

Series 240

Electric Control Valve Type 3241/3274 Globe Valve Type 3241

Electric Control Valve Type 3244/3274 Three-way Valve Type 3244

Application

Versatile control valves with globe or three-way valve for industrial applications as well as for heating, ventilation and air-conditioning systems

DN 15 to DN 150 · PN 16 to PN 40 · Temperature range between -196 °C and +450 °C

Conversion of valve sizing coefficients:

$$C_V \text{ (in US gallons/min)} = 1.17 \cdot K_{VS} \text{ (in m}^3/\text{h)}$$

$$K_{VS} \text{ (in m}^3/\text{h)} = 0.86 \cdot C_V \text{ (in US gallons/min)}$$



Type 3244 Three-way Valve or Type 3241 Globe Valve with Type 3274 Electric Actuator

- Valve body made of:
 - Cast iron
 - Cast steel or
 - Cast stainless steel
 - Type 3241 also in spheroidal graphite iron or forged steel
- Undivided valve bonnet

The Type 3274 Electrohydraulic Actuator is available in various versions (refer to Data Sheet T 8340 EN for details):

- With electric override
- With mechanical override
- With fail-safe action
- With additional electrical equipment (limit switches, potentiometer, positioner)

Versions

Standard version for temperatures from -10 °C to +220 °C

- **Type 3241/3274** (Fig. 1) · Type 3241 Globe Valve with Type 3274 Electrohydraulic Actuator
- **Type 3244/3274** (Fig. 2) · Type 3244 Three-way Valve with Type 3274 Electrohydraulic Actuator

Further versions with

- **Extension bonnet** · See Technical data
- **Metal bellows seal** with backup packing · See Technical data
- **Heating jacket** · See Technical data

Also available

- Typetested versions · See Data Sheet T 5871 EN



Fig. 1 · Type 3241/3274



Fig. 2 · Type 3244/3274

Principle of operation (Figs. 3 to 5)

The medium flows through the valve in the direction indicated by the arrow.

The Type 3244 Three-way Valve is available for either mixing service (Fig. 4) or diverting service (Fig. 5). The valves cannot be modified to suit the other service type as the plug is welded to the plug stem.

To achieve the maximum flow rate in diverting valves in size DN 65 and larger, port AB-A can be designed for higher K_{VS} coefficients than port AB-B (see Table 2).

When mounted in the return flow pipe of a heating system, mixing valves can be used for diverting service and diverting valves can be applied for mixing service.

Both valves can be equipped with a bellows seal or an extension bonnet to meet special requirements such as in vacuum applications, and with aggressive media or high temperatures.

The Type 3274 Actuators come in different versions depending on the nominal thrusts (see Table 6). Standard versions are equipped with either an electric or a mechanical override. The actuators are available with or without fail-safe action.

Sizing and selection of the control valve

1. Calculate appropriate K_v coefficient according to IEC 60534.
2. Select valve size and K_{VS} coefficient from Table 2.
3. Determine permissible differential pressure Δp from Table 2.
4. Select suitable actuator from Data Sheet T 8340 EN, taking into account the thrust, travel, and transit time.
5. Select materials, pressure and temperature from Tables 1 and 2, also taking into account the pressure-temperature diagram.
6. Optionally, select additional electrical equipment (refer to Data Sheet T 8340 EN).

Terms for control valve sizing according to IEC 60534, parts 2-1 and 2-2:

$$F_L = 0.95; x_T = 0.75$$

Ordering text

- Electric Control Valve Type 3241/3274 or Type 3244/3274
- DN ..., body material ..., PN ...
- Actuator Type 3274-..
- Power supply ... V, ... Hz
- Optionally, special version

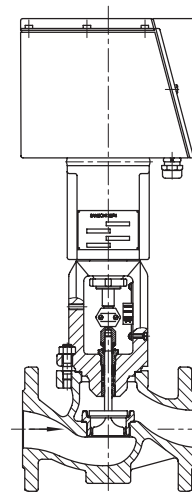


Fig. 3 · Type 3241/3274 Electric Control Valve with Type 3274 Electric Actuator and Type 3241 Globe Valve

