

Electric Control Valves/Controller with Electric Actuator with safety function, typetested Types 3213/5725, 3214/5725



Single-seated Globe Valve Type 3213, unbalanced Single-seated Globe Valve Type 3214, balanced

Application

Globe valves mounted on a controller with electric actuator with safety function to protect heating systems against exceeding certain temperature or pressure limits
DN 15 to DN 50 · PN 16 to PN 40 · Versions up to 220 °C



The control valves consist of either a single-seated, unbalanced Type 3213 Globe Valve or a single-seated, balanced Type 3214 Globe Valve together with a Type 5725 Controller with Electric Actuator with safety function.

The control valves can take on the task of a shut-off valve within safety interlock circuits triggered by the signal of a temperature or pressure limiting device or upon a power supply failure.

The control valves are typetested by the German technical inspectorate TÜV according to DIN 32730 and have been defined as shut-off and control devices.

Typetested versions

- With **Type 3213 Globe Valve**, unbalanced

| Electric control valves/controller with electric actuator | | |
|---|-------|-------------|
| Type 3213/5725 · Fig. 1 | PN 25 | DN 15 to 25 |
| | PN 16 | DN 32 to 50 |

- With **Type 3214 Globe Valve**, balanced

| Electric control valves/controller with electric actuator | | |
|---|-------------|-------------|
| Type 3214/5725 · Fig. 2 | PN 16 to 40 | DN 15 to 50 |

Register number

The Type 5725 Controller with Electric Actuator with safety function in conjunction with the listed valves are typetested according to DIN 32730 by the German technical inspectorate TÜV. The register number is available on request.

Also available:

- Type 3213 and Type 3214 Globe Valves mounted on a controller with electric actuator without safety function (refer to T 5768 EN)
- Type 3213 and Type 3214 Globe Valves with electric or pneumatic actuators (refer to T 5868 EN)

Typetested electric control valves:

- Type 3213 and Type 3214 Globe Valves mounted on controllers with electric actuators with safety function (refer to T 5869 EN)



Fig. 1 · Type 3213/5725



Fig. 2 · Type 3214/5725

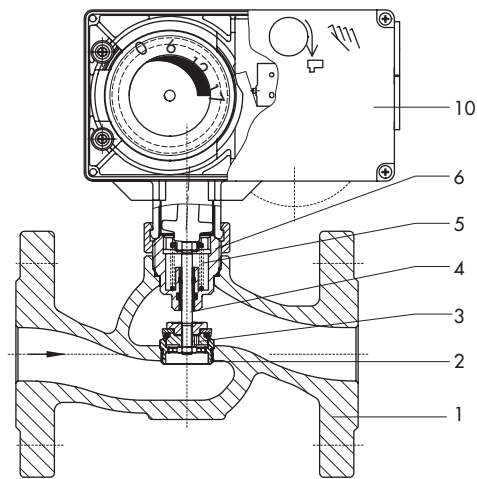
Principle of operation (Fig. 3)

A safety mechanism in the actuator is triggered when the voltage supply fails or the control signal is interrupted by the limitation equipment due to the temperature or pressure exceeding the adjusted limit. As a result, the valve is closed by the force of the compression springs in the actuator.

The medium flows through the single-seated globe valve in the direction indicated by the arrow. The position of the valve plug determines the cross-sectional area of flow released between the plug (3) and seat (2).

Type 3214 Valves are pressure-balanced. In this case, the pressure upstream of the plug is transferred over a hole in the plug stem (4) to the outside of the balancing bellows, whereas the pressure downstream of the plug acts on the inside of the bellows. In this way, the forces created by these pressures acting on the valve plug are eliminated. The Type 3214 Globe Valve can also be fitted with a Flow Divider St I. Refer to Data Sheet T 8081 for further details.

The electric actuator contains a digital controller integrated into the actuator. The controlled variable is recorded over the directly connected Pt 1000 sensor. The output signal of the digital controller acts as a three-point stepping signal on the synchronous motor of the actuator and is transferred over the connected gear as a positioning force onto the actuator stem.



