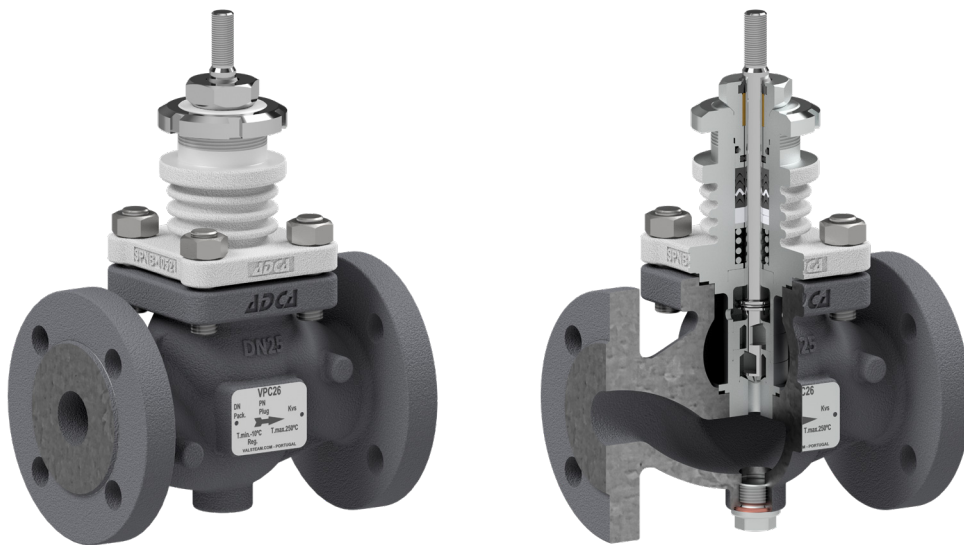


VPC26 TDS BLOWDOWN CONTROL VALVES

INSTALLATION AND MAINTENANCE INSTRUCTIONS



ADCATrol

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

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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

When a steam boiler is in operation there is continuous evaporation of boiler water which causes an undesirable increase in TDS (Total Dissolved Solids) concentration. A typical problem that results from this is water foaming, which leads to reduced boiler performance and wet steam. Furthermore, dissolved and suspended solids will carry over into the steam lines, contaminating valves, tubes, heat exchangers and steam traps, leading to corrosion, scaling and erosion. For these reasons, a certain amount of boiler water must be discharged continuously or periodically to ensure TDS concentration is kept within the recommended parameters.

The ADCATrol VPC26 is a control valve specially designed for this purpose and features a multi-stage trim to progressively reduce the energy of the fluid. This makes it ideal for discharge of boiler blowdown at high differential pressures where flashing is a concern.

The valve is suitable for both continuous and on/off TDS control via a PA series reverse action pneumatic actuator or AV series fail-safe spring return actuator.

2.1. Principle of operation

The ADCATrol VPC26 is meant to be used together with a BCS series TDS controller, such as the ADCATrol BCS220, and a SPS series conductivity probe, such as a ADCATrol SPS series.

The boiler water flows through the valve in the FTO (flow to open) direction. The controller monitors the TDS of the boiler water through measurement of the boiler water electrical conductivity using a conductivity probe. The controller signals the linear actuator which is fitted to the bonnet shoulders (5) and attached to the valve stem adaptor. The valve plug (3) moves according to the actuator stroke