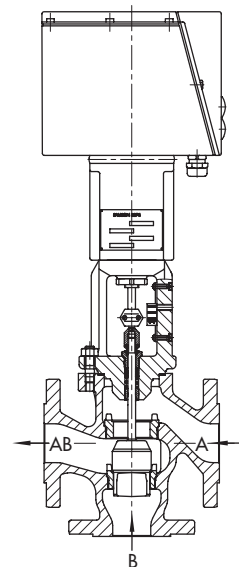


Fig. 4 · Type 3244/3274 Electric Control Valve with Type 3274 Electric Actuator and Type 3244 Three-way Valve for mixing service

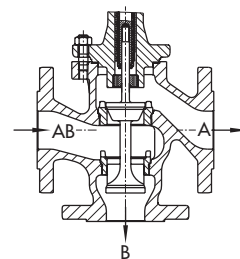


Fig. 5 · Type 3244 Three-way Valve for diverting service

Table 1.1 · Technical data

| Type | 3241 (globe valve) | | 3244 (three-way valve) | |
|--|--------------------|---|--|--|
| Nominal size | DN | 15 · 20 · 25 · 32 · 40 · 50 · 65 · 80 · 100 · 125 · 150 | | |
| Nominal pressure | | PN 16 to 40 | | |
| Rated travel | mm | DN 15 to 80: 15 · DN 100 to 150: 30 | | |
| Seat/plug sealing | | Metal sealing Soft sealing High-performance metal sealing | Metal sealing | |
| Type of end connections | | All flange forms as specified in DIN | All flange forms as specified in DIN (with DN 15 only acc. to DIN EN 1092-1 and DIN EN 1092-2) | |
| Rangeability | | DN 15 to 50: 50 : 1 · DN 65 to 150: 30 : 1 | | |
| Characteristic | | Equal percentage/linear | Linear | |
| Permissible temperature range with valve body ... | | | | |
| Without extension bonnet | | -10 to +220 °C | | |
| With extension bonnet or bellows seal, short | | -10 to 300 °C · Valve body made of EN-JL1040 -10 to 350 °C · Valve body made of EN-JS1049 -10 to 400 °C · Valve body made of 1.0619 -10 to 450 °C · Valve body made of 1.0460 -50 to 450 °C · Valve body made of 1.4408 | -10 to 300 °C · Valve body made of EN-JL1040 -10 to 400 °C · Valve body made of 1.0619 -50 to 450 °C · Valve body made of 1.4408 | |
| With extension bonnet or bellows seal, long | | -196 to 450 °C · Valve body made of 1.4408/1.4401 | - | |
| Permissible temperature range with valve plug ... | | | | |
| Standard, metal sealing | | -196 to 450 °C | -196 to +450 °C | |
| Standard, soft sealing | | -196 to 220 °C | - | |
| Balanced with PTFE ring | | -196 to 220 °C | - | |
| Balanced with graphite ring | | 220 to 450 °C | - | |
| Leakage class according to DIN EN 60534-4 with valve plug ... | | | | |
| Standard, metal sealing | | IV | 0.05 % K _{VS} | |
| Standard, soft sealing | | VI | - | |
| Standard, high-performance metal sealing | | V | - | |
| Balanced, with metal sealing, with PTFE ring with graphite ring | | IV IV | - - | |

Table 1.2 · Materials · Material numbers according to DIN EN

| Nominal pressure | PN 16 | PN 16/25 | PN 16/25/40 | | | | |
|--|-------|--|----------------------|-----------------|---------------|----------------|--------|
| Standard version | Type | 3241/3244 | 3241 | 3241/3244 | | 3241 | |
| Valve body | | EN-JL1040 (GG-25) | EN-JS1049 (GGG-40.3) | 1.0619 (GS-C25) | 1.4408 | 1.0460 (C22.8) | 1.4571 |
| Valve bonnet | | 1.0460 (C22.8) | | | 1.4408/1.4401 | 1.0460 | 1.4571 |
| Seat (seat and plug also available with Stellite facing) | | 1.4006 | | 1.4006 | | | |
| Plug | | 1.4006 | | 1.4104 | | | |
| Guide bushings | | 1.4104 | | | | 1.4104 | |
| Packing | | V-ring packing, PTFE with carbon (other packings on request) · Spring 1.4310 | | | | | |
| Body gaskets | | Metal/graphite | | | | | |
| Extension bonnet | | 1.0460 (C22.8) | | | 1.4408/1.4401 | 1.0460 (C22.8) | 1.4571 |
| Metal bellows seal | | | | | | | |
| Intermediate piece | | 1.0460 (C22.8) | | | 1.4408/1.4401 | 1.0460 (C22.8) | 1.4571 |
| Metal bellows | | 1.4571 | | | | | |
| Heating jacket (Type 3241 only) | | 1.4404 | | | | | |

