventilated)
Diameter, rear, mm/in.	280/11.0 (solid)	294/11.6 (ventilated)
Wheels (standard)	Cast alloy <sup>1</sup> : 16 x 7.0	17 x 8.0
Wheels (optional)	Cast alloy <sup>1</sup> : 17 x 8.0 (ZSP)	18 x 8.0 front/ 18 x 8.5 rear (ZSP)
Run-flat tires (standard)	225/50R-16 V-rated	225/45R-17 W-rated
Run-flat tires (optional)	225/45R-17 W-rated	225/40R-18 front/ 255/35R-18 rear W-rated (ZSP)
Stability-enhancement system	Dynamic Stability Control (DSC), including all-speed traction control, Dynamic Traction Control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement <sup>1</sup>	

<b>Performance data</b>	<b>Z4 2.5i</b>	<b>Z4 3.0i</b>
Acceleration, 0-60 mph, sec. <sup>3</sup>		
manual transmission or SMG	7.1	5.9
automatic transmission	7.2	6.0
Top speed, mph:		
manual transmission or SMG	146	155 <sup>4</sup>
automatic transmission	141	152
Fuel economy, EPA est. MPG, city/highway:		
manual transmission	20/28	21/29
Sequential Manual Gearbox (SMG)	20/30	20/29
automatic transmission	21/28	20/28

ZSP – Sport Package

1 – Specification applies to both models.

3 – BMW AG test results. Actual acceleration results may vary depending on specification of vehicle; road and environmental conditions; testing procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

4 – Electronically limited.

## 2003 BMW M Cars: M3 and M5 models get evolutionary improvements

BMW M is BMW's "brand within a brand," devoted to high-performance automobiles and related products. (Please see pages 8-9 for more details on BMW M). At BMW M, experiences from the race track flow into regular-production BMW vehicles to create uniquely capable, enjoyable driving machines.

With introduction of the new Z4 Roadster, the M Roadster and Coupe drop out of the M Cars line for '03, leaving the two M3 models and the M5 as this year's representatives of BMW M artistry on wheels. Thus the '03 line is as follows:

- **M3 Coupe** – now the most accessible BMW M model; continues with the amazing 333-hp 6-cylinder M engine and available with 6-speed manual transmission or Sequential Manual Gearbox.
- **M3 Convertible** – M3 performance and handling plus open-air driving pleasure.
- **M5** – BMW M's most luxurious and powerful model; powered by M's monumental 394-hp V-8 engine.

The unique role of BMW M needs no explaining to the experts; they drive the M Cars and find out for themselves. Here's an updated sampling of recognition given by independent critics to the M3 since its 2001 introduction.

### On the Sequential Manual Gearbox (SMG):

"So the SMG is not for everyone. But for its \$2,400 price [which includes Park Distance Control, a \$350 value], I'd take it in a heartbeat simply because it offers the best of both worlds: On the freeway, SMG provides a luxury that you just can't get with a conventional stick shift,

and at the track, well, it makes you feel like a race driver."

*Road & Track*, September 2002

"The most sophisticated transmission available in a production car."

*Motor Trend*, August 2002

"You just might give [Formula 1 racing driver Juan] Montoya a run for his money behind the wheel of BMW's paddle-shift M3. Okay, maybe only in your dreams, but the M3 now offers one of the best all-round rides on the planet, wrapped in one of the most recognizable – and beautiful – skins in all of automobiledom... Pretending to be an F1 driver is only a snick-snick away."

*AutoWeek*, May 20, 2002

"Pure enjoyment: Whether one is cruising in the automated mode through the countryside, or using the sequential mode on a mountain pass to extract the most out of the potent M3, the shifting [of the SMG] never shows a weakness. And if one is honest with oneself, the shifting is better – and especially always consistent – than one can do it oneself."

*Automobil Revue*, Switzerland, May 3, 2001

### On the M3 in general:

"This is a strongly flavored choice, muscular and deliberate, ferociously powerful, and not at all shy about its performance compromises. It always acts like the automotive jock it is, every mile of every day."

*Car and Driver*, May 2003

"If anyone needs reminding why we have an enduring love affair with the BMW brand, here's your answer."

*Automobile Magazine*, April 2003, concluding a 12-month/31,653-mile M3 test of the M3 Coupe

"The cool, classy look and feel of the whole car is absolutely top drawer, and you immediately sense that this is a serious driving tool put together by enthusiasts in Munich who really know what they're doing." *Automobile Magazine*, February 2003, naming the M3 as its GT All-Star

"A practical, four-adult tool for the committed driving enthusiast." *Car and Driver*, March 2003, concluding a 40,000-mile test of the M3 Coupe

"The [BMW] 3 combines great steering feel, superb handling characteristics and smooth power delivery with a generous dash of *je ne sais quoi*, a mysterious ingredient that makes a car more than just the sum of its parts. Then there's the M3, which takes that fantastic 3 Series formula to a higher and even more glorious level.

"That we have M3s to drive forever would be too much to ask; yet when BMW decides to finally set the parking brake on M3 production, it'll be hard to let go." *AutoWeek*, March 25, 2002

"If you want a car that doubles as plaything and workhorse, the M3 has got it all." *Automobile Magazine*, January 2002, in declaring the M3 one of its All-Stars

#### **On the M3 Coupe:**

"All in all, the M3 did a great job of being a comfortable people hauler when we needed it, a real hot rod when we felt like winding it up, and a stylish ride that impressed wherever it showed up." *Automobile Magazine*, August 2002

"Nail the shifts perfectly (not tough to do with this sweet six-speed box), and you'll rip to 60 mph in

4.65 sec. and on through the quarter-mile in 13.18 sec./106.92 mph. Pull, sound, finesse – the M3 has it all. That BMW's engineers could coax 333 hp out of a normally aspirated 3.2L engine (in a \$45,000 car!) should make them eligible for some sort of Nobel Prize.

"It's ironic that the M3 can do all that it does so extremely well and still be a four-place machine with a useable back seat and a real trunk.

"It's hard to imagine a better-designed, more driver-oriented environment than the M3's. Seats are clearly the best of the bunch here, and adjustable bolsters and thigh support mean everyone gets comfortable. Multitude of redundant steering-wheel controls also means less reaching for the dash. Gauges are clear and easy to read."

*Motor Trend*, August 2001, from a comparison test of M3, Corvette Z06 and Porsche Boxster S

"In 15 years, the M Cars have become larger, heavier, and more luxurious, but this new M3 is also the fastest ever sold to the American market – fast enough to run with Ferraris and Porsches and Corvettes."

*Automobile Magazine*, August 2001

#### **On the M3 Convertible:**

"The M3 convertible in our test carried a price tag of \$57,220. Not bargain-basement by any stretch, but, based on the performance and exclusivity (BMW will sell some 2100 this year), we think it's a fair price for a worthy player...Knife-edge handling and a 333-hp engine will surely make your heart pound."

*Motor Trend*, April 2002

"In the end, however, it's the BMW M3 that defines the notion of total performance. As we said, M defined the formula and still executes it better than just about anyone else."

*Motor Trend*, January 2002, from "2002 Car of the Year"

"Just don't let the four seats fool you. It's a sports car, and it encourages you to drive it like one."

*Car and Driver*, January 2002

"The 330Ci-based M3 convertible is the best open car BMW makes and the one that we would choose if we absolutely had to get our heads out in the wind."

*Automobile Magazine*, August 2001

"It's all good. With driving, that is. Especially from behind the wheel of a car designed to do little else than to drive superbly. Take the BMW M3 [convertible]. Sneak preview from an upcoming AutoFile: 0 to 60 mph in 5.1 seconds, the quarter-mile in the 13s at more than 100 mph. But numbers can't measure the grins this car elicits. We're talking ear to ear. Toss it around a turn or through some cones and you're in danger of grinning the whole top of your head off. Around here, we call the M3 simply, 'The Car.' Says a lot, no?"

*AutoWeek*, July 23, 2001

#### On the M5:

Since the M5 first appeared as a 2000 model, it has made the rounds of enthusiast publications. All were lyrical in their praise. Some recent examples:

"Since its debut in 1998, the BMW M5 has sat securely atop the sports-sedan heap, the enthusiast's clear choice among the world's four-doors. Now, however, the M5's reign is jeopardized by

a multi-pronged attack from rivals that have dramatically escalated the underhood arms race."

(Opening quote.)

"But as a whole, the BMW is a masterpiece. Such cars as these are about more than the numbers; they're also about sensations, emotions, and confidence. The M5 scores in all three departments. It is both smooth and edgy, subtle and lurid, light-footed and rock-solid. In short, it wins, uncontested." (Closing quote.)

*Automobile Magazine*, December 2002, from a comparison test of the M5, Audi RS6, Jaguar S-Type R and Mercedes-Benz E55 AMG

"No matter how many times we drive the M5, we're always amazed at just how stinking fast it is and how well everything works together."

*AutoWeek*, November 11, 2002

"The M5 remains the benchmark for sports sedans, adding a sharp high-performance edge to the already splendid 540i. Here's an executive luxury sedan with both a satellite navigation system and nearly 400 hp of thrust that our AutoFile testers ran to 60 mph in 4.96 seconds."

*AutoWeek*, naming the M5 America's Best Sports Sedan, July 1, 2002

"It's the better performer (if only slightly), its design remains fairly aggressive, and the M-appointed interior garners more upgrades than does this AMG variant. As an enthusiast driver, I relish the M5's every input and response. I love its intake howl, exhaust burble, communicative steering, rock-solid chassis, and the way it pulls at my gut on a hard launch. It knows what it is, and it's damned good at being it."

*Motor Trend*, declaring the M5

winner over the Mercedes-Benz E55 AMG in a comparison test, April 2002

“BMW builds the world’s best sport sedans, so it’s no wonder that the company’s ultimate sport sedan, the M5, once again breezed to victory, despite competitors that are more formidable than ever.” *Automobile Magazine*, naming the M5 Best Sport Sedan/Wagon, February 2002

“Only Enzo’s [Ferrari’s] heirs build a sweeter V-8, fluid controls, a blue-chip choice no one will question.”

*Car and Driver*, September 2001

“It is so refined and the various performance upgrades have been so harmoniously integrated and blended into the driving experience that an awful lot of passengers could travel a hundred miles in the M5 and never divine its true performance capability. And, it must be said, that capability is astonishing. The M5 is the fastest four-door sedan in the world today, quite capable of staying with a long list of the very highest-performance cars, all the way from zero to its chip-limited top speed of 155 miles per hour.” *Car and Driver*, August 2001

“The M5 offers the best of both worlds. Not only do you get a BMW sedan with luxury features galore, you also get enough power to trounce virtually anything with four doors – or two for that matter.”

*AutoWeek*, March 26, 2001

“To the uninitiated, it looks like a regular 5 Series with fancy wheels, but you know the M5 is the baddest sport/luxury sedan on earth. Its 5.0L/394-hp V-8, 7000-rpm redline, and six-speed gearbox provide big thrills.”

*Motor Trend*, March 2001

## What’s new for 2003

### M3 Coupe and Convertible

During model year 2002:

- Reinforcing braces added to front-suspension strut towers

As of 9/02 production:

- Rain-sensing windshield wipers and automatic headlight control now standard (formerly in Premium Package for coupe, stand-alone option for convertible)
- Available BMW Onboard Navigation System upgraded to DVD-based system; functional improvements as well
- In-dash single-disc CD player now available in combination with Navigation System
- New option: aluminum interior trim

As of 3/03 production:

- New taillights, incorporating BMW’s innovative Adaptive brakelights
- Newly configured climate-control panel

(M3s remain ’03 models, do not get the optional Adaptive Light Control of 3 Series Coupes and Convertibles, and continue with unchanged styling.)

### M3 Coupe only

As of 9/02 production:

- Optional Power Seat Package deleted; its features (power front seats with memory, adjustable backrest bolsters and 4-way power lumbar support) now available as two stand-alone options

### M5

As of 9/02 production:

- Rear Head Protection System (HPS) and side-impact airbags now standard (formerly a no-cost option)
- Standard BMW Onboard Navigation System upgraded to DVD-based system; functional improvements as well

## M3 Coupe & Convertible key features

Based on the 330Ci Coupe and Convertible respectively, the M3 Coupe and Convertible differ from those models in the following key features:

### Performance & efficiency

#### BMW M S54 3.2-liter DOHC 24-valve 6-cylinder engine (both models)

The M3 models are powered by this newest exemplar of the BMW M art of engine design.

In addition to the key features that follow, the S54 engine differs from BMW's other 6-cylinder engines in having a cast-iron cylinder block instead of their aluminum block with cylinder liners. Though the cast iron entails a certain weight penalty, it was chosen for the following reasons:

- **Compactness.** Within the inline 6-cylinder configuration – a nearly sacred concept with BMW because of its smoothness and sound – BMW M wanted to keep the engine as compact as possible. An aluminum block's cylinder liners take up space; with liners it would not have been possible to achieve the 3.2-liter displacement without lengthening the block.
- **Strength.** Because this engine develops more than 333 hp from 3.2 liters – over 100 hp/liter – its internal stresses are immense. Piston speed at 8000 rpm is also high: 24 meters/sec., very close to the 25 m/s of typical Formula 1 engines. The extra strength of cast iron helps the M3 unit withstand these stresses.

The engine's key features include: **Unique cylinder head.** At the core of the S54's performance is a cylinder head engineered for ultimate breathing ability. As in BMW's regular-production 6-cylinder engines, a Double VANOS system steplessly varies intake- and exhaust-valve timing

– but varies it more dramatically and has its own hydraulic pressure pump for even quicker response to power demands. BMW M calls this system **High-Pressure Double VANOS**. A unique valvetrain, with generously sized valves, high lift and finger-type rocker arms between the camshafts and valves, reduces inertia for a further gain in response. The compression ratio is an extra-high 11.5:1. Intake ports are fully machined, exhaust ports partially machined.

**Electronically controlled individual throttles.** An individual throttle for each cylinder brings atmospheric pressure practically right to the cylinder, reducing the "lag time" inherent in induction airflow. These throttles are electronically controlled and incorporate M Dynamic Driving Control, which gives the driver a choice of Normal and ultra-responsive Sport settings for throttle response.

**Free-flowing dual exhaust system.** Unique stainless-steel exhaust headers are formed under pressure with water inside them to ensure consistent wall thickness. This process allows walls just 1 mm thick (about 1/25th of an inch!), not only saving weight but hastening engine warmup. Instead of being welded-up as most headers are, each header is a single piece.

**Semi-dry-sump lubrication system.** Includes a 2-part sump with pressure and scavenging pumps to help ensure adequate lubrication even under very high cornering loads.

**Crossflow cooling** promotes consistent temperatures from the front to the rear of the head; this helps minimize distortion

and wear under the high heat such a high-performance engine generates at full power. A novel water-pump concept, with cast plastic vanes, boosts cooling efficiency, as does a ring-type thermostat.

**Unique electronic control system.** BMW engineered the MS S54 electronic control module to “do everything, and do it fast.” Every 6 degrees of crankshaft rotation, it calculates and adjusts the ignition and fuel injection at each cylinder individually. Ignition occurs through small-diameter “pencil” coils at each cylinder, adapted from BMW’s V-12 racing engine and making their first appearance in a production car.

**Greater displacement.** Compared to the 3.0-liter displacement of the top 3/Z4/5 Series engine, the S54 has 3.2 liters of displacement, achieved with a bore and stroke of 87.0 x 91.0 mm (3.0 engine: 84.0 x 89.6 mm). As mentioned earlier, the cast-iron block facilitates the larger bore.

**High-rpm concept.** The performance-oriented engineering features facilitate very high rotational speed, essential to the high power output. The M3 engine’s rpm limit (redline) is 8000 rpm, with maximum power occurring at 7900 rpm. To ensure durability at such high revs, a forged nitro-carbonized steel crankshaft provides great strength in this critical component.

**The bottom line:** The M3 version delivers 333 hp and 262 lb-ft. of torque, and delivers truly spectacular performance:

- M3 Coupe – 0-60 mph in 4.8 sec.
- M3 Convertible – 0-60 in 5.4 sec.

- Both models – top speed electronically limited to 155 mph; without the limiter, these cars would reach far higher speeds.

The M3 engine has specific use and maintenance requirements; each new M3 comes with an instruction card.

### **6-speed manual transmission (standard both models)**

M3s come standard with the robust and fun-to-use Getrag Type D 6-speed manual transmission. As in the M5, this ultimate manual transmission is controlled by a handsome shift knob with illuminated 6-speed pattern and M logo.

The transmission housing incorporates NACA air intakes which, together with careful aerodynamic design of the underbody, help keep internal transmission temperatures down.

### **Sequential Manual Gearbox (optional both models)**

As a new direction in transmission technology for ultra-high-performance automobiles, the SMG is a fascinating alternative for sports-minded buyers who also happen to be Early Adopters. Full details are found in the **M3 options & accessories** section, pages 263-267.

### **M5-sized differential unit**

Significant modification in the rear-suspension area, including an all-new subframe, has allowed equipping the M3 with the same heavy-duty differential dimensions as the even more powerful M5. A special high-strength steel alloy, called 18CrNiMo7, is used to achieve superior quietness and durability. A relatively “short” final drive ratio (3.64:1, vs. the

## M3 Coupe & Convertible key features

Based on the 330Ci Coupe and Convertible respectively, the M3 Coupe and Convertible differ from those models in the following key features:

330 models' 2.93:1) fully utilizes the M3 engine's huge torque and rpm range in 1st through 5th gears; the 6th gear then keeps the engine humming quietly at cruising speed. Here too, targeted airflow under the vehicle, along with a ribbed differential case, helps keep the oil cool.

### Handling, ride & braking

#### M Variable Differential Lock

Together with the German division of GKN Viscodrive, BMW M engineers developed a new, more capable mechanical limited-slip differential for the M3.

The main distinction between a traditional limited-slip "diff" and the M Variable Differential Lock is that where the former senses torque, the new **senses wheel speed** (rpm). Under dry to not-quite-dry road conditions, the 25% limited-slip has always enhanced the handling of sporty rear-wheel-drive BMWs; yet under slippery conditions, this differential type has limited ability to improve traction. In particular, this limitation applies when one wheel is on slippery, the other on firmer ground; it cannot transmit more torque than the slippery side permits. On all current BMW models, electronic traction control (a function of Dynamic Stability Control) addresses this issue, although not in a manner conducive to sporty, M Car-style driving.

The M Variable Differential Lock specifically addresses low- and split-traction situations in a way that reinforces sporty handling, imparting to the M3 a slippery-road ability no high-performance, rear-wheel-drive sports car ever before had.

Any time a speed difference develops between the two rear (driven) wheels, a **shear pump**, driven by this difference, develops pressure in the unit's silicon viscous fluid. This pressure is directed to a **multi-disc clutch** that transfers driving torque to the wheel with the better road grip ("select high"). The greater the speed difference between the two wheels, the harder the clutch engages. As this difference in wheel speeds diminishes, the clutch begins to ease off.

This mechanism accomplishes sophisticated action by entirely natural means. There is no external pump, no external source of lubrication or operating fluid. The very motion to be controlled – differences in speed between one wheel and the other – generates its locking action.

Viscous fluid is so-called because it develops internal force (via an increase in viscosity) whenever it is sheared; this is why the relatively small difference between one wheel speed and the other can generate the necessary action.

#### Specially calibrated Dynamic Stability Control

DSC is standard on all BMW models; on the M3, this electronic traction and stability system is complementary to the M Variable Differential Lock.

DSC's traction control occurs by electronic means, with the system sensing wheel-speed differences and reducing engine torque and/or applying individual rear-wheel brakes to optimize traction. The crucial difference to the M3 driver between the M Variable Differential Lock and the DSC traction function is that the former

in no way impedes power delivery, and is hence suitable for performance driving.

In cooperation with Continental Teves, BMW M engineers developed specific logic that, together with the fast-reacting engine, performance-oriented gearing and M Variable Differential Lock, achieves the desired traction optimization in an M-compatible way...in other words, without undue interference with M3 performance and the differential lock's ability to get M power to the road. With DSC and the M Variable Differential Lock at work, the M3 can master virtually any traction situation.

As usual with DSC, it can be de-activated via a console button. For detailed descriptions of the principles and operation of DSC, see pages 24-25 of this **Fast Facts** edition.

### **BMW M front suspension**

While retaining the basic layout of the 3 Series, BMW M moved back toward the previous M3 in terms of the system's arrangement and its movements over bumps and in curves. At the same time, the new M3 system takes advantage of 3 Series evolution, including the wider front track and aluminum lower arms.

Specifically:

- At 59.4 in., the new M3's front track is a hefty **3.4 in. greater** than that of its forebear.
- As on the current 3 Series, weight-saving, strong forged-aluminum lower arms are employed (steel on the previous M3). But these arms are unique to the new M3.

To form an ultra-rigid basis for the suspension system, BMW M's engineers created an entirely

new **thrust plate** to handle the immense lateral thrust generated by the M3's tires in cornering. It is made of aluminum 3 mm thick, and includes a longitudinal axis from which each (left and right) all-new lower arm pivots. The thrust plate even incorporates an NACA air intake that takes in air to cool the transmission.

The bearings, bushings and cushions on which these arms pivot are also all-new; a rubber cushion replaces the 3 Series' hydraulic cushion at the rear of the lower arm. Thus the M3's mounting of the lower arms is similar to that of the previous M3, and stiffer than that of the current 3 Series.

In contrast to the 3 Series' arc-shaped lower arms, the M3's **unique lower arms** have a distinctive "bat wing" shape that achieves even greater strength. As on the 3 Series, these are made of forged aluminum to keep unsprung weight low and strength high.

Other front-suspension components either modified or specially developed for the M3 include:

- Unique steering knuckles
- Modified wheel bearings
- Subframe – from 3 Series Convertible, even on the M3 Coupe.

An additional distinction is that the M3 struts – like the previous M3 – separate the top mountings of spring and shock absorber. The strut's top anchor point moves rearward, increasing caster, while the coil spring's mounting stays where it was; the separate mounting improves isolation from road harshness, compensating to some degree for the firmer bushing arrangement.

## M3 Coupe & Convertible key features

Based on the 330Ci Coupe and Convertible respectively, the M3 Coupe and Convertible differ from those models in the following key features:

During the 2002 model year, **reinforcing braces** were added to the M3s. These run from the front suspension's strut towers to the cowl area, and can be seen by opening the hood.

### BMW M rear suspension

The 3 Series' advanced Central Link multi-link system is employed in the M3, with upper lateral links of cast aluminum as on regular-production 3 Series models. In contrast to the regular 3 Series, both pairs of lateral links (lower and upper) have steel balljoints instead of rubber bushings at their outer ends. There are many other points of distinction from the standard rear suspension as well.

For the larger, stronger M3 differential, M engineers developed an entirely new mounting system. In BMW's usual "acoustically decoupled" mounting, the differential mounts through rubber bushings to a subframe, which then attaches to the main structure through four rubber mounts. This subframe is specific to the M3, having been developed to accommodate the larger differential assembly.

Not only is the subframe itself new; BMW M has added a **V-brace** to stiffen its attachment to the main structure. This is analogous to the thrust plate at the front and has the same purpose: to add rigidity in the area where the suspension joins the vehicle structure.

The axle halfshafts are upsized for extra strength, and the wheel carriers are also special to the M3.

### Springs and shock absorbers: "black magic"

This is an area where BMW's – very especially BMW M's – capabilities are legend. "Black magic and witchcraft. Those must be BMW's secrets," raved *Car and*

*Driver* in a recent road test. "How else does one explain the way it manages to bring inanimate metal, rubber, and plastic to life?"

After the basic design and geometry are set, M's chassis engineers hit the road and race track in prototypes, testing, changing, fine-tuning the suspension for absolutely optimum performance. The M3's coil springs have been carefully calibrated for the ideal combination of firmness and compliance. Its shock absorbers are likewise perfectly calibrated for the response one expects of a high-caliber sports car. Anti-roll (stabilizer) bars – 26 mm front, 21.5 mm rear<sup>1</sup> – have been carefully sized front-to-rear for ideally responsive, yet not nervous, handling.

