

# Type 3273 Hand-operated Actuator Type 3273 Side-mounted Handwheel



## Application

Hand-operated actuator or side-mounted handwheel for mounting on control valves, especially Series 240, 250, 260 <sup>1)</sup>, 280 and 290 Valves.

15 to 120 mm rated travel · Nominal thrusts up to 150 kN

## General features

- Simple connection to the control valve
- Locking mechanism securing the valve stem position against accidental adjustment

## Versions

- The **Type 3273 Hand-operated Actuator** (Fig. 1) is a spindle actuator equipped with a non-rising handwheel.

## Special features

- Low overall height
- Replaceable with a pneumatic or electric actuator

**Type 3273-1** · Handwheel diameter of 180 mm, max. thrust 18 kN.

**Type 3273-2** · Handwheel diameter of 250 mm, max. thrust 32 kN.

Actuators for valves with rated travel higher than 30 mm and/or required thrusts over 30 kN upon request.

**Combination with:** see Table 3.1 and Table 3.2

- The **Type 3273 Side-mounted Handwheel** (Fig. 2) is a gear mounted between the valve and actuator.

## Special features

- It can remain mounted on the valve while the actuator is being replaced or during maintenance work on the actuator.
- The fail-safe position of the valve is kept even when an actuator is not mounted on the valve.

