

# TA-Modulator



## **Combined control & balancing valves**

Pressure independent balancing and control valve for modulating control

# TA-Modulator

The new uniquely shaped EQM characteristics provide highly precise temperature control. The valve is compatible with linear, proportional or 3-point actuators. A built-in differential pressure controller provides high control authority, control stability and automatic limitation of design flow. Measurement of flow and available pressure enables system optimisation and diagnostics.

## Key features

- > **Precise temperature control**  
Provide uniquely shaped EQM characteristic for best modulating control.
- > **Precise control**  
Uniquely shaped EQM characteristic provides an up to 6 times larger operating stroke than linear valves.
- > **Quick hydronic balancing**  
Automatic flow limitation when actuator is fully open protects entire system against overflows.
- > **Easy troubleshooting**  
Flow and differential pressure measuring helps to reduce pump consumption and provides all necessary data for system diagnostics.



## Technical description

### Application:

Heating and cooling systems.

### Functions:

Control EQM: DN 15-150 normal flow  
Control LIN: DN 100-150 high flow  
Pre-setting (max. flow)  
Differential pressure control  
Measuring ( $\Delta H$ ,  $t$ ,  $q$ )  
Isolation (for use during system maintenance – see “Leakage rate”)

### Dimensions:

DN 15-150

### Pressure class:

DN 15-50: PN 16  
DN 65-150: PN 16, PN 25

### Differential pressure ( $\Delta pV$ ):

Max. differential pressure ( $\Delta pV_{max}$ ):  
DN 15-32: 600 kPa = 6 bar  
DN 15-25: 400 kPa = 4 bar\*  
DN 40-50: 400 kPa = 4 bar  
DN 65-150: 800 kPa = 8 bar  
Min. differential pressure ( $\Delta pV_{min}$ ):  
DN 15-20: 15 kPa = 0.15 bar  
DN 25-32: 23 kPa = 0.23 bar  
DN 40-150: 30 kPa = 0.30 bar  
DN 100-125 HF: 55 kPa = 0.55 bar  
DN 150 HF: 60 kPa = 0.60 bar  
(Valid for maximum setting, fully open.  
Other settings will require lower differential pressure, check with the software HySelect.)  
 $\Delta pV_{max}$  = The maximum allowed pressure drop over the valve to fulfill all stated performances.  
 $\Delta pV_{min}$  = The minimum recommended pressure drop over the valve, for proper differential pressure control.  
\*) With  $\Delta p$  insert in PPS.  
HF = High flow

### Flow range:

The flow ( $q_{max}$ ) can be set within the range:  
DN 15: 92 - 480 l/h  
DN 20: 200 - 975 l/h  
DN 25: 340 - 1750 l/h  
DN 32: 720 - 3600 l/h  
DN 40: 1000 - 6500 l/h  
DN 50: 2150 - 11200 l/h  
DN 65: 4150 - 24100 l/h  
DN 80: 5850 - 37300 l/h  
DN 100: 11700 - 51700 l/h  
DN 100 HF: 18000 - 75900 l/h  
DN 125: 15000 - 77300 l/h  
DN 125 HF: 23300 - 127000 l/h  
DN 150: 26100 - 126000 l/h  
DN 150 HF: 38800 - 190000 l/h  
 $q_{max}$  = l/h at each setting and fully open valve plug.  
HF = High flow

### Temperature:

DN 15-32, DN 65-150:  
Max. working temperature: 120°C  
Min. working temperature: -20°C  
DN 15-25 with  $\Delta p$  insert in PPS,  
DN 40-50:  
Max. working temperature: 90°C  
Min. working temperature: -10°C

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**Media:**

Water or neutral fluids, water-glycol mixtures (0-57%).  
(For other media contact IMI Hydronic Engineering.)

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**Lift:**

DN 15-20: 4 mm  
DN 25-32: 6,5 mm  
DN 40-50: 15 mm  
DN 65-125: 20 mm  
DN 150: 30 mm

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**Rangeability:**

DN 15-32: >75  
DN 40-80: >125  
DN 100-150: >150  
DN 100-150 HF: >125

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**Leakage rate:**

Leakage flow  $\leq 0.01\%$  of max.  $q_{max}$  (max. setting) and correct flow direction. (Class IV according to EN 60534-4).

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**Characteristics:**

Uniquely shaped EQM, best suited for modulating control.  
DN 100-150 HF: Linear.

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**Material:**

*DN 15-32:*

Valve body: AMETAL®  
Valve insert: AMETAL® and PPS  
Valve plug: Brass CW724R (CuZn21Si3P)  
Spindle: Stainless steel  
Spindle seal: EPDM O-ring  
 $\Delta p$  insert: PPS and AMETAL® or PPS  
Membrane: EPDM  
Springs: Stainless steel  
O-rings: EPDM

*DN 40-50:*

Valve body: AMETAL®  
Valve insert: AMETAL®  
Valve plug: AMETAL® and PTFE  
Spindle: Stainless steel  
Spindle seal: EPDM O-ring  
 $\Delta p$  insert: PPS  
Membrane: EPDM  
Springs: Stainless steel  
O-rings: EPDM

*DN 65-150:*

Valve body: Ductile iron EN-GJS-400  
Valve insert: Ductile iron EN-GJS-400 and brass  
Valve plug: Stainless steel and EPDM O-ring  
Valve seat: Stainless steel  
Spindle: Stainless steel  
Spindle seal: EPDM  
 $\Delta p$  insert: Ductile iron EN-GJS-400, stainless steel and brass.  
Membrane: Reinforced EPDM  
Springs: Stainless steel  
O-rings: EPDM

AMETAL® is the dezincification resistant alloy of IMI Hydronic Engineering.

**Surface treatment:**

DN 32-50: Non treated  
DN 65-150: Electrophoretic painting

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**Marking:**

Black identification ring on measuring point: TA-Modulator and DN.  
DN 15-32: TA, IMI, PN, DN and flow direction arrow. Grey setting wheel.  
DN 40-50: IMI TA, PN, DN, inch size, country of origin and flow direction arrow. Orange setting wheel.  
DN 65-150: IMI TA, DN, inch size, material and flow direction arrow. Label with technical specification, country of origin and CE. Orange setting wheel.

