# The new BMW F 450 GS.
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# 1. Overall concept.
## The BMW F 450 GS at a glance.

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**"With the new BMW F 450 GS, BMW Motorrad presents a genuine BMW GS in the 48 hp A2 class. It embodies the essence of a GS: Get on, twist the throttle, have fun - with full control and maximum confidence.**
**Its low weight, superior performance and perfect balance between agility and stability ensure a particularly intuitive riding experience. Thanks to its precise handling and typical GS expertise, it performs impressively both on and off the road. The F 450 GS is the perfect 'best buddy' for every riding situation. It is uncomplicated, robust, and always ready. It sets the benchmark for sporty adventure bikes in its class."**
Markus Flasch, CEO BMW Motorrad

**The new BMW F 450 GS: BMW GS expertise in the 48 hp A2 class in the iconic BMW GS design.**
The new BMW F 450 GS marks the next step in the GS model family, specifically addressing the 48 hp A2 class with proven GS technology and iconic design.

At the EICMA international motorcycle show, BMW Motorrad gave a preview of a fully-fledged GS model already in 2024, which

specifically addresses the steadily growing market segment of medium-sized displacement motorcycles.

The series version of the BMW F 450 GS consistently lives up to this claim: It is a versatile all-rounder that combines everyday usability, sporty dynamic performance, touring comfort, and off-road capabilities. In the "GS Trophy" equipment variant, it follows in the footsteps of the concept vehicle. It adopts its striking design language and high-quality, high-tech components, including magnesium parts for maximum performance and low weight.

With its balanced power-to-torque ratio, low weight, and characteristic GS ergonomics, the F 450 GS provides riding fun and confidence from the first meter. The new F 450 GS thus combines the classic GS spirit with a modern, accessible, and simultaneously powerful approach.

"With the BMW F 450 GS, we are addressing a particularly broad target audience. This motorcycle is aimed at anyone who values maximum agility, versatility, pure riding pleasure, and cutting-edge technology – regardless of whether they are on the road every day, on long tours, or simply looking for a light, dynamic, and uncomplicated bike. The current trend toward downsizing, i.e., switching from heavy motorcycles to compact and versatile machines, demonstrates the great interest in this segment. The F 450 GS offers the ideal combination of playful handling, maneuverability, riding dynamics, and high-quality equipment – without compromising on quality or technical performance."
Astrid Neudecker, Product Manager BMW F 450 GS

The BMW Easy Ride Clutch (ERC) is a technical highlight and a further development of a centrifugal clutch. This system eliminates the need to manually operate the clutch lever while riding. This applies to all situations, from starting off and changing gears to demanding off-road maneuvers. BMW Motorrad is setting a new standard in this vehicle class.

A range of attractive options will be added at the time of market launch: The F 450 GS can be equipped with an Akrapovic end muffler and original BMW Motorrad cross-spoke wheels on request. The result is a package that combines sporty dynamic performance, technical innovation and GS DNA perfectly.

**Performance developed from scratch: A confident companion for both road and off-road riding.**
The completely redesigned BMW F 450 GS is a sporty adventure bike that complements the current BMW Motorrad model portfolio, with developers focusing on excellent handling characteristics, strong performance, durability, and optimum accessibility.

The design focuses on the consistent implementation of the current GS design language. With iconic features such as the LED headlight with "X" daytime riding light and the distinctive flyline, the bike's affiliation with the BMW Motorrad GS family is clear at first glance.

**Completely redesigned, smooth-running and characterful two-cylinder in-line engine with 135-degree crankpin offset for dynamic riding pleasure on asphalt and off-road.**
At the heart of the new BMW F 450 GS is a completely newly developed two-cylinder in-line engine with fuel injection and a stainless steel exhaust system on the right-hand side. The new F 450 GS impresses with its powerful performance and pulling power, delivering a power output of 35 kW (48 hp) at 8,750 rpm and a maximum torque of 43 Nm at 6,750 rpm.
Thanks to the use of high-tech materials and optimized internal friction, these performance values are achieved with exactly 420 $cm^3$. This makes the engine one of the most compact and powerful in the A2 two-cylinder segment. It not only meets the strict EU5+ requirements but is also particularly economical, consuming just 3.8 liters per 100 km. A range of over 350 km can be achieved in conjunction with the 14-liter tank. The maintenance interval is the standard 10,000 km for BMW motorcycles.

Unique on the motorcycle market, the engine features a crankshaft with crankpins offset by 135 degrees and, in conjunction with a single balance shaft, sets a technical exclamation mark: this design ensures a characterful, emotional ride while simultaneously reducing unwanted vibrations to an exceptionally low level.

**Easy Ride Clutch (ERC) for a significant increase in dynamics, operating comfort, and riding comfort.**
A technical highlight of the new BMW F 450 GS is the Easy Ride Clutch (ERC). Its core is a precision centrifugal unit in the clutch, which engages the clutch depending on engine speed.

This system is standard on the GS Trophy variant and available as an optional accessory for all other model variants. In combination with the Shift Assistant Pro, manual operation of the clutch lever is completely eliminated – from starting off and gear changes to demanding maneuvers.

The clutch lever, however, remains intact and allows the rider to intervene manually at any time if necessary – for example, to lift the front wheel over an obstacle or to improve control when descending on slippery surfaces.

Technologically, the ERC is based on an advanced centrifugal clutch. Unlike conventional systems, it remains closed during overrun. This creates natural, familiar, and predictable handling at all times – comparable to a conventional clutch. The engine brake remains fully active until just before a stop; only when the idle speed is reached does the ERC automatically open, reliably preventing the engine from stalling.

