

Butterfly Valve

## ISORIA 20/25

DN 32-1000

PS 20 bar: ISORIA 20

PS 25 bar: ISORIA 25

### Type Series Booklet



## **Legal information/Copyright**

Type Series Booklet ISORIA 20/25

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## Butterfly Valves

### Centred-disc Butterfly Valves

## ISORIA 20/25



#### Main applications

- Cooling circuits
- Seawater desalination/reverse osmosis
- Flue gas desulphurisation
- Paper industry / pulp industry
- Washing plants
- General irrigation systems
- Shipbuilding
- Pipelines and tank farms
- Process engineering
- Sugar industry
- Pressure boosting
- Water treatment

#### Fluids handled

- Wash water
- Seawater
- Service water
- Cooling water
- Fire-fighting water
- Drinking water
- Brackish water
- River water, lake water and groundwater
- Abrasive fluids
- Fluids containing mineral oils
- Solids-laden fluids

- Organic fluids
- Radioactive fluids
- Solvents

#### Operating data

Table 1: Operating properties

| Characteristic                                       | Value                           |              |
|------------------------------------------------------|---------------------------------|--------------|
|                                                      | ISORIA 20                       | ISORIA 25    |
| Pressure class                                       | PN 20                           | PN 25        |
| Nominal size                                         | DN 32 - 600                     | DN 32 - 1000 |
| Max. permissible pressure [bar]                      | 20                              | 25           |
| Min. permissible temperature [°C]                    | ≥ -10                           | ≥ -10        |
| Max. permissible temperature [°C]                    | ≤ +80                           | ≤ +60        |
| Actuation at ΔP [bar] at ambient temperature         | 20 max.                         | 25 max.      |
| Vacuum operation down to                             | 0.3 bar absolute                |              |
| Max. permissible flow velocity at operating pressure | 1.5 to 3 m/s (max.) for water   |              |
| Temperature [°C] with                                |                                 |              |
| XA liner                                             | -20 to +90                      |              |
| XC liner                                             | -20 to +90                      |              |
| XV liner                                             | -20 to +130                     |              |
| K liner                                              | -5 to +90                       |              |
| Downstream dismantling and dead-end service          | Permissible                     |              |
| Shaft end                                            | All DN's = Square end, ISO 5211 |              |

Liner pressure limits based on pressure/materials table for liners

#### Design details

##### Design

- Semi-lug body - T2: DN 32 - 600
- Full-lug body with flat faces - T3: DN 32 - 600 (ISORIA 20 only)
- Full-lug body with raised faces - T4: DN 32 - 600 (ISORIA 20 only)
- Flanged body with flat faces - T5: DN 200 - 600 (ISORIA 20/25) and DN 650 - 1000 (ISORIA 25 only)
- Downstream dismantling possible with body types T2, T3, T4 and T5
- Dead-end service with counterflange possible with all body types
- Body with polyurethane coating, thickness 80 µm, colour: RAL 5002, blue
- Valve disc made of nodular cast iron, epoxy-coated, thickness 80 µm, colour: RAL 8012, brown
- Design to EN 593 and ISO 10631
- Top flange and square valve shaft end to ISO 5211
- Marking in accordance with EN 19
- Absolutely tight shut-off in either direction of flow in accordance with EN 12266-1, leakage rate A, and ISO 5208, category A.
- EN, ASME, JIS, AWWA connections possible.
- Face-to-face length to ISO 5752-20 and EN 558-1-20 for valves of DN 32 - 600

## Variants

- Butterfly valve cleaned and packaged, free from paint wetting impairment substances
- Electric quarter-turn actuators
- AMTROBOX for open/closed position signalling
- UL version of ISORIA 20 for fire protection applications
- Version to RCC-M and ASME for use in the nuclear sector
- Anti-static design for manually actuated valves

## Valve body materials

**Table 2:** Overview of available materials

| Material                       | Material number | Type | DN max.     | KSB code |
|--------------------------------|-----------------|------|-------------|----------|
| <b>ISORIA 20 and ISORIA 25</b> |                 |      |             |          |
| EN-GJS-400-15                  | 5.3106          | T2   | DN 32-600   | 3g       |
| EN-GJS-400-15                  | 5.3106          | T5   | DN 350-600  | 3g       |
| <b>ISORIA 20</b>               |                 |      |             |          |
| EN-GJS-400-15                  | 5.3106          | T3   | DN 32-600   | 3g       |
| EN-GJS-400-15                  | 5.3106          | T4   | DN 32-600   | 3g       |
| Cast steel                     | 1.0619          | T4   | DN 32-600   | 1        |
| Cast steel                     | 1.0619          | T5   | DN 200-600  | 1        |
| <b>ISORIA 25</b>               |                 |      |             |          |
| EN-GJS-400-15                  | 5.3106          | T5   | DN 700-1000 | 3g       |
| ASTM A536 Gr. 60.40.18         |                 | T5   | DN 350-1000 | 3g       |
| Cast steel                     |                 | T5   | DN 200-1000 | 1        |
| ASTM A216 Gr. WCC              |                 |      |             |          |

## Product benefits

- The spherical contact between valve disc and liner ensures durable and permanently tight shut-off.
- Splined or keyed connection between shaft and valve disc: dry shaft, no contact with fluid handled
- Sealing to atmosphere is ensured even when the actuator has been removed.
- Marking indicates position of valve disc
- Valve equipped with stainless steel plain bearing with reinforced PTFE coating depending on DN

## Product information

### Product information as per Pressure Equipment Directive 2014/68/EU (PED)

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.

### Product information as per UK Pressure Equipment (Safety) Regulations 2016

The valves satisfy the safety requirements of the UK Pressure Equipment (Safety) Regulations 2016 (PER) for fluids in Groups 1 and 2.

### EC Machinery Directive 2006/42/EC

Valves with actuators can meet the requirements of the 2006/42/EC Machinery Directive for partly completed machinery.

### Product information as per Regulation No. 1907/2006 (REACH)

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

## Product information as per Directive 2014/34/EU (ATEX)

The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) to ATEX 2014/34/EU.

## Certifications

**Table 3:** Overview

| Label                                                                               | Effective in:  | Comment                                                          |
|-------------------------------------------------------------------------------------|----------------|------------------------------------------------------------------|
|  | Worldwide      | -                                                                |
|  | France         | Approved in accordance with the French drinking water regulation |
|  | United Kingdom | Approved in accordance with the UK drinking water regulation     |
|  | Worldwide      | Approved for marine applications                                 |
|  | Worldwide      | Approved for marine applications                                 |
|  | Worldwide      | Approved for marine applications                                 |
|  | Worldwide      | Approved for marine applications                                 |

## Related documents

**Table 4:** Information/documents

| Document         | Reference number |
|------------------|------------------|
| Operating manual | 8449.8           |

**Purchase order specifications**

1. Type
2. Nominal pressure
3. Nominal size
4. Fluid handled
5. Flow rate / flow velocity
6. Operating temperature
7. Materials (body, valve disc, seat)
8. Line connection, flange facing and flange surface quality
9. Actuator / automation
10. Reference number

## Technical data

### Permissible pressures for liners

Table 5: Summarising table

| DN       | NPS    | Max. permissible pressure PS [bar] |    |    |
|----------|--------|------------------------------------|----|----|
|          | [inch] | XA - XC                            | XV | K  |
| 32-600   | 1¼-24  | 20                                 | 20 | 20 |
| 32-600   | 1¼-24  | 25                                 | 25 | -  |
| 700-1000 | 28-40  | 25                                 | -  | -  |

### Vacuum resistance

Table 6: vacuum resistance data

| DN       | NPS    | Liner mounting method | Min. pressure                          | Max. temperature     |
|----------|--------|-----------------------|----------------------------------------|----------------------|
|          | [inch] |                       | [bar absolute]                         | All liners           |
| 32-150   | 1¼-6   | Non-glued (standard)  | $1,33 \cdot 10^{-5}$ ( $10^{-2}$ torr) | See "Operating data" |
| 200-600  | 8-24   | Non-glued (standard)  | 0,3                                    |                      |
| 200-1000 | 8-24   | Glued (optional)      | $1,33 \cdot 10^{-5}$ ( $10^{-2}$ torr) |                      |

### Hydraulic characteristics of butterfly valves

Table 7: Kv0 and Cv0 [mm]

| DN   | NPS    | Flow coefficient with valve disc fully open |       | Zeta |
|------|--------|---------------------------------------------|-------|------|
|      | [inch] | Kv0                                         | Cv0   |      |
| 32   | 1¼     | 30                                          | 35    | 1,44 |
| 40   | 1½     | 53                                          | 62    | 1,46 |
| 50   | 2      | 133                                         | 154   | 0,56 |
| 65   | 2½     | 240                                         | 280   | 0,49 |
| 80   | 3      | 410                                         | 475   | 0,39 |
| 100  | 4      | 655                                         | 760   | 0,37 |
| 125  | 5      | 900                                         | 1044  | 0,48 |
| 150  | 6      | 1800                                        | 2090  | 0,25 |
| 200  | 8      | 3550                                        | 4120  | 0,20 |
| 250  | 10     | 3890                                        | 4500  | 0,41 |
| 300  | 12     | 5580                                        | 6470  | 0,42 |
| 350  | 14     | 8060                                        | 9350  | 0,37 |
| 400  | 16     | 10500                                       | 12180 | 0,37 |
| 450  | 18     | 13300                                       | 15400 | 0,37 |
| 500  | 20     | 17400                                       | 20200 | 0,33 |
| 550  | 22     | 21000                                       | 24400 | 0,33 |
| 600  | 24     | 25000                                       | 29000 | 0,33 |
| 700  | 28     | 34200                                       | 39600 | 0,33 |
| 800  | 32     | 43000                                       | 49900 | 0,35 |
| 900  | 36     | 54600                                       | 63300 | 0,35 |
| 1000 | 40     | 69600                                       | 80700 | 0,33 |

## Actuating torques

A safety coefficient has already been included in the actuating torques for actuator selection.

**Table 8:** actuating torques [Nm] for ISORIA 20

| DN  | NPS    | With lubricating fluids | With non-lubricating fluids |
|-----|--------|-------------------------|-----------------------------|
|     | [inch] |                         |                             |
| 32  | 1¼     | 20                      | 20                          |
| 40  | 1½     | 20                      | 20                          |
| 50  | 2      | 30                      | 30                          |
| 65  | 2½     | 40                      | 50                          |
| 80  | 3      | 50                      | 60                          |
| 100 | 4      | 70                      | 100                         |
| 125 | 5      | 100                     | 150                         |
| 150 | 6      | 140                     | 200                         |
| 200 | 8      | 240                     | 350                         |
| 250 | 10     | 410                     | 610                         |
| 300 | 12     | 630                     | 950                         |
| 350 | 14     | 860                     | 1300                        |
| 400 | 16     | 1300                    | 1900                        |
| 450 | 18     | 1700                    | 2500                        |
| 500 | 20     | 2100                    | 3100                        |
| 550 | 22     | 2500                    | 3700                        |
| 600 | 24     | 2900                    | 4300                        |

**Table 9:** actuating torques [Nm] for ISORIA 25

| DN   | NPS    | With lubricating fluids only |
|------|--------|------------------------------|
|      | [inch] |                              |
| 32   | 1¼     | 20                           |
| 40   | 1½     | 20                           |
| 50   | 2      | 30                           |
| 65   | 2½     | 50                           |
| 80   | 3      | 60                           |
| 100  | 4      | 100                          |
| 125  | 5      | 150                          |
| 150  | 6      | 200                          |
| 200  | 8      | 270                          |
| 250  | 10     | 500                          |
| 300  | 12     | 800                          |
| 350  | 14     | 1000                         |
| 400  | 16     | 1600                         |
| 450  | 18     | 2100                         |
| 500  | 20     | 2500                         |
| 550  | 22     | 3000                         |
| 600  | 24     | 3500                         |
| 700  | 28     | 9000                         |
| 800  | 32     | 10500                        |
| 900  | 36     | 12000                        |
| 1000 | 40     | 14000                        |

