

OPERATION AND INSTALLATION

Sealed unvented floorstanding DHW cylinder

- » ESH 120 Trend GB
- » ESH 150 Trend GB
- » ESH 180 Trend GB
- » ESH 210 Trend GB
- » ESH 250 Trend GB
- » ESH 300 Trend GB

STIEBEL ELTRON

SPECIAL INFORMATION

OPERATION

1. General information	3
1.1 Safety instructions	3
1.2 Other symbols in this documentation	3
1.3 Units of measurement	3
2. Safety	3
2.1 Intended use	3
2.2 General safety instructions	3
2.3 Test mark	4
3. Settings	4
3.1 Temperature controller setting	4
3.2 Resetting the temperature controller	5
3.3 Holiday and absence	5
4. Cleaning, care and maintenance	5
5. Troubleshooting	5

INSTALLATION

6. Safety	5
6.1 General safety instructions	5
6.2 Instructions, standards and regulations	5
7. Appliance description	6
7.1 Standard delivery	6
7.2 Accessories	6
8. Preparation	6
8.1 Installation site	6
8.2 Installation in bathrooms	6
8.3 Minimum clearances	6
8.4 Water supply	7
9. Appliance installation	7
9.1 Positioning the appliance	8
9.2 Pipework connections	8
9.3 Electrical connection	10
10. Commissioning	11
10.1 Checks before commissioning	11
10.2 Initial start-up	11
10.3 Recommissioning	12
11. Shutdown	12
12. Maintenance	12
12.1 Draining the appliance	12
12.2 Flushing the system	12
12.3 Resetting the safety cut-off switch	12
12.4 Troubleshooting: Intermittent or slow water discharge from tundish	13
12.5 Pre-charge pressure of the expansion vessel	13
12.6 Regular maintenance work	13
12.7 Replacing the combination valve	13
12.8 Removing / replacing the drain valve	13
13. Specification	13
13.1 Energy consumption data	13
13.2 Data table	14

LOGBOOK: INSTALLATION, COMMISSIONING, MAINTENANCE

GUARANTEE | ENVIRONMENT AND RECYCLING

SPECIAL INFORMATION

- The appliance may be used by children over 3 years of age and persons with reduced physical, sensory or mental capabilities or a lack of experience and expertise, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the potential risks. Children must never play with the appliance. Cleaning and user maintenance must not be carried out by children without supervision.
- The safety valve overflow must not be sealed or blocked off.
- Always fill the appliance with water before switching it on.
- The power cable must be heat resistant up to 90 °C. Always fit a cable clamp or strain relief.
- The DHW cylinder must be installed in compliance with the applicable building regulations.
- The terminal box is subject to continuous voltage. Prior to any electrical work, always disconnect the power supply and safeguard against reconnection during ongoing work.
- For installation in new build or when making changes to an existing electrical set-up, regulations stipulate that only permanently installed electrical appliances must be used.
- Observe the maximum permissible pressure (see chapter “Preparations / Water supply”).
- Drain the appliance as described in chapter “Installation / Maintenance / Draining the appliance”.

OPERATION

1. General information

The chapters “Special information” and “Operation” are intended for appliance users and qualified contractors.

The chapter “Installation” is intended for qualified contractors.



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

1.1 Safety instructions

1.1.1 Structure of safety instructions



KEYWORD Type of risk
Here, possible consequences are listed that may result from failure to observe the safety instructions.
► Steps to prevent the risk are listed.

1.1.2 Symbols, type of risk

Symbol	Type of risk
	Injury
	Electrocution
	Burns (burns, scalding)

1.1.3 Keywords

KEYWORD	Meaning
DANGER	Failure to observe this information will result in serious injury or death.
WARNING	Failure to observe this information may result in serious injury or death.
CAUTION	Failure to observe this information may result in non-serious or minor injury.

1.2 Other symbols in this documentation



Note
General information is identified by the adjacent symbol.
► Read these texts carefully.

Symbol	Meaning
	Material losses (appliance damage, consequential losses and environmental pollution)
	Appliance disposal

► This symbol indicates that you have to do something. The action you need to take is described step by step.

1.3 Units of measurement



Note
All measurements are given in mm unless otherwise stated.

2. Safety

2.1 Intended use

The sealed unvented (pressure-tested) appliance is intended for heating domestic hot water and can supply one or more draw-off points.

The appliance is intended for domestic use. It can be used safely by untrained persons. The appliance can also be used in non-domestic environments, e.g. in small businesses, as long as it is used in the same way.

Any other use beyond that described shall be deemed inappropriate. Using the appliance for heating fluids other than water or for water supplemented with chemicals, such as brine, is also deemed inappropriate.

Observation of these instructions and of the instructions for any accessories used is also part of the correct use of this appliance.

2.2 General safety instructions



WARNING Burns
During operation, the tap and safety valve can reach temperatures in excess of 60 °C. There is a risk of scalding at outlet temperatures in excess of 43 °C.



WARNING Injury
The appliance may be used by children over 3 years of age and persons with reduced physical, sensory or mental capabilities or a lack of experience and expertise, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the potential risks. Children must never play with the appliance. Cleaning and user maintenance must not be carried out by children without supervision.

OPERATION

Settings

WARNING Injury
The safety valve overflow must not be sealed or blocked off.

WARNING Injury
The cover on the front must not be concealed.

WARNING Injury
It is not permitted to carry out modifications or conversions on the appliance.

Note
We recommend a DHW temperature of at least 55 °C to ensure optimum hygiene conditions. If operating the appliance at a lower DHW temperature, regularly heat the cylinder content to 60 °C.

2.3 Test mark

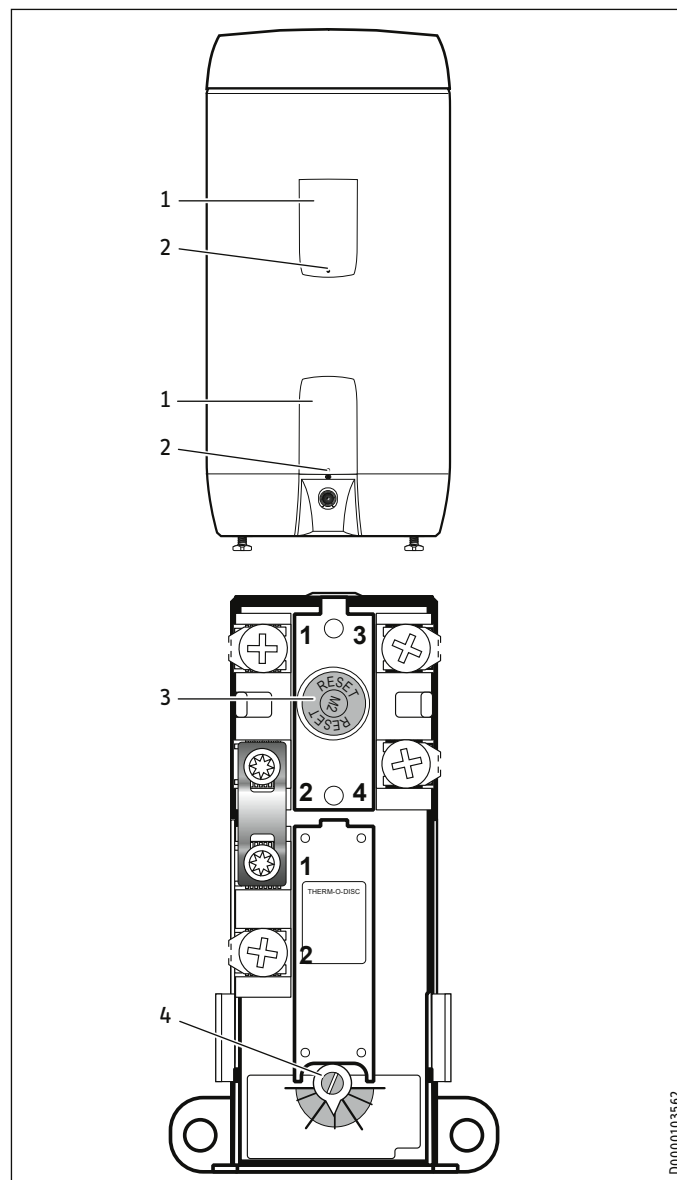
See type plate on the appliance.