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**Connection:**

DN 15-50: Male thread according to ISO 228.  
DN 65-150: Flanges according to EN-1092-2, type 21. Face to face length according to EN 558, series 1.

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**Connection to actuator:**

DN 15-32: M30x1.5, push  
DN 40-50: M30x1.5, push/pull  
DN 65-150: 2xM8, push/pull

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**Actuators:**

DN 15-20:  
TA-Slider 160, EMO TM, EMO 3.  
DN 25-32:  
TA-Slider 160, TA-MC50-C\*.  
DN 40-50:  
TA-Slider 500, TA-Slider 750\*.  
DN 65-125:  
TA-Slider 750, TA-MC100 FSE/FSR (fail-safe).  
DN 100-125 HF:  
TA-Slider 750  $\Delta pV \leq 4$  bar, TA-Slider 1250  $\Delta pV \leq 8$  bar,  
TA-MC100 FSE/FSR (fail-safe).  
DN 150/DN 150 HF:  
TA-MC160\*\*, TA-MC253 SE\* (fail-safe).

\*) Adapter to be ordered separately, see "Adapters for actuators".

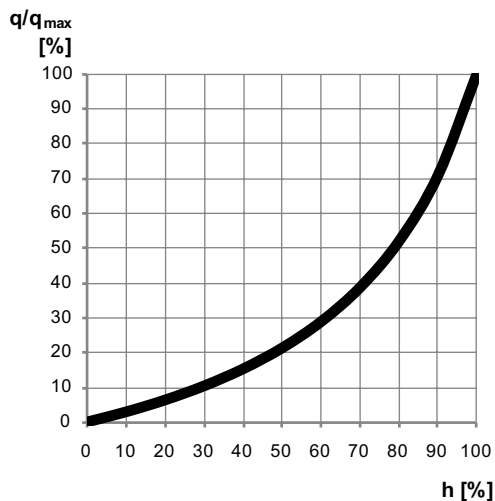
\*\*) Adapter delivered with the valve.

For more details on actuators, see separate technical leaflets.

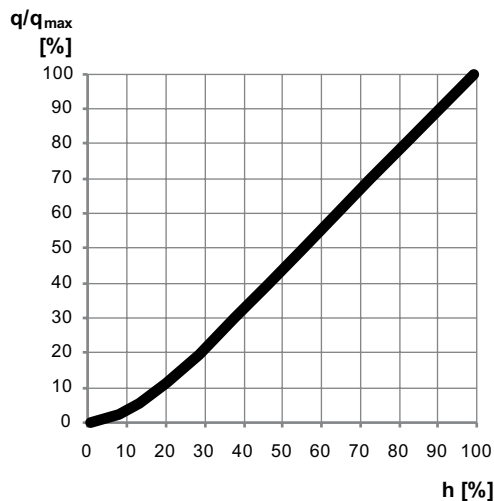
## Valve characteristics

### Nominal valve characteristic for all settings

EQM



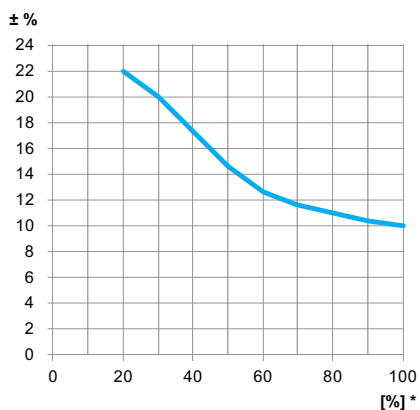
LIN



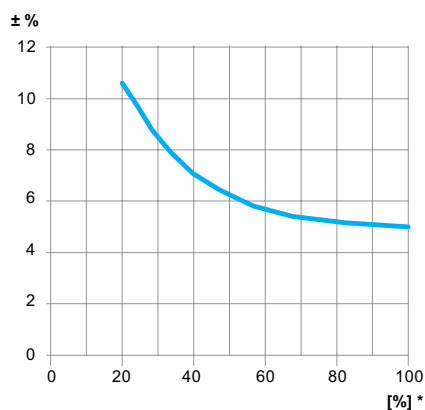
## Measuring accuracy

### Maximum flow deviation at different settings

DN 15-32 (1/2"-1 1/4")



DN 40-150 (1 1/2"-6")



\*) Setting (%) of fully open valve.

## Correction factors

The flow calculations are valid for water (+20°C). For other liquids with approximately the same viscosity as water ( $\leq 20$  cSt =  $3^\circ E=100S.U.$ ), it is only necessary to compensate for the specific density. However, at low temperatures, the viscosity increases and laminar flow may occur in the valves. This causes a flow deviation that increases with small valves, low settings and low differential pressures. Correction for this deviation can be made with the software HySelect or directly in our balancing instruments.

## Noise

In order to avoid noise in the installation, the valve must be correctly installed and the water de-aerated.

## Actuators

TA-Modulator is developed to work together with recommended actuators according to table.  
See separate catalogue leaflets for more details about the actuators.

Push actuators of other brands require;

### Working range

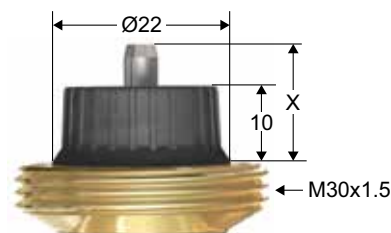
DN 15-20: X (closed - fully open) = 11.6 - 15.85

DN 25-32: X (closed - fully open) = 10.1 - 16.85

### Closing force

DN 15-20: Min. 125 N (max. 500 N)

DN 25-32: Min. 190 N (max. 500 N)



IMI Hydronic Engineering will not be held responsible for the control function if other brands of actuator are used.