## Materials

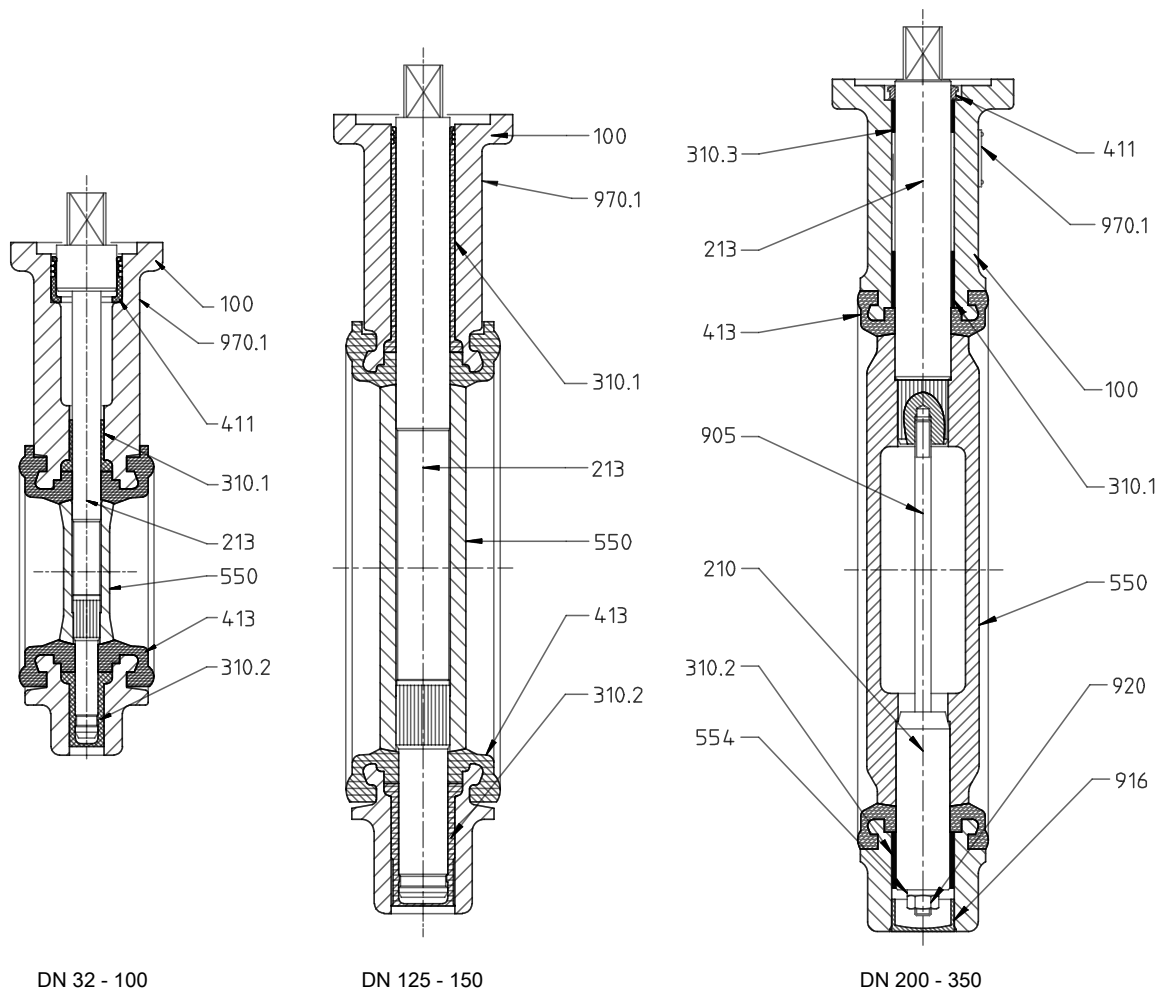


Fig. 1: Sectional drawings of ISORIA 20/25, DN 32 - 350

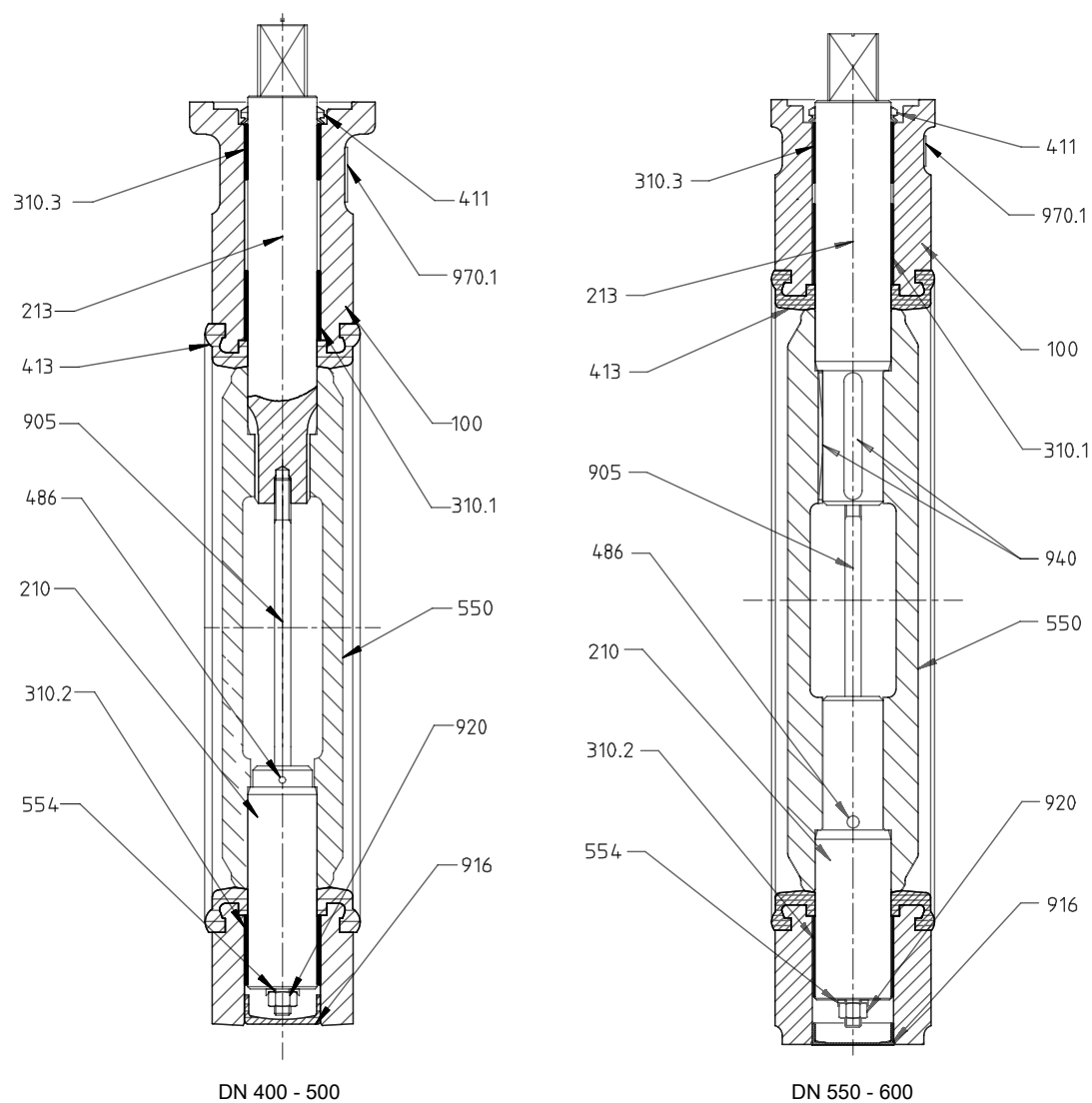


Fig. 2: Sectional drawings of ISORIA 20/25, DN 400 - 600

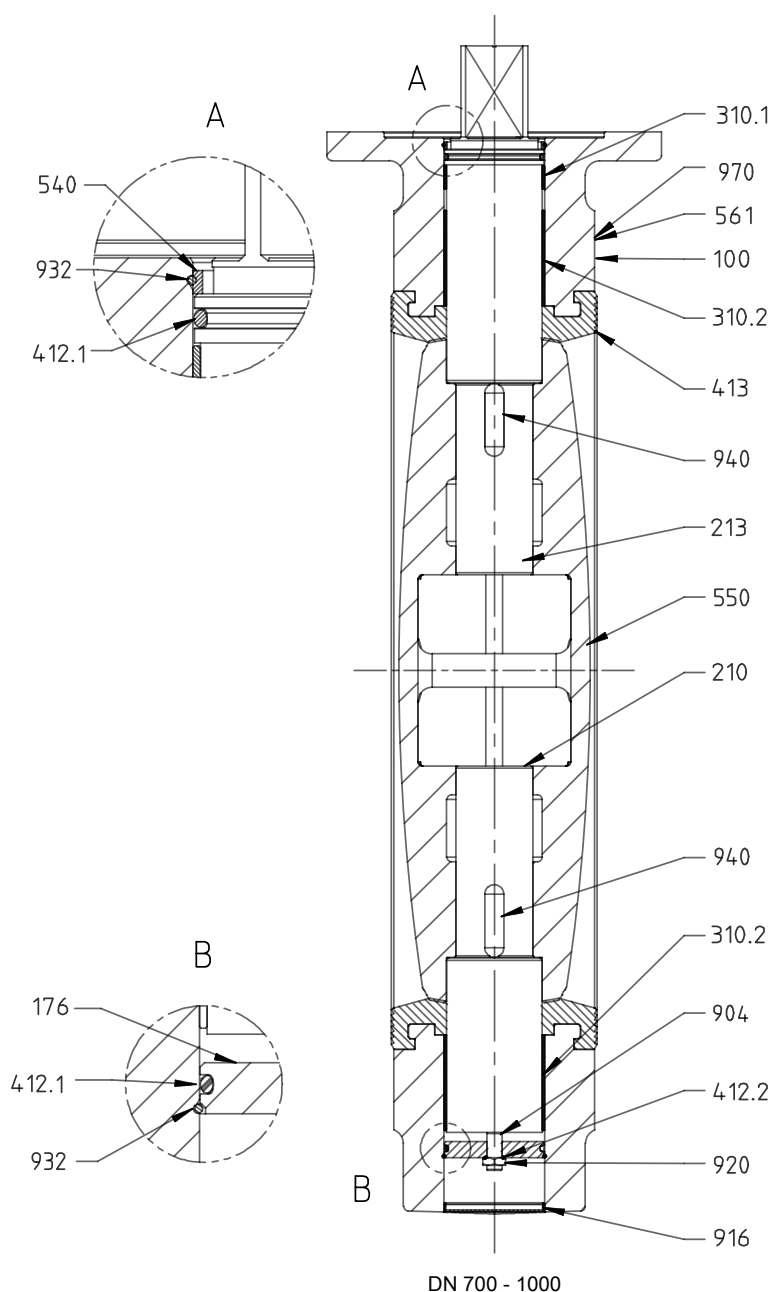


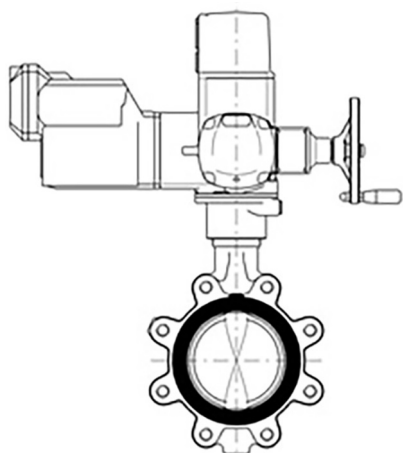
Fig. 3: Sectional drawings of ISORIA 25 for DN 700 - 1000

