



BMW 745i 2005



Basic Chassis Technical Specs: All Technical Specs before armoring

Engine

Standard Engine	4.4L V8 (2005) / 4.5L V8 (2004 only)
Standard Transmission	6 Speed Automatic
Cylinders	8
Horsepower @ RPM	325@6100
Fuel Economy Cty/Hwy	18 / 26
Combined Fuel Economy	21
EPA Class	Large
Number of Valves	32
Torque @ RPM	330@3600
Fuel Type/System	Gas Engine / Sequential Electronic Fuel Injected
Turbo (yes/no)	No
Overdrive Transmission	Yes
Battery Output	N/A



Engine Continued

Compression	10.5
Displacement	4398 / 268
Bore X Stroke	3.62x3.26
Cruising Range	489.3
Final Drive Gear Ratio Opt	N/A
Power To Weight Ratio	13.6
Final Drive Ratio	3.38
Valves Configuration	Dual Overhead Cam/Twin Overhead Cam
Supercharged	No
Electric HorsePower RPM	N/A
Electric Torque Feet Per Pound	N/A
Electric Torque RPM	N/A
Electric HorsePower BHP	N/A

Capacity & Volume

Cargo Volume (EPA)	18
Cargo Volume (MFR)	17.7
Fuel Capacity	23.3
Passenger Volume (EPA)	104
Passenger Volume (MFR)	104.0
Box/Cargo Height	N/A
Box/Cargo Length	N/A
Box/Cargo Width (Wheel)	N/A
Box/Cargo Width (Wall)	N/A
GVWR Standard	N/A
GVWR Maximum	N/A
Payload Standard	N/A
Payload Maximum	N/A

Brakes, Steering, Suspension & Tires

Brakes (Front)	Disc
Brakes (Rear)	Disc
Driveline	Rear Wheel Drive
Driveline (Opt)	N/A
Steering	Rack & Pinion
Steering Diameter Left	39.8
Steering Diameter Right	39.8
Suspension (Front)	Independent
Suspension (Rear)	Independent
Tire Type	Passenger



Brakes, Steering, Suspension & Tires Continued

Tire Width	245
Tire Aspect Ratio	50
Tire Construction	Radial
Tire Wheel Diameter	18

Interior Dimensions

Seating (Standard)	5
Seating (Optional)	N/A
Tow Capacity (Standard)	Not Listed
Tow Capacity (Maximum)	Not Listed
Headroom (Front)	39.2
Headroom (Row 2)	38.5
Hiproom (Front)	Not Listed
Hiproom (Row 2)	Not Listed
Legroom (Front)	41.3
Legroom (Row 2)	37.2
Shoulder Room (Front)	59.3
Shoulder Room (Row 2)	58.9
Seating (Maximum)	5
Headroom (Row 3)	N/A
Hiproom (Row 3)	N/A
Legroom (Row 3)	N/A
Shoulder Room (Row 3)	N/A

Exterior Dimensions & Weight

Curb Weight MT	N/A
Curb Weight AT	4376
Ground Clearance	Not Listed
Height	58.7
Length	198.0
Top Type (Standard)	Hard Fixed
Top Type (Optional)	Not Applicable
Track (Front)	62.1
Track (Rear)	62.3
Weight Distribution AT (Front)	50
Weight Distribution AT (Rear)	50
Weight Distribution MT (Front)	N/A
Weight Distribution MT (Rear)	N/A



Exterior Dimensions & Weight Continued

Wheelbase	117.7
Width	74.9
Doors (Standard)	4
Doors (Maximum)	4

Origin

Where Built	Germany
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Standard Features: **All Standard Features**

Transmission

- 6-Speed Adaptive, Manually Interactive Automatic Transmission With Overdrive and Steering Column Mounted Electronic Shifter
- Adaptive Transmission Control (ATC) Adaptive Automatic Transmission
- Steptronic Manually Interactive Transmission

Steering

- Power Telescopic Steering Column
- Power Vehicle Speed Sensing, Rack and Pinion, Variable Assisted Steering
- Auto Tilt-Away Steering Column
- 2-Position Memory Steering Column
- Power Tilt Steering Column

