Mercedes-Benz Powertrain



Portfolio Bus EURO VI.

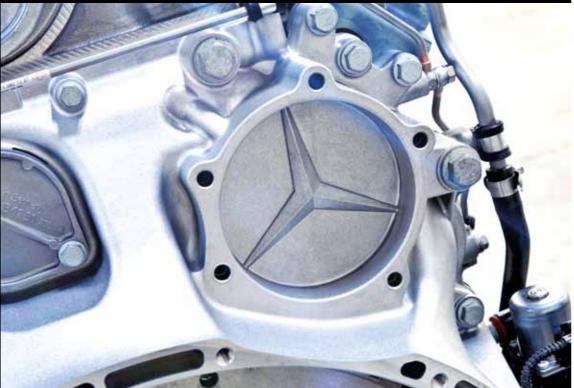


Mercedes-Benz

Welcome to the Mercedes-Benz Powertrain. Leading in technology and efficiency.







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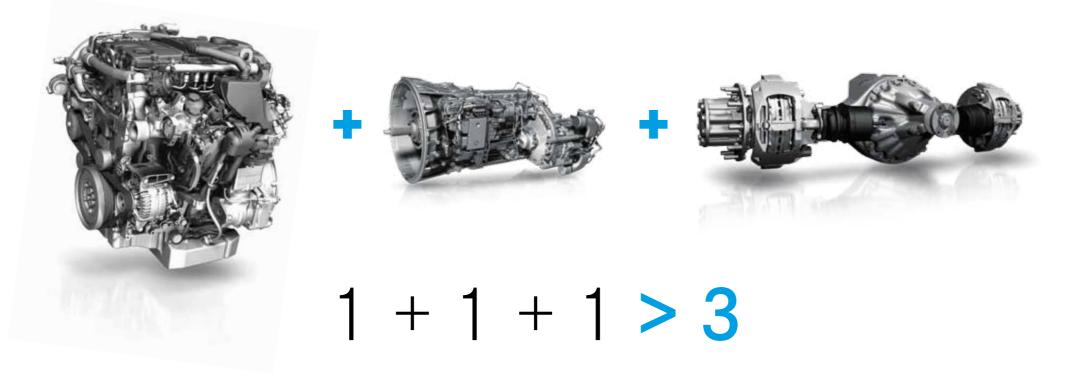
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Going the extra mile. Mercedes-Benz Powertrain.

Mercedes-Benz Powertrain offers outperforming and individual engineered powertrain components: engine systems, transmissions and axles – each will provide our customers with the **highest durability and quality at the same time**.

Together, they compose an even more sophisticated, technologically advanced and with regards to efficiency, unbeatable powertrain.

Let's develop together the best individual solution for your success.



Benefits for you.

Integrated powertrain:

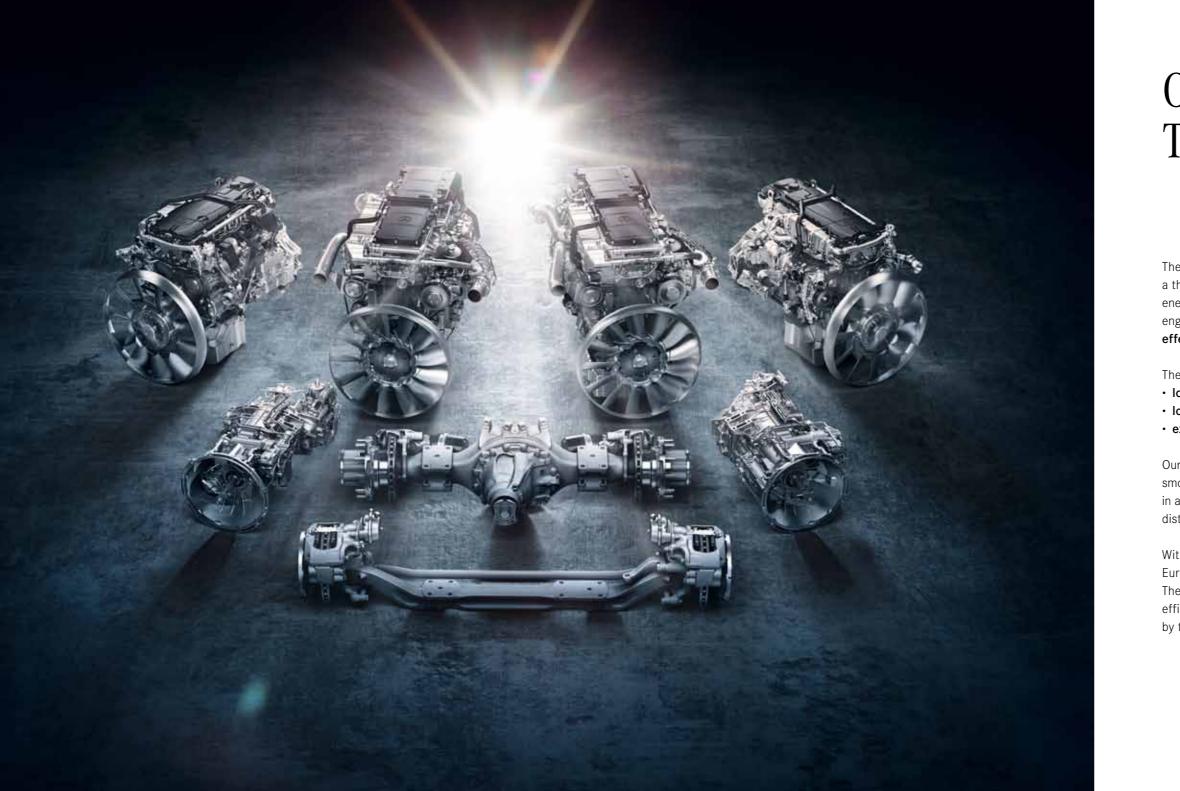
- ✓ Reduces integration efforts
- ✓ One Key Account Manager as main contact partner
- One system supplier for your individual powertrain solution
- ✓ One contractual partner

All powertrain components:

- Premium Mercedes-Benz quality standards due to the production on our high volume production lines
- Overall robust and reliable powertrain solutions provide a long lifetime for your powertrain components
- Leads to an optimized system setup due to common electric and electronic architecture (EE architecture) for efficient interaction of all powertrain components
- One electronic tool for end of line commissioning and diagnosis requires less training for your engineering group and after-sales team
- High invest in Mercedes-Benz R&D assures state-of-the-art quality

Benefits for your customers.