- 1 Valve body
- 2 Seat
- 3 Plug
- 4 Plug stem
- 5 Valve spring
- 6 Guide nipple
- 10 Controller with electric actuator

Fig. 3 · Functional diagram of Type 3213/5725

Refer to Data Sheet for details

Type 5725 → Data Sheet T 5724 EN

Installation

Install the valve in the pipeline with the actuator in the upright position.

Other mounting positions on request.

Terms for control valve sizing according to DIN EN 60534, parts 2-1 and 2-2: $F_L = 0.95$; $x_T = 0.75$

Selection and sizing of the control valve

1. Calculate appropriate KV coefficient according to DIN EN 60534.
2. Select valve size and Kvs coefficient from Table 2.
3. Check permissible differential pressure from Table 2.
4. Check permissible temperature and select valve version from Table 1.
5. Select suitable controller with electric actuator from Table 3 and from the technical data (see T 5724 EN).
6. Select materials, pressure and temperature from Tables 1 and 2, from the data sheet of the controller with electric actuator as well as from the pressure-temperature diagram (Fig. 4).

Ordering text

Typetested electric control valve/Controller with electric actuator
Type 3213/5725 or Type 3214/5725

DN ..., PN ..., Kvs,

max. differential pressure Δp ... bar, max. temperature ... °C,

body material ...

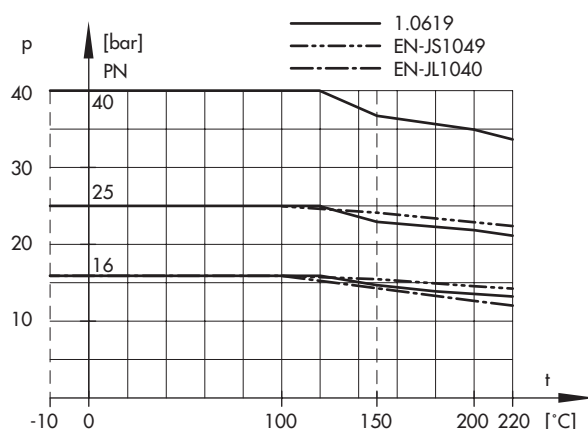


Fig. 4 · Pressure-temperature diagram

Table 1.1 · Technical data

| Type 3213 Globe Valve | | | | | | | |
|-----------------------------|----|---------------------------|----|----|------------|----|----|
| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 |
| Nominal pressure | | PN 25 | | | PN 16 | | |
| Perm. temperature (upright) | °C | 150 | | | 150 | | |
| Version for steam | °C | 200 | | | On request | | |
| Rated travel | mm | 6 | | | 12 | | |
| Rangeability | | 50 : 1 | | | | | |
| Leakage class | | Class I (< 0.05 % of Kvs) | | | | | |
| Type 3214 Globe Valve | | | | | | | |
| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 |
| Nominal pressure | | PN 16 to 40 | | | | | |
| Perm. temperature (upright) | °C | 150 ¹⁾ | | | | | |
| Rated travel | mm | 6 | | | 12 | | |
| Rangeability | | 50 : 1 | | | | | |
| Leakage class | | Class I (< 0.05 % of Kvs) | | | | | |

1) Version with intermediate insulating piece: 220 °C

Table 1.2 · Materials · Material number acc. to DIN EN

| Type 3213 Globe Valve | | | |
|---|---|--|------------------|
| Nominal pressure | PN 16 | PN 25 | PN 40 |
| Valve body | EN-JL1040 (GG-25) | EN-JS1049 (GGG-40.3) | – |
| Seat | 1.4305 | 1.4305 | – |
| Plug | 1.4305 with metal sealing | Brass with EPDM soft sealing or FPM (FKM) seal | – |
| Special version | – | K _{VS} = 0.1 to 2.5: 1.4305 with metal sealing | – |
| Plug stem | 1.4305 | | – |
| Spring | 1.4310 | | – |
| Guide nipple | Brass with EPDM seal or FPM (FKM) seal | | – |
| Intermediate insulating piece (version for steam) | 1.4571 | | – |
| Type 3214 Globe Valve | | | |
| Nominal pressure | PN 16 | PN 25 | PN 40 |
| Valve body | EN-JL1040 (GG-25) | EN-JS1049 (GGG-40.3) or 1.0619 (GS-C 25) | 1.0619 (GS-C 25) |
| Special version | EN-JS1049 or 1.0619 | – | – |
| Seat and plug | CrNi steel · Special version with EPDM soft sealing | | |
| Plug stem | 1.4301 | | |
| Spring | – | | |
| Bellows housing | 1.0425 | | |
| Balancing bellows | 1.4571 | | |
| Guide nipple | Brass with EPDM seal or FPM (FKM) seal | | |
| Intermediate insulating piece | 1.4305 with EPDM seal or FPM (FKM) seal | | |