The system ensures greater dynamics, control, and comfort – whether maneuvering, in city traffic, on winding roads, or off-road.

**Six-speed transmission and left-mounted secondary drive. Shift Assistant Pro for quick upshifts and downshifts without clutch operation.**
The likewise newly designed six-speed transmission transmits torque to the left-hand secondary drive via an X-ring chain.
For fast upshifts and downshifts without clutch operation, the new F 450 GS is offered with Shift Assistant Pro in all equipment variants except the basic variant. This can be retrofitted to the basic version.

**"Rain," "Road," and "Enduro" riding modes, as well as ABS Pro, DBC, DTC, and MSR (engine drag control), are standard features for a high level of riding enjoyment and safety. An additional "Enduro Pro" riding mode is available starting with the Exclusive trim variant.**

The BMW F 450 GS offers three riding modes as standard: "Rain", "Road" and "Enduro", allowing the motorcycle to be adapted to suit individual preferences. Standard equipment also includes ABS Pro, Dynamic Brake Control (DBC), Dynamic Traction Control (DTC) and engine drag torque control (MSR).

The additional “Enduro Pro” mode, which is used from the Exclusive equipment variant onwards, is designed for off-road use with coarse-tread off-road tires and allows the ABS on the rear wheel to be deactivated.

**Newly developed chassis with tubular steel frame for optimal rigidity, robustness, and driving precision. Short wheelbase for agile and playful handling.**
The new BMW F 450 GS also features a completely new chassis concept. Playful handling, optimum accessibility, high riding precision and riding stability were the developers' top priorities. The specially developed lattice-tube frame of the BMW F 450 GS consists of welded steel tubes and forged parts. The frame integrates the two-cylinder in-line engine as a supporting element and is designed to be lightweight yet robust.

**The front wheel is guided via KYB upside-down telescopic forks, while the rear wheel is guided via an aluminum hollow cast double armed swinging arm with a KYB central spring strut featuring progressive damping.**
Front wheel control is provided by a torsionally rigid KYB upside-down telescopic fork with a 43 mm inner tube diameter. The Sport and GS Trophy variants feature the so-called "sports suspension." The fork is adjustable for rebound and compression damping. Rear wheel control is provided by a closed, and therefore extremely torsionally rigid, yet lightweight, hollow-cast aluminum double-sided swing arm, coupled with a directly connected KYB central spring strut (adjustable spring preload and rebound damping) with travel-dependent damping derived from rally racing, a unique feature in this segment.

**Wheels and tires tailored to the typical BMW GS applications.**
The new BMW F 450 GS features lightweight yet robust cast aluminum wheels. It is fitted with tubeless tires for road and off-road use, sized 100/90-19 at the front and 130/80-17 at the rear. Additionally, the Original BMW Motorrad Accessories range offers cross-spoke wheels.

**A powerful braking system combined with BMW Motorrad ABS Pro ensures safe braking even when leaning. Dynamic Brake Control (DBC) and Dynamic Brake Light are additional safety features.**
The front wheel of the new BMW F 450 GS features a floating single-disc brake with a Brembo 4-piston fixed caliper and a 310 mm brake disc diameter for superior, stable deceleration. A single disc brake with 1-piston floating caliper and 240 mm diameter is used on the rear wheel.

The new BMW F 450 GS already comes standard with BMW Motorrad ABS Pro. ABS Pro also offers increased safety when braking in curves by enabling ABS-assisted braking while leaning. Dynamic Brake Control (DBC) offers increased safety when braking, even in difficult situations, by preventing unintentional throttle application. The dynamic brake light effectively alerts following vehicles to the braking motorcycle ahead.

**Optimal ergonomics and equipment for comfortable, playful, and agile motorcycling on and off-road.**
A sophisticated ergonomic triangle and a high, close-to-the-body handlebar made of tapered aluminum tubing ensure an ideal riding position in all conditions. The body and the 14-liter fuel tank below it are designed for optimal support and good knee contact, both when seated and while standing off-road. A wide range of accessories are available to meet the individual needs of riders, including a handlebar riser, a rally seat, and the option of a low seat.

**Three different seat variants, adjustable hand levers, a handlebar riser, and secure footrests with height-adjustable gearshift and footbrake levers ensure optimal riding comfort both on and off-road.**
The new BMW F 450 GS comes with a two-part seat (845 mm) as standard. The low Black rider's seat (830 mm) and the high Rallye seat in Black/White/Red (865 mm), available as part of the Original BMW Motorrad Accessories, can be adapted to individual requirements. The standard adjustable handlebar levers and the optional 20 mm handlebar risers made of high-strength anodized silver aluminum offer further adjustment options.

The new BMW F 450 GS comes standard with a footrest system with removable rubber grips, whose serrated profile makes it

suitable for off-road use. A very practical feature is the easy height adjustment of the foot brake lever by 20 mm in two positions to suit individual needs for on- and off-road riding. The gearshift lever is also height-adjustable.

Wider enduro footrests are included starting with the Exclusive version or are available as optional accessories.

**High touring and everyday performance thanks to sophisticated vehicle and weather protection, as well as a comprehensive storage concept.**
The modular design of the available windshields (optional accessories) allows for individual customization. Depending on the intended use and personal preference, you can choose between the high Tour windshield (height-adjustable) and the clear or tinted Rally windshield. This allows the comfort and wind and weather protection of the new BMW F 450 GS to be tailored specifically to individual needs.

