

Annex Nr.1

Technical data

1600A - 1600 kWel; 10500 V, 50 Hz; Natural gas, MN = 84

Design conditions				Fuel gas data						
Inlet air temperature / rel. humidity	[°C] / [%]	25 / 60		Methane number	[-]		84			
Altitude	[m]	100		Lower calorific value	[kWh/Nm³]		10.02			
Exhaust temp. after heat exchanger	[°C]	120		Gas density	[kg/Nm³]		0.79			
NOx emission	[mg/Nm³ @5%O₂]	≤500		Fuel gas basis			Natural gas			
Genset:										
Genset model			[-]		1600A					
Engine			[-]		2020V16					
Engine power			[kW]		1648					
Rated speed			[1/min]		1500					
Configuration / number of cylinders			[-]		V90° / 16					
Bore / stroke / displacement			[mm]/[mm]/[dm³]		170 / 195 / 70.8					
Compression ratio			[-]		13					
Mean effective pressure			[MPa]		1.86					
Mean piston speed			[m/s]		9.75					
Mean lube oil consumption at full load			[g/kWh]		≤0.2					
Engine control system			[-]		PAC control system					
Generator efficiency			[%]		97.1					
Voltage / voltage range / cos Phi			[V]/[%]/[-]		10500 / ±5 / 1.0					
Frequency			[Hz]		50					
Energy balance										
Load	[%]				100	75	50			
Output electric power (COP)	[kW]				1600	1200	800			
High-temperature coolant heat	[kW ±8%]				897	707	471			
Low-temperature coolant heat	[kW ±8%]				155	124	109			
Exhaust heat, cooled to 120°C	[kW ±8%]				795	641	438			
Exhaust temperature	[°C]				420	430	430			
Wet exhaust mass flow	[kg/h]				8715	6795	4644			
Combustion air mass flow	[kg/h]				8420	6564	4487			
Radiation heat engine / generator	[kW ±8%]				58 / 50	53 / 39	48 / 24			
Fuel consumption	[kW ±5%]				3800	2963	2025			
Electrical / thermal efficiency	[%]				42.1 / 44.5	40.5 / 45.5	39.5 / 44.9			
Total efficiency	[%]				86.6	86	84.4			
System parameters										
Ventilation air flow (combustion air incl.), ΔT=15 K	[kg/h]				48476					
Intake air temperature after intercooling	[°C]				50					
Combustion air temperature minimum / design	[°C]				5 / 25					
Maximum exhaust back pressure	[kPa]				5					
Maximum pressure loss in front of air cleaner	[kPa]				0.5					
Gas supply pressure range	[kPa]				18 - 35					
Starting method & power supply	[-]				Electrical start & DC24V					
Lube oil content	[dm³]				240					
Dry weight engine / genset	[kg]				6200 / 15000					
Unit dimensions L x W x H	[mm]				6820 x 1700 x 2650					
Cooling system										
Coolant volume engine jacket / intercooler	[dm³]				151 / 52					
Kvs value engine jacket / intercooler	[m³/h]				46 / 72					
Jacket water coolant temperature in / out	[°C]				77 / 90					
Intercooler coolant temperature in / out	[°C]				46 / 49					
Engine jacket water flow rate min. / max.	[m³/h]				61 / 71					
Water flow engine jacket / intercooler	[m³/h]				66 / 50					
Pressure loss engine / intercooler	[bar]				2.06 / 0.48					
Noise										
Octave band	[Hz]	32	63	125	250	500	1000	2000	4000	8000
Exhaust noise	[dB(A)]	107	144	137	126	114	108	105	105	98
Unit noise	[dB(A)]	94	95	96	98	99	101	99	106	103

Notes: Engine power rating per ISO 3046/1. Exhaust emissions refer to dry exhaust gas at 5% O₂. Kvs is the flow rate at 1 bar pressure loss. Exhaust noise measured at 1 m: ±2.5 dB(A); unit noise at 1 m lateral distance: ±1 dB(A).
The data is for reference only. Actual values shall be calculated based on the project gas composition. Subject to technical changes.