

Installer manual
AHP/AHPS/AHPH
Accumulator tank

Table of Contents

1	Important information	4
	Safety information	4
	General	4
2	Delivery and handling	6
	Transport	6
	Assembly	6
	Supplied components	6
	Removing the covers	6
3	Accumulator tank design	7
4	Pipe connections	9
	General	9
	System diagram	10
	Dimensions and pipe connections	11
	Installation alternative	13
5	Electrical installation	15
	Sensors	15
6	Commissioning and adjusting	16
	Filling and venting	16
	Start-up and inspection	17
7	Service	18
	Service actions	18
8	Technical data	19
	Dimensions and setting-out coordinates	19
	Technical specifications	21
	Energy labelling	22
	Item register	23
	Contact information	27

1 Important information

Safety information

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

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children must not play with the appliance. Do not allow children to clean or maintain the appliance unsupervised.

We reserve the right to make design modifications without prior notice.

©NIBE 2017.

Symbols



NOTE

This symbol indicates danger to person or machine.



Caution

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



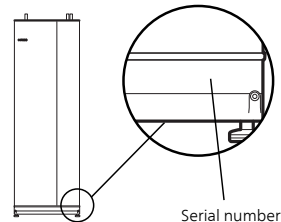
TIP

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

General

Serial number

The serial number can be found at the bottom right of the front cover.



Caution

You need the product's (14 digit) serial number for servicing and support.

Recovery



Leave the disposal of the packaging to the installer who installed the product or to special waste stations.

Do not dispose of used products with normal household waste. It must be disposed of at a special waste station or dealer who provides this type of service.

Improper disposal of the product by the user results in administrative penalties in accordance with current legislation.

Country specific information

Installer manual

This installer manual must be left with the customer.

Inspection of the installation

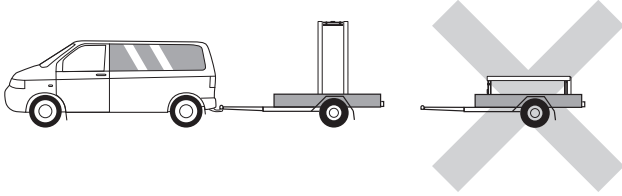
Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person.

✓	Description	Notes	Signature	Date
	Heat pump (page 14)			
	Shut off valves			
	Expansion vessel			
	Safety valve			
	Hot water (page 13)			
	Shut off valves			
	Mixing valve			
	Safety valve			
	Cold water (page 13)			
	Shut off valves			
	Non-return valve			
	Electricity (page 15)			
	Sensors			

2 Delivery and handling

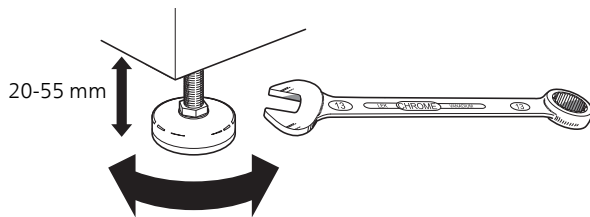
Transport

AHP/AHPS/AHPH should be transported and stored vertically in a dry place. However, the AHP/AHPS/AHPH may be carefully laid on its back when being moved into a building.



Assembly

- The accumulator tank may only be installed vertically.
- Position AHP/AHPS/AHPH on a firm base that can take the weight, preferably on a concrete floor or foundation. Use the accumulator tank's adjustable feet to obtain a horizontal and stable set-up.



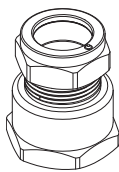
- The area where AHP/AHPS/AHPH is located must be equipped with floor drainage.

Supplied components

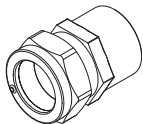
AHPS



3 x Plug Ø 22



2 x Straight connection Ø 22xG1



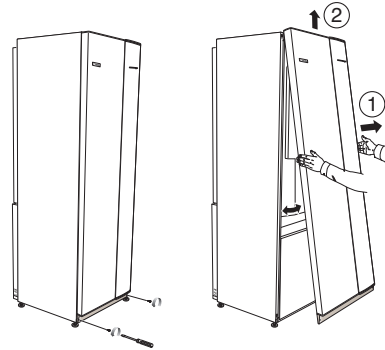
1 x Straight connection Ø 22xG¾

Location

The kit of supplied items is placed on top of the product.