Table 2 · Overview: Nominal sizes, K_{VS} coefficients, seat diameters and maximum differential pressures Δp in bar when $p_2 = 0$ bar

| Table 2.1 · Type 3241/3274 unbalanced | | | | | | | | | | | | | | | | | | | | | |
|--|-----|------|------|-----|------|-----|-----|-----|-----|-----|----|----|------|------|-----|------|------------------|--------------------|------|------|------|
| K_{VS} | 0.1 | 0.16 | 0.25 | 0.4 | 0.63 | 1.0 | 1.6 | 2.5 | 4.0 | 6.3 | 10 | 16 | 25 | 40 | 60 | 63 | 80 | 100 | 160 | 200 | 260 |
| Seat \varnothing | 3 | | | 6 | | | 12 | | | 24 | | 31 | 38 | 48 | 63 | | 80 | | 100 | 110 | 130 |
| DN | | | | | | | | | | | | | | | | | | | | | |
| 15 | • | • | • | • | • | • | • | • | • | • | | | | | | | | | | | |
| 20 | • | • | • | • | • | • | • | • | • | • | | | | | | | | | | | |
| 25 | • | • | • | • | • | • | • | • | • | • | • | | | | | | | | | | |
| 32 | | | | • | • | • | • | • | • | • | • | | | | | | | | | | |
| 40 | | | | • | • | • | • | • | • | • | • | • | | | | | | | | | |
| 50 | | | | • | • | • | • | • | • | • | • | • | • | | | | | | | | |
| 65 | | | | | | | | | | | | | • | • | • | | | | | | |
| 80 | | | | | | | | | | | | | • | • | • | | • 1) | | | | |
| 100 | | | | | | | | | | | | | | | | | • | | • 1) | • 1) | |
| 125 | | | | | | | | | | | | | | | | | | | • 1) | • | • 1) |
| 150 | | | | | | | | | | | | | | | | | • | | • 1) | • 1) | • 1) |
| Δp in bar when $p_2 = 0$ · Refer T 8340 EN for nominal thrusts | | | | | | | | | | | | | | | | | | | | | |
| Type 3241 Globe Valve, unbalanced · With and without metal bellows · Combined with Type 3274-xx Actuator | | | | | | | | | | | | | | | | | | | | | |
| -11/-15/-21 ²⁾ | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 35 | 35 | 20 | 13.5 | 8.1 | 4.4 | 3.7 | 2.5 | 2.1 | 1.2 | - | - |
| -12/-16/-23 | - | - | - | - | - | - | - | - | - | 40 | 40 | 37 | 24.5 | 15 | 8.5 | 7.2 | 5.0 | 4.3 | 2.6 | 2.1 | 1.4 |
| -13/-17 | - | - | - | - | - | - | - | - | - | 40 | 40 | 40 | 31.5 | 19.5 | 11 | 11 | 6.7 | 6.6 | 4.1 | 3.3 | 2.3 |
| -14/-18 | - | - | - | - | - | - | - | - | - | - | - | - | 40 | 36 | 21 | 19.8 | 12.8 | 12 | 7.5 | 6.2 | 4.3 |
| Type 3241 Globe Valve, balanced · Without metal bellows · Plug with metal sealing · Combined with Type 3274-xx Actuator | | | | | | | | | | | | | | | | | | | | | |
| -11/-15/-21 ²⁾ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 40 ³⁾ | 40 ⁵⁾ | 30.5 | 25.8 | 16.4 |
| -13/-17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 40 ³⁾ | 40 ⁵⁾ | 40 | 40 | 40 |
| Type 3241 Globe Valve, balanced · With metal bellows · Plug with metal sealing · Combined with Type 3274-xx Actuator | | | | | | | | | | | | | | | | | | | | | |
| -11/-15/-21 ²⁾ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29.8 | 7.7 ⁵⁾ | 5.9 | 5.0 | 3.2 |
| -13/-17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 40 ³⁾ | 29.8 ⁴⁾ | 28 | 27 | 25 |

