



Boiler Gas / Boiler Gas/Elektro

EN Installation instructions

Page 2

Table of contents

Symbols used	2
Intended use	2
Safety instructions	2
Operation while driving	3
Regulations	3

Installation instructions

Selecting a location	4
Installing the boiler	4
Water connection	5
Flexible hose installation	5
Rigid duct installation using the John Guest System	5
Installing the drain valve	6
Water line routing	6
Gas connection	7
Fitting the control panels	7
12 V = electrical connection	8
230 V ~ electrical connection	8
230 V ~ control panel connection	9
Function check	9
Warnings	9
Technical data	9

Trade name (version)

Boiler gas (BG 10)
Boiler gas/electric (BGE 10)

Symbols used



The appliance must only be installed and repaired by an expert.



Symbol indicates possible hazards.



Note containing information and tips.

The operating instructions for this Truma appliance are an important part of these installation instructions and must be followed. The operating instructions are supplied with the appliance as a separate document and can also be downloaded at www.truma.com under the heading Products.

Read the installation instructions, the operating instructions and the safety instructions carefully before commencing the work, and then comply with them.

Intended use

Proper use

The appliance is approved solely for installation and operation in caravans and construction trailers of vehicle class O, motor homes of vehicle class M1 and mobile homes if the gas system is installed in accordance with EN 1949. The national legislation and regulations for operating and testing gas installations (e.g. DVGW Work Sheet G 607 in Germany) must be observed.

The appliance may be used only to heat drinking water.

If the appliance is operated while the vehicle is in motion, facilities must be installed to prevent uncontrolled emission of liquefied gas in the event of an accident (according to UN-ECE regulation 122).

If the appliance is being used for commercial purposes, the operator must ensure that special statutory and insurance regulations of the respective destination country are observed (e.g. DGUV regulations in Germany).

Improper use

All other uses not listed under proper use are improper and therefore prohibited. This applies for example to installation and operation in:

- Motor buses of vehicle classes M2 and M3,
- Commercial vehicles of vehicle class N,
- Boats and other water vessels,
- Hunting/forestry huts, weekend homes or awnings.
- Installation in trailers and vehicles used to transport hazardous goods is prohibited
- Heating of liquids other than drinking water (e.g. cleaning, descaling, disinfectant and preserving agents) is prohibited.
- Defective appliances must not be used.
- Appliances installed and utilised in contravention of the operating and installation instructions must not be used.

Safety instructions

Read the safety instructions and operating instructions carefully before starting the appliance.



To ensure safe and proper use, carefully read and observe the installation and operating instructions and other documents supplied with the product, and keep them in a safe place for future reference. The respective valid laws, directives and standards must be observed.

Not following the rules in the operating and installation instructions can result in serious material damage and serious risk to the health or life of persons. The appliance's operator or user is solely responsible for such damage.

Operation while driving

For heating while driving, the UN ECE regulation 122 stipulates a safety shut-off device to prevent the uncontrolled escape of gas in the event of an accident. The Truma MonoControl CS gas pressure regulation system fulfils this requirement.

National regulations and rules must be followed.

If no safety shut-off device (e.g. MonoControl CS) is installed, the gas cylinder must be closed while driving and notices must be attached in accordance with the valid regulations.

Regulations

The rules in the installation and operating instructions and the respective valid laws, directives and standards must be observed. The appliance's operating permit, and consequently also the vehicle's operating permit in some countries, are rendered void if the regulations are not followed.

Material defect claims, warranty claims and liability claims against Truma are excluded in the cases described in the operating instructions under the heading "Warranty exclusions".

Installation instructions



Only competent and trained staff (experts) are permitted to install and repair the Truma product and to carry out the function test, at the same time observing the installation and operating instructions and the currently recognised technical regulations. Experts are persons who, based on their specialist instruction and training, their knowledge and experience with Truma products and the relevant standards, can carry out the necessary work properly and identify potential hazards.