### Maximum recommended pressure drop ( $\Delta pV$ ) for valve and actuator combination

The maximum recommended pressure drop over a valve and actuator combination for close off ( $\Delta pV_{close}$ ) and to fulfill all stated performances ( $\Delta pV_{max}$ ).

| DN                   | EMO TM  | EMO 3   | TA-Slider<br>160 | TA-MC50-C | TA-Slider<br>500 | TA-Slider<br>750 | TA-Slider<br>1250 | TA-MC160 | TA-MC100<br>FSE/FSR | TA-MC253<br>SE |
|----------------------|---------|---------|------------------|-----------|------------------|------------------|-------------------|----------|---------------------|----------------|
|                      | [kPa]   |         |                  |           |                  |                  |                   |          |                     |                |
| 15                   | 400/600 | 400/600 | 400/600          | -         | -                | -                | -                 | -        | -                   | -              |
| 20                   | 400/600 | 400/600 | 400/600          | -         | -                | -                | -                 | -        | -                   | -              |
| 25                   | -       | -       | 400/600          | 400/600   | -                | -                | -                 | -        | -                   | -              |
| 32                   | -       | -       | 600              | 600       | -                | -                | -                 | -        | -                   | -              |
| 40                   | -       | -       | -                | -         | 400              | 400              | -                 | -        | -                   | -              |
| 50                   | -       | -       | -                | -         | 400              | 400              | -                 | -        | -                   | -              |
| 65                   | -       | -       | -                | -         | -                | 800              | -                 | -        | 800                 | -              |
| 80                   | -       | -       | -                | -         | -                | 800              | -                 | -        | 800                 | -              |
| 100 NF               | -       | -       | -                | -         | -                | 800              | -                 | -        | 800                 | -              |
| 100 HF               | -       | -       | -                | -         | -                | 400              | 800               | -        | 800                 | -              |
| 125 NF               | -       | -       | -                | -         | -                | 800              | -                 | -        | 800                 | -              |
| 125 HF               | -       | -       | -                | -         | -                | 400              | 800               | -        | 800                 | -              |
| 150<br>NF/HF         | -       | -       | -                | -         | -                | -                | -                 | 800      | -                   | 800            |
| <b>Closing force</b> | 125 N   | 150 N   | 190 N            | 500 N     | 500 N            | 750 N            | 1250 N            | 1600 N   | 1000 N              | 2500 N         |

$\Delta pV_{close}$  = The maximum pressure drop that the valve can close against from an opened position, with a specified force (actuator) without exceeding stated leakage rate.

$\Delta pV_{max}$  = The maximum allowed pressure drop over the valve to fulfill all stated performances.

HF = High flow

## Sizing

1. Choose the smallest valve size that can obtain the design flow with some safety margin, see " $q_{max}$  values". The setting should be as open as possible.
2. Check that the available  $\Delta pV$  is within the working range according to the valve size and variant.

**q<sub>max</sub> values**

|              | Position |     |      |      |      |      |      |      |      |      |
|--------------|----------|-----|------|------|------|------|------|------|------|------|
|              | 1        | 2   | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| <b>DN 15</b> | 92       | 114 | 140  | 170  | 210  | 265  | 325  | 390  | 445  | 480  |
| <b>DN 20</b> | 200      | 260 | 360  | 460  | 565  | 670  | 770  | 850  | 920  | 975  |
| <b>DN 25</b> | 340      | 440 | 600  | 810  | 1010 | 1200 | 1350 | 1520 | 1640 | 1750 |
| <b>DN 32</b> | 720      | 960 | 1350 | 1750 | 2150 | 2530 | 2850 | 3130 | 3380 | 3600 |

|              | Position |      |      |      |      |      |      |      |      |      |      |       |       |
|--------------|----------|------|------|------|------|------|------|------|------|------|------|-------|-------|
|              | 0.8      | 0.9  | 1.0  | 1.1  | 1.2  | 1.3  | 1.4  | 1.5  | 1.6  | 1.7  | 1.8  | 1.9   | 2.0   |
| <b>DN 40</b> | 1000     | 1240 | 1530 | 1840 | 2200 | 2570 | 3020 | 3450 | 3960 | 4550 | 5200 | 5800  | 6500  |
| <b>DN 50</b> | 2150     | 2640 | 3220 | 3790 | 4430 | 5150 | 5990 | 6870 | 7800 | 8790 | 9740 | 10600 | 11200 |

|               | Position |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|               | 2.00     | 2.25  | 2.50  | 2.75  | 3.00  | 3.25  | 3.50  | 3.75  | 4.00  | 4.25  | 4.50  | 4.75  | 5.00  |
| <b>DN 65</b>  | -        | -     | 4150  | 5100  | 6230  | 7700  | 9450  | 11500 | 13500 | 16100 | 19000 | 21800 | 24100 |
| <b>DN 80</b>  | -        | -     | 5850  | 7300  | 9180  | 12200 | 15500 | 19100 | 22800 | 26300 | 30000 | 33600 | 37300 |
| <b>DN 100</b> | 11700    | 14100 | 16800 | 19700 | 22900 | 26400 | 30200 | 34200 | 38300 | 42400 | 46300 | 49500 | 51700 |
| <b>DN 125</b> | 15000    | 18800 | 22800 | 27400 | 32100 | 37100 | 42400 | 47700 | 53400 | 59100 | 64700 | 71000 | 77300 |

|                  | Position |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |
|------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
|                  | 1.25     | 1.50  | 1.75  | 2.00  | 2.25  | 2.50  | 2.75  | 3.00  | 3.25  | 3.50  | 3.75  | 4.00  | 4.25   | 4.50   | 4.75   | 5.00   |
| <b>DN 100 HF</b> | 18000    | 22600 | 27000 | 31200 | 35300 | 39300 | 43400 | 47500 | 51600 | 55700 | 59700 | 63600 | 67300  | 70700  | 73600  | 75900  |
| <b>DN 125 HF</b> | 23300    | 30000 | 36500 | 43200 | 49600 | 55800 | 62700 | 69700 | 76500 | 83500 | 90900 | 98900 | 105000 | 112000 | 119000 | 127000 |

|                  | Position |        |        |        |        |        |        |        |        |        |
|------------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                  | 2.5      | 3.0    | 3.5    | 4.0    | 4.5    | 5.0    | 5.5    | 6.0    | 6.5    | 7.0    |
| <b>DN 150</b>    | -        | -      | -      | -      | -      | 26100  | 30900  | 36100  | 41500  | 48400  |
| <b>DN 150 HF</b> | 38800    | 47400  | 54500  | 62500  | 70700  | 78700  | 86400  | 94000  | 102000 | 109000 |
|                  | Position |        |        |        |        |        |        |        |        |        |
|                  | 7.5      | 8.0    | 8.5    | 9.0    | 9.5    | 10.0   | 10.5   | 11.0   | 11.5   | 12.0   |
| <b>DN 150</b>    | 54300    | 61700  | 69300  | 76500  | 86000  | 95000  | 103000 | 112000 | 120000 | 126000 |
| <b>DN 150 HF</b> | 117000   | 123000 | 131000 | 139000 | 146000 | 154000 | 162000 | 171000 | 179000 | 190000 |

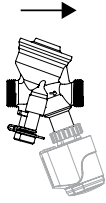
q<sub>max</sub> = l/h at each setting and fully open valve plug.

