

# reference data sheet



## Technical data

**4500 kWel; 10500 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 <sub>x</sub> Emission (tolerance - 8%):	[mg/Nm <sup>3</sup> @5%O <sub>2</sub> ]	250

### Fuel gas data: <sup>2)</sup>

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

### Genset:

Engine:	<b>CG260-16</b>	
Speed:	[1/min]	1000
Configuration / number of cylinders:	[-]	V / 16
Bore / Stroke / Displacement:	[mm]/[mm]/[dm <sup>3</sup> ]	260 / 320 / 272
Compression ratio:	[-]	12,0
Mean piston speed:	[m/s]	10,7
Mean lube oil consumption at full load:	[g/kWh]	0,2
Engine-management-system:	[-]	TEM EVO

Generator:	<b>Marelli MJH 800 MC6</b>	
Voltage / voltage range / cos Phi:	[V] / [%] / [-]	10500 / ±10 / 1
Speed / frequency:	[1/min] / [Hz]	1000 / 50

### Energy balance

Load:	[%]	100	75	50
Electrical power COP acc. ISO 8528-1:	[kW]	<b>4500</b>	<b>3375</b>	<b>2250</b>
Engine jacket water heat:	[kW ±8%]	1819	1339	885
Intercooler LT heat:	[kW ±8%]	272	182	107
Lube oil heat:	[kW ±8%]	697	624	527
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	1950	1632	1277
Exhaust temperature:	[°C ±25°C]	377	405	445
Exhaust mass flow, wet:	[kg/h]	25110	18865	12868
Combustion mass air flow:	[kg/h]	24333	18264	12444
Radiation heat engine / generator:	[kW ±8%]	201 / 98	156 / 83	111 / 72
Fuel consumption:	[kW+5%]	10233	7913	5585
Electrical / thermal efficiency:	[%]	44,0 / 43,6	42,7 / 45,4	40,3 / 48,1
Total efficiency:	[%]	87,6	88,1	88,4

### System parameters <sup>1)</sup>

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	117800
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: <sup>2)</sup>	[mbar]	20 / 200
Pre-pressure gas control unit selectable from / to: <sup>2)</sup>	[bar]	0,5 / 10
Air bottle, volume / pressure	[dm <sup>3</sup> ] / [bar]	2000 / 30
Starter motor:	[dm <sup>3</sup> /s] / [bar]	800 / 16
Lube oil content engine / base frame:	[dm <sup>3</sup> ]	1850 / -
Dry weight engine / genset:	[kg]	24890 / 51400

### Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	35 / 35
Water volume engine jacket / intercooler:	[dm <sup>3</sup> ]	570 / 51
KVS / Cv value engine jacket water / intercooler:	[m <sup>3</sup> /h]	88 / 62
Jacket water coolant temperature in / out:	[°C]	78 / 92
Intercooler coolant temperature in / out:	[°C]	40 / 44
Engine jacket water flow rate from / to:	[m <sup>3</sup> /h]	110 / 130
Water flow rate engine jacket water / intercooler:	[m <sup>3</sup> /h]	120 / 65
Water pressure loss engine jacket water / intercooler:	[bar]	1,9 / 1,1
Lube oil temp. engine inlet max. / lube oil flow rate:	[°C] / [m <sup>3</sup> /h]	80 / 125

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 <sub>WA</sub> [dB(A)]	S [m <sup>2</sup> ]
<b>Air-borne noise <sup>3)</sup></b>	101,1	104,1	107,5	107,4	112,6	113,7	120,6	121,2	120,5	117,3	116,4	114,9	114,2	112,9	115,0	115,9	115,3	112,0	112,1	111,6	112,8	115,8	124,8	129,1	121,8	111,5	111,5	108,8	104,2	132,4	224
L <sub>W, Terz</sub> [dB(lin)]																														±4dB(A)	
<b>Exhaust noise <sup>4)</sup></b>	123,0	127,2	141,9	125,1	144,6	129,2	132,4	133,0	133,3	130,0	129,2	129,0	128,5	128,8	128,6	126,5	125,7	124,4	124,4	124,6	123,2	124,0	126,3	123,5	121,7	119,6	119,6	122,4	117,9	137,2	16,9 <sup>5)</sup>
L <sub>W, Terz</sub> [dB(lin)]																														±3dB(A)	

3) DIN EN ISO 3746 (σ<sub>90</sub>±4 dB)

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

L<sub>W</sub>: Sound power level

S: Area of measurement surface (S<sub>0</sub>=1m<sup>2</sup>)

5) DIN 45635-11, Appendix A