POWER

Diesel Engines for Power Generation

MAN Engines

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Power
Wherever Needed

MAN offers manufacturers of power generators all over the world a broad spectrum of 6-, 10- and 12-cylinder engines including radiators for peak load leveling as well as for supplying emergency power and base loads. Depending on their type of operation in PRP (Prime Power), ESP (Emergency Standby Power), COP (Continuous Power) or LTP (Limited Time Power), the engines can be run up to unlimited hours per year.
Totally reliable and with dependable availability and exemplary economy, they provide limitless energy generation. Transforming night into day.

Product Range

Engine type	Cylinder(s)	Arrangement	Capacity (l)	Power rating (kW)			
				ESP	LTP	PRP	COP
D2676	6	in-line	12.4	415–440	396–415	360–377	270–283
D2840	10	V 90°	18.3	545–660	496–622	451–565	310–435
D2842	12	V 90°	21.9	633–800	597–765	543–695	390–530
D2862	12	V 90°	24.2	880–1 117	770–920	700–836	560–640

Servicing Concept

MAN offers power-unit manufacturers a tailor-made servicing concept. This is how MAN gives you the option of performing servicing for your end customers yourself, from start to finish. This is made possible by an extensive training offering which can be matched individually to your needs.

MAN Diesel Engines for Power Generation

Customer Benefits

- MAN is a strong and independent partner for packagers and offers high quality engines made in Germany
- Global after sales network guarentees short-term spare parts supply
- MAN engines with high efficiency, reliability and low maintenace costs result in profitable prime power operation especially in emerging markets
- Eco-friendly operation as a result of lower consumption of fuel and lubricating oil
- MAN engines for standby operation to provide maximum power output with quick load acceptance in case of power shortage
- Ideal balance between compact design and robust construction allows smaller size of container gensets with high durability

Types of Operation

Emergency Standby Power (ESP):

- Power output available with varying load for the duration of an emergency outage. Average power output is 70 % of the emergency standby power rating.
- Typical operation is 50 hours per year with maximum expected usage of 200 hours per year.
- Standby power in accordance with ISO 8528.
- Fuel stop power in accordance with ISO 3046.

Limited Time Power (LTP):

- Power output available with varying load for the duration of the interruption of the normal source power.
- Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year, within the following limits of maximum operating time: 100 % load 50 hours per year and 90 % load 200 hours per year.
- No overload available.
- Fuel stop power in accordance with ISO 3046.