### Brakes: even more powerful

Powerful brakes are always a BMW strength, and the current 330 models already upgraded 3 Series braking ability with front discs of 325-mm/12.8-in. diameter and rear discs of 320-mm/12.6-in. diameter.

The M3 goes a step further with 328-mm/12.9-in. rear discs, and the rotors are thicker all around: 28 mm at the front, vs. 22; and 20 mm at the rear, vs. 19. A tandem booster, sized 10 in./9 in., provides extra vacuum assist over the 330s' single 10-in. booster. As always on M Cars (and presently the 3 Series too), all four discs are ventilated for high fade resistance; electronically proportioned for optimum distribution of braking power; and backed up by Dynamic Brake Control, which reinforces the driver's pedal effort in emergency braking. BMW M points out that the M3 can be brought to a halt from 100 km/h

(62 mph) in half the time it takes for it to accelerate to that speed. *Car and Driver* put it this way in its June '01 comparison between the M3 Coupe and Mercedes CLK 55: "And as we discovered at the track and in the mountains, the M3 has incredible brakes. With a stopping distance from 70 mph of only 155 feet, the binders proved virtually fade-free, with just about perfect pedal action and feel."

### **Wheels and tires: ultimate grip and style**

Standard M3 wheel and tire equipment comes tantalizingly close to that of the top-of-line M5. In this interpretation of the M Double Spoke design concept, the wheels are sized 18 x 8.0 front and 18 x 9.0 rear and have the same beautiful Satin Chrome finish as on the M5. Also as with the M5, the wheels are cast in Belgium and finished by craftspeople in Italy.

Connecting these massive, deep-dish alloy wheels to the road are suitably wide, low-profile, high-speed-rated tires, developed specifically for the M3. Supplied by Michelin (Pilot Sport), Continental (Sport Contact M3) or Dunlop (SP 9000), they are sized 225/45ZR-18 front / 255/40ZR-18 rear. Compared to the sportiest 3 Series wheel-and-tire combination, the M3 18-in. rear wheels are a half-inch wider and all tires are one step taller in profile. (3 Series: 225/40ZR-18 front / 255/35ZR-18 rear.)

19-in. wheels and tires are optional; see **options & accessories**, page 267.

### **M Mobility System**

The voluminous exhaust system precludes space for a spare tire. If a tire is punctured – a rare

event these days in any case – the M Mobility System provides a way to get home.

Omitting the spare tire saves fully 15 kg, or about 33 lb. Details on the M Mobility System are found in **BMW features**, page 36.

### **Flat Tire Monitor**

Whenever tire pressure drops by 30% or more, the tire's rolling radius changes significantly and the wheel rotates at a different speed from the other tires. Via DSC's wheel-speed sensors, the Flat Tire Monitor recognizes any such major deviation. Within a short time of 1-3 minutes, this system triggers a pressure-loss indication in the instrument cluster, plus an audible warning.

## **Exterior & aerodynamics**

### **The M3 design philosophy**

The M3's exterior design continues the established theme of BMW M:

- Distinguish the M Car from its regular-production counterpart
- Visually emphasize its performance and road capabilities
- Maintain the good taste and timeless esthetics that characterize all BMWs.

The M3's starting point is, of course, the 3 Series Coupe and Convertible. The differences between the M3 and the regular-production 325/330Ci Coupes and Convertibles are extensive, purposeful and highly expressive.

### **Front view**

Though the changes for '04 bring the 3 Series Coupes and Convertibles closer to the M3 look, the M3 bumper/spoiler ensemble remains distinctive. The M3's  $C_D$  is equal to that of the 330Ci, but its front and rear coefficients of lift ( $C_L$ ) are even

1 – 330Ci with Sport Package: 24 mm front/19 mm rear.

## M3 Coupe & Convertible key features

Based on the 330Ci Coupe and Convertible respectively, the M3 Coupe and Convertible differ from those models in the following key features:

better than those of the regular model, enhancing high-speed stability. Contributing to the reduced front lift is special underbody fairing, extending rearward from the spoiler to the suspension/thrust-plate area.

The M3 hood, of aluminum to reduce weight, differs sharply from the 3 Series' steel hood. It features a "power dome" and contours that sweep up from the grilles' flanks to the A-pillars. As on the 3 Series, Xenon low- & high-beam headlights are optional, though the new Adaptive Light Control feature offered on '04 3 Series Coupes and Convertibles is not available on M3s. "White" or clear turn-signal lenses are used here and at the rear – a distinction shared with Sport Package-equipped 3 Series Coupes and Convertibles but not other 3 Series models.

### The sides

Though 3 Series Coupes and Convertibles have more prominently flared front wheel openings for '04, the M3s' openings remain even more prominent. The rear wheel openings are flared fully 20 mm (0.8 in.) more than those of the 3 Series models, all this accenting the 18- or 19-in. wheels and tires (and keeping them inboard of the sheet metal for practical purposes). Overall, the M3 Coupe's body width is 70.1 in., 0.9 in. wider than the 330Ci Coupe. Particularly in the 3/4 front or 3/4 rear view, these fender flares are quite prominent.

Other specific side elements include "gills," which recall the 2.5 CS – 3.0 CSi coupes of the Sixties and Seventies. The left one ventilates the underhood "electrobox" where electronic components live; the right one,

though open, provides no necessary ventilation. Typical M aerodynamic outside mirrors add to the distinctive look; they fold upward, though they are not powered as on the M5. By pointing toward the rear wheels, unique side sills visually emphasize BMW's rear-wheel drive.

Speaking of rear-wheel drive, the differentially sized 18-in. wheels, with their M Double Spoke design and unique Satin Chrome finish, are very much a part of the M3's exciting profile and 3/4 front/rear views. Now that the 330s offer 18-in. wheels and tires, this distinction is perhaps a little less dramatic; but the optional 19-in. wheels and tires keep the M3s a step ahead in sportiness.

### At the rear

The rear bumper/apron is completely distinctive from that of the 330Ci models. Rear reflectors have migrated from there to the taillight clusters, a lateral ridge stretches all the way across, and openings for the four exhaust outlets line up with the trunklid's sides. (3 Series models have two outlets on the left side only.) A very discreet spoiler tops the Coupe trunklid's top edge; as with the M5, this can be deleted at no extra cost if customers desire. Also available, at extra cost, is the rear Park Distance Control option.

### Colors

U.S. M3 models are available in a choice of ten exterior colors, six of them metallic. A particularly eye-catching and contemporary choice is Phoenix Yellow Metallic. The Convertible's fully automatic power softtop is available in two colors, coordinated with the exterior and interior colors. For available color combinations, see the color chart on pages 328-329.

## Ergonomics & luxury

### Overview of interior design

With the already exemplary 3 Series driving environment as their starting point, both M3 models add features and design details that reinforce and enhance that character – perfectly expressing the M3s' formidable capabilities and providing the ideal command center for those capabilities.

### The command center

In a high-performance sports car, instruments are of paramount importance; those in the M3s do not disappoint. The instrument cluster closely resembles that of the M5, with bright rings around each of the four dials, M logo in the speedometer, and red pointers throughout.

The tachometer scale reaches to 9000 rpm. From 4000 to 8000 rpm, the **variable warning segment** first seen in the M5 also appears here. When the engine is cold, illuminated orange LEDs begin at 4000 rpm, reminding the driver to take it easy. As the engine warms up – the display is based on oil temperature – these LEDs phase out in increments of 500 rpm until the warning segment reaches its normal 7500/8000-rpm range, which always remains illuminated. (The actual engine redline is 8000.) Even though the speedometer and tachometer share the 3 Series' advanced servo-motor operation, the tachometer drive has been revised to keep pace with the M3 engine's rapid climb up the rpm curve.

Also in the tachometer face is an analog oil-temperature gauge: Oil temperature is the most important indicator of a high-performance engine's readiness.

Another prominent facet of the driver's command center is the **M sport steering wheel**. The M version has a wide bottom spoke (instead of double spokes) with the M logo. Its leather-covered rim with M-color stitching is extra-thick, with thumb contours at 10 and 2 o'clock.

An oval rearview mirror is yet another distinctive M element in the driver's view; electrochromic auto-dimming is standard. And the gearshift knob is special, with illuminated 6-speed pattern and M logo.

### Front seats: four types, all designed for support and comfort

Standard in the M3 Coupe are 10-way manual sport seats, with adjustments for –

- Fore-aft
- Cushion height
- Front-of-cushion height (cushion angle)
- Backrest angle
- Thigh support.

These seats share their “differentiated contours” with the sport seats of other 3 Series models; the backrests have prominent side bolsters toward the bottom, then a delineated upper backrest section without side bolsters. This provides the desired lateral support, but without possible constriction around the shoulders. The cushions are also prominently bolstered at the sides for lateral support – something the M3, with its high cornering capability, puts to good use.

An **easy-entry feature** allows the seat to be moved forward for rear-seat access or exit after its backrest is folded over.

## M3 Coupe & Convertible key features

Based on the 330Ci Coupe and Convertible respectively, the M3 Coupe and Convertible differ from those models in the following key features:

The next step up for the Coupe is **power sport seats**, with 8-way power adjustment and manual thigh support. Sharing the contours of the standard seats, these are available in the Premium Package or as a stand-alone option, and include the memory system for driver's seat and outside mirrors as well as the thoughtful auto tilt-down of the right mirror for backing up.

Standard in the M3 Convertible are power sport seats that add integrated safety belts and a power adjustment of the head-restraint and shoulder-belt height; this gives them **10-way power adjustment** in addition to the manual thigh support. As in 3 Series Convertibles, the M3 Convertible also adds a **power easy-entry feature**.

Top-of-the-line M3 seating (available in the Coupe only) is provided by optional **power-adjustable side bolsters**. An additional power control on the seat's outer edge allows the occupant to "pump up" the bolsters for increased lateral support, or deflate them to reduce it; this effectively adjusts the backrest width to various statures. Included in this option is **4-way power lumbar support**, familiar from other BMW models; thus this option offers a total of **14-way power adjustment** in the Coupe. The power lumbar support is available separately in the Convertible. For availability, see **options & accessories**.

The front head restraints are adjustable for both height (Coupe manual, Convertible power) and

angle, and the thoughtfully configured 3 Series fold-up center armrest (with contoured storage compartment inside) is standard.

### Upholstery and trim

Standard M3 Coupe upholstery is an, attractive ribbed fabric called M Cloth, combined with Nappa leather trim and available in Black only.

Most U.S. M3 Coupe buyers choose the optional Nappa Leather interior, available in a choice of four colors (see color chart, pages 320-321). This premium grade is applied in an Extended Leather treatment with unique stitching to –

- Seats
- Door panels (complete except upper ledges and outer surfaces of storage pockets at bottom; leather does extend down into inner walls of pockets)
- Rear-compartment side panels.

The leather interior is standard in the Convertible.

With all upholstery combinations, the Coupe headliner is in Anthracite color, and high-tech Titan Shadow interior trim appears across the instrument panel and on the door and rear side armrests. This trim has a graphite-like color that is appropriate to the M3's high-technology nature. Aluminum trim, an even finer material, is available in both models.

As on the '04 3 Series Coupes and Convertibles, rain-sensing windshield wipers and automatic headlight control are standard on both M3 models.

## Safety & security

Paralleling the 3 Series, M3s are standard-equipped with an exemplary range of safety equipment, including –

- 2-stage front-impact Smart Airbags
- Height-adjustable front safety belts with automatic tensioners and force limiters (convertible: front safety belts are seat-integrated, and the height adjustment is powered).
- Interlocking door anchoring system for side impacts
- Front-seat Head Protection System (Coupe only)
- Rollover Protection System (Convertible)
- Front-seat side-impact airbags, door-mounted
- Battery Safety Terminal
- Central locking system with selective unlocking
- Coded Driveaway Protection
- Optional rear side airbags.

## Options & accessories

### Factory-installed options

#### Premium Package

(Coupe only)

This Package is ordered by a large proportion of Coupe customers. It includes:

- **Leather upholstery.** Extended Nappa Leather in a choice of four colors.
- **Power sport seats with memory.** 8-way power plus 2-way manual (thigh-support) adjustment. These include a memory system that captures three positions of the driver's seat and outside mirrors, plus BMW's thoughtful auto tilt-down feature for the right outside mirror for parking near curbs.
- **2-way power moonroof** with 1-touch operation and opening from the remote.

## Cold Weather Package

Available to complement the M3s' excellent winter capabilities, this Package includes:

- **High-intensity headlight cleaning system,** with retracted jets emerging from under the lighting units to spray them.
- **Heated front seats**
- **Ski bag,** for carrying skis "indoors" without soiling the interior.

## Stand-alone options

(cannot be ordered in combination with Packages that include these features)

### Sequential Manual Gearbox (both models)

Given the M3's performance nature, it does not seem logical to offer a conventional automatic transmission as such; no matter how good – BMW's 5- and 6-speed automatics are among the best – an automatic transmission incurs some performance loss. On the other hand, today's capabilities in electronics and hydraulics make it possible to improve on the M3's 6-speed manual transmission by offering automated operation and racing-style manual shifting without incurring any performance loss.

For some years, racing drivers, in particular in the world's premier class, Formula 1, have used "power shifting" of manual transmissions via an electrohydraulic system. BMW M pioneered in applying this concept to road cars, introducing its first Sequential Manual Gearbox in M3s for the European market in 1996. BMW M decided to develop the SMG concept to a 2nd generation before offering it in the U.S.

## M3 Coupe & Convertible key features

Based on the 330Ci Coupe and Convertible respectively, the M3 Coupe and Convertible differ from those models in the following key features:

Thus the SMG now offered in M3s is in reality SMG II, evolved to a higher state of perfection than the original system; in the U.S. it is referred to simply as SMG. The system consists of –

- The same 6-speed manual transmission as is standard in M3 models.
- An electrohydraulic mechanism that shifts gears and operates the clutch.
- Electronic controls that regulate the electrohydraulic mechanism, called **DRIVELOGIC**.
- The driver interface, which includes a shift lever on the console and shift “paddles” on the steering wheel.

There is no clutch pedal. On the console is a short, sporty shift lever with R (Reverse), 0 (Neutral) and S/A (Sequential/Automated) positions, plus “–” and “+” directions. The shift pattern appears on the knob and in a display under the tachometer. Behind the shift lever is a program selector, with which the driver may select –

- In the Sequential mode, 6 programs ranging from “softest and slowest” shifts to “firmest and quickest” shifts; i.e. from most leisurely to sportiest.
- In the Automated mode, 5 programs of similar gradation.

In the dash display, the selected program is shown in a bar graph that repeats the graphic of the program selector switch. The gear currently engaged is shown as a numeral at the left of the indicator; in A, an “A” appears next to the gear indication. At the right side of the shift pattern, “S” is shown if the Automated mode is currently engaged, and vice versa; this indicates which mode will be obtained if the lever is moved in that direction.

The vehicle may be parked in R or S/A, not 0. To start the engine, the selector must be in N and the brake pedal applied. Then the driver selects R or A (again with the brakes applied); A is the default mode when the engine is first started and the lever is moved to the S/A position. Moving off from rest in A, the system automatically selects 1st gear, and upshifts as road speed increases. In this sense, the A mode resembles the operation of an automatic transmission – but only resembles it.

**Sequential (S) mode.** The driver has full control over shifting. Pulling the shift lever rearward in the “+” direction, or actuating the right-hand “paddle” on the steering wheel, effects upshifts; pushing the shifter forward (“–”) or actuating the left-hand paddle effects downshifts. It’s that simple:

- **S1-5:** Selected by the console switch, the programs range from “softest” to “firmest” – that is, in 1 the shifting is accomplished at a relatively leisurely pace, in 5 much more quickly. The driver’s criterion here is how sportily he or she wants to drive; in any of the programs, the higher the engine speed the quicker the shift.
- **S6:** To select this most race-like program, the driver must switch off Dynamic Stability Control. Minimum shift time in S6 is 80 milliseconds; under equal conditions, the “slowest” shift program (1) takes 2-4 times as long to complete a shift.

“Sequential” means “one gear at a time” – each tip of the shift lever or shift paddle moves the transmission up or down one gear. However, the driver can effectively skip gears by simply hitting more than one shift in

quick succession. Whenever and however the driver calls for a shift, the response of SMG is immediate and satisfying.

**Automated (A) mode.** The word “automated” is key, as this DRIVELOGIC mode is not meant to substitute for a conventional automatic transmission. Here there are 5 programs. As with S, the higher the program number the faster the shift; in A, however, the speeds at which shifts occur (both up- and downshifts) also increase. For example, in A1 with 35% throttle opening, the upshift to 6th gear occurs at about 40 mph; in A5, not until about 80 mph. Decelerating moderately, DRIVELOGIC would shift down from 6th to 4th at around 30 mph in A1, or from 6th to 5th at about 106 mph in A5. A2 though A4 of course give shift points in between.

**Additional capabilities and safeguards.** DRIVELOGIC incorporates many fine points:

- 1st-gear start in S: If the vehicle comes to a stop in S mode, DRIVELOGIC automatically selects 1st gear for starting off again; the driver will then make upshifts as desired.
- 2nd-gear start: A1 can be used as a winter-driving program; it starts the vehicle from rest in 2nd gear to move off gently. (Dynamic Stability Control's traction function also guards against wheelspin.)
- Overspeed protection: If the driver calls for a downshift (S mode) that would overspeed the engine, the downshift command is ignored.
- In any A mode, a floored accelerator triggers one or two downshifts depending on conditions.
- Slip detection: In S and A modes, helps keep the vehicle stable during downshifts, particularly when traction is low. Every 10 milliseconds, the rear wheels are checked by DSC for slippage. If there is too much decelerative torque on the wheels, clutch engagement and engine speed are automatically adjusted to prevent too abrupt a downshift.
- Double-clutching. Also in both modes, DRIVELOGIC coordinates clutch disengagement, shifting, engine speed and clutch engagement to accomplish smooth downshifts – just as a skilled driver would. Switzerland's *Automobil Revue* (November 15, 2001) commented, “To the passenger, these shift sequences seem like the work of a really skillful driver.”
- Hill detection: Depending on gradient, down- or uphill, the A shift programs are modified to ensure optimum gear selection. In S mode, shift times are shortened so that the engine is always “on point” for best acceleration uphill, or engine braking downhill.
- Intuitive shifts: In the A mode under certain circumstances, DRIVELOGIC modifies downshifts. In cornering, uphill driving or braking, for instance, a downshift occurs sooner than in steady driving on level ground. This feature can seem almost supernatural in vigorous driving on a winding, hilly road: SMG seems to read the driver's mind, magically getting into the right gear before accelerating out of a corner.
- Grade assist: Active in both S and A modes. When stopped facing uphill, the driver actuates the left shift paddle. DRIVELOGIC

## M3 Coupe & Convertible key features

Based on the 330Ci Coupe and Convertible respectively, the M3 Coupe and Convertible differ from those models in the following key features:

“revs” the engine to about 1500 rpm and slips the clutch so that the vehicle does not roll back. This is available for brief periods only so as not to overheat the clutch.

- **Illuminated upshift indicator:** The orange LEDs that, in a standard 6-speed M3, adjust the indicated maximum engine speed according to engine temperature, help indicate to the driver when to upshift. Illuminating in 500-rpm segments, they light progressively as the engine approaches its redline (8000 rpm). When the engine does reach 8000 rpm, two red LEDs after 8000 rpm indicate that it's time to upshift. Given the M3's catapult-like acceleration, this can be an appreciated assistance.

In its 360 series, Ferrari has been offering a similar transmission concept in the U.S. Several features distinguish BMW's SMG system:

- BMW's 11 shift programs, vs. Ferrari's four.
- Shift paddles on the steering wheel, vs. the steering column; easier to manage when steering and shifting at the same time.
- All shift programs available without affecting suspension settings. (Ferrari's Sequential mode puts the electronically controlled shock absorbers in their Sport setting.)
- A5 is a truly sporty yet automated mode, suitable even for the race track; it is unique to BMW's system.

Currently, other marques are introducing similar systems. Aston Martin's \$200,000-plus Vanquish uses essentially the same system as does Ferrari. The recently introduced Maserati Coupe and Spyder offer essen-

tially this same system under the name Cambiocorsa. This version is said to have improvements that make its automatic mode work better; but with its Sport transmission and suspension modes still tied together, *AutoWeek* (November 19, 2001) found that “it will do the job, but it's at odds with itself.” Finally, Toyota brings the concept to a more popular price class as an option for the MR2 Spyder, providing only manual sequential operation of that tiny roadster's 5-speed transmission (no automated mode). Clearly, a trend has begun.

**Chronicle of an SMG shift.** To those versed in driving with a manual transmission, shifting comes naturally – one is hardly aware of the fact that one is letting up on the accelerator, depressing the clutch pedal, moving the shift lever, giving gas again and letting up on the clutch – all in coordinated sequence. SMG's electronically controlled, electrohydraulically actuated system does all this for the driver:

1. Via a position sensor, the control system always “knows” which gear is currently engaged.
2. When the driver signals a shift, the system selects the appropriate valves.
3. Hydraulic fluid at high pressure (1200 psi or more) disengages the clutch.
4. The M3's six individual, electronically controlled throttles are closed.
5. Hydraulic cylinders shift the transmission into the next gear.
6. If it's a downshift, the engine is “revved” to the speed it will reach when the selected lower gear is engaged (the “double-clutch” function). If it's an upshift, the throttles and

clutch are also coordinated by SMG for smooth engagement of the next gear.

7. The clutch is re-engaged.

8. The throttles are opened again.

All this occurs – perfectly coordinated – in an interval that may be leisurely or a mere blink of the eye, depending on the program selected. The driver keeps a firm foot on the accelerator; SMG and DRIVELOGIC do all the work. Keen drivers will find it fascinating, satisfying, amazing.

“As the tachometer’s ‘upshift lights’ illuminate,” wrote *Automobil Revue* in May 2001, “a quick pull on the lever, 2nd gear engages with a vengeance, the car keeps storming with virtually no power interruption, reaches 100 km/h [62 mph] in 5.2 sec, and now it’s time for 3rd gear.

“The same shift system,” continues this respected publication, “is also perfectly capable of taking the M3 smoothly through the city and overland without the driver’s having to worry about shifting.” *AR* summed up SMG: “The additional advantage, in both cases: No power losses from torque-converter slip, and that treasured direct connection between engine and road speed of a conventional gearbox is completely preserved.”

Park Distance Control (see next column) is included with the SMG option. The M3 SMG concept and system are distinct from that offered on Z4 Roadsters; see the Z4 section for details on that SMG concept.

### **19-in. wheels and tires**

This option further enhances the M3s’ spectacular sportiness. It consists of 19-in. M Double Spoke forged/polished wheels (design #67M, same as standard

wheels), 8 in. wide at the front and 9.5 in. wide at the rear, carrying 225/40ZR-19 front / 255/35ZR-19 performance tires. Though the front wheels are the same width as the standard 18-inchers, the rear ones are a half-inch wider and all tires have a lower profile. Thus there should be a measurable increment in handling ability. And there’s no doubt of the visual sportiness of this new, ultimate road gear.

### **Removable hardtop (Convertible only)**

With the hardtop installed, the M3 Convertible takes on its own distinctive Coupe appearance and the winter snugness of a coupe. Made of aluminum, the hardtop weighs only 65 lb., and thus can be attached or removed easily by two persons. It incorporates separately switched left and right reading lights front and rear, retractable coat hooks, and (like the softtop) an electrically heated rear window.

### **Xenon low- and high-beam headlights (both models)**

The outer lamps provide high-intensity-discharge illumination on low and high beams, while the inner ones (conventional halogen beams) are used for flash-to-pass and Daytime Running Lamps. Auto-leveling of the Xenon lights continues to be included.

For an explanation of Xenon headlights, see **BMW features**, pages 28-29.

### **Park Distance Control**

The PDC system operates at the rear of the vehicle only (7 and 5 Series: front and rear). Park Distance Control is described in detail in **BMW features**, page 26.

