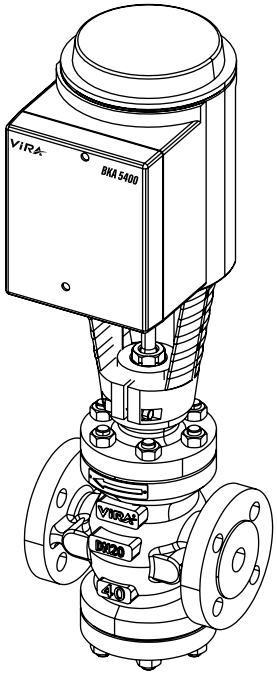
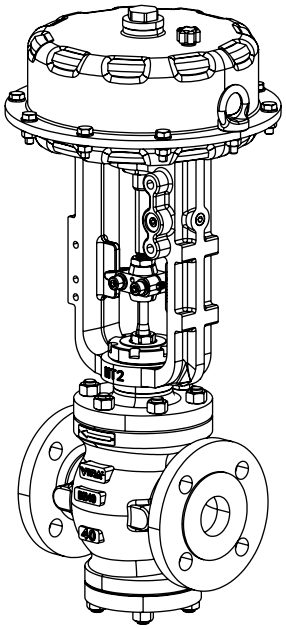
# TDS Blowdown Control Valve
# DN20, 25, 40

## Installation, Operating and Maintenance Instructions

Electrically Actuated BKV
Boiler Blowdown Valve




Pneumatically Actuated BKV
Boiler Blowdown Valve



Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to changle the specification without notice.



EN

ENGLISH

# 1. Safety Information

Safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

## Tools

Before starting work, make sure that you have suitable tools and consumables available.
Use only genuine Vira replacement parts.

## Temperature

After isolation, let the temperature to cool down to avoid danger of burns.

## Freezing

Required precautions must be taken to protect products in environments where they may be exposed to temperatures below freezing point.

## Pressure

Ensure that any pressure is isolated and safely vented to atmospheric pressure. Do not assume that the system has depressurized even when the pressure gauge indicates zero. exposed to temperatures below freezing point.

## Access

Ensure safe access and if necessary a safe working platform (suitably guarded) before attempting to work on the product. Arrange suitable lifting gear if required.

## Residual Hazards

The external surface of the product may be very hot. Take essential care when removing the product from an installation.

## Hazardous Environment

Plant rooms are explosion-risk areas. There may be a lack of oxygen, dangerous gases, extremes of temperature, hot surfaces, fire hazards excessive noise, and moving machinery.

## Protective Clothing

In order to be protected against the hazards of chemicals, high temperature, radiation, noise, falling objects, and dangers to eyes and face, anyone around requires protective clothing suitable in the plant room.

## Supervision

All work must be carried out or supervised by a suitably competent person. Installation and operating personnel should be trained in the correct use of the product according to the Installation and Operation Instructions.

## Disposal

Unless otherwise stated in the Installation and Operation Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken.

## Returning Products

When returning products to “Vira Isı ve Endüstriyel Ürünler A.Ş” the customers must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk.

## 1.1 Intended Use

Please refer to the Installation and Maintenance Instructions, the name-plate to verify that this product is suitable for its intended application.

The products listed below meet the requirements of the European Pressure Equipment Directive 97/23/EC (PED) and are CE marked when applicable.

Pressure equipment that does not carry the CE mark is considered to follow 'Sound Engineering Practice' (SEP) as defined in Article 3, Paragraph 3 of the PED.

**Note:** By regulation, SEP-classified products must not carry the CE mark.

# 2. General Information and Application

Vira's BKV blowdown control valves are manufactured using the proven Vira blowdown valve body design. These valves are specifically intended for controlling blowdown in steam boilers and are suitable for other applications requiring high pressure drop with low flow rates.

They are typically installed with a blowdown controller as part of an automatic Total Dissolved Solids (TDS) control system. The valve can also be applied in other high pressure drop, low flow applications such as boiler feed pump recirculation lines.

**Available Versions:**

-Electrically actuated model
-Pneumatically actuated model

The BKV Series TDS blowdown valves are reverse-acting design. It operates on the principle of "energy to open" and it is fail-closed to ensure safety in the event of power or signal loss.

## 2.1 Standards and Certification

These products fully comply with the requirements of the European Pressure Equipment Directive 97 / 23 / EC.
These products are available with material certification to EN 10204 3.1.

**Note :** All certification/ inspection requirements must be stated at the time of order placement.

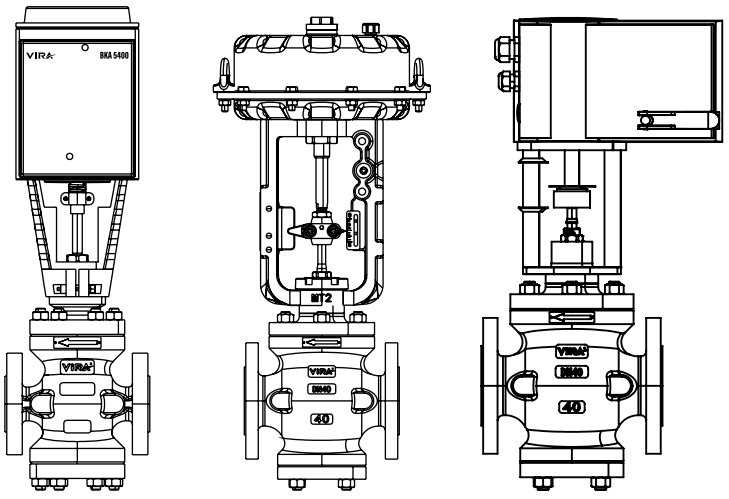



**Figure 1 :** BKV Blowdown Control Valve

## 2.2 Available Models

| Model | Size | Materials | Connection | Actuator |
|---|---|---|---|---|
| BK 5420 | DN 20 | WCB | Flanged | Electric, Pneumatic (Optional) |
| BK 5425 | DN 25 | WCB | Flanged | Electric, Pneumatic (Optional) |
| BK 5440 | DN 40 | WCB | Flanged | Electric, Pneumatic |

**Table 1 :** Available Models

# 3. Technical Data

| Media | Water |
|---|---|

## 3.1 Actuator Technical Data

| | |
|---|---|
| **Actuator** | BKA Type |
| **Supply Voltage** | 230 VAC |
| **Power Consumption** | 17 VA / 12 W |
| **Nominal Stroke** | 20 mm |
| **Positioning Time @ 50 Hz** | 120 s |
| **Spring Return Time** | 8 sn |
| **Actuator Trust Maximum** | 1000 N |

**Table 2 :** BKA Type Actuator Data

| | |
|---|---|
| **Actuator** | AVF Type |
| **Supply Voltage** | 24 VAC:∓ 20%,50...60 Hz<br>24 VDC:∓ 15%<br>230 VAC (with accessory):∓ 15%,50...60 Hz |
| **Power Consumption** | 24 VAC/24 VDC: 10W, 20 VA<br>230 VAC (with accessory): 13W / 28 VA |
| **Nominal Stroke** | 40 mm |
| **Actuator Speed** | 2/4/6 s/mm |
| **Actuator Trust Maximum** | 2000 N |

**Table 3 :** AVF Type Actuator Data

| | |
|---|---|
| **Maximum Ambient Temp.** | |
| **BKA Type** | -15+50 C |
| **AVF Type** | -10+55 C |

**Table 4 :** Actuator Data

## 3.2 Working Limits

| Product | | | Group 1 Gasses | Group 2 Gasses | Group 1 Liquid | Group 2 Liquid |
|---|---|---|---|---|---|---|
| BKV 5400 | PN 40 | DN 20 | SEP | SEP | SEP | SEP |
| | | DN 25 | SEP | SEP | SEP | SEP |
| | | DN 40 | 2 | 1 | SEP | SEP |

**Table 5 :** Working Limits

# 4. Installation and Dimensions

The actuator should be protected from excessive heat, additional protective measures are recommended for outdoor installations. The valve may be installed in horizontal or vertical pipework, ensuring that the flow direction matches the arrow marked on the body, but it should never be installed with the actuator positioned below the valve.

For boiler blowdown applications, the ideal connection point is a side-mounted take-off from the boiler shell to reduce the risk of scale entering the blowdown control valve. If a bottom connection must be used, it is advisable to install a 'T' branch upstream of the main bottom blowdown valve, ideally taken from the top of the blowdown line to minimise the possibility of scale accumulation. The ¼" plug on the valve body can be removed and used as a connection for boiler water sampling; using a sample cooler (NK 20) is strongly recommended for safe sampling.

It is essential to fit an isolation (stop) valve between the boiler and the BKV blowdown control valve to enable safe maintenance. A check valve is also recommended downstream of the BKV valve to prevent reverse flow. In single-boiler installations, the blowdown line from the BKV valve may discharge into the main blowdown line downstream of the manual blowdown valve.