HF = High flow

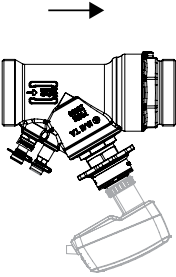
## Installation

### Flow direction

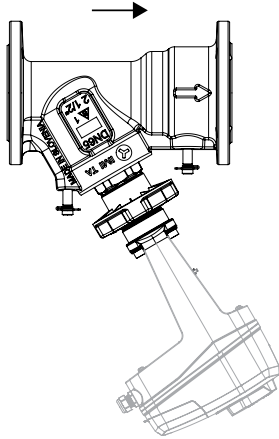
DN 15-32



DN 40-50

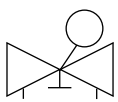


DN 65-150

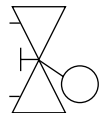


### Ingress protection

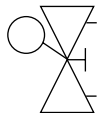
EMO TM / TA-Slider 160 / TA-Slider 500 / TA-Slider 750 / TA-Slider 1250 / TA-MC160 / TA-MC253 SE



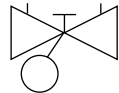
IP54



IP54

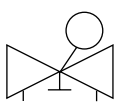


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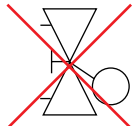


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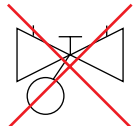
EMO 3



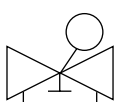
IP42



IP42



TA-MC50-C



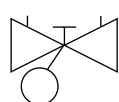
IP40



IP40

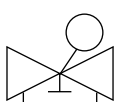


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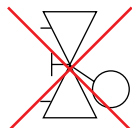


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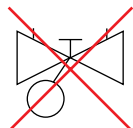
TA-MC100 FSE/FSR



IP54



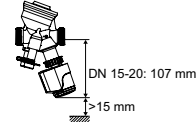
IP54



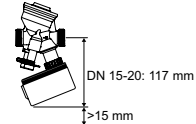
### Installation of actuator

**Note:** Free space is required above the actuator for easy mounting/dismounting.

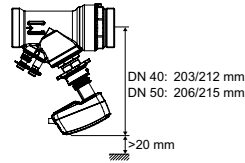
EMO TM



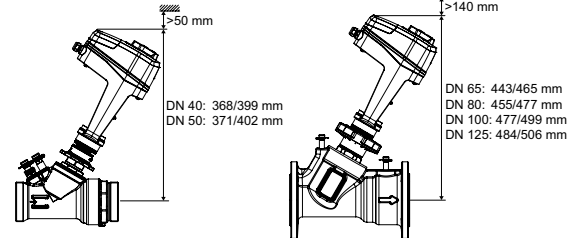
EMO 3



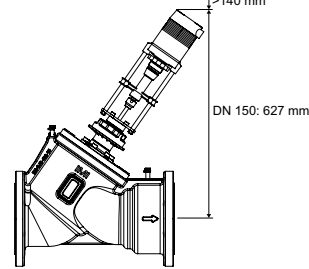
TA-Slider 500/TA-Slider 500 Plus



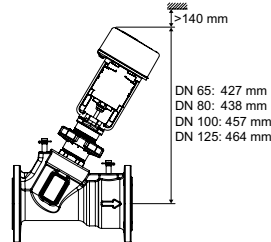
TA-Slider 750/1250 / TA-Slider 750/1250 Plus