- Provides optimized fuel efficiency by specially composed powertrain solutions
- Ensures robust and reliable performance in every scenario of operation
- Minimizes downtimes as our worldwide After-Sales network covers warranty and policy from one source
- Synchronized maintenance intervals and repair worldwide via our one-stop shop logic for the complete powertrain
- Increases the resale value of the vehicles due to the highest quality standards offered by Mercedes-Benz
- Higher Driver comfort due to the high integration of all assistent systems and features



Our Powertrain-Solutions: TCO reduction at its best.

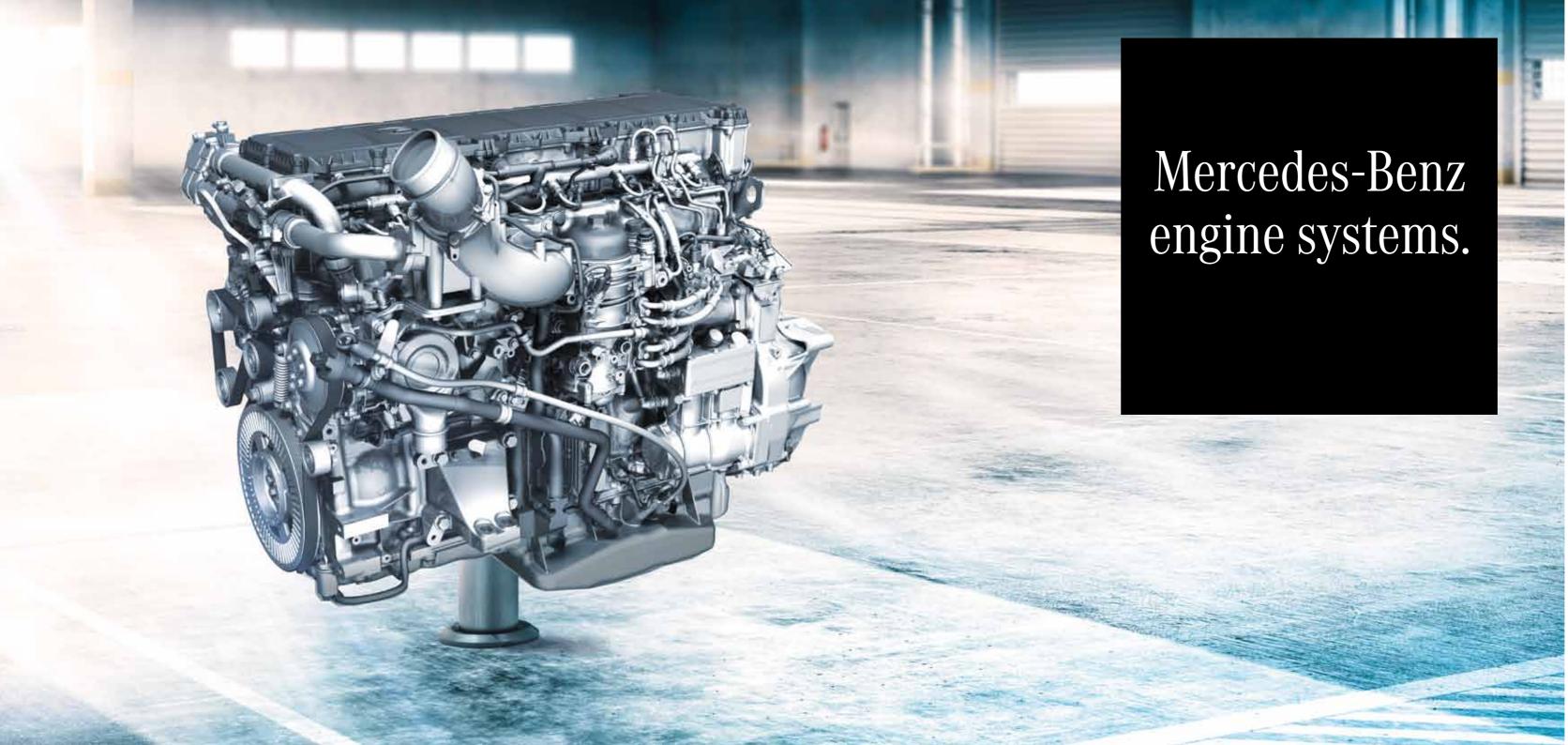
There are many factors in operating a bus or a coach that cost money. More than a third of these can be influenced. A cost factor of up to 30 % can be attributed to energy consumption. Bringing together the very latest innovative engine technology, our engine systems are designed with a rigorous **focus on environment conservation**, **effectiveness and performance**.

The benefits for our customers are:
low fuel consumption
long engine life
extended maintenance intervals

Our engine systems deliver a spontaneous response, impressive power output and the smoothest running characteristics. Based on these characteristics our engine systems in all series are ideal for short radius distribution, construction site transport and long distance haulage.

With our BlueEfficiency Power engine systems we not only comply with the ambitious Euro VI standards, but also set new benchmarks for power, consumption and weight. The lower consumption and improved power delivery can be attributed to the highly efficient combustion strategy of the engine systems, supported among other things by the X-Pulse common-rail high-pressure fuel injection system.

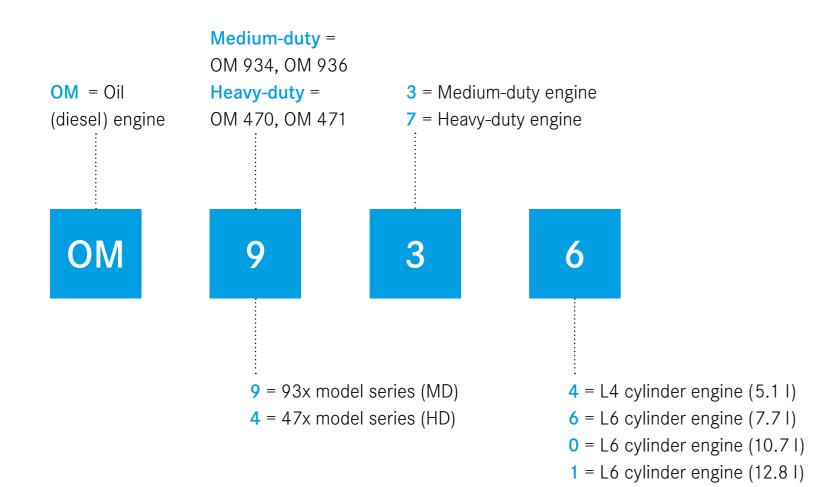




OM 93X and OM 47X model series.

