

**Version** **Grid parallel operation**

**Fuel** **Wood gas**

Continuous modulation range (Pel) - 100% -

**Electrical power (P<sub>el</sub>)** **50.0 kW**

**Thermal power <sup>7)</sup> (P<sub>th</sub>)**  
 Return flow 40°C **85 kW**

**Fuel consumption<sup>1)</sup> (P<sub>b</sub>)**  
 Return flow 40°C **157,7 kW**

**Current rating<sup>2)</sup>** **0.59**

**Efficiency at 100%<sup>1) 2)</sup>** - effective -

**Efficiency total** 85,6 %

**Efficiency electrical** 31,7 %

**Efficiency thermal** 53,9 %

**Flow temperature** **max. 90°C**

**Return flow temperature** **max. 70°C**

**Max. system pressure** **4 bar** (heating end)

**Input air volume** **min. 600 m<sup>3</sup>/h**

**Ambient temperature** **5°C to max. 35 °C**

**Exhaust gas emissions** at 5 vol.% residual oxygen

CO (carbon monoxides) < 300 mg/m<sup>3</sup>

NOx (nitric oxides) < 500 mg/m<sup>3</sup>

**Exhaust gas temperature <sup>2)</sup>** **max. 160 °C**

**Exhaust gas volume flow** **~ 400 m<sup>3</sup>/h**

**Exhaust gas mass flow <sup>dry</sup>** **~ 390 kg/h**

**Exhaust gas counter-pressure <sup>acc. to KSD<sup>4)</sup></sup>** **max. 5 mbar**

**Noise pressure level CHP<sup>3)</sup>** **56,6 dB(A)**

**CHP: dimensions, weights and connections**

L x W x H CHP *w/o handles* 2.26 x 0.96 x 1.71 m

Weight CHP *incl. oil + water* 1820 kg

ø x H KSD <sup>4)</sup> 0.41 x 1.74 m (w/o flanges)

Weight KSD <sup>4)</sup> 80 kg

Colour CHP Pantone 5517C

Heating connections R 1 1/4" flow (warm)

R 1 1/4" return flow (cold)

Exhaust gas fitting KSD <sup>4)</sup> DN120 (Jeremias ew-kl)

Gas fitting R 2" (wood gas)

<sup>1)</sup> acc. to EN 50465, tolerance 5%

<sup>2)</sup> RL-(Return)-temperature 40°C

<sup>3)</sup> acc. to EU RL 2004/8/EG at 100% proprietary usage

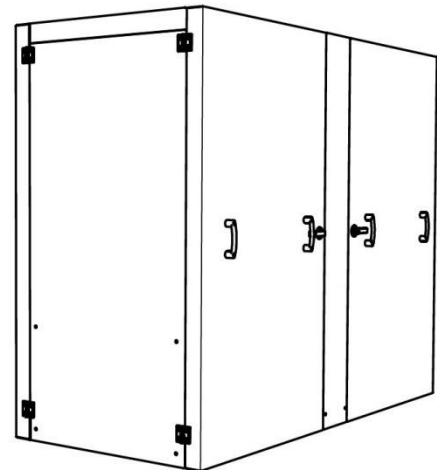
<sup>4)</sup> with combination sound muffler

<sup>5)</sup> acc. to DIN EN ISO 3744:2011-2

<sup>6)</sup> acc. to EnEV 2014; f<sub>PE</sub>-Strom = 2,8

<sup>7)</sup> acc. to evaluation of assets subject to the land as new

<sup>8)</sup> Measured at sb 50 (HMG) NG without turbo



<b>Motor</b>	<b>K49T</b>
Construction	Serial engine
Stroke mode	4 stroke Otto with turbo charger
Cylinder number	4
Cylinder volume	4.9 litre
Nominal speed	1500 1/min