<sup>1)</sup> Type 3273 Hand-operated Actuator only

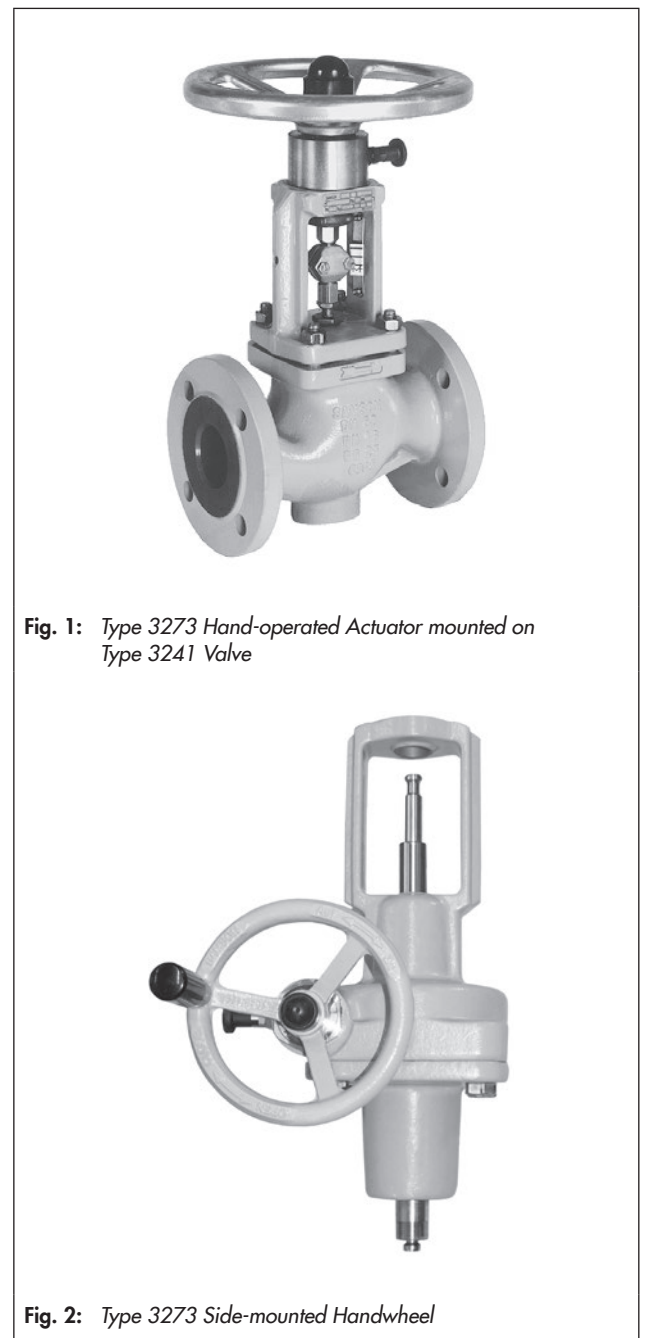


Fig. 1: Type 3273 Hand-operated Actuator mounted on Type 3241 Valve

Fig. 2: Type 3273 Side-mounted Handwheel

## Principle of operation

### – Type 3273 Hand-operated Actuator (Fig. 3)

The hand-operated actuator is connected to the valve bonnet by a nut (5). The stem connector (6) connects the threaded spindle (1) to the plug stem of the valve. The locking mechanism (4) locks the handwheel (3) and protects the valve stem position against accidental adjustment. Adjustment of the valve is only possible after releasing the locking mechanism (4).

### – Type 3273 Side-mounted Handwheel (Fig. 4)

The worm shaft unit, consisting of the worm shaft (2) and worm-gear wheel (3), is driven over the handwheel. The spindle nut (4) transfers the rotary motion to the threaded spindle (5) which moves the valve. The gear is locked by the locking bolt (6) to prevent accidental adjustment.

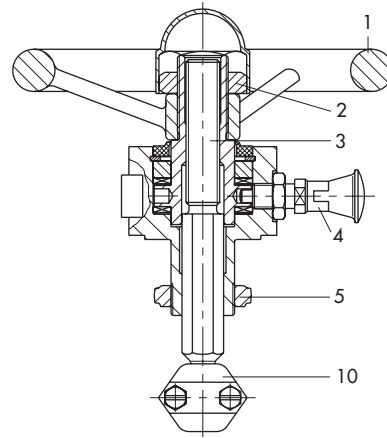


Fig. 3: Sectional drawing of Type 3273 Hand-operated Actuator

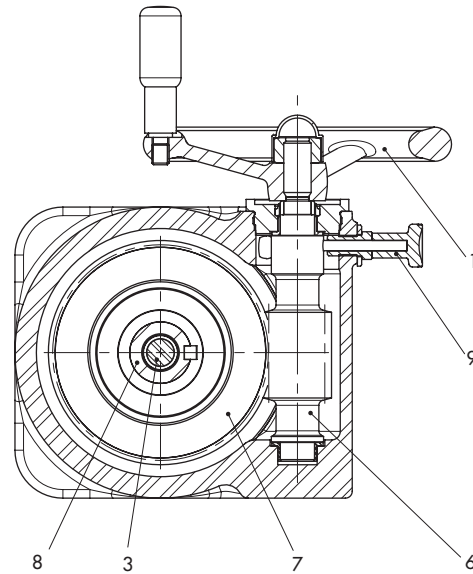


Fig. 4: Sectional drawing of Type 3273 Side-mounted Handwheel, for up to 30 mm rated travel

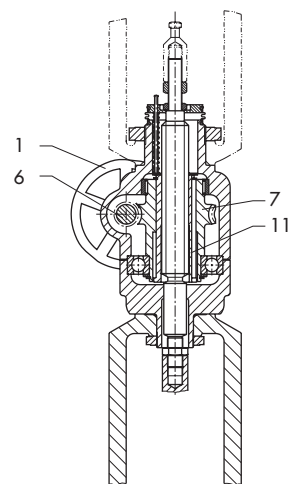


Fig. 5: Sectional drawing of Type 3273 Side-mounted Handwheel, for up to 60 mm rated travel

## Legend

|                     |                     |
|---------------------|---------------------|
| 1 Handwheel         | 7 Worm-gear wheel   |
| 2 Threaded nut      | 8 Spindle nut       |
| 3 Threaded spindle  | 9 Locking bolt      |
| 4 Locking mechanism | 10 Stem connector   |
| 5 Nut               | 11 Threaded bushing |
| 6 Worm shaft        |                     |