Selecting a location

The appliance must always be installed in such a way that it is easy to access at all times for service work, and also easy to remove and install.

Position the boiler in such a way that the cowl can be fitted to an outer surface that is as straight and smooth as possible. The wind must be able to flow around this outer surface at all sides, and no decorative strips or panels should be present there if possible, otherwise place the boiler on a suitable base.

The wall cowl must be attached such that there is no fuel tank filler neck or fuel tank breather opening within 500 mm (A). There must also be no living area ventilation openings within 300 mm (A).

! If the cowl has been placed vertically beneath an opening window, the boiler must be equipped with an automatic shut-off device in order to prevent operation with the window open.

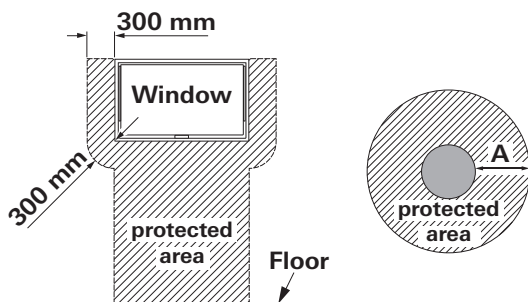


Figure 1

The boiler must not be installed close to or directly behind a room heater.

In order to ensure that there is sufficient ventilation to cool the electronics, the gap between the electronics cover (34) and the walls of furniture items in which the boiler is installed must be at least 20 mm.

Installing the boiler

! Fire hazard from overheating and/or danger of suffocation from exhaust fumes if installed incorrectly or if parts other than original Truma parts are used for the exhaust gas system.

- Use only original Truma parts for the exhaust gas system.
- Follow the installation instructions when installing the exhaust gas system.

! Set up the boiler on a suitable horizontal surface.

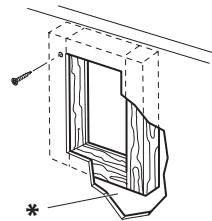
Position the template for the cowl opening on the inner surface of the wall.

A = Bottom edge of boiler
B = Lateral edge of boiler

Drill 4 holes (C) with a diameter of 10 mm through the wall. Drill hole (E) with a diameter of 15 mm for the condensation pipe (this can also be done from the outside = F).

Position the template on the outer surface of the wall. Markings (C) must be positioned over the holes drilled for the opening. Use a saw to cut out the cowl opening (D) (92 x 168 mm).

If the gap between the outer wall and the boiler is more than 35 mm, cowl extension VBO 2 will be required with an extra length of 50 mm. Cut along the dotted line with a saw (100 x 176 mm).



Line any cavities in the vicinity of the cowl opening with wood so that the screws can be tightened firmly. The final cut-out should be 168 mm high by 92 mm wide. (* Sectional diagram for clarification purposes)

Figure 2

Cut out or support trim strips or the like on the vehicle so that the cowl is level.

! If the walls are sloping, support the boiler. The angle of tilt must not exceed 10 degrees.

Push boiler with cowl part (1) through the cowl opening (2), allowing it to protrude approx. 5 mm out of the outer wall. Fit the sealing frame (3) (as a result of the anti-twist protection the frame can only be fitted in the correct position). Pre-drill holes for the 6 fastening screws (4).

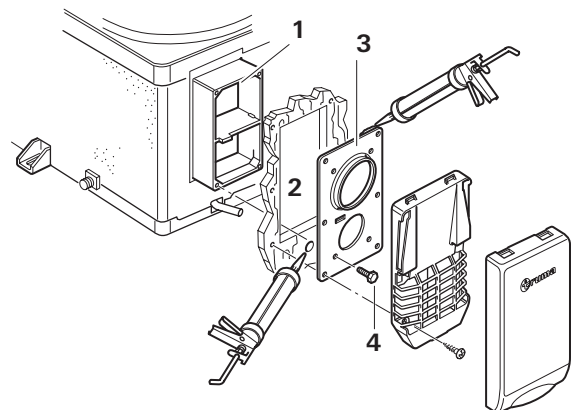


Figure 3

Remove the sealing frame (3) and coat the vehicle side with a plastic body sealant – not silicone.

