

# Mercedes-Benz Powertrain



Portfolio **Bus Classic**: EURO III, EURO V, EEV.

Mercedes-Benz





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



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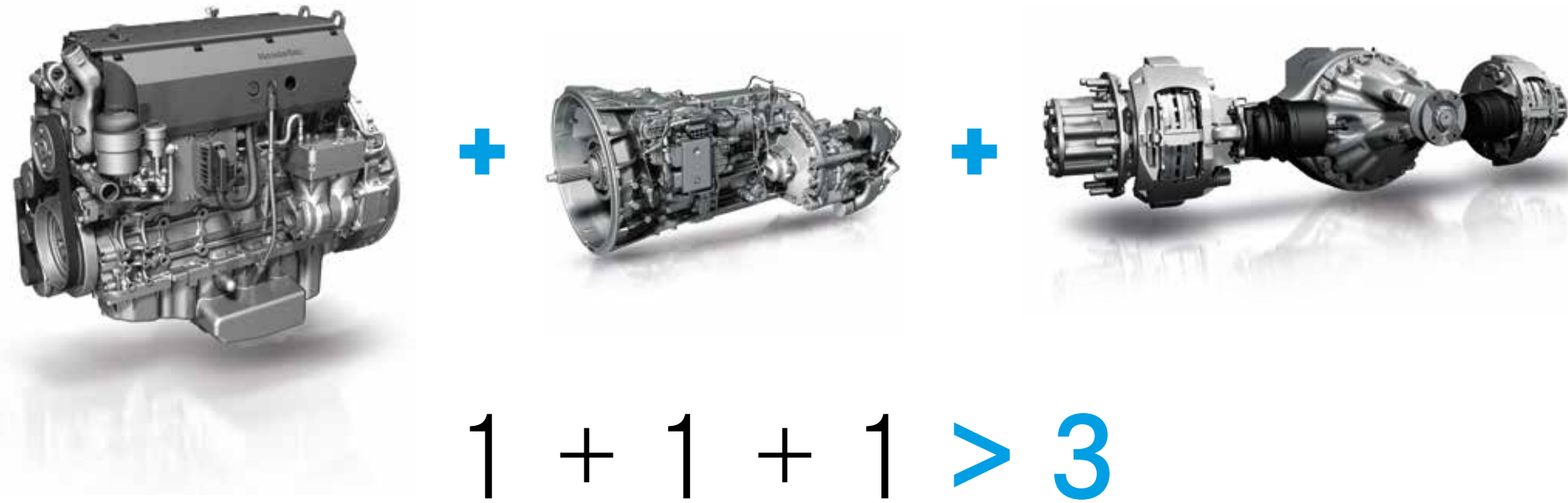
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# Going the **extra mile**. Mercedes-Benz Powertrain.

Mercedes-Benz Powertrain offers outperforming and individual engineered aggregates: 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 aggregates:

- ✓ 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 aggregates
- ✓ Leads to an optimized system setup due to common electric and electronic architecture (EE architecture) for efficient interaction of all aggregates
- ✓ 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
- ✓ Increases the resale value of the vehicles due to the highest quality standards offered by Mercedes-Benz
- ✓ 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



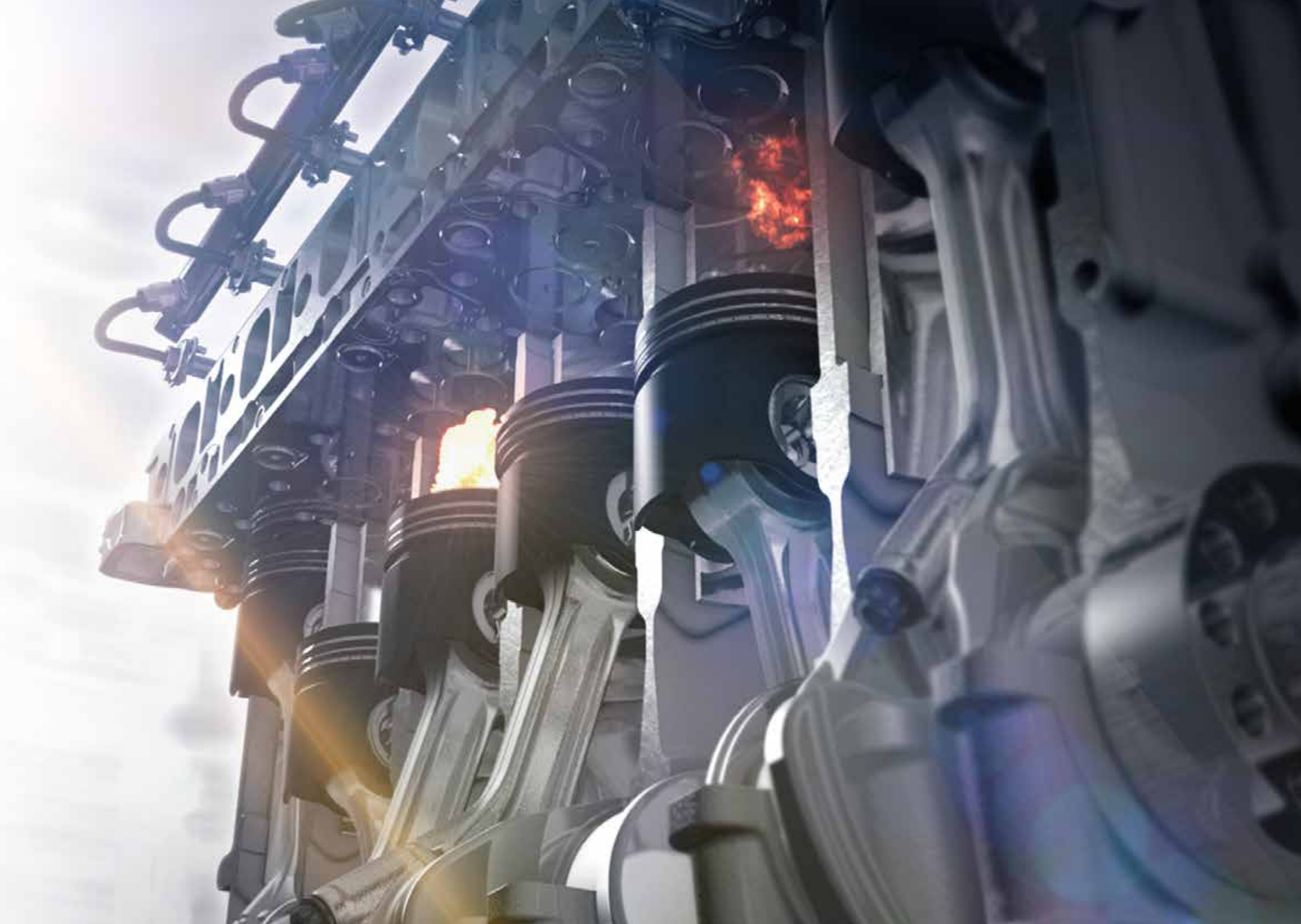


## Mercedes-Benz engine systems.

## OM 92X and 457 model series.

Approved engines for a variety of applications.





