

### Application

Linear actuators for attachment to final control elements, especially suitable for attachment to Series 240, 250, 280 and Type 3510 Micro-flow Valve as well as to butterfly valves.

**Effective diaphragm areas from 60 to 2800 cm<sup>2</sup>**

**Rated travel from 7.5 to 120 mm**

The Type 3271 Pneumatic Actuators are diaphragm actuators equipped with a rolling diaphragm and internal springs. Special features include:

- Low overall height,
- Powerful thrusts, high speeds of response,
- Low friction.

Various bench ranges can be adjusted by varying the number (3 to 24) and compression of the installed springs.

No special tools required to modify the bench range and reverse the actuator action (also for tandem actuators and version with handwheel).

Designed for supply pressures up to 6 bar and for continuous service at temperatures from -35 to +120 °C.

### Versions

**Type 3271 · Pneumatic Actuator** (Fig. 3), eff. diaphragm areas 80, 240, 350, 700, 1400 and 2800 cm<sup>2</sup>. Diaphragm cases made of plastic coated steel, for diaphragm area 2800 cm<sup>2</sup> of GGG-40 (Fig. 5).

**Type 3271-5 · Pneumatic Actuator** (Fig. 2), eff. diaphragm area 120 cm<sup>2</sup>. Diaphragm cases made of die-cast aluminum.

**Type 3271-52 · Pneumatic Actuator** (Fig. 1), effective diaphragm area 60 cm<sup>2</sup> especially designed for Type 3510 Micro-flow Control Valve (see T 8091 EN).

**Type 3271 · Stainless Steel Pneumatic Actuator** (Fig. 3), exterior parts made of stainless steel. Effective diaphragm areas 80, 240, 350 and 700 cm<sup>2</sup>.

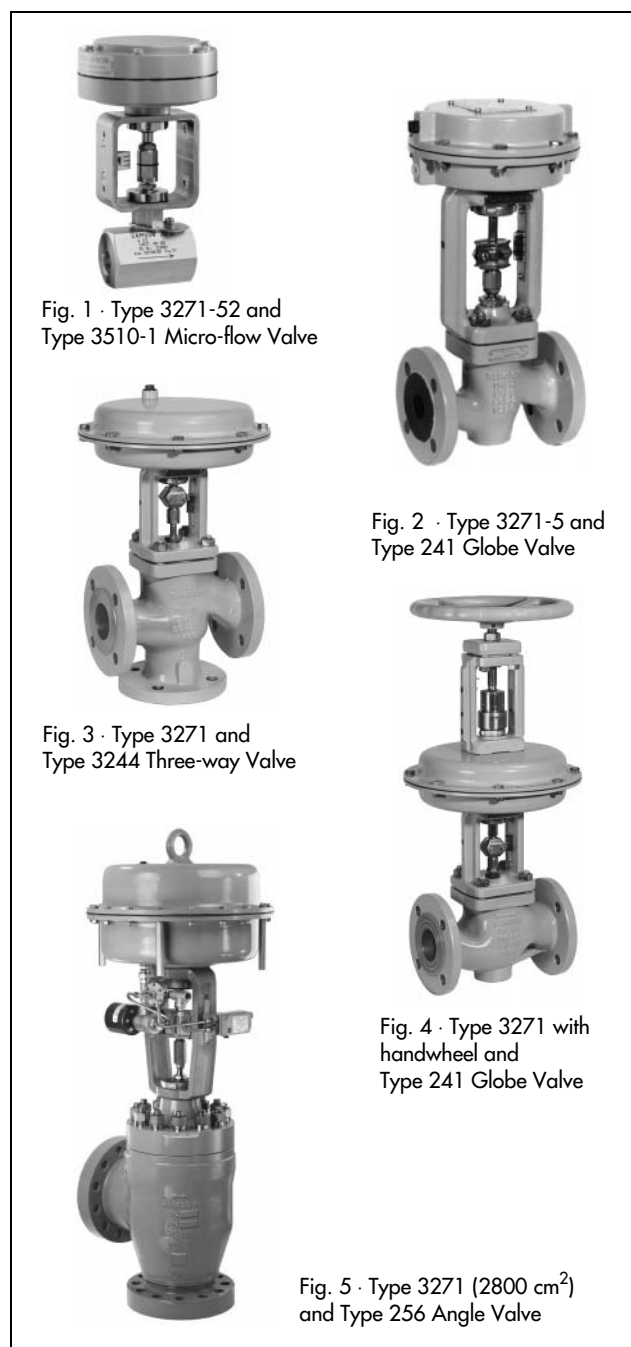
**Type 3271 · Pneumatic Actuator with handwheel.** Top-mounted handwheel for actuators with effective diaphragm areas 240 to 700 cm<sup>2</sup> (Fig. 4). Side-mounted handwheel for actuators with effective diaphragm areas 1400 or 2800 cm<sup>2</sup> (Figs. 11, 19, 20).