## M3 Coupe & Convertible key features

Based on the 330Ci Coupe and Convertible respectively, the M3 Coupe and Convertible differ from those models in the following key features:

### **Metallic paint**

An appealing selection of metallic colors, some exclusive to M Cars, is offered on both models at moderate extra cost.

### **Spoiler delete**

Customers who prefer a “spoiler-less” look may specify this no-cost option for the Coupe. The Convertible does not have a rear spoiler.

### **Nappa Leather upholstery (optional Coupe, standard Convertible)**

In addition to being part of the Coupe's Premium Package, Extended Nappa Leather upholstery is available as a stand-alone option for the Coupe. It is standard in the Convertible.

### **Aluminum interior trim (both models)**

This premium trim material is offered as a stand-alone option in both models.

### **2-way power moonroof (Coupe only)**

Includes 1-touch opening and closing, with anti-trapping protection for anything that might get in its way during 1-touch closing. BMW's moonroof design is described fully in **BMW features**, page 36.

### **Harman Kardon audio system**

Audio power is increased by approximately 40%, components are upgraded, and vehicle-speed-dependent equalization helps keep sound quality consistent with changing noise levels – a particularly important feature for the convertible. All speakers are of upgraded quality, and include:

- Coupe – 12 speakers, including 2 subwoofers
- Convertible – 12 speakers, including dual-coil subwoofer (counts as 2).

The Harman Kardon logo appears on the front-door and (in the Coupe) rear-shelf speakers. For more details on this system, see pages 165-166.

### **Cassette player (no-cost option, both models)**

Now that an in-dash single-disc CD player is standard, the cassette player is offered as a no-cost substitute for customers who prefer to play cassettes. As the CD player and Onboard Navigation System are now compatible, the cassette player is no longer required with the Navigation System.

### **BMW On-board Navigation System**

(both models)

BMW's On-board Navigation System, which embodies not only GPS navigation but audio, trip-computer and (if the vehicle is so equipped) phone functions, got a new user interface for '02 with –

- An enlarged, easier-to-read color monitor in 16:9 format
- Rearranged controls for easier operation
- A panel that pivots outward to reveal the cassette or CD player.

The concealed cassette or CD player frees up more space on the unit's face panel, allowing the larger monitor and an improved arrangement of controls within the same overall panel size as before. For '03, the system is further improved with a new DVD database and improved functions. For details, see **BMW features**, pages 33-34.

### **Power front seats with memory** (Coupe only)

This option is offered for coupes without the Premium Package; the seats are 8-way power + 2-way manual sport seats as included in the Premium Package. This option allows M3 Coupe buyers to choose the power seats without taking the entire Package.

### **Adjustable seatback bolsters and 4-way power lumbar support**

(Coupe only; require power front seats)

This option adds the two special M3 features to the 8-way power + 2-way manual seats that are included in the Premium Package or available as a stand-alone option (above).

### **Heated front seats** (both models)

Features include 3-stage heating, high heating capacity and thermostatic control, which automatically regulates seat temperature even though surrounding interior temperature is changing. Also available in the Cold Weather Package for both models.

### **Rear-seat side-impact airbags** (both models)

The rear side-impact airbags are built into the rear-compartment side panels.

## M3 Series specific features by model

### M3 Coupe

#### M3 styling

Detailed descriptions of the Coupe's design features and distinctions from the 330Ci Coupe with Sport Package are found on pages 259-260. In summary, these are:

- Unique bumper and spoiler ensemble
- Unique aluminum hood with "power dome"
- Functional side "gills" with new M3 logo inset
- Wheel openings more prominently flared, especially at the rear; overall body width greater
- M aerodynamic outside mirrors
- Unique side sills
- Standard 18-in. wheels and tires, differentiated front/rear sizes
- Unique rear bumper/apron ensemble
- Standard rear spoiler on trunklid (may be deleted at no extra cost)
- Exterior color selection including special M colors.

#### Interior features

- Special BMW M instrumentation including oil-temperature gauge; tachometer has variable warning segment
- M sport steering wheel
- Auto-dimming M oval inside rearview mirror
- 10-way manual sport seats standard; 8-way power + 2-way manual in Premium Package or available as stand-alone option
- Adjustable backrest bolsters and 4-way power lumbar support available as stand-alone option in combination with either Premium Package or stand-alone 8-way power + 2-way manual seats; so equipped, the seats have 14-way power + 2-way manual adjustment.

#### Premium Package

The M3 Coupe is available with a Premium Package, whose contents are described on page 257. Such a Package is not available for the Convertible, as the convertible-relevant features it includes are standard in the open-bodied M3.

- Standard Nappa leather and M Cloth upholstery in Black only; optional Extended Nappa Leather in choice of 4 colors
- Standard split folding rear seats

## M3 Convertible

In addition to or in place of the features listed for the M3 Coupe, the M3 Convertible includes:

### Different performance and fuel-economy ratings

Because of the Convertible's higher weight, its acceleration and EPA mileage differ somewhat from those of the Coupe. Please see the Specifications, page 281, for actual ratings.

### Power softtop

The fully automatic, fully lined power softtop is fast and quiet in operation. Its variable storage compartment in the trunk, easily adjusted from the top-up to the top-down position, allows increased cargo space when the top is up.

### Standard power seats with special features

In place of the Coupe's standard 10-way manual sport seats, the Convertible comes standard with 10-way power + 2-way manual sport seats. Although basic seating contours are identical for the two models, the Convertible seats add –

- 8-way power adjustment of seat cushion and backrest

- Power-adjustable head-restraint/safety-belt height
- Seat-integrated front safety belts, for especially easy entry into and exit from the rear seats
- Power easy-entry feature, with a dedicated button control near the top of the seat's outer edge that speeds the seat forward to facilitate entry into or exit from the rear seats, and returns the seat to its previously adjusted position.

### Standard leather upholstery

In the Convertible, Extended Nappa Leather upholstery is standard.

### 4-passenger seating configuration

In contrast to the Coupe's 5-passenger configuration with split folding rear seats, the Convertible has a 4-passenger configuration with fixed rear seats.

### Other trunk differences

In addition to the variable softtop storage compartment, the Convertible's non-reversible floor mat is another distinction from the Coupe's trunk.

## Standard & optional features

### 2003 M3 Coupe & Convertible

**Bold** within table indicates new feature for 2003.

<b>Performance &amp; efficiency</b>	<b>M3 Coupe</b>	<b>M3 Conv.</b>
3.2-liter DOHC 24-valve inline 6-cylinder engine:		
Double high-pressure VANOS steplessly variable valve timing <sup>1</sup> ,	S	S
6 individual throttles, electronically controlled, with M Dynamic Driving Control (2 settings)	S	S
Machined intake ports & combustion chambers	S	S
Special BMW MSS 54 electronic engine management system	S	S
Direct ignition system with pencil coils & knock control	S	S
Semi-dry-sump lubrication system	S	S
High-performance water pump with 3-dimensional vanes	S	S
6-speed manual transmission with heavy-duty clutch	S	S
Sequential Manual Gearbox (option includes Park Distance Control)	OPT	OPT
<b>Handling, ride &amp; braking</b>	<b>M3 Coupe</b>	<b>M3 Conv.</b>
BMW M strut-type front suspension with:		
Unique forged lower arms	S	S
Thrust plate	S	S
Steel balljoints & rubber bushings for lower arms	S	S
Reinforcing braces to strut towers	S	S
Central Link rear suspension with cast-aluminum upper transverse links:		
Subframe on 4 mounts with V-brace	S	S
Acoustically decoupled final drive	S	S
Balljoint links at outer ends of lateral arms	S	S
M Variable Differential Lock	S	S
Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance stability enhancement	S	S
Special BMW M suspension calibration (springs, shock absorbers & anti-roll stabilizer) bars	S	S
Engine-speed-sensitive variable-assist power steering	S	S
4-wheel ventilated disc brakes	S	S

<b>Handling, ride &amp; braking</b>	<b>M3 Coupe</b>	<b>M3 Conv.</b>
M Double Spoke alloy wheels (design #67M) with Satin Chrome finish, 18 x 8.0 front/ 18 x 9.0 rear	S	S
M Double Spoke forged & polished alloy wheels (design #67M), 19 x 8.0 front/ 19 x 9.5 rear	OPT	OPT
225/45ZR-18 front / 255/40ZR-18 rear performance tires	S	S
225/40ZR-19 front / 255/35ZR-19 rear performance tires	OPT	OPT
Flat Tire Monitor	S	S
<b>Exterior &amp; aerodynamics</b>	<b>M3 Coupe</b>	<b>M3 Conv.</b>
Special BMW M front & rear body-color bumpers with hydraulic energy absorbers for low-speed impacts, deformable elements for more severe impacts	S	S
Halogen Free Form low-beam headlights	S	S
Bi-xenon headlights with auto-leveling	OPT	OPT
Daytime running lamps	S <sup>2</sup>	S <sup>2</sup>
Halogen Free Form front foglights	S	S
<b>Adaptive brakelights</b> <sup>3</sup>	<b>S</b>	<b>S</b>
High-intensity headlight cleaning system	ZCW	ZCW
Heated windshield-washer jets	S	S
<b>Rain-sensing</b> windshield wipers	<b>S</b>	<b>S</b>
Automatic headlight control	<b>S</b>	<b>S</b>
Park Distance Control	OPT <sup>4</sup>	OPT <sup>4</sup>
Special BMW M body treatment:		
Widened wheel-opening flares	S	S
Aluminum hood with unique contours	S	S
Side gills with M3 logos	S	S
Unique side sills	S	S
Rear spoiler	S	NA
BMW M exterior paint selection	S	S
Metallic paint	OPT	OPT
Chrome grille slats	S	S
Chrome side-window trim	S	–
Body-color side moldings	S	S
Four stainless-steel exhaust outlets	S	S

1 – VANOS = **V**ARIABLE **N**Ockenwellen **S**teuerung = variable camshaft control, or variable valve timing.

2 – Selectable via Vehicle Memory System (programming by BMW Center).

3 – As of 3/03 production.

4 – Stand-alone option or included with Sequential Manual Gearbox.

S – Standard OPT – Optional C – BMW Center-installed NA – Not available

— – Not applicable

ZCW – Cold Weather Package

## Standard & optional features

### 2003 M3 Coupe & Convertible

**Bold** within table indicates new feature for 2003.

<b>Ergonomics, luxury &amp; convenience</b>	<b>M3 Coupe</b>	<b>M3 Conv.</b>
Fully lined, fully automatic power softtop with heated rear window	–	S
Convertible wind deflector	–	C
Removable hardtop	–	OPT
BMW M door-sill trim plates	S	S
Vehicle & Key Memory	S	S
Keyless entry with multi-function remote control:		
Selective unlocking	S <sup>2</sup>	S <sup>2</sup>
Remote trunk release	S	S
Dual BMW M power/heated outside mirrors	S	S
BMW Universal Transceiver	C	C
Courtesy lights with fade-in/fade-out feature, actuation from remote control, automatic switch-on when engine is turned off	S	S
Separately controlled front & rear reading lights, front footwell lighting & illuminated visor vanity mirrors	S	S <sup>5</sup>
BMW Ambiance Lighting	S	S
Auto-dimming inside rearview mirror	S	S
Locking glove compartment with recharging take-out flashlight	S	S
Leather-covered tilt/telescopic steering wheel with fingertip cruise, audio & phone <sup>6</sup> controls, BMW M 3-spoke design with M color stitching	S	S
10-way front sport seats	S	–
8-way power + 2-way manual front sport seats with 3-position driver's-seat & outside-mirror memory <sup>7</sup>	<b>OPT/ZPP</b>	–
10-way power + 2-way manual front sport seats with 3-position driver-seat & outside-mirror memory <sup>7</sup>	NA	S
Adjustable-width backrest bolsters & 4-way power lumbar support	OPT <sup>8</sup>	NA
4-way power lumbar support	–	OPT

<b>Ergonomics, luxury &amp; convenience</b>	<b>M3 Coupe</b>	<b>M3 Conv.</b>
Easy-entry feature for rear seating	S	S (power)
Fold-up front center armrest with storage compartment	S	S
3-stage, thermostatically controlled heated front seats	OPT/ZCW	OPT/ZCW
BMW M instrumentation with –		
Red pointers	S	S
Oil-temperature gauge	S	S
Variable warning segment on tachometer	S	S
LCD main & trip odometers	S	S
Service Interval Indicator with miles-to-service readout	S	S
Check Control monitor system with pictogram display	S	S
4-function Onboard Computer	S	S
BMW Onboard Navigation System <b>with DVD database</b>	OPT	OPT
M Cloth/Nappa Leather upholstery	S	–
Extended Nappa Leather upholstery	OPT/ZPP	S
Titan Shadow interior trim	S	S
<b>Aluminum interior trim</b>	<b>OPT</b>	<b>OPT</b>
Illuminated shift pattern on shift knob	S	S
Power windows with 1-touch operation <sup>9</sup> , anti-trapping feature, opening from remote, opening & closing from exterior lock	S	S
All-window switch with 1-touch open	NA	S
Automatic climate control with activated-charcoal microfilter ventilation & automatic recirculation control	S	S
2-way power moonroof with sliding interior shade, wind deflector, 1-touch open/close, anti-trapping feature, opening from remote, opening & closing from exterior lock	OPT/ZPP	–

2 – Selectable via Vehicle Memory System (programming by BMW Center).

5 – Front reading lights only with softtop; front & rear with optional hardtop.

6 – When vehicle is equipped with BMW Cellular Phone System (BMW Center-installed).

7 – Also includes automatic tilt-down of right outside mirror for backing up.

8 – Requires Premium Package or stand-alone power-seats option.

9 – Coupe: door windows 1-touch open/close, rear side windows 1-touch open;

Convertible: driver's window 1-touch open/close, all other windows 1-touch open.

S – Standard OPT – Optional C – BMW Center-installed NA – Not available

– – Not applicable

ZCW – Cold Weather Package ZPP – Premium Package

## Standard & optional features

### 2003 M3 Coupe & Convertible

**Bold** within table indicates new feature for 2003.

<b>Ergonomics, luxury &amp; convenience</b>	<b>M3 Coupe</b>	<b>M3 Conv.</b>
Anti-theft AM/FM/CD audio system with 10 speakers, Radio Data System & 3-channel diversity antenna system	S	S
Harman Kardon audio system with upgraded speakers, Radio Data System, vehicle-speed-sensitive equalization & Spatial Enhancement <sup>10</sup>	OPT	OPT
Cassette player instead of in-dash CD player	NC	NC
Pre-wiring for CD changer	S	S
6-disc CD changer	C	C
Pre-wiring for BMW Cellular Phone System	S	S
BMW Cellular Phone System	C	C
Dual front cupholders	S	S
Console storage compartment	S	S
Seatback storage nets	S	S
Fold-up center rear armrest	S	NA
Split folding rear seats	S	NA
Ski bag	ZCW	ZCW
Heated rear window	S	S
Fully finished trunk:		
Reversible floor mat to keep smaller cargo from sliding	S	NA
Drop-down toolkit	S	S
M Mobility System (2nd generation)	S	S

<b>Safety &amp; security</b>	<b>M3 Coupe</b>	<b>M3 Conv.</b>
Dual-airbag Supplementary Restraint System with 2-stage Smart Airbags	S	S
Height-adjustable front safety belts with automatic tensioners & force limiters	S	S <sup>11</sup>
Automatic-locking retractors (ALR) on all passenger belts (for installation of child restraint seats)	S	S
Interlocking door anchoring system for side impacts	S	S
Front-seat Head Protection System (HPS)	S	NA
Rollover Protection System	—	S
Front-seat side-impact airbags	S	S
Rear-seat side-impact airbags	OPT	OPT
Integrated deployment logic for safety-belt tensioners, airbags & post-impact safety measures	S	S
Battery Safety Terminal	S	S
Central locking system with double-lock anti-theft feature, selective unlocking	S	S <sup>12</sup>
Coded Driveaway Protection	S	S
Pathway Lighting	S <sup>2</sup>	S <sup>2</sup>
Pre-wiring for alarm system	S	S
Alarm system with operation from keyhead remote	C	C

2 – Selectable via Vehicle Memory System (programming by BMW Center).

10 – Includes all features of standard audio system. Coupe has 2 subwoofers, Convertible 1 dual-coil subwoofer.

11 – Combined power adjustment of head-restraint & belt height.

12 – Glove compartment included in central locking system.

S – Standard OPT – Optional NC – No extra cost C – BMW Center-installed

NA – Not available — – Not applicable

ZCW – Cold Weather Package

# Specifications

## 2003 M3 Coupe & Convertible

<b>General</b>	<b>M3 Coupe</b>	<b>M3 Convertible</b>
Curb weight, lb.	3415	3781
Weight distribution, front/rear, %	50.3/49.7	49.9/50.1
Wheelbase, in.	107.5 <sup>1</sup>	
Track, front/rear, in.	59.4/60.0	59.4/60.0
Length x width x height, in.	176.9x70.1x54.0	176.9x70.1x53.9
<b>Body</b>	<b>M3 Coupe</b>	<b>M3 Convertible</b>
Type	Unitized all-steel structure <sup>1</sup>	
Aerodynamic drag coefficient	0.33	0.35
EPA size classification	Sub-compact	Mini-compact
<b>Accommodations</b>	<b>M3 Coupe</b>	<b>M3 Convertible</b>
Seating capacity, persons	5	4
Shoulder room	54.5/52.7	54.5/45.9
Head room, front/rear, in.:		
without moonroof	37.5/36.5	38.4/36.9
with moonroof	36.3/36.2	–
Leg room, front/rear, in.	41.7/33.2	41.7/32.0
EPA interior volume, cu ft.	84.4	80.0
EPA cargo volume, cu ft.	9.5 <sup>2</sup>	7.7 <sup>3</sup>

<b>Engine &amp; electrical</b>	<b>M3 Coupe</b>	<b>M3 Convertible</b>
Engine type	DOHC 24-valve inline 6-cylinder, high-pressure Double VANOS <sup>4</sup> steplessly variable valve timing, 6 individual electronically controlled throttles with Normal & Sport settings <sup>1</sup>	
Bore x stroke, mm/in.	87.0 x 91.0/3.43 x 3.58 <sup>1</sup>	
Displacement, cc/cu in.	3246/198 <sup>1</sup>	
Compression ratio	11.5:1 <sup>1</sup>	
Power @ rpm, hp SAE net	333 @ 7900 <sup>1</sup>	
Torque @ rpm, lb-ft.	262 @ 4900 <sup>1</sup>	
Engine-management system	BMW MSS 54 with adaptive knock control; variable valve timing, electronic throttles, oil-level/temperature sender, variable tachometer warning segment, catalyst protection & M Dynamic Driving Control included in control strategy <sup>1</sup>	
Fuel requirement	Premium unleaded <sup>1</sup>	
Fuel capacity, U.S. gal.	16.6 <sup>1</sup>	
Battery capacity, amp-hr.	70 <sup>1</sup>	
Alternator output, amp./W	120/1680 <sup>1</sup>	

<b>Drivetrain</b>	<b>M3 Coupe</b>	<b>M3 Convertible</b>
Drive system	Front engine/rear drive <sup>1</sup>	
Manual transmission	Getrag Type D, 6-speed <sup>1</sup>	
Ratios: 1st	4.23:1 <sup>1</sup>	
2nd	2.53:1 <sup>1</sup>	
3rd	1.67:1 <sup>1</sup>	
4th	1.23:1 <sup>1</sup>	
5th	1.00:1 <sup>1</sup>	
6th	0.83:1 <sup>1</sup>	
Reverse	3.75:1 <sup>1</sup>	
Final drive ratio	3.64:1 <sup>1</sup>	
Sequential Manual Gearbox	Joint development of BMW M, Getrag, Sachs & Siemens; electrohydraulic/electronic controls, same ratios as standard 6-speed manual transmission <sup>1</sup>	

1 – Specifications apply to both models.

2 – Can be expanded via folding rear seats.

3 – With softtop lowered. Volume with softtop raised & variable compartment adjusted is approximately 15% greater.

4 – VANOS = **V**ARIABLE **N**Ockenwellen **S**TEUERUNG = variable camshaft control, or variable valve timing.

# Specifications

## 2003 M3 Coupe & Convertible

Chassis	M3 Coupe	M3 Convertible
Body/frame construction	Unitized steel <sup>1</sup>	
Front suspension	BMW M sport suspension; thrust plate, struts, unique forged-aluminum lower arms, steel balljoints/rubber bushings, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar, reinforcing braces to strut towers <sup>1</sup>	
Rear suspension	BMW M sport suspension; special subframe & V-brace, multi-link system with Central Links, upper & lower lateral links (upper links of cast aluminum), steel balljoints at outer ends of lateral links, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar <sup>1</sup>	
Steering type	Rack & pinion, engine-speed-sensitive power assist <sup>1</sup>	
Overall ratio	15.4:1 <sup>1</sup>	
Turns lock-to-lock	3.0 <sup>1</sup>	
Turning circle, ft.	36.1 <sup>1</sup>	
Antilock braking system with 4-wheel ventilated discs:		
Diameter, front, mm/in.	325/12.8 <sup>1</sup>	
Diameter, rear, mm/in.	328/12.9 <sup>1</sup>	
Assist	Vacuum <sup>1</sup>	
Wheels (standard)	Cast alloy, 18 x 8.0 front/18 x 9.0 rear <sup>1</sup>	
Wheels (optional)	Forged alloy, 19 x 8.0 front/19 x 9.5 rear <sup>1</sup>	
Tires (standard)	Performance radials, 225/45ZR-18 front / 255/40ZR-18 rear <sup>1</sup>	
Tires (optional)	Performance radials, 225/40ZR-19 front / 255/35ZR-19 rear <sup>1</sup>	
Stability-enhancement system	Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance stability enhancement; plus M Variable Differential Lock <sup>1</sup>	

<b>Performance data</b>	<b>M3 Coupe</b>	<b>M3 Convertible</b>
Acceleration, 0-60 mph, sec., manufacturer's data <sup>5</sup>	4.8	5.4
Top speed, mph	155 <sup>1,6</sup>	
Fuel economy, EPA est. MPG, city/highway:		
Manual transmission	16/24	16/23
Sequential Manual Gearbox (SMG)	16/23	16/22

1 – Specifications apply to both models.

5 – BMW of North America, LLC test results. Actual acceleration results may vary depending on specification of vehicle; road & environmental conditions; test procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

6 – Electronically limited.

## M5 key features

Based on the 540i Sedan 6-Speed, the M5 differs from that model in the following key features:

### Performance & efficiency

#### 5.0-liter DOHC 32-valve BMW Motorsport V-8 engine

The V-8 engine that powers the M5 is the greatest masterpiece of M Power, and an intense focus of the M5's distinctions from the 540i. Based on the already abundant size, power and technology of the 540i's M62 4.4-liter V-8 engine, the M5 engine (designated S62) takes M Power to its pinnacle, and reflects the care with which BMW M develops an already powerful BMW engine into a full-on sports powerplant. It develops 394 hp and 368 lb-ft. of torque; accelerates the luxurious and lavishly equipped 4-door sedan to 60 mph in just 4.8 sec., and is far more than sufficient for the M5's electronically limited top speed of 155 mph. EPA mileage ratings are 13 mpg city/21 mpg city – quite respectable in view of the monumental performance this engine offers.

Relative to the 540i's M62 engine, highlights of the S62 include –

- Displacement increased from 4.4 to nearly 5.0 liters (4941 cc)
- Special induction system, with an individual throttle for each cylinder (8 electronically controlled throttles)
- High-pressure VANOS variable valve timing
- Oil-cooled pistons
- G-sensitive lubrication system
- Duplex camshaft drive
- Modified cylinder heads.

#### 6-speed manual transmission with heavy-duty clutch

The M5's Getrag Type D 6-speed manual transmission is essentially the same robust, firm-shifting unit used in the 540i Sedan 6-Speed, except that its clutch

has been strengthened to transmit the S62 engine's higher torque.

