Electronically controlled instantaneous DE 18 E water heater DE 24 EL DE 27 E

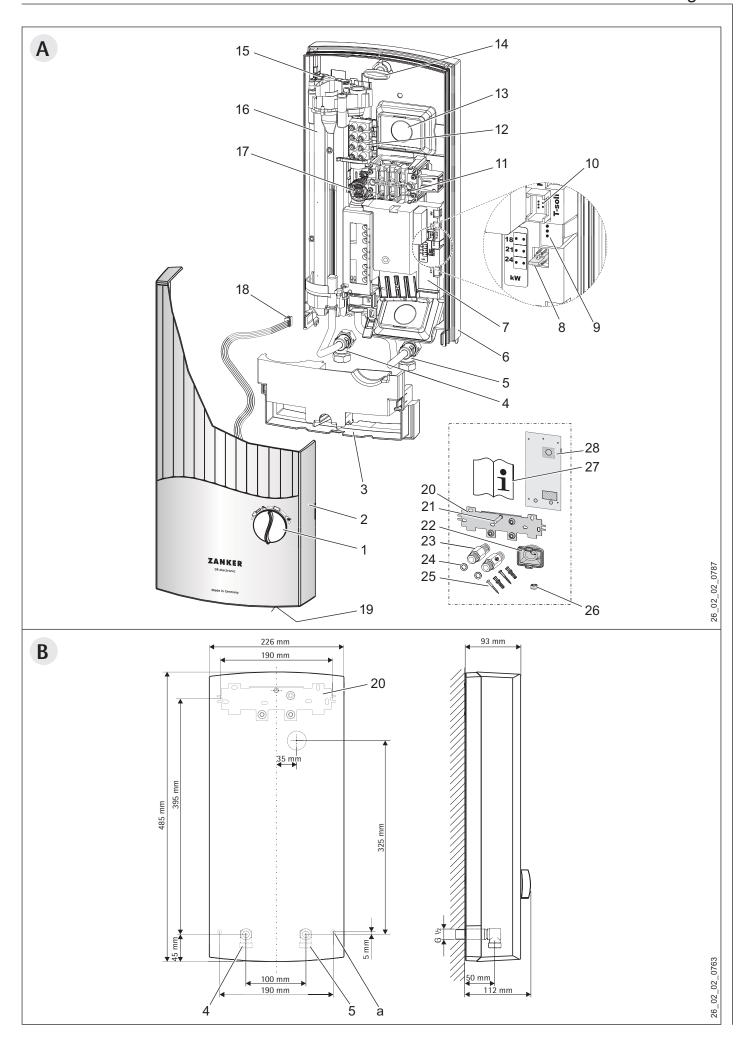


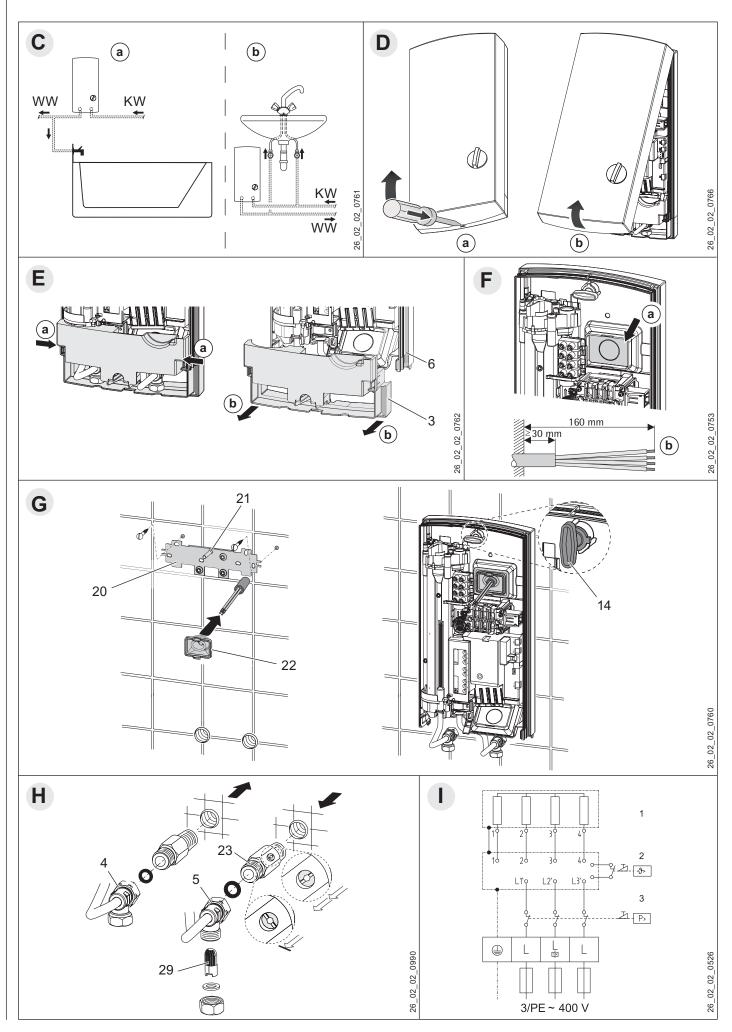


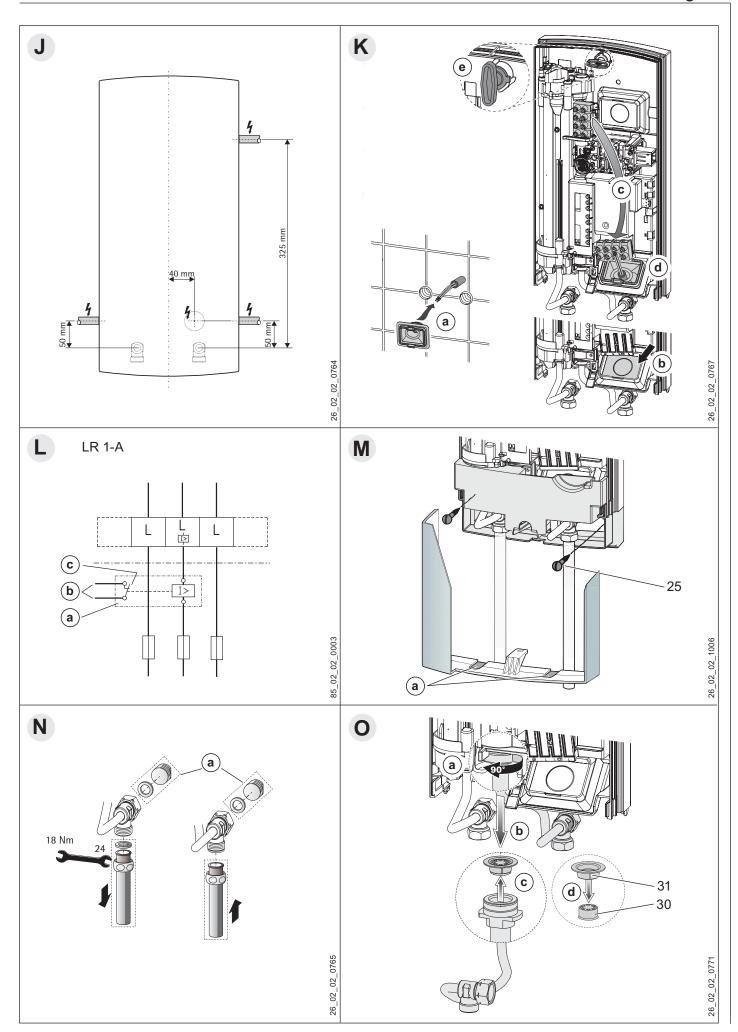
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11.







OPERATION

1. General information

1.1 Document information

The chapter "Operation" is intended for appliance users and heating contractors.

The chapter "Installation" is intended for heating contractors.

