

reference data sheet



Technical data

1000 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:	CG132B-16	
Configuration code:	[-]	S
Speed:	[1/min]	1500
Configuration / number of cylinders:	[-]	V / 16
Bore / Stroke / Displacement:	[mm]/[mm]/[dm ³]	132 / 160 / 35
Compression ratio:	[-]	11
Mean piston speed:	[m/s]	8
Mean lube oil consumption at full load:	[g/kWh]	0,1

Generator:	Marelli MJB 450 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]	1000	750	500
Engine jacket water heat:	[kW ±8%]	581	441	319
Intercooler LT heat:	[kW ±8%]	80	52	29
Lube oil heat:	[kW ±8%]			
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	627	508	371
Exhaust temperature:	[°C ±25°C]	460	488	512
Exhaust mass flow, wet:	[kg/h]	6030	4494	3067
Combustion mass air flow:	[kg/h]	5834	4344	2962
Radiation heat engine / generator:	[kW ±8%]	33 / 28	25 / 22	21 / 18
Fuel consumption:	[kW+5%]	2516	1923	1343
Electrical / thermal efficiency:	[%]	39,7 / 48,0	39,0 / 49,3	37,2 / 51,4
Total efficiency:	[%]	87,7	88,3	88,6

System parameters ¹⁾

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	26300
Combustion air temperature minimum / design:	[°C]	15 / 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]	286
Starter motor:	[kWel.] / [VDC]	9 / 24
Lube oil content engine & extension / clean oil tank:	[dm ³]	480 / 360
Dry weight engine / genset:	[kg]	3090 / 8560

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	35 / 35
Water volume engine jacket / intercooler:	[dm ³]	56 / 5
KVS / Cv value engine jacket water / intercooler:	[m ³ /h]	29 / 14
Jacket water coolant temperature in / out:	[°C]	78 / 89
Intercooler coolant temperature in / out:	[°C]	45 / 51
Engine jacket water flow rate from / to:	[m ³ /h]	45 / 50
Water flow rate engine jacket water / intercooler:	[m ³ /h]	49 / 12
Water pressure loss engine jacket water / intercooler:	[bar]	2,8 / 0,8

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⁾	87,8	85,5	87,1	96,3	106,1	108,2	115,2	107,4	112,1	104,0	103,9	107,4	102,5	102,1	100,7	102,4	102,1	101,1	101,3	100,2	100,0	101,3	103,4	109,2	111,2	115,5	99,1			118,4	75,4	
L _{W, Terz} [dB(lin)]																																
Exhaust noise ⁴⁾	113,0	114,7	120,4	123,0	122,1	130,4	141,1	132,3	127,7	123,5	124,6	122,6	121,8	122,0	123,0	123,6	122,1	119,2	118,8	120,3	118,0	118,0	119,1	121,0	116,2	113,4	112,8	112,2	110,7	132,4	15,2 ⁵⁾	
L _{W, Terz} [dB(lin)]																																

3) DIN EN ISO 9614-2 (s=±4 dB)

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

L_W: Sound power level

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

5) DIN 45635-11, Appendix A