## Type 3273 Hand-operated Actuator

**Table 1: Technical data**

| Type              | 3273-1   | 3273-2 |
|-------------------|----------|--------|
| Rated travel      | mm 15/30 |        |
| Max. travel       | mm 23/38 |        |
| Max. thrust       | kN 18    | 32     |
| Req. manual force | N 230    | 300    |
| Perm. temperature | °C 100   |        |

**Table 2: Materials**

|                          |                                  |
|--------------------------|----------------------------------|
| Spindle and threaded nut | Stainless steel 1.4104 or 1.4006 |
| Body                     | St 37-2, powder coated           |
| Handwheel                | Aluminum                         |

**Table 3: Assignment of handwheel and valves**

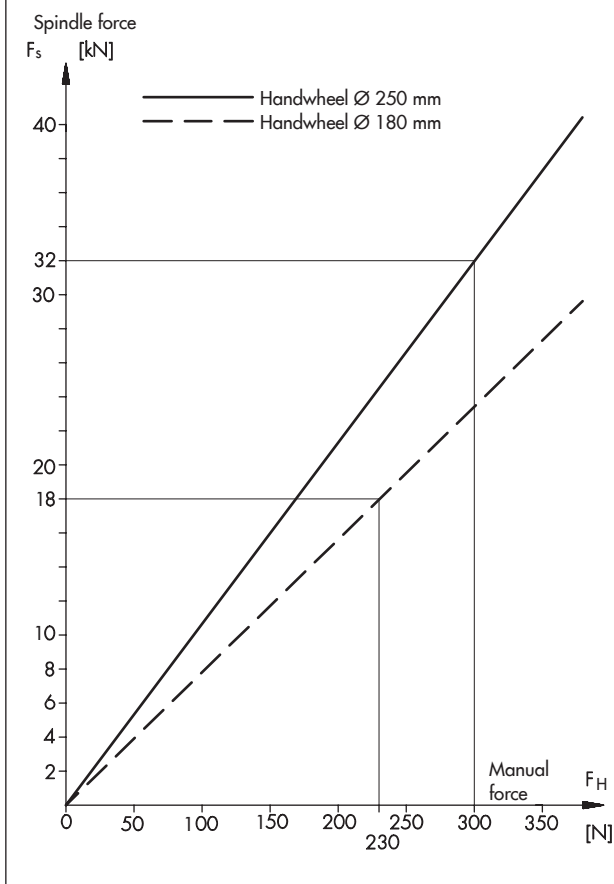
**Table 3.1: Series 240**

| Valve seat<br>Ø in mm | Δp in bar  |        |        |
|-----------------------|------------|--------|--------|
|                       | 40         | 30     | 20     |
|                       | Actuator   |        |        |
| ≤ 12                  | On request |        |        |
| 24                    | 3273-1     |        |        |
| 31                    | 3273-1     |        |        |
| 38                    | 3273-1     |        |        |
| 48                    | 3273-1     |        |        |
| 63                    | 3273-1     |        |        |
| 80                    | 3273-2     | 3273-1 |        |
| 100                   | -          | 3273-2 |        |
| 110                   | -          | 3273-2 |        |
| 130                   | -          | -      | 3273-2 |

