LRQA CERTIFIED ISO 9001

armatec

FLT FLOAT AND THERMOSTATIC STEAM TRAPS

INSTALLATION AND MAINTENANCE INSTRUCTIONS

FLT20 / FLT21 / FLT25

FLT30 / FLT31 / FLT35

FLT40 / FLT41 / FLT45

We reserve the right to change the design and material of this product without notice.

IMI FLT20.015 E 00.22

GENERAL INFORMATION

- These instructions must be carefully read before performing any work involving VALSTEAM ADCA products. Failure to observe these instructions may result in hazardous situations.
- These instructions describe the entire life cycle of the product. Keep them in a location that is accessible to every user and make these instructions available to every new owner of the product.
- Current regional and plant safety regulations must be considered and followed during installation, operation, and maintenance work.
- The images shown in these instructions are for illustration purposes only.
- For the problems that cannot be solved with the help of these instructions, please contact VALSTEAM ADCA or its representative.

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1. SAFETY INFORMATION

1.1. Explanation of symbols

DANGER

Hazardous situation which, if not avoided by applying the correct preventive measures, will result in fatal or serious injury and/or considerable damage to property.

WARNING

Hazardous situation which, if not avoided by applying the correct preventive measures, could result in fatal or serious injury and/or considerable damage to property.

CAUTION

Hazardous situation which, if not avoided by applying the correct preventive measures, could result in moderately severe or minor injury.

NOTICE

Situation which, if not avoided, can result in property damage or product malfunction.

NOTE

Indicates additional information, tips and recommendations.

1.2. Intended use

Refer to the markings on the device, such as nameplate and laser markings, Information Sheet (IS) and these Installation and Maintenance Instructions (IMI) to check that the product was designed for the intended use and meets the specifications used for sizing and selection. This includes checking application, material suitability, process medium, pressure and temperature as well as their respective limiting values.

VALSTEAM ADCA does not assume any responsibility for damage resulting from inappropriate use of the product, damage caused by external stresses or any other external factors. Correct installation of the product is the full responsibility of the contractor.

Inappropriate use of the product is any use other than the one described in this chapter. Inappropriate use also includes:

- Use of spare parts which are not genuine;
- Performance of maintenance work not described in these instructions;
- Use outside the limits defined by the accessories connected to the product.
- Unauthorized modifications to the product.

If the product is to be used for an application or with a fluid other than the one it was designed for, contact VALSTEAM ADCA.

1.3. Qualification of personnel

Handling, installation, operation and maintenance work must be carried out by fully trained and qualified personnel, capable of judging the work which they are assigned to perform and recognizing potentially hazardous situations. They should be trained to properly use this product according to these Installation and Maintenance Instructions.

Where a formal “Permits to Work” system is implemented in the plant it must be complied with.

1.4. Personal protective equipment

Personal protective equipment should always be worn during work in order to protect against hazards posed by e.g. the process medium, dangerous temperatures, noise, falling or projected objects, working at height. These equipment includes a helmet, safety glasses, safety harness, protective clothes, safety shoes, hearing protection, etc.

NOTE

Always assess whether you or others in your vicinity require any protective equipment. When in doubt check with the plant’s health & safety responsible personnel for details on required protective equipment.

1.5. The system

The complete system should be assessed as well as every action (e.g. closing of shut-off valves, disconnection of the power supply) to ensure this will not bring additional risk to personnel or property.

Dangerous actions that can result in a hazardous situation include isolation of protective devices such as safety valve, vents, vacuum relief valves, disconnection of electric safety devices, sensors and alarms.

1.6. ATEX

If the product is in the scope of the ATEX 2014/34/EU directive and as such bears the Ex marking, consult its specific Additional Instructions for use in Potentially Explosive Areas (IMI EX). In such cases, handling, installation, operation and maintenance work must only be performed by personnel qualified and authorized to work in potentially explosive areas.

1.7. General safety notes

DANGER

RISK OF BURSTING IN PRESSURE EQUIPMENT

Valves, ancillaries and pipelines are pressure equipment. Working above their operating limits or improper opening can lead to component bursting.

- Observe the maximum operating limits of the product and check if they are lower than those of the system in which it is being installed. Check the product Information Sheet (IS).
- Install a safety device.
- Before starting any work on the product, depressurize it and cool or heat it up to ambient temperature. This also applies to the line in which it is fitted.
- Drain the process medium from the product and all the relevant plant sections.