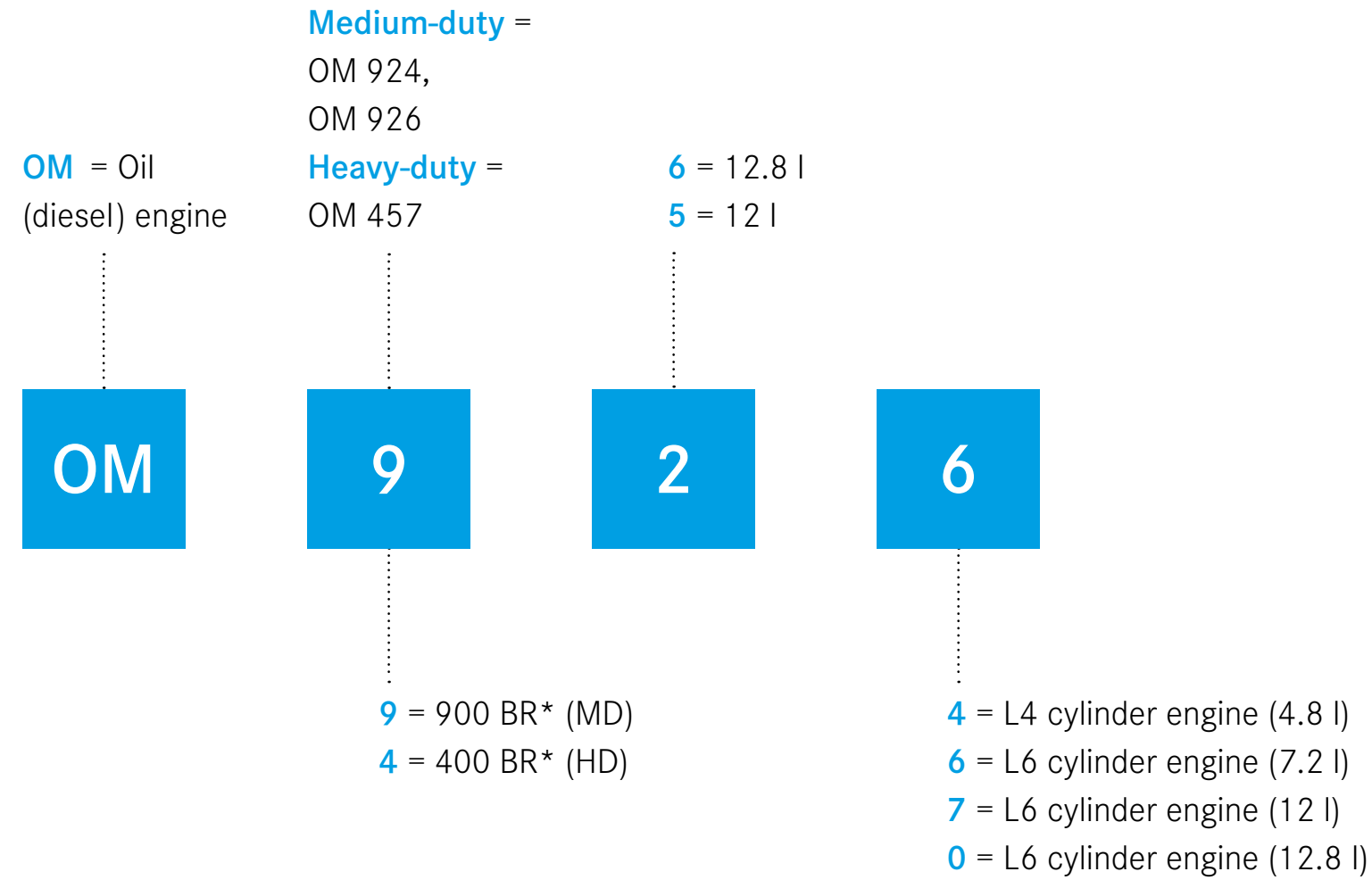
## Our engine product portfolio: TCO reduction at its best.

Our EURO III, V and EEV engines are **synonymous with strength, economy and durability**. Based on these characteristics, our engines in all series are ideal for city buses and touring coaches. They can be modified to create customer-specific variants for use in different bus applications. From the 4/6 cylinder in-line models the EURO III, V and EEV engines represent superior function and efficiency. **The EURO III, EURO V and EEV engines operate at the highest levels of efficiency and ensure superior power output.**

Thanks to BlueTec®, Mercedes-Benz's SCR diesel technology, they operate in a particularly eco-friendly way. BlueTec® ensures low CO<sub>2</sub> emissions and extremely low concentrations of nitrogen oxide (NO<sub>x</sub>) and particulates, to meet emission standards at the tailpipe. **Besides low consumption, the BlueTec® engines also have impressive maintenance intervals and a long engine life.** At Mercedes-Benz, we have spent decades bringing our diesel engines to perfection. Our dedication to excellence has earned Mercedes-Benz loyal customers around the world, in the most demanding industries.



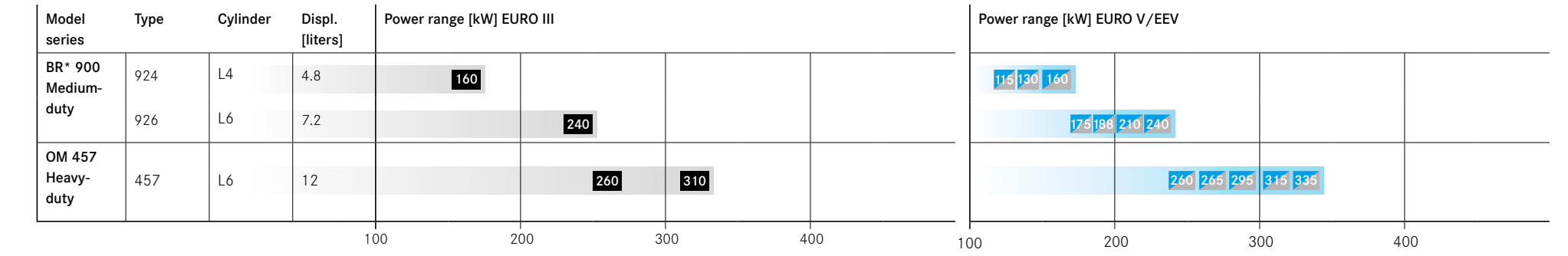
# Derivation "Nomenclature" - engines.



\* BR = Baureihe = model series

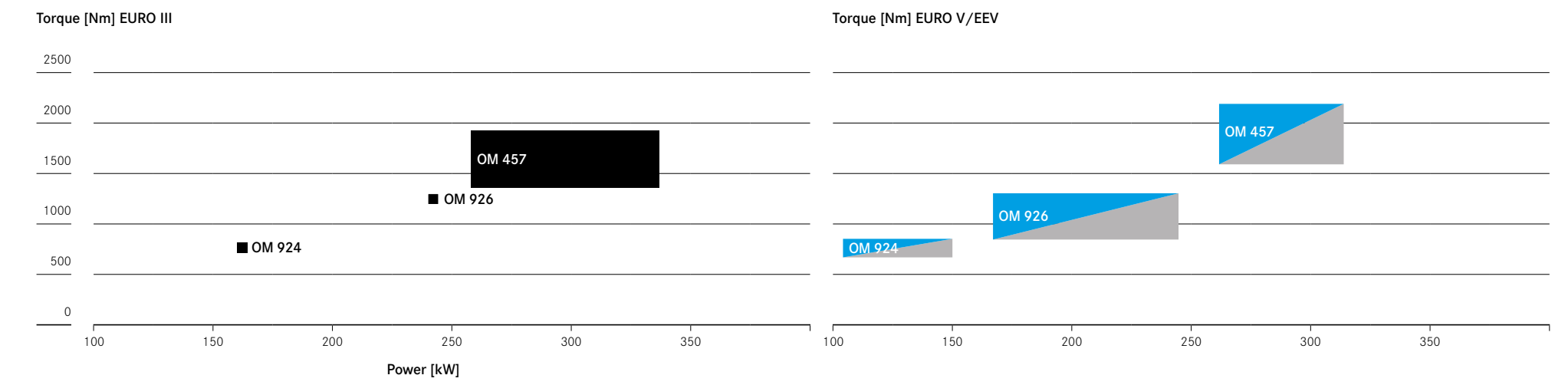
# Engine systems for EURO III, EURO V and EEV.

