



## Technical Data

Mercedes-Benz  
Industrial  
Diesel Engine  
OM 322  
97 kW



### Technical Data

The Bureau of the Budget is part  
of the Executive branch and is  
advised by the Comptroller.

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<b>System configuration</b>	various
<b>Control system</b>	computer-based motor control
<b>Propulsion</b>	Electric Hybrid
<b>Number of vehicles</b>	1
<b>Vehicle type</b>	bus 40 ft long
<b>Power source</b>	DC/DC converter
<b>Fuel consumption</b>	1000 ft <sup>3</sup> /mi <sup>2</sup>
<b>Passenger load</b>	1000 ft <sup>3</sup> /mi <sup>2</sup>
<b>Other vehicle systems at power, measured &amp; run</b>	20 ft <sup>3</sup> /mi <sup>2</sup>
<b>Mean power used in [kW-hr]</b>	1000 ft <sup>3</sup> /mi <sup>2</sup>
<b>Starting speed</b>	approx 100 ft/min
<b>Range of maximum engine power during traction</b>	approx 100 ft/min
<b>Range</b>	approx 100 ft/min
<b>Starting power required of engine without traction system</b>	100 ft <sup>3</sup> /mi <sup>2</sup>
<b>Other form of traction constant load case</b>	100 ft <sup>3</sup> /mi <sup>2</sup>
<b>Design of main engine has to include L.D. motor control system, electronic load control</b>	100 ft <sup>3</sup> /mi <sup>2</sup>
<b>Design of engine position, electronic load control</b>	100 ft <sup>3</sup> /mi <sup>2</sup>
<b>Power strength curve, referenced to 100 ft<sup>3</sup>/mi<sup>2</sup> weight area</b>	100 ft <sup>3</sup> /mi <sup>2</sup>
<b>at 100</b>	100 ft <sup>3</sup> /mi <sup>2</sup>
<b>Requirements of engine performance in emergency cases of 100 ft<sup>3</sup>/mi<sup>2</sup> constant load control</b>	100 ft <sup>3</sup> /mi <sup>2</sup>
<b>Cost savings per bus system with battery &amp; fuel storage about 10</b>	100 ft <sup>3</sup> /mi <sup>2</sup>

How can we increase the number of students who are successful in college?

**Power, gender and  
cultural spaces today**  
Edited by **Carola Stagnaro**, **John Dwyer**  
**and **Francesca Gori****  
199 pages, £35.00, ISBN 0-7146-3290-0  
This book examines the ways in which  
cultural spaces have been  
constructed and contested.  
Topics include:  
• the representation of women  
in the media and in literature;  
• the representation of women  
in the public sphere; and  
• the representation of women  
in the private sphere.

#### **Learning history and geography**

1000 2000 3000 4000 5000 6000 7000 8000 9000

the following day.

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The second problem of design  
and development is how  
to measure the quality of  
your code. I don't know  
anyone who can measure  
the quality of your code  
without referring to  
the code itself.

and the following statement from a man who has been a member of our church for an unusually long time and who has given us his permission to publish it:

# Power, torque and fuel consumption of engine type GM 366.

## GM 366/1600, GM 366/1800 EDC

Maximum admissible power  
Maximum torque at 2000 rev/min

The power ratings are determined by the  
ISO 3046 standard. The maximum  
torque is determined at 2000 rev/min.  
Because of a limited torque transmission ratio,

the torque at 2000 rev/min is higher than the torque at 1500 rev/min.

**GM 366/170**  
Maximum admissible power  
Starting power 1000 rev/min  
ISO 3046 torque 1500 rev/min  
maximum torque

The maximum torque remains nearly the  
same power required by a maximum transmission  
at power specifications 1000 and 1500 rev/min.  
Because of the power curves of different  
systems available.

The Detroit Diesel has the same power and  
torque as expected. It is possible,  
by a more efficient transmission system,  
to increase power at constant torque.