- 1) Version also available with pressure balancing
- 2) Refer to Data Sheet T 5871 EN for permissible differential pressures for uses as type-tested control valves. Type 3274-21 Actuator with fail-safe action "Actuator stem extends", use Type 3274-22 for reverse function.
- 3) Pressure-balanced for DN 65 and larger
- 4) DN 100 only
- 5) Not DN 150

| Table 2.2 · Type 3244/3274 for mixing or diverting service | | | | | | | | | | | | | | | | | |
|---|------|------|------|------|-----|----|----|----|-----|-----|-----------------|-----|-----|-----|-----|-----------------|-----|
| K_{vs} | 2 | 4 | 6.3 | 10 | 6.3 | 10 | 16 | 25 | 25 | 40 | 60 | 80 | 100 | 140 | 160 | 200 | 300 |
| Seat \varnothing | 24 | | | | 31 | | | 38 | 48 | | 63 | 75 | 80 | 90 | 100 | 110 | 130 |
| DN | | | | | | | | | | | | | | | | | |
| 15 | • | • | | | | | | | | | | | | | | | |
| 20 | • | • | • | | | | | | | | | | | | | | |
| 25 | • | • | • | • | | | | | | | | | | | | | |
| 32 | | | | | • | • | • | | | | | | | | | | |
| 40 | | | | | • | • | • | • | | | | | | | | | |
| 50 | | | | | • | • | • | • | | • | | | | | | | |
| 65 | | | | | | | | | • | • | • ¹⁾ | | | | | | |
| 80 | | | | | | | | | • | • | • | • | | | | | |
| 100 | | | | | | | | | | | | | • | | • | | |
| 125 | | | | | | | | | | | | | | • | | • ¹⁾ | |
| 150 | | | | | | | | | | | | | | | | • | • |
| Δp in bar when $p_2 = 0$ · Refer T 8340 EN for nominal thrusts | | | | | | | | | | | | | | | | | |
| Mixing valve with Type 3274-xx | | | | | | | | | | | | | | | | | |
| -11/-15/-21 | 35.5 | 35.5 | 35.5 | 35.5 | 19 | 19 | 19 | 12 | 6.9 | 6.9 | 3.7 | 2.6 | 1.8 | 1.4 | 1.1 | 0.9 | 0.6 |
| -13 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 32 | 20 | 20 | 11 | 7.5 | 6.4 | 5.0 | 4.0 | 3.2 | 2.2 |
| Diverting valve with Type 3274-xx | | | | | | | | | | | | | | | | | |
| -11/-15/-21 | 35.5 | 35.5 | 35.5 | 35.5 | 19 | 19 | 19 | 12 | 6.9 | 6.9 | 3.7 | 2.6 | 1.8 | 1.4 | 1.1 | 0.9 | 0.6 |
| -13 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 32 | 20 | 20 | 11 | 7.5 | 6.4 | 5.0 | 4.0 | 3.2 | 2.2 |