Read these instructions carefully before using the appliance and retain them for future reference. Pass on the instructions to a new user if required.

- » These passages and the "»" symbol indicate that you have to do something. The action you need to take is described step by step.
- Passages with the "o" symbol indicate lists.

2. Operating instructions

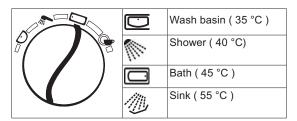
2.1 Equipment description

The instantaneous water heater heats water as it flows through the equipment. You can adjust the DHW outlet temperature anywhere between approx. 30 °C and approx. 60 °C via a temperature selector. From a flow rate of approx. 3 l/min onwards, the control regulates the correct heating output, subject to the temperature selection and the cold water temperature.

2.2 Vital facts in brief

Temperature selector

Turning the selector lets you freely choose the required temperature.



Should the outlet temperature fail to reach the required level, when the tap is fully opened, and the temperature selector has been set to maximum (temperature selector turned fully clockwise), then more water flows through the equipment than can be heated by the internal heater cartridge (output limit 18; 21; 24 or 27 kW). In such cases, reduce the flow rate at the tap accordingly.

Temperature limit

A contractor can set the temperature limit to 43 °C at the device. You can still adjust the temperature selector across its entire range. The outlet temperature will be permanently limited to 43 °C. A temperature range 30 °C to 43 °C can be selected.

2.3 Safety information



Risk of scalding

There is a risk of scalding at outlet temperatures above 43 °C!



Risk of injury

Where children or persons with limited physical, sensory or mental capabilities are to be allowed to control this appliance, ensure that this will only happen under supervision or after appropriate instructions by a person responsible for their safety. Children should be supervised to ensure that they never play with the appliance.

2.4 Important information

If the water supply to the instantaneous water heater has been interrupted, e.g. because of a risk of frost or work on the water system, take the following measures prior to taking the appliance back into use:

- » 1. Remove fuses or trip the appropriate MCBs.
- » 2. Open a tap downstream of the appliance until all air has been vented from the appliance and its cold water supply pipe.
- » 3. Replace the fuses or reset the relevant MCBs.

2.5 Recommended settings when using a thermostatic valve

To safeguard the function of the thermostatic valves, set the instantaneous water heater to its maximum temperature (temperature selector to the right end stop).

2.6 "First aid" in case of faults

Fault	Cause	» Remedy
The heating system inside the instantaneous	No power.	Check the fuses in your fuse board.
water heater will not start in spite of the tap	The start-up volume required to start the	Clean and/or descale.
being fully open.	heater has not been reached. Contamination	
	or scaling of perlators in the taps or shower	
	heads.	
	Heating system faulty.	Call customer service / contractor:
		Test heating system and replace if required.
Intermittent cold water.	The air detector senses the presence of air	Appliance starts again after one minute.
	in the water and briefly switches the heater	
	off.	

If a contractor is required for a problem that has occurred, the fault can be remedied more quickly and effectively if you provide some of the details from the type plate (A 19):



2.7 Maintenance and care

Maintenance work, such as checking electrical safety, must only be carried out by a specialist contractor. A damp cloth is sufficient for cleaning the casing. Never use abrasive or corrosive cleaning agents.

2.8 Operating and installation instructions

Keep these instructions safe and pass them on to any new user, should the appliance change hands. Let your contractor check their content in conjunction with any maintenance or repair work.

INSTALLATION

3. Installation instructions

Only trained and authorised experts must install the device and make the electrical connection under full observance of these installation instructions.