<b>Asynchronous generator</b>	<b>Leroy Somer LSA 44.3 S2</b>
Cooling	air cooling
Power	56 kW
Voltage	400 V
Nominal current	101 A
Frequency	50 Hz
Operating mode	S1

**Switching cabinet: dimensions and weight**  
 (Wall-mounted, connections below, standard 6 m cable harness)

W x D x H	0,90 x 0,30 x 1,25 m
Weight	160 kg
Colour	Pantone 5517C

### Electrical data smartblock 50Ts

max. eff. power $PA_{max}$ :	50 kW
max. rs. power $SA_{max}$ :	56 kVA
$\cos \phi$	-0,9...0,9
Nominal voltage UN:	400 V
Rated frequency f:	50 Hz
Nominal current $I_r$ :	75 A
Grid feed:	3 phase
Island operation prov.?	No
Motor drove prev.?	No
Start current $I_A$ :	-
Subtransient reactance $X''_d$ :	6,2
Total system short safety IK:	10 kA
Residual power compensation:	available
Number of compensation stages:	continuous
Compensation stages:	
Residual power per stage:	-
Choke degree resp. reason. freq.:	-
Auxiliary demand:	1,132 kW

### Connection to the low voltage grid

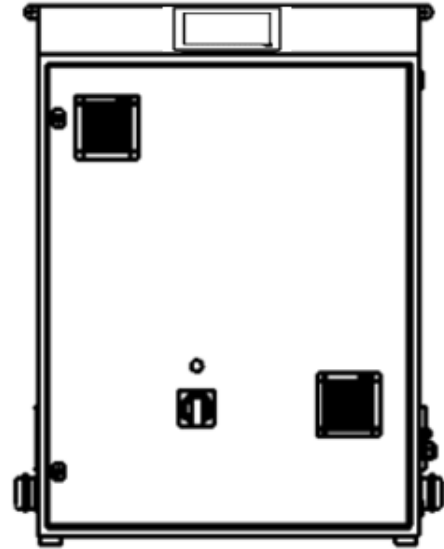
Execution accord. to VDE-AR-N 4105  
"Erzeugungsanlagen am Niederspannungsnetz -  
Technische Mindestanforderungen für Anschluss und  
Parallelbetrieb von Erzeugungsanlagen am  
Niederspannungsnetz"

### Installations values for the EL protection for the NA protection (VDE-AR-N 4105)

Voltage reduction protection U<	0.8 $U_n$ (100 ms)
Voltage increase protection U>	1.1 $U_n$ (100 ms)
Voltage increase protection U>>	1.15 $U_n$ (100 ms)
Frequency reduction f<	47.5 Hz (100 ms)
Frequency increase protection f>	51.5 Hz (100 ms)

### Onsite line protection

NH fuse 100 A gL/gG



### smartblock 50Ts 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.

Optionally, the BR18 can be expanded to include a heating control, peak boiler load (up to two boilers), remote data transmission (through network and error advisor via email, remote transmission on external interfaces, with heating control, peak load boiler control (up to two boilers), remote data transmission through network connectivity with fault messaging via email (only with DSL) and an interface to external systems (Ethernet UDP, Mod-Bus RTU/TCP, RK512, 3964R).

In addition, there is the option by which the CHP can be connected to virtual power plants via VHP-Ready and net.strom.

Technical data are based on natural gas H with a calorific value of 10.0 kWh/Nm<sup>3</sup> and on standard supply conditions according to DIN ISO 3046-1 (absolute atmospheric pressure: 100 kPa, air temperature: 25°C, relative humidity: 30 %) and relative to an elevation of 0 m AMSL. The nominal power is reduced depending on the installation elevation. The tolerance for the specific fuel consumption is +5% at nominal power (DIN ISO 3046-1 resp. DIN 6271-3), and the tolerance for the effective heat power is 7 % at nominal power. It is our corporate policy to reserve the right to modify and amend data and characteristics due to continuous further development and improvement without prior notice. All data are based on new systems without any wear and tear.