



Diesel engine D 2840 LE20x Technical Data

page 1
01.03.11

Engine type:	four-stroke, direct-injection		
Cylinders :	10 cylinder in V-form, wet replaceable cylinder liners		
Aspiration :	turbocharger, intercooler		
Cooling :	water circulation by centrifugal pump on engine		
Lubrication:	force-feed lubrication by gear pump, lubricating oil cooler in cooling water circuit of engine		
Injection:	Bosch in-line pump with integrated, electromagnetic actuator		
Generator:	Bosch three-phase generator with rectifier and transistorized governor, 28 V, 35 A		
Starter motor:	Bosch solenoid-operated starter, typ KB, 24 V, 6.6 kW		
Bore :	128 mm	Starter battery capacity	180 Ah (24V)
Stroke :	142 mm	Engine lube oil for	
Volume :	18.27 l	- oil sump standard (min./max.)	24 / 30 l
		- oil sump shallow (min./max.)	26 / 30 l
Compression ratio:	15.5:1		
Cooling water temp.	LE 201	LE 203	Inertia moments (SI-Unit):
- under normal conditions	90 °C	100 °C	- engine and vibration damper
- short period under extreme conditions	95 °C	105 °C	- flywheel for
- before start of full load (min.)	40 °C	40 °C	generator drive 1500 rpm (1-bearing)
			generator drive 1500 rpm (2-bearing)
			generator drive 1800 rpm
			1.640 kgm ²
			2.412 kgm ²
			4.120 kgm ²
			2.412 kgm ²
Filling capacities:	Steady-state speed accuracy (speed droop)		
- engine cooling water abt.	21 l		- electrical governor
- cooling water for radiator with pipe system abt.	65 l		0 - 8 %
Negative pressure at air filter outlet, max. permissible (in a new condition/after usage)	0 / 60 hPa	Exhaust gas back pressure max. permissible	60 hPa



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 (be-optimised version)

		LE201 (COP)	LE201 (PRP)	LE203 (LTP)
speed	1/min	1500	1500	1500
ISO-Standard ICXN ¹	kW	310	451	
ISO net brake fuel stop rating IFN ²	kW			545
Electrical output	kW _e	282	409	500
Genset rating net	kVA	350	510	620
Mean effective pressure (ICXN)	bar	13,6	19,7	
Mean effective pressure (IFN)	bar			23,9
Torque (ICXN)	Nm	1974	2820	
Torque (IFN)	Nm			3470
Mean piston velocity	m/s	7,1	7,1	7,1
Specific fuel consumption				
100% load	g/kWh	202	196	199
75% load	g/kWh	200	194	193
50% load	g/kWh	198	198	195
Lube oil consumpt. max.	g/h	300	435	490
Air for combustion	m ³ /h	1350	1680	1870
Exhaust gas heat	kW	250	314	361
Exhaust gas temp. after turbocharger	°C	510	555	575
Exhaust gas mass flow	kg/h	1630	2040	2270
Exhaust gas vol. flow	m ³ /h		4850	5515
Jacket water heat ²⁾	kW	160	230	261
Minimum cooling water circulation	l/min	470	650	650
Intercooler heat rate	kW	30	53	71
Intercooler heat temp. before cooler	°C	115	147	167
Residual energy (radiation, etc.)	kW	35	39	40
Cooling air requirements for	m ³ /h	34000	34000	37000
Power input for fan	kW	14	14	14
Noise pressure level at 1 m distance	dB(A)	101	101	101
Weight including cooling system (dry)	kg	1480	1480	1480

¹⁾ ISO standard rating ICXN: variable continuous power output, average 70% use of capacity, with 10% overload capability for technical purposes for one hour in twelve; fan output not taken into account.

²⁾ ISO fuel stop power IFN: 100% continuous power output for limited period without overload capability; must be available for 500 h/year or (300 h/year of this without interruption).

These ratings apply at an air temperature of 298 K (25 °C), an air pressure of 100 kPa (1000 mbar) 100 m above sea level and a relative humidity of 30%.

Other site conditions may result in reduced output.

