Unimog Implement Carrier Technical Manual

February 2019 issue

Mercedes-Benz

Trucks you can trust

Introduction

The present Technical Manual serves Mercedes-Benz Sales as an advisory document. In addition to the standard vehicle version, special equipment is also covered. Regarding the availability of standard and special equipment, please refer to the valid price list. We reserve the right to make technical modifications.

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www.specialtrucks-extranet.com

Daimler AG
Mercedes-Benz Special Trucks
Marketing and Product Management

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Design and features

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Contents, part A (concept and sales reasoning)

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RA LR 5063

Product concept

Unimog model series in comparison

Unimog implement carrier

- Compact all-terrain Unimog implement carrier
- Vehicle type: tractor unit/truck
- Vehicle width: from 2.15 m
- Wheelbases: 2800 mm–3900 mm
- Straight, dimensionally stable, weight-optimised ladder-type frame
- Panoramic cab with large windscreen and low dash support
- 4 attachment and mounting areas
- Comprehensive range of hydraulics packages
- Mechanical engine and transmission PTOs
- Permanent all-wheel drive, differential locks engageable

Unimog extreme off-roader

- Extreme off-road Unimog chassis
- Vehicle type: truck chassis
- Vehicle width: from 2.3 m
- Wheelbase: 3850 mm
- Dropped, flexible and torsionally flexible frame
- Cab-behind-engine truck with raised windscreen
- Long body length for greater load volume
- Integrated hydraulics system available
- Mechanical engine and transmission PTOs
- Rear-axle drive with engageable all-wheel drive and differential lock

Unimog implement carrier

Extreme off-road Unimog BlueTec 6

Overview of models and components, BlueTec 6

Model designation	Vehicle model variant	Wheelbase (mm)	Engine	Output (kW/hp)	No. of cylinders	Permissible gross vehicle weight from to (t)
U 216	405.090	2800	OM934 LA	**115**/156	4	7,49–10,0
U 218	405.090	2800	OM934 LA	**130**/177	4	7,49–10,0
U 318	405.104	3000	OM934 LA	**130**/177	4	7,49–11,0
U 323	405.105	3000	OM934 LA	**170**/231	4	12,1–13,8
U 423	405.105	3000	OM934 LA	**170**/231	4	12,1–13,8
U 427	405.110	3150	OM936 LA	**200**/272	6	12,1–14,0
U 430	405.110	3150	OM936 LA	**220**/299	6	12,1–14,0
U 323	405.125	3.600	OM934 LA	**170**/231	4	12,1–14,0
U 423	405.125	3.600	OM934 LA	**170**/231	4	12,1–14,0
U 427	405.125	3.600	OM936 LA	**200**/272	6	12,1–14,0
U 430	405.125	3.600	OM936 LA	**220**/299	6	12,1–14,0
U 527	405.202	3350	OM936 LA	**200**/272	6	12,1–16,5
U 530	405.202	3350	OM936 LA	**220**/299	6	12,1–16,5
U 527	405.222	3900	OM936 LA	**200**/272	6	12,1–16,5
U 530	405.222	3900	OM936 LA	**220**/299	6	12,1–16,5

Note: U 323 can currently only be ordered for countries D/CH/A.

Overview of models and components, Euromot IV

Model designation	Vehicle model variant	Wheelbase (mm)	Engine	Output (kW/hp)	No. of cylinders	Permissible gross vehicle weight from to (t)
U 423	405.105	3000	OM934 LA	**170**/231	4	12,1–13,8
U 429	405.110	3150	OM936 LA	**210**/286	6	12,1–14,0
U 529	405.202	3350	OM936 LA	**210**/286	6	12,1–16,5

Overview of models and components, Euro V

Model designation	Vehicle model variant	Wheelbase (mm)	Engine	Output (kW/hp)	No. of cylinders	Permissible gross vehicle weight from to (t)
U 423	405.105	3000	OM934 LA	**170**/231	4	12,1–13,8
U 429	405.110	3150	OM936 LA	**210**/286	6	12,1–14,0
U 423	405.125	3.600	OM934 LA	**170**/231	4	12,1–14,0
U 429	405.125	3.600	OM936 LA	**210**/286	6	12,1–14,0
U 529	405.202	3350	OM936 LA	**210**/286	6	12,1–16,5
U 529	405.222	3900	OM936 LA	**210**/286	6	12,1–16,5

The Unimog implement carrier: the advantages at a glance

Ergonomics/operation

+ The modern cab affords safety and offers excellent ride comfort thanks to a fully sprung chassis, a seating position behind the front axle and comfort seats with integrated seatbelts.
+ All the controls for the implement, hydraulic and drive functions are conveniently accessible via a multifunction joystick.

PTOs

+ The front PTO shaft has a max. output of 160 kW.
+ The mechanical rear PTO shaft delivers up to 220 kW.

Engines

Efficient common rail diesel engines:

+ 4-cylinder units delivering 115, 130 and 170 kW and 900 Nm of torque.
+ 6-cylinder units delivering 200, 210 and 220 kW and 1200 Nm of torque.
+ High output, lower fuel consumption and emissions reduced by up to 90% with Euro VI technology.
+ Premium engine brake with high braking power installed on all Unimog variants, including the basic model.

Drive concept

+ Permanent all-wheel drive and 3 differential locks.
+ 8-speed manual transmission with reversing group and integral transfer case.
+ Transmission can be supplemented by a working gear group (16 gears) and a crawler gear group (24 gears).
+ Automated gearbox (EAS) available as an option for gear shifts without declutching.
+ The EasyDrive synergetic drive enables infinitely variable working speeds of up to 50 km/h as well as the ability to switch between hydrostatic and mechanical drive while the vehicle is in motion.
+ Stabiliser link-guided portal axles for high levels of driving safety and high ground clearance.

Radiator

+ Contamination-resistant cooling system comprising 2 independently controlled fans for charge air cooling (front of vehicle) and coolant cooling (left side of vehicle) for high efficiency and low noise emissions.
+ Optional automatic cleaning system (reversing fan) for radiator.

Cab

+ The modern composite-fibre cab affords safety and offers excellent ride comfort.
+ The short front overhang and low panoramic windscreen guarantee optimum visibility of the front-mounted attachments.
+ Visibility can be further enhanced with up to 3 optional camera systems (front, rear and implement cameras).
+ The lighting package with working and LED roof-mounted floodlights combined with a new screenwash design also ensures perfect visibility even under tough conditions.

Attachments and bodies

+ Front mounting plate integrated into vehicle concept. Front and rear power lifts are available.
+ Reduced-weight aluminium tipper platforms and platform subframes increase payload.
+ Standardised interfaces for attaching and controlling attachments and bodies.

Hydraulics

A number of hydraulic systems are available in the vehicle:

+ Tilting hydraulics for vehicle tipper platforms and trailer tippers.
+ Working hydraulics, 2-circuit.
+ Power hydraulics.

e.g.: working hydraulics: The load-sensing hydraulic system with up to 110 l/min hydraulic fluid flow rate and 240 bar pressure is both powerful and fuel-efficient.

Tyre pressure control system ex factory

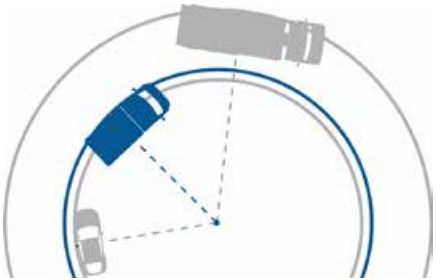
The redesigned tyre pressure control system Tirecontrol Plus is available as an option. It is integrated in the portal axles, works either automatically or manually and is easy to activate from the steering wheel. 4 different modes are available, for fast and flexible adaptation to road and ground conditions.

Tyres

Agricultural or road tyres with steel or aluminium wheels are available, depending on the intended use. High-cleat agricultural tyres are available up to a maximum size of 495/70 R24 for the U 530.

Compact design

▾ Feature	▾ Advantage
▸ Small vehicle width	▸ Can be used in narrow, inner-city areas ▸ Minimal disruption to traffic when working on the edge of the road
▸ Suitable wheelbases for every type of operation	▸ Short wheelbases, high manoeuvrability ▸ Long wheelbases, large amount of implement mounting space
▸ Small turning circle	▸ Possible to manoeuvre in tight spaces with implements attached ▸ Possible to access difficult-to-reach places
▸ Short front end dimensions	▸ Low front-axle loading, optimum load distribution
▸ High front axle load relative to gross weight	▸ Possible to use heavy front-mounted attachments
▸ Gradation of permissible load values (supplementary sheet)	▸ Flexible use thanks to variable payloads for summer and winter service



Turning circle (⌀ from 12.6 m)

Front end dimensions
Front axle/front mounting plate: approx. 1145 mm
Front axle/steering wheel: approx. 218 mm
Front mounting plate/steering wheel: approx. 1363 mm

Load value-related exemptions in Germany
Up to 7.49 t GVW on identification plate: possible to drive vehicle with class C1 licence (previously: class 3). Up to 7.49 t GVW on identification plate: toll-free driving on motorways. Higher load values are possible simultaneously via amending notice (W code).

Off-road capabilities

▾ Feature	▾ Advantage
▸ Professional implement carrier with off-road capability	▸ High traction thanks to permanent all-wheel drive ▸ Extreme climbing ability ▸ High ground clearance ▸ High level of stability, even with implement
▸ Portal axles with hub reduction gear	▸ High ground clearance ▸ Slimline drivetrain ▸ High payload and high tractive force
▸ Single tyres all round	▸ Better snow track overlap ▸ Better traction off-road, on ice and snow ▸ Identical snow chains on both axles
▸ Differential lock with 100% locking action, inter-axle differential lock	▸ Increased traction on and off-road
▸ Progressive coil springs	▸ Long spring travel ▸ All wheels maintain contact with the ground, even on very uneven surfaces ▸ Safe springing, irrespective of load condition

	U 200	U 300	U 400			U 500	
	090	104	105	110	125	202	222
a) Ground clearance (mm)	335	325	383	383	383	379	379
b) Angle of approach (°)	22	22	25	25	25	25	25
c) Ramp breakover angle (°)	27	26	30	30	26	28	24
d) Angle of departure (°)	37	37	42	42	42	41	35
e) Tipping angle (°)	38	38	38	38	38	38	38

Tyres for U 200/U 300: 365/80 R20
Tyres for U 400/U 500: 365/85 R20

Trittmäher
Bohrgerät
Sämaschine
Straßenbetriebsdienst
Bitumen-Thermobehälter
Fire & Rescue
Heckkraftheber
Feldspritze
Leitpfostenwaschgerät
Aufbaukehrmaschine
Anhänger-Zugmaschine
2-Wege-Einsatz
Selbstbergeseilwinde
Schienenführeinrichtung
Frontlader
Airport
Ladekran
Frontkehrbesen
Tanklöschaufbau
Schneeschleuder
Wildkrautbürste
Holzhäcksler
Wurzelfräse
Auslegermähgerät
Bau
Graben-Profiliergerät
Ast- und Wallheckenschere
Randwallfräse
Flächenmulchgerät
Montagekran
Vorbaukompressor

Segments

Public services

Cities and communities, service providers and contractors all have to cope with a great variety of challenges, not least the need to get jobs done more quickly in the face of substantial cost pressure. And then, right on cue, the Mercedes-Benz Unimog implement carrier turns up: the specialist for Local Authority work can be used perfectly to capacity for up to 365 days a year – for jobs such as mowing, mulching, tree and brush control, winter services, sweeping, cleaning – or even for carrying loads and transporting goods. And it more than pays for itself. Through a combination of performance and efficiency, it ensures that life cycle costs are kept extremely low. Its numerous innovative features also make the Unimog safe, ergonomic and productive – and thus one of the most coveted work places in your community, public works or company.









Energy/mining

Supplying power through overhead power lines is a cost-effective alternative to laying underground cables – particularly over long distances and rough terrain. For the power cables to work reliably, they need to be maintained regularly and repaired quickly when need be. A clear case for the Unimog implement carrier.

Rescue/firefighting/recovery

In recent years we have witnessed devastating forest fires like those in Southern Europe, record floods along the Danube and Elbe in Central Europe, violent hurricanes and autumnal storms throughout Europe, and disasters such as hailstorms and earthquakes. Proof, if you needed it, that the number of natural disasters is on the increase all around the world – and with them the major and special operations of fire brigades and disaster control organisations. All of this means that the key tasks of rescue, firefighting, recovery and protection are proving ever more challenging for the emergency teams – and for the emergency vehicles they use. Which is why vehicles which are robust, reliable and above all capable of working off-road, are an absolute necessity in these current times. Emergency teams all over the world choose to put their trust in the Unimog implement carrier.


CE H 3256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Construction

Building roads? Constructing canals and waterways? Drilling? Other special tasks in mind? In the construction sector, the robust Unimog demonstrates its advantages. Specially developed for use with implements, the professional implement carrier is impressively versatile. With 4 attachment areas, powerful implement drives, high payloads and a panoramic cab, it's ready to work wherever power is a must. The combination of off-road workhorse and motorway-capable truck makes the Unimog implement carrier a particularly efficient choice: it doesn't just have the advantages of a work machine, it also has great advantages as a tractor unit. Furthermore, it both economically and rapidly gets to where it needs to be thanks to high traction – even in places where the beaten track ends. It is compact, powerful and efficient: a true builder which grows with its tasks.









Säbernheimer


Agriculture

A versatile player out in the field, fast out on the road, efficient the whole year round: The new Unimog BlueTec 6 is the environmentally friendly transport solution: a fuel-efficient operator and universal genius all in one. The economical all-rounder on and off the road, with higher performance and excellent ride comfort, provides the best working conditions in agricultural applications.







Forestry

Anyone dealing with a great variety of tasks all year round needs a true professional by their side. The Unimog implement carrier is particularly agile off-road and also has excellent handling for on-road driving. It takes on a great variety of jobs from maintenance of forest paths in spring to tree and brush control in summer, or even wood shredding in the autumn. It also carries out winter service work too, all while continuing to operate with full capacity, flexibility and reliability. Road speeds of up to 90 km/h also mean that the Unimog implement carrier provides the perfect transport solution for biomass or wood for energy uses. With 4 attachment and mounting areas, powerful implement drives, high payloads and a panoramic cab, it's ready to work wherever power is a must. The Unimog doesn't just offer its services as a work machine, but equally scores bonus points when used as a tractor unit. Furthermore, it both economically and rapidly gets to where it needs to be thanks to high traction – even in places where the beaten track ends. It is compact, powerful and efficient: a true forestry worker which grows with its tasks.

Airport

To ensure safe flight operations, there are a number of different tasks which need to be carried out in the airport grounds all year round. Here, the Mercedes-Benz Unimog can be used with great versatility as an implement carrier, where it provides diligent service in all areas. From winter service operations with a snowplough or blower-cutter, right up to removing rubber remnants in the touchdown zone of the runway. From mowing grassed areas to fighting ice on the access routes. From sweeping the service areas to use as a tug. Be it on the apron, taxiway or runway, whether faced with packed snow, slush or even metre-high snow drifts: the Unimog makes light work of virtually any situation.







Winterdienst

Road-rail

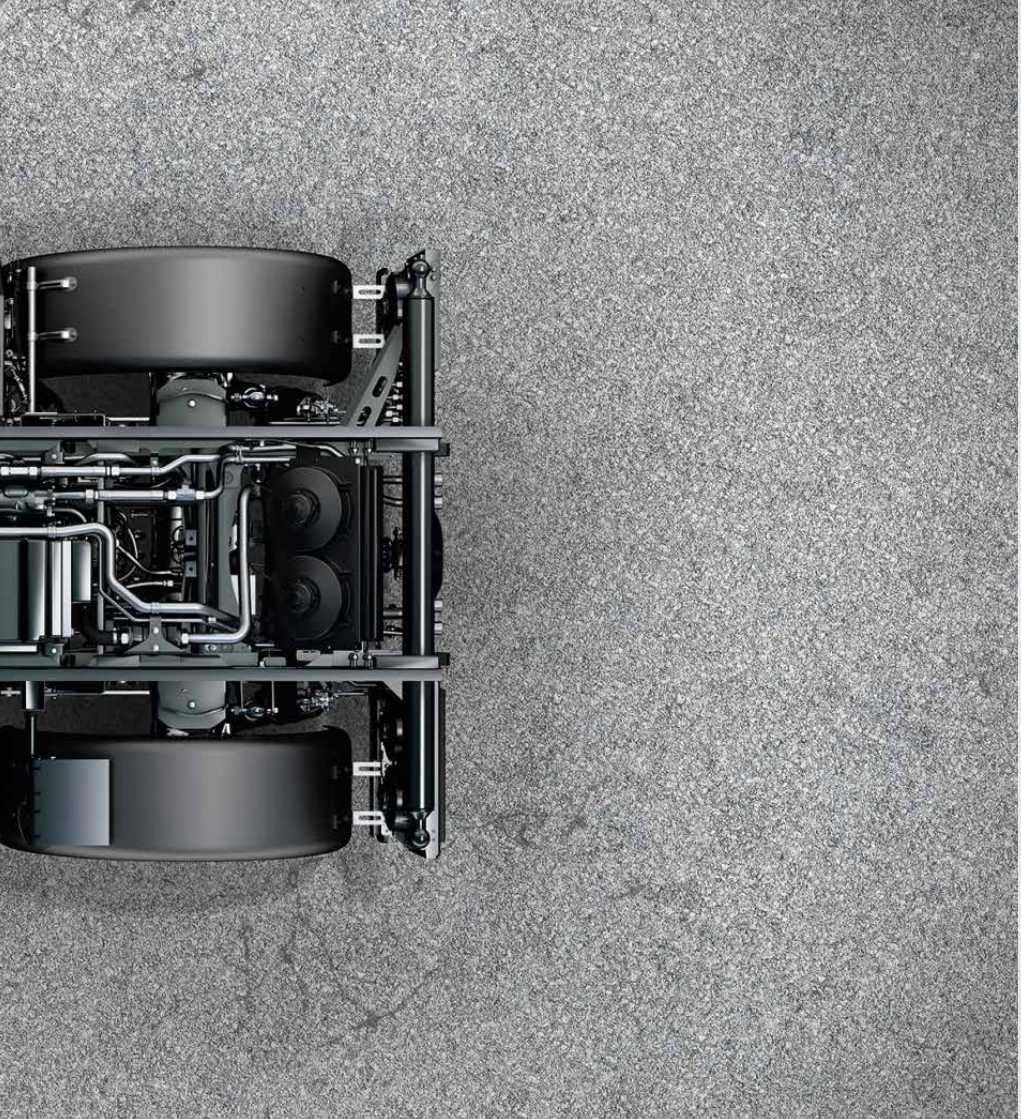
The Unimog concept demonstrates its unique qualities in road-rail operations: start off by shunting heavy loads on rails, then skip off the tracks and drive on the road to where the next rail task awaits you. Only one vehicle can do this – the Unimog implement carrier from Mercedes-Benz. For years, the versatile road-rail Unimog has proven itself on rail and road, convincing customers of its economy and great flexibility.







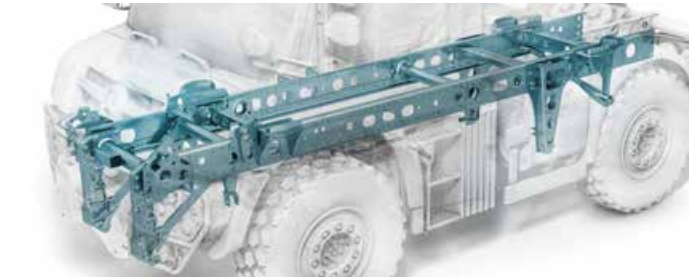

V8 TRACK



Frame

Frame concept

▾ Feature	▾ Advantage
► Straight, continuous ladder-type frame	► Implements can be mounted directly onto the longitudinal frame members
► Bolted crossmembers and bolted-in cross tubes, modular design	► Good supply of replacement parts ► Easy replacement of parts
► Dimensionally stable, high flexural and torsional rigidity	► Low torsion
► Front integral carrier	► Maximum absorption of shearing and tractive forces from vehicle and implement ► Defined transfer of forces ► Prevention of overloading ► Good handling with and without implement
► Specified mounting points	► Simplified mounting (see “Attachment and mounting areas” section)
► Frame with cut-outs	► Weight optimisation
► End crossmember, sturdy design	► Operation of rigid-drawbar trailers or centre-axle trailers up to 13 t

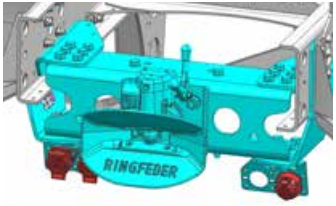


Frame with integral carrier

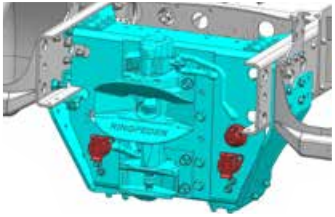
Shearing forces from the front axle are absorbed via the trailing arms, the shearing forces from the front-mounted implements are absorbed via the front mounting plate.

Special equipment: trailer coupling/end crossmember

▾ Feature	▾ Advantage
[QA1] End crossmember for increased towed weight (centre-axle trailer up to 20 t)	
▸ Reinforced end crossmember	▸ Operation of rigid-drawbar trailers or centre-axle trailers up to 20 t
[Q33] End crossmember for lowered trailer coupling	
▸ Reinforced and enlarged end crossmember	▸ Trailer couplings [Q94], [Q95] in 2 positions ▸ 2 trailer couplings simultaneously [Q96] ▸ Allows use of a 265 mm lower trailer coupling for low drawbar heights ▸ For fleets with frequently changing trailer operation ▸ Suitable for Scharmüller height-adjustable trailer coupling
[Q34] End crossmember, reinforced, for lowered trailer coupling	
▸ Reinforced end crossmember	▸ Possible to couple positive-steering drawbar trailers with drawbar load of up to 3 t and gross weight of up to 27 t.

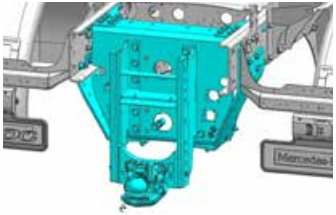


End crossmember [QA1]
with trailer coupling [Q95]



End crossmember [Q33]
with trailer coupling [Q96]

The end crossmember [Q33] is also suitable for the Scharmüller height-adjustable trailer coupling. Rear PTO shaft operation is possible.



[Q34] – *End crossmember, reinforced, for lowered trailer coupling*

Special equipment: trailer coupling/end crossmember

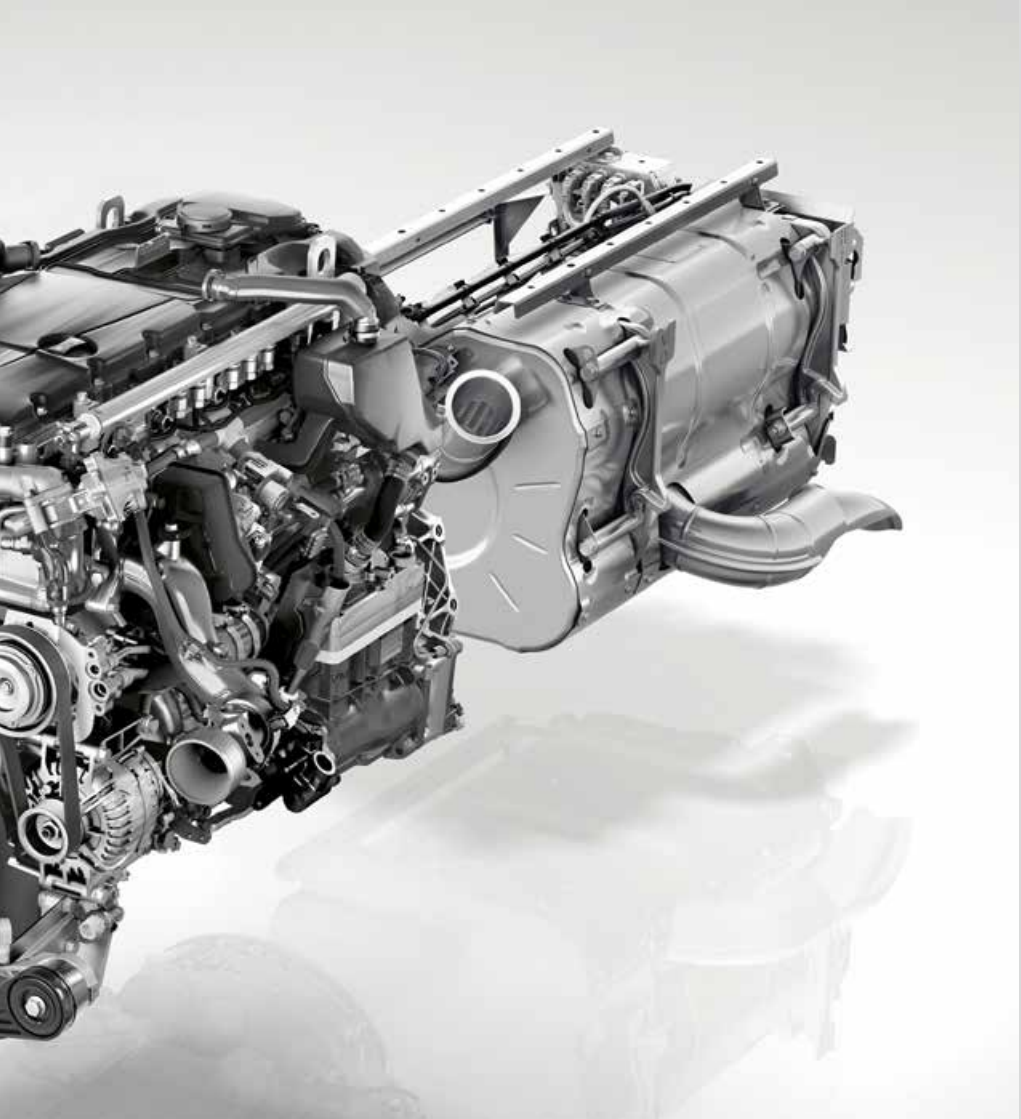
▾ Feature	▾ Advantage
[Q94] Trailer coupling, large jaw, Ringfeder, pin 38.5	
▸ Jaw size: 360 x 215 mm ▸ Flange dimensions (hole pattern): 160 x 100 mm ▸ Tongue weight: 1000 kg ▸ Pin ⌀: 38.5 mm for 40-mm eyelets	▸ Rotatable trailer hitch pins ▸ Allows registration as tractor vehicle
[Q95] Trailer coupling, large jaw, Ringfeder, pin 48.7	
▸ Jaw size: 360 x 208 mm ▸ Flange dimensions (hole pattern): 160 x 100 mm ▸ Tongue weight: 1000 kg ▸ Pin ⌀: 48.7 mm for 50 mm eyelets	▸ Rotatable trailer hitch pins ▸ Allows registration as tractor vehicle
[Q96] Trailer couplings, set of 2, Ringfeder, pins 38.5+48.7	
▸ 2 trailer couplings for attachment on the reinforced end crossmember [Q33] ▸ Jaw size: upper 360 x 200 mm; lower 200 x 100 mm ▸ Flange dimensions (hole pattern): 160 x 100 mm ▸ Tongue weight: 1000 kg (top and bottom) ▸ Pin ⌀: upper 48.7 mm for 50 mm eyelets; lower 38.5 mm for 40 mm eyelets	▸ Flexible use ▸ Low trailer coupling for agricultural trailers ▸ Standard height for truck trailers ▸ Allows registration as tractor vehicle

[Q34] – *End crossmember, reinforced, for lowered trailer coupling*

[Q34] – *End crossmember, reinforced, for lowered trailer coupling*
[Q94] – *Trailer coupling, large jaw, Ringfeder, pin 38.5*

[Q34] – *End crossmember, reinforced, for lowered trailer coupling*
[UQSL] – *Bearing bracket for Scharmüller height-adjustable trailer coupling*
[UQSM] – *Trailer coupling, Scharmüller, pin 38*
[UQSN] – *Trailer ball coupling K80, Scharmüller*

[Q34] – *End crossmember, reinforced, for lowered trailer coupling*
[UQSK] – *Bearing bracket, for height adjustable trailer coupling, incl. K80*
[UQSM] – *Trailer coupling, Scharmüller, pin 38*
[UQSZ] – *Articulated steering K50, left and right, for 3 t drawbar load*

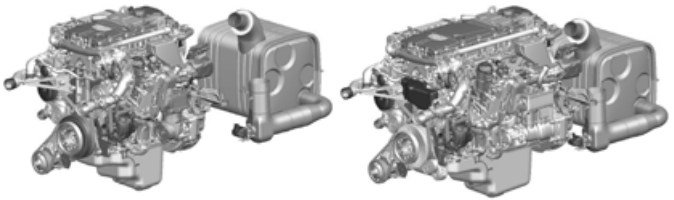


Engine

Engine concept

▾ Feature	▾ Advantage
▸ Mercedes-Benz 4 and 6-cylinder diesel engines, model series 93X	▸ Proven engines from Mercedes-Benz volume production
▸ Newly developed engines with outputs ranging from **115 kW**/156 hp to **220 kW**/299 hp	▸ High power reserves
▸ Common-rail direct injection with high injection pressures (up to 2400 bar)	▸ Efficient and clean combustion ▸ Optimised fuel consumption
▸ Multiple injection	▸ Quiet engine running
▸ Single-stage and two-stage turbocharging	▸ High torque even at low engine speeds
▸ Combined SCR technology and cooled exhaust gas recirculation (EGR)	▸ Reduced NO_x emissions
▸ The sulphur content of the diesel fuel used must not exceed 100 ppm for Euro V/Euromot IV and 10 ppm for Euro VI.	
▸ As standard, the OM934/936 engines are configured for the new HVO (Hydrotreated Vegetable Oil) fuel to standard prEN 15940. ▸ Approval does not apply to classic biodiesel RME and FAME. ▸ HVO must not be used with Code [D6N] – *Auxiliary heating with engine pre-heating*	▸ Either pure HVO or an HVO mixture can be used.

Mercedes-Benz engines: 4-cylinder OM934 (left) and 6-cylinder OM936 (right), with Euro VI exhaust system



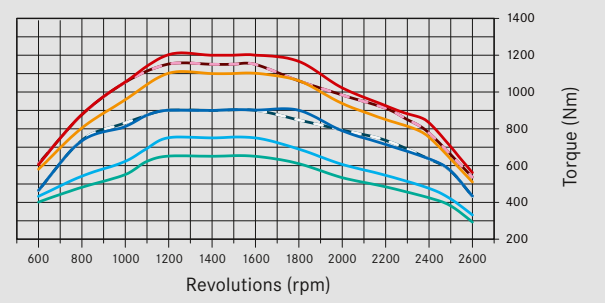
Mercedes-Benz engines: 4-cylinder OM934 (left) and OM936 (right), with Euro VI/Euromot IV exhaust system

▾ Feature	▾ Advantage
▸ Optimised choice of materials and manufacturing process	▸ Extended service life
▸ Extended maintenance intervals – 1400 operating hours	▸ Extended service life, less maintenance expenditure, reduction of operating costs
▸ High-torque	▸ High torque ensures good pulling and holding power
▸ Optimised in-engine combustion	▸ Substantially reduced AdBlue® consumption
▸ Cold start capability down to –15 °C, optionally down to –26 °C [Z0A]	▸ Problem-free engine starting at low temperatures
▸ BlueTec 6 technology compliant with Euro VI, plus: ▸ Diesel particulate filter ▸ Camshaft adjustment	▸ Additional advantages of engines compliant with the Euro VI standard: ▸ Future-proof through compliance with Euro VI standard ▸ Reduction of particulate emission
▸ The engine air filter is flame-retardant as standard.	▸ Should the filter medium ignite due to embers (e.g. from a forest fire) getting into the air filter via the intake port, the flames will be extinguished automatically within a few seconds thanks to the impregnated fire retardant. ▸ Fire service ▸ Operations involving grinding and welding work

Engine air filter

Engine air filter can be accessed without tools for easy servicing.

The engine air filter is flame-retardant as standard.



- OM936, 220 kW, Euro VI
- OM936, 210 kW, Euro V
- OM936, 210 kW, Euromot IV
- OM936, 200 kW, Euro VI
- OM934, 170 kW, Euro VI
- OM934, 170 kW, Euro V
- OM934, 170 kW, Euromot IV
- OM934, 130 kW, Euro VI
- OM934, 115 kW, Euro VI

Drive clutch

▾ Feature	▾ Advantage
► Single-plate dry clutch	► Easy to regulate
► Organic, asbestos-free clutch linings	► Environmentally compatible
► Clutch diameter 395 mm on all engines	► Long service life
► Hydraulic central clutch release bearing	► No lubrication of moving parts necessary
► Pneumatic clutch pressure booster	► Low pedal force (approx. 150 N)
► Position sensor	► Wear detectable without disassembly
► Wear compensation	► Secure frictional connection
► Aluminium clutch housing	► Weight optimisation

Clutch plate

Clutch pressure plate

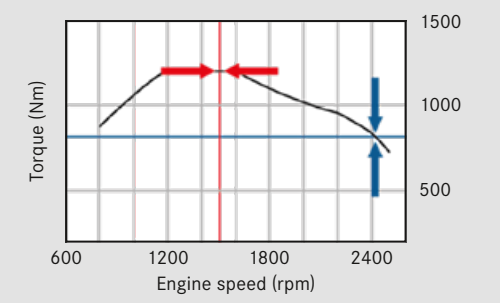
Clutch housing

High-performance engine brake

▾ Feature	▾ Advantage
▸ 2-stage decompression brake	▸ Wear-free auxiliary brake
▸ Output up to 300 kW for 6-cylinder engine (up to 178 kW for 4-cylinder engine)	▸ High brake power, very good deceleration ▸ Reduces heating and wear of the service brake ▸ In these engine power classes, the braking performance of the high-performance engine brake is unrivalled.

Engine control

▾ Feature	▾ Advantage
▸ 2 selectable engine control characteristics	▸ rpm characteristics optimally tailored to the operating mode
▸ Torque control (elastic rpm characteristics)	▸ Operation under normal conditions, road travel, transport
▸ Work speed control (rigid rpm characteristics)	▸ Implement use at constant engine speed ▸ Operation on difficult terrain with speed setpoint, only minimum engine speed deviation



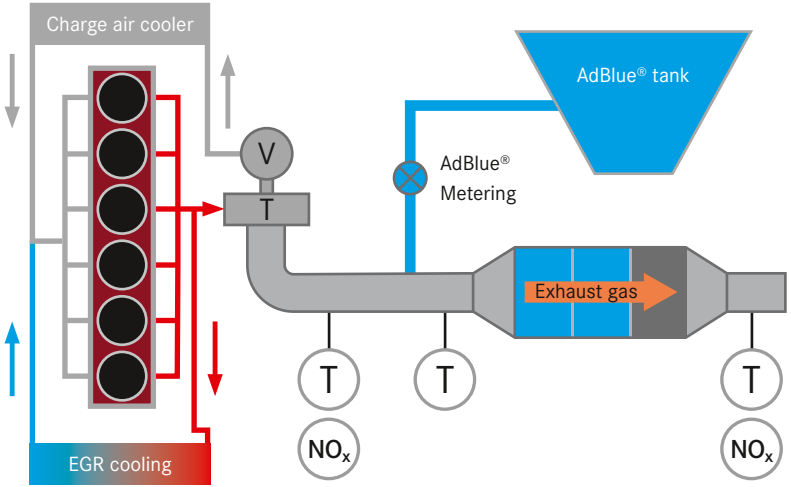
Torque and working rpm control:

Engine speed control for implement operation

Torque control for driving mode

Engine speed/torque control

Exhaust gas aftertreatment – Euro V/Euromot IV



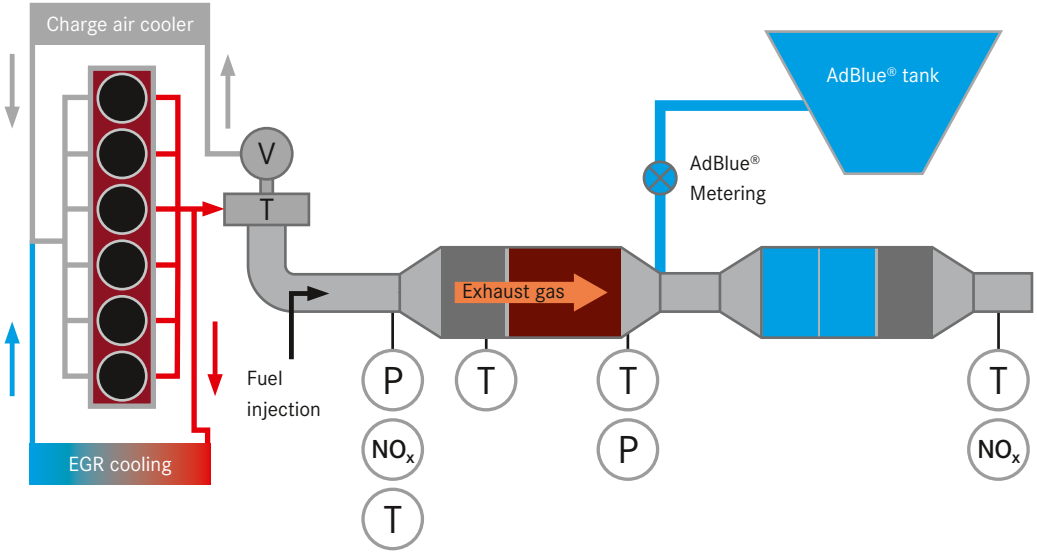
Exhaust gas recirculation (EGR) + Selective Catalytic Reduction (SCR)

T Temperature sensor

NOx NOx sensor

Regeneration only required for Euro VI, not required for Euromot IV and Euro V as these systems do not have a diesel particulate filter.