Table 2 · Overview: Nominal sizes, K_{V5} coefficients and maximum differential pressures

| Type 3213 Globe Valve | | | | | | | |
|-------------------------------|-----|---|---------|---------------|-----|--------|-------------|
| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 |
| Rated travel | mm | 6 | | | 12 | | |
| K _{V5} | | 4 | 6.3 | 8 | 16 | 20 | 32 |
| Maximum differential pressure | bar | 10 | 10 | 10 | 2.9 | 2.9 | 1.6 |
| Special version | | | | | | | |
| K _{V5} | | 0.1 · 0.16 · 0.25 · 0.4 · 0.63 · 1.0 · 1.6 | 2.5 | 2.5 | – | | 40 |
| Maximum differential pressure | bar | 20 | 10 | 10 | – | | 1 |
| Type 3214 Globe Valve | | | | | | | |
| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 |
| Rated travel | mm | 6 | | | 12 | | |
| K _{V5} | | 4 | 6.3 | 8 | 16 | 20 | 32 |
| Reduced K _{V5} | | 2.5 | 2.5 · 4 | 2.5 · 4 · 6.3 | 8 | 8 · 16 | 8 · 16 · 20 |
| Maximum differential pressure | bar | 25 | | | | | |

Table 3 · Possible combinations for Type 3213 and Type 3214 Globe Valves/controllers with electric actuators

| Type | Refer to Data Sheet for details | Nominal size DN | | | | | |
|-----------------------|------------------------------------|-----------------|----|----|----|----|----|
| | | 15 | 20 | 25 | 32 | 40 | 50 |
| Type 3213 Globe Valve | | | | | | | |
| 5725-10 | T 5724 EN | • | • | • | – | – | – |
| 5725-13 | | • | • | • | – | – | – |
| 5725-20 | | – | – | – | • | • | • |
| 5725-23 | | – | – | – | • | • | • |
| Type 3214 Globe Valve | | | | | | | |
| 5725-10 | T 5724 EN | • | • | • | – | – | – |
| 5725-13 | | • | • | • | – | – | – |
| 5725-20 | | – | – | – | • | • | • |
| 5725-23 | | – | – | – | • | • | • |