3. Settings

3.1 Temperature controller setting

All appliances are equipped with two 3 kW threaded immersion heaters, apart from the ESH 120, which has one 3 kW threaded immersion heater.

For the temperature setting you must adjust both temperature controllers.



- 1 Cover of terminal box
- 2 Screw of terminal box cover
- 3 RESET button
- 4 Temperature controller

The temperature controller on the appliance is adjustable from 30 to 60 °C. Set the temperature as follows:

- ▶ Isolate the appliance from the mains power supply.
- ▶ Remove the cover of the terminal box by undoing the screw that secures the terminal box cover.
- ▶ Use a screwdriver to adjust the temperature on the temperature controller.

- ▶ Refit the terminal box cover before connecting the appliance to the mains power supply.
- ▶ Adjusting the temperature setting on the temperature controller only changes the temperature of the water in the cylinder. The temperature supplied to the taps is set at the mixing valve.

3.2 Resetting the temperature controller

If there is a risk of overheating, the temperature controller on the appliance will switch off. The temperature controller can be reset by removing the cover and pressing the red RESET button. Consult a qualified contractor if the temperature controller fails repeatedly.

3.3 Holiday and absence

- ▶ If you are not going to use the appliance for a long period, switch it off. The installation room must be consistently free from the risk of frost.
- ▶ If absence is expected for a period of more than 60 days, drain the appliance.
- ▶ If you have not used the appliance for a prolonged period, heat the cylinder content once to 60 °C before initial use, for reasons of hygiene.

4. Cleaning, care and maintenance

- ▶ Have the electrical safety of the appliance and the function of the safety valve regularly checked by a qualified contractor.
- ▶ Never use abrasive or corrosive cleaning agents. A damp cloth is sufficient for cleaning the unit.

Scaling

- ▶ Almost every type of water will deposit limescale at high temperatures. This settles inside the appliance and affects both performance and service life. The heating elements must therefore be descaled from time to time. A qualified contractor who knows the local water quality will tell you when the next service is due.
- ▶ Check the taps regularly. Limescale deposits at the tap outlets can be removed using commercially available descaling agents.
- ▶ Regularly activate the safety valve to prevent it from becoming blocked, e.g. by limescale deposits.

5. Troubleshooting

Problem	Cause	Remedy
No water is supplied at the hot water taps.	The water supply is off.	Open the appliance shut-off valve.
	The mains power supply is off.	Check the fuse. If the fuse is intact, contact a qualified contractor.
Very hot water is continuously leaking from the tundish.	The safety cut-off switch, temperature controller or temperature and pressure limiter is not working properly.	Switch off the power supply to the threaded immersion heaters. Then contact a qualified contractor.

If you cannot remedy the fault, contact your qualified contractor. To facilitate and speed up your enquiry, please provide the serial number from the type plate (000000-0000-000000).

INSTALLATION

6. Safety

Only a qualified contractor should carry out installation, commissioning, maintenance and repair of the appliance.

6.1 General safety instructions

We guarantee trouble-free function and operational reliability only if original accessories and spare parts intended for the unit are used.



WARNING Burns
The tap and safety valve can reach a temperature of over 60 °C in operation. There is a risk of scalding at outlet temperatures in excess of 43 °C.



WARNING Injury
The safety valve overflow must not be sealed or blocked off.



WARNING Injury
The power cable must be heat resistant up to 90 °C. Always fit a cable clamp or strain relief.



WARNING Injury
Always fill the appliance with water before switching it on.



CAUTION Injury
The DHW cylinder must be installed in compliance with the applicable building regulations.



CAUTION Injury
Never cover the appliance.

6.2 Instructions, standards and regulations



Note
Observe all applicable national and regional regulations and instructions.

7. Appliance description

7.1 Standard delivery

The following are delivered with the appliance:

- Expansion vessel with wall mounting bracket
- 1/2" FI X 3/4" FI 600 mm flexible hose
- Accessories pack with cable clamp, flexible Y hose, washers, tundish with installation screws and installation template
- Combination valve with pipe strainer, pressure reducing valve, pressure-compensated cold water connection (only for shower or bidet), cap for pressure-compensated cold water connection, temperature and pressure limiter and hot water mixing valve
- 3 kW threaded immersion heater
- Temperature controller with safety cut-off switch
- Drain valve
- Cylinder cover

7.1.1 Expansion vessels

The supplied expansion vessels are connected to the multifunctional valve using the flexible hose supplied.

When the DHW cylinder is heated, the expansion vessels take in the expanding water. This prevents the DHW cylinder from exceeding its maximum operating pressure.

Volume of expansion vessels:

- 120: 8 l vessel
- 150/180: 12 l vessel
- 210/250: 18 l vessel
- 300: 24 l vessel

7.2 Accessories

Wall mounting brackets are available for the sealed unvented ESH 120-180 DHW cylinders.

8. Preparation

8.1 Installation site



Note

We recommend fitting the connection pipes and electric cables before positioning the DHW cylinder. Positioning the DHW cylinder is the final step before connecting the pipework and commissioning the DHW cylinder.



Note

The appliance must be easily accessible in the for the home purpose of service and maintenance.



Note

Allow for the routing of a discharge pipe away from the DHW cylinder to a point outdoors, in line with building regulation G3.



Material losses

The appliance must be sited in a dry and permanently frost-free location.



Material losses

The floor or wall on which the appliance is installed must be suitable for supporting the total weight of the appliance in operation. See type plate.

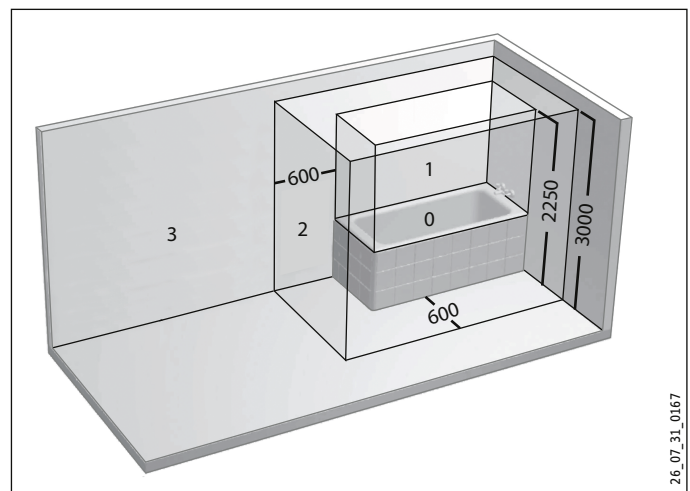
If installing the appliance on a wall using a wall mounting bracket, ensure the wall is able to withstand the forces resulting from the weight of the DHW cylinder when full.