Exhaust gas aftertreatment – BlueTec 6/Stage V



Exhaust gas recirculation (EGR) + Diesel particulate filter (DPF) + Selective Catalytic Reduction (SCR)

P Pressure sensor

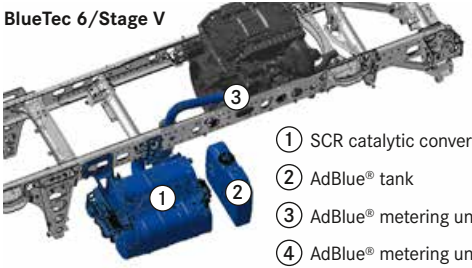
NO_x NO_x sensor

T Temperature sensor

Euro V/Euromot IV/Euro VI/Stage V

▾ Feature	▾ Advantage
▸ Newly developed Mercedes-Benz engines and exhaust box with BlueTec® diesel technology	▸ Compliance with Euro VI standard ▸ Proven technology of the Mercedes-Benz large-scale series production, optimised space-saving design for implement carriers
▸ Exhaust gas recirculation	▸ Low NO_x emission
▸ Diesel particulate filter	▸ Reduces particulates in the exhaust gas flow by 90%
▸ SCR catalytic converter	▸ Converts NO_x into harmless nitrogen and water vapour with the addition of AdBlue®
▸ Optimised AdBlue® injection	▸ Less AdBlue® consumption
▸ Passive regeneration of the particulate filter during the journey	▸ Longer filter exchange intervals and long filter service life
▸ Active regeneration of the particulate filter through diesel injection with Inhibit switch to suppress the process	▸ Regeneration of the particulate filter possible when exhaust gas temperatures are too low
▸ Upward tailpipe	▸ No exhaust gases in the operating area ▸ Exhaust gases do not swirl up any dust ▸ No hot exhaust gases in the floor area

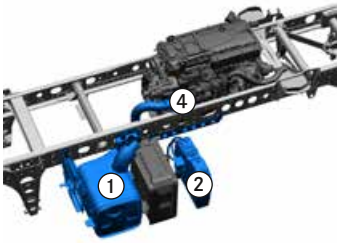
BlueTec 6/Stage V



① SCR catalytic converter
② AdBlue® tank
③ AdBlue® metering unit
④ AdBlue® metering unit (concealed)

AdBlue® components

Euromot IV/Tier 4f



AdBlue® components

Euromot IV/Tier 4f

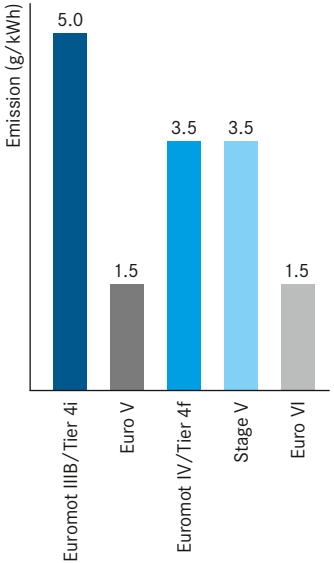
For agricultural use in Germany, the Unimog implement carrier model variant 405.105/110/202 is available in the following versions:

- Agricultural or forestry. Tractor unit/agricultural tractor [VH3]
- Agricultural or forestry. Tractor unit/implement carrier [VH4]
- Agricultural or forestry. Tractor unit/implement carrier or ex-factory platform [VH7]
- Self-propelled work machine

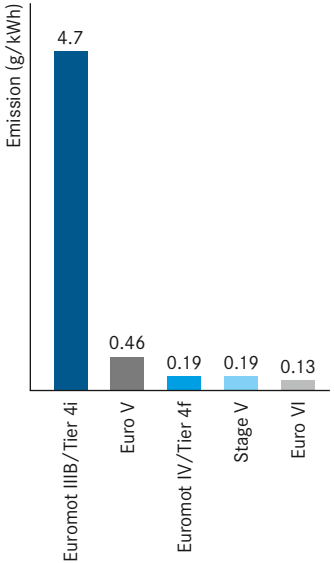
The relevant equipment variants must be taken into account for registration. For model designations 405.125/222, long wheelbases and tractor unit configurations, the platform must be provided via the body manufacturer. Stage V is met with BlueTec 6.

Exhaust gas emission – limit values

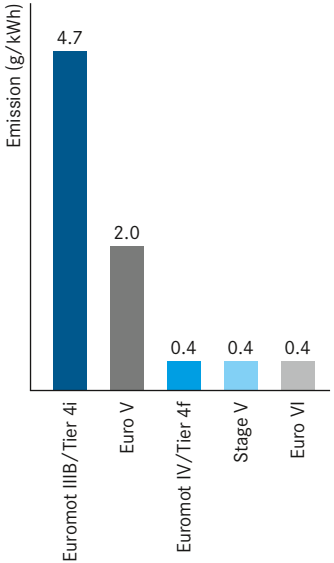
CO



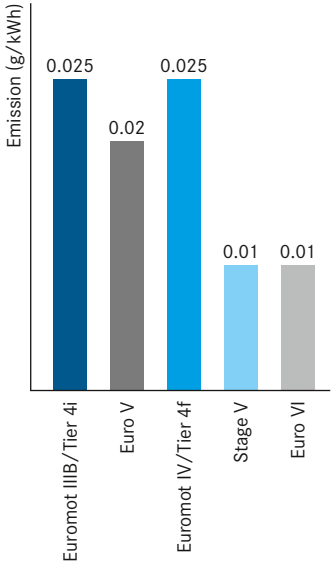
HC



NO_x



PM



Regeneration with BlueTec 6

Soot from diesel combustion continuously accumulates in the closed diesel particulate filter. To guarantee longer filter change intervals and a long filter service life, regular regeneration of the diesel particulate filter is necessary.

Soot is removed in a targeted manner through high exhaust gas temperatures. As the exhaust gas temperatures are not always sufficient to produce continual soot reduction (passive regeneration), there is an automatic triggering of active regeneration, which is dependent on the operational profile of the vehicle. If necessary the driver is asked to initiate a manual regeneration at a standstill. Here the idle speed is raised to approx. 1400 rpm in order to reach optimum exhaust gas temperatures.

The percentage of passive or active regeneration is dependent on the engine load and the vehicle's usage profile.

Passive regeneration

- Continuously, at exhaust gas temperatures > 250 °C
- Without additional diesel injection into the exhaust gas flow
- Occurs unnoticed by the driver during the journey

Active regeneration

- Occurs depending on the given operating conditions
- Automatic initiation with information in the instrument cluster, no driver action required
- Additional diesel injection into the exhaust gas flow to increase the exhaust gas temperature
- Can be disabled in hazardous situations or in special applications via Inhibit function
- A manual regeneration at a standstill can be initiated when there is an appropriate message in the instrument cluster

DPF regeneration switch

① Inhibit function (block/enable regeneration)

② Initiation of regeneration at standstill

Special application/emergency
The Inhibit function serves exclusively to suppress the regeneration in the short term in exceptional situations and must then be manually enabled again. Permanent use of the Inhibit function will lead to premature filter loading which cannot be reduced. The consequence is unscheduled exchange of the filter.

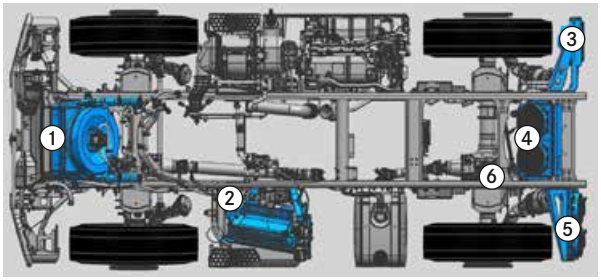
Notes field "blocked regeneration"

Notes field "overdue regeneration"

Notes fields in the display show the active Inhibit function and where applicable indicate that regeneration is overdue.

Radiator system

▾ Feature	▾ Advantage
► Charge air cooler in vehicle front, mounted at an angle (approx. 45°)	► High cooling output, dirt falls down
► Radiator on left-hand side under the cab	► Space for a windscreen that extends far down to provide optimum view of the work area ► Low noise levels in the cab
► Large radiator, designed for high outside temperatures and low vehicle speeds	► High operational safety
► Demand-based radiator control	► Fuel savings
► All radiators designed for dirt-intensive applications	► Long cleaning intervals
► Mounted at an angle, radiator grille can be folded up without tools	► Excellent accessibility for cleaning
► Radiator grille for trapping coarse dirt particles	► Increased radiator efficiency, fuel savings
► Located on left, in direction of travel	► Low-dirt area
► Hydrostatic fan drive	► High cooling output across entire rpm range
► Variable displacement pump for fan drive	► Optimum cooling output in any driving situation, minimum energy requirement, low noise emissions



Locations of radiator components (figure shows BlueTec 6)

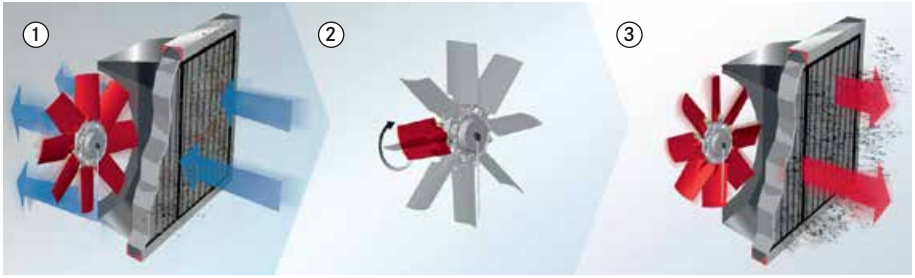
1. Charge air and fan hydraulics
2. Coolant and air conditioning system
3. Additional radiator
4. Power hydraulics
5. Hydromat or torque converter clutch
6. Hydromat oil filter (concealed)

Radiator and A/C condenser

Special equipment – engine

▾ Feature	▾ Advantage
[M54] Engine preheating via power grid	
▸ Power supply with connecting cable from the local power grid ▸ Heating element electric output 1000 W ▸ Temperature control: shut-off/switch-on 85 °C/69 °C ▸ The connecting cable is available through Parts and must be installed at the workshop in accordance with VDE guidelines.	▸ Reliable engine starting at extremely low outside temperatures ▸ Reduction of wear related to cold starts through faster attainment of operating temperature ▸ Faster cab heating immediately after departure ▸ Reduced environmental impact
[M55] Fuel preheating with water separator	
▸ System comprises a prefilter with heated water separator and water storage tank (0.5 l)	▸ Particle and water-free fuel, even with poor quality fuels ▸ Prevention of damage to injection pumps ▸ Fuel flow properties are maintained even at extremely low temperatures
[Z0A] Cold climate package	
▸ Enhanced cold-start capability down to an ambient temperature of –30 °C ▸ Use of cold-resistant service products ▸ Includes [E33], [E44], [D6N], [M54], [M55], [F6B], [EL4]	▸ Enhanced reliability and availability of the vehicles ▸ Increased economy when operating under extreme conditions.

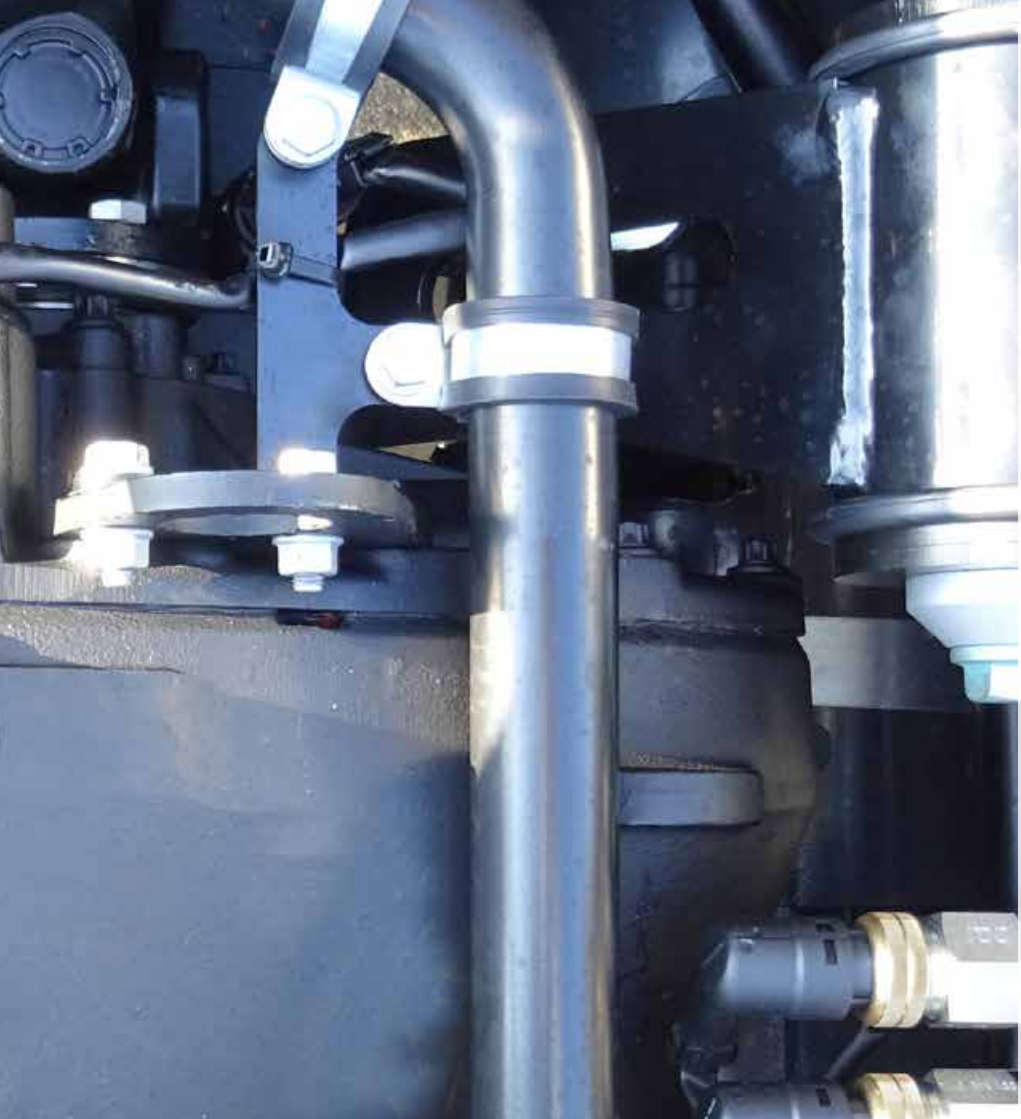
▾ Feature	▾ Advantage
[M74] Clean-Fix fast radiator cleaning system	
▸ Effective cleaning of the dirty radiator by rotating the fan blades about their own axis and increasing the rotational speed	▸ Full cooling output is available in any situation
▸ The process is activated while driving or working via a push-button on the centre console	▸ Possible to select operation at intervals with automatic start-up (every 10 minutes) ▸ No work interruption due to manual radiator cleaning
[L60] Entrance lights in step area, incl. compressed-air connection	
▸ Steps illuminated when the door is opened ▸ Code includes compressed-air connection with hose extension (5.5 m long) and compressed-air gun	▸ More safety when getting in and out in the dark ▸ Efficient cleaning of the radiators at the work site



1 Cooling
2 Switching
3 Cleaning

[M74] – *Clean-Fix fast radiator cleaning system*

[L60] – *Entrance lights in step area, incl. compressed-air connection*

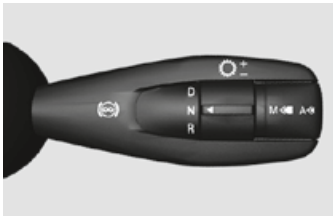


Transmission

Engine management

▾ Feature	▾ Advantage
► Operation via multifunction lever	► Convenient arrangement of shift elements and controls
► Automatic determination of the correct subsequent gear, indication on display	► Optimal gear pre-selection
► Depress clutch for gear change, changeover occurs automatically	► Protection of engine, clutch and transmission ► Leaves one hand free (e.g. for operating implements)
► No mechanical/hydraulic connection between selector lever and gearbox	► No transmission of vibrations to cab
► Minimal physical effort required of driver, fast shifting work performed by pneumatic cylinder	► Only brief interruption to tractive force ► Allows drivers to relax and concentrate on driving
► Neutral switch with detent position in multifunction lever	► Direct shifting to neutral from any gear

Gear selection indicator in instrument cluster

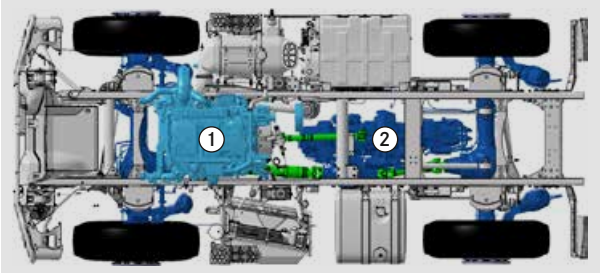


Multifunction lever

The multifunction lever is used for selecting the direction of travel and the gears, for switching between automatic and manual driving mode and for operating the engine brake.

Main transmission

▾ Feature	▾ Advantage
▸ Fully synchronised manual transmission with 8 forward and 6 reverse gears, optionally with 8 reverse gears	▸ Optimum speeds for work applications and transport
▸ Small gear-ratio steps in the lower gears	▸ Speed can be adapted to individual work applications
▸ Synchronised reversing group (EQR) for direct changeover between forward and reverse gears	▸ Fast turning, rocking free
▸ Discrete design	▸ Minimal transmission of engine vibrations
▸ Low mounting	▸ Vehicle's low centre of gravity
▸ Can be optionally extended by 6 or 16 gears	▸ Ideal gear-step ratio for any application profile ▸ Long service life
▸ Double-cone synchronisation	▸ Short shift times



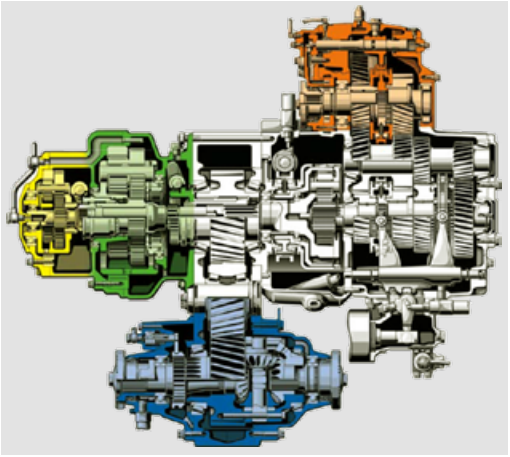
Modular design of engine and gearbox

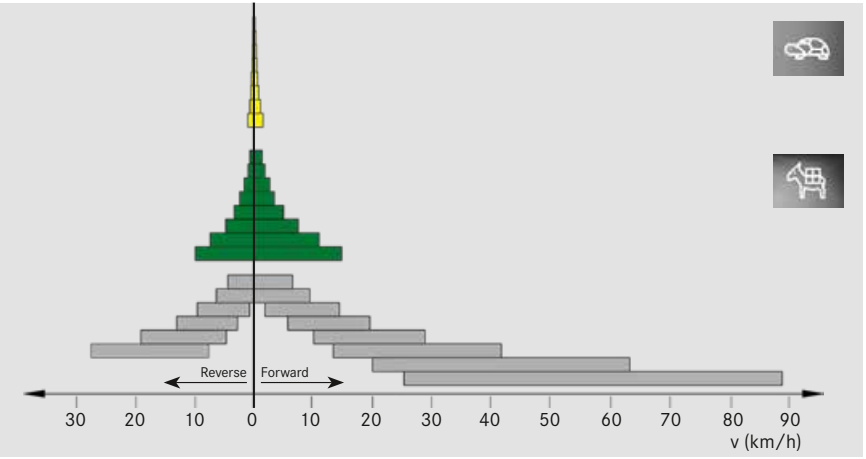
① Engine

② Transmission

Overview

Fully synchronised 8-speed manual transmission with synchronised reversing group (EQR)



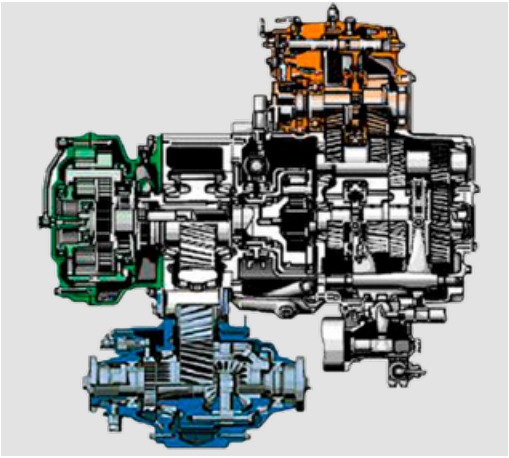


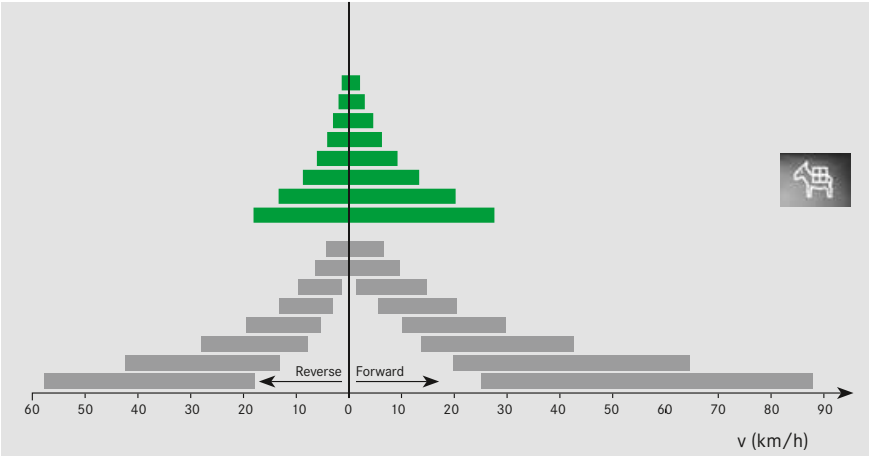
- Crawler gear group [G21] i = 55.87
- Range-change gearbox with working gear group [G20] i = 5.76
- Main transmission (road range)
- Synchronised Electronic Quick Reverse gearshift (EQR gearshift)
- Transfer case with permanent all-wheel drive and inter-axle differential lock

Crawler range:	0.13 km/h–1.69* km/h
Work range:	1.26 km/h–16.38* km/h
Road range:	7.2 km/h–94.3*,** km/h

* The speeds depend on the selected tyres and the engine speed. The values given above refer to the U 400 with standard tyres 315/80 R22.5 at engine speed 2200 rpm.
** Governed at 90 km/h.

Fully synchronised Daimler 8-speed EPS manual transmission



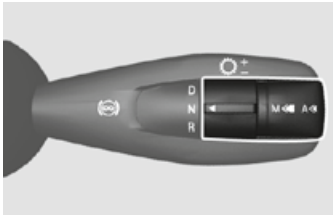


- Range-change gearbox with off-road range [G22] i = 3.19
- Main gearbox
- Synchronised Electronic Quick Reverse gearshift (EQR gearshift)
- Transfer case

Off-road range:	approx. 2.1 km/h – 27.1 km/h
Basic gears:	approx. 6.6 km/h – 90 km/h

Electronic Quick Reverse (EQR)

▾ Feature	▾ Advantage
▸ Direct changeover between the forward and reverse gears in all working gears and up to 3rd gear of the road range	▸ Reliable and fast changeover, high adaptability through rapid changes between gears
▸ Preselection of forward/reverse gear via multifunction lever, additional steering-column switch [DG1] or via arrow button on hydraulics joystick	▸ Highly reliable shifting ▸ Reduced driver workload, better handling, better response during turning (e.g. clearing junctions) ▸ Increased snow clearing performance on car parks/junctions



EQR gearshift on multifunction lever

Unimog snow clearing with EQR gearshift

The EQR gearshift improves snow clearing performance on junctions and car parks.

Useful supplement to the EQR gearshift offers:

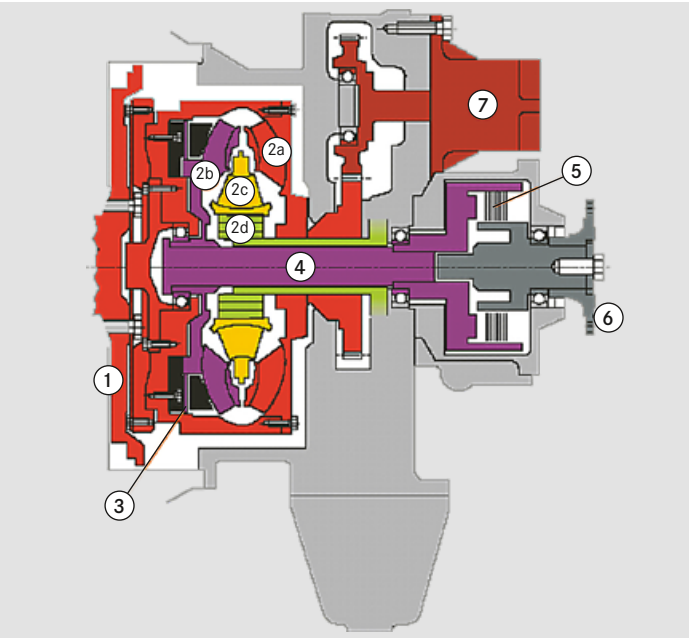
[DG1] – *Additional steering column switch, left* (see special equipment – cab, interior)

[DG1] – *Additional steering column switch, left*

Special equipment – transmission

[G31] Torque converter clutch

The torque converter clutch is a combination of a hydrodynamic torque converter with lock-up clutch and an oil-hydraulic multi-disc clutch.



1. Engine flywheel
2. Torque converter
   - 2a Impeller
   - 2b Turbine wheel
   - 2c Stator
   - 2d Stator freewheel
3. Torque converter lock-up clutch
4. Turbine shaft
5. Shift clutch, automatic clutch operation
6. Output flange to the manual transmission
7. Oil pump

▾ Feature	▾ Advantage
[G31] Torque converter clutch	
▸ Shift clutch with hydrodynamic torque converter	▸ Starting off with heavy loads without clutch wear ▸ Smooth start-off ▸ Protection of the drivetrain
▸ Boosting of starting torque up to twice the engine torque	▸ Fewer gearshifts, starting off possible in 1 to 2 gears higher
▸ From a certain rpm ratio, the lock-up clutch creates a direct connection between engine and manual transmission (lock-up)	▸ No hydraulic losses in the converter ▸ Fuel savings compared with permanent converter operation ▸ Engine brake fully effective ▸ Crane operation possible with [N16]
▸ Kick-down switch for opening the lock-up clutch	▸ Defined, direct activation of converter for fast torque increase
▸ Automatic clutch actuation with engine rpm adaptation	▸ Reliable shifting at the right moment, no operating errors

Road/rail use with torque converter clutch

Use of torque converter clutch possible with:
front PTO shaft, power take-offs, engine power take-off

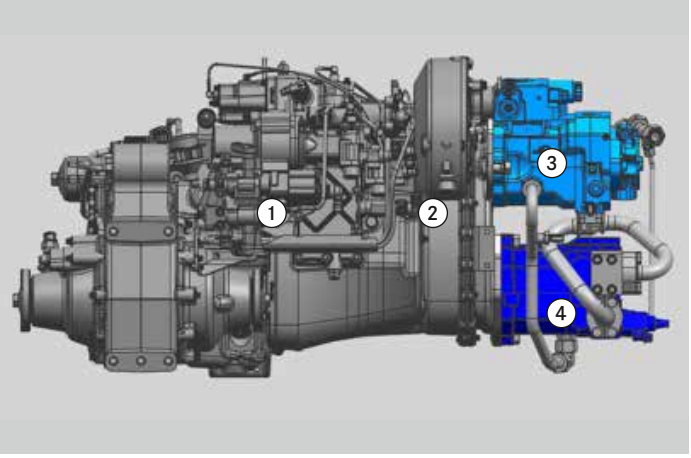
The torque converter clutch is designed for an engine power output of up to 170 kW and for a torque of 900 Nm.
The converter provides the high start-off torque and the multi-disc clutch performs the shift function. The operation of the lock-up clutch and shift clutch is automatically controlled by the engine management system. For this reason, there is no clutch pedal if the torque converter clutch is installed.

Special equipment – transmission

[G34] EasyDrive (hydrostatic traction drive)

Overview

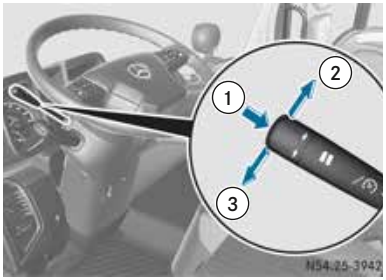
The new higher output hydrostatic traction drive consists of an intermediate transmission flanged onto the main transmission, a hydrostatic variable displacement pump and a hydrostatic variable motor. The system allows fully hydrostatic driving up to 50 km/h. Switchover to manual drive is possible at any time. The increase in output is achieved by increasing the system pressure to 500 bar. For this purpose, special maintenance-free high-pressure pipes were developed.



1. Manual transmission
2. Intermediate transmission
3. Variable displacement pump
4. Variable motor

▾ Feature	▾ Advantage
[G34] EasyDrive (hydrostatic traction drive)	
▸ Speed range: 0–50 km/h ▸ 1st to 6th gear available	▸ Continuously variable adaptation of working speed at constant engine and power take-off shaft speeds
▸ Braking effect tailored to application ▸ Full brake application with ABS is possible	▸ Increased driving safety
▸ 2 drive modes (“Work” and “Drive”) available	▸ Easing of strain on driver/operator, enabling better concentration on the work in hand
▸ Low speeds possible	▸ Can replace the driving speeds of the working gear group [G20]
▸ Shifting possible while driving	▸ Individualised adaptation to the particular type of application ▸ In hydrostatic operation the target speeds can be changed while on the move.
▸ Hydrostatic variable displacement pump and variable motor	▸ Starting off and turning without clutch wear ▸ Increased tractive force in low gears

Multifunction lever

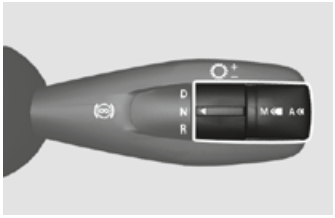


[DG1] – *Additional steering column switch, left*

[DG1] – *Additional steering column switch, left* is standard equipment with [G34] – *EasyDrive (hydrostatic traction drive)*. The hydrostatic traction drive enables uphill and downhill gradients of up to 25% to be tackled.

Special equipment – transmission

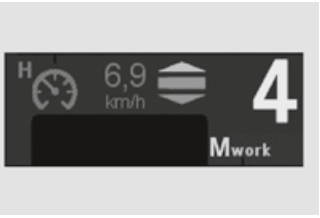
▾ “Work” driving mode	▾ “Drive” driving mode
[G34] EasyDrive (hydrostatic traction drive)	
“Work” driving mode ▸ Working with attached implement ▸ Constant engine rpm, irrespective of the vehicle speed ▸ Driving in hydrostatic mode, 1st to 6th gear, up to 50 km/h ▸ Working speed limiter from 0.1 km/h to 25 km/h ▸ Manual shifting (M Work)	**“Drive” driving mode** ▸ Automotive driving ▸ Variable engine speed, dependent on the vehicle speed and accelerator pedal position ▸ Driving in hydrostatic mode, 1st to 6th gear, up to 50 km/h ▸ Automatic shifting (A Drive) ▸ Manual shifting (M Drive)



Multifunction lever

Drive mode change
The drive mode is changed via the A/M mode button on the multifunction lever:
- A Drive
- M Drive
- M Work

The set values of the modes are saved before the change.



Working speed limiter

Working speed limiter
The working speed limiter is available in “Work” mode and is operated via the [DG1] – *Additional steering column switch, left*. The engine rpm remains constant, vehicle speed can be adjusted slightly with the accelerator and brake, the set speed is maintained. The maximum speed is 25 km/h.

▾ Feature	▾ Advantage
[G48] Automatic Shift (EAS*)	
▸ 2 drive programs, “A” and “M”, selectable on the multifunction lever	▸ Relieves driver workload especially in all shift-intensive applications
▸ Automated clutch operation and gearshifting	▸ Driver’s full concentration remains on traffic and work operations or terrain
▸ Automatic torque control during clutch operation ▸ Manual gear changes are also possible in automatic mode “A”, operation is via the multifunction lever	▸ Reduced clutch wear
▸ 2-pedal system, fold-out 3rd pedal	▸ Fold-out clutch pedal for manual clutch operation (in “M” mode only) ▸ Driver has full clutch control when clutch pedal is folded out

* EAS: Electronic Automated Gearshift.

A Automatic gear change
Automatic shifting according to load condition, accelerator pedal position, engine mode, uphill/downhill gradient and engine brake.

M Manual gear change
Manual gear selection on the multifunction lever. The driver determines the gear, clutch operation occurs automatically. Selected gear is maintained when driving uphill or downhill.

Folding clutch pedal

The clutch pedal can be folded out in difficult driving situations, such as manoeuvring, mounting an implement or driving off-road, to allow sensitive control.
When folded in, driving with automatic clutch operation makes work easier, for example when clearing snow, mowing or sweeping.

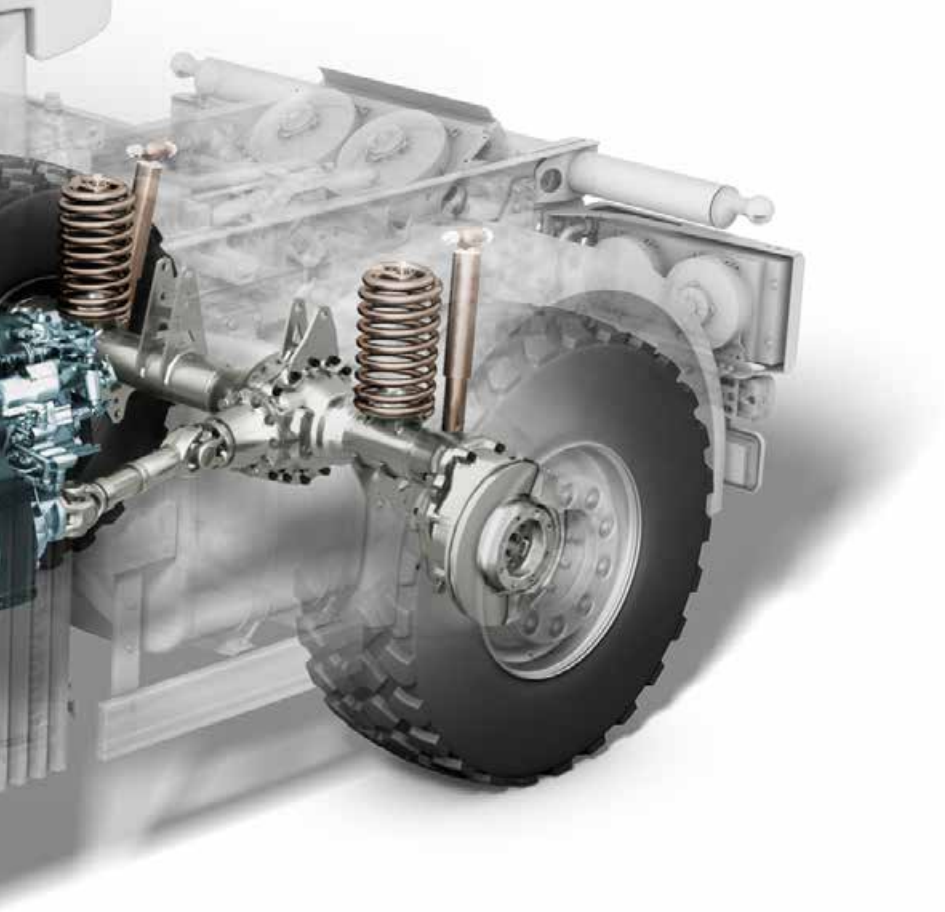
Special equipment – transmission

▾ Feature	▾ Advantage
[G03] Reverse gear 7+8 for road range	
▸ In the basic range, the 7th and 8th reverse gears are available.	▸ High speeds are possible, even in reverse (only for road/rail use).
[G20] Range-change gearbox with working gear group	
▸ Additional range group to provide reduction ratios for the 8 forward and reverse gears ▸ Reduced gear ratio step: 1.2 to 16 km/h* ▸ Reduction ratio relative to road range: i = 5.76	▸ Advance speed reduced appropriate to requirements ▸ Ideal for operations such as mowing, sweeping, etc. ▸ For difficult off-road driving ▸ The working gear group can be operated at full load for increased tractive force.
[G21] Range-change gearbox with working and crawler gear group	
▸ Working gear group as for [G20] ▸ 8 crawler gears 0.13 to 1.69 km/h* for speed reduction ▸ Overall reduction ratio relative to road range: i = 55.87 ▸ Not suitable for increasing tractive force	▸ Advance speeds as low as 130 m/h ▸ Ideal for operations such as snow cutting, asphalt milling, joint cutting, etc.

*The speeds depend on the selected tyres and the engine speed.
Shown here by way of example is the U 400 with standard tyres 315/80 R22.5 at engine speed of 2200 rpm.

▾ Feature	▾ Advantage
[G22] Range-change gearbox with off-road gear range	
▸ Additional group with eight forward and reverse gears behind the main gearbox ▸ Reduced gear-ratio step, approx. 2.2 to 27 km/h ▸ Reduction ratio relative to road range i = 3.19	▸ Low operating speed ▸ Increased tractive force with close gear spacing, e.g. trailer operation, off-road driving ▸ Improved off-road manoeuvrability
[G28] Preparation for working/crawler/off-road gear range	
▸ Technical pre-installation on the main transmission for subsequent retrofitting of a range-change gearbox with working gear group [G20] or a range-change gearbox with working gear and crawler gear group [G21]	▸ Allows retrofit installation of the range-change gearbox [G20] and [G21] at a qualified specialist workshop ▸ Low basic price for the Unimog: flexible retrofitting as required ▸ Higher resale value
[G50] Transmission oil cooling	
▸ Standard equipment for all 6-cylinder engines ▸ Available for 4-cylinder engines as a CTT item [UG50]	▸ Ensures the necessary cooling capacity even in special operating conditions

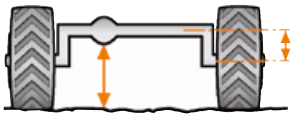
The transmission oil cooler is included in the standard specification on vehicles with the OM936 6-cylinder engine. For vehicles with the OM934 4-cylinder engine, this is available as a CTT code [UG50].