**Table 3.2: Series 250 and 290**

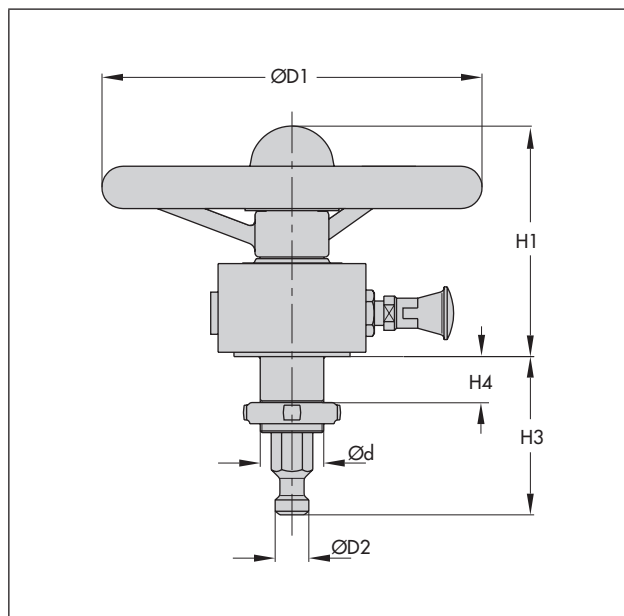
| Valve seat<br>Ø in mm | Δp in bar  |        |        |        |
|-----------------------|------------|--------|--------|--------|
|                       | 160        | 100    | 63     | 40     |
|                       | Actuator   |        |        |        |
| ≤ 12                  | On request |        |        |        |
| 24                    | 3273-1     |        |        |        |
| 31                    | 3273-1     |        |        |        |
| 38                    | 3273-2     | 3273-1 |        |        |
| 50                    | -          | 3273-2 | 3273-1 |        |
| 63                    | -          | -      | 3273-2 |        |
| 80                    | -          | -      | -      | 3273-2 |
| 100                   | -          | -      | -      | 3273-2 |

**Spindle force versus manual force**



**Table 4: Dimensions and weights**

| Type   | H1  | H3 (valve CLOSED)<br>Rated travel |       | H4 | ØD1 | ØD2 | Ød      | Weight<br>kg (approx.) |
|--------|-----|-----------------------------------|-------|----|-----|-----|---------|------------------------|
|        |     | 15 mm                             | 30 mm |    |     |     |         |                        |
| 3273-1 | 110 | 75                                | 90    | 22 | 180 | 16  | M30x1.5 | 2                      |
| 3273-2 | 115 | 75                                | 90    | 22 | 250 | 16  | M30x1.5 | 2.5                    |



## Type 3273 Side-mounted Handwheel for rated travels up to 30 mm

Table 5: Technical data

| Type 3273                         | Version with connection |   |                     |
|-----------------------------------|-------------------------|---|---------------------|
|                                   | Ø 30 mm                 | Ø 60 mm   |                     |
| For actuators with effective area | cm <sup>2</sup>         | 175 · 240 · 350 · 355 · 700 · 750   | 1000 · 1400-60      |
| Max. thrust                       |                         | 35 kN   | 50 kN               |
| Rated travel                      |                         | 30 mm <sup>1)</sup>   | 30 mm <sup>1)</sup> |
| Maximum travel                    |                         | 38 mm   | 38 mm               |
| Permissible ambient temperature   |                         | Body material 1.0619/A216 WCC: -29 to 120 °C<br>Body material 1.5638/A352 LC3: -60 to 90 °C |                     |
| Operating forces                  |                         | According to DIN EN 12570   |                     |
| Number of turns                   |                         | With 30 mm travel: 147<br>With 15 mm travel: 73.5   |                     |
| Weight (gear only)                |                         | 26 kg   | 37 kg               |

<sup>1)</sup> For pneumatic actuators with spring compression between 25 and 125 %