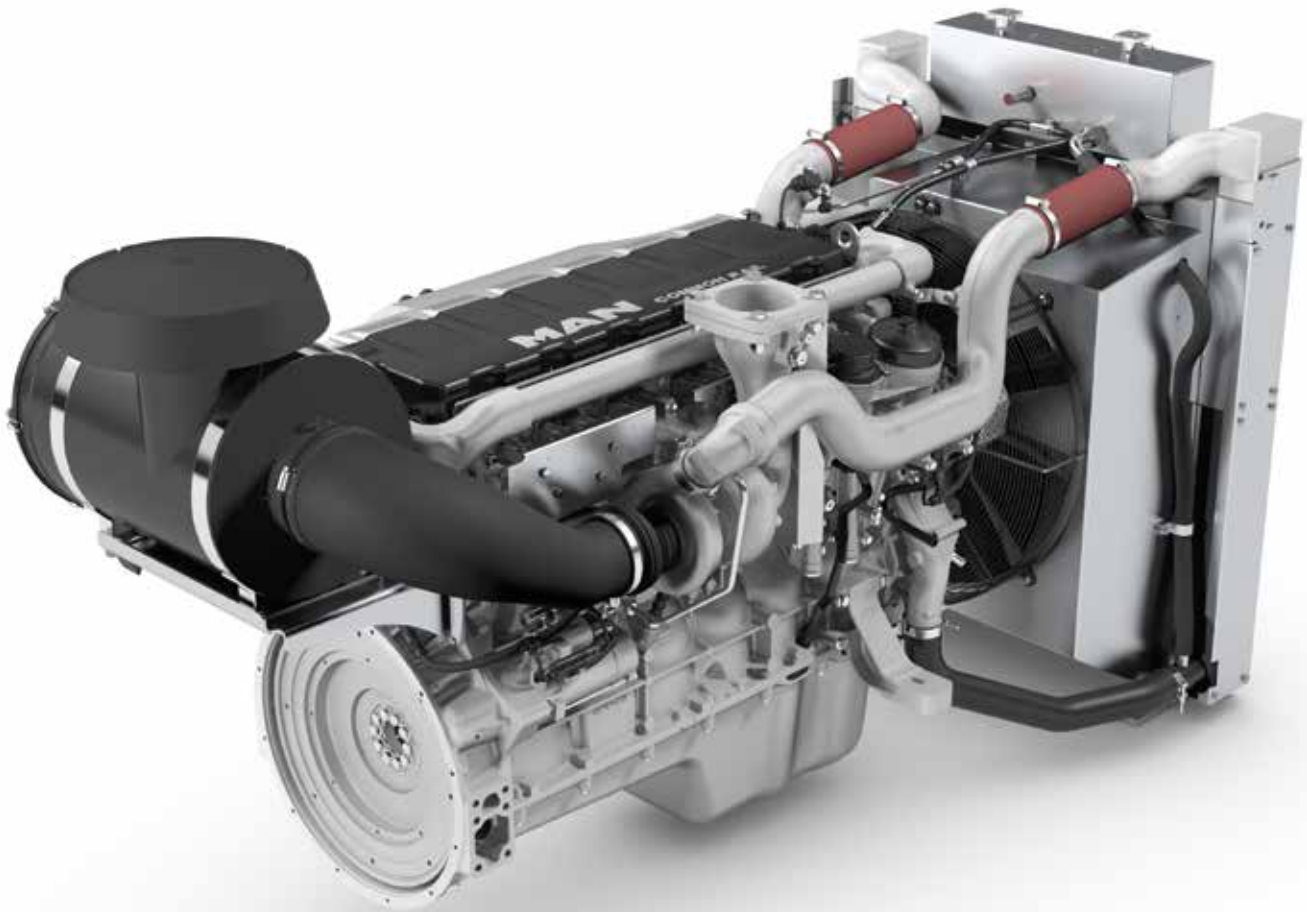
Prime Power (PRP):

- Power output available with varying load for unlimited time. Average power output is 80 % of the prime power rating.
- With 10 % overload capability for technical purposes for a maximum of one hour in twelve. Overload operation cannot exceed 50 hours per year.
- Prime power in accordance with ISO 8528.
- Fuel stop power in accordance with ISO 3046.

Continuous Power (COP):

- Power output available without varying load for unlimited time. Average power output is 100 % of the continuous power rating.
- With 10 % overload capability for technical purposes for a maximum of one hour in twelve.
- Continuous power is in accordance with ISO 8528.
- Fuel stop power in accordance with ISO 3046.

D2676



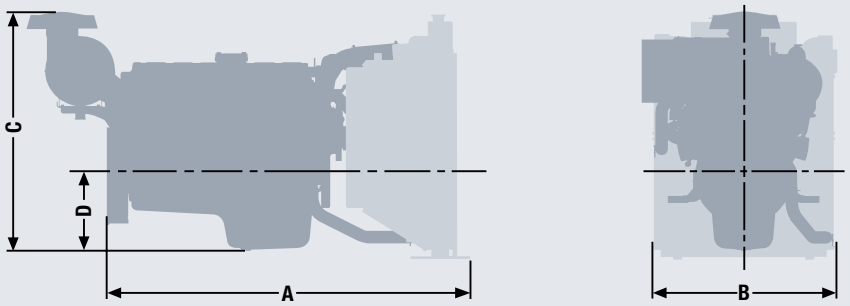
Characteristics

- Cylinders and arrangement: 6 cylinders in-line
- Mode of operation: Four-stroke diesel engine with direct fuel injection
- Turbocharging: Turbo charger with charge air cooling
- Engine cooling: Water circulation by means of attached rotary pump and front end combination radiator
- Injection: Common Rail injection system with an injection pressure of 1 800 bar
- Engine control: EDC7 control unit with engine management computer
- Monitoring: Operator panel available on request

