Instructions

Instantaneous water heater
Hydraulic control,
Thermo-hydraulic control

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Instructions

Instantaneous water heater

EASY START-UP!

Mounting and start-up.
Please follow the below start-up instructions.

Dimensioned sketch / Connections
Type A (Please see page 3)
Akva Vita

Type B (Please see page 3)
Akva Lux II

Dimensioned sketches for type C - Akva Vita II F and type D - Akva Lux II F are not available. Connections, however, are as shown to the right.

Measurements:
H 550 x W 440 x D 150 mm

Mounting - start-up

1. The water heater is prepared for wall-mounting. The mounting sheet on the back of the water heater has got holes for screw installation. Fasten the water heater on the wall with two screws, bolts, expansion bolts or the like.

2. Prior to installation any unused connections and shut-off valves should be sealed with a plug.

3. IMPORTANT! Due to vibrations during transport all connections must be checked and tightened before the installation.

4. For systems with safety valve, connection for drain must be established in compliance with local regulations.

5. For installations with domestic hot water circulation remember to switch from bypass to DHW circulation control and to install circulation pump and non-return valve. Connect pump to power supply, but do not switch on the pump (see page 5 DHW circulation). Please see instructions for domestic hot water circulation control.

6. Carefully open the ball valves on DH supply. Subsequently open the remaining DH valves.

7. Check the water heater and the domestic installation carefully for any leakage.

8. Perform pressure testing of the domestic installation according to local regulations.

9. Switch on circulation pump, if any.

10. Finally adjust the water heater according to the enclosed installation instructions.

11. IMPORTANT! Heating and cooling of the system may cause leakages. Therefore tightening of all connections may be necessary after commencement of operation.
Types

A. Akva Vita
B. Akva Lux II
C. Akva Vita II F
D. Akva Lux II F

Components

1. Plate heat exchanger DHW
2. Controller, DHW
3. Thermostat for bypass/circulation
4. Circulation pipe
4a. Connection for circulation
5. Fitting piece for DCW meter
Instructions

Instantaneous water heater

Safety notes
To avoid injury of persons and damages to the device, it is absolutely necessary to read and observe these instructions carefully.

Necessary assembly, start-up and maintenance work must be performed by qualified and authorized personnel only.

Please comply with the instructions of the system manufacturer or system operator.

Unused connections and shut-off valves must be sealed with a plug. The plugs must be removed by an authorized service technician only.

Choice of materials
Choice of materials always in compliance with local legislation

Warning of high pressure and temperature
The maximum temperature of the flow medium in the Akva Lux II is 110 °C.

The maximum operating pressure of the water heater is 16 bar.

Be aware of the installation’s permissible system pressure and temperature.

The risk of persons being injured and equipment damaged increases considerably if the recommended permissible operating parameters are exceeded.

We recommend that the water heater is equipped with safety valve, however, always in compliance with local regulations.

Warning of hot surface
The water heater has got hot surfaces, which can cause skin burns. Please be extremely cautious in close proximity to the water heater.

Warning of transport damage
Before water heater installation, please make sure that the water heater has not been damaged during transport.

Sound level
≤ 55 dB

Corrosion protection
All pipes and components are made of stainless steel and brass.

The maximum chloride compounds of the flow medium should not be higher than 300 mg/l.

The risk of equipment corrosion increases considerably if the recommended permissible chloride compounds are exceeded.

Disposal

This product consists of materials which must not be disposed of together with domestic waste. Dismantle the product and sort the components in various groups before disposal. Observe the disposal rules of the local legislation.

Storage
If the water heater is stored before installation, make sure that the place is dry and heated.
## Instructions

### Instantaneous water heater

**Mounting**

The water heater must be installed and connected by authorized service personnel only.

Installation must be in compliance with the local standards and regulations.

Allow for adequate space around the water heater for mounting and maintenance purposes.

Prior to the water heater installation all water heater pipes and connections should be cleaned and rinsed.

The water heater should be wall-mounted. The mounting sheet on the back of the water heater has got holes for screw installation.