**Table 10:** List of components

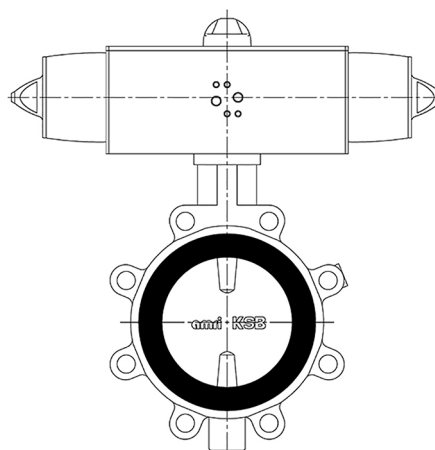
| Part No.                | Description                 | DN         | Materials                                                    | KSB code         |
|-------------------------|-----------------------------|------------|--------------------------------------------------------------|------------------|
| 100                     | Body T2                     | 32 - 600   | Nodular cast iron 5.3106                                     | 3g               |
| 100                     | Body T3                     | 32 - 600   | Nodular cast iron 5.3106                                     | 3g               |
| 100                     | Body T4                     | 32 - 600   | Nodular cast iron 5.3106                                     | 3g               |
| 100                     | Body T4                     | 32 - 600   | Cast steel                                                   | 1                |
| 100                     | Body T5                     | 350 - 1000 | Nodular cast iron 5.3106                                     | 3g               |
| 100                     | Body T5                     | 700 - 1000 | ASTM A536 Gr. 60.40.18                                       | 3g               |
| 100                     | Body T5                     | 200 - 1000 | Cast steel                                                   | 1                |
| 100                     | Body T5                     | 700 - 1000 | ASTM A216 Gr. WCC                                            | 1                |
| 176                     | Bottom                      | 700 - 1000 | Steel                                                        |                  |
| 210 <sup>1)</sup>       | Shaft                       | 200 - 600  | Stainless steel 1.4057 (17 % Cr)                             | 6h               |
| 210 <sup>1)</sup>       | Shaft                       | 200 - 600  | Nickel alloy MONEL K 500, tempered                           | 8                |
| 210 <sup>1)</sup>       | Shaft                       | 700 - 1000 | Stainless steel 1.4028 (13 % Cr)                             | 6k               |
| 213 <sup>1)</sup>       | Actuating shaft             | 32 - 600   | Stainless steel 1.4057 (17 % Cr)                             | 6h               |
| 213 <sup>1)</sup>       | Actuating shaft             | 32 - 600   | Nickel alloy MONEL K 500, tempered                           | 8                |
| 213 <sup>1)</sup>       | Actuating shaft             | 700 - 1000 | Stainless steel 1.4028 (13 % Cr)                             | 6k               |
| 310.1 <sup>1)2)3)</sup> | Plain bearing               | 32 - 150   | Acetal                                                       |                  |
| 310.1 <sup>1)</sup>     | Plain bearing               | 200 - 1000 | Steel with reinforced PTFE coating                           |                  |
| 310.2 <sup>1)2)3)</sup> | Plain bearing               | 32 - 150   | Acetal                                                       |                  |
| 310.2 <sup>1)</sup>     | Plain bearing               | 200 - 1000 | Steel with reinforced PTFE coating                           |                  |
| 310.3 <sup>1)</sup>     | Plain bearing               | 200 - 600  | Steel with reinforced PTFE coating                           |                  |
| 411 <sup>1)2)3)</sup>   | Joint ring                  | 32 - 100   | Acetal                                                       |                  |
| 411 <sup>1)2)3)</sup>   | Joint ring                  | 200 - 600  | Nitrile                                                      |                  |
| 412.1 <sup>1)2)3)</sup> | O-ring                      | 700 - 1000 | Nitrile                                                      |                  |
| 412.2 <sup>1)2)3)</sup> | O-ring                      | 700 - 1000 | Nitrile                                                      |                  |
| 413 <sup>3)</sup>       | Liner                       | 32 - 600   | EPDM                                                         | XA               |
| 413 <sup>3)</sup>       | Liner                       | 32 - 1000  | EPDM suitable for drinking water                             | XC               |
| 413 <sup>3)</sup>       | Liner                       | 32 - 600   | EPDM, heat-resistant                                         | XV               |
| 413 <sup>3)</sup>       | Liner                       | 32 - 600   | High-grade nitrile                                           | K                |
| 486 <sup>1)</sup>       | Ball                        | 400 - 600  | Stainless steel                                              |                  |
| 540 <sup>1)2)3)</sup>   | Bush                        | 700 - 1000 | Acetal                                                       |                  |
| 550 <sup>2)</sup>       | Valve disc                  | 32 - 1000  | Nodular cast iron 5.3106                                     | 3g               |
| 550 <sup>2)</sup>       | Valve disc                  | 32 - 600   | Stainless steel 1.4408 (18-12) ASTM A351 Gr. CF8M            | 6                |
| 550 <sup>2)</sup>       | Valve disc                  | 32 - 600   | Stainless steel 1.4408 (18-12), polished, ASTM A351 Gr. CF8M | 6I <sup>4)</sup> |
| 550 <sup>2)</sup>       | Valve disc                  | 700 - 1000 | ASTM A536 Gr. 60.40.18                                       | 3g               |
| 550 <sup>2)</sup>       | Valve disc                  | 32 - 1000  | Aluminium bronze CC333G                                      | 2                |
| 554 <sup>1)2)3)</sup>   | Washer                      | 200 - 600  | Nylon                                                        |                  |
| 561                     | Half round head grooved pin | 700 - 1000 | Stainless steel                                              |                  |
| 904 <sup>1)</sup>       | Grub screw                  | 700 - 1000 | Steel                                                        |                  |
| 905 <sup>1)</sup>       | Tie bolt                    | 200 - 600  | Steel                                                        |                  |
| 916 <sup>1)2)3)</sup>   | Plug                        | 200 - 500  | Polyethylene                                                 |                  |
| 916 <sup>1)2)3)</sup>   | Plug                        | 550 - 1000 | Polyamide                                                    |                  |
| 920 <sup>1)</sup>       | Nut                         | 200 - 1000 | Steel                                                        |                  |
| 932 <sup>1)2)3)</sup>   | Circlip                     | 700 - 1000 | Stainless steel                                              |                  |
| 940 <sup>1)</sup>       | Key                         | 550 - 1000 | Steel                                                        |                  |
| 970                     | Name plate                  | 700 - 1000 | Stainless steel                                              |                  |
| 970.1                   | Name plate                  | 32 - 600   | Stainless steel                                              |                  |

- <sup>1)</sup> Part from shaft spare parts kit  
<sup>2)</sup> Part from valve disc spare parts kit  
<sup>3)</sup> Part from liner spare parts kit  
<sup>4)</sup> ISORIA 20 only

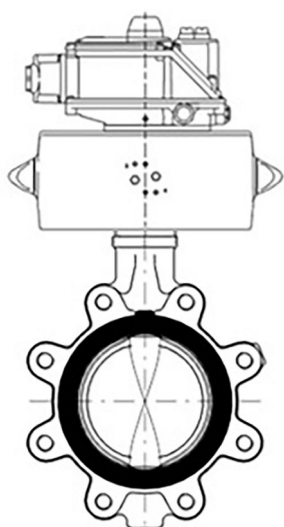
## Variants



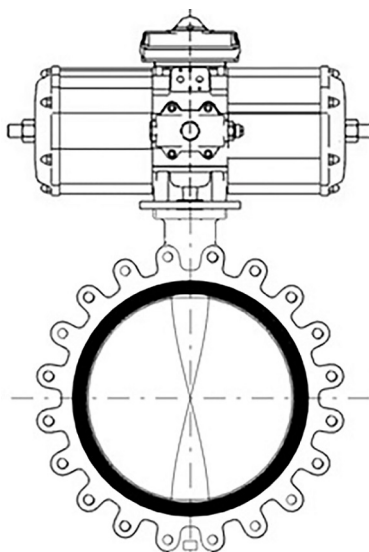
Electric actuator



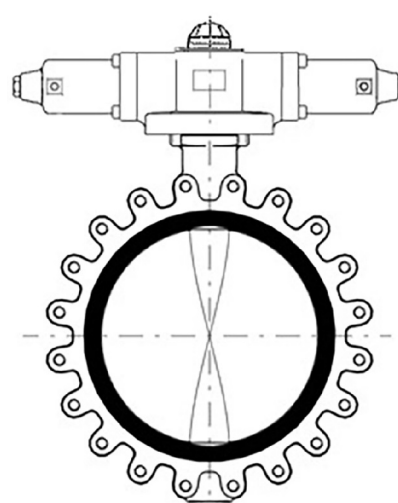
ACTAIR EVO / DYNACTAIR EVO pneumatic actuators



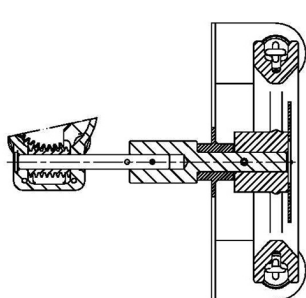
AMTRONIC U / SMARTRONIC U  
compressed air supply, positioner



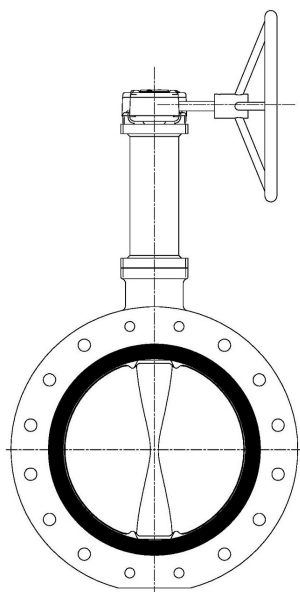
AMTROBOX, AMTROBOX R, AMTROBOX  
Ex-ia limit switch box



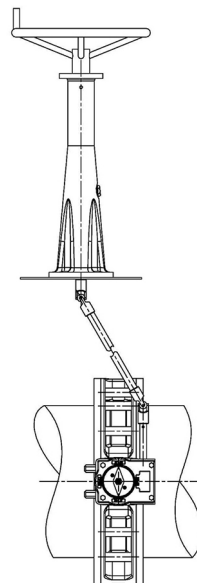
HQ EVO Hydraulic actuator



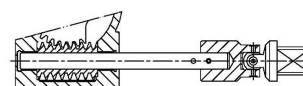
Actuation via chain wheel



Actuation via extension



Deck stand



Cardan connection

## Dimensions and weights

### Dimensions of ISORIA 20/25

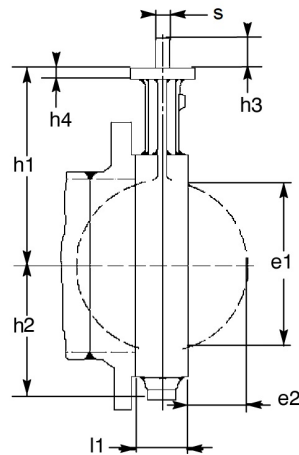


Fig. 4: ISORIA 20/25 with bare shaft end

Table 11: Dimensions [mm]

| DN   | NPS    | l1  | h1  | h2  | Top flange to ISO 5211 |    | Shaft end Square end |    | Valve disc |     |
|------|--------|-----|-----|-----|------------------------|----|----------------------|----|------------|-----|
|      | [inch] |     |     |     | No.                    | h4 | Øs                   | h3 | e1         | e2  |
| 32   | 1¼     | 33  | 109 | 54  | F05                    | 10 | L11                  | 12 | -          | -   |
| 40   | 1½     | 33  | 105 | 58  | F05                    | 10 | L11                  | 12 | 33         | 4   |
| 50   | 2      | 43  | 115 | 65  | F05                    | 10 | L11                  | 12 | 38         | 4   |
| 65   | 2½     | 46  | 130 | 75  | F05                    | 10 | L11                  | 12 | 55         | 10  |
| 80   | 3      | 46  | 135 | 95  | F05                    | 10 | L11                  | 12 | 74         | 18  |
| 100  | 4      | 52  | 150 | 105 | F05                    | 10 | L14                  | 16 | 92         | 25  |
| 125  | 5      | 56  | 165 | 124 | F07                    | 12 | L14                  | 16 | 117        | 35  |
| 150  | 6      | 56  | 185 | 141 | F07                    | 12 | L17                  | 19 | 143        | 48  |
| 200  | 8      | 60  | 218 | 172 | F10                    | 15 | L17                  | 19 | 191        | 68  |
| 250  | 10     | 68  | 265 | 206 | F10                    | 15 | L22                  | 24 | 241        | 89  |
| 300  | 12     | 78  | 306 | 236 | F12                    | 18 | L22                  | 24 | 290        | 110 |
| 350  | 14     | 78  | 335 | 269 | F14                    | 22 | L27                  | 29 | 326        | 127 |
| 400  | 16     | 102 | 380 | 302 | F14                    | 22 | L36                  | 38 | 370        | 140 |
| 450  | 18     | 114 | 410 | 328 | F14                    | 22 | L36                  | 38 | 422        | 160 |
| 500  | 20     | 127 | 440 | 358 | F16                    | 26 | L46                  | 48 | 470        | 178 |
| 550  | 22     | 154 | 475 | 406 | F16                    | 26 | L46                  | 48 | 522        | 195 |
| 600  | 24     | 154 | 495 | 438 | F16                    | 26 | L46                  | 48 | 566        | 215 |
| 700  | 28     | 210 | 581 | 542 | F30                    | 43 | L75                  | 77 | 670        | 246 |
| 800  | 32     | 230 | 631 | 602 | F30                    | 43 | L75                  | 77 | 768        | 286 |
| 900  | 36     | 260 | 681 | 657 | F30                    | 43 | L75                  | 77 | 864        | 321 |
| 1000 | 40     | 280 | 756 | 713 | F30                    | 43 | L75                  | 77 | 962        | 361 |

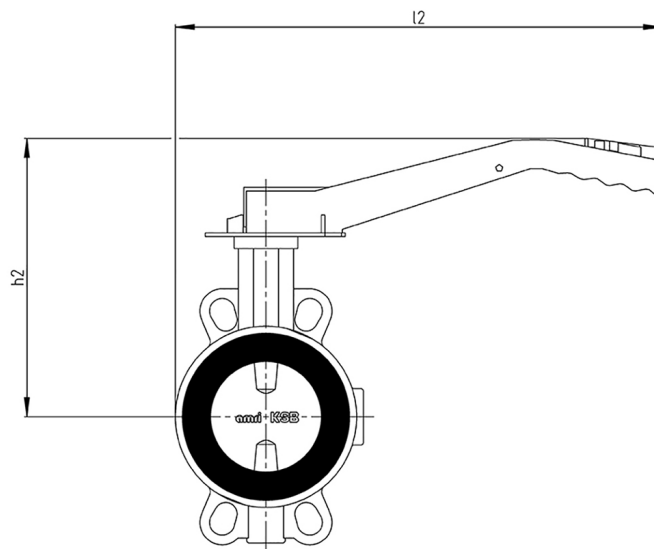
### Manual override

The selection of actuators given below typically applies to butterfly valves handling lubricating fluids at the maximum flow velocities shown.

