

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>	87,0	77,3	95,3
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>	55,1 - 87,0	52,7 - 77,3	61,4 - 95,3
Gas connection power	kW <sub>Hi</sub>	149,11	151,86	153,60
Liquefied Petroleum gas input	kg/h	11,59	11,80	11,93
Liquefied Petroleum gas input	l/h	21,46	21,85	22,10
CHP coefficient		0,57	0,65	0,52
f Primary energy factor <sup>(3)</sup>		0,276	0,349	0,304
PES	%	26,9	21,5	27,9
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 $\eta_{el}$	%	33,5	32,9	32,6
Thermal efficiency ratio $\eta_{th}$	%	58,4	50,9	62,0
Total efficiency ratio $\eta_{total}$	%	91,9	83,9	94,6
<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	1170,0	1170,0	1170,0
Grid short circuit power with UnG S <sub>k</sub> "	kVA	1060,0	1060,0	1060,0
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	190	194	196
Module ventilation flow rate	m <sup>3</sup> /h	1.100	1.100	1.100
Total air requirement of module	m <sup>3</sup> /h	1.290	1.294	1.296
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	201	205	207
Flue gas volume flow - dry	Nm <sup>3</sup> /h	162	165	167
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>	165,51	168,56	170,50
ErP efficiency ratio - electrical $\eta_{el,HS}$ <sup>(4)</sup>	%	30,2	29,7	29,3
ErP efficiency ratio - thermal $\eta_{th,HS}$ <sup>(4)</sup>	%	52,6	45,9	55,9
ErP efficiency ratio - total $\eta_{total,HS}$ <sup>(4)</sup>	%	82,8	75,5	85,2
Room controller category <sup>(4)</sup>		2	2	2
P <sub>designh</sub> <sup>(4)</sup>	kW <sub>el</sub>	33,7	29,9	36,9
Q <sub>HE</sub> <sup>(4)</sup>	kWh	46.734	42.291	52.704
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>		149,0	146,3	144,6
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<sub>pe</sub>-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 (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
	Flow pressure ≥ 18
<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.
<b>Method of operation</b>	Residual pressure head secondary pump 3,5m
	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
<b>Indicators and switches/buttons</b>	Heat usage automatically regulated in monovalent or bivalent operation with buffer tank; optionally heat-optimised modulation
	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
<b>RMB/Report</b>	Switches/buttons: master switch, Emergency stop, Electric vehicle (Efz) charging data button, maintenance button
	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"): water volume 50.0 S 6 l / HT 6.5 l / CV 10.2 l, 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.