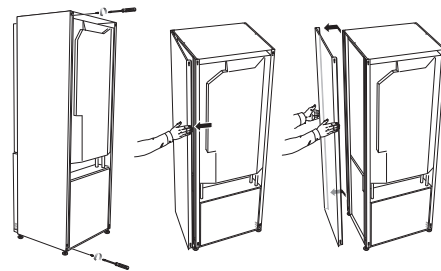
Removing the covers

Front cover



1. Remove the screws from the lower edge of the front cover.
2. Lift the cover out at the bottom edge and up.

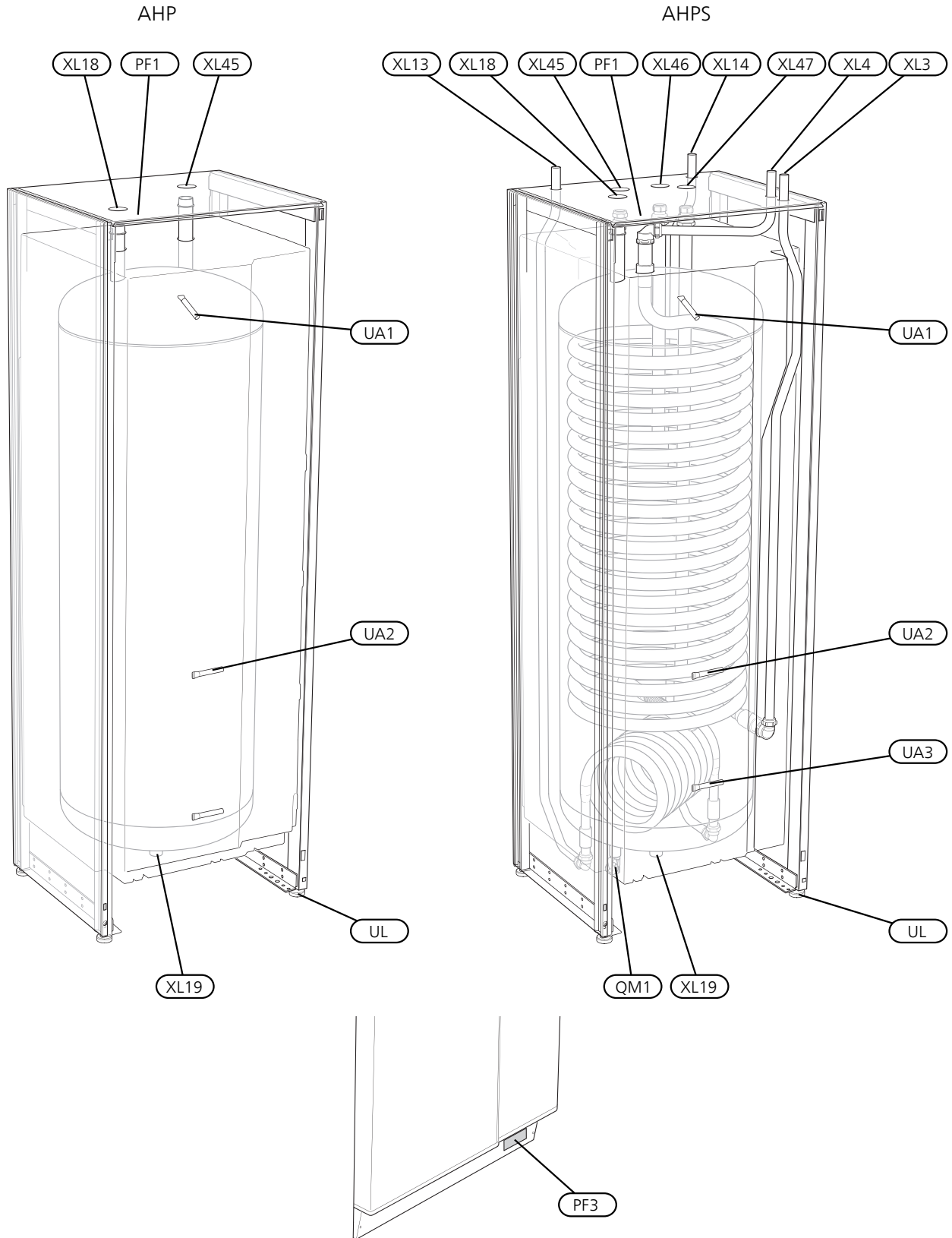
Side covers

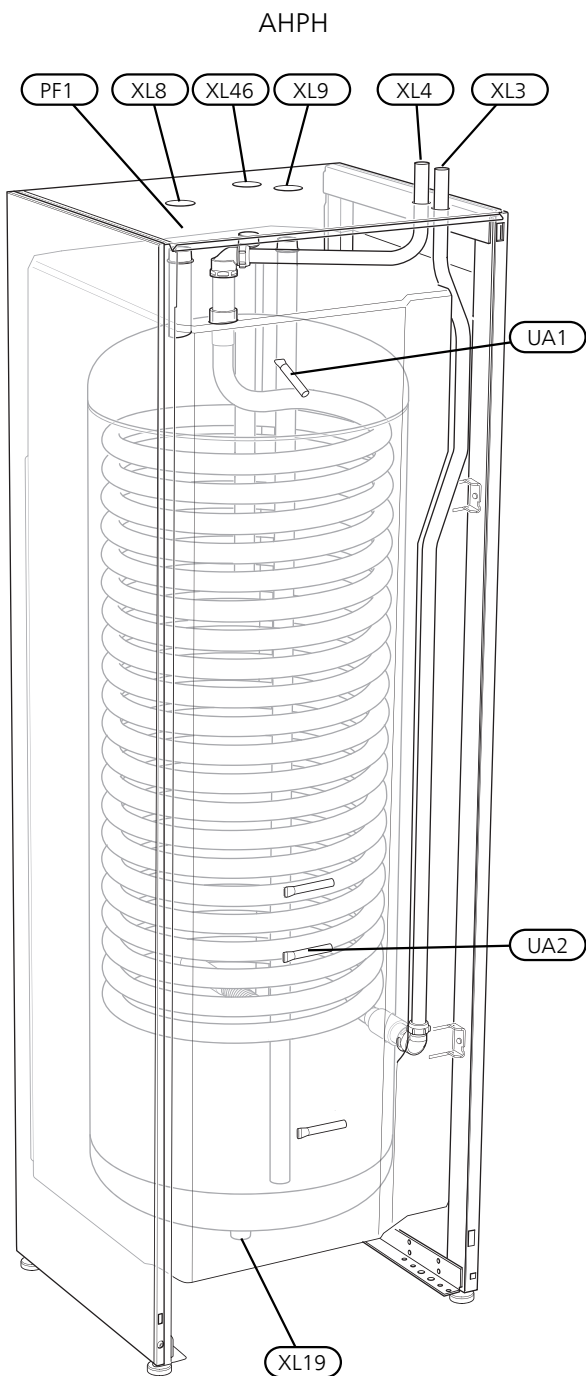


The side covers can be removed to facilitate the installation.

1. Remove the screws from the upper and lower edges.
2. Twist the cover slightly outward.
3. Move the hatch backwards and slightly to the side.
4. Pull the cover to one side.
5. Pull the hatch forwards.

3 Accumulator tank design





Pipe connections

- XL3 Connection, cold water
- XL4 Connection, hot water
- XL8 Docking connection, supply line (from heat pump*)
- XL9 Docking connection, return line (to heat pump*)
- XL13 Connection, supply line (from solar heating system)
- XL14 Connection, return line (to solar heating system)
- XL18 Docking connection, supply line high temperature (from external heat source)
- XL19 Docking connection, return line high temperature (to external heat source)
- XL45 Docking connection, level 1
- XL46 Docking connection, level 2
- XL47 Docking connection, level 3

HVAC components

- QM1 Drain valve, heating medium
- UA1 Submerged tube for hot water sensor (BT7).
- UA2 Submerged tube for hot water sensor (BT6).
- UA3 Submerged tube for solar sensor (control)

Miscellaneous

- PF1 Rating plate
- PF3 Serial number plate
- UL Adjustable feet

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

*or another external heat source

4 Pipe connections

General

Pipe installation must be carried out in accordance with current norms and directives.

Internal support bushes must be fitted, when a plastic or annealed copper pipe is used. The accumulator tank must be fitted with the requisite valves, such as a safety valve, shut-off valve and non-return valve. An overflow pipe should be routed from the safety valve to an appropriate drain. The overflow pipe must be the same size as the safety valve. Route the overflow pipe from the safety valve, enclosed along its entire length and ensure that it is frost proof. The mouth of the overflow pipe must be visible and not placed close to electrical components.

Maximum boiler and radiator volumes

For installation in pressurised systems, the system must be equipped with a pressure expansion vessel pre-pressurised to 0.5 bar .