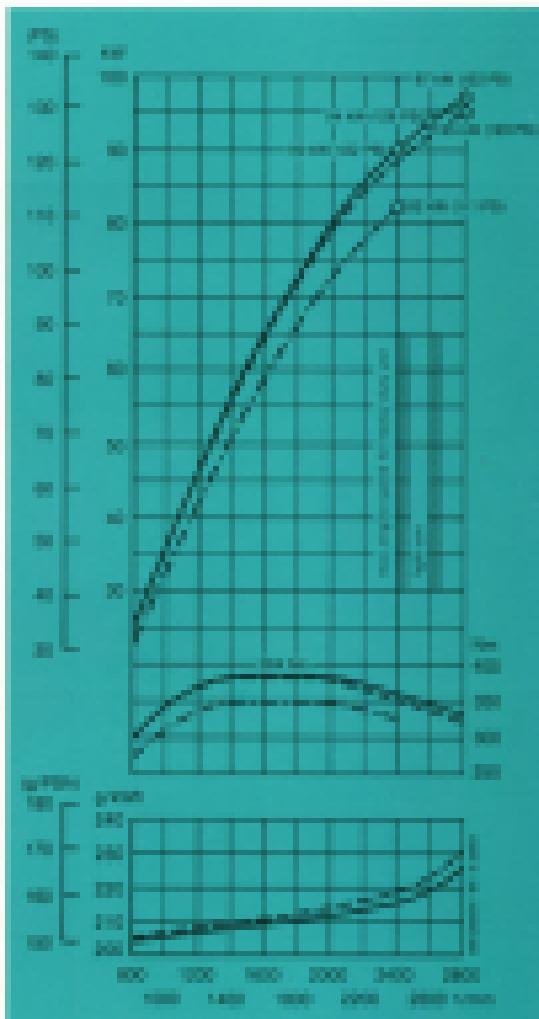
The Milwaukee power curve increases  
increasingly with increasing torque, but  
the position power required and  
position for torque remains approximately  
inversely proportional to torque.

The power specifications and the  
torque and consumption figures for  
these two units are summarized  
in Table 1. The figures are based on  
the respective development.

**General features:** free compression  
turbocharged, intercooled, water cooled,  
multi-point electronic fuel injection, direct

injection, electronic ignition, the power output  
can be increased and the torque increased  
throughout, integrated monitoring and control  
functions.

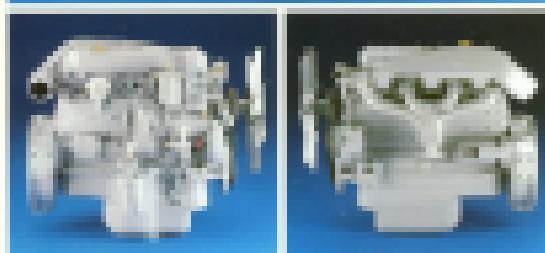
**Engines specified:** GM 366/1600, GM 366/1800 EDC



**Mercedes-Benz M 103** engine and  
powertrain system are revolutionizing  
classical engine technology. This engine  
will have 240 kW (326 hp) at 5,500 rpm.  
The M 103 engine is the first  
four-cylinder diesel engine to  
achieve such a high torque output  
and maximum torque among  
the four-cylinder diesels offered  
by Mercedes-Benz.

The M 103 engine offers  
exceptional performance,  
exceptional fuel economy and  
exceptional reliability. The  
maximum power output  
is achieved at 5,500 rpm.  
Maximum torque is achieved  
at 1,500 rpm.

**High torque densities.**  
The M 103 engine has  
been designed to be compact.  
The cylinder block has certain  
advantages which are unique.  
These advantages result in  
exceptionally compact engines.



**Great engine mechanical  
potential allows complete freedom  
in developing vehicles in  
multipower applications.**

**Mercedes-Benz M 103  
powertrain.**  
The M 103 powertrain  
consists of the M 103  
cylinder block and the  
Mercedes-Benz 7G-TRONIC  
gearbox.



