INSTRUCTION MANUAL

953.001.0200 1 Version: 05.2024

AFRISO

AFRISO Sp. z o.o.
Szałsza, ul. Kościelna 7
42-677 Czekanów
www.afriso.pl

Customer Service Team
tel. 32 330 33 55
zok@afriso.pl

Heat pump service assembly AHS 500/560

Art.-No. 77 500 00, 77 560 00

NOTE!

The product may only be used if you have fully read and understood these operating instruction. The manual is also available on the AFRISO websites on the Internet.

WARNING!

Heat pump service assembly may only be installed, commissioned, and dismantled by trained personnel.

Changes and modifications carried out by unauthorised persons may cause danger and are prohibited for safety reasons.

Risk of burns from hot medium - see the MAINTENANCE section.

APPLICATION

AHS heat pump service assembly is installed in central heating and cooling installations. It is used for manual draining of the installation from the medium, filling, flushing and venting of the installation after connection to the water supply system or a flushing pump. In addition, it removes solid contaminants that can cause damage to installation components. The heat pump service assembly is equipped with a rotameter that allows to measure in real time and adjust the flow rate in the range from 5 to 42 l/min. The assembly can be used in installations where the working medium is water or a mixture of water and glycol with a glycol concentration not exceeding 30%.

WORKING PRINCIPLE

The AHS heat pump service assembly is used for service work, and during normal operation it takes care of the purity of the medium in the installation. For service work, it is necessary to install special connections included in the kit (Fig. 1). In order to carry out a service work, the shut-off valves, built into the main brass housing of the AHS (Fig. 2), must be properly manipulated by rotating them within a range of 30°. Work modifying the design of the heat pump service assembly must always be carried out with the shut-off valves closed and with the installation cooled down.

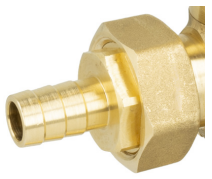

Fig. 1 Screwed-in brass connection for service work

Fig. 2 Shut-off valves in the main AHS housing

Filling the installation
When filling the installation, the shut-off valve number 2 in the brass housing with rotameter should be closed (rotated by a maximum of 30° to the right). Then connect the source of medium from the water supply system or pump station to the connection number 1 and perform the filling process (Fig. 3, 4).

Draining the installation
When draining the medium from the installation, the shut-off valves before and after the service assembly and the two shut-off valves in the housing with the rotameter should be open. This will allow the medium to drain completely from the installation, if the valve is installed at the lowest point of the system (Fig. 3, 4).

Flushing/venting
When flushing or venting the entire installation, the two shut-off valves in the brass housing with rotameter should be open. Then the source of the medium should be connected to connection number 1. From connection number 2, air and liquid with flushed out contaminants will escape. The installation will be vented if only liquid flows out of the connection (Fig. 3, 4).

Fig. 3 Service connections in the AHS housing

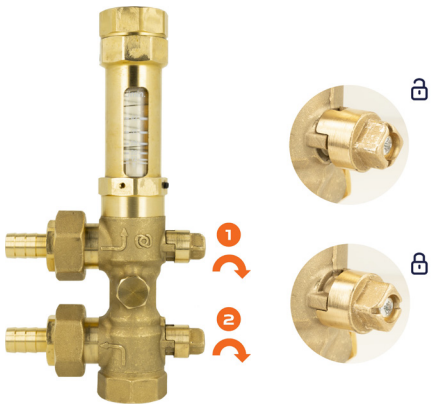

Fig. 4 Shut-off valves in the AHS housing

In the part responsible for separation of contaminants, the medium returning from the installation, as it enters the filter element, depending on the version, flows directly through a mesh filter (AHS 500, Fig. 5) or is put into a vortex motion in a magnetic dirt separator (AHS 560). In the AHS 560 heat pump service assembly, thanks to the vortex motion, the medium flows in a cyclone-like path, which facilitates the separation and settlement of contaminants in the lower part of the unit. Metallic contaminants (e.g., rust particles, metal filings) are then attracted by the built-in magnet. The remaining non-metallic particles are effectively retained thanks to the filter mesh. The cleaned medium is directed to the heat source (Fig. 6).

