WiSENT 2

THE ULTIMATE ARMOURED SUPPORT PLATFORM




MULTIFUNCTIONAL

One Vehicle – multiple Capabilities

ONE MULTIFUNCTIONAL PLATFORM

Having made its public debut at the Paris 2010 Eurosatory Defence Exposition, the WiSENT 2 was developed by FFG Flensburger Fahrzeugbau Gesellschaft mbH (FFG) to meet the extremely high and rapidly changing demands of modern battlefields. Through its innovative design, it represents the first truly multifunctional vehicle platform in its class. Already selected and fielded by various international customers as their premier heavy armoured support platform, the WiSENT 2 represents the world's latest in armoured support vehicle design. The vehicle platform is based on the highly mature LEOPARD 2 MBT chassis, giving the WiSENT 2 all of the mobility and performance of this world-class tank, including its tried and tested deep fording and submergence capabilities.

Highly protected, a common and undivided crew compartment always ensures uninterrupted crew communication and mutual support in situations of distress, as well as continued vehicle readiness even if a crew member should become incapacitated. The compartmental and modular design of the WiSENT 2, as well as its use of Controller Area Network (CAN) bus technology, offer unparalleled operational flexibility. It also maximises logistics commonality by combining state-of-the-art Armoured Engineer Vehicle (AEV) and as Armoured Recovery Vehicle (ARV) capabilities, as well as those of other roles, through the fitting of mission kits on one single high-performance vehicle platform.

Regardless of its selected mission role configuration, the WiSENT 2 platform always carries a 40 t, single-line, constant-pull internal main winch with 160 m of cable and an internal 2.3 t auxiliary winch with 280 m of cable. Besides an integrated electric generator for cutting and welding as well as for electrical power distribution and a vast array of tools, the common basic platform can also be equipped with either a conventional Auxiliary Power Unit (APU) or a battery-based Auxiliary Power Boost (APB) unit to support extended silent watch operations with the main engine off.

WiSENT 2 – high performance on demand.

FFG Innovation
THE MODULAR CONCEPT

ARMOURED ENGINEER, RECOVERY, BREACHING OR BRIDGING VEHICLE – FLEXIBLE THROUGH CONVERSION

A central hydraulic module, operated through user-friendly touch-screen displays, forms the very core of the WiSENT 2 system architecture. All hydraulic main components are concentrated into a single hydraulic module as a Line Replaceable Unit (LRU) in the hydraulics compartment, allowing for easy access and maintenance.

The extensive use of modern Military-Off-The-Shelf (MOTS) and Commercial-Off-The-Shelf (COTS) components ensures the outstanding performance, sustainability and durability of the hydraulic system and all other vehicle systems and subsystems. When executing vehicle role changes with mission-specific role kits, there is no need to replace or reconfigure the central hydraulic system, as the system automatically detects the selected vehicle configuration and related accessories: "Plug 'n' Play". This enables the WiSENT 2 AEV, featuring a state of- the-art hinged arm excavator and a high-performance dozer blade for up to 400 cubic metres of earth-moving work, to be transformed into a powerful ARV, capable of lifting up to 32 t (metric) with its rotating boom crane, within five hours.

Either vehicle configuration can be equipped with a Mine Breaching System (MBS) for tactical mine clearing operations instead of the dozer blade, as well as with the FFG Combat Recovery System (CRS) at the vehicle rear. The CRS is designed for the combat recovery of distressed vehicles up to Military Load Classification (MLC) 80 with the crew remaining under full protection.

A concept for deploying a tactical short bridge in the AEV role has also been developed by FFG.

Maximum Flexibility

MISSION KITS FOR MULTIPLE ROLES

ARMOURED ENGINEER VEHICLE (AEV)

The WiSENT 2 AEV is a highly specialized vehicle for all conventional military engineer tasks. It can be employed alongside the battle tanks in offensive as well as defensive counter-mobility missions in support of the battle force. It represents a very powerful and versatile tool to the on-scene commander for the creation and reinforcement of main advance and supply routes, their clearance from obstacles, the creation of access points for water crossings or bridge approach routes, as well as to establish obstacles and barricades on the battlefield to restrict the opponent's freedom of movement.

Depending on customer engineering requirements, the WiSENT 2 AEV can be equipped with different types of high-performance dozer blade, featuring various functions like variable tilt, cut and slew angles. An adjustable multi-arm excavator with a reach of more than 9 m is capable of moving more than 260 cubic metres of soil per hour and can dig to a depth of up to 4.4 m with the standard 1.3-cubic-metre bucket. The armoured excavator features a hydraulic quick coupling system allowing the semi-automatic change and attachment of various alternative tools such as compactors, grapplers, crushers etc. or differently shaped/sized buckets, without a crew member needing to leave the vehicle, which augments the safety of operations in hostile urban environment scenarios.