Portfolio of EURO III-EURO V and EEV engines for buses



Legend: ■ EURO III, ■ EURO V, ■ EEV  
\* BR = Baureihe = model series

## Power range







Medium-duty  
engine systems.



## Performance. Even on challenging terrain.

Your product benefits for medium-duty engine systems:

- 4- and 6-cylinder diesel engines in an **in-line arrangement**
- **Displacement** of 4.8 to 7.2 liters
- **Output** of 115 up to 240 kW
- **Low fuel consumption** due to innovative **SCR technology**
- Compact **installation space**
- Cylinder head with **3-valve technology**
- Powerful and **dynamic engine brakes** due to **decompression technology**
- Additional **power take-off** options
- “**One box**” SCR exhaust aftertreatment
- **Wide range** of potential **adaptations** due to extensive



# OM 924

Arrangement: In-line 4  
Displacement: 4.8 l



## Weight and dimensions\*

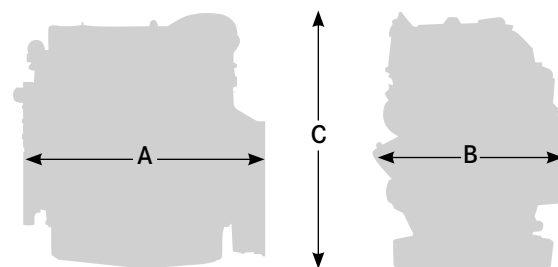
### Dry weight

EURO III: 395 kg  
EURO V/EEV: 405 kg

### Dimensions

A = length 808 mm  
B = width (excl. charge air pipe) 600 mm  
C = height 805 mm

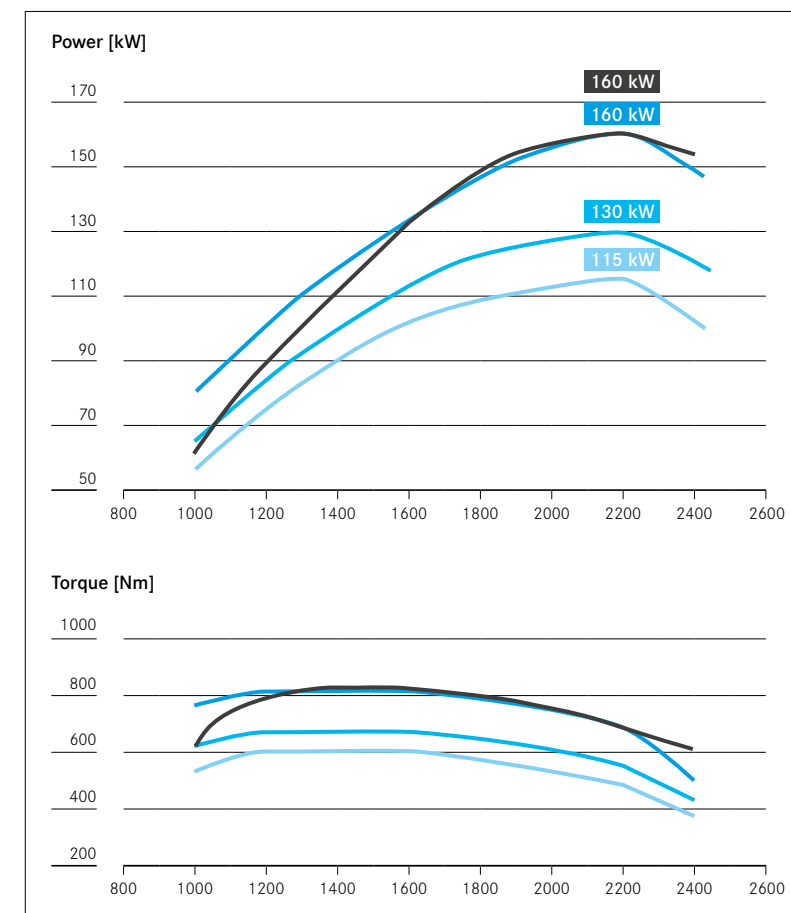
\* depending on equipment installed



## Rated power and nominal torque

		EURO III	EURO V/EEV	EURO V/EEV	EURO V/EEV
<b>Rated power</b>	[kW/hp]	<b>160/218</b>	<b>115/156</b>	<b>130/177</b>	<b>160/218</b>
<b>at engine speed</b>	[rpm]	2200	2200	2200	2200
<b>Nominal torque</b>	[Nm]	810	610	675	810
<b>at engine speed</b>	[rpm]	1400-1600	1200-1600	1200-1600	1200-1600