Internal volume in AHP/AHPS/AHPH for calculating expansion vessel is 270 l. The expansion vessel's volume must be at least 10% of the system's total volume.

Example table:

Total volume (l) (accumulator tank and radiator system)	Volume (l) expansion vessel
500	50
700	70
1000	100



NOTE

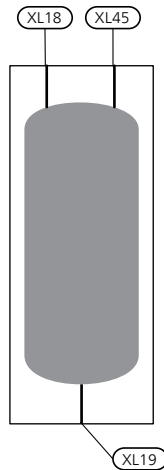
Expansion vessel not supplied with the product.

The pre-pressure of the pressure expansion vessel must be dimensioned according to the maximum height (H) between the vessel and the highest positioned radiator. A pre-pressure of 0.5 bar means a maximum permitted height difference of 5 m.

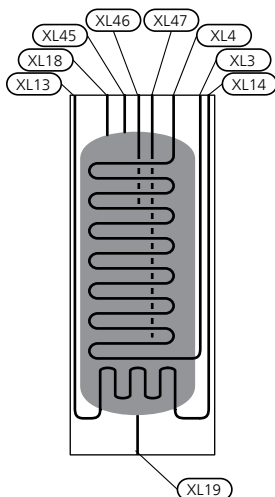
If the pre-pressure in the pressure vessel is not high enough, it can be increased by adding air via the valve in the expansion vessel. The expansion vessel's pre-pressure must be entered in the check list on page 5. Any change in the pre-pressure affects the ability of the expansion vessel to handle the expansion of the water.

System diagram

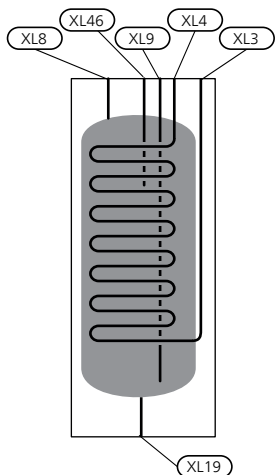
AHP



AHPS



AHPH



AHP

AHP consists of a vessel with accumulated volume. AHP is connected to AHPS / AHPH.

AHPS

AHPS consists of a vessel with a number of connections, which make it possible to dock the accumulator tank to external units. By using the different levels in the tank, heat can be retrieved and supplied to the tank in several versions. Use for example level 2 and 3 to retrieve solar heat to heat a pool. The heat between level 2 and the top of the tank is then intended to preheat the hot water to the heat pump.

AHPH

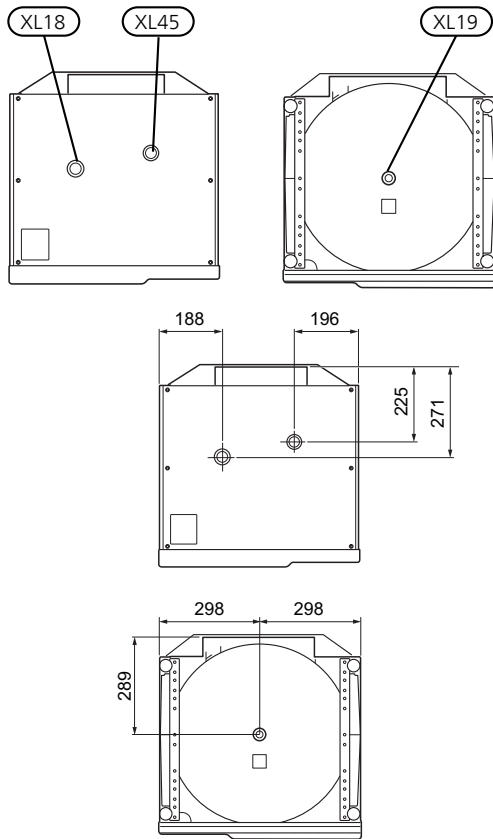
AHPH consists of an accumulator tank with integrated tap coil for hot water. AHPH can be docked to an external heat source, for example heat pump.

XL3	Connection, cold water
XL4	Connection, hot water
XL8	Docking connection, supply line (from heat pump*)
XL9	Docking connection, return line (to heat pump*)
XL13	Connection, supply line (from solar heating system)
XL14	Connection, return line (to solar heating system)
XL18	Docking connection, supply line high temperature (from external heat source)
XL19	Docking connection, return line high temperature (to external heat source)
XL45	Docking connection, level 1
XL46	Docking connection, level 2
XL47	Docking connection, level 3