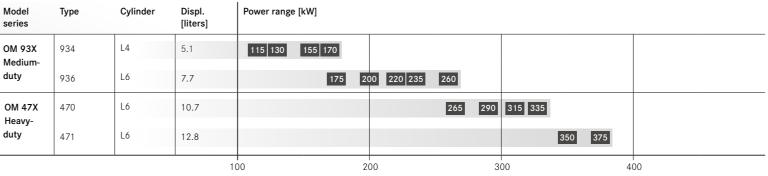
Outstanding design and efficiency. Specifically developed to comply with the EURO VI emission standard.

Derivation "Nomenclature" – engine systems.



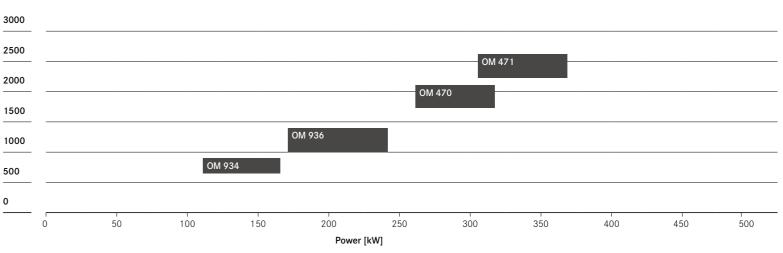
Engine systems for EURO VI.

Portfolio of EURO VI engine systems for buses



Power range

Torque [Nm]



Medium-duty engine systems.

H

100





CITARO LE

Performance. Even in challenging environment.

Your product benefits for medium-duty engine systems:

- 4- and 6-cylinder diesel engines in an in-line arrangement with cooled exhaust gas recirculation
- Displacement of 5.1 and 7.7 liters
- Output of 115 up to 260 kW
- Advanced combustion system to minimize
 fuel consumption
- **Common rail injection system** up to 2400 bars and multiple injection
- **Tailor-made charging system** with 1- and 2-stage turbochargers

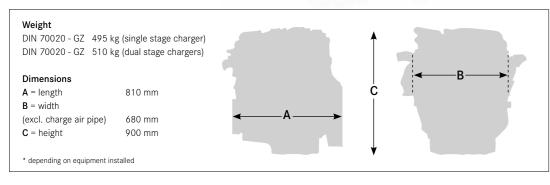
- Future-proof valve timing gear with 2 overhead camshafts and 4-valve technology
- Powerful and dynamic engine brakes with up to 300 kW brake power
- Multiple **power take-off** options
- **"One box"** exhaust after-treatment with SCR and DPF
- **Engine Stop Start option and LIN alternators** available for even lower fuel consumption

OM 934

Arrangement: In-line 4 Displacement: 5.1 I



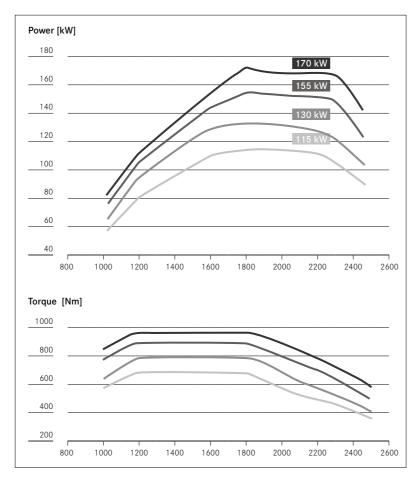
Weight and dimensions*



Rated power and maximal torque

Rated power	[kW/hp]	115/156	130/177	155/211	170/231
at engine speed	[rpm]	1800	1800	1800	1800
Maximal torque	[Nm]	650	750	850	900
at engine speed	[rpm]	1200-1600	1200-1600	1200-1600	1200-1800

Performance



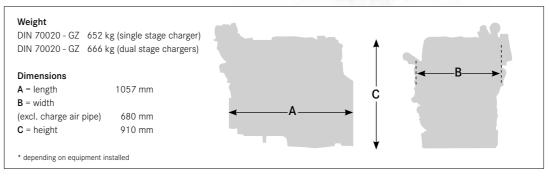
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OM 936

Arrangement: In-line 6 Displacement: 7.7 I



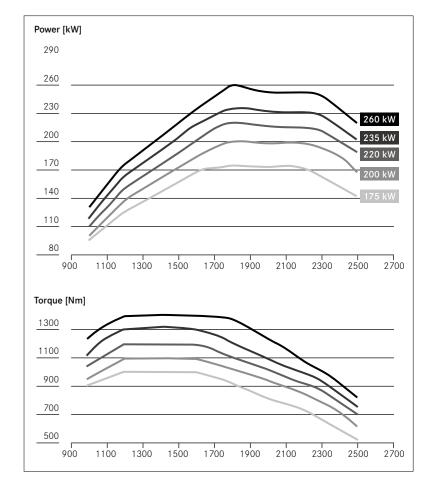
Weight and dimensions*



Rated power and maximal torque

Rated power	[kW/hp]	175/238	200/272	220/299	235/320	260/354
at engine speed	[rpm]	1800	1800	1800	1800	1800
Maximal torque	[Nm]	1000	1100	1200	1300	1400
at engine speed	[rpm]	1200-1600	1200-1600	1200 - 1600	1200-1600	1200-1800

Performance



Heavy-duty engine systems.

Your product benefits for heavy-duty engine systems:

- 6-cylinder diesel engines in an **in-line arrangement** with **cooled exhaust gas recirculation**
- Displacement of 10.7 and 12.8 liters
- Output of 265 up to 375 kW
- **Special combustion system** to minimize fuel consumption
- New engine generation combines higher performance with lower fuel consumption
- **Common rail injection system** up to 2700 bars and unrestricted choice of injection process

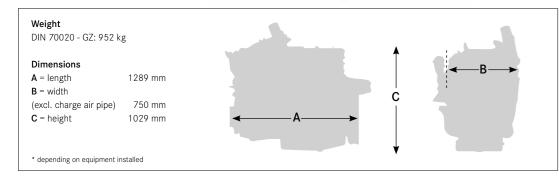
- 1-stage **turbocharger** with asymmetrical turbine geometry
- Future-proof valve timing gear with 2 overhead camshafts and 4-valve technology
- · Powerful and dynamic engine brakes
- Additional **power take-off** options
- **"One box"** exhaust after-treatment with SCR and DPF