Suspension

- Independent Double-Pivot Strut Front Suspension With Coil Springs and Twin-Tube Gas Pressure Shock Absorbers
- Independent 4-Link Integral Rear Suspension With Coil Springs and Twin-Tube Gas Pressure Shock Absorbers
- Active Roll Stabilization Rear Stabilizer Bar

Electrical

- Liquid Cooled 180-Amp Alternator
- 2 Rear Seat Power Outlets
- Cigarette Lighter and Ashtray
- 110 Amp/Hours Battery
- Delayed Power Retention Operates Windows and Sunroof
- 2 Front Power Outlets, 1 Integral To Cigarette Lighter



Braking & Traction

- Up To 43-MPH Dynamic Traction Control Controlled By ABS and Engine Management
- Dynamic Stability Control (DSC) System Operated Via ABS Traction Control and Engine Power Reduction Measures Steering Wheel Angle/Direction, Yaw Rate, Wheel Speed, Lateral Acceleration and Brake Pressure
- 4-Wheel Anti-Lock Brakes
- Front Power 348-mm X 30-mm Ventilated Disc and Rear 345-mm X 24-mm Ventilated Disc Brakes
- Electronic Brake Assistance
- Auto Engage Parking Brake

Safety

- Active Knee Protection Airbags
- Front and Rear Side Head Curtain Airbags
- Front and Rear Electronic Parking Aid With Graphic Display, Alarm and 4 Ultrasonic Sensors
- Trunk Anti-Trap Device
- Door Mounted Front Side Airbags
- First Aid Kit
- Driver Airbag With Dual Stage Deployment
- Passenger Airbag Cutoff Sensor Activated By Passenger Weight
- Passenger Airbag With Dual Stage Deployment
- Front and Rear Passenger Automatic Locking Retractors
- Emergency Fuel Shut-Off Device
- L A T C H
- Rear 3-Point Center Seatbelt
- Front and Rear 3-Point Seatbelts
- Front Pretensioners With Force Limiters
- Side Guard Door Beams

Anti-Theft & Locks

- Vehicle Anti-Lockout
- Radio Anti-Theft
- Child Safety Rear Door Locks
- Locking Fuel Filler Door
- Rear Decklid Unlock
- Power Door Locks
- Selective Unlocking Via Remote Keyless Entry
- Valet Lockout
- Vehicle Anti-Theft Via Double-Locking, Alarm, Engine Immobilizer and Interior Monitoring



Remote Controls & Remote Releases

- Remote Decklid Release Located Inside Vehicle and On Multi-Function Remote
- Universal Garage Door Opener Located On Overhead Console Works With Available HomeLink(R) Lighting Accessories
- Keyless Entry Operated Via Key Fob
- Multi-Function Remote Operates Anti-Theft, Exterior Lights, Door Lock/Unlock, Illuminated Entry, Panic Alarm, Power Windows, Sunroof and Trunk
- Panic Alarm

Seats

- Front Driver Power Seat Adjusts 10 Ways Total
- Nasca Leather Seats
- Front Passenger Power Seat Adjusts 8 Ways Total
- Front Dual Power Lumbar Support Adjusts 4 Ways Total
- Front Dual Power Headrests
- Front Dual Bucket Seats With Seat Height Adjustment and 2-Position Driver Power Seat Memory
- Rear Bench Seat With Adjustable Headrests and Fold-Down Armrest

Storage

- Locking and Illuminated Glovebox With Rechargeable Take-Out Flashlight
- Dual Front Seatback Storage Pockets
- Front Locking Storage
- Illuminated, Covered Lower Console Storage Located On Floor and Lower Console Storage Located On Dash
- Rear Armrest Storage
- Temperature Controlled Storage Heats or Cools Front Console Compartment
- Cargo Area Tiedown Straps
- Coinholder
- 2 Front and 2 Rear Cupholders, 4 Cupholders Total
- Front and Rear Door Mounted Storage

Instrumentation

- Cruise Control
- Steering Wheel Mounted Controls For Transmission Shifter, Audio, Phone and Navigation
- Service Interval Indicators Include Brake Wear Display
- Exterior Temperature Gauge
- iDrive Concept With Over 700 Setting Adjustments Includes Trip Computer With Average Speed, Average Fuel Consumption, Miles To Empty, Trip Odometer, Distance To Destination and Estimated Time Of Arrival
- Digital Clock



