

user's instructions



Compact-Heater

20 kW

41 kW



introduction

Dear customer,

thank you for choosing to install our Compact-Heater.

With your purchase of the Compact Heater, you ensured for yourself, to have a heating system with currently the highest technological standard and lowest fuel consumption.

The innovative and award-winning technology of our products with the Blue Efficiency® burner, will provide you with an especially user and maintenance friendly operation. This system will give you comfort and highly reduced emissions.

The successfully proven blue-burner-system in "Duo-Block" building technique, as well as the simple operation over the boiler control field, are very efficient and environmentally friendly.

We hope that, how to use the heating system and all of its functions are explained to you to your full satisfaction, by the installing auto shop or service station. With this user's instruction we would like to give you more information how to use it properly.

Please contact us for any questions or further information you need.

Your SCHEER-team

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Note:

Always carefully follow SCHEER installation and repair instruction and heed all WARNINGS.

SCHEER rejects any liability for problems and damage caused by the system installed by untrained personnel.

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technical data burner BlauthermDUO BE

The BlauthermDUO BE is an oil blower burner. It has automatic altitude control up to 2000m above sea level and is equipped with SCHEER (precision-) spring technology in the nozzle block.

		Blautherm DUO BE
burner type		Blaubrenner with start level
fuel		Heating oil EL according to DIN 51603
power	kW	17
oil pump		AL/V/35C
oil nozzle		0.30 / 60° SC D
mixing device		SCHEER (precision-) spring technology
oil flow	kg/h	1,43
power consumption incl. additional electric heating	A	13,0
protection (max)	A	16
electrical connection	V / Hz	230 / 50