**Type 3271 · Pneumatic Tandem Actuator** (Fig. 8), effective diaphragm area 2 x 2800 cm<sup>2</sup>.

**Type 3271 · Pneumatic Actuator with mechanical travel stop** (Fig. 10) · Mechanically adjustable minimum or maximum travel for actuators with eff. diaphragm areas 240, 350, 700 or 1400 cm<sup>2</sup>.

**Type 3271 · Pneumatic Actuator in Fire-Lock version** (Fig. 13) · Fail-safe action in case of fire, effective diaphragm areas 240, 350 and 700 cm<sup>2</sup>.

**Versions for other control media** (e.g. water, oil or oxygen) are available. Details on request.



## Principle of operation

The signal pressure  $p_{st}$  exerts a force  $F = p_{st} \cdot A$  on the diaphragm area  $A$  (2). This force is balanced by the springs (4) installed in the actuator. The number of springs and their compression determine the bench range with consideration to the rated travel. The rated travel  $H$  is proportional to the signal pressure  $p_{st}$ . The operating direction of the actuator stem (7) depends on how the springs are arranged and where the signal pressure is connected.

The stem connector (8) connects the actuator stem (7) with the plug stem (V6) of the control valve or the reversing gear of another final control element. After the actuator has been properly attached to the final control element, additional compression (see Table 2) can be adjusted using the coupling nut (V 6.1).

Fig. 9 schematically illustrates the sectional view of an actuator with a **top-mounted handwheel**, suitable for actuators with effective diaphragm areas of 240 to 700 cm<sup>2</sup>. In standard operation, the actuator stems (7 and 12) are not coupled with the threaded spindle (10). The valve can be manually adjusted after the lock nut (11) has been loosened.

Fig. 11 shows the operating principle of the **side-mounted handwheel** for actuators with effective diaphragm areas from 1400 and 2800 cm<sup>2</sup> and a maximum travel of 60 mm. The handwheel (23) is fixed to the worm-gear shaft (20) and fastened by a notch. The actuator stem is adjusted via the worm-gear wheel (21) and the threaded bushing (22).

For valves with 120 mm travel and actuators with effective area of 2800 cm<sup>2</sup>, a side-mounted handwheel (Fig. 20) is available.

The mechanically adjustable **travel stop** (Fig. 10) is suitable for actuators with effective diaphragm areas 240 to 1400 cm<sup>2</sup>. Using this stop, the actuator travel can be limited by up to 50 % in both directions (actuator stem "extends" or "retracts") and permanently adjusted.

The **tandem actuator** (Fig. 8) contains two coupled diaphragms which produce a force twice as powerful as the force of the single-acting actuator (Fig. 6).

**Fire-Lock version** (Fig. 13): In the case of fire, the valve assumes its fail-safe position and is kept there by expansion cartridges installed in the actuator.

The actuators are available with the following **fail-safe positions**:

**Actuator stem "extends"**: Whenever the pressure acting on the diaphragm is reduced or the air supply fails, the spring force "extends" the actuator stem to its lower end position (shown on the right in the following sectional drawings).

**Actuator stem "retracts"**: Whenever the pressure acting on the diaphragm is reduced or the air supply fails, the spring force "retracts" the actuator stem (shown on the left in the following sectional drawings).

### Legend to Figs. 6 to 11

|    |   |      |                        |
|----|---|------|------------------------|
| 1  | Signal pressure connection                            | 14   | Cap                    |
| 2  | Diaphragm   | 15   | Nut                    |
| 3  | Vent  | 16   | Spindle                |
| 4  | Actuator springs                                      | 17   | Thrust bearing         |
| 5  | Diaphragm cases                                       | 18   | Lock nut               |
| 6  | Annular nut   | 20   | Worm-gear shaft        |
| 7  | Actuator stem   | 21   | Worm-gear wheel        |
| 8  | Stem connector (coupling) with travel indicator scale | 22   | Threaded bushing       |
| 10 | Handwheel with threaded spindle                       | 23   | Handwheel              |
| 11 | Lock nut  | V6   | Plug stem of the valve |
| 12 | Actuator stem for manual adjustment                   | V6.1 | Coupling and lock nut  |

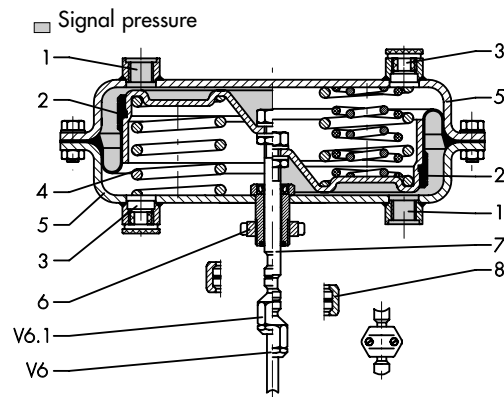


Fig. 6 · Sectional drawing of the Type 3271 Pneumatic Actuator (right half of diaphragm with additional springs)