In the event of a fall or tip-over, Original BMW Motorrad Accessories offer effective ways to protect your motorcycle from damage, including engine guards, engine protection bars, front axle protectors, and other protective components.

The diverse range of special accessories – whether side bags, tail bags, luggage rolls, tank bags, luggage racks, or top cases – offers maximum flexibility for every application.

**Powerful LED light units as standard. Connectivity featuring a large, perfectly readable 6.5-inch TFT display that provides comprehensive information and functionality. Practical USB-C socket in the cockpit area.**
The new BMW F 450 GS features an LED headlight with an iconic "X" daytime riding light signature as standard. The turn indicator and control lamps of the F 450 GS also use LED technology.

A large 6.5-inch TFT display is also standard on the new BMW F 450 GS. The variety of information, display quality, and, last but not least, user-friendliness are premium. It comes standard with screen displays tailored to the BMW GS world: the Pure Ride Screen and the Sport Screen with detailed information on DTC,

braking force, and lean angle. Taking phone calls, listening to music, and navigation while riding is also possible.

**Four attractive equipment variants for the new BMW F 450 GS.**
The new BMW F 450 GS is available in four equipment variants: the **BMW F 450 GS Basis** model in Cosmic Black and the **BMW F 450 GS Exclusive**, also in Cosmic Black, with off-road footrests, handguards, a plastic underbody guard, Riding Modes Pro, Shift Assistant Pro, and a clear windshield.

Another equipment variant is the **BMW F 450 GS Sport** in Racing Red, featuring off-road footrests, handguards, a plastic underbody protection, Riding Modes Pro, Shift Assistant Pro, a clear windshield, and the "sports suspension" (with KYB fork adjustable in rebound and compression). The fourth variant, the **BMW F 450 GS Trophy** in Racing Blue Metallic, tops the lineup. It features off-road footrests, white handguards, Riding Modes Pro, Shift Assistant Pro, "Sports Suspension", a tinted rally windshield, an aluminum engine guard, and the new, enhanced version of centrifugal clutch: the Easy Ride Clutch (ERC).

**The highlights of the new BMW F 450 GS:**

• Development focus: excellent handling characteristics, strong performance, durability, and optimal accessibility.

• Outstanding power-to-weight ratio within the A2 class: 48 hp with a ready-to-ride weight of just 178 kg.

• Sporty adventure bike with a twin-cylinder inline engine producing 35 kW (48 hp) at 8,750 rpm and a maximum torque of 43 Nm at 6,750 rpm.

• Characterful engine with extremely smooth running thanks to a balance shaft and 135-degree crankpin offset.

**Four attractive equipment variants:**

- **BMW F 450 GS Basic.**
- **BMW F 450 GS Exclusive** (incl. off-road foot pegs, hand guards, engine guard, Riding Modes Pro, Shift Assistant Pro and clear windshield).
- **BMW F 450 GS Sport** (incl. off-road foot pegs, hand guards, engine guard, Riding Modes Pro, Shift Assistant Pro, clear windshield and sport suspension).
- **BMW F 450 GS Trophy** (incl. off-road foot pegs, white hand guards, Riding Modes Pro, Shift Assistant Pro, tinted Rallye windshield, sport suspension, aluminum engine guard and Easy Ride Clutch).

• Easy Ride Clutch (ERC) for significantly improved operating and riding comfort, as well as dynamics, as standard in the GS Trophy trim level; it can be retrofitted to all other F 450 GS model variants.

• Six-speed transmission and left-mounted secondary drive. Shift Assistant Pro for quick upshifts and downshifts without using the clutch.

• Right-side stainless steel exhaust system with two catalytic converters.

• "Rain," "Road," and "Enduro" riding modes, as well as ABS Pro, DBC, DTC, and MSR, are standard features for a high level of riding enjoyment and safety. Additional "Enduro Pro" riding mode is available starting with the Exclusive trim level.

• Newly developed chassis with a tubular steel frame for optimal rigidity, robustness, and handling precision. Short wheelbase and compact packaging.

• Wheel control at the front via an KYB upside-down telescopic fork and at the rear via a hollow-cast aluminum double-sided swing

arm with a KYB central spring strut, adjustable for spring preload and rebound, and with travel-dependent damping.

• Wheels and tires tailored to the typical BMW GS applications.

• Powerful Brembo (front) and ByBre (rear) braking system in conjunction with BMW Motorrad ABS Pro for safe braking, even when leaning. Dynamic Brake Control (DBC) and
Dynamic Brake Light are additional safety features.

• Optimum ergonomics and equipment for relaxed yet dynamic motorcycling on and off-road.

• High-performance touring and travel capabilities.

• Footrests with adjustable gearshift and footbrake levers for optimal grip on and off-road.

• Adjustable hand levers as standard.

• Heated grips as standard.

• Powerful LED headlights and lights as standard.

• Connectivity with extensive options and exemplary functionality in the form of a large, perfectly legible 6.5-inch TFT display.

• Practical USB-C socket in the cockpit area.

• Tailor-made customization options as part of the Original BMW Motorrad Accessories range in renowned premium quality, such as:

- Cross-spoke wheels.
- Comprehensive wind and weather protection with various windshield variants.
- Luggage systems.
- Handlebar risers.
- Various seat variants (Rally seat, low seat).
- Aluminum engine guard.