Technical features

Mode of operation		ESP		LTP		PRP		COP	
at engine speed	rpm (Hz)	1 500 (50)	1 800 (60)	1 500 (50)	1 800 (60)	1 500 (50)	1 800 (60)	1 500 (50)	1 800 (60)
Engine version		LE 223	LE 223	LE 221	LE 221	LE 231 [3] LE 221	LE 241 [3] LE 221	LE 221	LE 221
Bore	mm	126	126	126	126	126	126	126	126
Stroke	mm	166	166	166	166	166	166	166	166
Displacement	l	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
blocked ISO effective power [1]	kW	440	415	396	415	–	–	–	–
Torque	Nm	2 801	2 200	2 521	2 200	–	–	–	–
ISO standard power [2]	kW	–	–	–	–	360	377	270	283
Torque	Nm	–	–	–	–	2 292	2 000	1719	1500
Net engine power output	kVA	510	470	450	470	410	420	300	310

1) Time-limited continuous output that must not be exceeded (IFN).
2) Variable continuous output during PRP operation, can be exceeded by 10 % for limited period (ICXN).
3) Exhaust emissions according to EU 97/68 EC Stage 2



Dimensions

Type designation		LE 223/LE 221 /LE 231/LE 241
A-Length with fan-cooled radiator	mm	2 518
B-Width with fan-cooled radiator	mm	1080
C-Height with fan-cooled radiator	mm	1406
D-Height of lower edge of engine to middle of crankshaft	mm	423
Dry weight with cooling system	kg	1165

D2840

Characteristics

- Cylinders and arrangement: 10 cylinders in 90° V arrangement
- Mode of operation: Four-stroke diesel engine with direct fuel injection
- Turbocharging: Turbo charger with charge air cooling
- Engine cooling: Water circulation by means of attached rotary pump and front end combination radiator
- Injection: Bosch inline injection pump with electromagnetic actuator
- Engine control: Various types of GAC control unit available on request

Availability

Engine series will phase out, limited availability in standard scope on demand

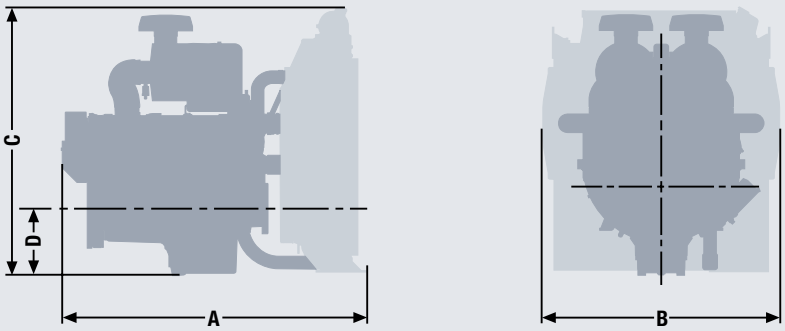
Technical features

Mode of operation		ESP				LTP			
at engine speed	rpm (Hz)	1 500 (50)		1 800 (60)		1 500 (50)		1 800 (60)	
Engine version		**LE 203**	**LE 213**	**LE 203**	**LE 213**	**LE 201**	**LE 211**	**LE 201**	**LE 211**
Bore	mm	128	128	128	128	128	128	128	128
Stroke	mm	142	142	142	142	142	142	142	142
Displacement	l	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3
blocked ISO effective power[1)]	kW	545	610	585	660	496	545	567	622
Torque	Nm	3 470	3 883	3 104	3 501	3 158	3 466	3 005	3 297
ISO standard power[2)]	kW	–	–	–	–	–	–	–	–
Torque	Nm	–	–	–	–	–	–	–	–
Net engine power output	kVA	630	700	660	750	570	620	640	700

Mode of operation		PRP				COP			
at engine speed	rpm (Hz)	1 500 (50)		1 800 (60)		1 500 (50)		1 800 (60)	
Engine version		**LE 201**	**LE 211**	**LE 201**	**LE 211**	**LE 201**	**LE 211**	**LE 201**	**LE 211**
Bore	mm	128	128	128	128	128	128	128	128
Stroke	mm	142	142	142	142	142	142	142	142
Displacement	l	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3
blocked ISO effective power[1)]	kW	–	–	–	–	–	–	–	–
Torque	Nm	–	–	–	–	–	–	–	–
ISO standard power[2) 3)]	kW	451	495	515	565	310	350	390	435
Torque	Nm	2 871	3 151	2 732	2 997	1 974	2 228	2 069	2 308
Net engine power output	kVA	520	570	580	640	350	400	440	480

1) Time-limited continuous output that must not be exceeded (IFN).
2) Variable continuous output during PRP operation, can be exceeded by 10 % for limited period (ICXN).
3) Variable continuous output during COP operation, can be exceeded by 10 % (ICXN).