WARNING

RISK OF BURNS

Depending on the operating conditions, products and pipelines may get very hot or cold and cause burn injuries.

- Do not touch the product while it is hot or cold, allowing it firstly to cool down or heat up.
- Wear protective clothing and safety gloves during working operation.
- Thermally insulate tubes and product's as a preventive measure.

RISK OF INJURY CAUSED BY FLUID ATTACK ON PRODUCTS MATERIALS

The product must only be used with mediums that do not attack the materials of the product (body, gaskets, seals). Otherwise, leaks may occur, and hot and/or hazardous fluid can escape.

- Do not use the product with mediums other than the ones it was designed for. Check section 1.2 - Intended Use.
- Prevent medium contamination.

WARNING

RISK OF INJURY CAUSED BY UNDER TIGHTENED PRODUCT OR ITS COMPONENTS

Excessively low tightening torques may cause medium to escape or and/or components to be projected at high speed which may result in a hazardous situation depending on the medium, chemical properties and/or its operating conditions.

- Do not loosen any screw while the equipment is pressurized.
- Observe the specified tightening torques on these Installation and Maintenance Instructions. If the relevant torque value is not mentioned contact VALSTEAM ADCA.

RISK OF HEARING LOSS

Depending on the operating conditions, the product may generate loud noises.

- Wear hearing protection when in the vicinity of the product.

RISK OF INJURY AS A RESULT OF ILLEGIBLE INFORMATION

Important information written in the product nameplate, markings and warning signs may wear overtime or get illegible due to e.g. dirt accumulation, resulting in hazardous situations and personal injury or property damage.

- Keep nameplates, markings and warning signs in a legible state, replacing when illegible, missing or damaged.

CAUTION

RISK OF INJURY DUE TO RESIDUAL PROCESS MEDIUM

Direct contact with dangerous process medium may lead to personal injury, e.g. smoke inhalation and chemical burns.

- Drain the process medium from the product and all the relevant plant sections.
- Wear protective clothing, safety gloves, mask, and eye protection.

RISK OF INJURY DUE TO IMPROPER HANDLING

Manual handling (e.g. lifting, carrying, pushing, pulling) of large and/or heavy products may result in personal injury.

- Assess the risk associated with the handling task.
- Use adequate handling methods and appropriate auxiliary handling equipment.

NOTICE

RISK OF PRODUCT DAMAGE DUE TO EXCESSIVELY HIGH TIGHTENING TORQUES

High tightening torques may lead to premature wearing of product components.

- Observe the specified tightening torques on these Installation and Maintenance Instructions. If the relevant torque value is not mentioned contact VALSTEAM ADCA.

2. PRODUCT INFORMATION

The ADCA FLT20, FLT21 and FLT25 (SG iron), FLT30, FLT31 and FLT35 (carbon steel) and FLT40, FLT41 and FLT45 (stainless steel) are float and thermostatic steam traps with integral air vent designed for modulating discharge of condensate and air venting, ensuring maximum system heat transfer.

Typical applications include unit heaters, heat exchangers, dryers, jacketed vessels and other applications where continuous discharge is essential.

These steam traps can be installed in horizontal or vertical pipelines and are available with inline or angled variants to suit system design.

2.1. Principle of operation

A float (8) opens or closes the valve seat (4), by moving a ball (6) via a simple lever mechanism according with the condensate level inside the steam trap, changing its position in relation to the seat. Condensate discharge and opening of the equipment is proportional to the movement of the float. As the float rises, so does the discharge capacity. Discharge is modulating and does not interfere with automatic controls, if fitted.

Fig. 1

Air venting is ensured by a thermostatic air vent (9) located in the steam space above the condensate level. After releasing the initial air, it remains closed until air and other non-condensable gases accumulate during normal operation and cause it to open by reducing the temperature of the air/steam mixture. The thermostatic air vent offers the added benefit of increasing condensate capacity on cold start-up.

The steam trap can be supplied without air vent.

Thermostatic capsule air vents are available on request in alternative to the standard bimetallic air vent.

The steam trap can be supplied with a variety of options, most of which can also be retrofitted in case the steam trap has been supplied with the optional top and bottom cover connections.

The steam lock release (SLR) consists in a needle valve integrated in the steam trap body. Its aperture is tunned manually, with a screwdriver, to allow constant bleeding of steam, just enough to prevent steam locking. This option is not retrofittable.