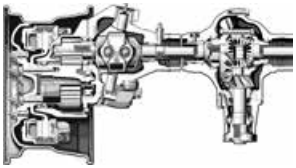
Axles, brakes and steering

Portal axles

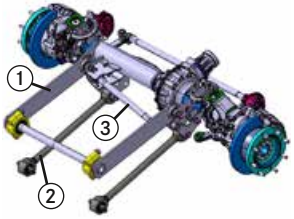
▾ Feature	▾ Advantage
▸ Axle tube and differential lie above the wheel centre.	▸ High ground clearance but with a low centre of gravity
▸ Differential to left of axle centre (in direction of travel)	▸ Safe driving over obstacles
▸ Gear ratio step in hub reduction gear	▸ Slimline drivetrain, small axle housing
▸ High front axle load relative to gross weight	▸ High payload, attachment of heavy front-mounted implements possible ▸ Maximum utilisation of the vehicle through appropriately configured implement combinations
▸ Front and rear axle link-located	▸ Comfortable, directionally stable handling of vehicle ▸ Good cornering characteristics even when fully laden
▸ Trailing arms also function as stabilisers (stabiliser links).	▸ Little roll and pitch movement ▸ Reduced self-steering effect ▸ No track offset during spring compression and rebound



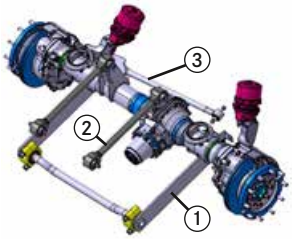
Portal axle with hub reduction gear



Differential



Front axle located by links



Rear axle located by links

① Upper control link (stabiliser)
② Lower control link (trailing arm)
③ Transverse control arm

Suspension

▾ Feature	▾ Advantage
▸ Shock absorbers with long spring travel and high degree of axle articulation	▸ All wheels in contact with the ground, even on very uneven terrain
▸ Longitudinal and transverse control links with coil springs and progressive spring rate	▸ Excellent adjustment of the suspension to all load conditions

Track width

▾ Feature	▾ Advantage
▸ Same track width front and rear	▸ Rear wheels run in the track of the front wheels, avoiding the power-sapping need to form their own track
▸ Narrow vehicle with maximum possible track width	▸ Good track overlap ▸ Rear wheels do not run out of the cleared area in corners, uncleared snow is not compacted

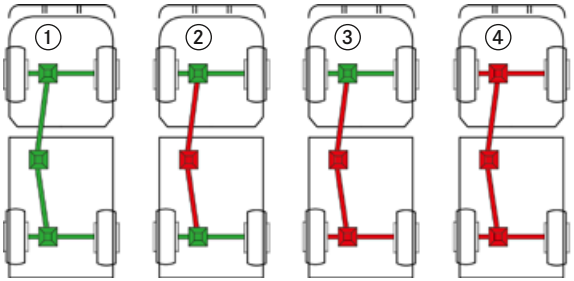
Coil springs

Same track width front and rear

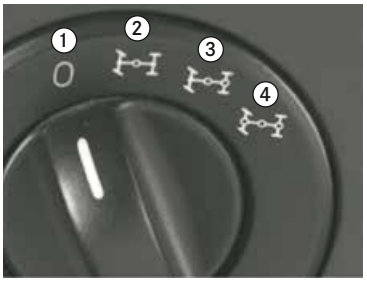
Identical track width front and rear thanks to identical axle flange dimension and same wheel offset.

Drivetrain

▾ Feature	▾ Advantage
► Permanent mechanical all-wheel drive, torque split 50:50	► High degree of handling and directional stability, high level of safety
► Inter-axle differential lock between front and rear	► Increased traction off-road, also advantageous on-road (e.g. in winter service operations)
► Rear differential lock	► Synchronisation of the rear wheels ► Maximum traction on poor tracks
► 100% locking effect at both axles through positive connection (dog clutch units)	► Slip-free power transmission to all 4 wheels
► Differential locks engageable and disengageable while on the move	► No need to stop ► No interruption in tractive force ► Use of differential locks across the entire speed range
► Electro-pneumatic operation by rotary switch on the instrument cluster	► Convenient engagement



Permanent all-wheel drive and differential locks



Optimal adaptation off-road through permanent all-wheel drive and locking of the relevant differentials.

(1) Permanent all-wheel drive

(2) Inter-axle differential locked

(3) Inter-axle and rear-axle differential locked

(4) Inter-axle, rear-axle and front-axle differential locked*

* [A1W] – *Front-axle differential lock*.

Single tyres

▾ Feature	▾ Advantage
▸ Broad spectrum of tyre types, such as MPT and traction tyres with high-cleat tread as well as conventional truck tyres with on-road tread	▸ Specific equipment for different operating conditions
▸ 4 tyres of identical size and width	▸ Low rolling resistance, identical snow chains on all wheels
▸ Rear wheels follow in the tracks already compacted by the front wheels.	▸ High traction through multi-pass effect
▸ Large-footprint MPT low-pressure tyres available	▸ Low standing pressure ▸ High traction ▸ Reduced track in off-road use ▸ Good self-cleaning

Single tyres

MPT treads

High-cleat tread

Narrow track width for road/rail use

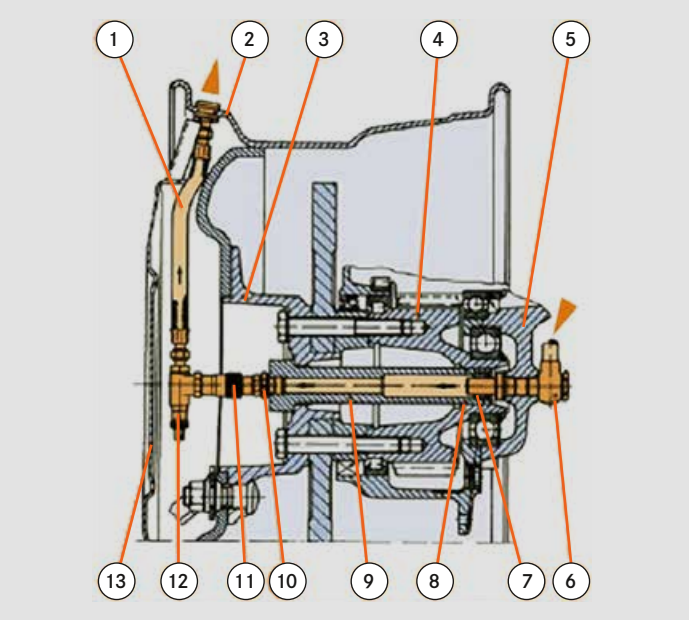
Wide track width for agricultural use

Special equipment – axles

[A30] Tirecontrol plus tyre pressure regulation system

Overview

The tyre pressure control system is an electro-pneumatic system installed in the vehicle for automatic tyre inflation and deflation at the front and rear axles while on the move.



1. Hose line to the wheel rim
2. Rim
3. Wheel hub
4. Drive gear
5. Axle tube
6. Compressed air line
7. Shaft seals
8. O-ring
9. Sleeve
10. Fitting
11. Quick-release coupling
12. Test and filling valve
13. Wheel nut cover

▾ Feature	▾ Advantage
[A30] Tirecontrol plus tyre pressure regulation system	
▸ Adjustment of tyre pressure while driving	▸ Quick, flexible adjustment to road surface and ground conditions ▸ Harmonisation of the actual rolling circumferences of the front and rear wheels ▸ Compensates for pressure loss, vehicle can be driven to the next workshop in the event of tyre damage.
▸ Tyre pressure at front and rear axles individually adjustable on basis of 4 pre-programmed pressure levels ▸ Activated via switch in the centre console ▸ Operated with the help of steering wheel buttons and intuitive menu navigation	▸ Safe, user-friendly control using preprogrammed tyre pressures ▸ Allowance made for different axle loads
▸ Tyre pressure is shown in the display ▸ Upper and lower limits set for tyre pressure ▸ Emergency function for manual pressure control	▸ Settings can be checked and pressure loss detected ▸ Prevents tyre damage

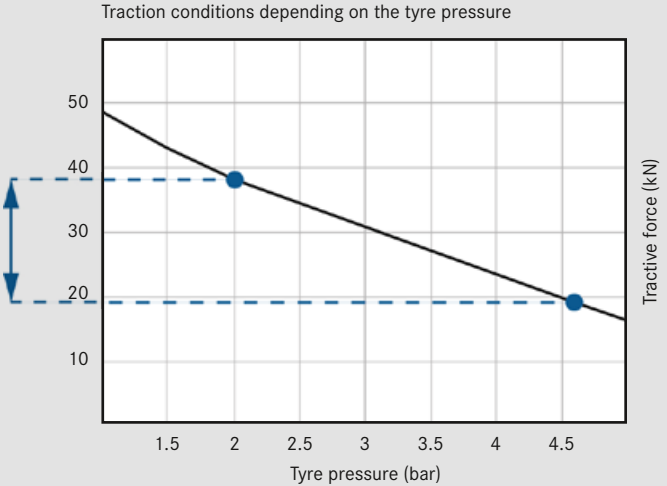
Tyre pressure pre-selection on the display

Switch for tyre pressure control system

Left: air supply to the valve (no wheel cover)
Right: condition for driving; valve and line protected under the wheel cover

[A30] Tirecontrol plus tyre pressure regulation system

Halving the tyre pressure in off-road terrain doubles the ground contact surface and the tractive force.



High tyre pressure on the road

- Low contact area
- Low tyre wear
- Low fuel consumption
- High load-bearing capability at high speed
- Great tracking safety and steering stability

Low tyre pressure off-road

- Large contact area
- Low ground pressure, less ground disturbance
- Less slipping
- High traction
- Good self-cleaning (tread)
- Low compaction of ground, fewer ruts
- No getting-stuck in the mud

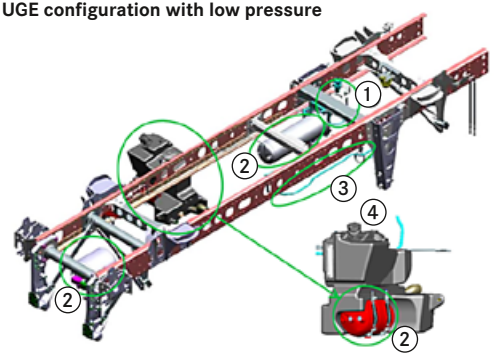
▾ Feature	▾ Advantage
[A1W] Front-axle differential lock	
▸ Synchronisation of the front wheels	▸ Maximum traction on any ground ▸ Power can be transmitted by just one wheel ▸ Reduces slip
▸ Can be activated and deactivated while driving ▸ Engagement and disengagement by means of a claw-type lock	▸ No need to stop ▸ No interruption of tractive force when differential lock is activated ▸ Can be engaged from any speed
▸ Can be engaged independently of the rear axle	▸ Better cornering radius with front axle not locked
[A54] Pre-installation for rear-axle auxiliary steering	
▸ Steerable rear axle	▸ Reduction in turning circle by approx. 1 m ▸ Increased manoeuvrability as a result of all-wheel steering, crab steering or manual control of the rear axle
▸ Double-action hydraulic steering cylinder with mechanical locking	▸ No reduction in top speed when driving with normal steering. Above a speed of 30 km/h, the system automatically switches to straight axle running, meaning that only the usual steering system is still working.
▸ Compressed air connection for releasing the locked steering cylinder ▸ The vehicle is supplied in running order, the rear axle is locked in the “straight-ahead position” meaning that it is not steerable initially.	

Further retrofitting work must be carried out to create a fully functional rear-axle auxiliary steering system. This can be carried out ex factory under CTT code [UAHZ] – *Control system for rear-axle auxiliary steering*.

Low-pressure braking system

▾ Feature	▾ Advantage
▸ Pneumatic 13 bar low-pressure disc brakes on all wheels	▸ Uniform braking effect ▸ No overheating even under continuous stress ▸ High degree of functionality, future-proof, maintenance and repair-friendly ▸ Superb reliability thanks to use of central EAPU from the A model series ▸ In conjunction with tyre pressure control system, omission of one air tank, otherwise same number of air tanks as the proven high-pressure system ▸ Packaging advantages resulting in simplified conversion possibilities for bodybuilders e.g. sweeper unit, crane, road-rail use, etc.
▸ Brake wear indicator ▸ Spring-loaded parking brake on rear axle	▸ Timely indication when maintenance is due ▸ Secures vehicle against rolling away in the event of pressure loss
▸ Air dryer, heated	▸ Greater operating safety and road safety in cold and wet conditions and in the event of long downtimes ▸ Prevents moisture in the valves and lines from freezing

UGE configuration with low pressure



① Electronic Air Processing Unit (EAPU)

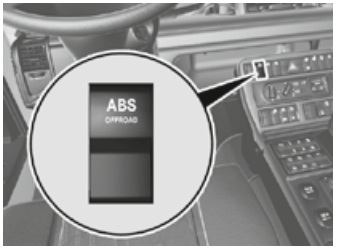
② Low-pressure compressed-air reservoir, one additional compressed-air reservoir (10 l) required for brake circuit 1

③ Compressed-air pipe/brake lines

④ Hydraulic oil tank

Global ABS (4-channel ABS)

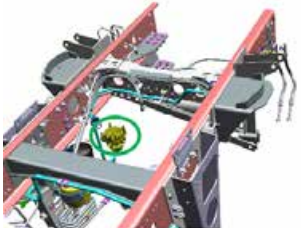
▾ Feature	▾ Advantage
▸ In case of a locking tendency, the pressure of the wheel cylinder is corrected according to the road surface condition and load condition.	▸ Safe handling characteristics during braking ▸ Driving stability and steerability are preserved. ▸ Reduced risk of accidents
▸ Global ABS (4-channel ABS) in all model designations	▸ High level of safety through separate actuation of each individual wheel on the front and rear axles ▸ Global ABS will be installed for all Daimler commercial vehicles worldwide. ▸ Reduced complexity due to trucks common parts strategy
▸ ABS can be switched to off-road mode	▸ At vehicle speeds < 15 km/h, wheels can lock in order to build up a wedge of earth to shorten braking distances when operating off-road, for example.
▸ Electronic Brake Force Limitation Function (EBLF) on the rear axle, for U 300 to U 500, depending on load status	▸ Discontinuation of ALB (automatic load-dependent brake pressure control) with introduction of Global ABS and low-pressure braking system ▸ Discontinuation of mechanical components and component adjustment ▸ The brake force on the rear axle is calculated electronically by the EBLF, enabling more precise control.



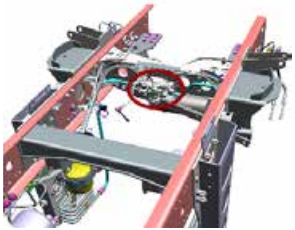
Switch to change ABS mode (off-road)

Up to 15 km/h: locking
15–40 km/h: brief locking
Over 40 km/h: no locking

The ALB will continue to be installed in the U 200, as it is not possible to dispense with it on account of this vehicle's short wheelbase.



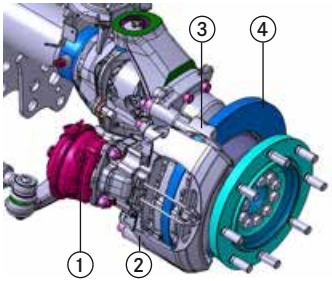
UGE without ALB controller with relay valve (configuration for U 300 to U 500)



UGE with ALB controller (configuration for U 200)

Special equipment – brakes

▾ Feature	▾ Advantage
[B5B] Trailer brake, 2-line	
▸ Pressurised supply line (fill line, red coupling head)	▸ Compliance with the legal regulations for trailers in accordance with the German Motor Vehicle Construction and Use Regulations (StVZO), § 41, ECE 13
▸ Depressurised brake line (yellow coupling head)	▸ Towing of high-speed trailers is possible
▸ Braking effect through ventilation of the brake line ▸ The trailer is braked automatically if the supply line is interrupted	
[B1V] Holding brake on front axle	
▸ Service and parking brake are combined into a holding brake electropneumatically ▸ Spring-loaded parking brake acts on the rear wheels, while the service brake additionally acts on the front wheels with reduced pressure ▸ Only when the engine is running and the parking brake is activated	▸ High stability possible in cable winch operations without additional aids such as slope supports ▸ The vehicle's entire weight force acts as a retaining force that braces the winch's tensile force, depending on the surface's coefficient of friction.



Design of a sliding-calliper disc brake

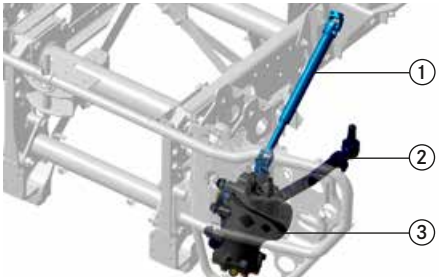
① Diaphragm cylinder
② Brake calliper
③ Brake carrier
④ Brake disc

Safe braking with full load

Electronic Brake Force Limitation Function (EBLF) for U 300 to U 500 or automatic load-dependent brake pressure control (ALB) for U 200 ensure safe, uniform braking in all load conditions.

Power steering

▾ Feature	▾ Advantage
▸ Mechanical recirculating-ball steering	▸ Mechanical part of the steering system remains functional, should hydraulic steering assistance fail
▸ High mechanical, progressive gear ratio	▸ Small steering wheel for all model designations (450 mm)
▸ Uprated steering, hydraulically assisted	▸ Easy steering even with high front axle loads
▸ Steering gear rotated, omission of intermediate bearing and universal joint	▸ Friction-optimised shaft assembly, less wear
▸ Large line cross-section	▸ Low circulation pressure, no power steering fluid cooler required, fuel savings



Steering gear

① Steering shaft
② Drag link
③ Steering gear

By rotating the steering gear, it has been possible to dispense with the intermediate bearing and the universal joint, compared with the preceding model series.

Special equipment – steering

▾ Feature	▾ Advantage
[C50] VarioPilot (RHD/LHD transferable steering)	
▸ Changing of the steering wheel position including instrument panel and pedals in under 30 s	▸ Optimum seating position for every job ▸ Supports one-person operation and improves efficiency, especially in operations like mowing and sweeping ▸ On multi-lane roads (central reservation), it is always possible to work in the direction of the traffic flow. ▸ Much better view of the right-side working area ▸ Exiting the vehicle on the side furthest away from the traffic, safety for driver
▸ Engine starter lockout when steering position is not engaged ▸ Centrally positioned control console ▸ Additional kerb-view mirror on left	▸ Protection against incorrect movement of the steering column ▸ Controls equally easy to reach from the left and right ▸ Both steering wheel positions provide a good view of the left and right areas immediately next to the cab
▸ Multifunction steering wheel as standard ▸ Discontinuation of height and inclination adjustment	

Transferable steering

Vehicles with [C50] – *VarioPilot (RHD/LHD transferable steering)* have kerb mirrors on both right and left.

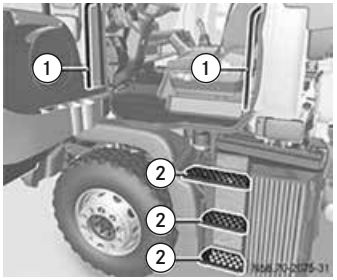
▾ Feature	▾ Advantage
[Z01] Vehicle with left-hand drive	
▸ Steering wheel and pedals arranged on left-hand side ▸ Centre console is situated to the left of centre ▸ Height-adjustable steering wheel	▸ Control of the vehicle on the left side
[Z03] Vehicle with right-hand drive	
▸ Steering wheel and pedals arranged on right-hand side ▸ Centre console is situated to the right of centre ▸ No steering wheel height adjustment	▸ Steering of the vehicle on the right side for operations on the right side of the road (sweeper)
[Z5Y] Vehicle for right-hand traffic	
▸ Headlamps for right-hand traffic ▸ Tail lights and rear fog lamps for right-hand traffic ▸ Mirror for right-hand traffic	▸ Deployment in countries with right-hand traffic (e.g. Germany)
[Z5Z] Vehicle for left-hand traffic	
▸ Left-hand traffic headlamps with modified light pattern ▸ Tail lights with modified positions of the rear fog lamps ▸ Mirror holders for right and left side of vehicles as requirement for modified mirror position	▸ Deployment in countries with left-hand traffic (e.g. UK)


GER U 423

Cab exterior

Cab concept

▾ Feature	▾ Advantage
▸ Heat-insulating tinted glass all-round	▸ Reduction of heat build-up in cab
▸ Laminated windscreen	▸ Protection against injuries in accidents
▸ 4-point cab suspension with 4 dampers and 2 spring struts	▸ Reduced exposure to jolts from the road
▸ Seating position behind the front axle, seat in the low-vibration area	▸ Less strain on the back both on and off-road ▸ Generously spacious
▸ Entry behind the front axle, large door-opening angle	▸ Safe and convenient entry/exit via 3 steps
▸ Underfloor with heat and noise insulation	▸ Enhanced ride comfort
▸ Two-seater bench on the co-driver's side, available as option	▸ Space for 2 accompanying persons
▸ Cab tilting mechanism, mechanical/hydraulic operation, with automatic lock, operated via dual-action hand pump with lift cylinder	▸ Provides easier access to engine compartment for repairs, even when not in the workshop ▸ Safe tilting of the cab



Exit without changing grip

Cab can be exited without having to change grip. Grab handles and steps ensure safe entry and exit and reduce the risk of accidents at work.

① Grab handle

② Step

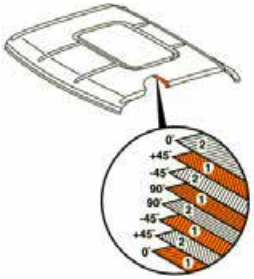
Cab with large panoramic windscreen

Material

▾ Feature	▾ Advantage
► Cab made from state-of-the-art fibre composite comprising several high-strength layers of fibre	► Corrosion-free ► Weight-optimised ► High strength and visual stability ► Long life, 100% resistant to salt
► Integrated insulation layers	► Good noise and thermal insulation
► Use of water-soluble paints	► Environmentally friendly
► All plastic parts > 100 g are marked according to ISO/VDA regulations.	► Environmentally compatible due to low waste (< 5%) ► Environmentally safe disposal

Fibre composite cab shell

The corrosion-free cab does not require cavity sealing or underfloor protection.

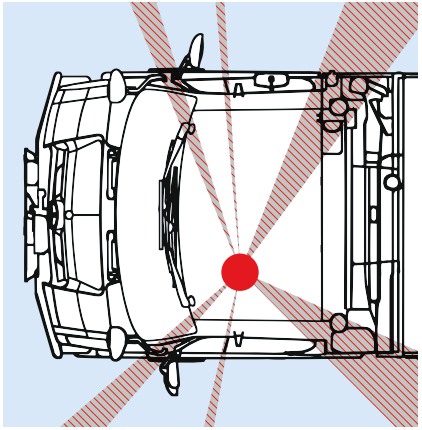


Schematic diagram of roof cut-out

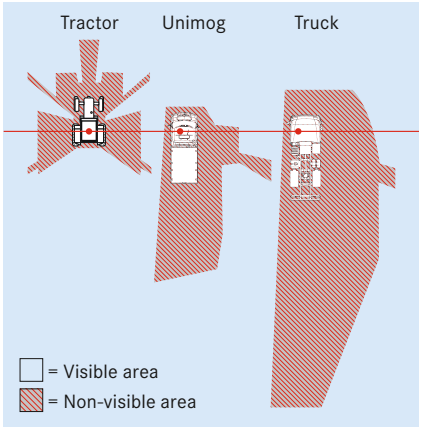
The material of the cab consists of several layers of glass fibres and/or carbon fibres.

Visibility

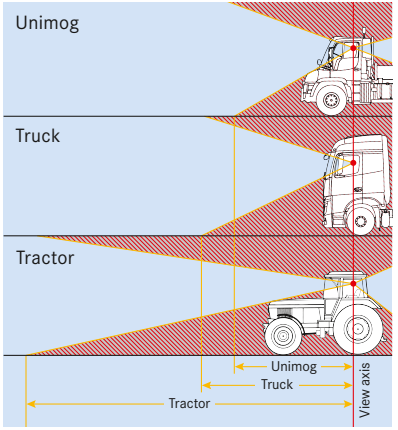
▾ Feature	▾ Advantage
▸ Panoramic cab	▸ Excellent all-round visibility with small blind spot areas
▸ Windscreen extends far down, low side windows ▸ Large rear wall windows	▸ Excellent view of the working area at the front, side and rear
▸ The field of view can be extended with the camera system which includes a monitor, front camera, rear camera and implement camera.	▸ Possible to further reduce the blind spot areas
▸ The field of view can be extended with the VarioPilot (RHD/LHD transferable steering) [C50] to suit the job in hand (see “Special equipment – steering”).	▸ Optimum view of the work area ▸ With correct mirror adjustment, both the right and left seating positions are permitted for operation on public roads.



Excellent all-round visibility of the panoramic cab



Areas directly visible from the cab (without rear mirrors)



In comparison, the Unimog offers the best forward visibility

Windscreen wiper system

▾ Feature	▾ Advantage
► Windscreen wipers mounted on cab roof	► Very robust design
► Wiping motion from above	► Snow pushed to the side and water flows off to the edges of the windscreen ► No wedge of snow under the wiper blades ► Low forces, low motor wear, no flexing of wiper blades ► Good visibility in snowfall
► Large wiper blades, 900 mm/1000 mm	► Large swept area
► 2 park positions possible (top and side)	► Wiper blades not in field of view, good forward visibility

Parking position of windscreen wipers (top)

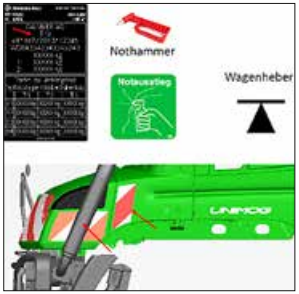
At the upper end position, the roof-mounted windscreen wiper moves onto a small lip and is raised slightly. Water accumulating on the windscreen wiper can run down and is carried away by the next wiper blade sweep.

Alternative parking position for windscreen wipers (side)

Special equipment – tractor registration, Europe

▾ Feature	▾ Advantage
[VT1] Tractor registration, Europe	
▸ Provides the framework for tractor registration in Europe in accordance with EU Directive 167/2013, vehicle class T1b (tractor unit on wheels with a maximum design speed of more than 40 km/h) ▸ [VT1] – *Tractor registration,* Europe, only in conjunction with [FP4] – *Roll cage pre-installation, cab* ▸ In Germany, the national small series [VH3-VH7] also continues to be valid, i.e. codes [VT1] and [FP4] are not required in Germany for registration as a tractor (agricultural or forestry).	▸ Local authorities, contractors and farmers can register the Unimog in Europe as a tractor unit/agricultural tractor. This has a number of advantages when deploying and using the vehicles. More detailed information is given in the PIT code description.
[FP4] Pre-installation for cab roll cage	
▸ When equipped with the roll cage pre-installation “Left/right 4-step access” as well as additional adhesive labels, emergency hammer and extended identification plate, the Unimog meets the approval requirements of EU Directive 167/2013 for vehicle class T1b. ▸ [FP4] – *Pre-installation for cab roll cage* only in conjunction with [VT1] – *Tractor registration,* Europe	▸ Local authorities, contractors and farmers can register the Unimog in Europe as a tractor unit/agricultural tractor. This has a number of advantages when deploying and using the vehicles. Further details are given in the PIT code description.

UGE with roll cage and additional lamps



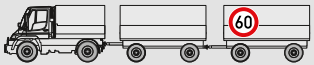
Additional items with [FP4]

4-step access on left, in accordance with tractor standard

4-step access on right, in accordance with tractor standard

Tax exemption

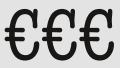
2 trailers are permitted



Exempt from Sunday driving ban

Class T driving licence from age 16/18

Reimbursement of diesel tax



Larger permissible transport width possible (exemption approval)

Front-mounted implements are permitted

Exemption from EC tachograph/ driver's card

Toll charge advantages

Higher permissible axle loads are allowed

Exempt from restrictions on entry into low emission zones

Exempt from professional driver qualifications

The roll cage can be ordered separately via CTT with code [UFPK] – *Cab roll cage*. Codes [VT1] and [FP4] can currently be ordered for U 300 to U 500.

The registration as a tractor provides local authorities, farmers and contractors with the opportunity to make use of incentives. The examples shown apply to Germany. The particular incentives differ from country to country and must be clarified with the relevant authorities.

Vehicle with [VT1] – *Registration as tractor,* Europe, [FP4] – *Pre-installation of cab roll cage* and [UFPK] – *Cab roll cage*

Safety standards

▾ Feature	▾ Advantage
► All cabs tested as per ECE-R 29/02 regulation on crash safety	► High safety standard ► High chance of survival in accidents
► Rollover test according to OECD Code 6 for [VH3]/[VH4]	► Suitable for use in agricultural and forestry applications (agriculture/forestry approval)
► Burn resistance test to FMVSS 571.302	► Proven low flammability of materials, including for the interior fittings ► Flame resistant
► Rounded, soft cab contours	► Passive pedestrian protection

ECE-R:	Regulations of the United Nations Economic Commission for Europe
ECE-R-29:	Protection of cab occupants
OECD:	Organisation for Economic Cooperation and Development
FMVSS:	Federal Motor Vehicle Safety Standards

Survival spaces for occupants

Regulation ECE-R 29/02 is an internationally recognised standard which confirms the stability of the survival space for all occupants in the cabs of commercial vehicles.

Special equipment – cab exterior

▾ Feature	▾ Advantage
[EM5] Monitor for camera system	
▸ Clearly visible monitor in the rear-view mirror area ▸ Monitor with 4 inputs ▸ Omission of centre sunblind ▸ Monitor, can be pivoted and turned	▸ Monitor easily visible for driver and co-driver ▸ Possible to connect several cameras ▸ Split-screen display allows simultaneous display of up to 4 camera images
[EF2] Front camera	
▸ Attached to the front of the vehicle, connected to the monitor in the cab, in conjunction with [EM5] ▸ Green guide lines on the monitor display [EM5] to assist with implement mounting	▸ Fast, safe installation of front-mounted implements ▸ Optimum view of front-mounted implements ▸ Protected position, even when driving off-road ▸ Long service life thanks to protection level IP 69K ▸ Integrated heating prevents the lens from icing or misting up
[EF3] Rear-view camera	
▸ Attached to the rear of the vehicle, connected to the monitor in the cab, in conjunction with [EM5] ▸ Automatic switchover from front to rear-view camera when reverse gear is engaged	▸ Good view of concealed spots in the work area ▸ Assists in maintaining ergonomic sitting position (no need to twist body to see work area)

Front camera

Monitor, can be pivoted and turned

Green guide lines on the monitor display to assist with implement mounting

Special equipment – cab exterior

▾ Feature	▾ Advantage
[EF4] Loose additional camera, for attached implements	
▸ Can be positioned as required on the vehicle, e.g. on implement arms ▸ Connected to the monitor in the cab, in conjunction with [EM5] ▸ Can be switched over via button in the centre console	▸ Full view of the work area on the implement, enhanced safety
[F12] Mowing door, right and cab preparation for mowing seat	
▸ Enlarged, side panoramic window made of laminated safety glass ▸ Main field of view 90° transverse to the direction of travel, further fields of vision upwards, forwards and to the rear ▸ Large footwell for operator sitting transverse to the direction of travel ▸ Parallel windscreen wipers with windscreen washer system, electric window heating	▸ Specially developed for mowing applications and clear cutting work ▸ Extended field of view onto the work area to the side, upwards, to the front and to the rear ▸ Plenty of space, high level of comfort for implement operator ▸ Good visibility, even in rain and high air humidity
[F16] Cab preparation for mowing door/mowing seat	
▸ Technical preparation for retrofitting [DB6]/[F12]	▸ Allows retrofitting at a qualified workshop

Mowing door with additional mirror

2-person mowing operation
The implement operator sits in the [DB6] – *Seat, swivelling, right (mowing seat)* transverse to the direction of travel and has a full view of the working area thanks to [F12] – *Mowing door, right and cab preparation for mowing seat*.

[F12] also requires the following additional items:

[DB6] – *Seat, swivelling, right (mowing seat)*
(see “Special equipment – cab interior”)
[FS7] – *Additional mirror, front right (for mowing door)*
(see “Special equipment – cab exterior”)
[USPM] – *Impact protection for mower seat*

▾ Feature	▾ Advantage
[F6B] Windscreen, non-tinted, heated	
▸ Heat-insulating windscreen with electric heating for defrosting ▸ Can be switched on separately for driver's and co-driver's sides ▸ Operated via push-button with indicator lamp	▸ Quick de-icing of the windscreen ▸ No icing-up of the windscreen while driving ▸ Windscreen is kept free of fogging
[F5L] Sun visor, exterior, transparent	
▸ PMMA plastic, grey-transparent ▸ Transparency to DIN 5036 (90%) ▸ Can be retrofitted on existing vehicles	▸ Increased traffic safety thanks to glare protection ▸ Transparent design allows traffic signals and signs (traffic lights etc.) to be seen easily ▸ Ensures glare-free view of working areas when the sun is shining ▸ Reduces heating of the cab
[FS7] Additional mirror, front right (for mowing door)	
▸ Additional mirror on the right side of vehicle	
▸ Fitted to bumper and the A-pillar by means of 3 struts	▸ Ensures the driver has a view to the rear even when the co-driver is seated transverse to the direction of travel

Cab interior

Space

▾ Feature	▾ Advantage
▸ Spacious ▸ High cab roof	▸ Great freedom of movement ▸ Large freedom of movement and headroom
▸ 2-seat or 3-seat version available ▸ Multifunction steering wheel with height and angle adjustment	▸ Variable seating arrangement, depending on the application ▸ Many functions can be conveniently controlled via the steering wheel
▸ Centre console with switches arranged in blocks ▸ Instrument cluster	▸ Easy operation through logical switch arrangement ▸ Clearly arranged display of all important data
▸ Stowage box behind the seats ▸ Several stowage compartments, bottle and cup holders	▸ Generous stowage facilities for individual items
▸ Diagnostic socket ▸ Cable ducts sealed with flaps ▸ 24 V on-board power socket, optional 12 V	▸ Electrical connection with C3 signals for implement operation ▸ Simplifies the connection of implements, no installation work

Interior

Centre console

Stowage box and stowage compartment with net

The stowage box offers sufficient space for personal items and valuables.

Air conditioning, heating and ventilation system

▾ Feature	▾ Advantage
► Combined air conditioning, heating and ventilation system ► 4-stage blower	► Individual control of the interior climate ► Fast de-icing of windows
► Hot water heater with residual heat utilisation	► Fuel savings and environmental protection
► Integrated air conditioning	► Maintains a pleasant temperature in the cab, improves concentration of driver and co-driver
► Pollen filter with coarse dirt grill	► Suitable for dust and dirt-intensive applications ► Clean and pure air in the passenger compartment, health protection for driver and co-driver ► Readily accessible, simple cleaning
► Control panel in the centre console	► Within driver's reach

Standard integrated air conditioning system, air intake and heat exchanger

[D6F] – *Air conditioning system* is standard equipment on U 300, U 400 and U 500.
[D6F] – *Air conditioning system* optional on U 200.

Standard controls

All controls for the main driving functions are arranged around the steering column and pedals. Other functions for operating implements, e.g. working hydraulics, are controlled from the centre console. The switch panel above the windscreen is used for operating functions such as the rotating beacon and the additional headlamps or adjusting the position of the windscreen wipers.

Instrument cluster
Displays information on
- Overall vehicle
- Engine condition
- Hydraulic power

Multifunction steering wheel
With height and angle adjustment for LHD vehicles.

Operation of
- Radio
- Telephone
- Instrument cluster
- CRUISE CONTROL

Multifunction lever
Operation of
- Gear selection (forward/reverse)
- Gear selection (up/down)
- Mode selection
- Engine brake

Centre console
Accommodates
- Joystick
- Operating panel for hydraulics
- Operating panel for heating/air conditioning
- Parking brake
- 12/24 V socket
- On/off switches for many functions
- Joystick and hydraulics operating panel can be replaced without tools
- Stowage compartment

Switch panel in headliner
Operation of, e.g.
- Heated windscreen
- Alternative wiper position
- Rotating beacon
- Additional headlamps
- Floodlight

Special equipment – cab interior

▾ Feature	▾ Advantage
[DG1] Additional steering column switch, left	
▸ Additional control	▸ Additional operation of EQR gearshift, cruise control, limiter and gearshift for manual transmission and hydrostatic traction drive (EasyDrive) ▸ Easier operation ▸ Ergonomic layout
▸ Positioned on left of steering wheel	▸ One hand free for operating hydraulics

Additional steering column switch on multifunction steering wheel

Operation of EQR gearshift
The direction of travel (forwards or backwards) is pre-selected.

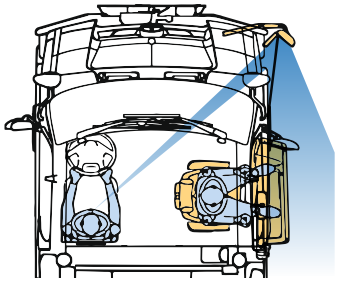
Operation of CRUISE CONTROL
Activation/deactivation of CRUISE CONTROL. Increase and reduce speed.

Operation of limiter
Activation/deactivation of limiter. Increase and reduce maximum speed.

Preselection of gears
In driving mode, the next gear is pre-selected by the driver.

Special equipment – cab interior

▾ Feature	▾ Advantage
[DB6] Seat, swivelling, right (mowing seat)	
▸ Can be swivelled by up to 90°, with intermediate positions (every 10°) ▸ Air-sprung	▸ Convenient operation of implements with maximum productivity and optimum view of the right-hand working area
▸ Longitudinal tilt adjustable	▸ Fatigue-free working thanks to direct view of working area without having to turn head
▸ 3-point seat belt, lap belt in mowing position	▸ High level of safety in work mode afforded by additional lap belt and side cushion, including in event of rear-end collision
▸ Laterally adjustable	▸ Efficient use of implements in 2-person operation
▸ Fully-fledged driver's seat	▸ No driving speed restriction, including when no front-mounted attachments are installed



Seat, swivelling, right (mowing seat)

2-person mowing operation
The implement operator sits in the [DB6] – *Seat, swivelling, right (mowing seat)* transverse to the direction of travel and has a full view of the working area thanks to [F12] – *Mowing door, right and cab preparation for mowing seat*. The driver has a view of the rear area with [FS7] – *Additional mirror, front right (with mowing door)*.

