

Reference data sheet



Technical data

600 kWel; 480 V, 60 Hz; Natural gas, MN = 70

Design conditions

Comb. air temperature / rel. Humidity:	[°F] / [%]	77 / 60
Altitude:	[ft]	328
Exhaust temp. after heat exchanger:	[°F]	248
NO _x Emission (tolerance - 8%):	[g/bhph]	0,99

Fuel gas data: 2)

Methane number:	[-]	70
Lower calorific value:	[BTU/ft ³]	1058,97
Gas density:	[lb/ft ³]	0,05
Standard gas:	Natural gas, MN = 70	

Genset:

Engine:	CG132-12	
Speed:	[1/min]	1800
Configuration / number of cylinders:	[-]	V / 12
Bore / Stroke / Displacement:	[in] / [in] / [in ³]	5,2 / 6,3 / 1603
Compression ratio:	[-]	12,0
Mean piston speed:	[ft/s]	31,496063
Mean lube oil consumption at full load:	[lb/hr]	0,26455026
Engine-management-system:	[-]	TEM EVO

Generator:

Marelli MJB 400 LA4

Voltage / voltage range / cos Phi:	[V] / [%] / [-]	480 / ±10 / 1
Speed / frequency:	[1/min] / [Hz]	1800 / 60

Energy balance

Load:	[%]	100	75	50
Electrical power COP acc. ISO 8528-1:	[kW]	600	450	300
Engine jacket water heat:	[BTU/min±8%]	16734	13490	10644
Intercooler LT heat:	[BTU/min±8%]	2391	1480	854
Lube oil heat:	[BTU/min±8%]			
Exhaust heat with temp. after heat exchanger:	[BTU/min±8%]	21686	17702	13092
Exhaust temperature:	[°F]	910	945	975
Exhaust mass flow, wet:	[lb/hr]	7430	5756	4063
Combustion mass air flow:	[lb/hr]	7187	5567	3926
Radiation heat engine / generator:	[BTU/min±8%]	1309 / 1138	1025 / 1025	740 / 911
Fuel consumption:	[BTU/min+5%]	82704	64433	46276
Electrical / thermal efficiency:	[%]	41,3 / 46,5	39,7 / 48,4	36,9 / 51,3
Total efficiency:	[%]	87,8	88,1	88,2

System parameters 1)

Ventilation air flow (comb. air incl.) with ΔT = 15K	[lb/hr]	37500
Combustion air temperature minimum / design:	[°F]	68 / 77
Exhaust back pressure from / to:	[inWC]	12 / 20
Maximum pressure loss in front of air cleaner:	[inWC]	2
Zero-pressure gas control unit selectable from / to: 2)	[inWC]	8 / 80
Pre-pressure gas control unit selectable from / to: 2)	[psi]	7 / 145
Starter battery 24V, capacity required:	[Ah]	143
Starter motor:	[kWel.] / [VDC]	5,4 / 24
Lube oil volume engine / external oil tank:	[gal(US)]	26 / 69
Dry weight engine / genset:	[lb]	5842 / 13779

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	0 / 35
Water volume engine jacket / intercooler:	[gal(US)]	11 / 1,3
KVS / Cv value engine jacket water / intercooler:	[ft ³ /h]	1307 / 367
Jacket water coolant temperature in / out:	[°F]	183 / 198
Intercooler coolant temperature in / out:	[°F]	104 / 111
Engine jacket water flow rate from / to:	[gpm]	141 / 207
Water flow rate engine jacket water / intercooler:	[gpm]	144 / 44
Water pressure loss engine jacket water / intercooler:	[psi]	11 / 14

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 4) L _{W,Totz} [dB(lin)]	85	91	101	106	99	106	110	107	112	117	111	112	112	107	107	108	105	106	105	105	106	103	103	104	109	102	98	95	92	118	81
Exhaust noise 5) L _{W,Octave} [dB(lin)]				118			129			134				128		128				128			122			116				133	15,2

4) DIN EN ISO 3746

5) DIN 45635-11 Appendix A (±3 dB)

L_W: Sound power level

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