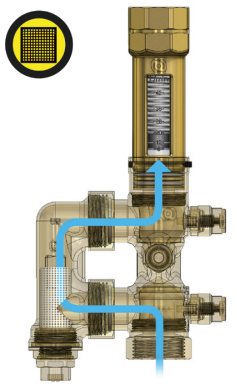

Fig. 5 Contaminant separation in AHS 500

1 2
page
3 4

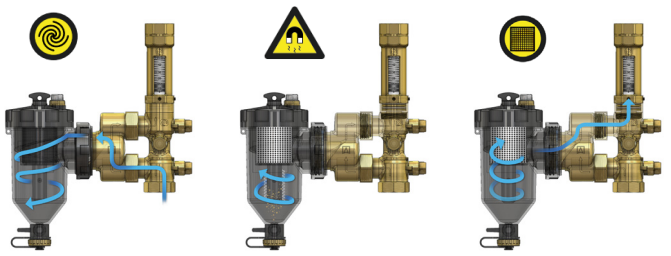

Fig. 6 Contaminant separation in AHS 560

CONSTRUCTION

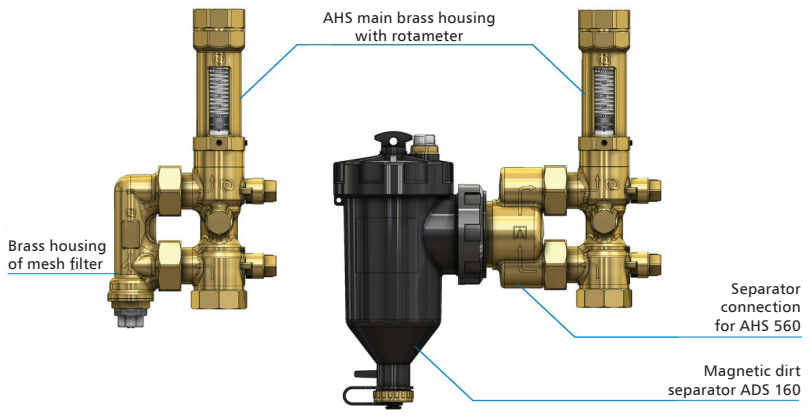

Fig. 7 Construction of service assemblies (from left, respectively) AHS 500 and 560

DIMENSIONS [mm]

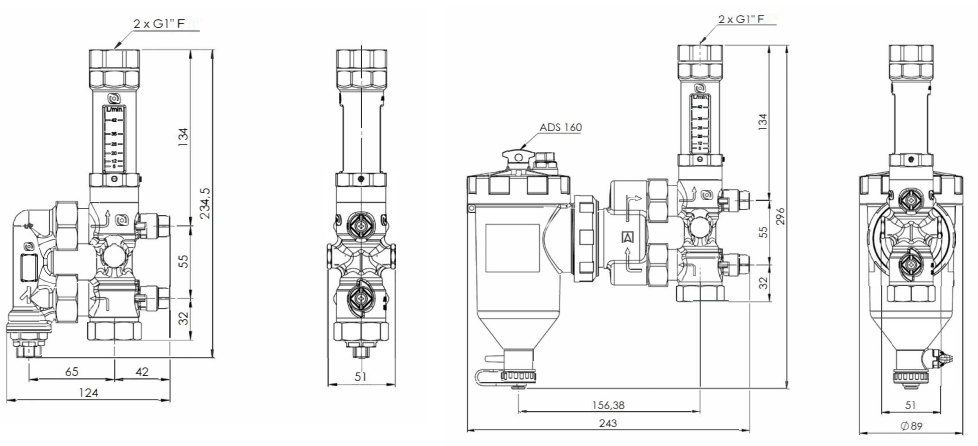

Fig. 8 Dimensions of service assemblies (from left, respectively) AHS 500 and 560

INSTALLATION

NOTE! Leave at least 150 mm clearance from the top and bottom edges of the separator / mesh filter to allow maintenance.

For additional protection of the heat source and other elements of the installation from contamination and corrosion, the use of corrosion inhibitor BCI AFRISO is recommended.

The AHS heat pump service assembly should be installed on the return line to the heat source so as to intercept solid contaminants that can cause damage to the heat source, as well as to the circulating pumps. The service assembly can be installed on vertical lines, horizontal lines, as well as on diagonal lines (Fig. 9).

The ADS 160 dirt separator drain valve on the AHS 560 should always point downward. The arrows on the brass housing of the connection indicate the direction of flow from the installation to the heat source. To change the position of the ADS 160 separator connection, use the wrench included in the kit. Unscrewed with it, the threaded connection of the polyamide nut with the brass housing of the AHS will allow you to achieve 360° movement of the separator and free positioning of the separator in relation to the installation (Fig. 10).

To facilitate maintenance, we recommend installing a shut-off valve before and after the service assembly. After installing and opening the shut-off valves, open the manual air vent, using a flathead screwdriver, to get rid of any lingering air (Fig. 11).

The ADS 160 separator that comes with the AHS 560 service assembly is factory-equipped with a filtration mesh with a mesh size of 500 μm. This filter accuracy is recommended for new installations. For modernized installations, 2-stage filtration is recommended. The first stage is to filter the installation with a filtration mesh with a mesh size of 500 μm for about one month. After this time, unscrew the lid (using the key included in the kit) and replace the existing filtration mesh with the supplied 800 μm filtration mesh.

