

Operational mode Mains parallel operation
with net replacement function

Energy efficiency ¹⁾ **A++**
Seasonal heating efficiency ²⁾ **301.9 %**

Fuel **Natural gas**
Calorific value **integrated**

<i>stepless modulation range</i>	- 100 % -	- 50 % -
Electric output (P_{el})	75.0 kW	37.5 kW
Thermal output ⁸⁾ (P_{th})		
Return-temperature 30 °C ⁹⁾	144.2 kW	93.5 kW
Return-temperature 40 °C	139.8 kW	92.8 kW
Return-temperature 60 °C	125.2 kW	83.7 kW
Fuel consumption ¹⁾		
Return-temperature 40 °C	209.6 kW	128.3 kW
Return-temperature 60 °C	209.4 kW	128.6 kW
CHPP coefficient ³⁾	0.54	0.40

- All following information at rated power (100 %) and 40 °C return -

Efficiency	- EN 50465 -	- actual value -
Total efficiency	102.5 %	97.4 %
Electric efficiency	35.8 %	34.0 %
Thermal efficiency	66.7 %	63.4 %

Primary energy savings ⁴⁾	34.4 %	30.9 %
Primary energy factor $f_{PE,WV}$ ⁷⁾	0.15	0.23
Total annual use efficiency ⁴⁾	102.5 %	97.4 %

Gas connection pressure	20-50 mbar
Gas flow pressure	≥ 16 mbar
Flow rate with natural gas-H	22.1 Nm³/h (10.0 kWh/m ³)

Flow temperature	max. 90 °C
Return temperature	max. 70 °C
Max. System pressure	4 bar (heating side)

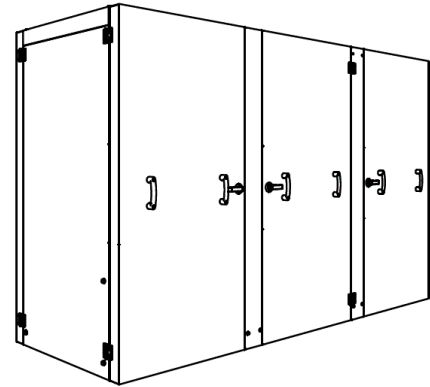
Supply air volume flow	min. 1462 m³/h (1725 kg/h)
Combustion air requirement	min. 242 m³/h (286 kg/h)
Ambient temperature	5 °C to max. 35 °C

Exhaust gas emissions	at 5 Vol% remaining oxygen
CO (carbon monoxide)	< 100 mg/m ³
NOx (nitrogen oxide)	< 100 mg/m ³

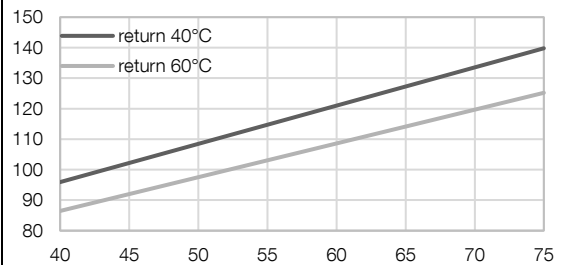
Exhaust gas temperature ³⁾	max. 130 °C
Exhaust gas volume flow	~ 259 m³/h
Exhaust gas mass flow dry	~ 285 kg/h
Exhaust gas back pressure ⁵⁾	max. 5 mbar after CS

Sound pressure level CHPP ⁶⁾ **56.8 dB(A)** (1 m distance)

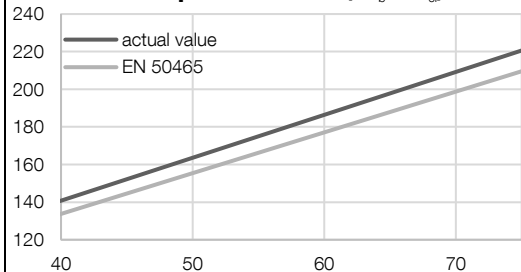
CHPP: Dimensions, weights and connections	
L x W x H CHPP (w/o handles)	2.64 x 0.96 x 1.71 m
Weight CHPP incl. oil + water	2320 kg
ø x H CS ⁵⁾	0.42 x 1.88 (w/o flanges)
Weight CS ⁵⁾	72 kg
Colour CHPP	Pantone 5517C
Heating connections	R 1 1/2" Flow (warm) R 1 1/2" Return (cold)



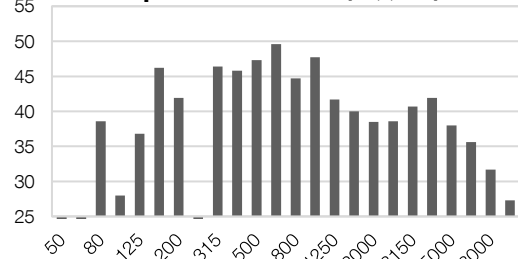
Output curve [kW_{th} / kW_{el}]