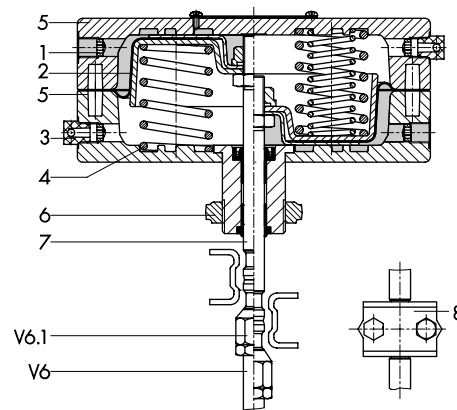


Fig. 7 · Sectional drawing of the Type 3271-5 Pneumatic Actuator (right half of diaphragm with additional springs)

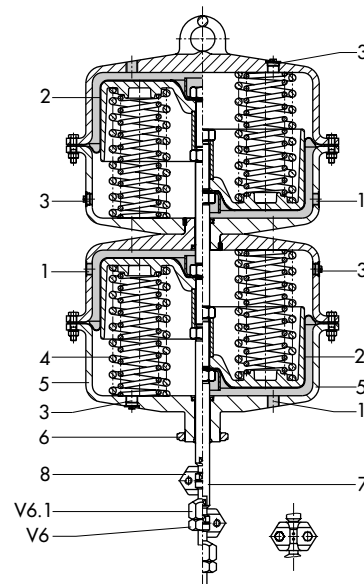


Fig. 8 · Sectional drawing of the tandem actuator

### Throttling or flow-switching service

The Type 3271 Pneumatic Actuators are designed for a supply pressure of maximum 6 bar.

In flow-switching (ON/OFF) service, the fast stroking speed causes an increase in pressure which depends on the supply pressure applied. If the pressure increase is too high, the actuator version with the fail-safe position "actuator stem retracts" may be damaged due to the additional load.

In flow-switching service, the permissible supply pressure may not exceed the upper bench range value by more than 3 bar.

### Example

| Bench range     | Fail-safe position     | Max. supply pressure |
|-----------------|------------------------|----------------------|
| 0.2 ... 1.0 bar | Actuator stem retracts | 4 bar                |
| 0.4 ... 2.0 bar |                        | 5 bar                |
| 0.6 ... 3.0 bar |                        | 6 bar                |

Actuators used for throttling service are suitable for a supply pressure of up to 6 bar irrespective of the fail-safe position and the bench range.

Actuators with a reduced supply pressure are marked with a special label.

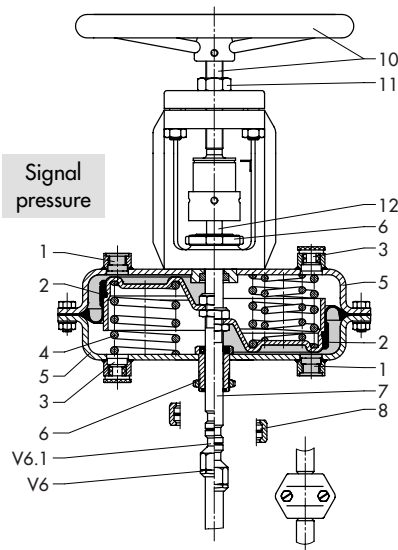


Fig. 9 · Actuator with effective diaphragm areas 240 to 700 cm<sup>2</sup> and top-mounted handwheel

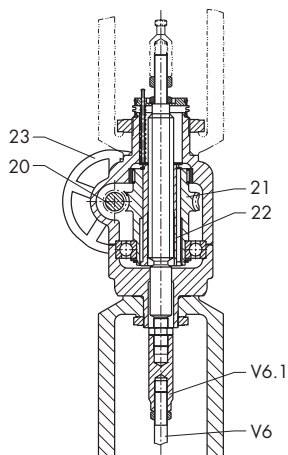


Fig. 11 · Manual override with a side-mounted handwheel for max. 60 mm travel, up to 80 kN

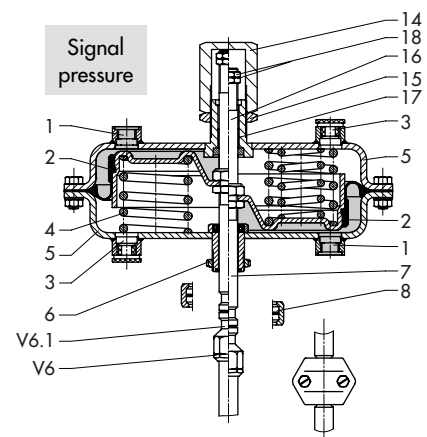


Fig. 10 · Type 3271 Pneumatic Actuator with adjustable travel stop

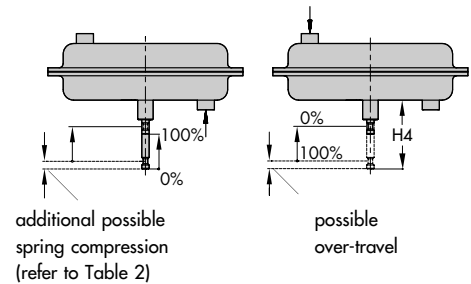


Fig. 12 · Spring compression and travel

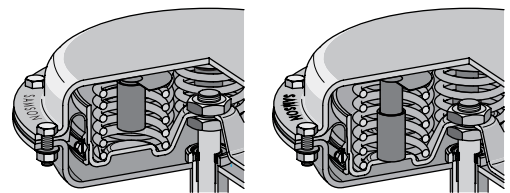


Fig. 13 · Fire-Lock version, in fail-safe position (right)