8.2 Installation in bathrooms



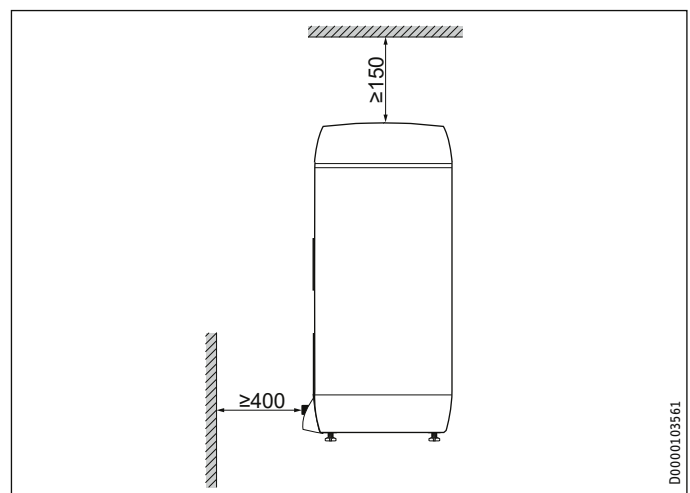
WARNING Electrocutation

Only install the appliance in safety zone 3. In very small bathrooms, where the dimensions do not permit this, the appliance can be installed in safety zone 2.



Electrical safety zones in the bathroom

8.3 Minimum clearances



8.4 Water supply



Note

Do not use the pressure-compensated cold water connection for supplying any outlets other than mixer taps and bidets. Do not use the pressure-compensated cold water connection for supplying all cold water outlets.



Material losses

The sealed unvented appliance is designed for a supply pressure of up to 0.8 MPa. For pressures greater than 0.8 MPa, an additional pressure reducing valve must be installed in the supply line to the appliance.

We recommend an uninterrupted 22 mm cold water supply. If only a 15 mm supply is available, this may be used, provided the flow rate is sufficient.

We recommend a minimum pressure of 0.25 MPa and a flow rate of 20 l per minute with a dynamic pressure of 0.1 MPa.

The DHW cylinder can also be operated with lower pressures and flow rates. This will however impair the performance.

9. Appliance installation

Preliminary wiring



Note

- Always use a suitable heat-resistant flexible cable with a temperature resistance of at least 90 °C, e.g. H05V2V2-F (309-Y).
- Size the conductors in accordance with the IET Wiring Regulations.
- For threaded immersion heaters we recommend $\geq 2.5 \text{ mm}^2$, due to the high ambient temperatures of up to 90 °C.
- The entire internal wiring is fitted at the factory.

We recommend routing the electric wires to the terminal box prior to final installation and fitting of the pipework.

The appliance features two channels in the base, for routing electric cables to the DHW cylinder.

The channels run diagonally from centre front to back left and back right. They allow for neat installation with minimal visible cabling.

- ▶ Remove the covers of the terminal box when positioning the DHW cylinder.
- ▶ Route the wiring from the base channels up into the terminal box.
- ▶ When connecting the flexible cable, secure it with a cable clamp. The cable clamp is included in the accessories.

The flexible cable must be sufficiently long to allow the cable to reach from the terminal box through the base channels while also leaving an adequate excess length protruding at the front of the DHW cylinder.

This allows the power connection point to be reached. See chapter “Installation / Electrical connection / Wiring up threaded immersion heaters and temperature controllers”.

Pipework connection

All pipework connections are at the top of the DHW cylinder. The pipes are secured to the back panel. A template assists with placing the pipes.

9.1 Positioning the appliance



CAUTION Injury

The product must be correctly aligned both vertically and horizontally. The floor or wall on which the appliance is installed must be suitable for supporting the total weight of the appliance in operation. See type plate.



Note

Maintain a minimum clearance around the appliance for servicing. The minimum clearance must be no less than 400 mm in front of the immersion cover / 150 mm above the DHW cylinder.

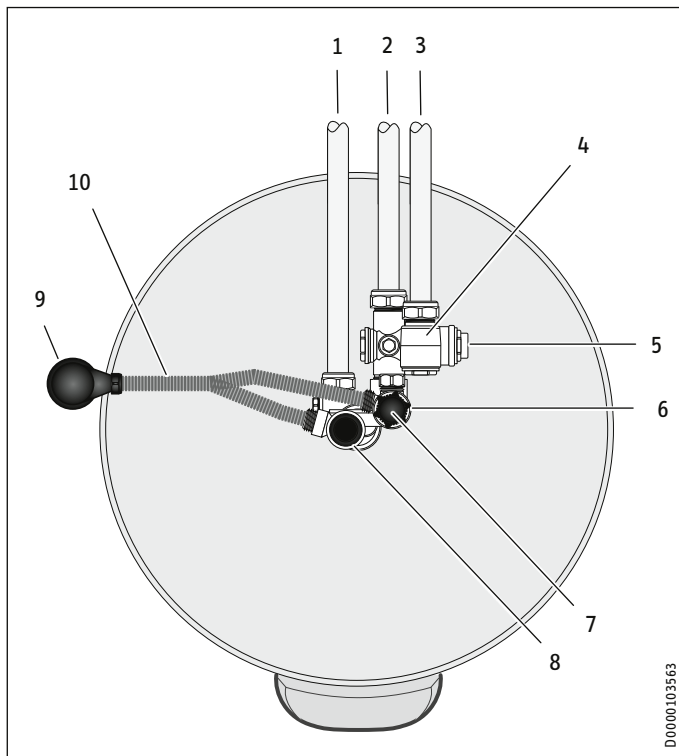
- ▶ Decide where the DHW cylinder is to be positioned.
- ▶ Then secure the wall template with the cross on the back panel, ensuring a minimum clearance of 326 mm to the left wall.
- ▶ Before positioning the DHW cylinder, wind out the feet in the bottom until they protrude 10 mm (35 mm if using the optional wall mounting bracket). Refer to the template supplied to ensure the cross is positioned at the right height above the floor in relation to the relevant capacity of the DHW cylinder.
- ▶ If the DHW cylinder is raised above floor level, either on its feet or on a base, the height of the template above the floor will need to be raised accordingly.

When fitting the connectors, ensure they protrude from the back panel horizontally, perpendicular to the wall and parallel to each other. The table below shows the precise lengths these connectors must be cut from the wall in order to reach the cylinder connections.

- If pipes have to be routed upwards on the back panel behind the cylinder position, the connectors must be longer. Use the lengths marked ‘below’.
- If the pipes are being routed from above or from the side, use the lengths marked ‘above’.