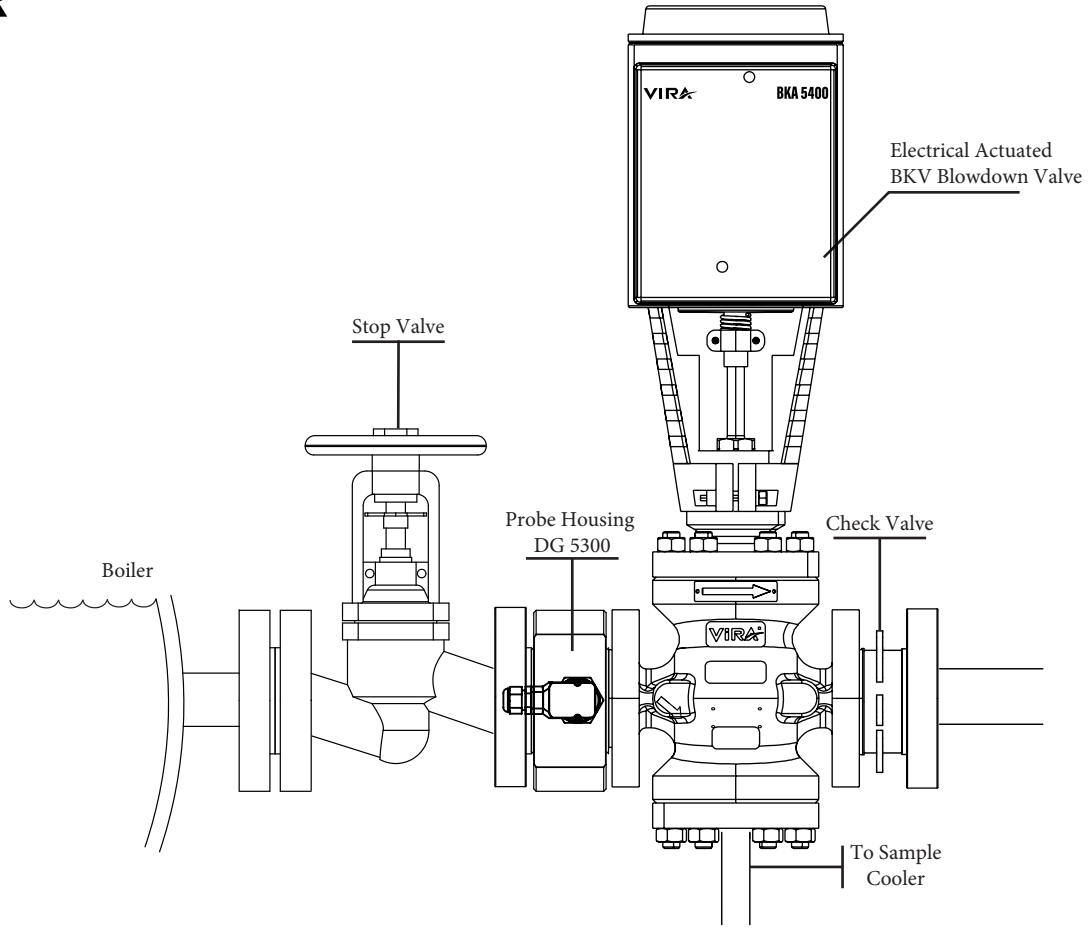



**Figure 2 :** Installation to Boiler Side, in Line Position

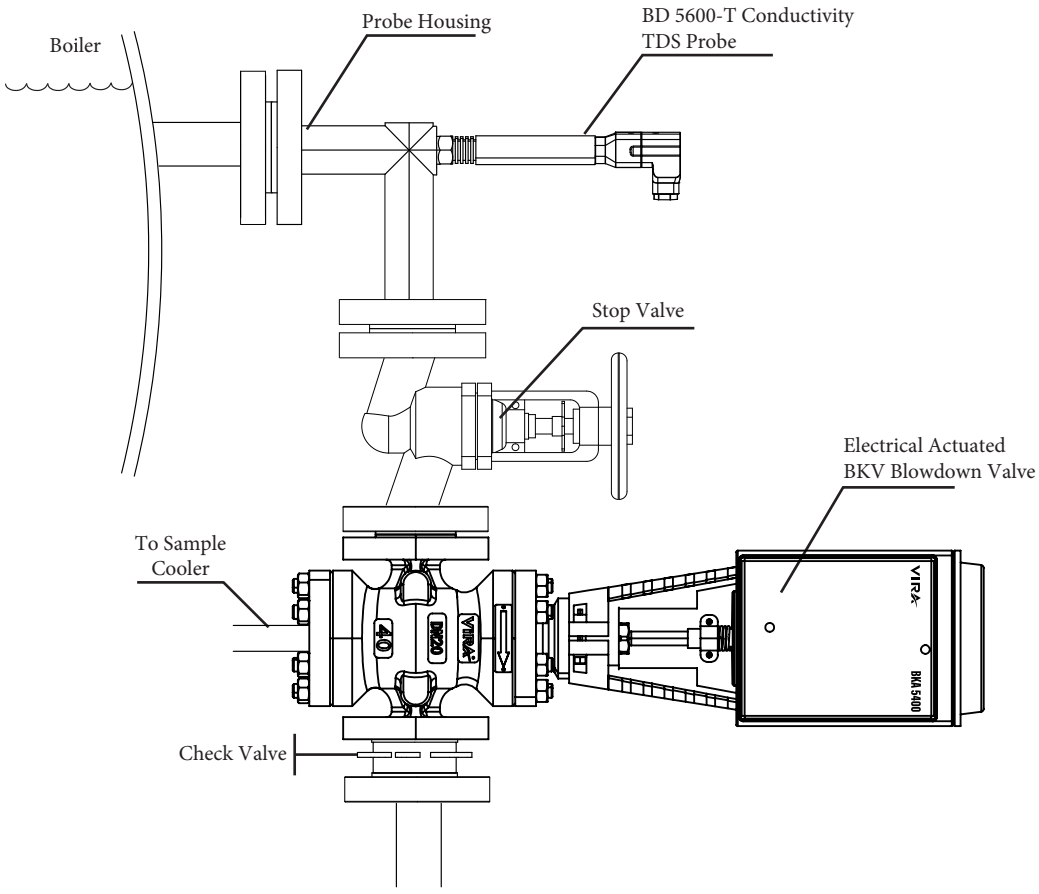



**Figure 3 :** Installation With Elbow, Vertical Position

**Dimension and Weight (approximate) in mm and kg**

| SIZE | L | H1 | H | D | Weight |
|---|---|---|---|---|---|
| DN 20 | 155 | 415 | 520 | 105 | 10,6 |
| DN 25 | 155 | 415 | 520 | 115 | 14,6 |

**Table 6 :** BKV 5420 and 5425 Dimensions

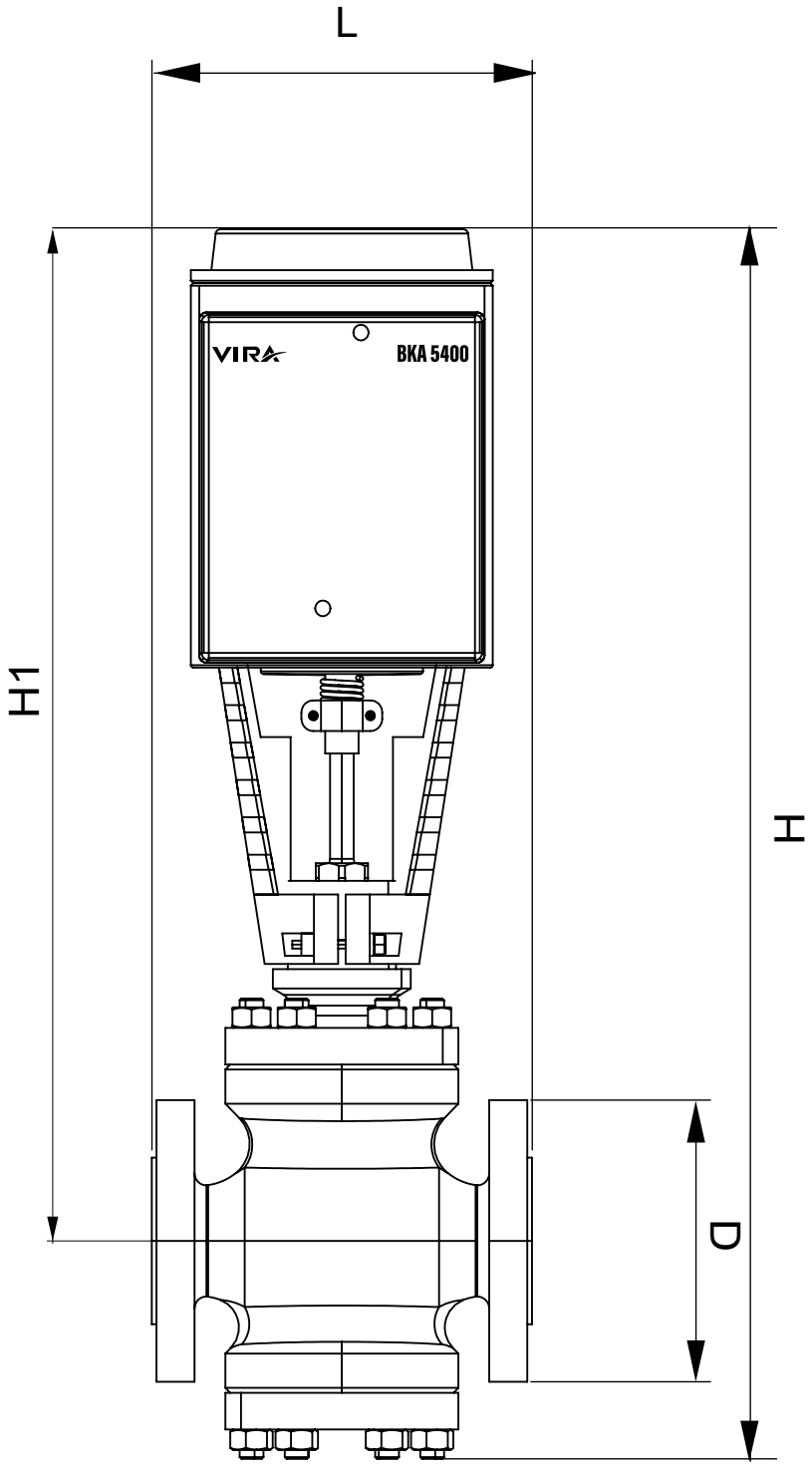



**Figure 4 :** BKV Series Valve Dimensions

**Dimension and Weight (approximate) in mm and kg**

| SIZE | L | L1 | H1 | H | D | Weight |
|---|---|---|---|---|---|---|
| DN 40 | 200 | 230 | 440 | 560 | 150 | 24,8 |