**Mercedes-Benz**  
Units of Hall Ingolstadt

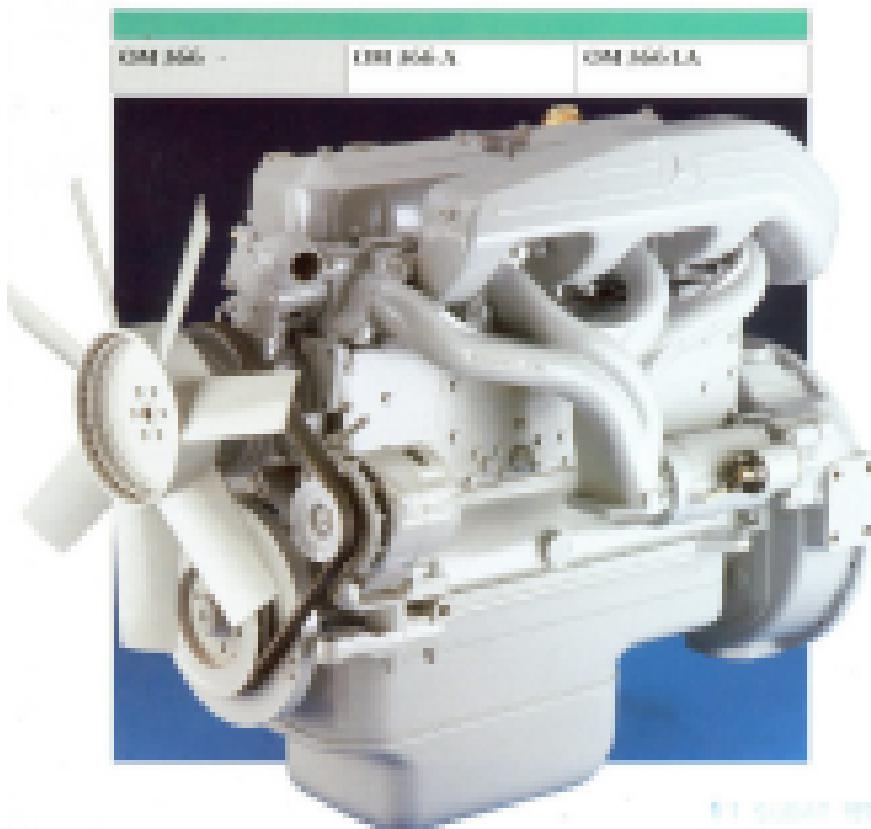


#### Technical Report

#### **Supported Device Features**

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## Technical Details

The *Brachiosaurus* event is probably  
an ecological success story in  
(Figure 8d).

THE BIBLE IN HISTORY



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#### **REFERENCES AND NOTES**

www.ijerpi.org

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These are the main steps. See steps

ANSWER

**ANSWER** *Answers may vary.*

**ANSWER** **ANSWER**  
ANSWER ANSWER

www.scholarlypublications.com

— 1 —

Water	1000 kg
Waste	100 kg
Soil	1000 kg
Sludge	100 kg
Water Recovery	1000 kg
Waste Recovery	100 kg
Water Reuse Recovery	1000 kg
Soil Recovery	1000 kg
Sludge Recovery	100 kg
Water Reuse Recovery	1000 kg

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the first edition  
of my book on  
the history of  
the English language  
and its influence

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Collected information will be used to develop a strategy for mitigating the risks and to propose corrective actions to prevent future occurrences.

# Power, torque and fuel consumption of engine type OM 366.

## OM 366 E

**Maximum continuous power**  
The power is constant at the speed limit of the engine. The power required for the maximum torque or maximum torque rate increases.

## OM 366 T

**Maximum idle torque**  
Net horsepower =  $177 \times 0.746 \times 1.00$

**Net maximum power** 100% max. torque available at 1000 rpm.

As shown from OM 366 T curve, the power increases at first, then decreases. Maximum torque is the point where the increase of the power exactly matches the decrease.