Connector length from wall	Top	Bottom
Cold water inlet (3)	202	242
DHW outlet (1)	274	314
Balanced cold water outlet (2)	188	228

9.2 Pipework connections



- 1 Domestic hot water outlet (DHW out), $\varnothing 22$ mm
- 2 Pressure-compensated cold water connection (bal. CW), $\varnothing 22$ mm
- 3 Main cold water inlet (CW in), $\varnothing 22$ mm
- 4 Protective pipe strainer
- 5 Pressure reducing valve - 0.3 MPa
- 6 Expansion vessel connection point, 1/2" BSPM
- 7 Temperature and pressure limiter (90 °C / 1 MPa), 1/2"
- 8 Expansion valve - 0.8 MPa, 1/2"
- 9 Tundish
- 10 Flexible Y hose



CAUTION Injury

Do not use the pressure-compensated cold water connection for any outlets other than mixer taps and bidets. Do not use the pressure-compensated cold water connection for supplying all cold water outlets.

- ▶ Flush the cold water line before connecting it to the cold water supply, to clear it of any flux and contamination.
- ▶ Lift off the cylinder cover to gain access to the combination valve and the other connections.
- ▶ Position the DHW cylinder so that it fits against the DHW line.

Expansion vessel connections

- ▶ Check the expansion vessel(s) and the hose connections for leaks.
- ▶ Mount the expansion vessel and the retainer on a suitable wall, close to the DHW cylinder.
- ▶ If the supplied flexible connector is not used, the expansion vessel should be connected to the multifunction valve using copper tube and the pipe run kept as short as possible.

Combination valve

- The combination valve on the top of the DHW cylinder is fitted at the factory and is watertight.
- If required, the combination valve can be rotated up to half a turn in either direction to align it with the connection pipes, without losing its seal.

9.2.1 Connecting the DHW outlet

- ▶ Connect the DHW distribution line to the DHW outlet of the combination valve.

9.2.2 Establishing the cold water supply



Note

The sealed unvented appliance is designed for a supply pressure of up to 0.8 MPa. For pressures greater than 0.8 MPa, an additional pressure reducing valve must be installed in the supply line to the appliance.

- ▶ Connect the cold water supply to the cold water connection of the combination valve.

Balanced cold water connection (optional)



Note

The following instructions only apply to bidets in which the water flows downwards out of the fitting. For bidets in which the water is sprayed, a vent slot type AA, AB or AD is required.

- ▶ If no balanced cold water supply is required, screw tight the cap supplied.
- ▶ If a balanced cold water supply with mains pressure is required for a shower or a bidet, remove the cap. The cap can then be connected to the cold water supply for the shower or the bidet on the combination valve.



Note

To compensate the thermal expansion and prevent the shower control from tightening up, we recommend installing a mini expansion vessel in the balanced cold water inlet line.

Flexible Y hose

The flexible Y hose is preformed into the correct shape.

- ▶ Connect the inlet ends with the expansion valve and the temperature and pressure limiter.

9.2.3 Tundish

The recommended position of the tundish is to the left of the DHW cylinder when viewed from the front.

- ▶ Connect the inlet end of the tundish to the outlet end of the flexible Y hose.



Note

The tundish must be positioned where it can be seen and away from any electrical devices.

- ▶ The tundish can be secured with the screws supplied.

9.2.4 Secondary return

A secondary return can be connected between the expansion vessel and the expansion connection, via a tee (not part of the standard delivery).



Note

- If the secondary return circuit exceeds 10 % of the cylinder capacity, an additional expansion vessel is required.
- To ensure the correct direction of flow, the secondary return must be pumped by a bronze pump and must be fitted with non-return valves.

9.2.5 Discharge pipe

The discharge pipe must be intended for the DHW cylinder and may not be used for other purposes.

- ▶ Connect the outlet of the tundish to the discharge pipe.
- ▶ Install the tundish in a vertical position, at a maximum distance of 500 mm from the drain connector of the temperature and pressure limiter.
- ▶ Ensure that the discharge pipe drains through the tundish.
- The pipework of the tundish must have a diameter of 22 mm and a vertical minimum length of 300 mm below the tundish.
- The maximum permissible length of the $\varnothing 22$ mm pipework is 9 m.
- Every bend or curve corresponds to 0.8 m of pipework.



Note

All pipework must have a constant fall and must discharge in a safe, visible location. If in doubt, consult building regulation G3.

Outlet pipe - alternative discharge

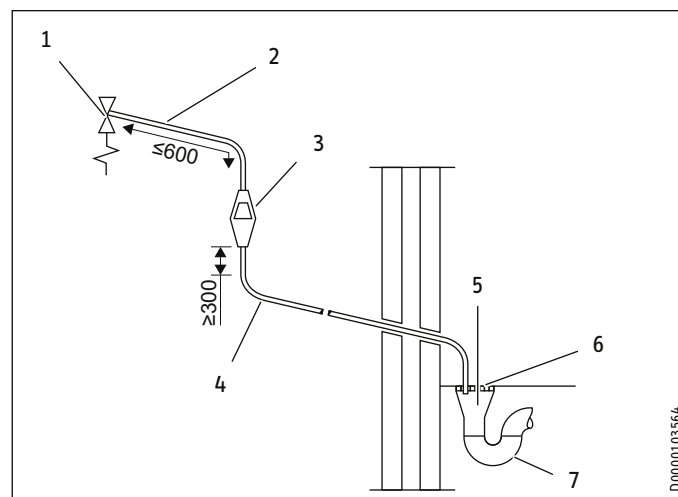
- The discharge pipes must be made of metal. Any modifications to discharge pipes must be heat-resistant in accordance with the G3 building regulations.
- The pipe must have a constant fall.
- The pipe end must be in a safe and clearly visible location.
- Discharge outlets at low height, e.g. up to 100 mm above exterior surfaces such as car parks, paved surfaces, lawns, etc. are permissible. The condition for this is that in locations where children play or may otherwise come into contact with the discharge outlet, a wire mesh or similar safeguard is fitted over the outlet to prevent contact and ensure visibility.

- Discharge outlets at great heights must lead into a metal funnel and a metal downpipe (tundish visible or not) or must discharge on to a roof that is resistant to very hot water. The outlet must be at least 3 m away from any plastic guttering that might collect the discharged water (tundish visible). The end of the discharge pipe must be clearly visible.
- If several discharge pipes are merged into a single pipe, e.g. in apartment blocks, the number of supplied systems must not exceed 6, to ensure each discharge pipe can easily be traced back.
- The cumulative pipe must be at least one pipe size larger than the biggest discharge pipe being connected.



Note

For further information, contact your local authority planning department.



- 1 Safety device (e.g. temperature relief valve)
- 2 Metal discharge pipe (D1) from temperature relief valve to tundish
- 3 Tundish
- 4 Discharge pipe (D2) from tundish with constant fall
- 5 Discharge below fixed grating
- 6 Fixed grating
- 7 Drain

Valve outlet size	Minimum size of discharge pipe D1 [mm]	Minimum size of discharge pipe D2 from tundish [mm]	Maximum permissible resistance, expressed as length of straight pipe (without bend or elbow) [m]	Resistance generated by each bend or elbow [m]
G 1/2	15	22	≤ 9	0.8
		28	≤ 18	1.0
		35	≤ 27	1.4
G 3/4	22	28	≤ 9	1.0
		35	≤ 18	1.4
		42	≤ 27	1.7
G 1	28	35	≤ 9	1.4
		42	≤ 18	1.7
		54	≤ 27	2.3

9.3 Electrical connection



WARNING Electrocutation
Provide omnipolar protection for each electrical circuit, using an MCB (minimum 16 A) and a two-pole isolator (minimum 20 A) with a contact separation of at least 3 mm.