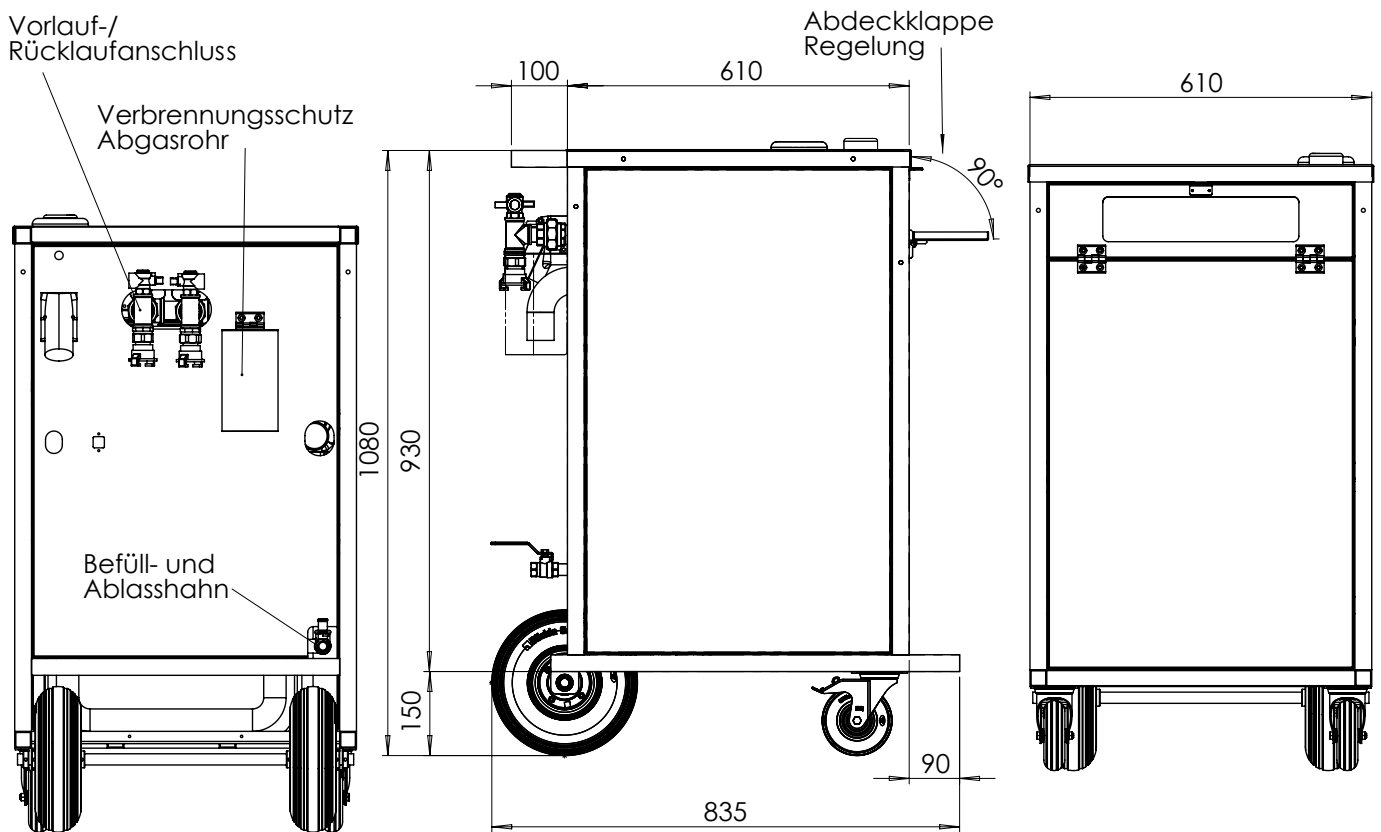
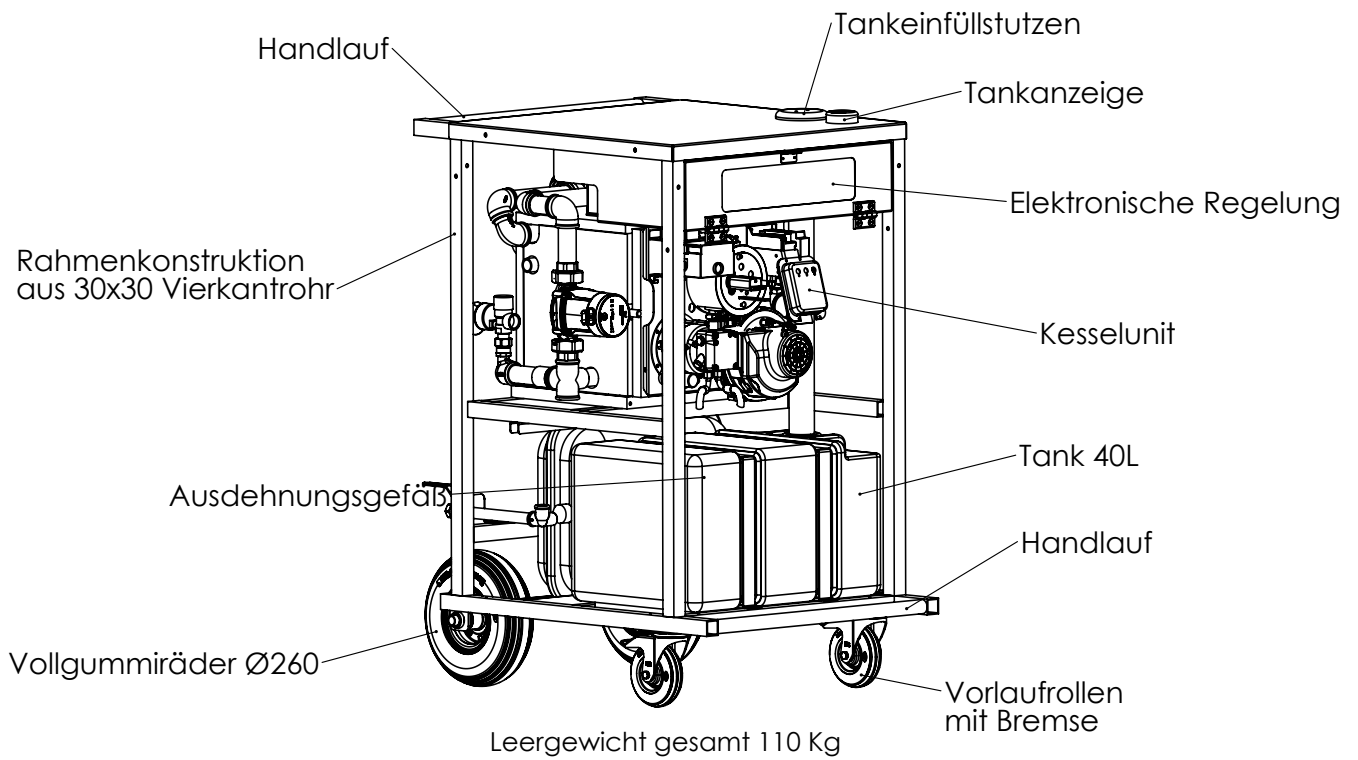
technical data boiler

