# Reference data sheet

## Technical data
## 800 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] | 0,98 |

### *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: | **CG132-16** | |
| Speed: | [1/min] | 1800 |
| Configuration / number of cylinders: | [ - ] | V / 16 |
| Bore / Stroke / Displacement: | [in] / [in] / [in$^3$] | 5,2 / 6,3 / 2138 |
| Compression ratio: | [ - ] | 12,0 |
| Mean piston speed: | [ft/s] | 31,496063 |
| Mean lube oil consumption at full load: | [lb/hr] | 0,35273369 |
| Engine-management-system: | [ - ] | TEM EVO |
| | | |
| Generator: | **Marelli MJB 400 LC4** | |
| 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] | **800** | **600** | **400** |
| Engine jacket water heat: | [BTU/min±8%] | 21914 | 17588 | 14002 |
| Intercooler LT heat: | [BTU/min±8%] | 3301 | 1992 | 1195 |
| Lube oil heat: | [BTU/min±8%] | | | |
| Exhaust heat with temp. after heat exchanger: | [BTU/min±8%] | 28574 | 23280 | 17190 |
| Exhaust temperature: | [°F] | 910 | 946 | 982 |
| Exhaust mass flow, wet: | [lb/hr] | 9775 | 7546 | 5285 |
| Combustion mass air flow: | [lb/hr] | 9453 | 7295 | 5106 |
| Radiation heat engine / generator: | [BTU/min±8%] | 1708 / 1480 | 1309 / 1195 | 854 / 1025 |
| Fuel consumption: | [BTU/min+5%] | 109400 | 84981 | 60847 |
| Electrical / thermal efficiency: | [%] | 41,6 / 46,1 | 40,2 / 48,1 | 37,4 / 51,2 |
| Total efficiency: | [%] | 87,7 | 88,3 | 88,6 |

### *System parameters 1)*

| | | |
|---|---|---|
| Ventilation air flow (comb. air incl.) with ΔT = 15K | [lb/hr] | 48700 |
| 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] | 286 |
| Starter motor: | [kWel.] / [VDC] | 9 / 24 |
| Lube oil volume engine / external oil tank: | [gal(US)] | 36 / 69 |
| Dry weight engine / genset: | [lb] | 6812 / 15498 |

### *Cooling system*

| | | |
|---|---|---|
| Glycol content engine jacket water / intercooler: | [% Vol.] | 0 / 35 |
| Water volume engine jacket / intercooler: | [gal(US)] | 15 / 1,3 |
| KVS / Cv value engine jacket water / intercooler: | [ft$^3$/h] | 1504 / 367 |
| Jacket water coolant temperature in / out: | [°F] | 183 / 198 |
| Intercooler coolant temperature in / out: | [°F] | 104 / 115 |
| Engine jacket water flow rate from / to: | [gpm] | 172 / 264 |
| Water flow rate engine jacket water / intercooler: | [gpm] | 188 / 44 |
| Water pressure loss engine jacket water / intercooler: | [psi] | 14 / 14 |

3332295EA

1) See also "Layout of power plants": 2) See also Techn. Circular 0199-99-3017 132-16-E-60-00480-M-S_e

| **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) $L_{W,Terz}$ [dB(lin)] | 96 | 90 | 92 | 97 | 103 | 104 | 107 | 111 | 106 | 109 | 107 | 111 | 114 | 109 | 107 | 107 | 107 | 109 | 106 | 105 | 106 | 104 | 104 | 105 | 121 | 113 | 98 | 99 | 93 | 123 | 83 |
| **Exhaust noise** 5) $L_{W,Octave}$ [dB(lin)] | | | | 120 | | | 135 | | | 130 | | | 124 | | | 122 | | | 116 | | | 117 | | | 109 | | | | | 128 | 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 ($S_0$=1m$^2$)