

Cento 160

Basic technical data

Electrical output	166 kW	Voltage	400 V
Heat output nominal/max.	206/- kW	Frequency	50 Hz
electrical efficiency	37,7 %	secondary circuit temperature inlet/outlet	70/90 °C
heat efficiency nominal/max.	46,8/- %	Service weight of complete CHPU	
total efficiency nominal/max.	84,5/- %	- open module (OM)	4,3 t
fuel input	440 kW		
Emission	lean mixture+oxidation catalyst		
NOx emission at 5% O2 in exhaust gas standard/option	500/- mg/Nm ³		
CO emission at 5% O2 in exhaust gas standard/option	650/- mg/Nm ³		
Noise parameters		standard	
OM	- CHPU at 1m	94	dB(A)
	- exhaust gas outlet at 1m from silencer flange	65	dB(A)

Notes

The Basic Technical Data are applicable for the standard conditions pursuant to the "Technical instructions" document. The minimum permanent electrical output must not drop below 50 % of the nominal output. Gas consumption is expressed under the normal conditions (0°C, 101.325 kPa) and gas LHV according to the section Fuel. Gas consumption tolerance, or fuel input tolerance, at 100% load is +5%. Tolerances of other parameters are mentioned in "Technical Instructions-Validity of Technical Data" document.

The manufacturer reserves the right to change this document and related documents.

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Extended technical data

Standard design	100%	75%	50%	
electrical output	166	124	83	kW
heat output	206	166	128	kW
gas consumption	68	53	39	m ³ /h
fuel input	440	344	249	kW
electrical efficiency	37,7	36,2	33,3	%
heat efficiency	46,8	48,3	51,3	%
total efficiency	84,5	84,5	84,6	%

1) Heat output is formed of a secondary circuit heat output with exhaust gas cooled to 150°C.

Electrical parameters

voltage	400 V	operational current at cos φ =0,9	266 A
frequency	50 Hz	short circuit resistance of the switchboard	25 kA
nominal current	300 A	contribution of the actual source to the short-circuit current	< 3 kA
nominal power factor (GCB settings)	0,8	cos φ regulation range (underexcited/overexcited) ¹⁾	0,9÷1÷0,9

1) Operation of generator with power factor lower than 0,98 decreases generator efficiency, what can cause reduction of the CHPU active power.

Engine / Generator

Engine	TB 170 G5V TW 86	Generator	LSA 46.3 S5
manufacturer	TEDOM	manufacturer	LEROY SOMER
oil consumption normal/max.	0,3/0,5 g/kWh		
quantity of oil in the engine	56 dm ³		
volume of oil tank for refilling	125 dm ³		

Heat system

Secondary circuit		Aftercooler circuit	
heat carrier: water		heat carrier: antifreeze	
heat output	206 kW	ethylene glycol concentration	35 %
inlet/outlet temperature	70/90 °C	heat output	11,1 kW
min./max. inlet temperature	40/70 °C	max. coolant inlet temperature into CHPU	35 °C
nominal flow	2,5 kg/s	nominal flow	1,5 kg/s
max. allowed pressure in circuit	600 kPa	pressure reserve at nominal flow (OM/SE/C)	60 kPa
volume (OM/SE/C)	13/- dm ³	min. inlet pressure into CHPU	100 kPa
pressure drop at nominal flow (OM/SE/C)	15/- kPa	max. inlet pressure into CHPU	180 kPa
		max. outlet pressure from CHPU	300 kPa
		volume (OM/SE/C)	15/- dm ³

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Primary circuit

heat carrier: antifreeze	
ethylene glycol concentration	35 %
heat output	206 kW
max. allowed pressure in circuit	250 kPa
volume (OM/SE/C)	146/-/ dm ³

The dry cooler is supplied by the customer.

Exhaust gas

quantity	867 kg/h	temperature at the CHPU outlet nominal/max.	150/180 °C
temperature at the engine outlet	559 °C	max. allowed back-pressure	1 kPa

Fuel

biogas		nominal methane content	65 %
low heat value	23,3 MJ/m ³	pressure (OM, SE)	5-10 kPa
min. methane content	56 %	max. temperature	35 °C

Combustion and ventilation air

Combustion air

ambient temperature min./max. (OM, SE)	10/35 °C
combustion air temperature min./max.	10/35 °C
quantity	800 kg/h

Ventilation

	OM
unused heat removed by the ventilation	23 kW

Related documents

dimensional drawing OM	R1350
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