**Table 7 :** BKV 5440 Dimensions

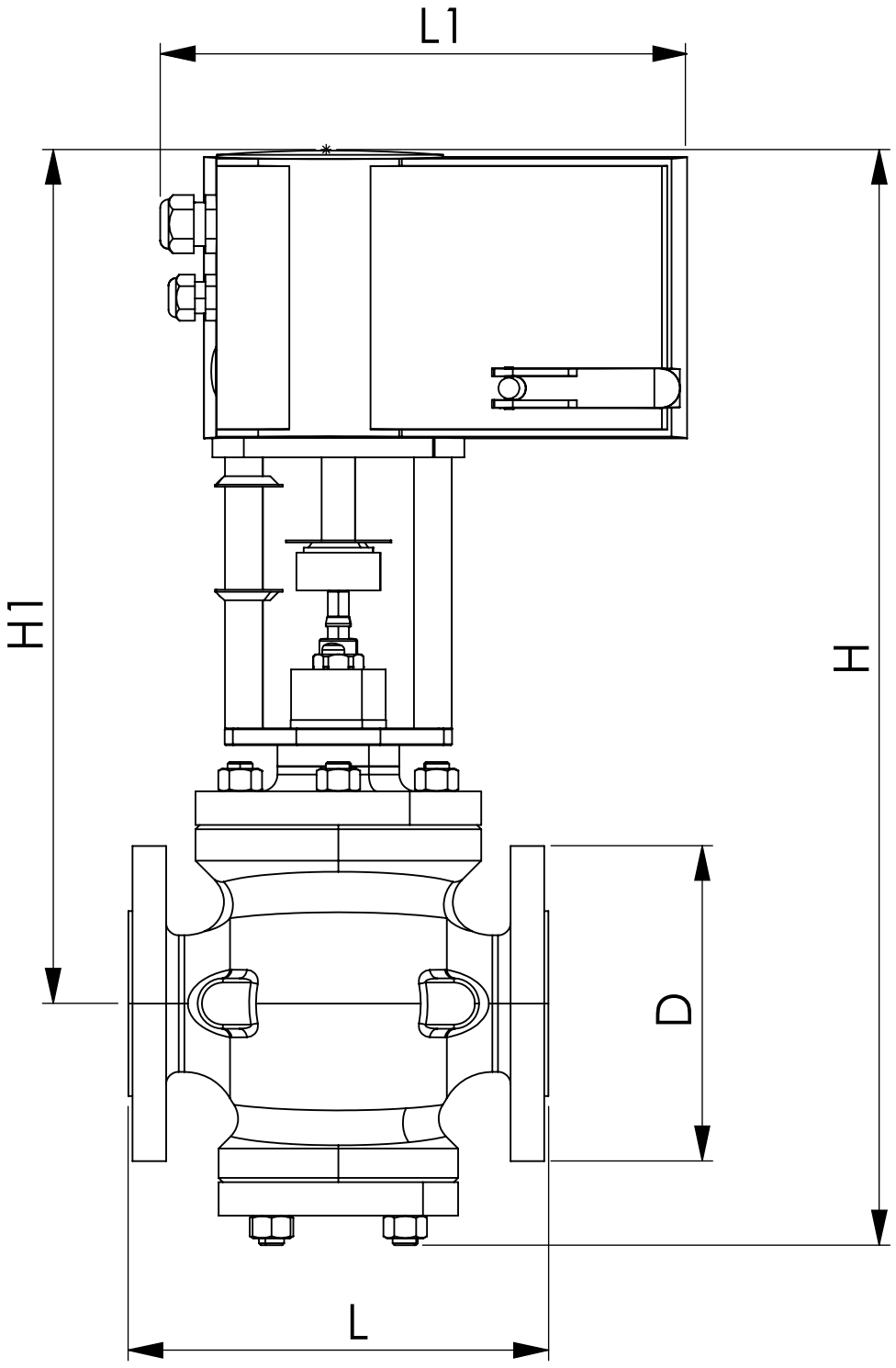



**Figure 5 :** BKV Series Valve Dimensions

**Dimension and Weight (approximate) in mm and kg**

| Nominal diameter | L | H1 | H | L1 |
|---|---|---|---|---|
| DN 20 | 150 | 89 | 484 | 170 |
| DN 25 | 160 | 89 | 484 | 170 |
| DN 40 | 200 | 150 | 620 | 340 |

**Table 8 :** BKV 5420, 5425 and 5440 Dimensions

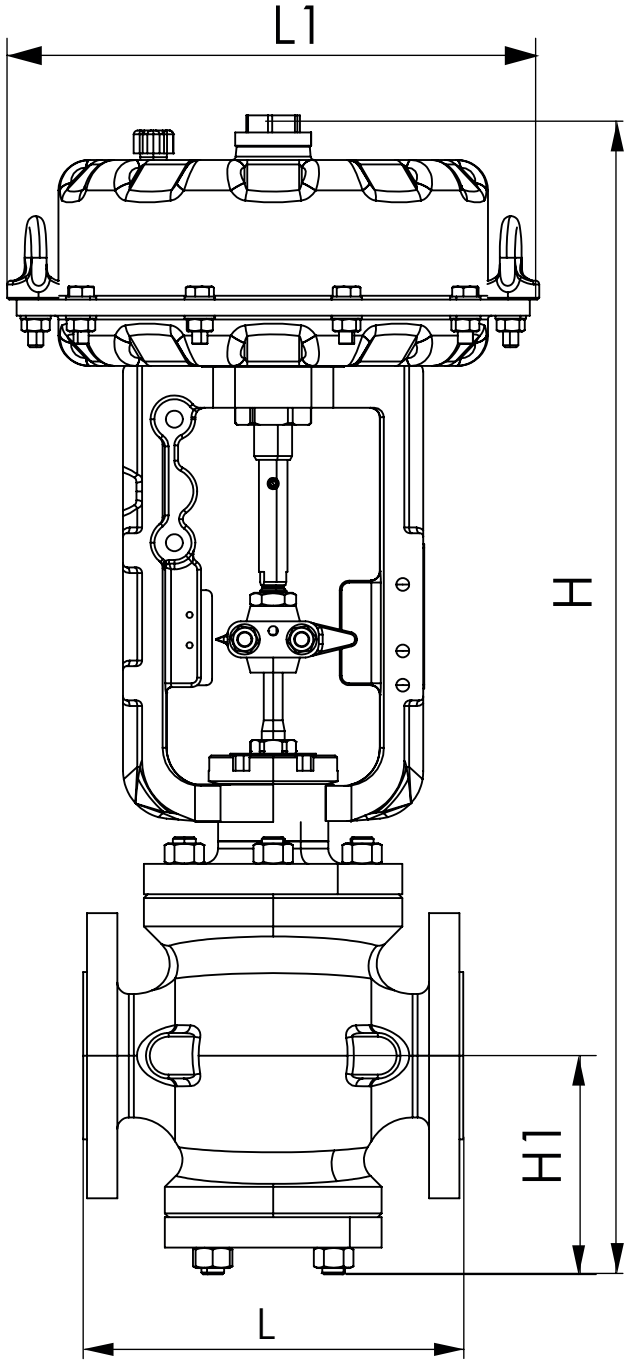



**Figure 6 :** BKV Series Valve Dimensions

# 5. BKA Electric Actuator With Spring Return

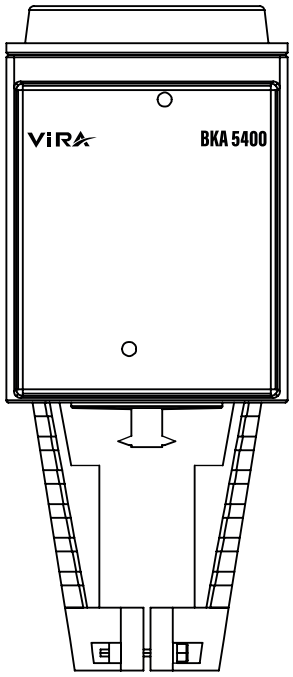



**Figure 7 :** BKA Actuator

| | |
|---|---|
| **Operating Voltage** | 230 VAC |
| **Max. Power Consumption at 50 Hz** | 21 VA / 13 W |
| **External Supply Cable Fuse** | Min. 0.5 A, Slow<br>Max. 0.6 A Slow |
| **Control Signal** | 3 position |
| **Positioning Time at 50 Hz** | Opening / Closing 120 s |
| **Spring-Return Time (Closing)** | 8 s |
| **Positioning Force** | 1000 N |
| **Nominal Stroke** | 20 mm |
| **Cable Entry** | 4 x M20 ( Ø 20.5 mm) |
| **CE - Conformity** | 2004/108/EC |
| **EMC Directive** | Immunity EN 61000-6-2 Industrial |
| **Low Voltage Directive** | 2006/95/EC |
| **Electrical Safety** | EN 60730-1 |

**Table 9 :** BKA Series Actuator Technical Data

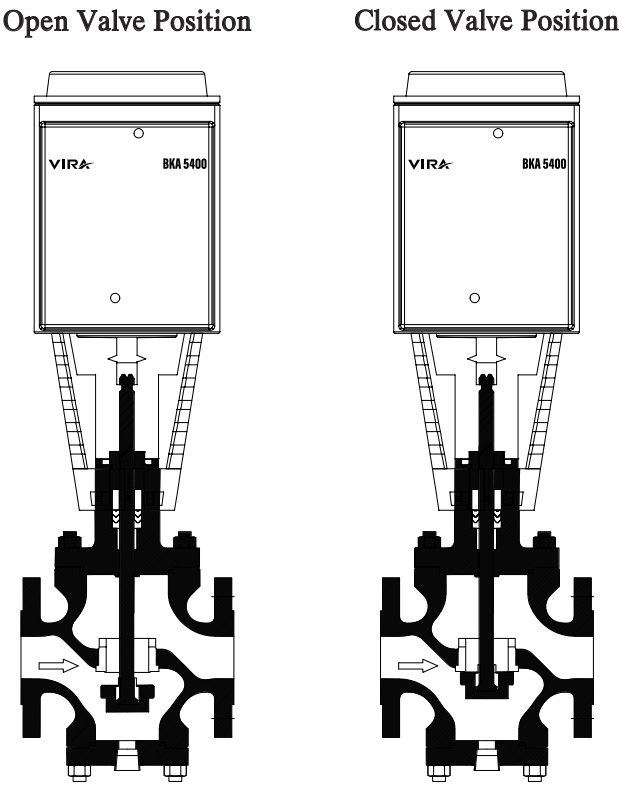



**Figure 8 :** Valve positions

**Opening the valve**

The hydraulic pump forces oil from the suction chamber to the pressure chamber and thereby moving the pressure cylinder downwards. The valve stem retracts and the valve opens. Simultaneously the return spring is compressed.

**Closing the valve**

Activating the solenoid valve allows the oil in the pressure chamber to flow back into the suction chamber. The compressed return spring moves the pressure cylinder upwards. The valve stem extends and the valve closes

**Manual operation mode**

Turning the manual adjuster clockwise moves the pressure cylinder downwards and opens the valve. Simultaneously the return spring is compressed.
In the manual operation mode the control signals Y and Z can further open the valve but cannot move to the «0%» stroke position of the valve. To retain the manually set position, switch off the power supply or disconnect the control signals Y and Z. The red indicator marked «MAN» is visible.

**Note : Controller in manual operation**

When setting the controller for a longer time period to manual operation, we recommend adjusting the actuator with the manual adjuster to the desired position. This guarantees that the actuator remains in this position for that time period. Attention: Do not forget to switch back to automatic operation after the controller is set back to automatic control.

**Automatic mode**

Turn the manual adjuster counterclockwise to the end stop. The pressure cylinder moves upward to the «0%» stroke position of the valve. The red indicator marked «MAN» is no longer visible.