Fig. 9 Permissible installing positions of the AHS heat pump service assembly

Fig. 10 Unscrewing the separator with a wrench

Fig. 11 Opening the manual air vent

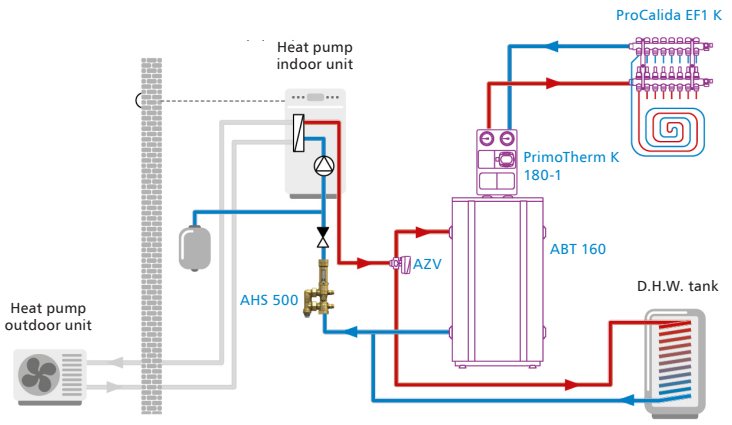

Fig. 12 Example installation diagram with heat pump service assembly AHS 500

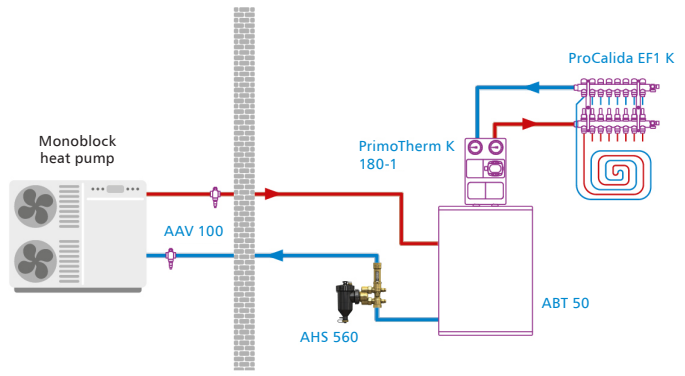

Fig. 13 Example installation diagram with heat pump service assembly AHS 560

MAINTENANCE

NOTE! Carry out maintenance only after the installation has cooled down completely. Otherwise, burns may occur from the hot medium.

The frequency of routine cleaning of the separator depends on the degree of contamination of the medium. However, a full cleaning of the separator, including checking the tightness of the connections, is recommended to be performed at least once a year.

In order to clean the mesh filter in the AHS 500 heat pump service assembly, first close all shut-off valves, unscrew the vent plug with a flathead screwdriver (a portion of the medium will be released in a controlled way and the pressure will be equalized) then unscrew the valve and the nut into which it is screwed with wrenches of size 22 and 25, respectively. The mesh filter should be removed easily (Fig. 14).

