

Product designation		50.0 Standard	50.0 High Temperature	50.0 Caloric Value
<b>Technical data</b>				
Rated output - electrical <sup>(1)</sup>	kW <sub>el</sub>	50,0	50,0	50,0
Rated output - thermal <sup>(2)</sup>	kW <sub>th</sub>	85,0	80,0	100,0
Power modulation - electrical	kW <sub>el</sub>	25,0 - 50,0	25,0 - 50,0	25,0 - 50,0
Power modulation - thermal	kW <sub>th</sub>	52,6 - 85,0	49,5 - 80,0	60,2 - 100,0
Energy input	kWh <sub>HI</sub>	143,00	143,00	143,00
Liquefied Petroleum gas input	kg/h	n.a.	n.a.	n.a.
Liquefied Petroleum gas input	l/h	n.a.	n.a.	n.a.
CHP coefficient		0,59	0,63	0,50
f Primary energy factor <sup>(3)</sup>		0,203	0,216	0,172
PES	%	29,2	27,2	34,5
ErP energy efficiency label <sup>(4)</sup>		n.a.	n.a.	n.a.
Sound pressure level L <sub>pA</sub> <sup>(5)</sup>	dB(A)	65	65	65
Sound power level L <sub>WA</sub>	dB(A)	83	83	83
Maintenance interval	op. hrs.	3.000	3.000	3.000
<b>Efficiency ratios</b>				
Electrical efficiency ratio $\eta_{el}$	%	35,0	35,0	35,0
Thermal efficiency ratio $\eta_{th}$	%	59,4	55,9	69,9
Total efficiency ratio $\eta_{total}$	%	94,4	90,9	104,9
<b>Heat extraction</b>				
Flow temperature $\pm 5$ °C	°C	80	93	80
Return flow temperature $\pm 5$ °C	°C	25-65	35-83	25-65
min./max. ambient temperature	°C	5/30	5/30	5/30
Pressure rating - water side	PN	6	6	6
<b>Electrical energy generation</b>				
Nominal voltage	V	400	400	400
Frequency	Hz	50	50	50
Nominal effective power PnG	kW <sub>el</sub>	50,0	50,0	50,0
Apparent power S <sub>E max</sub>	kVA	62,5	62,5	62,5
Nominal voltage UnG	V	400	400	400
Frequency	Hz	50	50	50
Cos $\phi$ uncompensated		synchronous	synchronous	synchronous
Reactive power compensation <sup>(6)</sup>	kVar	synchronous	synchronous	synchronous
Number of steps		synchronous	synchronous	synchronous
Degree of choking or resonance frequency		synchronous	synchronous	synchronous
Cos $\phi$ acc. to VDE-AR-N 4105 quadrants II, III <sup>(6)</sup>		0,80 - 1,00	0,80 - 1,00	0,80 - 1,00
Rated alternating current I <sub>r</sub>	A	90,2	90,2	90,2
Rated alternating current I <sub>r</sub> cos $\phi$ 1	A	72,2	72,2	72,2
Rated apparent power S <sub>rE</sub>	kVA	62,5	62,5	62,5
Short-circuit alternating current Alternator I <sub>k</sub> "	A	1.170,0	1.170,0	1.170,0
Grid short circuit power with UnG S <sub>k</sub> "	kVA	1.060,0	1.060,0	1.060,0
Start-up current I <sub>k</sub> approx.	A	no start-up-current: Battery starter system		
<b>Motor</b>				
Motor manufacturer		MAN	MAN	MAN
Number of cylinders		4	4	4
Displacement	l	4,6	4,6	4,6
Air-fuel ratio $\lambda$		1,0	1,0	1,0
Engine oil - RMB/ENGINE Oil	l	175	175	175

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<b>Generator</b>				
Generator manufacturer		MARELLI	MARELLI	MARELLI
Generator type		synchronous	synchronous	synchronous
Motor start-up		not provided	not provided	not provided
Speed	rpm	1.500	1.500	1.500
<b>Supply and exhaust air</b>				
Combustion air requirement	m <sup>3</sup> /h	183,00	183,00	183,00
Module ventilation flow rate	m <sup>3</sup> /h	1100,00	1100,00	1100,00
Total air requirement of module	m <sup>3</sup> /h	1283,00	1283,00	1283,00
Permissible counter-pressure of exhaust air system max. <sup>(7)</sup>	Pa	150	150	150
min./max. intake air temperature	°C	5/30	5/30	5/30
Min. cross section without hydraulic resistance	cm <sup>2</sup>	2.000	2.000	2.000
<b>Flue gas</b>				
Flue gas temperature <sup>(8)</sup> / max.	°C	95 / < 150	95 / < 150	60 / < 110
Flue gas mass flow rate - damp	kg/h	193	193	193
Flue gas volume flow - dry	Nm <sup>3</sup> /h	156	156	156
Delivery pressure flue gas max.	Pa	500	500	500
Delivery pressure flue gas cascades max.	Pa	500	500	500
Emissions Nox	mg/kWh	< 240	< 240	< 240
<b>Dimensions &amp; weight (50.0 Caloric Value without condensing module)</b>				
Dimensions of module L x W x H	mm	2.531x800x1.961	2.531x800x1.961	2.531x800x1.961
Weight approx. (including operating resources)	kg	2.250	2.250	2.250
<b>ErP-Label</b>				
ErP energy efficiency label <sup>(4)</sup>		n.a.	n.a.	n.a.
ErP energy input <sup>(4)</sup>	kWh <sub>HS</sub>	158,73	158,73	158,73
ErP efficiency ratio - electrical $\eta_{el,HS}$ <sup>(4)</sup>	%	31,5	31,5	31,5
ErP efficiency ratio - thermal $\eta_{th,HS}$ <sup>(4)</sup>	%	53,6	50,4	63,0
ErP efficiency ratio - total $\eta_{total,HS}$ <sup>(4)</sup>	%	85,1	81,9	94,5
Room controller category <sup>(4)</sup>		2	2	2
P <sub>designh</sub> <sup>(4)</sup>	kW <sub>el</sub>	32,9	31,0	38,7
Q <sub>HE</sub> <sup>(4)</sup>	kWh	43.738	41.165	51.454
P <sub>SB</sub> electrical power requirement - standby <sup>(4)</sup>	kW <sub>el</sub>	0,07	0,07	0,07
Electrical power requirement - partial load <sup>(4)</sup>	kW <sub>el</sub>	0,66	0,66	0,66
P <sub>el,max</sub> Electrical power requirement - full load <sup>(4)</sup>	kW <sub>el</sub>	0,96	0,96	0,96
P <sub>stby_CHP</sub> Thermal standing losses <sup>(4)</sup>	kW <sub>th</sub>	0,87	0,87	0,87
Electrical power requirement - standby <sup>(4)</sup>	kW <sub>el</sub>	0,07	0,07	0,07
$\eta_S = \eta_{son} - \Sigma(F1-F5)$ <sup>(4)</sup>		155,5	155,5	155,5
Net output - electrical	kW <sub>el</sub>	49,04	49,04	49,04

