Technical Data

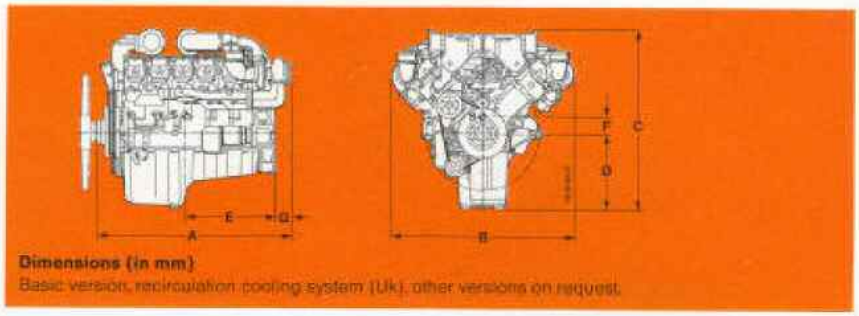
Mercedes-Benz Industrial Diesel Engine OM 443 LA 412 kW

		OM 443 LA

Technical Data.

The OM 443 LA turbocharged V-engine is part of the industrial engine series 400 offered by Mercedes-Benz.

A = 1265
B = 1105
C = 1200
D = 502
E = 600
F = 115
G = 90
S = center of gravity



Dimensions (in mm)
Basic version, recirculation cooling system (UK), other versions on request.

General

Cylinder arrangement	90°-V with exhaust gas turbocharger and intercooler
Cooling system	recirculating water cooling
Operation	4-stroke, direct injection
Number of cylinders	10
Cylinder bore	dia. 128 mm
Piston stroke	142 mm
Total displacement	18.273 l
Compression ratio	16.25 : 1
Mean effective pressure at 2100/min and 412 kW	12,9 bar
Mean piston speed at 2100/min	9.9 m/s
Starting speed	approx. 120/min
Sense of rotation of engine when facing flywheel	ccw
Starter	electric
Cooling water capacity of engine without recooling system	19 l
Max. lube oil capacity, standard oil pan	35,5 l
Weight of basic engine acc. to VDMA, i. e. without recooling system, alternator and starter	1050 kg
Weight of engine with fan, alternator and starter	1085 kg
Power-to-weight ratio, referred to VDMA weight and 412 kW	2,55 kg/kW
Braking power of engine (exhaust brake) at an engine speed of 2100/min	
without throttle valve	approx. 70 kW
with throttle valve	approx. 190 kW
Cold-starting ability without starting aid and battery 75% charged, down to	– 20°C
Permissible PTO torque at front end of crankshaft with axial or single-side radial PTO	on request

Power, torque and engine speed ratings

Power and torque curves see diagram	
Max. torque at 1000...1600/min	2235 Nm
Min. permissible engine speed for continuous operation below 1500/min	on request
Maximum speed without load depending on cyclic irregularity of governor	
Min. idling speed	approx. 600/min

Installation data

Total moment of inertia of engine with flywheel J = 1.1	2.6 kgm²
Combustion air volume at 2100/min	22.5 m³/min
Exhaust gas volume at 2100/min and 412 kW with back pressure of 60 mbar at turbine outlet	86 m³/min
Heat to be dissipated from cooling water with uncooled exhaust manifold, without intercooler	1500 kJ/kWh
Capacity of cooling water pump without cooling system at engine speed 2100/min	560 l/min
Permissible air intake restriction upstream of turbocharger inlet at rated automotive power	
oil bath air filter	max. 30 mbar
dry air filter, new	max. 20 mbar
polluted	max. 50 mbar
Permissible exhaust gas back pressure at rated automotive power at turbine outlet	max. 60 mbar

Starter, battery and alternator

Starter	Bosch
Voltage	24 V
Output	6.5 kW
Weight	20 kg
Starter battery	
Voltage	24 V
Min. capacity	110 Ah
Three-phase alternator	Bosch
Voltage	28 V
Current	10/30 A
Weight	4 kg
Power delivery starts at idling speed	

Injection pump and governor

In-line injection pump with governor	Bosch
Provision for installing standard engine speed and injection governors	

Consumption data

Fuel consumption see diagram	
Lube oil consumption for new and already run-in engines is approx. 0.5% of effective fuel consumption. This value can – acc. to application and running time – rise in individual cases to max. 1%.	

Power, torque and fuel consumption of engine type OM 443 LA.