**Table 1 · Technical data**

| Actuator version   | Standard version<br>350 to 1400 cm <sup>2</sup>                       | Stainless steel version      | Type 3271-52<br>60 cm <sup>2</sup> | Type 3271-5<br>120 cm <sup>2</sup>   | 2800 cm <sup>2</sup> |
|--|---|------------------------------|------------------------------------|--------------------------------------|----------------------|
| Max. supply pressure                                     | 6 bar <sup>1)</sup>   |                              | 6 bar <sup>1)</sup>                |                                      |                      |
| Permissible temperatures<br>in continuous operation      | Standard material NBR: -35 to +90 °C                                  |                              | -35 to +80 °C                      | -35 to +90 °C                        |                      |
|  | Special material EPDM (for air free of oil and grease) -35 to +120 °C |                              |                                    |                                      |                      |
|  | Fire-Lock version: up to 80 °C  |                              |                                    |                                      |                      |
| <b>Materials</b> (WN = Material Number according to DIN) |   |                              |                                    |                                      |                      |
| Rolling diaphragm  | NBR (nitrile rubber) with fabric insert                               |                              | NBR                                | NBR with fabric insert               |                      |
|  | EPDM with fabric insert   |                              |                                    |                                      |                      |
| Actuator stem  | WN 1.4305   |                              | WN 1.4305/1.4571                   | WN 1.4305                            | WN 1.4571            |
| Sealing of the<br>actuator stem                          | NBR (nitrile rubber)  |                              |                                    | NBR                                  |                      |
|  | EPDM  |                              |                                    |                                      |                      |
| Diaphragm cases  | Sheet steel,<br>plastic coated  | Stainless steel<br>WN 1.4301 | Aluminum,<br>powder-varnish coated | Die-cast aluminum,<br>plastic coated | GGG-40               |

<sup>1)</sup> Limitations for flow-switching service, refer to page 3 for further details.

**Table 2a · Bench ranges for pneumatic actuators up to 240 cm<sup>2</sup> · All pressures in bar (gauge)**

Values specified in the shadowed fields correspond to the standard bench range, i.e. at rated travel. Maximum travel can be used when the supply pressure is increased.

When pre-tensioned springs are used, the signal pressure ranges are applicable for both the rated and the reduced travel. Actuator springs of actuators employing fail-safe position *Actuator stem "retracts"* cannot be pre-tensioned.

| Effective diaphragm area [cm <sup>2</sup> ] | Rated travel [mm] | Travel volume at rated travel [dm <sup>3</sup> ] | Dead volume [dm <sup>3</sup> ] | Max. travel [mm] <sup>1) 2)</sup> | Bench range (signal pressure range at rated travel) [bar] | Additional possible spring compression [%] | Operating range with spring compression [bar] | Number of springs | Spring force at 0 mm travel [kN] | Spring force at rated travel [kN] | Nominal thrust at rated travel [kN] and supply pressure of |       |       |       |       |       |
|---|-------------------|--|--------------------------------|-----------------------------------|---|--|---|-------------------|----------------------------------|-----------------------------------|--|-------|-------|-------|-------|-------|
|   |                   |  |                                |                                   |   |  |   |                   |                                  |                                   | 1.4 bar  | 2 bar | 3 bar | 4 bar | 5 bar | 6 bar |
| 60  | 7.5               | 0.09   | 0.1                            | 10.5                              | 0.2...1.0   | 0  | -   | 2                 | 0.12                             | 0.6                               | 0.24   | 0.6   | 1.2   | 1.8   | 2.4   | 3     |
|   |                   |  |                                |                                   | 0.4...2.0   | 0  | -   | 4                 | 0.24                             | 1.2                               | -  | 0.6   | 1.2   | 1.8   | 2.4   |       |
|   |                   |  |                                |                                   | 1.4...2.3 <sup>3)</sup>                                   | 0  | -   | 4                 | 0.84                             | 1.38                              | -  | 1.02  | 1.62  | 2.22  |       |       |
|   |                   |  |                                |                                   | 2.1...3.3 <sup>3)</sup>                                   | 0  | -   | 8                 | 1.26                             | 1.98                              | -  | 0.42  | 1.02  | 1.62  |       |       |
| 80  | 15                | 0.12   | 0.13                           | 16                                | 0.2...1.0   | 12.5                                       | 0.3...1.1                                     | 3                 | 0.16                             | 0.8                               | 0.32   | 0.8   | 1.6   | 2.4   | 3.2   | 4     |
|   |                   |  |                                |                                   | 0.4...2.0   |  | 6   | 0.32              | 1.6                              | -                                 | 0.8  | 1.6   | 2.4   | 3.2   |       |       |
|   |                   |  |                                |                                   | 0.6...3.0   |  | 12  | 0.48              | 2.4                              | -                                 | 0.8  | 1.6   | 2.4   |       |       |       |
| 120   | 15                | 0.2  | 0.10                           | 16                                | 0.2...1.0   | 12.5                                       | 0.3...1.1                                     | 3                 | 0.24                             | 1.2                               | -  | 1.2   | 2.4   | 3.6   | 4.8   | 6     |
|   |                   |  |                                |                                   | 0.4...2.0   |  | 6   | 0.48              | 2.4                              | -                                 | 1.2  | 2.4   | 3.6   | 4.8   |       |       |
|   |                   |  |                                | 15                                | 1.4...2.3 <sup>3)</sup>                                   | 0  | 1.4...2.3                                     | 6                 | 1.68                             | 2.76                              | -  | 0.84  | 2.04  | 3.24  | 4.44  |       |
|   |                   |  |                                |                                   | 2.1...3.3 <sup>3)</sup>                                   |  | 12  | 2.52              | 3.96                             | -                                 | 0.84   | 2.04  | 3.24  |       |       |       |
| 240   | 15                | 0.36   | 0.38                           | 17                                | 0.2...1.0   | 12.5                                       | 0.3...1.1                                     | 3                 | 0.48                             | 2.4                               | 0.96   | 2.4   | 4.8   | 7.2   | 9.6   | 12    |
|   |                   |  |                                |                                   | 0.4...2.0   |  | 6   | 0.96              | 4.8                              | -                                 | 2.4  | 4.8   | 7.2   | 9.6   |       |       |
|   |                   |  |                                |                                   | 0.6...3.0   |  | 12  | 1.44              | 7.2                              | -                                 | 2.4  | 4.8   | 7.2   |       |       |       |