WARNING Electrocutation
The terminal box is subject to continuous voltage. Prior to any electrical work, always disconnect the power supply and safeguard against reconnection during ongoing work.



WARNING Fire
Each connection between conductors or between a conductor and another device must offer permanent electrical continuity and appropriate mechanical strength and protection.



WARNING Injury
For installation in new build or when making changes to an existing electrical set-up, regulations stipulate that only permanently installed electrical appliances must be used.



Material losses
Never switch on the power supply to the threaded immersion heaters before the DHW cylinder has been filled with water.



Material losses
The product must not be subject to overvoltage.

9.3.1 Threaded immersion heater

The threaded immersion heaters must be wired via the factory-fitted temperature controller and the safety cut-off switch, as shown in the diagram on the back of the control panel cover.

No other temperature controllers may be used. Threaded immersion heaters in sealed unvented DHW cylinders must be connected with a regulation-approved safety cut-off switch.

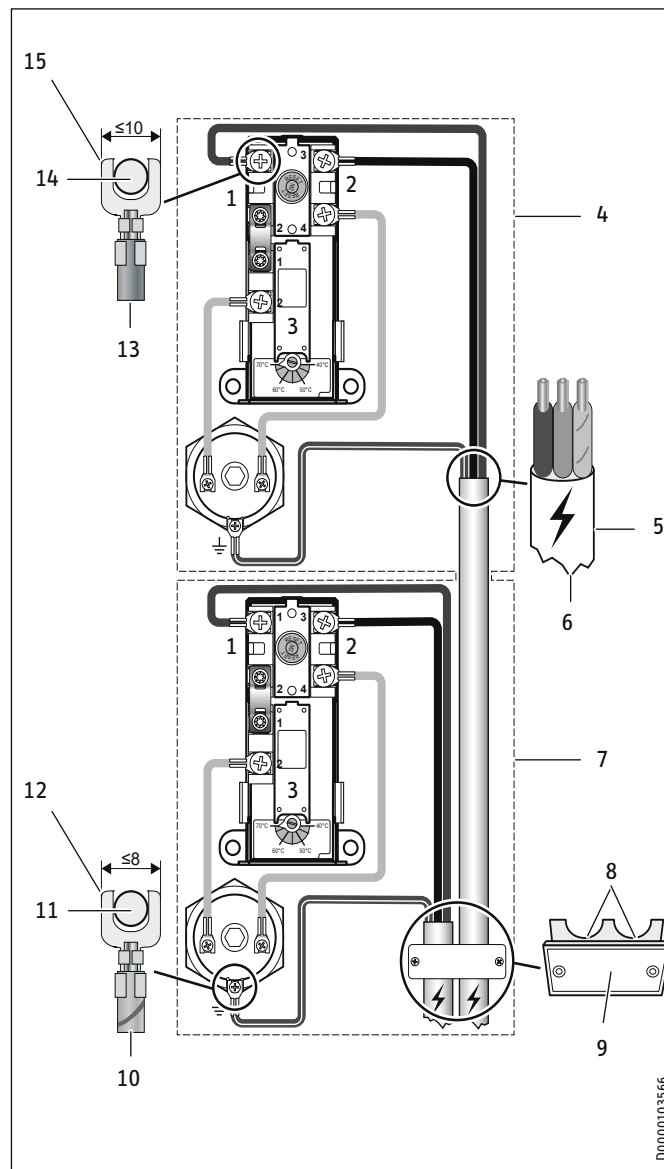
9.3.2 Immersion temperature controller (ThermODisc)



WARNING Electrocutation
Always disconnect the power supply to the appliance prior to removing the cover, resetting the safety cut-off switch or changing the setting of the temperature controller.



Note
All appliances are equipped with two 3 kW threaded immersion heaters, apart from the ESH 120, which has one 3 kW threaded immersion heater.



- 1 L
- 2 N
- 3 Immersion temperature controller
- 4 Upper temperature control
- 5 Power cable
- 6 Min. 2.5 mm² flex
- 7 Lower temperature control
- 8 Min. 2.5 mm² flex
- 9 Cable clamp
- 10 Earth cable
- 11 M4 screw
- 12 Earth cable connection
- 13 L/N wire
- 14 M5 screw
- 15 ThermODisc temperature controller

The recommended screw torque is 0.2 kp (2.0 Nm). The fork width of the end clamp must not exceed 10 mm.

INSTALLATION

Commissioning

The temperature controller is fitted with a safety cut-off switch that responds at 85 °C ± 3 °C.

- ▶ If the safety cut-off switch responds, check what caused it to be triggered and, once the problem has been rectified, press the RESET button.
- ▶ Make sure the cover of the control panel is correctly positioned and the locking screw has been fitted.

The temperature controller offers a wide choice of configurations, to provide maximum flexibility with the ESH Sole 109 mixing valve.

Wiring up threaded immersion heaters and temperature controllers



Note
The entire electrical wiring must be carried out by a qualified contractor and must comply with the latest edition of the IET (formerly IEE).



- Note**
- Always use a suitable heat-resistant flexible cable with a temperature resistance of at least 90 °C, e.g. H05V2V2-F (309-Y).
 - Size the conductors in accordance with the IET Wiring Regulations.
 - For threaded immersion heaters we recommend ≥ 2.5 mm², due to the high ambient temperatures of up to 90 °C.
 - The entire internal wiring is fitted at the factory.

- ▶ Follow the instructions and connect the electric cable (voltage), the neutral conductor and the earth as specified.

Specific features of the earth cable connection (E):

10. Commissioning

10.1 Checks before commissioning

- ▶ Check all connections for leaks.

10.2 Initial start-up



Material losses
Fill the appliance with water prior to switching on the mains power supply.

- ▶ Open the DHW tap that is furthest away from the appliance.
- ▶ Open the cold water supply valve to fill the appliance.
- ▶ Once the water is flowing evenly out of the cold water supply valve, leave it to run for a few minutes to flush out any dirt, swarf or residues. Then close the cold water supply valve.
- ▶ Consecutively open the hot water taps to remove any remaining air.
- ▶ Check all water connection for leaks and rectify if required.
- ▶ Manually operate the expansion valve to ensure free water flow through the discharge pipe. To do this, turn the knob anti-clockwise. To close the expansion valve, continue turning it anti-clockwise until the expansion valve closes.
- ▶ Manually operate the temperature and pressure limiter to check that water can flow through the discharge pipe. To do this, turn the knob anti-clockwise.

- ▶ Switch the mains power supply ON.
- ▶ Refit the cylinder cover. This is important as the cover prevents heat loss from the DHW cylinder and combination valve, thereby conserving energy.



Note
Do not place heavy objects on the cover.

10.3 Recommissioning

See chapter “Initial start-up”.

11. Shutdown



WARNING Burns
If the thermal controller has failed, very hot water will flow out.

- ▶ Disconnect the appliance from the mains power supply at the MCB/fuse in the distribution board.
- ▶ Drain the appliance. See chapter “Maintenance / Draining the appliance”.

