



# INSTALLER MANUAL

## HA - WH5 F/FS

INDIRECTLY HEATED DOMESTIC HOT WATER CYLINDERS  
FOR HEAT PUMPS AND OTHER ENERGY SOURCES





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## Declaration of conformity

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declare under our sole responsibility that the product

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HA-WH 5016 F  
HA-WH 5020 F  
HA-WH 5030 F  
HA-WH 5020 FS  
HA-WH 5030 FS

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to which this declaration relates is in conformity with requirements of the following directives

EC directive on:  
Electromagnetic Compatibility (EMC): 50366:2003 + A1:2006  
Low Voltage Directive (LVD): 2006/95/EC  
Restriction of Hazardous Substances (RoHS II): 2011/65/EU  
Pressure Equipment (PE): 97/23/EF

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The conformity was checked in accordance with the following EN-standards

Test standard:  
IEC 60335-2-21: 2002 (Fifth Edition) (incl. Corr.1: 2007) + A1: 2004 + A2: 2008 used in conjunction with IEC 60335-1: 2001 (Fourth ed.) (incl. Corr.1: 2002) + A1: 2004 + A2: 2006 (incl. Corr. 1: 2006) and/or EN 60335-2-21: 2003 + A1: 2005 + A2: 2008 used in conjunction with EN 60335-1: 2002 + A11: 2004 + A1: 2004 + A12: 2006 + A2: 2006 + A13: 2008 and EN 50366: 2003 + A1: 2006  
EN 12897:2006

Safety std:

- EN 60335-2-21:2003 + A1:2005 + A2:2008 in conjunction with EN 60335-1:2002 + A11:2004 + A1:2004 + A12:2006 + A2:2006 + A13:2008

EMF std:

- EN 50366:2003 + A1:2006

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# Table of Contents

<b>1 Important information</b>	<b>4</b>		
Safety information	4		
<b>2 Delivery and handling</b>	<b>6</b>		
Transport	6		
Assembly	6		
Supplied components	6		
<b>3 The water heater design</b>	<b>7</b>		
<b>4 Pipe connections</b>	<b>8</b>		
General	8		
Dimensions and pipe connections	10		
Overall dimensions	11		
Heat pump	12		
Solar	12		
Cold and hot water	13		
Docking	13		
<b>5 Electrical installation</b>	<b>15</b>		
Sensors	15		
Temperature limiter	16		
<b>6 Commissioning and adjusting</b>	<b>17</b>		
Filling and venting	17		
Pressure drop diagram	18		
<b>7 Service and maintenance</b>	<b>19</b>		
Maintenance	19		
Service actions	19		
<b>8 Technical specifications</b>	<b>20</b>		
Technical specifications	20		
<b>Item register</b>	<b>22</b>		

# 1 Important information

## Safety information

This manual describes installation and service procedures for implementation by specialists.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

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## Symbols



NOTE

This symbol indicates danger to water heater or person.



Let op!

Dit symbool geeft een waarschuwing aan voor persoonlijk gevaar of voor de boiler zelf.



Attention!

Ce symbole indique un danger pour la personne ou le chauffe-eau.



Achtung

Dieses Symbol weist auf eine Gefahr für Heißwasserbereiter oder Mensch.



HUOM!

Tämä symboli merkitsee lämminvesivaraajaa tai ihmistä uhkaavaa vaaraa.



Caution

This symbol indicates important information about what you should observe when maintaining your installation.



TIP

This symbol indicates tips on how to facilitate using the product.



Caution

Always give the product's serial number when reporting a fault.

## Serial number

The serial number can be found next to the front cover.

## Country specific information

Installer manual

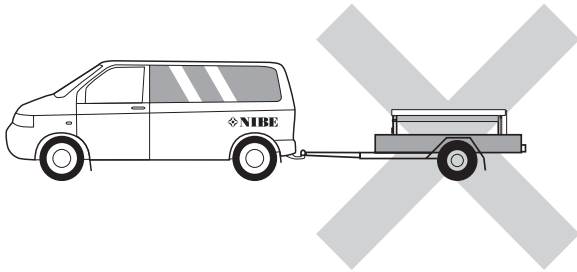
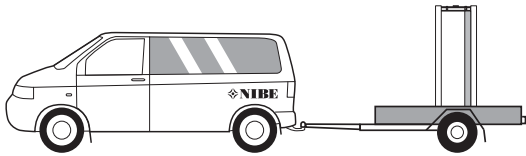
This installer manual must be left with the customer.



## 2 Delivery and handling

### Transport

The HA - WH5 F / FS should be transported and stored vertically in a dry place.