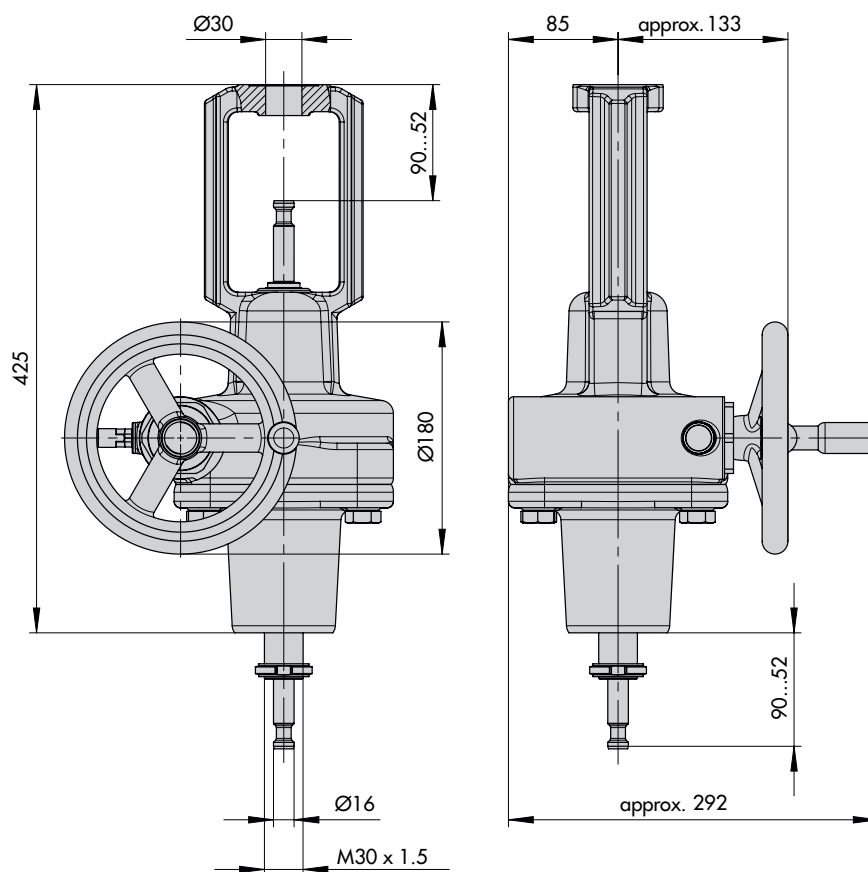
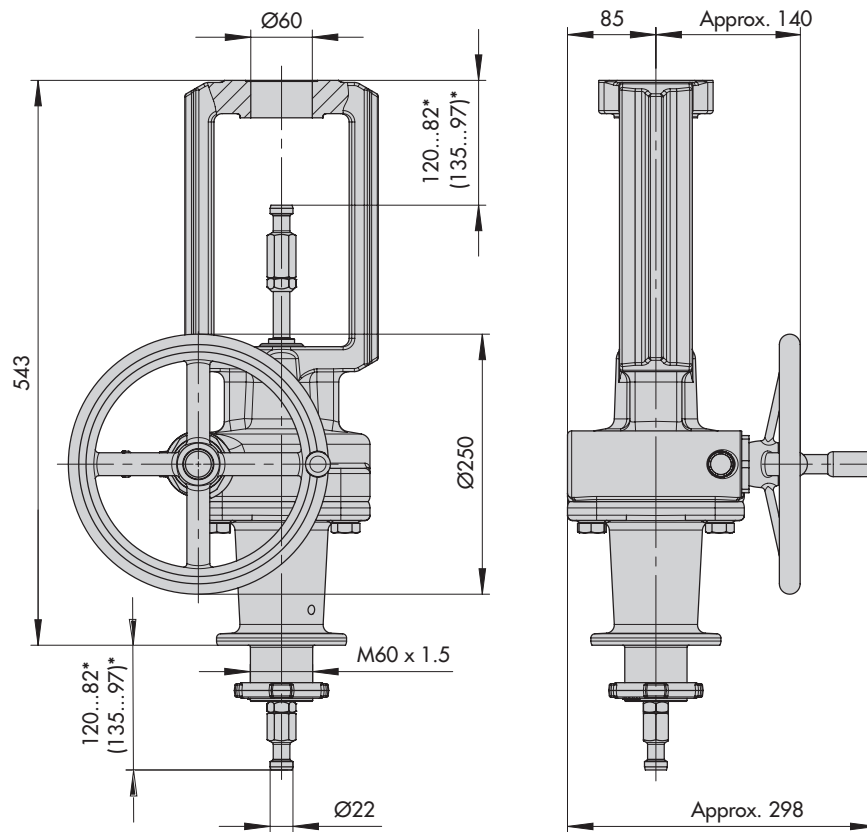