The float lifting lever (FLL) is used to manually open the steam trap main valve, to drain its content or to check the current float position. This option is not retrofittable.

The hand vent valve (HVV) is a retrofittable option which can be installed on the top cover connection. It is used for manual venting and/or depressurization.

The blowdown valve (BDV) is a retrofittable option which can be installed on the bottom cover connection. It is used as a manual drain and/or depressurization.

The anti-freeze device (AFZ) is a retrofittable option which can be installed on the bottom cover connection. It is used for automatic discharge of condensate after system shutdown to prevent it from freezing inside the steam trap. The valve consists in a simple mechanism with a spring and a stainless steel ball. The spring force keeps the valve open as long as the medium pressure is below approximately 0,3 bar, at which point the medium pressure pushes the ball against the seat and closes the valve.

The vacuum breaker (VB21M) is a retrofittable option which can be installed on the top cover connection. It is used to protect plant and process equipment, such as heat exchangers, against vacuum condition. A stainless steel ball remains on the seat of the vacuum breaker when the system is under positive pressure. The ball lifts off the seat in case of vacuum formation, and air is drawn into the equipment “breaking” the vacuum.

2.2. Certification

This product has been specifically designed for use with liquids and gases which are in Group 2 of the European PED – 2014/68/EU Pressure Equipment Directive and it complies with its requirements.

FLT20, FLT21 and FLT25 – CE MARKING – GROUP 2 (PED – European Directive)	
PN 16	**Category**
All sizes	SEP

FLT30, FLT31, FLT40 and FLT41 – CE MARKING – GROUP 2 (PED – European Directive)	
PN 40	**Category**
All sizes	SEP

FLT35 and FLT45 – CE MARKING – GROUP 2 (PED – European Directive)		
CLASS 150	**PN 40**	**Category**
All sizes	–	SEP
–	All sizes	1 (CE marked)

NOTE

If the product falls within category SEP it must not be CE marked, unless other directives are applicable.

This product is not in the scope of the ATEX 2014/34/EU directive as it does not have its own potential ignition source. Personnel responsible for the plant installation must assess the risks caused by static electricity and take the necessary precautionary measures to prevent static charge. These measures include e.g. connection of the product to the equipotential bonding system.

2.3. Product identification

The following items are indicated on the product nameplate or directly on its body:

- Manufacturer
- Product model (e.g. FLT30)
- Pressure rating (e.g. PN 40)
- Nominal size (e.g. NPS 3/4")
- Max. differential pressure (e.g. DP: 4,5 bar)
- Max. operating temperature (e.g. TMO: 250 ºC)
- Max. operating pressure (e.g. PMO: 32 bar)
- Min. admissible temperature (e.g. -10 ºC)
- Max. admissible temperature (e.g. TMA: 300 ºC @ 27,6 bar)
- Max. admissible pressure (e.g. PMA: 37,1 bar @ 100 ºC)
- Flow direction (indicated by an arrow)
- Serial number and year of manufacturing (e.g. Reg.:17483/19)
- CE Marking (when applicable – see section 2.2 – Certification)
- EX Marking (when applicable e.g. EX h IIB T6…T3 Gb – see section 2.2 – Certification)

2.4. Technical data

For technical data including dimensions, materials, limiting conditions and versions refer to the product respective Information Sheet (IS).

3. TRANSPORT, STORAGE AND PACKAGING

WARNING

RISK DUE TO FALLING LOADS

Loads may tip or fall over resulting in demage to property, serious injury or death.

- Use suitable equipment when moving or lifting suspended loads.
- Make sure no one is standing below the suspended load.

CAUTION

RISK OF INJURY DUE TO IMPROPER HANDLING

Manual handling (e.g. lifting, carrying, pushing, pulling) of large and/or heavy products may result in personal injury such as back injury.

- Assess the risk associated with the handling task.
- Use adequate handling methods and appropriate auxiliary handling equipment.

NOTICE

RISK OF PRODUCT DAMAGE DUE TO IMPROPER STORAGE

- Do not remove any packaging or protective covers until immediately before installation at the site.
- Store the product in a solid base in a dry, cool and dust-free environment.
- Until its installation, protect it from the weather, dirt, corrosive atmospheres and other harmful influences.

RISK OF PRODUCT DAMAGE DUE TO LONG TERM STORAGE

Some product components may deteriorate with time (e.g. valve packings, seals).