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- 2-Memory Adjustments For Driver Side Includes Seat Settings, Exterior Rearview Mirrors and Steering Wheel
- Tachometer With Variable Warning Lights

Interior Lighting

- Trunk Light
- Delayed Courtesy Light
- Courtesy Lights Include Footwell, Door, Illuminated Entry and BMW Ambiance Lighting
- Front and Rear Reading Lights

Exterior Lighting

- Automatic Headlights
- Retractable High-Pressure Headlight Washers
- Variable Intensity Brake Lights
- Rear Foglights
- Adaptive Bi-Xenon High Intensity Discharge Headlights With Auto Leveling; Inner High Beam Halogen Headlights and Illuminated Light Rings Which Function As Parking Lights
- Programmable Perimeter Lighting Located On Door Handles and Underbody

Entertainment, Communication & Navigation

- Radio Data System (RDS)
- AM/FM Radio With 180-Watts and 10 Speakers Total; CD Player
- GPS and DVD Navigation Aid With Color Screen Includes Full Map and Voice Information
- 2 Subwoofers
- BMW Assist Telematics Includes Automatic Collision Notification, Concierge Services, Emergency Response, Navigation, Personal Calling, Points Of Interest, Reservations and Roadside Assistance For 12-Months At No Charge
- Telephone Antenna
- Vehicle Location System
- In-Glass Diversity Radio Antenna
- Voice Activated, Motorola(R) CPT9000 Hands Free Telephone Integrated With Vehicle Audio System and Telematics Includes Portable Digital Phone and Automatic Phonebook Download

Sunroof/Moonroof (*note: Can be fully transparent armor, or opaque steel armor, depending on customer's choice*)

- Front Power Tilt and Slide Moonroof



Heating, Ventilation & Air Conditioning

- Separate Driver/Front Passenger Climate Controls
- Rear Seat HVAC Controls
- Automatic Climate Control With Sun Sensor
- Interior Active Charcoal Air Filter
- HVAC Rest Mode
- Rear HVAC Ducts

Interior, Design, Decor & Floor Covering

- Leather Steering Wheel
- Matte-Finish Light or Dark Black Cherry Genuine Wood Trim
- Carpet Located In Passenger Cabin and Trunk

Doors

- Front and Rear Dual Hydraulic Door Brakes

Wheels & Tires

- Alloy Wheels, 18-In. X 8.0-In.
- SBRP245/50R18 All-Season Tires
- Full-Size Spare Tire

Windows, Mirrors & Wipers

- Electrochromic Interior Rearview Mirror
- Dual Body Color Power Adjustable Automatic Tilt-Down Heated Folding Electrochromic Exterior Rearview Mirrors With 2-Position Memory
- Heated Washer System
- Sunshade Located On Sunroof
- Front Dual and Rear Illuminated Vanity Mirrors
- Power Window Lockout/Override
- Power Windows With One-Touch Up, One-Touch Down and Pinch Protection
- Rear Window Defroster
- Tinted Glass
- Infrared Windshield
- Rain-Sensing, Variable Intermittent, Speed Sensitive Windshield Wipers With Windshield Wiper Deicer



Exterior, Design, Paint & Finish

- Front and Rear Body Color 9-MPH Impact Absorbing Bumpers
- Rear Air Dam
- Smooth Underbody Aero Cladding
- Front Air Dam
- Metallic Paint (If Selected)

MAINTENANCE

1.1 MAINTENANCE STRATEGY

1.1.1 Maintenance Levels

The System Operators or Technical Personnel are responsible for Maintenance tasks and include the following:

- i. Preventive Maintenance such as Inspections.
- ii. Preventive Maintenance such as Cleaning.
- iii. Preventive Maintenance such as Services.
- iv. Corrective Maintenance such as Replacement of Items with a High Failure Rate or Wear-out Rate and which can be replaced with ease.
- v. Corrective Maintenance by Replacement of LRU's (Line Replaceable Units, Assemblies, Sub-assemblies etc.) with a High Failure Probability, High Criticality and which are within the Capability.
- vi. Recovery of Equipment from the Deployment or Units to a maintenance level for Corrective Maintenance.