The final drive ratio is 2.81:1, the same as that of the 540i Sedan with either transmission; the "shorter" 3.15:1 ratio of the 540i Automatic with Sport Package is not needed because of the M5's larger-displacement, higher-torque engine.

### Handling, ride & braking

#### BMW M suspension modifications

In its basic structure and suspension systems, the M5 is based solidly on the already sporty and capable 540i Sedan 6-Speed<sup>1</sup>; for details on the 5 Series body structure and suspension system, please see pages 103-105.

As the 540i 6-Speed already has a BMW M sport suspension system, the M5 does not depart dramatically from that models' suspension. Specific elements include:

- Ride height 55.6 in., 0.1 in. lower than the 540i Sedan 6-Speed
- Springs and shock absorbers slightly firmer than for 540i Sedan 6-Speed
- Rear suspension's rubber bushings replaced by low-friction steel balljoints (outer ends of both upper arms on each side; total of four balljoints)
- Auxiliary springs front and rear, of polyurethane. These have the function of stiffening the suspension near its "jounce limit," and thus act as jounce limiters that are more progressive than the usual rubber snubbers.

#### Dynamic Stability Control and limited-slip differential

Like all other current BMW models, the M5 comes standard with Dynamic Stability Control,

which encompasses traction control and cornering stabilization functions. (See **BMW features**, pages 21-22.) In addition, the M5 also includes a limited-slip differential. This combination helps optimize handling and traction under all road conditions, wet or dry.

### **Quick-ratio power steering with M Servotronic vehicle-speed-sensitive power assist and M Dynamic Driving Control**

The M5's steering system departs from that of the 540i Sedan 6-Speed in four respects:

- **Quicker ratio.** The M5 has a 14.7:1 overall steering ratio<sup>2</sup>, vs. the 540i's 17.9; it is thus 18% quicker.
- **Larger turning circle** – 38.1 ft., vs. 37.4 for the 540i Sedan.
- **M Servotronic power assist.** Compared to the engine-speed-sensitive variable power assist of 5 Series models, the M5 employs Servotronic, which varies power assist according to vehicle speed. Naturally, BMW M has calibrated the Servotronic system for extra-firm road feel. For a basic comparison of the two types of power assist, please see **BMW features**, page 20.
- **M Dynamic Driving Control.** Via a console button labeled Sport, the driver can set power assist at a lower level, giving even firmer road feel.

### **Larger brakes**

Like its 5 Series counterpart, the M5 has 4-wheel ventilated disc brakes. To match the M5's even stronger performance, the brake discs are enlarged, as shown in the table below.

### **18-in. wheels and tires**

One expects an M Car to be equipped with the ultimate in wheels and tires, and the M5 fully lives up to this expectation. Its 18-in. wheels are super-wide – 8.0 in. front, 9.5 in. rear – and are a unique BMW M Double Spoke design with 10 sets of double spokes, alternating in shape and spacing. Their Satin Chrome finish is a subtle M touch, harmonizing with the glossy Shadowline exterior trim.

These spectacular wheels are shod with super-low-profile performance tires: 245/40ZR-18 front, 275/35ZR-18 rear. Together with the special M suspension calibration, these wheels and tires contribute to dramatic cornering ability that has been measured at 0.90g by both *Car and Driver* (January 1999) and *Road & Track* (March 2000). For a luxurious and roomy sport sedan, this is a sensational capability.

### **Flat Tire Monitor**

Whenever tire pressure drops by 30% or more, the tire's rolling radius changes significantly and the wheel rotates at a different

	<b>540i</b>	<b>M5</b>
Front discs, diameter x thickness	12.8 x 1.18 in.	13.6 x 1.26 in.
Rear discs, diameter x thickness	11.7 x 0.79 in.	12.9 x 0.79 in.

1 – The 540i Sedan with automatic transmission and Sport Package shares its suspension features with the 6-Speed model.

2 – The overall steering ratio is the number of degrees the steering wheel is turned to steer the front wheels 1°. A lower numerical ratio means less turning of the steering wheel and is referred to as "quicker."

## M5 key features

Based on the 540i Sedan 6-Speed, the M5 differs from that model in the following key features:

speed from the other tires. Via DSC's wheel-speed sensors, the Flat Tire Monitor recognizes any such major deviation. Within a short time of 1-3 minutes, this system triggers a pressure-loss indication in the instrument cluster, plus an audible warning.

### M Mobility System

As in the M3s, the M5 exhaust system precludes space for a spare tire. If a tire is punctured – a rare event these days – the M Mobility System provides a way to get home.

Details on the M Mobility System, now in its 2nd generation, are found in **BMW features**, page 36.

### Exterior & aerodynamics

#### Setting the M5 apart: subtle, but unmistakable accents on performance

It has always been a BMW M principle to set its automobiles apart from their regular-production counterparts with subtle, yet unmistakable esthetic accents. This philosophy has been applied since the first M5 (debut 1985, available in the U.S. 1988 only), was just as evident in the 2nd-generation M5 (debut 1988, available in the U.S. 1991-93), and sets the tone for the current M5.

Working from front to rear, the exterior design distinctions from the 540i 6-speed (or automatic-transmission model with Sport Package) are as follows:

- **Special front bumper/spoiler**, even more aggressive than the new '03 540i Sport spoiler. The central air intake, feeding the powerful engine's two intake points, is especially large and is screened with diagonal mesh. Smaller outboard openings contain special oval foglights and supply air to the huge front brakes; the protective

rubber strip is divided into two sections outboard of the license plate.

- **High-intensity headlight cleaning system** – standard on the M5, vs. Cold Weather Package on 5 Series models. Like all current 540i models, the M5 has Xenon low-beam headlights with dynamic auto-leveling.
- **M5 logo in side trim** – set into the protective rubber strip on the front doors.
- **M aerodynamic mirrors**, electrochromically auto-dimming and equipped with a power fold-up feature for parking in tight places.
- **Unique wheels**. The 18-in. M Double Spoke wheels are unique to the M5. Though somewhat similar to those offered on the 540i Sedan with Sport Package, they have 10 double spokes (vs. five) and a pattern of alternating spoke depths. The M5 wheels' Satin Chrome finish enhances their dramatic effect.
- **Special rear apron/air diffuser**. Another subtle, yet significant difference. As at the front, the protective rubber strip is split into left and right portions. A sculpted lower panel frames the four stainless-steel exhaust outlets. On 540i Sedans with 6-speed transmission or the new-for-'03 Sport Package, the basic rear-apron design is similar, but there is a single exhaust outlet on the left as opposed to the M5's four stainless-steel outlets positioned symmetrically left and right.
- **Discreet upper spoiler**, added to the trunklid. Can be deleted if customer desires.
- **Special M colors**: Imola Red, Carbon Black Metallic and Le Mans Blue Metallic.

## Ergonomics & luxury

### Special doorsill trim

Upon entry into the M5, one is welcomed by special doorsill trims that include chrome trim, the BMW M colors and M5 script.

### BMW M instrumentation

The BMW M logo accents the speedometer face; at the bottom of the tachometer is an oil-temperature gauge.

The tachometer also features a high-tech approach to an important consideration for a high-performance engine with a wide rpm range. When the engine is cold, a warning segment of orange LEDs begins at 4000 rpm, reminding the driver not to use anything approaching maximum performance. As the engine warms up, the LEDs phase out in increments of 500 rpm until the segment reaches its normal 6500-rpm starting point; the engine's normal rpm limit is 7000 rpm.

### M sport steering wheel

The 3-spoke M sport steering wheel appears in the M5 with M Color stitching on its rim and the M logo set into the wheel's center.

### Illuminated shift knob

The shift knob – wood in wood-trimmed interiors, leather in interiors with aluminum-look trim – features an illuminated top with the 6-speed shift pattern and BMW M logo.

## 16-way M power/heated sport seats

The M5's sport front seats are exclusive to the M5. In addition to the 5 Series sport seats' usual 12-way power adjustment (including thigh support and vertical head-restraint position), these seats also incorporate 4-way power lumbar support. Three-stage seat heating is standard.

### Upholstery and trim schemes

An unusual variety of upholstery and trim schemes is offered in the M5, all at no extra cost. Two basic themes are offered: Sport and Luxury; patterns and stitching are unique to the M5 in either case. Each features leather grades that are upscale from the already rich Montana leather of 5 Series models.

**Sport.** This interior theme highlights the M5's stunningly sporty and high-tech nature, and features Nappa Point leather (stamped appearance similar to ostrich leather) with Extended coverage (i.e., more extensive than that in the 540i Sedan). Seats are cross-pleated at relatively wide intervals; the standard trim material is aluminum. Upholstery materials are summarized in the table below, which continues onto the next page.

## Sport Interior

Area	Material
Seat center areas	Nappa Point leather
Seat side areas	Nappa leather
Back sides of seats	
Head-restraint centers and sides	
Door-panel inserts	Nappa Point leather
Door panels	Foam-backed grained material

Continued next page

## M5 key features

Based on the 540i Sedan 6-Speed, the M5 differs from that model in the following key features:

### Sport Interior

Area	Material
Door armrests/pulls	Nappa leather
Door ledges	
Main and upper dash areas	
Glove-compartment door	Shaped skin (leather grain)
Center console and armrest	Nappa leather
Rear parcel shelf	Velour cloth
Headliner, incl. sun visors & A-, B upper and C-pillar	Alcantara
B-pillar lower	Grained plastic

The Sport interior is available in Black, Imola Red, Silverstone and Le Mans Blue. Bruyere Club wood trim is available as a no-cost alternative to the standard aluminum-look trim.

**Luxury.** This interior theme puts the accent on luxury. The Nappa Heritage leather used here is ultra-soft, and is applied even more extensively than in the corresponding Sport version. Seat

pleating is longitudinal, with closely spaced pleats. The upholstery materials are shown in the table at the bottom of the page.

The Luxury interior is available in Black and Caramel, the latter being especially warm in character. Here, Bruyere Club wood trim is standard, with Burl Walnut as a no-cost alternative.

### Luxury Interior

Area	Material
Seat center areas	Nappa Heritage leather
Seat side areas	
Back sides of seats	
Head-restraint centers and sides	Nappa Heritage leather
Door-panel inserts	Nappa Heritage leather
Door panels	Nappa Heritage leather
Door armrests/pulls	Nappa Heritage leather
Door ledges	Nappa Heritage leather
Upper dash areas	Nappa leather
Main dash areas	Nappa Heritage leather
Glove-compartment door	Nappa Heritage leather
Center console and armrest	Nappa Heritage leather
Rear parcel shelf	Alcantara
Headliner, incl. sun visors & A-, B upper and C-pillar	Alcantara
B-pillar lower	Nappa leather

### **Super-premium audio system with 6-disc CD changer**

Optional in 5 Series models<sup>3</sup>, standard in M5. This upgrade system has a top-quality speaker system, including two subwoofers. Each subwoofer has dual voice coils, so each gets 2 amplification channels; thus there are 14 channels. The subwoofers are positioned under the rear parcel shelf.

Digital Sound Processing (DSP) gives the user the possibility of selecting from three preset acoustic environments (concert hall, cathedral, jazz club). Or the user can custom-tailor three environments on the basis of acoustic parameters such as room size, reverberation time and equalizer characteristics, and capture them in three memory settings for future use. There's also a DEMO function to demonstrate the system's capabilities.

In addition to functions selected by the array of soft-touch controls in the audio panel itself, various radio, tape and CD functions as well as the DSP settings can be managed from the Navigation System's color monitor. From fingertip controls on the steering wheel, the driver can also adjust audio volume and select preset radio stations, cassette titles and CD tracks.

All in all, this is a class-leading audio system, fully appropriate to the M5's unique combination of performance, sport and luxury.

Unlike the 5 Series and most other '03 BMW models, the M5's audio system continues with a cassette player as standard equipment; thus with its also standard 6-disc CD changer and the cassette player, users can play CDs or cassettes.

### **BMW On-board Navigation System**

Standard in the M5, BMW's Onboard Navigation System embodies not only GPS navigation but audio, trip-computer and (if the vehicle is so equipped) phone functions. The system got a new user interface for '02 with –

- An enlarged, easier-to-read color monitor in 16:9 format
- Rearranged controls for easier operation
- A panel that pivots outward to reveal the cassette player.

The concealed cassette player (standard in the M5, vs. a single-disc CD player in most other models) frees up space on the unit's face panel, allowing the larger monitor and an improved arrangement of controls within the same overall panel size as before. For '03, the system is further improved with a new DVD data base and improved functions. For details, see **BMW features**, pages 33-35.

### **Special trunk features**

As the M5 does not have a spare tire, available space under the trunk floor is configured as a concealed compartment. Also, the trunk includes a luggage net not found in 5 Series models.

3 – Audio system factory-installed, CD changer BMW Center-installed.

## M5 key features

Based on the 540i Sedan 6-Speed, the M5 differs from that model in the following key features:

### Options & accessories

#### Factory-installed options

##### Park Distance Control

PDC employs four ultrasonic sensors in the front and four in the rear bumper to warn the driver when the vehicle is approaching objects or obstructions that may not be visible to the driver. For a more detailed explanation of Park Distance Control, see **BMW features**, page 26.

##### M Audio System with enhanced bass

This unique option for the M5 provides an audio upgrade beyond even the M5's standard super-premium audio system, which *Motor Trend* (March '00) called "spectacular." Counting the special coaxial speakers in the doors as two each, the number of speakers remains at 12 but the speakers are upgraded throughout. Specific features include:

- Special tweeters (2 speakers, 2 amplification channels) in "mirror triangles" of front doors
- Coaxial speakers (4 x 2, 8 channels) in the doors, with high-tech membrane reinforced by Kevlar/carbon
- Special subwoofers (2, 4 channels) under the rear parcel shelf; reinforced hexacone membranes with honeycomb structure.

The M Audio System provides audiophile sound quality, including enhanced bass reproduction.

##### Split folding rear seats and ski bag

The backrests are split 1/3–2/3 and are lockable. A ski bag is included.

When the vehicle is equipped with the folding seats, the front seats' backrests contain internal steel reinforcements to guard against objects that might race forward in a collision. (With or without the folding rear seats, a fold-down center rear armrest is standard, and child restraint seats can be fitted via the tether attachments.)

**Power-operated rear and manual rear side-window sunshades**

From a switch on the front center console, the rear-window shade can be raised and lowered electrically. Rear-seat passengers can easily raise or lower the manual shades for their side windows. The shades reduce glare and sun heat and enhance privacy, yet preserve the driver's rearward view. This option is available only with the Sport interior.

**Optional genuine wood interior trim**

As described in the **ergonomics & luxury** section, the Sport interior comes standard with aluminum-look trim, the Luxury interior with Bruyere Club wood trim.

As no-cost alternatives, BMW M offers the following wood trim:

- For the Sport Trim interior, **Bruyere Club** wood.
- For the Luxury Trim interior, **Burl walnut** wood.

Thus the M5 customer has exceptional freedom of choice in combining materials.

**Deletion of rear spoiler and model script**

Both these items may be deleted if the customer so desires.

**BMW Center-installed accessories**

The selection of Center-installed accessories is the same as for 5 Series models, except that the CD changer is standard. For details on the available accessories, see page 115, page 333 or the latest Original BMW Accessories brochure.

# Standard & optional features

## 2003 M5

**Bold** in table indicates new feature for 2003.

### Performance & efficiency

5.0-liter DOHC (4-cam) V-8 engine with Double VANOS <sup>1</sup> steplessly variable valve timing	S
Aluminum block & cylinder heads	S
8 individual throttles, electronically controlled, with M Dynamic Driving Control (2 settings)	S
Special Motronic MS S52 electronic control system	S
G-sensitive semi-dry-sump lubrication system	S
Oil-coolant heat exchanger	S
6-speed manual transmission with heavy-duty clutch	S

### Handling ride & braking

Aluminum double-pivot strut-type front suspension	S
Aluminum 4-link integral rear suspension	S
Front & rear anti-roll (stabilizer) bars	S
Twin-tube gas-pressure shock absorbers	S
Special BMW M suspension calibration with auxiliary springs	S
Vehicle-speed-sensitive variable-assist power steering with M Dynamic Driving Control (2 settings)	S
BMW M 4-wheel ventilated disc brakes	S
Antilock braking system (ABS)	S
Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement	S
M Double Spoke wheels, Satin Chrome finish, 18 x 8.0 front/18 x 9.5 rear, with Asymmetrical Hump/Safe Stop rim design	S
245/40ZR-18 front / 275/35ZR-18 rear performance tires	S
Flat Tire Monitor	S

### Exterior & aerodynamics

Body-color bumpers with hydraulic energy absorbers for lower-speed impacts, front deformable elements for more severe impacts	S
BMW M front spoiler	S
Xenon low-beam headlights with dynamic auto-leveling	S
Automatic headlight control	S
High-intensity liquid headlight cleaning system	S
Daytime Running Lamps <sup>2</sup>	S <sup>2</sup>
Halogen Free Form foglights (BMW M oval shape)	S
Clear turn-signal lenses front & rear	S
Park Distance Control (front & rear)	OPT
Rain-sensing windshield wipers	S

**Exterior & aerodynamics (cont.)**

Choice of standard or metallic paint, including special BMW M colors	S
High-gloss Shadowline exterior trim	S
Special BMW rear apron/air diffusor	S
Trunklid spoiler	S <sup>3</sup>
Four stainless-steel exhaust outlets	S

**Ergonomics, luxury & convenience**

Vehicle & Key Memory	S
Keyless entry with multi-function remote control (no periodic battery replacement required)	S
Selective unlocking	S
Remote trunk release	S
Dual M aerodynamic power/heated mirrors with – Electrochromic auto-dimming	S
Power fold-up feature	S
Automatic tilt-down of right outside mirror for visibility of curb when backing up	S
BMW M doorsill trims	S
Auto-dimming inside rearview mirror	S
BMW Universal Transceiver (garage-door opener)	S
Courtesy lights with fade-in/fade-out feature, actuation from remote control, automatic switch-on when engine is turned off	S
BMW Ambiance Lighting	S
Front & rear reading lights, separately controllable left/right	S
Lockable glove compartment with rechargeable take-out flashlight	S
Power tilt/telescopic steering wheel with fingertip cruise, audio & phone <sup>4</sup> controls, BMW M 3-spoke design with M color stitching	S
16-way BMW M power/heated front sport seats with adjustable thigh support, 4-way power lumbar support	S
Memory system for driver's seat & safety-belt height, steering wheel & outside mirrors (3 settings)	S
Illuminated shift pattern on shift knob	S
Front center armrest with provision for phone installation	S
Special BMW M instrumentation with – Red pointers	S
Oil-temperature gauge	S
Variable warning segment on tachometer	S

S – Standard

OPT – Optional

1 – VANOS = **VA**riable **NO**ckenwellen

Steuerung = variable camshaft control, or variable valve timing.

2 – Selectable via Vehicle Memory System (programming by BMW Center).

3 – May be deleted at no extra cost.

4 – When vehicle is equipped with BMW Cellular Phone System (BMW Center-installed).

## Standard & optional features

2003 M5

**Bold** in table indicates new feature for 2003.

<b>Ergonomics, luxury &amp; convenience (cont.)</b>	
LCD main & trip odometers	S
Service Interval Indicator	S
Check Control vehicle monitor system	S
Outside-temperature display	S
<b>BMW Onboard Navigation System with DVD database</b>	S
Choice of interior appointments:	
Sport, with Extended Nappa Point leather, aluminum trim	S
Luxury, with Full Nappa Heritage leather, Bruyere Club genuine wood trim	S
Bruyere Club wood trim with Sport Trim interior	NC
Burl walnut trim with Luxury Trim interior	NC
Alcantara headliner, sun visors & A-, B upper and C-pillar	S
Power windows with key-off operation; 1-touch opening & closing of all windows, anti-trapping feature, opening from remote, closing & opening from exterior door lock	S
Automatic climate control with separate left/right temperature settings, automatic recirculation control, solar sensor	S
Activated-charcoal microfilter ventilation	S
Automatic ventilation system (can be programmed to ventilate interior while car is standing)	S
2-way power moonroof with key-off & 1-touch opening & closing, anti-trapping feature, opening from remote, opening & closing from exterior door lock, sliding interior sunshade	S
Anti-theft AM/FM/cassette/CD audio system with 12 speakers (incl. 2 subwoofers), Radio Data System (RDS), Digital Sound Processing (DSP), 6-disc CD changer & 4-channel FM diversity antenna system	S
M Audio System with upgraded speakers & enhanced bass (includes all features of standard system)	OPT
Pre-wiring for BMW Cellular Phone System	S
BMW Cellular Phone System	C
Dual cupholders front & rear (total of 4-cup capacity)	S
Coinholder	S
Dual front sun visors with illuminated mirrors	S

<b>Ergonomics, luxury &amp; convenience (cont.)</b>	
Open storage compartments in front & rear doors	S
Rear center armrest	S
Split folding rear seats & ski bag	OPT
Power-operated rear-window sunshade & manual rear side-window sunshades	OPT <sup>5</sup>
Rear-window defroster	S
Interior trunk release, electrically operated	S
Fully finished trunk with luggage straps, luggage net, concealed storage & drop-down toolkit	S
M Mobility System (2nd generation)	S
<b>Safety &amp; security</b>	
Dual front-impact airbag Supplementary Restraint System (SRS) with dual-threshold deployment & 2-stage Smart Airbags	S
Front safety belts with automatic height adjustment, automatic tensioners & force limiters	S
Front-seat Head Protection System (HPS)	S
Front-seat side-impact airbags	S
Rear-seat side-impact airbags & head protection	<b>S</b>
Integrated deployment logic for safety-belt tensioners, airbags & post-impact safety measures	S
Battery Safety Terminal	S
Central locking system with double-lock anti-theft feature, selective unlocking <sup>2</sup>	S
Coded Driveaway Protection	S
Pathway Lighting <sup>2</sup>	S
Alarm system with operation from keyhead remote, interior motion detector	S

S – Standard

OPT – Optional

NC – No charge

C – BMW Center-installed

2 – Selectable via Vehicle Memory System (programming by BMW Center).

5 – Available with Sport interior only.

# Specifications

## 2003 M5

### General

Curb weight, lb.	4024
Weight distribution, front/rear, %	52.1/47.9
Wheelbase, in.	111.4
Track, front/rear, in.	59.6/60.1
Length x width x height, in.	188.3 x 70.9 x 55.6

### Body

Type	Unitized all-steel structure
Aerodynamic drag coefficient	0.31
EPA size classification	Compact

### Accommodations

Seating capacity, persons	5
Shoulder room	56.8/55.9
Head room, front/rear, in.	37.4/37.2
Leg room, front/rear, in.	41.7/34.2
EPA interior volume, cu ft.	92.5
EPA cargo volume, cu ft.	11.1 <sup>1</sup>

## Engine & electrical

Engine type	DOHC 32-valve (4-cam) V-8, Double VANOS <sup>2</sup> steplessly variable valve timing, 8 individual electronically controlled throttles with Normal & Sport settings
Bore x stroke, mm/in.	94.0 x 89.0 /3.70 x 3.50
Displacement, cc/cu in.	4941/302
Compression ratio	11.0:1
Power @ rpm, hp SAE net	394 @ 6600
Torque @ rpm, lb-ft.	368 @ 3800
Engine-management system	Siemens MS S52 with adaptive knock control; variable valve timing, electronic throttles, g-sensitive lubrication system, oil-level/temperature sender, variable tachometer warning segment, catalyst protection & M Dynamic Driving Control included in control strategy
Fuel requirement	Premium unleaded
Fuel capacity, U.S. gal.	18.5
Battery capacity, amp-hr.	110
Alternator output, amp./W	120/1680

1 – Can be expanded by available folding rear seats.

2 – VANOS = **V**ariable **N**Ockenwellen **S**teuerung = variable camshaft control, or variable valve timing.