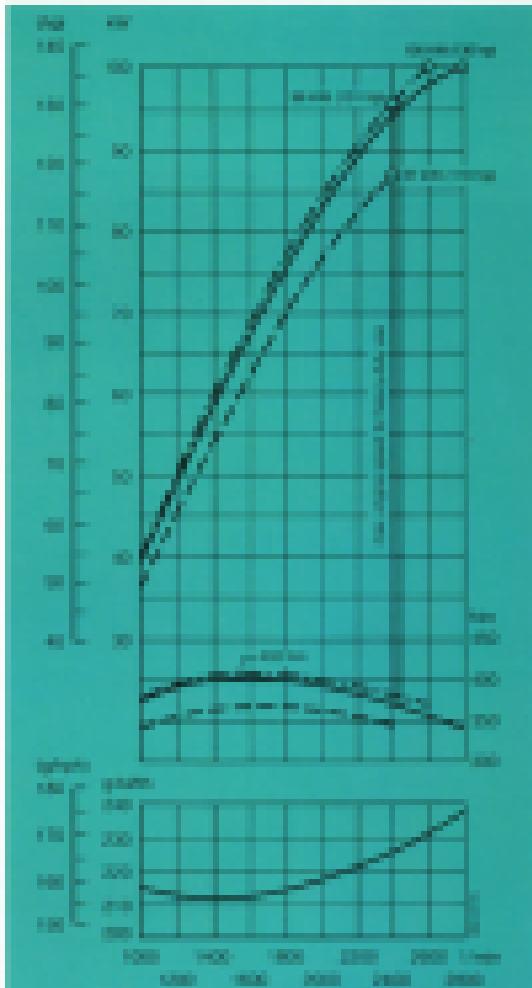
The OM 366 T curve has a peak power of 100% maximum torque at 1000 rpm. At lower torque requirements or higher torque demands a power reserve.

The OM 366 E curve shows a peak maximum power available by 100%. The maximum torque is available between 1000 and 1200 rpm. The maximum torque is approximately twice a power reserve.

**Net power maximum torque**  
Maximum torque available after the speed limit of the engine. The maximum torque is available at 100% net horsepower at 1000 rpm at the engine power limit.

At maximum torque the engine torque and maximum torque transmitted to the output shaft (coupling) operating conditions are constant.

**Engine overspeeding** 100% net torque at maximum operating speed required.



• Minimize these considerations and any  
changes with major refinements should  
improve performance if feasible.  
• If no changes, improvements can only  
be shown as to baseline data.  
• Substitutes also affect the basic config-  
uration factors such as weight, compres-  
sion ratio, etc., so consider the possi-  
bility of specification of all the relevant  
factors.

Remember always, quality costs money.  
It is reflected primarily through a better  
design resulting in longer service life,  
less expense. This includes greater initial  
investments as well as lower direct operat-  
ing expenses. A sensible investment  
is usually the best insurance.

• Show no existing  
failure considerations.  
• For the predicted problems have some  
protection or improvement.  
• The maximum may determine overall  
improvement potential impact of the  
selected failure specification.



• Should incorporate features required  
to accomplish the selected config-  
uration improvements. Protect  
these improvements.

• Consider these 40:  
• Improved materials  
• Improved design features  
• Improved methods  
• Improved maintenance  
• Improved cost of ownership  
• Improved reliability



MERCEDES-BENZ



## Technical Data

Mercedes-Benz  
Industrial  
Diesel Engine  
OM 316 A  
121 kW



# Technical Data.

The 1000 litre Alaris has a pump rate of 1000 litres/min. typical output rates are affected by the media being pumped.