A symbol for each of the different connections is placed on the water heater.

**Tightening of connections**

Due to vibrations during transport all connections must be checked and tightened before the water heater is installed. After having added water to the system and after having observed that the water heaters operates in accordance with the dimensioning basis, the connections must be tightened again and the water heater can be taken into continuous use.

**DCW meter assembly, fitting piece**

The flat station is equipped with a fitting piece for insertion of a DCW meter.

**Assembly of DCW meter**

Loosen nuts from fitting piece, remove fitting piece and replace with DCW meter. After mounting of DCW meter remember to check all threaded connections and tighten if necessary.

**Electrical connection**

230 V AC

**Filling, start-up**

Prior to the water heater installation all its pipes and connections should be cleaned and rinsed. After that the strainers should be cleaned.

Before starting-up, check if:
- pipes are connected according to the circuit diagram,
- release valves are shut off,
- threaded and flanged connections are tightened.

Fill the heat exchanger / the system with water:
1) Carefully open ball valves on DH supply,
2) Finally open the other ball valves.
(Please note that the ball valves are not part of the delivery).

After having added water to the system, that the shut-off valves should be opened and the operation of the substation must be observed (e.g. temperatures, pressure, thermal expansion, leakages). Observe the operation of the substation. If the substation operates in accordance with the designed parameters, it can be taken into continuous use.

All Danfoss plate heat exchangers and substations have been leak tested prior to delivery.

**DHW circulation**

**DHW circulation**

For house installations with DHW circulation a control change from bypass to circulation must be performed.

Type A is supplied with circulation pipe.

For DHW circulation control for types B, C and D a circulation set is available as optional equipment and must be fitted on site.

Remember circulation pump and non-return valve assembly. The pump must pump water in direction towards the water heater.

**Control change from bypass to DHW circulation**

- please see separate instructions for the various types.
Instructions

Instantaneous water heater - type A

General
Please note that other variants may be supplied. The control function, however, is basically as described below.

Domestic hot water

Description
The domestic hot water is prepared in the heat exchanger based on the flow principle and the temperature is controlled by the hydraulic self-acting PM controller (2).

DHW temperature control

DHW temperature control.
The DHW temperature control is realized by turning the lever towards the red (hot) or blue (cold) mark. The temperature should be set to 45-50 °C at normal use (7-8 l/min). The temperature should never exceed 55 °C to avoid lime scale precipitation in the heat exchanger.
If it is not possible to set the temperature according to the above recommendations, it is recommended to change the standard controller setting. - See separate instruction "Troubleshooting".

Bypass thermostat

Bypass or circulation thermostat.
Bypass (standard).
As a standard, the substation is equipped with a bypass thermostat, Danfoss FJVR (3) with return temperature limiter 10/50 °C, which ensures that hot water is available immediately when tapping starts. It is recommended to set the thermostat in pos.3.
If the water temperature rises too slowly it can be necessary to set the thermostat at higher value.

DHW-circulation

DHW circulation
Switching to DHW circulation control is possible from a constructional point of view, requiring no extra components.

Circulation thermostat

Circulation thermostat
If the substation is connected to the DHW circulation system in the building, the FJVR thermostat (3) will function as a circulation thermostat and control the circulation water temperature, independently of the set DHW temperature. It is recommended to set the thermostat in pos.3.

Control change from bypass to circulation

• Loosen nut on upper part of circulation pipe and remove blind plate.
• Remove 4 mm conical screw in pos. B.
• Loosen and move capillary tube together with union nut from pos. A to B.
• Screw the 4 mm conical screw from pos. B onto the muff in pos. A.
• Connect DHW circulation system with water heater connection pipe.

IMPORTANT
Remember circulation pump and non-return valve assembly (this is not part of the delivery and must be fitted remotely on site). The pump must pump water in direction towards the substation.
Instructions  Instantaneous water heater - type B

General

PLEASE NOTE that other variants may be supplied. The control function, however, is basically as described below.

Domestic hot water

Description
The domestic hot water is prepared in the heat exchanger based on the flow principle and the temperature is controlled by the combined hydraulic and thermostatic self-acting controller PTC2+P with integrated differential pressure controller (2).