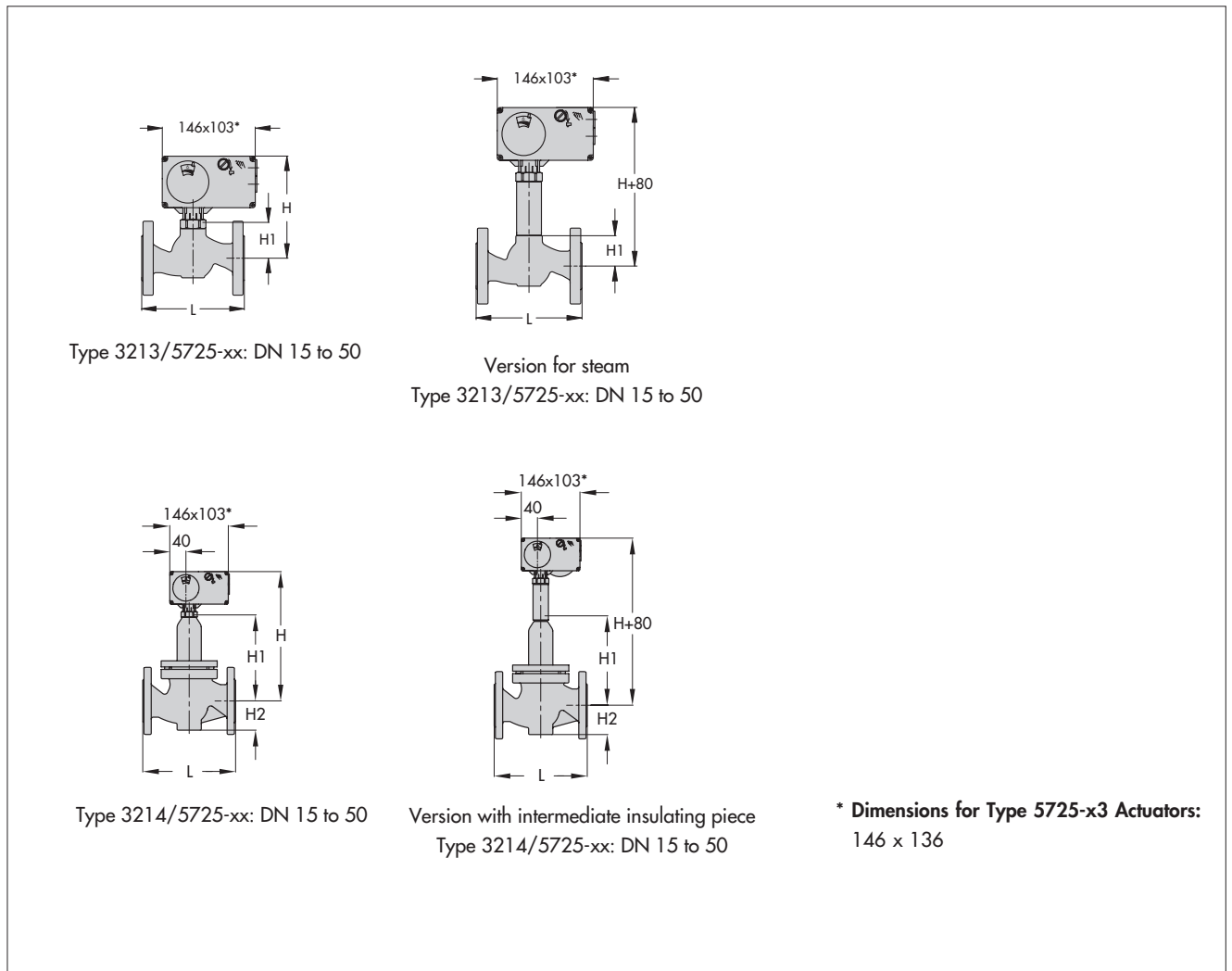
Table 4 · Dimensions and weights

| Type 3213 Globe Valve | | | | | | | | |
|-----------------------|---------|----|-----|-----|-----|------|------|------|
| Nominal size | DN | | 15 | 20 | 25 | 32 | 40 | 50 |
| Length | L | mm | 130 | 150 | 160 | 180 | 200 | 230 |
| Height | H1 | mm | 60 | 60 | 60 | 125 | 125 | 125 |
| Height | H | mm | 190 | 190 | 190 | 255 | 255 | 255 |
| Weight ¹⁾ | Approx. | kg | 3.6 | 4.2 | 4.6 | 13.0 | 15.0 | 17.0 |
| Type 3214 Globe Valve | | | | | | | | |
| Nominal size | DN | | 15 | 20 | 25 | 32 | 40 | 50 |
| Length | L | mm | 130 | 150 | 160 | 180 | 200 | 230 |
| Height | H1 | mm | 225 | 225 | 225 | 225 | 225 | 225 |
| Height | H | mm | 350 | 350 | 350 | 350 | 350 | 350 |
| Height | H2 | mm | 55 | 55 | 55 | 72 | 72 | 72 |
| Weight ²⁾ | Approx. | kg | 7.5 | 8 | 9 | 15.5 | 16 | 18.5 |

1) Add 0.3 kg for version for steam

2) Add 0.3 kg for version with intermediate insulating piece · Version for PN 25 and PN 40: +15 %

Dimensions in mm



Specification subject to change without notice.



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