designation	unit	value
type		BE / SBN - 45 - MHF
type of fireplace		low-temperature boiler
fuel		fuel oil according to DIN 51603
nominal heat output	kW	17 (Hybrid 3) / 38 (Hybrid 3)
CE-label (according to oil equipment directive)		CE-0045CMKD 2340
Permissible flow temperature (=safety temperature)	°C	95
Permissible operating pressure	bar	3
heating gas side resistance	mbar	0,30
heating gas side resistance chargeable residual conveying height	Pa	100
dimensions mm (total dimensions)		see following drawing
total weight (net)	Kg	110
Boiler water capacity	Liter	20
boiler connections		
flow	Zoll/inch	1
return flow	Zoll/inch	1
exhaust gas characteristics*		
temperature (bei 60°C water temp.)	°C	193
exhaust gas volume flow	m ³ /h	27,5
exhaust gas connection		
flue gas connection	Ø mm	50
sound pressure level**	dB(A)	61
standard efficiency	%	94,4 (Hi)
Electric auxiliary heating	kW	max 3

* Calculated values for the design of the exhaust system in accordance with EN 13384 based on 13.2 % CO₂ for EL heating oil

** The guide values for sound pressure level measurements are not guaranteed values, as sound pressure level measurements are always dependent on the respective system.

boiler dimensions



warning and safety signs**NOTICE****Risk of malfunction or damage by heat exposure!**

Surrounding temperatures higher than 110°C (230°F) can cause damage to the electronics.

- Never use or store the heater in areas of 110°C (230°F) or more.

NOTICE**Risk of malfunction or damage by frost!**

If the water freezes in the heat circuit or fresh water supply system, it can cause damage to the equipment.

- Make sure to have at least 20% of antifreeze mixed into the heating circuit water.
- In risk of frost, drain the fresh water out of a heat system with plate heat exchanger.

Note: SCHEER cannot be held liable for:

- Defects and damage, which are due to installation or repair by unauthorized and untrained persons.
- Failure to comply with the instructions and the warning/safety signs.
- The installation of non-original spare parts.

general operating instructions

Please note the following general operating instructions after installing and during the use of the MH-heating system:

- The heating system **must be turned off before you get fuel** at gas stations.
- The **year of the first start-up** must be permanently marked on the identification plate.
- Make sure **all existing shut-off valves** of the fuel return line **are open** before using the system.
- **Check the openings of the combustion air supply and exhaust pipe** for dirt and **clean if necessary**.
- **After replacing the vehicles cooling fluid** make sure to **bleed the system** of air thoroughly. **Add cooling fluid** when needed.
- **After replacing the heating circuit water (solution)** make sure to **bleed the system** of air thoroughly. **Add solution** when needed. **(at least 20% antifreeze)**
- Make sure to **use the fuel and operation power indicated** on the identification plate.
- **In case of heavy smoke development, unusual burner noise, or smell of fuel, disable** the heating system by **removing its fuse**. Operate the system only, **after a technical inspection** by a SHEER trained person.
- Turn on the heating system **at least once a month for 10 min..**
- **The heating system must be checked** by a SHEER trained person, before each heating season.
- **Liability claims can only be asserted**, if the claimant can prove adherence to the installation, maintenance, and safety instructions.

general operating instructions

Disposal of old equipment

At the end of its service life the device has to be disposed of in accordance with national regulations. It is recommended to contact a company specializing in waste disposal or contacting the disposal department of your commune.

WARNING!

To prevent misuse and the associated dangers, make your old equipment unusable before disposal. Therefore disconnect the device from the power supply and remove the power cable from the device. To dispose the device, observe the regulations applicable in your country and in your commune.

WARNING!



Danger due to electrical current!

The device may only be operated on properly installed single sockets with protective contact. Do not disconnect the mains cable from socket by pulling the cable, always touch the housing of the mains plug.