## 2. Design and ergonomics.

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**"With the BMW GS-typical flyline, the recognizable radiator grille, daytime running light signature, and sleek rear end, the design language of the new BMW F 450 GS deliberately draws close attention to the iconic design of its big sister, the R 1300 GS. It skillfully transfers its spirit to the 48 hp mid-range. This also includes sophisticated ergonomics for the best possible accessibility and vehicle control."**
Alexander Buckan, Head of Design, BMW Motorrad

**The new BMW F 450 GS: BMW GS expertise in the 48 hp A2 class, featuring the iconic BMW GS design.**
The new BMW F 450 GS is a completely redesigned, new construction for the 48 hp mid-range. Its design focuses on consistently implementing the current BMW GS design language. With iconic features such as the LED headlight with "X" daytime riding light and the distinctive flyline, the bike's affiliation with the BMW Motorrad GS family is apparent at first glance. The radiator grille is also typical of the BMW GS.

The characteristic flyline runs from the front GS-typical "beak," across the tank and seat, and continues to the very narrow, slim rear. The agility and lightness of the rear section clearly emphasize the dynamic character of the new BMW F 450 GS.

**Optimum ergonomics and equipment for both relaxed and dynamic on- and off-road motorcycling.**
In terms of both drivetrain and chassis, the new BMW F 450 GS offers everything you would expect from a GS.

The ideal riding position in all conditions is ensured by an ingenious ergonomic triangle that was developed over countless kilometers of testing in a wide variety of conditions. The handlebars, made of butted aluminum tube, are positioned high and close to the body. The body and the 14-liter tank underneath are designed to provide optimal support and a good knee fit when sitting or riding off-road in a standing position.

**High touring and everyday suitability thanks to sophisticated vehicle and weather protection as well as a comprehensive storage space concept.**
The modular design of the available windshields (optional accessories) allows for customization. Depending on the intended use and personal preferences, customers can choose the high Tour windshield (height-adjustable) or the clear or tinted windshield Rallye. This allows the comfort and protective effect of the new BMW F 450 GS to be tailored to individual requirements.

In the event of a fall or crash, Original BMW Motorrad Accessories effectively protect the motorcycle from damage with engine guard, engine protection bars, front axle protectors, and other protective components.

The wide range of special accessories – whether side bags, tail bags, luggage rolls, tank bags, luggage racks or top cases – offers maximum flexibility for every application.

**Three different seat variants, adjustable handlebar levers, handlebar risers and sure-footed foot pegs with adjustable gearshift lever and footbrake lever for optimum riding on and off the road.**
The new BMW F 450 GS comes with a two-piece seat (845 mm) as standard. With its flat, straight design, it provides ideal ergonomic conditions for comfort and dynamics for most riders. The low black rider's seat (830 mm) and the high Rallye seat in Black/White/Red (865 mm), available as part of the Original BMW Motorrad Accessories, can be adapted to individual needs. The standard adjustable handlebar levers and the 20 mm

handlebar risers in silver, available as optional accessories, offer further customization options.

The new BMW F 450 GS comes standard with a footrest system with removable rubber grips. While it's primarily designed for on-road use, its serrated profile also makes it suitable for off-road use. It offers an optimal balance between grip and comfort. A very practical feature is the height-adjustable footbrake lever. Using a tool, it can be adjusted vertically by 20 mm to two positions to suit individual on- and off-road riding needs. The gearshift lever is also height-adjustable – via a toothed mechanism on the shift shaft.

Wider enduro footrests are available as Original BMW Motorrad Accessories – these are included with the Sport, Exclusive, and GS Trophy versions.

**There are four attractive equipment variants for the new BMW F 450 GS:**

**BMW F 450 GS Basic.**
Cosmic Black.

**BMW F 450 GS Exclusive.**
Cosmic Black.
• Off-road foot pegs.
• Hand guards, Black
• Plastic engine guard.
• Riding Modes Pro.
• Quickshifter Pro.
• Windshield, clear.

**BMW F 450 GS Sport.**
Racing Red.
• Off-road foot pegs.
• Hand protectors, Black.
• Plastic engine guard.
• Riding Modes Pro.
• Quickshifter Pro.
• Windshield clear.
• Sport suspension.

**BMW F 450 GS Adventure.**
Racing Blue Metallic.

- Off-road foot pegs.
- Hand guards, White.
- Main frame, White.
- Aluminum engine guard.
- Riding Modes Pro.
- Shift Assistant Pro.
- Sport Suspension.
- Windshield Rallye, tinted.
- Easy Ride Clutch (ERC).

# 3. Drive.

**"With its new two-cylinder inline engine, the new BMW F 450 GS boasts an outstanding powertrain for dynamic riding pleasure on and off-road. Low weight, ample torque, and exceptional smoothness thanks to the unique 135-degree crankpin offset make it a perfect partner for a wide range of applications typical of a GS. With our new Easy Ride Clutch (ERC), the new F 450 GS also offers a significant increase in operating comfort and dynamic performance."**
Johann Simon, Project Manager BMW F 450 GS

**Completely redesigned, smooth-running and distinctive two-cylinder in-line engine for dynamic riding fun on asphalt and for off-road use.**
For decades, the GS models of the F series from BMW Motorrad have stood for premium offerings in their respective mid-range segments. Their convincing all-around qualities, paragon of riding fun on asphalt roads, and easy and safe handling on off-road terrain have always characterized them. With the F 450 GS, BMW Motorrad is bringing this successful formula to the market in a completely redesigned form for the popular 48 hp class (driving license category A2). It provides optimum riding fun on all types of terrain, whether on asphalt roads or off-road.

At the heart of the new BMW F 450 GS is a completely redesigned two-cylinder in-line engine. The main development goals were to build a lightweight, powerful, high-torque, and smooth-running engine. Additionally, during the development of the new engine, particular emphasis was placed on achieving low fuel consumption values and a distinctive sound.

