

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

Datasheet specification considers the grid codes EU 631/2016 (NC-RfG)

**Fuel gas data: 2)**

Methane number:	[-]	80
Lower calorific value:	[kWh/Nm <sup>3</sup> ]	10,17
Gas density:	[kg/Nm <sup>3</sup> ]	0,79
Standard gas:	Natural gas, MN = 80	

**Genset:**

Engine:	<b>TCG 2020 V12 (1.0)</b>	
Configuration code:	[-]	RW
Speed:	[1/min]	1500
Configuration / number of cylinders:	[-]	V / 12
Bore / Stroke / Displacement:	[mm]/[mm]/[dm <sup>3</sup> ]	170 / 195 / 53
Compression ratio:	[-]	13
Mean piston speed:	[m/s]	9,8
Mean lube oil consumption at full load:	[g/kWh]	0,15
Generator:	<b>Marelli MJB 450 LB4 or similar (*)</b>	
Voltage / voltage range / cos Phi:	[V] / [%] / [-]	400 / 10 / 1
Speed / frequency:	[1/min] / [Hz]	1500 / 50

\*CES reserves the right to change the alternator supplier and type during offer period. The genset data may thereby change slightly. The power output will not change. CES will confirm the alternator type, brand and alternator data sheet with the order confirmation.

**Energy balance**

Load:	[%]	100	75	50
Electrical power COP acc. ISO 8528-1:	[kW]	1000	750	500
Engine jacket water heat:	[kW ±8%]	592	463	341
Intercooler LT heat:	[kW ±8%]	53	33	27
Lube oil heat:	[kW ±8%]			
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	510	425	321
Exhaust temperature:	[°C ±25°C]	413	437	459
Exhaust mass flow, wet:	[kg/h]	5734	4387	3093
Combustion mass air flow:	[kg/h]	5549	4243	2989
Radiation heat engine / generator:	[kW ±8%]	40 / 27	38 / 22	33 / 19
Fuel consumption:	[kW+5%]	2382	1852	1327
Electrical / thermal efficiency:	[%]	42,0 / 46,3	40,5 / 48,0	37,7 / 50,0
Total efficiency:	[%]	88,3	88,5	87,7

**System parameters 1)**

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	27200
Combustion air temperature minimum / design:	[°C]	10 / 25
Exhaust back pressure from / to:	[mbar]	30 / 60
Maximum pressure loss in front of air cleaner:	[mbar]	5
Zero-pressure gas control unit selectable from / to: 2)	[mbar]	20 <sup>3)</sup> / 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 <sup>3</sup> ]	205 / -
Dry weight engine / genset:	[kg]	5080 / 10850

**Cooling system**

Glycol content engine jacket water / intercooler:	[% Vol.]	35 / 35
Water volume engine jacket / intercooler:	[dm <sup>3</sup> ]	111 / 14
KVS / Cv value engine jacket water / intercooler:	[m <sup>3</sup> /h]	46 / 46
Jacket water coolant temperature in / out:	[°C]	80 / 93
Intercooler coolant temperature in / out:	[°C]	60 / 61
Engine jacket water flow rate from / to:	[m <sup>3</sup> /h]	36 / 56
Water flow rate engine jacket water / intercooler:	[m <sup>3</sup> /h]	42 / 35
Water pressure loss engine jacket water / intercooler:	[bar]	0,8 / 0,6

1) See also "Layout of power plants":

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

3) Minimum pressure may be higher, depending on project conditions.

\*) optional

Frequency band	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 4)</b>	94,0	94,7	98,0	100,5	106,1	108,9	107,6	108,5	106,0	115,3	115,0	114,8	108,6	110,2	109,5	108,8	109,2	108,2	108,1	107,6	107,0	108,5	103,5	102,3	114,1	107,0	101,4	103,8	98,1	120,7	114
L <sub>W, Terz</sub> [dB(lin)]																															
<b>Exhaust noise 5)</b>	114,2	116,0	124,6	115,9	120,0	129,0	125,3	134,1	125,3	130,0	128,4	128,2	126,4	125,8	125,0	119,0	117,8	116,6	117,7	117,6	116,3	115,5	114,6	113,7	114,9	113,9	113,4	112,9	111,1	132,1	15,5 <sup>6)</sup>
L <sub>W, Terz</sub> [dB(lin)]																															

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

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

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

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

6) DIN 45635-11, Appendix A