3.1 Equipment layout

Figures A - O

1	Temperature selector
2	Equipment cap
3	Base, back panel
4	DHW compression fitting
5	Cold water compression fitting
6	Top, back panel
7	Electronics
8	Coding card for output selection for the DE 24 EL
9	LED diagnostic "traffic light" for operating and fault
	indications
10	Plug-in position from the temperature selector cable
11	Safety pressure limiter (AP 3) with reset button
12	Mains terminal
13	Knock-out for power connection from above
14	Fixing toggle
15	High limit safety cut-out (STB) with reset button
16	Heating system

17	Flow sensor
18	Temperature selector plug "set T"
19	Type plate
20	Mounting bracket
21	Stud for mounting bracket
22	Cable grommet (power cable from above/below)
23	Twin nipple (cold water with shut off valve)
24	Flat packing
25	Screws/rawl plugs for fixing the back panel in case of water
	connection on finished walls
26	Second flow limiter, only for the DE 24 EL (secured to the
	cold water pipe)
27	Installation and operating instructions
28	Installation template
29	Sieve
30	Flow limiter
31	Profile washer

3.2 Brief description

This electronically regulated instantaneous water heater is a pressure device for the heating of cold water that can supply one or several draw-off points. The bare wire heating system is suitable for hard and soft water areas (for application range, see "Application areas").

3.3 Important information



Air in the cold water supply can destroy the bare wire heating system inside the appliance or can trip the safety system.

If the water supply to the instantaneous water heater has been interrupted, e.g. because of a risk of frost or work on the water system, take the following measures prior to taking the appliance back into use:

- » 1. Remove fuses or trip the appropriate MCBs.
- » 2. Open and close a tap downstream of the equipment several times, until all air has been vented from the cold water supply line upstream and the equipment.
- » 3. Replace the fuses or reset the relevant MCBs.

The instantaneous water heater is equipped with an air detector which, to the greatest extent, prevents damage to the heating system:

If, during operation, air is drawn into the instantaneous water heater, the equipment shuts down the heating load for one minute, thereby protecting the equipment.

Taps

- Direct draw-off tap for instantaneous water heater mono-lever mixer with bath/hand shower changeover, see "Special accessories".
- The installation may be carried out using commercially available pressure tested taps.
- For thermostatic pressure tested valves, see information "Recommended adjustment".

Carefully observe all information in these operating and installation instructions. They contain important information regarding safety, operation, installation and maintenance of the appliance.

3.4 Instructions and regulations

- The installation (water and electrical work) and commissioning, as well as the maintenance of this equipment, must only be carried out by a qualified contractor in accordance with these instructions.
- Perfect function and safe operation can only be assured when using original accessories and spare parts intended for this equipment.
- Observe all locally applicable instructions and regulations regarding water and electrical connections.
- Observe all regulations of your local water and electricity supply companies.
- Observe the type plate (A 19).
- See chapter "Specification".
- The specific electrical resistance of the water used must not fall below that stated on the type plate! In a linked water network, observe the lowest electrical water resistance (see chapter "Application areas"). Your water supply utility will advise you of the specific electrical water resistance or conductivity.
- Install the device only in an enclosed room free from the risk of frost. Store the device in a room free from the risk of frost, as water residues remain inside the device.
- The protection IP 25 (hoseproof) can only be ensured with a correctly fitted cable grommet.

Water installation:

- Material for the cold water line: Steel, copper or plastic pipework.
- Material for the DHW line: Copper or plastic pipework*.
- The instantaneous water heater can reach operating temperatures up to 60 °C. In case of faults, loads up to 95 °C / 1.2 MPa can occur temporarily in the installation. The plastic pipework used must be suitable for such temperatures/pressure.
- A safety valve in the hot water pipe is not permissible.
- Never operate with pre-heated water.
- Never use taps/valves for open vented equipment.
- For thermostatic valves, see "Recommended adjustment".

Electrical installation:

- Use only permanently wired power cables.
- The equipment must be able to be separated from the power supply, for example by fuses that disconnect all poles with at least 3 mm contact separation.

4. Standard installation

For contractors Power: unfinished walls - top; Water: unfinished walls

4.1 General installation information

At the factory, the device is prepared for a power connection from the top from an installation below the plaster (see Fig. C - I):

- The device is suitable for above or undersink installation C.
- Water connection threaded fittings below the plaster.
- Power connection below the plaster in the upper device area.