**Minimal volumetric flow**

The actuator can manually be adjusted to a stroke position > 0 % allowing its use in applications requiring constantly a minimal volumetric flow.

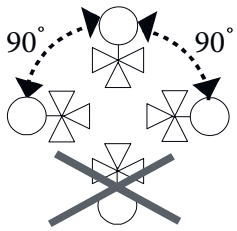
**Spring-return facility**

The BKA 5400 actuator, which feature a spring-return function, incorporate an additional solenoid valve which open if the control signal or «0 %»stroke position and closes the valve

Signal either via terminals Y1 or Y2 and generates the desired stroke by means of above described principle of operation.

- Voltage on Y1 piston extends valve opens
- Voltage on Y2 piston retracts valve closes
- No voltage on Y1 and Y2 piston / valve stem remian in the respective position
- Loss of power at terminal 21 activates the spring return function.

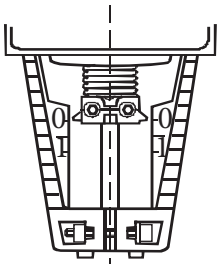
## 5.1 Orientation



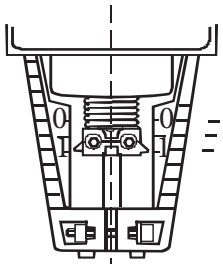

## 5.2 Commissioning Notes

When commissioning the system, check the wiring and functions, and set any auxiliary switches and potentiometers as necessary, or check the existing settings.

Coupling fully retracted
→ stroke = 0%

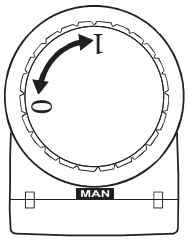



Coupling fully extended
→ stroke = 100 %



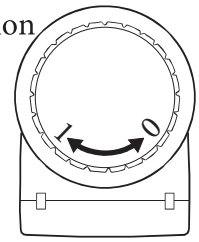

The manual adjuster must be rotated count erclockwise to the end stop, i.e. until the red indicator marked «MAN» is no longer visible.

Manual operation




« MAN »

Automatic operation




« AUTO »

The BKA actuators are maintenance-free.

When servicing the actuator:

- Switch off pump of the hydronic loop
- Interrupt the power supply to the actuator
- Close the main shutoff valves in the system
- Release pressure in the pipes and allow them to cool down completely
- If necessary, disconnect electrical connections from the terminals
- The actuator must be correctly fitted to the valve before recommissioning.

A damaged housing or cover represents an injury risk

- NEVER uninstall an actuator from the valve
- Uninstall the valve-actuator combination (actuating device) as a complete device
- Use only properly trained technicians to uninstall the unit
- Send the actuating device together with an error report to your local Siemens representative for analysis and disposal
- Properly mount the new actuating device (valve and actuator)

Parts could fly ultimately resulting in injuries from uninstalling an actuator with a damaged valve housing due to the tensioned return spring.

Disposal

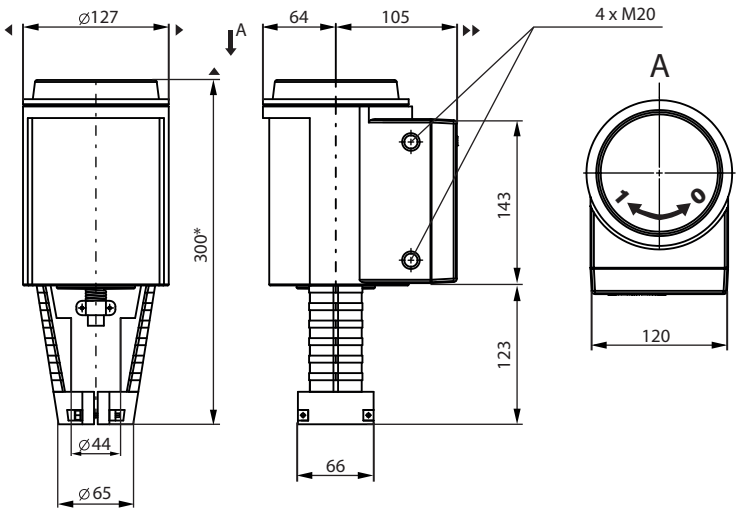
The device contains electrical and electronic components and must not be disposed of together with domestic waste. This applies in particular to the PCB.

Legislation may demand special handling of certain components, or it may be sensible from an ecological point of view.

Current local legislation must be observed.

## 5.3 Actuator Dimensions

All Dimensions in mm



# 6. AVF Electric Actuator

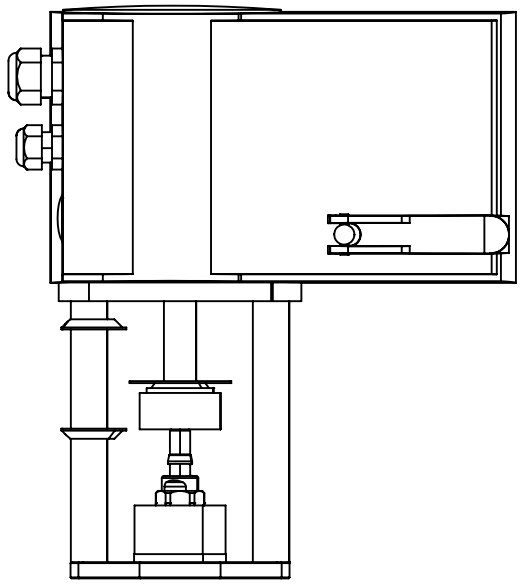


**Figure 9 :** AVF Actuator

| | |
|---|---|
| **Operating Voltage** | 24V ±20% |
| **Frequency** | 50 ... 60 Hz |
| **Max. Power Consumption at 50 Hz** | 28 VA / 13 W |
| **Control Signal** | 3 position |
| **Spring-Return Time (Closing)** | 15 ... 30 s |
| **Positioning Force** | 2000 N |
| **Nominal Stroke** | 14 ... 40 mm |
| **Cable Entry** | M20 × 1.5 (2×) |
| **EMC Directive** | Immunity EN 61000-6-2, EN 61000-6-4 Industrial |
| **Low Voltage Directive** | 2006/95/EC |
| **Electrical Safety** | EN 60529 |

**Table 10 :** AVF Series Actuator Technical Data

## 6.1 Description of operation

After a restart or a start after triggering the reset (terminal 21), a waiting time of up to 45 s elapses until the actuator is available again. Depending on the type of connection (see connection diagram), the actuator can be used as a continuous (0...10 V or 4...20 mA), 2-point (OPEN/CLOSE) or 3-point actuator (OPEN/STOP/CLOSE). The running time of the actuator can be set with switches S1 and S2 according to the relevant requirements. Switches S3 and S4 are used to configure the characteristic (equal-percentage, linear or quadratic). The external crank handle enables manual positional setting. When the crank handle is folded out, the motor is switched off. After the crank handle is folded back, the spring function is active again and the actuator moves to the target position (without initialisation). When the crank handle is folded out, the actuator remains in this position.

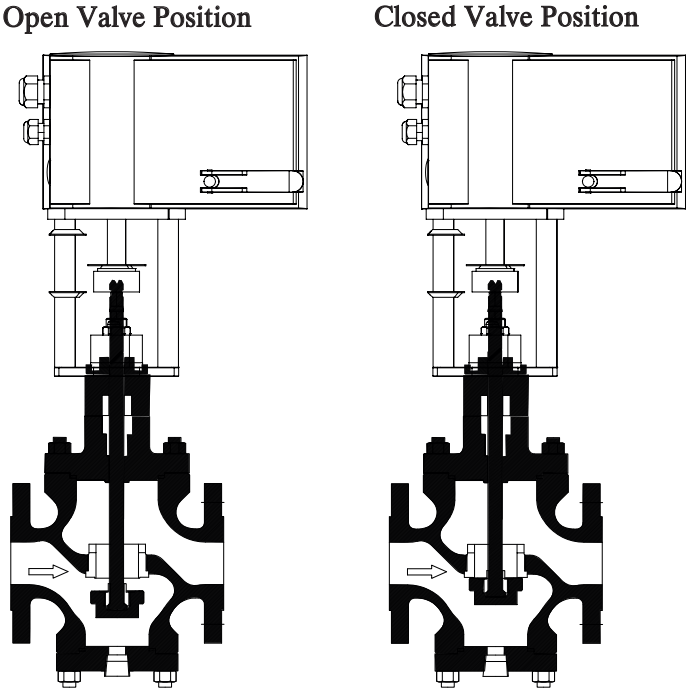



**Figure 10 :** Valve Positions

**Note :** The functions described in this section are only available when the corresponding optional features are enabled. BKV Series valves operate as energy-to-open, spring-to-return type on-off valves.

## 6.2 Initialisation and feedback signal

The actuator initialises itself autonomously, whether continuous, 2-point or 3-point. Once a voltage is applied to the actuator for the first time and the waiting time has elapsed, the actuator moves to the lower limit stop of the valve and thus enables automatic connection with the valve spindle. Then it moves to the upper stop and the value is detected and saved via a travel measurement system. The control signal and the feedback are adjusted to this effective stroke. After a power failure or a spring return, no re-initialisation is carried out. The values remain saved. For a re-initialisation, the actuator must be connected to the power supply and there must be a constant input signal at 3u or 3i. An initialisation is triggered by folding the crank handle out and back twice within 4 s. Then the two LEDs flash red. During initialisation, the feedback signal is inactive or equal to the value “0”. Initialisation is carried out with the shortest running time. The re-initialisation is only valid when the whole process is complete.

## 6.3 Manuel operation mode

Folding the crank handle out again interrupts this process.
If the valve actuator detects jamming, it reports this by setting the feedback signal to 0 V after approx. 90 s. During this time, the actuator tries to overcome the jamming. If the jamming can be overcome, the normal control function is activated again, and the feedback signal is restored.

## 6.4 Spring return

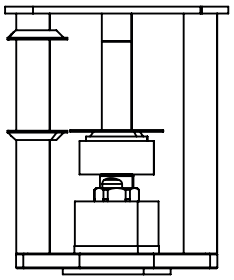
If the supply voltage fails or is switched off the brushless DC motor releases the gear unit and the preloaded spring moves the actuator to the relevant end position (depending on the model). In the process, the control function of the actuator is locked for 45 s (both LEDs light up green) so that the end position can definitely be reached. The reset speed is controlled using the motor so that no pressure surges can occur in the supply line. The brushless DC motor has three functions: As a magnet for holding the position. As a brake, by operating as a generator, and as a motor for the control function. After a spring-return function, the actuator does not re-initialise itself.