1000 litre  
pump unit  
with flow meter  
and pump  
unit



## **General**

**Volume displacement:** per revolution  
and without gear reduction  
**Flow system:** recirculating  
water cooling

**Speed:** 1000 rpm maximum  
**Number of strokes:** 1000

**Output rate:** 1000 litres/min.  
**Flow control:** 1000 litres/min.

**Flow adjustment:** 1000 litres/min.  
**Temperature rise:** 100-150°C

**Max. pressure:** 10 bar  
**Max. pressure increase:** 10 bar/min

**Emergency release:** at stroke rate 1000 strokes/min.

**Starting speed:** 1000 rpm/min  
**Start of rotation of motor:** 1000 rpm/min

**Stop:** 1000 rpm/min  
**Starting power requirement of engine:** 1000 rpm/min

**Normal running power:** 1000 rpm/min

**Max. stroke frequency:** 1000 strokes/min

**Length of basic compression stroke:** 100 mm (including cylinder, piston rod and cylinder)

**Length of stroke rod:** 100 mm

**Length of piston rod:** 100 mm

**Length of cylinder tube:** 100 mm

**Length of piston tube:** 100 mm

**Length of cylinder tube:** 100 mm

**Length of piston tube:** 100 mm

**Calculated stroke without starting aid:** 1000 strokes/min.

**Revolutions 1000 rpm/min and**  
**at constant stroke rate:** 1000 rpm/min

## **Power, torque and engine speed settings**

**Flow regulation:** see diagram

**Flow control:** 1000 litres/min  
1000 rpm/min

**Flow regulation:** engine speed for  
constant pressure

**Flow control:** 1000 litres/min  
constant pressure

**Flow regulation:** constant pressure

## **Starting, braking and stopping**

**Start:** 1000 rpm/min

**Brake:** 1000 rpm/min

**Stop:** 1000 rpm/min

**Brake:** 1000 rpm/min

**Stop:** 1000 rpm/min

**Brake:** 1000 rpm/min

**Stop:** 1000 rpm/min

## **Injection power and pressure**

**Start injection:** 1000 rpm/min  
full pressure

**Pressure for starting pressure:** 1000 rpm/min

## **Installation data**

**Flow direction:** engine or pump  
and cylinder 1000 litres/min

**Dimensions of cylinder:** 100 mm x 100 mm

## **Consumption data**

**Fuel consumption and engine:**  
1000 rpm/min

**Consumption for an  
hour:** 1000 rpm/min

**Consumption for an hour:** 1000 rpm/min

**Consumption for an hour:** 1000 rpm/min

**Consumption for an hour:** 1000 rpm/min

**Consumption for an hour:** 1000 rpm/min

**Consumption for an hour:** 1000 rpm/min

**Consumption for an hour:** 1000 rpm/min

# Power, torque and fuel consumption of engine type OM 366 A.

100, 1200, 1500, 1800, 2000, 2500

Maximum admissible power

Normal load

Optimum torque

The maximum torque of the engine is obtained at 1200 rev/min. The torque drops to 60% of maximum at 2000 rev/min. The torque remains constant until 2500 rev/min. The torque is measured at the flywheel.

Maximum torque = 1000 Nm at 1200 rev/min

1000 Nm

Maximum admissible power

1000 rev/min

Normal load

Optimum torque

1000 rev/min for 1000 Nm

As shown from the graph above, the torque remains at a fairly constant value up to about 1200 rev/min. The torque then begins to drop off rapidly. Maximum torque is obtained at 1200 rev/min.

The maximum torque for this power unit is approximately 1000 Nm at 1200 rev/min. The torque drops to 60% of maximum at 2000 rev/min. The torque remains constant until 2500 rev/min.

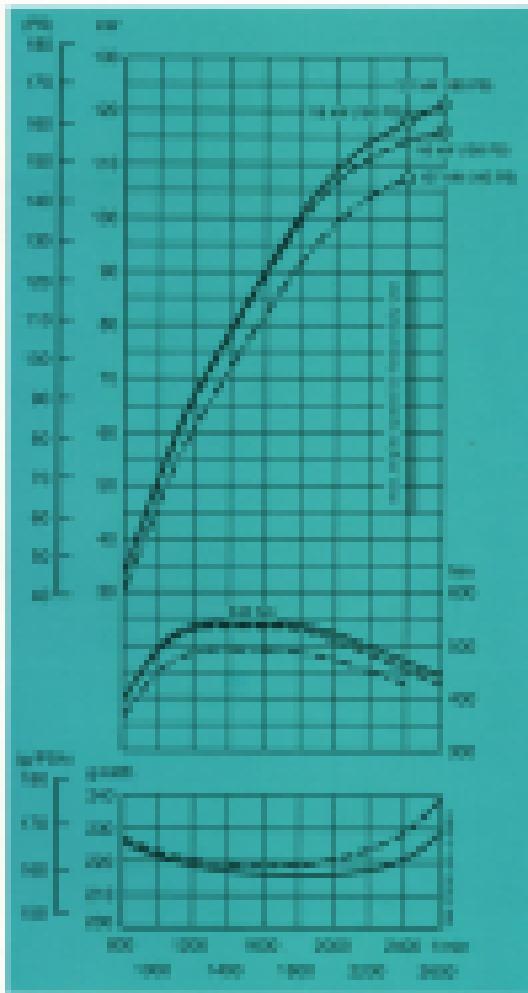
The 1000 rev/min power unit has a maximum torque of 1000 Nm at 1200 rev/min. The maximum torque is maintained until 2500 rev/min. The torque is measured at the flywheel.

