



Engine: OM471LA.E5-3

340 kW, 2300 Nm, D471.945, Off Highway EU Stage V, Construction + Industrial

The technical data specified here applies to the engine design as per the basic engine version (at ambient conditions of +25°C/1013 mbar). Variations as a result of variants/options in the delivery package are possible.

Information marked with "xxx" is not included in the basic scope of delivery or is not relevant to or invalid for the vehicle model designation. Information that is included in the basic scope of delivery but cannot yet be documented is marked with "---" for "in progress".

Subject to modifications.

Engine Description

Model	In-line Diesel engine with electronic engine management
Combustion Process	Four stroke Diesel direct injection
Injection System	Amplified pressure common rail diesel injection system X-Pulse, 2. generation
Injection Pump	High pressure pump generating rail pressure
Turbocharging System	Turbocharging with charge air cooling (air/air)
Turbocharger	1 - TC, with fixed geometry, asymmetrical
Exhaust Gas Recirculation	High EGR with controlled recirculation rate, EGR valve and EGR exhaust gas cooler
Exhaust Gas Aftertreatment	HC-doser, exhaust muffler with Diesel Oxidation Catalyst, Diesel Particulate Filter and SCR and ASC-Catalyst, AdBlue® injection with metering and supplying unit
Device for recycling crankcase gases	recycling at inlet pipes opt. none: if compliance with paragraph 6.10 of Annex VI to Commission Delegated Regulation (EU)2017/654
Cooling System	Coolant recirculation cooling with coolant service module
Fan	without, Ring fan with viscous clutch (optional)
Crankcase	high-quality alloyed grey cast iron, noise-optimized
Cylinder	Wet type cylinder liners
Cylinder Head	One-piece over all cylinders, grey cast iron with vermicular graphite
Valves	2 inlet valves and 2 exhaust valves per cylinder
Camshaft	2 overhead camshafts
Charge Air Housing / Charge Air Manifold	Noise-optimized, acoustically decoupled
Crankshaft	Forged, with counterweights
Connecting Rod	Forged, big conrod eye fracture split
Piston	Steel piston, one-piece, with oil cooling
Oil Cooler	Integrated in oel coolant module
Gear Drive	Located at flywheel end
Belt Drive System	V-ribbed double belt with automatic belt tensioner
Engine Brake System	Loaded decompression brake
Oil Filter	Upright positon at oel coolant module
Fuel Filter	Upright positon at engine, 2 filter system
Engine Illustration (Drawing)	000 05 634

General Data



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Engine Code	OM471LA.E5-3
No. of Cylinders	6
Displacement	12809 cm ³
Bore	132 mm
Stroke	156 mm
Compression	18,3
Direction of Rotation (View From Flywheel)	Counterclockwise direction
Firing Order	1 - 5 - 3 - 6 - 2 - 4
Coldstart	
Coldstart Limit	-30 °C
Starting Speed at -30°C, min	75 rpm
Engine Compartment Temperature	
Engine Compartment, max. Permissible	100 °C
Generator, max. Permissible	80 °C
Moment of Inertia of the Rotating Mass	
Engine (with Flywheel and Vibration damper)	2,07 kgm ²
Flywheel (standard)	0,97 kgm ²
Vibration damper (standard)	0,22 kgm ²
Bending Moment at Rear Edge of Flywheel Housing (stat.), max.	see Installation Instructions

Power, Torque

Rated Power	340 kW
at Engine Speed	1600 rpm
Torque, max.	2300 Nm
from Engine Speed	1300 rpm
Rated net power	332 kW
Engine Speed	
Rated speed	1900 ±30 rpm
Low Idle Speed	500 +700/-50 rpm
Speed at which cut-off starts under load	1900 ±30 rpm
Maximum no-load speed	2140 ±60 rpm
Lowest Speed for Continuous Operating	1000 rpm
Power, Torque	
Overview	100 07 105
Single Curve	100 07 107
Mean Effective Pressure	
at Maximum Torque	22,57 bar
at Rated Power	19,91 bar



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Operation Altitude w/o Power Reduction, max 3000 m.a.sea l.

Power Reduction at Higher Altitudes

Overview (Drawing) 100 70 044

Dimension, Weight

Dimension according to the basis engine type

Length 1393 mm

Width 1043 mm

Height 1215 mm

Weight

Engine mass DIN 70020 - GZ 1071 kg

P/W Ratio kg/kW

dry (DIN 70020-GZ) 3,15 kg/kW

Coolant System

Cooling Water Circuit (Drawing) see Installation Instructions

Heat Rejection, at Rated Power 171 kW

Heat Rejection at max. Torque 143 kW

at Engine Speed 1300 rpm

Coolant Temperature, max. 110 °C

Temperature Difference between Engine Inlet and Outlet, max. 10 K

Thermostat

Begin of Opening 81 °C

Fully Open at 89 °C

Coolant Pump

Transmission Ratio 0,49 opt. 0,45

Coolant pressure in front of coolant pump on all altitude conditions,
min. (absolutely stat.)

