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New from brabus | automotive

INVICTO based on the Mercedes-Benz G-Class

**The new special protection vehicle
in accordance with the VR6 Plus ERV standard
Available in three different versions**

BRABUS Automotive GmbH, a subsidiary of BRABUS GROUP, is one of the leading full-service providers for automakers with a range that spans from development services to small-series production.

A new addition to the product range of the Bottrop-based company are special protection vehicles. The company produces an innovative variant of the current Mercedes G-Class armored in accordance with the VR6 Plus ERV standard, the INVICTO. The all-terrain vehicle comes in three different versions: PURE, LUXURY and MISSION.

In order to give provide the occupants with maximum protection against small arms fire and explosives, the engineers from brabus | automotive developed the “INVICTO Shelter Cell,” a self-contained, self-supporting and bolted-down protective cell. In addition, there are further protective elements that are in part produced using a special 3D printing process and, of course, all-around extremely tough bulletproof glass.

After extensive ballistics and explosives testing, the German National Testing and Certification Office for Weapons and Security Engineering, the Beschussamt Ulm, certified the protective effect of the INVICTO as per the VPAM BRV 2009 and VPAM ERV 2010 standards. The armored off-roader resisted not only 7.62 x 39 caliber rounds, an ammunition used in automatic rifles such as the AK-47, but also hand grenades and 12.5-kilogram PETN explosive charges. brabus | automotive naturally offers a high level of security with the INVICTO, security that remains largely unseen from the outside. What is more: active safety is also a given thanks to agile, safe handling. To this end, the special protection vehicle is equipped with a custom suspension, a high-performance braking system and 20-inch INVICTO wheels with special run-flat tires.

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The INVICTO can be ordered with various gasoline engines of the current Mercedes G-Class models. The manufacturer's suggested retail prices for the INVICTO protection package start at 354,600 euro (price including 19 percent VAT in Germany).

brabus | automotive, a company of BRABUS GROUP, is one of the world's most capable service providers for the automotive industry in the field of development and production of small series. Standing still means falling behind and thus the design and engineering team is always working on new concepts that are developed to production maturity and then produced in state-of-the-art plants at the Bottrop location.

The latest development from the engineering company are special protection vehicles with hi-tech armor. The INVICTO, an armored version of the current Mercedes G 500 and G 63 models, is being built in small-series production in the brabus | automotive plant in Bottrop.

A common feature of all three INVICTO models is the innovative special protection package developed specifically for the body of the Mercedes G-Class. The armor meets the VR6 Plus ERV standard, the same standard that protects many limousines of heads of state. This means that the vehicle resists not only small arms fire with 7.62 x 39 caliber rounds, which corresponds to the bullets of the AK-47, for example, but also protects its occupants against attacks with hand grenades and against blasts from up to 12.5 kilograms of PETN or 15 kilograms of TNT charges.

In order to ensure this level of protection, the doors and the hatch are fitted with newly developed protective elements. Like the windshield, they are fitted with extremely tough bulletproof glass. In order to fit them into the body of the G-Class, the engineers developed an innovative structure for the upper windshield frame, as Christian Draser, CEO of brabus | automotive, explains: "This is the first time anywhere in the world that protective elements are used which are made in a 3D printer using additive manufacturing processes."

Just as important for the effectiveness of this security system is the innovative protective cell for the interior, the "INVICTO Shelter Cell." It was designed for maximum protective effect and has a host of revolutionary features: Unlike vehicles where the armor is retrofitted, the

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individual elements of this protection system here are not welded separately into the body shell structure of the vehicle. The brabus | automotive engineers developed the protective cell as a self-contained, self-supporting and bolted-down unit. This design makes it possible to put it into the body shell of the G-Class part by part and then assemble and fasten it. To this end, the company manufactures precise-fit, hot-rolled steel armor plates and additional protective elements made from materials such as carefully selected fabric and fiber structures as well as from ceramic and metal composite materials.

Among the many special constructive features of the “INVICTO Shelter Cell” is the fact that there is no narrowing of the door openings whatsoever. Getting in and out of the vehicle comfortably is crucial for many owners of a G-Class. In addition, the protective cell has a zero-gap design. This means that the individual components of the armor are installed without any gaps between them, which is of elementary importance for providing maximum security under small arms fire or an explosive attack. This is achieved by means of material overlaps and the so-called labyrinths.

The outstanding protective effect of the INVICTO based on the Mercedes G-Class was proven in extensive series of tests. The Beschussamt Ulm, the German National Testing and Certification Office for Weapons and Security Engineering, conducted expansive ballistics and blast testing with the armored vehicle in accordance with the VPAM BRV 2009 and VPAM ERV 2010 standards. This included subjecting the body and glazing to a total of 437 rounds of caliber 7.62 x 39 as well as to blasts from hand grenades and a 12.5-kilogram PETN explosive charge. All tests were passed successfully and the INVICTO is therefore certified in accordance with the VPAM BRV 2009 standard for bullet resistance and as per the VPAM ERV 2010 standard for blast resistance.