*or another external heat source

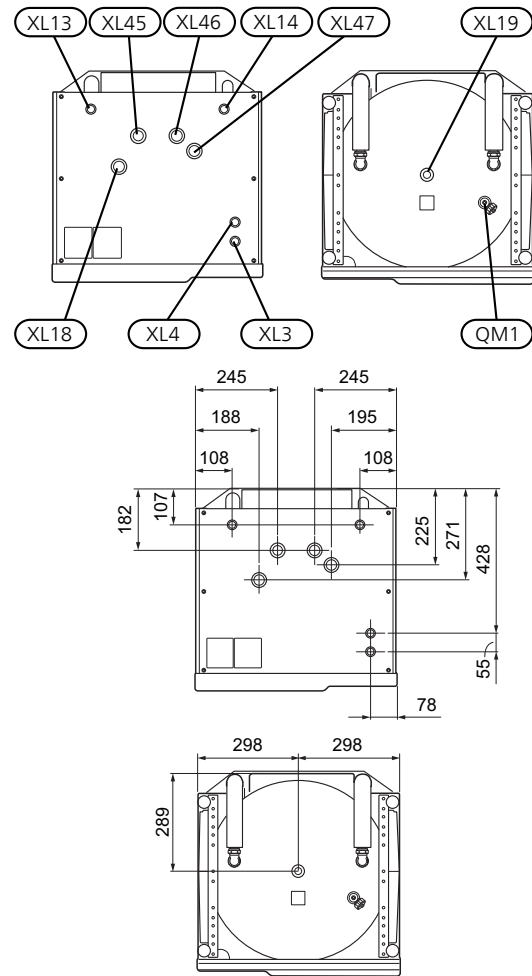
Dimensions and pipe connections

AHP



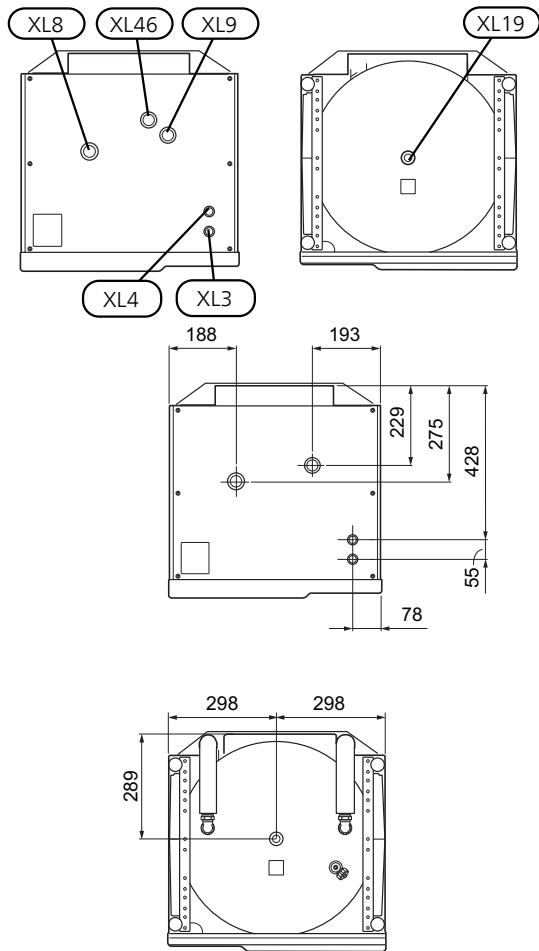
Connection AHP		
XL18 Docking connection, supply line high temperature	G25	ext.
XL19 Docking connection, return line high temperature	G25	ext.
XL45 Docking connection, level 1	G25	ext.

AHPS



Connection AHPS			
QM1 Draining valve	G20	ext.	
XL3 Cold water Ø	mm	22	
XL4 Hot water Ø	mm	22	
XL13 Solar supply line Ø	mm	22	
XL14 Solar return line Ø	mm	22	
XL18 Docking connection, supply line high temperature	G25	ext.	
XL19 Docking connection, return line high temperature	G25	ext.	
XL45 Docking connection, level 1	mm	22	
XL46 Docking connection, level 2	mm	22	
XL47 Docking connection, level 3	mm	22	

AHPH



Connection AHPH		
XL3 Cold water Ø	mm	22
XL4 Hot water Ø	mm	22
XL8 Docking connection, supply line (from heat pump*)	G25	ext.
XL9 Docking connection, return line (to heat pump*)	G25	ext.
XL19 Docking connection, return line high temperature	G25	ext.
XL46 Docking connection, level 2	G25	ext.

*or another external heat source

Installation alternative

AHP/AHPS/AHPH can be connected in several different ways, some of which are shown here.

Further option information is available at www.nibe.eu and in the respective assembly instructions for the heat sources used.

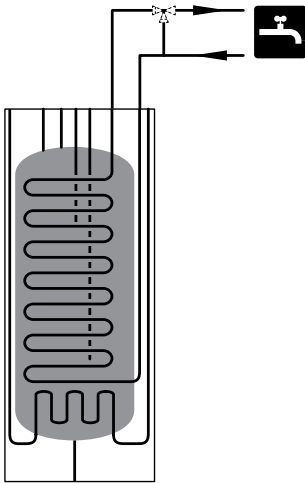
Symbol key

Symbol	Meaning
	Venting valve
	Shut-off valve
	Mixing valve
	Level vessel
	Control valve
	Safety valve
	Thermometer
	Temperature sensor
	Expansion vessel
	Pressure gauge
	Circulation pump
	Particle filter

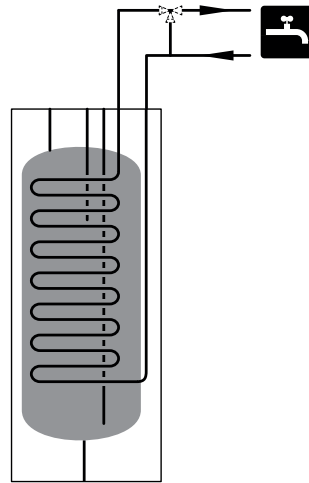
Connecting cold and hot water to the heat pump

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

AHPS

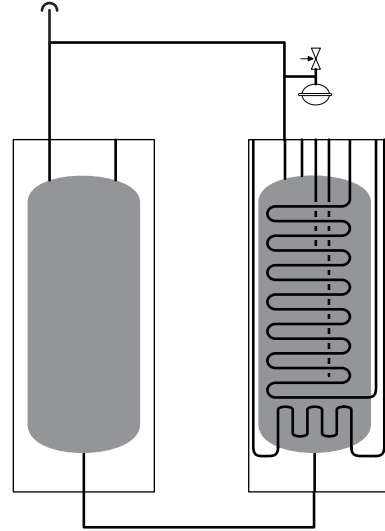


AHPH



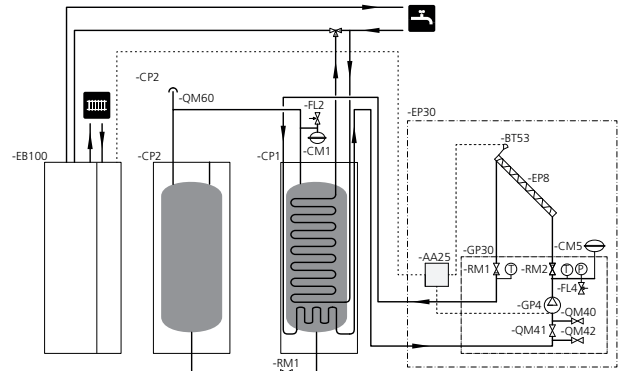
Connecting two tanks

Extended volume for connecting several solar panels, for example.



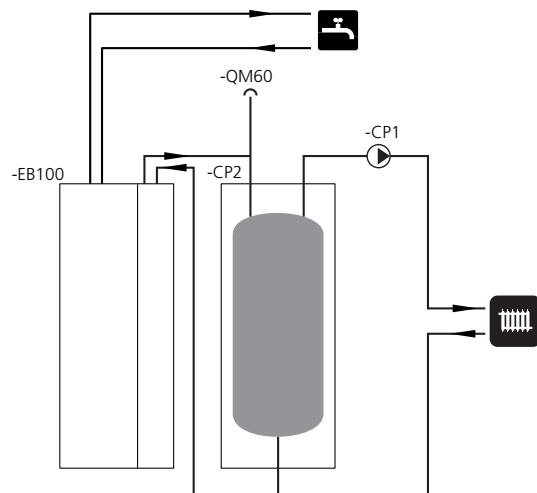
To solar heating

AHPS can be docked to solar heating system.