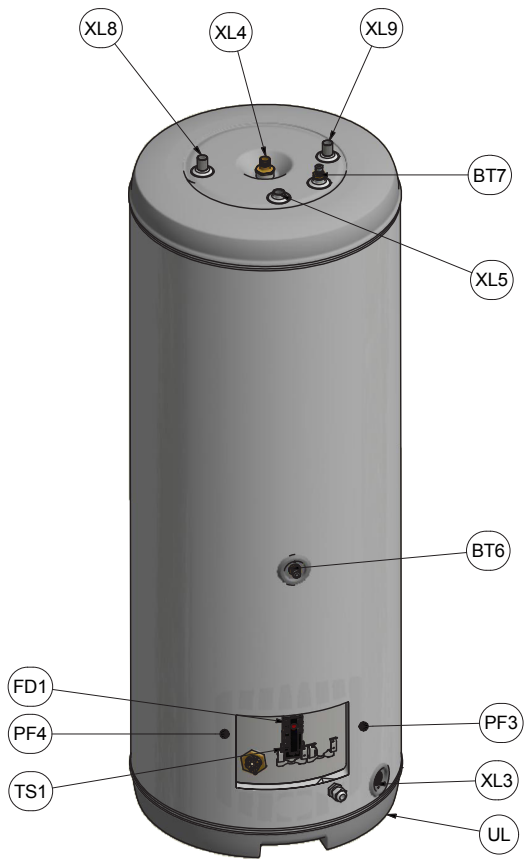


### Assembly

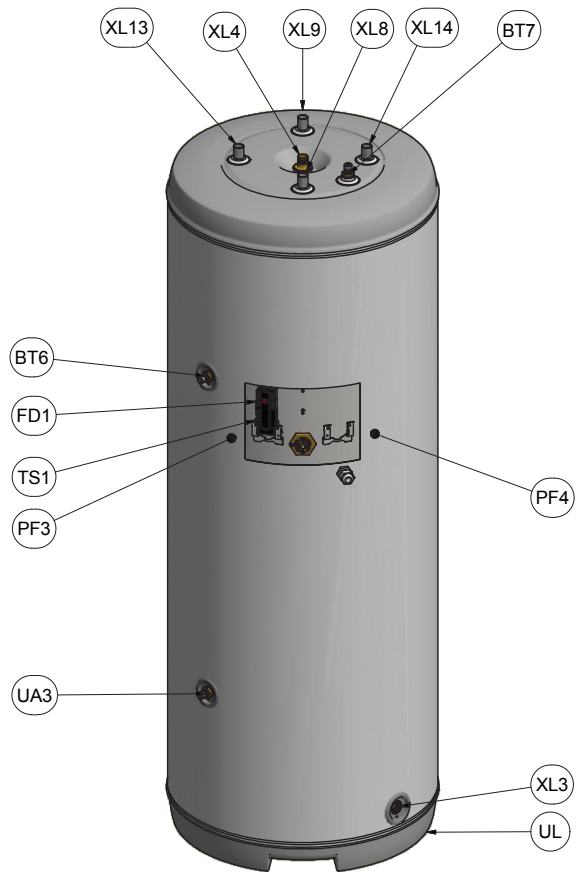
- The water heater is only designed for upright installation.
- Position the water heater on a firm base that can bear its weight, preferably on a concrete floor or foundation. Use the water heater's adjustable feet to obtain a horizontal and stable set-up.
- Pipes must be routed from the safety valve to a suitable drain.
- The water heater's installation area should always have a temperature of at least 10 °C and max 30 °C.
- Remember to rotate the cylinder in a direction that allows easy access to the immersion heater and the electrical box.

# 3 The water heater design (See page 8 for explanations)

HA - WH5 F 160, 200 & 300 L.



HA - WH5 FS 200 & 300 L.



## Pipe connections

XL3	Connection, cold water, 3/4" F
XL4	Connection, hot water, Ø 22 mm
XL5	Connection, hot water circulation, Ø 1/2" F (only HA-WH5 F 160-200-300L)
XL8	Docking connection, flow line (from heat pump*), Ø 22 mm
XL9	Docking connection, return line (to heat pump*), Ø 22 mm
XL13	Connection, flow line (from solar heating system) Ø 22 mm
XL14	Connection, return line (to solar heating system) Ø 22 mm

## HVAC components

BT7	Submerged tube for hot water sensor (display)
BT6	Submerged tube for hot water sensor (control)
UA3	Submerged tube for solar sensor (control)

## Electrical components

FD1	Temperature limiter immersion heater
TS1	Working thermostat immersion heater

## Miscellaneous

PF 3	Serial number plate
PF 4	Product/type plate
UL	Adjustable feet

Designations in component locations according to standard IEC 81346-1 and 81346-2.

## Cleaning the climate system

When the water heater and the climate system have been filled with water, HA - WH5 F / FS must operate at maximum normal temperature for at least one hour. Thereafter the system, must be drained of water and refilled.

\*or another external heat source

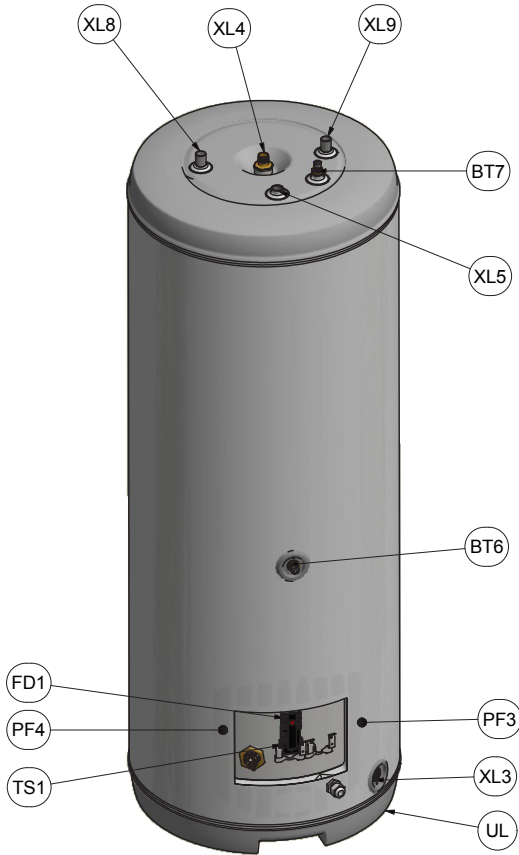


Emptying the system by

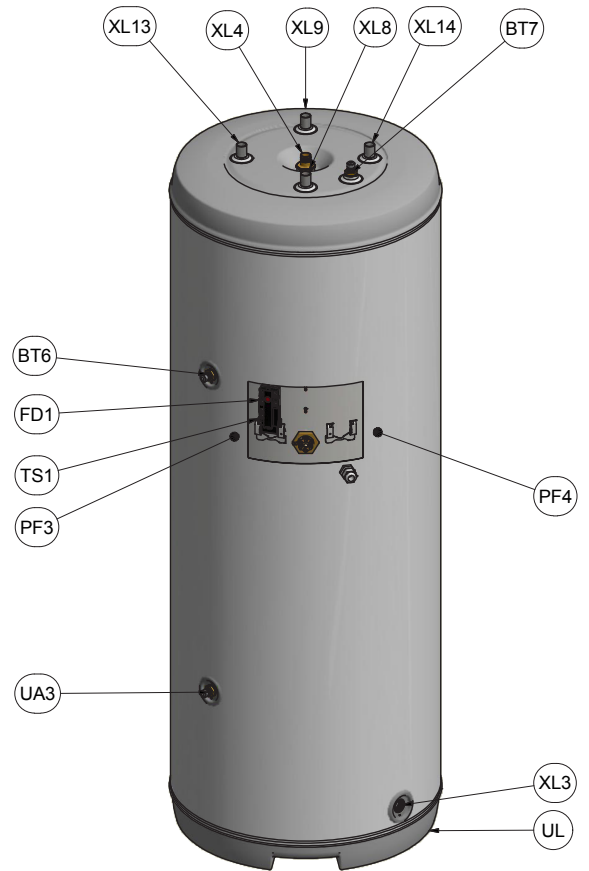
1. Open external filler valve and external drain valve.
2. Flush the system for some minute. Watch out for water splashes from the safety valve.
3. Close the valves and check the stainer.