# Specifications

2003 M5

M Cars

## Drivetrain

Drive system	Front engine/rear drive
Manual transmission	Getrag Type D, 6-speed
Ratios: 1st	4.23:1
2nd	2.53:1
3rd	1.67:1
4th	1.23:1
5th	1.00:1
6th	0.83:1
Reverse	3.75:1
Final drive ratio	2.81:1

## Chassis

Body/frame construction	Unitized steel
Front suspension	BMW M sport suspension in aluminum; struts, double-pivot lower arms, coil springs plus polyurethane auxiliary springs, twin-tube gas-pressure shock absorbers, anti-roll bar
Rear suspension	BMW M sport suspension in aluminum; 4-link integral system, coil springs plus polyurethane auxiliary springs, twin-tube gas-pressure shock absorbers, anti-roll bar; includes aluminum subframe
Steering type	Recirculating ball, vehicle-speed-sensitive power assist with M Dynamic Driving Control (Normal & Sport settings)
Overall ratio	14.7:1
Turns lock-to-lock	3.0
Turning circle, ft.	38.1

**Chassis (cont.)**

Antilock braking system with 4-wheel ventilated discs:	
Front discs, diameter x thickness	13.6 x 1.18 in.
Rear discs, diameter x thickness	12.9 x 0.79 in.
Assist	Vacuum
Wheels	Cast alloy, 18 x 8.0 front/18 x 9.5 rear
Tires	Performance radials, 245/40ZR-18 front / 275/35ZR-18 rear
Stability-enhancement system	Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement

**Performance data**

Acceleration, 0-60 mph, sec., manufacturer's data <sup>3</sup>	4.8
Top speed, mph	155 <sup>4</sup>
Fuel economy, EPA est. MPG, city/highway	13/21

3 – BMW of North America, LLC test results. Actual acceleration results may vary depending on specification of vehicle; road & environmental conditions; test procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

4 – Electronically limited.

## **BMW ALPINA ROADSTER V8: Germany's renowned BMW performance specialists create a second edition of the classic Z8**

Upon its debut in late '02, this new edition of BMW's contemporary classic roadster raised quite a few eyebrows. A Z8 with automatic transmission? A Z8 powered not by the BMW M engine, but by a specially developed, higher-performance version of BMW's "regular" V-8 engine? A Z8 with 20-inch wheels and tires in place of the original model's 18-inchers?

Yes, it's all true, and there's quite a story here. For starters, this new Z8 is not only from BMW, but also from ALPINA – it is a joint effort based on a long tradition of cooperation. At home in the Upper Bavarian town of Buchloe, ALPINA was established in 1964 as an official and approved "ennobler" of BMW automobiles. The word is chosen carefully, for ALPINA's tradition is not merely to make BMWs go even faster and look even sportier, but also to make them even more appealing to connoisseurs of automotive finery. **Performance** finery, we might add, as ALPINA treatments include not just cosmetic modifications but also a range of powertrain and chassis refinements that consistently enhance BMW models' already formidable road capabilities within a context of thorough engineering and mature character. At the same time, ALPINA's philosophy of performance is differentiated from that of BMW M, notably through the application of engines with an accent on low-speed torque (vs. ultimate rpm capability) and automatic transmissions (vs. manual and SMG).

The character of ALPINA is the character of founder Burkard Bovensiepen.

### **ALPINA: a unique and long-standing synergy with BMW**

Burkard Bovensiepen modified his first BMW – a 1500 sedan, the "granddaddy of the 5 Series" – soon after its debut in 1962, installing dual carburetors to make it go faster. In 1964, he obtained warranty approval from BMW, which effectively made him BMW's "house tuner." (This was long before BMW M was established.) Bovensiepen then officially founded the ALPINA company on January 1, 1965. Over the decades since, ALPINA has been – except for BMW M – the performance and racing specialist most consistently and durably associated with BMW. ALPINA's logo depicts the intake pipes of a Kugelfischer mechanical fuel-injection system in its red field, a 4-cylinder crankshaft in its blue field – recalling the ALPINA version one of BMW's all-time greats, the 2002tii.

The BMW ALPINA ROADSTER V8 (all-capital spelling is a contractual requirement) marks the company's official entry into the U.S. market with its automobiles. Mr. Bovensiepen himself is an automotive gourmet, but not just that: his wine business imports to Germany good and great wines from France and Italy to Germany. Himself an excellent chef, Bovensiepen declares that ALPINA builds automobiles "as 3-star restaurants cook." Other Bovensiepen family members, sons Andreas and Florian, are part of today's ALPINA management.

With this latest creation, an ALPINA re-interpretation of the Z8 Roadster, Bovensiepen's team of automotive ennoblers

has added its unique touch with the skill and maturity of the seasoned automotive gourmet. The BMW ALPINA ROADSTER V8 incorporates change not just for the sake of change and exclusivity – although of course it offers exclusivity in great measure – but rather as a specific, targeted refinement in the direction of greater comfort.

### The Z8: a recap

Created as a high-technology, high-performance 2-seater roadster of classic design, the Z8 entered limited production in 2000. Designed to recall the great classic BMW 507 of 1956-59, the Z8's body is of aluminum, its structural foundation being an aluminum space frame of amazing rigidity, yet moderate weight. The Z8 also employs aluminum for its suspension system, which includes BMW's unique double-pivot front and Integral Link rear suspension concepts. Its rack-and-pinion steering system includes variable power assist and variable ratio; massive ventilated disc brakes provide stopping power to match the dazzling performance.

Inside the Z8, the classic theme is carried over into a centered instrument panel of unique, retro character. Color-keyed painted areas and elegant metal trim and components combine with elegant leather to give the cockpit an aura of exuberant quality.

In its November 13, 2000 issue, *AutoWeek* described the Z8 this way: "The design speaks to exactitude and precision machinery. Its slick and metallic surfaces, finely rendered details and crisp curves forecast the wonderful shifter, well-weighted steering and the rev-it-hard V-8 cranking out 394 hp. Driving a

Z8 quickly is akin to wielding a high-grade surgical tool; exquisitely balanced, stunningly effective, but with a cold, sterile edge. The chassis sacrifices nothing to the open roof, a good thing for imprecise human beings seeking warm breezes."

The new BMW ALPINA ROADSTER V8 maintains this wonderful character. Yet, as reports by the enthusiast media have discovered, the new edition is nevertheless a hearty transformation of the Z8 in the direction of greater everyday usability:

- *Automobile Magazine*, March 2003: "This limited edition is the last, and best, Z8."
- *Road & Track*, March '03: "While I expected the car to handle well, its astonishingly good comfort for such a fast and sporting car was a real surprise."
- *Car and Driver*, February '03: "Our introductory drive in the BMW ALPINA ROADSTER V8 was on streaming wet roads with the factory-supplied hardtop in place. That didn't stop us from appreciating the engine sound, which is like the sweetest of traditional American V-8s, enjoying the SWITCH-TRONIC feature, and feeling that the more gentle suspension was beneficial."
- *AutoWeek*, January 6, '03: "Z8 one better."
- *auto motor und sport*, Germany, September 18, '02: "The smart way the engine delivers its power is underscored by a concert of sounds that – especially driving through a tunnel with the top down – makes the driver's heart rejoice. Whatever one's musical taste, be it Anastacia, Herbert Grönemeyer or

Rachmaninoff, the ALPINA music touches every heart... "ALPINA driving has its price, of course – no matter how high the power rating. Yet here, a surprisingly comfortable sports car has come into being, one for which Bovensiepen has big plans in his golden years: For the first time, ALPINA automobiles will be officially offered in the U.S. market."

- *Automobil Revue*, Switzerland, August 8, '02: "The [market] potential for such vehicles is soon exhausted; these days, few people in this elite price category want a manual transmission.

"Burkard Bovensiepen and his team have allowed themselves the luxury of 'altering the Z8's character a bit.' Because there must be people who want to enjoy the fascination of this wonderful automobile not just Sunday mornings on back roads, but also in the city...often even in traffic jams. "The 19-hp loss compared to the original is not missed in everyday driving, but the increased torque is there to behold – even though the SWITCH-TRONIC automatic operates very sportily and lets the engine extend itself almost fully without kickdown.

"More important is the wonderful change in character. ALPINA really has been able to transform the Z8 subtly into a different car, without spoiling its purist character.

"ALPINA's composition smoothes the mighty flow of power, and makes the act of traveling a bit calmer, especially for the passenger.

"Not just the Americans, accustomed as they are to automatics, will be thankful for this car. The driving pleasure remains; the Z8 has not been softened, but rather made more harmonious, more relaxed, more confident. It's a nice gesture between friends that BMW has allowed ALPINA to move into this niche."

Production of the original Z8 for the U.S. concluded at the end of November '02. Immediately thereafter, BMW and ALPINA began building 550 BMW ALPINA ROADSTER V8s, of which some 450 are for U.S. sale.

### What's new

As of 12/03 production:

- A totally different engine, developed by ALPINA: based on the M62 4.4-liter V-8 of 540i models
- A specially developed 5-speed automatic with SWITCH-TRONIC driver-controlled shifting
- Unique BMW ALPINA 20-in. wheels with Y-rated performance tires, replacing the Z8's 18-in. W-rated run-flat performance tires
- New calibration of the suspension system that takes advantage of the new tires to achieve a somewhat more comfortable ride with no compromise in handling
- New steering wheel, with three leather-and-metal spokes in place of the Z8's "banjo" spokes and an ALPINA logo on its center hub
- Instrument dials in the traditional ALPINA blue color
- A transmission display directly in front of the driver
- Soft Nappa leather upholstery, with special piping
- Limited exterior and interior color selection

# BMW ALPINA ROADSTER V8 key features

The BMW ALPINA ROADSTER V8 offers the following features:

## Performance & efficiency

### BMW ALPINA 4.8-liter V-8 engine

The ALPINA engine is quite different in character from the BMW M engine that powers the original Z8 (and M5). That engine (described on page 282) is of course a great masterpiece; but as the BMW ALPINA engine shows, there's more than one approach to stellar performance.

It may surprise some that the ALPINA engine is based on an engine that does not possess the technology of the 7 Series' 4.4-liter V-8: Valvetronic, Double VANOS variable valve timing, fully variable intake manifold. In fact, this engine has "single" VANOS, varying intake-valve timing only, and does not have the M engine's eight individual throttles. Larger displacement and ALPINA's meticulous handwork are primary contributors to this engine's ability to attain a similar level of performance, though with a different performance character.

Remarkably, the 4.8-liter ALPINA engine comes to within 19 hp of the BMW M unit (375 hp, vs. 394), does so at lower rpm levels, and (this is key) is thus suited to teaming with an automatic transmission. Its power peak comes at 5800 rpm, vs. 6600; its torque peak occurs at the same 3800 rpm but is actually higher – 383 lb-ft. vs. 368. Put another way, the ALPINA engine delivers at least 368 lb-ft. all the way from 3100 to 5000 rpm – and catapults the classic roadster to 60 mph in just 5.0 sec., according to official data.

One could say that these cars begin life in Buchloe, as ALPINA receives about 1100 parts from which to build the engine. At ALPINA, the cast-aluminum cylinder heads' intake and

exhaust ports are polished by a team of six associates. A single master technician assembles the entire engine by hand; it differs from the existing M62 V-8 engine as follows:

- The cylinder block, as cast by BMW in Alusil (aluminum-silicon alloy), has 93.0-mm cylinder bores, 1.0 mm greater than those of the 4.4-liter engine.
- The crankshaft, with 89.0-mm stroke, is almost identical to that of the M5/Z8 engine; this stroke is 6.3 mm greater than that of the 4.4 engine. The combination of 93.0-mm bore and 89.0-mm stroke produces a displacement of 4837 cc, vs. the 4.4's 4396.
- ALPINA-specific lightweight aluminum pistons from Mahle, the famous German producer of pistons and other internal engine components.
- ALPINA-specific connecting rods, camshafts and valves.
- ALPINA-specific intake manifold, with increased volume and more sensitive air-mass sensors.

After assembly at Buchloe, the engine goes to Munich, where it is mated to the automatic transmission from ZF and the aluminum chassis/body structure from BMW's dedicated aluminum facility at Dingolfing<sup>1</sup>; suspension, steering and brake systems, paint, glass and safety systems are also installed in Munich.

1 – This is where BMW's expertise in aluminum is also employed in the development of the Z8/ALPINA ROADSTER body/chassis structure; the 7 Series' aluminum hood and front fenders; the M3s' aluminum hood; various aluminum chassis and suspension components found in various BMW models; and the new Rolls-Royce. Additional developments from this facility will appear in the upcoming '04 5 Series.

# BMW ALPINA ROADSTER V8 key features

The BMW ALPINA ROADSTER V8 offers the following features:

## A special automatic transmission from ALPINA

Based on the 5-speed ZF STEPTRONIC unit employed in 540i models, the ALPINA version differs in several major aspects:

- In addition to up- and down-shifting by “tipping” the shift lever rearward or forward, the driver can also shift by pressing “+” and “-” buttons near the steering-wheel rim.
- 1st and 2nd gears are strengthened to handle the engine's higher torque.
- The torque converter is “tighter,” with a lower stall speed and thus less slip.
- Directly in front of the driver, a transmission display instrument indicates the range (P, R, N, D), mode (Automatic or Manual) and the gear currently engaged.
- There is no Sport mode as such, but the shift programming is more like a Sport mode than the typical BMW Drive mode.
- Transmission software is unique to this unit.

Under wide-open throttle in its Automatic mode (D), the unit upshifts at 5800 rpm, the engine's power peak. In its Manual mode (M), shifting is under the driver's control but it will upshift at 6500 rpm to prevent engine overspeed. On this last point, Germany's *auto motor und sport* noted in its September 18, 2002 issue that “after the first phase of experimentation [with driving technique] is over, there's no need to shift for yourself. With its outstanding ratios, the automatic has the monumental power of this engine so totally in its grip that you don't even need to kick down.” That's a nice compliment, but we're sure some drivers will want to take the shifting reins now and then.

## Handling, ride & braking

### Aluminum space frame

The structural foundation is the first aluminum space frame BMW has ever produced. It was chosen for a number of reasons:

- A space frame, with a backbone-like central structural tunnel element, is especially suitable for an open-bodied car because it gives optimum structural rigidity. (*auto motor und sport* magazine likened the car's rigidity to concrete.)
- Aluminum construction saves significant weight compared to steel.
- Careful, targeted design of the space frame helped BMW engineers achieve not only high rigidity for precise handling and a quality driving feel, but also the energy management that promotes crash safety.
- This construction, which involves a relatively high proportion of handwork, is ideally suited to the limited production.

Full aluminum construction is rare among today's production automobiles. Among the few models with it are the Acura NSX, Audi A8 and Ferrari F 360.

Of these, the NSX structure is the most conventional, and probably least advanced, because it was introduced more than a decade ago. It is essentially an aluminum version of the steel unit chassis/body structures of most modern cars. The A8 (including the new generation just introduced in Europe) and F 360 structures are closer to the V8's, with space frames of extruded structural members and mostly riveted-on exterior panels. In both of these, it is the frame that carries most of the loads; in a unit structure, whether steel or aluminum, the

body panels share more or less equally in the load-bearing.

Whereas the Ferrari F 360 Spider (roadster) has essentially the same lower frame structure as its coupe counterpart with additional reinforcement in the floor/tunnel area, this vehicle has been conceived from the beginning as a roadster. This is an important distinction.

It is the central tunnel or “spine” that is, in effect, the car’s roof. It can serve this function because of its large depth. The tunnel’s two sides (each fabricated as an individual member) spread gradually apart toward the front, then at the engine bulkhead flare out sharply. At the point where the front members straighten out toward the front of the vehicle, other elements flare outward toward the rear, forming a “Y” at each side of the vehicle that help provide both rigidity and crash-energy absorption.

Behind the seats are integral rollover tubes; the windshield frame also contributes significantly to rollover strength. All principal structural elements are made of so-called extrusion-pressed profiles; they and the stamped panels are connected by about 1000 rivets and 187 feet of MIG (metal-inert gas) arc welds.

Another important distinction of this body is that nearly all its exterior body panels are bolted on, and therefore can be replaced easily when damaged.

### **Production and repair of the frame and body**

Production processes and repair arrangements for the structure and body are also important and fascinating aspects of the Z8/ALPINA ROADSTER V8 story.

**Production.** The space frame and body shell are constructed by a team of skilled BMW craftspeople at the company’s Dingolfing, Germany plant, which has been recognized internationally for its exceptional quality standards. For a year before production actually began, this team of about 50 had been schooling and working on pre-production structures and bodies.

The Dingolfing factory also has special qualifications, in that there was already an aluminum center there for production of the 3 Series convertible’s aluminum hardtop, 7 Series hood and fenders, suspension components for the 7, 5 and 3 Series, and the M3 hood. Because the convertible top, hoods and fenders are painted components, the Dingolfing paint shop is also versed in finishing aluminum panels.

Final assembly is at the Munich factory, with relatively little automation. Approximately 100 team members work here; each of them applied for this special assignment and, once chosen for their skills and teamwork aptitude, went through a specific Z8 training course lasting several weeks.

The team is international, consisting of members who speak various languages. BMW expects that many of this car’s clients will be interested in the car’s production and come to witness their own car being assembled; the workers will be able to speak to many of them in their own language.

In all, there are 31 steps to the assembly process, beginning with the complete, painted body shell from Dingolfing and taking approximately 10 times as long as does assembly of a 3 Series vehicle.

## BMW ALPINA ROADSTER V8 key features

The BMW ALPINA ROADSTER V8 offers the following features:

**Repair.** BMW's body engineers have provided for expert repair in case of accident damage. The front and rear bumpers have 5-mph impact-absorption capability. Structural damage at impact speeds up to approximately 15 mph can be repaired by means of "cold" joining technologies. The entire front end is bolted on, as are the rear fenders.

Repairs of damaged vehicles are classified in three levels:

- **Level 1** – "light duty" repairs. If necessary repairs are confined to the replacement of external panels and trim, and/or paint-work, they will be carried out locally in the usual manner by a competent BMW or BMW-approved sublet repair facility.
- **Level 2** – "medium-duty" repairs, including replacement of frame sections, epoxy bonding and riveting, and any work requiring frame/body fixtures or dimensioning tools. The vehicle will be transported by BMW to and from the closest of three special repair centers: in Montvale, New Jersey; Spartanburg, South Carolina; or Oxnard, California.
- **Level 3** – "heavy-duty" repairs, including replacement of major frame sections or structural panels, welding, and/or any of the work steps of Level 2; also carried out at BMW's special repair centers.

### **The suspension concept**

The suspension is based on the best of established BMW concepts, specially adapted for the roadster's aluminum space-frame structure and low center of gravity and equipped with massive 20-in. wheels and tires that deliver its spectacular capabilities to the road.

And what capabilities! Writing in *Road & Track's* March '03 issue, legendary racing driver and auto journalist Paul Frère, referring to the electronically controlled top speed of 161 mph, commented that "With rainy weather and traffic, those speeds could not be explored on the short stretch of *Autobahn* on the test route. On winding country roads with good visibility, however, the ALPINA ROADSTER felt extremely stable and well balanced, the excellent grip in the wet making it possible to use all the power available..."

In their May '00 issues in tests of the original Z8, *Road & Track* measured 0.92g in its skidpad cornering trial, *Car and Driver* 0.90g; there is no expectation that the ALPINA version would be any less competent.

This car's accomplishments are by no means limited to amazing handling. BMW's top roadster also offers its occupants a relatively comfortable ride – thanks to the combination of its highly rigid structure, the precise geometry of its suspension, and the extensive use of aluminum for suspension components.

### **Aluminum front suspension system**

The front suspension system follows BMW's established principle of strut-type front suspension with double lower arms; it is an evolution of the system employed in 5 Series models with rack-and-pinion steering, with an entirely new subframe and other components either new or modified from their 5 Series counterparts.

Though the system's design is a major factor in the V8's amazing handling capabilities, the **materials**

of which it is made are also important. Specifically, the use of aluminum in the system's moving parts (the lower arms and steering knuckle) is beneficial to the customer in terms of:

- **Riding comfort**, particularly on rough surfaces.
- **Handling**, also particularly on rough roads.
- **Fuel economy and performance**.

These components are **unsprung weight**, and are the ideal place to reduce weight because lighter unsprung components improve the suspension's ability to respond to bumps and other road irregularities.

The use of aluminum for fixed components, such as the subframe and steering-rack housing, benefits **fuel economy and performance**.

Safety is not compromised in any way by the weight reductions in these areas; on the contrary, it benefits active safety because of its positive effects on handling.

#### **4-link Integral rear suspension**

The rear suspension is a multi-link system, with four links per side, designed to control rear-wheel angles precisely for stable, yet highly responsive handling **without** unwanted effects under load changes (such as when lifting off the accelerator while cornering) and **with** riding comfort that is remarkable for a high-performance sports car.

A steel subframe carries the entire rear suspension system and the final drive (differential). It is mounted to the main space frame via four large rubber bushings which help absorb road shocks. In turn, the final drive unit is mounted to the subframe through its own rubber

bushings. Thus with two stages of vibration and noise absorption between it and the vehicle structure, the differential is acoustically decoupled from the body, reducing any gear noise from it to a minimum inside the car.

#### **Rack-and-pinion steering with variable assist and variable ratio**

This is no "ordinary" rack-and-pinion system; rather, it is a type used in BMW's highest-performance models in recent years. One of its distinctive features is **variable ratio** (not to be confused with variable assist, which is found in all current BMW power-steering systems). The steering rack's teeth are profiled in such a way that the steering ratio becomes "quicker" (that is, more steering effect for a given steering-wheel motion) as the wheel is turned outward from its center position. The result is a fine-tuning of steering response according to the situation one is in, be it on a fast straightaway or maneuvering into a parking space.

Aside from this specific variable-ratio feature, found in few rack-and-pinion systems, the fundamental argument for rack-and-pinion steering is that it virtually eliminates any slack or "free play" at the steering's center position. This enhances steering precision – especially appropriate in a sports car and the overriding characteristic of the Z8/ALPINA ROADSTER V8 steering system.

#### **Powerful brake system**

With hefty ventilated disc brakes all around – 13.1-in. diameter at the front with dual-piston calipers, 12.9-in. at the rear – the Z8/ALPINA ROADSTER V8 has stopping power to match its performance.

## BMW ALPINA ROADSTER V8 key features

The BMW ALPINA ROADSTER V8 offers the following features:

*Car and Driver* stopped the Z8 from 70 mph in a remarkable 164 ft. in testing for its April '01 issue; in this comparison test, both the Aston Martin DB7 Vantage Volante and Ferrari 360 Spider F1 took 175 ft. Other issues of the same magazine reported 179 ft. for the Porsche Boxster and 170 ft. for the Porsche 911 Carrera. *Motor Trend* tested the Z8's brakes another way: from 100 mph in just 318 ft., taking only 4.3 sec. "Do the math," added *MT*, "and you'll learn that it takes only 14.5 seconds to run the famous 0-100-0 test, placing it fifth on our list of cars we've tested in this way – behind a McLaren F1 LM (11.5 sec.), the Dodge Viper GTS and Porsche 911 Turbo S (both 13.7 sec.), and a Ferrari 550 Maranello (13.9 sec.). These are the Z8's supercar peers, the pack with which it hunts lesser, mere sports cars."

In braking, too, there is no reason to expect less stellar capability for the ALPINA model; the brakes are unchanged, and the wheels and tires are one size wider both front and rear.

### **20-in. wheels and performance tires in differentiated front/rear sizes**

Special BMW ALPINA 20-inch wheels, with five clusters of four spokes each, are a new feature. With 8.5-in. width at the front and 9.0 at the rear, these wheels are a half-inch wider at the front and carry Y-rated performance tires of dimensions 255/35R-20 at the front and 285/30R-20 at the rear. Z8 wheels and tires were 18-inchers, with 245/45 tires at the front / 275/40 at the rear.

Y-rated performance tires are a departure from Z8 practice too. The Z8 wears W-rated run-flat

(also performance) tires; the ALPINA's tires balance their lower profile (which implies firm sidewalls) against the Z8's higher-profile, but still relatively stiff run-flat sidewalls. (20-in. run-flat tires would have been unacceptably harsh-riding.) At the bottom line, sensitive drivers will find that the ALPINA ROADSTER V8 delivers increased riding comfort with at least comparable handling.