1) Performance data in accordance with ISO 3046/I-2002, tolerance 5%

2) Thermal performance data tolerance 8%

3)  $f_{pe}$ -current = 2.8 displacement mix per DIN V 1859, DIN V 4701-10, GEG (attachment 4 to § 22 section 1) valid from 11.2020

4) In accordance with EU Regulation 811/2013; 813/2013

5) Test bench measurement at 1 m interval in front of the CHP

6) Only when using the optional compensation (integrated in neoTower® 2.0, 3.3 and 4.0 / not required for neoTower® 50.0)

7) Exhaust air (without flue gas) does not have to be extracted "via the roof"

8) At a return temperature of 35 °C and optimum operating conditions, tolerance 5%

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<b>Control cabinet</b>	Fully equipped for seamless CHP unit operation with all necessary measurement and control equipment in bivalent operation. Dimensions control cabinet 800x800x300 mm; Approx. weight: 61 kg Connection cable CHP control cabinet standard 3m
<b>Electrical connections</b>	Supply line to control cabinet: 5x35mm <sup>2</sup> Cu up to max. 50m (fuse 100 A slow blow) max. terminal area 50mm <sup>2</sup>
	Temperature sensor cable: min. 2-08 JY(ST)Y up to 15 m length (2x1,5 mm <sup>2</sup> up to 40 m length)
	Control cables pump: 3x1,5 mm <sup>2</sup> ; RJ45 Patch cable in CHP connector
<b>Reactive current compensation</b>	synchronous
<b>Gas pressure [mbar / hPa]</b>	Gas resting pressure before gas regulator: 20 - 50 (for NG)
	Flow pressure ≥ 18 (for NG)
<b>Regulations and standards</b>	Complies with the pertinent EU Directives for CE certification
<b>Connections</b>	Gas: 1" internal thread
	Heating supply line: 2" male thread / PN 6.0
	Heating return line: 2" male thread / PN 6.0
	Flue gas: DN80 PN10, DN100 after silencer
	Exhaust air: DN200; accepted back pressure to be considered!
	Note: It is important to ensure that all terminals are connected via a flexible connection, in order to ensure vibration isolation.
	Residual pressure head secondary pump 3,5m
<b>Method of operation</b>	Mains parallel without emergency power, heat operated
	Use of electricity: Own requirement and infeed into the grid of the energy supply company, optional electricity-optimised modulation
	Heat usage automatically regulated in monovalent or bivalent operation with buffer tank; optionally heat-optimised modulation
<b>Indicators and switches/buttons</b>	Operation of the internal control and monitoring programs via central control unit (touchscreen for quick access to important functions)
	Back-lit graphical colour display with visualised system diagram and indicators for: temperature memory, motor, return line, hot water, interior, oil, flue gas, indicator for current power, water pressure, operation hours, generated energy, maintenance instructions and error notifications
	Switches/buttons: master switch, Emergency stop, Electric vehicle (Efz) charging data button, maintenance button
<b>RMB/Report</b>	Global live data tracking visualised in installation diagram, individual password protection, data logging with daily, weekly, monthly and annual report in graphical format, remote maintenance, remote monitoring, evaluation and reporting
<b>Water quality</b>	Motor circuit: 40% glycol, 60% water per VDI Regulation 2035. Operational pressure warm: 2.0 bar. Operational pressure cold: 1.8 bar. Primary pressure expansion vessel cold: 1.0 bar. Heating circuit ("secondary circuit"): free from mechanical impurities and as a minimum in accordance with quality requirements of the Group 2, VDI Regulation 2035 Conductivity < 100µS/cm Water hardness < 1° dH 8.2 > pH-Wert < 9 Deviations cause severe damages!

Deviating values depending on environmental and operating conditions.

Technical modification, design deviation and errors excepted.