

Technical data

600 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]	500
Datasheet specification considers the grid codes EU 631/2016 (NC-RfG)		

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 / Configuration code:	TCG 3016 V12	P
Speed / Mean piston speed:	[1/min] / [m/s]	1500 / 8
Configuration / number of cylinders:	[-]	V / 12
Bore / Stroke / Displacement:	[mm]/[mm]/[dm ³]	132 / 160 / 26
Compression ratio:	[-]	13
Mean effective pressure:	[bar]	18,9
Mean lube oil consumption at full load:	[g/kWh]	0,1
Generator:	Marelli MJB 400 LC4 or similar (*)	
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]	600	450	300
Engine jacket water heat:	[kW ±8%]	331	251	181
Intercooler LT heat:	[kW ±8%]	36	26	17
Lube oil heat:	[kW ±8%]			
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	292	239	179
Exhaust temperature:	[°C ±25°C]	413	436	460
Exhaust mass flow wet / dry:	[kg/h]	3274 / 3013	2479 / 2279	1717 / 1576
Combustion mass air flow:	[kg/h]	3165	2396	1658
Radiation heat engine / generator:	[kW ±8%]	22 / 20	19 / 17	18 / 14
Fuel consumption:	[kW+5%]	1390	1071	757
Electrical / thermal efficiency:	[%]	43,2 / 44,7	42,0 / 45,8	39,6 / 47,6
Total efficiency:	[%]	87,9	87,8	87,2

System parameters 1)

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	16300
Combustion air temperature minimum / design:	[°C]	15 / 25
Exhaust back pressure from / to:	[mbar]	30 / 50
Exhaust volume flow wet / dry:	[Nm ³ /h]	2558 / 2285
Maximum pressure loss in front of air cleaner:	[mbar]	5
Zero-pressure gas control unit selectable from / to: 2)	[mbar]	20 ³⁾ / 200
Pre-pressure gas control unit selectable from / to: 2)	[bar]	0,5 / 10
Starter battery 24V, capacity required:	[Ah]	143
Starter motor:	[kWel.] / [VDC]	5,4 / 24
Lube oil content engine & extension / clean oil tank:	[dm ³]	420 / 320*
Dry weight engine / genset:	[kg]	2766 / 7116

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	33 / 33
Water volume engine jacket / intercooler:	[dm ³]	43 / 5
KVS / Cv value engine jacket water / intercooler:	[m ³ /h]	30 / 14
Jacket water coolant temperature in / out:	[°C]	78 / 88
Intercooler coolant temperature in / out:	[°C]	45 / 49
Engine jacket water flow rate from / to:	[m ³ /h]	22 / 37
Water flow rate engine jacket water / intercooler:	[m ³ /h]	30 / 9
Water pressure loss engine jacket water / intercooler:	[bar]	1,0 / 0,4

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 f [Hz]																			L _{WA} [dB(A)]	S [m ²]											
	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
Air-borne noise 4)	85,0	85,1	88,4	88,8	90,4	95,7	99,0	101,8	101,1	108,9	102,8	108,8	103,2	102,1	103,2	100,1	99,4	99,5	97,6	96,1	96,9	96,8	98,4	96,4	103,6	113,9	95,0			115,3	74,5
L _{W, Terz} [dB(lin)]																														±4dB(A)	
Exhaust noise 5)	109,1	113,3	126,2	115,9	116,3	133,1	116,6	124,8	135,0	120,5	123,4	125,5	121,2	120,8	120,7	120,3	119,7	118,5	119,4	120,2	118,8	116,9	116,1	114,4	112,4	109,4	108,3	105,7	101,9	131,0	15,2 ⁶⁾
L _{W, Terz} [dB(lin)]																														±3dB(A)	

4) DIN EN ISO 9614-2 (s=±4 dB)

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

L_W: Sound power level

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

6) DIN 45635-11, Appendix A