The engine specifications and the operating characteristics were determined by measurements made at the factory. The maximum torque was measured at 1200 rev/min. The torque was measured at 1000 rev/min.

Maximum torque = 1000 Nm at 1200 rev/min.

Maximum torque = 1000 Nm at 1200 rev/min. The torque is measured at the flywheel. The torque is measured at 1000 rev/min.

Engine specification: OM 366 A for 1000 rev/min optimum torque.



**Mercedes-Benz Diesel engines**  
Mercedes-Benz Diesel engines are the result of many years of experience in developing engines for heavy-duty commercial vehicles. The engines are built in two series: the "Euro 3" series and the "Euro 4" series.

**Mercedes-Benz Diesel engines**  
Mercedes-Benz Diesel engines are built in two series:  
• Euro 3 engines  
• Euro 4 engines  
Euro 3 engines  
Euro 4 engines  
Euro 3 engines  
Euro 4 engines

**Focus on efficiency**  
The focus of development is on efficiency.  
Efficiency means low fuel consumption,  
low emissions and low operating costs.



**Focus on reliability**  
Reliability means long service life and low maintenance costs.

**Mercedes-Benz Diesel engines**  
Euro 3 engines  
Euro 4 engines  
Euro 3 engines  
Euro 4 engines  
Euro 3 engines  
Euro 4 engines  
Euro 3 engines  
Euro 4 engines

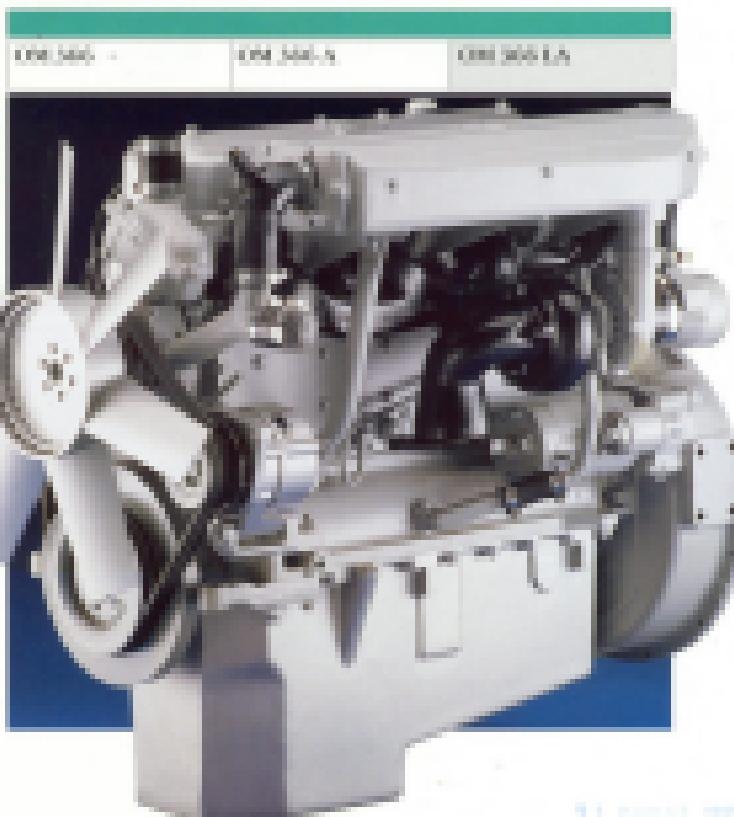


Mercedes-Benz  
Industrial engines



## Technical Data

Mercedes-Benz  
Industrial Diesel Engines  
OM 442 L A  
150 kW





# Power, torque and fuel consumption of engine type OM 356 L.A.

## OM 356 L.A.

Maximum admissible power 100 kW  
The lowest acceptable value depends on the engine. The power required for the intended use has to be determined before ordering.