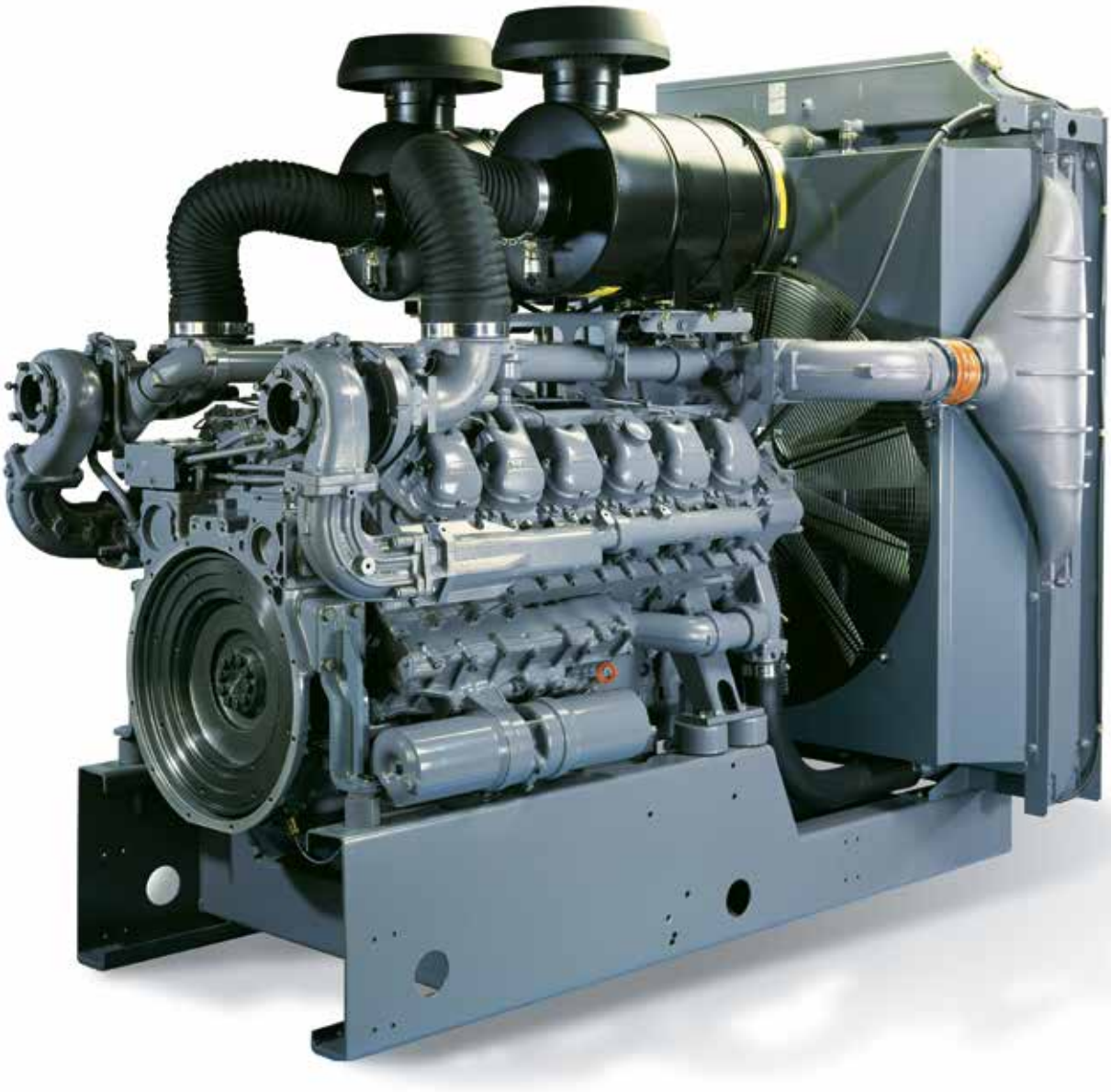
D2840



Dimensions

Type designation		LE 203/LE 213/LE 201/LE 211
A-Length with fan-cooled radiator	mm	2125
B-Width with fan-cooled radiator	mm	1600
C-Height with fan-cooled radiator	mm	1826
D-Height of lower edge of engine to middle of crankshaft	mm	454
Dry weight with cooling system	kg	1480

D2842



Characteristics

- Cylinders and arrangement: 12 cylinders in 90° V arrangement
- Mode of operation: Four-stroke diesel engine with direct fuel injection
- Turbocharging: Turbo charger with charge air cooling
- Engine cooling: Water circulation by means of attached rotary pump and front end combination radiator
- Injection: Bosch inline injection pump with electromagnetic actuator
- Engine control: Various types of GAC control unit available on request

Availability

Engine series will phase out, limited availability in standard scope on demand

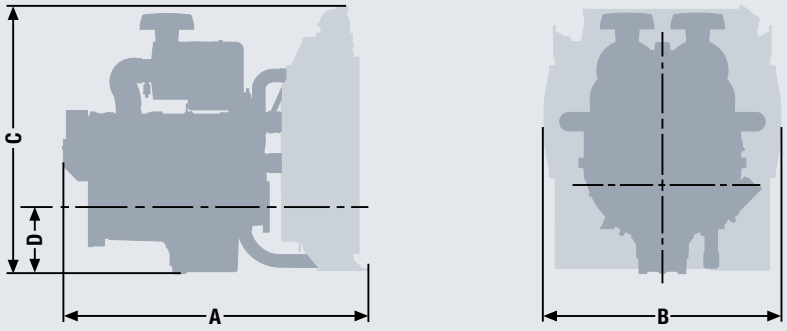
D2842

Technical features

Mode of operation		ESP				LTP			
at engine speed	rpm (Hz)	1 500 (50)		1 800 (60)		1 500 (50)		1 800 (60)	
Engine version		**LE 203**	**LE 213**	**LE 203**	**LE 213**	**LE 201**	**LE 211**	**LE 201**	**LE 211**
Bore	mm	128	128	128	128	128	128	128	128