1.1.2 Maintenance Equipment

The System Operators or Technical Personnel will require the following equipment to perform their Maintenance tasks and include the following:

- i. Operating Equipment and Accessories.
- ii. Maintenance Equipment. (Toolboxes)
- iii. Maintenance Items.(Service Packages)
- iv. Spares as required.
- v. Support Equipment as required.
- vi. Special Support and Test Equipment as required.
- vii. Common Support and Test Equipment as required.



1.2 MAINTENANCE ELEMENTS

1.2.1 Documentation

The following documentation is being used for Maintenance of the product system:

- i. An Operators Maintenance Manual (OMM) for the Operators Maintenance Tasks.
- ii. A Maintenance Schedule for the definition of all Preventive Maintenance.
- iii. A Workshop Repair Manual (WRM) for Technical Maintenance Tasks.
- iv. An Illustrated Parts Breakdown (IPB) to identify Spare Parts.
- v. An Illustrated Stock List (ISL) to identify Support Equipment and Spares.

1.2.2 Support Equipment

The following types of support equipment are being used for Maintenance:

- i. Support Equipment carried in the Equipment ETS Boxes and includes Operating Equipment, Accessories and Maintenance Equipment.
- ii. Support Equipment as required for Preventive and Corrective Maintenance.
- iii. Support Equipment required and consists of Special Tools and Common Equipment which are within the Capability.

1.2.3 Spares

The following types of spares are required for Maintenance:

- i. Spares being kept in the Equipment ETS Boxes.
- ii. Preventive and Corrective Maintenance Spares.

1.2.4 Personnel

The following operating and or technical personnel are required for Maintenance of the Product System:

- i. Auto Electricians for Vehicle and PSU Electrical.
- ii. Auto Mechanics for diesel and petrol engines.



Armoring

Vehicle Armoring is available in all different levels depending on customer's choice. Check armoring levels on www.mushriquiconsulting.com/armorlev.htm

NIJ Level III/B6 Armored Vehicles

SPECIFICATION SHEET

Protection System	NATO CLASS / HIGH LEVEL
Glass Areas	44 MM BULLET-RESISTANT TRANSPARENT ARMOR MULTI-LAYER GLASS AND POLYCARBONATE INNER LAYER
Glass Appearance	GLASS WILL BE CURVED AND CONTOURED TO RETAIN THE APPEARANCE OF THE ORIGINAL GLASS. ALL TRANSPARENT AREAS WILL BE ARMORED TO LEVEL B6 WITH 44MM BALLISTIC AUTO GLASS.
Front Side Driver Window	OPERABLE TO 6 INCHES
Body Doors	PILLAR POSTS, SIDE PANELS, KICK-PANELS, FIREWALL, AND HEADERS (LATERALS) WILL BE ARMORED WITH BALLISTIC COMPOSITE MATERIAL EQUIVALENT MATERIAL OR AIR HARDENED HEAT TREATED BALLISTIC STEEL (NIJ LEVEL III AND EN 1063 B6 PROTECTION)
Roof	ARMORED WITH BALLISTIC COMPOSITE MATERIAL
Floor	FLOOR AREAS WILL BE ARMORED WITH MULTI-PLY RIGID BALLISTIC FRAGMENTATION MATERIAL COMBINED WITH KEVLAR MOLDED TO FORM FIT CONTOURS OF FLOOR BOARDS AND PANELS. DESIGNED IN SUCH A WAY THAT IT WILL DEFEAT THE FOLLOWING HAND GRENADES AND ALL LESSER EXPLOSIVES. TWO DM 51 (GERMAN NORM) HAND GRENADES PER SQ.M. DETONATED SIMULTANEOUSLY