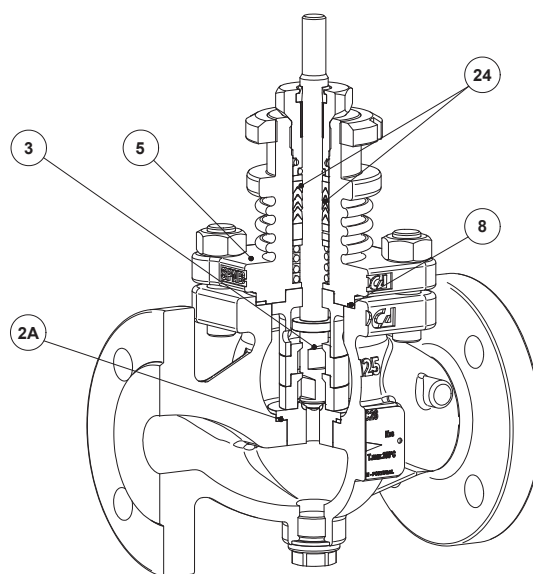


Fig. 1

direction, which in turn changes the plug position in relation to the seat (2) and thus controls the flow which passes through the valve. The full control loop ensures TDS concentration is kept within the recommended parameters.

Valve body sealing is achieved through the gasket (8) and stem sealing is achieved through the chevron packing set (24). The seat seals against the body through the seat gasket (2A).

2.2. Certification

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

CE MARKING – GROUP 2 (PED – European Directive)	
PN 40	Category
1/2" to 1" – DN 15 to 25	SEP
1 1/2" – DN 40	1 (CE Marked)

NOTE

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

When the product is supplied with manual operation top or “bare stem” it is classified as a hand-operated valve and is thus not in the scope of the ATEX 2014/34/EU directive. Nonetheless, 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.

When the product is supplied with an actuator or alternatively “bare stem” but meant to be automated (e.g. with a pneumatic linear actuator), and intended to be used in a potentially explosive environment, contact VALSTEAM ADCA.

2.3. Product identification

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

- Manufacturer
- Product model (e.g. VPC26S)
- Pressure rating (e.g. PN 40)
- Nominal size (e.g. DN 40)
- Stem sealing (e.g. Pack.: V1.2)
- Flow rate coefficient (e.g. Kvs: 1,8 m3/h)

- Min. operating temperature (e.g. T_{min}: -10 °C)
- Max. operating temperature (e.g. T_{max}: 250 °C)
- Flow direction (indicated by an arrow)
- Serial number and year of manufacturing (e.g. Reg.:17483/19)
- Ordering code (e.g. Code: VPC1SXX1A4N40)
- 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 damage 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.



NOTICE

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 induced 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 device 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 they function properly.
- Consider good hydraulic flow control to avoid pressure surges and avoid dead legs on pipeline branches.
- The pipeline between the boiler and the blowdown valve does not exceed 2 meters.
- The pipeline downstream of the blowdown valve is laid down with a downwards slope in such a way that it does not accumulate medium inside after a blowdown cycle. If not possible, provide other means to ensure proper drainage.



NOTE

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

4.2. 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 blowdown valve is free from foreign matter.
2. Valves which are to be fitted with ADCATrol actuators are generally delivered with the actuator already mounted. If delivered separately follow the actuator respective Installation and Maintenance Instructions (IMI) when mounting it onto the valve body. A fail-safe actuator is recommended for TDS blowdown applications, closing the valve in case of pneumatic/electric supply failure.
3. The recommended installation position of the valve is horizontal with the actuator pointing upwards.
4. The blowdown valve has an arrow or inlet/outlet designations, be sure that it is installed in the appropriate direction according to fluid flow.
5. Take care with jointing materials and sealing compounds to ensure that none may be permitted to block or enter the valve causing malfunction. Use appropriate flange gaskets.

4.3. Fitting the sample valve

1. Fit the gasket (83) onto the slot of the sample valve (A1) female threaded connection.
2. Screw the threaded adaptor (82) onto the sample valve, tightening with the recommended torque – see section 9.3 – Tightening torques.
3. Unscrew the plug (81) from the bottom of the valve body (1) and remove the gasket (80).
4. Fit a new gasket onto the threaded adaptor (82) and screw the sample valve assembly onto the valve body (1), tightening with the recommended torque – see section 9.3 – Tightening torques.