Stroke	mm	142	142	142	142	142	142	142	142
Displacement	l	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
blocked ISO effective power[1)]	kW	633	702	718	800	597	649	682	765
Torque	Nm	4 030	4 469	3 809	4 244	3 803	4 132	3 618	4 056
ISO standard power[2)]	kW	–	–	–	–	–	–	–	–
Torque	Nm	–	–	–	–	–	–	–	–
Net engine power output	kVA	730	810	820	920	700	750	780	870

Mode of operation		PRP				COP			
at engine speed	rpm (Hz)	1 500 (50)		1 800 (60)		1 500 (50)		1 800 (60)	
Engine version		**LE 201**	**LE 211**	**LE 201**	**LE 211**	**LE 201**	**LE 211**	**LE 201**	**LE 211**
Bore	mm	128	128	128	128	128	128	128	128
Stroke	mm	142	142	142	142	142	142	142	142
Displacement	l	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
blocked ISO effective power[1)]	kW	–	–	–	–	–	–	–	–
Torque	Nm	–	–	–	–	–	–	–	–
ISO standard power[2) 3)]	kW	543	590	620	695	390	446	470	530
Torque	Nm	3 457	3 756	3 289	3 687	2 483	2 840	2 494	2 812
Net engine power output	kVA	630	680	710	790	450	510	530	600

1) Time-limited continuous output that must not be exceeded (IFN).
2) Variable continuous output during PRP operation, can be exceeded by 10 % for limited period (ICXN).
3) Variable continuous output during COP operation, can be exceeded by 10 % (ICXN).



