Utility Vehicles and Vans (4x2) and (4x4) Sprinter

service support for defence

Mercedes-Benz 413 CDI Sprinter

Mercedes-Benz

Utility Vehicles and Vans
Model Sprinter (4x2) and (4x4)

Vehicle Type	Payload	Wheelbase (mm)	Type	Engine Output EURO IV	Mx. Torque
208 CDI	n/a	n/a	n/a	n/a	n/a
213, 313, 413 CDI (4x4)	1.2 – 2.4 to	3,000 / 3,350 / 4,025	R4	95 kW / 129 hp	300 Nm
214, 314, 414 CDI (4x4)	1.2 – 2.4 to	3,000 / 3,350 / 4,025	R4	105 kW / 143 hp	215 Nm
216, 316, 416 CDI (4x4)	1.2 – 2.4 to	3,000 / 3,350 / 4,025	R5	115 kW / 156 hp	330 Nm
308 CDI	n/a	n/a	n/a	n/a	n/a
311-511 CDI (4x4)*	1.0 – 2.7 to	3,250 / 3,665 / 4,325	R4	80 kW / 109 hp	280 Nm
315-515 CDI (4x4)*	1.0 – 2.7 to	3,250 / 3,665 / 4,325	R4	110 kW / 150 hp	330 Nm
318-518 CDI (4x4)*	1.0 – 2.7 to	3,250 / 3,665 / 4,325	V6	135 kW / 184 hp	400 Nm
408 CDI (4x4)	n/a	3,000	n/a	60 kW / 82 hp	n/a
412 D	out of production				

*under development

Background

Vito, **Sprinter** and **Vario** make up the Mercedes-Benz van series, with GVW of between 2.6 and 7.5 tonnes. Designed for second-line short-range transport duties, and crew transport the new vans offer much in performance and comfort.

The Mercedes-Benz Sprinter represents one of the most successful light transport and utility vehicles per se. On 23 January 1995 the first 500 models from the “Sprinter” (T 1 N) van series left the Düsseldorf plant and were driven to the sales outlets. In May of the same year the Sprinter is voted “Van of the Year”. With over 1.3 million units of this commercial van-type vehicle sold within the last ten years worldwide the Sprinter has set a benchmark. Whether as a panel van, crewbus, chassis and crew cab or flat-bed truck with various body options – the Sprinter family of vehicles has the right version for a wide variety of transportation and distribution tasks. If the requirement is for space and seating for up to 16 personnel or just for volume to up to 17 m^3, the Sprinter family of vehicles will have at least one answer. The **New Sprinter** incorporating many advanced features of innovation together with 4WD extends the capability of this vehicle even further.

Technical Description

The Mercedes-Benz Sprinter (4x2) utility vehicle has been designed to expand the agility of the Sprinter family of vehicles for general purpose and off-road duties in general and military purposes in particular. Thus the name **New Sprinter** (4x4) has been introduced to acknowledge modifications and improvements incorporated in the design to expand the range of capabilities. Its 4WD configuration grants the New Sprinter nearly the same cross-country performance as a genuine off-road jeep-like vehicle. Internal designation is New Cargo Vehicle 3 (NCV 3).

The New Sprinter, under development at the time of writing and pre-series vehicles available with the beginning of 2006, incorporates 4WD and an ADAPTIVE ESP® (Electronically Stability Programme). A programmed stability mode for critical situations takes the load situation into account and assists the driver by improving handling stability up to the physical limits on slippery surfaces. Permanent all-wheel drive enhances traction for all road and off-road conditions especially unpaved roads and light tracks. Though the New Sprinter is not designed as a tactical truck experienced drivers will be able to use the vehicle as such. Components of the all-wheel drive, offered in selectable, selectable with an additional off-road reduction facility, and full-time, add approximately 150 kilograms to the basic design, thus reducing the usable payload only marginally. All (4x4) aggregates are integrated into the floor group and all (4x4) Sprinter vehicles show an increased ground clearance. After engaging the four-wheel drive the ABS function is de-coupled automatically to be connected automatically after returning to the (4x2) mode. Ground clearance has been improved by raising the front axle by 110 mm and the rear axle by 80 mm. Depending on Model and WB the New Sprinter shows angles of approach from 31° to 35° and angles of departure from 17° to 24°. Ramp breakover angles vary from 20° to 26°. In general the Sprinter (4x2) is offered with three different wheelbases (3,000 / 3,550 / 4,025 mm) while the New Sprinter (4x4) is based on three slightly larger wheelbases (3,250 / 3,665 / 4,325 mm).