1) Type 3244/3274 mixing valve only

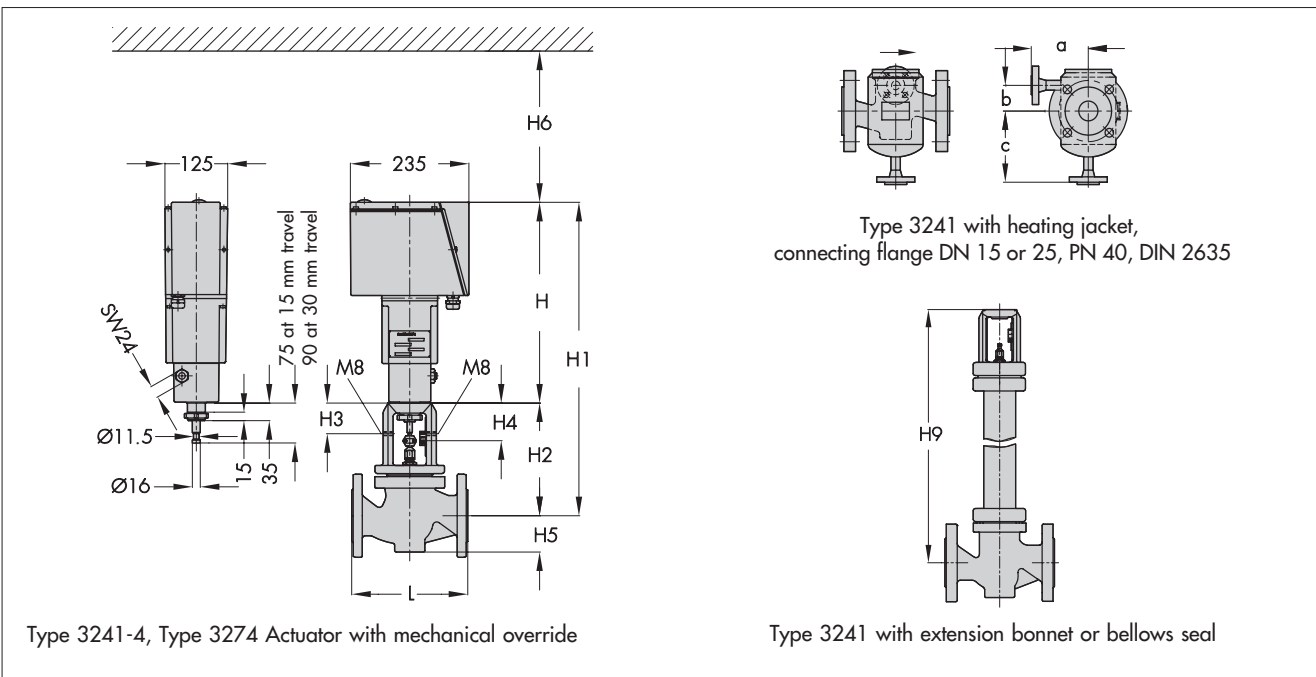
Table 3 · Dimensions and weights

| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 |
|-------------------------|----|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Length L | mm | 130 | 150 | 160 | 180 | 200 | 230 | 290 | 310 | 350 | 400 | 480 |
| Height H1 | mm | H2 + H | | | | | | | | | | |
| Height H2 | mm | 220 | 220 | 220 | 220 | 220 | 220 | 260 | 260 | 350 | 363 | 390 |
| Height H3 | mm | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 75 | 75 | 75 |
| Height H4, valve closed | mm | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 90 | 90 | 90 |
| Height H5 | mm | 44 | 44 | 44 | 72 | 72 | 72 | 98 | 98 | 118 | 144 | 175 |
| Weight | kg | 5 | 6 | 7 | 11 | 12 | 15 | 24 | 30 | 42 | 80 | 120 |

| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | |
|--------------|------------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Height H9 | Short/with bellows | mm | 408 | 408 | 408 | 408 | 408 | 450 | 450 | 635 | 644 | 671 | |
| | Long/long with bellows | mm | 710 | 710 | 710 | 712 | 712 | 712 | 754 | 754 | 883 | 885 | 912 |
| Weight | Short/with bellows | kg | 8 | 9 | 10 | 17 | 18 | 21 | 32 | 38 | 60 | 105 | 150 |
| | Long/long with bellows | kg | 12 | 13 | 14 | 21 | 22 | 25 | 36 | 42 | 68 | 113 | 158 |

