

reference data sheet



Technical data

800 kWel; 400 V, 50 Hz; Natural gas, MN = 70

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:	[-]	70
Lower calorific value:	[kWh/Nm ³]	10,95
Gas density:	[kg/Nm ³]	0,83
Standard gas:	Natural gas, MN = 70	

Genset:

Engine:	CG132B-16	
Speed:	[1/min]	1500
Configuration / number of cylinders:	[-]	V / 16
Bore / Stroke / Displacement:	[mm]/[mm]/[dm ³]	132 / 160 / 35
Compression ratio:	[-]	13,0
Mean piston speed:	[m/s]	8
Mean lube oil consumption at full load:	[g/kWh]	0,1
Engine-management-system:	[-]	TPEM

Generator:	Marelli MJB 450 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]	800	600	400
Engine jacket water heat:	[kW ±8%]	438	333	241
Intercooler LT heat:	[kW ±8%]	48	35	24
Lube oil heat:	[kW ±8%]			
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	418	343	256
Exhaust temperature:	[°C ±25°C]	424	448	472
Exhaust mass flow, wet:	[kg/h]	4523	3425	2367
Combustion mass air flow:	[kg/h]	4380	3315	2290
Radiation heat engine / generator:	[kW ±8%]	29 / 24	26 / 19	24 / 16
Fuel consumption:	[kW+5%]	1882	1451	1025
Electrical / thermal efficiency:	[%]	42,5 / 45,4	41,3 / 46,6	39,0 / 48,4
Total efficiency:	[%]	87,9	87,9	87,4

System parameters ¹⁾

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	21500
Combustion air temperature minimum / design:	[°C]	10 / 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 / 8600

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 / 88
Intercooler coolant temperature in / out:	[°C]	45 / 50
Engine jacket water flow rate from / to:	[m ³ /h]	29 / 50
Water flow rate engine jacket water / intercooler:	[m ³ /h]	40 / 10
Water pressure loss engine jacket water / intercooler:	[bar]	1,9 / 0,6

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⁾	87,2	82,6	86,7	90,6	103,2	108,1	113,6	105,2	111,5	103,5	102,6	107,9	103,6	101,7	101,2	102,2	103,2	115,4	106,7	100,3	101,8	102,8	104,0	103,7	108,1	113,2	96,0	92,8	94,4	119,5	76
L _{W, Terz} [dB(lin)]																															
Exhaust noise ⁴⁾	112,3	113,3	121,9	112,5	113,7	125,4	139,2	132,4	125,9	128,6	127,3	125,3	123,9	123,1	122,3	121,1	120,4	120,1	119,7	119,0	118,6	117,6	116,8	116,3	114,5	113,2	112,1	111,5	110,1	131,9	15,2 ⁵⁾
L _{W, Terz} [dB(lin)]																															

3) DIN EN ISO 3746 (σ_{RD}±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