The MH-heating systems are approved for the use of „diesel“ and „heating oil“. Any other type of fuel for operating have to be in advance approved by the manufacturer SCHEER. The heaters are designed for 230 Volts.

The connection in the vehicle has to be fed from the battery of the vehicle via an inverter approved in road traffic within the scope of the ECE Regulation. Alternatively, the heater can also be done via a 230V direct supply (for example: direct supply of the campsite).

tested safety



CE marking Corresponding to existing
EC directives

Technical changes reserved!

transport and storage

- Do **not lift** and **lash** the device by the **fittings**
- The device must be stored **dry, dust-protected** and **frost-free**
- **Disconnect** from **power source** for storage
- Store only when **completely emptied**

This ensures that no damage is caused to the device during transport or storage

assembly

- In **outdoor** areas, level and stable ground must be ensured
- **Lock** the brakes to prevent rolling away

commissioning

- Connect the connecting pipes for return flow (blue) and flow (red) to the on-site heating system
- Check whether the ball valves with a thermometer handle are closed
- Close if necessary

filling and venting

- Fill up the system via the filling device on the top side. Monitoring the fill level indicator during the filling process

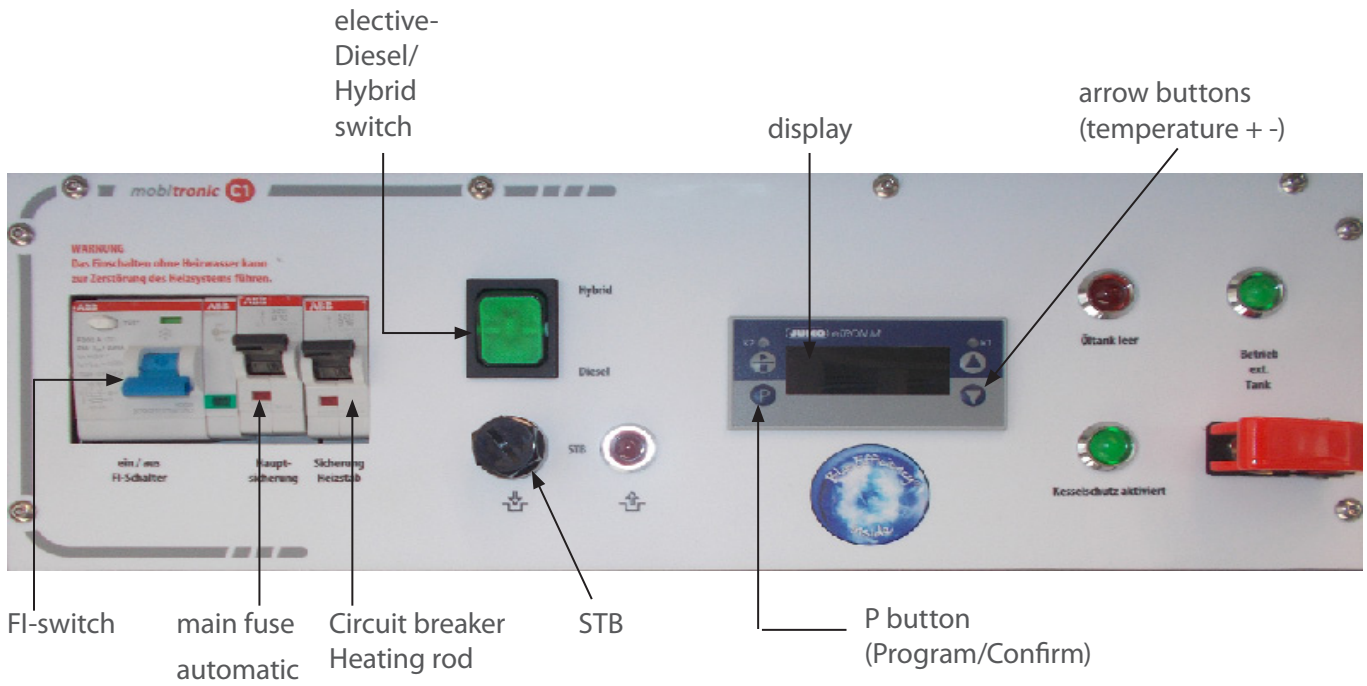


- Fill the unit with water via the on-site system or fill level filler. Recommended operating pressure: 1.5-2 bar