with thermostat start of opening 81°C 1400 mbar

at coolant temperature 103°C 1750 mbar

Pressure Protection of surge tank (relative) 1,4 - 1,6 bar

Minimum compression strength coolant cooler/-hose (relative) 4 bar

Coolant Volume in the Engine 32 liter

Pressure Drop and Coolant Volume Flow at Radiator Path (Drawing) 300 00 002

Fan xxx



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Intake Air System

Intake Air Volume

At Rated Power	20,2 m³/min
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max.	21,8 m³/min
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Intake Air Volume (Drawing)	650 00 506
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Combustion Intake Vacuum (stat.), at Rated Power

Air Cleaner, at New Condition, max.	35 mbar
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Air Cleaner, Service Point, max.	55 mbar
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Permissible Air Temperature, max.

at Engine Inlet	55 °C
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at Engine Inlet, w/o Power Reduction	48 °C
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Rise between Ambiente and Engine Inlet	8 K
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Charge Air System

Charge Air Cooler, Design Data (Drawing)	650 47 024
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Charge Air Pressure (Overpr., stat.) after Turbocharger

At Rated Power	2200 mbar
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max.	2240 mbar
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Pressure Drop Charge Air System at Rated Power, max.	102 mbar
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Charge Air Temperature after Turbocharger

At Rated Power	190 °C
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max.	190 °C
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at max. intake air temperature at engine inlet	240 °C
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Charge Air Temperature before Engine at Rated Power and 25°C intake air temperature, max.	43 °C
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Heat Rejection at Rated Power, min.	57 kW
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Fuel System

Diesel Fuel

Requirements / Standard	EN 590 as of 2010, et seq.
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Diesel Fuel from Synthesis or Hydrotreatment (XTL)

Requirements / Standard	EN 15940
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Fuel pressure	see Installation Instructions
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Injection Nozzles

Max. Injection Pressure	2700 bar
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Number of Injection Holes	8
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Fuel Consumption (Diesel Fuel)	
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At Rated Power	190 g/kWh
At Full Load, min.	186 g/kWh
At Characteristic Map Best Point	185 g/kWh
Characteristic Map, Relative Diagram (Drawing)	100 96 118

Lubrication System

Oil Consumption in relation to fuel consumption in normal operating and moderate load up to	0,2 %
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Engine Inclinations

Installation Inclination around the x-axis	0 Degree
Installation Inclination around the y-axis	see option MQ..

Exhaust System

Exhaust Gas Mass, at Rated Power	400 g/s
Exhaust Gas Volume, at Rated Power	40 m³/min
Exhaust Gas Temperature	
at Rated Power	430 °C
max.	550 °C
max. after turbo charger (under all conditions)	690 °C
Exhaust Back Pressure (stat.), at Rated Power	190 mbar
Pressure drop exhaust pipe between engine and / after ATS, max.	50 mbar
Maximum permissible temperature loss through the piping delta-T	30 K
at Temperature Exhaust gas engine	376 °C
at Exhaust mass flow	492 kg/h
Boundary condition for piping without insulation when determining the test value	2,5 m
AdBlue® Consumption, Related to Fuel Consumption, approx.	5 %
NRSC-Emissions: Cycle weighted CO2	see Parent Engine: D471.945, OM471LA.E5-1, 390 kW
NRTC Emissions results: Hot cycle CO2	see Parent Engine: D471.945, OM471LA.E5-1, 390 kW

Exhaust Aftertreatment

NOx-Reduction	
Trade name	AdBlue®
Standard	DIN 70070 / ISO 22241
AdBlue® temperature, max. permissible	85 °C
AdBlue® temperature (tank), max. permissible	65 °C
Heating AdBlue® circuit (type approval)	optional heated by coolant



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Auxillaries

Alternator

Voltage	28 V
Current	110 A

Starter Motor

Voltage	24 V
Rating	7 kW

Air Compressor

Air Compressor type	Engine without Air Compressor, options: see drawings
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Power Steering Pump

Series	without Power Steering Pump, options: see drawings
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Power Take-Off

Power - Take - Off, Rear	opt. PTO for Hydraulic Pump SAE A / SAE B / Propshaft Flange
Front Engine Power Take Off (FEPTO), axial	Series Flange Ø146 - 12 x M8, opt. Ø146 - 6 x M8
Front Engine Power Take Off (FEPTO), radial	opt. Additional Pulley Ø209 PK 10

Engine Brake

Brake Power

Brake Power (Drawing)	700 00 736
at max. Permissible Brake Speed, High Performance	400 kW

Drag Power

at max. Permissible Brake Speed	69 kW
Drag Power (Drawing)	700 00 721

Brake Speed

max. Permissible	2300 rpm
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