The 420 $cm^3$ displacement results from a 72 mm bore and a 51.6 mm stroke. The new F 450 GS delivers powerful performance and pulling power with a power output of 35 kW (48 hp) at 8,750 rpm and a maximum torque of 43 Nm at 6,750 rpm.

**Characterful, emotional sound thanks to a crankshaft with a 135-degree crankpin offset and uneven ignition interval.**
The new BMW F 450 GS's two-cylinder, in-line, liquid-cooled engine is installed transversely to the direction of travel. Unique on the motorcycle market, it features a crankshaft with crankpins offset by 135 degrees. This design is accompanied by a particularly emotional character, but at the same time a very low vibration level for the rider.

**Optimized smooth running is achieved thanks to a counter-rotating counterbalance shaft and wet-sump lubrication.**
The engine of the new BMW F 450 GS has a counterweight shaft (counterbalance shaft) positioned in front of the crankshaft that absorbs unwanted vibrations. It is driven by a spur gear. In conjunction with the 135-degree offset of the crankshaft, this results in smooth operation.

A wet-sump lubrication system with a chain-driven oil pump ensures a reliable lubricating oil supply under all operating conditions. The new F 450 GS has an engine guard, which is standard on the Exclusive variant and available as an optional accessory, to protect the oil pan from damage during off-road use.

**Two overhead camshafts, four valves per cylinder operated by rocker arms.**
Two overhead camshafts rotate in the cylinder head of the new F 450 GS, actuating four valves per cylinder via lightweight and therefore speed-resistant rocker arms. The timing chain is driven on the right side of the engine by a toothed chain from the crankshaft to the exhaust camshaft. The intake camshaft is driven by a pair of gears via the exhaust camshaft.

The valve angles are sized for an optimal combustion chamber design to provide the best possible power, torque, and efficiency. The valve angle is 12 degrees on the intake side and 12.4 degrees on the exhaust side. The valves have a valve head diameter of 29 mm (intake) and 24.3 mm (exhaust). The compression ratio is 13:1.

An intake manifold fuel injection system with the latest BMS-Z engine management technology prepares the air-fuel mixture. An E-Gas system sends the rider's request directly from the throttle grip sensor to the engine control unit. This unit regulates the

opening angle of the throttle valves for optimal controllability and response.

**Easy Ride Clutch (ERC) for a significant increase in dynamics, operating comfort, and riding comfort.**
A special technical highlight of the new BMW F 450 GS is the Easy Ride Clutch (ERC). This innovative system is installed as standard on the GS Trophy variant and is also available as an optional accessory for all other model variants. In combination with the BMW Shift Assistant Pro, manual operation of the clutch lever is completely eliminated – from starting off to gear changes to demanding maneuvers.

The clutch lever, however, remains installed. This allows the rider to use the clutch manually when needed – a decisive advantage in special riding situations, for example, to lift the front wheel over an obstacle or to improve control when descending on slippery surfaces.

The heart of the ERC is a precisely operating centrifugal unit in the clutch, which engages the clutch depending on the engine speed. The handling is similar to that of a conventional clutch operation: Starting off is achieved simply by opening the throttle with a gear engaged. If a gear that's too high is selected, a corresponding warning appears on the display. In heavy city traffic, on tight bends, or off-road, the ERC provides noticeable relief for the rider, as it effectively prevents the engine from stalling.

Technologically, it is a particularly advanced form of the centrifugal clutch. Unlike conventional systems, it remains closed during overrun. The result is familiar and predictable handling, equivalent to that of a conventional clutch. The clutch can be used as usual at any time while driving, if necessary. Engine braking is fully maintained until the vehicle is almost at a standstill; only when the idle speed is reached does the clutch automatically open – just as the rider would otherwise do manually.

Even when rolling with the vehicle in gear, for example when riding downhill, the engine is actively dragged along, generating effective engine braking torque. The clutch remains closed during overrun, ensuring maximum control. At the same time, the rider can intervene at any time using the clutch lever and manually override the system.

The ERC thus enables confident handling even in complex driving situations – whether maneuvering, in city traffic, on winding country roads, or off-road – and elevates driving dynamics and comfort to a new level.

**Six-speed transmission and left-hand secondary drive. Shift Assistant Pro for fast upshifts and downshifts without the need to use the clutch.**
To optimize riding dynamics, the redesigned six-speed transmission transmits torque to the left-hand secondary drive via an X-ring chain. For fast upshifts and downshifts without clutch operation, the new F 450 GS is offered with the Shift Assistant Pro in all equipment variants except the basic variant. This can of course be retrofitted to the basic version.

It allows the rider to shift up without using the clutch, providing perfect acceleration with virtually no interruption in traction. Additionally, Shift Assistant Pro allows for downshifts without using the clutch. This feature enables very fast gear changes, minimizes clutch actuation, and significantly reduces undesirable influences on the rear wheel and jerking movements caused by load changes.

Shift Assistant Pro also significantly reduces the independent movements of the rider and passenger during conventional gear changes, making shared motorcycle enjoyment even more comfortable.

**Right-hand exhaust system made of high-quality stainless steel.**
The exhaust system of the new BMW F 450 GS is made entirely of stainless steel and is equipped with two catalytic converter cartridges for emission control. Mounting on the right-hand side of the vehicle is particularly advantageous when pushing the motorcycles - usually from the left-hand side. The end muffler, which is also on the right, provides the necessary clearance and reduces the risk of getting burnt on the hot muffler.