## 6.5 Commissioning Notes

When commissioning the system, check the wiring and functions, and set any auxiliary switches and potentiometers as necessary, or check the existing settings.

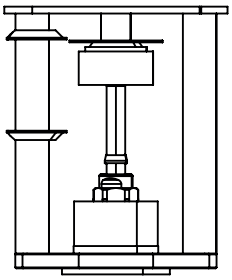
**Valve open Position**

Coupling fully extended
→ stroke = 100 %



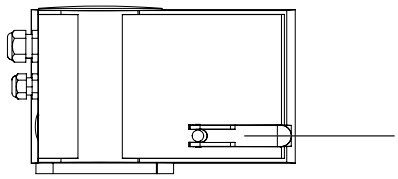
**Valve closed Position**

Coupling fully retracted
→ stroke = 0%



The external crank handle enables manual positional setting. When the crank handle is folded out, the motor is switched off. After the crank handle is folded back, the spring function is active again and the actuator moves to the target position (without initialisation). When the crank handle is folded out, the actuator remains in this position.

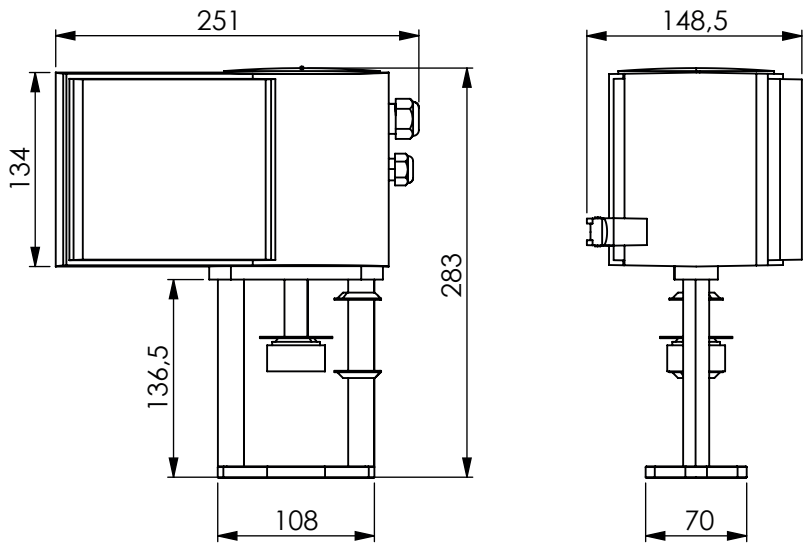
**Manual positional setting**




The AVF actuators are maintenance-free.

## 6.6 Actuator Dimensions

All Dimensions in mm



# 7. Pneumatic Actuator

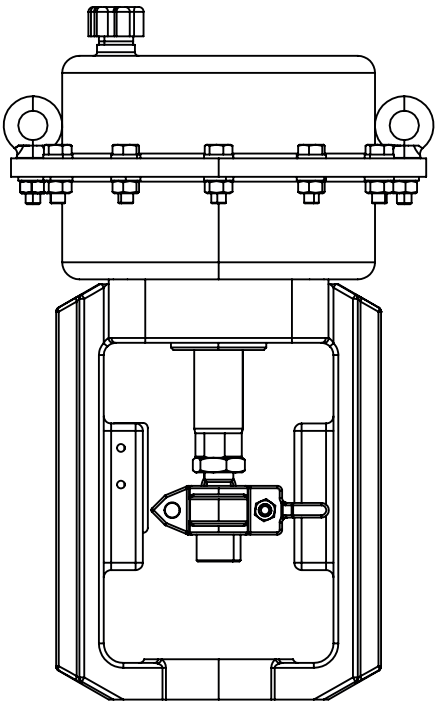


**Figure 11 :** Pneumatic Actuator

| | |
|---|---|
| **Model specifications** | VT1, VT2 |
| **Action type** | Direct action (D): The air pressure increases and the output shaft drops. Reverse action (R): The air pressure increases and the output shaft rises. |
| **Output force** | See table below |
| **Stroke** | See table below |
| **Air supply pressure** | 0.4~0.6 MPa |
| **Applicable media** | Compressed air, nitrogen |
| **Ambient temperature** | Standard type: -20~70°C <br> Low temperature type: -40~70°C |
| **Optional accessories** | Handwheel mechanism, positioner, air filter pressure reducing valve, solenoid valve, limit switch, etc. |
| **Performance** | Hysteresis: <1%FS <br><br>Linearity: <±1%FS |

**Table 11 :** Pneumatic Actuator Technical Data

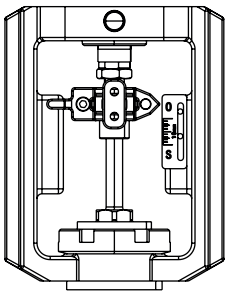
| Model | Effective area of the diaphragm cm2 | Stroke(mm) | Output force (N) | Weight | |
|---|---|---|---|---|---|
| | | | | Without Hand Wheel | With Hand Wheel (Optional) |
| **VT1D** | 100 | 20 | 2000 | 8 | 15 |
| **VT2D** | 320 | 30 | 8000 | 18 | 28 |

**Table 12 :** Actuator Technical Information

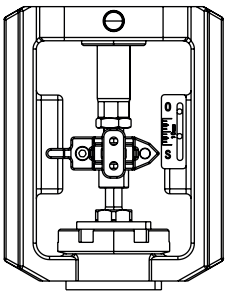
## 7.1 Commissioning Notes

When commissioning the system, check the wiring and functions, and set any auxiliary switches and potentiometers as necessary, or check the existing settings.

Coupling fully retracted
→ stroke = 0%

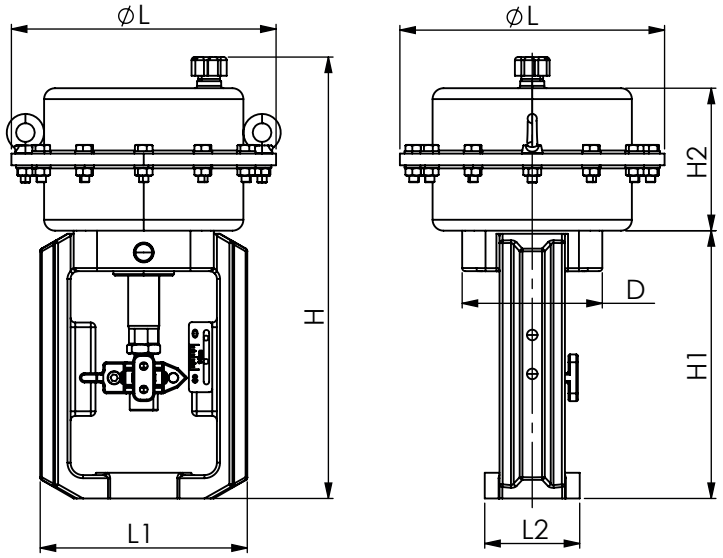


Coupling fully extended
→ stroke = 100 %

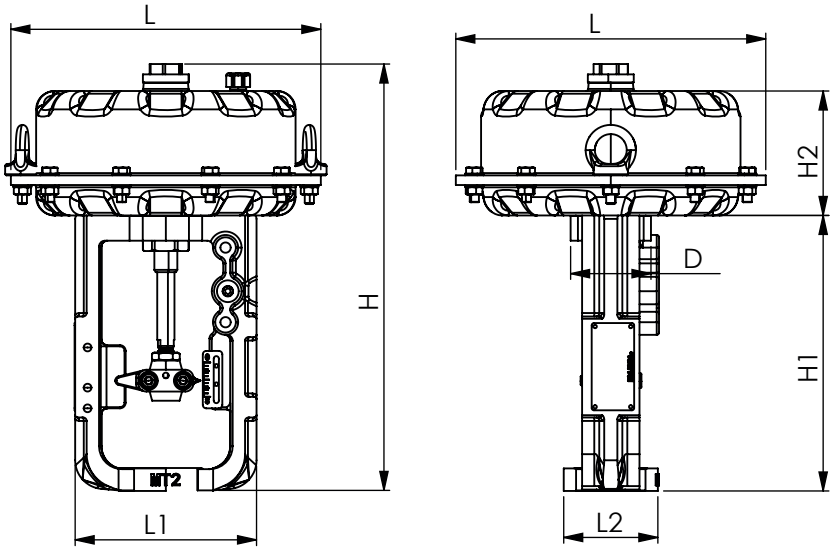


## 7.2 Pneumatic Actuator Dimensions

All Dimensions in mm




| SIZE | L | L1 | L2 | H | H1 | H2 | D |
|---|---|---|---|---|---|---|---|
| VT1D | 170 | 133 | 61 | 283,5 | 172 | 91,5 | 90 |




| SIZE | L | L1 | L2 | H | H1 | H2 | D |
|---|---|---|---|---|---|---|---|
| VT2D | 270 | 158 | 82 | 371,4 | 240 | 108,5 | 70 |

## 7.3 Product Introduction

The VT series pneumatic diaphragm actuator is designed with a single-spring or multi-spring structure, providing an axial output thrust. It is compact in structure, light in weight, small in size, performans highly, has a long service life, and delivers a significant output thrust. It is used in conjunction with control valves, and outher straight-stroke valves, facilitating a tight and easy valve closure.

**Working principle:** The electrical signal from the control instrument, after being converted into air pressure by the positioner or solenoid valve, is input into the diaphragm chamber. This pressure acts on the diaphram to generate thrust, causing the output shaft to move.

VT actuator has excellent versatility and interchangeability. In the field, the action mode can easily be reversed. By simply flipping the upper and lower diaphragm chambres, ıts unique design, which requires no external air supply tubing, means air is supplied to the positioner and actuator through holes in the mounting bracket, eliminating the need for external tubing. Compared to traditional designs, this arrangement is more reliable and requires less space simplifies the assembly process of the positioner.

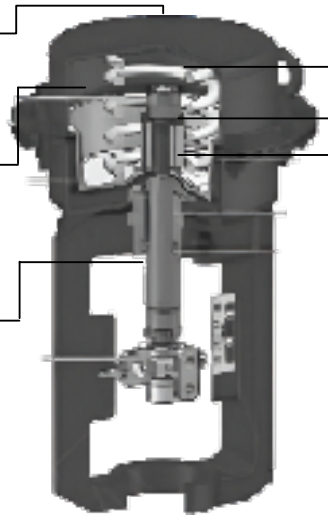
## 7.4 Structure and Characteristic

### 7.4.1 VT1 Actuator (BKV 5420 & BKV 5425)

**Anti-loosening nut Structure**
Prevent the push rod from loosening, and improve the stability of the connection

**Ultra-high fatigue strenght diapragm material**
Service life >200,000 cycles, ensuring long-trem maintenance-free operation for customers.