Should a flat tire occur, the ALPINA model retains the Flat Tire Monitor (see page 23) and adds the M Mobility System, familiar from BMW M models. M Mobility consists of a container of rapid sealant, an integrated microcompressor, and a hose to connect the compressor to the damaged tire. All this is carried in a trunk recess near the right rear wheel, designed into the Z8 right from the start. The system can seal punctures up to approximately 1/4 in. across.

## **Exterior & aerodynamics**

### **The look:**

#### **a contemporary classic**

Is this a retro-styled car? "Of course," says Christopher Bangle, BMW's Chief Designer, expressing a clear view on this unique sports car from BMW. "The classic BMW 507 [the great BMW roadster of the Fifties that the Z8/ALPINA ROADSTER V8 recalls] was our reference car, a very special car by all means. And since there is only one 507 in the history of the automobile, this is most definitely a retro design. A retro design full of romantic passion."

BMW has invested a lot in creating pure emotion, focusing deliberately on a classic line. In Bangle's words, "Only a carmaker with genuine history can create such an homage to a classic

heritage model." Clearly, BMW is such a carmaker, and the BMW 507 is amply deserving of homage. At the same time, the Z8/ALPINA ROADSTER V8 design incorporates a full range of contemporary elements that not only keep it from being a mere copy of the 507, but also help give it thoroughly contemporary capabilities.

### The front end

The front end is a masterpiece of classic and contemporary themes. Its dual horizontal grilles – in contrast to the established, essentially vertical BMW “kidneys” dual grilles of all other BMW models – decisively recall the BMW 507. The openings include an “eggcrate” grid in black, just as those of the 507 did.

Yet these grilles also introduce contemporary design and functional elements. For one, they incorporate the halogen high-beam headlights; for another, they are part of the fully integrated, deformable front bumper unit, which provides damage protection in 5-mph impacts.

The main lighting units, behind aerodynamic covers, include Xenon low beams with **dynamic auto-leveling**. (Dynamic auto-leveling keeps the lights aimed correctly not just with changing vehicle loading, but also as vehicle attitude changes with acceleration and braking.) The low beams are outboard; the inboard lamps are the parking lights. High-intensity liquid jets pop up from the covers’ lower edges to clean these lighting units.

The most futuristic element of the front end is its **neon turn signals**, the first ever on a production automobile. Aside from their slender, distinctive appear-

ance, neon has a convincing functional advantage: it illuminates approximately 10 times as quickly as conventional bulbs for an earlier signal of the driver’s intentions. These lighting units also serve as side markers, operating at lower wattage than they do as turn signals.

### In profile

This is perhaps the most classic view. Particularly notable are the side “gills,” which recall those of the BMW 507 roadster.

The gills’ contemporary functional element is their fiber-optic turn-signal indicators: As on all recent BMW models, the side indicators flash with the front and rear turn signals to help give motorists driving alongside an early indication of the BMW driver’s maneuvering intention.

Located on the right side (also as on all BMW models) is the fuel-filler door. It is electrically released via the same cockpit button that releases the trunklid: Press one half of the button to open the trunk, the other half to open the filler door.

Classic decorative elements seen in the side view include the chrome door handles and chrome exterior mirrors. With the lined softtop up, the Z8/ALPINA ROADSTER V8 loses none of its classic roadster look.

### At the rear

The rear view is unabashedly classic, with rounded, low lines that pay no tribute to modern wedge shapes.

As at the front, 5-mph bumper protection is smoothly integrated into the overall shape. The license plate is flanked by two red lenses: at left a rear foglight, at right one that illuminates white as the backup light.

## BMW ALPINA ROADSTER V8 key features

The BMW ALPINA ROADSTER V8 offers the following features:

Also as at the front, neon lighting units are the most futuristic element here. They are used for the turn signals and both outer brakelights, as well as the high-mounted center brakelight.

The faster illumination of neon means that a driver following a Z8/ALPINA ROADSTER V8 at 80 mph would see the brakelights about 21 feet sooner than with conventional lights – a potentially decisive factor in reacting quickly enough to avoid being rear-ended. The wraparound form of the tail/turn-signal/brakelight units also helps ensure visibility from a wide range of angles.

Large, polished exhaust outlets, emerging through the lower apron/aerodynamic diffuser, make a powerful statement about the car's performance potential.

Under the smooth trunklid, opened electrically from an interior switch or the remote, is a beautifully finished trunk large enough to accommodate two golf bags. See **ergonomics & luxury** for details on the trunk's features.

### Aerodynamics

A classic roadster does not achieve a very low coefficient of aerodynamic drag ( $C_D$ ); however, it does have a relatively small frontal area, so its overall aerodynamic drag (wind resistance) is not high.

The  $C_D$ , measured with its top up, is 0.43; with the hardtop the  $C_D$  becomes 0.39. These are excellent numbers for a roadster.

In ALPINA ROADSTER V8, the driver and passenger will notice moderate wind effects with the top down; with the standard wind deflector in place, there is even less buffeting around the occupants' heads. With the

roadster top up, its interior lining helps keep wind noise down to a moderate level.

Finally, the Z8's aerodynamics have been carefully developed to ensure stability at all speeds.

### Ergonomics & luxury

#### The cockpit concept

This cockpit truly breaks new ground for BMW – yet does so by paying unflinching tribute to classic values.

Don't look here for every last luxury feature found in BMW Sedans, Coupes and Sport Wagons. Instead, BMW designers and planners have carefully cultivated a feeling – and reality – of the classic sports-car cockpit.

There are, of course, many of the contemporary conveniences: power seats and steering-wheel adjustment, 1-touch windows, a premium audio system. Yet in the spirit of re-creating the classic sports-car experience, BMW has been careful not to go too far with these: the seats are 6-way, for example, the steering-wheel adjustment is telescopic only, the climate-control system manual (and without labeling or numbers on its rotary knobs). A GPS Navigation system and state-of-the-art phone system are standard, but both are normally hidden from view and the navigation system is in compact form, without color monitor.

The steering wheel, while incorporating BMW's latest airbag technology, appears in a delightful variation on the vintage "banjo" wheel. Main areas of the dash are painted. The instrument cluster is centrally positioned. Genuine aluminum graces surfaces, handles and knobs. The array of controls has been

kept to a minimum, and many of them are intentionally not labeled.

Of course, all materials are of the very highest qualities. All in all, the Z8/ALPINA ROADSTER's approach to ergonomics, luxury and convenience is at once new and nostalgic.

#### **Instrument cluster: classically centered**

While remaining true to BMW's tradition of easily readable analog main instrumentation, the Z8's instrument cluster has a unique, retro graphic look. Even bolder is the cluster's position in the center of the dash, with the dials angled toward the driver.

Here, BMW designers wanted to create a special vintage feel – and to give the driver a direct view of the road as in no other contemporary vehicle. The cluster's contents are as in other BMWs, with a large speedometer and tachometer and smaller dials for fuel level and engine temperature. A special Z8 touch is the black-on-white analog clock in the tachometer face. At night, all four dials are illuminated in a unique way, from their dial centers outward. As one of the ALPINA ROADSTER's distinguishing esthetic elements, all instrument dial faces (except that of the clock) are in the traditional ALPINA blue; an additional blue display, directly in front of the driver, indicates the range (P, R, N, D), mode (Automatic or Manual) and gear currently engaged.

BMW's Service Interval Indicator, with miles-to-service readout as in the 3 Series, appears along with main and trip odometers in the speedometer face. Warning and indicator lamps are positioned in the speedometer and tachometer faces, as well as

along the bottom of the cluster. Appropriately, the fuel and temperature gauges contain their own warning lamps.

#### **Power telescopic steering wheel in evolved ALPINA style**

Where the Z8 had a thoroughly classic wheel with metal “banjo” spokes recalling Thirties-era cars, the ALPINA ROADSTER V8 evolves this steering-wheel design with a combination of upholstered and metal spokes; the wheel's hub incorporates an ALPINA logo.

Power telescopic adjustment of the wheel is controlled by a switch on the underside of the steering column.

#### **Leather/aluminum shift knob**

In aluminum and color-keyed leather, the shift knob is the perfect control for the responsive automatic transmission.

#### **6-way power sport seats**

The seats are contoured and padded for the exceptional support needed in a sports car of the such dramatic capabilities. In particular, the cushions' and backrests' side bolsters are prominent for a high degree of lateral support.

Six-way power adjustment is controlled by two ergonomic switches on the outboard side of each seat, in zinc with matte-chrome finish.

#### **Power windows & outside mirrors**

Power-window and -mirror controls are combined in a switch group on the driver's door. The window control is at the front of the switch escutcheon, the mirror control at the rear; a vertically sliding switch between the two selects left, right or both as follows:

- Left (up) position – left window and mirror

## BMW ALPINA ROADSTER V8 key features

The BMW ALPINA ROADSTER V8 offers the following features:

- Center position – both windows, no mirrors
- Right (down) position – right window and mirror.

1-touch open and close operation is provided for the left window, 1-touch open for the right window. With the selector switch in the center position, both windows have 1-touch open operation.

The windows have BMW's power door-window sealing system; for an explanation, see **BMW features**, page 36.

The inside rearview mirror is auto-dimming and includes separately switched left/right reading lights.

### Colors and trim

A striking aspect of the cockpit is its use of color-keyed painted areas and elegant metal trim and components.

The ALPINA is available in two exterior colors: Jet Black and the metallic Titanium Silver. Its available interior color schemes correspond to three of the Z8's available four: Crema/Black, Sport Red/Black and Black. In a specific design connection with the BMW 507 roadster, the sweeping upper dash panel is painted in a color that either matches the exterior color or is coordinated with it, as are the console panel with radio cover, seat side trim, back of seat backrests, and a center panel behind the seats.

With the exterior, these panels exactly match the exterior. With the Titanium Silver exterior, they are finished in Titanium Silver Dark for a subtle contrast.

### Soft Nappa leather upholstery

The seats, head restraints, rollover-protection bars, doors, upper and lower dash, steering wheel, shift knob, shifter and

handbrake boots, and center console are all leather-trimmed; the seats themselves are in Soft Nappa leather, which is somewhat more pliant than the Z8's already luxurious Nappa leather.

### Special climate-control system

The manual climate-control system meets contemporary expectations for heating, ventilation and air-conditioning performance, yet also harmonizes with the classic esthetic values.

Minimally labeled controls are grouped in an attractive aluminum panel at dash center, which also includes center air outlets for individually controlled face-level air distribution. From left, the main rotary knobs are:

- **Blower**, with marks indicating five speeds.
- **Temperature**, with clockwise progression from cold to maximum heat.
- **Air distribution** –
  - maximum counterclockwise = dash vents
  - vertical = defrost
  - maximum clockwise = footwells
  - progressive adjustment of air flaps between settings, so that users can choose any intermediate distribution mix.
- **Program selector**, with four settings –
  - left = recirculating air, air conditioning off
  - vertical = fresh air, a/c off
  - 1st step right = fresh air, a/c on
  - right = recirculating air, a/c on.

Two pushbuttons, placed between the two pairs of rotary knobs, are used to select defroster settings and rear-window heating (hardtop only).

The system includes microfilters to cleanse incoming air of dust, pollen and odors. These are located under the hood near the windshield and easily replaced, as required periodically by the BMW maintenance schedule.

It is recommended that the BMW Client Advisor explain the climate-control system thoroughly to the client, and call his or her attention to the section of the Owner's Manual covering it.

### **Power lined softtop**

An electrohydraulic mechanism provides convenient lowering and raising of the softtop, which is lined for neat interior appearance and low wind noise when it is raised.

Lowering the top is fully automatic. With the ignition switched on and the vehicle stationary, all one has to do is press and hold the console switch until the top is folded into its space behind the seats. If the windows are up, they lower automatically; the audio system is automatically set for top-down operation.

Raising the top is semi-automatic. Once the top reaches a certain point on the way up, it stops. At this point, reach up to the header, pull forward gently, and press the switch there; then the header locks automatically into the windshield frame.

A molded cover, made of fine leather, covers the folded top. It must of course be removed before the top can be raised.

### **Wind deflector**

Carried in its own bag in the trunk, the wind deflector attaches easily to the rollbars and hooks under the molded cover to reduce turbulence around the occupants' heads.

### **Multi Information Radio**

BMW has taken a novel approach to audio and information systems with the Multi Information Radio (MIR). All systems are commanded from a compact control panel, normally hidden from view by a panel at the top of the center console. When pressed inward, this panel glides smoothly upward to reveal the controls.

At the center of the panel is a compact liquid-crystal display (LCD). A main menu here lets users select the audio system, GPS Navigation, phone functions or outside-temperature display via a turn-and-push button. Preselect buttons under the display serve various purposes according to which system has been selected for control at the moment.

### **Harman Kardon audio system.**

The audiophile-quality AM/FM/CD audio system includes a Harman Kardon speaker network consisting of –

- Wide-band speakers beneath the seats (2)
- Woofers in the footwells (2)
- Tweeters and subwoofers in the doors (2+2)
- Subwoofers behind the seats (2+2).

With the four subwoofers, much emphasis has been placed on bass capability – especially important in an open-bodied vehicle. Wattage is more than adequate for demanding audio tastes and the open-air driving environment.

A 6-disc CD changer and the Navigation System's CD player are in left/right compartments behind the seats for convenient changing of discs. Locked for security, they are accessible only

## BMW ALPINA ROADSTER V8 key features

The BMW ALPINA ROADSTER V8 offers the following features:

with the vehicle key; specific lighting is provided to facilitate CD changing by night.

**GPS Navigation.** As in the On-board Navigation System of other BMW models, the push-and-turn knob controls GPS Navigation functions. The GPS Navigation system operates just like the monitor-based system of other models, but does not offer map displays. Turn-by-turn route guidance is shown on the screen and given verbally as well.

**BMW Cellular Phone System.** The CPT 8000 system continues as standard equipment. Its handset is carried in the compartment at the rear of the center console. It is of course hands-free, and certain dialing functions can be controlled from the MIR panel.

**Outside-temperature display.** Selectable at any time, no matter which system is in use.

The Dynamic Stability Control (DSC) de-activation switch is also in this area.

### Trunk features

Thanks to the omission of a spare wheel and tire, the Z8/ALPINA ROADSTER V8 has a surprisingly large trunk for a trim sport roadster. Germany's *auto motor und sport* magazine (February 23, 2000) found the trunk adequate for "the weekend luggage for two persons," and it can also carry two golf bags.

True to this car's character (and BMW tradition), the trunk is also beautifully and fully finished in black or cream according to the cockpit color scheme. A toolkit is carried there in a traditional soft bag, as is the wind deflector.

### Safety & security

#### Safety features

BMW's customary emphasis on active safety – steering, suspension, brakes and stability-enhancement systems that can help the driver avoid accidents – endows the ALPINA with an uncanny ability to obey the driver's commands. For details on these aspects, please refer to **handling, ride & braking**, beginning on page 302.

In terms of passive-safety features, the Z8/ALPINA ROADSTER V8 incorporates a range of contemporary BMW concepts, including automatic safety-belt tensioners and force limiters, a dual-airbag Supplementary Restraint System with 2-stage Smart Airbags and occupant detection (the Differentiated Deployment system described on pages 41-42), body sides and doors designed to meet current U.S. standards for side impacts, and side-impact airbags in the doors.

### **Rollover Protection**

Occupant safety in a rollover is enhanced by two fixed structural hoops behind the seats. The hoops' internal construction is strong tubular steel; they are padded, and covered in color-coordinated leather. Adjustable head restraints are positioned just ahead of the hoops.

### **Security features**

The Z8/ALPINA ROADSTER V8 includes a wide range of standard security features. The alarm system includes a tilt sensor,

and is controlled by a multi-function remote in the head of the master key. For built-in theft deterrence, BMW's much-appreciated central locking is also standard, and BMW has thoughtfully included both the glove and phone compartments in the system. The proven, highly effective Coded Driveaway Protection guards against unauthorized starting of the engine or unlocking of the steering column.

### **Removable hardtop**

Besides enhancing comfort in severe weather, the standard-equipment hardtop also enhances security from theft when installed.

## **Options & accessories**

### **Factory-installed options**

There are no factory options for the BMW ALPINA ROADSTER V8.

### **BMW Center-installed accessories**

Attachable cupholders are available for fitting to the cockpit.

## Standard & optional features

### 2003 BMW ALPINA ROADSTER V8

**Bold** in table indicates new feature relative to 2003 Z8.

#### Performance & efficiency

<b>BMW ALPINA 4.8-liter DOHC 32-valve V-8 engine with – VANOS<sup>1</sup> steplessly variable intake-valve timing</b>	<b>S</b>
Aluminum block & cylinder heads	S
<b>Special Motronic ME 7.2 electronic control system</b>	<b>S</b>
<b>Special pistons &amp; connecting rods</b>	<b>S</b>
<b>Polished intake &amp; exhaust ports</b>	<b>S</b>
<b>5-speed SWITCH-TRONIC automatic transmission with shift-lever &amp; steering-wheel up- &amp; downshift controls</b>	<b>S</b>

#### Handling, ride & braking

Aluminum double-pivot strut-type front suspension with low-friction balljoints at lateral arms	S
4-link integral rear suspension with low-friction balljoints at upper & lower lateral arms	S
Front & rear anti-roll (stabilizer) bars	S
Twin-tube gas-pressure shock absorbers	S
Engine-speed-sensitive variable-assist, variable-ratio rack-&-pinion power steering	S
4-wheel ventilated disc brakes with 2-piston front calipers	S
Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement	S
<b>ALPINA 20-spoke alloy wheels, 20 x 8.5 front/20 x 9.0 rear</b>	<b>S</b>
<b>255/35R-20 front / 285/30R-20 rear Y-rated performance tires</b>	<b>S</b>
Flat Tire Monitor	S

**Exterior & aerodynamics**

Choice of standard or metallic paint	S
Body-color bumpers with hydraulic energy absorbers (5-mph impact absorption)	S
Xenon low-beam headlights with dynamic auto-leveling (ellipsoid beams with aerodynamic covers)	S
High-intensity liquid headlight cleaning system	S
Fast-reacting neon exterior lighting: front & rear turn signals, taillights & brakelights	S
Fiber-optic side turn indicators (in "gills")	S
Rear foglight	S
Vehicle-speed-sensitive windshield wipers	S
Dual power/heated exterior mirrors	S
Chrome exterior mirror shells	S
Heated driver's door lock, windshield-washer jets & windshield-wiper parking area	S
Polished stainless-steel exhaust outlets	S

**Ergonomics, luxury & convenience**

Keyless entry with multi-function remote control (battery charges from vehicle electrical system, requires no periodic replacement) –	S
Selective unlocking	S
Remote trunk release	S
Doorsill trims with brushed stainless-steel inserts	S
Auto-dimming inside rearview mirror	S
Courtesy lights with fade-in/fade-out feature, actuation from remote control, automatic switch-on when engine is turned off; include footwell lighting	S
Exit/entry lights in doors	S
Reading lights integrated in inside rearview mirror, separately controllable left/right	S
Lockable glove compartment with rechargeable take-out flashlight	S
Lockable, lighted compartments for 6-disc CD changer & Navigation System CD player behind seats	S
Power telescopic steering wheel with <b>ALPINA design and logo, SWITCH-TRONIC shift buttons</b> , color-keyed center, leather-wrapped rim	S
Starter button	S

S – Standard

1 – VANOS = **V**ariable **N**Ockenwellen **S**teuerung = variable camshaft control, or variable valve timing.

## Standard & optional features

### 2003 BMW ALPINA ROADSTER V8

**Bold** in table indicates new feature relative to 2003 Z8.

#### **Ergonomics, luxury & convenience (cont.)**

6-way power/heated sport seats (2-stage heating)	S
Front center armrest with dual storage compartments & concealed phone installation	S
Closeable storage compartments in doors	S
Special ALPINA instrumentation with – <b>ALPINA blue dial faces</b>	<b>S</b>
Satin Chrome trim	S
Analog clock in tachometer face	S
Night illumination from dial centers	S
LCD main & trip odometers	S
Service Interval Indicator with miles-to-service readout	S
<b>Transmission range, mode &amp; gear indicator</b>	<b>S</b>
Multi Information Radio system including – GPS Navigation	S
AM/FM/CD audio system with 10 speakers (incl. 2 subwoofers), diversity antenna system	S
Digital/portable BMW Cellular Phone System	S
Outside-temperature display	S
Extensive Nappa-leather upholstery & trim in solid or 2-tone colors	S
Interior panels color-keyed to exterior	S
Coordinated metal trim finishes & components throughout interior	S
Heating/ventilation/air-conditioning system with center dash vents integrated into control panel	S
Activated-charcoal microfilter ventilation (dual filters)	S
Power windows with 1-touch open/close driver's window (anti-trapping feature), 1-touch open passenger's window; key-off operation	S
Power side-window sealing system	S
Lined power roadster softtop with fully automatic opening, semi-automatic closing	S
Leather molded cover for folded softtop	S
Wind deflector, attachable to Rollover Protection bars	S
Removable hardtop with heated rear window	S
Attachable cupholders	C
Fully finished trunk with color-keyed trim, toolkit & storage space under carpeted floor	S

## Safety & security

Dual front-impact airbag Supplementary Restraint System (SRS) with dual-threshold deployment & 2-stage Smart Airbags	S
Safety belts with automatic tensioners & force limiters	S
Side-impact airbags	S
Integrated deployment logic for safety-belt tensioners, airbags & post-impact safety measures	S
Rollover Protection with leather-covered bars	S
Battery Safety Terminal	S
Central locking system with double-lock anti-theft feature & selective unlocking; glove compartment & phone compartment included in system for security with softtop down	S
Locking compartments for CD changer & Navigation System CD player	S
Coded Driveaway Protection	S
Alarm system with operation from keyhead remote	S

S – Standard

C – Available from BMW Center

## Specifications

### 2003 BMW ALPINA ROADSTER V8

**Bold** in table indicates new specification relative to 2003 Z8.

#### General

Curb weight, lb.:	
Without hardtop	<b>3571</b>
With hardtop	<b>3630</b>
Weight distribution, front/rear, %	<b>49.9/50.1</b>
Wheelbase, in.	98.6
Track, front/rear, in.	61.1/61.7
Length x width x height, in.	173.2 x 72.0 x 51.9

#### Body

Type	Aluminum space frame, aluminum body panels
Aerodynamic drag coefficient	0.43 (softtop raised) 0.39 (hardtop installed)
EPA size classification	2-Seater

#### Accommodations

Seating capacity, persons	2
Shoulder room, in.	55.2
Head room, in. (softtop up)	37.2
Leg room, in.	42.8
EPA interior volume, cu ft.	51.1
EPA cargo volume, cu ft.	5.1

#### Engine & electrical

Engine type	<b>DOHC 32-valve (4-cam) V-8, VANOS<sup>1</sup> steplessly variable intake-valve timing</b>
Bore x stroke, mm/in.	<b>93.0 x 89.0/3.66 x 3.50</b>
Displacement, cu in./cc	<b>4837/295</b>

**Engine & electrical (cont.)**

Compression ratio	<b>10.5:1</b>
Power @ rpm, hp SAE net	<b>375 @ 5800</b>
Torque @ rpm, lb-ft.	<b>383 @ 3800</b>
Engine-management system	<b>BOSCH Motronic ME 7.2 with knock control; variable valve timing, engine cooling &amp; other functions included in control strategy</b>
Fuel requirement	Premium unleaded
Fuel capacity, U.S. gal.	19.3
Battery capacity, amp-hr.	90
Alternator output, amp./W	120/1680

**Drivetrain**

Drive system	Front engine/rear drive
<b>Automatic transmission</b>	<b>ZF 5HP24EH, 5-speed SWITCH-TRONIC with Adaptive Transmission Control &amp; selectable Manual mode</b>
Ratios: 1st	<b>3.57:1</b>
2nd	<b>2.20:1</b>
3rd	<b>1.51:1</b>
4th	<b>1.00:1</b>
5th	<b>0.83:1</b>
Reverse	<b>4.10:1</b>
Final drive ratio	3.38:1

1 – VANOS = **VA**riable **NO**ckenwellen **St**euering = variable camshaft control, or variable valve timing.