OM 470

Arrangement: In-line 6 Displacement: 10.7 I



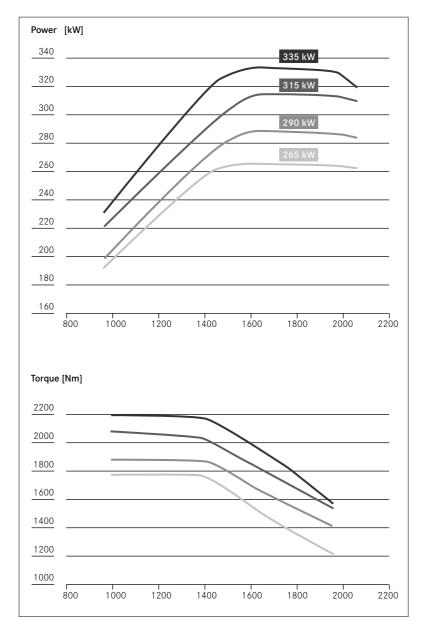
Weight and dimensions*



Rated power and maximal torque

Rated power	[kW/hp]	265/360	290/394	315/428	335/456
at engine speed	[rpm]	1600	1600	1600	1600
Maximal torque	[Nm]	1700	1900	2100	2200
at engine speed	[rpm]	1100	1100	1100	1100

Performance



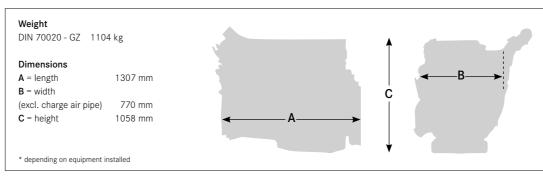
Transmissions

OM 471

Arrangement: In-line 6 Displacement: 12.8 I



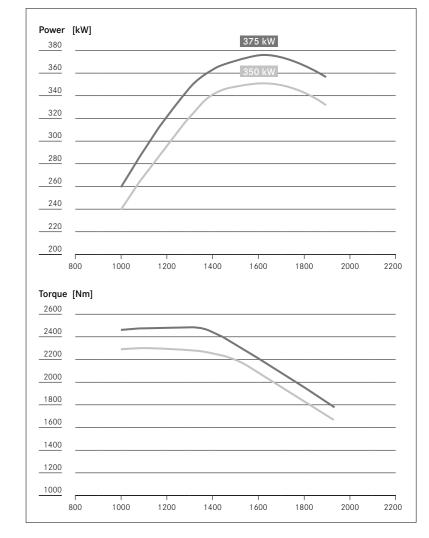
Weight and dimensions*



Rated power and maximal torque

Rated power	[kW/hp]	350/476	375/510	
at engine speed	[rpm]	1600	1600	
Maximal torque	[Nm]	2300	2500	
at engine speed	[rpm]	1100	1100	

Performance



Clean from start to finish.

Your product benefits for the after-treatment system:

- Low exhaust back pressure
- Significant NOx reduction at a broad range of exhaust gas volume flows and exhaust gas temperatures
- Maximum possible soot burn-off in the diesel particulate filter (DPF) by means of automatic regeneration
- In addition, adaptive regeneration of the DPF in all relevant driving cycles
- Large capacity for ash storage in the DPF to make maintenance intervals as long as possible

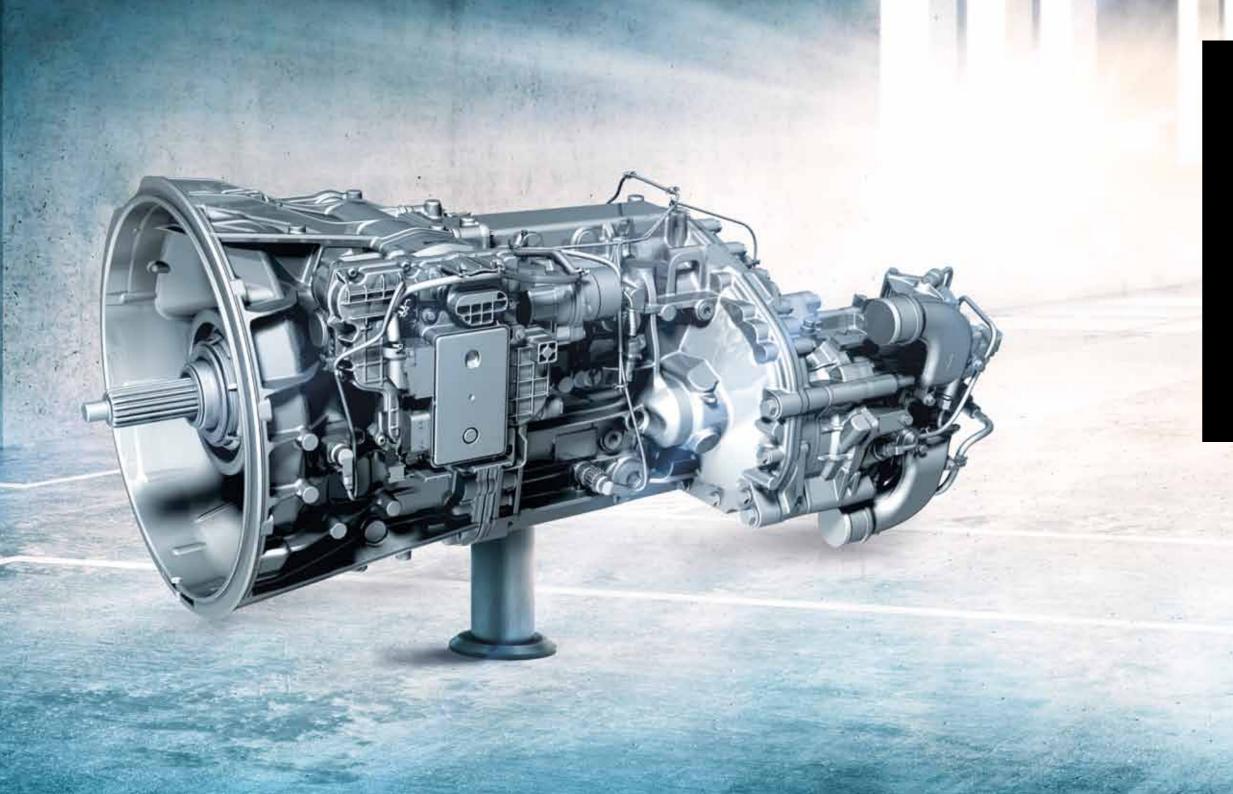
- Small installation space
 and low weight
- Long **service lifetime**, adapted to the engine's service lifetime
- Consistent common parts strategy
- Many different **variants** for exhaust gas inlet and outlet
- Metering of AdBlue[®] without compressed air; very low AdBlue[®] consumption

In view of the high requirements stipulated by the EURO VI emission standard, Mercedes-Benz has developed cooled exhaust gas recirculation (EGR), particulate filters and SCR technology for its generation of engine systems.