Important information regarding the DE 24 EL with connected load changeover

In its delivered condition the device is set to 21 kW. When changing to a different output, carry out the following steps:

Re-plug the coding card

» Re-plug the coding card (A 8) according to the selected output; for selectable output and fuse protection see "Specification".

Mark the connected load on the type plate (A 19), with a permanent marker.

Replace the flow limiter

» If 24 kW connected load has been selected, replace the fitted flow limiter (• 30, white) with the flow limiter supplied (orange, fixed to the cold water pipe).

4.2 Installation site

» Install the instantaneous water heater according to the figure C (a-oversink or b-undersink) vertically, flush with the wall and in a room free from the risk of frost.

4.3 Preparing the device installation

Open the device:

Figure **D**

- » a Disengage the snap-in closure using a screwdriver.
- » b Open and remove the appliance cap.

Remove the lower part of the back panel:

Figure E

- » a Push both snap-in tabs.
- » b Remove the back panel bottom section towards the front.
- » Break out the knock-out provided for the cable grommet in the back panel (F a). If the wrong knock-out has been opened by mistake, a new back panel must be used.
- » Trim the power cable to size (F b).
- » Remove the protective transport plugs from the water connections.

4.4 Fitting the mounting bracket

Figure **G**

- » Mark out the holes to be drilled for the mounting bracket using the installation template supplied (existing/suitable mounting bracket can be used).
- » Secure the mounting bracket with 2 screws and rawl plugs (not part of the standard delivery; select in accordance with the material of the fixing wall).
- » Insert the studs supplied into the mounting bracket.

4.5 Equipment installation

Figure **G**

- » Seal in and insert the twin nipples.
- » Push the cable grommet (22) over the power cable.
- » Slide the back panel over the studs and cable grommet, pull the cable grommet with a pair of pliers against the snap-in tabs and click both tabs audibly into place.
- » Push the back panel firmly and flush against the wall and lock with the fixing toggle (14). At the bottom, the appliance can be secured with 2 additional screws (M 25).

4.6 Water connection

Figure **H**

» Position the threaded connections with flat gaskets onto the twin nipples; for this observe the correct seating of the connections (never twist the bayonet closures inside the appliance).

Important information:

- » Thoroughly flush the cold water supply pipe.
- » If the correct function cannot be assured because the flow pressure is too low, e.g. < 0.2 MPa (< 2 bar), remove the flow limiter (O 30) and reinsert the profile washer (O 31). If required, increase the pressure in the water installation.</p>
- » Never remove the flow limiter when using a thermostatic valve.
- » Never use the shut-off valve in the cold water supply (23) to reduce the flow rate.

4.7 Electrical connection

- » Connect the power cable to the terminal strip (see wiring diagram 1).
- 1 Heating system
- 2 High limit safety cut-out
- 3 Safety pressure limiter

Important information:

- » The protection rating IP 25 (hoseproof) is only assured if the cable grommet is fitted correctly (**G** or **K**) and if the cable sheath is sealed.
- » Connect the appliance to earth.
- » For supply cables > 6 mm², increase the hole in the cable grommet.

4.8 Completing the installation

» Click the lower part of the back panel (E 3) into place.

5. Commissioning

(only to be carried out by a qualified contractor)

- » 1 Fill and vent the appliance. Please note: boil-dry risk! Open and close all connected taps/valves several times, until all air has been vented from the pipework and the appliance. Regarding air, see information in chapter "Important information".
- » ② Activate the safety pressure limiter AP 3. The instantaneous water heater is delivered with the safety pressure limiter triggered (press the reset button).
- » 3 Push the plug from the temperature selector cable onto the PCB.
- » 4 Fit the appliance cap and click it audibly into place. Check that the appliance cap is firmly seated on the back panel.
- » Switch on the mains power.
- » 6 Turn the temperature selector in both directions to calibrate the temperature.
- Check the instantaneous water heater function. For display options of the LED diagnostic traffic light (A 8), see chapter "Troubleshooting":