Fault	Cause	Remedy
No water is supplied at the hot water taps.	The water supply is off.	Open the appliance shut-off valve.
	Dirt trap is blocked.	Turn off water supply. Remove the strainer and clean it.
Water flowing from the taps is cold.	Threaded immersion heater is not switched on.	Switch on threaded immersion heater.
	Safety cut-off switch of DHW cylinder has responded.	Press the RESET button.
Water is discharged intermittently.	Safety cut-off switch of threaded immersion heater has responded.	Press the RESET button.
	Expansion vessel is not fully filled.	Follow the instructions in chapter “Maintenance / Intermittent or slow water discharge from tundish”.
Water is discharged continuously.	Thermal controller has failed.	Isolate threaded immersion heater(s) from power supply. If water discharge ceases, check thermal controller. Replace thermal controller if it is faulty.
	Expansion valve is defective.	Replace expansion valve.
	Pressure reducing valve of cold water inlet not working.	Check pressure of pressure reducing valve. If pressure is greater than 0.3 MPa, replace the pressure reducing valve.
	Temperature and pressure limiter is defective.	Drain 10 litres from DHW cylinder and replace temperature and pressure limiter.

If you cannot remedy the fault, contact your qualified contractor. To facilitate and speed up your enquiry, please provide the serial number from the type plate (000000-0000-000000).

12. Maintenance



WARNING Electrocutation

Carry out all electrical connection and installation work in accordance with relevant regulations. Before any work on the appliance, disconnect all poles of the appliance from the mains power supply.

If you need to drain the appliance, observe chapter "Maintenance / Draining the appliance".

12.1 Draining the appliance



WARNING Burns

Hot water may escape during draining.



Note

Draining must be carried out in compliance with the applicable building regulations.

If the appliance needs to be drained for maintenance or to protect the whole installation from frost, proceed as follows:

- ▶ Close the shut-off valve in the cold water supply line.
- ▶ Open the hot water tap.
- ▶ Open the drain on the bottom of the DHW cylinder with a 6 mm Allen key.

The appliance empties.

- ▶ To speed up the draining process, you can open the temperature and pressure limiter.
- ▶ To guide the water into a drain, a washbasin or similar, you can fit a $\varnothing 18$ mm hose to the lower drain valve.

12.2 Flushing the system

If the system requires flushing, allow at least 50 l of water to run from the DHW cylinder at the greatest possible flow rate.

- ▶ Close the hot water taps. Follow the instructions in chapter "Maintenance / Draining the appliance".

12.3 Resetting the safety cut-off switch

The following may cause the safety cut-off switch to be triggered.

- Incorrect wiring.
- The temperature controller of the threaded immersion heater or DHW cylinder is not working properly.
- ▶ Always disconnect the power supply to the appliance prior to removing the control panel cover and resetting the safety cut-off switch or changing the temperature controller setting.
- ▶ Reduce the temperature controller setting and press the reset button. After adjusting the setting, make sure the cover of the control panel is correctly positioned again and the locking screw has been fitted.
- ▶ If operating the appliance is still not possible, contact a qualified contractor.

12.4 Troubleshooting: Intermittent or slow water discharge from tundish

- ▶ Switch off the power supply to the threaded immersion heaters.
- ▶ Turn the cold water supply valve to close it.
- ▶ Open a hot water tap.
- ▶ Turn the dial on temperature and pressure limiter (C) to the left. Hold it in this position for 30 seconds.
- ▶ Check the pre-charge pressure in the expansion vessel and adjust the pressure if required.
- ▶ Open the cold water supply valve.
- ▶ When water flows through the open hot water tap, close the tap.
- ▶ Switch on the power supply to the threaded immersion heaters.

12.5 Pre-charge pressure of the expansion vessel



Note

The expansion vessel requires annual servicing and may not be altered or converted.

If water is discharged intermittently or slowly from the tundish during heating, the appliance needs to be serviced by a qualified contractor and the pre-charge pressure must be restored to the original value.

- ▶ The expansion vessel must be fully drained in order to check the pre-charge pressure. If the pressure deviates from the value indicated on the label, it must be restored to the original value.
- ▶ Never remove the expansion vessel without lowering the pressure in the DHW cylinder and draining 10-20 l water via the drain valve in the bottom of the DHW cylinder.

12.6 Regular maintenance work



Note

In areas with corrosive water, failure to observe the maintenance instructions for the threaded immersion heater can cause the threaded immersion heater to separate from the DHW cylinder, with subsequent water leakage.

The following maintenance work must be performed annually by a qualified contractor:

- ▶ Check the temperature and pressure limiter and the expansion valve.
- ▶ Operate each valve manually by turning the operating cap.
- ▶ Check that water can flow unimpeded through the tundish to the outlet point.
- ▶ Make sure that the expansion valve and the temperature and pressure limiter close correctly.
- ▶ Carry out a visual examination of the expansion vessel.
- ▶ If the pressure is below 0.3 MPa, top it up with a suitable air pressure pump until it reaches the pressure value indicated on the vessel's label.
- ▶ Remove, clean and replace the pipe strainer.

- ▶ After 5 years, the threaded immersion heater must be removed for inspection as part of the maintenance. Inspect the threads for corrosion. Replace the threaded immersion heater if any signs of corrosion are found. Subsequently, the threaded immersion heater must be removed and examined every 3 years.
- ▶ Carry out a visual inspection of the following parts:
 - Valves
 - External taps and fittings
 - Threaded immersion heater
 - Electrical connections

12.7 Replacing the combination valve

- ▶ Once the combination valve has been removed from the DHW cylinder, it can be dismantled by unscrewing the separate parts. The entire combination valve can be removed from the upper connection by unscrewing it.
- ▶ Do not tighten the combination valve when refitting it. A double o-ring provides the seal.
- ▶ To create the seal, screw the combination valve downwards until it will not go any further. Then turn it back less than one full turn, so that it points in the required direction.

12.8 Removing / replacing the drain valve

- ▶ Disconnect the appliance from the mains power supply at the MCB/fuse in the distribution board.
- ▶ Drain the appliance. See chapter "Maintenance / Draining the appliance".
- ▶ Once the DHW cylinder is fully drained, unscrew the rear locking ring behind the drain valve. To do this, turn the locking ring clockwise.
- ▶ Pull off the drain valve.
- ▶ To reinstall the drain valve, follow all the steps in reverse order.

INSTALLATION Specification

13. Specification

13.1 Energy consumption data

The product data complies with EU regulations relating to the directive on the ecodesign of energy related products (ErP).

Product datasheet: Conventional water heaters to regulation (EU) no. 812/2013 and 814/2013 / (S.I. 2019 No. 539 / Schedule 2)

	ESH 120 F Trend GB	ESH 150 F Trend GB	ESH 180 F Trend GB	ESH 210 F Trend GB	ESH 250 F Trend GB	ESH 300 F Trend GB
	204791	204792	204793	204794	204795	204796
Versions						
Manufacturer	STIEBEL ELTRON	STIEBEL ELTRON	STIEBEL ELTRON	STIEBEL ELTRON	STIEBEL ELTRON	STIEBEL ELTRON
Default temperature setting	°C 60	60	60	60	60	60
Option for exclusive operation during off-peak periods	-	-	-	-	-	-
Special information on measuring efficiency	-	-	-	-	-	-
Smart function	-	-	-	-	-	-
Energy data						
Load profile	L	L	XL	XL	XL	XL
Energy efficiency class	C	C	C	C	C	D
Energy conversion efficiency	% 37.5	37.3	38	38.1	38	37
Annual power consumption	kWh 2729	2744	4410	4395	4410	4523
Daily power consumption	kWh 7.48	7.52	12.08	12.04	12.08	12.39
Sound data						
Sound power level	dB(A) 15	15	15	15	15	15
Hydraulic data						
Storage volume	l 111	143	164	193	242	280
Mixed water volume at 40 °C	l 152	183.7	209.2	275.3	332.6	384.2

