

TECHNICAL DATASHEET

Technical data

INDOP 68M

CHP type	Internal
Fuel type	Natural Gas
Electrical power (Pel) [kW]	64
Thermal power (Pth) [kW]	94
Energy input [kW]	177
Power to heat ratio	0,7

Efficiency

Total efficiency [%]	89,30
Electrical efficiency [%]	36,20
Thermal efficiency [%]	53,10

Primary energy savings	25,8
Primary energy factor FPE	0,68
Total annual efficiency	89,3

Gas supply pressure [mbar]	50
Gas-flow pressure CHP [mbar]	≥16
Volume flow in NG [Nm ³ /h]	17,7
Outlet temperature [°C]	90
Inlet temperature [°C]	70

Air supply volume flow rate [m ³ /h] (7500h/year)	4728
Outlet air volume flow rate [m ³ /h] (7500h/year)	4436
Ambient temperature [°C]	max. 45

Emissions

CO [mg/Nm ³]	< 150
NOx [mg/Nm ³]	< 250

Exhaust gas temperature [°C]	≈120
Exhaust gas volume flow [m ³ /h]	317
Exhaust gas mass flow [kg/h]	361
Max. allowed backpressure after silencer [mbar]	max. 10

Sound pressure level [dB(A)]	≈68
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CHP: dimensions, weight, connections

LxWxH CHP (without handles, ventilation outlets) [m]	3,1x1,2x2,2
Weight incl. Oil and coolant [kg]	2200
Color	RAL 5015
Water connections inlet	DN32 PN16
Water connections outlet	DN32 PN16
Exhaust gas connection	DN80 PN6
Gas connection	DN25 PN16

Motor

MAN	MAN
Engine type	L
Principle	Otto 4-Stroke
Number of cylinders	4
Displacement [ccm ³]	4580
Rated speed [1/min]	1500

Electrical Cabinet: Dimensions

Length, Width, Height	In the unit
Weight	/
Color	RAL 7035

Alternator

Mecc Alte	Mecc Alte
Synchronous/Asynchronous	Synchronous
Cooling	Air cooled

Power [kW]	84
Power [kVA]	105
Voltage [V]	400
Electric current [A]	152
Frequenz [Hz]	50 Hz
Insulation class	H

Electrical data of CHP unit

max. Active power [kW]	64
max. Apparent power S _{Amax} : [kVA]	64
cos ϕ (adjustable from 0.8 to 1)	1
Nominal voltage UN: [V]	400
Rated current I _r : [A]	92
Power supply:	Three-phase

Island operation?	Yes
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Starting with engine?	No
Starting current I _A : [A]	-
Short-circuit current I ^{''} K: [-]	0,47
Subtransiente reactance X _d ^{''} : [%]	5,70
Short-circuit strength of the entire system I _K :	/
Power factor correction:	Possible
Compensation Range:	Steplessly
Reactive power level:	-
Detuning respectively:	-
Resonance frequency:	-
Own energy use:	Variable

Setting values for the NA-protection (VDE-AR-N 4105)

Voltage protection U <	0,8 UN (100ms)
Surge voltage protection U >	1,1 UN (100ms)
Surge voltage protection U >>	1,15 UN (100ms)
Frequency protection f <	47,5 Hz (100ms)
Frequency protection f >	51,5 Hz (100ms)

Technical data relating to natural gas with a calorific value of 10.0 kWh / Nm³ and the methane number of >80.
 Technical data in accordance with the conditions in the standard DIN ISO 3046-1.

Disclaimer:

- Absolute air pressure: 100 kPa or 100 meters above sea level
- Air temperature: 25 °C
- Relative Humidity: 30%



Symbolic photo