For valves handling non-lubricating fluids (gas), a max. flow velocity of 50 m/s applies.

Higher flow velocities and further actuator/valve combinations are possible, depending on the operating conditions and hydraulic characteristics. Please contact us.

## Dimensions and weights of ISORIA 20/25 + lever S+/SR+



**Fig. 5:** Unit comprising ISORIA 20/25 + lever S+/SR+

S lever: can be locked in end positions

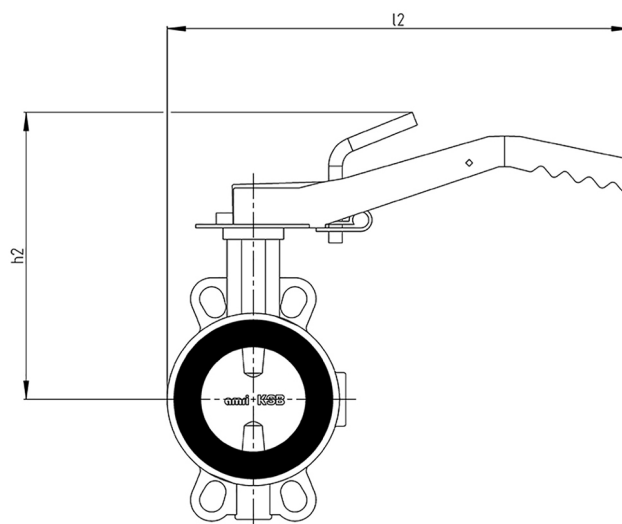
SR lever: can be locked in 9 positions

**Table 12:** Actuation via S+/SR+ lever [mm]

| DN  | NPS    | Max. velocity | l2  | h2  | [kg] <sup>5)</sup> |
|-----|--------|---------------|-----|-----|--------------------|
|     | [inch] | [m/s]         |     |     |                    |
| 32  | 1¼     | 4,0           | 180 | 164 | 0,5                |
| 40  | 1½     | 4,0           | 180 | 160 | 0,5                |
| 50  | 2      | 4,0           | 180 | 170 | 0,5                |
| 32  | 1¼     | 4,0           | 260 | 184 | 0,6                |
| 40  | 1½     | 4,0           | 260 | 180 | 0,6                |
| 50  | 2      | 4,0           | 260 | 190 | 0,6                |
| 65  | 2½     | 4,0           | 260 | 205 | 0,6                |
| 80  | 3      | 4,0           | 260 | 210 | 0,6                |
| 100 | 4      | 4,0           | 330 | 235 | 0,7                |
| 125 | 5      | 4,0           | 330 | 250 | 0,7                |
| 150 | 6      | 4,0           | 330 | 270 | 0,7                |

<sup>5</sup> The weights given refer to the actuating element.

# Dimensions and weights of ISORIA 20/25 + lever SP+



**Fig. 6:** Unit comprising ISORIA 20/25 + lever SP+

SP+ lever: can be locked in any position

**Table 13:** Actuation via SP+ lever [mm]

| DN  | NPS    | Max. velocity | l2  | h2  | [kg] <sup>6)</sup> |
|-----|--------|---------------|-----|-----|--------------------|
|     | [inch] | [m/s]         |     |     |                    |
| 32  | 1¼     | 4,0           | 260 | 209 | 0,7                |
| 40  | 1½     | 4,0           | 260 | 205 | 0,7                |
| 50  | 2      | 4,0           | 260 | 210 | 0,7                |
| 65  | 2½     | 4,0           | 260 | 236 | 0,7                |
| 80  | 3      | 4,0           | 260 | 242 | 0,7                |
| 100 | 4      | 4,0           | 330 | 263 | 1,4                |
| 125 | 5      | 4,0           | 330 | 277 | 1,4                |
| 150 | 6      | 4,0           | 330 | 294 | 1,4                |

<sup>6)</sup> The weights given refer to the actuating element.

Dimensions and weights of ISORIA 20/25 + lever CR+/CM+

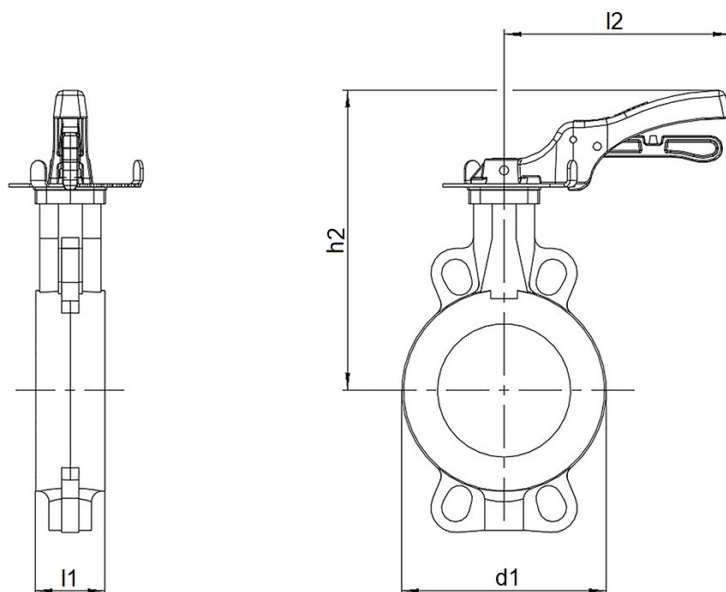


Fig. 7: Unit comprising ISORIA 20/25 + lever CR+/CM+

Table 14: Actuation via lever CR+/CM+ [mm]

| DN  | NPS<br>[inch] | Max. velocity<br>[m/s] | l1 | d1  | l2                | h2  | [kg] <sup>7)</sup> |
|-----|---------------|------------------------|----|-----|-------------------|-----|--------------------|
| 32  | 1¼            | 4,0                    | 33 | 103 | 165               | 182 | 0,8                |
| 40  | 1½            | 4,0                    | 33 | 110 | 165               | 178 | 0,8                |
| 50  | 2             | 4,0                    | 43 | 122 | 165               | 188 | 0,8                |
| 65  | 2½            | 4,0                    | 46 | 139 | 165               | 203 | 0,8                |
| 80  | 3             | 4,0                    | 46 | 145 | 165               | 208 | 0,8                |
| 100 | 4             | 4,0                    | 52 | 152 | 230               | 236 | 1,2                |
| 125 | 5             | 4,0                    | 56 | 185 | 300               | 264 | 1,7                |
| 150 | 6             | 4,0                    | 56 | 210 | 300               | 284 | 1,7                |
| 200 | 8             | 4,0                    | 60 | 346 | 510 <sup>8)</sup> | 331 | 3,1                |

<sup>7)</sup> The weights given refer to the actuating element.

<sup>8)</sup> High actuating torque, manual gearbox recommended

Dimensions and weights of ISORIA 20 + manual gearbox MA+

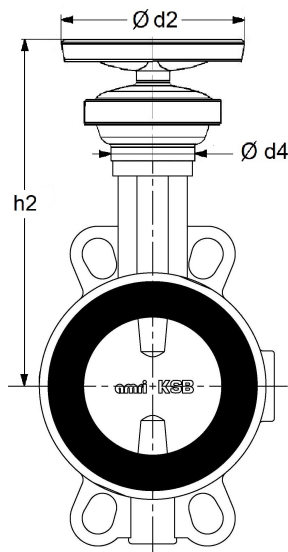


Fig. 8: Unit comprising ISORIA 20 + manual gearbox MA+

Table 15: Actuation via MA+ manual gearbox for ISORIA 20 [mm]

| DN  | NPS<br>[inch] | Max. velocity<br>[m/s] | Type  | d2  | h2  | d4 | [kg] <sup>9)</sup> |
|-----|---------------|------------------------|-------|-----|-----|----|--------------------|
| 32  | 1¼            | 4,0                    | MA12+ | 140 | 203 | 60 | 1,5                |
| 40  | 1½            | 4,0                    | MA12+ | 140 | 199 | 60 | 1,5                |
| 50  | 2             | 4,0                    | MA12+ | 140 | 209 | 60 | 1,5                |
| 65  | 2½            | 4,0                    | MA12+ | 140 | 224 | 60 | 1,5                |
| 80  | 3             | 4,0                    | MA12+ | 140 | 229 | 60 | 1,5                |
| 100 | 4             | 4,0                    | MA12+ | 140 | 244 | 70 | 1,5                |
| 125 | 5             | 4,0                    | MA25+ | 225 | 293 | 95 | 3                  |
| 150 | 6             | 4,0                    | MA25+ | 225 | 313 | 95 | 3                  |

<sup>9)</sup> The weights given refer to the actuating element.

## Dimensions and weights of ISORIA 20/25 + MS manual gearbox

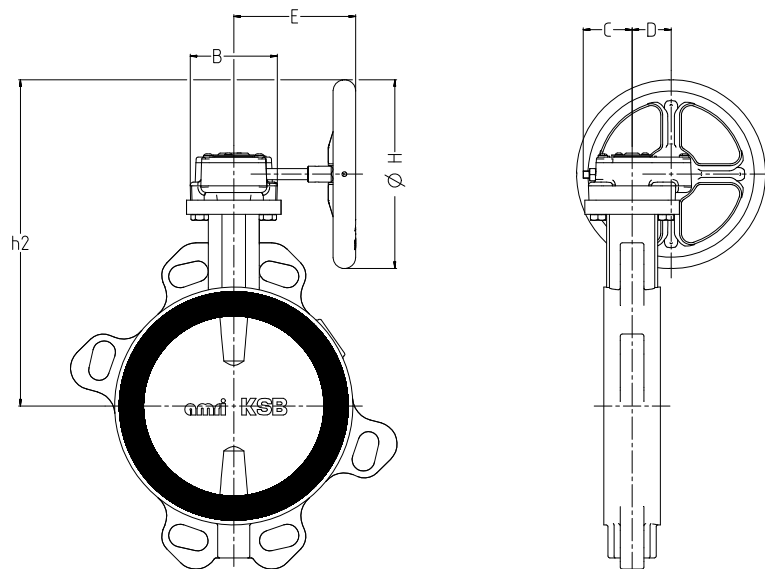


Fig. 9: Unit comprising ISORIA 20/25 + MS manual gearbox

Table 16: Actuation via MS manual gearbox for ISORIA 20 – 6/10 bar (lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B     | C    | D    | E   | H   | h2    | [kg] <sup>10)</sup> |
|-----|--------|---------------|-------|-------|------|------|-----|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |       |      |      |     |     |       |                     |
| 32  | 1¼     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 178,5 | 1,2                 |
| 40  | 1½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 174,5 | 1,2                 |
| 50  | 2      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 184,5 | 1,2                 |
| 65  | 2½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 199,5 | 1,2                 |
| 80  | 3      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 204,5 | 1,2                 |
| 100 | 4      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 219,5 | 1,2                 |
| 125 | 5      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 234,5 | 1,2                 |
| 150 | 6      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 312,5 | 2,7                 |
| 200 | 8      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 345,5 | 2,7                 |
| 250 | 10     | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 392,5 | 2,7                 |
| 300 | 12     | 4,0           | MS50  | 110,5 | 57   | 55   | 245 | 250 | 464,5 | 5,4                 |
| 350 | 14     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 572,5 | 8,7                 |
| 400 | 16     | 3,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 617,5 | 8,7                 |
| 450 | 18     | 3,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 647,5 | 8,7                 |
| 500 | 20     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 742,5 | 12,5                |
| 550 | 22     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 777,5 | 12,5                |
| 600 | 24     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 797,5 | 12,5                |

<sup>10)</sup> The weights given refer to the actuating element.