# Dimensions, pipe connections and setting-out coordinates

## HA - WH5 F 160, 200 & 300

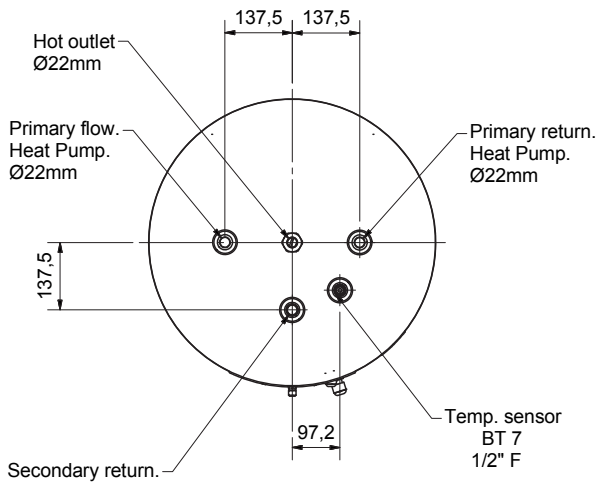
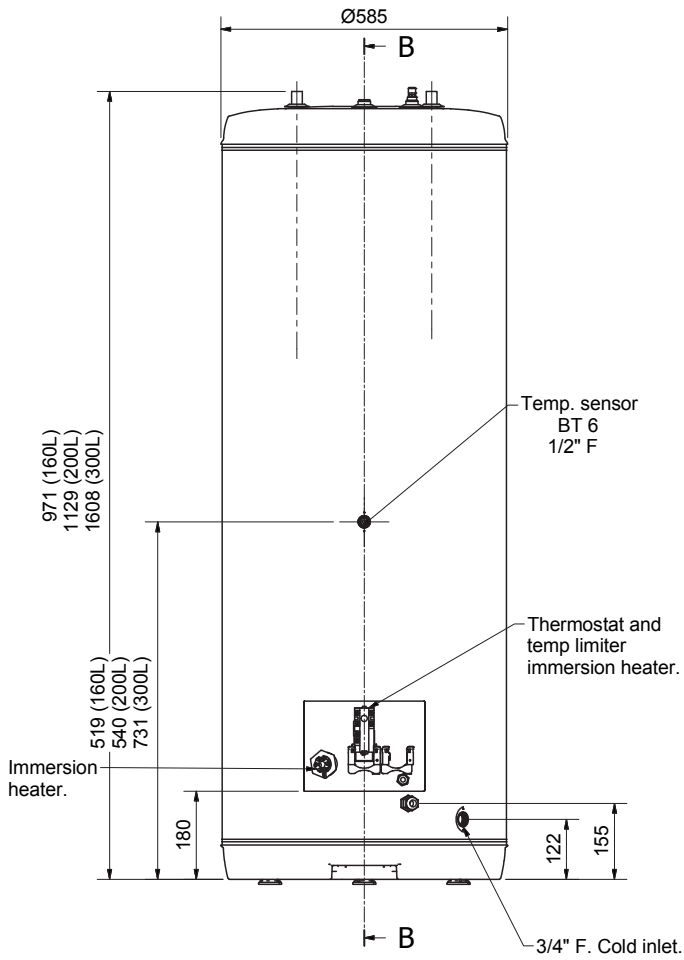


## HA - WH5 FS 200 & 300

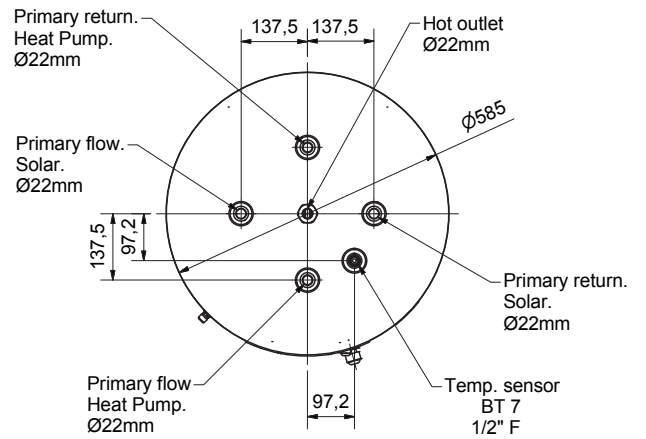
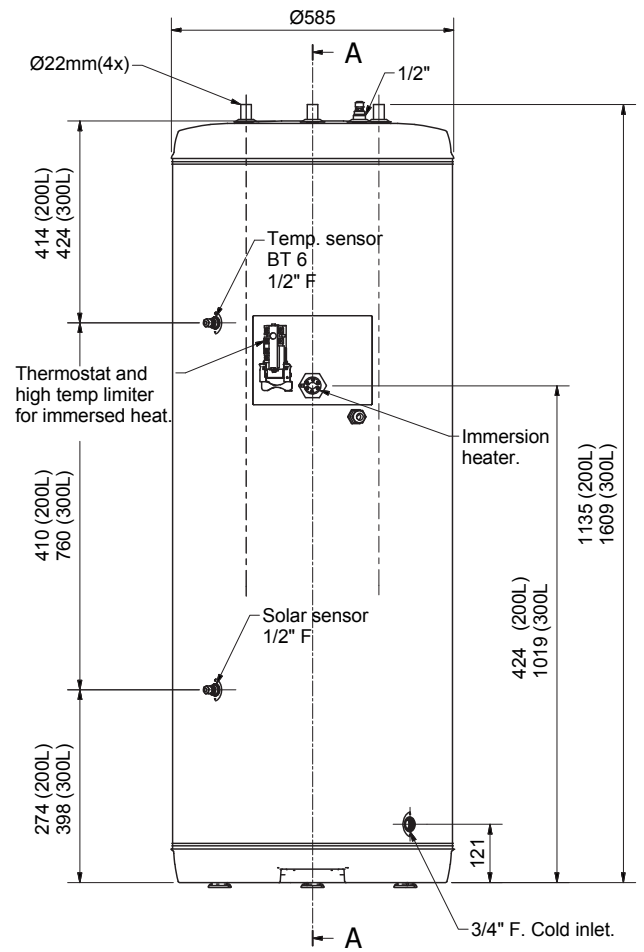


Connection		
XL3 Cold water Ø		3/4" F
XL4 Hot water Ø	mm	22
XL5 Hot water circulation Ø (except 160 l.)		1/2" F
XL8 Docking connection, flow line Ø	mm	22
XL9 Docking connection, return line Ø	mm	22
XL13 Solar flow line Ø	mm	22
XL14 Solar return line Ø	mm	22