**Gating nut connection structure**
Tightly connected without gaps, easy to disassemble, high regulating precision and stability.



**Single spring structure**
Compact Structure, occupies small space, large output force.

**Ultra-long self-lubricating bearing guided structure**
Smooth operation, without random movement, low friction and high operational precision

**Dust-proof sealing ring structure**
Double sealing, long-lasting seal without external leakage

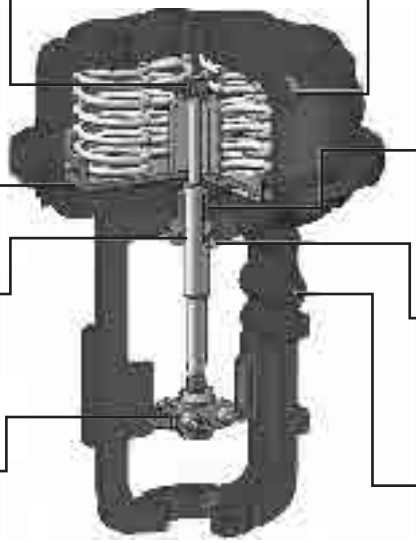
## 7.4.2 VT2 Actuator (BKV 5440)

**Anti-loosening nut structure**
Prevents the push rod from loosening, enhancing connection stability.

**Ultra-high fatigue strength diaphragm material**
Life cycle of over 200,000 cycles, ensuring long maintenance-free periods and high performance.

**Dustproof sealing ring structure**
Double sealing provides long-lasting and reliable protection.

**Opening and closing nut connection structure**
Tight connection with no gaps, easy disassembly, high adjustment precision, and stability.



**Embossed diaphragm cover structure**
Increases pressure resistance of the diaphragm cover and boosts actuator thrust output.

**Ultra-long self-lubricating bearing guide structure**
Reduces friction, improves performance, extends service life, and enhances thrust output.

**External threaded connection structure**
Enables quick switching between direct and reverse action, improving on-site convenience.

**Built-in air intake hole structure**
No external air source required; designed for positioner installation, reduces leak points, and saves space.

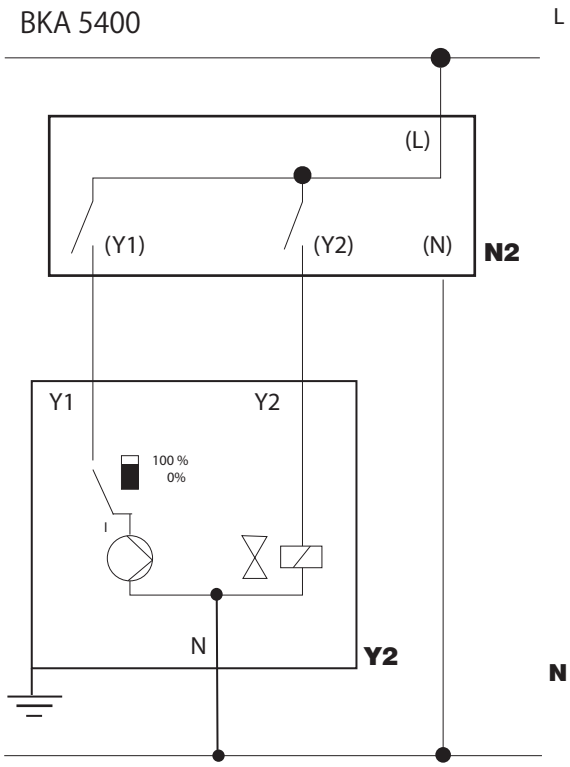
# 8. Wiring

All wiring materials and methods shall comply with relevant EN and IEC standards where applicable. For installations in the US and Canada, the controller and valve must be wired in accordance to the Local and National Electrical code (NEC) or the Canadian Electrical Code (CEC).

Check the actuator label to ensure the operating voltage is correct for the mains supply.

- Electrical connections (max. 2.5 $mm^2$) with screw terminals
- Three pre-scored cable inlets for M20 × 1.5 (2×) and M16 × 1.5

## 8.1 Connection Diagram




| | |
|---|---|
| Y1 | Positioning signal open |
| Y2 | Positioning signal close |
| 21 | Spring-return Function |

**Figure 12 :** Connection Diagram

**Note :** The connection configurations illustrated on this page are functional only when the corresponding wiring connections are properly implemented. When operated in conjunction with Vira conductivity controllers (following the related wiring diagram), the valves function as energy-to-open, spring-to-return, on-off actuated units.