! The sealing frame must be well sealed to the front faces and cross-braces of the cowl part (1) and to the outer wall.

Attach the sealing frame (3) to the cowl part with 4 thread-forming screws (4).

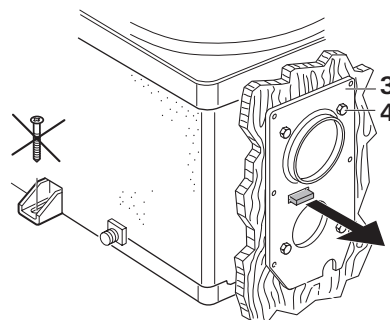


Figure 4

! Screw on the sealing frame (3) together with the cowl part (1) so that the anti-twist protection protrudes.

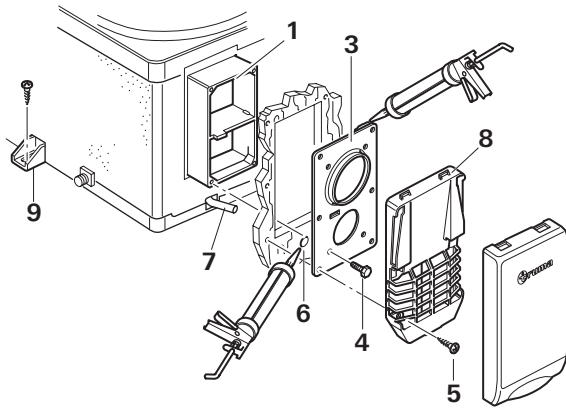


Figure 5

Seal the air gap between the hole (6) and the condensation pipe (7) with plastic body sealant – not silicone.

Fit cowl grille (8). Press complete cowl onto vehicle wall and mount using 6 screws (5).

Screw boiler securely to a suitable surface (plywood board, laminated wooden battens or metal floor) on the vehicle floor using at least two brackets (9) with the B 5.5 x 25 screws supplied.

Water connection

! Route all water lines downwards to the drain valve. Otherwise there is a risk of frost damage that is not covered by the warranty!

! If connected to a central water supply (rural or urban connection), or if more powerful pumps are being used, a pressure reducer must be used which will prevent pressures higher than 2.8 bar from occurring in the system.

Any pressure or immersion pump up to 2.8 bar can be used to operate the boiler, as can any mixing battery with or without an electric switch.

If using immersion pumps, a non-return valve (10 – not included in scope of delivery) must be installed between the pump and the first branch (arrow indicates flow direction).

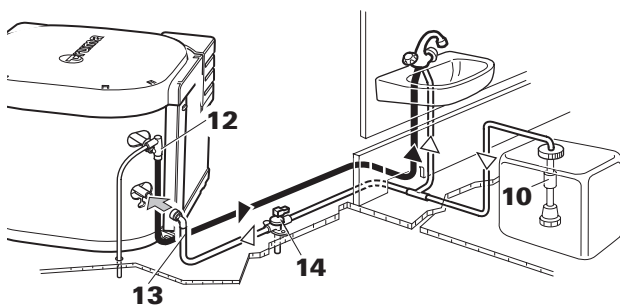


Figure 6

When pressure pumps with a large switching hysteresis are being used, hot water may flow back via the cold water valve. We recommend installing a non-return valve (11 – not included in scope of delivery) between the outlet to the cold water tap and the drain valve as a return flow inhibitor.