DHW temperature control

DHW temperature control.
The DHW temperature setting is adjusted with the handle for temperature setting, by turning the handle in “+” direction (warmer), or “−” direction (colder). The temperature should be set to 45-50 °C at normal use (7-8 l/min.) The temperature should never exceed 55 °C to avoid lime scale precipitation in the heat exchanger.

Bypass thermostat

Bypass or circulation thermostat.
Bypass (standard).
As a standard the substation is equipped with a bypass thermostat, Danfoss FJVR (3) with return temperature limiter 10/50 C° , which ensures that hot water is available immediately, when tapping starts. It is recommended to set the thermostat in pos.3.

DHW circulation

DHW circulation
Switching to DHW circulation control is possible from a constructional point of view, requiring only an additional circulation set. The components for DHW circulation are not part of the delivery and must be ordered separately and mounted on site.

Circulation thermostat

Circulation thermostat
If the substation is connected to the DHW circulation system in the building, the FJVR thermostat (3) will function as a circulation thermostat and control the circulation water temperature, independently of the set DHW temperature. It is recommended to set the thermostat in pos 3.

Control change from bypass to circulation

• Demount plugs in pos. C and B (6 mm Allen key).
• Mount 3/8” x 3/4” hexagon nipple in pos. C (pack) and mount circulation pipe in hexagon nipple.

IMPORTANT

Remember circulation pump and non-return valve assembly (this is not part of the delivery and must be fitted remotely on site). The pump must pump water in direction towards the substation.

4 mm capillary tube (heat exchanger XB 06H-1 26):
• Mount1/4” hexagon nipple in pos. B (pack).
• Loosen and move capillary tube together with union nut from pos. D to B.
• Screw the 4 mm conical screw from pos B onto the muff in pos. A.

6 mm capillary tube (heat exchanger XB 06H-1 40):
• Mount1/4” hexagon nipple in pos. B (pack).
• Demount capillary tube and union nut in pos. F and G (scrap).
• Plug the hole in pos. F with union nut + ball.
• Fit new capillary tube from pos. F to pos. B by means of union nut and cutting ring.

2

Handle for temperature setting

3

Approximate scale setting:
Pos. 2 = 30°C
3 = 40°C
4 = 45°C
Instructions
Instantaneous water heater - Type C

General
PLEASE NOTE that other variants may be supplied. The control function, however, is basically as described below.

Domestic hot water
Description
The domestic hot water is prepared in the heat exchanger based on the flow principle and the temperature is controlled by the hydraulic self-acting controller PM2+P with integrated differential pressure controller (2).

DHW temperature control
DHW temperature control
The DHW temperature setting is adjusted with the handle in “red” direction (warmer), or in “blue” direction (colder). The temperature should be set to 45-50 °C at normal use (7-8 l/min.) The temperature should never exceed 55 °C to avoid lime scale precipitation in the heat exchanger.

Bypass thermostat
Bypass or circulation thermostat.
Bypass (standard).
As a standard the substation is equipped with a bypass thermostat, Danfoss FJVR (3) with return temperature limiter 10/50 °C, which ensures that hot water is available immediately, when tapping starts. It is recommended to set the thermostat in pos.3. If the water temperature rises too slowly it can be necessary to set the thermostat at higher value.

DHW-Zirkulation
DHW circulation
Switching to DHW circulation control is possible from a constructional point of view, requiring only an additional circulation set. The components for DHW circulation are not part of the delivery and must be ordered separately and mounted on site.

Circulation thermostat
Circulation thermostat
If the substation is connected to the DHW circulation system in the building, the FJVR thermostat (3) will function as a circulation thermostat and control the circulation water temperature, independently of the set DHW temperature. It is recommended to set the thermostat in pos 3.

Control change from bypass to DHW circulation
For DHW circulation control of the instantaneous water heater type C - Akva Vita II F - 3 circulation sets are available as optional equipment.
The 3 circulation sets and control change possibilities from bypass to DHW circulation will be described on pages 10, 11 and 12.