Special equipment [DB6] also requires the following:

[F12] – *Mowing door, right and cab preparation for mowing seat*
[FS7] – *Additional mirror, front right (for mowing door)*
(see "Special equipment – cab exterior")
[USPM] – *Impact protection for mower seat*

▾ Feature	▾ Advantage
[DF1] Suspension seat, air-sprung, driver	
▸ Tapered backrest and integrated head restraint ▸ Integral 3-point inertia-reel seat belt ▸ Air-sprung suspension system, adjustable damper ▸ Automatic weight adjustment from 50 to 150 kg, suspension range +/– 40 mm, bellows ▸ 200 mm fore/aft adjustment, in increments of 10 mm ▸ 100 mm height adjustment, pneumatically assisted ▸ Inclination adjustment 16° (from –5° to +11°), finely incremented ▸ Backrest adjustment in increments of 2° (from –12° to +40°) ▸ Backrest folds onto seat part	▸ Non-tiring driving ▸ Fits the contours of the back well ▸ Easily and quickly adjustable to different body sizes and weights ▸ Effective cushioning even on rough surfaces ▸ Better seat climate thanks to fluted upholstery ▸ Very high level of seating comfort thanks to the wider seat cushion and numerous individual adjustment options ▸ Good access to the stowage space ▸ Easier to get in and out ▸ Driver-friendly ergonomics and easy adjustment
[DF3] Suspension seat, air-sprung with seat heating, driver	
▸ Corresponding to [DF1]; additionally: ▸ Seat heating 24 V ▸ 2-chamber lumbar support ▸ Horizontal springing +/–15 mm ▸ Adjustable armrest inclination	▸ Pleasant warmth in cold weather ▸ Helps maintain a healthy spine, back and kidney area ▸ Damping of horizontal impacts
[DB1] Suspension seat, air-sprung, co-driver	
▸ Corresponding to [DF1]	
[DB3] Suspension seat, air-sprung, with seat heating, co-driver	
▸ Corresponding to [DF3]	

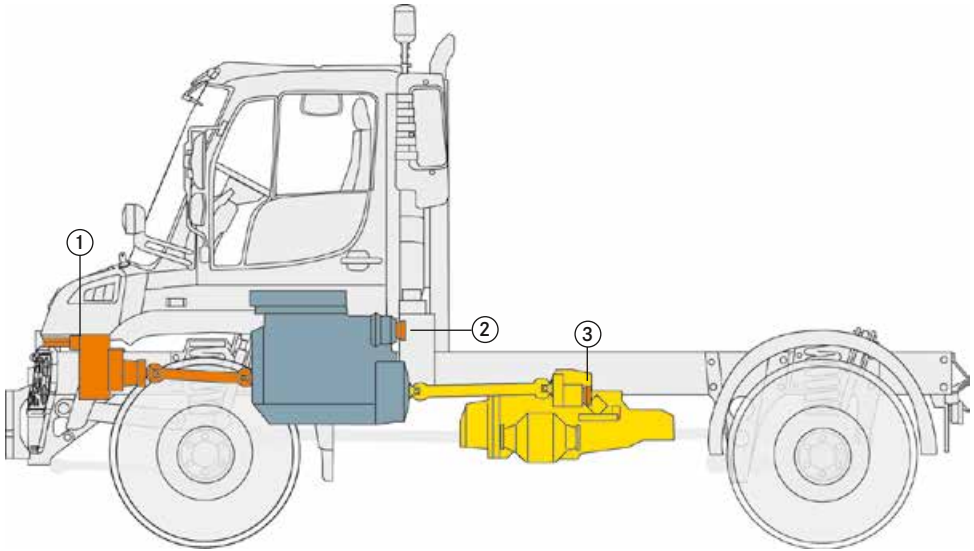
Special equipment – cab interior

▾ Feature	▾ Advantage
[DB5] Twin co-driver's seat	
▸ Two-seater bench on the co-driver's side with separate head restraints ▸ 200 mm fore/aft adjustment, in increments of 10 mm ▸ 2 integrated 3-point inertia-reel seat belts	▸ 2 fully-fledged co-driver's seats, high level of safety ▸ Space for 2 accompanying persons
[D6N] Auxiliary heating with engine pre-heating	
▸ Auxiliary heater for heating the engine coolant and the cab, from WEBASTO ▸ Heating start time can be pre-selected up to 7 days in advance ▸ 3 power-on times can be programmed. ▸ Preselection of temperature ▸ Operating time from 10 to 120 min ▸ Remaining time from 1 to 120 min ▸ Can be switched on while driving ▸ The heating output is 1.8 to 7.6 kW . ▸ Fuel consumption between 0.2 and 0.9 l/h	▸ Preheated cab and clear visibility when setting off on a trip ▸ Preheated engine, trouble-free and gentle engine starting even at extremely low outside temperatures ▸ Increase in heating output in the cab ▸ Warm engine immediately from the moment of starting up, saves fuel ▸ Easy starting of the engine, conserves the battery
[F8E] Locking system, with central locking	
▸ The vehicle is fitted ex factory with a central locking system with remote control. ▸ The vehicle doors can still be locked or unlocked with the vehicle key. ▸ In the event of unintentional unlocking via the remote control, the vehicle automatically locks again after 25 seconds. ▸ When opening the vehicle from outside, only the driver's door is unlocked initially, then repeat operation of the remote control unlocks the co-driver's door.	▸ Convenient, fast opening and closing of the vehicle ▸ Increased security for driver/vehicle/cargo in cab, as vehicle is fully locked at the press of a button ▸ Increased security for the driver/vehicle/cargo since only the driver's door is unlocked first, thereby preventing unauthorised persons from entering via the co-driver's door ▸ Increased convenience in application with a co-driver ▸ Compact remote control

▾ Feature	▾ Advantage
[J2A] CD radio	
▸ FM tuner with RDS-EON, AM tuner with MW, LW, SW and 2 x 6 station presets ▸ Single CD player (MP3- and WMA-compatible) ▸ USB connection: Mini USB socket 1.1. at front ▸ AUX connection, e.g. for MP3 player at front and rear ▸ Telephone mute function ▸ Sound control: Low, High, Balance ▸ 2 x 20 W output ▸ Display, 1-line with 8 LCD segments ▸ Electronic theft protection with CAN polling ▸ Active aerial ▸ 2 broadband loudspeakers (each 160 mm) in the doors and 1 centre speaker above the windscreen	▸ High level of operating comfort ▸ High levels of functionality, reception quality and sound quality ▸ There is no possibility of faults as a result of cabling errors ▸ Antenna and speakers included in the scope of delivery ▸ Good workmanship, ergonomic and adapted to the interior appointments ▸ Time- and cost-saving thanks to factory installation ▸ Ergonomic operation tailored to the needs of the driver ▸ Time and cost-saving solution compared with retrofit
[J2B] CD radio with Bluetooth® corresponding to [J2A], plus:	
▸ Bluetooth® interface with hands-free facility ▸ Integrated microphone on the front (MIC)	▸ Mobile phone can be used while on the move via Bluetooth® (approved hands-free system) ▸ Radio loudspeakers and microphone ensure excellent intelligibility (volume control)
[J1C] Instrument cluster, 12.7 cm, with video function	
▸ Full-colour TFT display, screen size 12.7 cm ▸ Video input	▸ Good, glare-free legibility with additional information avoids misinterpretations ▸ Increased working safety and enhanced comfort thanks to possibility of connecting a camera

PTOs

Position



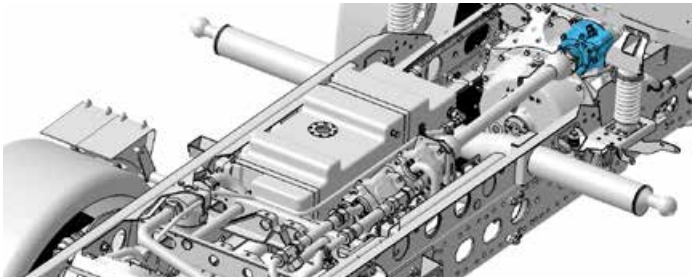
① [N08] – *Engine PTO outlet including front PTO shaft*

② [N05] – *Engine PTO to rear, with 6-hole flange*

③ [N13] – *Transmission PTO, high speed, with 6 hole flange*
[N16] – *Transmission PTO, high speed, with 4-hole connection*
[N19] – *Transmission PTO, very high speed, 6 hole flange*

Special equipment: power take-offs

▾ Feature	▾ Advantage
[N05] Engine PTO to rear, with 6-hole flange	
▸ Standardised 6-hole flange (ISO 7646) ▸ Drives the power hydraulics	▸ Connection of prop shafts or commercially available components such as hydraulic pumps
▸ Alternative to direct drive of body assemblies with high power requirement, i = 0.933	▸ Simple connection for swap bodies
▸ Independent of manual transmission ▸ Electropneumatically actuated dog clutch ▸ Can be activated by push-button in the centre console, with indicator lamp	▸ No power interruption across the full speed range ▸ Convenient switching on an off
▸ Activation only when engine stopped, deactivation possible at any time	▸ Can be used independently of the engaged gear or the drive clutch



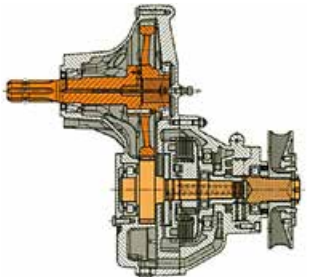
Engine PTO (highlighted in blue)

Engine PTO push-button

The engine power take-off can be activated only with the engine switched off, to prevent incorrect operation.

Special equipment: power take-offs

▾ Feature	▾ Advantage
[N08] Engine PTO outlet including front PTO shaft	
▸ Direct, mechanical drive from the crankshaft ▸ Up to 160 kW can be transmitted	▸ Engine PTO shaft power flow not interrupted during gear changes ▸ Suitable for implements with high power consumption (e.g. snow cutter)
▸ Single-stage mechanical gear: i = 2.139 ▸ PTO stub shaft with 44.4 mm (1 ¾-inch) diameter 6-spline shaft to SAE J499a/EN 15431	▸ High efficiency, smooth running and long service life ▸ Suitable for high torque transmission
▸ Electrically operated, oil-hydraulic multi-plate clutch ▸ Engine starter lockout when power take-off shaft engaged ▸ PTO shaft speeds of up to 1000 rpm are available	▸ Engageable under load, independently of the drive clutch ▸ Safeguards against unintentional start-up of implement ▸ Drives most PTO shaft-driven front-mounted implements
▸ PTO shaft speed adjustment via multifunction steering wheel or accelerator	▸ Easy, precise setting of any PTO shaft speed
▸ Digital indication of the actual PTO shaft speed on the display ▸ Operation via safety switch	▸ Reliable detection and where necessary changing of the current operating condition



PTO transmission

PTO stub shaft

Always switch on power take-off shaft at idle speed, even with heavy implements. This reduces clutch wear and stress on the implements.

Safety switch

▾ Feature	▾ Advantage
[N16] Transmission PTO, high speed, with 4-hole connection	
▸ Standardised flange on manual gearbox (DIN 5480, 4-hole flange, number of teeth 14, i = 1)	▸ Use of commercially available hydraulic pumps
▸ Rotational direction anticlockwise as seen in direction of travel	▸ Output speed and rotational direction identical to engine rpm and rotational direction
▸ Electropneumatically actuated dog clutch	▸ Can be switched on/off with vehicle stationary and clutch actuated, preventing incorrect operation
▸ Remote control of the clutch with Automatic Shift [G48], signal picked up via implement socket [E87]	▸ For implement control from outside the vehicle
▸ Operated by push-button in the centre console ▸ Programming of maximum rpm	▸ Convenient, defined activation and deactivation ▸ Permitted top speed not exceeded
[N13] Transmission PTO, high speed, with 6 hole flange	
▸ Corresponding to [N16] with 6 hole flange (ISO 7646)	

[N16] – *Transmission PTO, high speed, with 4-hole connection*

[N13] – *Transmission PTO, high speed, with 6 hole flange*

Crane operation via power take-off

Operation of elevating work platform via power take-off

Special equipment: power take-offs

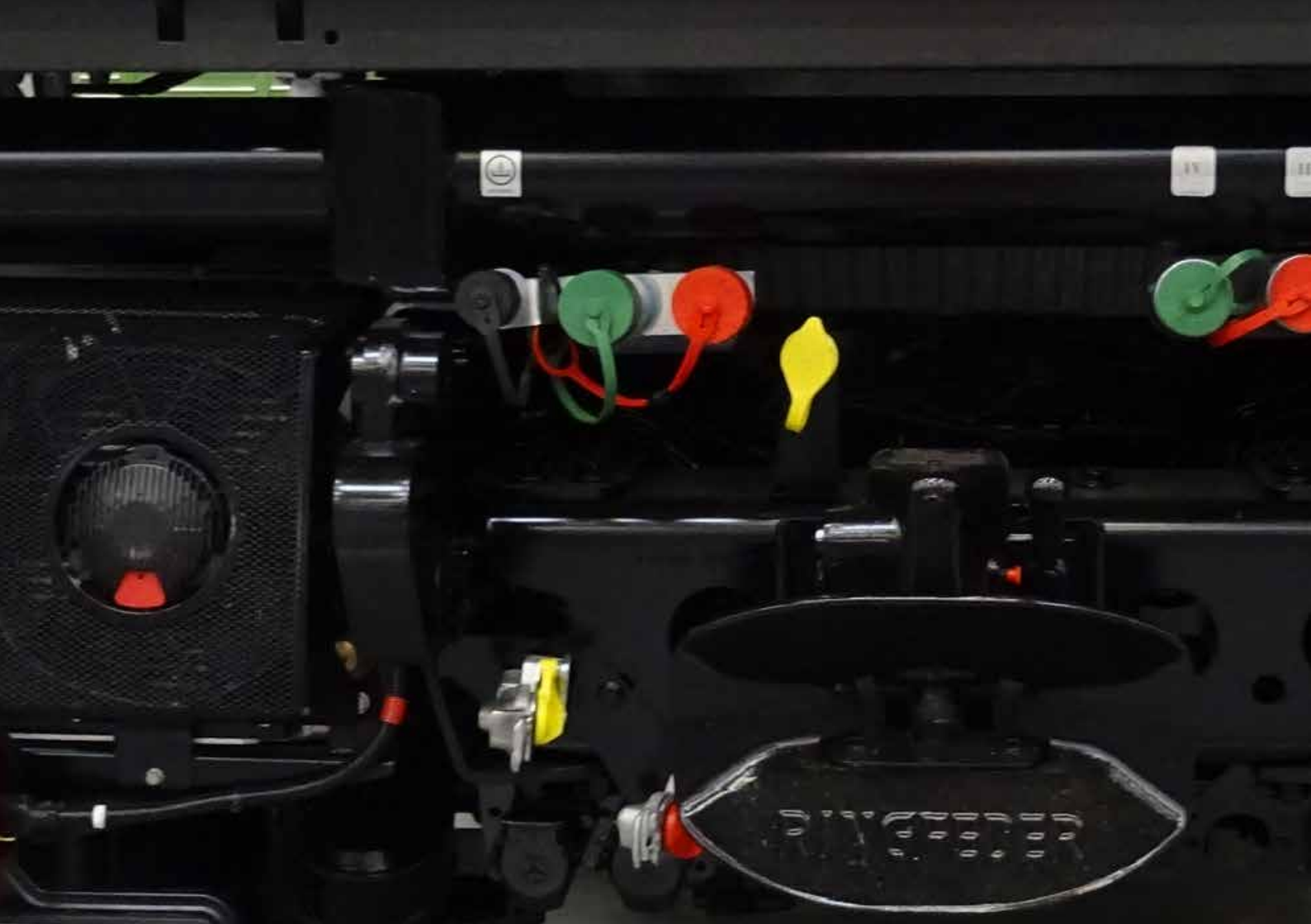
▾ Feature	▾ Advantage
[N19] Transmission PTO, very high speed, 6 hole flange	
▸ Standardised 6-hole flange (ISO 7646) for mechanical drives, e.g. pumps ▸ Rotational direction clockwise in direction of travel	▸ Operation of commercially available drive units (e.g. fire brigade pumps)
▸ Ratio: i = 0.61 ▸ Electropneumatically actuated dog clutch	▸ Output speed 3606 rpm at engine speed of 2200 rpm ▸ Incorrect operation prevented thanks to activation and deactivation with vehicle stationary and drive clutch actuated
▸ Remote control of the clutch with AutomaticShift [G48], signal picked up via implement socket [E87]	▸ For implement control from outside the vehicle
▸ Operated with clutch actuated via push-button with indicator lamp located in centre console	▸ Convenient, defined activation and deactivation
▸ Programming of maximum rpm	▸ Permitted top speed not exceeded

[N19] – *Transmission PTO, very high speed, 6 hole flange*

Fire-fighting vehicle with [N19] for water pump

Push-button for transmission PTO

▾ Feature	▾ Advantage
[N00] Pre-installation for front PTO shaft	
▸ Preparation for electrics, air ducting, charge air cooling, cover plates, mount and bracket for engine PTO with PTO shaft at front	▸ Allows retrofit of the engine PTO [N08] ▸ Low basic price for the Unimog, retrofitting when required
[N09] PTO shaft rpm limiter	
▸ Button in centre console for limiting PTO shaft speed to 540 rpm or 1000 rpm	▸ Protection against overspeeding of implements designed for 540 rpm or 1000 rpm
[N18] Preparation for transmission PTO	
▸ Technical preparation for retrofitting of [N13]/[N16]/[N19]	▸ Allows retrofitting at a qualified workshop ▸ Low basic price for the Unimog, retrofitting when required
▸ Modified output shaft installed in gearbox ▸ Flange cover	



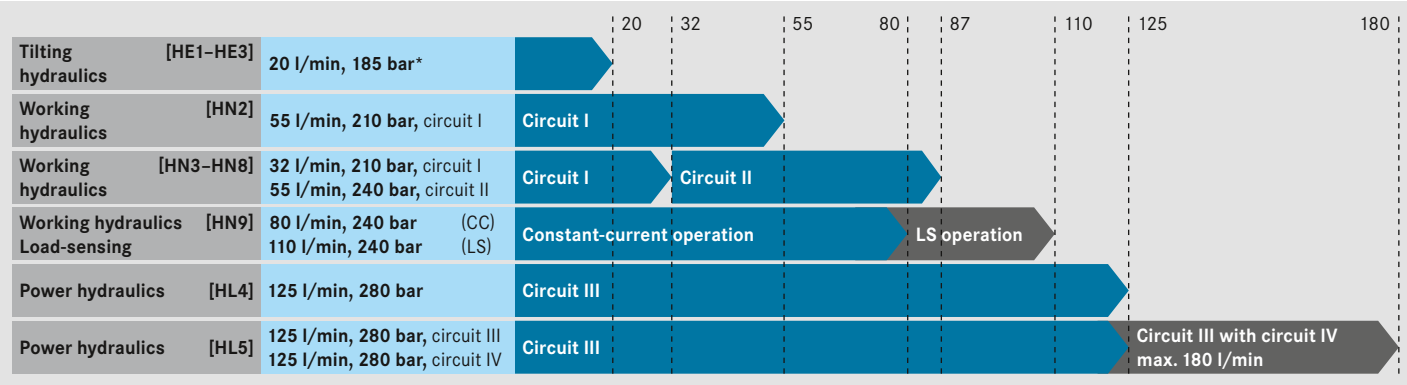
Hydraulics

Hydraulics for tilting mechanism [HE1] to [HE3]

▾ Feature	▾ Advantage
▸ Actuation of tilt mechanism on vehicle and trailer based on fan hydraulics	▸ Inexpensive alternative to working hydraulics with exclusive use of the tilt mechanism

Working hydraulics [HN2] to [HN8]

▾ Feature	▾ Advantage
▸ Choice of 5 hydraulics packages with up to 2 open hydraulic circuits, 4 cells and snowplough load relief	▸ Optimum adaptation to intended use
▸ Fully proportional actuation of attached implements and operation of permanent consumers	▸ High degree of utilisation for multi-implement operation



* Cannot be used for permanent consumers.

(CC) = Constant current; (LS) = Load-sensing

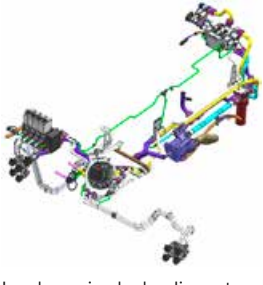
Load-sensing working hydraulics [HN9]

▾ Feature	▾ Advantage
▸ Fully proportional actuation of attached implements and operation of permanent consumers through on-demand fluid supply	▸ High degree of utilisation for multi-implement operation ▸ Flexible distribution of fluid quantities
▸ Hydraulic connections similar to working hydraulics [HN8], plus LS signal line	▸ Operation of consumers with and without LS signal

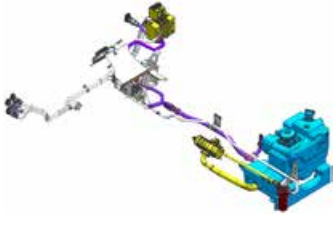
Power hydraulics [HL4] to [HL5]

▾ Feature	▾ Advantage
▸ Selection of 2 power hydraulics packages with up to 2 additional open hydraulic circuits for operation of permanent consumers	▸ Operation of consumers with very high power requirements ▸ Optimum adaptation to intended use
▸ Modular hydraulic system, if required can be removed from the vehicle's platform subframe	▸ Payload can be increased by removal of power hydraulics module ▸ No corrosion damage incurred in winter service operation

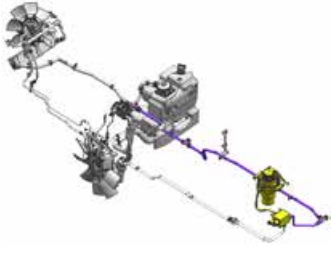
VarioPower power hydraulics [HL5]



Load-sensing hydraulic system [HN9]



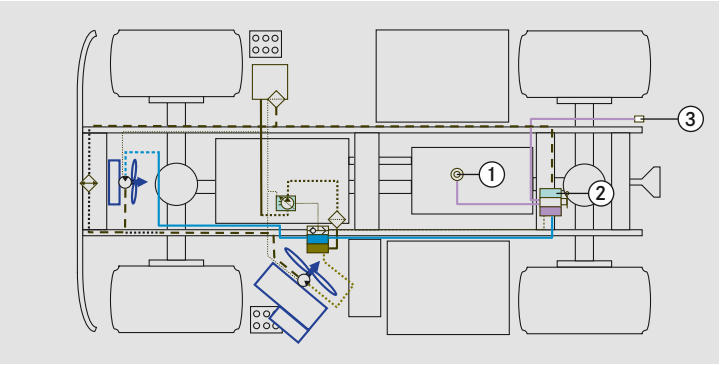
Hydraulic system, single-circuit, 2-cell, fully proportional [HN2]



Tilting hydraulics [HE1]

Overview

Tilting hydraulics



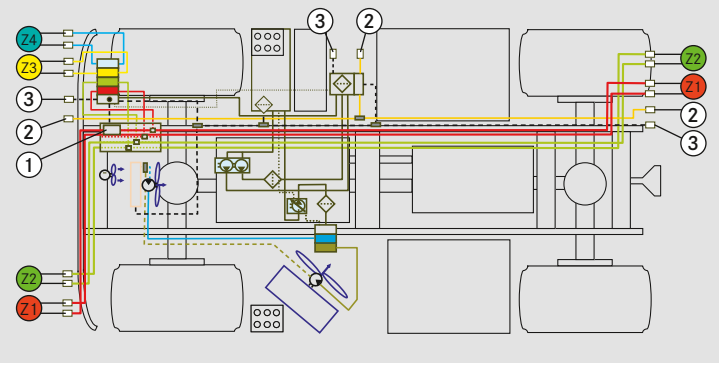
Variable displacement pump
Oil filters

Valve block for fan actuation with shuttle valve for tilting hydraulics

Valve block for tilting hydraulics

① Tipping cylinder for vehicle platform [HE1]
② Connection for additional hydraulic consumers [HE2]
③ Connection for trailer tipping cylinder [HE3]

Working hydraulics



Tandem pump (constant current)
Oil filters

Circuit I

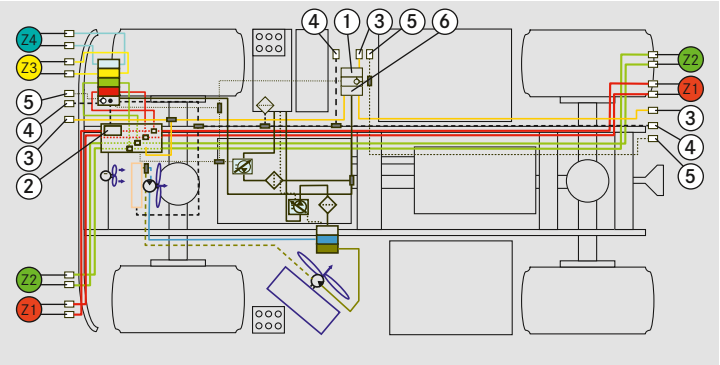
Z1 Cell 1 (connection 1+2)
Z2 Cell 2 (connection 3+4)
Z3 Cell 3 (connection 5+6)
Z4 Cell 4 (connection 7+8)

① Snowplough load relief (function on cell 1)

Circuit II

② Pressure fitting for permanent consumers
③ Return line

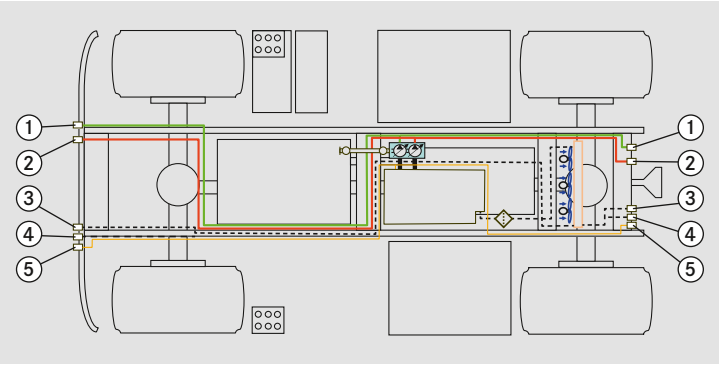
Load-sensing hydraulics



Variable displacement pump
Oil filters
Shuttle valve – function (for LS operation)
① LS proportional valve for connection of permanent consumers
② Snowplough load relief (function on cell 1)
③ Pressure fitting for permanent consumers
④ Return line
⑤ Load sensing (hydr. signal line)
⑥ Block for switching between constant-current and load-sensing operation

Z1 Cell 1 (connection 1+2)
Z2 Cell 2 (connection 3+4)
Z3 Cell 3 (connection 5+6)
Z4 Cell 4 (connection 7+8)

Power hydraulics



Variable displacement pump
Oil filters
Propeller shaft
⑤ Leak-oil connection

Circuit III
① Pressure fitting
③ Return line

Circuit IV
② Pressure fitting
④ Return line

Snowplough load relief and automatic snowplough raising

▾ Feature	▾ Advantage
▸ [HN3]/[HN6]/[HN8]/[HN9] “Special equipment - hydraulics”	
▸ Continuously variable adjustment of pressure level in the snowplough lift cylinder	▸ Easy, quick transfer of part of the snowplough’s weight to the front axle ▸ Reduced wear on the blades ▸ Protection of road surface ▸ Reduced noise ▸ High level of driving safety thanks to improved steering and lateral guidance properties ▸ Increased traction on the front axle ▸ Reduced fuel consumption
▸ Also available for other implements	▸ Wide variety of uses (e.g. front sweepers)
▸ Automatic raising of snowplough when reverse gear is engaged, can be selected via instrument cluster	▸ Allows quick and easy clearing at junctions

Snowplough load relief in %
100% Implement fully raised, no weight on road
20% Implement partially raised/relieved
0% Implement not raised, full weight on the road
5 to 20% is recommended, depending on the weight of the implement.
The selected level of relief is shown in the display.

Memory function
When the snowplough load relief function is re-activated, it automatically resumes its last setting.

Snowplough

Hydraulics control panel without [HN9]

Joystick

① **Rocker switch**
Execute EQR function

② **Rocker switch**
Regulate working speed

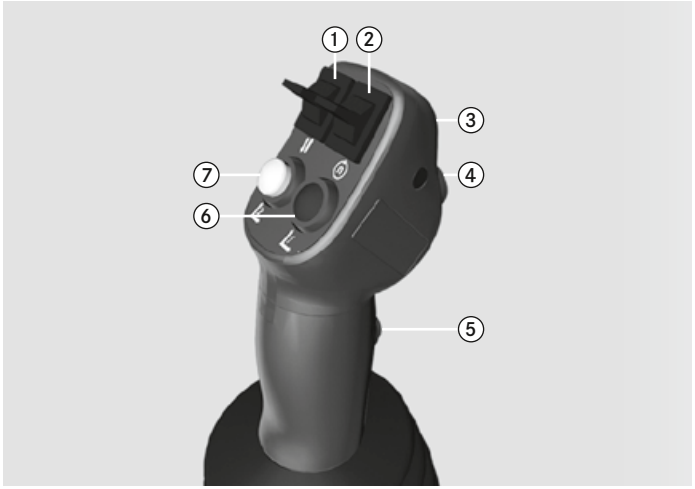
③ **Button**
Control text menu

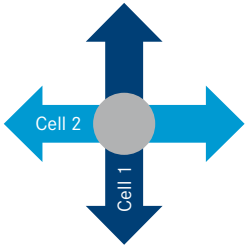
④ **Button**
Set (save) values/
control text menu

⑤ **Button**
Activate float position Control
snowplough load relief

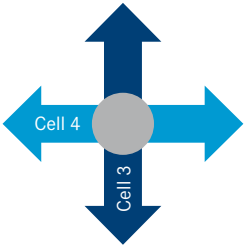
⑥ **Button**
Free for assignment by
body manufacturer, allowing
control of a 3rd level

⑦ **Button**
Control level 2 (cell 3+4)





Level 1 operation
(cell 1/2)



Level 2 operation
(cell 3/4)

Operation of joystick as per EN 15431.

Vertically: raise/lower.

Horizontally: swivel to left/ right.

- The joystick is part of the working/load-sensing/power hydraulics. The joystick is not a component of the hydraulics for the tilt mechanism.
- On vehicles with tilt and working/load-sensing hydraulics, the joystick is used for proportional tilting of the platform.
- Allocation of the cell to the joystick assignment can be changed as part of the workshop parameter setting process. Cell actuation can be parameterised.

Plug connections

▾ Feature	▾ Advantage
▸ Plug connections are marked by colour and number.	▸ Unique assignment of the vehicle/implement connections, safety when connecting implement
▸ Flat-sealing hydraulic couplings as per ISO 16028	▸ Prevents escape of oil ▸ Prevents ingress of dirt into the hydraulic system ▸ Convenient plug insertion and removal ▸ Easy cleaning
▸ Emergency off switch; all valves go to locked position	▸ Greater operational safety through quick-stop of all positioning movements and hydraulic motors
▸ Connectors for pressure lines, sleeves for return lines on power hydraulic and permanent consumer connections, circuit II	▸ Cannot be mixed up

Plug connections, front left and right

Plug connections, rear right

Special equipment: hydraulics

▾ Feature	▾ Advantage
[HE1] Hydraulics for tilting mechanism	
▸ Supply via fan hydraulics adjustable pump ▸ Oil tank capacity: approx. 45 l ▸ Pump displacement volume: 28 cc per revolution ▸ Working pressure: 185 bar ▸ Flow rate at engine speed 2200 rpm: 20 l/min ▸ Reference output: 6.6 kW ▸ Available without working hydraulics	▸ No working hydraulics necessary for tilting the load surface ▸ Easy operation, full tilting functionality ▸ Attractive alternative for pure tipping function ▸ When combined with working hydraulics, the tipping cylinder can be actuated proportionally
[HE2] Pre-installation, connection of additional hydraulic consumers	
▸ Extended tilting hydraulics with additional hydraulic connection on valve block ▸ Supply via fan hydraulics adjustable pump ▸ Oil tank capacity: approx. 45 l ▸ Pump displacement volume: 28 cc per revolution ▸ Working pressure: 185 bar ▸ Flow rate at engine speed 2200 rpm: 20 l/min ▸ Reference output: 6.6 kW ▸ Available without working hydraulics	▸ Easy operation ▸ Cost-effective ▸ Bodybuilder can use the pre-installation for body, e.g. rail gear

Special equipment: hydraulics

▾ Feature	▾ Advantage
[HE3] Tipping connection for trailer, single-action, rear	
▸ Extended tilting hydraulics with additional hydraulic connection on valve block ▸ Activation switch and button for tipping function ▸ Supply via fan hydraulics adjustable pump ▸ Oil tank capacity: approx. 45 l ▸ Pump displacement volume: 28 cc per revolution ▸ Working pressure: 185 bar ▸ Flow rate at engine speed 2200 rpm: 20 l/min ▸ Reference output: 6.6 kW ▸ Available without working hydraulics	▸ No working hydraulics necessary for tilting the trailer ▸ Easy operation via push-button in the cab for changing between the vehicle and trailer tipping function ▸ Attractive alternative for pure tipping function
[HN2] Hydraulic system, single-circuit, 2-cell, fully proportional	
▸ Hydraulic system with one open hydraulic circuit for implement adjustment movements or permanent consumers	▸ Components integrated and tuned ex factory for optimum operational and spare parts reliability
▸ 2 dual-action control units (circuit I) ▸ Constant-flow gear pump with 55 l/min delivery volume at 210 bar system pressure and 2200 rpm engine speed ▸ Reference output: 22 kW	▸ Pressure level of marketable implements ▸ Suitable for single or dual-action cylinders
▸ Temperature controlled oil cooler with electrically driven fan	▸ Protection of pumps and motors
▸ 4 connections for 2 dual-action cylinders	▸ Up to 4 implement positioning movements for operations such as raising and lowering implements, driving oil motor, or external control
▸ Permanent current on connection 1 or 3	▸ Drive for hydraulic consumers in the output range up to approx. 22 kW
▸ Float position individually activatable for each valve	▸ Individual activation of the float position for ground-operated implements or implement load relief for installation and removal
▸ 2 positioning movements can be activated simultaneously	▸ Raise and pivot implement simultaneously (e.g. snowplough)

▾ Feature	▾ Advantage
[HN3] Hydraulic system, dual-circuit, 2-cell, fully proportional, snowplough load relief	
▸ Dual-circuit hydraulic system with one fixed displacement gear pump per hydraulic circuit ▸ 2 dual-action control units (circuit I)	▸ Affordable entry-level hydraulics, e.g. for winter service operations ▸ 2 independent hydraulic circuits ▸ Integrated ex factory to ensure operational reliability and supply of spare parts
▸ Fully proportional control	▸ Highly precise execution of adjustment movements thanks to proportional control
▸ Circuit II for operating a permanent consumer	▸ For simultaneous driving of hydraulic motors (snowplough and gritter)
▸ Pressure and return lines for circuit II at front	▸ Alternative connection option for hydraulic motors at front and centre or additional, external control units
▸ Flow rate of constant pump, circuit I: approx. 32 l/min at 210 bar working pressure and engine speed of 2200 rpm, output approx. 12.6 kW ▸ Flow rate of constant pump, circuit II: approx. 55 l/min at 240 bar working pressure and engine speed of 2200 rpm, output approx. 22 kW ▸ Changeover valve (X) for switching the flow rates of circuit I and circuit II ▸ Valve (Y) for flow summation of both circuits at circuit II or circuit I outputs (approx. 87 l/min at 240 bar, reference output approx. 34.6 kW)	▸ Flexible use, e.g. for fast raising of snowplough when clearing junctions and car parks ▸ Drive for hydraulic consumers in the following output ranges: Circuit I: up to approx. 12.6 kW, circuit II: up to approx. 22 kW Y = Flow summation, circuit I and II: up to approx. 34.6 kW
▸ 4 connections for 2 dual-action cylinders	▸ Up to 4 implement positioning movements for operations such as raising and lowering implements, driving or external control of oil motors
▸ 2 positioning movements can be activated simultaneously ▸ Snowplough load relief on cell 1	▸ Simultaneous positioning movements, e.g. raise and pivot for snowplough ▸ Snowplough load relief to protect blades

Special equipment: hydraulics

▾ Feature	▾ Advantage
[HN4] Hydraulic system, dual-circuit, 3-cell, fully proportional	
▸ Dual-circuit hydraulic system with one fixed displacement gear pump per hydraulic circuit ▸ 3 dual-action control units (circuit I)	▸ 2 independent hydraulic circuits ▸ Integrated ex factory to ensure operational reliability and supply of spare parts
▸ Fully proportional control	▸ Highly precise execution of adjustment movements thanks to proportional control
▸ Circuit II for operating a permanent consumer	▸ For simultaneous driving of hydraulic motors (snowplough and gritter)
▸ Pressure and return lines, circuit II, centre of chassis on right-hand side ▸ Additional pressure and return lines for circuit II at front	▸ Alternative connection option for hydraulic motors at front and centre or additional, external control units
▸ Switchover valve (X) for switching the flow rates of circuit I and circuit II	▸ Flexible use, e.g. for fast raising of snowplough when clearing junctions and car parks
▸ Valve (Y) for flow summation of both circuits at circuit II or circuit I outputs, including with [HN6], [HN7] and [HN8] (approx. 87 l/min at 240 bar, reference output approx. 34.6 kW)	▸ Drive for hydraulic consumers in the following output ranges: Circuit I => up to approx. 12.6 kW, circuit II => up to approx. 22 kW, Y = Flow summation of circuits I and II => up to approx. 34.6 kW, e.g. for pump tank truck
▸ 6 connections for 3 dual-action cylinders	▸ Up to 6 implement positioning movements for operations such as raising and lowering implements, driving or external control of oil motor
▸ 2 positioning movements can be activated simultaneously	▸ Simultaneous positioning movements, e.g. raising and pivoting on snowploughs, front loaders, etc.
▸ Flow rate of constant pump, circuit I: approx. 32 l/min at 210 bar working pressure and engine speed of 2200 rpm, output approx. 12.6 kW	
▸ Flow rate of constant pump, circuit II: approx. 55 l/min at 240 bar working pressure and engine speed of 2200 rpm, output approx. 22 kW	
[HN6] Hydraulic system, dual-circuit, 3-cell, fully proportional, snowplough load relief	
▸ Corresponding to [HN4] + snowplough load relief	▸ Snowplough load relief to protect blades