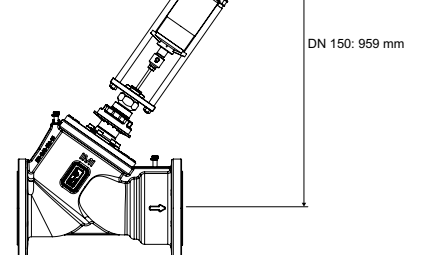
TA-MC160



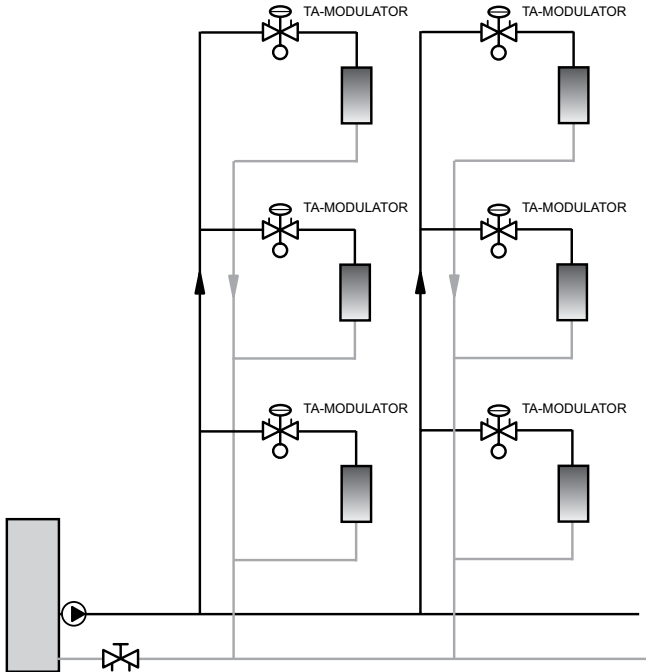
TA-MC100 FSE/FSR



TA-MC253 SE

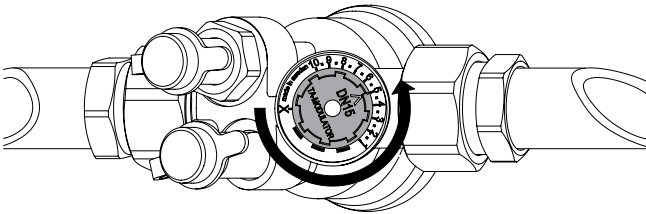


## Application example



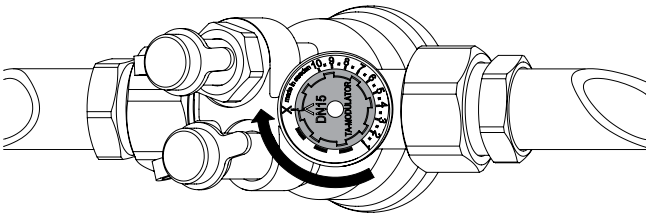
## Operating function DN 15-32

### Setting



1. Remove the installed actuator.
2. Turn the setting wheel to desired value, e.g. 5.0.

### Isolation

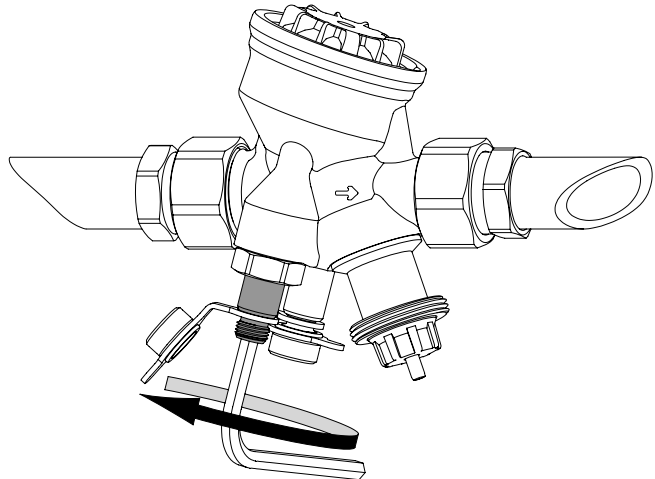


1. Remove the installed actuator.
2. Turn the setting wheel clockwise to X.

### Measuring q

1. Remove the installed actuator.
2. Connect the TA balancing instrument to the measuring points.
3. Input the valve type, size and setting and the actual flow is displayed.

### Measuring $\Delta H$



1. Remove the installed actuator.
2. Close the valve according to "Isolation".
3. Bypass the  $\Delta p$ -part by opening the  $\Delta H$  spindle (red measuring point) ~1 turn **anticlockwise**, with a 5 mm Allen key.
4. Connect the TA balancing instrument to the measuring points and measure.

**Important!** After the measurement is completed;

5. Close the  $\Delta H$  spindle (red measuring point) **clockwise** to stop.

6. Reopen the valve to previous setting.

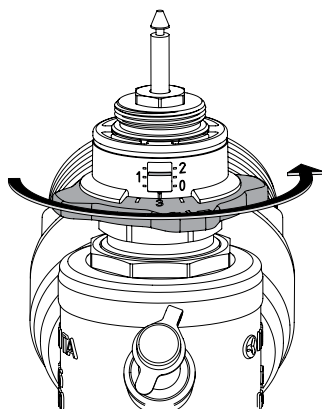
### Measuring temperature

For temperature measurement the **red** measuring point is recommended.



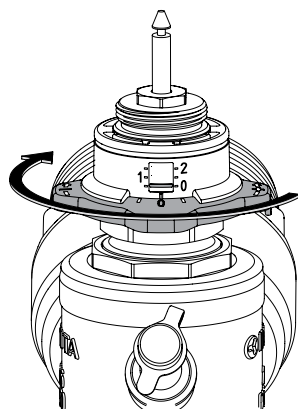
## Operating function DN 40-50

### Setting



1. Remove the installed actuator.
2. Turn the setting wheel to desired value, e.g. 1.3.

### Isolation

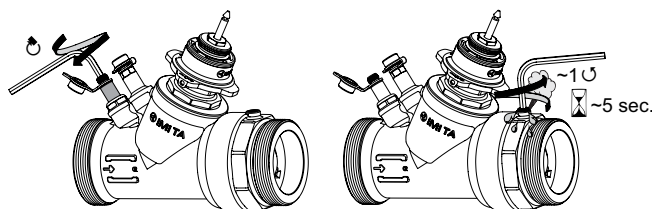


1. Remove the installed actuator.
2. Turn the setting wheel clockwise to stop (position  $0 \pm 0.3$ ).

### Measuring q

1. Remove the installed actuator.
2. Connect the TA balancing instrument to the measuring points.
3. Input the valve type, size and setting and the actual flow is displayed.

### Measuring $\Delta H$



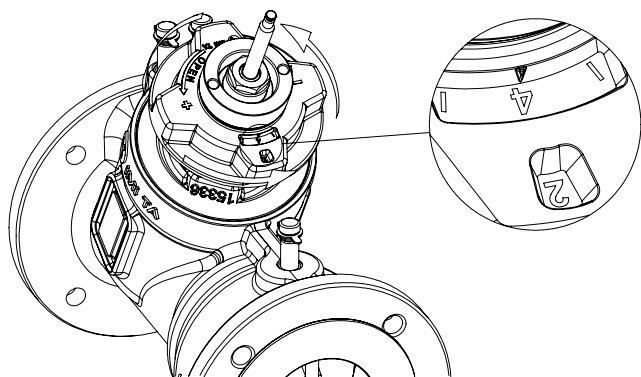
1. Remove the installed actuator.
  2. Close the valve according to "Isolation".
  3. Deactivate the  $\Delta p$ -part by closing the  $\Delta H$  spindle (red measuring point) **clockwise** to stop, with a 5 mm Allen key.
  4. Open the venting screw ~1 turn for 5 seconds and then close it (some water leakage can occur).
  5. Connect the TA balancing instrument to the measuring points and measure.
- Important!** After the measurement is completed;
6. Activate the  $\Delta p$ -part by opening the  $\Delta H$  spindle (red measuring point) **anticlockwise** to stop.
  7. Reopen the valve to previous setting.

### Measuring temperature

For temperature measurement the **red** measuring point is recommended.