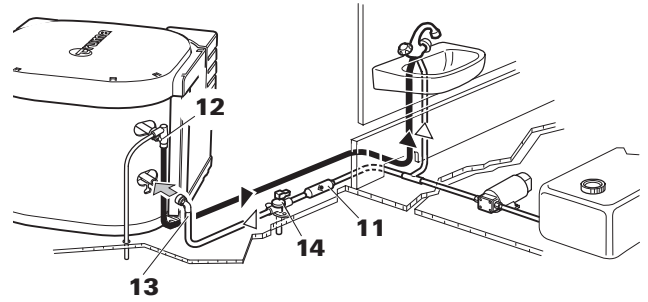


Figure 7

! In order to ensure that all the water is drained from the boiler and that all water connections are leak-tight, the water connections (12 + 13) and the drain valve (14) must always be used.

Flexible hose installation

Truma can supply the water connections (12 + 13) and the drain valve (14) with hose connection, diameter 10 mm, as accessories.

Pressure-resistant (up to 4.5 bar), hot water-resistant (up to +80 °C), food-safe water hoses with an inner diameter of 10 mm must be used.

! Water hoses must be as short as possible and free of kinks. All hose rubber connections must be secured with hose clamps (including the cold water connection). The warming of the water and its resulting expansion may generate pressures of up to 4.5 bar in the drain valve (also occurs with immersion pumps).

Rigid duct installation using the John Guest System

Truma can supply the water connections (12 + 13) and the drain valve (14) with a diameter of 12 mm as accessories. In this case it is advisable to always use John Guest pipes, insertion sleeves and retaining rings.

Suitable adapters (not included in scope of delivery) must be used for connecting rigid pipelines with a different diameter.

Installing the drain valve

Fit drain valve (14) in an easily accessible location in the vicinity of the boiler. Drill hole with diameter of 18 mm and insert the drainage socket with hose (15). Secure the drain valve in place with 2 screws. Water removal can take place directly to the outside in a splash-protected location (fit splash guards if necessary).

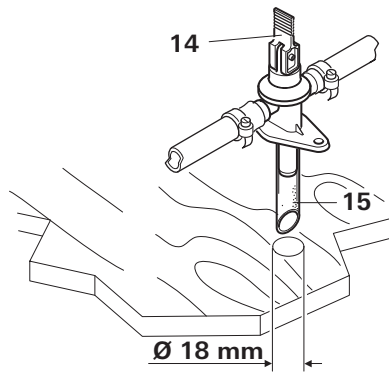


Figure 8

Water line routing

Connect cold water supply (16) to drain valve (14). The direction of flow is irrelevant.

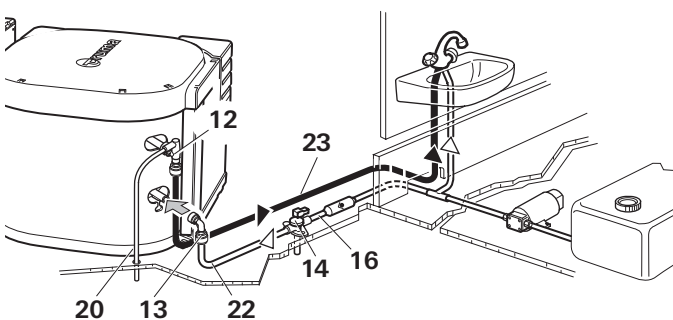


Figure 9

Push elbow fitting without aeration valve (13) as far as possible onto the boiler's cold water connection tube (lower tube), and push the elbow fitting with built-in aeration valve (12) as far as possible onto the boiler's hot water connection tube (upper tube). Pull in the opposite direction to check that the elbow fittings are securely attached.

Slide venting hose with an outer diameter of 11 mm (20) onto the hose nozzle of the aeration valve (21) and route to the outside free of kinks. Radius of arc must not be less than 40 mm.

Cut off the venting hose about 20 mm below the vehicle floor at a 45° angle relative to the direction of travel.