▾ Feature	▾ Advantage
[HN7] Hydraulic system, dual-circuit, 4-cell, fully proportional	
▸ Dual-circuit hydraulic system with one fixed displacement gear pump per hydraulic circuit ▸ 4 dual-action control units (circuit I)	▸ 2 independent hydraulic circuits ▸ Integrated ex factory to ensure operational reliability and supply of spare parts
▸ Fully proportional control ▸ Circuit II for operating a permanent consumer ▸ Pressure and return lines, circuit II, centre of chassis on right-hand side	▸ Highly precise execution of adjustment movements thanks to proportional control ▸ For simultaneous driving of hydraulic motors (snowplough and gritter)
▸ Additional pressure and return lines for circuit II at front	▸ Alternative connection option for hydraulic motors at front and centre or additional, external control units
▸ Switchover valve (X) for switching the flow rates of circuit I and circuit II	▸ Flexible use, e.g. for fast raising of snowplough when clearing junctions and car parks
▸ Valve (Y) for flow summation of both circuits at circuit II or circuit I outputs (approx. 87 l/min at 240 bar, reference output approx. 34.6 kW)	▸ Drive for hydraulic consumers in the following output ranges: Circuit I => up to approx. 12.6 kW, circuit II => up to approx. 22 kW, Y = Cumulation of circuits I and II => up to approx. 34.6 kW, e.g. for pump tank truck
▸ 8 connections for 4 dual-action cylinders	▸ Up to 8 implement positioning movements for operations such as raising and lowering implements, driving oil motor, or external control
▸ 2 positioning movements can be activated simultaneously	▸ Simultaneous positioning movements, e.g. raising and pivoting on snowploughs, front loaders, etc.
▸ Flow rate of constant pump, circuit I: approx. 32 l/min at 210 bar working pressure and engine speed of 2200 rpm, output approx. 12.6 kW	
▸ Flow rate of constant pump, circuit II: approx. 55 l/min at 240 bar working pressure and engine speed of 2200 rpm, output approx. 22 kW	
[HN8] Hydraulic system, dual-circuit, 4-cell, fully proportional, snowplough load relief	
▸ Corresponding to [HN7] + snowplough load relief	▸ Snowplough load relief to protect blades

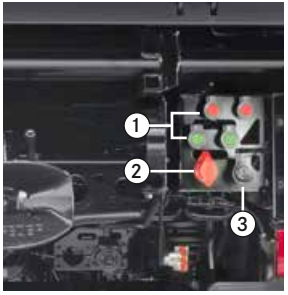
Special equipment: hydraulics

▾ Feature	▾ Advantage
[HN9] Load-sensing hydraulic system, 4-cell, with separate connection for permanent consumers and snowplough load relief	
▸ Hydraulic system with LS axial piston adjustable pump	▸ Integrated ex factory to ensure operational reliability and supply of spare parts ▸ Energy-saving as pump at 0 delivery when no consumers are being operated
▸ 4 dual-action control units with 8 connections	▸ Up to 8 implement positioning movements for operations such as raising and lowering implements, driving oil motor, or external control ▸ Flexible deployment of implements
▸ Fully proportional control	▸ Highly precise control of all adjustment movements ▸ For simultaneously driving hydraulic motors (snowplough and gritter)
▸ Connections for operating permanent consumers: ▸ Pressure and return lines located behind cab, centre right ▸ Additional pressure and return lines, front	▸ Alternative connection option for hydraulic motors at front and centre or additional, external control units (load-sensing and/or constant current, including in parallel operation) ▸ Flexible oil quantity distribution, e.g. for fast raising of snowplough when clearing junctions and car parks
▸ Flow rate 110 l/min at system pressure 240 bar and engine speed of 2200 rpm	▸ Drive for hydraulic consumers in the output range up to 44 kW ▸ Hydraulic system for high power consumption
▸ Switchover valve for alternative operation of load-sensing (LS) and/or constant current (CC) attached implements, e.g. parallel operation of LS implement at front and CC implement at rear	▸ Raise and pivot implement simultaneously (e.g. snowplough)
▸ Snowplough load relief on cell 1	▸ Snowplough load relief to protect blades

▾ Feature	▾ Advantage
[H55] Hydr. plug connection, rear, set of 4, cell 1+2	
▸ 4 additional connections at rear to cells 1 and 2 (red/green)	▸ Enables operation of rear-mounted implements
▸ Dual-action for positioning movements or continuous oil flow (can also be used in single-action mode) ▸ Front-mounted and rear-mounted implements must not be connected to the same cell ▸ Flat-sealing plug connections as per ISO 16028 ▸ Plug connections: 4 connections, size 12.5	▸ Available ex works, ensuring optimum component coordination and availability of spare parts
[HJO] Oil level warning display, working hydraulics	
▸ Installation of a sensor which indicates oil loss in the working hydraulics at an early stage ▸ If hydraulic fluid is removed (tipping of a trailer), the indicator lamp also lights up when the level drops below the “minimum” ▸ When the trailer platform is lowered (i.e. during oil return feed) the display goes out	▸ Sensor detects when oil level is below “minimum” ▸ Improved environmental protection through early display of oil loss ▸ The driver is able to detect a leak at an early stage and can counteract it. ▸ Prevention of damage to the hydraulic system

Special equipment: hydraulics

▾ Feature	▾ Advantage
[H58] Pressure line, rear, 2nd hydraulic circuit	
▸ Pressure line circuit II on right at rear of vehicle	▸ For the hydraulic driving of rear-end implements, e.g. permanent consumers such as salt and dung spreaders
▸ Flat-sealing quick-connect coupling, connector size 19 ▸ In conjunction with [HN9], a load-sensing control line connection is also installed.	▸ Direct connection to the vehicle rear end ensures short hose lengths and reduces the risk of damage ▸ Permanent consumers can still be supplied via the circuit II pressure line connection in the vehicle centre, which is included as standard with dual-circuit hydraulics (from Code HN4 to HN8).
[H59] Separate return line, rear	
▸ Additional circuit I + II return line on the right at the rear of the vehicle	▸ Additional connection for oil return when operating permanent consumers ▸ Short hose distances when connecting the return line of attached/mounted implements



Hydraulic connections, rear

① [H55] – *Hydr. plug connection, rear, set of 4, cell 1+2*

② [H58] – *Pressure line, rear, 2nd hydraulic circuit*

③ [H59] – *Separate return line, rear*

[HL4], remove, time required for removal approx. 1–2 hours

▾ Feature	▾ Advantage
[HL4] VarioPower power hydraulics, open circuit (III), 63 cc, 125 l	
▸ Open circuit with direct oil intake from the oil tank, for driving a permanent consumer ▸ Volume flow-controlled adjustable axial piston pump: max. 63 cc/rev.	▸ Fast removal of large quantities of oil at high pressure
▸ Delivery: 0–125 l/min at system pressure 280 bar and engine speed 1900 rpm ▸ Reference output: 58 kW ▸ Oil tank capacity: 55 l, max. removable 5 l ▸ Oil cooler with temperature-controlled electric fan drive, cooling output approx. 15 kW ▸ Filtered oil return to the oil tank	▸ Driving of permanent consumers that require hydraulic power up to 58 kW, saving the need for hydraulic pumps or auxiliary power units on the implement
▸ Pressure, return and leak oil line at rear	▸ Variable connection of rear implements
▸ Pressure connection as connector HS 20, return as sleeve HS 20, leak oil as sleeve HS 10	▸ Avoids mix-ups with the work hydraulics ▸ Standardised couplings for implement connection
▸ Electronic fill level sensor in oil tank ▸ Circuit in addition to working hydraulics (circuit III)	▸ Audible and visual warnings if too low
▸ Removable, platform subframe and tipping cylinder remain in vehicle	▸ Fast, easy removal of power hydraulics, approx. 1–2 hours ▸ Removable, therefore no corrosion during winter service operation ▸ Higher payload when power hydraulics are removed
[HL5] VarioPower power hydraulics, 2 open circuits (III+IV), 63 cc, 125 l	
▸ Corresponding to [HL4] + additional circuit IV*	

* When running circuit III + circuit IV in parallel, continuous delivery rates of 180 l/min are achievable. Of this total, a max. of 125 l/min can be used by one consumer. The difference between 180 l/min and the volumetric flow rate used by the first consumer is then available to a second consumer in the other circuit. For higher power requirements, an additional hydraulic oil cooler must be installed; the development department's approval must also be obtained.

Special equipment: hydraulics

▾ Feature	▾ Advantage
[H93] Pressure and return lines, front, 3rd hydraulic circuit	
▸ Pressure, return and leak oil connection at front for circuit III ▸ Pressure connection as screw coupling HS 20, connector ▸ Return connection as screw coupling HS 20, sleeve ▸ Leak oil connection as screw coupling HS 10, sleeve	▸ Front-side implement operation ▸ Easy hitching up and unhitching ▸ Cannot be mixed up thanks to plug and sleeve connection ▸ The entire hydraulic volumetric flow of the power hydraulics can be taken at the front of the vehicle. ▸ The attached implement is supplied by the hydraulics, no separate hydraulic pump/hydraulic tank is required.
[H96] Pressure and return lines, front, 3rd and 4th hydraulics circuit	
▸ Corresponding to [H93] + connections for circuit IV	▸ With the two open circuits, the entire hydraulic volumetric flow can be taken at the front of the vehicle.

Vehicle with [HN8] + [HL5] for trio mower

Plug connections, front

Electrics

Lighting

▾ Feature	▾ Advantage
▸ Lighting, front: ▸ Bi-halogen headlamps ▸ Dipped beam and main beam in a single module ▸ Located in bumper ▸ Headlamp mount and tubular bracket decoupled ▸ Daytime running lights with LED position lighting	▸ Good illumination ▸ Compact size thanks to integration of two modules (main beam and dipped beam) ▸ Well protected by wrap-around tubular bracket ▸ Headlamp does not become misaligned if it comes into contact with the tubular bracket ▸ Powerful daytime running lights
▸ Lighting, rear: ▸ 6-section tail lamp ▸ Reversing warning system with night deactivation ▸ Daytime running lights	▸ Compact size ▸ Proven parts from volume production series ▸ Safety when reversing ▸ Does not cause disturbance in municipal operations ▸ Clearly recognisable in daylight

Lighting, front

Lighting, rear

Special equipment – lighting

▾ Feature	▾ Advantage
[L47] Additional headlamps for front-mounted attachments	
▸ Full replication of lighting system (main and dipped-beam headlamps and turn signal lamps)	▸ High degree of road safety for municipal vehicles with front-mounted implements ▸ Legal requirement in line with § 50 Sections 2 and 3 of the StVZO (German Road Traffic Act) when using front-mounted implements which conceal the lower headlamps
[L60] Entrance lights at steps to cab	
▸ Steps illuminated when the door is opened ▸ Code includes compressed-air connection with hose extension and compressed-air gun ▸ Hose length 5.5 m	▸ More safety when getting in and out in the dark ▸ Makes it easier for other road users to notice and see you when the doors are open ▸ Efficient cleaning of the radiators at the work site
[L3Z] Headlamp cleaning system	
▸ The high-pressure headlamp cleaning system cleans the headlamps whilst driving Cleaning takes place: ▸ The first time the windscreen cleaning function is activated (under 1 s) after vehicle start ▸ After each fifth windscreen cleaning cycle ▸ In addition, the headlamp cleaning can be triggered at any time using a button in the overhead control panel **Note:** The headlamp cleaning system is a legal requirement for all vehicles with xenon or bi-xenon headlamps.	▸ Enhances on-road safety ▸ Ensures maximum light output ▸ Clean headlamps during dirt-intensive work ▸ Compliance with legal regulations in combination with xenon and bi-xenon headlamps

Special equipment – lighting

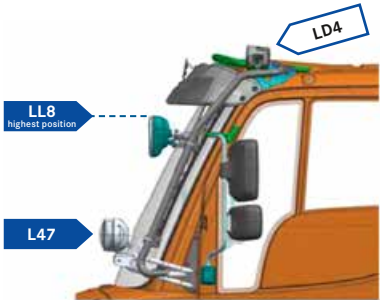
▾ Feature	▾ Advantage
[L1H] Fog lamps, halogen	
▸ Lamps: H3 halogen bulbs 24 V/70 W	
▸ Special lens directs the light cone downwards and to the side	▸ Enhanced traffic safety in poor visibility thanks to greater illumination of the roadway, including the edges of the road.
▸ Service life: approx. 1200 hours	
[LD4] Additional LED main-beam headlamps, with roof bar	
▸ Additional LED main-beam headlamps mounted on roof bar ▸ Main beam activated with the main beam of the standard headlamps ▸ Additional LED main beam activated with the main beam of the standard headlamps	▸ Improved illumination of the road in poor visibility ▸ Long service life thanks to LED technology ▸ Compact design, only slight increase in vehicle height ▸ Can be combined with sunblind ▸ Also illuminate when headlamp flasher is operated
[L9C] Pre-installation for additional headlamps, roof	
▸ Pre-installation of wiring and changeover switch on overhead control panel for retrofitting of additional lights on roof ▸ Lights with dipped beam, main beam and parking light functions can be connected directly and operated via the steering column switch. ▸ The lighting manufacturer is responsible for the wiring from the interface in the roof to the lights	▸ Simplified connection of retrofitted headlamps in the roof area by wiring up to the power distributor ▸ Cables and switches are already installed and parameters selected ready for retrofitting additional headlamps on the roof.

▾ Feature	▾ Advantage
[EV3] Power supply, 24 V, switchable, in roof	
▸ 24 V power supply, 15 A fuse ▸ Switch integrated into overhead control panel ▸ The cable from the switch to the roof is readily accessible from close to the upper DIN slots (location for tachograph).	▸ Allows retrofitting of 24 V electrical auxiliary consumers on the cab roof ▸ Ex-works fuse protection and wiring ensure safe operation of accessories ▸ Ergonomic operation courtesy of switches integrated into the overhead control panel
[LB3] Rotating beacon, LED, strobe, left	
▸ Operating voltage: 10–32 V ▸ Power consumption: max. 30 W ▸ Total power consumption: 0.45–2.5 A ▸ Approval: GGVSE/ADR ▸ 20 long-life High Power LEDs ▸ Height adjustable via telescopic bar	▸ 20 long-life high-power LEDs, no rotating/moving parts making it maintenance-free and very cost-effective to maintain ▸ Energy-efficient, ideal for continuous use
▸ Protection rating IP 67	▸ Water and dust-tight, resistant to alkalis and salt
▸ Light has brightness sensor, 2.3-times brighter during the day than at night	▸ Automatic brightness control, day/night
▸ Low installation height	▸ The light's compact dimensions mean that a lower vehicle clearance height can be achieved.
[LB4] Rotating beacon, LED, strobe, left and right	
▸ For description, see [LB3]	▸ Right and left lights

If rotating beacons are installed, warning stripes [SC4] are required by law for municipal applications. Compliance with legal regulations on identification of heavy transport vehicles or transport vehicles which exceed the legal maximum width/length.

Special equipment – lighting

▾ Feature	▾ Advantage
[LL8] Additional headlamps, height-adjustable, A-pillar	
▸ Activation by means of rocker switch in the overhead control panel ▸ Headlamp offering excellent illumination ▸ Low beam halogen H7 ▸ Main beam halogen H3 (can be combined with [LD4] – *Additional LED main beam, with roof bar*) ▸ Rigid and approx. 100 mm higher attachment on cab than previously ▸ Defined grid for height adjustment using holes ▸ The bar for height adjustment on the A-pillar is included in the scope of delivery [LL8]	▸ High level of traffic safety for vehicles with front-mounted implements ▸ Height adjustability allows adaptation to various front-mounted implements ▸ Easy adaptation thanks to clamping bolts and slider carriages ▸ No expensive retrofitting by bodybuilder/workshop necessary ▸ Narrower silhouette and closer on cab, i.e. less visibility impairment ▸ Side branch protection thanks to pillar
[L3C] Floodlight, cab rear wall, top	
▸ Illumination of implements at the rear ▸ Illumination of working areas when working is stationary position	▸ Safe working thanks to good illumination in poor light conditions (dusk, dawn, darkness, fog etc.) ▸ Full preservation of corrosion protection through delivery ex-works since this eliminates the need for retrofitting and drilling holes

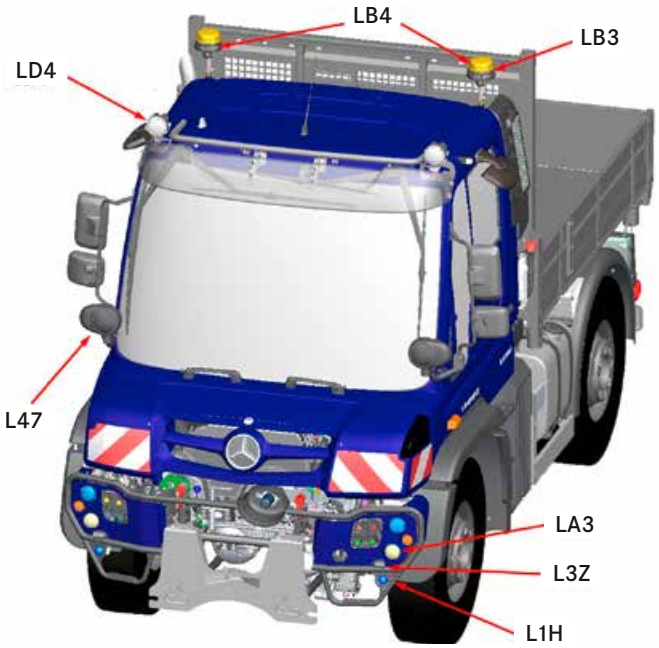


Vehicle with [LD4]/[LL8]/[L47]


Vehicle with [LL8]/[LB4]/[LD4]


Vehicle with [L3C]/[LB4]


LD4
LD4
LL8
LL8


LB4
LB3
LD4
L47
LA3
L3Z
L1H

Electronic networking

▾ Feature	▾ Advantage
▸ Electronics instead of mechanically controlled systems	▸ Precise control with short response times ▸ Functions which can no longer be implemented mechanically (e.g. frugal engine by means of software control)
▸ CAN bus: networking of electronic systems in the vehicle	▸ Very fast bidirectional data exchange between different control units in the vehicle
▸ ODB diagnostic socket	▸ Calibration and readout of relevant vehicle data (Star diagnosis)
▸ The assistance and safety systems communicate in the vehicle via CAN bus	▸ The strain on the driver is reduced in critical driving situations ▸ Compensation for driving faults ▸ Vehicle's operating state conditions are displayed immediately
▸ Central interface between cab and chassis	▸ Easy separation of the electrics from the cab (e.g. during diagnosis or repair) ▸ Electrical connections in optimised, protected location

Central interface

All operating conditions are electronically collected, evaluated and forwarded to the engine control accordingly. This ensures that, for e.g., the economically optimum gear is determined and engaged.

Ex factory, the Unimog model series fulfil regulation 72/245/EEC 'Electromagnetic Compatibility' in the version 2009/19/EC.

Special equipment – electrics

▾ Feature	▾ Advantage
[E33] Battery main switch on battery box	
▸ Facilitates manual disconnection of the vehicle electrical system from the battery power supply ▸ Switch location: on battery box at front ▸ The switch head (red) is removable: Protection from unintentional switching on or off	▸ Deliberate disconnection of all consumers from the battery to protect against battery discharge, leakage current etc. ▸ Minimises fire risk in the event of an accident
▸ The power supply to the tachograph is maintained.	▸ Certain power consumers (e.g. equipment socket, radio etc.) can be provided with uninterrupted power supply via a workshop solution
[ED2] Permanent power sockets 12 V (C3), 12 V and 24 V in centre console	
▸ 12 V permanent power socket on top of the centre console ▸ 24 V permanent power socket on front of centre console ▸ 12 V socket behind driver's seat, including C3 speed signal and earth, DIN EN 15431 compliant ▸ Apart from this: 24 V socket on top of the centre console (standard) ▸ Allows connection of suitable accessories such as a charger, coolbox, etc. (up to 180 W)	▸ Flexible, for connection of 12 V or 24 V auxiliary consumers such as a charger, cool box etc. or control unit ▸ Easily accessible, without cables getting in way of driver or co-driver ▸ C3 signal for transmission of speed signal to control units in attachments/implements (12 V)
[E40] ABS trailer socket, 24 V, additional	
▸ Located on end crossmember, on right-hand side next to tow coupling ▸ Pin assignment compliant with ISO 7638-1	▸ ABS is required by law if towing a trailer ▸ Trailers with a gross axle load of 10 t and above must be equipped with ABS

Special equipment – electrics

▾ Feature	▾ Advantage
[E24] Trailer socket, 12 V, 13-pin, additional	
▸ 13-pin 12 V power socket for trailer operation, earth connected to pin 3 ▸ Power supply via 24 V/12 V voltage transformer (24 V on-board electrical system)	▸ Allows towing trailers with 12 V lights (standard 24 V trailer power socket) ▸ Trailers with 12 V or 24 V on-board voltage can be used alternately or even in parallel.
[E44] Socket for jump starting	
▸ Fixed-installation socket for jump-starting (NATO socket), protected against polarity reversal	▸ Plug connection protected against polarity reversal prevents short circuits
▸ Starting assistance with a standardised connecting cable from vehicle to vehicle	▸ Simple and safe jump-starting
▸ Connection of an external power supply/battery charger possible	▸ Ensures the vehicle remains operable even after long downtimes
[E45] Front plug-in socket, 24 V, 7-pin	
▸ 7-pin ▸ 24 V ▸ Supplies power to turn signal, position and licence plate lamps at the front implement mounting area ▸ Design complies with ISO 1185, pin assignment to DIN EN 15431	▸ Power supply for the lighting equipment of front-mounted implements ▸ Easily accessible connection
[EL4] Alternator, 28 V/150 A	
▸ Output 4200 W	▸ Reliable, uprated alternator which ensures the power supply for the entire vehicle electrical system, all electrical loads and the batteries ▸ Offers power reserves for additional electrical loads

▾ Feature	▾ Advantage
[ED6] On-board socket, 24 V/25 A, in cab, with C3 signal	
▸ Electrical power for implements with C3 signal for speed-dependent control ▸ 3-pin	▸ For consumers such as 24 V spreader ▸ C3 vehicle speed signal
▸ Behind the driver's seat, on the cab rear wall	▸ Positioning of socket in the direct vicinity of the cable duct on the cab rear wall
▸ Openings to cable duct sealed with plugs in the cab ▸ Corresponds to DIN EN 15431	▸ Easily accessible, no hindrance of the driver/co-driver by surrounding cables
[ES6] Universal electrical interface to EN16330	
▸ 1 socket, 11-pin, on vehicle, front right of chassis, 24 V power supply + 7 vacant lines* (item 5.2.1 on illustration) ▸ 1 socket, 11-pin, on vehicle, behind cab on left, 24 V power supply + 7 vacant lines* (item 5.2.2 on illustration) ▸ 1 socket, 9-pin, on vehicle, centre console at top, C3 signal + earth + 7 vacant lines* (item 5.4 on illustration) ▸ 1 socket, 9-pin, on vehicle, centre console at bottom, C3 signal + earth + 7 vacant lines* (item 5.6 on illustration) * Including a 4-pin CAN bus line.	▸ Available ex factory. No additional retrofit work by bodybuilder (for mowers, gritters or sweepers) necessary ▸ No sealing problems on cab, due to prepared wiring harness bushings ▸ All electrical line pre-installations are routed via the cab's pivot point, which means the cab can be tilted without any problems. ▸ Plug & Work: reduced equipment times when changing seasonal attached/mounted implements ▸ Standardised interface to EN 16330

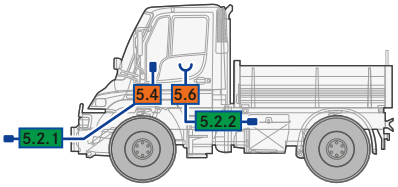


Illustration: location of sockets on vehicle [ES6]


Socket, 11-pin, front right [ES6]


Socket, 11-pin, behind cab on left [ES6]

Special equipment – electrics

▾ Feature	▾ Advantage
[E87] Equipment socket, 32-pin	
▸ Power supply for implements up to max. 40 A ▸ Speed and distance signals C3/C4 ▸ Activation/deactivation of PTOs (in conjunction with code [G48]) ▸ Interface for connecting an external (implement-side) engine remote control for start/stop, speed change ▸ Actuation of transmission for crane body or waste disposal vehicles (e.g. speed limitation, immobiliser) ▸ 8 free lines routed into the cab for use as required by the bodybuilder ▸ Signals for activated rotating beacon and reversing lights ▸ Actuation of 3 free indicator lamps	▸ Line routing via wiring harness with defined and clear assignment ▸ High level of operational reliability between vehicle and implement and during operation of the whole system

[E87] – *Equipment socket, 32-pin*

The relevant connector for [E87] – *Equipment socket* is available via Mercedes-Benz Parts:

A 043 545 15 28 – connector housing, HB-K. 16th STS-GR.1.21

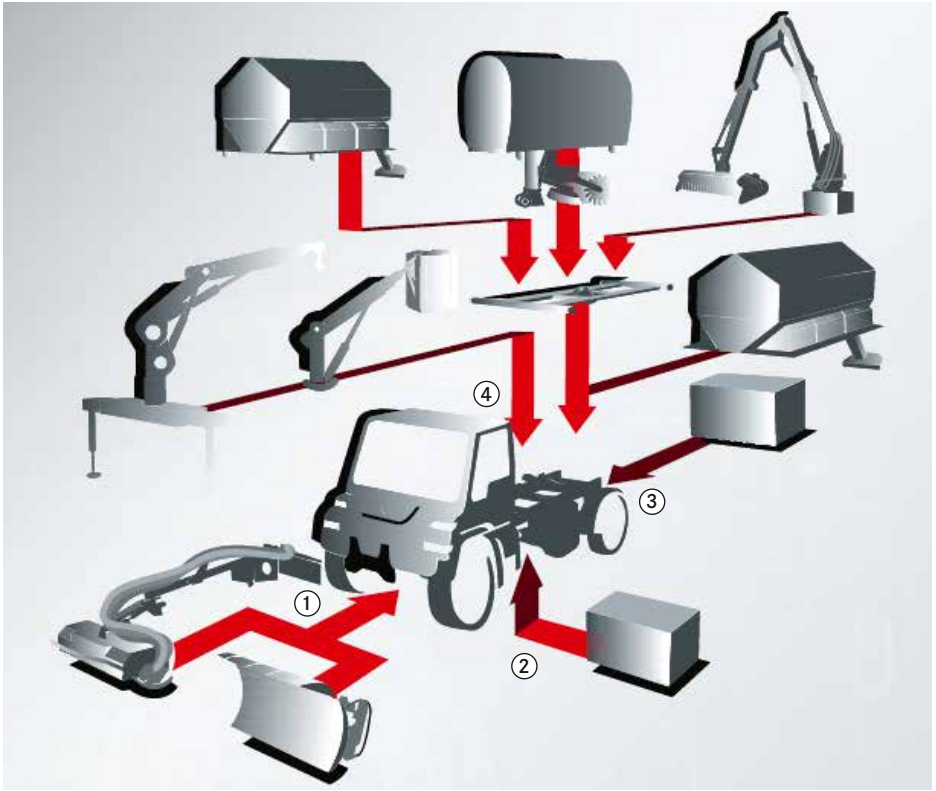
A 000 545 21 63 – Crimp contact, HE/HA-C-Sti.Ag. 2.5 mm^2

A 000 545 22 63 – Crimp contact, HE/HA-C-Sti.Ag. 1.5 mm^2

A 051 545 60 28 – Plug insert, HEE 32 Sti.C

Attachments and bodies

4 attachment and mounting areas



Attachment and mounting areas

① Front mounting area:
- Snowplough
- Verge mower

② Mounting area between the axles:
- Asphalt mill
- Broom

③ Rear mounting area:
- Excavator
- Loading crane

④ Top mounting area:

a) On platform
- Spreader
- Water tank

b) On platform subframe
- Spreader
- Sweeper
- Mower

c) On longitudinal frame member
- Implement frame with crane
- Elevating work platform
- Box body

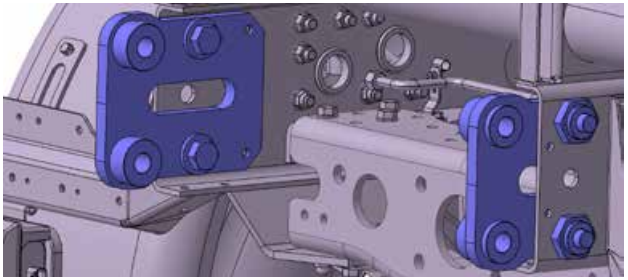
▾ Feature	▾ Advantage
▸ Implement mounting points mounting areas constructively developed ex factory with implement manufacturers 1. Front mounting area 2. Mounting area between the axles 3. Rear mounting area 4. Top mounting area	▸ Simultaneous mounting of several implements ▸ High economy ▸ Simple, standardised mounting devices for fast implement changes ▸ Room for compact sweeper body ▸ Loading cranes can be mounted at rear ▸ Fast, simple changes (securing with lashing eyelets)
▸ For 1. Standardised implement mounting plate (for fast implement changes) ▸ For 2. Sweeper ▸ For 3. Attachments secured to frame or three-point mounting (for fast implement changes) ▸ For 4. ▸ Using platform [P code] ▸ Using the ball points of the platform subframe [P60] ▸ Directly using the straight longitudinal frame member ▸ Between cab and platform	▸ Payload gain from omission of body-mounting connections ▸ Payload gain from omission of platform ▸ Payload gain from omission of platform and platform subframe ▸ Payload gain from modular, removable power hydraulics [HL4] and [HL5] ▸ Low overall centre of gravity, better driving stability ▸ Compact attachment of mounted implements between cab and platform (e.g. crane)

Unimog with mower

Unimog with crane body

Mounting points

▾ Feature	▾ Advantage
► Specified hole patterns ► Integrated fastening points with detachable parts for accommodating attachments and bodies	► No aftermarket drilling, easy mounting ► Defined and simple assembly ► Defined transmission of forces ► Prevention of overloading ► Basis for threaded connection ► Prevention of lateral movement



[CA4] – *Attachment brackets, rear*

The mounting points (special equipment item) allow body manufacturers to install bodies as per Daimler-standard.

Special equipment – mounting points

▾ Feature	▾ Advantage
[CA3] Attachment brackets, centre	
▸ In the middle of the frame ▸ On left and right frame longitudinal members ▸ Fit-up 25H11	▸ For implement mounting near the centre of the vehicle ▸ Application of static and dynamic forces at defined points ▸ High stability and favourable weight
[CA4] Attachment brackets, rear	
▸ On rear of vehicle ▸ Integrated in the left and right longitudinal frame members	▸ Can be used for implements and attachments on the rear frame end ▸ Quick-change option thanks to bolted connection
[CA9] Mounting brackets, for heavy implements/crane bodies	
▸ Mounting points for an external implement support frame for heavy implements	▸ Implement supporting frame is joined to the vehicle frame ▸ Can be changed quickly, reduces installation times ▸ High strength for heavy bodies
[CD2] Mounting parts, for gritting machines on platform	
▸ Additional strong mounting parts with lashing points for mounting heavy implements onto platform	▸ Can be used for mounting heavy implements on the platform
▸ 4 lashing eyelets, rotating and swivelling: 2 two on the platform at the front and 2 on the frame end in the attachment brackets	▸ Particularly suitable for spreaders
▸ Permissible lashing force: 3000 daN	▸ Safe and non-slip transport of the mounted implement
[CD6] Mounting parts, between axles	
▸ Inter-axle mounting points for implements ▸ Mounted to the rear axle bearing bracket	▸ For frame trusses and rear supports ▸ Deliberate diversion of tractive and compressive forces into the frame

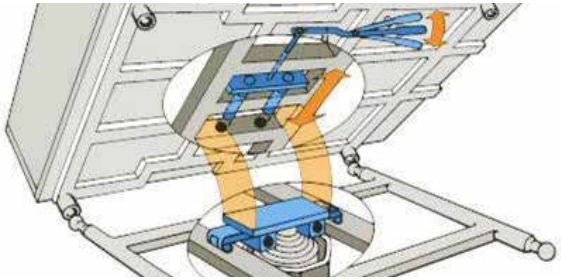
Special equipment – mounting points

▾ Feature	▾ Advantage
[CP3] Front mounting plate DIN 76060, type B, size 3	
▸ Pockets for attaching front-mounted implements	
▸ To DIN 76060, type B, size 3	▸ Old standard, compatible with existing implements
▸ Vertically adjustable by +/- 60 mm	▸ Adaptation to tyre sizes, attached implements
▸ With integrated towing jaw (max. pulling force 7.5 kN) ▸ Implements can be attached using pivot bolts and collar bolts	
[CP5] Front mounting plate EN 15432-1, type F1/C	
▸ Pockets for attaching front-mounted implements	
▸ To EN 15432-1:2011, appendix B F1/C*	▸ New standard, European-wide standardised version
▸ Vertically adjustable by +/- 60 mm	▸ Adaptation to tyre sizes, attached implements
▸ With integrated towing jaw (max. pulling force 7.5 kN) ▸ Implement attachment possible with swivelling and collar bolts	

* C = compact

Platforms

▾ Feature	▾ Advantage
► 3-sided tipper platforms	► Can be tilted by moving non-interchangeable pins
► Aluminium dropsides	► Low weight with high stability, payload gain
► Dropside latches	► Improved lever arm kinematics, reduced effort when opening and closing
► Stanchions bolted	► Easy and simple removal and exchange (e.g. for spreader mounting)
► Removable dropsides	► Easy mounting of implements
► Swinging tailboard at rear	► Easier distribution of bulk materials (e.g. sand)
► Lashing eyelets in the platform floor	► Easier load securing
► Lightweight construction through use of higher-strength steel	► Weight savings (approx. 80 kg)



Mechanism for platform quick-release system [P01]

The platform is tipped to the desired side by changing the pins.
[P01] – *Platform quick-release system* detaches the platform from the tipping cylinder.
After removal of the pins, the platform can be removed from the vehicle.

Tipping mechanism switch with [HE1]

Special equipment – platforms

▾ Feature	▾ Advantage
[P01] Platform quick-release system	
▸ Quick-action lock for tipping cylinder	▸ Platform can be detached from the tipping cylinder with just one hand ▸ Platform can be removed quickly
[P60] Platform subframe	
▸ Suitable for add-on equipment of platforms and implements ▸ Subframe mounted on longitudinal frame members by means of cup springs and mounting plates ▸ Diameter of ball pivots: 73 mm	▸ Add-on equipment can be easily installed on ball point positions ▸ Reduced installation times ▸ Can be changed quickly
[P72] Platform front panel, taller	
▸ Dropside extension made of steel ▸ Areas between the tube sections latticed with robust steel mesh ▸ Thickness 74 mm	▸ Additional protection for vehicle occupants and cab ▸ Simplified and safe transport of longer objects

Platform headboard, taller

The permitted front-axle loads may not be exceeded when loading. When using the taller platform front wall in conjunction with the spotlights [L3C], illumination of the work area may be impaired.