**Table 17:** Actuation via MS manual gearbox for ISORIA 20 – 16 bar (lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B     | C    | D    | E   | H   | h2    | [kg] <sup>10)</sup> |
|-----|--------|---------------|-------|-------|------|------|-----|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |       |      |      |     |     |       |                     |
| 32  | 1¼     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 178,5 | 1,2                 |
| 40  | 1½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 174,5 | 1,2                 |
| 50  | 2      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 184,5 | 1,2                 |
| 65  | 2½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 199,5 | 1,2                 |
| 80  | 3      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 204,5 | 1,2                 |
| 100 | 4      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 219,5 | 1,2                 |
| 125 | 5      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 234,5 | 1,2                 |
| 150 | 6      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 312,5 | 2,7                 |
| 200 | 8      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 345,5 | 2,7                 |
| 250 | 10     | 4,0           | MS50  | 110,5 | 57   | 55   | 245 | 250 | 423,5 | 5,4                 |
| 300 | 12     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 543,5 | 8,7                 |
| 350 | 14     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 572,5 | 8,7                 |
| 400 | 16     | 3,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 617,5 | 8,7                 |
| 450 | 18     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 712,5 | 12,5                |
| 500 | 20     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 742,5 | 12,5                |
| 550 | 22     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 777,5 | 12,5                |
| 600 | 24     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 801   | 27,5                |

**Table 18:** Actuation via MS manual gearbox for ISORIA 20 – 20 bar (lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B     | C    | D    | E   | H   | h2    | [kg] <sup>10)</sup> |
|-----|--------|---------------|-------|-------|------|------|-----|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |       |      |      |     |     |       |                     |
| 32  | 1¼     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 178,5 | 1,2                 |
| 40  | 1½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 174,5 | 1,2                 |
| 50  | 2      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 184,5 | 1,2                 |
| 65  | 2½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 199,5 | 1,2                 |
| 80  | 3      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 204,5 | 1,2                 |
| 100 | 4      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 219,5 | 1,2                 |
| 125 | 5      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 234,5 | 1,2                 |
| 150 | 6      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 312,5 | 2,7                 |
| 200 | 8      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 345,5 | 2,7                 |
| 250 | 10     | 4,0           | MS50  | 110,5 | 57   | 55   | 245 | 250 | 423,5 | 5,4                 |
| 300 | 12     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 543,5 | 8,7                 |
| 350 | 14     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 572,5 | 8,7                 |
| 400 | 16     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 682,5 | 12,5                |
| 450 | 18     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 712,5 | 12,5                |
| 500 | 20     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 746   | 27,5                |
| 550 | 22     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 481   | 27,5                |
| 600 | 24     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 801   | 27,5                |

**Table 19:** Actuation via MS manual gearbox for ISORIA 20 – 6/10 bar (non-lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B     | C    | D    | E   | H   | h2    | [kg] <sup>10)</sup> |
|-----|--------|---------------|-------|-------|------|------|-----|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |       |      |      |     |     |       |                     |
| 32  | 1¼     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 178,5 | 1,2                 |
| 40  | 1½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 174,5 | 1,2                 |
| 50  | 2      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 184,5 | 1,2                 |
| 65  | 2½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 199,5 | 1,2                 |
| 80  | 3      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 204,5 | 1,2                 |
| 100 | 4      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 219,5 | 1,2                 |
| 125 | 5      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 234,5 | 1,2                 |
| 150 | 6      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 312,5 | 2,7                 |
| 200 | 8      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 345,5 | 2,7                 |
| 250 | 10     | 4,0           | MS50  | 110,5 | 57   | 55   | 245 | 250 | 423,5 | 5,4                 |
| 300 | 12     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 543,5 | 8,7                 |
| 350 | 14     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 572,5 | 8,7                 |
| 400 | 16     | 3,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 617,5 | 8,7                 |
| 450 | 18     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 712,5 | 12,5                |
| 500 | 20     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 742,5 | 12,5                |
| 550 | 22     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 777,5 | 12,5                |
| 600 | 24     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 801   | 27,5                |

**Table 20:** Actuation via MS manual gearbox for ISORIA 20 – 16 bar (non-lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B     | C    | D    | E   | H   | h2    | [kg] <sup>10)</sup> |
|-----|--------|---------------|-------|-------|------|------|-----|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |       |      |      |     |     |       |                     |
| 32  | 1¼     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 178,5 | 1,2                 |
| 40  | 1½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 174,5 | 1,2                 |
| 50  | 2      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 184,5 | 1,2                 |
| 65  | 2½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 199,5 | 1,2                 |
| 80  | 3      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 204,5 | 1,2                 |
| 100 | 4      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 219,5 | 1,2                 |
| 125 | 5      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 234,5 | 1,2                 |
| 150 | 6      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 312,5 | 2,7                 |
| 200 | 8      | 4,0           | MS50  | 110,5 | 57   | 55   | 245 | 250 | 376,5 | 5,4                 |
| 250 | 10     | 4,0           | MS50  | 110,5 | 57   | 55   | 245 | 250 | 423,5 | 5,4                 |
| 300 | 12     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 543,5 | 8,7                 |
| 350 | 14     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 572,5 | 8,7                 |
| 400 | 16     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 682,5 | 12,5                |
| 450 | 18     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 712,5 | 12,5                |
| 500 | 20     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 746   | 27,5                |
| 550 | 22     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 781   | 27,5                |
| 600 | 24     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 801   | 27,5                |

**Table 21:** Actuation via MS manual gearbox for ISORIA 20 – 20 bar (non-lubricating fluid) [mm]

| DN  | NPS    | Max.<br>velocity | Type  | B     | C    | D    | E   | H   | h2    | [kg] <sup>10)</sup> |
|-----|--------|------------------|-------|-------|------|------|-----|-----|-------|---------------------|
|     | [inch] | [m/s]            |       |       |      |      |     |     |       |                     |
| 32  | 1¼     | 4,0              | MS15  | 68    | 39   | 34,4 | 153 | 100 | 178,5 | 1,2                 |
| 40  | 1½     | 4,0              | MS15  | 68    | 39   | 34,4 | 153 | 100 | 174,5 | 1,2                 |
| 50  | 2      | 4,0              | MS15  | 68    | 39   | 34,4 | 153 | 100 | 184,5 | 1,2                 |
| 65  | 2½     | 4,0              | MS15  | 68    | 39   | 34,4 | 153 | 100 | 199,5 | 1,2                 |
| 80  | 3      | 4,0              | MS15  | 68    | 39   | 34,4 | 153 | 100 | 204,5 | 1,2                 |
| 100 | 4      | 4,0              | MS15  | 68    | 39   | 34,4 | 153 | 100 | 219,5 | 1,2                 |
| 125 | 5      | 4,0              | MS15  | 68    | 39   | 34,4 | 153 | 100 | 234,5 | 1,2                 |
| 150 | 6      | 4,0              | MS30  | 88    | 47   | 41,3 | 231 | 200 | 312,5 | 2,7                 |
| 200 | 8      | 4,0              | MS50  | 110,5 | 57   | 55   | 245 | 250 | 376,5 | 5,4                 |
| 250 | 10     | 4,0              | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 502,5 | 8,7                 |
| 300 | 12     | 4,0              | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 543,5 | 8,7                 |
| 350 | 14     | 4,0              | MS200 | 156   | 77   | 81,3 | 276 | 500 | 637,5 | 12,5                |
| 400 | 16     | 3,0              | MS200 | 156   | 77   | 81,3 | 276 | 500 | 682,5 | 12,5                |
| 450 | 18     | 3,0              | MS450 | 213   | 111  | 53   | 348 | 500 | 716   | 27,5                |
| 500 | 20     | 3,0              | MS450 | 213   | 111  | 53   | 348 | 500 | 746   | 27,5                |
| 550 | 22     | 3,0              | MS450 | 213   | 111  | 53   | 348 | 500 | 781   | 27,5                |
| 600 | 24     | 3,0              | MS450 | 213   | 111  | 53   | 348 | 500 | 801   | 27,5                |

**Table 22:** Actuation via MS manual gearbox for ISORIA 25 (lubricating fluid with liner XC) [mm]

| DN   | NPS    | Max. velocity | Type  | B     | C    | D    | E   | H   | h2    | [kg] <sup>11)</sup> |
|------|--------|---------------|-------|-------|------|------|-----|-----|-------|---------------------|
|      | [inch] | [m/s]         |       |       |      |      |     |     |       |                     |
| 32   | 1¼     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 178,5 | 1,2                 |
| 40   | 1½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 174,5 | 1,2                 |
| 50   | 2      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 184,5 | 1,2                 |
| 65   | 2½     | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 199,5 | 1,2                 |
| 80   | 3      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 204,5 | 1,2                 |
| 100  | 4      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 219,5 | 1,2                 |
| 125  | 5      | 4,0           | MS15  | 68    | 39   | 34,4 | 153 | 100 | 234,5 | 1,2                 |
| 150  | 6      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 312,5 | 2,7                 |
| 200  | 8      | 4,0           | MS30  | 88    | 47   | 41,3 | 231 | 200 | 345,5 | 2,7                 |
| 250  | 10     | 4,0           | MS50  | 110,5 | 57   | 55   | 245 | 250 | 423,5 | 5,4                 |
| 300  | 12     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 543,5 | 8,7                 |
| 350  | 14     | 4,0           | MS100 | 135   | 66,4 | 68,8 | 298 | 400 | 572,5 | 8,7                 |
| 400  | 16     | 3,0           | MS200 | 156   | 77   | 81,3 | 276 | 500 | 682,5 | 12,5                |
| 450  | 18     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 716   | 27,5                |
| 500  | 20     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 746   | 27,5                |
| 550  | 22     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 781   | 27,5                |
| 600  | 24     | 3,0           | MS450 | 213   | 111  | 53   | 348 | 500 | 801   | 27,5                |
| 700  | 28     | 2,0           | -     | -     | -    | -    | -   | -   | -     | -                   |
| 800  | 32     | 2,0           | -     | -     | -    | -    | -   | -   | -     | -                   |
| 900  | 36     | 2,0           | -     | -     | -    | -    | -   | -   | -     | -                   |
| 1000 | 40     | 2,0           | -     | -     | -    | -    | -   | -   | -     | -                   |

**Table 23:** Actuation via MS manual gearbox for ISORIA 25 (lubricating fluid with liners other than XC, non-lubricating fluid with all liners) [mm]

| DN   | NPS    | Max. velocity | Type  | B     | C     | D    | E   | H   | h2    | [kg] <sup>11)</sup> |
|------|--------|---------------|-------|-------|-------|------|-----|-----|-------|---------------------|
|      | [inch] | [m/s]         |       |       |       |      |     |     |       |                     |
| 32   | 1¼     | 4,0           | MS15  | 68    | 39    | 34,4 | 153 | 100 | 178,5 | 1,2                 |
| 40   | 1½     | 4,0           | MS15  | 68    | 39    | 34,4 | 153 | 100 | 174,5 | 1,2                 |
| 50   | 2      | 4,0           | MS15  | 68    | 39    | 34,4 | 153 | 100 | 184,5 | 1,2                 |
| 65   | 2½     | 4,0           | MS15  | 68    | 39    | 34,4 | 153 | 100 | 199,5 | 1,2                 |
| 80   | 3      | 4,0           | MS15  | 68    | 39    | 34,4 | 153 | 100 | 204,5 | 1,2                 |
| 100  | 4      | 4,0           | MS15  | 68    | 39    | 34,4 | 153 | 100 | 219,5 | 1,2                 |
| 125  | 5      | 4,0           | MS30  | 88    | 47    | 41,3 | 231 | 200 | 292,5 | 2,7                 |
| 150  | 6      | 4,0           | MS30  | 88    | 47    | 41,3 | 231 | 200 | 312,5 | 2,7                 |
| 200  | 8      | 4,0           | MS50  | 110,5 | 57    | 55   | 245 | 250 | 376,5 | 5,4                 |
| 250  | 10     | 4,0           | MS100 | 135   | 66,4  | 68,8 | 298 | 400 | 502,5 | 8,7                 |
| 300  | 12     | 4,0           | MS100 | 135   | 66,4  | 68,8 | 298 | 400 | 543,5 | 8,7                 |
| 350  | 14     | 4,0           | MS200 | 156   | 77    | 81,3 | 276 | 500 | 637,5 | 12,5                |
| 400  | 16     | 3,0           | MS450 | 213   | 111   | 53   | 348 | 500 | 686   | 27,5                |
| 450  | 18     | 3,0           | MS450 | 213   | 111   | 53   | 348 | 500 | 716   | 27,5                |
| 500  | 20     | 3,0           | MS450 | 213   | 111   | 53   | 348 | 500 | 746   | 27,5                |
| 550  | 22     | 3,0           | MS450 | 213   | 111   | 53   | 348 | 500 | 781   | 27,5                |
| 600  | 24     | 3,0           | MS700 | 285   | 142,5 | 130  | 417 | 500 | 801   | 42,5                |
| 700  | 28     | 2,0           | -     | -     | -     | -    | -   | -   | -     | -                   |
| 800  | 32     | 2,0           | -     | -     | -     | -    | -   | -   | -     | -                   |
| 900  | 36     | 2,0           | -     | -     | -     | -    | -   | -   | -     | -                   |
| 1000 | 40     | 2,0           | -     | -     | -     | -    | -   | -   | -     | -                   |

<sup>11)</sup> The weights given refer to the actuating element.