**Riding modes "Rain", “Road” and "Enduro" as well as ABS, DBC, DTC and engine drag torque control come as standard to provide a high degree of riding fun and safety. Additional "Enduro Pro" Riding Mode available from the Exclusive equipment variant on upwards.**
The new BMW F 450 GS offers three riding modes as standard: "Rain", "Road" and "Enduro", allowing the motorcycle to be

adapted to suit individual preferences. Standard equipment also includes ABS Pro, DBC, Dynamic Traction Control (DTC) as well as engine drag torque control (MSR). The "Rain", "Road" and "Enduro" riding modes are intelligently linked to the control systems and allow the new BMW F 450 GS to be adapted specifically to the respective riding conditions.

The "Rain" mode is designed for use on wet roads. Throttle response is softer and all control systems are designed to maximize stability and control.

"Road" mode is intended for use on dry roads. The engine's throttle response is direct, and the traction control remains stable in the mid-range. All other control systems are also designed for maximum stability.

The "Enduro" mode is designed for off-road use with standard road tires and provides the same throttle response as the "Rain" mode.
Traction control provides maximum stability, while front wheel lift-off detection, engine drag torque control, and dynamic traction control remain minimally active.

The additional “Enduro Pro” mode, which is available from the Exclusive equipment variant upwards, is designed for off-road use with rough terrain tires. Wheelie control and rear wheel ABS are deactivated in this mode. ABS Pro, DTC, and throttle response can be customized in this mode as well.

# 4. Chassis/suspension.

"Our chassis concept for the new BMW F 450 GS is based on a completely redesigned tubular steel frame that integrates the two-cylinder inline engine as a load-bearing element," explains Marc Weber, engineer for the BMW F 450 GS. "The focus of development was on compact packaging for optimal accessibility, high riding precision, and agile handling on and off-road. The short wheelbase and balanced chassis geometry enabled us to achieve particularly agile yet stable handling."

**Newly developed chassis with tubular steel frame for optimal rigidity, robustness, and riding precision. Short wheelbase and compact packaging.**
The newly developed chassis of the BMW F 450 GS consistently relies on a welded tubular steel frame with integrated forged parts. This design combines low weight with high robustness, thus meeting the demands of both dynamic road riding and demanding off-road passages. The conscious use of steel as a frame material offers clear advantages over aluminum, especially in tougher terrain.

The geometry plays a key role in the vehicle's dynamic performance: A wheelbase of 1,465 mm, a steering head angle of 28.1 degrees, and a trail of 115 mm ensure precise steering response, high driving stability, and playful handling. At the same time, the compact packaging ensures excellent accessibility to the key components – a plus for both maintenance and tough off-road use.

**The front wheel is guided via KYB upside-down telescopic forks, while the rear wheel is guided via an aluminum hollow cast double-armed swinging arm with a KYB central spring strut featuring progressive damping.**
BMW GS models always present challenging tasks for chassis developers. In addition to operating on asphalt roads and accommodating a sporty riding style, the requirements of off-road use must also be met. The new BMW F 450 GS is equipped with high-quality KYB spring and damper elements that reflect this

diverse range of applications. The result is a responsive chassis that ensures safe contact with the ground in any driving situation.

The front wheel is guided by torsionally rigid KYB upside-down telescopic forks with 43 mm inner tubes. The spring travel is 180 mm. The so-called “sport suspension” is used in the Sport and GS Trophy variants. Here, the forks are adjustable for both rebound and compression. The fixed fork tubes are anodized in gold, as are the butted aluminum handlebars. The fork bridge is forged from aluminum.

The rear wheel is guided by a closed, lightweight, hollow, cast aluminum, double armed swinging arm with a directly linked, central suspension strut and progressive damping, which is unique in this segment. This damping principle originates from off-road sports. BMW Motorrad has patented this technology as the WAD system and has developed it further. A damping system prevents the spring strut from bottoming out by increasing compression damping with increasing compression. The central KYB spring strut of the new F 450 GS has an adjustable spring base ("spring preload") and adjustable rebound damping. The spring travel is 180 mm.

**The wheels and tires are tailored to typical BMW GS applications.**
Sporty, dynamic cornering fun on the road as well as off-road adventures are reflected in the choice of wheels.

Accordingly, the new BMW F 450 GS comes with lightweight yet robust cast aluminum wheels measuring 2.5 x 19 in the front and 3.5 x 17 in the rear. The new F 450 GS is fitted with tubeless tires for road and off-road use, sized 100/90-19 at the front and 130/80-17 at the rear. Additionally, the Original BMW Motorrad Accessories range offers cross-spoke wheels. Type approval for the F 450 GS permits fitting all common tire types, including rough-tread enduro tires.

**High-performance brake system in conjunction with BMW Motorrad ABS Pro for safe braking, even when leaning into corners. Additional safety features include Dynamic Brake Control (DBC) and a dynamic brake light.**
The front wheel of the new BMW F 450 GS features a floating single-disc brake with a Brembo 4-piston fixed caliper and a 310 mm brake disc diameter for efficient, stable deceleration. A

single disc brake with 1-piston floating caliper and 240 mm diameter is used on the rear wheel.

The new BMW F 450 GS is already equipped with BMW Motorrad ABS Pro as standard. ABS Pro also offers more safety when braking in bends by enabling ABS-assisted braking when leaning into corners. ABS Pro prevents the wheels from locking even when the brakes are applied quickly and reduces abrupt changes in steering force and thus the bike from returning to the upright position, even during sudden braking. The benefits are increased braking and riding stability combined with the best possible deceleration even when leaning into corners. Depending on the selected riding mode, ABS Pro and the engine drag torque control (MSR) offer adapted control characteristics for optimum braking maneuvers.