### HA - WH5 F



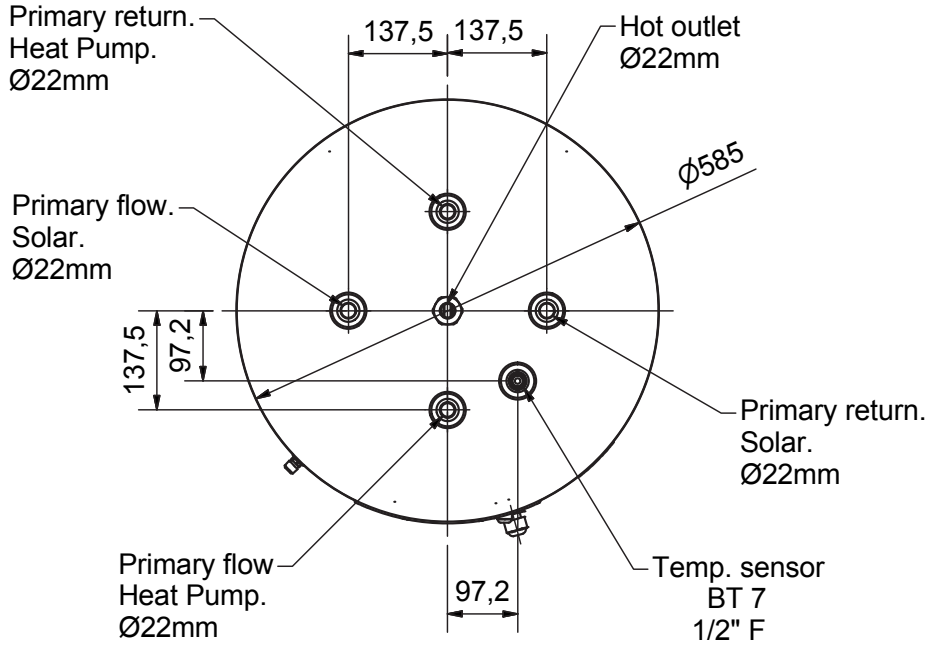
### HA - WH5 FS



## Solar connections

Connecting to solar power, heat pump or external heat source

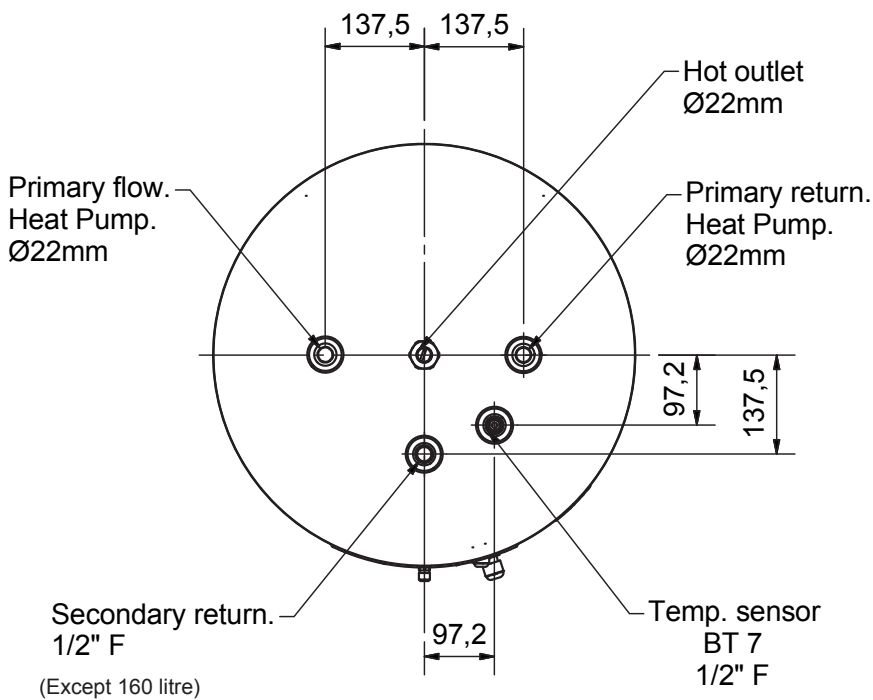
The solar heating system's supply and return are connected to the HA - WH5 FS.



## Heat pump connections

Connecting to heat pump or another external heat source

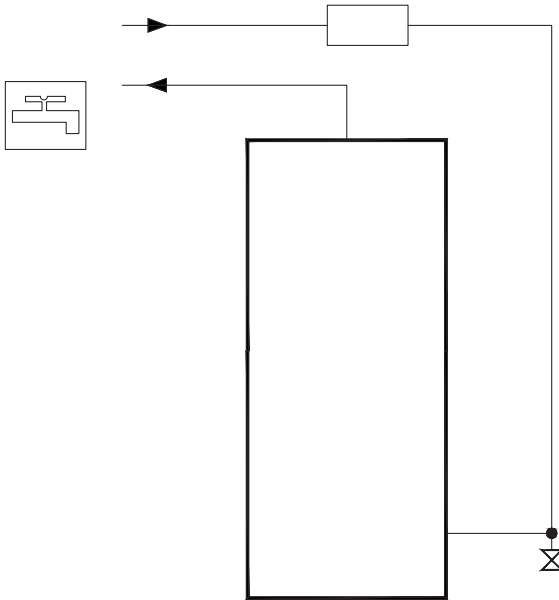
The heat pump supply and return are connected to HA - WH5 F.



## Cold and hot water

### Connecting cold and hot water

There must be a mixing valve if the temperature can exceed 60 °C.



## Docking

HA - WH5 FS 200 & 300 can be connected in several different ways, one of which is shown here.

Further option information is available at [www.nibe.eu](http://www.nibe.eu) and in the respective assembly instructions for the heat pumps used.

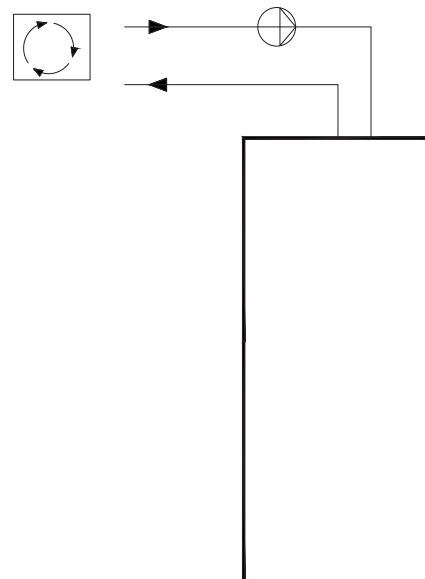
### Symbol key

Symbol	Meaning
	Venting valve
	Shut-off valve
	Non-return valve
	Mixing valve / Three way valve
	Safety valve
	Drain off
	Temperature sensor
	Circulation pump
	Particle filter
	Motorized valve
	Inlet valves according to local legislation

### Connecting hot water circulation

HA - WH5 FS 200 & 300 have a connection that allows hot water circulation.

To reduce the risk of bacterial growth in systems with hot water circulation, the temperature of the circulating water should not fall below 50 °C. There should not be any non-circulatory hot water pipes. Adjust the hot water system so that the temperature does not fall below 50°C at the ends of the system.