<sup>1)</sup> Based on the lower bench range value, taking zero travel (to unseat the plug) into consideration.

<sup>2)</sup> Zero travel as in Table 3a depending on fail-safe position.

<sup>3)</sup> Pre-tensioned springs

**Table 2b · Bench ranges for pneumatic actuators from 350 cm<sup>2</sup> onward · All pressures in bar (gauge)**

Values specified in the shadowed fields correspond to the standard bench range, i.e. at rated travel. Maximum travel can be used when the supply pressure is increased.

When pre-tensioned springs are used, the signal pressure ranges are applicable for both the rated and the reduced travel. Actuator springs of actuators employing fail-safe position *Actuator stem "retracts"* cannot be pre-tensioned.

| Effective diaphragm area [cm <sup>2</sup> ] | Rated travel [mm] | Travel volume at rated travel [dm <sup>3</sup> ] | Dead volume [dm <sup>3</sup> ] | Max. travel [mm] <sup>1) 2)</sup> | Bench range (signal pressure range at rated travel) [bar] | Additional possible spring compression [%] | Operating range with spring compression [bar] | Number of springs | Spring force at 0 mm travel [kN] | Spring force at rated travel [kN] | Nominal thrust at rated travel [kN] and supply pressure of |       |       |       |       |       |     |
|---|-------------------|--|--------------------------------|-----------------------------------|---|--|---|-------------------|----------------------------------|-----------------------------------|--|-------|-------|-------|-------|-------|-----|
|   |                   |  |                                |                                   |   |  |   |                   |                                  |                                   | 1.4 bar  | 2 bar | 3 bar | 4 bar | 5 bar | 6 bar |     |
| 350   | 15                | 0.53   | 0.6                            | 22                                | 0.2...1.0   | 25   | 0.4...1.2                                     | 3                 | 0.7                              | 3.5                               | 1.4  | 3.5   | 7     | 10.5  | 14    | 17.5  |     |
|   |                   |  |                                |                                   | 0.4...2.0   |  | 6   | 1.4               | 7                                | -                                 | 0  | 3.5   | 7     | 10.5  | 14    |       |     |
|   |                   |  |                                |                                   | 0.6...3.0   |  | 12  | 2.1               | 10.5                             | -                                 | 0  | 3.5   | 7     | 10.5  |       |       |     |
|   |                   |  |                                | 15                                | 1.4...2.3 <sup>3)</sup>                                   | 0  | 1.4...2.3                                     | 6                 | 4.9                              | 8.05                              | -  | 2.45  | 5.95  | 9.45  | 13    |       |     |
|   |                   |  |                                |                                   | 2.1...3.3 <sup>3)</sup>                                   |  | 12  | 7.35              | 11.6                             | -                                 | 2.45   | 5.95  | 9.45  |       |       |       |     |
| 700   | 30                | 2.1  | 2.4                            | 38                                | 0.2...1.0   | 25   | 0.4...1.2                                     | 3                 | 1.4                              | 7                                 | 2.8  | 7     | 14    | 21    | 28    | 35    |     |
|   |                   |  |                                |                                   | 0.4...2.0   |  | 6   | 2.8               | 14                               | -                                 | 7  | 14    | 21    | 28    |       |       |     |
|   |                   |  |                                |                                   | 0.6...3.0   |  | 12  | 4.2               | 21                               | -                                 | 7  | 14    | 21    |       |       |       |     |
|   |                   |  |                                | 30                                | 1.4...2.3 <sup>3)</sup>                                   | 0  | 1.4...2.3                                     | 8                 | 9.8                              | 16.1                              | -  | 4.9   | 11.9  | 18.9  | 25.9  |       |     |
|   |                   |  |                                |                                   | 2.1...3.3 <sup>3)</sup>                                   |  | 12  | 14.7              | 23.1                             | -                                 | 4.9  | 11.9  | 18.9  |       |       |       |     |
|   |                   |  |                                |                                   | 2.35...3.8 <sup>3)</sup>                                  |  | 15  | 16.5              | 26.6                             | -                                 | 1.4  | 8.4   | 15.4  |       |       |       |     |
|   |                   |  |                                |                                   | 2.6...4.3 <sup>3)</sup>                                   |  | 18  | 18.2              | 30.1                             | -                                 | 4.9  | 11.9  |       |       |       |       |     |