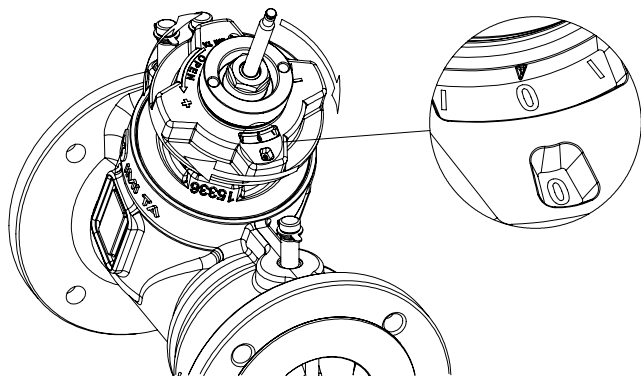
## Operating function DN 65-150

### Setting



1. Disengage the actuator from the valve spindle.
2. Turn the setting wheel to desired value, e.g. 2.4.

### Isolation

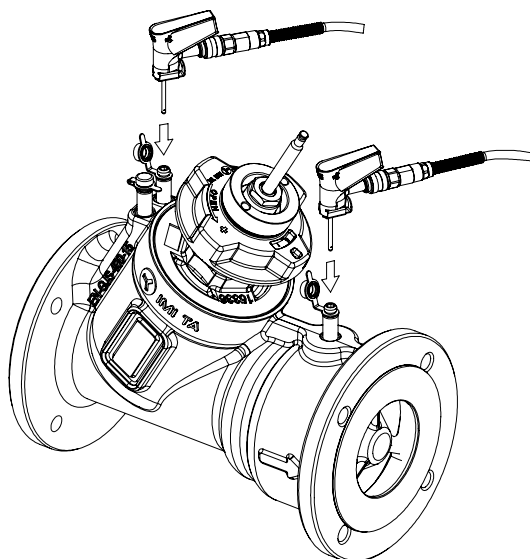


1. Disengage the actuator from the valve spindle.
2. Turn the setting wheel clockwise to stop (position  $0 \pm 0.5$ ).

### Measuring q

1. Disengage the actuator from the valve spindle.
2. Connect the TA balancing instrument to the **red** and **blue** measuring points.
3. Input the valve type, size and setting and the actual flow is displayed.

### Measuring $\Delta H$

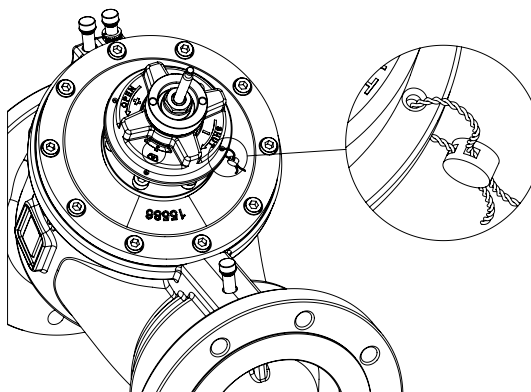


1. Disengage the actuator from the valve spindle.
  2. Close the valve according to "Isolation".
  3. Connect the TA balancing instrument to the **red** and **black** measuring points and measure.
- Important!** After the measurement is completed;
4. Reopen the valve to previous setting

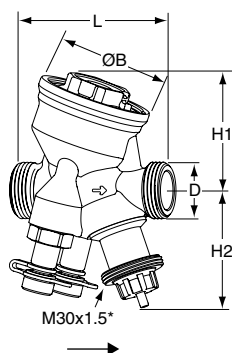
### Measuring temperature

For temperature measurement the **black** measuring point is recommended.

### Secure the setting position (optionally)



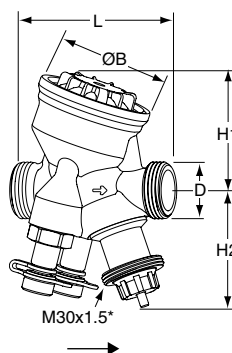
## Articles



### DN 15-32 – Temperature -20 – +120°C, ΔpV max. 600 kPa

Male threads according to ISO 228.

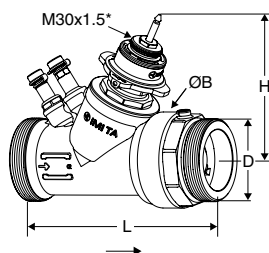
| DN | D      | L   | H1 | H2 | B  | q <sub>max</sub><br>[l/h] | Kg   | EAN           | Article No |
|----|--------|-----|----|----|----|---------------------------|------|---------------|------------|
| 15 | G3/4   | 74  | 55 | 55 | 54 | 480                       | 0,60 | 7318794033405 | 52 164-415 |
| 20 | G1     | 85  | 64 | 55 | 64 | 975                       | 0,75 | 7318794033504 | 52 164-420 |
| 25 | G1 1/4 | 93  | 64 | 67 | 64 | 1750                      | 0,90 | 7318794033603 | 52 164-425 |
| 32 | G1 1/2 | 117 | 78 | 70 | 78 | 3600                      | 1,5  | 7318794027305 | 52 164-332 |



### DN 15-25 – Temperature -10 – +90°C, ΔpV max. 400 kPa

Male threads according to ISO 228.

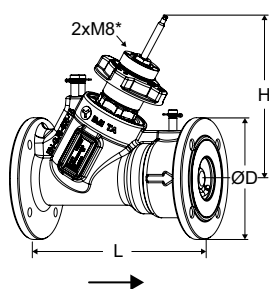
| DN | D      | L  | H1 | H2 | B  | q <sub>max</sub><br>[l/h] | Kg   | EAN           | Article No |
|----|--------|----|----|----|----|---------------------------|------|---------------|------------|
| 15 | G3/4   | 74 | 55 | 55 | 54 | 480                       | 0,54 | 7318794027008 | 52 164-315 |
| 20 | G1     | 85 | 64 | 55 | 64 | 975                       | 0,69 | 7318794027107 | 52 164-320 |
| 25 | G1 1/4 | 93 | 64 | 67 | 64 | 1750                      | 0,79 | 7318794027206 | 52 164-325 |



### DN 40-50 – Temperature -10 – +90°C, ΔpV max. 400 kPa

Male threads according to ISO 228.

| DN | D      | L   | H   | B  | q <sub>max</sub><br>[l/h] | Kg  | EAN           | Article No |
|----|--------|-----|-----|----|---------------------------|-----|---------------|------------|
| 40 | G2     | 187 | 132 | 88 | 6500                      | 3,5 | 7318794030602 | 52 164-340 |
| 50 | G2 1/2 | 196 | 135 | 88 | 11200                     | 3,9 | 7318794030701 | 52 164-350 |



### DN 65-150 – Temperature -20 – +120°C, ΔpV max. 800 kPa

Flanges according to EN-1092-2, type 21.