This has already proven to be a winning combination in its use in commercial vehicles of Daimler Buses and Buses. Together, the systems results in an extremely efficient exhaust after-treatment.

EURO VI exhaust after-treatment system.

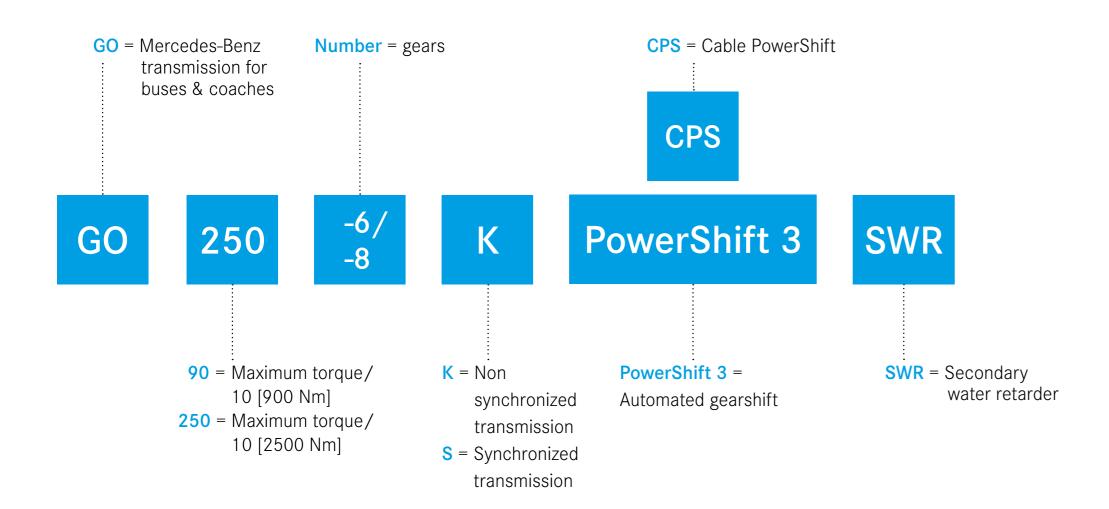




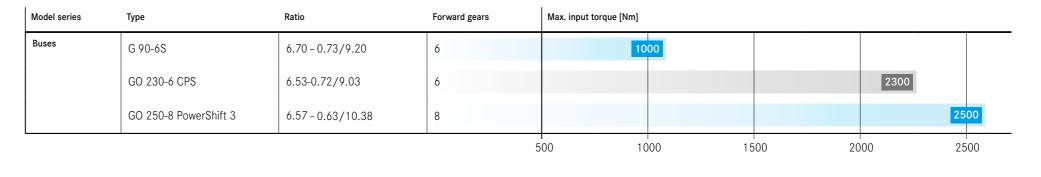
Mercedes-Benz transmissions.

Reliable transmissions for a wide range of applications.

Derivation "Nomenclature" - transmissions.



Transmissions for EURO VI engine systems.



automated manual

Meaning of symbols:



Manual shifted transmission



Fully automated manual transmission



Transmission for buses and coaches



Our transmission product portfolio: Smooth operation in every situation.

Our range of service extends from 6-speed to 8-speed automated manual shifted transmissions for buses and coaches. All transmissions are manufactured on a large scale by Mercedes-Benz buses and coaches and are engineered to meet the highest standards of technology and quality.

Meeting the demands of our customers is the focus of our work. We feel committed to advancing the design of our systems in a consistent and innovative way in-line with market and customer requirements.

Our know-how is based on decades of experience in the manufacturing and development of buses and coaches transmissions. This manufacturing expertise distinguishes our transmissions today particularly by three features:

- Very smooth running characteristics
- · Low weight
- Extreme durability

In the future, we will continue to further develop our innovative products focused on customer-oriented applications.



Your product benefits of transmissions for buses & coaches:

- 6-speed and 8-speed automated shifted manual transmissions
- Resilient from 900 Nm to 2500 Nm max. input torque
- Gear ratio spread from 9.03 to 10.38
- Permissible max. gross combination weight (GCW) up to 28.5 t
- Secondary water retarder available for heavy-duty
- Bus specific degressive gradation characteristics for high driving comfort

- Quiet running characteristics and long service life through optimized gear set geometry and high-precision processing technologies
- Long service intervals and low operating costs due to a fuel-efficient design optimized for specific operating condition
- More comfortable **vibration characteristics** due to an integrated engine suspension



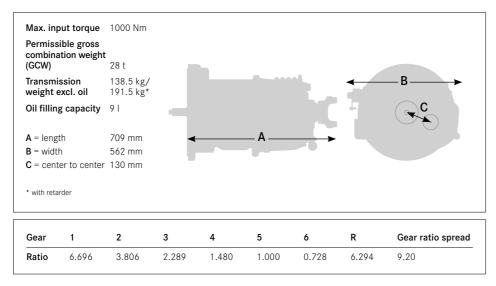
G 90-6S



- 6-speed synchronized transmission with a wide gear ratio spread
- SAE 2 or SAE 3 clutch housing available
- Overdrive configuration
- Hydrodynamic retarder can be adapted



Specifications and dimensions



GO 230-6 CPS

GO 250-8 PowerShift 3



- 8 degressive stepped gears
- 8-speed none synchronized transmiss with a wide gear ratio spread
- Double-overdrive configuration
- Secondary water retarder can be adapted



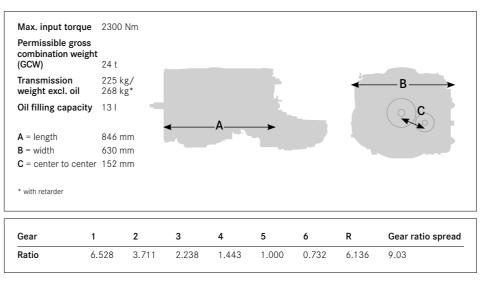
- 6 degressive stepped gears
- Overdrive configuration

MT

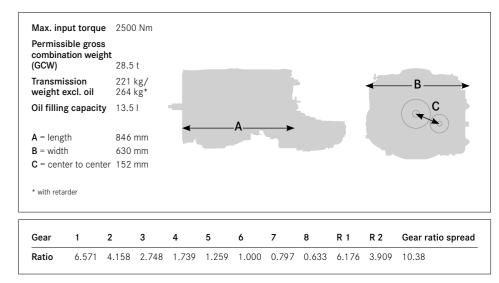
- · Pneumatically supported cable power shift
- All components optimized specifically for use in buses
- Secondary water retarder can be adapted



Specifications and dimensions



Specifications and dimensions



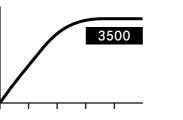
The **integrated secondary water retarder** offers a **high braking torque in combination with a compact, weight-saving design**. The weight advantages of the new retarders are 43 kg (SWR) compared to previous oil retarders. The braking power of the retarder is also independent of selected gear or current engine speed. A gear change does **not** result in **any interruption** in the retarder braking action and the retarder braking power depends only on the current driving speed. The braking power can be controlled precisely in **five stages** using the right hand control stalk on the steering column. In addition to the engine brake, the retarder provides a **maximum braking torque up to 3500 Nm**.



