

Basic Technical Data

Operation	P / I ¹⁾			
Nominal electrical output	400 / 495		kW/kVA	
Heat output ²⁾	461		kW	
Load	50	75	100	%
Heat power	282	373	461	kW
Fuel input	535	746	955	kW
Electrical efficiency	37,4	40,2	41,9 / 41,4	%
Heat efficiency	52,7	50,0	48,3	%
Total efficiency (fuel utilization)	90,1	90,2	90,2 / 89,7	%
Gas consumption	57	79	101	m ³ /h

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 invoicing conditions (15°C, 101.325 kPa).

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.

1) At island operation "I" it is non-overload-able electric output for $\cos \varphi = 0,8$

2) Maximum heat output is a sum of heat outputs of secondary circuit with exhaust gas cooled to 120°C and aftercooler circuit

Observance of Emission Limits

emissions ¹⁾	NOx	CO	
with 5% of O ₂ in exhaust gases	500	650	mg/Nm ³
	0,4	3,5	kg/MWh

1) Mentioned emission values of NOx are possible to decrease down to 100mg/Nm³ (an option).

Generator

type	MJB 355 MB 4		
producer	MARELLI		
cos φ	0,8/1,0		
efficiency in the working point	95,4/96,3	%	
voltage	600	V	
frequency	60	Hz	

Engine

type	TCG 3016 V08		
producer	MWM		
number of cylinders	8		
arrangement of cylinders	V		
bore × stroke	132/160	mm	
displacement	17,5	dm ³	
compression ratio	13,1 : 1		
speed	1800	rpm	
nominal oil consumption	0,1	g/kWh	
max. engine output	415	kW	

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Thermal System

Secondary Circuit

heat carrier	water	
circuit's heat output	431	kW
nominal water temperature, input / output	70/90	°C
nominal temperature drop	20	°C
return water temperature, min / max	40/70	°C
nominal flow rate	5,2	kg/s
max. working pressure	600	kPa
allowed operation over-pressure on connecting flanges ¹⁾	450	kPa
min. pressure in system	100	kPa
water volume in CHP unit circuit	80	dm ³
pressure reserve of pump for covering pressure losses outside container	50	kPa

1) highest allowed over-pressure created by connected system to secondary circuit in place of connecting flanges.

Primary Circuit

heat carrier	water + ethylene glycol	
ethylene glycol's concentration	35	%
circuit's heat output	431	kW
max. working pressure	300	kPa
water volume in CHP unit circuit	660	dm ³



Aftercooler Circuit ¹⁾

heat carrier	water + ethylene glycol	
ethylene glycol's concentration	35	%
circuit's heat output	30	kW
coolant temperature (outlet from CHP unit – informative)	48,0	°C
coolant temperature (inlet into CHP unit) max	45,0	°C
nominal flow rate	2,4	kg/s
max. working pressure	300	kPa
water volume in CHP unit circuit	95	dm ³

1) Parameters are valid if the dry cooler (optional) is part of delivery

Fuel, Gas Inlet

low heat value	34	MJ/m ³
min. methane number	80	
gas pressure	8 ÷ 15	kPa
max. pressure change under varying consumption	10	%
max. gas temperature	35	°C

Combustion and Ventilation Air

unused heat removed by the ventilation air	32	kW
amount of combustion air	1676	Nm ³ /hr
outdoor air temperature, min / max	-25/35	°C
max. air temperature at the outlet flange	50	°C

Exhaust Gas and Condensate Outlet

amount of exhaust gases	1734	Nm ³ /hr
exhaust gas temperature, nominal / max	120/150	°C
max. back-pressure of exhaust gases downstream the CHP unit flange	10	mbar
speed of exhaust gases at the outlet (DN 300)	14,1	m/s

Lubricant Charges

amount of lubrication oil in the engine	70	dm ³
volume of engine additional oil tank	260	dm ³
replenishment oil tank volume	300	dm ³

Noise Parameters

CHP unit in 10 m from container	65	dB(A)
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Electrical Parameters

nominal voltage	346/600	V
nominal frequency	60	Hz
power factor ¹⁾	0,8	
nominal current at cos φ=0.8	480	A
generator circuit breaker	ABB T5L 600 3P	
short-circuit resistance of switchboard R1	65	kA
short-circuit resistance of switchboards R2, R4-TPEM CC	10	kA
contribution of the actual source to the short-circuit current	< 5	kA
protection of power switchboard R1 closed/open	IP 31/00	
protection of control self-consumption switchboard R2 closed/open	IP 31/00	
protection of control switchboard R4-TPEM CC closed/open	IP 31/00	
recommended superior protection	500	A
recommended connection cable ²⁾ (l< 50m, at t<35°C)	2×(MEGAFLEX 600 4G 4/0AWG)	

1) Power factor adjustable from 0,8C ÷ 1 ÷ 0,8L (range from 0.8C ÷ 1 must be verified according to the various types of generators).
L = inductive load - overexcited
C = capacitive load - underexcited
Operation of the generator with a power factor of less than 0.95 causes a power limitation sets the following table:

power factor [-]	1	0,95	0,8
output [% Pnom]	100	100	98

2) The stated cables are for information only. A check calculation for temperature rise and voltage drop must be made according to the actual length, placement and type of the cable (maximum allowed voltage drop is 10 V)

Colour Version

engine and generator, internal parts of unit	RAL 5010 (blue)
container	RAL 7035 (gray)

Unit Dimensions and Weights

total length	13000	mm
total width	3000	mm
height total / transport	8000 / 3000	mm
service weight of the entire CHP unit	27100	kg

Caution

Manufacturer reserves the right to alter this document and the linked source materials.