| 1400  | 60                | 8.3  | 5.7                            | 80                                | 0.2...1.0   | 25   | 0.4...1.2                                     | 6                 | 2.8                              | 14                                | 5.6  | 14    | 28    | 42    | 56    | 70    |     |
|   |                   |  |                                |                                   | 0.4...2.0   |  | 12  | 5.6               | 28                               | -                                 | 14   | 28    | 42    | 56    |       |       |     |
|   |                   |  |                                |                                   | 0.5...2.5   |  | 18  | 7                 | 35                               | -                                 | 7  | 21    | 35    | 49    |       |       |     |
|   |                   |  |                                |                                   | 1.1...2.4   |  | 18  | 15.4              | 33.6                             | -                                 | 8.4  | 22.4  | 36.4  | 50.4  |       |       |     |
|   |                   |  |                                |                                   | 1.3...2.8   |  | 24  | 18.2              | 39.2                             | -                                 | 2.8  | 16.8  | 30.8  | 44.8  |       |       |     |
| 2800<br><sup>5) 6)</sup>                    | 120               | 33   | 16.5                           | 160                               | 0.2...1.0   | 25   | 0.4...1.2                                     | 3                 | 5.6                              | 28                                | 11.2   | 28    | 56    | 84    | 112   | 140   |     |
|   |                   |  |                                |                                   | 0.4...2.0   |  | 6   | 11.2              | 56                               | -                                 | 28   | 56    | 84    | 112   |       |       |     |
|   |                   |  |                                |                                   | 0.5...2.5   |  | 9   | 14                | 70                               | -                                 | 14   | 42    | 70    | 98    |       |       |     |
|   |                   |  |                                |                                   | 0.6...3.0   |  | 12  | 16.8              | 84                               | -                                 | 28   | 56    | 84    |       |       |       |     |
|   |                   |  |                                |                                   | 25 <sup>4)</sup>  | 0.9...1.6                                  | 25 <sup>4)</sup>                              | 1.1...1.8         | 6                                | 25.2                              | 44.8   | -     | 11.2  | 39.2  | 67.2  | 95.2  | 123 |
|   |                   |  |                                |                                   |   | 1.0...2.1                                  |   | 9                 | 28                               | 58.8                              | -  | 25.2  | 53.2  | 81.2  | 109   |       |     |
|   |                   |  |                                |                                   |   | 1.1...2.6                                  |   | 12                | 30.8                             | 72.8                              | -  | 11.2  | 39.2  | 67.2  | 95.2  |       |     |
|   |                   |  |                                |                                   |   | 1.1...2.3                                  |   | 6                 | 30.8                             | 64.4                              | -  | 19.6  | 47.6  | 75.6  | 104   |       |     |
|   |                   |  |                                |                                   |   | 1.2...2.8                                  |   | 9                 | 33.6                             | 78.4                              | -  | 5.6   | 33.6  | 61.6  | 89.6  |       |     |
| 1.3...3.3                                   | 12                | 36.4   | 92.4                           | -                                 | 19.6  | 47.6                                       | 75.6  |                   |                                  |                                   |  |       |       |       |       |       |     |

1) Based on the lower bench range value, taking zero travel (to unseat the plug) into consideration.

2) Zero travel as in Table 3a depending on fail-safe position.

3) Pre-tensioned springs.

4) At half of the rated travel, maximum spring compression is 50 %.

5) Tandem actuator 2 x 2800 cm<sup>2</sup>

For version: Actuator stem "extends", the lower bench range value is maximum 2.5 bar. For version: Actuator stem "retracts", the maximum supply pressure is 2.5 bar above the upper bench range value, however, maximum 6 bar.

The bench ranges correspond with those of the single-acting version with an effective diaphragm area of 2800 cm<sup>2</sup>.

6) The positioning force must be limited to 80 kN with actuators featuring a side-mounted handwheel for a maximum travel of 80 mm.