## Specifications

### 2003 BMW ALPINA ROADSTER V8

**Bold** in table indicates new specification relative to 2003 Z8.

#### Chassis

Front suspension	Sport suspension in aluminum; struts, double-pivot lower arms with low-friction balljoints at pivot points, coil springs, twin-tube gas-pressure shock absorbers, anti-roll bar; aluminum subframe
Rear suspension	Sport suspension; 4-link integral system with low-friction balljoints at pivots of upper lateral arms, lower lateral arm, twin-tube gas-pressure shock absorbers, anti-roll bar
Steering type	Variable-ratio rack & pinion, engine-speed-sensitive power assist
Overall ratio	Variable; mean ratio 20.5:1
Turns lock-to-lock	3.0
Turning circle, ft.	38.7
Antilock braking system with 4-wheel ventilated discs & electronic brake proportioning: Diameter, front/rear, in.	13.1/12.9
Assist	Vacuum
Wheels	Cast alloy, <b>20 x 8.5H2 front / 20 x 9.0H2 rear</b>
Tires	Performance radials, <b>255/35R-20 Y-rated front / 285/30R-20 Y-rated rear</b>
Stability-enhancement system	Dynamic Stability Control (DSC), including all-speed traction control, electronic brake proportioning, antilock braking (ABS), Dynamic Brake Control & cornering/avoidance-stability enhancement

### Performance data

Acceleration, 0-60 mph, sec.,  
manufacturer's data<sup>2</sup>

**5.0**

Top speed, mph

**161<sup>3</sup>**

Fuel economy, EPA est. MPG,  
city/highway

**14/21**

2 – BMW AG test results. Actual acceleration results may vary depending on specification of vehicle; road & environmental conditions; test procedures and driving style. These results should be used for comparison only, and verification should not be attempted on public roads. BMW urges you to obey all posted speed limits and to please wear your safety belt at all times.

3 – Electronically limited.

## Exterior/interior color combinations

### 2003 7 Series

Interior colors	Exterior colors			
	Standard colors		Metallic colors	
	Alpine White 300	Jet Black 668	Orient Blue 317	Titanium Silver 354
<b>Nasca leather<sup>1</sup></b>				
Black/Black U6SW	● ■	● ■		● ■
Basalt Gray/Flannel Gray U6FA	○ ■	○ ■	○ ■	○ ■
Dark Blue/Natural Brown U6NG			○ ■	
Dark Beige/Beige III U6BA	○ □	○ □	○ □	
Basalt Gray/Stone Green U6GN				
<b>Pearl leather<sup>1</sup> (Sport Package)</b>				
Black/Black V7SW	● ■	● ■		● ■
Basalt Gray/Flannel Gray V7FA	○ ■	○ ■	○ ■	○ ■
Dark Beige/Beige II V7GE	○ ■	○ ■	○ ■	
Basalt Gray/Stone Green V7GN				

1 – First & second colors are trim colors; second color is leather color.  
 Standard 745i/Li matte-finish Black Cherry wood interior trim:  
 ○ – light  
 ● – dark

Optional 745i/Li high-gloss Ash wood interior trim:  
 □ – light  
 ■ – dark

### 2003 5 Series

Interior colors	Exterior colors			
	Standard colors		Metallic colors	
	Alpine White 300	Jet Black 668	Orient Blue 317 <sup>1</sup>	Titanium Silver 354
<b>Leatherette</b>				
Sand K4SN	●	●	●	
Black K4SW	●	●	●	●
<b>Montana leather</b>				
Sand N6SN	●	●	●	
Black N6SW	●	●	●	●
Gray N6TT	●	●	●	●
Stone Green/Black 07GN <sup>2</sup>		●		

● – Combination available  
 Blank space – Combination not available  
 1 – Available as of 3/03 production.

2 – Stone Green on seats & door inserts; Black on dash, console, carpeting, door ledges & rear package shelf.

### Metallic colors

Oxford Green 430	Slate Green 449	Sterling Gray 472	Black Sapphire 475	Kalahari Beige 481	Toledo Blue 482	Titanium Gray 892	Chiaretto Red 894
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	● ■	● ■	● ■	● ■		● ■	
○ ■		○ ■	○ ■		○ ■	○ ■	
				○ ■	○ ■		○ ■
○ □	○ □		○ □	○ □	○ □		○ □
	○ ■	○ ■				○ ■	
	● ■	● ■	● ■			● ■	
		○ ■	○ ■		○ ■	○ ■	
	○ ■		○ ■		○ ■		
	○ ■	○ ■				○ ■	

All 760Li interiors have the same high-gloss  
Ash wood interior trim with two color tones  
& inlays; exterior/interior paint & upholstery  
color combinations same as for 745i/Li.  
Blank space – Combination not available

### Metallic colors

Topaz Blue 364	Oxford Green 430	Slate Green 449	Sterling Gray 472	Black Sapphire 475	Kalahari Beige 481	Blue Water 896
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●	●	●		●	●	●
●	●	●	●	●	●	●
●	●	●		●	●	●
●	●	●	●	●	●	●
●		●		●		●
		●		●		

## Exterior/interior color combinations

2003 3 Series Sedans & Sport Wagons  
2004 3 Series Coupes & Convertibles

Interior colors	Exterior colors			
	Standard colors			
	Alpine White 300	Imola Red 405 <sup>1</sup>	Electric Red 438 <sup>2</sup>	Jet Black 668
<b>Leatherette</b>				
Sand K4HC	●		●	●
Black K4SW	●		●	●
<b>Cloth/Alcantara</b>				
Anthracite/Black G7AT	●	●		●
<b>Montana leather</b>				
Sand N6HC	●	●	●	●
Black N6SW	●	●	●	●
Gray N6TT	●	●	●	●
Natural Brown N6NG	●	●	●	●

All models:

● – Combination available

Blank space – Combination not available

Convertibles available with:

● – Black softtop

▲ – Dark Blue softtop

1 – Available only on 330i Sedan with Performance Package.

2 – Not available in combination with 330i Sedan Performance Package.

### Metallic colors

Orient Blue 317	Titanium Silver 354	Steel Blue 372 <sup>2</sup>	Oxford Green 430	Gray Green 442 <sup>2</sup>	Black Sapphire 475	Mystic Blue A07	Silver Gray A08
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● ▲		● ▲	●	●	●	● ▲	
● ▲	●	● ▲	●	●	●	● ▲	●
●	●		●		●	●	●
● ▲		● ▲	●	●	●	● ▲	
● ▲	●	● ▲	●	●	●	● ▲	●
● ▲	● ▲	● ▲	●	●	●	● ▲	● ▲
●			●	●	●		

# Exterior/interior color combinations

2003 Z4 roadster

		Exterior colors			
Interior color/trim	Standard colors				
	Alpine White 300	Bright Red 314	Jet Black 668	Urban Green A04	
<b>(2.5i only)</b>					
Leatherette					
Black/Black KASW	●	●	●■	●	
<b>(2.5i only)</b>					
Active Sport cloth/leather					
Pearl Gray/Black FAPF		●	●		
Maldives Blue/Gray FAMD			●		
High Performance leather					
Black/Black LASW	●	●	●	●	
Beige/Beige LAAB	■	●■	●■		
Dream Red LATL			●		
<b>(3.0i only)</b>					
Extended High Performance leather					
Black/Black LBSW	●	●	●■	●	
Beige/Beige LBAB	■	●■	●■		
Dream Red LBTL			●		
● – Black top ■ – Beige top (power top only) ▲ – Gray top (power top only)					

### Metallic colors

Maldives  
Blue  
290

Titanium  
Silver  
354

Sterling  
Gray  
472

Black  
Sapphire  
475

Toledo  
Blue  
482

Merlot  
Red  
A02



## Exterior/interior color combinations

### 2003 M3 coupe & convertible

		Exterior colors			
Interior colors	Standard colors				
	Alpine White 300	Imola Red 405	Laguna Seca Blue 448	Jet Black 668	
<b>coupe only</b>					
Nappa leather/ M Cloth					
Black G8AT	●	●	●	●	
<b>coupe &amp; convertible</b>					
Extended Nappa leather					
Black N5SW	●	●	●	●	
Imola Red N5IM	●	●		●	
Cinnamon N5ZM	●			●	
Gray N5TT	●	●	●	●	

● – Combination available  
 Convertible available with:  
 ● – Black softtop

▲ – Dark Blue softtop  
 Blank space – Combination not available

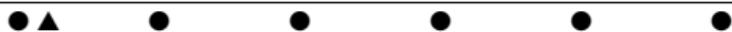
### 2003 M5

		Exterior colors				
Interior colors	Standard colors			Metallic colors		
	Alpine White 300	Imola Red 405	Jet Black 668	Titanium Silver 354	Le Mans Blue 381	
<b>Sport Interior (Nappa Point Extended Leather)</b>						
Black 05SW	●	●	●	●	●	
Imola Red 05IM		●	●	●		
Silverstone 05SS			●	●	●	
Le Mans Blue 05LB			●	●	●	
<b>Luxury Interior (Nappa Heritage All Leather)</b>						
Black M1SW	●	●	●	●	●	
Caramel M1CR	●	●	●	●	●	

● – Combination available  
 Blank space – Combination not available

**Metallic colors**

Titanium Silver 354	Carbon Black 416	Oxford Green 430	Phoenix Yellow 445	Mystic Blue A07	Silver Gray A08
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**Metallic colors**

Carbon Black 416	Oxford Green 430	Sterling Gray 472	Chiarretto Red 894	Blue Water 896
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# Exterior/interior color combinations

## 2003 BMW ALPINA ROADSTER V8

Interior colors <sup>1</sup>	Exterior colors	
	Standard colors	Metallic colors
	Jet Black 668	Titanium Silver 354
Soft Nappa leather		
Crema/Black P1CS	● ■	
Sport Red/Black P1SP	●	●
Black P1SW	● ■	● <sup>2</sup>

● – Black softtop

■ – Beige softtop

Blank space – Combination not available

1 – Color of painted trim inside cockpit matches exterior color, except that trim is Titanium Silver Dark with Titanium Silver exterior.

2 – Black trim may be ordered with this exterior/exterior combination.

## BMW Certified Pre-Owned Vehicles

One of the 1990s' most important developments in the U.S. auto market is the rise of the market for premium pre-owned vehicles. This market's growth is a result of several key industry and societal trends:

- The durability, quality and reliability of new cars has improved dramatically. Cars are not only better; they also last longer.
- Baby Boomers need to put money aside for their retirement, to pay for their children's college education, and to help care for their aging parents. They are thus forced to be more prudent and value-oriented in their spending decisions.
- New-car price escalation has forced manufacturers to turn to leasing to make their products affordable. Cars that come off lease (typically after 30-36 months) enter the pre-owned market and offer a more affordable alternative to a new car.

These factors have led several makers of high-end vehicles to institute programs for Certified Pre-Owned Vehicles. Typically, Certified Pre-Owned (CPO) Vehicles have undergone inspection and reconditioning to varying degrees, depending upon the manufacturer and program, and carry some kind of warranty or protection plan. Studies have shown that customers in the market for a pre-owned vehicle overwhelmingly prefer to purchase it from a new-car dealer with a manufacturer's CPO program.

To qualify as a **Certified Pre-Owned BMW**, a pre-owned BMW must have no more than 60,000 miles on it and be no more than five years old from its in-service date. A car becomes Certified only after it passes a thorough Certification Inspection

at a BMW Center. Both the inspecting Technician and the BMW Center's Service Manager must sign the Certified Inspection Checklist. The completed checklist should be available for the prospect to inspect during the sales process.

As part of the CPO BMW Vehicle Program, a vehicle will be covered by BMW NA's Certified Pre-Owned BMW Protection Plan, which is similar to the BMW New Vehicle Limited Warranty though not as comprehensive. This Plan takes effect immediately upon the expiration of the new-car warranty, and covers the vehicle for up to 2 additional years or 50,000 miles (whichever comes first). Under the Protection Plan (which covers defects in workmanship or materials in most of the vehicle's major electrical, powertrain and mechanical systems), covered repairs are handled by a BMW Center much as they would be under the new-car warranty. The CPO plan also includes BMW Roadside Assistance for the additional 2-year/50,000-mile period.

BMW NA launched its CPO BMW Vehicle Program in 1996. Vehicle sales have grown steadily ever since; BMW now leads the luxury/performance segment in CPO sales. Since its inception, the CPO program has been further developed to respond to buyers' increasing tendency to use the Internet for their shopping.

Many new-car purchases now begin with information-gathering on the Internet; now BMW is moving to facilitate online shopping for CPO vehicles as well. The new Certified Pre-Owned section of BMW's "Virtual Center" website ([bmwusa.com](http://bmwusa.com)) helps consumers find accurate

## BMW Certified Pre-Owned Vehicles

information about pre-owned BMWs, search for a particular BMW model, and locate a CPO BMW in their area. To learn about availability of desired vehicles, the user enters his or her zip code and some basic information about the vehicle desired (such as Series, body style, price range and transmission type). A search mechanism then matches the customer's preferences with vehicles in a database of all CPO BMWs available at the time.

If the desired vehicle is not available nearby (within 25 miles of the customer's zip code), one can expand the search up to a 500-mile radius. If it still isn't available, the customer can ask to be placed on a waitlist and be notified by e-mail when the vehicle becomes available. The program is a "win-win" proposition for customers and BMW Centers alike:

- Customers win because they now have access to a large supply of affordable, exciting, high-quality BMW automobiles.
- BMW Centers win because they can offer a premium class of pre-owned vehicles that will increase their profits and attract new customers to the BMW brand.
- BMW wins because we extend our brand to new customers, protect our residuals, and build a broader base of satisfied customers for the future.

BMW's CPO program also wins in that it is the most successful in the industry; in the first three months of 2003, an impressive 15,203 BMW CPO vehicles were sold – a 22.5% increase over the same period in 2002. Recently, BMW of North America launched a comprehensive ad campaign designed to build on this impressive record.

The new television ads, for example, were shot specifically for the Pre-Owned program instead of utilizing footage created for new-vehicle advertising as had been done in the past. Four 30-second TV commercials began airing in late April in major markets such as Atlanta, Boston, Los Angeles, New York and San Francisco. BMW NA is paying 50% of the media costs for BMW Center groups that want to run the ads.

New CPO print ads made their debut in June, appearing in the *Wall Street Journal*, *USA Today* and national magazines such as *Business Week*, *Kiplinger's Personal Finance*, *Money*, *National Geographic Adventure* and *Time*. Further elements of the advertising strategy include radio commercials on a regional basis plus banners on AOL, Google and the Kelley Blue Book website.

For further information on the CPO BMW Vehicle Program, contact Bill Bates at 201-307-4067.

## BMW Accessories

BMW offers an extensive, enticing line of Accessories and Boutique items. For the latest information, see the **Original BMW Accessories** brochures. (To order, call 609-409-2737 and ask for the newest edition.) Various brochures covering items for specific models or alloy wheels for example, are also available.

Here's a sampling of current products:

### BMW Accessories

- Aerodynamic body kits
- Alarm systems
- Alloy wheels
- Aluminum pedals
- Bicycles that fold:
  - Mountain
  - Tandem
- BMW Universal Transceiver
- Car-care products
- Car covers
- Cassette holders
- CD changers
- CD travel cases
- Cellular phones
- Chrome exhaust trim
- Clear lenses for exterior lamps
- Clear protective coatings
- Coat hangers
- Convertible/Roadster hardtop & storage kit
- Convertible wind deflector
- Cotton-poly seat covers
- Cupholders
- Decklid spoilers
- First-aid kit
- Floor mats
- Foglights
- Gearshift knobs

- License-plate frames
- Lockable wheel nuts
- Mud flaps
- Nose masks
- Rollover Protection bars (Z3 only)
- Roof-rack systems
- Sheepskin seat covers
- Speedster cover (Z3 only)
- Sunshade for windshield
- Sun/wind deflectors
- Tire-pressure gauge
- Trailer-hitch kit (5 Series Sport Wagon only)
- Trunk mats
- Trunk storage systems
- Wood & leather steering wheels
- Wood interior trim

### Boutique items include:

- Books
- Caps & visors
- Clocks
- Coffee mugs
- Golf accessories
- Golf balls
- Jackets
- Key chains
- Leather articles
- Luggage
- Luggage nets
- Model cars
- Money clips
- Polo shirts
- Shift knobs
- Sunglasses
- Sweaters
- Sweatshirts
- T-shirts
- Trunk mats
- Umbrellas
- Watches

## BMW Motorcycles

Only three of the world's carmakers also build motorcycles: BMW, Suzuki and Honda. Of these, BMW has by far the longest and richest history and heritage. In fact, BMW has been making motorcycles longer than cars.

The tradition dates back to 1923, when a talented engineer named Max Friz created the first BMW motorcycle: the R 32. Its 2-cylinder horizontally opposed engine (flat twin or "Boxer") nestled in a frame made from two loops of oval tubing. The engine's cylinders, projecting to the sides, were efficiently cooled by the airstream. A shaft drove the rear wheel.

So brilliant was this Boxer concept that BMW still builds it, as one of three distinct motorcycle Series. In the early Nineties, BMW introduced a new-generation Boxer, ensuring a place for this classic at the vanguard of motorcycling well into the 21st century. Called the **R Series**, the Boxer line has been expanded step-by-step to arrive at today's line of six models. The fully equipped R 1100 RT tourer, now evolved into the R 1150 RT, has received numerous accolades. Over four straight years, it has won awards from top motorcycle magazines: *Cycle World* named it Best Touring Bike, *Rider* rated it Top Liter-Class Sport-Tourer, and *Motorcyclist* proclaimed it Best Sport-Tourer.

In 1998, BMW entered the largest and fastest-growing market segment with its first cruiser: the **R 1200 C**, which quickly became BMW's best-selling model. The editors of *Popular Science* picked the BMW cruiser as one of their Best of What's New for 1998.

And for 2000, BMW introduced its first Boxer for the millennium, the R 1150 GS. This on-/offroad Adventure Tourer's roots extend back to the early 1980s, when BMW won what is widely considered the most difficult race on the planet (the Paris-Dakar rally) four times in a row. With a specially prepared example of its newest motorcycle line, the **F Series**, BMW returned to this competition and won once again in 1999. This F Series, powered by a single-cylinder, 650-cc engine, is ideal for on- and offroad, urban commuting, and entry-level riders. For 2003, it comes in three models, the top one (F 650 GS Dakar) named for its racing heritage.

In 1988, BMW introduced the world's first motorcycle antilock braking system (ABS) on the 4-cylinder **K Series**. In 1993, this system was followed by the enhanced 2nd-generation ABS. And as of the 2001 model year, the ABS was again updated, to a revolutionary 3rd-generation motorcycle system called Integral ABS that sets new standards in brake technology and active riding safety. Integral ABS is now standard on several BMW motorcycle models, optional on others.

Over the years the K line has evolved, maintaining its position as a technological leader in the motorcycle industry. Powered by a liquid-cooled inline 4-cylinder engine, the K 1200 RS produces 130 horsepower and is perhaps the finest sport-touring motorcycle in the world. Its stablemate, the K 1200 LT Luxury Tourer, was introduced in 1999 and has garnered several Motorcycle of the Year awards from top publications such as *Rider and Motorcycle Consumer News*. It was also named Best Touring Bike in *Cycle World's* Ten Best for 1999, and the *Robb Report* accorded the K 1200 LT its Best of the Best honor.

More recently, Bill Stermer wrote a glowing review of the K 1200 LT in the May '03 issue of the *Robb Report*. Among Stermer's comments:

- "To call BMW's K 1200 LT a two-wheeled equivalent of the company's four-wheeled 7 Series would be an accurate comparison. In addition to having a wide taillight and BMW's trademark kidney grille, the LT also swathes you in comfort and surrounds you with technology. You are cosseted with heated seats, cruise control, and a CD changer.
- "For all the luxuries that the 7 Series shares with the LT, the top-of-the-line \$115,000 760Li cannot provide the pure, visceral, open-air exhilaration experienced by twisting the throttle on the \$22,500 Exodus model of the LT line and leading into a corner. That sensation is priceless."

Just as with BMW automobiles, BMW's environmental consciousness is reflected in BMW motorcycles. All current models have electronic engine management, which not only reduces exhaust emissions but improves fuel economy as well. Every model also has a 3-way catalytic converter with closed-loop emission control, even though this is not required by regulations.

The current line consists of:

#### **F Series**

(single-cylinder, liquid-cooled)

F 650 GS 652 cc, 50 hp

F 650 CS 652 cc, 50 hp

F 650 GS Dakar 652 cc, 50 hp

#### **R Series**

(twin-cylinder Boxer, air-cooled)

R 1150 R 1130 cc, 85 hp

R 1150 GS 1130 cc, 85 hp

R 1150 RS 1130 cc, 95 hp

R 1150 RT 1130 cc, 95 hp

R 1100 S 1085 cc, 98 hp

R 1200 C 1170 cc, 61 hp

#### **K Series**

(inline 4-cylinder, liquid-cooled)

K 1200 RS 1171 cc, 130 hp

K 1200 LT 1171 cc, 100 hp

For more information on BMW motorcycles, call 800-345-4BMW.

Or visit our website at

[www.bmwmotorcycles.com](http://www.bmwmotorcycles.com).

## Backing the product: the BMW Warranty

All 2003 and 2004 BMWs sold by BMW of North America, Inc. are covered by several comprehensive warranties, as follows:

### **New-Vehicle Limited Warranty**

BMW of North America, LLC (BMW NA) warrants vehicles distributed by BMW NA, or sold through the BMW NA European Delivery program, to be free of defects in material or workmanship for a period of four years or 50,000 miles, whichever comes first. This Limited Warranty begins on the date of the first retail sale or the date the vehicle is first placed in service as a demonstrator or company vehicle, whichever is earlier.

Items subject to wear and tear, or deterioration due to driving habits or conditions, are specifically limited to defects in material or workmanship.

### **Tires:**

Tires are warranted by their manufacturers as detailed in the applicable tire manufacturer's warranty statement. Should a customer experience difficulty in obtaining warranty service from a tire manufacturer, his or her BMW Center will assist.

### **Towing & other owner benefits:**

A 24-hour Roadside Assistance Program is available to every BMW owner during the new-vehicle warranty period. Roadside Assistance and other owner benefits are available by calling 800-332-4269 (800-332-4BMW).

### **Rust-Perforation Limited Warranty**

BMW NA warrants a new vehicle to be free of defects in materials or workmanship which will result in rust perforation of the vehicle body for a period of six years, without mileage limitation, commencing with the date the vehicle is first licensed or placed in service as a demonstrator or company vehicle. To obtain service under this warranty, the vehicle must be brought to the service department of any authorized BMW Center upon discovery of any rust perforation. In order to keep this warranty in effect, the vehicle must be inspected at every BMW Inspection II (at least every two years).

### **Emissions-System Defect Warranty**

BMW NA warrants to the first retail purchaser, and each subsequent purchaser, that the vehicle (a) was designed, built and equipped so as to conform, at the time of sale, with all regulations of the U.S. Environmental Protection Agency applicable at the time of manufacture and (b) is free from defects in materials and workmanship which would cause it to fail to conform with applicable regulations for a period of 2 years or 24,000 miles, whichever occurs first, except for specific emission-control components, for which the warranty period is 8 years or 80,000 miles, whichever occurs first.

### **Emissions Performance Warranty**

BMW NA warrants that if the car is eligible for coverage under this warranty, any non-conformities in the car which cause it to fail an EPA-approved emissions test will, without charge for parts or labor (including diagnosis), be adjusted, repaired, or replaced, at the option of BMW NA, to proper specifications, in order to make the vehicle comply with applicable emissions standards.

### **California Emission-Control-System Limited Warranty**

Vehicles registered and operated primarily in California are warranted by a specific California Emissions Warranty.

### **Repair**

To obtain service under any of these warranties, the vehicle must be brought to the service department of any authorized BMW Center.

### **For more information**

For details on these warranties, refer to the **Service and Warranty Information Statement** for the appropriate model and year.