## Performance



# OM 926

Arrangement: In-line 6  
Displacement: 7.2 l



## Weight and dimensions\*

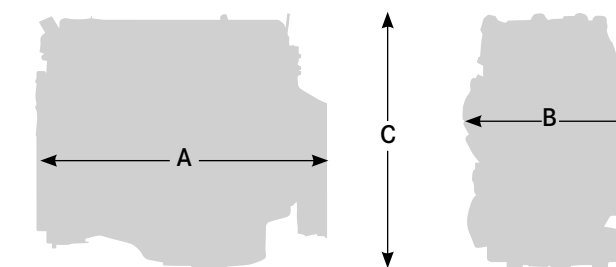
### Dry weight

EURO III: 530 kg  
EURO V/EEV: 540 kg

### Dimensions

A = length 1045 mm  
B = width 640 mm  
C = height 895 mm

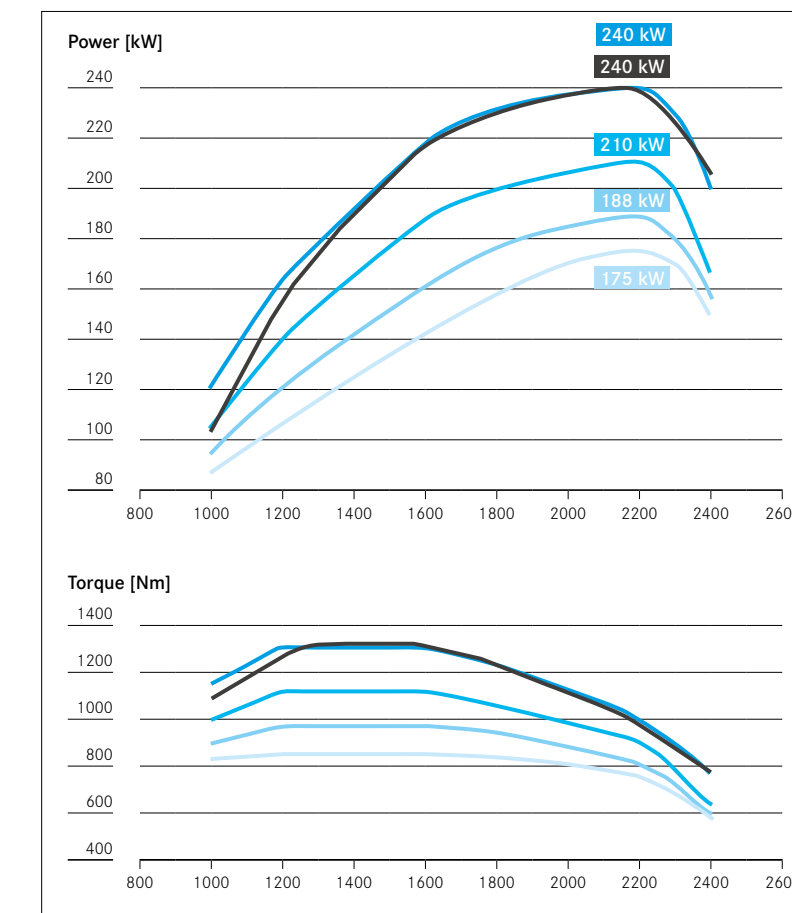
\* depending on equipment installed



## Rated power and nominal torque

		EURO III	EURO V/EEV	EURO V/EEV	EURO V/EEV	EURO V/EEV
<b>Rated power</b>	[kW/hp]	<b>240/326</b>	<b>175/238</b>	<b>188/255</b>	<b>210/286</b>	<b>240/326</b>
<b>at engine speed</b>	[rpm]	2200	2200	2200	2200	2200
<b>Nominal torque</b>	[Nm]	1300	850	970	1120	1300
<b>at engine speed</b>	[rpm]	1200-1600	1200-1600	1200-1600	1200-1600	1200-1600

## Performance







Heavy-duty  
engine systems.

## A drive that stands out.

### Your product benefits for heavy-duty engine systems:

- **6-cylinder** diesel engines in-line
- **Displacement** of 12 and 12.8 liters
- **Output** of 335 up to 375 kW
- **Low fuel consumption** due to proven **SCR technology**
- Compact **installation space**
- Cylinder head with **4-valve technology**
- Powerful and **dynamic engine brakes** due to **decompression technology**
- Additional **power take-off options**
- “**One box**” SCR exhaust after-treatment
- **Wide range** of potential **adaptations** due to extensive **modular system**



# OM 457

Arrangement: In-line 6  
Displacement: 12 l



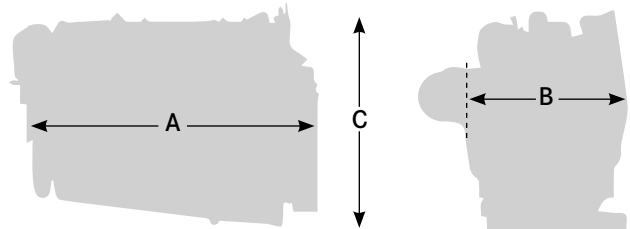
## Weight and dimensions\*

### Dry weight

EURO III: 1005 kg  
EURO V: 1015 kg

### Dimensions

A = length 1267 mm  
B = width (excl. charge air pipe) 750 mm  
C = height 945 mm

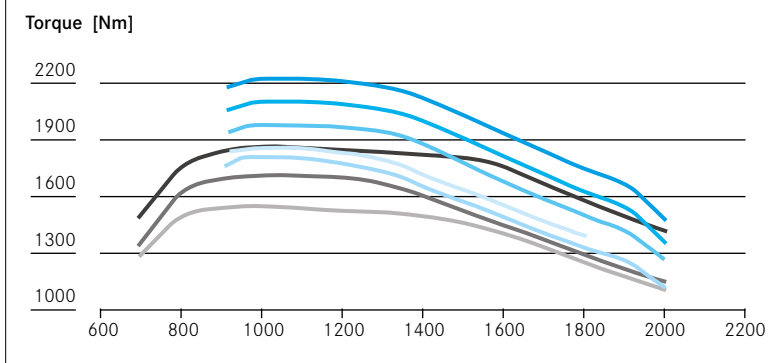
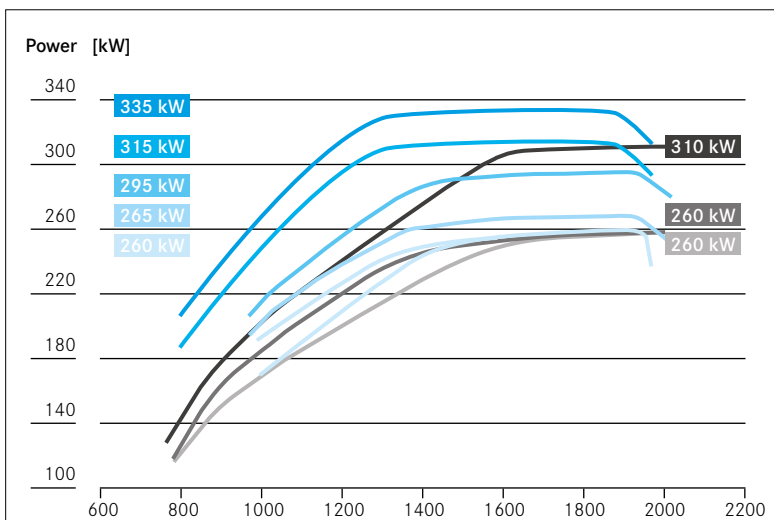


\* depending on equipment installed

## Rated power and nominal torque

	EURO III	EURO III	EURO III	EURO V/EEV	EURO V/EEV	EURO V/EEV	EURO V/EEV	EURO V/EEV
<b>Rated power</b> [kW/hp]	260/348	260/348	310/422	260/354	265/360	295/401	315/428	335/456
<b>at engine speed</b> [rpm]	2000	2000	2000	2000	1900	1900	1900/2000	2000
<b>Nominal torque</b> [Nm]	1600	1750	1900	1600/1850	1850	2000	2100	2200
<b>at engine speed</b> [rpm]	1100	1100	1100	1100	1100	1100	1100	1100

## Performance





# Clean from start to finish.

## Your product benefits for the after-treatment system:

- **Low impact** on exhaust back pressure
- Significant **NOx reduction** at a broad range of exhaust gas volume flows and exhaust gas temperatures
- **Small installation space** and **low weight**
- **Long lifetime**, adapted to the engine's lifetime
- Consistent **common parts strategy**
- Many **different variants** for exhaust gas inlet and outlet
- **Different shapes:** cubic or oval geometry