- Do not store the product for more than 12 months.
- If for any reason the product must be stored for longer periods of time contact VALSTEAM ADCA.

Products are individually wrapped in plastic film, thermo shrinkable plastic and/or stored in a cardboard box as they leave VALSTEAM ADCA. Avoid removing packaging and any protective cover until immediately before installing the product at the site.

NOTE

If the transport packaging has any shipping damage contact VALSTEAM ADCA or its representative.

Before storing and transporting the product protect it from impacts and mechanical damage, paying special care with sealing surfaces and other fragile parts.

NOTE

If the corrosion protection (paint and other surface coatings) of the product is damaged during transport or other handling procedures repair it immediately.

4. INSTALLATION

Before performing any installation work, refer to section 1 – Safety information.

WARNING

RISK OF INJURY DUE TO INSUFFICIENT SUPPORT DURING INSTALLATION

Insufficient support of the product during installation may cause it to fall and cause personal injury.

- Ensure the product is safely held in place during installation.
- Wear protective safety shoes.

NOTICE

RISK OF PRODUCT DAMAGE DUE TO STRESS

The product is not intended to withstand external stresses that may be inducted by the system to which it is being connected to.

- Make sure that the connected pipe does not subject the body to any stress (forces or torques) during installation and operation.
- Do not use the product as an elevation point.

4.1. Preparation for installation

Before installation, make sure the following conditions are met:

- The installation area has easy access and the product is to be installed in a position where operation and maintenance work can be performed safely.
- The product will be installed with proper support and free of any stresses that can be induced by the system due to e.g. pipe expansions. The necessary precautions are recommended during system design.
- The pipeline where the product will be installed is designed in such a way that it takes into account the weight of the product. The pipeline may require support on

both sides next to the product, particularly if its size and weight are considerable and especially if vibrations are to be expected in the system.

- The product is not damaged.
- Make sure all the necessary materials and tools are readily available during installation work.
- Referring to this Installation and Maintenance Instructions (IMI), Information Sheet (IS) and nameplate, check that the product is suitable for the intended installation: temperature, medium, pressure, temperature, etc. – see section 1.2 – Intended use.
- Check that there are no foreign bodies inside the pipelines and ancillaries, flushing may be necessary. These should be thoroughly cleaned.
- Check any mounted pressure gauges and make sure these function properly.
- An additional ADCA pipeline strainer or filter may be necessary to install upstream of the steam trap in some applications, preventing solid particles in the process medium from damaging it.
- A balance pipe can be connected to the optional top cover connection. This is useful in some applications, particularly when the steam trap is not fitted with an air vent. The cross section of the balance pipe must be at least DN 8 - 1/4".
- The pipelines are layed out with a gradient so that condensate is free to fall towards the steam trap.

NOTE

Assembly Drawings (AD) with assembly details and parts lists are available on request.

4.2. Changing flow direction

The steam trap flow direction can be easily changed by repositioning the body (1) in relation to the mechanism (4, 6, 7, 8, 9) and cover (2).

The following flow directions are possible for steam traps with inline connections:

IR - Horizontal from right to left *IL - Horizontal from left to right* *IT - Vertical from top to bottom*

Fig. 2 - Flow direction options for steam traps with inline connections.

The following flow directions are possible for steam traps with angled connections:

AR - Angled from right to front *AL - Angled from left to front* *AT - Angled from top to front*

Fig. 3 - Flow direction options for steam traps with angled connections.

To change flow direction proceed according to the following steps:

Fig. 4 - Flow direction change.

1. Undo the bolts (10) gradually in a crisscross pattern and separate the cover (2) from the body (1).
2. Remove the body gasket (3) and clean surfaces thoroughly, leaving no remaining graphite leftovers.
3. Unscrew the seat nut (4A), inspect the gasket (5) and replace if necessary.
4. Screw the seat nut (4A) loosely once again.
5. Rotate the body (1) to meet the desired flow direction according to Fig. 2 and Fig. 3, keeping the mechanism assembly (4, 6, 7, 8, 9) with the automatic air vent (9) pointing upwards. Replace the "POINT DOWN" sticker accordingly.
6. Secure the seat (4) and tighten the seat nut (4A) with the recommended torque – see section 9.6 – Tightening torques.
7. Fit a new body gasket (3) and install the cover (2) with the protruding section pointing upwards.
8. Apply a suitable lubricant to the threads of the bolts (10), and tighten gradually in a crisscross pattern until the recommended torque is acheived – see section 9.6 – Tightening torques.

