

Technical data

4300 kWel; 10500 V, 50 Hz; Acc. to gas analysis

Design conditions

Inlet air temperature / rel. Humidity:	[°C] / [%]	32/ 65
Altitude:	[m]	200
Exhaust temp. after heat exchanger:	[°C]	120
NO _x Emission (tolerance - 8%):	[mg/Nm ³ @5%O ₂]	500

Fuel gas data: 2)

Methane number:	[-]	89
Lower calorific value:	[kWh/Nm ³]	10,09
Gas density:	[kg/Nm ³]	0,75
Acc. to gas analysis		
Analysis: CO ₂	[Vol%]	0,23
N ₂	[Vol%]	1,19
O ₂	[Vol%]	0,00
H ₂	[Vol%]	0,00
CO	[Vol%]	0,00
CH ₄	[Vol%]	96,12
C ₂ H ₂	[Vol%]	0,00
C ₂ H ₆	[Vol%]	1,84
C ₃ H ₆	[Vol%]	0,00
C ₃ H ₈	[Vol%]	0,45
C ₄ H ₈	[Vol%]	0,00
C ₄ H ₁₀	[Vol%]	0,13
C ₅ H ₁₂	[Vol%]	0,03
C _x H _y	[Vol%]	0,01
H ₂ S	[Vol%]	0,00
H ₂ O	[Vol%]	0

Genset:

Engine / Configuration code:	TCG 2032 V16	R
Speed / Mean piston speed:	[1/min] / [m/s]	1000 / 10,7
Configuration / number of cylinders:	[-]	V/16
Bore / Stroke / Displacement:	[mm]/[mm]/[dm ³]	260 / 320 / 272
Compression ratio:	[-]	12
Mean effective pressure:	[bar]	19,4
Mean lube oil consumption at full load:	[g/kWh]	0,2
Generator:	Marelli MJH 800 MC6 or similar (*)	
Voltage / voltage range / cos Phi:	[V] / [%] / [-]	10500 / 10 / 1
Speed / frequency:	[1/min] / [Hz]	1000 / 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]	4300	3225	2150
Engine jacket water heat:	[kW ±8%]	1505	1119	776
Intercooler LT heat:	[kW ±8%]	367	261	170
Lube oil heat:	[kW ±8%]	477	398	344
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	2345	1940	1488
Exhaust temperature:	[°C ±25°C]	455	482	512
Exhaust mass flow wet / dry:	[kg/h]	23037 / 20984	17547 / 15959	12367 / 11231
Combustion mass air flow:	[kg/h]	22304	16978	11959
Radiation heat engine / generator:	[kW ±8%]	212 / 95	207 / 81	203 / 72
Fuel consumption:	[kW+5%]	9885	7675	5515
Electrical / thermal efficiency:	[%]	43,5 / 43,8	42,0 / 45,0	39,0 / 47,3
Total efficiency:	[%]	87,3	87,0	86,3

System parameters 1)

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	118300
Combustion air temperature minimum / design:	[°C]	5 / 32
Exhaust back pressure from / to:	[mbar]	30 / 50
Exhaust volume flow wet / dry:	[Nm ³ /h]	17881 / 15915
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
Air bottle, volume / pressure	[dm ³] / [bar]	2000 / 30
Starter motor:	[dm ³ /s] / [bar]	800 / 16
Lube oil content engine / base frame:	[dm ³]	1850 / -
Dry weight engine / genset:	[kg]	24890 / 52900

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	40 / 40
Water volume engine jacket / intercooler:	[dm ³]	570 / 51
KVS / Cv value engine jacket water / intercooler:	[m ³ /h]	90 / 62
Jacket water coolant temperature in / out:	[°C]	78 / 90
Intercooler coolant temperature in / out:	[°C]	40 / 45
Engine jacket water flow rate from / to:	[m ³ /h]	100 / 120
Water flow rate engine jacket water / intercooler:	[m ³ /h]	118 / 65
Water pressure loss engine jacket water / intercooler:	[bar]	1,7 / 1,1
Lube oil temp. engine inlet max. / lube oil flow rate:	[°C] / [m ³ /h]	80 / 125

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]	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 4)	102,1	100,6	104,0	106,4	109,4	113,0	117,0	115,8	121,3	119,9	116,2	114,2	114,2	110,4	109,8	111,1	109,6	109,5	111,8	115,3	111,0	112,4	116,6	116,8	111,4	105,6	104,6	107,0	102,9	125,0	215
L _{W, Terz} [dB(lin)]																															±4dB(A)
Exhaust noise 5)	118,4	125,5	141,4	124,6	143,0	128,6	130,1	133,0	131,5	128,0	127,7	128,3	127,2	127,7	127,3	126,1	125,5	124,1	124,2	124,5	123,1	123,0	124,8	122,4	120,5	118,5	118,5	120,6	116,6	137,1	16,9 ⁶⁾
L _{W, Terz} [dB(lin)]																															±3dB(A)

4) DIN EN ISO 3746 (G₁0=±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