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Technical data

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

Design conditions

Comb. air temperature / rel. Humidity:	[°C] / [%]	33 / 70
Altitude:	[m]	90
Exhaust temp. after heat exchanger:	[°C]	120
NO_x Emission (tolerance - 8%):	[mg/Nm^3 @5%O_2]	250

Genset:

Engine:	**TCG2032V16**	
Speed:	[1/min]	1000
Configuration / number of cylinders:	[-]	V / 16
Bore / Stroke / Displacement:	[mm]/[mm]/[dm^3]	260 / 320 / 272
Compression ratio:	[-]	12,0
Mean piston speed:	[m/s]	10,7
Mean lube oil consumption at full load:	[g/kWh]	0,3
Engine-management-system:	[-]	TEM EVO
Generator:	**Marelli MJH 800 MC6**	
Voltage / voltage range / cos Phi:	[V] / [%] / [-]	10500 / ±10 / 1
Speed / frequency:	[1/min] / [Hz]	1000 / 50

Fuel gas data: [2]

Methane number:	[-]	86
Lower calorific value:	[kWh/Nm^3]	10,13
Gas density:	[kg/Nm^3]	0,82
	Acc. to gas analysis	
Analysis: CO_2	[Vol%]	3,83
N_2	[Vol%]	0,65
O_2	[Vol%]	0,00
H_2	[Vol%]	0,00
CO	[Vol%]	0,00
CH_4	[Vol%]	88,03
C_2H_4	[Vol%]	0,00
C_2H_6	[Vol%]	7,24
C_3H_6	[Vol%]	0,00
C_3H_8	[Vol%]	0,23
C_4H_8	[Vol%]	0,00
C_4H_{10}	[Vol%]	0,00
C_5H_{12}	[Vol%]	0,00
C_xH_y	[Vol%]	0,00
H_2S	[Vol%]	0,00

Energy balance

Load:	[%]	**100**	**75**	**50**
Electrical power COP acc. ISO 8528-1:	[kW]	**4300**	**3225**	**2150**
Engine jacket water heat:	[kW ±8%]	1608	1197	831
Intercooler LT heat:	[kW ±8%]	366	260	168
Lube oil heat:	[kW ±8%]	497	415	358
Exhaust heat with temp. after heat exchanger:	[kW ±8%]	2455	2024	1548
Exhaust temperature:	[°C ±25°C]	459	486	515
Exhaust mass flow, wet:	[kg/h]	23847	18164	12803
Combustion mass air flow:	[kg/h]	23029	17529	12346
Radiation heat engine / generator:	[kW ±8%]	215 / 95	209 / 81	206 / 72
Fuel consumption:	[kW+5%]	10129	7863	5651
Electrical / thermal efficiency:	[%]	42,5 / 45,0	41,0 / 46,3	38,0 / 48,4
Total efficiency:	[%]	87,5	87,3	86,4

System parameters [1]

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	120700
Combustion air temperature minimum / design:	[°C]	5 / 33
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
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 / 51200

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	35 / 35
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 / 91
Intercooler coolant temperature in / out:	[°C]	43 / 49
Engine jacket water flow rate from / to:	[m^3/h]	100 / 120
Water flow rate engine jacket water / intercooler:	[m^3/h]	114 / 65
Water pressure loss engine jacket water / intercooler:	[bar]	1,6 / 1,1
Lube oil temp. engine inlet max. / lube oil flow rate:	[°C] / [m^3/h]	80 / 125

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

3) DIN EN ISO 3746 (σ_{R0}=±4 dB) 4) Measured in exhaust pipe (f ≤ 250Hz: ±5dB, f > 250Hz: ±3db) L_W: Sound power level S: Area of measurement surface (S_0=1m^2) 5) DIN 45635-11, Appendix A