reference data sheet

Technical data
4000 kWel; 4160 V, 60 Hz; Natural gas, MN = 80

Design conditions

Inlet air temperature / rel. Humidity:	[°F] / [%]	77 / 60
Altitude:	[ft]	328
Exhaust temp. after heat exchanger:	[°F]	248
NO_x Emission (tolerance - 8%):	[g/bhph]	0,94

Fuel gas data: 2)

Methane number:	[-]	80
Lower calorific value:	[BTU/ft^3]	983,74
Gas density:	[lb/ft^3]	0,05
Standard gas:	Natural gas, MN = 80	

Genset:

Engine:	**CG260-16**	
Configuration code:	[-]	R
Speed:	[1/min]	900
Configuration / number of cylinders:	[-]	V / 16
Bore / Stroke / Displacement:	[in] / [in] / [in^3]	10,2 / 12,6 / 16589
Compression ratio:	[-]	12
Mean piston speed:	[ft/s]	31,5
Mean lube oil consumption at full load:	[lb/hr]	1,32
Generator:	**Marelli MJH 800 LA8 cUL or similar (*)**	
Voltage / voltage range / cos Phi:	[V] / [%] / [-]	4160 / 10 / 1
Speed / frequency:	[1/min] / [Hz]	900 / 60

*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]	**4000**	**3000**	**2000**
Engine jacket water heat:	[BTU/min±8%]	71833	52025	34664
Intercooler LT heat:	[BTU/min±8%]	20263	14458	9278
Lube oil heat:	[BTU/min±8%]	25898	19979	15710
Exhaust heat with temp. after heat exchanger:	[BTU/min±8%]	122320	102569	76842
Exhaust temperature:	[°F ±43°F]	840	907	966
Exhaust mass flow, wet:	[lb/hr]	47054	35301	24092
Combustion mass air flow:	[lb/hr]	45484	34088	23237
Radiation heat engine / generator:	[BTU/min±8%]	12238 / 5806	11839 / 5066	11042 / 4554
Fuel consumption:	[BTU/min+5%]	519449	401796	283118
Electrical / thermal efficiency:	[%]	43,8 / 42,4	42,5 / 43,5	40,2 / 45,0
Total efficiency:	[%]	86,2	86,0	85,2

System parameters 1)

Ventilation air flow (comb. air incl.) with ΔT = 15K	[lb/hr]	257300
Combustion air temperature minimum / design:	[°F]	41 / 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
Air bottle, volume / pressure	[ft^3] / [psi]	71 / 435
Starter motor:	[ft^3/s] / [psi]	28 / 232
Lube oil content engine / base frame:	[gal(US)]	489 / -
Dry weight engine / genset:	[lb]	54873 / 115523

Cooling system

Glycol content engine jacket water / intercooler:	[% Vol.]	35 / 35
Water volume engine jacket / intercooler:	[gal(US)]	151 / 13,5
KVS / Cv value engine jacket water / intercooler:	[ft^3/h]	3178 / 2189
Jacket water coolant temperature in / out:	[°F]	172 / 194
Intercooler coolant temperature in / out:	[°F]	104 / 113
Engine jacket water flow rate from / to:	[gpm]	396 / 506
Water flow rate engine jacket water / intercooler:	[gpm]	426 / 286
Water pressure loss engine jacket water / intercooler:	[psi]	17 / 16,5
Lube oil temp. engine inlet max. / lube oil flow rate:		176 / 498

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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)]	103,6	105,3	108,9	111,6	112,9	110,8	112,5	119,6	119,8	116,3	114,0	115,2	114,7	110,3	109,7	110,5	109,9	108,5	108,7	109,1	112,3	112,5	118,1	119,1	115,7	109,6	106,7	103,6	98,9	125,5	224
Exhaust noise 4) $L_{W,Octave}$ [dB(lin)]				143,0			136,0			134,0			133,0			129,0			127,0			125,0			121,0					136	16,9

3) DIN EN ISO 3746 (σ_{R0}=±4 dB) 4) DIN 45635-11 Appendix A (±3 dB) L_W: Sound power level S: Area of measurement surface (S_0=1m^2)