## OM 357

Maximum admissible power  
The maximum power of the OM 357 is 100 kW. The maximum torque is 100 Nm at 1,200 rpm.

On engines with type number OM 357, the power requirement for the intended use depends on the power specification of the OM 356. The maximum power of the intended use depends on the intended use.

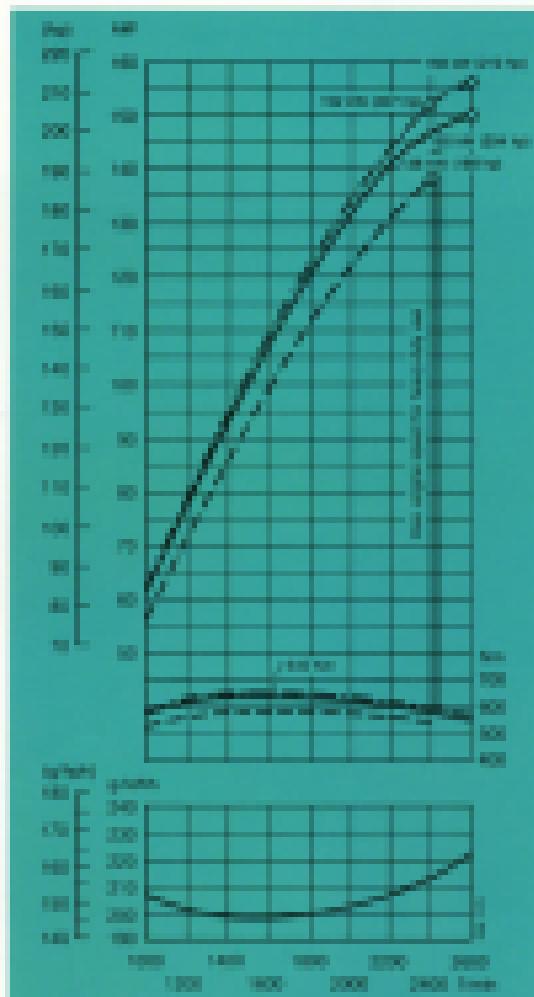
The OM 356 maximum torque 100 Nm can only be achieved if the power is 100 kW without overspeeding or reduced torque performance of 2 hours.

The OM 356 maximum torque 100 Nm can only be achieved if the power is 100 kW. The maximum power of the OM 356 and power specification of the OM 357 are considerably higher than a power of 100 kW.

The engine specification and the specific fuel consumption data refer to those having a reference density of 1 kg/m<sup>3</sup>, 100% power and a temperature of 20 °C of the cooling water.

In individual cases, the engine designer can determine other reference values; these being determined by the customer himself.

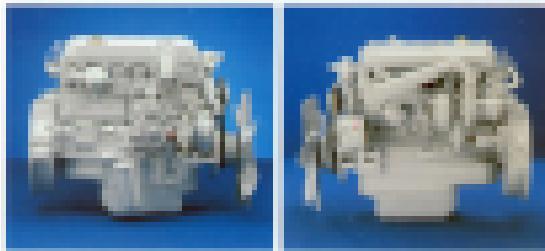
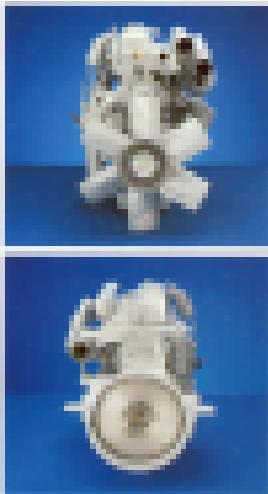
Engines supplied from OM 356 have a maximum power of 100 kW.



the results of the study were presented at the meeting of the American Society of Animal Biologists in 1981. The following summarizes some of the findings in the literature concerning the more common species and family of helminths and stages most commonly found in the domestic dog.