4.3. Installation procedure

1. Remove plastic film and other packaging, as well as the protective covers which are placed on flanges or connection ends. Make sure the steam trap is free from foreign matter.
2. The steam trap can be installed in any of the positions shown in Fig. 2 and Fig. 3.
3. The steam trap has an arrow or inlet/outlet designations, be sure that it is installed in the appropriate direction according to fluid flow. The "POINT DOWN" sticker must have the arrow pointing downwards.
4. Take care with jointing materials and sealing compounds to ensure that none may be permitted to block or enter the steam trap causing malfunction. In case of flanged connections use appropriate flange gaskets.
5. When a socket weld or butt weld version is being installed, the welding should be carried out by qualifed personnel following an appropriate welding procedure. Do not weld on top of the corrosion protection (paint, surface coatings). If there is corrosion protection on the welding ends remove it before welding. After welding the steam trap to the pipeline repair its corrosion protection.
6. When welding the steam trap to the pipeline make sure to restrict the heat-affected area to the weld seam, if not possible remove the mechanism assembly (4, 6, 7, 8, 9) prior to welding – see section 9.2 – Cleaning/replacing the mechanism.

5. START-UP

Before performing the start-up procedure, refer to section 1 – Safety information.

The start-up procedure must be followed every time the product is put back into service.

5.1. Preparation for start-up

Before starting up, make sure the following conditions are met:

- All works on the system have been completed.
- All the necessary safety devices have been installed.
- When required, warning notices are used to alert others that the system is starting up.
- The product is correctly installed – see section 4 – Installation.
- Referring to these Installation and Maintenance Instructions (IMI), Information Sheet (IS) and nameplate, check that the product is suitable for the intended installation: temperature, medium, pressure, temperature, etc. – see section 1.2 – Intended use.
- A safety check was performed by qualified personnel. Checking for leaks, structural damage and integrity of system components.

NOTICE

RISK OF PRODUCT DAMAGE DUE TO CONTAMINATION

The plant operator is responsible for cleaning the pipelines in the plant as well as keeping the product well maintained. At start-up, the presence of small particles in the medium (dirt, scale, weld splatters, etc.) may damage the product or cause malfunction.

- Flush pipelines before start-up.
- Clean protection varnishes from pipes and flanges, leftover paint, graphite, grease, etc.
- Use a pipeline strainer or a filter.

5.2. Start-up procedure

1. Open shut-off valves slowly, until normal operating conditions are achieved.
2. Check for any leaks.
3. Check the steam trap to ensure it is operating correctly.

NOTE

24 hours after system start-up, it is recommended to check pipe connection for leaks and retighten when necessary. Clean strainers/filters to avoid blocking.

6. OPERATION

Before operating the product refer to section 1 – Safety information.

Immediately after completing the start-up procedure, the product is ready for operation.

6.1. Operating the BDV and HVV units

WARNING

RISK OF BURNS FROM BDV AND HVV VALVE OPERATION
Operating the BDV and HVV valve discharges hot medium to the atmosphere which may cause burn injuries.

- Wear protective clothing, safety glasses and heat-resistant gloves during operation.
- When operating the valve stand to the side well clear of its outlet.

RISK OF INJURY DUE TO EXCESSIVELY LOOSENING THE BDV OR HVV VALVE SCREW
Excessively loosening the valve screw while operating may cause the retainer to break or come loose. This may result in the screw blowing off leading to personal injury and product malfunction.

- Loosen the valve screw slowly and do not unscrew it excessively.

1. Open the BDV or HVV by slowly unscrewing the valve screw. Be careful to avoid contact with the hot medium which will be discharged trough the valve whole as it opens.
2. Close the valve by tightening the valve screw to a torque of 20 to 25 Nm ensuring that there is no leakage.
3. Periodical valve operation is recommended to ensure correct functioning.

6.2. Operating the FLL

1. Turn the lever (33) anticlockwise (viewing the lever from the front) to lift the float and open the valve seat.
2. Turn the lever (33) clockwise (viewing the lever from the front) to let the float drop and close the valve seat. If there is condensate inside the steam trap body keeping the float buoyant then the valve will only close once it has been discharged independently if the lever (33) is turned clockwise or not.