Like the Mercedes-Benz G 270 CDI the Sprinter is powered by a torque-heavy and economic CDI engine developing between 60 kW (82 hp) to 115 kW (156 hp). The **Sprinter** (4x2) is offered with three different types of engines:

- Mercedes-Benz OM 611 DE 22 LA 2.148-litre 4-cylinder in-line common-rail water-cooled diesel engine developing either

- 109 hp at 3,800 rpm and 270 Nm torque between 1,400 and 2,400 rpm
- 129 hp at 3,800 rpm and 300 Nm torque between 1,600 and 2,400 rpm

❖ Mercedes-Benz OM 612 DE 27 LA 2.685-litre 5-cylinder engine developing

- 156 hp at 3,800 rpm and 330 Nm torque between 1,400 and 2,400 rpm

❖ M111 2.293-litre petrol engine developing 105 kW or 143 hp

Gear box types offered for the Sprinter are either a mechanical NSG 370-6 six-speed transmission or optional an automatic NAG W5A 380 five-speed transmission.

The **New Sprinter** (4x4) is offered with two different types of engines:

❖ Mercedes-Benz OM 646 DELA 4-cylinder in-line engine

❖ Mercedes-Benz OM 646 DELA V-6-cylinder Common Rail Direct Injection (CDI) developing

- 109 or 184 hp and 280 or 400 Nm torque

Gear box types offered for the New Sprinter are either a Mercedes-Benz G32-5/5.05 6-speed manual or a Mercedes-Benz SprintShift 5-speed automated manual transmission with the driver having the ability to select between automatic and manual mode. The Mercedes-Benz G32-5/5.05 manual gearbox is also offered with additional Power-Take-Off (PTO). All-wheel drive is available in three different versions: selectable, selectable with additional cross-country reduction facility, and permanent.

Beside military peculiarities such as colour, optional rifle racks and similar modifications the New Sprinter (4x4) very closely keeps its design, layout and components assortment to the associated commercial van with series production vehicles likely to reflect the continuos minor design changes and specification upgrades of the commercial range as well. Numerous types of cabs and bodies can be fitted to the basic design such as double crew cab, crewbus bodyshell, different shelter bodies or platforms with seating for up to 16 soldiers. Commercial bodies or estate-type bodies are optional as well as different roof heights. Working platforms for hydraulic cranes or hydraulic working devices may be incorporated. Maximum payload ranges from 900 kilograms to up to 2,200 kilograms.

All Mercedes-Benz Sprinter vehicles belong to the 930 series, while vehicles with 200 and 300 series designations are fitted with single rear tyres and vehicles beginning with the 400 series designations can be identified by dual-tyre rear axles. The STAR-diagnostics system identifies potential and actual operating faults in the workshop to maximise operational availability and reliability.

Mercedes-Benz Sprinter 312 D Ambulance

The New Sprinter is essentially a civilian (4x2) van modified by the fitting of an all-wheel drive system. After activating the (4x4) mode the torque moment is distributed 50 : 50 between front and rear axles.

This Sprinter 412 CDI of the Swiss Army represents a militarised commercial vehicle. The (4x4) configuration expands its agility considerably. Note the streamlined outlay to reduce fuel consumption which is normally 14 litres for 100 kilometres.

With a total weight of 4,600 kg the vehicle is powered by a OM 611 DE22LA CDI engine developing 95 kW (129 hp) at 3,800 rpm and 300 Nm between 1,600 and 2,400 rpm. Displacement is 2,151 ccm.

Similar vehicles are also available with double cab and reduced platform length.

Maximum payload ranges from 900 kilograms to up to 2,300 kilograms.