13.2 Data table

		ESH 120 F Trend GB 204791	ESH 150 F Trend GB 204792	ESH 180 F Trend GB 204793	ESH 210 F Trend GB 204794	ESH 250 F Trend GB 204795	ESH 300 F Trend GB 204796
Hydraulic data							
Rated capacity	l	111	143	164	193	242	280
Electrical details							
Connected load from/to	kW	2	2x3	2x3	2x3	2x3	2x3
Rated voltage	V	240	240	240	240	240	240
Phases		1/N	1/N	1/N	1/N	1/N	1/N
Single circuit operating mode		X	X	X	X	X	X
Application limits							
Available temperature range	°C	30-60	30-60	30-60	30-60	30-60	30-60
Test pressure	MPa	1.00	1.00	1.00	1.00	1.00	1.00
Max. permissible temperature	°C	60	60	60	60	60	60
Max. throughput	l/min	15	15	15	15	15	15
Energy data							
Standby energy consumption/24 h at 65 °C	kWh	1.03	1.27	1.42	1.56	1.75	2.04
Energy efficiency class		C	C	C	C	C	D
Versions							
IP-Rating		IP21	IP21	IP21	IP21	IP21	IP21
Sealed unvented type		X	X	X	X	X	X
Colour		white	white	white	white	white	white
Dimensions							
Height	mm	870	1050	1160	1300	1550	1750
Width	mm	575	575	575	575	575	575
Depth	mm	575	575	575	575	575	575
Weights							
Weight (wet)	kg	148	185	211	245	301	346
Weight (dry)	kg	37	42	47	52	59	65

Guarantee

The guarantee conditions of our German companies do not apply to appliances acquired outside of Germany. In countries where our subsidiaries sell our products a guarantee can only be issued by those subsidiaries. Such guarantee is only granted if the subsidiary has issued its own terms of guarantee. No other guarantee will be granted.

We shall not provide any guarantee for appliances acquired in countries where we have no subsidiary to sell our products.

This will not affect warranties issued by any importers.

Environment and recycling

We would ask you to help protect the environment. After use, dispose of the various materials in accordance with national regulations.

STIEBEL ELTRON

Datasheet for installation, commissioning and maintenance of mains pressure DHW cylinders

CUSTOMER INFORMATION

NAME

ADDRESS

TEL. NO.

IMPORTANT

- Keep this logbook in a safe place for future use.
- This logbook must be completed in full by the competent person(s) who commissioned the system and then handed over to the customer. Once these steps have been carried out, the logbook is a commissioning certificate which serves as proof of compliance with the relevant building regulations.
- If the appliance has not been installed and commissioned in accordance with the manufacturer's instructions, the guarantee may become void.

This will not affect your statutory rights.

LOGBOOK FOR INSTALLATION, COMMISSIONING AND MAINTENANCE

Datasheet

ENGLISH

INSTALLER AND COMMISSIONING CONTRACTOR INFORMATION

INSTALLER DETAILS

DATE

COMPANY NAME

ADDRESS

NAME OF INSTALLER

TEL. NO.

DETAILS OF REGISTRATION

NO. OF REGISTERED COMPANY ID CARD (IF APPLICABLE)

COMMISSIONING CONTRACTOR (IF DIFFERENT)

DATE

COMPANY NAME

ADDRESS

NAME OF INSTALLER

TEL. NO.

DETAILS OF REGISTRATION

NO. OF REGISTERED COMPANY ID CARD (IF APPLICABLE)

APPLIANCE AND TIME CONTROL INFORMATION

MANUFACTURER: STIEBEL
ELTRON

MODEL

CAPACITY

l

PRODUCT NO.

TYPE

SEALED UNVENTED

TIME CONTROL

PROGRAMMER

TIME SWITCH

THE INSTALLER IS RESPONSIBLE FOR COMPLETING THIS LOGBOOK AND HANDING IT OVER TO THE CUSTOMER. FAILURE TO OBSERVE THIS MAY VOID THE GUARANTEE FOR THE DHW CYLINDER.

Datasheet

COMMISSIONING INFORMATION

BOILER PRIMARY SETTINGS (INDIRECT HEATING ONLY) ALL BOILERS

IS THE PRIMARY SYSTEM SEALED UNVENTED OR OPEN VENT-ED?	SEALED UNVENTED	<input type="checkbox"/>
	OPEN VENTED	<input type="checkbox"/>
WHAT IS THE BOILER FLOW TEMPERATURE?	°C	

ALL SYSTEMS WITH MAINS PRESSURE

WHAT IS THE INCOMING STATIC COLD WATER PRESSURE AT THE PRESSURE REDUCING VALVE INLET?	bar	
WAS THE STRAINER (IF FITTED) CLEANED OF INSTALLATION RESIDUES?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
HAS A WATER SOFTENER BEEN INSTALLED?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
WHICH TYPE OF WATER SOFTENER HAS BEEN INSTALLED?		

SEALED UNVENTED SYSTEMS

HAVE A COMBINED TEMPERATURE AND PRESSURE LIMITING VALVE AND EXPANSION VALVE BEEN FITTED AND DISCHARGE TESTED?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
IS THERE A SHUTDOWN DEVICE FOR THE PRIMARY ENERGY SOURCE (NORMALLY A 2-WAY VALVE)?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
HOW IS THE PRESSURE REDUCING VALVE SET (IF FITTED)?	bar	
WHERE IS THE PRESSURE REDUCING VALVE LOCATED?		
HAS THE EXPANSION VESSEL OR THE INTERNAL AIR SPACE BEEN CHECKED?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
WHAT IS THE DHW TEMPERATURE AT THE NEAREST OUTLET?	°C	

ALL PRODUCTS

DOES THE DHW SYSTEM COMPLY WITH THE RELEVANT BUILDING REGULATIONS?	Yes	<input type="checkbox"/>
HAS THE SYSTEM BEEN INSTALLED AND COMMISSIONED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS?	Yes	<input type="checkbox"/>
HAVE YOU SHOWN THE CUSTOMER HOW TO OPERATE THE CONTROLS?	Yes	<input type="checkbox"/>
HAVE YOU HANDED OVER ALL MANUFACTURER'S DOCUMENTS TO THE CUSTOMER?	Yes	<input type="checkbox"/>

CONTRACTOR SIGNATURE

CUSTOMER SIGNATURE
(To confirm demonstration of the appliances and receipt of the instruction manual)

PLEASE FOLLOW THE INSTRUCTIONS ON INSTALLATION AND COMMISSIONING IN THE OPERATING AND INSTALLATION INSTRUCTIONS SUPPLIED WITH THE APPLIANCE (this document)

Datasheet

ENGLISH

MAINTENANCE INTERVAL LOG

It is recommended that your DHW system is serviced regularly and that your maintenance personnel complete the corresponding maintenance interval log below.

MAINTENANCE PERSONNEL

Before completing the maintenance interval log below, please ensure that you have performed the maintenance as described in the manufacturer’s operating and installation instructions and in compliance with all relevant regulations.