# 5 Electrical installation



**NOTE**

Electrical installation and service must be carried out under the supervision of a qualified electrician. Electrical installation and wiring must be carried out in accordance with the stipulations in force.



**OPMERKING**

Werkzaamheden aan de elektrische installatie, bij installatie of service, dient te worden uitgevoerd door een gekwalificeerde elektricien. De elektrische installatie en aansluitingen hiervan dienen in overeenstemming te zijn met van toepassing zijnde regelgeving.



**NOTE**

L'installation électrique et le service doit être effectuées sous la supervision d'un électricien qualifié. L'installation et le raccordement électrique doit être effectuées conformément aux dispositions applicables.



**Achtung**

Die elektrische Installation und Service müssen unter einer Kontrolle von qualifizierten Elektriker durchgeführt werden. Elektische Installation und Verkabelung muss gemäß den geltenden Vorschriften durchgeführt werden.



**HUOM!**

Sähköasennukset ja mahdolliset huollot saa tehdä vain valtuutetun sähköasentajan valvonnassa. Sähköasennukset ja johtimien veto on tehtävä voimassa olevien määräysten mukaisesti.

## Sensors (See page 11)

The HA - WH5 F can accommodate up to two hot water sensors, one for SMO controller display and one to control start and stop of heat pump.

The display sensor is positioned in the submerged tube for the display sensor (BT7) and the control sensor in the submerged tube for control sensor (BT6). In cases where it is only possible to connect one sensor, use the submerged tube for control sensor (BT6).

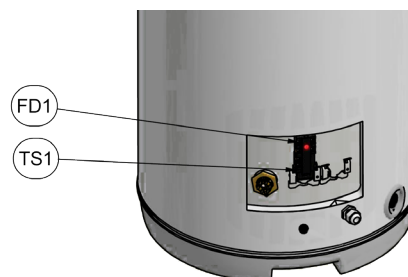
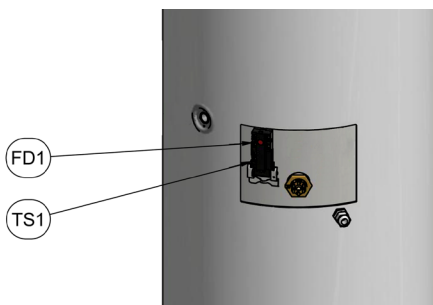
The HA - WH5 FS can also be supplemented with a solar sensor. This is placed in the submerged tube for solar sensor.

Use the sensors provided with the heat pump/control module. When no heat sensors have been provided, these must be ordered from the manufacturer of the heatpump/control module.

## Thermostats and temperature limiter (Factory fitted)

HA - WH5 FS 200 & 300 L.

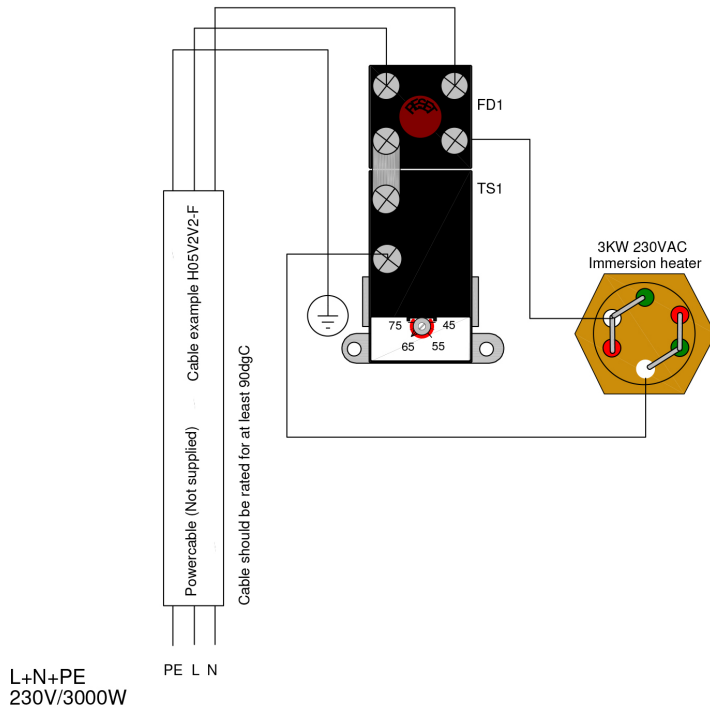
HA - WH F 160, 200 & 300 L.



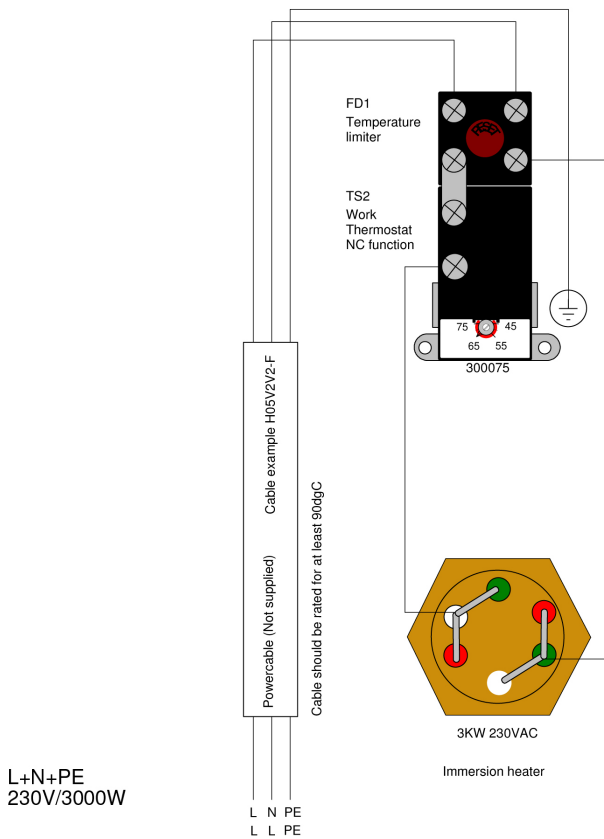
# Temperature limiters

Power supply to temperature limiter (FD1) is 230 V.

HA - WH5 FS 200 & 300 L.



HA - WH F 160, 200 & 300 L.