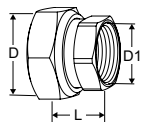
| DN           | Number of bolt holes | D   | L   | H   | q <sub>max</sub><br>[m <sup>3</sup> /h] | Kg | EAN           | Article No   |
|--------------|----------------------|-----|-----|-----|---|----|---------------|--------------|
| <b>PN 16</b> |                      |     |     |     |   |    |               |              |
| 65           | 4                    | 185 | 290 | 249 | 24,1                                    | 18 | 3831112533271 | 322021-11001 |
| 80           | 8                    | 200 | 310 | 260 | 37,3                                    | 22 | 3831112533318 | 322021-11101 |
| 100          | 8                    | 220 | 350 | 280 | 51,7                                    | 33 | 3831112535527 | 322021-11200 |
| 100 HF       | 8                    | 220 | 350 | 280 | 75,9                                    | 33 | 3831112535565 | 322021-11203 |
| 125          | 8                    | 250 | 400 | 287 | 77,3                                    | 45 | 3831112535602 | 322021-11300 |
| 125 HF       | 8                    | 250 | 400 | 287 | 127                                     | 45 | 3831112535640 | 322021-11303 |
| 150          | 8                    | 285 | 480 | 357 | 126                                     | 75 | 3831112535701 | 322021-11400 |
| 150 HF       | 8                    | 285 | 480 | 357 | 190                                     | 75 | 3831112535749 | 322021-11403 |
| <b>PN 25</b> |                      |     |     |     |   |    |               |              |
| 65           | 8                    | 185 | 290 | 249 | 24,1                                    | 18 | 3831112533288 | 322021-11002 |
| 80           | 8                    | 200 | 310 | 260 | 37,3                                    | 22 | 3831112533325 | 322021-11102 |
| 100          | 8                    | 235 | 350 | 280 | 51,7                                    | 34 | 3831112535534 | 322021-11201 |
| 100 HF       | 8                    | 235 | 350 | 280 | 75,9                                    | 34 | 3831112535572 | 322021-11204 |
| 125          | 8                    | 270 | 400 | 287 | 77,3                                    | 47 | 3831112535619 | 322021-11301 |
| 125 HF       | 8                    | 270 | 400 | 287 | 127                                     | 47 | 3831112535657 | 322021-11304 |
| 150          | 8                    | 300 | 480 | 357 | 126                                     | 77 | 3831112535718 | 322021-11401 |
| 150 HF       | 8                    | 300 | 480 | 357 | 190                                     | 77 | 3831112535756 | 322021-11404 |

HF = High flow

\*) Connection to actuator.

→ = Flow direction

## Connections

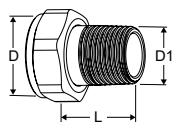


### With female thread

Threads according to ISO 228. Thread length according to ISO 7-1.

Swivelling nut  
Brass/AMETAL®

| Valve DN | D      | D1     | L* | EAN           | Article No |
|----------|--------|--------|----|---------------|------------|
| 15       | G3/4   | G1/2   | 21 | 7318794016903 | 52 163-015 |
| 20       | G1     | G3/4   | 23 | 7318794017009 | 52 163-020 |
| 25       | G1 1/4 | G1     | 23 | 7318794017108 | 52 163-025 |
| 32       | G1 1/2 | G1 1/4 | 31 | 7318794017207 | 52 163-032 |
| 40       | G2     | G1 1/2 | 30 | 7318794032705 | 52 163-040 |
| 50       | G2 1/2 | G2     | 32 | 7318794032804 | 52 163-050 |

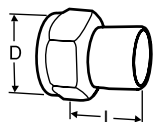


### With male thread

Threads according to ISO 7-1.

Swivelling nut  
Brass

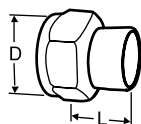
| Valve DN | D      | D1     | L*   | EAN           | Article No  |
|----------|--------|--------|------|---------------|-------------|
| 15       | G3/4   | R1/2   | 29   | 4024052516612 | 0601-02.350 |
| 20       | G1     | R3/4   | 32,5 | 4024052516810 | 0601-03.350 |
| 25       | G1 1/4 | R1     | 35   | 4024052517015 | 0601-04.350 |
| 32       | G1 1/2 | R1 1/4 | 38,5 | 4024052517213 | 0601-05.350 |



### Welding connection

Swivelling nut  
Brass/Steel 1.0045 (EN 10025-2)

| Valve DN | D      | Pipe DN | L* | EAN           | Article No |
|----------|--------|---------|----|---------------|------------|
| 15       | G3/4   | 15      | 36 | 7318792748509 | 52 009-015 |
| 20       | G1     | 20      | 40 | 7318792748608 | 52 009-020 |
| 25       | G1 1/4 | 25      | 40 | 7318792748707 | 52 009-025 |
| 32       | G1 1/2 | 32      | 40 | 7318792748806 | 52 009-032 |
| 40       | G2     | 40      | 45 | 7318792748905 | 52 009-040 |
| 50       | G2 1/2 | 50      | 50 | 7318792749001 | 52 009-050 |

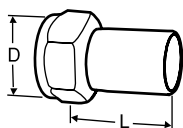


### Soldering connection

Swivelling nut  
Brass/gunmetal CC491K (EN 1982)

| Valve DN | D      | Pipe Ø | L* | EAN           | Article No |
|----------|--------|--------|----|---------------|------------|
| 15       | G3/4   | 15     | 13 | 7318792749308 | 52 009-515 |
| 15       | G3/4   | 16     | 13 | 7318792749407 | 52 009-516 |
| 20       | G1     | 18     | 15 | 7318792749506 | 52 009-518 |
| 20       | G1     | 22     | 18 | 7318792749605 | 52 009-522 |
| 25       | G1 1/4 | 28     | 21 | 7318792749704 | 52 009-528 |
| 32       | G1 1/2 | 35     | 26 | 7318792749803 | 52 009-535 |
| 40       | G2     | 42     | 30 | 7318792749902 | 52 009-542 |
| 50       | G2 1/2 | 54     | 35 | 7318792750007 | 52 009-554 |

\*) Fitting length (from the gasket surface to the end of the connection).