- Open the ball valves on the flow and return flow. If possible, fill the system at the lowest point so that the air can escape upwards



boiler setting



- Switch the **diesel or hybrid selector switch** to the desired position
- Set **FI-switch** and the switches **main fuse automatic** and **Circuit breaker Heating rod** to „on“
- Press the **P button** on the controller. The **display** alternates between SP and the set temperature. Use the **arrow buttons** to set the desired target temperature and confirm with the **P button**. SP and the set target temperature light up alternately again. Press the **P button** to display the boiler temperature

disassembly

- Close ball valves at flow and return flow, drain system at lowest point if possible

storage

- Never turn the unit **upside/down**
 - **Never lift or lash** by the **fittings**.
 - The device must be stored **dry, dust-protected** and **frost-free**
 - **Disconnect** from **power source** for storage
 - After use store only when **completely emptied**
 - Turn **fill** and **drain valves** to **45° position**
- This ensures that no damage is caused to the device during transport or storage

general disturbance table

disturbance	cause		relief
heater cools down	no mains voltage	→	check fuse, check supply line, check FI and automatic circuit breakers in the device and in the on-site distributor, check whether the system is switched on
	system pressure too low or too high (pressure should be min. 1.2 bar, maximum pressure 3 bar)	→	at low pressure: top up with water If the pressure is too high: Drain water
	check the sight glass of the oil filter. The oil filter should be at least ¾ full. Observe the oil filter when starting the burner	→	check oil filter for contamination, check the wiring on the oil line
	flow and return flow temperature too high/low	→	the flow temperature should be the same as the boiler temperature. (+/- 5°)
	air in the system	→	vent the system
	no circulation	→	check pump for function, check barriers
	STB has triggered	→	unlock STB
heater too warm	check error message on controller, burner or pump	→	check the error list of the respective device
	temperature setting on the control too high	→	check and adjust temperature

boiler disturbance table

disturbance	cause		relief
display dark	system pressure too low	→	fill the system to min. 1,2 bar.

burner disturbance table

disturbance	cause	relief
burner does not start	power supply interrupted	→ check fuse
	boiler thermostats set incorrectly	→ set thermostats correctly
	safety thermostat has tripped	→ press the release button
	oil preheater does not switch through	→ replace oil preheater
burner goes to malfunction during pre-ventilation	extraneous light	→ check KLC
	ignition cable influences sensor cable	→ route sensor cable differently
burner running, but no flame formation	normal operating sequence	→ nozzle defective - replace
	no ignition	→ check ignition system, replace defective parts if necessary
	solenoid valve does not open	→ replace solenoid coil or complete solenoid valve
	air monitor does not switch	→ check hose connection
	no fan function	→ check connection
	air pressure switch defective	→ change
	clutch sheared off	→ replace coupling
	no oil supply	→ open oil valves, check oil level in tank, clean filter
burner starts, but flame goes out after switching off the ignition	Oil pump defective	→ replace oil pump
	NO _x lowered too far	→ advance nozzle assembly by means of adjusting screw
burner goes to fault despite stable flame or to fault after safety time has elapsed	fan speed too high	→ reduce blower fan speed, recalibrate burner
	flame monitoring defective or dirty	→ check flame monitoring for correct installation or sensitivity adjustment, clean flame monitoring replace if necessary
	automatic burner control does not take over	→ check connections, replace if necessary
flame burns long and yellow from the flame tube	NO _x zu weit abgesenkt, Flamme ist zu glasig	→ reciprocate with the help of the nozzle holder close adjustment
	nozzle dirty, nozzle splashes at an angle	→ replace nozzle
	air in the oil supply, flame pulsating	→ check oil supply, ensure bubble-free, clean oil
	nozzle penetrates too much oil	→ check nozzle size according to setting table, replace if necessary check pump pressure
mechanical noises	fan speed too low	→ Increase speed, calibrate burner
	air in the oil pump	→ check oil line and filter, seal or replace if necessary
burner goes into malfunction at irregular intervals	engine Bearing damage	→ replace motor or rolling bearing
	coupling defective	→ replace coupling
	oil pump or engine running heavily	→ check oil pump or motor for pressure point, replace defective part check capacitor (+/- 5 %)
	ignition transformer stops	→ replace ignition transformer
	IRD no longer takes over	→ check setting, replace IRD

disturbance code table controller

controller

The lockout reset button is the key operating element for resetting, activating / deactivating, and diagnostics.