▾ Feature	▾ Advantage
[PB5] Platform, internal dimensions 2200 x 2075 x 400	
▸ Internal dimensions 2200 x 2075 x 400 mm ▸ Steel floor and aluminium side boards ▸ Corrosion-resistant platform floor ▸ Removable stanchions (screwed) ▸ 8 lashing points to DIN EN 12640, 1000 daN, in the floor ▸ Floor panel, 2.5 mm ▸ Rear tailboard with contour marking (yellow)	▸ Low weight with high stability, payload gain ▸ Simple to remove (exchangeable) ▸ Can be quickly removed in conjunction with [P01] ▸ Stanchions removable with vehicle tool kit ▸ Standard platform for U 200
[PB6] Platform, internal dimensions 2385 x 2075 x 400	
▸ Corresponding to [PB5] ▸ Internal dimensions 2385 x 2075 x 400 mm ▸ 8 lashing points to DIN EN 12640, 2000 daN, in the floor	▸ Standard platform for U 300/U 400, short
[PB7] Platform, internal dimensions 2650 x 2200 x 400	
▸ Corresponding to [PB6] ▸ Internal dimensions 2650 x 2200 x 400 mm	▸ Standard platform for U 500, short
[PB8] Platform, internal dimensions 2900 x 2075 x 400	
▸ Corresponding to [PB6] ▸ Internal dimensions 2900 x 2075 x 400 mm	▸ Standard platform for U 400, long
[PB9] Platform, internal dimensions 3430 x 2200 x 400	
▸ Corresponding to [PB6] ▸ Internal dimensions 3430 x 2200 x 400 mm	▸ Standard platform for U 500, long

Part B: Technical data

Contents, part B (technical data)

Engine

OM934 engine data

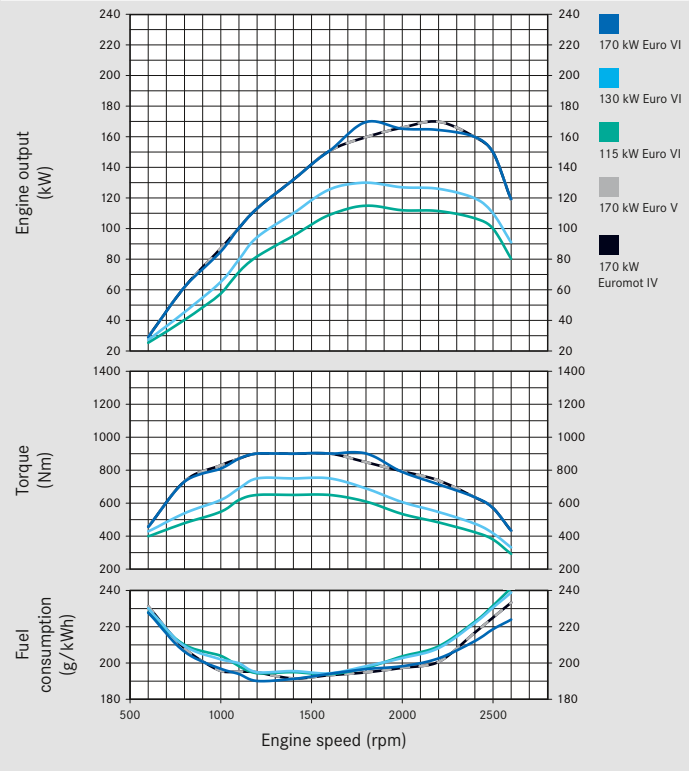
Model		OM934	OM934	OM934	OM934	OM934
Model variant		934.978	934.971	934.971	934.972	934.976
Number of cylinders/ arrangement		4, vertical in-line	4, vertical in-line	4, vertical in-line	4, vertical in-line	4, vertical in-line
Operating principle		4-stroke diesel direct injection	4-stroke diesel direct injection	4-stroke diesel direct injection	4-stroke diesel direct injection	4-stroke diesel direct injection
Output according to DIN	(**kW**/hp)	**170**/231	**115**/156	**130**/177	**170**/231	**170**/231
Rated torque	(Nm)	900	650	750	900	900
Rated speed	(rpm)	2200	1800	1800	1800	2200
Idle speed	(rpm)	720	720	720	720	720
Bore/stroke	(mm)	110/135	110/135	110/135	110/135	110/135
Total displacement	(cc)	5132	5132	5132	5132	5132
Dry weight	(kg)	500	495	495	510	500
Injection pressure	(bar)	to 2400	to 2400	to 2400	to 2400	to 2400
Compression ratio		17.6 : 1	17.6 : 1	17.6 : 1	17.6 : 1	17.6 : 1
Injection nozzle		10-hole injection nozzles	10-hole injection nozzles	10-hole injection nozzles	10-hole injection nozzles	10-hole injection nozzles
Valve arrangement		2 intake/2 exhaust valves	2 intake/2 exhaust valves	2 intake/2 exhaust valves	2 intake/2 exhaust valves	2 intake/2 exhaust valves
Crankshaft bearing		5	5	5	5	5
Fan drive		Hydrostatic	Hydrostatic	Hydrostatic	Hydrostatic	Hydrostatic
Cold-start capability/[Z0A]	(°C)	–15/–30	–15/–30	–15/–30	–15/–30	–15/–30
Engine oil and filter	(l)	17.5 max.	17.5 max.	17.5 max.	17.5 max.	17.5 max.
Radiator with heating	(l)	32	32	32	32	32
Emissions standard		**Euromot IV**	**Euro VI**	**Euro VI**	**Euro VI**	**Euro V**

OM936 engine data

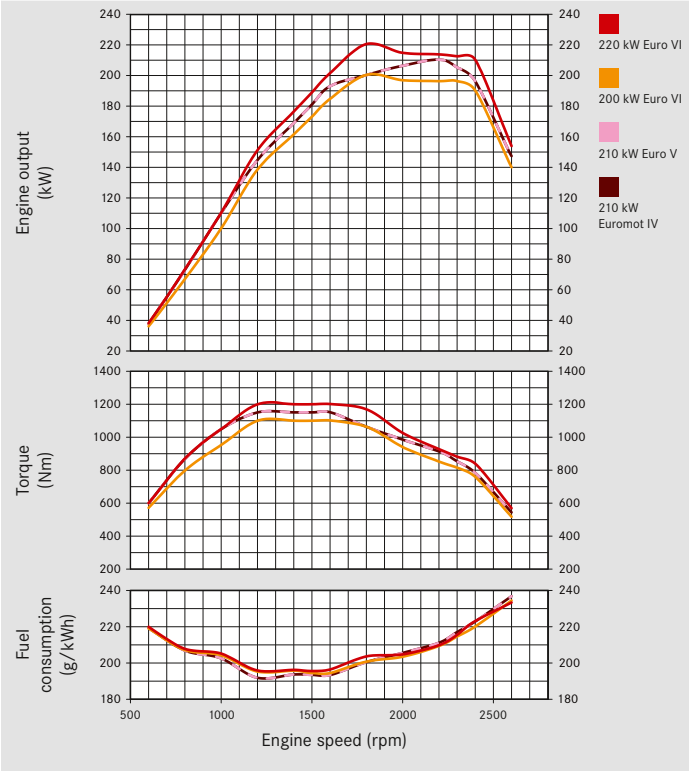
Model		OM936	OM936	OM936	OM936
Model variant		936.971	936.971	936.975	936.977
Number of cylinders/ arrangement		6, vertical in-line	6, vertical in-line	6, vertical in-line	6, vertical in-line
Operating principle		4-stroke diesel direct injection	4-stroke diesel direct injection	4-stroke diesel direct injection	4-stroke diesel direct injection
Output according to DIN	(**kW**/hp)	**200**/272	**220**/299	**210**/286	**210**/286
Rated torque	(Nm)	1100	1200	1150	1150
Rated speed	(rpm)	1800	1800	2200	2200
Idle speed	(rpm)	720	720	720	720
Bore/stroke	(mm)	110/135	110/135	110/135	110/135
Total displacement	(cc)	7698	7698	7698	7698
Dry weight	(kg)	652	652	652	652
Injection pressure	(bar)	to 2400	to 2400	to 2400	to 2400
Compression ratio		17.6 : 1	17.6 : 1	17.6 : 1	17.6 : 1
Injection nozzle		10-hole injection nozzles	10-hole injection nozzles	10-hole injection nozzles	10-hole injection nozzles
Valve arrangement		2 intake/2 exhaust valves	2 intake/2 exhaust valves	2 intake/2 exhaust valves	2 intake/2 exhaust valves
Crankshaft bearing		7x	7x	7x	7x
Fan drive		Hydrostatic	Hydrostatic	Hydrostatic	Hydrostatic
Cold-start capability/[Z0A]	(°C)	–15/–30	–15/–30	–15/–30	–15/–30
Engine oil and filter	(l)	27 max.	27 max.	27 max.	27 max.
Radiator with heating	(l)	35	35	35	35
Emissions standard		**Euro VI**	**Euro VI**	**Euro V**	**Euromot IV**

Engine

OM934 engine diagram



OM936 engine diagram



Tank capacities

		Vehicle						
		U 200	U 300	U 400			U 500	
Tank		405.090	405.104	405.105	405.110	405.125	405.202	405.222
Fuel*, standard/enlarged	(l)	145/–	145/200	145/200	200/250	200/250	200/250	200/250
AdBlue®	(l)	16	25	25	25	25	25	25

* The figure stated is the gross volume; the usable volume is the tank volume minus 10 l.

Engine brake

Variant	2-stage decompression brake
Power max.	178 kW for OM934 300 kW for OM936
Operation	Multifunction lever

Compressed-air generation	
Operating pressure	12.5 bar
Operating pressure for auxiliary consumers	8.3 bar
Air compressor	OM934: 1-stage compression (393 cc) OM936: 2-stage compression (400 cc)
Air processing	Electronic air treatment system, heated version
Delivery	OM934: 380 l/min at engine speed 2200 rpm OM936: 600 l/min at engine speed 2200 rpm
Pressure tank	Total 52 l
Compressed-air connection	Tyre inflating valve at test connection of the reservoir

Transmission

Main transmission

Model	UG 100-8/9.57-0.74 GPA, Model designation: G 718.840
Type	Fully synchronised 8-speed manual transmission with reversing group
Torque split	50 : 50

Clutch

Type	Single-plate dry clutch
Diameter	395 mm
Lining	Organic, asbestos-free
Clutch actuation	Hydraulic central clutch release bearing with pneumatic assistance to reduce pedal effort included in basic specification for all Unimog U 200 to U 500 models

U 200/U 300 vehicle speeds

	Gear ratio	Vehicle speed (km/h)			
Gear	Forwards/reverse	Basic range Forwards/reverse	Working range (x 5.757) [G20] Forwards/reverse	Crawler range (x 55.874) [G21] Forwards/reverse	Off-road gears (x 3.1875) [G22] Forwards/reverse
U 200					
1	9.570/14.569	5.9/3.9	1.03/0.68	0.11/0.07	1.86/1.22
2	6.635/10.101	8.6/5.6	1.49/0.98	0.15/0.10	2.69/1.77
3	4.375/6.660	13.0/8.5	2.26/1.48	0.23/0.15	4.08/2.68
4	3.219/4.900	17.7/11.6	3.07/ 2.02	0.31/0.21	5.54/3.64
5	2.188/3.330	26.0/17.1	4.51/2.97	0.47/0.31	8.15/5.36
6	1.517/2.309	37.5/24.6	6.51/4.28	0.67/0.44	11.76/7.72
7	1.000/1.522	56.8/–	9.87/6.49	1.02/0.67	17.83/11.71
8	0.736/1.120	77.3/–	13.42/8.82	1.38/0.91	24.24/15.92
U 300					
1	9.570/14.569	7.1/4.7	1.23/0.81	0.13/0.08	2.22/1.46
2	6.635/10.101	10.2/6.7	1.77/1.17	0.18/0.12	3.20/2.11
3	4.375/6.660	15.5/10.2	2.69/1.77	0.28/0.18	4.86/3.19
4	3.219/4.900	21.1/13.8	3.66/2.40	0.38/0.25	6.61/4.34
5	2.188/3.330	31.0/20.4	5.38/3.54	0.55/0.36	9.72/6.39
6	1.517/2.309	44.7/29.4	7.76/5.10	0.80/0.53	14.02/9.21
7	1.000/1.522	67.8/–	11.77/7.73	1.21/0.80	21.26/13.97
8	0.736/1.120	92.1*/–	16.00/10.51	1.65/1.08	28.90/18.99

Engine speed: 2200 rpm
Final drive ratio: i = 6.53
U 200 tyres: 295/60 R22.5
U 300 tyres: 315/80 R22.5

* Speed limiter at 90 km/h.

For conversion factors for vehicle speeds with different tyres, see “Vehicle speed conversion factor” chart.

U 400/U 500 vehicle speeds

	Gear ratio	Vehicle speed (km/h)			
Gear	Forwards/reverse	Basic range Forwards/reverser	Working range (x 5.757) [G20] Forwards/reverse	Crawler range (x 55.874) [G21] Forwards/reverse	Off-road gears (x 3.1875) [G22] Forwards/reverse
U 400					
1	9.570/14.569	7.2/4.8	1.26/0.82	0.13/0.09	2.27/1.49
2	6.635/10.101	10.5/6.9	1.82/1.19	0.19/0.12	3.28/2.15
3	4.375/6.660	15.9/10.4	2.75/1.81	0.28/0.19	4.97/3.27
4	3.219/4.900	21.6/14.2	3.74/2.46	0.39/0.25	6.76/4.44
5	2.188/3.330	31.7/20.8	5.51/3.62	0.57/0.37	9.95/6.54
6	1.517/2.309	45.7/30.0	7.95/5.22	0.82/0.54	14.35/9.43
7	1.000/1.522	69.4/45.6*	12.05/7.92	1.24/0.82	21.76/14.30
8	0.736/1.120	94.3*/61.9**	16.38/10.76	1.69/1.11	29.58/19.43
U 500					
1	9.570/14.569	7.1/4.6	1.23/0.81	0.13/0.08	2.22/1.46
2	6.635/10.101	10.2/6.7	1.77/1.16	0.18/0.12	3.20/2.10
3	4.375/6.660	15.4/10.1	2.68/1.76	0.28/0.18	4.85/3.18
4	3.219/4.900	21.0/13.8	3.65/2.40	0.38/0.25	6.59/4.33
5	2.188/3.330	30.9/20.3	5.37/3.53	0.55/0.36	9.69/6.37
6	1.517/2.309	44.6/29.3	7.74/5.09	0.80/0.52	13.98/9.18
7	1.000/1.522	67.6/–	11.74/7.71	1.21/0.79	21.21/13.93
8	0.736/1.120	91.9**/–	15.96/10.48	1.64/1.08	28.82/18.93

Engine speed: 2200 rpm
Final drive ratio: i = 6.38
U 400 tyres: 315/80 R22.5
U 500 tyres: 385/65 R22.5

* Speed limiter at 90 km/h.
** Only in road-rail mode.

For conversion factors for vehicle speeds with different tyres, see “Vehicle speed conversion factor” chart.

Vehicle speed conversion factor

Tyre size	DESIGNATION	U 200	U 300	U 400	U 500
275/90 R22.5	Mitas SRT2	–	–	0.986	–
295/60 R22.5	Goodyear KMAX D	Standard	0.864	–	–
315/80 R22.5	Goodyear KMAX D	1.157	Standard	Standard	–
335/80 R20	Continental MPT81	1.092	0.943	–	–
335/80 R20	Dunlop SP T9	1.092	0.943	–	–
335/80 R20	Michelin X Force ZL	1.106	0.956	–	–
365/80 R20	Continental MPT81	1.146	0.990	0.990	–
365/80 R20	Michelin XZL	1.165	1.007	1.007	–
365/85 R20	Michelin XZL	–	–	1.046	1.059
375/75 R22.5	Mitas MPT23	–	–	1.043	1.056
385/65 R22.5	Continental HTC	–	–	0.982	0.994
385/65 R22.5	Continental HSW2	–	–	0.988	Standard
385/65 R22.5	Continental HDC	–	–	0.991	1.003
395/85 R20	Michelin XML	–	–	–	1.099
395/85 R20	Michelin XZL	–	–	–	1.103

Tyre size	DESIGNATION	U 200	U 300	U 400	U 500
405/70 R20	Michelin XM47	1.130	0.977	–	–
405/70 R20	Dunlop SP T9	1.130	0.977	0.977	–
405/70 R24	Dunlop SP T9	1.237	1.069	–	–
405/70 R24	Mitas AC70G	1.235	1.067	–	–
425/65 R22.5	Michelin XZY3	–	–	1.046	1.059
425/65 R22.5	Conti HTC	–	–	1.030	1.043
425/75 R20	Michelin XM47	1.200	1.037	–	–
445/65 R22.5	Michelin XZL	–	–	1.073	1.087
445/65 R22.5	Mitas AC70+	–	–	1.061	1.074
445/70 R24	Michelin XM47	–	–	1.117	1.131
455/70 R24	Dunlop SP T9	–	–	–	1.146
495/70 R24	Michelin XM47	–	–	–	1.199
495/70 R24	Mitas AC70G	–	–	–	1. 196

The vehicle speed conversion factor allows determination of the vehicle speed with use of the given tyres, by reference to the standard tyres.

Axles

Suspension

Type	Portal axles at trailing arms and transverse control arms, hub reduction gear
Differential lock	Inter-axle differential lock, Rear differential lock, Front differential lock [A1W]
Suspension	Progressively acting coil springs
Stabiliser bars	Integrated into trailing arm

Technical data on axles

	Axle model Front axle	Axle model Rear axle	Axle flange dimension (mm)	Wheel stud hole circle (mm)	Number of wheel studs	Axle ratio
U 200/U 300	737.572	747.572	2024	275	8	6.53
U 400 / U 400 with RA aux. steering	737.583 737.583	747.583 747.584	2056 2056	335 335	10 10	6.38 6.38
U 500 / U 500 with RA aux. steering	737.592 737.592	747.592 737.593	2150 2150	335 335	10 10	6.38 6.38

Technical data on rims – U 200/U 300

Rim, 8-hole	Code	Hole circle ∅ (mm)	Track width (mm)	Rim offset (mm)	Tyre size
Drop centre rims 11 x 20	[RT2]	275	1794	115	335/80 R20 365/80 R20 405/70 R20
Steep-shoulder rims 22.5 x 9.00	[RR6]	275	1784	120	295/60 R22.5 315/80 R22.5
Semi-drop centre rim 11.00-20 SDC	[RH2]	275	1824	100	425/75 R20
Drop centre rims 13 x 24	[RN3]	275	1824	100	405/70 R24

Technical data on U 400 rims

Rim, 10-hole	Code	Hole circle ∅ (mm)	Track width (mm)	Rim offset (mm)	Tyre size
Steep-shoulder rims, 22.5 x 8.25	[R18]	335	1574	241	275/90 R22.5
Steep-shoulder rims, 22.5 x 9.00	[R40]	335	1734	161	315/80 R22.5
Semi-drop centre rim 11.00-20 SDC	[R30]	335	1726	165	365/80 R20 405/70 R20
Flat-base rims 10.00 V–20	[R32]	335	1734	161	365/85 R20
Steep-shoulder rims, 22.5 x 11.75	[R41]	335	1816	120	375/75 R22.5 385/65 R22.5
Aluminium wheels 22.5 x 11.75*	[R2T]	335	1816	120	375/75 R22.5 385/65 R22.5
Steep-shoulder rims, 22.5 x 14.00	[R42]	335	1788	134	425/65 R22.5 445/65 R22.5
Drop centre rims 13 x 24	[R96]	335	1800	128	445/70 R24
Drop centre rims 13 x 24 ET 128	[R96]	335	1800	128	445/70 R24

* A wheel/tyre combination with aluminium wheels offers weight savings for the vehicle as a whole of approx. 120 kg, compared to a wheel/tyre combination with steel wheels.

Technical data on U 500 rims

Rim, 10-hole	Code	Hole circle ∅ (mm)	Track width (mm)	Rim offset (mm)	Tyre size
Steep-shoulder rims, 22.5 x 11.75	[R41]	335	1910	120	375/75 R22.5 385/65 R22.5
Steep-shoulder rims 22.5 x 11.75	[RN6]	335	1880	135	375/75 R22.5 385/65 R22.5
Aluminium wheels 22.5 x 11.75*	[R2T]	335	1910	120	375/75 R22.5 385/65 R22.5
Aluminium rims, 22.5 x 11.75, front axle, Speedline	[R6M]	335	1880	135	375/75 R22.5 385/65 R22.5
Flat-base rims 10.00 V–20	[R32]	335	1828	161	365/85 R20 395/85 R20
Steep-shoulder rims, 22.5 x 14.00	[R43]	335	1842	154	425/65 R22.5 445/65 R22.5
Drop centre rims 13 x 24	[R97]	335	1842	154	445/70 R24 455/70 R24
Drop centre rims 13 x 24 ET 154	[R97]	335	1842	154	445/70 R24 455/70 R24
Drop centre rims DW 15L x 24	[R98]	335	1930	110	495/70 R24

* A wheel/tyre combination with aluminium wheels offers weight savings for the vehicle as a whole of approx. 120 kg, compared to a wheel/tyre combination with steel wheels.

Brakes

Braking system	
System	Dual-circuit disc brake system, Air dryer, heated
Safety	Global ABS (4-channel ABS) in all model designations. Electronic Brake Force Limiting Function (EBLF) on the rear axle, for U 300 to U 500, depending on the load status. Automatic load-dependent brake on U 200
Parking brake	Spring braking system
Holding brake on front axle	Optional [B1V], via spring-loaded actuator on rear axle, service brake on front axle. Only when the engine is running

Cab exterior

Exterior	
Structure	Steel tube supporting frame, 4-point vibration damped, Fibre composite material, corrosion-free, Tilting
Glazing	Heat-insulating glass, Laminated low panoramic windscreen, Low-view windows in doors, Large rear wall window
Mirrors	Heated exterior mirror on both sides, electrically adjustable, Wide-angle rear-view mirror heated on both sides, Kerb mirror on right, on both sides with mowing door [F12]
Doors	Fibre composite material, corrosion-free, Power windows on both sides, Optional mowing door [F12] with parallel wipers and window washing system, Electric window heating
Safety	Tested to: ECE-R-29/2*, OECD Code 6**, FMVSS 571.302***

* ECE-R: Regulations of the Economic Commission for Europe of the United Nations.
** OECD: Organisation for Economic Cooperation and Development.
*** FMVSS: Federal Motor Vehicle Safety Standards.

Cab interior

Interior	
Interior equipment	Interior lights, LED reading lamp on both sides, 3 sun visors (no centre sun visor with [EM5])
Seats	Fitted backrest and integrated head restraints on both sides, Integrated 3-point inertia-reel seat belts on both sides, Height, fore/aft and angle adjustment on both sides
Centre console	Next to driver's seat, Central controls, 2 separately usable DIN installation slots
Stowage compartments	Stowage box on cab rear wall, Compartments with bottle and can holder in the doors, 2 cup holders in the dash support, Large stowage compartment under the dash support, for LHD and transferable steering models behind driver's seat, Stowage compartment with net and stowage space, Stowage compartment in centre console
Air conditioning system	Heating/ventilation system with integrated air conditioning, 4-speed rotary switch for blower, Air recirculation switch, additional mixed-air switch, Defroster vents for windscreen and side windows, Footwell vents on both sides
Display	Instrument cluster with display
Safety	Safety locks in the doors, Combined steering and starter lock on the steering column

PTOs

[N05] Engine PTO, to rear	
Variant	Driven by engine crankshaft via intermediate gears, Flange output at the rear of the engine (on the right at approx. 1 o'clock position as viewed in direction of travel), Activated via electropneumatically actuated dog clutch, Can only be engaged with engine off and ignition on, For driving hydraulic pumps or water pumps, output assigned if [HL4]/[HL5] installed
Gear ratios	i = 0.933 (step-up)
Rotational speed at engine speed 2200 rpm	2358 rpm
Direction of rotation	Clockwise (in direction of travel)
Maximum torque	600 Nm (continuous) 720 Nm (short-term)
Maximum continuous output	148 kW
Connection	6-hole flange (ISO 7646)

[N08] Engine PTO outlet incl. front PTO shaft

Variant	Driven by single-stage gear at front end of engine crankshaft, Electrically operated oil-hydraulic multi-disc clutch with integrated stub brake, Can be switched under load when the vehicle is stationary or being driven, Engine starter lockout when PTO shaft activated, Engine torque limitation, independent oil supply with oil filter
Position	As per DIN EN 15432-1
Gear ratio	i = 2139 (reduction)
Standard rpm	1000 rpm, speed can be steplessly adjusted via electronic manual throttle
PTO shaft speed at engine speed	Power take-off shaft: 540 rpm at engine speed: 1160 rpm Power take-off shaft: 1000 rpm at engine speed: 2139 rpm Power take-off shaft: 1029 rpm at engine speed: 2200 rpm
Direction of rotation	Clockwise (in direction of travel)
Maximum continuous output	160 kW
Maximum torque of PTO shaft	1531 Nm (with limiting of engine torque to 850 Nm)
PTO shaft profile	6-spline shaft to SAE J499a/EN 15431, 1¾ inch (44.4 mm) Stub can be turned approx. 50° by hand when stationary
PTO shaft transmission oil capacity	4 l
Oil cooling	Via heat exchanger and engine cooling

[N13]/[N16]/[N19] Transmission PTO

Designation		[N13] – *Transmission PTO, high speed, with 6 hole flange*	[N16] – *Transmission PTO, high speed, with 4-hole connection*	[N19] – *Transmission PTO, very high speed, 6 hole flange*
Gear ratios		i = 1.0	i = 1.0	i = 0.61
Rotational speed at engine speed 2200 rpm	(rpm)	2200	2200	3606
Rotational direction (in direction of travel)		left	left	right
Maximum torque	(Nm)	650	650	320
Maximum continuous output	(kW)	150	150	120
Connection		6-hole flange (ISO 7646)	4-hole connection (DIN 5480)	6-hole flange (ISO 7646)

Hydraulics

Technical data on working hydraulics/load-sensing hydraulics

		[HN2]	[HN3]	[HN4]	[HN6]	[HN7]	[HN8]	[HN9]
System pressure, circuit I/II (bar)		240/–	210/240	210/240	210/240	210/240	210/240	240
Delivery volume, circuit I/II (l/min)		55/–	32/55	32/55	32/55	32/55	32/55	110
Pump displacement volume (cc)		19	11/19	11/19	11/19	11/19	11/19	45
Reference output (kW)		22	12.6/22	12.6/22	12.6/22	12.6/22	12.6/22	44
Control valves, dual-acting (cells)		2	2	3	3	4	4	4
Connections, circuit I		4	4	6	6	8	8	8
Oil reservoir	Volume (l)	62	62	62	62	62	62	62
	Capacity (l)	45	45	45	45	45	45	45
	max. possible consumption quantity (l)	25–30	25–30	25–30	25–30	25–30	25–30	25–30
Snowplough load relief*		–	X	–	X	–	X	X

* On hydraulic systems with snowplough load relief feature, it is possible to activate the automatic snowplough raising function via the driver's display. This function can be activated only if the snowplough load relief function is switched on and makes snow clearing at junctions and intersections easier. The snowplough is raised automatically as soon as reverse gear is engaged. The driver controls subsequent lowering of the snowplough via the multifunction joystick.

Technical data on power hydraulics

		[HL4]	[HL5]*
System pressure (bar)		280	280
Delivery volume, circuit III/IV (l/min)		125/–	125/90*
Pump displacement volume (cc)		63	63/63
Reference output (kW)		58	58/42*
Oil reservoir	Volume (l)	65	65
	Capacity (l)	55	55
	max. possible consumption quantity (l)	5	5
Hydraulic system		Open	Open/open

* With continuous parallel operation of both pumps max. 90 l/min + 90 l/min = 180 l/min total delivery volume, at 42 kW + 42 kW = 84 kW reference output.

Electrics

On-board electrics

On-board electrical system	24 V
Starter power	5.5 kW
Alternator output	2800 W (28 V– 100 A) (special equipment code [EL4] – *Alternator, 28 V/150 A*)
Battery	2 x 12 V/140 Ah
Trailer socket	24 V, 15-pin, with electronic trailer recognition, LED-capable 12 V, 13-pin, with voltage converter for 2 trailers [E42]
Socket	24 V socket on top of centre console (standard) With code [ED2]: ▸ 12 V permanent power socket on top of centre console ▸ 24 V permanent power socket on front of centre console ▸ 12 V socket behind driver's seat, incl. C3 speed signal and earth, DIN EN 15431 compliant
Diagnosis	Electronic vehicle management system with diagnostic interface and on-board diagnosis

Lights

Headlamps	Bi-halogen headlamps, dipped-beam, main beam, parking lamps, daytime running lamps Headlamp range adjustment, optional foglamps [L1H], optional bi-xenon headlamps, with LED daytime running lamps [LA3] and headlamp cleaning system [L3Z]
Tail light	6-chamber tail lamps, clearance, turn indicator, brake, tail and rear fog lamps on both sides, Reflectors, reversing lamps on both sides
Turn signal indicator	On both sides front and rear, additional side indicator on both sides
Lights	Clearance lamps, licence plate illumination, hazard warning lamps

Weights

Weight variants for U 200 model designation 405.090

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
405/70 R20	136G	Michelin XM47	979G67-/80	[RT2]	7.49	4.4	4.4	[TA1]
405/70 R20	136G	Michelin XM47	979G67-/80	[RT2]	8.5	4.4	4.4	[TD3]/[WD3]*
295/60 R22.5	150K	Goodyear KMAX D TL	V58K77-/90	[RR6]				
315/80 R22.5	156L	Goodyear KMAX D	F18L77-/90	[RR6]				
335/80 R20	147K	Conti MPT 81	971K36-/10	[RT2]				
	149K	Dunlop SPT 9	971K56-/20	[RT2]				
	150K	Michelin X Force ZL	Q12-K56-/80	[RT2]	**7.49**	**4.4**	**4.8**	**[TA2]**
365/80 R20	152K	Conti MPT 81	984K36-/10	[RT2]	7.99	4.8	4.8	[TD5]
	152K	Michelin XZL	984K56-/80	[RT2]	8.5	4.8	4.8	[TD6]/[WD6]*
405/70 R20	152J	Dunlop SPT 9	979J58-/20	[RT2]	10.0	5.2	5.5	[TG3]/[WG3]*
405/70 R24	149G	Mitas AC70G	T34G57-/12	[RN3]				
	152J	Dunlop SPT 9	983J57-/20	[RN3]				
425/75 R20	148G	Michelin XM47	X22G67-/80	[RH2]				

[1] Only viable for Japan.

*W codes = Additional weight variant, Germany.

Weight variants for U 300 model designation 405.104

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
405/70 R20	136G	Michelin XM47	979G67-/80	[RT2]	7.49	4.4	4.4	[TA1]
405/70 R20	136G	Michelin XM47	979G67-/80	[RT2]	8.5	4.4	4.4	[TD3]/[WD3]*
295/60 R22.5	150K	Goodyear KMAX D TL	V58K77-/90	[RR6]				
315/80 R22.5	156L	Goodyear KMAX D	F18L77-/90	[RR6]				
335/80 R20	147K	Conti MPT 81	971K36-/10	[RT2]				
	149K	Dunlop SPT 9	971K56-/20	[RT2]				
	150K	Michelin X Force ZL	Q12-K56-/80	[RT2]	**7.49**	**4.4**	**4.8**	**[TA2]**
365/80 R20	152K	Conti MPT 81	984K36-/10	[RT2]	8.5	4.8	4.8	[TD6]/[WD6]*
	152K	Michelin XZL	984K56-/80	[RT2]	11	5.5	6	[TJ1]/[WJ1]*
405/70 R20	152J	Dunlop SPT 9	979J58-/20	[RT2]				
405/70 R24	149G	Mitas AC70G	T34G57-/12	[RN3]				
	152J	Dunlop SPT 9	983J57-/20	[RN3]				
425/75 R20	148G	Michelin XM47	X22G67-/80	[RH2]				

*W codes = Additional weight variant, Germany.

Weight variants of U 400, model designation 405.105, 405.110 and 405.125

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
275/90 R22.5	153G	Mitas SRT2	D98G76-/12	[R18]		6.1	6.1	[TM7][1]
315/80 R22.5	156L	Goodyear KMAX D	F18L77-/90	[R40]				
365/80 R20	152K	Conti MPT 81	984K36-/10	[R30]				
	152K	Michelin XZL	984K56-/80	[R30]				
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]				
375/75 R22.5	165G	Mitas MPT23	S28G36-/12	[R41]/[R2T]				
385/65 R22.5	160K	Conti HTC	W48K26-/10	[R41]/[R2T]				
	160K	ContiHSW2Scan	W48K77-/10	[R41]/[R2T]	**12.1**	**6.8**	**7.0**	**[TM8]**
	164J	Conti HDC	W48J29-/10	[R41]/[R2T]				
405/70 R20	152J	Dunlop SPT 9	979J58-/20	[R30]				
425/65 R22.5	165K	Michelin XZY3	X48K26-/80	[R42]				
	165K	Conti HTC	X48-K26 -/10	[R42]				
445/65 R22.5	160G	Mitas AC70+	P48G57-/12	[R42]				
	168G	Michelin XZL	P48G56-/80	[R42]				
445/70 R24	151G	Michelin XM47	972G67-/80	[R96]		5.5	6.9	[TM5]

[1] Only for road-rail use.

Weight variants of U 400, model designation 405.105, 405.110 and 405.125

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
275/90 R22.5	153G	Mitas SRT2	D98G76-/12	[R18]	13.0	6.9	6.9	[TP2][1]
365/80 R20	152K	Conti MPT 81	984K36-/10	[R30]	12.7	6.8	7.1	[TN7]
	152K	Michelin XZL	984K56-/80	[R30]				
405/70 R20	152J	Dunlop SPT 9	979J58-/20	[R30]				
445/70 R24	151G	Michelin XM47	972G67-/80	[R96]		5.8	6.9	[TN8]
	151G	Michelin XM47	972G67-/80	[R96]			7.1	[TN9][2]
315/80 R22.5	156L	Goodyear KMAX D	F18L77-/90	[R40]	13.0	6.8	7.5	[TP4]
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]				
375/75 R22.5	165G	Mitas MPT23	S28G36-/12	[R41]/[R2T]				
385/65 R22.5	160K	Conti HTC	W48K26-/10	[R41]/[R2T]				
	160K	ContiHSW2Scan	W48K77-/10	[R41]/[R2T]				
	164J	Conti HDC	W48J29-/10	[R41]/[R2T]				
425/65 R22.5	165K	Michelin XZY3	X48K26-/80	[R42]				
	165K	Conti HTC	X48-K26 -/10	[R42]				
445/65 R22.5	160G	Mitas AC70+	P48G57-/12	[R42]				
	168G	Michelin XZL	P48G56-/80	[R42]				

[1] Only for road-rail use. [2] Only in conj. with speed 82 km/h [S5E].

Weight variants of U 400, model designation 405.105, 405.110 and 405.125

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
275/90 R22.5	153G	Mitas SRT2	D98G76-/12	[R18]	13.8	6.9	6.9	[TQ8][1]
315/80 R22.5	156L	Goodyear KMAX D	F18L77-/90	[R40]			7.5	[TQ9]
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]				
375/75 R22.5	165G	Mitas MPT23	S28G36-/12[2]	[R41]/[R2T]				
385/65 R22.5	160K	Conti HTC	W48K26-/10	[R41]/[R2T]	13.8	6.9	7.8	[TQ7]
	160K	ContiHSW2Scan	W48K77-/10	[R41]/[R2T]	14.0[3]	7.0	8.0	[TS2][3]
	164J	Conti HDC	W48J29-/10	[R41]/[R2T]				
425/65 R22.5	165K	Michelin XZY3	X48K26-/80	[R42]				
	165K	Conti HTC	X48-K26 -/10	[R42]	13.8	6.8	7.8	[TQ6]
445/65 R22.5	168G	Michelin XZL	P48G56-/80	[R42]	14.0[3]	7.0	8.0	[TS2][3]
	160G	Mitas AC70+	P48G57-/12	[R42]	13.8	6.8	7.8	[TQ6]

[1] Not in combination with road-rail manoeuvring operations [2] Available only on request. [3] 14.0 t only available with model designations 405.110 and 405.125.

Weight variants of U 500, model designation 405.202 and 405.222

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]	12.1	6.8	7.0	[TM8]
375/75 R22.5	165G	Mitas MPT23	S28G36-/12	[R41]/[R2T]/ [RN6]/[R6M]				
385/65 R22.5	160K	Conti HTC	W48K26-/10	[R41]/[R2T]/ [RN6]/[R6M]				
	160K	ContiHSW2Scan	W48K77-/10	[R41]/[R2T]/ [RN6]/[R6M]				
	164J	Conti HDC	W48J29-/10	[R41]/[R2T]/ [RN6]/[R6M]				
395/85 R20	161G	Michelin XML	987G58-/80	[R32]				
	168G	Michelin XZL	987G56-/80	[R32]				
425/65 R22.5	165K	Michelin XZY3	X48K26-/80	[R43]				
	165K	Conti HTC	X48-K26 -/10	[R43]				
445/65 R22.5	160G	Mitas AC70+	P48G57-/12	[R43]				
	168G	Michelin XZL	P48G56-/80	[R43]				
445/70 R24	151G	Michelin XM47	972G67-/80	[R97]	12.1	5.5	6.9	[TM5]
455/70 R24	154G	Dunlop SPT 9	974G56-/20	[R97]				
495/70 R24	155G	Michelin XM47	973G67-/80	[R98]	12.1	5.6	6.5	[TM6]
	155G	Mitas AC70G	U34G57-/12	[R98]				

Weight variants of U 500, model designation 405.202 and 405.222

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]	**15.5**	**7.2**	**9.0**	**[TV3]**
375/75 R22.5	165G	Mitas MPT23	S28G36-/12	[R41]/[R2T]/ [RN6]/[R6M]	16.5	7.5	9.0	[TX0]
385/65 R22.5	160K	Conti HTC	W48K26-/10	[R41]/[R2T]/ [RN6]/[R6M]				
	160K	ContiHSW2Scan	W48K77-/10	[R41]/[R2T]/ [RN6]/[R6M]				
	164J	Conti HDC	W48J29-/10	[R41]/[R2T]/ [RN6]/[R6M]				
395/85 R20	161G	Michelin XML	987G58-/80	[R32]				
	168G	Michelin XZL	987G56-/80	[R32]				
425/65 R22.5	165K	Michelin XZY3	X48K26-/80	[R43]				
445/65 R22.5	160G	Mitas AC70+	P48G57-/12	[R43]				
	168G	Michelin XZL	P48G56-/80	[R43]				
445/70 R24	151G	Michelin XM47	972G67-/80	[R97]	12.7	5.8	6.9	[TN8]
	151G	Michelin XM47	972G67-/80	[R97]			7.1	[TN9][1]
455/70 R24	154G	Dunlop SPT 9	974G56-/20	[R97]	13.0	5.5	7.5	[TP1]
495/70 R24	155G	Michelin XM47	973G67-/80	[R98]	13.5	6.0	7.7	[TP5]
	155G	Mitas AC70G	U34G57-/12	[R98]				
	155G	Michelin XM47	973G67-/80	[R98]	13.5	6.0	8.4	[TQ2]
	155G	Mitas AC70G	U34G57-/12	[R98]				
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]	16.5	7.5	9.5	[TX3]
375/75 R22.5	165G	Mitas MPT23	S28G36-/12	[RN6]/[R6M]				
385/65 R22.5	164J	Conti HDC	W48J29-/10	[RN6]/[R6M]				
395/85 R20	168G	Michelin XZL	987G56-/80	[R32]				
425/65 R22.5	165K	Michelin XZY3	X48K26-/80	[R43]				
445/65 R22.5	168G	Michelin XZL	P48G56-/80	[R43]				

[1] Only in combination with speed 82 km/h [S5E].

Weight variants of U 400, model designations 405.105, 405.110 and 405.125 – with rear-axle auxiliary steering [A54]

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
365/80 R20	152K	Conti MPT 81	984K36-/10	[R30]	12.1	6.8	7.0	[TM8]
	152K	Michelin XZL	984K56-/80	[R30]				
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]				
375/75 R22.5	165G	Mitas MPT23	S28G36-/12	[R41]				
385/65 R22.5	160K	Conti HTC	W48K26-/10	[R41]				
	160K	ContiHSW2Scan	W48K77-/10	[R41]				
	164J	Conti HDC	W48J29-/10	[R41]				
405/70 R20	152J	Dunlop SPT 9	979J58-/20	[R30]				
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]	13.0	6.8	7.5	[TP4]
375/75 R22.5	165G	Mitas MPT23	S28G36-/12	[R41]				
385/65 R22.5	160K	Conti HTC	W48K26-/10	[R41]				
	160K	ContiHSW2Scan	W48K77-/10	[R41]				
	164J	Conti HDC	W48J29-/10	[R41]				
315/80 R22.5	156 L	Goodyear KMAX D	F18L77-/90	[R40][1]				
315/80 R22.5	156 L	Goodyear KMAX D	F18L77-/90	[R40][1]	13.8	6.9	7.5	[TQ9]

[1] Weight variant tyre combination only available for model designations 405.110/125 and 405.125.

Weight variants of U 500, model designations 405.202 and 405.222 – with rear-axle auxiliary steering [A54]

Tyres	Load rating (Li)	Tyre designation	Tyre code	Rim code	Perm. GVW (t)	Perm. front axle load (t)	Perm. rear axle load (t)	Identification plate/ amending notice code
365/85 R20	164G	Michelin XZL	985G56-/80	[R32]				
375/75 R22.5	165G	Mitas MPT23	S28G36-/12	[R41]				
385/65 R22.5	160K	Conti HTC	W48K26-/10	[R41]	15.5	7.2	8.5	[TV2]
	160K	ContiHSW2Scan	W48K77-/10	[R41]				
	164J	Conti HDC	W48J29-/10	[R41]				

Trailer operation

Trailer couplings

Trailer coupling	Make	Test symbol	Jaw size (mm)	Pin diameter (mm)	Perm. tongue weight (kg)	D-value (kN)	DC-value (kN)	V-value (kN)	Hole pattern (mm)
[Q94]	Ringfeder	e11-00-6292	360 x 200	38,5	1000	137	92	40	160 x 100
[Q95]	Ringfeder	e11-00-6289	360 x 200	49	1000	200	135	75	160 x 100
[Q96] top	Ringfeder	e11-00-5997	360 x 200	48,7	1000	200	135	75	160 x 100
[Q96] bottom			200 x 100	38,5		85	85	35	

* Only available following release. Individual enquiry required. ** Only in Germany.

