

reference data sheet



Technical data

1560 kWel; 400 V, 50 Hz; Natural gas, MN = 80

Design conditions

Inlet air temperature / rel. Humidity:	[°C] / [%]	25 / 60
Altitude:	[m]	100
Exhaust temp. after heat exchanger:	[°C]	120
NO _x Emission (tolerance - 8%):	[mg/Nm ³ @5%O ₂]	250

Fuel gas data: ²⁾

Methane number:	[-]	80
Lower calorific value:	[kWh/Nm ³]	10,17
Gas density:	[kg/Nm ³]	0,79
Standard gas:	Natural gas, MN = 80	

Genset:

Engine:	CG170-16	
Speed:	[1/min]	1500
Configuration / number of cylinders:	[-]	V / 16
Bore / Stroke / Displacement:	[mm]/[mm]/[dm ³]	170 / 195 / 71
Compression ratio:	[-]	13,0
Mean piston speed:	[m/s]	9,8
Mean lube oil consumption at full load:	[g/kWh]	0,15
Engine-management-system:	[-]	TEM EVO

Generator:	Marelli MJB 500 LA4	
Voltage / voltage range / cos Phi:	[V] / [%] / [-]	400 / ±10 / 1
Speed / frequency:	[1/min] / [Hz]	1500 / 50

Energy balance

Load:	[%]	100	75	50
Electrical power COP acc. ISO 8528-1:	[kW]	1560	1170	780
Engine jacket water heat:	[kW ±8%]	827	630	455
Intercooler LT heat:	[kW ±8%]	138	96	56
Lube oil heat:	[kW ±8%]			
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	823	674	508
Exhaust temperature:	[°C ±25°C]	421	445	475
Exhaust mass flow, wet:	[kg/h]	8975	6793	4669
Combustion mass air flow:	[kg/h]	8687	6571	4513
Radiation heat engine / generator:	[kW ±8%]	55 / 46	53 / 37	42 / 30
Fuel consumption:	[kW+5%]	3696	2846	1999
Electrical / thermal efficiency:	[%]	42,2 / 44,6	41,1 / 45,8	39,0 / 48,2
Total efficiency:	[%]	86,8	86,9	87,2

System parameters ¹⁾

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	41200
Combustion air temperature minimum / design:	[°C]	20 / 25
Exhaust back pressure from / to:	[mbar]	30 / 50
Maximum pressure loss in front of air cleaner:	[mbar]	5
Zero-pressure gas control unit selectable from / to: ²⁾	[mbar]	20 / 200
Pre-pressure gas control unit selectable from / to: ²⁾	[bar]	0,5 / 10
Starter battery 24V, capacity required:	[Ah]	430
Starter motor:	[kWel.] / [VDC]	18 / 24
Lube oil content engine / base frame:	[dm ³]	265 / 685
Dry weight engine / genset:	[kg]	6090 / 13370

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	35 / 35
Water volume engine jacket / intercooler:	[dm ³]	151 / 20
KVS / Cv value engine jacket water / intercooler:	[m ³ /h]	46 / 30
Jacket water coolant temperature in / out:	[°C]	80 / 93
Intercooler coolant temperature in / out:	[°C]	40 / 44
Engine jacket water flow rate from / to:	[m ³ /h]	50 / 65
Water flow rate engine jacket water / intercooler:	[m ³ /h]	59 / 35
Water pressure loss engine jacket water / intercooler:	[bar]	1,6 / 1,4

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1) See also "Layout of power plants":

2) See also Techn. Circular 0199-99-3017

Frequency band f [Hz]	25	31,5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	L _{WA} [dB(A)]	S [m ²]
Air-borne noise ³⁾ L _{W, Terz} [dB(lin)]	90,6	92,5	95,5	96,7	100,1	107,4	109,9	111,9	109,8	114,4	115,9	114,5	111,5	113,0	112,3	112,7	113,1	112,0	112,7	113,4	112,5	109,8	108,2	105,2	113,9	106,0	103,8	113,4	100,8	123,7 ±4dB(A)	115
Exhaust noise ⁴⁾ L _{W, Terz} [dB(lin)]	118,7	119,6	121,7	121,1	122,6	127,4	126,3	137,6	123,6	124,8	122,4	122,3	124,0	123,6	123,2	122,8	121,7	120,4	120,0	120,0	118,6	118,6	118,0	117,2	116,9	115,8	115,7	115,0	113,6	132,3 ±3dB(A)	15,5 ⁵⁾

3) DIN EN ISO 3746 (σ₉₀=±4 dB)

4) Measured in exhaust pipe (f ≤ 250Hz: ±5dB; f > 250Hz: ±3dB)

L_W: Sound power level

S: Area of measurement surface (S_C=1m²)

5) DIN 45635-11, Appendix A