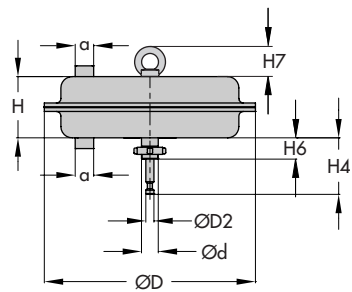


Fig. 14 · Type 3271, 350 up to 1400 cm<sup>2</sup>  
Actuators from 700 cm<sup>2</sup> onward with lifting ring (H7)

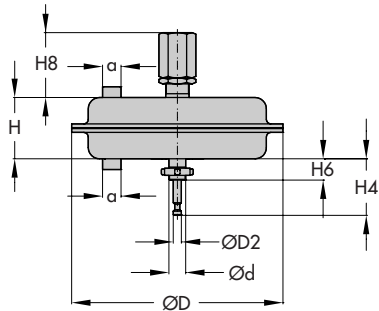


Fig. 16 · Version with mechanical travel stop

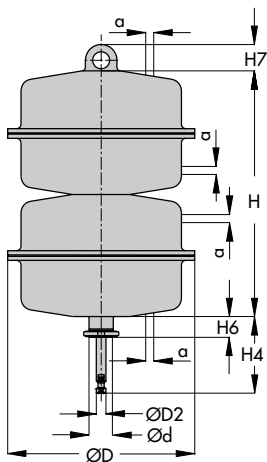


Fig. 17 · Tandem actuator

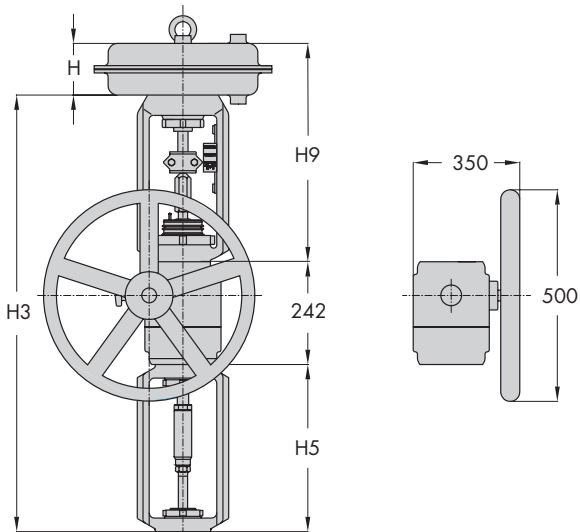


Fig. 19 · Version for 1400 and 2800 cm<sup>2</sup> and  
a max. of 60 mm of travel with side-mounted handwheel

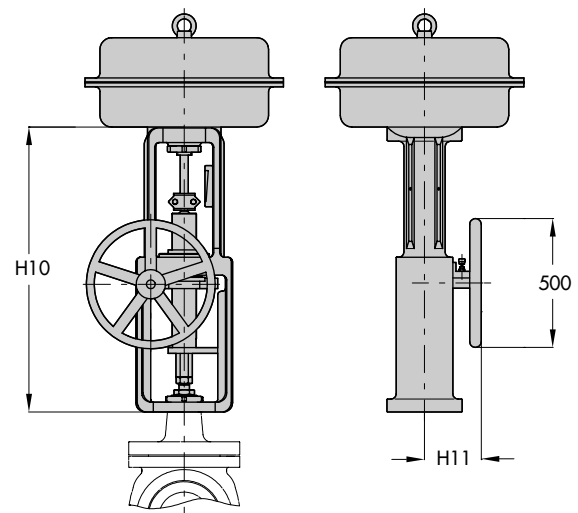


Fig. 20 · Version for 1400 and 2800 cm<sup>2</sup>,  
Travel >60 to 120 mm with side-mounted handwheel

a  
Signal pressure  
connection or vent

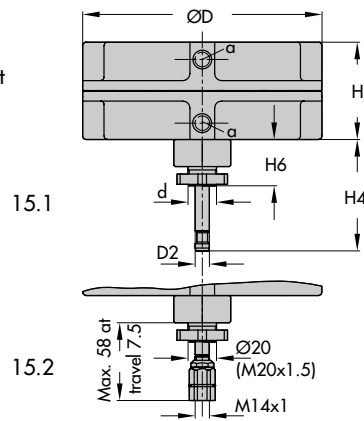


Fig. 15 · Type 3271-5  
15.1 Mating dimensions for attachment to Series 240  
15.2 Mating dimensions for attachment to a Type 3510  
Micro-flow Valve

