

Technical data

2300 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:	CG170B-20 P	
Speed:	[1/min]	1500
Configuration / number of cylinders:	[-]	V / 20
Bore / Stroke / Displacement:	[mm]/[mm]/[dm ³]	170 / 195 / 89
Compression ratio:	[-]	14,0
Mean piston speed:	[m/s]	9,8
Mean lube oil consumption at full load:	[g/kWh]	0,15
Engine-management-system:	[-]	TPEM

Generator:	Marelli MJB 630 LB4	
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]	2300	1725	1150
Engine jacket water heat:	[kW ±8%]	1266	960	670
Intercooler LT heat:	[kW ±8%]	196	146	88
Lube oil heat:	[kW ±8%]			
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	989	827	655
Exhaust temperature:	[°C ±25°C]	381	408	447
Exhaust mass flow, wet:	[kg/h]	12519	9408	6544
Combustion mass air flow:	[kg/h]	12111	9093	6321
Radiation heat engine / generator:	[kW ±8%]	71 / 62	70 / 53	67 / 47
Fuel consumption:	[kW+5%]	5230	4040	2857
Electrical / thermal efficiency:	[%]	44,0 / 43,1	42,7 / 44,2	40,3 / 46,4
Total efficiency:	[%]	87,1	86,9	86,7

System parameters ¹⁾

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	55500
Combustion air temperature minimum / design:	[°C]	5 / 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]	300 / 685
Dry weight engine / genset:	[kg]	8070 / 21490

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	35 / 35
Water volume engine jacket / intercooler:	[dm ³]	210 / 22
KVS / Cv value engine jacket water / intercooler:	[m ³ /h]	47 / 45
Jacket water coolant temperature in / out:	[°C]	78 / 93
Intercooler coolant temperature in / out:	[°C]	40 / 44
Engine jacket water flow rate from / to:	[m ³ /h]	60 / 85
Water flow rate engine jacket water / intercooler:	[m ³ /h]	78 / 40
Water pressure loss engine jacket water / intercooler:	[bar]	2,7 / 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⁾ L _{W, Terz} [dB(lin)]	94,8	96,1	97,4	101,0	103,7	107,3	112,7	118,9	115,5	115,3	112,7	110,8	112,1	111,5	108,8	108,6	109,3	108,5	108,2	108,8	106,4	104,8	103,8	102,9	106,1	116,7	104,3			121,01 ±4dB(A)	117,3
Exhaust noise ⁴⁾ L _{W, Terz} [dB(lin)]	117,7	117,3	120,0	124,0	125,4	126,5	130,7	142,5	127,4	126,7	131,0	125,5	125,2	125,6	126,4	125,1	124,5	123,8	124,3	124,0	122,7	122,3	119,8	118,5	116,8	115,4	115,2	113,1	110,7	135,56 ±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 (S₀=1m²)

5) DIN 45635-11, Appendix A