Dynamic Brake Control (DBC) increases safety when braking, even in difficult situations, by preventing the throttle from being activated unintentionally. As soon as the sensor cluster supplies a certain deceleration value during braking, any simultaneous desire to accelerate on the part of the rider is detected as implausible and throttle valve opening is suppressed. This keeps the motorcycle stable and shortens the braking distance. After a certain delay, the hazard warning lights are turned on automatically.

The dynamic brake light effectively signals to road-users behind that the motorcycle is braking. This additional brake light function warns following traffic in two stages when the brakes are applied strongly and in the event of an emergency brake maneuver.

# 5. Electrical system and electronics.

**The new F 450 GS offers high-quality standard equipment features such as LED headlight and turn indicators and perfectly readable 6.5-inch TFT displays with a wealth of connectivity options**.

**Powerful LED light units as standard.**
The new BMW F 450 GS features an LED headlight with an iconic "X" daytime riding light signature as standard. Based closely on its big sister, the R 1300 GS, it clearly shows its family affiliation. The turn indicator and control lamps of the new F 450 GS also use LED technology.

**Connectivity – unrivaled information diversity and functionality in the form of a large, perfectly readable 6.5-inch TFT display. Practical USB-C socket in the cockpit area.**
The new F 450 GS already features a large 6.5-inch TFT display as standard. The information diversity, quality of presentation, and user-friendliness are unrivaled. The display was designed to be large to ensure optimum readability, even under difficult lighting conditions. It is linked to the multi-controller on the left handlebar fitting, allowing for quick, safe, and convenient operation. There is a practical USB-C socket in the handlebar area.

It offers screen displays tailored to the BMW GS world as standard: the Pure Ride Screen and the Sport Screen (from the Exclusive variant upwards), which provides detailed information on DTC, braking power, and lean angle.

It is also possible to make phone calls, listen to music and navigate comfortably while riding. If a smartphone and a helmet with the BMW Motorrad Communication System are connected via Bluetooth to the TFT screen, for example, the rider can conveniently access media playback and telephone functions. These functions can be used without installing an app. If there is an active Bluetooth connection to a standard smartphone, the rider can listen to music while riding. In addition, the free BMW Motorrad Connected app offers practical arrow navigation directly via the

TFT display. Basic navigation is particularly convenient for everyday rides or short trips without additional equipment.

For customers who want more than arrow navigation,
BMW Motorrad offers map navigation with navigation preparation, available as an accessory, either with the BMW Motorrad ConnectedRide Navigator (an Original BMW Motorrad Accessory) or the ConnectedRide Smartphone Cradle (used with the BMW Motorrad Connected App). Both can be controlled via the control wheel on the left (MMC).

# 6. Equipment program.

**Original BMW Motorrad Accessories for the new BMW F 450 GS.**
A comprehensive range of special accessories is available for further customization of the new BMW F 450 GS. Special accessories can be installed by BMW Motorrad dealers or by the customer themselves. These can also be retrofitted to the motorcycle.

**Original BMW Motorrad Accessories.**

**Design.**

• Akrapovič stainless steel rear silencer.

• Tank pad.

• Aluminum cross-spoke wheel, black, 2.50x19" & 3.50x17".

**Ergonomics and comfort.**

• Rider's seat, lack, low (830 mm).

• Rallye seat, high. Black/White/Red (865 mm).

• Handlebar risers, 20 mm, Silver.

• Tour windshield, high (height adjustable with tools).

• Rallye windshield

• Rallye windshield, tinted.

• Enduro rider foot pegs.

• Shift Assistant Pro

• Easy Ride Clutch (ERC).

**Navigation and communication.**

• Navigation preparation.

• ConnectedRide Smartphone Cradle.

• ConnectedRide Navigator.

• ConnectedRide Navigator protective glass.

• Protective glass TFT display 6.5 inch.

**Safety.**

• Aluminum engine guard, Silver

• Engine protection bar, Black.

• Engine protector, left/right.

• Front axle protector, Black.

• Radiator grille guard.

• Hand guards, Black.

**Storage.**

• Luggage rack.

• Luggage rack bag.

• Topcase Light, Black, 29 l.

• Holder side bag, left/right.

• Side bag Soulfuel Collection Green waterproof 10 l + 16 l.

• Side bag Black Collection, Black 10 l + 16 l.

• Side bag Urban Collection, White, waterproof 10 l + 16 l.

• Roll bag, 40 l.

• Roll bag, 60 l.

• Transport net roll bag.

• Rear bag Soulfuel Collection Green, small, waterproof 35 - 42 l.

• Rear bag Black Collection, Black, small, waterproof 35 - 42 l.

• Rear bag Urban Collection, White, small, waterproof 35 - 42 l.

• Rear bag Soulfuel Collection Green, big, waterproof 50 - 60 l.

• Rear bag Black Collection, Black, big, waterproof 50 - 60 l.

• Rear bag Urban Collection, White, big, waterproof 50– 60 l.

• Tank bag Soulfuel Collection 5 l, Green, small.