## **BMW NA telephone numbers**

National headquarters  
201-307-4000

Western region  
909-975-7300

Central region  
847-310-2700

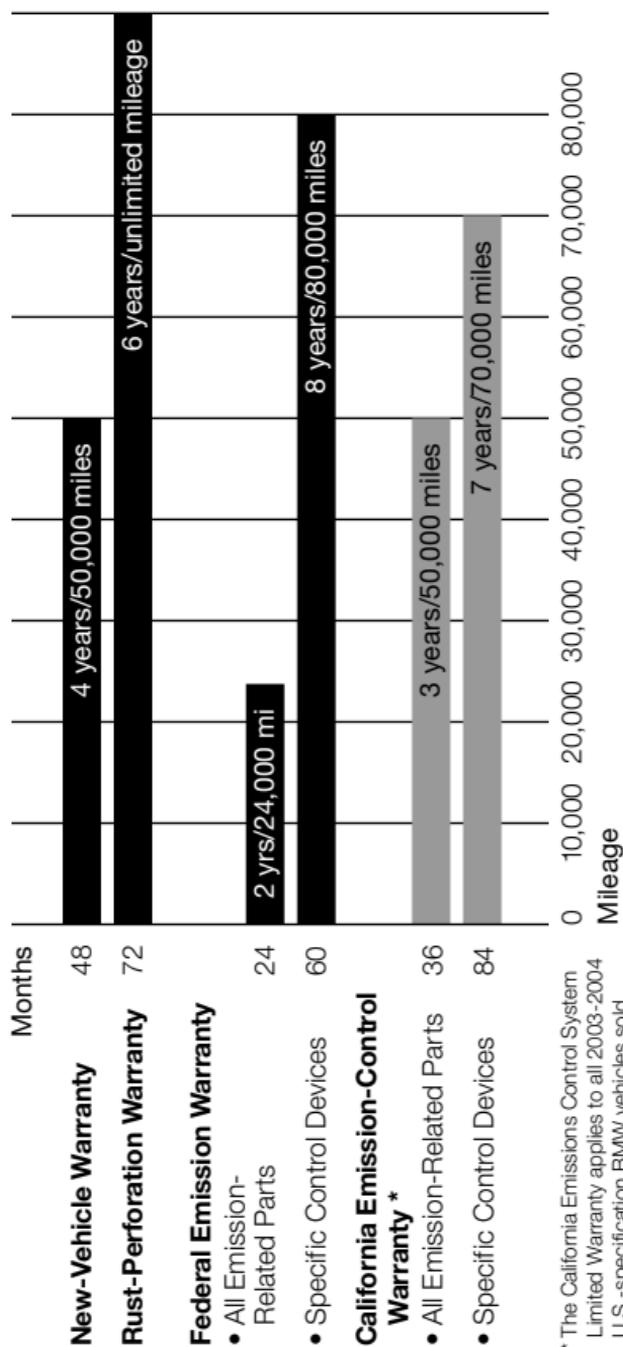
Eastern region  
201-573-2100

Southern region  
770-552-3800

Technical Assistance hotline  
(for BMW Retail Center service  
technicians only)  
800-472-7222

BMW Customer Assistance Center  
800-831-1117

# Summary of BMW Limited Warranties



\* The California Emissions Control System Limited Warranty applies to all 2003-2004 U.S.-specification BMW vehicles sold, leased and/or registered in California, Massachusetts or Vermont.

## BMW Maintenance Programs

All 2003 and 2004 BMW models are covered by the Full Maintenance Program for 4 years or 50,000 miles, whichever occurs first. Coverage begins on the date of first retail sale or the date the vehicle is first placed in service as a demonstrator or company vehicle, whichever is earlier.

Any authorized BMW Center in the United States or Puerto Rico will perform the scheduled or additional maintenance services covered by the Program in effect for the vehicle at no expense to the customer. The maintenance intervals are based on normal driving conditions and operation. Should the customer request more frequent maintenance service, the cost of the services **will not be covered** by the Maintenance Program.

### Coverage

**Full Maintenance** includes Scheduled Maintenance and more. The Scheduled Maintenance is as follows (for particulars, refer to the current Maintenance Booklet):

- Oil Service
- Inspections I & II
- Brake Fluid Service
- Cooling System Service.

In addition, the program covers items which need replacement because of normal wear and tear and which are not covered by the Original New Vehicle Limited Warranty, such as brake pads, brake rotors, battery, wiper blades, external engine belts and clutch; these are included provided wear and tear exceeds BMW specifications. Any adjustment required by normal operating conditions is also included.

### Maintenance intervals

Intervals are determined by the BMW Service Interval Indicator, which appears in two forms in the various current models: either as a sequence of LEDs that indicate how much mileage or time remains before service is required, or as a direct miles-to-service readout. For information on the 7 Series' more extensive service indications, see page 65. The BMW Service and Warranty Information Statement should be presented to the BMW Center when maintenance is required. The BMW Center will stamp this book to document the services or maintenance performed.

# BMW Maintenance Programs

## Exclusions

- Items reimbursable to the customer under the New Vehicle Limited Warranty
- Gasoline and gasoline additives
- Windshield-washer additive, except when in conjunction with scheduled maintenance
- Tires, wheel alignment, tire balance and rotation
- Wear and tear of soft trim items, such as seats, carpets, moldings, headliner and door panels; and all chrome trim
- Damage detected when performing the rust-perforation inspection
- Damage due to poor fuel quality, abuse, misuse, neglect, alteration, fire, accident, flood, improper repair or negligence, and installation of non-BMW accessories
- Altered or unreadable Vehicle Identification Number, or odometer irregularities, or vehicles on which the true mileage cannot be determined
- Maintenance or repair after the vehicle is deemed a total loss
- Maintenance or repairs performed by other than an authorized BMW Center within the United States or Puerto Rico
- Vehicles used in competitive events
- Oil changes performed outside the recommended maintenance intervals as indicated by the Service Interval Indicator.

Please note that a BMW Maintenance Program is not a warranty and can not be referred to as such for legal reasons.

## Care for the BMW driver: BMW Roadside Assistance

Even the most reliable and durable vehicle may someday need roadside attention. Should this happen, BMW Roadside Assistance is ready to help. Here is a summary of the services and benefits offered by BMW Roadside Assistance.

Service/Benefit	Notes/Limitations
<ul style="list-style-type: none"> <li>Emergency towing and/or wrecker service for mechanical breakdowns and accidents is provided free of charge</li> </ul>	Towing to nearest BMW Center, or to Center of choice if located within 50 miles of disablement site.
<ul style="list-style-type: none"> <li>On-site assistance for:               <ul style="list-style-type: none"> <li>– Changing flat tires</li> <li>– Jump-starting</li> <li>– Out of gasoline</li> </ul> </li> </ul>	Limited to \$100 per incident
<ul style="list-style-type: none"> <li>Emergency locked-out service, or towing to authorized BMW Center</li> </ul>	Up to \$100 per locksmith incident, or towing as described above
<ul style="list-style-type: none"> <li>Trip-interruption protection for reimbursement of lodging, meals, substitute transportation, and travel to bring car and driver together after repairs by BMW Center.</li> </ul>	For mechanical breakdowns covered under warranty when 100 miles or more from home. Limit \$750 per incident up to 5 days.
<ul style="list-style-type: none"> <li>Multi-driver protection</li> </ul>	At no extra cost
<ul style="list-style-type: none"> <li>Car-rental discounts</li> </ul>	According to current offers
<ul style="list-style-type: none"> <li>Renewable beyond warranty period with additional coverage included</li> </ul>	Available for \$69.90 per year

Owners of Certified Pre-Owned BMW vehicles can find full details about BMW Roadside Assistance in the Consumer Information Statement provided by their BMW Center at the time of delivery.

The toll-free Roadside Assistance number is:

**800-332-4BMW (800-332-4269)**

## BMW Assist

Through model year 2002, BMW Assist services have been available to customers using vehicles equipped with the Onboard Navigation System and the CPT 8000 BMW Cellular Phone System (pre-2002 7 Series; 3 and 5 Series including M versions) or the iDrive system (2002 7 Series). Customers received BMW Assist services for 3 years from the original vehicle in-service date, and paid the airtime charges via their own service provider.

Beginning with 2003 models, BMW enhances this program with the addition of Concierge Services, and will pay for just the initial year of BMW Assist services. The BMW Assist services include:

### **Automatic collision notification.**

In the event of airbag deployment, the in-vehicle hardware will automatically transmit the location and relevant information to the BMW Assist Response Center. A qualified representative will try to contact the driver, and will coordinate dispatch of police, fire and/or medical emergency services to the location, even if unable to communicate with the driver.

**Emergency service.** Vehicle occupants may also request police, fire and/or emergency medical services by activating the Emergency button on the onboard monitor under Main Menu selection Emergency, or (in the 7 Series) pressing the SOS button in the overhead console. The hardware will then transmit the location and relevant vehicle information to the Response Center; a qualified representative will contact the occupants, coordinate dispatch, notify any emergency contacts on file, and link BMW Roadside Assistance as needed and requested.

**Roadside Assistance.** If the driver needs assistance (events such as flat tire, out of fuel, etc.), he or she may activate the Assist or Roadside Assistance button on the monitor under Main Menu selection Assist, or (in the 7 Series) via BMW Assist in the iDrive monitor. The hardware will transmit the location and relevant vehicle information to the Response Center; a qualified representative will coordinate dispatch of assistance to the vehicle location.

**Customer Relations/Your BMW Center.** Users of 2002 and later 7 Series models can place a voice call to BMW Customer Relations or their preferred BMW Center by selecting the appropriate button on the iDrive monitor under Main Menu selection BMW Assist. The BMW Center programs these numbers into the vehicle as part of the pre-delivery preparation.

**New as of 2003: Concierge Services.** Around the clock, BMW users can now call upon BMW for just about anything on their personal or business task list. From travel planning/trip routing to dining reservations, errand running to household services, shopping assistance and event tickets – one call to a toll-free number from any phone gets BMW owners help when they need it.

After the initial year's BMW Assist services, the annual fee will be \$199. This is a change from the previous offering, for which owner fees did not begin until the 4th year but which did not include the Concierge Services.

# Warranty & Roadside Assistance

## BMW vs. the competition

(Data as of May 1, 2003)

	Basic (yr./mi.)	Powertrain /major component (yr./mi.)	Corrosion (yr./mi.)	Roadside Assistance w/ 24-hour 800 number <sup>1</sup>	Other features
<b>BMW</b>	<b>4/50,000</b>	<b>4/50,000</b>	<b>6/unlimited</b>	<b>YES</b>	<b>2, 3, 4</b>
Acura	4/50,000	4/50,000	5/unlimited	YES	
Audi	4/50,000	4/50,000	12/unlimited	YES	5
Cadillac	4/50,000	4/50,000	6/100,000	YES	6
Chevrolet Truck/GMC	3/36,000	3/36,000	3/36,000 / 6/100,000	YES	6
Ford	3/36,000	3/36,000 <sup>7</sup>	5/unlimited	YES	
Honda	3/36,000	3/36,000	5/unlimited	OPT <sup>8</sup>	
Infiniti	4/60,000	6/70,000	7/unlimited	YES	9
Jaguar	4/50,000	4/50,000	6/unlimited	YES	
Jeep/Chrysler	3/36,000	3/36,000	5/100,000	YES	
Land Rover	4/50,000	4/50,000	6/unlimited	YES	
Lexus	4/50,000	6/70,000	6/unlimited	YES	9
Lincoln	4/50,000	4/50,000	5/unlimited	YES	10
Mazda	3/50,000	3/50,000	5/unlimited	YES	
Mercedes-Benz	4/50,000	4/50,000	4/50,000	YES	11
Mitsubishi	3/36,000	5/60,000	7/100,000 <sup>12</sup>	Towing only	
Nissan	3/36,000	5/60,000	5/unlimited	OPT <sup>8</sup>	
Porsche	4/50,000	4/50,000	10/unlimited	YES	13
Saab	4/50,000	4/50,000	6/unlimited <sup>14</sup>	YES	15
Toyota	3/36,000	5/60,000	5/unlimited	NO <sup>16</sup>	
Volkswagen	4/50,000	5/60,000	12/unlimited <sup>17</sup>	YES	18
Volvo	4/50,000	4/50,000	8/unlimited	YES	9, 19, 20

1 – For duration of basic warranty unless noted under “other features.”

2 – Can be extended by BMW Service Card.

3 – Includes Full Maintenance Program for 4 years/50,000 miles.

4 – See pages 340-342 for details on BMW Maintenance Programs, Roadside Assistance & BMW Assist.

5 – Includes scheduled maintenance (only) for 4 years/50,000 miles. Roadside Assistance for 3 years/unlimited mileage.

6 – No coverage for tire-change, jump-start or out-of-gasoline service. BMW provides this service and imposes no cost limit.

7 – Ford Focus powertrain warranty is 5 years/100,000 miles.

8 – Roadside Assistance provided only with available Extended Service Plan.

9 – Roadside Assistance for 4 years/unlimited miles.

10 – Includes full maintenance (only) for 3 years/36,000 miles.

11 – Includes scheduled maintenance for 4 years/50,000 miles; basic warranty coverage includes battery, tires, wheel alignment & other wear-and-tear items. Roadside Assistance includes all covered services during warranty, then “get-started” services for remainder of life of car.

12 – Corrosion (as opposed to perforation) covered for only 5 years/60,000 miles.

13 – Paint finish guaranteed for 3 years/unlimited mileage.

14 – 9-3 sedan 10 years/unlimited mileage.

15 – Adjustment and wear-item coverage for 1 year/16,000 miles.

16 – Roadside assistance for duration of basic warranty with Prius only; this model also carries a 90-month/100,000-mile warranty on its hybrid powertrain components.

17 – EuroVan 8/unlimited, Cabrio 6/unlimited.

18 – Adjustment and wear-item coverage for 1 year/12,000 miles.

19 – Purchaser also receives a life-insurance policy for 4 years.

20 – Includes full maintenance for 4 years/50,000 miles.

## Europe's most exciting attraction: the BMW European Delivery Program

BMW's European Delivery program means exploring Europe at your own pace – savoring the performance of your BMW on the Autobahn...the excitement of climbing an Alpine pass...a leisurely drive through lovely villages on cobblestone streets. Your customers can wave goodbye to the timetables of trains and tour buses; explore Europe at their own speed and on their own terms; and save up to 7% off the base retail price. The maximum stay is 6 months; there are 19 convenient drop-off locations around Europe.

Customers can pick up their new cars at BMW's Delivery Center, just a few minutes from downtown Munich. The purchase price includes:

- Tourist registration of vehicle
  - Insurance for 30 days
  - Inland transportation to European port for shipment home
  - Ocean freight
  - Marine insurance and port processing
  - Customs duty and clearance
  - Wharfage and handling fees.
- To be eligible for the program, the customer must:
- Be a resident of the United States
  - Be 18 years of age or older
  - Have a valid driver's license.

BMW European Delivery customers can now enjoy an exclusive European driving tour developed by *Conde Nast Traveler* in conjunction with Valerie Wilson Travel, Inc. Choose from three custom-designed 6-day/5-night itineraries that begin behind the wheel of a new BMW. The itineraries are:

- The Lakes – Munich to Milan via Lucerne and Lake Como
- The Swiss Alps – Munich to Lausanne via Zürich and Interlaken
- Epicurean Delight – Munich to Paris via Baden-Baden and Reims.

Your customers can now lease their European Delivery BMW through BMW Financial Services at the same rates as for vehicles delivered in the U.S.

Product literature, both Center materials and consumer materials, is available by order through the website "bmwcenternet.com" or by calling Sales Support Services at 609-409-2737.

In the near future, the European Delivery experience will become even more appealing as the new and exciting BMW Event and Delivery Center opens in Munich.



# 2003-04 Price Comparison

## BMW vs. the competition

Base prices are listed. They include destination charge, and are for 2003 models with automatic transmission unless otherwise noted. (Where optional, the price of the automatic transmission is included.) Gas Guzzler tax, if applicable and known, is included and so noted.

2003-2004 Price comparison

### \$35,000 (cont.)

Mercedes-Benz C320 Wagon	\$38,690
Land Rover Discovery SE	\$38,995
Volvo V70 R AWD	\$39,010 <sup>1,2</sup>
Jeep Grand Cherokee Overland 4WD	\$39,240 <sup>1</sup>
<b>BMW 325Ci Convertible</b>	<b>\$39,270 <sup>1</sup></b>
Volkswagen Passat W8 4Motion Wagon	\$39,275
Lexus GS 300	\$39,300
Saab 9-5 Arc 3.0t Sedan	\$39,325
Audi A6 Avant quattro AWD Wagon	\$39,460
<b>BMW 525i Sedan</b>	<b>\$39,570</b>
Audi TT quattro AWD Roadster	\$39,645 <sup>2</sup>

### \$40,000

Saab 9-5 Arc 3.0t Wagon	\$40,025
Saab 9-5 Aero 2.3t Sedan	\$40,625
Volvo XC90 T6 AWD	\$40,660
Lincoln LS V8 Sport	\$40,695
Land Rover Discovery HSE	\$40,995
Acura MDX Touring	\$41,000
<b>BMW 525i Sport Wagon</b>	<b>\$41,270</b>
Saab 9-5 Aero 2.3t Wagon	\$41,325
Mercedes-Benz SLK230	\$41,590
Audi A6 2.7T quattro AWD Sedan	\$41,660
Audi Allroad quattro AWD	\$41,660
Saab 9-3 SE Convertible	\$41,870
Audi A4 3.0 Cabriolet	\$42,160
<b>BMW Z4 Roadster 3.0i</b>	<b>\$42,220</b>
Infiniti M45	\$42,845
<b>BMW 530i Sedan</b>	<b>\$43,070</b>
Jaguar S-Type V6	\$43,875
Lincoln LS V8 Premium Sport	\$43,995
Cadillac SRX (SUV)	\$44,000 <sup>e</sup>
Toyota Sequoia Limited 4WD	\$44,030
Chevrolet Corvette Coupe	\$44,295
Mercedes-Benz CLK320 Coupe	\$44,565
Volvo S80 T6 Sedan	\$44,620
Volvo C70 LT Convertible	\$44,810

### \$45,000

Audi S4 Sedan	\$45,000 <sup>e</sup>
Lexus GX 470	\$45,500
<b>BMW 330Ci Convertible</b>	<b>\$45,570 <sup>1</sup></b>
Lincoln Aviator Premium AWD	\$45,865
Mercedes-Benz ML500	\$46,015
Acura 3.5RL	\$46,100 <sup>1</sup>
Porsche Boxster	\$46,575
Mercedes-Benz SLK320	\$47,040
Mercedes-Benz E320 Sedan	\$47,615

### \$45,000 (cont.)

Volvo S80 T6 Elite Sedan	\$47,680
Volvo C70 HT Convertible	\$47,810
<b>BMW M3 Coupe</b>	<b>\$48,195 <sup>3,5</sup></b>
Lexus GS 430	\$48,400
Audi A6 4.2 quattro AWD Sedan	\$48,610
Jaguar S-Type V8	\$49,975

### \$50,000

Mercedes-Benz CLK320 Cabriolet	\$50,615
Mercedes-Benz C32 AMG Sport Sedan	\$51,065
Chevrolet Corvette Convertible	\$51,195
Cadillac Escalade 2WD	\$51,245
Lincoln Navigator Ultimate 2WD	\$51,570
Cadillac Seville STS	\$51,820
Corvette Z06 Hardtop	\$52,095 <sup>2</sup>
<b>BMW 540i Sedan</b>	<b>\$52,495 <sup>4</sup></b>
Infiniti Q45 Luxury	\$52,545
Mercedes-Benz CLK500	\$52,865
Toyota Land Cruiser	\$53,915
Cadillac Escalade 4WD	\$54,145

### \$55,000

Lincoln Navigator Ultimate 4WD	\$55,120
Lexus LS 430	\$55,500
Mercedes-Benz E500 Sedan	\$55,515
Porsche Boxster S	\$55,575
<b>BMW 540i Sport Wagon</b>	<b>\$55,795 <sup>5</sup></b>
Mercedes-Benz SLK32 AMG	\$56,115
<b>BMW M3 Convertible</b>	<b>\$56,195 <sup>3,5,6</sup></b>
Porsche Cayenne S	\$56,665
<b>BMW 540i Sedan 6-Speed</b>	<b>\$57,795 <sup>5</sup></b>
Mercedes-Benz CLK430 Cabriolet	\$58,315
Audi S6 Avant quattro AWD Wagon	\$59,360
Jaguar XJ Sport	\$59,975
Jaguar XJ8 (base model)	\$59,995 <sup>1</sup>

### \$60,000

Infiniti Q45 Premium	\$62,145
Jaguar S-Type R	\$62,400
Lexus SC 430	\$62,600
Audi A8 quattro AWD	\$62,860
Lexus LX 470	\$63,700
Mercedes-Benz ML55 AMG	\$66,565
Jaguar Vanden Plas	\$68,995 <sup>1</sup>
Audi A8 L quattro AWD	\$69,160 <sup>1</sup>
<b>BMW 745i</b>	<b>\$69,195</b>
Mercedes-Benz CLK55 AMG	\$69,415
Jaguar XK8 Coupe	\$69,975

**\$70,000**

Porsche 911 Carrera Coupe	\$72,785
<b>BMW 745Li</b>	<b>\$73,195</b>
<b>BMW M5</b>	<b>\$73,195</b> <sup>2,5</sup>
Mercedes-Benz S430	\$73,265
Mercedes-Benz G500	\$74,265
Audi S8 quattro AWD	\$74,460 <sup>5</sup>
Jaguar XK8 Convertible	\$74,975
Jaguar XJR	\$74,995 <sup>1</sup>
Cadillac XLR	\$76,200 <sup>1</sup>
Jaguar XJ Super	\$79,975

**\$80,000**

Porsche 911 Targa	\$80,185
Jaguar XKR Coupe	\$81,975
Porsche 911 Carrera Cabriolet	\$82,585
Mercedes-Benz S500	\$82,665 <sup>5</sup>
Audi RS 6	\$83,360
Porsche 911 Carrera 4S AWD Coupe	\$85,985
Jaguar XKR Convertible	\$86,975
Mercedes-Benz SL500	\$87,955 <sup>5</sup>
Porsche 911 Carrera 4 AWD Cabriolet	\$88,185
Porsche Cayenne Turbo	\$89,665
Acura NSX-T	\$89,765

**\$90,000**

Mercedes-Benz G55 AMG	\$90,565
Mercedes-Benz CL500	\$93,315 <sup>5</sup>
Porsche 911 GT3	\$99,900 <sup>1</sup>

**\$100,000**

Mercedes-Benz S55 AMG	\$107,165
Mercedes-Benz CL55 AMG	\$115,265
Mercedes-Benz SL55 AMG	\$116,015 <sup>5</sup>
<b>BMW 760Li</b>	<b>\$117,795</b> <sup>5</sup>
Porsche 911 Turbo AWD Coupe	\$120,385
Mercedes-Benz S600	\$122,905
Mercedes-Benz SL600	\$125,000 <sup>1,e</sup>
Mercedes-Benz CL600	\$127,265 <sup>5</sup>
<b>BMW ALPINA ROADSTER V8</b>	<b>\$139,295</b> <sup>5</sup>
Bentley Continental Coupe	\$147,000 <sup>1,e</sup>
Porsche 911 GT2 Coupe	\$182,465 <sup>2</sup>

**\$200,000**

Bentley Arnage R	\$219,160 <sup>5</sup>
Rolls-Royce Phantom	\$325,000 <sup>1,5,e</sup>

1 – 2004 model.

2 – 6-speed manual transmission; automatic not available.

3 – 6-speed manual transmission; automatic not available, Sequential Manual Transmission optional at \$2,400.

4 – \$1,000 Gas Guzzler tax applies if equipped with Sport Package.

5 – Includes Gas Guzzler tax.

6 – Additional \$300 Gas Guzzler tax applies if equipped with SMG.

e – Estimated