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<p>Opaque Areas</p>	<p>AGAINST SOFT CORE PROJECTILES FIRED WITH THE FOLLOWING AND ALL LESSER WEAPONS AT 90° AND 45° (ROOF) IMPACT ANGLE IN ACCORDANCE WITH CEN.</p> <ol style="list-style-type: none"> 1. CALIBRE 7.62 X 39 MM, FJ/PB/SC, AK 47, (KALASHNIKOV) OBR-43 PS 2. CALIBRE 5.45 X 39.5 MM AP, FJ/PB/SCP, AKS 74, (KALASHNIKOV) OBR-74 3. CALIBRE 5.56 X 45 MM, FJ/PB/SCP, US RIFLE M16 A2, SS-109 /M-855 4. CALIBRE 7.62 X 51 MM, FJ/PB/SC, "FAL" / "LAR" NATO RIFLE 															
<p>Transparent Areas</p>	<p>PROTECTED AGAINST SOFT CORE PROJECTILES FIRED WITH THE FOLLOWING AND ALL LESSER WEAPONS AT 90° IMPACT ANGLE IN ACCORDANCE WITH CEN.</p> <ol style="list-style-type: none"> 1. CALIBRE 7.62 X 39 MM, FJ/PB/SC, AK 47, (KALASHNIKOV) OBR-43 PS 2. CALIBRE 5.45 X 39,5 MM AP, FJ/PB/SCP, AKS 74, (KALASHNIKOV) OBR-74 3. CALIBRE 5.56 X 45 MM, FJ/PB/SCP, US RIFLE M16 A2, SS-109 /M-855 4. CALIBRE 7.62 X 51 MM, FJ/PB/SC, (FN) "FAL" / "LAR" NATO RIFLE 															
<p>Transparent Areas Ballistic Properties</p>	<table border="1"> <thead> <tr> <th data-bbox="708 1188 863 1243">TYPE OF WEAPON</th> <th data-bbox="876 1188 1032 1243">CALIBER</th> <th data-bbox="1039 1188 1195 1243">BULLET</th> <th data-bbox="1201 1188 1357 1243">IMPACT SPEED</th> </tr> </thead> <tbody> <tr> <td data-bbox="708 1251 863 1461">RIFLE (E.G.: FAL G1)</td> <td data-bbox="876 1251 1032 1461">7.62 X 51, 305 MM LAY</td> <td data-bbox="1039 1251 1195 1461">STEEL FULL METAL JACKET, POINTED BULLET, SOFT CORE WITH LEAD</td> <td data-bbox="1201 1251 1357 1461">830 + 10 M/S</td> </tr> <tr> <td data-bbox="708 1470 863 1797">RIFLE (E.G.: US M16)</td> <td data-bbox="876 1470 1032 1797">5.56 X 45, 178 MM LAY</td> <td data-bbox="1039 1470 1195 1797">COPPER FULL METAL JACKET, POINTED BULLET, SOFT CORE WITH LEAD AND STEEL PENETRATOR SS109</td> <td data-bbox="1201 1470 1357 1797">950 + 10 M/S</td> </tr> </tbody> </table>	TYPE OF WEAPON	CALIBER	BULLET	IMPACT SPEED	RIFLE (E.G.: FAL G1)	7.62 X 51, 305 MM LAY	STEEL FULL METAL JACKET, POINTED BULLET, SOFT CORE WITH LEAD	830 + 10 M/S	RIFLE (E.G.: US M16)	5.56 X 45, 178 MM LAY	COPPER FULL METAL JACKET, POINTED BULLET, SOFT CORE WITH LEAD AND STEEL PENETRATOR SS109	950 + 10 M/S			
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<p>Certification</p>	<ul style="list-style-type: none"> • H. P. WHITE LABORATORIES U.S.A • UNITED STATES LABORATORY <p>UPON REQUEST, THE COMPLETE TESTING STANDARDS SET OUT IN THE GUIDELINES REFERRED TO, AS WELL AS THE TEST PROTOCOL AND ALL CERTIFICATES, MAY BE VIEWED.</p>
<p>Suspension & Braking System</p>	<p>REAR STABILISER BAR HAS BEEN CHANGED TO A HEAVY DUTY VERSION</p> <p>BRAKING SYSTEM HAS BEEN FULLY ADAPTED TO CONFORM TO THE ADDITIONAL ARMoured VEHICLE MAIN BODY COMPONENT WEIGHT CONSTRAINTS.</p> <p>TIRES AND RIMS FITTED HAVE BEEN FULLY APPROVED FOR THE HIGHER VEHICLE WEIGHT RATIO ACCORDING TO TÜV / MOT (DOT EQUIVALENT) TYPE RECOMMENDATIONS AND LEGAL REQUIREMENTS.</p> <p>MODIFICATIONS ARE CARRIED OUT TO ASSURE THAT THE VEHICLE PASSES THE VERY EXACT GERMAN TYPE APPROVAL.</p>
<p>Extra Security Equipment Fitted as a Standard to Vehicle</p>	<p>HINGES REINFORCED : SPECIALLY DESIGNED REINFORCED STRENGTHENED HEAVY DUTY DOOR HINGES A MINIMUM OF TWO EXTRA HINGES PER DOOR</p> <p>PROTECTED FUEL TANK: COMPLETELY ARMoured ACCORDING TO THE SPECIFICATIONS WITH LEVEL CEN B6. WITH ARMORED STEEL</p> <p>PROTECTED VEHICLE MANAGEMENT SYSTEM (BLACK BOX): COMPLETELY ARMoured ACCORDING TO THE SPECIFICATIONS WITH LEVEL CEN B6. WITH ARMORED STEEL</p> <p>RUN-FLAT TIRE SYSTEM: 50 KM distance on 50 Km/H speed</p> <p>REAR CARGO: 100% PROTECTION AGAINST FOREIGN PROJECTILES AND SPLINTERS. THE TRANSPARENT ARMOUR AREA PROVIDES REAR VIEW VISION WITH MINIMAL OBSTRUCTION.</p> <p>VEHICLE SUSPENSION STABILISING BARS: ROBUST HEAVY DUTY HARD WEARING COIL SYSTEM. OEM COMFORT STANDARDS ARE MAINTAINED WITH THIS FEATURE.</p>