The multi color signal lamp behind the clear cover of the lockout reset button is the key indicating component for visual diagnostics and interface diagnostics.

During the start up mode and normal operation the different operating states are indicated in form of color codes according to the color code table below:

Color code table for multicolor signal lamp (LED)		
Status	Color code	Color
Waiting time, other waiting states	○.....	OFF
Waiting for release of prepurging / postpurging by oil pressure switch	●.....	Yellow
Ignition phase, ignition controlled	○●○●○●○●○●○●○	Flashing yellow
Operation, flame o.k.	■.....	Green
Operation, flame not o.k.	○■○■○■○■○■○■○	Flashing green
Extraneous light on burner startup	■▲■▲■▲■▲■▲■▲■▲	Green-red
Undervoltage	●▲●▲●▲●▲●▲●▲●▲●▲	Yellow-red
Fault, alarm	▲.....	Red
Error code output (see Error code table)	○▲○▲○▲○▲○▲○▲○▲○	Flashing red
Interface diagnostics	▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲	Red flicker light

Legend

.....	Steady on	▲	Red
○	OFF	●	Yellow
		■	Green

Error code table of multicolor signal lamp (LED)		
Red blink code of signal lamp (LED)	Alarm at terminal 10	Possible cause
2 blinks	ON	No establishment of flame at the end of safety time - faulty or soiled fuel valves - faulty or soiled flame detector - poor adjustment of burner, no fuel - faulty ignition equipment
3 x blinks	ON	Free
4 blinks	ON	Extraneous light on burner startup
5 blinks	ON	Free
6 blinks	ON	Free
7 blinks	ON	Too many losses of flame during operation (limitation of repetitions) - faulty or soiled fuel valves - faulty or soiled flame detector - poor adjustment of burner
8 x blinks	ON	Time supervision oil preheater - oil preheater failed 5 times during prepurging
9 blinks	ON	Free
10 blinks	OFF	Wiring error or internal error, output contacts, other fault

optional equipment

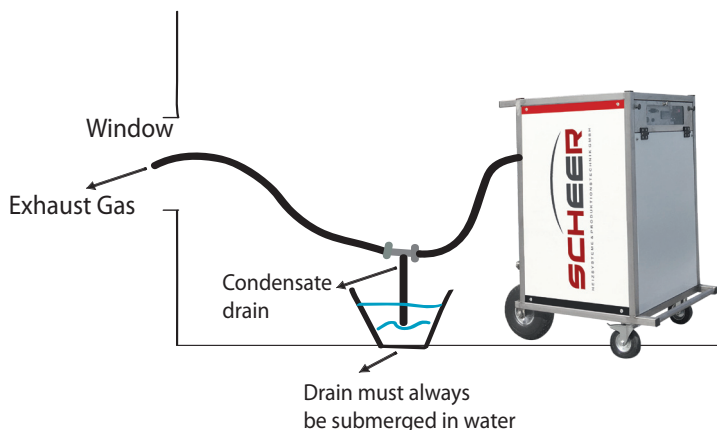
- Air heater 230 V
incl. 2-stage switch with full motor protection and console
- With integrated sack truck to facilitate transport
- The air heater is equipped with a thermostat



- The connection between air heater and Compact Heater is made with a flow/return flow hose of a certain length provided by the customer



- Heat-resistant exhaust gas duct in a length determined by the customer



NOTICE

Ensure condensate drain!

- When using the flue gas hose (e.g. in a cellar to conduct the flue gas outside through a window), make sure that no condensate remains in the hose and clogs it.
- If a „U-/Swan neck“ is formed (see illustration), make sure that the condensate is drained off by means of a condensate drain (Art. No. 075361) in a container prefilled with liquid.
- Exhaust gas must not escape into the room.
- Irrespective of this, ensure that the room is sufficiently ventilated.

- Compact-Heater -

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