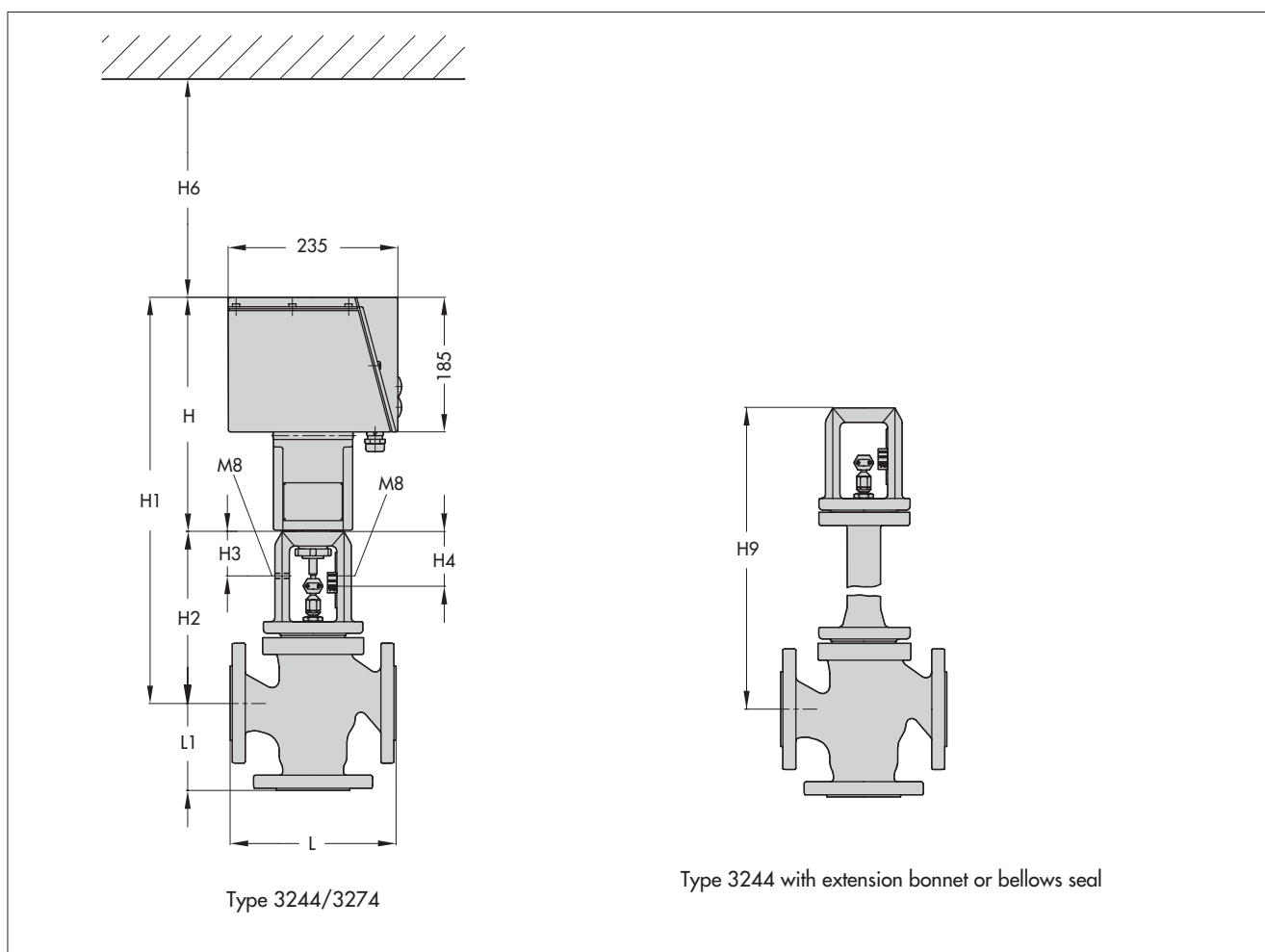
| Nominal size | DN | 25 | 50 | 80 | 100 |
|--------------|----|-----|-----|-----|-----|
| a | mm | 110 | 140 | 180 | 200 |
| b | mm | 15 | 20 | 35 | 50 |
| c | mm | 140 | 170 | 215 | 250 |

| Type 3274 Actuator | | -11 to -14/-21 to -23 | -15 to -18 |
|--------------------|----|-----------------------|------------|
| Height H | mm | 320 | 412 |
| Height H6 | mm | 150 | 150 |
| Weight | kg | 11 | 13 |



| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 |
|-------------------------|----|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Length L | mm | 130 | 150 | 160 | 180 | 200 | 230 | 290 | 310 | 350 | 400 | 480 |
| Length L1 | mm | 70 | 80 | 85 | 100 | 105 | 120 | 130 | 140 | 150 | 200 | 210 |
| Height H1 | mm | H2 + H | | | | | | | | | | |
| Height H2 | mm | 235 | 235 | 235 | 235 | 235 | 235 | 260 | 260 | 350 | 335 | 355 |
| Height H3 | mm | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 75 | 75 | 75 |
| Height H4, valve closed | mm | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 90 | 90 | 90 |
| Weight | kg | 6 | 7 | 8 | 14 | 15 | 17 | 31 | 37 | 49 | 93 | 135 |

| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | |
|--------------|------------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Height H9 | Short/with bellows | mm | 420 | 420 | 420 | 410 | 410 | 410 | 435 | 435 | 635 | 600 | 615 |
| | Long/long with bellows | mm | 725 | 725 | 725 | 715 | 715 | 715 | 740 | 740 | 875 | 840 | 855 |
| Weight | Short/with bellows | kg | 9 | 10 | 11 | 20 | 21 | 23 | 39 | 45 | 67 | 118 | 165 |
| | Long/long with bellows | kg | 12 | 14 | 16 | 24 | 25 | 27 | 43 | 49 | 95 | 126 | 173 |



Specifications subject to change without notice.



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