Towing capacities for U 200, model designation 405.090 valid from 01/2015

Permissible gross vehicle weight (kg)	Permissible towing capacities (kg)						Permissible gross combination weight (kg)
	Without brake	Inertia-activated brake	Continuous braking system				
			RDBT/CAT			ADT	
			ECM (standard)	ECM [Q33]	Tongue weight		
Truck							
7490	750	3500	11,200	11,200	1000	11,200	18,700
8000	750	3500	12,000	12,000	1000	12,000	20,000
8500	750	3500	12,700	12,700	1000	12,700	21,200
10,000	750	3500	13,000	13,000	1000	15,000	23,000*/25,000
Tractor unit							
7490	750	3500	13,000	13,000	1000	24,000	31,500**
8000	750	3500	13,000	13,000	1000	24,000	32,000**
8500	750	3500	13,000	13,000	1000	24,000	32,500**
10,000	750	3500	13,000	13,000	1000	24,000	34,000**

Truck: minimum engine power 5 kW/t, max. towing capacity 1.5 x the tractor vehicle
Tractor unit: minimum engine power 2.2 kW/t
ECM: end crossmember, RDBT/CAT: rigid draw-bar trailer/centre-axle trailer, ADT: articulated drawbar trailer
* Reduction of gross combination weight for 115 kW engine output (minimum engine output of 5 kW/t).
** Permitted for uphill/downhill gradients ≤ 7%, provided that the towing vehicle is laden up to the maximum permissible rear axle load and the permissible gross vehicle weight is observed.

Towing capacities for U 300, model designation 405.104 valid from 01/2015

Permissible gross vehicle weight (kg)	Permissible towing capacities (kg)						Permissible gross combination weight (kg)
	Without brake	Inertia-activated brake	Continuous braking system				
			RDBT/CAT			ADT	
			ECM (standard)	ECM [Q33]	Tongue weight		
Truck							
7490	750	3500	11,200	11,200	1000	11,200	18,700
8500	750	3500	12,700	12,700	1000	12,700	21,200
11,000	750	3500	13,000	13,000	1000	16,500	27,500
Tractor unit							
7490	750	3500	13,000	13,000	1000	24,000	31,500*
8500	750	3500	13,000	13,000	1000	24,000	32,500*
11,000	750	3500	13,000	13,000	1000	24,000	35,000*

Truck: minimum engine power 5 kW/t, max. towing capacity 1.5 x the tractor vehicle
Tractor unit: minimum engine power 2.2 kW/t
ECM: end crossmember, RDBT/CAT: rigid draw-bar trailer/centre-axle trailer, ADT: articulated drawbar trailer
*Permitted for uphill/downhill gradients ≤ 7%, provided that the towing vehicle is laden up to the maximum permissible rear axle load and the permissible gross vehicle weight is observed.

Towing capacities for U 400, model designation 405.105 valid from 01/2015

Permissible gross vehicle weight (kg)	Permissible towing capacities (kg)								Permissible gross combination weight (kg)
	Without brake	Inertia-activated brake	Continuous braking system						
			RDBT/CAT					ADT (all ECMs)	
			ECM (standard)	ECM [Q33] (top)	ECM [Q33] (bottom)	ECM [QA1]	Tongue weight		
Truck									
12,100	750	3500	13,000	17,900	13,000	17,900	1000	17,900	29,890
12,700	750	3500	13,000	17,600	12,700	19,000	1000	19,000	31,700
12,900	750	3500	13,000	17,200	12,500	19,300	1000	19,300	32,200
13,000	–	3500	13,000	17,000	12,400	19,500	1000	19,500	32,500
13,800	–	3500	13,000	15,800	11,800	20,000	1000	20,700	34,500
Tractor unit									
12,100	750	3500	13,000	18,000	13,000	20,000	1000 2000**	27,900	40,000*
12,700	750	3500	13,000	17,600	12,700	20,000	1000 2000**	27,300 27,200***	40,000* 39,900***
12,900	750	3500	13,000	17,200	12,500	20,000	2000**	27,100 26,300***	40,000* 39,200***
13,000	–	3500	13,000	17,000	12,400	20,000	1000 2000**	27,000 25,900***	40,000* 38,900***
13,800	–	3500	13,000	15,800	11,800	20,000	1000 2000**	26,200 23,200***	40,000* 37,000***

Truck: minimum engine power 5 kW/t, max. towing capacity 1.5 x the tractor vehicle
Tractor unit: minimum engine power 2.2 kW/t
ECM: end crossmember, RDBT/CAT: rigid draw-bar trailer/centre-axle trailer, ADT: articulated drawbar trailer

* Permitted for uphill/downhill gradients ≤ 10%, provided that the towing vehicle is laden up to the maximum permissible rear axle load and the permissible gross vehicle weight is observed.

** For agricultural and forestry approval (VH3/VH4), drawbar load of 2000 kg only with technical approval from TP/EVA, Vmax = 62 km/h (due to operation), required trailer coupling only via body manufacturer (e.g. Scharrmüller).

*** Reduced trailer load when combined with ECM [Q33] + [Q96], bottom.

Towing capacities for U 400, model designations 405.110 and 405.125 valid from 01/2015

Permissible gross vehicle weight (kg)	Permissible towing capacities (kg)								Permissible gross combination weight (kg)
	Without brake	Inertia-activated brake	Continuous braking system						
			RDBT/CAT					ADT (all ECMs)	
			ECM (standard)	ECM [Q33] (top)	ECM [Q33] (bottom)	ECM [QA1]	Tongue weight		
Truck									
12.100	750	3500	13,000	17,900	13,000	17,900	1000	17,900	29,890
12.700	750	3500	13,000	17,600	12,700	19,000	1000	19,000	31,700
12.900	750	3500	13,000	17,200	12,500	19,300	1000	19,300	32,200
13.000	–	3500	13,000	17,000	12,400	19,500	1000	19,500	32,500
13.800	–	3500	13,000	15,800	11,800	20,000	1000	20,700	34,500
14,000	–	3500	13,000	15,600	11,600	20,000	1000	21,000	35,000
Tractor unit									
12.100	750	3500	13,000	18,000	13,000	20,000	1000 2000**	27,900	40,000*
12.700	750	3500	13,000	17,600	12,700	20,000	1000 2000**	27,300 27,200***	40,000* 39,900***
12.900	750	3500	13,000	17,200	12,500	20,000	2000**	27,100 26,300***	40,900* 39,200***
13.000	–	3500	13,000	17,000	12,400	20,000	1000 2000**	27,000 25,900***	40,000* 38,900***
13.800	–	3500	13,000	15,800	11,800	20,000	1000 2000**	26,200 23,200***	40,000* 37,000***
14,000	–	3500	13,000	15,600	11,600	20,000	1000 2000**	26,000 22,700***	40,000* 36,700***

Truck: minimum engine power 5 kW/t, max. towing capacity 1.5 x the tractor vehicle, tractor unit: minimum engine power 2.2 kW/t
ECM: end crossmember, RDBT/CAT: rigid draw-bar trailer/centre-axle trailer, ADT: articulated drawbar trailer

* Permitted for uphill/downhill gradients ≤ 10%, provided that the towing vehicle is laden up to the maximum permissible rear axle load and the permissible gross vehicle weight is observed.

** For agricultural and forestry approval (VH3/VH4), drawbar load of 2000 kg only with technical approval from TP/EVA, Vmax = 62 km/h (due to operation), required trailer coupling only via body manufacturer (e.g. Scharrmüller).

*** Reduced trailer load when combined with ECM [Q33] + [Q96], bottom.

Towing capacities for U 500, model designations 405.202 and 405.222 valid from 01/2015

Permissible gross vehicle weight (kg)	Permissible towing capacities (kg)									Permissible gross combination weight (kg)
	Without brake	Inertia-activated brake	Continuous braking system							
			RDBT/CAT						ADT (all ECMs)	
			ECM (standard)	ECM [Q33] (top)	ECM [Q33] (bottom)	ECM [Q34]****	ECM [QA1]	Tongue weight		
Truck										
12,100	750	3500	13,000	17,900	13,000	–	17,900	1000	17,900	29,890
12,700	750	3500	13,000	18,000	13,000	–	19,000	1000	19,000	31,700
13,000	750	3500	13,000	18,000	13,000	–	19,500	1000	19,500	32,500
15,500	–	3500	13,000	17,300	12,600	–	20,000	1000	23,200 19,600***	38,700 35,100***
16,500	–	3500	13,000	16,200	12,000	–	20,000	1000	23,500 18,200***	40,000 34,700***

Truck: minimum engine power 5 kW/t, max. towing capacity 1.5x the tractor vehicle, tractor unit: minimum engine power 2.2 kW/t
ECM: end crossmember, RDBT/CAT: rigid draw-bar trailer/centre-axle trailer, ADT: articulated drawbar trailer

* Permitted for uphill/downhill gradients ≤ 10%, provided that the towing vehicle is laden up to the maximum permissible rear axle load and the permissible gross vehicle weight is observed.

** For agricultural and forestry approval (VH3/VH4), drawbar load of 2000 kg only with technical approval from TP/EVA, Vmax = 62 km/h (due to operation), required trailer coupling only via body manufacturer (e.g. Scharrmüller).

*** Reduced trailer load when combined with ECM [Q33] + [Q96], bottom.

**** ECM [Q34] Reinforced end crossmember, for lowered TC, only for model designation 405.202

Towing capacity for U 500, model designation 405.202 and 405.222 valid from 01/2015

Permissible gross vehicle weight (kg)	Permissible towing capacities (kg)									Permissible gross combination weight (kg)
	Without brake	Inertia-activated brake	Continuous braking system							
			RDBT/CAT						ADT (all ECMs)	
			ECM (standard)	ECM [Q33] (top)	ECM [Q33] (bottom)	ECM [Q34]****	ECM [QA1]	Tongue weight		
Tractor unit										
12,100	750	3500	13,000	18,000	13,000	24,000	20,000	1000 2000** 3000****	27,900 27,900 27,900	40.000*
12,700	750	3500	13,000	18,000	13,000	24,000	20,000	1000 2000** 3000****	27,300 27,200*** 27,300	40.000* 39.900***
12,900	750	3500	13,000	18,000	13,000	24,000	20,000	2000** 3000****	27,100 26,300*** 27,100	40.000* 39.200***
13,000	750	3500	13,000	18,000	13,000	24,000	20,000	1000 2000** 3000****	27,000 25,900*** 27,000	40.000* 38.900***
13,500	750	3500	13,000	18,000	13,000	24,000	20,000	2000** 3000****	26,500 24,100*** 26,500	40.000* 37.600***
15,500	–	3500	13,000	17,300	12,600	24,000	20,000	1000 2000** 3000****	24,500 19,600*** 24,500	40.000* 35.100***
16,500	–	3500	13,000	16,200	12,000	24,000	20,000	1000 2000** 3000****	23,500 18,200*** 23,500	40.000* 34.700***

Truck: minimum engine power 5 kW/t, max. towing capacity 1.5x the tractor vehicle, tractor unit: minimum engine power 2.2 kW/t
ECM: end crossmember, RDBT/CAT: rigid draw-bar trailer/centre-axle trailer, ADT: articulated drawbar trailer

* Permitted for uphill/downhill gradients ≤ 10%, provided that the towing vehicle is laden up to the maximum permissible rear axle load and the permissible gross vehicle weight is observed.

** For agricultural and forestry approval (VH3/VH4), drawbar load of 2000 kg only with technical approval from TP/EVA, Vmax = 62 km/h (due to operation), required trailer coupling only via body manufacturer (e.g. Scharrmüller).

*** Reduced trailer load when combined with ECM [Q33] + [Q96], bottom.

**** ECM [Q34] Reinforced end crossmember, for lowered TC, only for model designation 405.202

Wheels/tyres

Tyre availabilities

Tyre size	Designation	Tyre code	U 200	U 300	U 400		U 500
			2800	3000	3000	3150/3600	3350/3900
275/90 R22.5	Mitas SRT 2	D98G76-/12	–	–	X	X	–
295/60 R22.5	Goodyear KMAX D TL	V58-K77-/90	X	X	–	–	–
315/80 R22.5	Goodyear KMAX D TL	F18-L77-/90	X	X	X	X	–
315/80 R22.5	Goodyear KMAX D	F18L77-/90	X	X	X	X	–
335/80 R20	Continental MPT81	971K36-/10	X	X	–	–	–
335/80 R20	Dunlop SP T9	971K56-/20	X	X	–	–	–
335/80R20	Michelin X Force ZL	Q12-K56-/80	X	X	–	–	–
365/80 R20	Continental MPT81	984K36-/10	X	X	X	X	–
365/80 R20	Michelin XZL	984K56-/80	X	X	X	X	–
365/85 R20	Michelin XZL	985G56-/80	–	–	X	X	X
375/75 R22.5	Mitas MPT23	S28G36-/12	–	–	X	X	X
385/65 R22.5	Continental HTC	W48K26-/10	–	–	X	X	X
385/65 R22.5	Continental HSW2	W48K77-/10	–	–	X	X	X
385/65 R22.5	Continental HDC	W48J29-/10	–	–	X	X	X
395/85 R20	Michelin XML	987G58-/80	–	–	–	–	X
395/85 R20	Michelin XZL	987G56-/80	–	–	–	–	X

Tyre availabilities

Tyre size	Designation	Tyre code	U 200	U 300	U 400		U 500
			2800	3000	3000	3150/3600	3350/3900
405/70 R20	Michelin XM47	979G67-/80	X	X	–	–	–
405/70 R20	Dunlop SP T9	979J58-/20	X	X	X	X	–
405/70 R24	Dunlop SP T9	983J57-/20	X	X	–	–	–
405/70 R24	Mitas AC70G	T34G57-/12	X	X	–	–	–
425/65 R22.5	Michelin XZY3	X48K26 -/80	–	–	X	X	X
425/65 R22.5	Conti HTC	X48-K26 -/10	–	–	X	X	X
425/75 R20	Michelin XM47	X22G67-/80	X	X	–	–	–
445/65 R22.5	Mitas AC70+	P48G57-/12	–	–	X	X	X
445/65 R22.5	Michelin XZL	P48G56-/80	–	–	X	X	X
445/70 R24	Michelin XM47	972G67-/80	–	–	X	X	X
455/70 R24	Dunlop SP T9	974G56-/20	–	–	–	–	X
495/70 R24	Michelin XM47	973G67-/80	–	–	–	–	X
495/70 R24	Mitas AC70G	U34G57-/12	–	–	–	–	X

Tyres (technical data)

Tyre size	Designation	Tyre code	Tread	LI	V*	Rolling circum-ference (mm)	Stat. radius (mm)	Width (mm)	External diameter (mm)	Tyre labels				Marking to ECE-R117 3PMSF
										Fuel eff.	Wet grip	Noise (dBA)	Noise category	
275/90 R22.5	Mitas SRT 2	D98G76-/12	Road/rail	153	G	3261	491	270	1076	F	B	72	))	Exempt
295/60 R22.5	Goodyear KMAX D TL	V58-K77-/90	On-road	150	K	2858	435	288	937	C	B	72	)	Yes
315/80 R22.5	Goodyear KMAX D TL	F18L77-/90	Road	156	L	3307	510	313	1094	D	C	77	)))	Yes
315/80 R22.5	Goodyear KMAX D	F18L77-/90	Road	156	L	3307	510	313	1094	D	C	71	)	Yes
335/80 R20	Continental MPT81	971K36-/10	On-road/ off-road	147	K	3120	480	320	1032	–	–	–	–	Exempt
335/80 R20	Dunlop SP T9	971K56-/20	Off-road	149	K	3120	482	320	1035	–	–	–	–	No
335/80 R20	Michelin X Force ZL	Q12-K56-/80	Off-road	150	K	3160	478	341	1037	–	–	–	–	Exempt
365/80 R20	Continental MPT81	984K36-/10	On-road/ off-road	152	K	3275	502	380	1089	–	–	–	–	Exempt
365/80 R20	Michelin XZL	984K56-/80	Off-road	152	K	3330	501	372	1096	–	–	–	–	Exempt
365/85 R20	Michelin XZL	985G56-/80	Off-road	164	G	3460	520	368	1144	–	–	–	–	Exempt

* (km/h)

Additional tyre marking in accordance with UNECE R117

In line with new legislation, tyres manufactured from January 2018 and intended for use on any vehicle on public roads in wintry conditions must be marked with the 3PMSF symbol (3 Peak Mountain Snow Flake), in line with UNECE R117.

3PMSF
(3 Peak Mountain Snow Flake)

For tyres with MPT (Multi-Purpose Tyre)/POR (Professional Off Road) marking which are exempt from the labelling requirement of ECE-R117, please refer to the table.

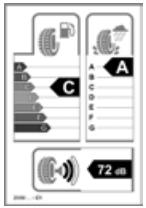
Tyres (technical data)

Tyre size	Designation	Tyre code	Tread	Li	V*	Rolling circum-ference (mm)	Stat. radius (mm)	Width (mm)	External diameter (mm)	Tyre labels				Marking to ECE-R117 3PMSF
										Fuel eff.	Wet grip	Noise (dBA)	Noise category	
375/75 R22.5	Mitas MPT23	S28G36-/12	Off-road	164	G	3449	516	375	1140	–	–	–	–	No
385/65 R22.5	Continental HTC	W48K26-/10	Road	160	K	3248	495	389	1072	D	C	73	))	No
385/65 R22.5	Continental HSW2	W48K77-/10	Road	160	K	3267	497	378	1066	D	C	73	))	Yes
385/65 R22.5	Continental HDC	W48J29-/10	Road	164	J	3276	496	379	1069	D	C	73	))	Yes
395/85 R20	Michelin XML	987G58-/80	Off-road	161	G	3590	541	390	1187	–	–	–	–	Exempt
395/85 R20	Michelin XZL	987G56-/80	Off-road	168	G	3604	542	388	1189	–	–	–	–	Exempt

* (km/h)

Tyre labels

Since 1st November 2012 manufacturers of tyres for passenger cars and for light and heavy-duty commercial vehicles must produce tyre labels for their products. The tyre labels provide information on fuel consumption, wet adhesion and noise emissions of the tyres concerned and are included in the form of tags or stickers.



The labelling does not apply for “off-road professional tyres” (EC 661/2009).

Tyres (technical data)

Tyre size	Designation	Tyre code	Tread	Li	V*	Rolling circum-ference (mm)	Stat. radius (mm)	Width (mm)	External diameter (mm)	Tyre labels				Marking to ECE-R117 3PMSF
										Fuel eff.	Wet grip	Noise (dBA)	Noise category	
405/70 R20	Michelin XM47	979G67-/80	Field	136	G	3230	498	345	1082	–	–	–	–	Exempt
405/70 R20	Dunlop SP T9	979J58-/20	Off-road	152	J	3230	495	407	1076	–	–	–	–	Exempt
405/70 R24	Dunlop SP T9	983J57-/20	Off-road	152	J	3535	546	407	1178	–	–	–	–	No
405/70 R24	Mitas AC70G	T34G57-/12	Off-road	149	G	3530	541	419	1166	–	–	–	–	Exempt
425/65 R22.5	Michelin XZY3	X48K26-/80	Off-road	165	K	3460	523	425	1136	C	B	73	))	No
425/65 R22.5	Conti HTC	X48-K26 -/10	On-road/ off-road	165	K	3406	518	440	1124	C	C	76	)))	Yes
425/75 R20	Michelin XM47	X22G67-/80	Field	148	G	3430	513	440	1152	–	–	–	–	Exempt
445/65 R22.5	Mitas AC70+	P48G57-/12	Off-road	160	G	3509	536	450	1172	–	–	–	–	Exempt
445/65 R22.5	Michelin XZL	P48G56-/80	Off-road	168	G	3550	537	448	1168	–	–	–	–	Exempt
445/70 R24	Michelin XM47	972G67-/80	Field	151	G	3695	568	467	1258	–	–	–	–	Exempt
455/70 R24	Dunlop SP T9	974G56-/20	Off-road	154	G	3745	576	452	1248	–	–	–	–	No
495/70 R24	Michelin XM47	973G67-/80	Field	155	G	3916	587	506	1313	–	–	–	–	Exempt
495/70 R24	Mitas AC70G	U34G57-/12	Off-road	155	G	3908	582	483	1313	–	–	–	–	Exempt

* (km/h)

Additional tyre marking in accordance with UNECE R117

In line with new legislation, tyres manufactured from January 2018 and intended for use on any vehicle on public roads in wintry conditions must be marked with the 3PMSF symbol (3 Peak Mountain Snow Flake), in line with UNECE R117.

3PMSF
(3 Peak Mountain Snow Flake)

For tyres with MPT (Multi-Purpose Tyre)/POR (Professional Off Road) marking which are exempt from the labelling requirement of ECE-R117, please refer to the table.

Tyre load capacities

LI	kg	LI	kg	LI	kg	LI	kg	LI	kg
101	825	121	1450	141	2575	161	4625	181	8250
102	850	122	1500	142	2650	162	4.750	182	8500
103	875	123	1550	143	2725	163	4875	183	8750
104	900	124	1600	144	2800	164	5000	184	9000
105	925	125	1650	145	2900	165	5150	185	9250
106	950	126	1700	146	3000	166	5300	186	9500
107	975	127	1750	147	3075	167	5450	187	9750
108	1000	128	1800	148	3150	168	5600	188	10,000
109	1030	129	1850	149	3250	169	5800	189	10,300
110	1060	130	1900	150	3350	170	6000	190	10,600
111	1090	131	1950	151	3450	171	6150	191	10,900
112	1120	132	2000	152	3550	172	6300	192	11,200
113	1150	133	2060	153	3650	173	6500	193	11,500
114	1180	134	2120	154	3750	174	6700	194	11,800
115	1215	135	2180	155	3875	175	6900	195	12,150
116	1250	136	2240	156	4000	176	7100	196	12,500
117	1285	137	2300	157	4125	177	7300	197	12,850
118	1320	138	2360	158	4250	178	7500	198	13,200
119	1360	139	2430	159	4375	179	7750	199	13,600
120	1400	140	2500	160	4500	180	8000	200	14,000

LI Load index per tyre

Speed allocation

Maximum driving speed* (km/h)	Permissible tyre load capacity** (%)					
	F	G	J	K	L	M
15	165	165	165	165	165	165
20	150	150	150	150	150	150
25	135	135	135	135	135	135
30	125	125	125	125	125	125
35	119	119	119	119	119	119
40	115	115	115	115	115	115
45	113	113	113	113	113	113
50	112	112	112	112	112	112
55	111	111	111	111	111	111
60	110	110	110	110	110	110
65	107.5	108.5	108.5	108.5	108.5	108.5
70	105	107	107	107	107	107
75	102.5	105.5	105.5	105.5	105.5	105.5
80	**100**	104	104	104	104	104
85	97	102	103	103	103	103
90	94	**100**	102	102	102	102
95	90	97.5	101	101	101	101
100	85	95	**100**	100	100	100
105	–	92	98	100	100	100
110	–	87	96	**100**	100	100
115	–	–	93	97	100	100
120	–	–	88	93	**100**	100
125	–	–	–	–	–	100
130	–	–	–	–	–	**100**

* Interpolation permissible.

** At speeds above the tyre reference speed only lower tyre load capacities may be used.
In addition to this the air pressure valid for the “Tyre load capacities” table must not be reduced.

Speed allocation

Application-dependent speed* (km/h)	Permissible tyre load capacity** (%)					
	F	G	J	K	L	M
Standstill	250	–	–	–	–	–
up to 5	210	–	–	–	–	–
up to 10	180	–	–	–	–	–

* Interpolation permissible.
** At speeds above the tyre reference speed only lower tyre load capacities may be used.
In addition to this the air pressure valid for the “Tyre load capacities” table must not be reduced.

Truck tyres	
Branch	Municipal, construction industry
Operational area	On-road, winter service
Good suitability	Paved roads, trails and areas
Less suitable	Soft ground with low load capacity

Goodyear KMAX D	Michelin XZY3
315/80 R22.5 295/60 R22.5	425/65 R22.5
Directional	Non-directional

Truck tyres	
Branch	Municipal, construction industry
Operational area	On-road, winter service
Good suitability	Paved roads, trails and areas
Less suitable	Soft ground with low load capacity

Continental HSW2	Continental HTC 1	Continental HDC	Continental HTC
385/65 R22.5	385/65 R22.5	385/65 R22.5	425/65 R22.5
Non-directional	Non-directional	Non-directional	Non-directional

MPT (multi-purpose tyres)	
Branch	Transport, building construction, energy, municipal, industry, expeditions, disaster relief
Operational area	On-road/off-road
Good suitability	Paved and unpaved roads, trails and areas; tractive operations
Less suitable	Soft ground with low load capacity

Continental MPT81	Dunlop SP T9	Michelin XML
335/80 R20 365/80 R20	335/80 R20 405/70 R20 405/70 R24 455/70 R24	395/85 R20
Non-directional	Non-directional	Directional
Good winter service properties	Good off-road properties	–

MPT (multi-purpose tyres)	
Branch	Transport, building construction, energy, municipal, industry, expeditions, disaster relief
Operational area	On-road/off-road
Good suitability	Paved and unpaved roads, trails and areas; tractive operations
Less suitable	Soft ground with low load capacity

Michelin XZL	Michelin XZL	Mitas MPT23
365/80 R20 365/85 R20 395/85 R20	445/65 R22.5	375/75 R22.5
Non-directional	Non-directional	Non-directional

AS tyres	
Branch	Agriculture, energy sector, building construction, open-pit mining
Operational area	Fields, grassland, ground with low load capacity
Good suitability	Unpaved roads, trails and areas/high tractive operations
Less suitable	Winter service operations, paved roads/permanent high utilisation rate

Michelin XM47	Mitas AC70G	Mitas AC70+
405/70 R20 425/75 R20 445/70 R24 495/70 R24	405/70 R24 495/70 R24	445/65 R22.5
Directional	Directional	Directional

Road-rail tyres

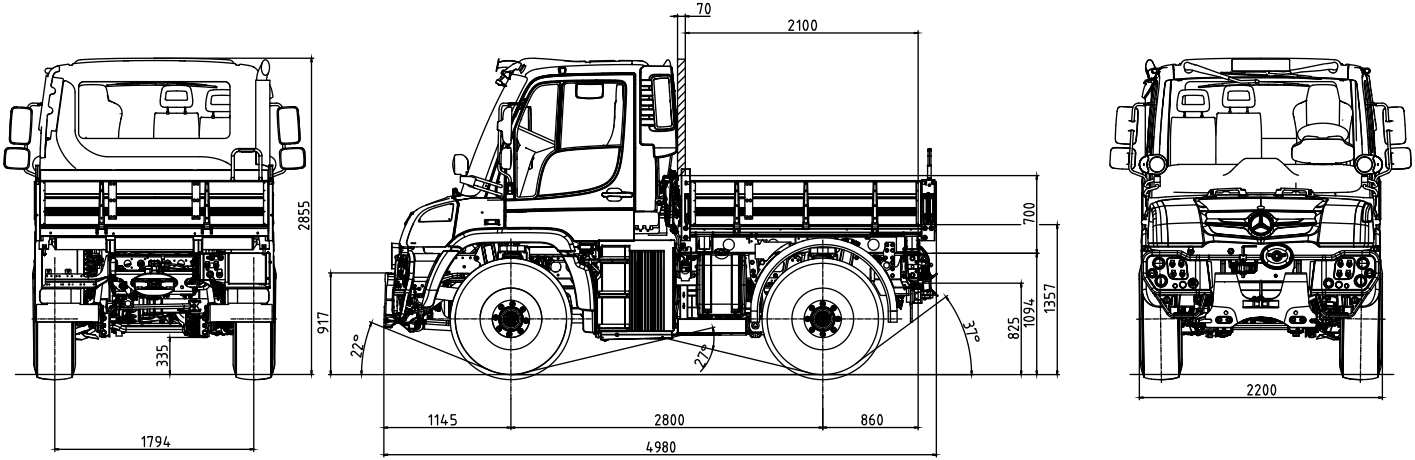
Branch	Industry
Operational area	Road-rail operations
Good suitability	Rubber/steel
Less suitable	Soft ground with low load capacity

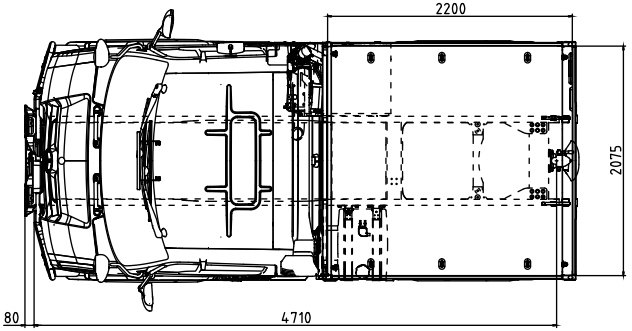
Mitas SRT2

275/90 R22.5
Non-directional

Technical drawing

U 200, model designation 405.090





Depiction with suspension compressed:

FA:	3500 kg
RA:	5500 kg
GVW:	9000 kg

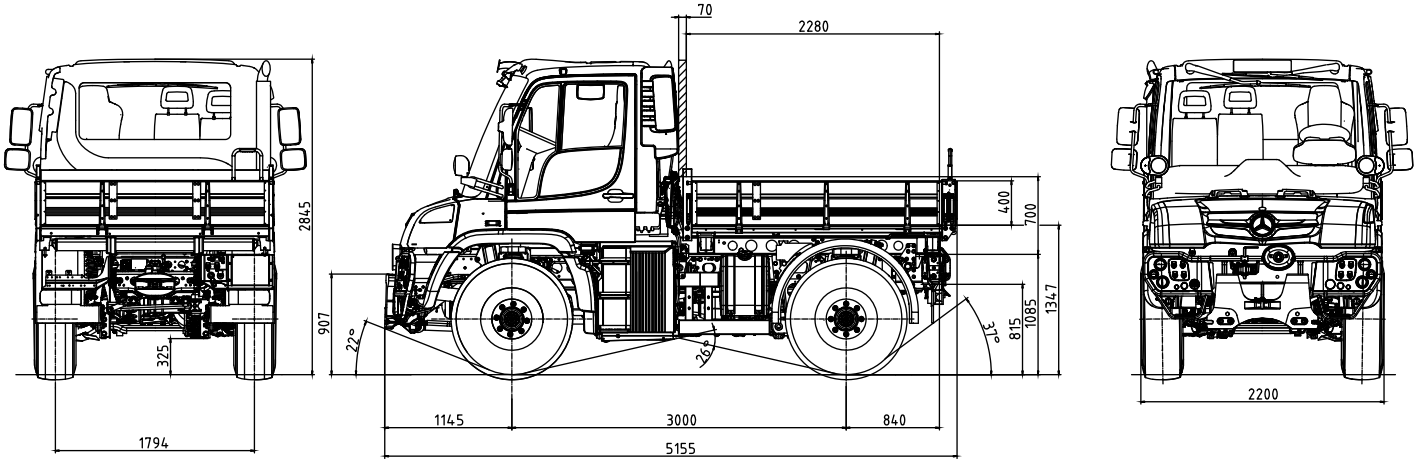
Turning circle ø 12.6 m

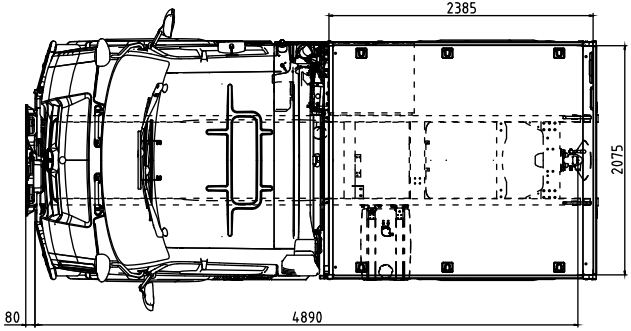
All dimensions in mm
Vehicle depicted with tyres: 365/80 R20

Special versions

[B5B] – *Trailer brake, 2-line*
[C7H] – *Underride guard, lateral*
[CD6] – *Mounting parts between axles*
[CP5] – *Front mounting plate EN 15432-1, type F1/C*
[DB5] – *Twin co-driver's seat*
[E87] – *Equipment socket, 32-pin*
[HE1] – *Hydraulics for tilting mechanism*
[HN8] – *Hydr. system, 2-circuit, 4-cell*
[H55] – *Hydr. plug connection, rear, set of 4, cell 1+2*
[H58] – *Pressure line, rear, 2nd hydraulic circuit*
[H59] – *Separate return line, rear*
[L47] – *Additional headlamps for front-mounted attachments*
[N08] – *Engine PTO outlet incl. front PTO shaft*
[P60] – *Platform subframe* + [PB5] – *Platform*
[Q95] – *Trailer coupling, large jaw, Ringfeder, pin 48.7*

U 300, model designation 405.104





Depiction with suspension compressed:

FA:	3790 kg
RA:	6000 kg
GVW:	9790 kg

Turning circle ⌀ 13.7 m

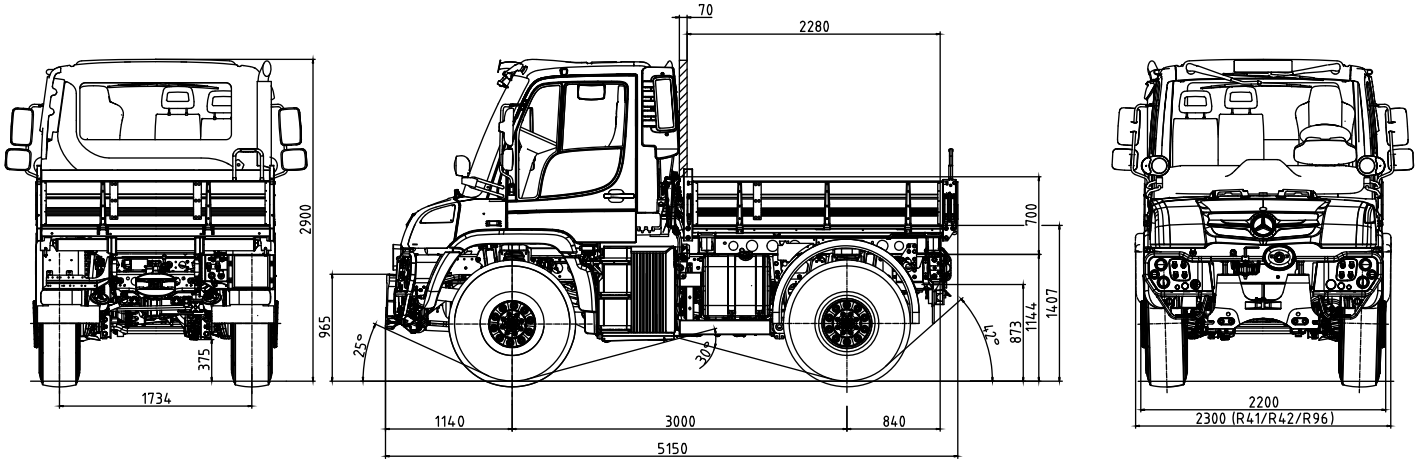
All dimensions in mm
Vehicle depicted with tyres: 365/80 R20

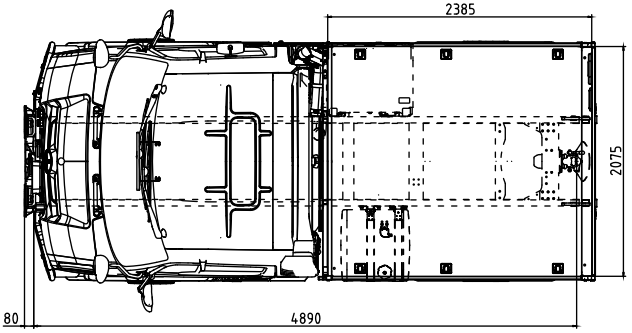
Special versions

[B5B] – *Trailer brake, 2-line*
[C7H] – *Underride guard, lateral*
[CD6] – *Mounting parts between axles*
[CP5] – *Front mounting plate EN 15432-1, type F1/C*
[DB5] – *Twin co-driver's seat*
[E87] – *Equipment socket, 32-pin*
[HE1] – *Hydraulics for tilting mechanism*
[HN8] – *Hydr. system, 2-circuit, 4-cell*
[H55] – *Hydr. plug connection, rear, set of 4, cell 1+2*
[H58] – *Pressure line, rear, 2nd hydraulic circuit*
[H59] – *Separate return line, rear*
[L47] – *Additional headlamps for front-mounted attachments*
[N08] – *Engine PTO outlet incl. front PTO shaft*
[P60] – *Platform subframe* + [PB6] – *Platform*
[Q95] – *Trailer coupling, large jaw, Ringfeder, pin 48.7*

Technical drawing

U 400, model designation 405.105





Depiction with suspension compressed:

FA:	4170 kg
RA:	7800 kg
GVW:	11,970 kg

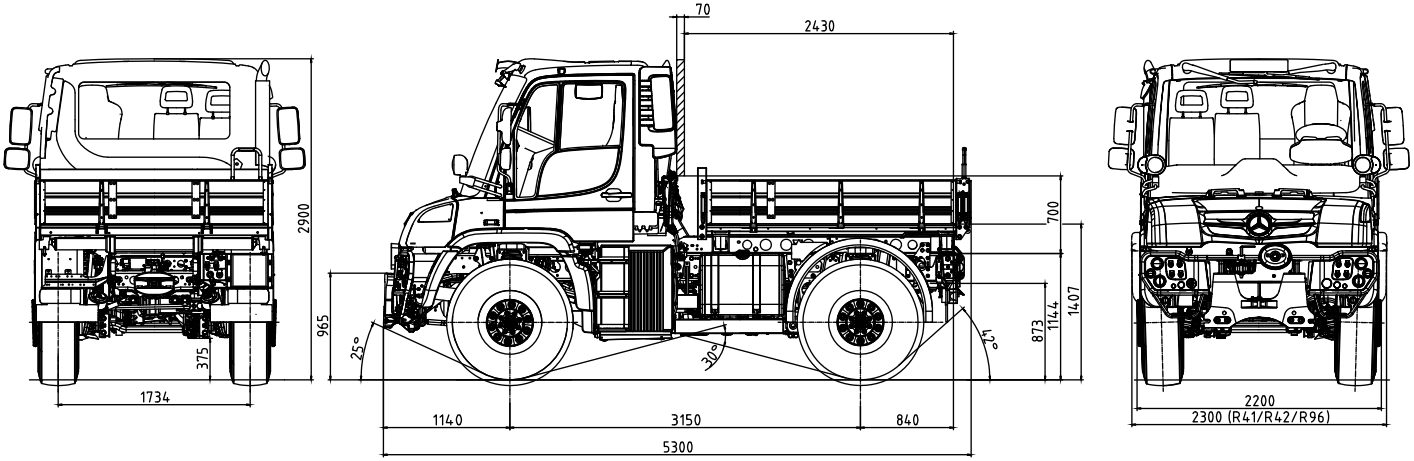
Turning circle ø 13.7 m

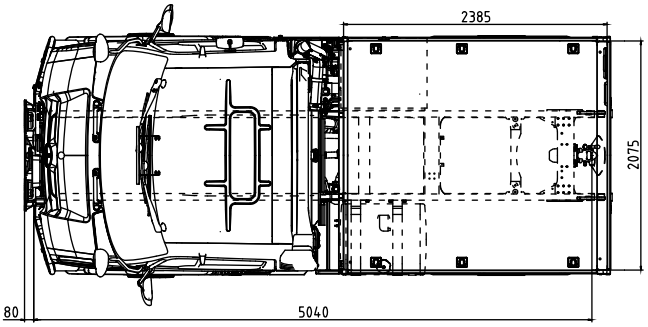
All dimensions in mm
Vehicle depicted with tyres: 365/85 R20