ARMOURED RECOVERY VEHICLE (ARV)

The AEV's multi-arm excavator can be exchanged with a rotating fixed boom crane, putting the WiSENT 2 into the full ARV role with a lifting capacity of up to 32 t. When configured as an ARV, the WiSENT 2's role is to recover distressed equipment of the same weight class from the battlefield and to tow it into a rear echelon field workshop for repair. It is capable of lifting heavy loads such as toppled vehicles, tank engines or even turrets under field conditions.

In addition to a set of tow bars, the WiSENT 2 platform can be equipped with the FFG Combat Recovery System (CRS), allowing the hook-up and recovery of distressed LEOPARD 1 or LEOPARD 2 MBTs or their family vehicles by using day and night sensors with the crew remaining completely under armour. The WiSENT 2 ARV is also able to carry a complete LEOPARD 2 MBT power pack on its rear rack.

MINE BREACHING (MB)

For mine-breaching operations the WiSENT 2 can also be equipped with a Mine Breaching System (MBS) comprising of a Full Width Mine Plough (FWMP), with optional Magnetic Signature Duplicators (MSD), with optional Hard Surface Clearance Device (HSCD), and a Safe Lane Marking System (SLMS) to identify the cleared path for follow-on troops. Explosive mine-breaching devices like the M58 Mine Clearing Line Charge (MICLIC) or Plofadder can also be employed by the WiSENT 2.

BRIDGING (BR)

A concept for carrying and deploying a tactical short bridge in the bridging role further augments the outstanding flexibility of this unique vehicle. The MLC 80 bridge can be independently deployed with the excavator arm in the WiSENT 2 AEV configuration.

RECONFIGURATION IN MINIMUM TIME

The key innovation of the WiSENT 2 is the multifunctional platform with its universal connection points, permitting a conversion between different roles (i.e. from AEV to ARV and vice versa) in less than 5 hours – even under field conditions. The crane boom and the excavator arm can be exchanged just as easily as the front-mounted dozer blade or mine plough, whereas the intelligent hydraulic and electrical system of the vehicle detects the connected equipment automatically.

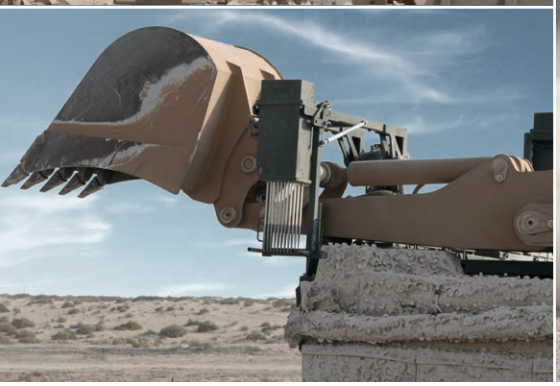
The ARV, AEV and MB mission kits as well as Add-on-Armour (AoA) protection kits can be procured and delivered independently from the WiSENT 2 platforms and are shipped and stored in standard ISO containers. The different containers are designed to accommodate a complete AEV kit (excavator arm, bucket and engineering blade), a complete ARV kit (crane boom, CRS and support blade), MB kit (FWMP, MSD and LMS) or a complete AoA protection kit.

ADAPTABLE PROTECTION

In light of combat experience from recent operational theatres in Iraq and Afghanistan, crew protection against various threats was paramount from the very beginning of the WiSENT 2 design phase. This led to an integrated mine protection solution, while maintaining the same ground clearance as the LEOPARD 2 MBT. The WiSENT 2 offers maximum crew protection against mines and ballistic threats already in its basic configuration. These very high protection can be further augmented through various optional systems for other threats like Rocket-Propelled Grenades (RPG) or Improvised Explosive Devices (IED) through AoA modules, SLAT solutions or alternative lightweight net solutions like the AmSafe TARIAN system.

The comprehensive platform protection concept options for the vehicle crew of three include NBC protection systems (vehicle & individual), air conditioning and/or individual crew cooling systems, automatic fire suppression and fire extinguishing systems as well as 360° day and night sensor suites.

Different calibre Multi Barrel Grenade Dischargers (MBGDs) for defensive IR / smokescreen or HE grenades as well as various available types of Remote Weapon Station (RWS) complement the vehicle's protection concept.