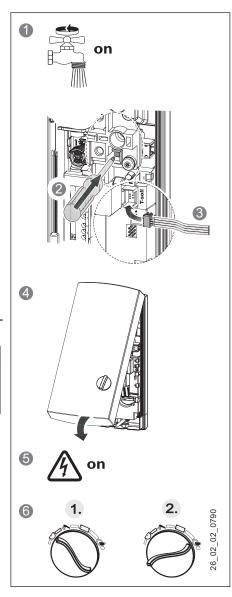
	Red	Illuminates in case of faults
Yellow Illuminates in heating mode		Illuminates in heating mode
	Green	Flashing: appliance is supplied with mains power

Appliance handover

» Explain the appliance function to the user and familiarise the user with its operation.

Important information:

- » Inform the user of potential risks (scalding).
- » Hand over these instructions to the user for safekeeping.



6. Installation alternatives

For contractors

Power supply: unfinished walls – from below, load shedding relay; undersink installation; water connections – from above; water: finished walls

Alternative installation methods are shown in figures J = 0.

6.1 Power supply – unfinished walls – from below

Figure K

- » a Push the cable grommet over the power cable.
- » b Break out the cable grommet knock-out in the back panel.
- » c Move the terminal strip from the top to the bottom; to do so, undo the screw and refit it into the terminal strip at the bottom.
- » d Slide the back panel over the studs and the cable grommet, pull the cable grommet with a pair of pliers against the snap-in tabs and **let both tabs audibly click into place**.
- » e Push the back panel firmly and flush against the wall and lock with the fixing toggle.

6.2 Power supply – finished walls

- » Cut or break a hole into the back panel suitable for the power cable (for possible knock-outs see J).
- » With power supply on finished walls, the protection rating is reduced to IP 24 (splashproof).

Please note:

» Mark the type plate with a permanent marker:

Cross out IP 25 and tick the box next to IP 24.

6.3 Priority control

Figure L

When used in conjunction with other electrical equipment, e.g. electric storage heaters, use the load shedding relay:

- o a Load shedding relay (see "Special accessories").
- b Control cable to the contactor of the second appliance (e.g. electric storage heater).
- c Control contact, opens when switching the instantaneous water heater on.

The relay trips as soon as the instantaneous water heater starts.

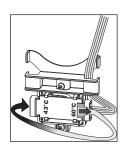
Only connect the automatic maximum demand controller to the central phase of the equipment terminals (mains power).

6.4 Undersink installation, water connections from the top

Undersink installation with water connections from the top can be achieved with the additional pipe assembly for undersink devices (see "Special accessories"). Cleanly break out the water pipe knock-outs in the back panel and fit the pipe set.

6.5 Temperature limit

If the maximum temperature is to be limited to 43 °C, this is done on the inside of the device cap. For this, replug the temperature selector cable in the device cap from 60 °C to 43 °C. You can still adjust the temperature selector across its entire range. The outlet temperature will be permanently limited to 43 °C. A temperature range 30 °C to 43 °C can be selected.



6.6 Taps for finished walls

For taps for instantaneous water heaters, see "Special accessories".

ZANKER – pressure tested tap for finished walls; see "Special accessories":

- » Fit plug G ½ with gaskets (a) (part of the standard delivery of the ZANKER pressure-tested tap).
- » Fit the tap.
- » Push the open ends of the pipes into the tap.
- » Click the back panel bottom section into the back panel top section.
- » Secure the connection pipes to the appliance.

The appliance cap must be prepared for this installation:

» Cleanly break out the knock-outs in the appliance cap (M a); if required, use a file.

Fixing the appliance:

» Secure the back panel in the lower part of the appliance with two additional screws (M 25).

Fitting the cap:

» Hook the appliance cap in at the top and pivot it down onto the back panel, then make it audibly click into place. Check the firm seat of the appliance cap on the back panel.