Please note, that this description applies both to Akva Vita II F and Akva Lux II F.
Instructions  Instantaneous water heater - type D

General

PLEASE NOTE that other variants may be supplied. The control function, however, is basically as described below.

Domestic hot water

Description

The domestic hot water is prepared in the heat exchanger based on the flow principle and the temperature is controlled by the combined hydraulic and thermostatic self-acting controller PTC2+P with integrated differential pressure controller (2).

DHW temperature control

DHW temperature control

The DHW temperature setting is adjusted with the handle for temperature setting, by turning the handle in "+" direction (warmer), or "-" direction (colder). The temperature should be set to 45-50 °C at normal use (7-8 l/min.) The temperature should never exceed 55 °C to avoid lime scale precipitation in the heat exchanger.

Bypass thermostat

Bypass or circulation thermostat

Bypass (standard).

As a standard the substation is equipped with a bypass thermostat, Danfoss FJVR (3) with return temperature limiter 10/50 °C°, which ensures that hot water is available immediately, when tapping starts. It is recommended to set the thermostat in pos.3.

If the water temperature rises too slowly it can be necessary to set the thermostat at higher value.

DHW circulation

DHW circulation

Switching to DHW circulation control is possible from a constructional point of view, requiring only an additional circulation set. The components for DHW circulation are not part of the delivery and must be ordered separately and mounted on site.

Circulation thermostat

Circulation thermostat

If the substation is connected to the DHW circulation system in the building, the FJVR thermostat (3) will function as a circulation thermostat and control the circulation water temperature, independently of the set DHW temperature. It is recommended to set the thermostat in pos 3.

Control change from bypass to DHW circulation

For DHW circulation control of the instantaneous water heater type D - Akva Lux II F - 3 circulation sets are available as optional equipment.

The 3 circulation sets and control change possibilities from bypass to DHW circulation will be described on pages 10, 11 and 12.

Please note, that this description applies both to Akva Vita II F and Akva Lux II F.
Instructions

Instantaneous water heater - type C and D

Control change from bypass to DHW circulation

Circulation set 1

1) 1 pc. 3/8” x 3/4” hexagon nipple
2) 1 pc. 1/4” x 6 mm hexagon nipple
3) 3 pc. union nut 6 mm
4) 1 pc. ball plug
5) 1 pc. capillary tube Ø6 mm
6) 2 pc. cutting ring
7) 1 pc. 3/4 Ø 21,4 mm union nut
8) 1 pc. 1/2” x 28,5 mm hexagon nipple

(Please note that this circulation set is prepared for application in other substation types too. Therefore excess components may occur and we ask you to please ignore these).

• Demount plugs in pos. C and B (6 mm Allen key).
• Mount 3/8” x 3/4” hexagon nipple, 3/4 Ø 21,4 mm union nut and 1/2” x 28,5 mm hexagon nipple in pos. C (pack) (for mounting of circulation pipe (not part of the delivery)).
• Mount 1/4” x 6 mm hexagon nipple in pos. B (pack).

• Demount capillary tube and union nut in pos. F and G (scrap).
• Plug the hole in pos. F with union nut + ball plug

Remember circulation pump and non-return valve assembly (this is not part of the delivery and must be fitted remotely on site). The pump must pump water in direction towards the substation.

• Demount 3/4” plug in pos. H

• Demount FJVR thermostat in pos I. Unscrew 3/4” reducer bushing from FJVR thermostat and scrap.

• Mount 3/4” plug + gasket in pos. I.

• Mount FJVR thermostat in pos. H.

• Fit new capillary tube from pos. G to pos. B by means of union nut and cutting ring.

Remember circulation pump and non-return valve assembly (this is not part of the delivery and must be fitted remotely on site). The pump must pump water in direction towards the substation.