Consumption curve ³⁾ [kW_b / kW_{el}]



Sound pressure level ⁶⁾ [dB(A) / Hz]



¹⁾ According to EN 50465, tolerance 5 %

²⁾ Seasonal space heating efficiency CHP according to DIN EN 50465:2015, Kap. 7.6.2.2

³⁾ Return-temperature 40 °C

⁴⁾ According to EU RL 2004/8/EG with 100 % internal use

⁵⁾ Combination silencer

⁶⁾ According to DIN EN ISO 3744:2011-2

⁷⁾ According to EnEV 2014: f_{PE} -power = 2.8

⁸⁾ System as new values

⁹⁾ Calculated values only

Exhaust gas connection CS ⁵⁾ DN120 (*Jeremias ew-k*)
 Gas connection R 1"

Engine **HMG 634 / S**
 Type Straight engine (Otto)
 Operation 4-stroke
 Cylinder 6
 Displacement 7.4 litres
 Nominal engine speed 1500 1/min

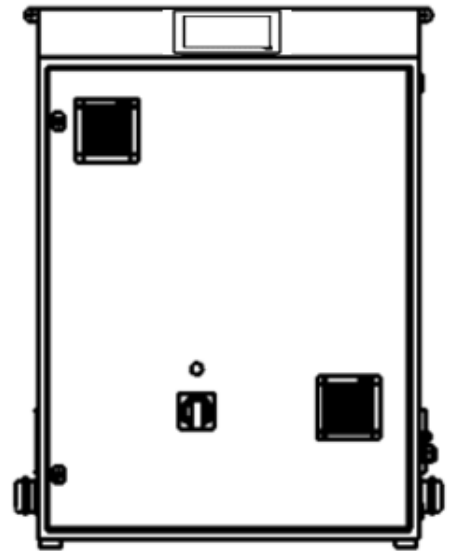
Cabinet: Dimensions and weight
(floor standing cabinet, side connections, standard cable set 6 m)
 W x D x H 0.90 x 0.31 x 1.27 m
 Weight 105 kg
 Colour Pantone 5517C

Synchronous generator **Leroy Somer LSA**
 Cooling air-cooled
 Power 91.0 kW
 Rated voltage 400 V
 Rated current 164.5 A
 Frequency 50 Hz

Electrical data smartblock 75s
 max. effective power P_{Amax} 75.0 kW
 max. apparent power S_{Amax} 83.3 kVA
 cos φ 0.90 cap. ... 0.90 ind.
 Nominal current I_N 120.3 A
 Nominal voltage U_N 400 V AC
 Grid feed three-phase
 Island operation mode available yes
 Motor start provided no
 Starting current I_A 0 A
 Subtransient reactance X''_d 9.1 %
 Short-circuit resistance of the system l_k 10 kA
 Reactive power compensation present
 Number of compensation steps stepless
 Own consumption (Stand-by) 0.060 kW
 Enclosure rating (DIN EN 60529) IP 20
 Line protection at building site NH-fuse 160 A gG

Connection to the low voltage grid
 Operational mode according to VDE-AR-N 4105
 "Generation units at the low voltage grid - technical minimum requirements for connection and parallel operation of generation units at the low voltage grid"

Settings grid protection (VDE-AR-N 4105)
 Voltage drop protection $U_{<}$ 0.8 UN (*100 ms*)
 Voltage increase protection $U_{>}$ 1.1 UN (*100 ms*)
 Voltage increase protection $U_{>>}$ 1.15 UN (*100 ms*)
 Frequency drop protection $f_{<}$ 47.5 Hz (*100 ms*)
 Frequency increase protection $f_{>}$ 51.5 Hz (*100 ms*)



smartblock 75s control BR18

The freely programmable PLC system is equipped with analogue resistive touch screen display for controlling, regulating, counting and visualization, which are required for operating the CHP. The 10.1" display shows information from the CHP and the current status of the system.

The BR18 can optionally be expanded by a heating control system, requirement peak load boiler (up to 2 boilers), data transfer via LAN and Internet with an error notification via email (only with DSL) and an interface connection to external systems (Ethernet UDP, Mod-Bus RTU/TCP, RK512, 3964R).

Additionally, the CHPP can be connected to virtual power plants using VHP-Ready and net.strom.

Standard reference conditions according to EN 50465: The technical data are based on natural gas H with a heating value of 10,0 kWh/Nm³ (Total air pressure 100 kPa, air temperature 25 °C, relative humidity 30 %, 0m above sea level). The nominal power can be less, depending on the actual height above sea level. The tolerance of the specific fuel consumption is +5 % at nominal power (EN 50465) and the tolerance of the usable thermal output is 7 % at nominal power. We reserve the right to change data and characteristics without prior notice in accordance with our business policy and the ongoing development process. All details refer to systems as new without wear and tear or traces of usage.