7. Specification and application areas for contractors

7.1 Specification

(The details on the type plate apply)

Туре		DE 18 E	DE 24 EL			DE 27 E
			with selectable	output		
Part number		222404	222406			222407
Rated output	kW	11	18	21	24	27
Rated current	A	16	29	31	35	39
Fuses	A	16	32	32	35	40
Selectable output		nein	ja	ja	ja	nein
Pressure drop *						
with DMB	MPa / I/min	0.08 / 5.2	0.08 / 5.2	0.1 / 6.0	0.13 / 6.9	0.16 / 7.7
without DMB	MPa / I/min	0.02 / 5.2	0.06 / 5.2	0.08 / 6.0	0.10 / 6.9	0.12 / 7.7
Throughput limit (DMB)	l/min	8.0	8.0	8.0	9.0	9.0
	Colour	white	white	white	orange	orange
Nominal capacity		0.4 I				
Туре		sealed/unvented				
Rated operating pressure	MPa	1 (10 bar)				
Weight	kg	3.6				
Protection class to EN 60335		1				
Protection level to EN 60529		IP 25				
Test symbols		see type plate				
Water connection		G 1/2 A (male thre	ad)			
Power supply		3/PE ~ 400 V - 50 Hz				
Bare wire heating system		see application areas				
Cold water inlet temperature, max.	°C	25				
Application area		water with low lime-scale levels and those with lime-scale content				
Throughput "ON"	I/min	≥ 3.0				

7.2 **Application areas**

Specific electrical resistance and specific electrical conductivity

Details as		Application areas for differen	Application areas for different reference temperatures			
		Standard specification at 15 °C	at 20 °C	at 25°C		
Resistance	Ωcm	≥ 900	≥ 800	≥ 735		
Conductivity	mS/m	≤ 111	≤ 125	≤ 136		
Conductivity	μS/cm	≤ 1110	≤ 1250	≤ 1360		

7.3 **DHW** output

See the following table for the mixed water volume. The equation symbols have the following meanings:

 ϑ_1 = Cold water inlet temperature ϑ_3 = Outlet temperature

 ϑ_2 = Mixed water temperature

Available temperature for example for: Shower, handwashing, filling a bath, etc.

	$\vartheta_2 = 38$	∂ ₂ = 38°C				
kW	18	21	24	27		
91	I/min *		·			
6°C	8.0	9.4	10.7	12.1		
10 °C	9.2	10.7	12.3	13.8		
14 °C	10.7	12.5	14.5	16.1		

Kitchen sink and when using thermostatic valves.

	$\theta^3 = 60$	$\theta^3 = 60 \text{c}$		
kW	18	21	24	27
91	I/min *			
6°C	4.8	5.6	6.4	7.2
10 °C	5.2	6.0	6.9	7.7
14 °C	5.6	6.5	7.5	8.4

The values in the table are relative to a rated voltage of 400 V. The outlet volume is subject to the available supply pressure and the available mains voltage.

Troubleshooting by the contractor 8.



Danger of electrocution! To test the appliance, it must be supplied with power.

Possi	Possible indications of LED diagnostic traffic light					
	Red Illuminates in case of faults					
Yellow Illuminates in heating mode		Illuminates in heating mode				
0	Green	Flashing: appliance is supplied with mains power				