1 pc. 3/8” x 3/4” hexagon nipple
1 pc. 1/4” x 6 mm hexagon nipple
3 pc. union nut 6 mm
1 pc. ball plug
1 pc. capillary tube Ø6 mm
2 pc. cutting ring
1 pc. 3/4 Ø 21,4 mm union nut
1 pc. 1/2” x 28,5 mm hexagon nipple
1 pc. 3/4” plug
1 pc. ball plug
1 pc. capillary tube Ø6 mm
3 pc. union nut 6 mm
2 pc. cutting ring
1 pc. 3/4 Ø 21,4 mm union nut
1 pc. 1/2” x 28,5 mm hexagon nipple
1 pc. 3/4” plug + gasket
1 pc. 3/4” union nut + ball plug
1 pc. 3/4” union nut + 3/4” Ø 21,4 mm union nut
1 pc. 1/2” x 28,5 mm hexagon nipple
1 pc. 3/4” union nut + gasket
1 pc. 3/4” FJVR thermostat
1 pc. 3/4” reducer bushing
1 pc. ball plug
1 pc. capillary tube Ø6 mm
Instructions

Instantaneous water heater - type C and D

Control change from bypass to DHW circulation

Circulation set 2

1) 1 pc. 3/8" x 3/4" hexagon nipple
2) 1 pc. 1/4" x 6 mm hexagon nipple
3) 3 pc. union nut 6 mm
4) 1 pc. ball plug
5) 1 pc. capillary tube Ø6 mm
6) 2 pc. cutting ring
7) 1 pc. hexagon nipple 1/2" x 1/2"
8) 1 pc. circulation pipe ø15 mm

(Please note that this circulation set is prepared for multiple applications. Therefore excess components may occur and we ask you please to disregard these).

Demount plugs in pos. C and B (6 mm Allen key).
Mount 3/8" x 3/4" hexagon nipple in pos. C (pack) and mount circulation pipe (E) in hexagon nipple (pos. C). (Please note that the width of the station will increase by 120 mm).

Demount capillary tube and union nut in pos. F and G (scrap).
Plug the hole in pos. F with union nut + ball plug.

Demount 3/4" plug in pos. H.

Demount FJVR thermostat in pos. I. Unscrew 3/4" reducer bushing from FJVR thermostat and scrap.

Mount 3/4" plug + gasket in pos. I.

Mount FJVR thermostat in pos. H.

Fit new capillary tube from pos. G to pos. B by means of union nut and cutting ring.

Remember circulation pump and non-return valve assembly (this is not part of the delivery and must be fitted remotely on site). The pump must pump water in direction towards the substation.
Instructions
Instantaneous water heater - type C and D

Control change from bypass to DHW circulation

Circulation set 3
1) 1 pc. 3/8” x 3/4” hexagon nipple
2) 1 pc. 1/4” x 6 mm hexagon nipple
3) 3 pc. union nut 6 mm
4) 1 pc. ball plug
5) 1 pc. capillary tube Ø6 mm
6) 2 pc. cutting ring
7) 1 pc. hexagon nipple ½” x ½”
8) 1 pc. circulation pipe ø15 mm
9) 1 pc. pump Wilo Star-Z 15
10) 1 pc. non-return valve

(Please note that this circulation set is prepared for multiple applications. Therefore excess components may occur and we ask you please to disregard these)

• Demount plugs in pos. C and B (6 mm Allen key).
• Mount 3/8” x 3/4” hexagon nipple in pos. C (pack) and mount circulation pipe (E) in hexagon nipple (pos. C). (Please note that the width of the station will increase by 120 mm).

• Mount 1/4” x 6 mm hexagon nipple in pos. B (pack).

• Demount capillary tube and union nut in pos. F and G (scrap).
• Plug the hole in pos. F with union nut + ball plug.

• Demount 3/4” plug in pos. H.

• Demount FJVR thermostat in pos. I. Unscrew 3/4” reducer bushing from FJVR thermostat and scrap.

• Mount 3/4” plug + gasket in pos. I.

• Mount FJVR thermostat in pos. H.

• Fit new capillary tube from pos. G to pos. B by means of union nut and cutting ring.

