

Only for references



Technical data

1200 kWel; 400 V, 50 Hz; Natural gas, MN = 80

Design conditions

Comb. 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]	500

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:	CG170-12	
Speed:	[1/min]	1500
Configuration / number of cylinders:	[-]	V / 12
Bore / Stroke / Displacement:	[mm]/[mm]/[dm ³]	170 / 195 / 53
Compression ratio:	[-]	13,5
Mean piston speed:	[m/s]	9,8
Mean lube oil consumption at full load:	[g/kWh]	0,2
Engine-management-system:	[-]	TEM EVO

Generator:	Marelli MJB 500 MB4	
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]	1200	900	600
Engine jacket water heat:	[kW ±8%]	609	469	336
Intercooler LT heat:	[kW ±8%]	106	71	41
Lube oil heat:	[kW ±8%]			
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	582	481	364
Exhaust temperature:	[°C]	414	440	469
Exhaust mass flow, wet:	[kg/h]	6488	4909	3387
Combustion mass air flow:	[kg/h]	6273	4743	3271
Radiation heat engine / generator:	[kW ±8%]	41 / 34	40 / 27	36 / 22
Fuel consumption:	[kW+5%]	2750	2123	1492
Electrical / thermal efficiency:	[%]	43,6 / 43,3	42,4 / 44,7	40,2 / 46,9
Total efficiency:	[%]	86,9	87,1	87,1

System parameters ¹⁾

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	30300
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]	15 / 24
Lube oil content engine / base frame:	[dm ³]	205 / -
Dry weight engine / genset:	[kg]	5080 / 11700

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	0 / 35
Water volume engine jacket / intercooler:	[dm ³]	111 / 20
KVS / Cv value engine jacket water / intercooler:	[m ³ /h]	42 / 30
Jacket water coolant temperature in / out:	[°C]	80 / 93
Intercooler coolant temperature in / out:	[°C]	40 / 43
Engine jacket water flow rate from / to:	[m ³ /h]	36 / 56
Water flow rate engine jacket water / intercooler:	[m ³ /h]	41 / 35
Water pressure loss engine jacket water / intercooler:	[bar]	0,9 / 1,4

1) See also "Layout of power plants":

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

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170-12-E-50-00400-M-N_e

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 ⁴⁾ L _{W, Terz} [dB(lin)]	94	95	98	100	106	109	108	109	106	115	115	115	109	110	109	109	109	108	108	108	107	109	103	102	114	107	101	104	98	121	114
Exhaust noise ⁵⁾ L _{W, Octave} [dB(lin)]					128			135			134			131			123			122			120			119				132	15,5

4) DIN EN ISO 3746

5) DIN 45635-11 Appendix A (±3 dB)

L_w: Sound power level

S: Area of measurement surface (S₀=1m²)