

# Reference data sheet



## Technical data

400 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 <sub>x</sub> Emission (tolerance - 8%):	[g/bhph]	0,98

### Fuel gas data: 2)

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

### Genset:

Engine:	<b>CG132-8</b>	
Speed:	[1/min]	1800
Configuration / number of cylinders:	[-]	V / 08
Bore / Stroke / Displacement:	[in] / [in] / [in <sup>3</sup> ]	5,2 / 6,3 / 1069
Compression ratio:	[-]	12,0
Mean piston speed:	[ft/s]	31,496063
Mean lube oil consumption at full load:	[lb/hr]	0,17636684
Engine-management-system:	[-]	TEM EVO

### Generator:

	<b>Marelli MJB 355 MB4</b>	
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]	400	300	200
Engine jacket water heat:	[BTU/min±8%]	10701	8196	6660
Intercooler LT heat:	[BTU/min±8%]	1537	1025	740
Lube oil heat:	[BTU/min±8%]			
Exhaust heat with temp. after heat exchanger:	[BTU/min±8%]	14628	12352	9107
Exhaust temperature:	[°F]	921	984	1015
Exhaust mass flow, wet:	[lb/hr]	4927	3781	2670
Combustion mass air flow:	[lb/hr]	4764	3655	2579
Radiation heat engine / generator:	[BTU/min±8%]	1081 / 797	854 / 683	626 / 626
Fuel consumption:	[BTU/min+5%]	54984	42860	31021
Electrical / thermal efficiency:	[%]	41,4 / 46,0	39,8 / 47,9	36,7 / 50,7
Total efficiency:	[%]	87,4	87,7	87,4

### System parameters 1)

Ventilation air flow (comb. air incl.) with ΔT = 15K	[lb/hr]	27600
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)]	18 / 69
Dry weight engine / genset:	[lb]	4586 / 10583

### Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	0 / 35
Water volume engine jacket / intercooler:	[gal(US)]	7 / 1,3
KVS / Cv value engine jacket water / intercooler:	[ft <sup>3</sup> /h]	1300 / 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]	84 / 141
Water flow rate engine jacket water / intercooler:	[gpm]	92 / 35
Water pressure loss engine jacket water / intercooler:	[psi]	4 / 9

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 <sub>WA</sub> [dB(A)]	S [m <sup>2</sup> ]
Air-borne noise 4) L <sub>W, T, rez</sub> [dB(lin)]	81	85	90	98	112	104	104	111	104	105	108	105	108	107	105	106	104	103	104	104	102	100	99	98	101	99	94	92	91	115	75
Exhaust noise 5) L <sub>W, Octave</sub> [dB(lin)]					120		137			135			128			126			124			119			115				132	14,8	