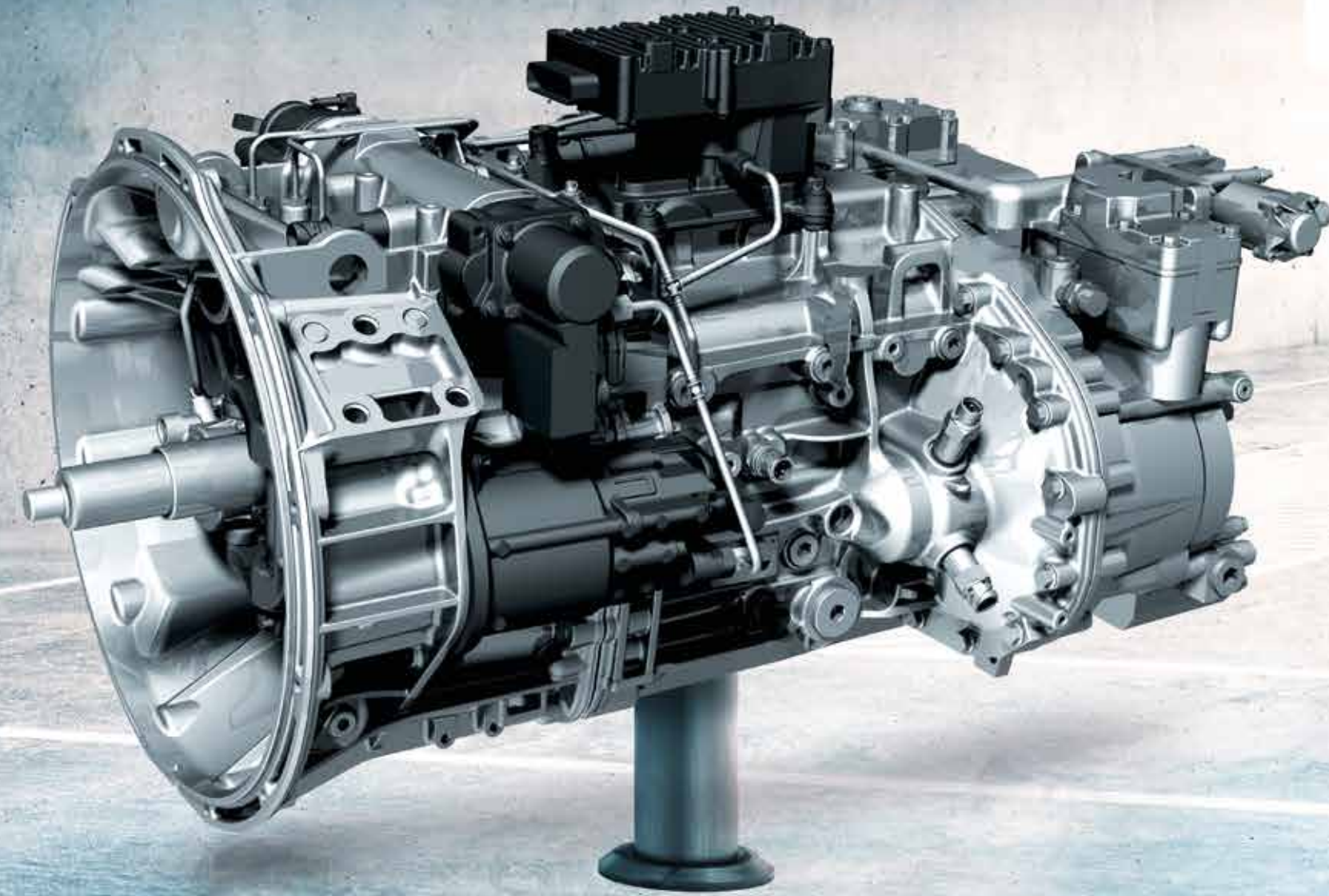
With BlueTec®, Mercedes-Benz's SCR diesel technology, the level of nitrogen oxide is reduced by a **catalytic converter** and **AdBlue® / Diesel Exhaust Fluid (DEF)**.

The main advantages of BlueTec® are **cost-efficient compliance with EURO V and EEV**, low fuel consumption, low particulate matter emissions and low CO<sub>2</sub> emissions.

# EURO V and EEV exhaust after-treatment system.





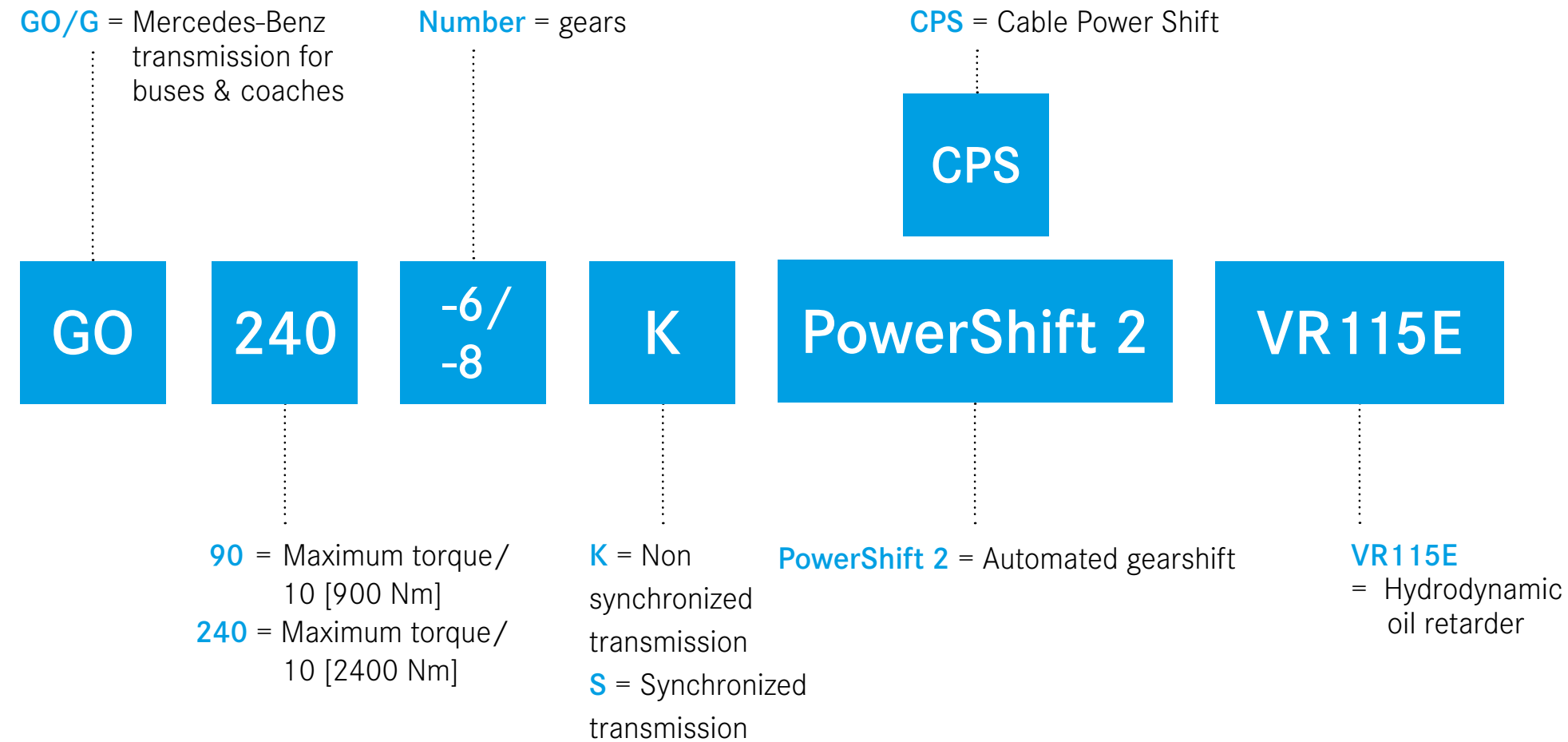


Mercedes-Benz  
transmissions.