State of the Art Technology

LOGISTIC COMMONALITY AND GROWTH POTENTIAL

LOGISTIC COMMONALITY

Based on the mature and combat-proven world-class LEOPARD 2 MBT, the WiSENT 2 is offering highest mobility performance and reliability while ensuring full MBT support and mission flexibility during operations. All WiSENT 2 configurations share an extraordinarily high level of commonality through the use of the same common vehicle platform, reducing the number of specific spares as well as training requirements for personnel to an absolute minimum. The AEV and ARV configurations are 95 % logistically identical and benefit from easily accessible and common spare parts ensuring lean logistics, while low Life Cycle Costs (LCCs) result from maximised logistical commonality with the supported LEOPARD 2 MBT fleet.

GROWTH POTENTIAL

In order to provide sufficient growth potential for future customer requirements, the WiSENT 2 can be delivered in MLC 80 configuration with reinforced running gear components enabling a technical gross weight of up to 69,500 kg. The MLC 80 kit features the MLC 80 suspension and driveline of the LEOPARD 2 A7+ MBT including reinforced torsion bars and hydraulic bump stops as well as high-torque final drives with a higher gear ratio.

The WiSENT 2 can host multiple attachments for a wide range of military tasks. To enhance the vehicle capabilities, Commercial-Off-The-Shelf (COTS) tools can be easily integrated as required by the user. Devices such as miniature flails, milling heads, concrete cutters, earth augers etc. can be attached to the excavator arm via a quick coupling system even under armoured protection.

The modern CAN bus-based platform can easily be enhanced with various pieces of customer-specific C4ISTAR equipment making the WiSENT 2 ready for any mission in the future combat arena.

The WiSENT 2 can be delivered newly manufactured or can be converted from existing LEOPARD 2 MBT chassis.

TECHNICAL DATA

PLATFORM DATA WiSENT 2

Engine
Type: MTU, MB 873 Ka 501
Displacement: 47600 cm³
Output: 1100 kW

Transmission
Type: RENK, HSWL 354, reinforced
Gear change: Electro-hydraulic
Gears: 4 forwards, 2 backwards

Ballistic protection
Qualified per AEP 55 Vol. 1/
STANAG 4569
Low angle armour design
Spall liner
Add-on Armour

Mine protection
Qualified per AEP 55 Vol. 1/
STANAG 4569
Approved against TMRP-6
Ground clearance remains unchanged

Main winch
Traction power: 0-400 kN (40 t)
Cable length: 160 (170) m
Cable diameter: 33 mm

Auxiliary winch
Traction power: 0-30 kN (3 t)
Cable length: 280 (300) m
Cable diameter: 8 mm

Mine Breaching
Full Width Mine Plough (FWMP)
Lane Marking System (LMS)
Magnetic Signature Duplicator
(MSD; optional)

Attachments (example)
Mine roller
Concrete crusher
Earth augers
Recovery sledge

Mobility
Max. speed forward: 68 km/h
Max. speed reverse: 31 km/h
Max. towing on road: 40 km/h
Recovering Leopard 2: 25 km/h
In terrain: 15 km/h
Creep rate: 3 km/h
Gradient: > 60%
Vertical Step: 1.1 m
Gap Crossing: 3.3 m
Deep Fording: 2.25 m
Submerging: 4 m

WiSENT 2 AEV

Excavator
Digging rate: 260 m³/h
Bucket volume: 1.3 m³
Lifting power: 4000 kg
(at maximum reach)
Digging depth: 4.4 m
Range: > 9 m
Breakout dipper: 100 kN
Breakout bucket: 125 kN

Weight
Weight empty: 60000 kg
Technical gross weight: 69500 kg

Dimensions
Length: 10500 mm
Length as Mine Breacher: 15280 mm
Width: 3540 mm
Height: 3100 mm

WiSENT 2 ARV

Rotating Boom Crane
Crane capacity: 320 kN (32 t)

Dozer/support blade
Height: 1000 mm
Width: 3540 mm
Width with extensions: 4140 mm
Dozerrate: up to 400 m³/h

Weight
Weight empty: 57000 kg
Technical gross weight: 69500 kg

Dimensions
Length: 9260 mm
Width: 3540 mm
Height: 2780 mm

All data are relative to the selected configuration and subject to change.




AFTER-SALES SERVICE

Our mobile service teams are ready to support you world-wide in case of any problems. Spare parts are immediately available for dispatch.

Scan the QR code and get more information on the website of FFG.

www.ffg-flensburg.de

Contact us to discuss how we can help you.

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