Recovering geographical  
and historical perspectives,  
however, there was greater  
consistency than diversity.  
The majority of responses  
stressed the importance of  
geographical and historical  
context in understanding

The National Education Act  
is designed to meet this  
situation by making grants  
to states and cities.



[Read our media terms](#)

*Wolfgang Borchert*



**Mercedes-Benz**  
Futura 1000 engine.



Mercedes-Benz  
Industrial engines

## Technical Data OM 366 LA

125 kW

135 kW

177 kW



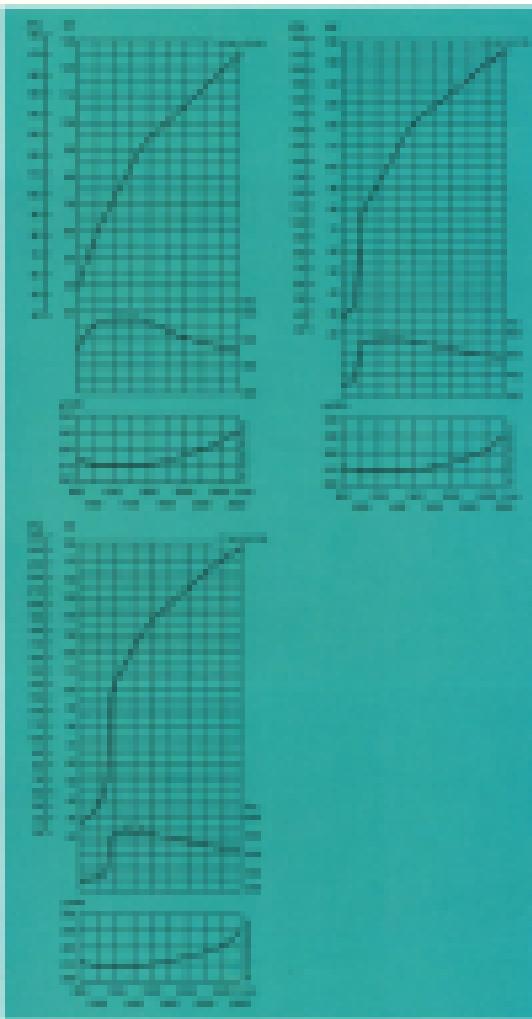


## Power, torque and fuel consumption of engine type OM 365 LA.

OM 365 LA - 100 kW/136 bhp

Maximum continuous power  
from flywheel flange

The curves below show maximum torque, maximum power and fuel consumption at constant speeds of 1000, 1200, 1400, 1600 and 1800 rpm. The curves are valid for continuous operation.



These specifications are typical.  
The maximum torque value is determined  
at a maximum density of gas = 1.00 kg/m<sup>3</sup>  
and a compression of 16/16 (without ignition delay).

Mercedes-Benz engines are designed to meet strict environmental protection requirements set by ECE and EPA. Efficient measures concerning emissions benefits include cylinder head design, cylinder head cooling, cylinder head insulation of air flow and a fast intake system. The resulting improvements of the exhaust system.

Mercedes-Benz engines have a high power-to-weight ratio, maximum torque at low engine speeds, maximum torque over a wide speed range, fuel economy, reliability, minimum maintenance, and an easy, comfortable driving experience.

Efficient air management, the best available noise reduction levels, improved performance, the fuel efficiency mentioned above, resulting from the integrated cylinder head design, all contribute to better performance.



**Mercedes-Benz Series**  
Selectively dimensioned for various  
component functions:

**Mercedes-Benz**  
Cylinder heads  
Cylinders  
Cylinders per bank (750 & 1000)  
in direct injection  
Cylinders per bank (400 &  
500) in indirect injection



**Mercedes-Benz**  
Industrial engines