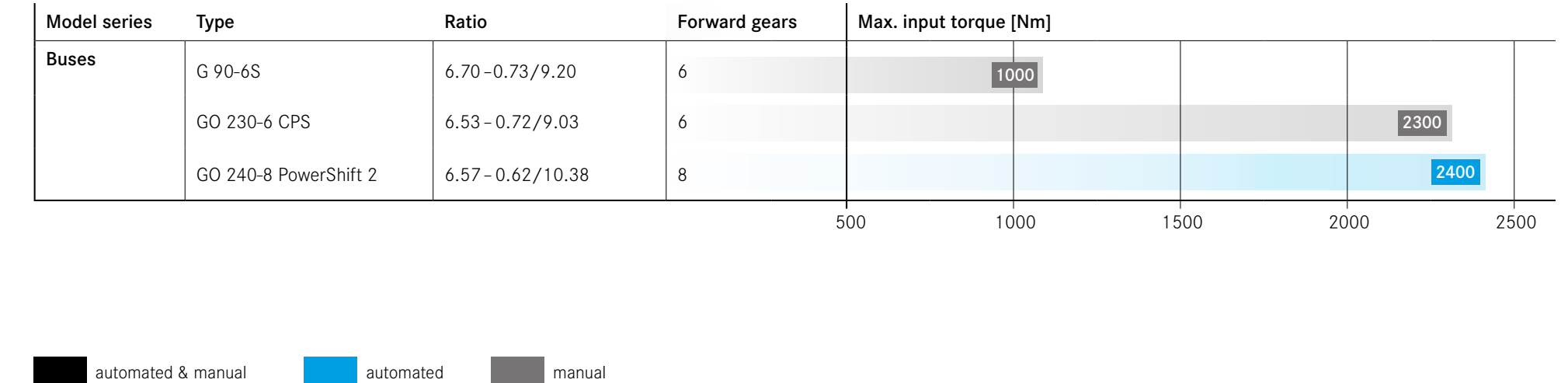
Reliable transmissions  
for a wide range of  
applications.



# Derivation "Nomenclature" - transmissions.



# Transmissions for EURO III, EURO V and EEV.



## Meaning of symbols:

- MT Manual shifted transmission
- AMT 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 manual shifted to 8-speed automated shifted and manual 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 bus and coach transmissions. This manufacturing expertise distinguishes our transmissions today particularly by three features:

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

In future, we will continue to stand for innovative products focused on customer-oriented applications.





# Redefining efficiency.

## Your product benefits for bus transmissions made by Mercedes-Benz:

- **Manual 6-speed** transmissions and **automated 8-speed** transmission
- Resilient from 900 Nm to 2400 Nm **max. input torque**
- **Gear ratio** spread from 9.03 to 10.38
- Permissible max. **gross combination weight (GCW)** from 20 t to 28.5 t
- Integrated **hydrodynamic retarder** available
- **Quiet running characteristics** and **long service life** through optimized gear set geometry and high-precision processing technologies



# 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

Max. input torque	1000 Nm
Permissible gross combination weight (GCW)	28 t
Transmission	138.5 kg/ excl. oil excl.
Oil filling capacity	9 l
A = length	709 mm
B = width	562 mm
C = center to center	130 mm

\* with retarder

Gear	1	2	3	4	5	6	R	Gear ratio spread
Ratio	6.696	3.806	2.289	1.480	1.000	0.728	6.294	9.20

# GO 230-6 CPS



- 6 progressively stepped gears
- Overdrive version
- Mechanical 2-cable shifting system, pneumatic supported (PSH)
- Hydrodynamic retarder can be adapted



## Specifications and dimensions

Max. input torque	2300 Nm
Permissible gross combination weight (GCW)	24 t
Transmission	225 kg/ excl. oil excl.
Oil filling capacity	13 l
A = length	788 mm
B = width	626 mm
C = center to center	152 mm
D = diameter	SAE 1

\* with retarder

Gear	1	2	3	4	5	6	R	Gear ratio spread
Ratio (E-Version)	6.528	3.711	2.238	1.443	1.000	0.723	6.136	9.03

# GO 240-8 PowerShift 2



- 8-speed constant-mesh transmission with a wide gear ratio spread
- Double overdrive
- Hydrodynamic retarder is adapted



## Specifications and dimensions

Max. input torque	2400 Nm
Permissible gross combination weight (GCW)	28.5 t
Transmission	254 kg/ excl. oil excl.
Oil filling capacity	13.5 l
A = length	788 mm
B = width	626 mm
C = centre to center	152 mm
D = diameter	SAE 1

\* with retarder

Gear	1	2	3	4	5	6	7	8	R 1	R 2	Gear ratio spread
Ratio	6.571	4.158	2.748	1.739	1.259	1.000	0.797	0.633	6.176	3.909	10.38





The **integrated hydrodynamic oil retarder** offers a high braking torque in combination with a compact, weight-saving design. 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 (VR 115 E)**.

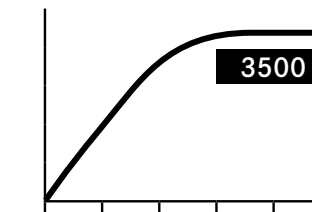


# VR 115 E

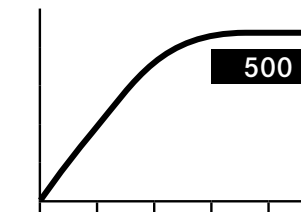
## Hydrodynamic retarder

### Your product benefits:

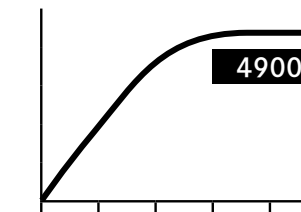
- **Stainless steel** heat exchanger
- **Reduction of friction** by **axial rotor displacement**
- Optimized **hydrodynamics**
- **Integration** into the vehicle management
- **Same prop shaft length** with and without retarder



max. braking torque [Nm]



