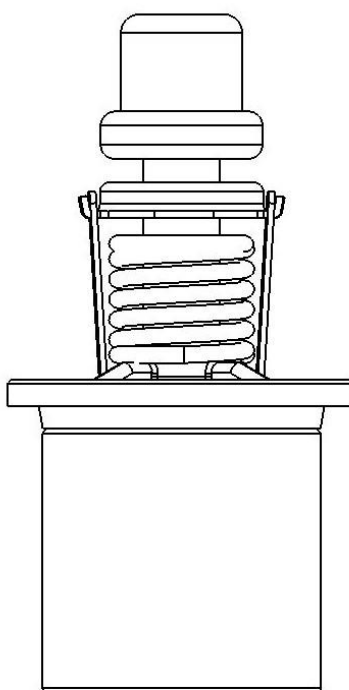


MVA temperature control elements

This instruction is valid for MVA temperature control elements, which are incorporated in MVA temperature control valves. Available in two sizes: from DN 20 to DN 40 series 020 and from DN 50 to DN 150 series 050

The elements are supplied for manual override and without (standard).

This description refers to one element. From DN65, more elements are used in the temperature control valve



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Please read the MVA temperature control data sheets for a better understanding first

Exchange of the standard elements

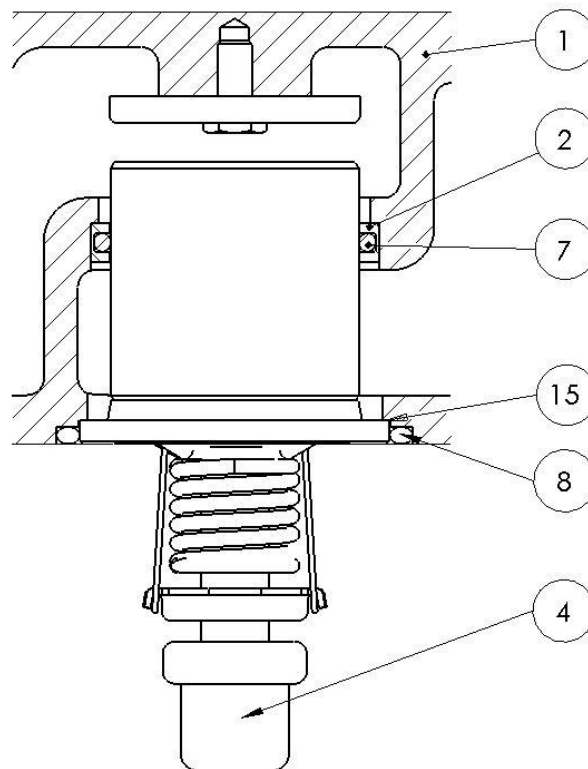


Figure 1

- 1. Housing of the main body
- 2. Sleeve
- 7. O-Ring
- 15. Mechanical stop of control element
- 8. O-Ring (Body)
- 4. Control element

Replacement procedure (Figure 1):

- a. Disassemble lower housing part of the temperature control valve
- b. Remove the housing gasket O-Ring body (8)
- c. Pull control element (4) out of the main body with gentle rotation
- d. Replace O-ring (7). Please note: the backlash of the O-ring (7) in the sleeve is for thermal expansion during operation and wanted
- e. For an easier installation of the control element, put some grease at the O-ring (7)
- f. Insert the new control element (4) under slight pressure and slight turning in the mechanical stop of control element (15). Warning: Due to the fact that the O-ring (7) has backlash in the sleeve (2), it must be centered; Please make sure that the O-ring (7) is not cut or pinched by the control element (4)
- g. Before the installation of the lower housing part of the temperature control valve, insert new O-Ring (Body) (8)