Dimensions

Type designation		LE 203/LE 213/LE 201/LE 211
A-Length with fan-cooled radiator	mm	2342
B-Width with fan-cooled radiator	mm	1600
C-Height with fan-cooled radiator	mm	1845
D-Height of lower edge of engine to middle of crankshaft	mm	480
Dry weight with cooling system	kg	1770

D2862

Characteristics

- Cylinders and arrangement: 12 cylinders in 90° V arrangement
- Mode of operation: Four-stroke diesel engine with direct fuel injection
- Turbocharging: Turbo charger with charge air cooling
- Engine cooling: Water circulation by means of attached rotary pump and front end combination radiator
- Injection: Common Rail injection system with an injection pressure of 1 600 bar
- Engine control: EDC7 control unit with engine management computer
- Monitoring: Operator panel available on request

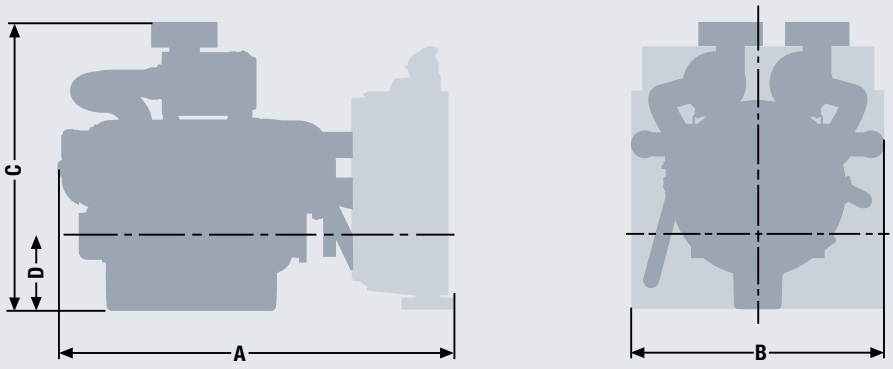
Technical features

Mode of operation		ESP				LTP	
at engine speed	rpm (Hz)	1 500 (50)	1 800 (60)	1 500 (50)	1 800 (60)	1 500 (50)	1 800 (60)
Engine version		**LE 223**	**LE 223**	**LE 231 LE 233**	**LE 231 LE 233**	**LE 221**	**LE 221**
Bore	mm	128	128	128	128	128	128
Stroke	mm	157	157	157	157	157	157
Displacement	l	24.2	24.2	24.2	24.2	24.2	24.2
blocked ISO effective power [1]	kW	880	1117	880	920	770	920
Torque	Nm	5603	5926	5602	4881	4902	4880
ISO standard power [2]	kW	–	–	–	–	–	–
Torque	Nm	–	–	–	–	–	–
Net engine power output	kVA	1000	1250	1000	1000	880	1030

Mode of operation		PRP				COP		
at engine speed	rpm (Hz)	1 500 (50)	1 800 (60)	1 500 (50)	1 800 (60)	1 500 (50)		1 800 (60)
Engine version		**LE 221**	**LE 221**	**LE 231**	**LE 231**	**LE 221**	**LE 231**	**LE 221 LE 231**
Bore	mm	128	128	128	128	128	128	128
Stroke	mm	157	157	157	157	157	157	157
Displacement	l	24.2	24.2	24.2	24.2	24.2	24.2	24.2
blocked ISO effective power [1]	kW	–	–	–	–	–	–	–
Torque	Nm	–	–	–	–	–	–	–
ISO standard power [2]	kW	700	836	800	836	560	600	640
Torque	Nm	4457	4435	5093	4435	3565	3820	3395
Net engine power output	kVA	800	930	905	930	630	680	700

1) Time-limited continuous output that must not be exceeded (IFN).
2) Variable continuous output during PRP operation, can be exceeded by 10 % for limited period (ICXN).
3) Variable continuous output during COP operation, can be exceeded by 10 % (ICXN).

D2862



Dimensions D2862

Type designation		LE 223/LE 221/LE 231/LE 233
A-Length with fan-cooled radiator	mm	2660
B-Width with fan-cooled radiator	mm	1540
C-Height with fan-cooled radiator	mm	1920
D-Height of lower edge of engine to middle of crankshaft	mm	594
Dry weight with cooling system	kg	2240

MAN Truck & Bus AG
Vogelweiherstraße 33
90441 Nuremberg, Germany
www.man-engines.com

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