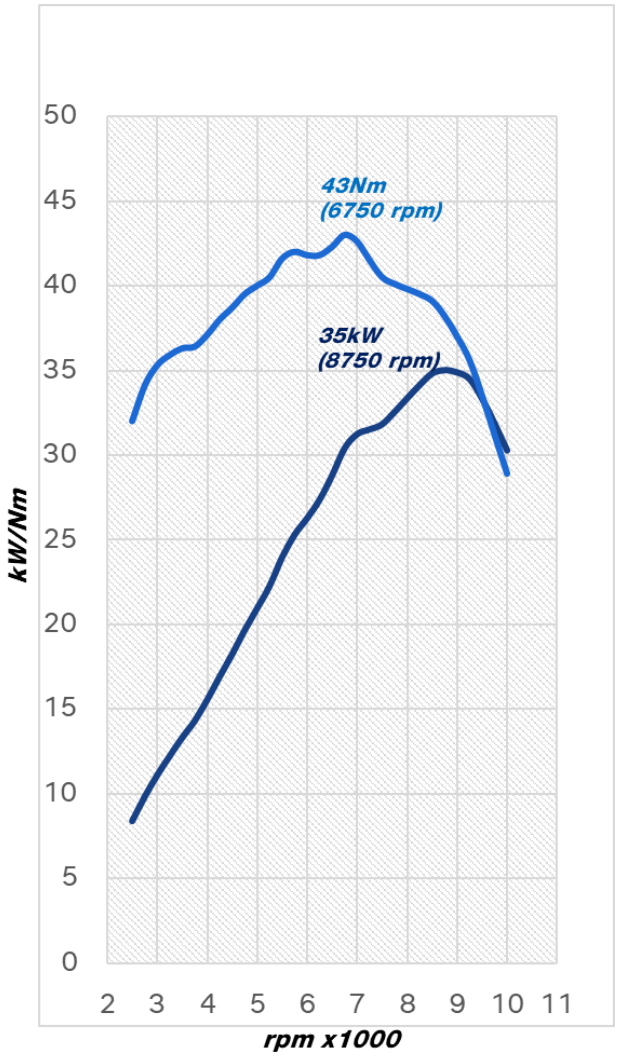
• Tank bag Black Collection 5 l Black, small.

• Tank bag Urban Collection 5 l White, small.

**Maintenance and technology.**

- Retrofit set - Ride Modes Pro.
- Front auxiliary stand.
- Front auxiliary stand adapter.
- Rear auxiliary stand.
- Auxiliary stand mounting.
- Battery Charger Plus.
- Vehicle Outdoor cover

# 7. Power output and torque.



# 8. Technical specifications.

| | | F 450 GS |
|---|---|---|
| **Engine** | | |
| Displacement | cm³ | 420 |
| Bore/stroke | mm | 72 x 51.6 |
| Power output | kW/hp | 35/48 |
| at engine speed | rpm | 8,750 |
| Torque | Nm | 43 |
| at engine speed | rpm | 6,750 |
| Type | | Water-cooled, two-cylinder, four-stroke in-line engine with four valves per cylinder operated by rocker followers and two overhead camshafts per cylinder as well as 135-degree crankshaft journal offset |
| Compression | | 13:1 |
| Fuel | | Premium unleaded 95 RON |
| Valves per cylinder | | 4 |
| Ø intake/outlet | mm | 29/24.3 |
| Ø throttle valve | mm | 38 |
| Engine control | | BMS-Z |
| Emission control | | Closed-loop three-way catalytic converter, exhaust emission standard EU-5+ |
| **Electrical system** | | |
| Generator | W | 334 |
| Battery | V/Ah | 12/8 maintenance-free |
| Headlight | | LED |
| Rear light | | LED |
| Turn indicators | | LED |
| Starter | W | 700 |
| **Power transmission** | | |
| Clutch | | Multi-disc wet clutch, mechanically actuated |
| Transmission | | Claw shift 6-speed transmission |
| Primary ratio | | 2.025 |
| Transmission ratios | I | 2.765 |
| | II | 2.062 |
| | III | 1.588 |
| | IV | 1.286 |
| | V | 1.095 |
| | VI | 0.955 |
| Secondary drive | | Chain |
| Secondary ratio | | 3.43 |

| | | F 450 GS |
|---|---|---|
| **Chassis** | | |
| Frame construction type | | Steel tubular space frame, engine centrally mounted |
| Front wheel suspension | | KYB USD telescopic fork, Ø 43 mm<br>Rebound and compression damping adjustable<br>for "Sport" and "GS Trophy" variants |
| Rear wheel suspension | | Aluminum swinging arm, directly linked KYB WAD spring strut,<br>spring base and rebound damping adjustable |
| Spring travel, front/rear | mm | 180/180 |
| Wheel caster | mm | 115 |
| Wheelbase | mm | 1,465 |
| Steering head angle | ° | 28.1 |
| Brakes | front | Single disc brake,<br>Brembo Ø 310 mm,<br>4-piston monobloc fixed caliper |
| | rear | Single disc brake,<br>ByBre Ø 240 mm, 1-piston floating caliper |
| ABS | | Standard equipment<br>BMW Motorrad ABS Pro (lean angle optimized) |
| Wheels | | Light alloy cast wheels |
| | front | 2.50 x 19" |
| | rear | 3.50 x 17" |
| Tires | front | 100/90-19 |
| | rear | 130/80-17 |
| **Dimensions and weights** | | |
| Total length | mm | 2,161 |
| Overall width via handlebar levers | mm | 869 |
| Seat height | mm | 845 |
| DIN unladen weight, road ready | kg | 178 |
| Permitted total weight | kg | 355 |
| Fuel tank capacity | l | 14 |
| **Performance figures** | | |
| Fuel consumption (WMTC) | l/100 km | 3.8 |
| CO2 | g/km | 88 |
| Acceleration 0-100 km/h | s | 5.9 |
| Top speed | km/h | 165 |