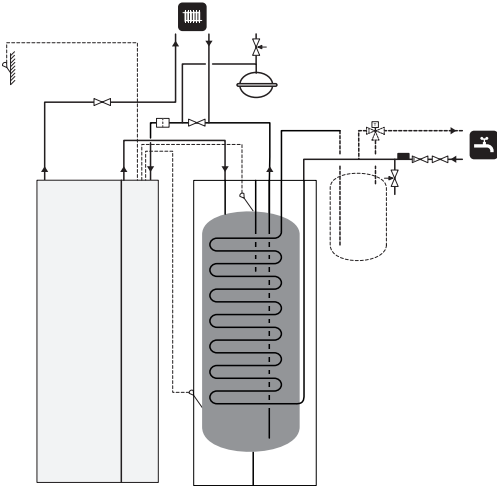
As a buffer vessel for heating system

AHP can be docked as a buffer vessel for the heating system, when the system volume is not sufficient, or to reduce heat spikes.



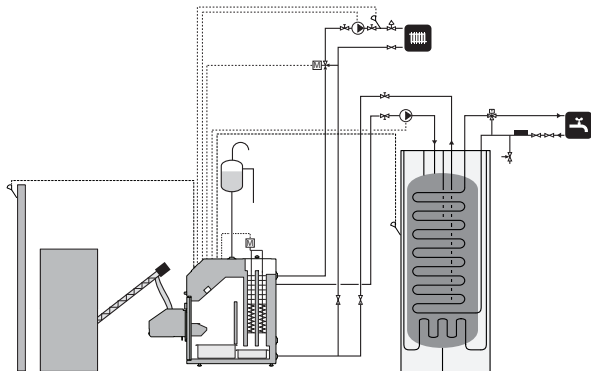
To ground source heat pump/external heat source

AHPH can be docked with another heat source, for example NIBE F1145/1155.



To pellet boiler

AHPS and AHPH can be docked with another heat source, a pellet boiler for example.



5 Electrical installation



NOTE

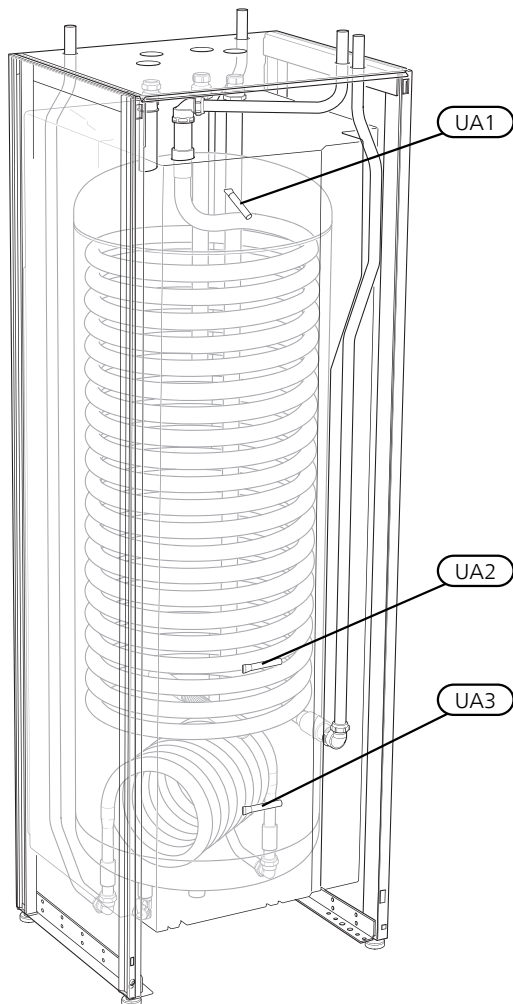
Electrical installation and service must be carried out under the supervision of a qualified electrician. Electrical installation and wiring must be carried out in accordance with the stipulations in force.

Sensors

AHP/AHPS/AHPH can be supplemented with up to two hot water sensors. These are placed in the submerged tube for hot water sensor (UA1) and (UA2).

AHPS can also be supplemented with a solar sensor. This is placed in the submerged tube for solar sensor (UA3).

Use the sensors provided with the heat pump (or other heat source). When no heat sensors have been provided these must be ordered from the manufacturer of the heat source.



The figure shows AHPS.

6 Commissioning and adjusting

Filling and venting

Filling the hot water coil (AHPS/AHPH)

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

Filling the solar coil (AHPS)

Fill the solar coil through the filling connection in the solar panel unit.

There must be water in the solar coil and the vessel before the solar panel unit is operated.

Filling the vessel

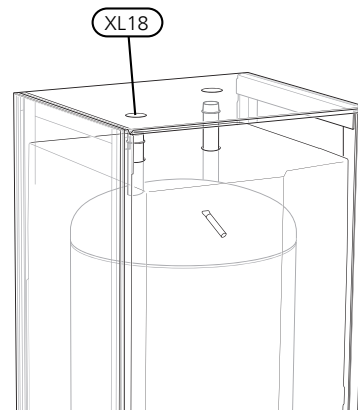
1. Open the externally mounted vent valve (CP2-QM60).
2. Fill the vessel in AHPS through the drain valve (QM1).
3. When the water exiting the vent valve (CP2-QM60) is not mixed with air, the vessel is full.
4. Close the vent valve (CP2-QM60).
5. AHP filled indirectly when AHPS is filled.
6. AHPH is filled through connection XL9, when water runs out of the XL8 connection, the reservoir is full.

Venting

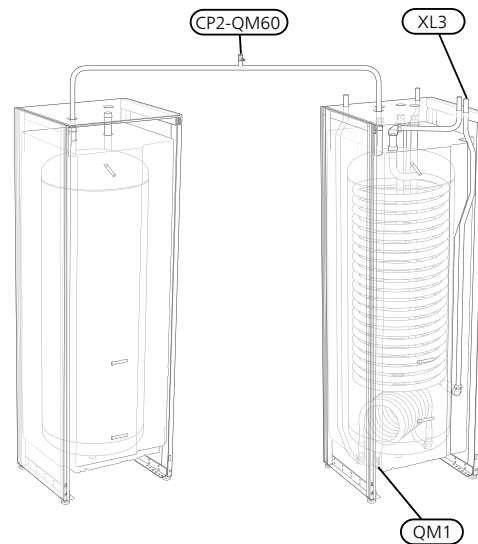
For installations with several AHP/AHPS/AHPH it is important to vent the connection between the tanks.

1. Vent through the externally mounted vent valve (CP2-QM 60) .
2. Keep topping up and venting until all air has been removed and the pressure is correct.

