

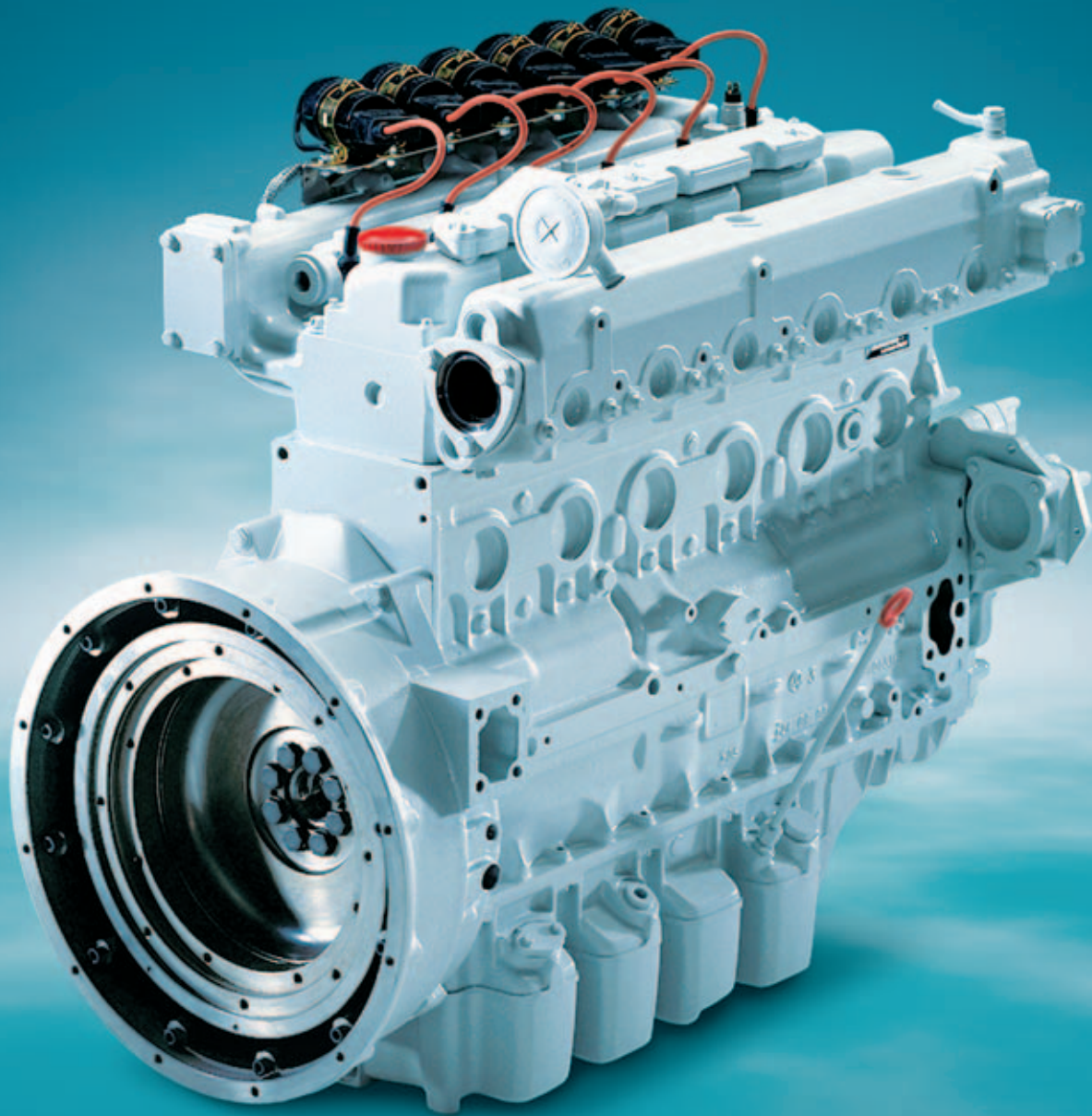
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E0836

6-cylinder gas engine for cogeneration plants



Efficient and Clean

Producers and operators of cogeneration plants have stringent demands. Robust and compact engines have to work reliably round-the-clock. Economic operation is important for the lifetime of the complete plant. Economic means highly efficient use of resources and low running costs of the plant. Due to continuous development MAN engines always work highly efficiently, reliably and environmentally-friendly.

Engine Description E0836

Characteristics

Cylinder and Arrangement	6-cylinder in line
Operation mode	4-stroke otto gas engine
Charging	Exhaust turbocharger with watercooled turbine housing for the LE 202
Cooling system	Watercooled
Mixture cooling	Two-stage mixture cooling for the LE202

Dimensions E0836

Type of engine		E 312	E 302	LE 202
A-Overall length	mm	1 090	1 090	1 300
B-Overall width	mm	740	740	740
C-Overall height	mm	930	930	1 030
Weight (dry)	kg	520	520	605

Customer Benefits

- High efficiency due to optimal combustion
- Compact design
- Reduced operating costs due to low fuel and oil consumption as well as long service life
- Sophisticated and well-tested technology ensures reliable operation and long lifetime
- Low emissions to save the environment

Technical Data E0836

Operation mode		COP with natural gas						COP with biogas
		1 500 (50 Hz)			1 800 (60 Hz)			1 500 (50 Hz)
		E 312	E 302	LE 202	E 312	LE 302	LE 202	LE 202
at speed	rpm	1 500 (50 Hz)			1 800 (60 Hz)			1 500 (50 Hz)
Type of engine		E 312	E 302	LE 202	E 312	LE 302	LE 202	LE 202
Bore	mm	108	108	108	108	108	108	108
Stroke	mm	125	125	125	125	125	125	125
Displacement	l	6.9	6.9	6.9	6.9	6.9	6.9	6.9
ISO standard rating	kW	56	75	110	64	85	110	110
Air ratio	λ	1.5	1.0	1.6	1.5	1.0	1.6	1.4
Coolant heat ¹	kW	41	63	68	58	70	74	68
Exhaust heat up to 120°C ¹	kW	37	46	64	48	55	69	59
Efficiency ¹								
mechanical	%	34.4	36.7	39.0	33.3	36.4	37.0	40.5
thermal	%	47.9	53.3	49.1	55.2	53.6	50.7	49.6
total	%	82.2	90.1	88.1	88.5	90.0	87.7	90.1
Emissions ² NO _x	mg/Nm ³	< 500	< 7 000	< 500	< 500	< 7 000	< 500	< 500
Combustion ³		m	st	m	m	st	m	m

¹ At 100% load. ² Correlation 5% oxygen. ³ m=lean burn, st=stoichiometric.

Definition of Application

Engines for COP (continuous power) are designed for 8 000 annual operation hours at a load factor of 100%. Usually, these engines are used in cogeneration plants.