7. SHUTDOWN

Before performing the shutdown procedure, refer to section 1 – Safety information.

7.1. Shutdown procedure

1. Switch off the system and secure it so it cannot be turned on by unauthorized personnel.
2. Fully close the upstream shut-off valve, to stop the process medium from flowing through the steam trap.
3. Make sure the pipeline and the steam trap are not under pressure and are at a safe temperature.
4. Allow medium to cool down and completely drain it from the pipeline and steam trap.
5. Fully close the downstream shut-off valve.
6. If the steam trap is to be removed from the pipeline – see section 3 - Transport, storage and packaging.

8. PARTS LIST

Fig. 5

POS. Nº	DESIGNATION	SPARE PARTS
1	Body	
2	Cover	
3	Gasket	X
4	Seat	X
4A	Seat nut	
5	Gasket	X
6	Valve ball	X
7	Lever	X
8	Float	X
8A	Bolt	
8B	Serrated washer	X
9	Automatic air vent	X
10	Bolts	

POS. Nº	DESIGNATION	SPARE PARTS
11	Plug	
12	Gasket	X
21	Steam lock release	
22	Packing	
31	Lever mechanism	
32	Packing	
33	Lever	
41	Hand vent valve	
51	Blowdown valve	
61	Anti-freeze device	
71	Vacuum breaker	
72	Connector	

71
72
VB21M - Vacuum breaker
41
HVV - Hand vent valve
31
33
32
FLL - Float lifting lever
21
22
SLR - Steam lock release
51
BDV - Blowdown valve (Manual)
61
AFZ - Anti-freeze device (Automatic)

Fig. 6

9. MAINTENANCE

Before performing a maintenance procedure, refer to section 1 – Safety information.

The product requires maintenance to ensure that it operates correctly and safely throughout its lifetime. Maintenance work should be performed in a planned manner at periodic intervals. These intervals must be defined by the operator according to the service conditions.

9.1. Maintenance procedure

1. Make sure all the necessary materials and tools are readily available during maintenance work.
2. Perform the shutdown procedure – see section 7 – Shutdown.
3. Perform the maintenance procedure – see the following sections.
4. Put the product back into operation – see section 5 – Start-up.

9.2. Cleaning/replacing the mechanism assembly

1. Undo the bolts (10) gradually in a crisscross pattern and separate the cover (2) from the body (1).
2. Remove the body gasket (3) and clean surfaces thoroughly, leaving no remaining graphite leftovers.
3. Unscrew the seat nut (4A), remove gasket (5) and mechanism assembly (4, 6, 7, 8, 9).
4. Clean or replace the mechanism assembly (4, 6, 7, 8, 9). When cleaning use fresh water and a cloth.
5. If only the automatic air vent (9) needs replacing, secure the seat (4) tightly in a vise with soft jaws (secure by the seat body and not the seat nut) and unscrew the automatic air vent (9) – see Fig. 7.

Fig. 7

6. Clean the female thread thoroughly, removing all signs of leftover silicone.
7. Apply a suitable silicone sealant to the thread of the new automatic air vent (9), and tighten with the recommended torque – see section 9.6 – Tightening torques.
8. Replace gasket (5) if necessary and screw the seat nut (4A) loosely onto the body (1).
9. Secure the seat (4) with the automatic air vent (9) pointing upwards and tighten the seat nut (4A) with the recommended torque – see section 9.6 – Tightening torques.

10. Fit a new body gasket (3) and install the cover (2) with the protruding section pointing upwards.
11. Apply a suitable lubricant to the threads of the bolts (10), and tighten gradually in a crisscross pattern until the recommended torque is acheived – see section 9.6 – Tightening torques.

9.3. Replacing the float

Fig. 8 - Replacing the float.

1. Undo the bolts (10) gradually in a crisscross pattern and separate the cover (2) from the body (1).
2. Remove the body gasket (3) and clean surfaces thoroughly, leaving no remaining graphite leftovers.
3. Secure the float (8), unscrew the bolt (8A) and remove the serrated washer (8B).
4. Attach the new float to the lever (7) by screwing the bolt tightly (8) with a new serrated washer (8B) in place.
5. Fit a new body gasket (3) and install the cover (2) with the protruding section pointing upwards.
6. Apply a suitable lubricant to the threads of the bolts (10), and tighten gradually in a crisscross pattern until the recommended torque is acheived – see section 9.6 – Tightening torques.