Immersion heater wiring diagram



# 6 Commissioning and adjusting

## Filling and venting

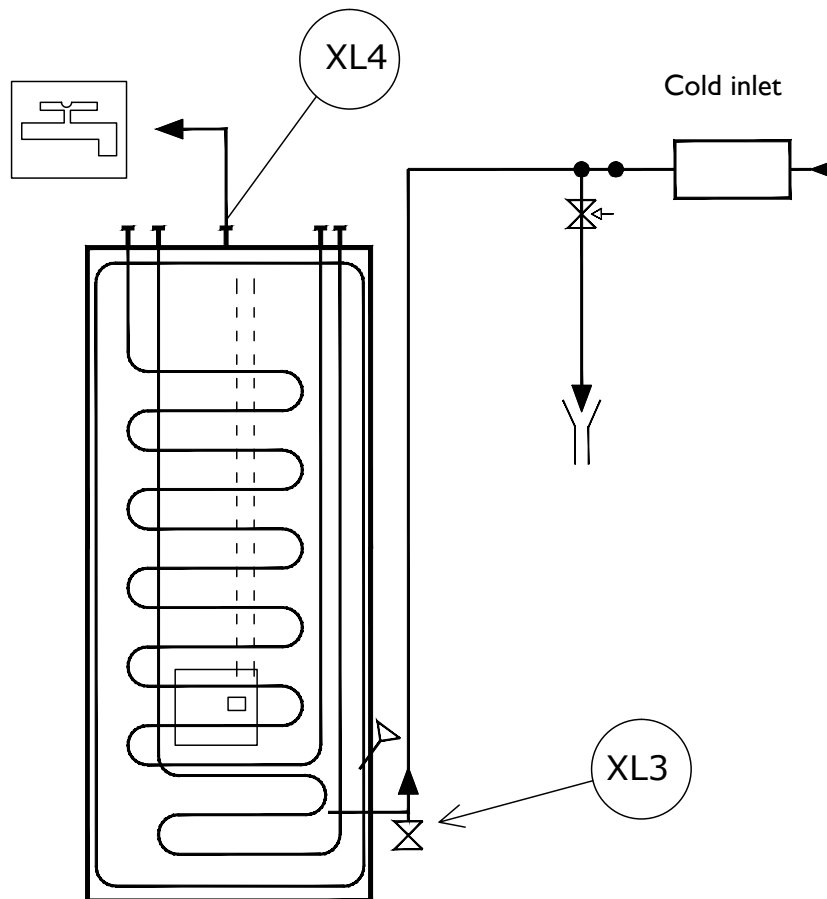
### Filling the hot water heater

1. Open a hot water tap in the house. (XL4)
2. Fill the hot water heater through the cold water connection (XL3).
3. When the water that comes out of the hot water tap is no longer mixed with air, the water heater is full. Flush the system for several minutes and the tap can be closed.

### Filling and venting the charge coil

#### Filling and venting

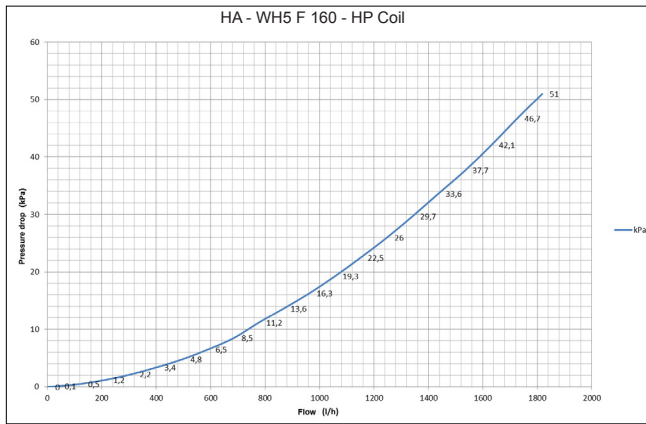
1. Open the filling valve (external, not included with the product). Fill the coil in the hot water heater and the rest of the climate system with water.
2. Vent the coil and the rest of the climate system via the relevant venting valves.
3. Keep topping up and venting until all air has been removed and the pressure is correct.