Fig. 6: Type 3273 Side-mounted Handwheel for rated travels up to 30 mm, version with Ø 30 mm connection



\* For fail-safe action "stem retracts": Change over the top and bottom stem connector nuts

Fig. 7: Type 3273 Side-mounted Handwheel for rated travels up to 30 mm, version with Ø 60 mm connection

## Type 3273 Side-mounted Handwheel for rated travels up to 60 mm

Table 6: Technical data

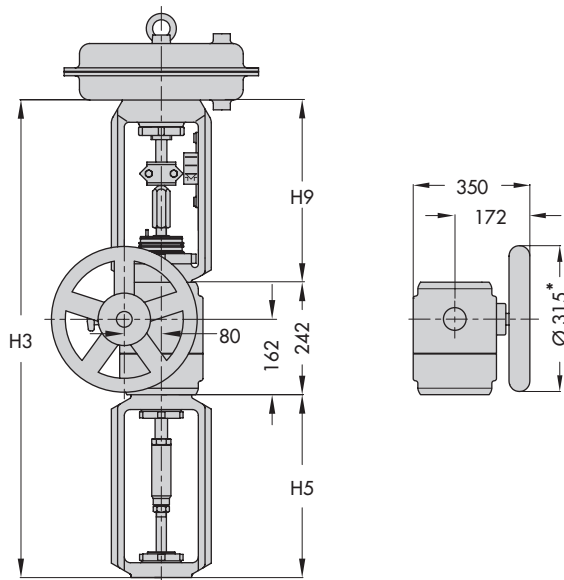
| Version   | Type 3273 up to 60 mm rated travel                          |
|---|---|
| Max. travel range                                 | 80 mm   |
| Max. thrust                                       | 80 kN   |
| <b>Materials</b>                                  |   |
| Body material and permissible ambient temperature | EN-JS1030 (GGG-40) · Spheroidal graphite iron · Max. 100 °C |
|   | 1.0619/A216 WCC · Painted cast steel · $\geq -29$ °C        |
|   | 1.5638/A352 LC3 · Painted cast steel · $\geq -60$ °C        |
| Spindle and threaded nut                          | 1.4104/G-CuSn12Pb   |
| Handwheel   | Aluminum  |

## Type 3271 Pneumatic Actuator and Type 3273 Side-mounted Handwheel for rated travels up to 60 mm

Table 7: Dimensions and weights

| Valve                          | DN              | 50 to 100      |          |      | 125 to 150     |          |      |
|--------------------------------|-----------------|----------------|----------|------|----------------|----------|------|
|                                | NPS             | 2 to 4         |          |      | 6              |          |      |
| Seat bore                      | mm              | ≤ 100          |          |      | ≤ 150          |          |      |
| Travel                         | mm              | Up to 30       |          |      | Up to 60       |          |      |
| Actuator                       | cm <sup>2</sup> | 1000 (1400-60) | 1400-120 | 2800 | 1000 (1400-60) | 1400-120 | 2800 |
| H3                             | mm              | 932            | 1202     |      | 1055           | 1225     |      |
| H5                             | mm              | 295            | 480      |      | 418            | 503      |      |
| H9                             | mm              | 395            | 480      |      | 395            | 480      |      |
| Weight (kg)                    |                 |                |          |      |                |          |      |
| With actuator                  |                 | 180            | 300      | 575  | 184            | 303      | 578  |
| Without actuator <sup>1)</sup> |                 | 70             |          |      | 70             |          |      |