MAINTENANCE 1		MAINTENANCE 2	
DATE		DATE	
NAME OF MAINTENANCE PERSONNEL		NAME OF MAINTENANCE PERSONNEL	
COMPANY NAME		COMPANY NAME	
TEL. NO.		TEL. NO.	
REMARKS		REMARKS	
SIGNATURE		SIGNATURE	
MAINTENANCE 3		MAINTENANCE 4	
DATE		DATE	
NAME OF MAINTENANCE PERSONNEL		NAME OF MAINTENANCE PERSONNEL	
COMPANY NAME		COMPANY NAME	
TEL. NO.		TEL. NO.	
REMARKS		REMARKS	
SIGNATURE		SIGNATURE	
MAINTENANCE 5		MAINTENANCE 6	
DATE		DATE	
NAME OF MAINTENANCE PERSONNEL		NAME OF MAINTENANCE PERSONNEL	
COMPANY NAME		COMPANY NAME	
TEL. NO.		TEL. NO.	
REMARKS		REMARKS	
SIGNATURE		SIGNATURE	
MAINTENANCE 7		MAINTENANCE 8	
DATE		DATE	
NAME OF MAINTENANCE PERSONNEL		NAME OF MAINTENANCE PERSONNEL	
COMPANY NAME		COMPANY NAME	
TEL. NO.		TEL. NO.	
REMARKS		REMARKS	
SIGNATURE		SIGNATURE	

Deutschland

STIEBEL ELTRON GmbH & Co. KG
Dr.-Stiebel-Straße 33 | 37603 Holzminden
Tel. 05531 702-0 | Fax 05531 702-480
info@stiebel-eltron.de
www.stiebel-eltron.de

Verkauf

Kundendienst
Ersatzteilverkauf

Tel. 05531 702-110 | Fax 05531 702-95108 | info-center@stiebel-eltron.de
Tel. 05531 702-111 | Fax 05531 702-95890 | kundendienst@stiebel-eltron.de
www.stiebel-eltron.de/ersatzteile | ersatzteile@stiebel-eltron.de

Australia

STIEBEL ELTRON Australia Pty. Ltd.
294 Salmon Street | Port Melbourne VIC 3207
Tel. 03 9645-1833 | Fax 03 9644-5091
info@stiebel-eltron.com.au
www.stiebel-eltron.com.au

Austria

STIEBEL ELTRON Ges.m.b.H.
Gewerbegebiet Neubau-Nord
Margaritenstraße 4 A | 4063 Hörsching
Tel. 07221 74600-0 | Fax 07221 74600-42
info@stiebel-eltron.at
www.stiebel-eltron.at

Belgium

STIEBEL ELTRON bvba/sprl
't Hofveld 6 - D1 | 1702 Groot-Bijgaarden
Tel. 02 42322-22 | Fax 02 42322-12
info@stiebel-eltron.be
www.stiebel-eltron.be

China

STIEBEL ELTRON (Tianjin) Electric Appliance
Co., Ltd.
Plant C3, XEDA International Industry City
Xiqing Economic Development Area
300385 Tianjin
Tel. 022 8396 2077 | Fax 022 8396 2075
info@stiebel-eltron.cn
www.stiebel-eltron.cn

Czech Republic

STIEBEL ELTRON spol. s r.o.
Dopraváků 749/3 | 184 00 Praha 8
Tel. 251116-111 | Fax 235512-122
info@stiebel-eltron.cz
www.stiebel-eltron.cz

Finland

STIEBEL ELTRON OY
Kapinakuja 1 | 04600 Mäntsälä
Tel. 020 720-9988
info@stiebel-eltron.fi
www.stiebel-eltron.fi

France

STIEBEL ELTRON SAS
7-9, rue des Selliers
B.P 85107 | 57073 Metz-Cédex 3
Tel. 0387 7438-88 | Fax 0387 7468-26
info@stiebel-eltron.fr
www.stiebel-eltron.fr

Hungary

STIEBEL ELTRON Kft.
Gyár u. 2 | 2040 Budaörs
Tel. 01 250-6055 | Fax 01 368-8097
info@stiebel-eltron.hu
www.stiebel-eltron.hu

Japan

NIHON STIEBEL Co. Ltd.
Kowa Kawasaki Nishiguchi Building 8F
66-2 Horikawa-Cho
Saiwai-Ku | 212-0013 Kawasaki
Tel. 044 540-3200 | Fax 044 540-3210
info@nihonstiebel.co.jp
www.nihonstiebel.co.jp

Netherlands

STIEBEL ELTRON Nederland B.V.
Daviotenweg 36 | 5222 BH 's-Hertogenbosch
Tel. 073 623-0000 | Fax 073 623-1141
info@stiebel-eltron.nl
www.stiebel-eltron.nl

New Zealand

Stiebel Eltron NZ Limited
61 Barrys Point Road | Auckland 0622
Tel. +64 9486 2221
info@stiebel-eltron.co.nz
www.stiebel-eltron.co.nz

Poland

STIEBEL ELTRON Polska Sp. z O.O.
ul. Działkowa 2 | 02-234 Warszawa
Tel. 022 60920-30 | Fax 022 60920-29
biuro@stiebel-eltron.pl
www.stiebel-eltron.pl

Russia

STIEBEL ELTRON LLC RUSSIA
Urzhumskaya street 4,
building 2 | 129343 Moscow
Tel. +7 495 125 0 125
info@stiebel-eltron.ru
www.stiebel-eltron.ru

Slovakia

STIEBEL ELTRON Slovakia, s.r.o.
Hlavná 1 | 058 01 Poprad
Tel. 052 7127-125 | Fax 052 7127-148
info@stiebel-eltron.sk
www.stiebel-eltron.sk

Switzerland

STIEBEL ELTRON AG
Industrie West
Gass 8 | 5242 Lupfig
Tel. 056 4640-500 | Fax 056 4640-501
info@stiebel-eltron.ch
www.stiebel-eltron.ch

Thailand

STIEBEL ELTRON Asia Ltd.
469 Moo 2 Tambol Klong-Jik
Amphur Bangpa-In | 13160 Ayutthaya
Tel. 035 220088 | Fax 035 221188
info@stiebel-eltronasia.com
www.stiebel-eltronasia.com

United Kingdom and Ireland

STIEBEL ELTRON UK Ltd.
Unit 12 Stadium Court
Stadium Road | CH62 3RP Bromborough
Tel. 0151 346-2300 | Fax 0151 334-2913
info@stiebel-eltron.co.uk
www.stiebel-eltron.co.uk

United States of America

STIEBEL ELTRON, Inc.
17 West Street | 01088 West Hatfield MA
Tel. 0413 247-3380 | Fax 0413 247-3369
info@stiebel-eltron-usa.com
www.stiebel-eltron-usa.com

STIEBEL ELTRON



Irrtum und technische Änderungen vorbehalten! | Subject to errors and technical changes! | Sous réserve d'erreurs et de modifications techniques! | Onder voorbehoud van vergissingen en technische wijzigingen! | Salvo error o modificación técnica! | Excepto erro ou alteração técnica | Zastrzeżone zmiany techniczne i ewentualne błędy | Omyly a technické změny jsou vyhrazeny! | A muszaki változtatások és tévedések jogát fenntartjuk! | Отсутствие ошибок не гарантируется. Возможны технические изменения. | Chyby a technické zmeny sú vyhradené! | Stand 9726