Special versions

[B5B] – *Trailer brake, 2-line*
[C7H] – *Underride guard, lateral*
[CD6] – *Mounting parts between axles*
[CP5] – *Front mounting plate EN 15432-1, type F1/C*
[DB5] – *Twin co-driver's seat*
[E87] – *Equipment socket, 32-pin*
[HE1] – *Hydraulics for tilting mechanism*
[HN8] – *Hydr. system, 2-circuit, 4-cell*
[H55] – *Hydr. plug connection, rear, set of 4, cell 1+2*
[H58] – *Pressure line, rear, 2nd hydraulic circuit*
[H59] – *Separate return line, rear*
[L47] – *Additional headlamps for front-mounted attachments*
[N08] – *Engine PTO outlet incl. front PTO shaft*
[P60] – *Platform subframe* + [PB6] – *Platform*
[Q95] – *Trailer coupling, large jaw, Ringfeder, pin 48.7*

U 400, model designation 405.110





Depiction with suspension compressed:

FA: 4170 kg
RA: 7800 kg
GVW: 11,970 kg

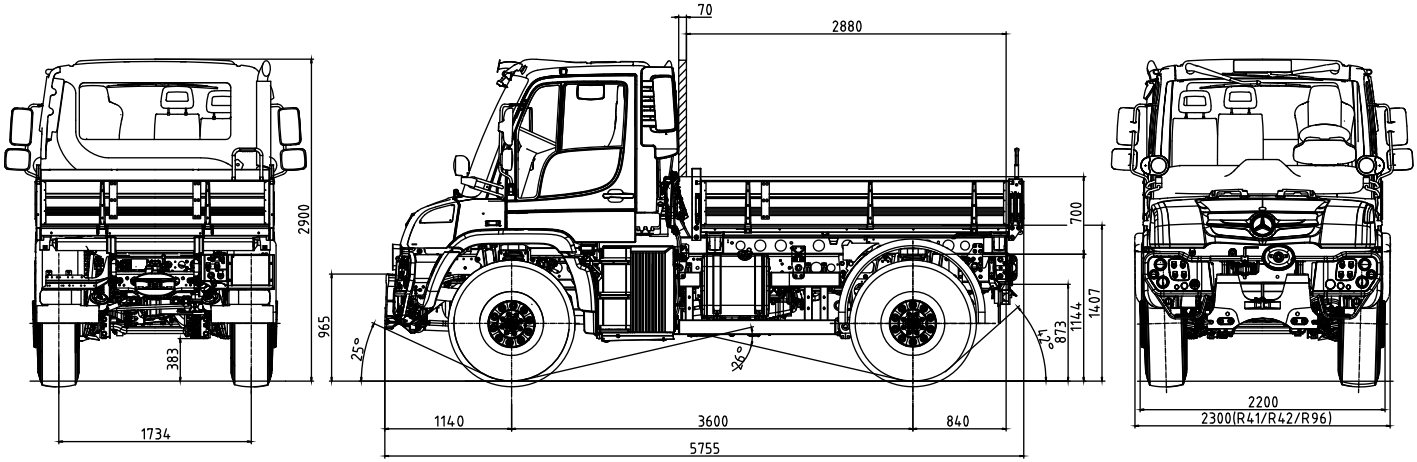
Turning circle ø 14.3 m

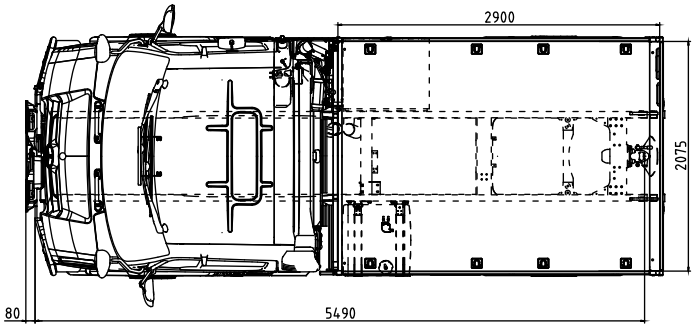
All dimensions in mm
Vehicle depicted with tyres: 365/85 R20

Special versions
[B5B] – *Trailer brake, 2-line*
[C7H] – *Underride guard, lateral*
[CD6] – *Mounting parts between axles*
[CP5] – *Front mounting plate EN 15432-1, type F1/C*
[DB5] – *Twin co-driver's seat*
[E87] – *Equipment socket, 32-pin*
[HE1] – *Hydraulics for tilting mechanism*
[HN8] – *Hydr. system, 2-circuit, 4-cell*
[H55] – *Hydr. plug connection, rear, set of 4, cell 1+2*
[H58] – *Pressure line, rear, 2nd hydraulic circuit*
[H59] – *Separate return line, rear*
[L47] – *Additional headlamps for front-mounted attachments*
[N08] – *Engine PTO outlet incl. front PTO shaft*
[P60] – *Platform subframe* + [PB6] – *Platform*
[Q95] – *Trailer coupling, large jaw, Ringfeder, pin 48.7*

Technical drawing

U 400, model designation 405.125





Depiction with suspension compressed:

FA:	4170 kg
RA:	7800 kg
GVW:	11,970 kg

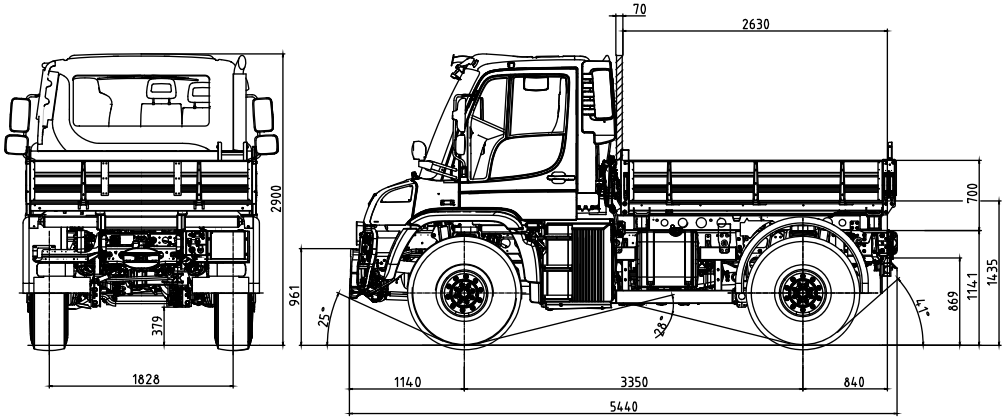
Turning circle ø 16.5 m

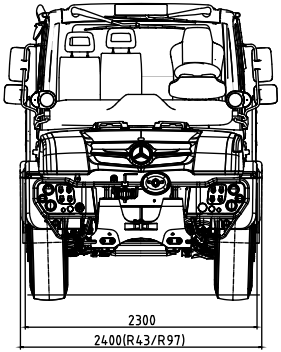
All dimensions in mm
Vehicle depicted with tyres: 365/85 R20

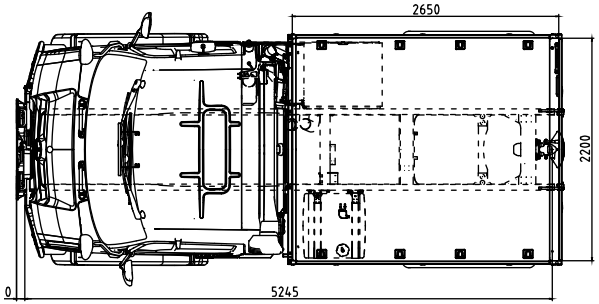
Special versions

[B5B] – *Trailer brake, 2-line*
[C7H] – *Underride guard, lateral*
[CD6] – *Mounting parts between axles*
[CP5] – *Front mounting plate EN 15432-1, type F1/C*
[DB5] – *Twin co-driver's seat*
[E87] – *Equipment socket, 32-pin*
[HE1] – *Hydraulics for tilting mechanism*
[HN8] – *Hydr. system, 2-circuit, 4-cell*
[H55] – *Hydr. plug connection, rear, set of 4, cell 1+2*
[H58] – *Pressure line, rear, 2nd hydraulic circuit*
[H59] – *Separate return line, rear*
[L47] – *Additional headlamps for front-mounted attachments*
[N08] – *Engine PTO outlet incl. front PTO shaft*
[P60] – *Platform subframe* + [PB8] – *Platform*
[Q95] – *Trailer coupling, large jaw, Ringfeder, pin 48.7*

U 500, model designation 405.202







Depiction with suspension compressed:

FA: 5660 kg
RA: 9500 kg
GVW: 15,160 kg

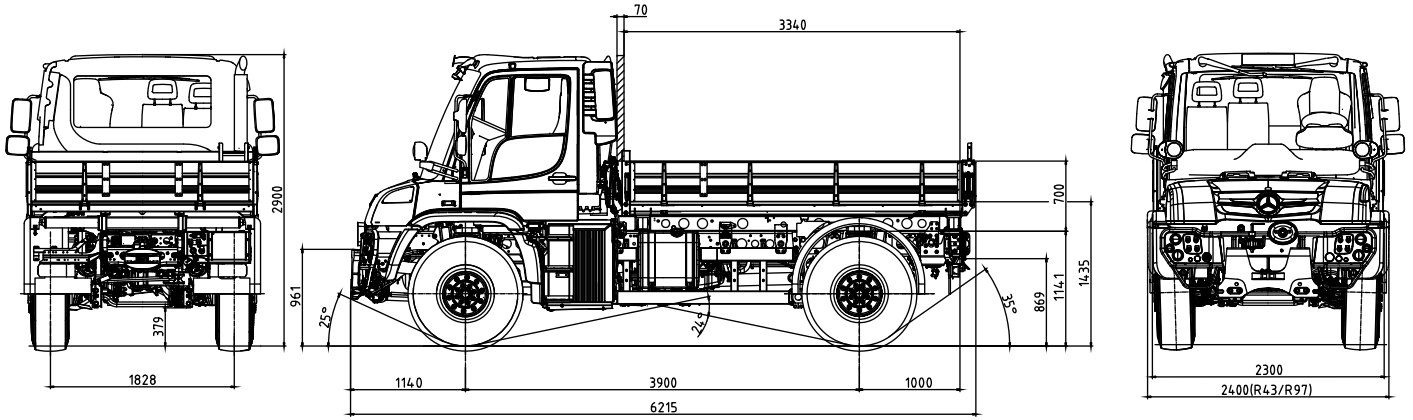
Turning circle ø 15.1 m

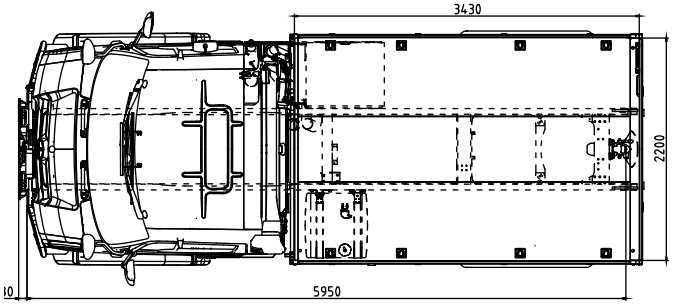
All dimensions in mm
Vehicle depicted with tyres: 365/85 R20

Special versions
[B5B] – *Trailer brake, 2-line*
[C7H] – *Underride guard, lateral*
[CD6] – *Mounting parts between axles*
[CP5] – *Front mounting plate EN 15432-1, type F1/C*
[DB5] – *Twin co-driver's seat*
[E87] – *Equipment socket, 32-pin*
[HE1] – *Hydraulics for tilting mechanism*
[HN8] – *Hydr. system, 2-circuit, 4-cell*
[H55] – *Hydr. plug connection, rear, set of 4, cell 1+2*
[H58] – *Pressure line, rear, 2nd hydraulic circuit*
[H59] – *Separate return line, rear*
[L47] – *Additional headlamps for front-mounted attachments*
[N08] – *Engine PTO outlet incl. front PTO shaft*
[P60] – *Platform subframe* + [PB7] – *Platform*
[Q95] – *Trailer coupling, large jaw, Ringfeder, pin 48.7*

Technical drawing

U 500, model designation 405.222





Depiction with suspension compressed:

FA:	5660 kg
RA:	9500 kg
GVW:	15,160 kg

Turning circle ⌀ 16.9 m

All dimensions in mm
Vehicle depicted with tyres: 365/85 R20

Special versions

[B5B] – *Trailer brake, 2-line*
[C7H] – *Underride guard, lateral*
[CD6] – *Mounting parts between axles*
[CP5] – *Front mounting plate EN 15432-1, type F1/C*
[DB5] – *Twin co-driver's seat*
[E87] – *Equipment socket, 32-pin*
[HE1] – *Hydraulics for tilting mechanism*
[HN8] – *Hydr. system, 2-circuit, 4-cell*
[H55] – *Hydr. plug connection, rear, set of 4, cell 1+2*
[H58] – *Pressure line, rear, 2nd hydraulic circuit*
[H59] – *Separate return line, rear*
[L47] – *Additional headlamps for front-mounted attachments*
[N08] – *Engine PTO outlet incl. front PTO shaft*
[P60] – *Platform subframe* + [PB9] – *Platform*
[Q95] – *Trailer coupling, large jaw, Ringfeder, pin 48.7*

General information

Gradient values

With the aid of the diagrams for vehicle climbing resistance, trailer climbing resistance and tractive force, it is possible to calculate the climbing ability, the required gear and the achievable speed in the given driving situation.

Example calculation

A U 400 with a gross vehicle weight of 10 t and a 30 t trailer needs to drive up a 20% gradient.

Based on these figures, the vehicle climbing resistance and the trailer climbing resistance can be obtained from the corresponding diagrams:

Vehicle climbing resistance: 19.5 kN
Trailer climbing resistance: 62.0 kN

Vehicle climbing resistance + trailer climbing resistance = Total resistance
19.5 kN + 62.0 kN = 81.5 kN

With the total resistance, it is possible to calculate the required gear and the maximum possible speed from the tractive force diagram:

Required gear: 1. gear
Maximum speed: 5 km/h

Slip limit

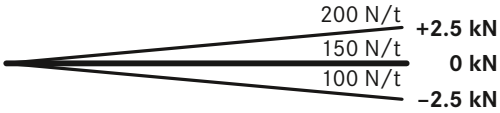
Calculate the tractive force, taking into account the friction coefficient:

Friction coefficients of concrete and asphalt:

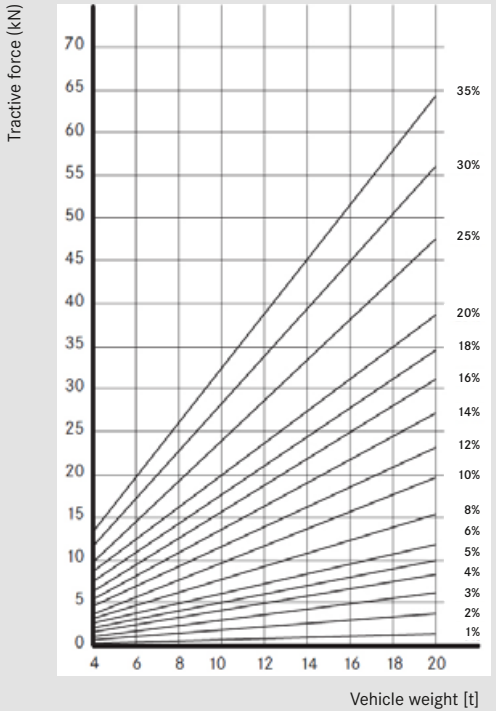
Dry:	0.85–1.0
Damp:	0.50–0.65
Wet:	0.40–0.55

Tractive force (kN) = Vehicle weight (t) x friction coefficient x 9.81

Trailer rolling resistance

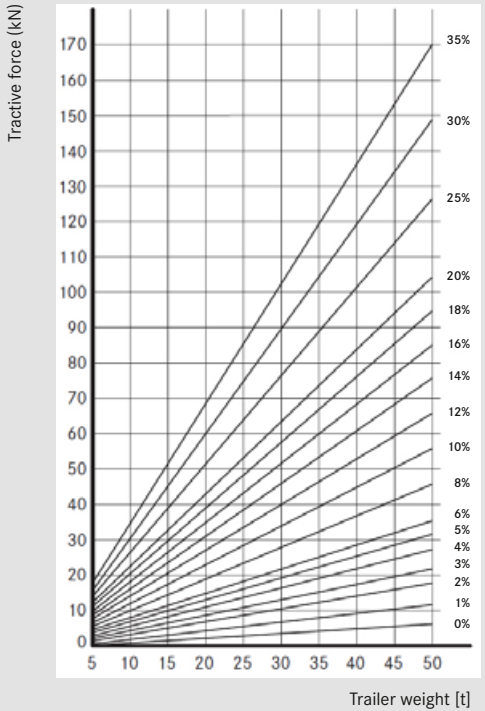


Vehicle climbing resistance



Without rolling resistance (taken into account in tractive force diagram)

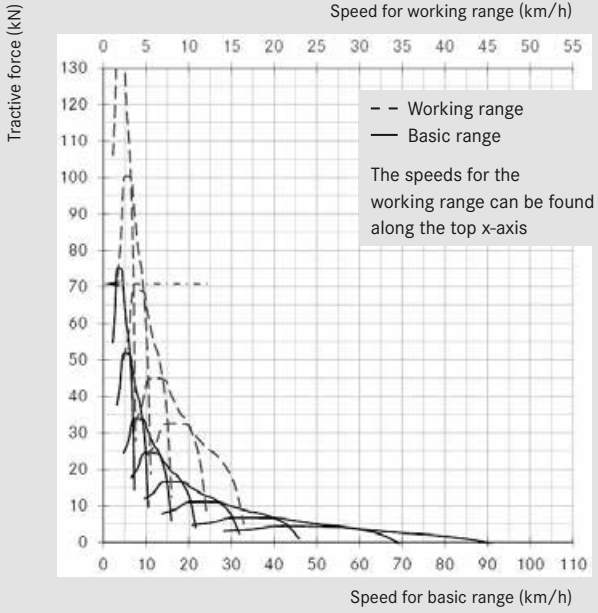
Trailer climbing resistance



With rolling resistance 150 N/t

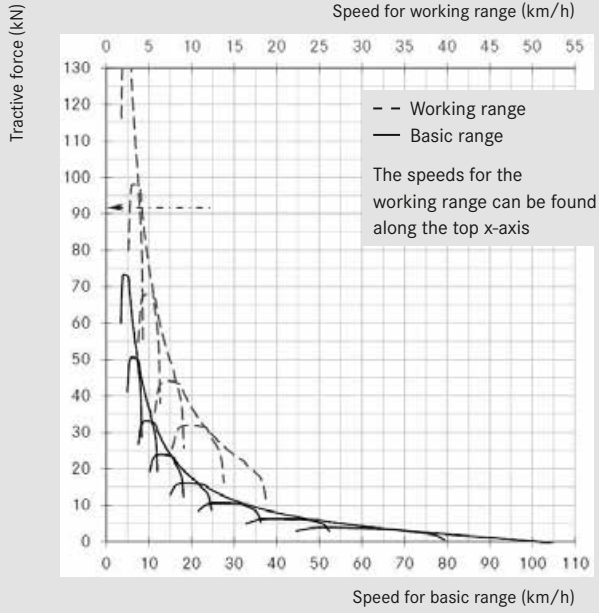
Deviation at 50 t:
with rolling resistance 200 N/t: +2.5 kN,
with rolling resistance 100 N/t: –2.5 kN

Tractive force diagram – U 216 (8.5 t)



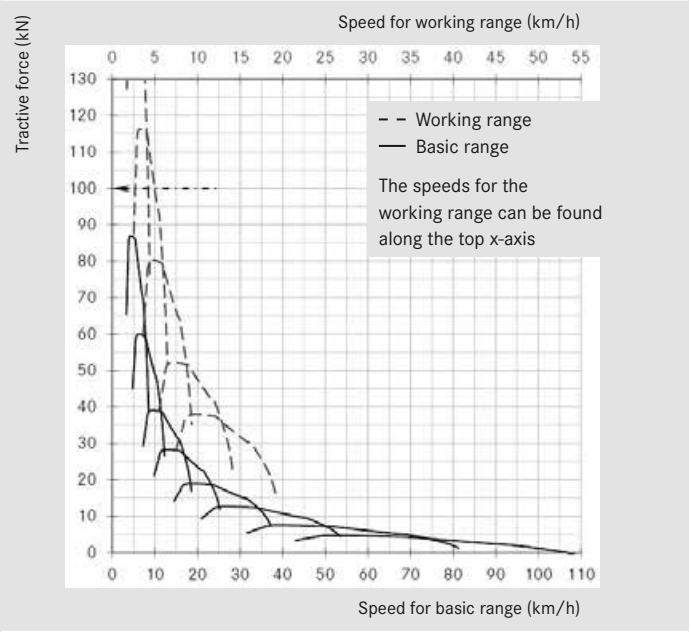
Engine output:	115 kW at 1800 rpm
Transmission:	UG 100-8/9.57-0.74
Final drive ratio:	6.53
Tyres:	295/60 R22.5
Road surface:	Concrete
Slip limit (μ = 0.85):	71

Tractive force diagram – U 318 (11.0 t)



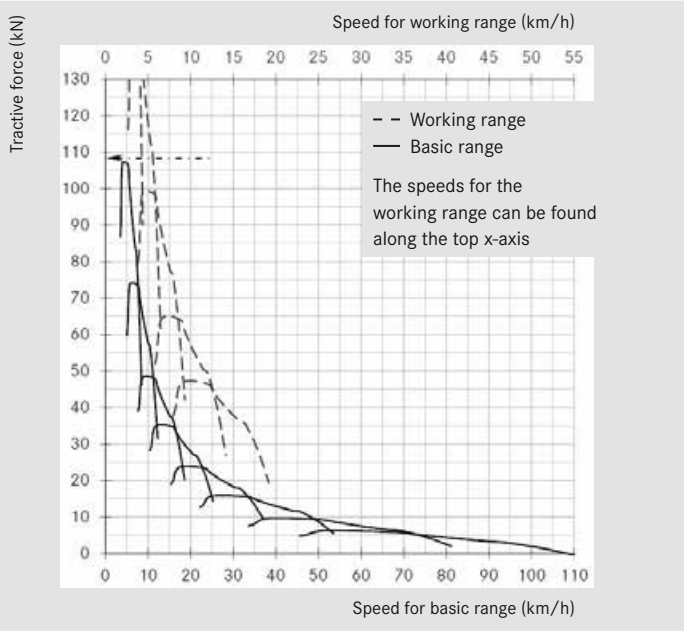
Engine output:	130 kW at 1800 rpm
Transmission:	UG 100-8/9.57-0.74
Final drive ratio:	6.53
Tyres:	315/80 R22.5
Road surface:	Concrete
Slip limit (μ = 0.85):	92

Tractive force diagram – U 423 (12.1 t)



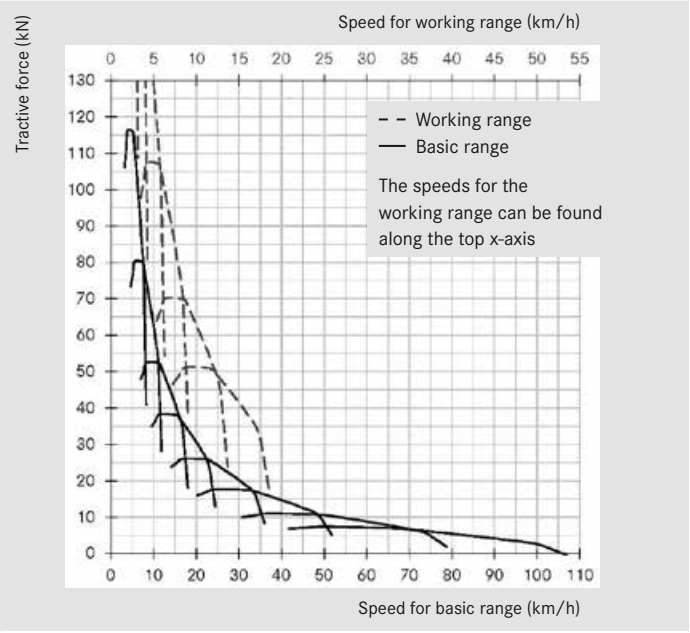
Engine output:	170 kW at 1800 rpm
Transmission:	UG 100-8/9.57-0.74
Final drive ratio:	6.38
Tyres:	315/80 R22.5
Road surface:	Concrete
Slip limit (μ = 0.85):	100

Tractive force diagram – U 427 (13.0 t)



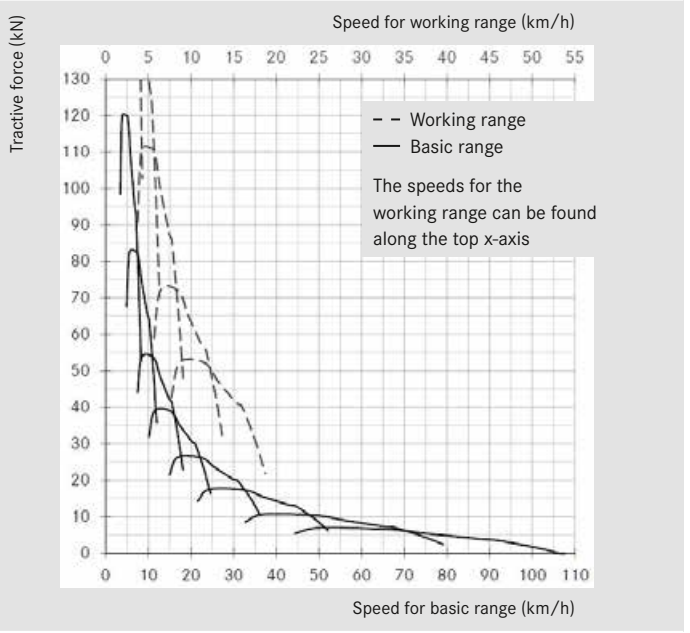
Engine output:	200 kW at 1800 rpm
Transmission:	UG 100-8/9.57-0.74
Final drive ratio:	6.38
Tyres:	315/80 R22.5
Road surface:	Concrete
Slip limit (μ = 0.85):	108

Tractive force diagram – U 529 (16.5 t)



Engine output:	210 kW at 2200 rpm
Transmission:	UG 100-8/9.57-0.74
Final drive ratio:	6.38
Tyres:	385/65 R22.5
Road surface:	Concrete
Slip limit (μ = 0.85):	138

Tractive force diagram – U 530 (16.5 t)



Engine output:	220 kW at 1800 rpm
Transmission:	UG 100-8/9.57-0.74
Final drive ratio:	6.38
Tyres:	385/65 R22.5
Road surface:	Concrete
Slip limit (μ = 0.85):	138

Part C: Additions via CTT

Wheelbase variants

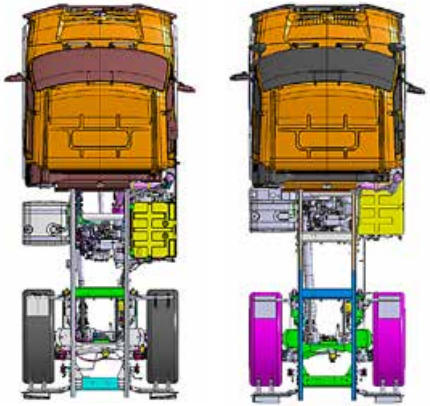
Wheelbase 3600 mm for U 200

Code	Feature	Wheelbase	Vehicle
[UCCR]	Wheelbase 3600 mm, reinforced frame	3600	U 200
[UC1R]	Wheelbase 3600 mm	3600	U 200

Comparison of codes [UCCR]/[UC1R]

U 200 with U 400 package, max. GVW 10.5 t
[UCCR] – *Wheelbase 3600 mm, reinforced frame*
Frame thickness 8 mm
Obligatory code:
- [UKC0] – *Tank 200 l, left, aluminium*
- [UK3T] – *AdBlue® tank, 25 l*

Optional:
- [UTHN] – *Weight variant 10.5 t/5.2 t/6.0 t*
- [UG50] – *Transmission oil cooling*



U 200 package, max. GVW 10 t
[UC1R] – *Wheelbase 3600 mm*
Frame thickness 6 mm

- [UN19] – *Transmission PTO, very high speed, 6 hole flange*
- [UG50] – *Transmission oil cooling*

Further wheelbase variants

Wheelbase 4200 mm

Code	Feature	Wheelbase	Vehicle
[UC2I]	Wheelbase 4200 mm	4200	U 400/U 500
[UKV6]	Tank, relocated to position 2750 mm*	4200	U 400/U 500
[UKW6]	Exhaust system, relocated to position 2400 mm*	4200	U 400/U 500
[UC4C]	Frame overhang 2200 mm	4200	U 400
[UCMP]	Frame overhang 1515 mm	4200	U 500

Wheelbase 4500 mm

Code	Feature	Wheelbase	Vehicle
[UC2N]	Wheelbase 4500 mm	4500	U 500
[UKVN]	Tank, relocated to position 3050 mm*	4500	U 500
[UKWN]	Exhaust system, relocated to position 2700 mm*	4500	U 500
[UC4E]	Frame overhang 2200 mm	4500	U 500

* Tank/exhaust gas aftertreatment box relocated as far to rear as possible for more free space, e.g. for crane supports.

U 423, wheelbase 4200 mm

U 423, wheelbase 4200 mm

Sweepers

Sweeper U 423

Model designation	Vehicle model variant	Wheelbase	Engine	No. of cylinders
U 423	405.110	3150	OM934 LA	4

Required codes

Code	
[UZE5]	Pre-installation, for street sweeper
[UM1K]	Engine OM934, 4 cyl. inline, 5.1 l, **170 kW** (231 hp), 900 Nm
[UC7K]	Battery carrier, batteries stacked
[UCFV]	Clearance measures, right, for vacuum pipe
[UKCA]	Tank 145 l, left, for street sweeper
[UKFK]	Clearance measures, exhaust system, for street sweeper
[UKT5]	AdBlue® tank 18 l, for sweeper
[UHFH]	Clearance measures, hydraulic system, for sweeper, required with [HN6]/[HN8]
[R32]	Flat-base rims 10.00V-20
985G5680	Tyres, Michelin XZL 365/80 R20

Sweeper 423/U 427 long

Model designation	Vehicle model variant	Wheelbase	Engine	No. of cylinders
U 423/U 427	405.125	3600	OM936 LA	6

Required codes

Code	
[UZE5]	Pre-installation, for street sweeper
[M1K/M2C]	[M1K] – Engine OM934, inline 4, 5.1 l, 170 kW (231 hp), 900 Nm
	[M2C] – Engine OM936, inline 6, 7.7 l, 200 kW (272 hp), 1100 Nm
[UC7K]	Battery carrier, batteries stacked
[UCFV]	Clearance measures, right, for vacuum pipe
[UKCA]	Tank 145 l, left, for street sweeper
[UKFK]	Clearance measures, exhaust system, for street sweeper
[UKT5]	AdBlue® tank 18 l, for sweeper
[UHFH]	Clearance measures, hydraulic system, for sweeper, required with [HN6]/[HN8]
[R32]	Flat-base rims 10.00V-20
985G5680	Tyres, Michelin XZL 365/80 R20

Sweepers

Sweeper U 527/U 530 short

Model designation	Vehicle model variant	Wheelbase	Engine	No. of cylinders
U 527/U 530	405.202	3350	OM936 LA	6

Required codes

Code	
[UZE5]	Pre-installation, for street sweeper
[UC7K]	Battery carrier, batteries stacked
[UCFV]	Clearance measures, right, for vacuum pipe
[UKCA/UKVE]	[UKCA] – Tank 145 l, left, for street sweeper
	[UKVE] – Tank relocated to position 1510 mm, for sweeper
[UKFK]	Clearance measures, exhaust system, for street sweeper
[UKT4/UKT5]	[UKT4] – AdBlue tank, 16 l
	[UKT5] – AdBlue tank 18 l, for sweeper
[UHFH]	Clearance measures, hydraulic system, for sweeper, required with [HN6]/[HN8]
[R32]	Flat-base rims 10.00V-20
985G5680/987G5680	Tyres, Michelin XZL 365/80 R20 / Michelin XZL 395/85 R20

Sweeper U 527/U 530 long

Model designation	Vehicle model variant	Wheelbase	Engine	No. of cylinders
U 527/U 530	405.222	3900	OM936 LA	6

Required codes

Code	
[UZE5]	Pre-installation, for street sweeper
[UC7K]	Battery carrier, batteries stacked
[UCFV]	Clearance measures, right, for vacuum pipe
[UKCA]	Tank 145 l, left, for street sweeper
[UKFK]	Clearance measures, exhaust system, for street sweeper
[UKT5]	AdBlue® tank 18 l, for sweeper
[UHFH]	Clearance measures, hydraulic system, for sweeper, required with [HN6]/[HN8]
[R32]	Flat-base rims 10.00V-20
985G5680/987G5680	Tyres, Michelin XZL 365/80 R20 / Michelin XZL 395/85 R20

Trailer couplings

Scharmüller trailer coupling, height adjustable, 2 t drawbar load

Model designation	Tongue weight	Trailer axle load	Max. trailer weight
U 400 short/long	2 t	18 t	20 t*
U 500 short/long	2 t	18 t	20 t*

Required codes

Code	
[Q33]	End cross-member for lowered trailer coupling
[UQSL]	Bearing bracket for trailer coupling, height-adjustable, Scharmüller
[UQSM]**	Scharmüller trailer coupling, bolt 38
[UQSN]	Scharmüller K80 towing-eye ball coupling
[UQSR]	Trailer coupling, Rockinger, pin 48

[UQSL]

[UQSM] or [UQSR]

[UQSN]

Scharmüller trailer coupling, 3 t drawbar load***

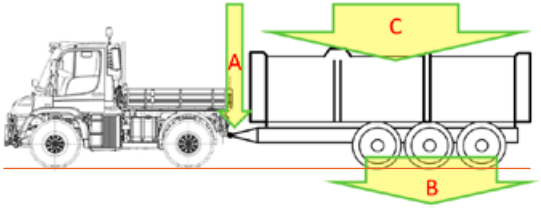
Model designation	Tongue weight	Trailer axle load	Max. trailer weight
U 500 short	3 t	24 t	27 t

Required codes

Code	
[Q34]	Reinforced end crossmember, set lower for trailer coupling
[UQSK]	Bearing bracket, height-adjustable trailer coupling, incl. K80 Scharmüller
[UQSZ]	Forced steering, K50, left/right, for 3 t drawbar load
[UQSM]**	Scharmüller trailer coupling, bolt 38
[UQSR]	Trailer coupling, Rockinger, pin 48

[Q34] with [UQSK], [UQSZ] and [UQSM]

[Q34] with [UQSK] and [UQSZ]



A = Max. drawbar load 3 t
B = Max. trailer axle load 24 t
C = Max. trailer weight 27 t (without towing vehicle)

* Increase in max. trailer weight on request, at homologation.
** Recommended equipment.
*** Only special steered trailers are approved for drawbar loads of > 2 t and due to operating conditions, the speed is limited to 40 km/h.

Further CTT codes

Code	Designation	Advantages/benefits	Only in conjunction with
[UEJK]	Rear-view camera display in instrument cluster	Enables rear-view camera display in the instrument cluster instead of a separate monitor	[J1C] – *Instrument cluster, 12.7 cm, with video function* [EF3] – *Rear-view camera*
[UCSB]	Bumper trim, painted in different colour	The bumper trim can be painted in a different colour, e.g. for firefighting vehicles.	–
[UAHZ]	All-wheel steering	3 steering programs: ▸ All-wheel steering (reduces turning circle by up to 21%), ▸ Diagonal steering (crab steering) and ▸ Manual steering (steering angle manually adjustable in 5% steps)	[A54] – *Pre-installation for rear-axle auxiliary steering* [HE2] – *Pre-installation, connection of additional hydraulic consumers*

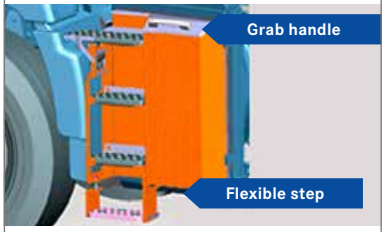
[UAHZ] – *Rear-axle auxiliary steering*

[UFPK] Cab roll cage, for tractor registration in European market

Ex works

[VT1] – *Tractor registration,* Europe and
[FP4] – *Pre-installation for cab roll cage*

Integrated in [FP4]:
- Reinforcements on bumper
- Attachment brackets, centre [corresponding to CA3]
- Mounting brackets for heavy implements/ crane bodies [corresponding to CA9]



New 4-step entrances on left and right

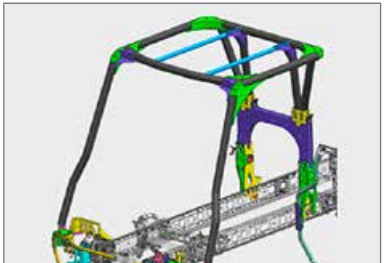
BB

Scope of S & R (Schlang & Reichard)
[UFPK] – *Cab roll cage*

Roll cage (upper section)

Crossmember (bridge)

[UFPK]



Roll cage, attachment to frame

Daimler AG Mercedes-Benz Special Trucks, D-76742 Wörth. Printed in Germany.