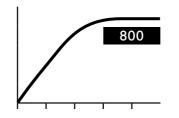
Secondary water retarder

Your product benefits:

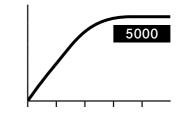
- · Reduction of friction by axial rotor displacement
- No heat exchanger required since the cooling water is used as the operating medium directly
- · Compact unit requires only **minimal installation space**
- Freedom from maintenance for reduced vehicle service costs
- Significantly lighter than comparable hydrodynamic retarder
- · Increased comfort through low noise emission
- · Integration into the vehicle management
- Between 20–30% higher **constant brake power** than current oil retarders



max. braking torque [Nm]



max. braking power [kW]



max. rotation [min -1]

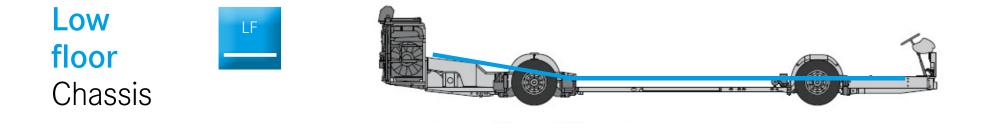


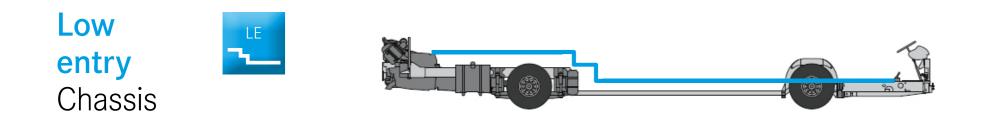


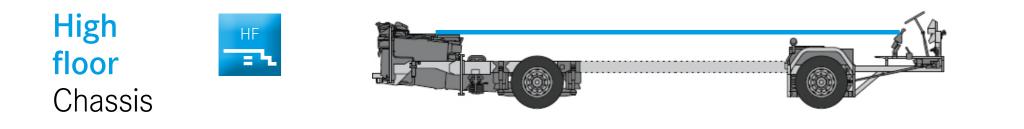
Mercedes-Benz axles.

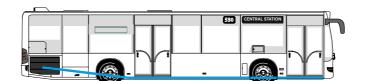
Reliable axles for every application.

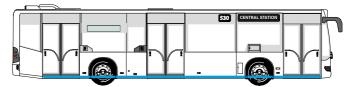
Vehicle classification for buses.



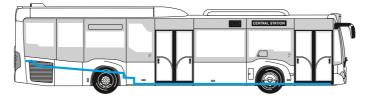




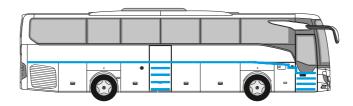




City buses (and intercity buses)

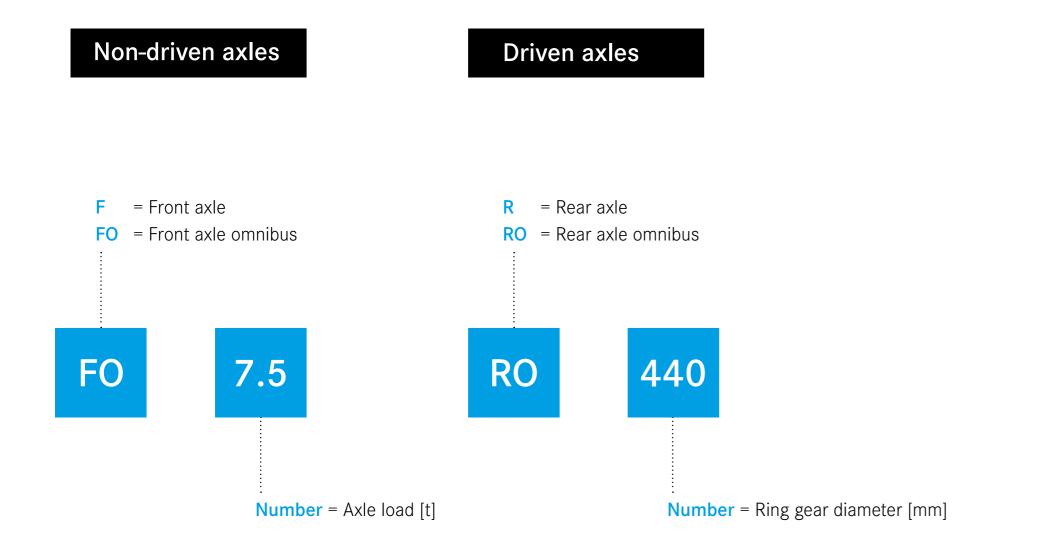


City and intercity buses



Coaches, intercity and transfer buses

Derivation "Nomenclature" - axles.

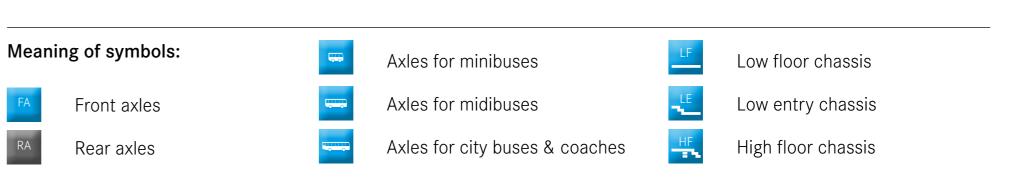


Axle portfolio: front and rear axles.

Vehicle category	Front axles*	Wheel-end size [inches]	Axle load [t]				Rear axles	Wheel-end size [inches]	Axle load [t]		
 Minibus (7 m)	F 4.1 – F 4.4	17.5	4.1-4	1.4			R 325*	17.5		6.2-8.3	
Midibus (8 – 10 m)	F 5.3 – F 6.1	19.5		5.3-6.1			R 390*	19.5			11
City bus/coach (12 m)	FO 7.5	22.5			7.5						
	F 7.5 – F 8	22.5			7.5-8	I	R 440*	22.5			11.5-13
	F9-F9.5	22.5				9-9.5	RO 440*	22.5			11.5-13
			4	4 6	ا 8 د	3				5	10

* only applicable with front engine configuration

For further applications see truck axle portfolio.