80/1269/EEC + 88/195/EEC

Maximum automotive power
Visco fan
hydraulic loose — · — · —

Fan, rigid ————

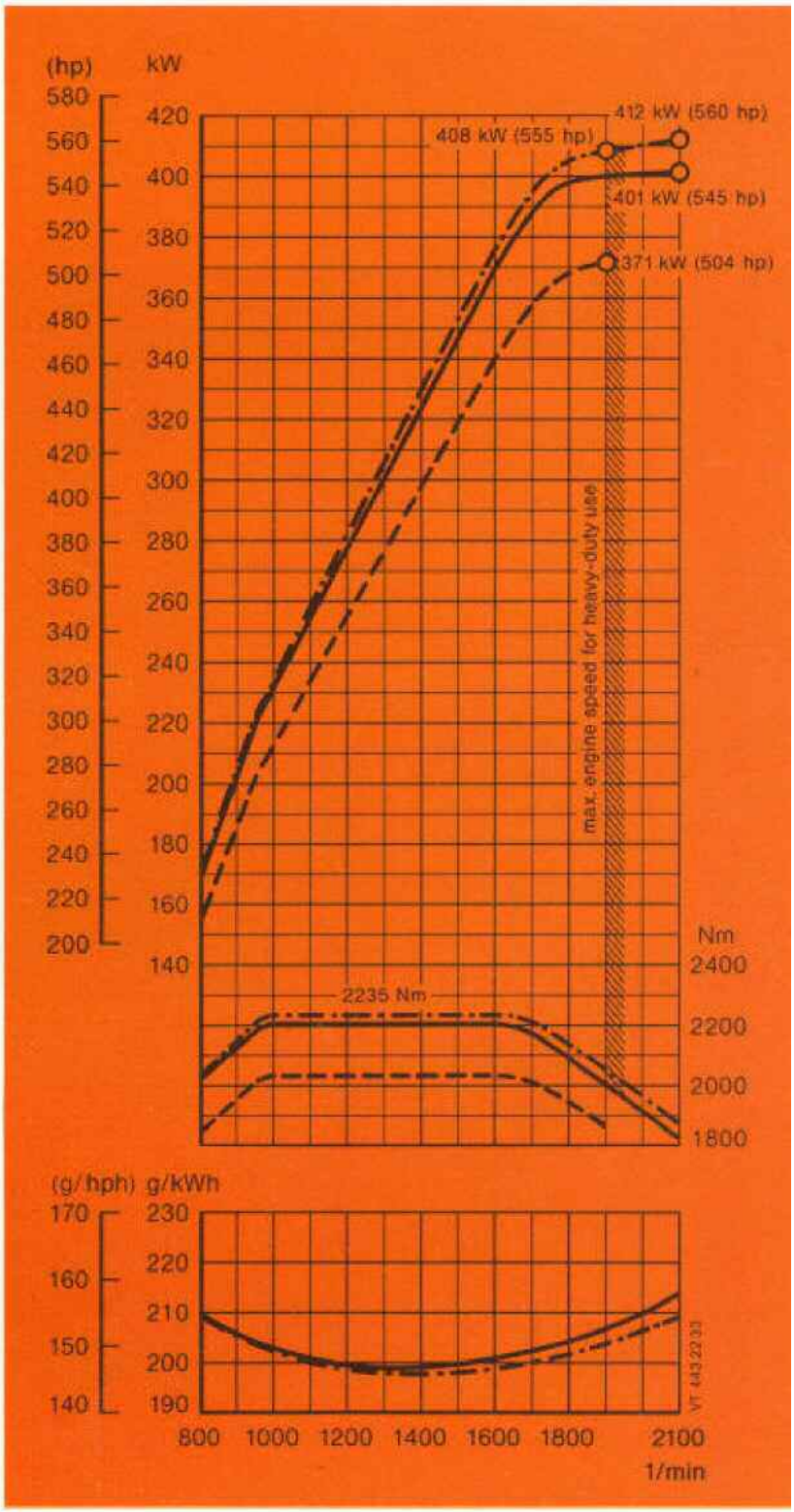
DIN 6271

Maximum ISO net brake
fuel stop power **IFN** — · — · —
ISO standard power
ICXN — — — —
exceedable by 10%

As distinct from DIN standard 6271, the power required by a fan is not considered in power specifications IFN and ICXN because of the great variety of cooling systems available.

The ISO net brake fuel stop power **IFN** cannot be exceeded. It is permitted for 1 hour without interruption or intermittently within a period of 6 hours.

The ISO standard power **ICXN** represents continuous power exceedable by 10%. The overload power is blocked and permitted for 1 hour without interruption or intermittently within a period of 12 hours.



The power specifications and the specific fuel consumption data refer to diesel fuel with a reference density of $\rho_{15} = 0.84$ g/cm³ and a temperature of 35°C at the injection pump inlet.

In individual cases, the power ratings can be chosen to suit the intended application, taking all operating conditions into account.

Engine speeds below 1500/min for continuous operation upon request.

Mercedes-Benz manufactures and supplies a wide range of industrial diesel engines varying from 20 to 612 kW (27 – 832 hp). Information concerning these can be found in the brochures describing the basic concept behind each family of engines and in type sheets detailing the technical specifications of all the various engines.

Besides a high-quality and technically perfected product, Mercedes-Benz also provides a comprehensive back-up system. This includes project and installation advisory services, parts supply, a worldwide service network and service training.

Subject to modifications.
The data included in this brochure are to be regarded as approximate.
The illustrations may also contain special equipment which is not part of the standard delivery specification.

Should you require further material, please consult the Automotive Components Division in Stuttgart-Untertuerkheim:

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