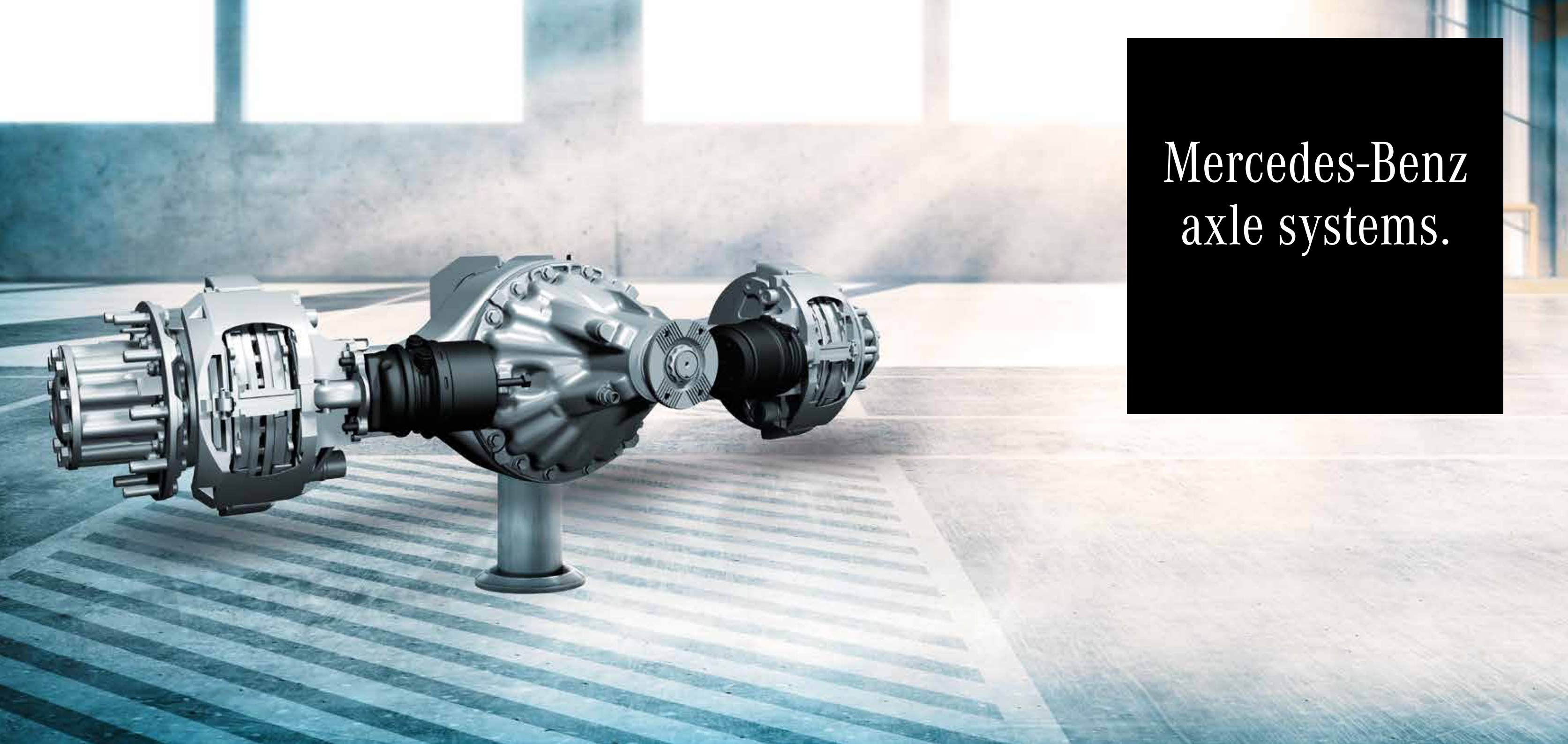
max. braking power [kW]



max. rotation [min<sup>-1</sup>]







Mercedes-Benz  
axle systems.

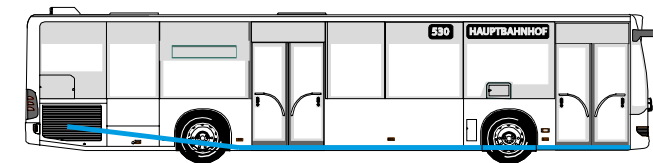
Reliable axles for  
every application.



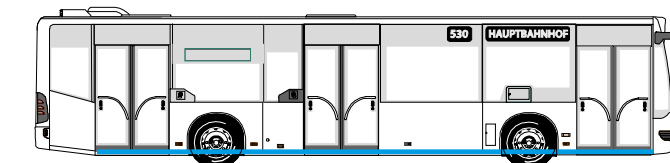
# Vehicle type and the fitting axle application from plant Kassel:

## Low floor Chassis\*

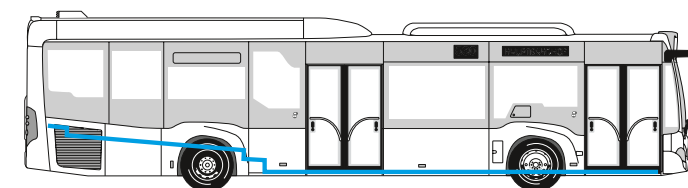
\* not available in plant Mannheim



City buses (and intercity buses)

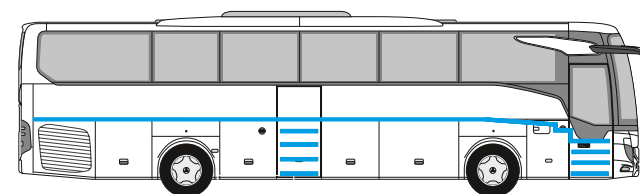
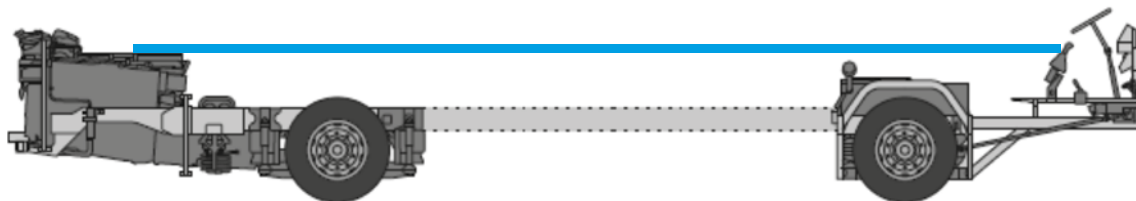


## Low entry Chassis



City and intercity buses

## High floor Chassis



Coaches, intercity and transfer buses



# Derivation "Nomenclature" - axles.

## Non-driven axles

## Driven axles

F = Front axle  
FO = Front axle omnibus

R = Rear axle  
RO = Rear axle omnibus

FO

7.5

Number = Axle load [t]




RO

440

Number = Ring gear diameter [mm]

# The right axle for every application.

Axle portfolio: front axles\* and rear axles.

Vehicle category	Front axles*	Tire size [inches]	Axle load [t]			Rear axles	Tire size [inches]	Axle load [t]		
			4	6	8			5	10	
 Minibus (7 m)	F 4.1 - F 4.4	17.5	to 4.4			R/RO 325	17.5	6-8.3		
 Midibus (8-10 m)	F 5.3 - F 6.1	19.5/20/22.5	5.3-6.1			R 390*	19.5/20/22.5	9.2-11		
 City bus/coach (12 m)	FO 7.5	22.5	7.5			R/RO 440	22.5	11.5-13		
	F 7.5 - F 8	20/22.5	7.5-8							
	F 9 - F 9.5	20/22.5/24	9-9.5							

\* only applicable with front engine configuration

For further applications see truck axle portfolio.

### Meaning of symbols:



Front axles



Rear axles



Axles for minibuses



Axles for midibuses



Axles for city buses & coaches



Low floor Chassis



Low entry Chassis



High floor Chassis





## Our axle product portfolio: Efficiency on demand.

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.





Front axles.