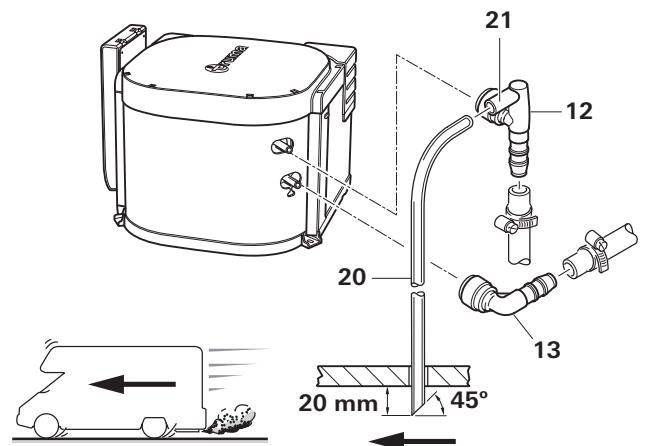


Figure 10

Flexible hose installation

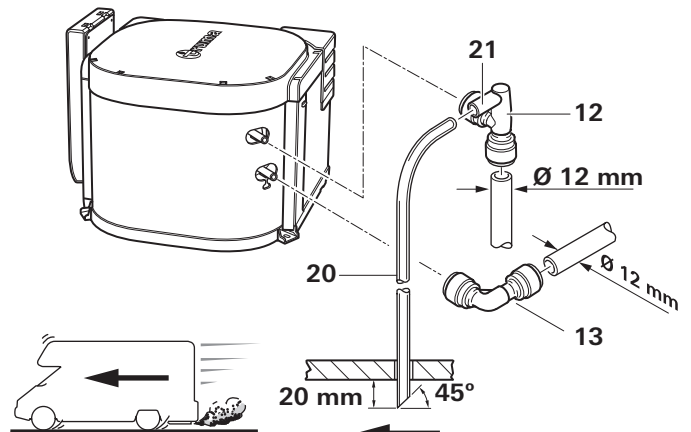


Figure 11

Rigid pipe installation
(e.g. John Guest System)

Make a hose connection (22) for the cold water supply between drain valve (14) and the elbow fitting (13 – lower pipe) at the boiler.

Route hot water supply line (23) from elbow fitting with built-in aeration valve (12 – upper tube) to hot water consumption points.

! If a water supply is being installed in the vehicle, it must be ensured that sufficient room is left between the water hoses and the heat source (e.g. heater, warm air duct).

SC hose clips (part no. 40712-01) are suitable for fastening the hoses to walls or the floor. These hose clips also make it possible to route water hoses on the heater's warm air distribution pipes to prevent freezing.

A water hose may only be routed at a distance of 1.5 m from the heater at the warm air duct. The Truma SC hose clip can be used for distances greater than this. With parallel routing (e.g. through a wall) a spacer (e.g. insulation) must be fitted in order to avoid contact.

Gas connection

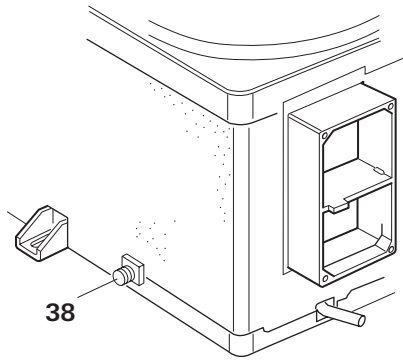


Figure 12

! The operating pressure of the gas supply is 30 mbar and must be the same as the operating pressure of the appliance (see type plate).

The 8 mm diameter gas supply pipe must be attached to the connector (38) using an olive connection.

The heater is prepared for connection to gas supply lines according to ISO 8434-1 with a cutting ring. A brass cutting ring is included with the delivery.

If the appliance is to be connected with a steel or soft copper tube, installers must choose appropriate materials for the cutting ring, nut and, if applicable, the insertion sleeve, with consideration of the regulation applicable in the respective country, such as EN 1949.

In accordance with EN 1949, a brass insertion sleeve and a brass cutting ring must be used for soft copper tubes that do not comply with EN 1057 specification R 290.

The installer is responsible for ensuring a correct connection.

Carefully counterhold with another wrench (AF 16) when tightening.