### Connection with smooth end

For connection with press coupling

Swivelling nut  
Brass/AMETAL®

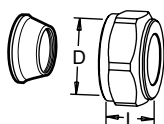
| Valve DN | D      | Pipe Ø | L* | EAN           | Article No |
|----------|--------|--------|----|---------------|------------|
| 15       | G3/4   | 15     | 39 | 7318793810601 | 52 009-315 |
| 20       | G1     | 18     | 44 | 7318793810700 | 52 009-318 |
| 20       | G1     | 22     | 48 | 7318793810809 | 52 009-322 |
| 25       | G1 1/4 | 28     | 53 | 7318793810908 | 52 009-328 |
| 32       | G1 1/2 | 35     | 59 | 7318793811004 | 52 009-335 |
| 40       | G2     | 42     | 70 | 7318793811103 | 52 009-342 |
| 50       | G2 1/2 | 54     | 80 | 7318793811202 | 52 009-354 |

### Compression connection

Support bushes shall be used, for more information see catalogue leaflet FPL.

Should not be used with PEX pipes.

Brass/AMETAL®  
Chrome plated



| Valve DN | D    | Pipe Ø | L** | EAN           | Article No |
|----------|------|--------|-----|---------------|------------|
| 15       | G3/4 | 15     | 27  | 7318793705006 | 53 319-615 |
| 15       | G3/4 | 18     | 27  | 7318793705105 | 53 319-618 |
| 15       | G3/4 | 22     | 27  | 7318793705204 | 53 319-622 |

\*) Fitting length (from the gasket surface to the end of the connection).

\*\*) Over all length L refers to unassembled coupling.

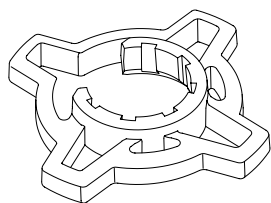
## Adapters for actuators

### Adapters

Adapters to other combinations of valve and recommended actuator are NOT needed.

| Actuator      | Valve DN | EAN           | Article No   |
|---------------|----------|---------------|--------------|
| TA-MC50-C     | 25-32    | 3831112533851 | 322042-10700 |
| TA-Slider 750 | 40-50    | 3831112533844 | 322042-80902 |
| TA-MC253 SE   | 150      | 3831112535787 | 322042-01400 |

## Accessories

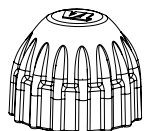


### Grip for setting wheel, optional

For better grip when presetting.

For TA-COMPACT-P/-DP and TA-Modulator (DN 15-32).

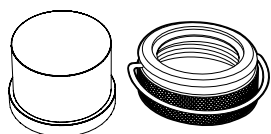
| Colour | EAN           | Article No |
|--------|---------------|------------|
| Orange | 7318794040502 | 52 164-950 |



### Protection cap

For TA-COMPACT-P/-DP, TA-Modulator (DN 15-20), TBV-C/-CM.

| Colour | EAN           | Article No |
|--------|---------------|------------|
| Red    | 7318793961105 | 52 143-100 |



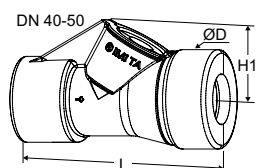
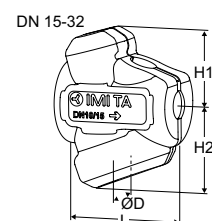
### Tamper proof cover

Set containing plastic cover and locking ring for valves with connection M30x1.5 to thermostatic head/actuator.

Prevents manipulation of setting.

Suitable for DN 15-32.

| Colour | EAN           | Article No |
|--------|---------------|------------|
| Black  | 7318794030206 | 52 164-100 |



### Insulation

For heating/comfort cooling.

Material: EPP.

Fire class:

DN 15-32: E (EN 13501-1), B2 (DIN 4102).

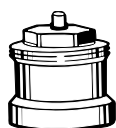
DN 40-50: F (EN 13501-1), B3 (DIN 4102).

| Valve DN | L   | H1  | H2 | D   | EAN           | Article No |
|----------|-----|-----|----|-----|---------------|------------|
| 15       | 100 | 61  | 71 | 84  | 7318794027404 | 52 164-901 |
| 20       | 118 | 67  | 79 | 90  | 7318794027503 | 52 164-902 |
| 25       | 127 | 71  | 84 | 104 | 7318794027602 | 52 164-903 |
| 32       | 154 | 85  | 99 | 124 | 7318794027701 | 52 164-904 |
| 40       | 277 | 105 | -  | 131 | 7318794030800 | 52 164-905 |
| 50       | 277 | 105 | -  | 131 | 7318794030909 | 52 164-906 |

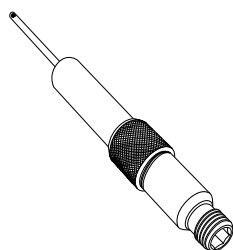
### Spindle extension for DN 15-20

Recommended together with the insulation to minimize the risk of condensation at the valve-actuator interface.

M30x1,5.



| L              | EAN           | Article No  |
|----------------|---------------|-------------|
| Plastic, black |               |             |
| 30             | 4024052165018 | 2002-30.700 |



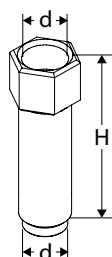
**Measuring point, extension 60 mm**

Can be installed without draining of the system.

AMETAL®/Stainless steel/EPDM

For all dimensions.

| L  | EAN           | Article No |
|----|---------------|------------|
| 60 | 7318792812804 | 52 179-006 |



**Venting extension**

Suitable when insulation is used.

Stainless steel/EPDM/Brass.

AMETAL®

| Valve DN | d     | H  | EAN           | Article No |
|----------|-------|----|---------------|------------|
| 40-50    | M10x1 | 32 | 7318794033702 | 52 164-301 |



**Venting plug**

Spare part.

AMETAL®

| Valve DN | EAN           | Article No |
|----------|---------------|------------|
| 40-50    | 7318794033801 | 52 164-302 |