Utility Vehicles and Vans Model 311 – 518 CDI Sprinter (4x4)

Model	**Ausführung**	Model 311 – 518 CDI
Type	Typ	Utility Vehicle and Van
Manufacturer	Hersteller	Mercedes-Benz / DaimlerChrysler AG, Department VL/FR – HPC 161 D-76742 Woerth, Germany
Introduction into service	Einführung	2006
Cab seating	Sitzplätze Fahrerhaus	1 + 1 or 2
Seats (rear)	Sitzplätze (hinten)	16
Configuration	Antriebsformel	4 x 4
Weight	**Gewicht**	
Weight empty chassis	Militärisches Leergewicht	n/a
Weight loaded, road (GVW)	zulässiges Gesamtgewicht	3,500 – 4,600 kg
Weight on front axle (loaded)		n/a
Weight on rear axle (loaded)		n/a
Payload	Nutzlast	900 – 2,700 kg
Max. load (road)	außergewöhnliche Belastung (Straße)	n/a
Max. load (cross-country)	außergewöhnliche Belastung (Gelände)	n/a
Towed load (road)	zulässige Anhängelast (Straße)	n/a
Towed load (cross-country)	zulässige Anhängelast (Gelände)	n/a
Load area	Ladefläche	n/a
Length (wheelbase 3,250 mm)	Länge (Radstand 3.250 mm)	n/a
Width	Breite	n/a
Height (cab)	Höhe Fahrerhaus	n/a
Height (chassis, front)	Höhe (Chassis vorne)	n/a
Height (chassis, rear)	Höhe (Chassis hinten)	n/a
Body (wheelbase 3.250 mm)	Koffer (Radstand 3.250 mm)	n/a
Height (load area)	Ladehöhe über Boden	n/a
Ground clearance	Bodenfreiheit	n/a
Track (front)	Spurweite (vorne)	n/a
Track (rear)	Spurweite (hinten)	n/a
Wheelbase	Radstand	311 CDI: 3,250 / 3,665 / 4,325 mm 313 CDI: 3,000 / 3,550 / 4,025 mm
Angle of approach	Böschungswinkel vorne	31° - 35°
Angle of departure	Böschungswinkel hinten	17° - 24°
Chassis frame	Rahmen	n/a
Max speed (road)	Höchstgeschwindigkeit	n/a
Min speed (road)	Mindestgeschwindigkeit	n/a
Range	Fahrbereich (Straße)	n/a
Fuel capacity	Kraftstoff-Vorrat	76 ltr.

Fuel consumption	Kraftstoff-Verbrauch	14 ltr./100km
Gradient	Steigfähigkeit	n/a
Side slope	Querneigung, Kippgrenze	n/a
Fording (standard)	Watfähigkeit (ohne Watsatz)	n/a
Fording (with kit)	Watfähigkeit (mit Watsatz)	n/a
Engine	**Motor**	4 cylinder in-line or V6 cylinder common rail direct injection (CDI) diesel engine
Designation	Bezeichnung	OM 646 DELA
Bore x Stroke	Bohrung x Hub (mm)	n/a
Displacement	Hubraum (ccm)	2,148 ccm (R4) / 2,987 ccm (V6)
Output	Leistung KW (PS)/min^{-1}	80 (109) or 135 (184) at - rpm
Torque, max.	Drehmoment (Nm / kpm)	280 Nm up to 400
Cooling	Kühlung	water-cooled
Power transfer	Kraftübertragung	n/a
Transmission	Getriebe	Mechanical, 6-speed, automatic 5-speed (optional)
Steering	Lenkung	n/a
Turning circle (short and long wheelbase)	Wendekreis	n/a
Axle, front	Vorderachse	Mercedes-Benz ALO/40 CE-1.7 or ALO/41 CE-1.8
Axle, rear	Hinterachse	Mercedes-Benz HLO/15 C-2.2 or HLO/01 C-3.2
Suspension (front)	Radaufhängung (vorne)	Independent wheel suspension with stabiliser, transverse-leaf parabolic spring, 1.85 to
Suspension (rear)	Radaufhängung (hinten)	Rigid axle with parabolic springs, Rear wheel drive, i = from 3.692 up to 5.1
Tyres	Bereifung	n/a
Brake (main)	Betriebsbremse	Dual circuit, hydraulic with compressed air booster, discs all around; Electronic Stability Programme (ESP®) with ABS, Acceleration-Skid-Control (ASC), Brake Assist (BAS) and Electronic Brake Sprinter
Brake (parking)	Feststellbremse / Handbremse	mechanical
Brake (engine)	Motorbremse	n/a
Electrical system	Fahrzeugelektrik	n/a
Alternator (reinforced)	Wandler	n/a
Starter motor	Starteinrichtung	n/a
Batteries	Batterien	n/a
Trailer socket type	Anhängeranschluß	n/a
Trailer couplings (optional)	Anhängerkupplung	n/a

Mercedes-Benz Sprinter

Mercedes-Benz 311 CDI Crewbus of the German Army

Mercedes-Benz 208 CDI with rear platform

Mercedes-Benz 313 CDI of the Austrian Army.