Remember circulation pump and non-return valve assembly (this is not part of the delivery and must be fitted remotely on site). The pump must pump water in direction towards the substation.
Circulation pump

Pump start-up
Do not start up the pump until the system has been filled with the flow media. The pump vents itself automatically after a short operational period. Short-term dry-running will not harm the pump.

For more information about the pump, please refer to enclosed installation and maintenance instructions.

WILO-STAR-Z 15
Installation and Maintenance Instructions
## Troubleshooting

### Domestic hot water

### PM controller

#### Instantaneous water heater

**Type A**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>In general: Does the controller work incorrectly</td>
<td>If the quantity of tapping water is normal (temperature unimportant) it indicates that the PM controller works correctly.</td>
<td>Locate defect in another part of the installation (see below).</td>
</tr>
<tr>
<td>In general: Are the operating conditions satisfactory?</td>
<td>The water heater requires a DH supply temperature of minimum 60 °C and a differential pressure during operation according to the information stated in the product sheet for the water heaters.</td>
<td>Contact district heating supplier.</td>
</tr>
<tr>
<td>PM controller leaking; Water leaking from Allen screws at the central part of PM controller.</td>
<td>One of the two O-rings is defective (does not influence the PM operation). If a non-return valve is installed in the DCW inlet (e.g. in the house service connection or in DCW meter) a safety valve should be mounted between the non-return valve and the DHW plate heat exchanger.</td>
<td>Replace PM controller (use new sealing).</td>
</tr>
<tr>
<td>DHW tap load too low.</td>
<td>The diaphragm of the PM controller is defective.</td>
<td>Replace diaphragm or PM controller.</td>
</tr>
<tr>
<td>DHW tap load too low; Tap temperature too low; Tap temperature fluctuates.</td>
<td>- PM controller wrongly adjusted; - Strainer in DH supply clogged. - Defective non-return valve in thermostatic battery (DHW tap temperature lower than DHW from water heater). - Defective non-return valve in DHW circulation (DHW circulation return pipe is getting cold during tapping of DHW). - Lime scale precipitation in the DHW plate heat exchanger (DHW Δt too low during DHW tapping. - Dirt in PM controller. - DCW flow too high (big nominal diameter of pipe, high DCW pressure), in total max. 16-17 litres per minute.</td>
<td>- Setting, see Control chapter. - Clean strainer. - Clean or replace non-return valve. - Replace the plate heat exchanger. - Cleaning, see PM controller instruction. - DCW reduction</td>
</tr>
<tr>
<td>DH return temperature too high while on standby; The plate heat exchanger is cold.</td>
<td>The by-pass thermostat is defective or wrongly adjusted.</td>
<td>Replace or adjust by-pass thermostat correctly.</td>
</tr>
<tr>
<td>DH return temperature too high while on standby; The plate heat exchanger is hot.</td>
<td>Dirt (sand, iron splinters or similar) in PM controller. Controller does not close. Noise from flow can often be heard.</td>
<td>Move handle several times between red and blue markings; at the same time do several hot-water tappings. Clean PM controller.</td>
</tr>
<tr>
<td>DH return temperature too high during hot water tapping.</td>
<td>Lime scale precipitation in the DHW plate heat exchanger.</td>
<td>Replace the plate heat exchanger.</td>
</tr>
<tr>
<td>Connecting pieces of the PM controller do not fit the water heater.</td>
<td>In particular when replacing PM controller in old water heater.</td>
<td>Loosen Allen screws; turn half of the PM controller 180°.</td>
</tr>
<tr>
<td>Problem</td>
<td>Possible cause</td>
<td>Solution</td>
</tr>
<tr>
<td>---------</td>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td>In general: Does the controller work incorrectly</td>
<td>If the quantity of tap water is normal (temperature unimportant), it indicates that the controller works correctly.</td>
<td>Locate defect in another part of the installation (see below).</td>
</tr>
<tr>
<td>In general: Are the operating conditions satisfactory?</td>
<td>The substation requires a DH supply temperature of minimum 60 °C and a differential pressure during operation according to the information stated in the product sheet.</td>
<td>Contact district heating supplier.</td>
</tr>
</tbody>
</table>
| DHW tap load too low; Tap temperature too low; Tap temperature fluctuates | - Strainer in DH supply clogged.  
- Defective non-return valve in thermostatic battery (DHW tap temperature lower than DHW from unit).  
- Defective non-return valve in hot water circulation (circulation return pipe is getting cold during tapping of hot water).  
- Lime scale precipitation in plate heat exchanger for DHW (Δt primary too low during DHW tapping).  
- DCW flow too high (big nominal diameter of pipe, high DCW pressure), in total max. 16-17 litres per minute. | Clean strainer.  
Clean or replace non-return valve.  
Clean or replace non-return valve.  
Replace the plate heat exchanger.  
DCW reduction. |
| DH return water temperature too high while on standby; The plate heat exchanger is cold. | The bypass thermostat is defective or wrongly adjusted. | Replace or adjust bypass thermostat correctly. |
| DH return water temperature too high while on standby; The plate heat exchanger is hot. | Short-circuiting of plate heat exchanger or defective controller. | Replace plate heat exchanger or controller. |
| DH return temperature too high during hot water tapping | Lime scale precipitation in the plate heat exchanger for DHW. | Replace the plate heat exchanger. |
Instructions