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Optional Security Extras	<ul style="list-style-type: none"> • ALARM SIREN • BATTERY PROTECTION • BEACON CONNECTOR • BULL BAR • CENTRAL DOOR LOCKING • FIRE EXTINGUISHER SYSTEM • FLAG POLES • FOG LAMPS • HEAVY DUTY CAR JACK • 10 TONS WRENCH • 4 WINDOWS OPERABLE LIFTERS • INTERCOM / PUBLIC ADDRESSING SYSTEM • MAGNETIC BEACON <ul style="list-style-type: none"> • RADIO/CD COMBINATION • STALK MOUNTED MAP READING LAMP
Service Package	Local Service Provided in Baghdad, at Camp Victory & Camp Brooklyn, All other locations in Iraq like Mosul, Tikrit, Basrah, Balad a team of engineers & technicians will be sent on security military bases, all of the above have the ability to conduct full warranty, maintenance & service for ballistic and non ballistic needs
Strobe Lights	BLUE OR RED LIGHTS THAT ARE VISIBLE OR NON-VISIBLE EXCEPT WHEN TURNED ON CAN BE MOUNTED TO THE VEHICLE TO DRAW ATTENTION IN STANDARD TRAFFIC SITUATIONS.
Telephone / Radio Cable Preparation	PRE-WIRING HAS BEEN LAID THROUGHOUT THE VEHICLE TO ASSIST FURTHER INSTALMENT OF COMMUNICATION EQUIPMENT FOR ON BOARD TELEPHONE.
Toolbox	Standard Tools included for emergency situations



Warranty

- 3 YEARS OR 60,000 KM WHICHEVER COMES FIRST WARRANTY FOR DEFECTS IN MATERIALS AND WORKMANSHIP AFTER TRANSFER OF RISK.
- SERVICES UNDER THE WARRANTY SHALL ONLY BE PROVIDED FREE OF CHARGE IF THE DEFECTS ARE PROVEN IN DESIGN, MATERIALS OR WORKMANSHIP. THE WARRANTY IS EXTENDED TO ANY PARTS INSTALLED WHEN REMEDYING THE DEFECTS UNTIL EXPIRE OF THE WARRANTY PERIOD.

SAMPLE (Pictures doesn't reflect car type)

<p>REAR HATCH DOOR</p>	<p>BATTERY COMPARTMENT</p>	<p>DOORS</p>
<p>ROOF</p>	<p>FRONT COMPARTMENT</p>	