Before connecting to the boiler, ensure that the gas lines are free of dirt, swarf and the like.

The pipes must be installed in such a way that the appliance can be removed again for service work.

The number of separation points in the gas supply line in rooms used by persons must be limited to the technical minimum.

The gas system must comply with the technical and administrative regulations of the respective country of use (e.g. EN 1949 for vehicles). National regulations and rules must be followed.

Fitting the control panels

! When using vehicle-specific or manufacturer-specific control panels, the electrical connection must be made according to the Truma interface descriptions (see 230 V ~ electrical connection). Any modifications to the associated Truma parts will invalidate the warranty and preclude any liability claims. The installer (manufacturer) is responsible for providing the user with operating instructions and the information that is printed on the control panels.

Make allowance for the length of the connector cable (3 m) when choosing a location. A 5 m cable extension is available if necessary.

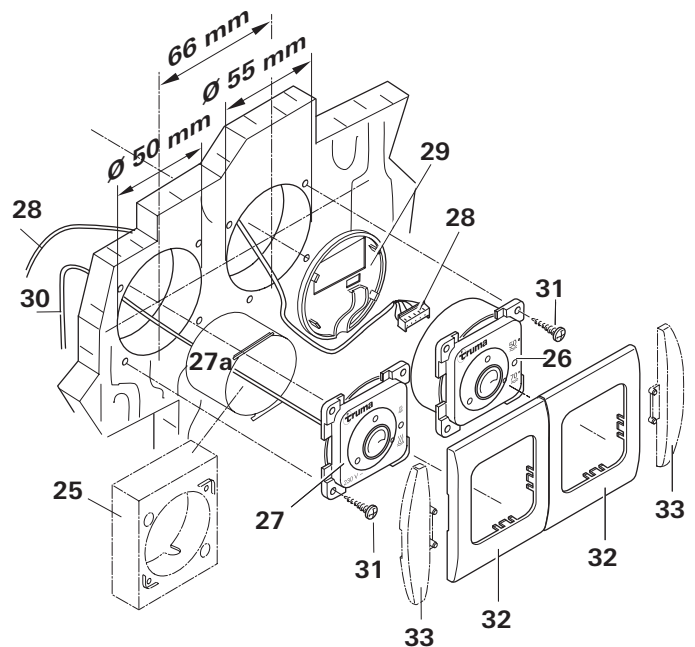


Figure 13

i If the control panels cannot be flush-mounted, Truma can provide a surface-mounted frame (25 – part no. 40000-52600) as an accessory by request.

Install the control panel for gas mode (26) and the control panel for electrical mode (27) (if any) next to each other if possible (distance between hole centres: 66 mm).

For each control panel, drill a hole with a diameter of 55 mm (gas mode) and 50 mm (electrical mode) (distance between hole centres: 66 mm).

Connect the control panel cable (28) to the control panel for gas mode (26), then fit the rear blank cover (29) as strain relief.

Connect the control panel using a 4 x 1.5 mm² cable (30, not included – see “230 V ~ connection, control panel”). Push the cable through the rear cover (27a) and secure using strain relief.

Push the cable through towards the rear and route the connector cables (28 + 30) to the boiler.

Route the connector cable with connector (28) to the 12 V = electronic control unit (for connection, see “12 V = electrical connection”).

Secure both control panels with 4 screws each (31).

! At the 230 V ~ control panel it must be ensured that the rear cover closes properly and is securely mounted between the wall on which the boiler is mounted and the control panel cover frame. It must not be possible to remove the rear cover when the control panel is fitted.

Fit the front cover (32).

i Truma supplies side parts (33) as accessories to improve the appearance of the cover frames. Please contact your dealer.

12 V \equiv electrical connection

! Disconnect the appliance from the power supply before starting to work on electrical components. Switching off at the control panel is insufficient.

The appliance must be disconnected from the on-board power supply when electric welding work is being carried out on the vehicle body.