Faul	t / Diagnostic traffic light display	Cause	» Remedy
Flow	rate too low	Shower head/perlators scaled up	Descale and replace if required
		Contamination	Clean sieve (29)
Set t	emperature is not achieved	One phase down	Check fuse/MCB (fuse box)
	er does not switch on / ot water	The air sensor detects the presence of air in water and briefly switches the heater off	Appliance starts again after one minute
	No hot water	Fuse/MCB blown/tripped	Check fuse/MCB (fuse box)
	No traffic light display	Safety pressure limiter AP 3 has tripped	Remove cause of fault (e.g. faulty pressure washer).
			Open downstream draw-off valve for 1 minute. This
\square			depressurises and cools down the heating system,
			protecting it against overheating.
			Press the pushbutton on the safety pressure limiter
			(push 11).
		Faulty PCB	Test the PCB (7) and replace if required
	No hot water; flow rate > 31/min	Faulty PCB	Test the PCB (7) and replace if required
	Traffic light display:	Flow sensor DFE not plugged in	Plug flow sensor back in
0	Green flashing or constantly ON	Flow sensor DFE faulty	Test flow sensor and replace if required
	No hot water; flow rate > 3 l/min	High limit safety cut-out responded or	Activate safety pressure limiter and replace if
	Traffic light display:	interrupted	required (11)
	Yellow constantly ON; green	Heating system faulty	Test the heating system resistor (16) and replace if
	flashing		required
		Faulty PCB	Test the PCB (7) and replace if required

Faul	lt / Diagnostic traffic light display	Cause	» Remedy
	No hot water	Cold water inlet temperature > 35°C	Reduce the temperature of the cold water supply to
	Traffic light display:		the appliance
	Red constantly ON; green flashing	Flow rate > 25 l/min	Reduce the appliance throughput
		Cold water sensor faulty	Test the PCB (7) and replace if required

9. Special accessories

Taps for instantaneous water heaters

- ° D 149 Special bath mixer tap
- ° D 159 Special bath mixer tap, mono-lever mixer tap
- ° D 169 Special mixer tap with pivoting spout

Installation accessories

Pipe assembly, undersink installation Z 674

Water connections with 12 mm compression fittings

Universal mounting frame MR 110

Comprising:

Mounting frame with electrical wiring.

This assembly creates a gap of 30 mm between the appliance back panel and the installation wall.

This enables the electrical connection to be routed over unfinished walls at any point behind the appliance. This increases the appliance depth by 30 mm. This assembly reduces the protection rating to IP24 (splashproof).

Pipe assembly, offset installation MR 111

Comprising:

- Universal mounting frame (for specification see "Universal mounting frame MR 110").
- Pipe bends for a vertical offset of the appliance relative to the water connection by 90 mm downwards.

Pipe assembly for replacing gas water heater MR 112

Comprising:

- Universal mounting frame (for specification see "Universal mounting frame MR 110").
- Pipe bends for the installation with existing gas water heater connections (cold water on the left and DHW on the right).

Load shedding relay LR 1-A

Priority control of the instantaneous water heater when operating, for example, electric storage heaters simultaneously. For connection of the LR 1-A see L.

10. Guarantee

For guarantees please refer to the respective terms and conditions of supply for your country.



The installation, electrical connection and first operation of this appliance should be carried out by a qualified installer.



The company does not accept liability for failure of any goods supplied which have not been installed and operated inaccordance with the manufacturer's instructions.

11. Environment and recycling



Recycling of obselete appliances

Appliances with this label must not be disposed off with the general waste. They must be collected separately and disposed off according to local regulations.

Adressen und Kontakte

Vertriebszentrale

EHT Haustechnik GmbH

Markenvertrieb ZANKER Gutenstetter Straße 10 90449 Nürnberg info@eht-haustechnik.de www.zanker-haustechnik.de Tel.* 01803 911323 Fax 0911 9656-444

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Der Kundendienst und Ersatzteilverkauf ist in der Zeit von Montag bis Donnerstag von 7.15 bis 18.00 Uhr und Freitag von 7.15 bis 17.00 Uhr auch unter den nachfolgenden Telefonbzw. Telefaxnummern erreichbar:

Kundendienst

Tel.* 01803 702020 Fax* 01803 702025

Ersatzteilverkauf

Tel.* 01803 702040 Fax* 01803 702045

*0,09 €/min bei Anrufen aus dem deutschen Festnetz. Aus Mobilfunknetzen gelten möglicherweise abweichende Preise, ab 01.03.2010 Mobilfunkpreis maximal 0,42 €/min.

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