## 8.2 Wiring Between BK 5000-T Controller and BKV 5420 & BKV 5425 Electric Actuated Blowdown Valve

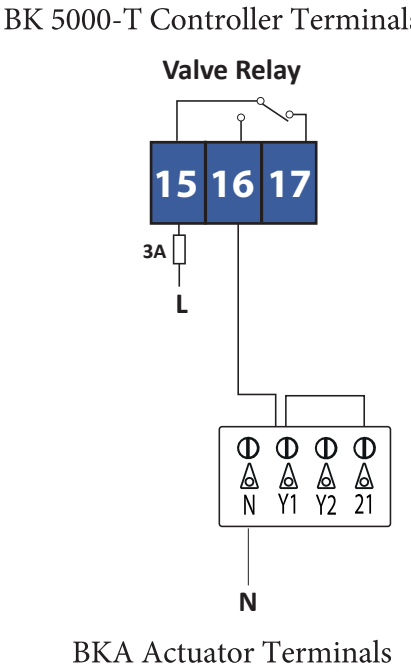



**Figure 13 :** Wiring between BK 5000-T and BKA Actuator

## 8.3 Wiring Between D-BK 5000-T Controller and BKV 5420 & BKV 5425 Electric Actuated Blowdown Valve

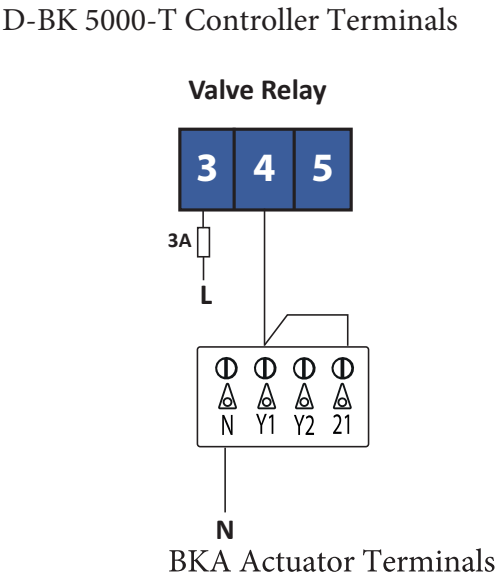



**Figure 14 :** Wiring between D-BK 5000-T and BKA Actuator

## 8.4 Wiring Between BK 5000-T Controller and BKV 5440 Electric Actuated Blowdown Valve

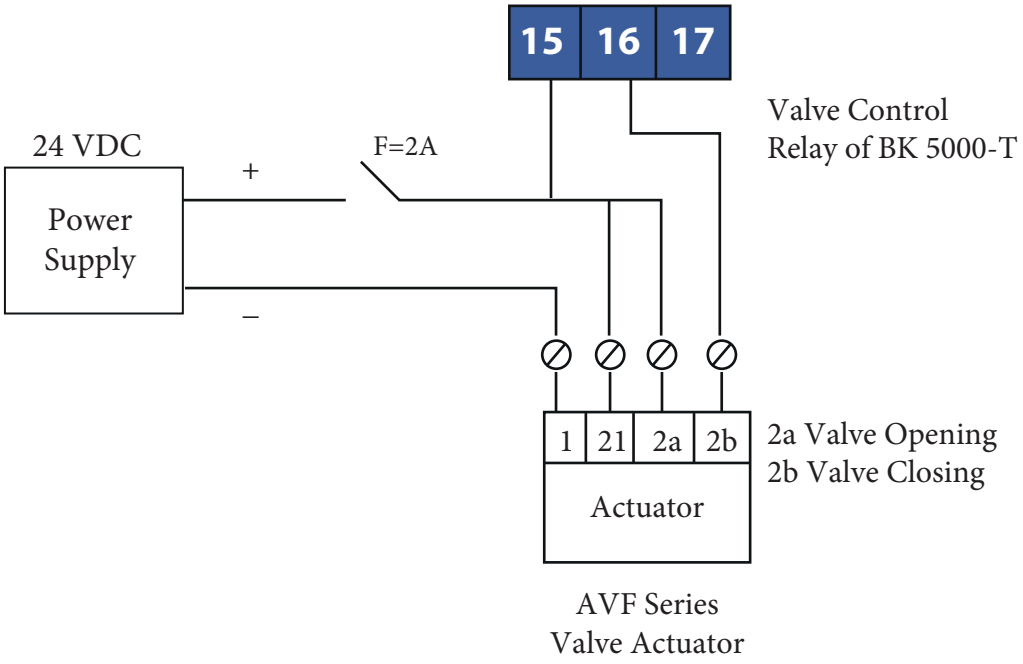



**Figure 15 :** Wiring between BK 5000-T and AVF Actuator

## 8.5 Wiring Between D-BK 5000-T Controller and BKV 5440 Electric Actuated Blowdown Valve

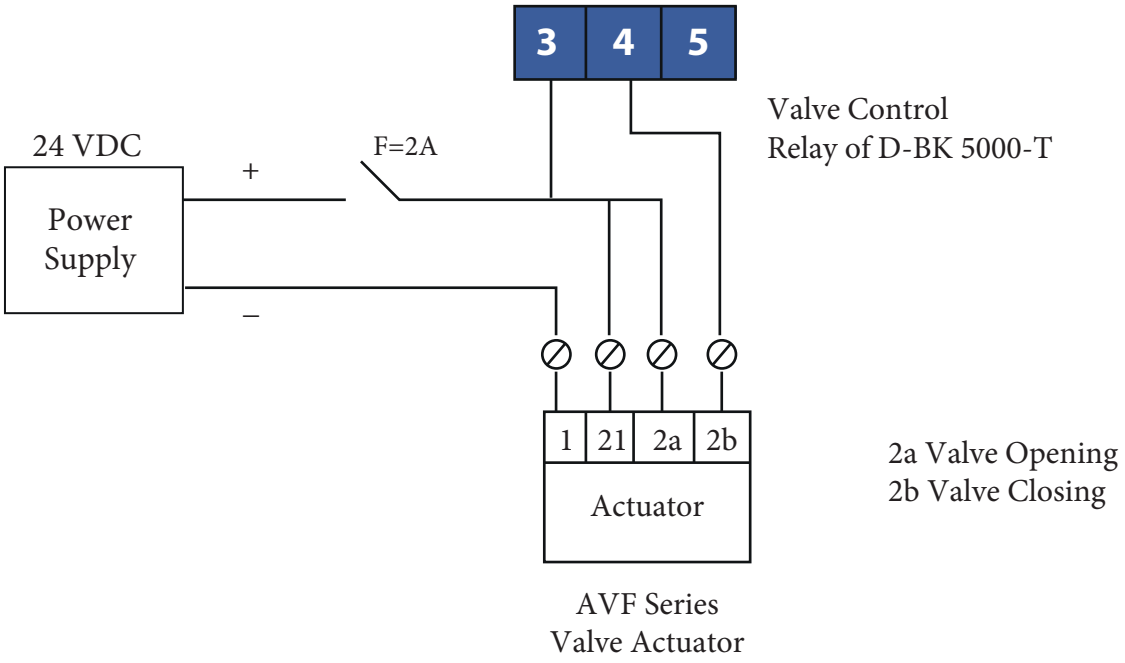



**Figure 16 :** Wiring between D-BK 5000-T and AVF Actuator

## 8.6 Wiring Between D-BK 5000-T Controller and BKV 5420, BKV 5425 and BKV 5440 Pneumatic Actuated Blowdown Valve

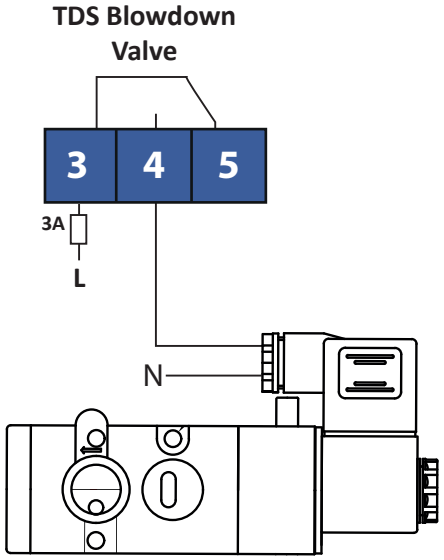



**Figure 17 :** Wiring between D-BK 5000-T and Pneumatic Actuator of TDS Blowdown valve BKV 5400

## 8.7 Wiring Between BK 5000-T Controller and BKV 5420, BKV 5425 and BKV 5440 Pneumatic Actauted Blowdown Valve

BK 5000-T Controller Terminals

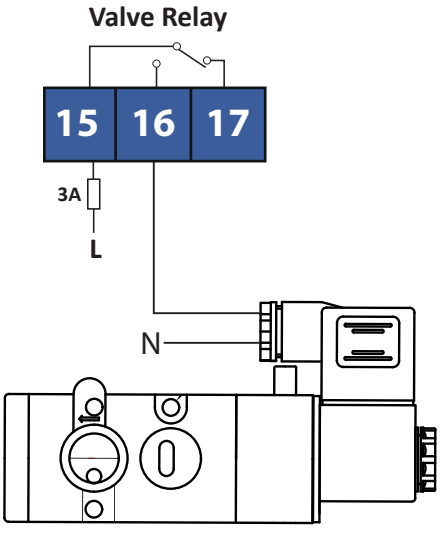



**Figure 18 :** Wiring between BK 5000-T and Pneumatic Actuator of TDS Blowdown Valve BKV 5400

# 9. Maintenance

**Note :** Before actioning any maintenance, observe the 'Safety information' in section 1.

Valve parts are subject to normal wear and must be inspected and replaced as necessary. Inspection and maintenance frequency depends on the severity of the service conditions. This section provides instructions on replacement packing, stem, plug and seat and bellows. All maintenance operations can be performed with the valve body in the line.

The valve should be inspected for wear and tear replacing any worn or damaged parts such as valve plug and stem, valve seat and gland seals, refer to Section 8 'Spare parts'.

**Note 1:** High temperature graphite packed seals are subject to wear during normal operation. We therefore recommend the graphite packing be replaced during this routine inspection to prevent premature failure of the packing during normal operation.

**Note 2:** It is recommended that all soft seals and gaskets be replaced whenever the valve is disassembled.

**Actuator Disassembly**
To disassemble the actuator, remove the bolt connecting the valve stem to the actuator shaft. Then, unscrew the actuator retaining nut and remove the actuator.

**Actuator Assembly**
Reassemble in reverse order to instructions given above.

**Valve Disassembly**
First, disassemble the actuator as described above.
Remove the fasteners on the upper and lower flanges of the valve.
If necessary, replace the packing, copper gasket, and spring inside the valve.

**Valve Assembly**
Reassemble in reverse order to instructions given above.

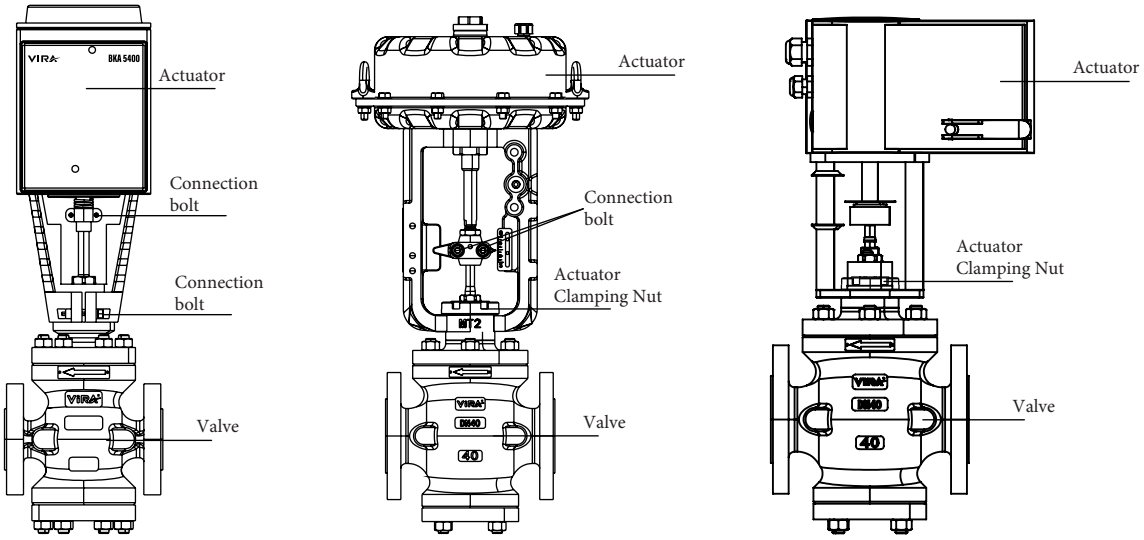
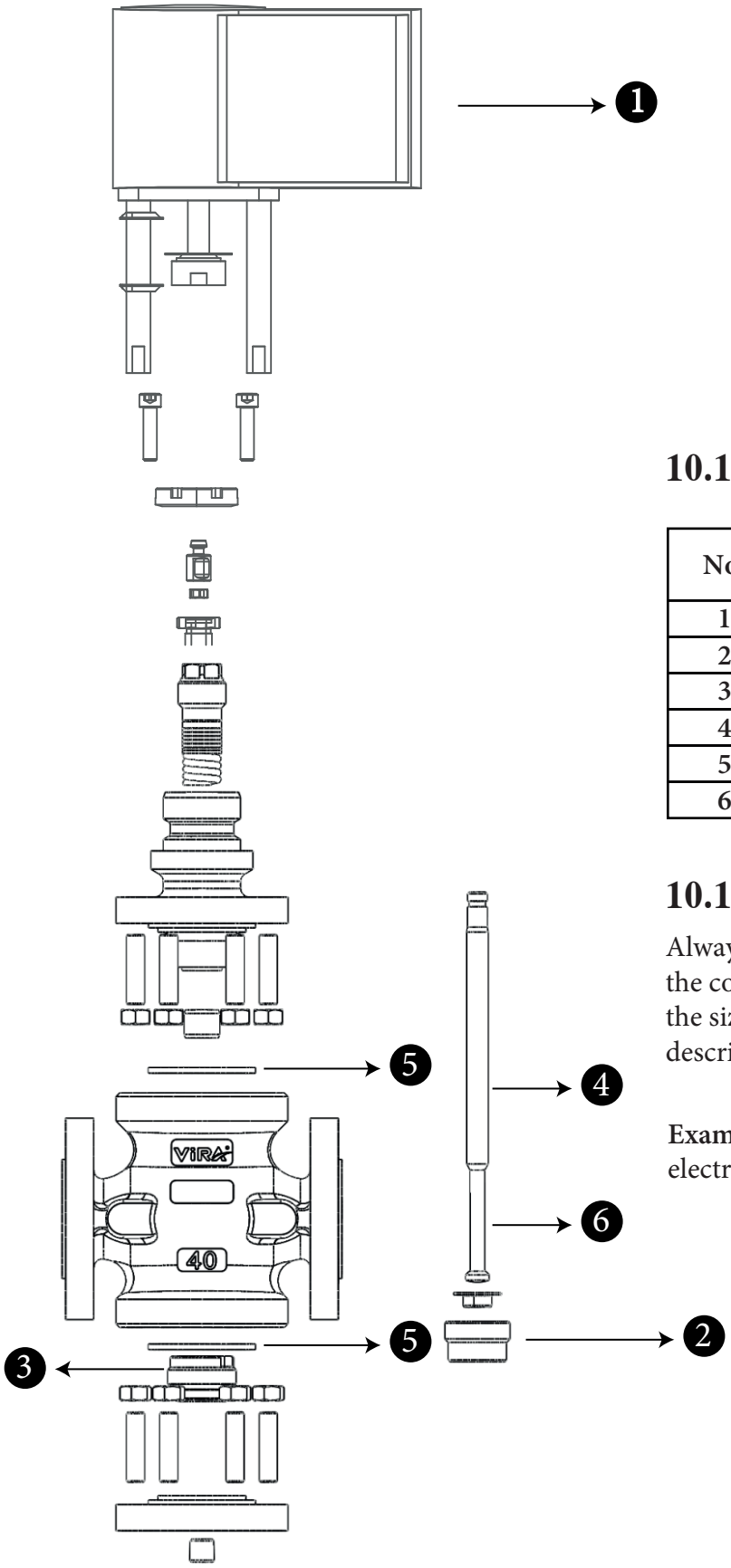



**Figure 19 :** Valve Views

# 10. Spare Part

## 10.1 BKV Electric Actuator TDS Blowdown Control Valve

The available spare parts are detailed below. No other parts are supplied as spares.