The most efficient way of putting power on the road.

Our product range consists of various axle systems which are highly suitable for nearly all bus categories from minibuses through to coaches, in urban areas or overland.

We use our customers' experience, their requirements and demands as an essential precondition for the development of new axle technologies. Our innovative state-of-the-art engineering and our quality-driven plants in Germany give our axles outstanding performance in:

- ・ Durability
- Fuel efficiency
- Quiet operation

Top vehicle manufacturers around the world trust on the outstanding quality and performance of our axles and the reliability of our services. We are one of the world's biggest producers of commercial axles and we want to share our experience and technology with you.

Convince yourself and discover the advantages of Mercedes-Benz axles.



Reliability at high level.

Your product benefits for front axles:

- Wheel-end sizes from 17.5 to 22.5 inches
- Axle loads from 4.1 to 9 t (per axle)
- Gross vehicle weight rating (GVWR) from 6.5 to 26 t
- Longer lifetime and easy maintenace

- · Additional payload due to weight-optimized design
- · Left or right hand drive applications possible
- · Maintenance-free wheel hub

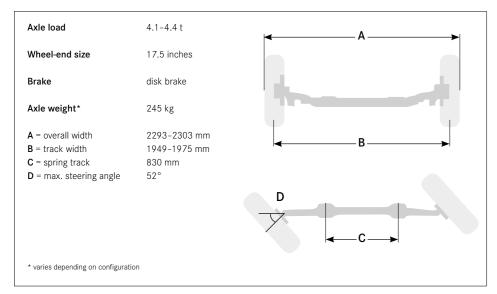
F 4.1-F 4.4

FA GG HF



- Steered rigid axle with forged front axle beam
- Recommended for minibuses

Data and dimensions



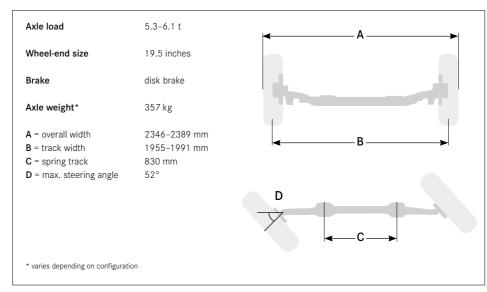
F 5.3-F 6.1





- Steered rigid axle with forged front axle beam
- Recommended for midibuses

Data and dimensions

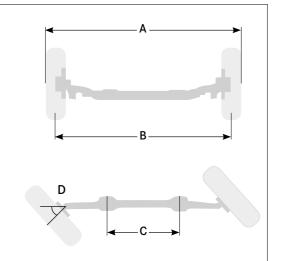




Steered rigid axle with forged front axle beam
Low-floor option owing to a large drop
Recommended for city buses and coaches

Data and dimensions

Axle load	7.5 t
Wheel-end size	22.5 inches
Brake	disk brake
Axle weight*	430 kg
A = overall width B = track width C = spring track D = max. steering angle	2495 mm 2101 mm 1094 mm 55°



* varies depending on configuration



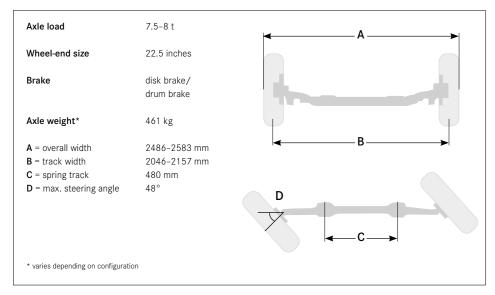
F 7.5-F 8

FA HF



- Steered rigid axle with forged front axle beam
- Recommended for city buses and coaches

Data and dimensions



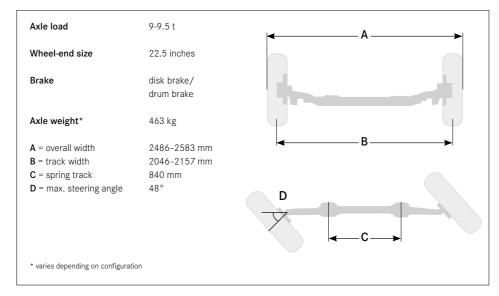
F 9-F 9.5





- Steered rigid axle with forged front axle beam
- Recommended for city buses and coaches

Data and dimensions









Rear axles.

Comfort and safety in every situation.

Your product benefits for rear axles:

- Wheel-end sizes from 17.5 to 22.5 inches
- · Hypoid driven

MA HE DEG.

- Ring gear diameter from 325 to 440 mm
- Axle loads from 6.2 to 13 t (per axle)
- **Gross vehicle weight rating** (GVWR) from **6.5 to 26 t**
- High fuel efficiency
- Easy maintenance and long oil change intervals

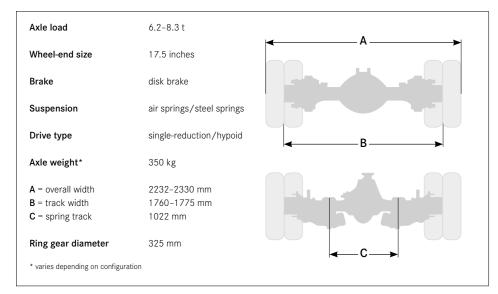
- Long lifetime and quiet operations due to optimized gear set design
- Additional payload due to weight optimized design
- Adaption to the transport task through numerous ratio variants
- · Maintenance-free wheel hub
- **Applicable** for front and rear engine





- Fabricated axle housing
- Recommended for minibuses
- For front engine coniguration

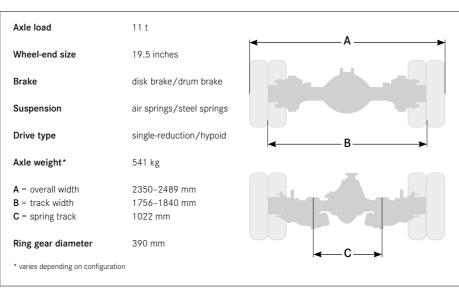
Data and dimensions





- Fabricated axle housing
- Recommended for for medium-duty application
- For front engine coniguration

Data and dimensions



R 440/RO 440

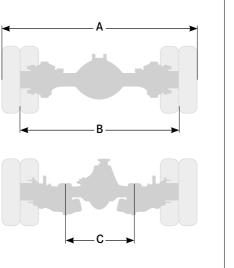
RA LE HF



Fabricated axle housing
Recommended for category city buses and coaches
With R 440 for front engine configuration
With RO 440 for rear engine configuration

Data and dimensions

Axle load	11.5-13 t
Wheel-end size	22.5 inches
Brake	disk brake
Suspension	air springs
Drive type	single-reduction/hypo
Axle weight*	683 kg
 A = overall width B = track width C = spring track 	2419-2482 mm 1802-1804 mm 930/940 mm
Ring gear diameter	440 mm
*	







* varies depending on configuration

Iransmissions

Axles

ingine systems



Our Global Mercedes-Benz Service Network.