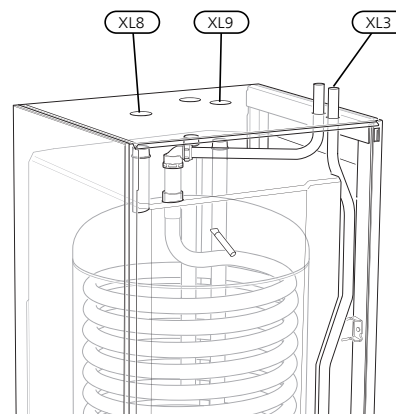
AHP



AHPS



AHPH



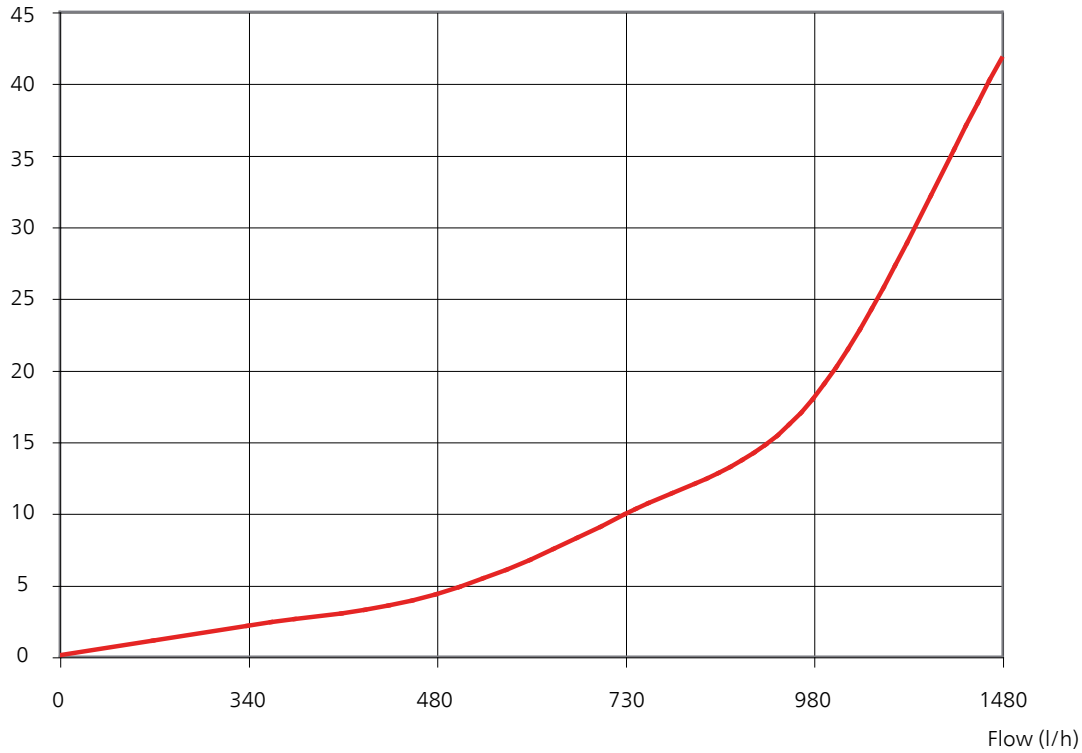
Start-up and inspection

Pressure drop diagram, solar coil

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

AHPS

Pressure
drop
(kPa)



7 Service

Service actions

Safety valve

The hot water coil's externally mounted safety valve sometimes releases a little water after hot water usage. This is because the cold water, which enters the hot water coil, expands when heated causing the pressure to rise and the safety valve to open.

The function of the safety valve must be checked regularly. Perform checks as follows:

1. Open the valve.
2. Check that water flows through the valve.
3. Close the valve.



TIP

The safety valve is not supplied with the accumulator tank. Contact your installer if you are unsure how one checks the valve.

Emptying

AHP and AHPH: The vessel is drained via docking connection (XL19).

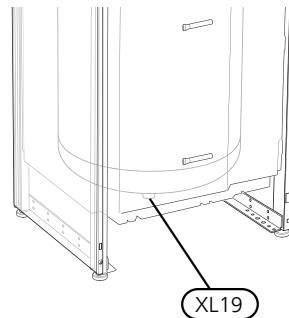
AHPS: Empty the vessel via the drain valve (QM1).

AHP and AHPS: The vessel is drained via the drain valve (QM1) in AHPS, in those cases AHP and AHPS are connected.

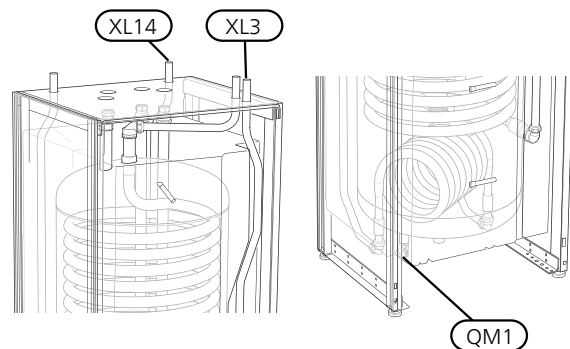
The hot water coil in AHPS and AHPH is emptied through the siphon (with hose) in the cold water connection (XL3).

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

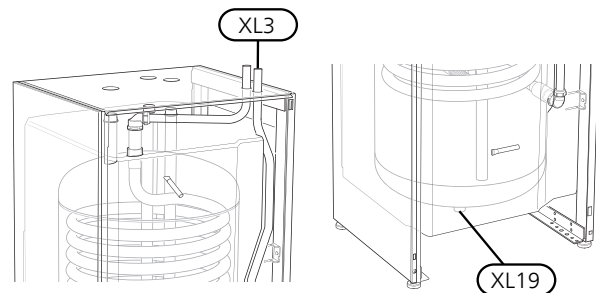
AHP



AHPS



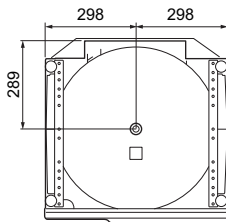
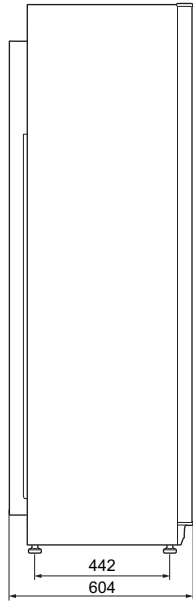
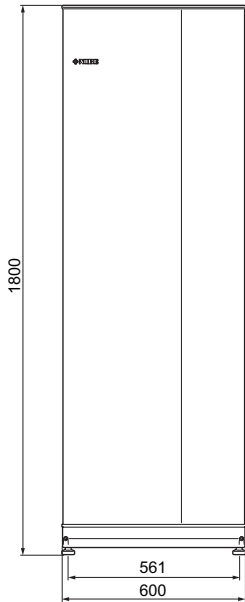
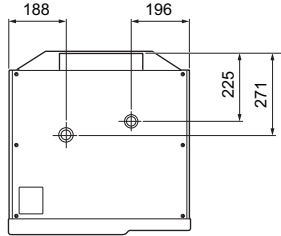
AHPH