Mercedes-Benz 308 CDI

Mercedes-Benz 412 D of the Belgian Army. Out of production though still in high demand.

Sales and Service Entry

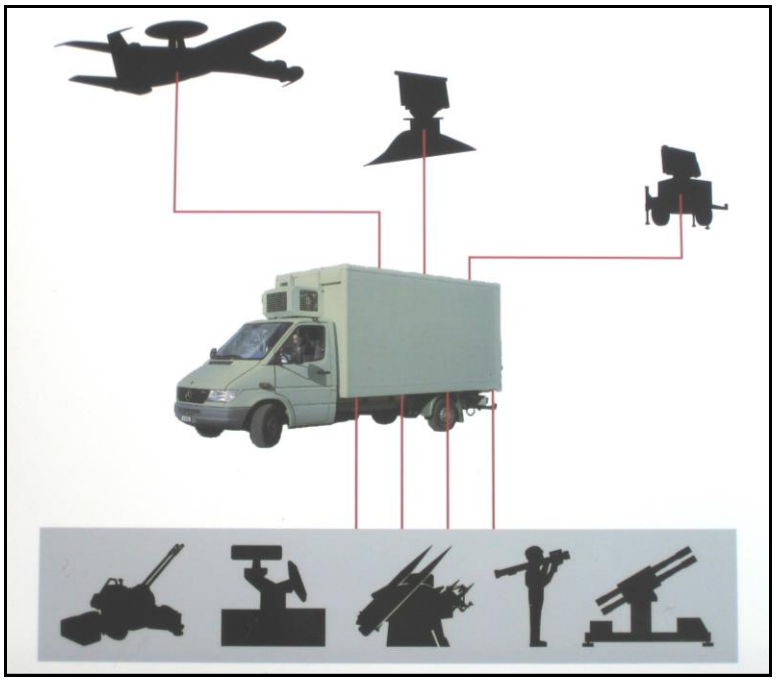
The Mercedes-Benz Sprinter is in service with the armed forces of Austria, Belgium, Denmark, Germany, the Netherlands, Sweden and Switzerland, as well as Taiwan.

The Germany Army operates a large variety of Sprinter models including the PKW 8 Sitze (4x4) MB 208 CDi Typ C Sprinter in white colour and managed by the Bw Fuhrpark-Service GmbH, since approximately 2004. The Mercedes-Benz engine of the crewbus developing 60 kW (82 hp) has a displacement of 2,148 ccm.

The Swiss Army received 150 Model 313 CDI and 250 Model 413 CDI delivered between September 2000 and October 2001. These were followed by probably 50 Mercedes-Benz 412 CDI Sprinters. In 2002 the Austrian Army followed with an order for around 132 Model 313 CDI with 3,500 mm WB to be fitted with various bodies.

In 2002 Oerlikon-Contraves AG fitted a shelter equipped with the Battle Management System Caesar onto a Sprinter chassis with a longer wheelbase operating as a centre node for a complete AHEAD air defence system connecting radars, missiles and guns in various forms.

Such shelters or bodies can serve in an endless variety of roles from maintenance shop, spare parts carrier to electronic bodies or for Electronic Warfare (EW). Especially in today out-of-area scenarios where patrolling city streets is common such vehicles with electronic eavesdropping equipment may keep a very low profile in between commercial traffic while actually serving a most important military role.



Since September 1996 the Sprinter is also manufactured in Buenos Aires, Argentina.

In addition there is also a light tactical vehicle based on a Sprinter (4x4) chassis, the **Mantra**, which is offered by Achleitner of Austria. The Mantra can be fitted with troop, cargo, or box-type bodies. Also an ambulance version has been realised.

The future:

Also such vehicles will serve with the armed forces.