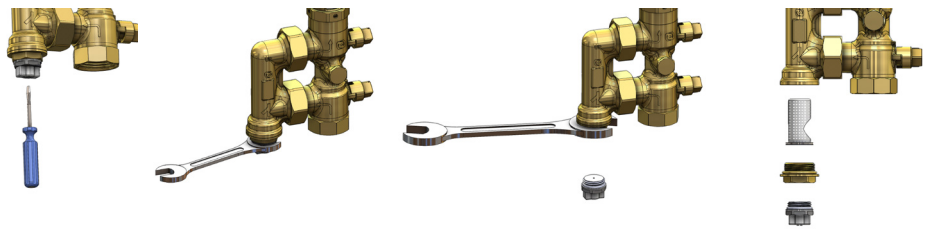

Fig. 14 AHS 500 maintenance scheme

Fig. 17 Insulations for (respectively from left) AHS 500 and 560

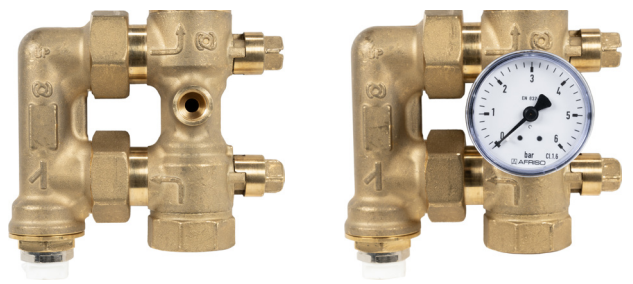

Fig. 18 Connection for pressure gauge in AHS housing

TECHNICAL DATA

Parameter	Value / material
Operating temperature	AHS 500: max 120°C (short-term 160°C) AHS 560: max 90°C
Operating pressure	AHS 500: max 10 bar AHS 560: max 3 bar
Glycol concentration in the installation	max 30%
Kvs	AHS 500: 6,5 m³/h AHS 560: 6,9 m³/h
Recommended flow (depending on the version selected)	AHS 500: 2,0 m³/h AHS 560: 2,1 m³/h
Connections	G1" F
Housing material	AHS 500: brass CW 614N brass CW 617N AHS 560: polyamide PA66 brass CW 614N brass CW 617N
Filtration mesh material	stainless steel AISI 304
Filtration mesh size	AHS 500: 500 μm AHS 560: 500 μm and 800 μm
Sealing material	EPDM
Magnet power (AHS 560)	1,4 T (14 000 Gs)

When assembling the separation elements, it is important to remember the correct position of the mesh filter. The mesh filter should be fully inserted into the brass housing, and the hole in it should face concentrically towards the lower connection hole so that it does not block the flow at this point (Fig. 15).

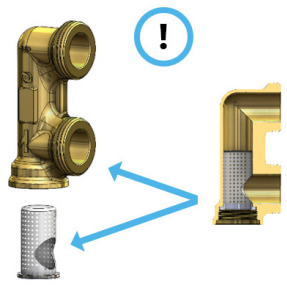

Fig. 15 Correct positioning of the mesh filter

To carry out routine maintenance on the AHS 560 heat pump service assembly, first close all shut-off valves, and then remove the magnet located in the upper polyamide housing of the dirt separator. At this point, the contaminants will settle in the lower part of the separator. After doing this, prepare the tank for the outflowing medium and open the drain valve located in the lower polyamide part of the dirt separator housing. After the dirt separator is emptied of medium, slowly unscrew the shut-off valve from the installation side. This movement will flush the separator. If there are no more contaminants coming out of the separator, close the drain valve from the polyamide housing, insert the magnet, and open the shut-off valves before and after the AHS 560 (Fig. 16).

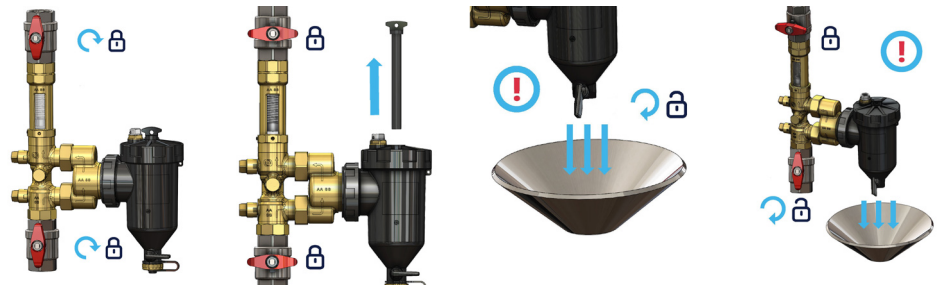

Fig. 16 AHS 560 maintenance scheme

ACCESSORIES

The AHS heat pump service assembly can be equipped with additional accessories ordered separately. Compatible accessories include insulation (Fig. 17) and a pressure gauge (Fig. 18) screwed into one of the two G¼" connections. When installing the pressure gauge, remember to turn off the shut-off valves in the housing and seal the threads. Some medium may be discharged from the housing when unscrewing the cap. Follow the warnings as in the MAINTENANCE section.

Accessory name	Art.-No.
Insulation for AHS 500 heat pump service assembly	77 500 01
Insulation for AHS 560 heat pump service assembly	77 560 01
Standard Bourdon tube pressure gauge RF 50, D211, d50 mm, 0÷6 bar, G¼", centre back, cl. 1,6	85 064 211
Standard Bourdon tube pressure gauge RF 50, D211, d50 mm, 0÷10 bar, G¼", centre back, cl. 1,6	85 065 211

5 6
page
7 8

APPROVALS AND CERTIFICATES

The product is subject to the Pressure Directive 2014/68/EU and is not CE marked in accordance with Article 4.3 (recognised engineering practice).

DECOMMISSIONING, DISPOSAL

1. Dismantle the device.
2. In the interest of environmental protection, the decommissioned appliance must not be disposed of with unsorted household waste. The device must be taken to a suitable disposal centre.

AHS heat pump service assemblies are built from recyclable materials.

WARRANTY

Product warranty in accordance with the general conditions of sale and delivery. The warranty becomes invalid as a result of unauthorized modifications or installation that is inconsistent with these operating instructions.

CUSTOMER SATISFACTION

For AFRISO customer satisfaction is paramount. If you have any questions, suggestions or product problems, please contact us.