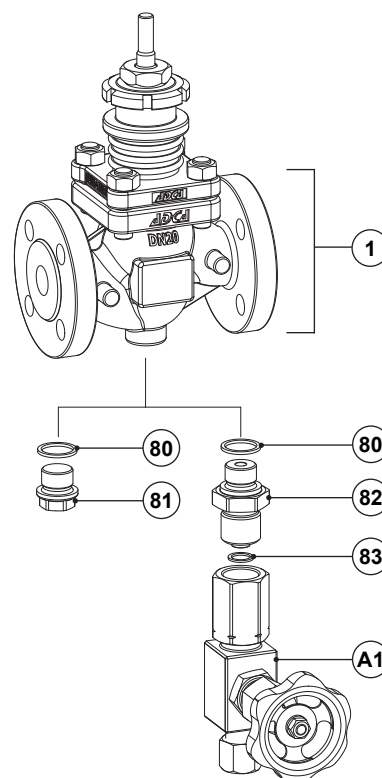


Fig. 2

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 presence of small particles in the medium (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.

5.2. Start-up procedure

1. When the steam boiler is in operation and normal operating conditions are achieved, check for any leaks.
2. Check that the blowdown valve is sealing tightly and operating correctly.



NOTE

24 hours after system start-up, it is recommended to check pipe connection for leaks and retighten when necessary.

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.

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. Allow medium to cool down and completely drain it from the pipeline and valve.
3. Make sure the pipeline and valve are not under pressure and are at a safe temperature.
4. Put the actuator out of operation, referring to its respective Installation and Maintenance Instructions (IMI).
5. If the valve is to be removed from the pipeline – see section 3 - Transport, storage and packaging.

8. PARTS LIST

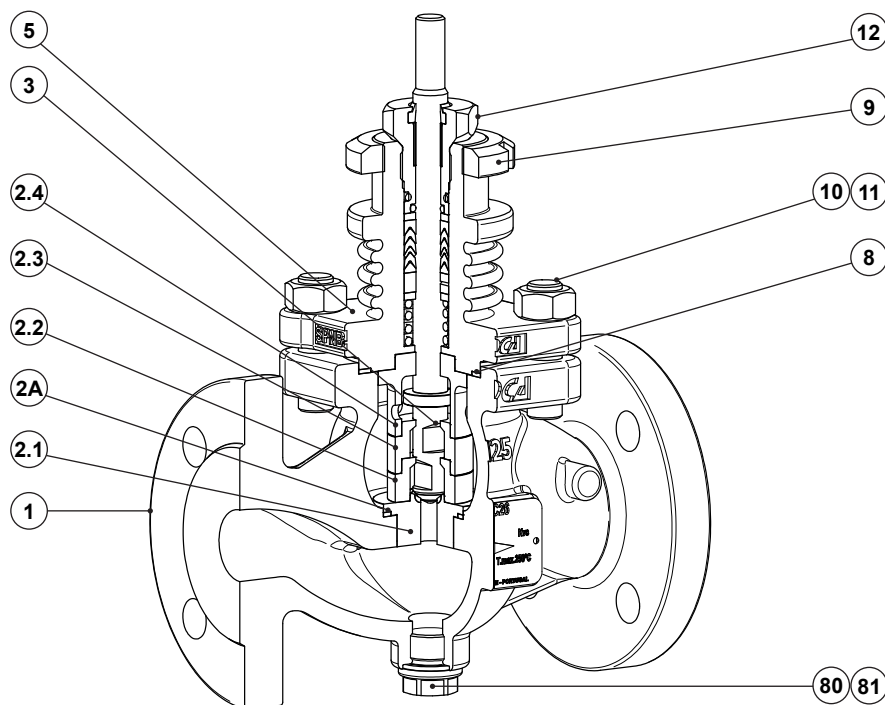


Fig. 3

POS. N°	DESIGNATION	SPARE PARTS
1	Valve body	
2A	Seat gasket	X
2.1	Seat	X
2.2	Lower guide sleeve	
2.3	Intermediate guide sleeve	
2.4	Upper guide sleeve	
3	Valve plug	X
5	Bonnet	
8	Gasket	X
9	Actuator lock nut	
10	Nuts	
11	Studs	
12	Packing nut	