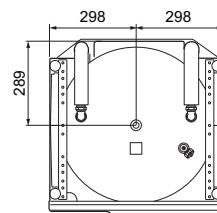
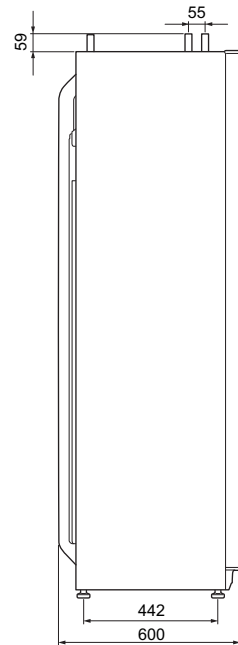
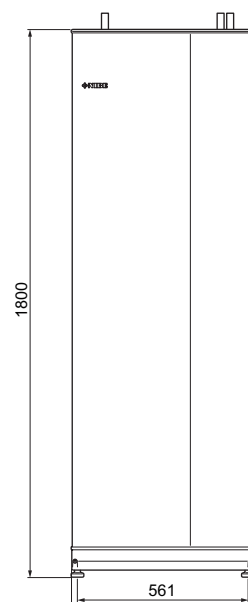
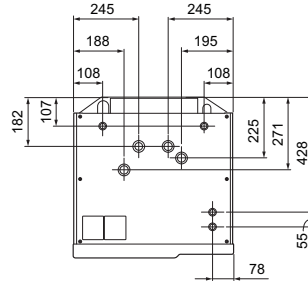
8 Technical data

Dimensions and setting-out coordinates

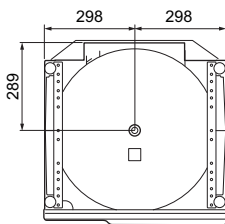
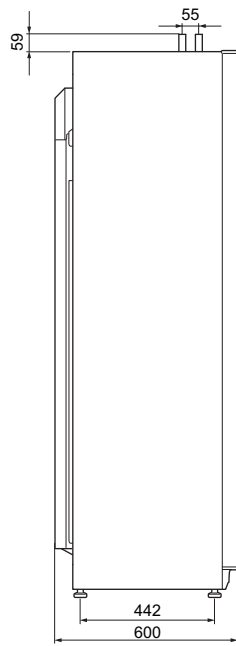
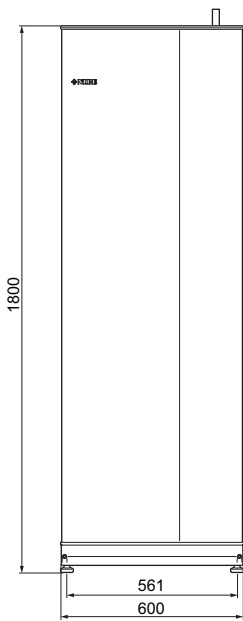
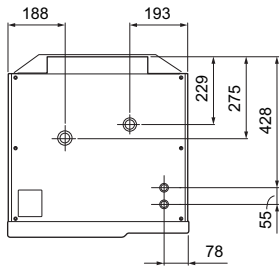
AHP



AHPS

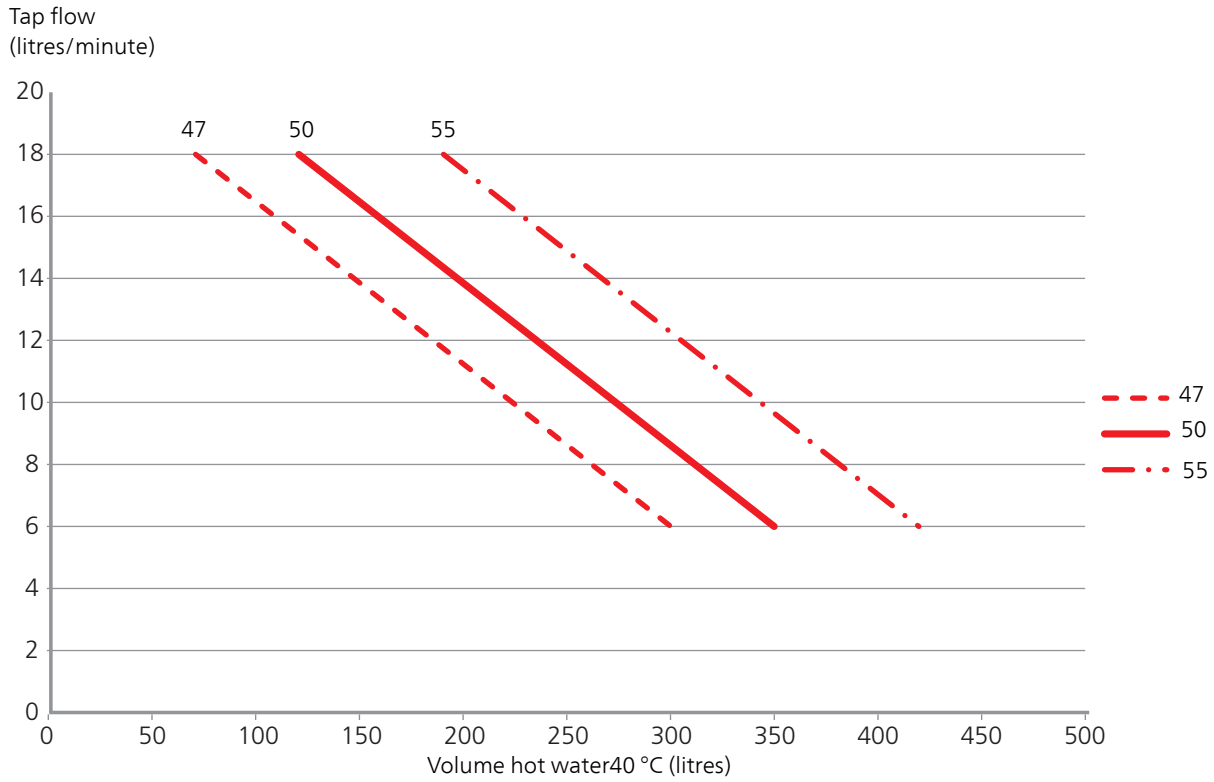


AHPH



Technical specifications

Hot water capacity AHPS/AHPH



NOTE

To achieve the stop temperatures in the diagram above, the "target temp" charge method must be selected in the heat pump's control system.