## Reliability at high level.

### Your product benefits for front-axles:

- Tire sizes from **17.5 to 22.5 inches**
- Axle loads from **3.5 to 9 t** (per axle)
- Gross vehicle weight rating (GVWR) from **6.5 to 24 t**
- **Longer lifetime** and **easy maintenance**
- **Additional payload** due to weight-optimized design
- **Left or right handed** applications possible
- **Maintenance free** wheel hub



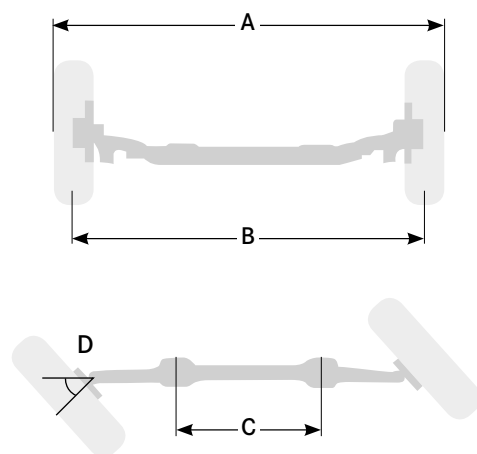
# F 4.1-F 4.4



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

## Data and dimensions

<b>Axle load</b>	to 4.4 t
<b>Tire size</b>	17.5 inches
<b>Brake</b>	disk brake
<b>Axle weight*</b>	245 kg
<b>A = overall width</b>	2293-2303 mm
<b>B = track width</b>	1949-1975 mm
<b>C = spring track</b>	830 mm
<b>D = max. turning angle</b>	52°



\* varies depending on configuration

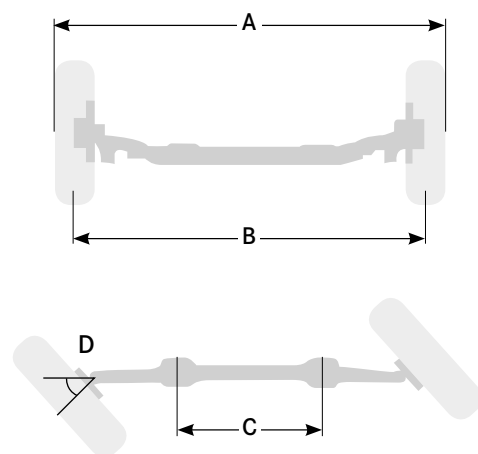
# F 5.3-F 6.1



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

## Data and dimensions

<b>Axle load</b>	5.3-6.1 t
<b>Tire size</b>	19.5/20/22.5 inches
<b>Brake</b>	disk brake
<b>Axle weight*</b>	357 kg
<b>A = overall width</b>	2346-2389 mm
<b>B = track width</b>	1955-1991 mm
<b>C = spring track</b>	830 mm
<b>D = max. turning angle</b>	52°



\* varies depending on configuration

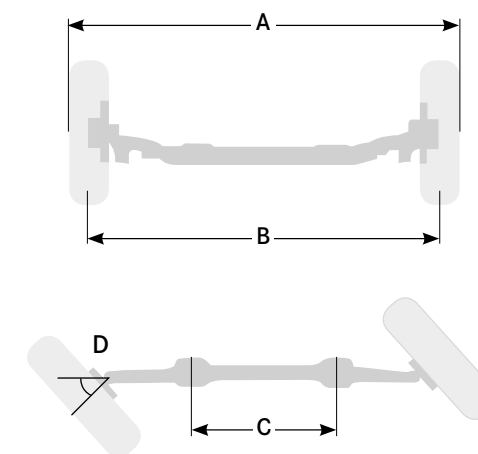
# F0 7.5



- 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

<b>Axle load</b>	7.5 t
<b>Tire size</b>	22.5 inches
<b>Brake</b>	disk brake
<b>Axle weight*</b>	430 kg
<b>A = overall width</b>	2495 mm
<b>B = track width</b>	2101 mm
<b>C = spring track</b>	1094 mm
<b>D = max. turning angle</b>	55°



\* varies depending on configuration





# F 7.5-F 8



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

## Data and dimensions

<b>Axle load</b>	7.5-8 t
<b>Tire size</b>	20/22.5 inches
<b>Brake</b>	disk brake/ drum brake
<b>Axle weight*</b>	461 kg
<b>A = overall width</b>	2486-2583 mm
<b>B = track width</b>	2046-2140 mm
<b>C = spring track</b>	840 mm
<b>D = max. turning angle</b>	52°

\* varies depending on configuration

# F 9-F 9.5



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

## Data and dimensions

<b>Axle load</b>	9-9.5 t
<b>Tire size</b>	20/22.5 inches
<b>Brake</b>	disk brake/ drum brake
<b>Axle weight*</b>	461 kg
<b>A = overall width</b>	2486-2583 mm
<b>B = track width</b>	2046-2140 mm
<b>C = spring track</b>	840 mm
<b>D = max. turning angle</b>	48°

\* varies depending on configuration







Rear axles.

# Comfort and safety in every situation.

## Your product benefits for rear axles:

- Tire sizes from **17.5 to 22.5 inches**
- **Hypoid** driven
- Ring gear diameter from **325 to 440 mm**
- Axle loads from **6 to 13 t** (per axle)
- Gross vehicle weight rating (GVWR) **from 6.5 to 24 t**
- **High fuel efficiency**
- **Easy maintenance** and long oil change intervals
- **Long lifetime** and **quite operations** due to our 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 configuration



# R/RO 325



- Fabricated axle housing
- Recommended for minibuses

# R 390\*



- Fabricated axle housing
- Recommended for for medium-duty application

# R/RO 440



- Fabricated axle housing
- Recommended for category city buses and coaches

## Data and dimensions

<b>Axle load</b>	6-8.3 t	
<b>Tire size</b>	17.5 inches	
<b>Brake</b>	disk brake	
<b>Suspension</b>	air springs/steel springs	
<b>Drive type</b>	single-reduction/hypoid	
<b>Axle weight*</b>	350 kg	
<b>A = overall width</b>	2232-2330 mm	
<b>B = track width</b>	1760-1775 mm	
<b>C = spring track</b>	1022 mm	
<b>Ring Gear Diameter</b>	325 mm	

\* varies depending on configuration

## Data and dimensions

<b>Axle load</b>	6-8.3 t	
<b>Tire size</b>	17.5 inches	
<b>Brake</b>	disk brake	
<b>Suspension</b>	air springs/steel springs	
<b>Drive type</b>	single-reduction/hypoid	
<b>Axle weight**</b>	350 kg	
<b>A = overall width</b>	2232-2330 mm	
<b>B = track width</b>	1760-1775 mm	
<b>C = spring track</b>	1022 mm	
<b>Ring Gear Diameter</b>	325 mm	

\* only applicable with front engine configuration  
\*\* varies depending on configuration

## Data and dimensions

<b>Axle load</b>	11.5-13 t	
<b>Tire size</b>	22.5 inches	
<b>Brake</b>	disk brake	
<b>Suspension</b>	air springs	
<b>Drive type</b>	single-reduction/hypoid	
<b>Axle weight*</b>	683 kg	
<b>A = overall width</b>	2419-2482 mm	
<b>B = track width</b>	1802-1804 mm	
<b>C = spring track</b>	930/940 mm	
<b>Ring Gear Diameter</b>	440 mm	

\* varies depending on configuration





# Service benefits at a glance.



## Application engineering consultancy service

Our experts will help you to select the right aggregates, components to create a customized solution that suits your application specific requirements. Our experts provide you installation manuals for mechanical and electrical integration of our components. As part of the release process we optionally run an installation inspection.

## Customer training

Uniquely tailored training courses can be held in Germany and other countries to ensure that you receive the necessary expert knowledge in regards for installing, operating, and maintaining your aggregate in accordance with our high standards.

The following topic areas are handled on a need-to-know basis as part of our customer training courses

- Control units in the architecture
- Electrical interfaces
- Electronic interfaces
- Basics of assemblies
- Control unit functions
- Diagnostics interface
- Basics of the diagnostics tool
- Practical applications of the diagnostics tool

## Service network

Optimizing customer support while minimizing down-times 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.



For more information:  
<https://remanparts.mercedes-benz.com/download-center/>

# 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:

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September 2019

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5330 - 2100 - 09/2019 Printed in Germany