POS. N°	DESIGNATION	SPARE PARTS
13	Lock nut	
20	Scraper ring	X
21	Plain bearing	X
22	O-ring	X
23	O-ring	X
24	Chevron packing set	X
25	Washer	
26	Stem guide	
27	Spring	X
80	Gasket	X
81	Plug	
82	Threaded adaptor	
83	Gasket	X

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 necessary materials and tools are readily available during maintenance work.
2. Perform the shutdown procedure – see section 7 – Shutdown.
3. Remove the actuator from the valve referring to its respective Installation and Maintenance Instructions (IMI).
4. Perform the maintenance procedure – see the following sections.
5. Mount the actuator onto the valve referring to its respective Installation and Maintenance Instructions (IMI).
6. Put the valve back into operation – see section 5 – Start-up.

9.2. Replacing the valve stem seals, seat and plug

1. Undo the body nuts (10) gradually in a crisscross pattern and separate the bonnet (5) from the valve body (1).
2. Unscrew the gland nut (12) and remove it carefully together with the O-rings (22, 23).
3. Carefully pull the valve plug (3) out of the bonnet (5) through its bottom. Inspect the plug sealing surface and replace plug if necessary.
4. Pull out all stem sealing components (24, 25, 26, 27) from the packing box using a suitable tool.
5. Clean the packing box and slide the valve plug (3) into the bonnet (5) once again.
6. Remove the body gasket (8), guide sleeves (2.4, 2.3, 2.2), seat (2.1) and seat gasket (2A). Clean gasket sealing surfaces thoroughly, leaving no remaining graphite leftovers. Inspect the seat sealing surface condition and replace seat if necessary.
7. Fit a new body gasket and seat (2A, 8) onto the

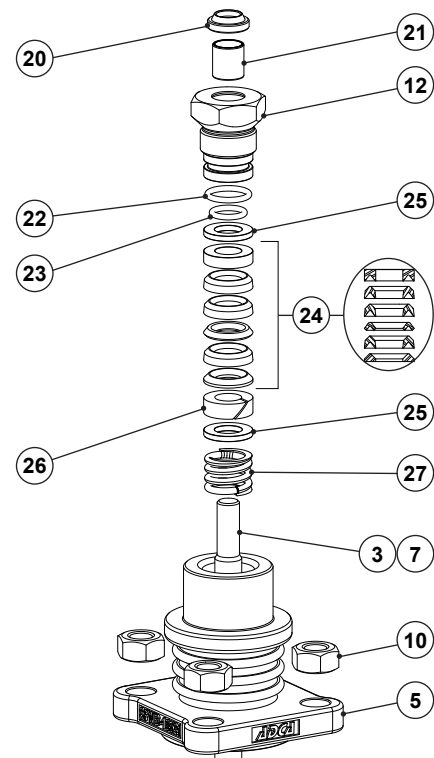


Fig. 4

valve body (1), and install the seat (2.1) and guide sleeves (2.2, 2.3, 2.4). Ensure these are properly centered. Place the bonnet (5) on the valve body (1).

8. Carefully slide the stem sealing components into the packing box according to Fig. 4.
9. Renew the scraper ring (20), plain bearing (21) and O-rings (22, 23) if necessary. Fit the O-rings (22, 23) and gland nut (21), screwing it loosely.
10. Firmly press the valve plug (3) against the seat (2) while tightening the body nuts (10) in a crisscross pattern by hand. Raise the plug until the valve reaches full stroke position and firmly push the plug fully downwards.
11. Proceed by tighten the nuts in four stages with incremental torques (30%, 60%, 80% and 100%) finally achieving the recommended torques – see section 9.3 – Tightening torques. Between each stage raise the plug until the valve reaches full stroke position and firmly push the plug fully downwards.
12. Tighten the gland nut (12) with the recommended torque – see section 9.3 – Tightening torques.