## Dimensions and weights of ISORIA 20/25 + MC manual gearbox

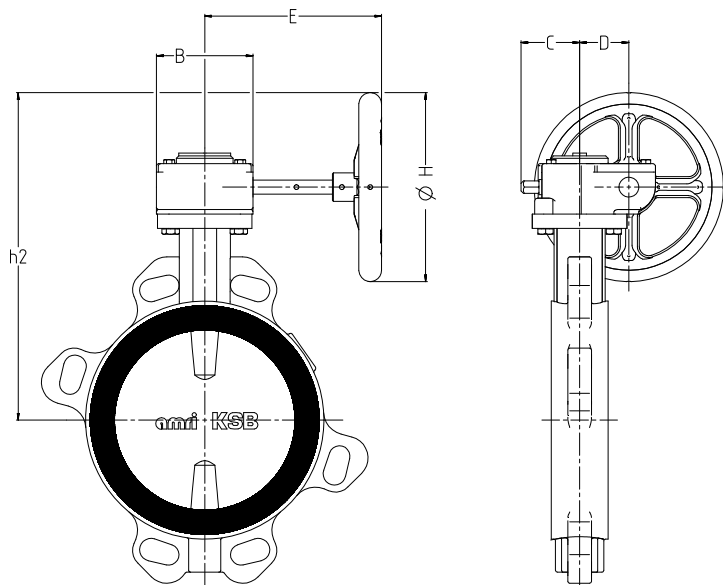


Fig. 10: Unit comprising ISORIA 20/25 + MC manual gearbox

Table 24: Actuation via MC manual gearbox for ISORIA 20 – 6/10 bar (lubricating fluid) [mm]

| DN  | NPS    | Max.<br>velocity | Type  | B   | C   | D    | E     | H   | h2    | [kg] <sup>12)</sup> |
|-----|--------|------------------|-------|-----|-----|------|-------|-----|-------|---------------------|
|     | [inch] | [m/s]            |       |     |     |      |       |     |       |                     |
| 32  | 1¼     | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 185,5 | 2,4                 |
| 40  | 1½     | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 181,5 | 2,4                 |
| 50  | 2      | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 191,5 | 2,4                 |
| 65  | 2½     | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 206,5 | 2,4                 |
| 80  | 3      | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 211,5 | 2,4                 |
| 100 | 4      | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 226,5 | 2,4                 |
| 125 | 5      | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 241,5 | 2,4                 |
| 150 | 6      | 4,0              | MC30  | 102 | 62  | 52   | 198   | 200 | 313,5 | 4,3                 |
| 200 | 8      | 4,0              | MC30  | 102 | 62  | 52   | 198   | 200 | 346,5 | 4,3                 |
| 250 | 10     | 4,0              | MC30  | 102 | 62  | 52   | 198   | 200 | 393,5 | 4,3                 |
| 300 | 12     | 4,0              | MC50  | 102 | 62  | 52   | 203   | 250 | 459,5 | 5,0                 |
| 350 | 14     | 4,0              | MC100 | 138 | 93  | 71   | 297   | 400 | 575,5 | 11,3                |
| 400 | 16     | 3,0              | MC100 | 138 | 93  | 71   | 297   | 400 | 620,5 | 11,3                |
| 450 | 18     | 3,0              | MC100 | 138 | 93  | 71   | 297   | 400 | 650,5 | 11,3                |
| 500 | 20     | 3,0              | MC200 | 200 | 106 | 86   | 305   | 500 | 732   | 17,5                |
| 550 | 22     | 3,0              | MC200 | 200 | 106 | 86   | 305   | 500 | 767   | 17,5                |
| 600 | 24     | 3,0              | MC200 | 200 | 106 | 86   | 305   | 500 | 787   | 17,5                |

<sup>12)</sup> The weights given refer to the actuating element.

**Table 25:** Actuation via MC manual gearbox for ISORIA 20 – 16 bar (lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B   | C   | D    | E     | H   | h2    | [kg] <sup>12)</sup> |
|-----|--------|---------------|-------|-----|-----|------|-------|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |     |     |      |       |     |       |                     |
| 32  | 1¼     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 185,5 | 2,4                 |
| 40  | 1½     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 181,5 | 2,4                 |
| 50  | 2      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 191,5 | 2,4                 |
| 65  | 2½     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 206,5 | 2,4                 |
| 80  | 3      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 211,5 | 2,4                 |
| 100 | 4      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 226,5 | 2,4                 |
| 125 | 5      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 241,5 | 2,4                 |
| 150 | 6      | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 313,5 | 4,3                 |
| 200 | 8      | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 346,5 | 4,3                 |
| 250 | 10     | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 393,5 | 4,3                 |
| 300 | 12     | 4,0           | MC100 | 138 | 93  | 71   | 297   | 400 | 546,5 | 11,3                |
| 350 | 14     | 4,0           | MC100 | 138 | 93  | 71   | 297   | 400 | 575,5 | 11,3                |
| 400 | 16     | 3,0           | MC100 | 138 | 93  | 71   | 297   | 400 | 620,5 | 11,3                |
| 450 | 18     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 702   | 17,5                |
| 500 | 20     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 732   | 17,5                |
| 550 | 22     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 767   | 17,5                |
| 600 | 24     | 3,0           | MC450 | 213 | 120 | 53   | 348   | 500 | 801   | 27,5                |

**Table 26:** Actuation via MC manual gearbox for ISORIA 20 – 20 bar (lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B   | C   | D    | E     | H   | h2    | [kg] <sup>12)</sup> |
|-----|--------|---------------|-------|-----|-----|------|-------|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |     |     |      |       |     |       |                     |
| 32  | 1¼     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 185,5 | 2,4                 |
| 40  | 1½     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 181,5 | 2,4                 |
| 50  | 2      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 191,5 | 2,4                 |
| 65  | 2½     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 206,5 | 2,4                 |
| 80  | 3      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 211,5 | 2,4                 |
| 100 | 4      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 226,5 | 2,4                 |
| 125 | 5      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 241,5 | 2,4                 |
| 150 | 6      | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 313,5 | 4,3                 |
| 200 | 8      | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 346,5 | 4,3                 |
| 250 | 10     | 4,0           | MC50  | 102 | 62  | 52   | 203   | 250 | 418,5 | 5,0                 |
| 300 | 12     | 4,0           | MC100 | 138 | 93  | 71   | 297   | 400 | 546,5 | 11,3                |
| 350 | 14     | 4,0           | MC100 | 138 | 93  | 71   | 297   | 400 | 575,5 | 11,3                |
| 400 | 16     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 672   | 17,5                |
| 450 | 18     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 702   | 17,5                |
| 500 | 20     | 3,0           | MC450 | 213 | 120 | 53   | 348   | 500 | 746   | 27,5                |
| 550 | 22     | 3,0           | MC450 | 213 | 120 | 53   | 348   | 500 | 781   | 27,5                |
| 600 | 24     | 3,0           | MC450 | 213 | 120 | 53   | 348   | 500 | 801   | 27,5                |

**Table 27:** Actuation via MC manual gearbox for ISORIA 20 – 6/10 bar (non-lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B   | C   | D    | E     | H   | h2    | [kg] <sup>12)</sup> |
|-----|--------|---------------|-------|-----|-----|------|-------|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |     |     |      |       |     |       |                     |
| 32  | 1¼     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 185,5 | 2,4                 |
| 40  | 1½     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 181,5 | 2,4                 |
| 50  | 2      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 191,5 | 2,4                 |
| 65  | 2½     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 206,5 | 2,4                 |
| 80  | 3      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 211,5 | 2,4                 |
| 100 | 4      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 226,5 | 2,4                 |
| 125 | 5      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 241,5 | 2,4                 |
| 150 | 6      | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 313,5 | 4,3                 |
| 200 | 8      | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 346,5 | 4,3                 |
| 250 | 10     | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 393,5 | 4,3                 |
| 300 | 12     | 4,0           | MC100 | 138 | 93  | 71   | 297   | 400 | 546,5 | 11,3                |
| 350 | 14     | 4,0           | MC100 | 138 | 93  | 71   | 297   | 400 | 575,5 | 11,3                |
| 400 | 16     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 672   | 17,5                |
| 450 | 18     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 702   | 17,5                |
| 500 | 20     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 732   | 17,5                |
| 550 | 22     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 767   | 17,5                |
| 600 | 24     | 3,0           | MC450 | 213 | 120 | 53   | 348   | 500 | 801   | 27,5                |

**Table 28:** Actuation via MC manual gearbox for ISORIA 20 – 16 bar (non-lubricating fluid) [mm]

| DN  | NPS    | Max. velocity | Type  | B   | C   | D    | E     | H   | h2    | [kg] <sup>12)</sup> |
|-----|--------|---------------|-------|-----|-----|------|-------|-----|-------|---------------------|
|     | [inch] | [m/s]         |       |     |     |      |       |     |       |                     |
| 32  | 1¼     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 185,5 | 2,4                 |
| 40  | 1½     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 181,5 | 2,4                 |
| 50  | 2      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 191,5 | 2,4                 |
| 65  | 2½     | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 206,5 | 2,4                 |
| 80  | 3      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 211,5 | 2,4                 |
| 100 | 4      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 226,5 | 2,4                 |
| 125 | 5      | 4,0           | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 241,5 | 2,4                 |
| 150 | 6      | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 313,5 | 4,3                 |
| 200 | 8      | 4,0           | MC30  | 102 | 62  | 52   | 198   | 200 | 346,5 | 4,3                 |
| 250 | 10     | 4,0           | MC50  | 102 | 62  | 52   | 203   | 250 | 418,5 | 5,0                 |
| 300 | 12     | 4,0           | MC100 | 138 | 93  | 71   | 297   | 400 | 546,5 | 11,3                |
| 350 | 14     | 4,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 627   | 17,5                |
| 400 | 16     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 672   | 17,5                |
| 450 | 18     | 3,0           | MC200 | 200 | 106 | 86   | 305   | 500 | 702   | 17,5                |
| 500 | 20     | 3,0           | MC450 | 213 | 120 | 53   | 348   | 500 | 746   | 27,5                |
| 550 | 22     | 3,0           | MC450 | 213 | 120 | 53   | 348   | 500 | 781   | 27,5                |
| 600 | 24     | 3,0           | MC450 | 213 | 120 | 53   | 348   | 500 | 801   | 27,5                |

**Table 29:** Actuation via MC manual gearbox for ISORIA 20 – 20 bar (non-lubricating fluid) [mm]

| DN  | NPS    | Max.<br>velocity | Type  | B   | C   | D    | E     | H   | h2    | [kg] <sup>12)</sup> |
|-----|--------|------------------|-------|-----|-----|------|-------|-----|-------|---------------------|
|     | [inch] | [m/s]            |       |     |     |      |       |     |       |                     |
| 32  | 1¼     | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 185,5 | 2,4                 |
| 40  | 1½     | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 181,5 | 2,4                 |
| 50  | 2      | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 191,5 | 2,4                 |
| 65  | 2½     | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 206,5 | 2,4                 |
| 80  | 3      | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 211,5 | 2,4                 |
| 100 | 4      | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 226,5 | 2,4                 |
| 125 | 5      | 4,0              | MC15  | 80  | 75  | 42,5 | 115,5 | 100 | 241,5 | 2,4                 |
| 150 | 6      | 4,0              | MC30  | 102 | 62  | 52   | 198   | 200 | 313,5 | 4,3                 |
| 200 | 8      | 4,0              | MC50  | 102 | 62  | 52   | 203   | 250 | 371,5 | 5,0                 |
| 250 | 10     | 4,0              | MC100 | 138 | 93  | 71   | 297   | 400 | 505,5 | 11,3                |
| 300 | 12     | 4,0              | MC100 | 138 | 93  | 71   | 297   | 400 | 546,5 | 11,3                |
| 350 | 14     | 4,0              | MC200 | 200 | 106 | 86   | 305   | 500 | 627   | 17,5                |
| 400 | 16     | 3,0              | MC200 | 200 | 106 | 86   | 305   | 500 | 672   | 17,5                |
| 450 | 18     | 3,0              | MC450 | 213 | 120 | 53   | 348   | 500 | 716   | 27,5                |
| 500 | 20     | 3,0              | MC450 | 213 | 120 | 53   | 348   | 500 | 746   | 27,5                |
| 550 | 22     | 3,0              | MC450 | 213 | 120 | 53   | 348   | 500 | 781   | 27,5                |
| 600 | 24     | 3,0              | MC450 | 213 | 120 | 53   | 348   | 500 | 801   | 27,5                |