Optimizing customer support while minimizing downtimes of your truck and bus is highly relevant for us. Enjoy the advantages of our network with more than 2,400 authorized Mercedes-Benz Truck Service Centers worldwide.



Your next Service Center: Dealer Locator Online





Spare parts supply.

We will ensure spare parts availability for many years after your initial investment. Your vehicle only can deliver top performance if it's kept in shape at all times. It is only the use of high-quality GenuineParts that ensures that the explicit and implied warranty is maintained.

For our price sensitive customers we also offer a large portfolio of Genuine Remanufactured Parts - for saving costs but on the same quality level.

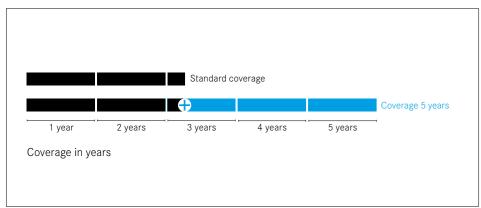
Extended Warranty. We believe in our quality.



Our extended coverage program takes you to a higher level. Mercedes-Benz Powertrain engine system owners enjoy an overall coverage, which can be extended to 5 years and therefore adds even more value to your engine system.

Benefit from five years of manufacturer's coverage for your powertrain components - our new coverage program with 500,000 km and 300,000 Stop-Starts: 5 years of manufacturer's coverage for your powertrain components.

Coverage types



Extended Warranty your advantages* at a glance:

Integrated Powertrain:

- 5 years coverage
- ✓ Up to 500,000 km
- ✓ 300,000 Stop-Starts
- ✓ After treatment system covered
- Alternator + starter + accessories covered
- Crankshaft radial sealing rings covered
- Electronic control units covered
- ✓ Valid in matured markets



More than products.

Our perfectly matched powertrain delivers you the best possible performance and fuel savings, while maintaining low overall operating costs. The perfect combination of engine systems, transmissions and axles yields in the greatest possible efficiency and the best quality made by Mercedes-Benz Powertrain. We tailor Mercedes-Benz Powertrain component configurations to the needs of our customers for sales in the on-highway segment.

If you have technical questions, would like additional information or wish to request installation drawings, please do not hesitate to contact our sales team:

Sales External Customers Daimler Truck AG 001-E206 70546 Stuttgart/Germany

aggregate-info@daimler.com www.mercedes-benz.com/powertrain



Index.

ENGINES

TRUCK BUSES

Туре	Cylinder	Displacement [litres]	Power [kW]	Torque [Nm]		
OM 934	L4	5.1	115. 130	650. 750	х	
OM 934 LA	L4	5.1	115. 130. 155. 170	650. 750. 850. 900		Х
OM 936	L6	7.7	175. 200. 220. 235. 260	1000. 1100. 1200. 1300. 1400	х	
OM 936 LA	L6	7.7	175. 200. 220. 235. 260	1000. 1100. 1200. 1300. 1400		Х
OM 470	L6	10.7	240 ¹ . 265. 290. 315. 335	1700. 1800 ¹ . 1900. 2100. 2200 ²	х	Х
OM 471	L6	12.8	310 ¹ . 330 ¹ . 350. 375. 390 ¹	2100 ¹ . 2200 ¹ . 2300. 2500. 2600 ¹	х	Х
OM 473	L6	15.6	380. 425. 460	2600. 2800. 3000	х	
					_	

TRANSMISSIONS				TRUCK	BUSES
Туре	Ratio	Forward gears	Max. input torque [Nm]		
G 90 – 6S	6.70-0.73/9.20	6-8	1000		x
G 141-9 CPS	9.75-1.00/14.57	8	1400	х	
G 260-16 CPS	11.72-0.69/17.11	16	2600	х	
G 140 – 8 PowerShift 3	9.29-0.79/11.82	8	1400	х	
G 211-12 PowerShift 3	14.93-1.00/14.93	12	2100	х	
G 230-12 PowerShift 3	11.67-0.78/14.93	12	2300	х	
G 281-12 PowerShift 3	18.83-1.00/14.93	12	2800	х	
G 330 – 12 PowerShift 3	11.64 - 0.78/14.93	12	3300	х	
G 280-16 PowerShift 3	11.72-0.69/16.99	16	2800	х	
G 280 – 16 TRC	11.72-0.69/16.99	16	3000	х	
G 330 – 12 TRC	11.64-0.78/14.93	12	3300	х	
GO 230 – 6E CPS	6.53 - 0.73/9.03	6	2300		Х
GO 250 – 8 PowerShift 3	6.57-0.63/10.38	8	2500		x

RETARDER

TRUCK BUSES

Secondary water retarder x x			
	Secondary water retarder	X	X

AXLES			TRUCK	BUSES
Type [front axles]	Wheel-end size [inches]	Axle load [t]		
F 4.1-F 4.4	17.5	4.1 - 4.4	x	x
F 5.3 – F 6.1	19.5	5.3 - 6.1	Х	х
FD 346 – FD 360	19.5	4.7-6	Х	
FO 7.5	22.5	7.5		х
F 7.5 – F 8	22.5	7.5 - 8	Х	х
F 9 – F 9.5	22.5	9-9.5	х	Х
FD 233 P	22.5	7.5-9	Х	
FD 233 P + FT 233 P	22.5	18	X	
			TRUCK	BUSES
Type [rear axles]	Wheel-end size [inches]	Axle load [t]		
R 325	17.5	6.2 - 8.3	x	x
R 390	19.5	11	Х	Х
R 440	22.5	13	Х	Х
RO 440	22.5	11.5-13		Х
R 233 P – R 300 P	22.5	26.8 - 32	×	
RT 233 P + R 233 P - RT 300 P + R 300 P	22.5	26 - 32	Х	
RT 390 + RT 390 T	22.5	20.5	Х	
RT 440 + R 440	22.5	26	Х	

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