Model		AHP 10-300	AHPS 10-300	AHPH 10-300
Heating medium circuit				
Max pressure in boiler section	MPa/bar	0.3/3		
Max temperature	°C	85		
Max heat pump size	kW	24		
Pipe connections				
Hot water	mm	–	Ø22	Ø22
Cold water	mm	–	Ø22	Ø22
Docking solar	mm	–	Ø22	–
Docking, high temperature (ext.)	G	G25	G25	–
Docking, level 1-3	mm	–	Ø22	–
Docking, supply line (external heat source)		–	–	G25
Docking, return line (external heat source)		–	–	G25
Volume boiler section	litre	270	250	250
Volume hot water coil	litre	–	17	17
Volume, solar coil	litre	–	4.4	–
Max pressure in hot water coil	MPa/bar	–	1.0/10	
Corrosion protection, hot water coil		–	Stainless steel	
Corrosion protection, solar coil		–	Copper	–
Capacity hot water heating according to EN 255-3				
Tap volume 40 °C at Normal comfort (V_{max})	litre	–	See diagram	
Dimensions and weight				
Width	mm	600	600	600
Depth	mm	600	600	600
Height	mm	1800	1800	1800
Required ceiling height	mm	1950	1950	1950
Weight	kg	105	126	116
Part No.		256 118	256 119	256 120

Energy labelling

Supplier		NIBE		
Model		AHP 10-300	AHPS 10-300	AHPH 10-300
Energy efficiency class		C	C	C
Heat loss	W	89	89	89
Volume	l	270	267	267

9 Item register

Item register

A

Accumulator tank's design, 7
Assembly, 6

C

Cold and hot water, 13
Commissioning and adjusting, 16
 Filling and venting, 16
 Pressure drop diagram, solar coil, 17
 Start-up and inspection, 17
Connecting two tanks, 13

D

Delivery and handling, 6
 Assembly, 6
 Removing the covers, 6
 Transport, 6
Dimensions and pipe connections, 11
Dimensions and setting-out coordinates, 19

E

Electrical installation, 15
 Sensors, 15
Emptying, 18

F

Filling and venting, 16
 Filling the hot water coil, 16
 Filling the hot water heater, 16
Filling the hot water coil, 16
Filling the hot water heater, 16

I

Important information, 4
 Safety information
 Serial number, 4
Inspection of the installation, 5
Installation alternative, 13
 To ground source heat pump, 14

M

Maximum boiler and radiator volumes, 9

P

Pipe and ventilation connections
 System diagram, 10
Pipe connections, 9
 Cold and hot water, 13
 Dimensions and pipe connections, 11
 General, 9
 Installation alternative, 13
 Symbol key, 13
Pressure drop diagram, solar coil, 17

R

Removing the covers, 6

S

Safety information
 Inspection of the installation, 5
Safety valve, 18
Sensors, 15
Serial number, 4
Service
 Service actions, 18
Service actions, 18
 Emptying, 18
 Safety valve, 18
Start-up and inspection, 17
Sun
 Connecting two tanks, 13

Symbol key, 13
System diagram, 10

T

Technical data, 19
 Dimensions and setting-out coordinates, 19
 Technical Data, 21
Technical Data, 21
Transport, 6

Contact information

- AT** **KNV Energietechnik GmbH**, Gahberggasse 11, AT-4861 Schörfling
Tel: +43 (0)7662 8963 E-mail: mail@knv.at www.knv.at
- CH** **NIBE Wärmetechnik c/o ait Schweiz AG**, Industriepark, CH-6246 Altishofen
Tel: +41 58 252 21 00 E-mail: info@nibe.ch www.nibe.ch
- CZ** **Druzstevni zavody Drazice s.r.o.**, Drazice 69, CZ - 294 71 Benátky nad Jizerou
Tel: +420 326 373 801 E-mail: nibe@nibe.cz www.nibe.cz
- DE** **NIBE Systemtechnik GmbH**, Am Reiherpfahl 3, 29223 Celle
Tel: +49 (0)5141 7546-0 E-mail: info@nibe.de www.nibe.de
- DK** **Vølund Varmeteknik A/S**, Member of the Nibe Group, Brogårdsvej 7, 6920 Videbæk
Tel: +45 97 17 20 33 E-mail: info@volundvt.dk www.volundvt.dk
- FI** **NIBE Energy Systems OY**, Juurakkotie 3, 01510 Vantaa
Tel: +358 (0)9-274 6970 E-mail: info@nibe.fi www.nibe.fi
- FR** **NIBE Energy Systems France Sarl**, Zone industrielle RD 28, Rue du Pou du Ciel, 01600 Reyrieux
Tel : 04 74 00 92 92 E-mail: info@nibe.fr www.nibe.fr
- GB** **NIBE Energy Systems Ltd**, 3C Broom Business Park, Bridge Way, S419QG Chesterfield
Tel: +44 (0)845 095 1200 E-mail: info@nibe.co.uk www.nibe.co.uk
- NL** **NIBE Energietechniek B.V.**, Postbus 634, NL 4900 AP Oosterhout
Tel: 0168 477722 E-mail: info@nibenl.nl www.nibenl.nl
- NO** **ABK AS**, Brobekkveien 80, 0582 Oslo, Postadresse: Postboks 64 Vollebekk, 0516 Oslo
Tel: +47 23 17 05 20 E-mail: post@abkklima.no www.nibeenergysystems.no
- PL** **NIBE-BIAWAR Sp. z o. o.** Aleja Jana Pawła II 57, 15-703 BIALYSTOK
Tel: +48 (0)85 662 84 90 E-mail: sekretariat@biawar.com.pl www.biawar.com.pl
- RU** © "EVAN" 17, per. Boynovskiy, RU-603024 Nizhny Novgorod
Tel: +7 831 419 57 06 E-mail: kuzmin@evan.ru www.nibe-evan.ru
- SE** **NIBE AB Sweden**, Box 14, Hannabadsvägen 5, SE-285 21 Markaryd
Tel: +46 (0)433 73 000 E-mail: info@nibe.se www.nibe.se

For countries not mention in this list, please contact Nibe Sweden or check www.nibe.eu for more information.

NIBE AB Sweden
Hannabadsvägen 5
Box 14
SE-285 21 Markaryd
info@nibe.se
www.nibe.eu



431379