**Table 30:** Actuation via MC manual gearbox for ISORIA 25 (lubricating fluid with liner XC) [mm]

| DN   | NPS    | Max. velocity | Type   | B   | C   | D    | E     | H   | h2    | [kg] <sup>13)</sup> |
|------|--------|---------------|--------|-----|-----|------|-------|-----|-------|---------------------|
|      | [inch] | [m/s]         |        |     |     |      |       |     |       |                     |
| 32   | 1¼     | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 185,5 | 2,4                 |
| 40   | 1½     | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 181,5 | 2,4                 |
| 50   | 2      | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 191,5 | 2,4                 |
| 65   | 2½     | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 206,5 | 2,4                 |
| 80   | 3      | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 211,5 | 2,4                 |
| 100  | 4      | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 226,5 | 2,4                 |
| 125  | 5      | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 241,5 | 2,4                 |
| 150  | 6      | 4,0           | MC30   | 102 | 62  | 52   | 198   | 200 | 313,5 | 4,3                 |
| 200  | 8      | 4,0           | MC30   | 102 | 62  | 52   | 198   | 200 | 346,5 | 4,3                 |
| 250  | 10     | 4,0           | MC50   | 102 | 62  | 52   | 203   | 250 | 418,5 | 5,0                 |
| 300  | 12     | 4,0           | MC100  | 138 | 93  | 71   | 297   | 400 | 546,5 | 11,3                |
| 350  | 14     | 4,0           | MC100  | 138 | 93  | 71   | 297   | 400 | 575,5 | 11,3                |
| 400  | 16     | 3,0           | MC200  | 200 | 106 | 86   | 305   | 500 | 672   | 17,5                |
| 450  | 18     | 3,0           | MC450  | 213 | 120 | 53   | 348   | 500 | 716   | 27,5                |
| 500  | 20     | 3,0           | MC450  | 213 | 120 | 53   | 348   | 500 | 746   | 27,5                |
| 550  | 22     | 3,0           | MC450  | 213 | 120 | 53   | 348   | 500 | 781   | 27,5                |
| 600  | 24     | 3,0           | MC450  | 213 | 120 | 53   | 348   | 500 | 801   | 27,5                |
| 700  | 28     | 2,0           | MC2600 | 440 | 208 | 209  | 491   | 500 | 916   | 138                 |
| 800  | 32     | 2,0           | MC2600 | 440 | 208 | 209  | 491   | 500 | 966   | 138                 |
| 900  | 36     | 2,0           | MC2600 | 440 | 208 | 209  | 491   | 500 | 1016  | 138                 |
| 1000 | 40     | 2,0           | MC2600 | 440 | 208 | 209  | 491   | 500 | 1091  | 138                 |

**Table 31:** Actuation via MC manual gearbox for ISORIA 25 (lubricating fluid with liners other than XC, non-lubricating fluid with all liners) [mm]

| DN   | NPS    | Max. velocity | Type   | B   | C   | D    | E     | H   | h2    | [kg] <sup>13)</sup> |
|------|--------|---------------|--------|-----|-----|------|-------|-----|-------|---------------------|
|      | [inch] | [m/s]         |        |     |     |      |       |     |       |                     |
| 32   | 1¼     | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 185,5 | 2,4                 |
| 40   | 1½     | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 181,5 | 2,4                 |
| 50   | 2      | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 191,5 | 2,4                 |
| 65   | 2½     | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 206,5 | 2,4                 |
| 80   | 3      | 4,0           | MS15   | 80  | 75  | 42,5 | 115,5 | 100 | 211,5 | 2,4                 |
| 100  | 4      | 4,0           | MC15   | 80  | 75  | 42,5 | 115,5 | 100 | 226,5 | 2,4                 |
| 125  | 5      | 4,0           | MC30   | 102 | 62  | 52   | 198   | 200 | 313,5 | 4,3                 |
| 150  | 6      | 4,0           | MC30   | 102 | 62  | 52   | 198   | 200 | 346,5 | 4,3                 |
| 200  | 8      | 4,0           | MC50   | 102 | 62  | 52   | 203   | 250 | 371,5 | 5,0                 |
| 250  | 10     | 4,0           | MC100  | 138 | 93  | 71   | 297   | 400 | 505,5 | 11,3                |
| 300  | 12     | 4,0           | MC200  | 200 | 106 | 86   | 305   | 500 | 598   | 17,5                |
| 350  | 14     | 4,0           | MC200  | 200 | 106 | 86   | 305   | 500 | 627   | 17,5                |
| 400  | 16     | 3,0           | MC450  | 213 | 120 | 53   | 348   | 500 | 672   | 27,5                |
| 450  | 18     | 3,0           | MC450  | 213 | 120 | 53   | 348   | 500 | 716   | 27,5                |
| 500  | 20     | 3,0           | MC450  | 213 | 120 | 53   | 348   | 500 | 746   | 27,5                |
| 550  | 22     | 3,0           | MC450  | 213 | 120 | 53   | 348   | 500 | 781   | 27,5                |
| 600  | 24     | 3,0           | MC700  | 285 | 143 | 130  | 451   | 500 | 801   | 43                  |
| 700  | 28     | 2,0           | MC2600 | 440 | 208 | 209  | 491   | 500 | 916   | 138                 |
| 800  | 32     | 2,0           | MC2600 | 440 | 208 | 209  | 491   | 500 | 966   | 138                 |
| 900  | 36     | 2,0           | MC2600 | 440 | 208 | 209  | 491   | 500 | 1016  | 138                 |
| 1000 | 40     | 2,0           | MC2600 | 440 | 208 | 209  | 491   | 500 | 1091  | 138                 |

<sup>13)</sup> The weights given refer to the actuating element.

## Line connections

The valves can be installed between the following line connections (other line connections on request):

- EN 1092 PN 16, 20 and 25
- ASME B16.1 Cl. 125 and B16.5 Cl. 150
- ASME B16.47 Cl.150 Series A
- MSS SP44 Cl.150
- AWWA C207 Cl. E
- AS 2129 Tab. E
- BS 10 Tab. E
- JIS B2220, B2238 and B2239 16K and 20K

**Table 32:** Semi-lug body T2 for ISORIA 20 for standards EN 1092, MSS and JIS

| DN  | NPS<br>[inch] | EN 1092 |       |       | MSS SP44<br>Class 150 | JIS B2220, B2238, B2239 |     |
|-----|---------------|---------|-------|-------|-----------------------|-------------------------|-----|
|     |               | PN 16   | PN 20 | PN 25 |                       | 16K                     | 20K |
| 32  | 1¼            | ✓       | ✓     | ✓     | •                     | ✓                       | ✓   |
| 40  | 1½            | ✓       | ✓     | ✓     | •                     | ✓                       | ✓   |
| 50  | 2             | ✓       | ✓     | ✓     | •                     | ✓■                      | ✓■  |
| 65  | 2½            | ✓       | ✓     | ✓■    | •                     | ✓■                      | ✓■  |
| 80  | 3             | ✓       | ✓     | ✓     | •                     | ✓                       | ✓   |
| 100 | 4             | ✓       | ✓     | ✓     | •                     | ✓                       | ✓   |
| 125 | 5             | ✓       | ✓     | ✓     | •                     | ✓                       | ✓   |
| 150 | 6             | ✓       | ✓     | ✓     | •                     | ✓■                      | ✓■  |
| 200 | 8             | ✓       | ✓     | ✓     | •                     | ✓                       | ✓   |
| 250 | 10            | ✓       | ✓     | ✓     | •                     | ✓                       | ✓   |
| 300 | 12            | ✓       | ✓     | ✓     | ✓                     | ✓                       | ✓   |
| 350 | 14            | ✓       | ✓     | ✓     | ✓                     | ✓                       | ✓   |
| 400 | 16            | ✓       | ✓     | ✓     | ✓                     | ✓                       | ✓   |
| 450 | 18            | ✓       | ✓     | ✓     | ✓                     | ✓                       | ✓   |
| 500 | 20            | ✓       | ✓     | ✓     | ✓                     | ✓                       | ✓   |
| 550 | 22            | •       | ✓     | •     | ✓                     | ✓                       | ✓   |
| 600 | 24            | ✓       | ✓     | ✓     | ✓                     | ✓                       | ✓   |

**Table 33:** Semi-lug body T2 for ISORIA 20 for standards ASME, AWWA, BS10 and AS2129

| DN  | NPS<br>[inch] | ASME          |               | AWWA<br>C207 Cl. E | BS10<br>Table E | AS2129<br>Table E |
|-----|---------------|---------------|---------------|--------------------|-----------------|-------------------|
|     |               | B16.1 Cl. 125 | B16.5 Cl. 150 |                    |                 |                   |
| 32  | 1¼            | ✓             | ✓             | •                  | ✓               | ✓                 |
| 40  | 1½            | ✓             | ✓             | •                  | ✓               | ✓                 |
| 50  | 2             | ✓             | ✓             | •                  | ✓               | ✓                 |
| 65  | 2½            | ✓             | ✓             | •                  | ✓               | ✓                 |
| 80  | 3             | ✓             | ✓             | •                  | ✓■              | ✓■                |
| 100 | 4             | ✓             | ✓             | ✓                  | ✓■              | ✓■                |
| 125 | 5             | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 150 | 6             | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 200 | 8             | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 250 | 10            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 300 | 12            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 350 | 14            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 400 | 16            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 450 | 18            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 500 | 20            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 550 | 22            | •             | •             | ✓                  | ✓               | ✓                 |
| 600 | 24            | ✓             | ✓             | ✓                  | ✓               | ✓                 |

**Table 34:** Symbols key

| Symbol | Description                         | Symbol | Description                 |
|--------|-------------------------------------|--------|-----------------------------|
| ✓      | Installation possible               | •      | Non-standardised connection |
| ■      | Downstream dismantling not possible | ♦      | Installation not possible   |
| ☎      | Contact the manufacturer.           |        |                             |

**Table 35:** Full-lug body with flat faces T3 for ISORIA 20 for standards EN 1092, MSS and JIS

| DN  | NPS<br>[inch] | EN 1092 |       |       | MSS SP44   |           | JIS B2220, B2238, B2239 |     |
|-----|---------------|---------|-------|-------|------------|-----------|-------------------------|-----|
|     |               | PN 16   | PN 20 | PN 25 | Cl.150 UNC | Cl.150 UN | 16K                     | 20K |
| 32  | 1¼            | ✓       | ✓     | ✓     | •          | •         | ✓                       | ✓   |
| 40  | 1½            | ✓       | ✓     | ✓     | •          | •         | ✓                       | ✓   |
| 50  | 2             | ✓       | ✓     | ✓     | •          | •         | ♦                       | ♦   |
| 65  | 2½            | ✓       | ✓     | ✓     | •          | •         | ✓                       | ✓   |
| 80  | 3             | ✓       | ✓     | ✓     | •          | •         | ✓                       | ✓   |
| 100 | 4             | ✓       | ✓     | ✓     | •          | •         | ✓                       | ✓   |
| 125 | 5             | ✓       | ✓     | ✓     | •          | •         | ✓                       | ✓   |
| 150 | 6             | ✓       | ✓     | ✓     | •          | •         | ♦                       | ♦   |
| 200 | 8             | ✓       | ✓     | ✓     | •          | •         | ✓                       | ✓   |
| 250 | 10            | ✓       | ✓     | ✓     | •          | •         | ✓                       | ✓   |
| 300 | 12            | ✓       | ✓     | ✓     | ✓          | •         | ✓                       | ✓   |
| 350 | 14            | ✓       | ✓     | ✓     | ✓          | •         | ✓                       | ✓   |
| 400 | 16            | ✓       | ✓     | ✓     | ✓          | •         | ✓                       | ✓   |
| 450 | 18            | ✓       | ✓     | ✓     | ✓          | ✓         | ✓                       | ✓   |
| 500 | 20            | ✓       | ✓     | ✓     | ✓          | ✓         | ✓                       | ✓   |
| 600 | 24            | ✓       | ✓     | ✓     | ✓          | ✓         | ✓                       | ✓   |