Exchange of elements with manual override

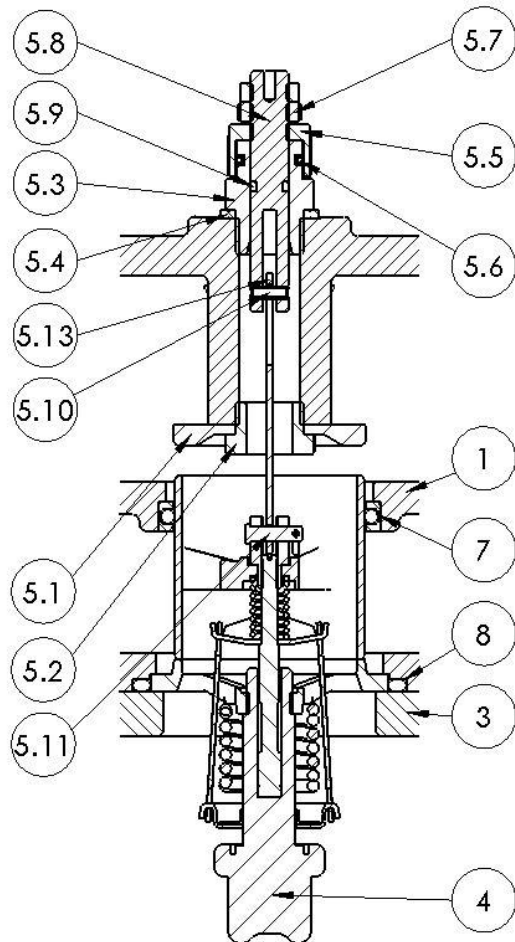


Figure 2

- | | |
|------|---------------------|
| 1. | Main Body |
| 3. | Bottom Connection |
| 4. | Element |
| 5.1 | Seat |
| 5.2 | Bush |
| 5.3 | Insert nut |
| 5.4 | USIT Ring |
| 5.5 | Adjustable nut |
| 5.6 | Spring dowel sleeve |
| 5.7 | Nut |
| 5.8 | Adjustable screw |
| 5.9 | O-Ring |
| 5.10 | Spring dowel sleeve |
| 5.11 | Stud |
| 5.13 | Perforated plate |
| 7. | O-Ring (Sleeve) |
| 8. | O-Ring (Body) |

Procedure to remove the element (Figure 2):

- Disassemble the bottom connection (3) of the temperature control valve
- Remove the housing gasket/ O-Ring (Body) (8)
- Remove the two nuts (5.7) from the adjustable screw (5.8). Loosen adjustable nut (5.5) counter-clockwise until adjustable screw (5.8) vanishes in the adjustable nut (5.5) (up to the end of the thread) and the adjustable nut spins loose
- Pull the element (4) out of the main body (1) by slight turning and remove the O-ring sleeve (7)

Preparation and completion of the new element (Figure 2):

- Remove the stud/ dowel pin (5.11) of the enlarged control element (4). Replace the adjustable screw (5.8) with perforated plate (5.13) to the new delivered element (4) with the supplied stud / dowel pin (5.11)
- Insert the new O-Ring sleeve (7) into the main body (7) of the temperature control valve. Please note: the backlash of the O-ring sleeve (7) is for thermal expansion during operation and wanted
- For an easier installation of the control element, put some grease at the O-ring (7)

Exchange of elements with manual override

How to assemble the new element (Figure 2):

- h. To facilitate the installation of the new control element (4) in the mainbody (1) of the temperature control valve, a metal rod about 5mm diameter with a M4 thread can be used. Screw it in the M4 thread of the adjustable screw (5.8)
- i. Put the adjustable screw (5.8) with the metal rod through the opening of the bush (5.2). Insert the element (4) with slight pressure and slight turning in the main body (1). Center the adjustable screw (5.8) with the metal rod until it launches at the thread of the adjustable nut (5.3)
- j. Turn the adjustable nut (5.5) clockwise by hand until the thread of the adjustable screw (5.8) grips. Continue to turn the adjustable nut (5.5) clockwise until the adjustable screw (5.8) juts 12mm out of the adjustable nut. Remove the metal rod from the adjustable screw (5.8). Subsequently screw the two nuts (5.7) on the adjustable screw (5.8), so that the adjustable screw comes out 2mm of the upper Inut and lock both nuts (5.7). Hold the nuts (5.7) with an open-end spanner and turn the adjustable nut (5.5) clockwise
- k. Turn the adjustable nut (5.5) until a noticeable resistance occurs. Turn back the adjustable nut half a turn. The control function is not restricted in this position
- l. Check the control element on firm seating and remove (blow out) particles
- m. Insert O-Ring body (8) in the main body (1) and mount bottom connection (3) to the main body of the temperature control valve (1)

Operating of the manual override

If a temperature control element no longer comply with the datasheets in the opinion of the operator, it is possible to individually adjust the control elements by hand. A part or the entire flow then flows through the heat exchanger



Attention! With activated manual override the automatic regulation of the control element is ignored. The automatic regulation of the control element is not possible during an activated manual override!

How to operate the manual override (Figure 2):

- a. Turn the adjustable nut (5.5) clockwise. Therefor hold the two nuts (5.7) with an open-end spanner to avoid a spinning of the adjustable screw (5.8)
- b. Turn the adjustable nut (5.5) as long as the distance / space between adjustable nut (5.5) and nuts (5.7) is max. 8,5mm for DN20...DN40 controllers and max. 11mm for DN50...DN150 controllers. With this setting, all of the liquid passes through the heat exchanger side (port 3). Port 2 is closed
- c. For fine adjustment of the temperature, hold the nuts (5.5) with an open-end spanner and turn the adjustable nut (5.5) by hand counterclockwise. As a result, the hot medium from port 2 is mixed again
- d. For temperature control valves with multiple control elements adjust half of the elements as described in b.
- e. To return to normal operation, the adjustable nut (5.5) must be turned counterclockwise in direction of the nuts (5.7). The function of the manual override is invalid, when a gap between adjustable screw (10) and nuts (5.7) of 1mm occurs and no noticeable resistance is observed when turning the adjustable nut

Condition for the normal operation is an operational control element