### 10.1.1 Available Spare Parts

| No. | Spare Part | QTY |
|---|---|---|
| 1 | Actuator | 1 |
| 2 | Disc | 1 |
| 3 | Seat | 1 |
| 4 | Stem | 1 |
| 5 | Bonnet Gasket | 1 |
| 6 | Packing | 1 set |

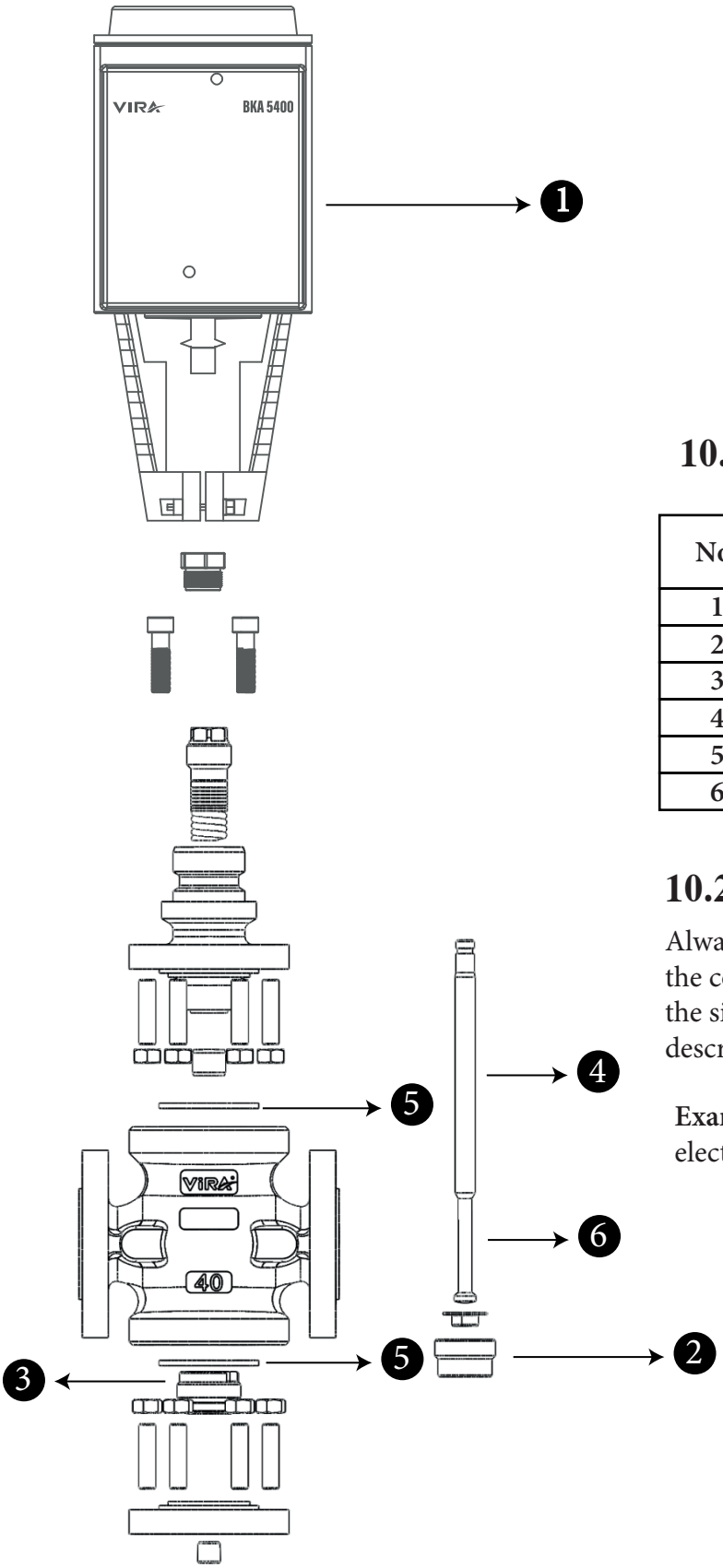
### 10.1.2 How to Order Spare Parts

Always order spares by using the description given in the column headed ''Available spare parts'' and state the size and type of valve and specify clearly the full description as found on the label of the valve body.

**Example:** 1 off ''steam seal kit'' for a Vira BKV 5440 electric actuated blowdown control valve

## 10.2 BKV Electric Actuator TDS Blowdown Control Valve

The available spare parts are detailed below. No other parts are supplied as spares.




### 10.2.1 Available Spare Parts

| No. | Spare Part | QTY |
|---|---|---|
| 1 | Actuator | 1 |
| 2 | Disc | 1 |
| 3 | Seat | 1 |
| 4 | Stem | 1 |
| 5 | Bonnet Gasket | 1 |
| 6 | Packing | 1 set |

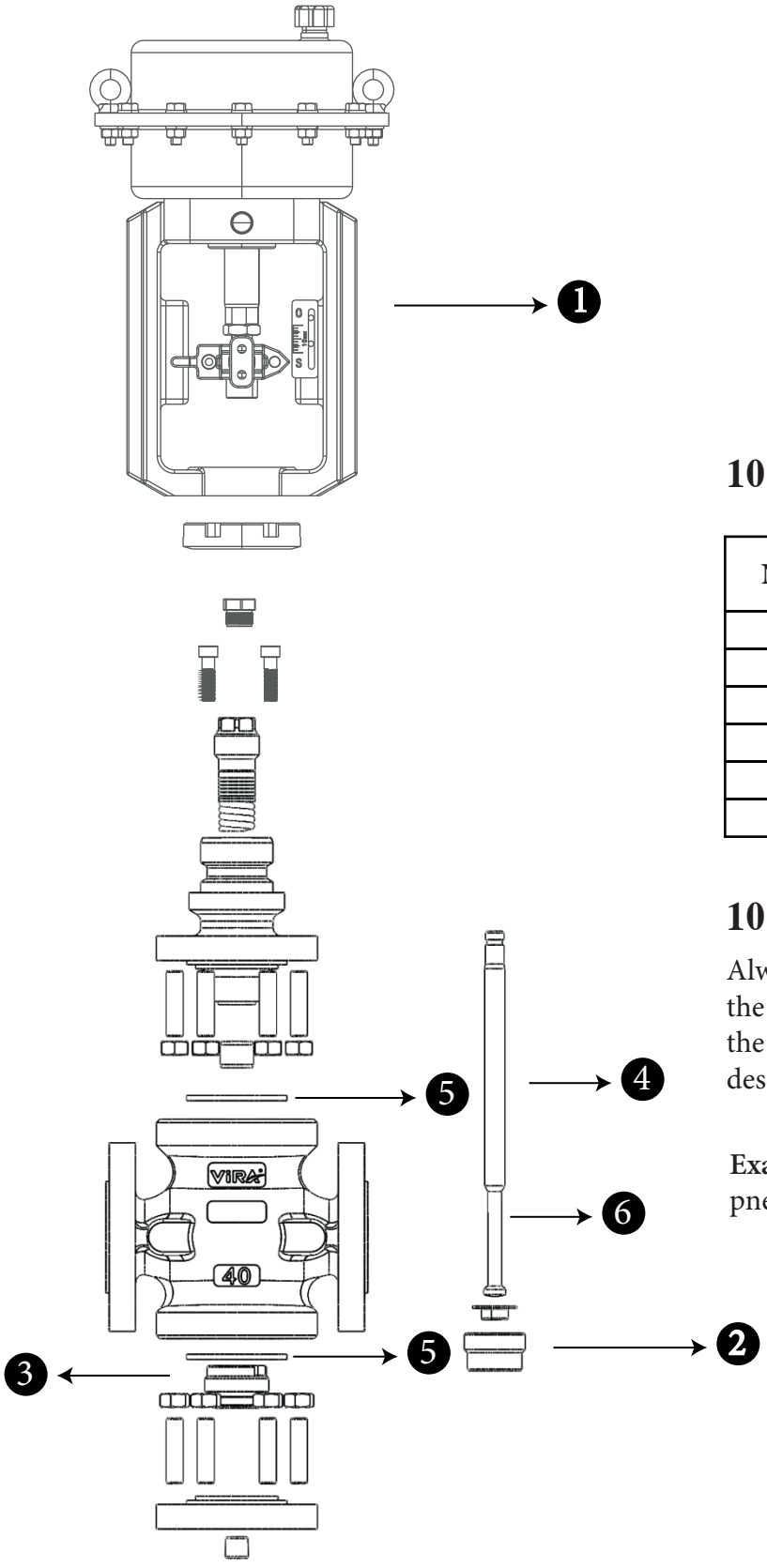
### 10.2.2 How to Order Spare Parts

Always order spares by using the description given in the column headed ''Available spare parts'' and state the size and type of valve and specify clearly the full description as found on the label of the valve body.

**Example:** 1 off ''steam seal kit'' for a Vira BKV 5420 electric actuated blowdown control valve

## 10.3 BKV Pneumatic Actuator TDS Blowdown Control Valve

The available spare parts are detailed below. No other parts are supplied as spares.




### 10.3.1 Available Spare Parts

| No. | Spare Part | QTY |
|---|---|---|
| 1 | Actuator | 1 |
| 2 | Disc | 1 |
| 3 | Seat | 1 |
| 4 | Stem | 1 |
| 5 | Bonnet Gasket | 1 |
| 6 | Packing | 1 set |

### 10.3.2 How to Order Spare Parts

Always order spares by using the description given in the column headed ''Available spare parts'' and state the size and type of valve and specify clearly the full description as found on the label of the valve body.

**Example:** 1 off ''steam seal kit'' for a Vira BKV 5420 pneumatic actuated blowdown control valve

# 11. Technical Assistance

For technical assistance or service requests, please directly contact Vira services center by making a phone call or sending an e-mail to **servis@viraisi.com**

Return faulty or servie items to Vira itself or authorized agency in your area. Ensure all items are subitably packed for ( preferably in the original cartons).

**Please provide the following information with any equipment being returned:**

- Your name, company name, addres and telephone number order and invoice ans return delivery address
- Description and the serial number of equipment.
- Full description of the fault or repair required.
- If the equipment is being returned under warranty, please inndicate the date of purchase.

The manufacturer reserves the right to make change without prior notification.



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