| Valve                          | DN              | 200 to 250     |          |      | 300 to 500     |          |      |
|--------------------------------|-----------------|----------------|----------|------|----------------|----------|------|
|                                | NPS             | 8 to 10        |          |      | 12 to 20       |          |      |
| Seat bore                      | mm              | ≤ 200          |          |      | ≤ 200          |          |      |
| Travel                         | mm              | Up to 60       |          |      | Up to 60       |          |      |
| Actuator                       | cm <sup>2</sup> | 1000 (1400-60) | 1400-120 | 2800 | 1000 (1400-60) | 1400-120 | 2800 |
| H3                             | mm              | 1055           | 1225     |      | 1140           | 1225     |      |
| H5                             | mm              | 418            | 503      |      | 503            | 503      |      |
| H9                             | mm              | 395            | 480      |      | 395            | 480      |      |
| Weight (kg)                    |                 |                |          |      |                |          |      |
| With actuator                  |                 | 187            | 305      | 580  | 190            | 310      | 585  |
| Without actuator <sup>1)</sup> |                 | 70             |          |      | 70             |          |      |



\* Ø 500  
for 1400-120 and 2800 cm<sup>2</sup> actuators

Fig. 8: Type 3273 Side-mounted Handwheel for rated travels up to 60 mm

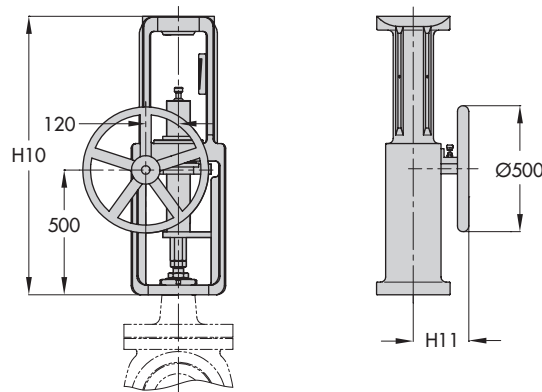
## Type 3273 Side-mounted Handwheel for rated travels up to 120 mm

**Table 8:** *Technical data*

| Version   | Type 3273 up to 120 mm rated travel                         |
|---|---|
| Max. travel range                                 | 160 mm  |
| Max. thrust                                       | 150 kN  |
| <b>Materials</b>                                  |   |
| Body material and permissible ambient temperature | EN-JS1030 (GGG-40) · Spheroidal graphite iron · Max. 100 °C |
|   | 1.0619/A216 WCC · Painted cast steel · $\geq -29$ °C        |
|   | 1.5638/A352 LC3 · Painted cast steel · $\geq -60$ °C        |
| Spindle and threaded nut                          | EN-GJS-500-7 (GGG-50)/1.0503                                |
| Handwheel   | EN-JL1040   |

**Table 8.1:** *Dimensions and weights*

| Actuator                | cm <sup>2</sup> | 1400-120 | 2800 | 2 x 2800 |
|-------------------------|-----------------|----------|------|----------|
| H10                     | mm              | 1105     | 1105 | 1105     |
| H11                     | mm              | 220      | 220  | 220      |
| Weight without actuator | kg              | 250      | 250  | 250      |



**Fig. 9:** *Type 3273 Side-mounted Handwheel for rated travels up to 120 mm (1400 and 2800 cm<sup>2</sup>)*

#### Ordering text for hand-operated actuator

- Type 3273-1/Type 3273-2
- For Type ... Valve, DN ..., PN. ...
- Seat bore ... mm,  $\Delta p$  ... bar

#### Ordering text for side-mounted handwheel

- For Type ... Valve, DN ..., PN ...
- Seat bore ... mm,  $\Delta p$  ... bar
- For rated travel ... mm
- Max. thrust ... kN
- Body material

Specifications subject to change without notice



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