9.4. Fitting the retrofit BDV, HVV, AFZ and VB21M units

NOTICE

The BDV, HVV, AFZ and VB21M units can only be installed in steam traps which have been supplied with the optional top and bottom cover connections.

Fig. 9

1. Unscrew the plug (11) and remove the gasket (12) if any.
2. Fit the gasket (12) supplied with the retrofit kit (not applicable in NPT versions) and screw the unit to be installed (BDV, HVV, AFZ or VB21M), tightening with the recommended torque – see section 9.6 – Tightening torques.
3. In case a BDV or HVV unit is being fitted, ensure its respective valve is closed by tightening the valve screw to a torque of 20 to 25 Nm.

9.5. Replacing the FLL float lifting lever

1. Unscrew the lever mechanism (31) to remove the complete FLL assembly.
2. Fit a new gasket (31A) and insert the lever of the FLL through the hole on the cover (2). Screw the lever mechanism (31) with the recommended torque – see section 9.6 – Tightening torques.
3. Operate the FLL to ensure it is working properly.

9.6. Tightening torques

POS. Nº	DESIGNATION	TORQUE (Nm)	
		FLT20, FLT21, FLT30, FLT31, FLT40 and FLT41	FLT25, FLT35 and FLT45
4A	Seat nut	50 - 60	140 - 160
9	Automatic air vent	50	50
10	Bolts	35	50
11	Plug	75	75
31	Lever mechanism	75	75
41	Hand vent valve	75	75
51	Blowdown valve	75	75
61	Anti-freeze device	75	75
71	Vacuum breaker	75	75

10. TROUBLESHOOTING

Before applying any corrective measure, refer to section 1 – Safety information.

If the malfunction cannot be solved with the help of the following table, contact VALSTEAM ADCA or its representative.

Malfunction	Possible cause	Corrective measure
Steam trap is leaking steam.	Foreign matter is stuck between seat and plug.	• Open and clean the steam trap.
	The sealing surfaces are damaged/ worn.	• Replace mechanism.
	The air vent is contaminated/damaged.	• Replace air vent or complete mechanism.
	A system bypass valve is damaged or open.	• Replace or close bypass valve.
	Seat gasket is damaged.	• Replace seat gasket.
Steam trap is blocked (no condensate is discharging) or is discharging poorly.	The steam trap is undersized.	• Change to steam trap with suitable capacity.
	Foreign matter is stuck between seat and plug.	• Open and clean the steam trap.
	The differential pressure is too small.	• Increase steam pressure. • Lower the pressure in the condensate line. • Change to steam trap with suitable capacity or to a suitable ADCAMat pump trap. • Check condensate line sizing.
	Steam locking is occuring.	• Install a steam trap with SLR steam lock release. • Connect a balance pipe to the optional top cover connection.
	The differential pressure is too high.	• Replace the mechanism by another with higher maximum differential pressure (e.g. replace FLT20-4,5 by FLT20-10). • Change to steam trap with higher maximum differential pressure (e.g. replace FLT20-14 by FLT30-32).

11. DISPOSAL

Once the product has reached the end of its working life, it should be sent for disposal in accordance with the prevailing national and local regulations.

Before disposal make sure that the product is clean and free from fluid residues.

During its disposal, pay special attention to rubbers, resins and polymer components (PVC, PTFE, PP, PVDF, FKM, NBR, etc.).

Do not dispose of components and hazardous substances together with household waste.

12. RETURNING PRODUCTS

Information regarding hazards and precautionary measures to be considered due to contaminating fluids and residues or mechanical damage that may represent a health, safety or environmental risk, must be provided in writing when returning products to VALSTEAM ADCA.

WARNING

RISK DUE TO PRESENCE OF HAZARDOUS RESIDUES ON RETURNED PRODUTS

Contaminated fluids and residues may represent an environmental risk, or risk to VALSTEAM ADCA personnel.

- Information regarding any hazards or precautionary measures to be considered must be provided in writing when returning products to VALSTEAM ADCA.
- Health and Safety information sheets relating to any substances identified as hazardous or potentially hazardous must be provided outside the packaging.
- Use Hazmat labels on the packaging.

IMPORTANT NOTE

Total or partial disregard of these Installation and Maintenance Instructions involves loss of any right to warranty.

The extent and warranty period are specified in the “General sales conditions”.