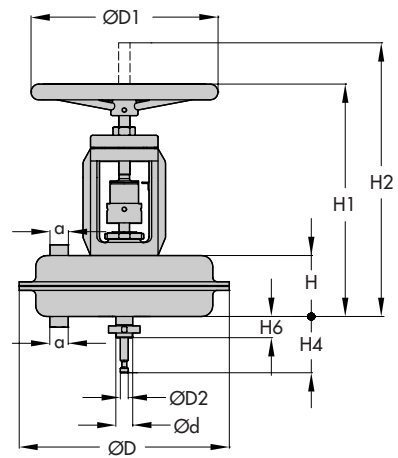


Fig. 18 · Type 3271 from 240 to 700 cm<sup>2</sup> with  
top-mounted handwheel

**Table 3 · Dimensions and weights**
**Table 3a · Versions with and without top-mounted handwheel**

| Actuator                  | cm <sup>2</sup>                   | 60 <sup>1) 2)</sup> | 80 <sup>1)</sup> | 120 <sup>3)</sup> | 240     | 350 | 700             | 1400            | 2800 | 2 x 2800 |  |
|---------------------------|-----------------------------------|---------------------|------------------|-------------------|---------|-----|-----------------|-----------------|------|----------|--|
| Height                    | H                                 | 63                  | 62               | 69                | 62      | 82  | 134             | 197             | 520  | 1020     |  |
|                           | H1                                | –                   | –                | –                 | 300     | 320 | 430             | –               | –    | –        |  |
|                           | H2 <sub>max</sub>                 | –                   | –                | 208               | 345     | 365 | 515             | –               | –    | –        |  |
|                           | H4 <sub>rated</sub> <sup>5)</sup> | 51                  | 75               | 75                | 75      | 75  | 90              | 165             | 315  |          |  |
|                           | H4 <sub>max</sub> <sup>5)</sup>   | 52.5                | 78               | 78                | 78      | 78  | 95              | 169             | 325  |          |  |
|                           | H4 <sub>max</sub> <sup>6)</sup>   | 52.5                | 78               | 78                | 78      | 85  | 104             | 185             | 355  |          |  |
|                           | H6                                | 23.8                | 34               | 34                | 34      | 34  | 34              | 54              | 85   |          |  |
|                           | H7                                | –                   | –                | –                 | –       | –   | –               | 62              | 90   | 110      |  |
|                           | H8                                | –                   | –                | –                 | 75      | 85  | 115             | 180             | –    | –        |  |
| Diameter                  | ∅ D                               | 120                 | 150              | 168               | 240     | 280 | 390             | 530             | 770  |          |  |
|                           | ∅ D1                              | –                   | –                | 80                | 180     | 250 |                 | –               | –    | –        |  |
|                           | ∅ D2                              | 10                  | 10               |                   |         | 16  |                 | 22              | 40   |          |  |
| ∅ d (thread)              | 20 (M20 x 1.5)                    | 30 (M 30 x 1.5)     |                  |                   |         |     | 60 (M 60 x 1.5) | 100 (M 100 x 2) |      |          |  |
| a (optionally)            | G 1/4                             | G 1/4               | G 1/8            | G 1/4             | G 3/8   |     | G 3/4           | G 1             |      |          |  |
|                           | NPT 1/4                           | NPT 1/4             | NPT 1/8          | NPT 1/4           | NPT 3/8 |     | NPT 3/4         | NPT 1           |      |          |  |
| Weight with/wo. handwheel | Without                           | 1.3                 | 2                | 2                 | 5       | 8   | 22              | 70              | 450  | 950      |  |
|                           | With                              | –                   | –                | 4                 | 9       | 13  | 27              | 4)              |      |          |  |

1) Without handwheel

2) Only for Type 3510 Micro-flow Valve

3) Version for max. permissible positioning force of 40 kN

4) Only with side-mounted handwheel, see Tables 3b and 3c

5) Actuator stem "extends"

6) Actuator stem "retracts"

**Table 3b · Side-mounted handwheel for actuators with effective areas 1400 and 2800 cm<sup>2</sup> · Rated travel ≤ 60 mm**

| Control valve         | DN              | 50 ... 100 |      | 125 ... 150 |      | 200 ... 250 |      | 300 ... 400 |      |
|-----------------------|-----------------|------------|------|-------------|------|-------------|------|-------------|------|
| Seat bore             |                 | ≤100       |      | ≤150        |      | ≤200        |      | ≤200        |      |
| Travel                |                 | 30         |      | 60          |      | 60          |      | 60          |      |
| Actuator              | cm <sup>2</sup> | 1400       | 2800 | 1400        | 2800 | 1400        | 2800 | 1400        | 2800 |
| H3                    |                 | 930        | 1200 | 1030        | 1200 | 1030        | 1200 | 1140        | 1225 |
| H5                    |                 | 295        | 480  | 395         | 480  | 395         | 480  | 480         | 480  |
| H9                    |                 | 395        | 480  | 395         | 480  | 395         | 480  | 395         | –    |
| Weight incl. actuator | appr. kg        | 150        | 405  | 155         | 575  | 155         | 575  | 175         | 575  |

**Table 3c · Side-mounted handwheel for actuators · Rated travel up to 120 mm**

| Actuator          | cm <sup>2</sup> | 2800 | 2 x 2800 |
|-------------------|-----------------|------|----------|
| H10               |                 | 1105 | 1105     |
| H11               |                 | 220  | 220      |
| Additional weight | appr. kg        | 250  | 250      |

**Please indicate the following data when ordering:**

Actuator Type 3271/3271-5/3271-52  
 With handwheel  
 With mechanical travel stop  
 Stainless steel actuator  
 Fire-Lock version (240 to 700 cm<sup>2</sup>)

Signal pressure connection G ... /NPT...  
 Rolling diaphragm NBR/EPDM

Tandem actuator  
 Effective diaphragm area ... cm<sup>2</sup>  
 Travel ... mm  
 Bench range ... bar  
 Operating direction Actuator stem "extends"/"retracts"

Specifications subject to change without notice.



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