**Instantaneous water heater**

**Maintenance**

The substation requires little monitoring, apart from routine checks and cleaning of strainers. To ensure the best operating conditions regular inspection of the substation and a check of all relevant operating parameters are recommended, for example in connection with meter reading.

**Meter reading**

**Meter reading**

We recommend that you read your meter regularly and that you write down the meter readings.

**Cooling**

**Cooling / Return temperature reading**

The cooling, i.e. the temperature difference between district heating supply and district heating return is of great importance for the total heat economy. It is therefore very important to observe the supply and return temperatures. Normal temperature difference is 30-35 °C

**Cleaning**

**Cleaning**

All strainers should be checked and cleaned at least once every year, typically in connection with start-up of the heating system.

**Tightening**

**Tightening of connections**

All threaded and flanged connections should be checked and tightened in connection with meter reading. All threaded and flanged connections should be tightened regularly and especially in connection with start-up after the summer period.

**Safety valve**

**Safety valve**

The safety valves’ task is to protect the substation from pressures exceeding the permissible pressure. The blow-off pipe of the safety valves must not be closed. The blow-off pipe outlet should be placed so that it provides safety relief and it is possible to observe water dropping from the safety valves. It is advisable to check the operation of the safety valves by turning the valve head in the indicated direction.

**Strainer**

**Strainer**

Strainers should frequently be cleaned from sediments by authorized personnel, according to producer’s instructions and dependent on the substation’s operating conditions.
Notes:
EC-DECLARATION OF CONFORMITY

For CE marking in EU (European Union)

Danfoss Redan A/S District Energy
DK-8382 Hinnerup

Declares under our sole responsibility that below products including all available power and control options:

**Instantaneous Water Heaters**

**Main components:** See instruction

Covered by this declaration is in conformity with the following directive(s), standard(s) or other normative document(s), provided that the products are used in accordance with our instructions.

**EU Directives:**

- EN 61000-6-1 2007 Electromagnetic compatibility- Generic standard: Immunity for residential, commercial and light industry.
- EN 61000-6-3 2007 Electromagnetic compatibility- Generic standard: Emission for residential, commercial and light industry.
- EN 61000-6-4 2007 Electromagnetic compatibility- Generic standard: Emission industry.

**Machinery Directive 2006/42/EEC**
- EN ISO 14121-1 Safety of machinery -- Risk assessment
- EN 60204-1 - Safety of machinery - Electrical equipment of machines — Part 1: General requirements

**PED Directive 97/23/EEC**
Conformity assessment procedure followed: Module A - Internal control of production

All substations that falls under Article 3 §3 and category 1 shall not be CE-marked according to this directive

CE marked affixed year 2010

Approved by: [Signature]

Place and date of issue: Hinnerup, Aug. 24th, 2010
Name: Thavarupan Perinpam
Title: Quality and Lean Manager