Rating definition to ISO 3046/1

application definition LTP, PRP, COP to ISO 8528-1



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speed	1/min	1500	1500
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ISO net brake fuel stop rating IFN ²	kW		545
Electrical output	kW _e	409	500
Genset rating net	kVA	510	620
Mean effective pressure (ICXN)	bar	19,7	
Mean effective pressure (IFN)	bar		23,9
Torque (ICXN)	Nm	2820	
Torque (IFN)	Nm		3470
Mean piston velocity	m/s	7,1	7,1
Specific fuel consumption			
100% load	g/kWh	210	205
75% load	g/kWh	204	199
50% load	g/kWh	205	202
Lube oil consumpt. max.	g/h	465	505
Air for combustion	m ³ /h	1945	1900
Exhaust gas heat	kW	369	377
Exhaust gas temp. after turbocharger	°C	565	590
Exhaust gas mass flow	kg/h	2355	2310
Exhaust gas vol. flow	m ³ /h	5660	5700
Jacket water heat ²⁾	kW	242	270
Minimum cooling water circulation	l/min	650	650
Intercooler heat rate	kW	73	74
Intercooler heat temp. before cooler	°C	166	170
Residual energy (radiation, etc.)	kW	39	40
Cooling air requirements for	m ³ /h	34000	37000
Power input for fan	kW	14	14
Noise pressure level at 1 m distance	dB(A)	101	101
Weight including cooling system (dry)	kg	1480	1480

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		LE201 (COP) 1800	LE201 (PRP) 1800	LE203 (LTP) 1800
speed	1/min			
ISO-standard rating ICXN ¹	kW	390	515	
ISO net brake fuel stop rating IFN ²	kW			585
Electrical output	kW _e	349	462	530
Genset rating net	kVA	440	570	660
Mean effective pressure (ICXN)	bar	14,23	18,8	
Mean effective pressure (IFN)	bar			21,3
Torque (ICXN)	Nm	2069	2735	
Torque (IFN)	Nm			3140
Mean piston velocity	m/s	9,3	9,3	9,3
Specific fuel consumption				
100% load	g/kWh	205	204	203
75% load	g/kWh	202	200	199
50% load	g/kWh	201	203	204
Lube oil consumpt. max.	g/h	400	525	540
Air for combustion	m ³ /h	2025	2345	2350
Exhaust gas heat	kW	345	395	398
Exhaust gas temp. after turbocharger	°C	470	510	510
Exhaust gas mass flow	kg/h	2430	2830	2835
Exhaust gas vol. flow	m ³ /h		6365	6380
Jacket water heat ²⁾	kW	190	257	257
Minimum cooling water circulation	l/min	600	780	780
Intercooler heat rate	kW	65	97	99
Intercooler heat temp. before cooler	°C	150	178	180
Residual energy (radiation, etc.)	kW	50	54	55
Cooling air requirements for	m ³ /h	45000	45300	47000
Power input for fan	kW	24	24	24
Noise pressure level at 1 m distance (incl. fan)	dB(A)	104	104	104
Weight including cooling system (dry)	kg	1480	1480	1480

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Electrical output	kW _e	462	530
Genset rating net	kVA	570	660
Mean effective pressure (ICXN)	bar	18,8	
Mean effective pressure (IFN)	bar		21,3
Torque (ICXN)	Nm	2735	
Torque (IFN)	Nm		3140
Mean piston velocity	m/s	9,3	9,3
Specific fuel consumption			
100% load	g/kWh	212	214
75% load	g/kWh	206	206
50% load	g/kWh	208	208
Lube oil consumpt. max.	g/h	545	570
Air for combustion	m ³ /h	2515	2575
Exhaust gas heat	kW	432	453
Exhaust gas temp. after turbocharger	°C	520	530
Exhaust gas mass flow	kg/h	3035	3100
Exhaust gas vol. flow	m ³ /h	6885	7155
Jacket water heat ²⁾	kW	252	265
Minimum cooling water circulation	l/min	780	780
Intercooler heat rate	kW	113	120
Intercooler heat temp. before cooler	°C	188	194
Residual energy (radiation, etc.)	kW	54	55
Cooling air requirements for	m ³ /h	45300	47000
Power input for fan	kW	24	24
Noise pressure level at 1 m distance (incl. fan)	dB(A)	104	104
Weight including cooling system (dry)	kg	1480	1480

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