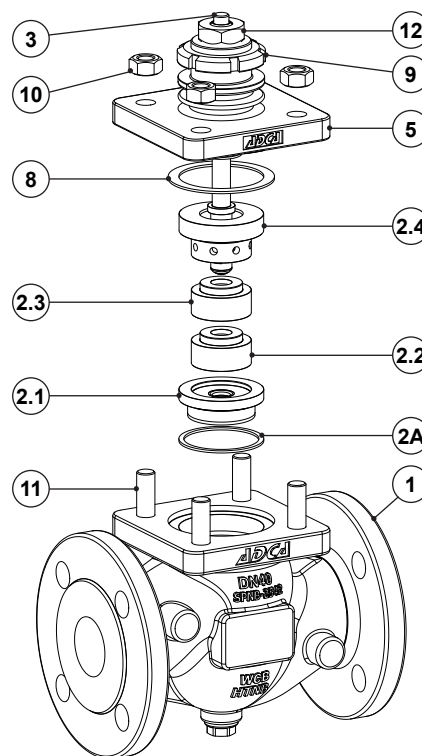


Fig. 5

9.3. Tightening torques

POS. N°	DESIGNATION	TORQUE (Nm)
		All sizes
9	Actuator lock nut	100
10	Nuts	50
12	Gland nut	30-50
81	Plug	100
82	Threaded adaptor	70

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
The valve leaks to the atmosphere at the stem.	The stem sealing or body sealing is defective.	<ul style="list-style-type: none"> Replace stem seals – see section 9.2 - Replacing the valve stem seals, seat and plug.
The valve leaks to the atmosphere through the pipeline connection flanges.	Loose bolts on the pipeline connection flanges, missing or damaged gasket.	<ul style="list-style-type: none"> Retorque bolts correctly. If the leakage persists dismantle, inspect flange surfaces, replace gaskets and tighten with the appropriate torque.
The valve leaks to the atmosphere between body and bonnet.	Loose body nuts, missing or damaged body gasket.	<ul style="list-style-type: none"> Retorque nuts correctly. If the leakage persists dismantle, inspect body and bonnet sealing surfaces, replace body gasket and tighten with the appropriate torque.
Excessive valve seat leakage.	Damaged or worn sealing surface on valve plug and/or seat.	<ul style="list-style-type: none"> Replace plug and seat - see section 9.2 - Replacing the valve stem seals, seat and plug.
	Damaged or missing seat gasket.	<ul style="list-style-type: none"> Inspect and install/replace seat gasket – see section 9.2 - Replacing the valve stem seals, seat and plug.
	Dirt or foreign particles inside the valve, particularly between seat and plug.	<ul style="list-style-type: none"> Flush the valve by opening the valve quickly several times. Open the valve and clean the valve trim fully.
	Pneumatic actuator is not venting completely.	<ul style="list-style-type: none"> Check pneumatic instrumentation, e.g., solenoid valve leakage. Check if the vent plug is clogged.
	Positioner is faulty.	<ul style="list-style-type: none"> Inspect the positioner, refer to its specific Installation and Maintenance Instructions (IMI) if necessary.
	Actuator is not working satisfactorily.	<ul style="list-style-type: none"> Inspect the actuator, refer to its specific Installation and Maintenance Instructions (IMI) if necessary.
	Actuator is not powerful enough.	<ul style="list-style-type: none"> Check service conditions and actuator sizing. Contact VALSTEAM ADCA or its representative.
	Interrupted power supply.	<ul style="list-style-type: none"> Check power supply. A fail-safe actuator which closes the valve on power failure is recommended for TDS blowdown applications.
Jerky stem movement.	Stem is seizing due to dirt deposits or foreign particles.	<ul style="list-style-type: none"> Open the valve and clean the valve trim fully. Replace necessary components and resolve the source of the issue.
	Actuator is not powerful enough.	<ul style="list-style-type: none"> Check service conditions and actuator sizing. Contact VALSTEAM ADCA or its representative.

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 PRODUCTS

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”.