! Reversing the polarity of the connections will result in a risk of cable fire. Any warranty or liability claims will also be invalidated.

Plug the control panel cable (28) with the connector (28a) into the electronic control unit.

In order to attach it securely, route the control panel cable (28) through the cable guide (28b).

The 12 V \equiv electrical connection is made at the clamp (35).

orange = positive 12 V \equiv
blue = negative

This is done by pressing from above with a small screwdriver and pushing the cable in from the front.

Connect to the fuse-protected on-board power supply (central electrical system 5 – 10 A) using a 2 x 1.5 mm² cable.

Connect negative line to main ground connection. For lengths of over 6 m, use a 2 x 2.5 mm² cable. If the equipment is connected directly to the battery, the positive and negative lines must be protected.

If necessary, remove the outer cable sheathing at the cover lead-through.

No other 12 V consumers must be connected to the supply line.

i The boiler fuse (36), 1.6 A (slow-acting), is on the electronic control unit.

Screw on the cover (34).

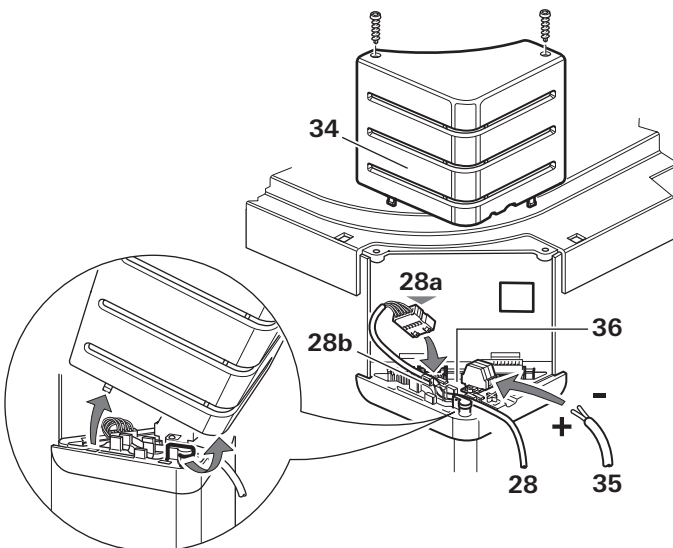


Figure 14

i When power packs or power supply units are being used, make sure that the regulated output voltage is between 11 V and 15 V and the alternating current ripple is < 1.2 Vss.

230 V \sim electrical connection

! The 230 V \sim electrical connection must always be made by an expert (in accordance with VDE 0100, part 721 or IEC 60364-7-721 in Germany). These instructions are intended only as additional information for a qualified electrician; electrical work should not be carried out by unqualified persons.

Make the connection to the 230 V \sim power supply using a 3 x 1.5 mm² cable (e.g. H05VV-F flexible cable) and the connection to the 230 V \sim control panel using a 4 x 1.5 mm² cable.

It is imperative that connection is carried out with care while observing the correct colours.

An insulating device for providing all-pole insulation from the mains with contact clearance of at least 3.5 mm must be provided by the customer for carrying out maintenance and repair work.

! All cables must be secured with clamps. The heating element cables can be routed next to the support on the side of the boiler and attached to the lug by means of a cable tie. No water containers or hoses must be attached to the lug.

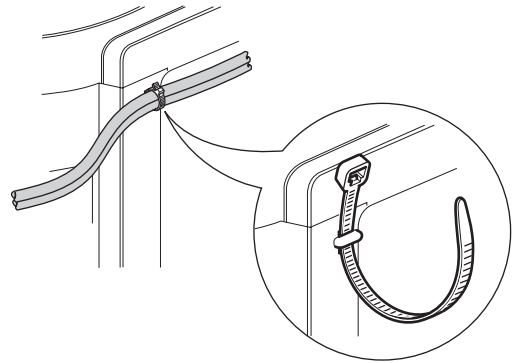


Figure 15

230 V ~ control panel connection

Connect the cable for the control panel, the 230 V cable and the cable for the heating element as shown in the diagram below.