Despite the outstanding protective effect of this concept, the armor adds only about 1,000 kilograms to the weight of the vehicle, which is relatively little in comparison. The BRABUS suspension engineers redesigned the running gear to offer maximum safety, agile driving dynamics and durability. The entire wheel suspension at the front and rear axle was replaced with components tailored to the higher vehicle weight. In addition, the vehicle frame was reinforced in the area of the side members and the strut towers were reinforced as well.

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Complex endurance and driving tests were conducted in order to validate the function and strength of the INVICTO suspension modifications. They verified the safety and fatigue strength of the BRABUS wheel suspensions in accordance with OEM standards. The reinforced shock absorbers, springs and sway bars, all tailored to the higher vehicle weight, are also new designs. The front struts and the rear shocks of the active suspension now have a tube diameter larger by ten millimeters and were recalibrated to match the weight.

A high-performance braking system with vented 402-millimeter discs and six-piston brake calipers at the front as well as 380-millimeter rotors and four-piston brake calipers on the rear axle is another major factor in the outstanding active safety of the INVICTO.

The newly developed INVICTO 9.5Jx20 wheels offer the significantly higher wheel load rating necessitated by the armor. They are fitted with heavy-duty tires of size 275/50 R 20 W 113 with extra load rating, which are likewise tailored to this weight. In order to be able to keep moving or escape after coming under fire, for example, these wheels are equipped with a special run-flat system developed by brabus | automotive. It makes it possible to drive for another 50 kilometers at a speed of 50 km/h even with destroyed tires.

The models of the INVICTO:

BRABUS INVICTO LUXURY

The BRABUS INVICTO LUXURY is the most exclusive model of the new series and offers an outstanding combination of excellent protection and agile performance. Either the Mercedes G 500 or the Mercedes-AMG G 63 with 4.0-liter twin-turbo eight-cylinder engine and 430kW / 585hp provides the basis. Despite the high vehicle weight of around 3.8 metric tons, this engine with its peak torque of 850 Nm offers outstanding active safety thanks to its dynamic acceleration power. Due to the 20-inch special tires with run-flat capability, the top speed is electronically limited to 210 km/h.

The BRABUS INVICTO LUXURY top-of-the-range version also includes the exclusive BRABUS WIDESTAR widebody, which optionally can be upgraded further with naked-carbon components in a markedly sporty design. The passenger compartment is refined with a

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BRABUS fine leather interior crafted from the finest leather and Alcantara to suit the owner's personal color and design preferences.

For an additional charge, the BRABUS INVICTO LUXURY all-terrain special protection vehicle can also be enhanced with various performance upgrades culminating in the BRABUS 800 engine with an output of 588 kW / 800 hp at 6,600 rpm and a peak torque of 1,000 Nm at a low 3,600 rpm.

INVICTO PURE

The PURE is the understatement model of the INVICTO. From the outside, it is indistinguishable from the production car and consequently offers protection in its purest form. The special protection concept as per VR6 Plus ERV standard is identical in all INVICTO variants. Contrary to the LUXURY model, the leather appointments and the bodywork remain visually unchanged.

The only distinctive visual features are the inconspicuous 20-inch INVICTO wheels with run-flat tires. As a result, the INVICTO PURE is "under cover" in more than one way.

INVICTO MISSION

The INVICTO MISSION is tailor-made for the requirements of armed forces, police, emergency services, special forces and security guard companies. This special protection vehicle is based on the Mercedes G 500 or G 63 as well. However, the specification accounts for a myriad of mission-specific requirements.

This includes not only the 20-inch off-road tires with run-flat capability or a winch at the front. The INVICTO MISSION also comes with a particularly powerful LED headlamp assembly at the front of the robust roof rack, beacons behind the windshield, remote-controlled rotating searchlights at the rear, and an armored escape hatch on the roof.

The interior is fitted with four custom bucket seats that allow the emergency teams to wear their protective vests in the vehicle. Even in rough terrain, five-point seatbelts keep the

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occupants firmly in their seats, which are more strongly contoured than the production seats and therefore offer significantly more lateral support.

The special equipment of the INVICTO MISSION also includes a fresh air system with NBC filter for the interior, an infrared package with night-vision device as well as an extensive monitoring and navigation system. The door panels and the backrest shells of the seats are equipped with the MOLLE (Modular Lightweight Load-carrying Equipment) system used by the military for securely fastening equipment of the occupants.

The INVICTO special protection vehicles as per VR6 Plus ERV standard are built in small-series production at the plant of brabus | automotive in Bottrop. Of course, individual customer requests can be fulfilled if they do not compromise the protective effect and driving safety.

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**Information for you and your readers about the INVICTO models
is available on our website at www.brabus-automotive.com/invicto.**