# Pressure drop diagram

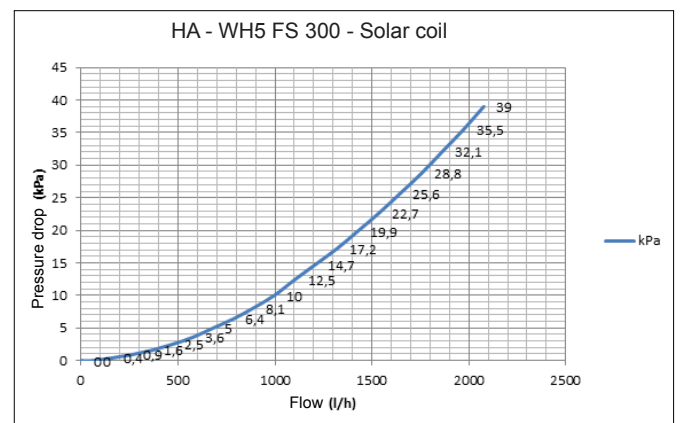
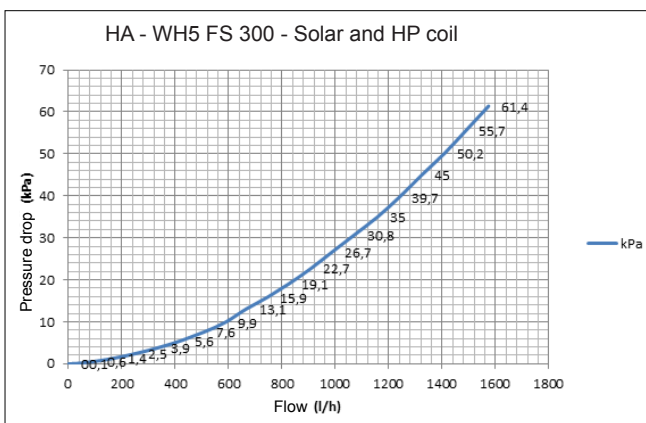
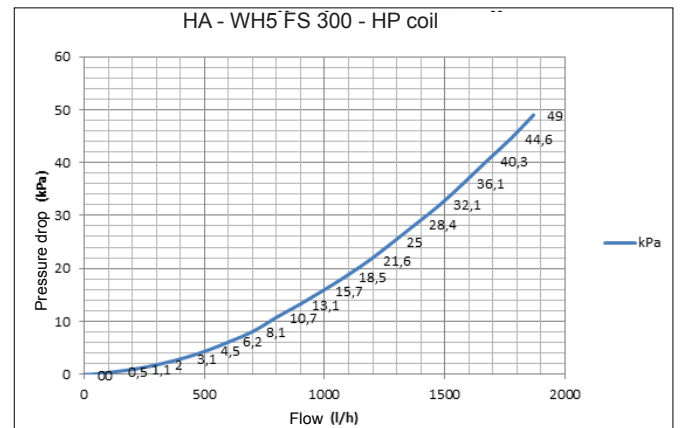
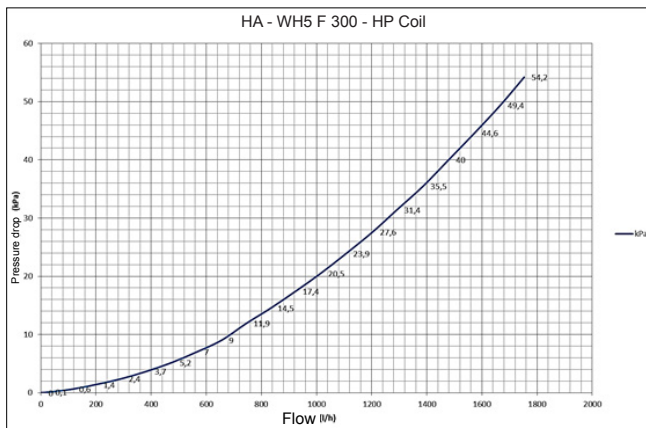
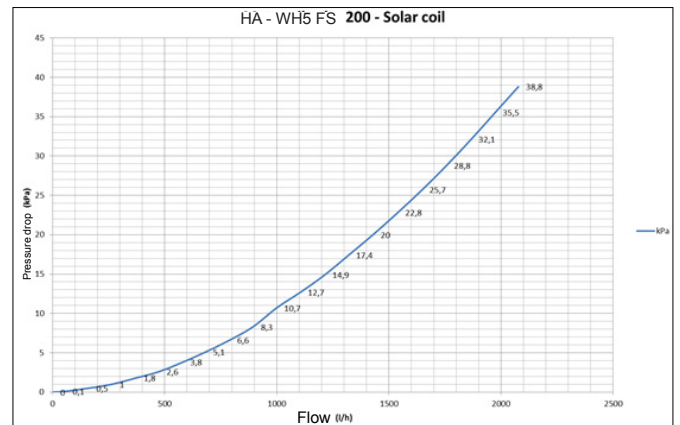
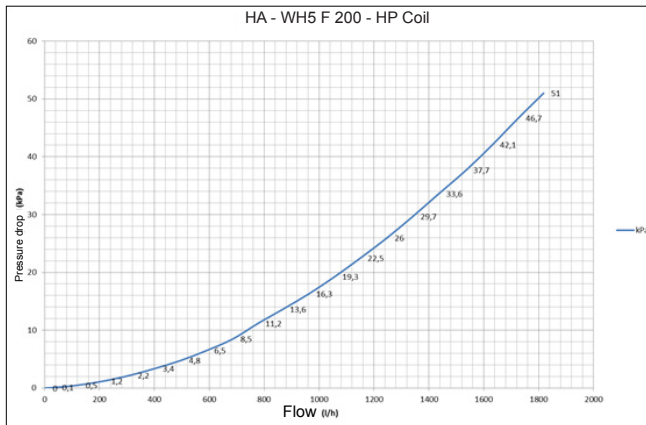
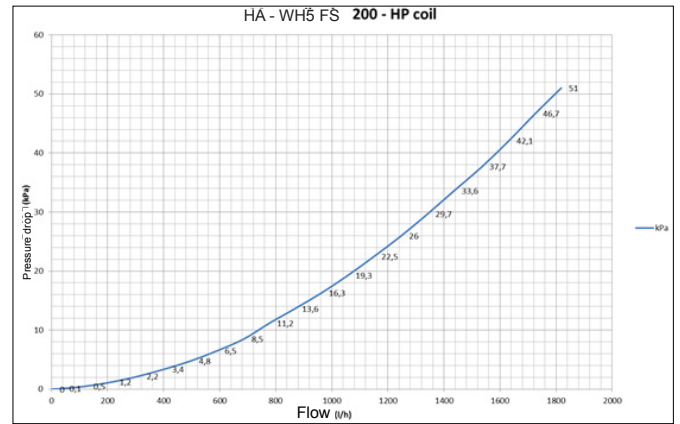
## Pressure drop diagram, charge coil

Docking connection, flow line (XL8) and docking connection, return line (XL9).



## Pressure drop diagram, solar coil

Connection, flow line solar heating system (XL13) and connection, return line solar heating system (XL14).



# 7 Service and maintenance



## NOTE

Any servicing must be carried out by a competent person.



## OPMERKING

Servicewerkzaamheden dienen uitgevoerd te worden door gekwalificeerd personeel.



## NOTE

Tout les opérations de services doivent être effectué par une personne compétente.



## Achtung

Jeder Service soll von einer qualifizierten Person durchgeführt werden.



## HUOM

Laitetta saa hoitaa vain sen toimintaan perehtynyt henkilö. Laitetta saa huoltaa vain ammattitaitoinen asentaja ja lämpöpumpua saa huoltaa vain sertifioitu asentaja. Sähköasennuksia saa huoltaa vain sertifioidun sähköasentajan valvonnassa.



## NOTE

If this pressurised water heater develops a fault, e.g. a flow of hot water from the overflow pipe, turn the heat pump off and contact your in-staller.



## OPMERKING

Indien deze onder druk staande boiler een mogelijk mankement vertoont, bijv. bij waterlekkage: zet de warmtepomp (of ketel) uit en raadpleeg uw installateur.



## NOTE

Si ce chauffe-eau tombe en panne, par exemple une fuite, arrêtez la pompe à chaleur, et contactez votre installateur.



## ACHTUNG

Wenn es einen Fehler an Druck-Heißwasserbereiter gibt z.B.: Varmwasserausfluß aus Überlaufrohr schalten Sie die Wärmepumpe aus und treten Sie in Kontakt mit Ihrem Installateur.



## HUOM

Mikäli tämä paineistettu vesivaraaja vikaantuu, mm. kuuma vesi virtaa ylivuotoputkesta, kytke lämpöpumppu pois päältä ja ota yhteys asentajaan.

## Maintenance

General inspection - Check the following:

1. Condition of casing.
2. Electrical connections.
3. Pipe connections.

Correct any fault before continuing.



## NOTE

Do not remove or adjust any components that are part of this pressurised water heater. Contact your installer!



## OPMERKING

Verwijder geen enkel onderdeel van deze onder waterdruk staande boiler. Pas ook geen component aan. Raadpleeg bij vragen altijd uw installateur.



## NOTE

N'enlever ou ajuster pas les composants qui font partie du chauffe-eau sous pression. Contactez votre installateur!



## ACHTUNG

Keine Komponente, die ein Teil dieses Heißwasserbereiter unter Druck sind, entfernen oder regulieren. Tritt in Kontakt mit Ihrem Installateur!