The cables must comply with the technical rules and regulations of the country in which the vehicle is registered.

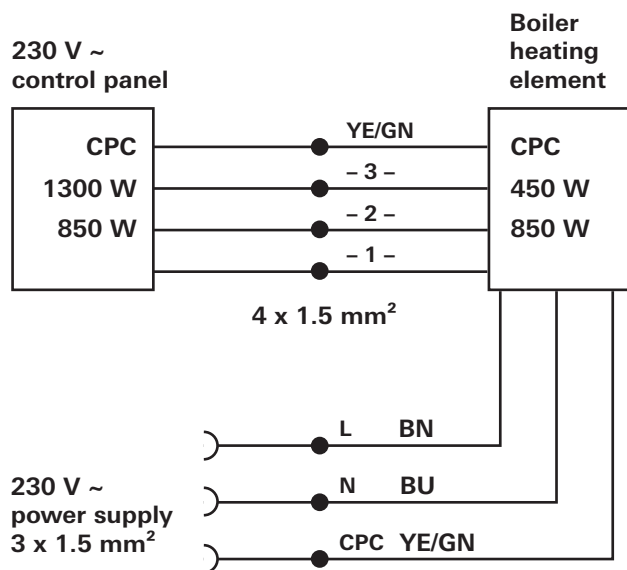


Figure 16

In the interests of safe operation, make sure that the L and N conductors are properly connected to the corresponding cables.

Function check

Following installation, the gas system must be checked for leaks in the first inspection by using the pressure drop method in accordance with EN 1949.

In order to check that the 230 V heating elements are operating correctly, a power consumption measurement must be carried out with the switch in the 850 W and 1300 W positions.

Position 850 W	3 – 4 A	750 – 900 W
Position 1300 W	5 – 6.5 A	1150 – 1400 W

If the values measured do not fall within the range shown above, please check that the heating elements are properly connected.

Then check all appliance functions as described in the operating instructions – especially the boiler draining function. No claims may be made under the warranty for damage caused by frost!

! Never operate the boiler when it is empty! An electrical function check can be carried out briefly even if there is no water in the boiler. Always follow the operating instructions before starting up.

Warnings

The installer or vehicle owner must affix the yellow warning information sticker that is provided with the appliance to the vehicle in a location that is clearly visible to all users. Missing stickers can be requested from Truma.

Technical data

determined in accordance with EN 15033 or Truma test conditions

Manufacturer

Truma Gerätetechnik GmbH & Co. KG
Postfach 1252
85637 Putzbrunn (Munich)
Germany

Protection class

IP21

Water capacity

10 litres

Pump pressure

max. 2.8 bar

System pressure

max. 4.5 bar

Gas type

Liquid gas (propane / butane)

Operating pressure

30 mbar

Nominal heat load

$Q_n = 1.5 \text{ kW (H)}; 120 \text{ g/h}; C_{11}; I_{3B/P(30)}$

Heating time from approx. 15 °C to approx. 70 °C

Gas mode: approx. 31 min.

Electrical mode: approx. 29 min. (BGE 10)

Gas and electrical mode: approx. 16 min. (BGE 10)

Power supply

12 V ~

230 V ~ / 50 Hz

Power consumption at 12 V ~

Ignition: 0.16 A

Heating: 0.12 A

Standby: 0.05 A

Power consumption at 230 V ~ (Boiler gas/electric)

Heating: (3.7 A) 850 W / (5.7 A) 1300 W

Standby – gas consumption

approx. 70 W

Weight without water

(Boiler gas)

6.9 kg

(Boiler gas/electric)

7.4 kg

Destination countries

AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR

CE 0085



E1 10R-05 2604

Subject to technical changes.

EN Should problems occur, please contact the Truma Service Centre or one of our authorised service partners (see www.truma.com).

In order to avoid delays, please have the unit model and serial number ready (see type plate).

Service