## HUOM

Älä poista tai muuta mitään osaa, joka on kuuluu tähän paineistettuun vesivaraajaan. Ota yhteys asentajaan!

## Cleaning

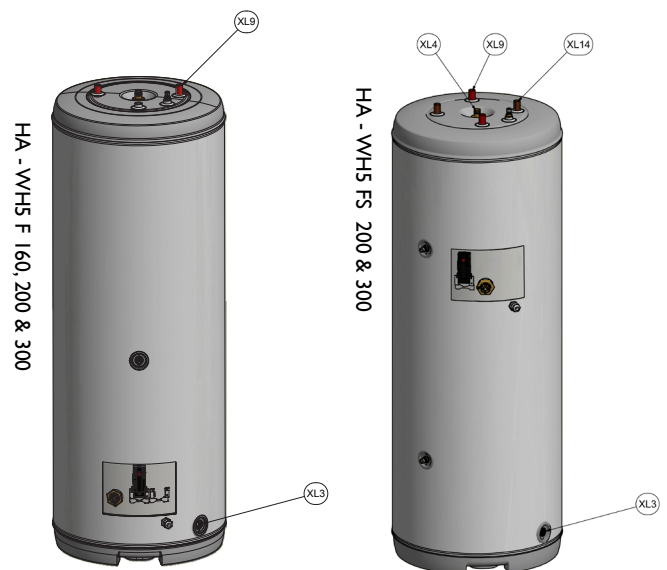
Inspect and clean the water heater by using a suitable instrument such as an endoscope. The hot water connection (XL4) must be removed to facilitate access.

## Emptying

The water heater is emptied through the drain cock in the cold water connection (XL3).

Drain the charge coil through the siphon (with hose) on the docking connection, return to heat pump (XL9).

Drain the solar coil through the siphon (with hose) on the connection, return to solar heating system (XL14).



## 8 Technical specifications

<b>HA-WH5 F</b>		160 litre	200 litre	300 litre
Volume (net)	litre	148,5	179	271
Volume, charge coil	litre	8,1	8,5	10,6
Net weight	kg	42	45	59
Gross weight	kg	190,5	224	330
Drawn off capacity	litre/%	126,9/85,5	150/83,9	214/79
Heat content at 50°C*	kWh	6,89	8,16	12,58
Equivalent amount of hot water (40°C)*	litre	198	234	361
Re-heat performance	kW	6,2	7,3	7,3
Re-heating time to 60°C, 70% of the total volume	min.	46	50	91
Max operating temperature	°C	75	75	75
Max pressure, primary side	bar/MPa	3/0.3	3/0.3	3/0.3
Max pressure, water heater	bar/MPa	10/1,0	10/1,0	10/1,0
Max water supply pressure	bar/MPa	10/1,0	10/1,0	10/1,0
Heat loss $\Delta t$ 45°C	kW/24 hrs	1,72	1,85	2,59
Max temperature heat pump	°C	75	75	75
Max recommended heat pump size	kW	12	12	12
Immersion heater 230 V	kW	3,0	3,0	3,0
Part No.		081028	081029	081030

\* Cold water temperature = 10°C

HA - WH5 FS		200 litre	300 litre
Volume/dedicated solar storage	litre	174,5/79,5	267,4/92,5
Volume, HP coil	litre	8,5	8,8
Volume, solar coil	litre	4,6	5,5
Volume, expansion vessel	litre	18	24
Net weight	kg	49	61
Gross weight	kg	225	329
Heat transfer (60/50 °C at 50 °C hot water temperature)*	kW	8,1	8,5
Volume of water drawn off, above 40 °C	litre	165,5	262,5
Solar heat transfer (at 50 °C hot water temperature)**	kW	2,2	3,1
Heat content at 50°C	kWh	8,1	12,4
Equivalent amount of hot water (40°C)	litre	232	356
Re-heat time HP	min.	36	64
Re-heat time Solar	min.	175	264
Heat loss $\Delta t$ 45°C	kW/24Hrs	1,85	2,59
Max operating temperature	°C	75	75
Max pressure, primary side	bar/MPa	3/0.3	3/0.3
Max pressure, water heater	bar/MPa	10/1,0	10/1,0
Maximum pressure, solar coil	bar/MPa	3/0.3	3/0.3
Max water supply pressure	bar/MPa	10/1.0	10/1.0
Max design pressure	bar/MPa	10/1.0	10/1.0
Max recommended heat pump size	kW	12	12
Immersion heater 230 V	kW	3,0	3,0
Part No.		081031	081032

\*Primary flow to achieve the maximum capacity (12 kW): 1025 l/h

\*\*Solar flow (3.3 kW): 300 l/h 70 °C

Tested according to standard EN 12897:2006.

# 9 Item register

## Item register

### A

Assembly, 6

### C

Cold and hot water, 13

Commissioning and adjusting, 17

    Filling and venting, 17

    Pressure drop diagram, solar coil, 18

    Start-up and inspection, 19

Connecting cold and hot water, 13

Connecting hot water circulation, 13

Connecting to heat pump, 12

Connecting to solar power, 12

### D

Delivery and handling, 6

    Assembly, 6

    Supplied components, 6

    Transport, 6

Dimensions and pipe connections, 10

Dimensions and setting-out coordinates, 10

### E

Electrical installation, 15

    Sensors, 15

    Temperature limiter, 16

Emptying, 19

### F

Filling and venting, 17

    Filling and venting the charge coil, 17

    Filling the hot water heater, 17

### G

General inspection, 19

### H

Heat pump, 12

    Connecting hot water circulation, 13

    Connecting to heat pump, 12

### I

Important information, 4

    Safety information, 4

Inspection of the installation, 5

Installation alternative, 13

    To ground source heat pump, 14

### M

Maintenance, 19

    General inspection, 19

### P

Pipe connections, 9

    Cleaning the climate system, 8

    Cold and hot water, 13

    Connecting cold and hot water, 13

    Dimensions and pipe connections, 10

    General, 9

    Hard water areas, 9

    Heat pump, 12

    Installation alternative, 13

    Sun, 12

    Symbol key, 13

Pressure drop diagram, charge coil, 18

Pressure drop diagram, solar coil, 18

### S

Safety information, 4

    Inspection of the installation, 5

    Serial number, 4

    Symbols, 4

    Warranty information, 4

Sensors, 15

Serial number, 4

Service actions, 19

    Emptying, 19

Service and maintenance, 19

    Maintenance, 19

    Service actions, 19

Sun, 12

    Connecting to solar power, 12

Symbol key, 13

Symbols, 4

### T

Technical data, 20-21

    Dimensions and setting-out coordinates, 10

Temperature limiter, 16

The water heater design, 7

Transport, 6





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