**Table 36:** Full-lug body with flat faces T3 for ISORIA 20 for standards ASME, AWWA, BS10 and AS2129

| DN  | NPS<br>[inch] | ASME          | AWWA                | BS10        | AS2129      |
|-----|---------------|---------------|---------------------|-------------|-------------|
|     |               | B16.5 Cl. 150 | C207 Cl. E UNC (94) | Table E UNC | Table E UNC |
| 32  | 1¼            | ✓             | •                   | ✓           | ✓           |
| 40  | 1½            | ✓             | •                   | ✓           | ✓           |
| 50  | 2             | ✓             | •                   | ✓           | ✓           |
| 65  | 2½            | ✓             | •                   | ✓           | ✓           |
| 80  | 3             | ✓             | •                   | ✓           | ✓           |
| 100 | 4             | ✓             | ✓                   | ✓           | ✓           |
| 125 | 5             | ✓             | ✓                   | ✓           | ✓           |
| 150 | 6             | ✓             | ✓                   | ✓           | ✓           |
| 200 | 8             | ✓             | ✓                   | ✓           | ✓           |
| 250 | 10            | ✓             | ✓                   | ✓           | ✓           |
| 300 | 12            | ✓             | ✓                   | ✓           | ✓           |
| 350 | 14            | ✓             | ✓                   | ✓           | ✓           |
| 400 | 16            | ✓             | ✓                   | ♦           | ♦           |
| 450 | 18            | ✓             | ✓                   | ✓           | ✓           |
| 500 | 20            | ✓             | ✓                   | ♦           | ♦           |
| 600 | 24            | ✓             | ✓                   | ♦           | ♦           |

**Table 37:** Symbols key

| Symbol | Description                         | Symbol | Description                 |
|--------|-------------------------------------|--------|-----------------------------|
| ✓      | Installation possible               | •      | Non-standardised connection |
| ■      | Downstream dismantling not possible | ♦      | Installation not possible   |
| ⚙      | Contact the manufacturer.           |        |                             |

**Table 38:** Full-lug body with raised faces T4 for ISORIA 20 for standards EN 1092, MSS and JIS

| DN  | NPS<br>[inch] | EN 1092 |       |       | MSS SP44<br>cl.150 | JIS B2220, B2238, B2239 |     |
|-----|---------------|---------|-------|-------|--------------------|-------------------------|-----|
|     |               | PN 16   | PN 20 | PN 25 |                    | 16K                     | 20K |
| 32  | 1¼            | ✓       | ✓     | ✓     | •                  | ✓                       | ✓   |
| 40  | 1½            | ✓       | ✓     | ✓     | •                  | ✓                       | ✓   |
| 50  | 2             | ✓       | ✓     | ✓     | •                  | ♦                       | ♦   |
| 65  | 2½            | ✓       | ✓     | ♦     | •                  | ♦                       | ♦   |
| 80  | 3             | ✓       | ✓     | ✓     | •                  | ✓                       | ✓   |
| 100 | 4             | ✓       | ✓     | ✓     | •                  | ✓                       | ✓   |
| 125 | 5             | ✓       | ✓     | ♦     | •                  | ♦                       | ♦   |
| 150 | 6             | ✓       | ✓     | ♦     | •                  | ♦                       | ♦   |
| 200 | 8             | ✓       | ✓     | ♦     | •                  | ♦                       | ♦   |
| 250 | 10            | ✓       | ✓     | ♦     | •                  | ♦                       | ♦   |
| 300 | 12            | ✓       | ✓     | ✓     | ✓                  | ✓                       | ✓   |
| 350 | 14            | ✓       | ✓     | ✓     | ✓                  | ✓                       | ✓   |
| 400 | 16            | ✓       | ✓     | ✓     | ✓                  | ✓                       | ✓   |
| 450 | 18            | ✓       | ✓     | ✓     | ✓                  | ✓                       | ✓   |
| 500 | 20            | ✓       | ✓     | ✓     | ✓                  | ✓                       | ✓   |
| 550 | 22            | •       | ✓     | •     | ✓                  | ✓                       | ✓   |
| 600 | 24            | ✓       | ✓     | ✓     | ✓                  | ✓                       | ✓   |

**Table 39:** Full-lug body with raised faces T4 for ISORIA 20 for standards ASME, AWWA, BS10 and AS2129

| DN  | NPS<br>[inch] | ASME          |               | AWWA<br>C207 Cl. E | BS10<br>Table E | AS2129<br>Table E |
|-----|---------------|---------------|---------------|--------------------|-----------------|-------------------|
|     |               | B16.1 Cl. 125 | B16.5 Cl. 150 |                    |                 |                   |
| 32  | 1¼            | ✓             | ✓             | •                  | ✓               | ✓                 |
| 40  | 1½            | ✓             | ✓             | •                  | ✓               | ✓                 |
| 50  | 2             | ✓             | ✓             | •                  | ✓               | ✓                 |
| 65  | 2½            | ✓             | ✓             | •                  | ✓               | ✓                 |
| 80  | 3             | ✓             | ✓             | •                  | ✓               | ✓                 |
| 100 | 4             | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 125 | 5             | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 150 | 6             | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 200 | 8             | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 250 | 10            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 300 | 12            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 350 | 14            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 400 | 16            | ✓             | ✓             | ✓                  | ♦               | ♦                 |
| 450 | 18            | ✓             | ✓             | ✓                  | ✓               | ✓                 |
| 500 | 20            | ✓             | ✓             | ✓                  | ♦               | ♦                 |
| 550 | 22            | •             | •             | ✓                  | ♦               | ♦                 |
| 600 | 24            | ✓             | ✓             | ✓                  | ♦               | ♦                 |

**Table 40:** Symbols key

| Symbol | Description                         | Symbol | Description                 |
|--------|-------------------------------------|--------|-----------------------------|
| ✓      | Installation possible               | •      | Non-standardised connection |
| ■      | Downstream dismantling not possible | ♦      | Installation not possible   |
| ⚠      | Contact the manufacturer.           |        |                             |

**Table 41:** Flanged body with flat faces T5 for ISORIA 20 for standards EN 1092, MSS and JIS

| DN  | NPS<br>[inch] | EN 1092 |       |       | MSS SP44 Cl.<br>150 | JIS B2220, B2238, B2239 |     |
|-----|---------------|---------|-------|-------|---------------------|-------------------------|-----|
|     |               | PN 16   | PN 20 | PN 25 |                     | 16K                     | 20K |
| 200 | 8             | ✓       | ✓     | ✓■    | •                   | ✓                       | ✓   |
| 250 | 10            | ✓       | ✓     | ✓■    | •                   | ✓                       | ✓   |
| 300 | 12            | ✓       | ✓     | ✓     | ✓                   | ✓                       | ✓   |
| 350 | 14            | ✓       | ✓     | ✓■    | ✓                   | ✓                       | ✓   |
| 400 | 16            | ✓       | ✓     | ✓■    | ✓                   | ✓                       | ✓   |
| 450 | 18            | ✓       | ✓     | ♦     | ✓                   | ♦                       | ♦   |
| 500 | 20            | ✓       | ✓     | ✓     | ✓                   | ✓                       | ✓   |
| 550 | 22            | •       | ✓     | •     | ✓                   | ♦                       | ♦   |
| 600 | 24            | ✓       | ✓     | ✓     | ✓                   | ✓                       | ✓   |

**Table 42:** Flanged body with flat faces T5 for ISORIA 20 for standards ASME, AWWA, BS10 and AS2129

| DN  | NPS<br>[inch] | ASME          |               | AWWA       | BS10    | AS2129  |
|-----|---------------|---------------|---------------|------------|---------|---------|
|     |               | B16.1 Cl. 125 | B16.5 Cl. 150 | C207 Cl. E | Table E | Table E |
| 200 | 8             | ✓             | ✓             | ✓          | ✓       | ✓       |
| 250 | 10            | ✓             | ✓             | ✓          | ✓       | ✓       |
| 300 | 12            | ✓             | ✓             | ✓          | ✓       | ✓       |
| 350 | 14            | ✓             | ✓             | ✓          | ✓       | ✓       |
| 400 | 16            | ✓             | ✓             | ✓          | ✓       | ✓       |
| 450 | 18            | ✓             | ✓             | ✓          | ✓       | ✓       |
| 500 | 20            | ✓             | ✓             | ✓          | ✓       | ✓       |
| 550 | 22            | •             | •             | ✓          | ✓       | ✓       |
| 600 | 24            | ✓             | ✓             | ✓          | ✓       | ✓       |

**Table 43:** Symbols key

| Symbol | Description                         | Symbol | Description                 |
|--------|-------------------------------------|--------|-----------------------------|
| ✓      | Installation possible               | •      | Non-standardised connection |
| ■      | Downstream dismantling not possible | ♦      | Installation not possible   |
| ☎      | Contact the manufacturer.           |        |                             |

**Table 44:** Semi-lug body T2 for ISORIA 25 for standards EN 1092, ASME and MSS

| DN  | NPS<br>[inch] | EN 1092 |       | ASME          | MSS SP44 Cl. 150 |
|-----|---------------|---------|-------|---------------|------------------|
|     |               | PN 20   | PN 25 | B16.5 Cl. 150 |                  |
| 32  | 1¼            | ✓       | ✓     | ✓             | •                |
| 40  | 1½            | ✓       | ✓     | ✓             | •                |
| 50  | 2             | ✓       | ✓     | ✓             | •                |
| 65  | 2½            | ✓       | ✓     | ✓             | •                |
| 80  | 3             | ✓       | ✓     | ✓             | •                |
| 100 | 4             | ✓       | ✓     | ✓             | •                |
| 125 | 5             | ✓       | ✓     | ✓             | •                |
| 150 | 6             | ✓       | ✓     | ✓             | •                |
| 200 | 8             | ✓       | ✓▲    | ✓             | •                |
| 250 | 10            | ✓       | ✓     | ✓             | •                |
| 300 | 12            | ✓       | ✓     | ✓             | ✓                |
| 350 | 14            | ✓       | ✓     | ✓             | ✓                |
| 400 | 16            | ✓       | ✓     | ✓             | ✓                |
| 450 | 18            | ✓       | ✓     | ✓             | ✓                |
| 500 | 20            | ✓       | ✓     | ✓             | ✓                |
| 550 | 22            | ✓       | •     | •             | ✓                |
| 600 | 24            | ✓       | ✓     | ✓             | ✓                |

**Table 45:** Flanged body with flat faces T5 for ISORIA 25 for standards EN 1092, ASME and MSS

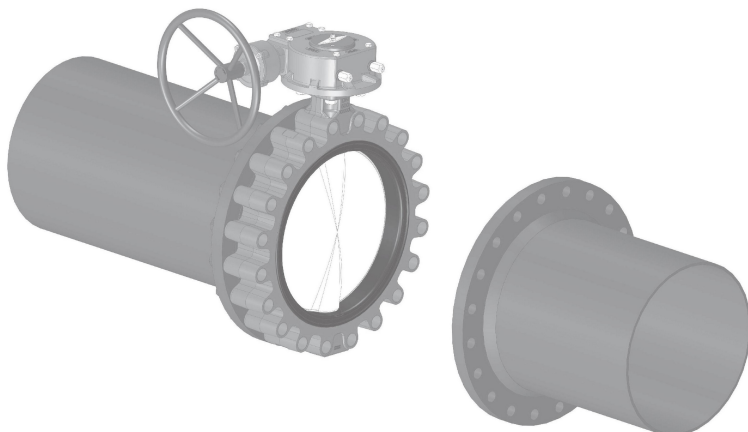
| DN   | NPS<br>[inch] | EN 1092 |       | ASME          | MSS SP44 Cl. 150 |
|------|---------------|---------|-------|---------------|------------------|
|      |               | PN 20   | PN 25 | B16.5 Cl. 150 |                  |
| 200  | 8             | ✓       | ✓■    | ✓             | •                |
| 250  | 10            | ✓       | ✓■    | ✓             | •                |
| 300  | 12            | ✓       | ✓     | ✓             | ✓                |
| 350  | 14            | ✓       | ✓■    | ✓             | ✓                |
| 400  | 16            | ✓       | ✓■    | ✓             | ✓                |
| 450  | 18            | ✓       | ♦     | ✓             | ✓                |
| 500  | 20            | ✓       | ✓     | ✓             | ✓                |
| 550  | 22            | ✓       | •     | •             | ✓                |
| 600  | 24            | ✓       | ✓     | ✓             | ✓                |
| 700  | 28            | ☒       | ☒     | •             | ☒                |
| 800  | 32            | ☒       | ✓     | •             | ☒                |
| 900  | 36            | ☒       | ☒     | •             | ☒                |
| 1000 | 40            | ☒       | ✓     | •             | ☒                |

**Table 46:** Symbols key

| Symbol | Description                         | Symbol | Description                 |
|--------|-------------------------------------|--------|-----------------------------|
| ✓      | Installation possible               | •      | Non-standardised connection |
| ■      | Downstream dismantling not possible | ♦      | Installation not possible   |
| ☒      | Contact the manufacturer.           |        |                             |

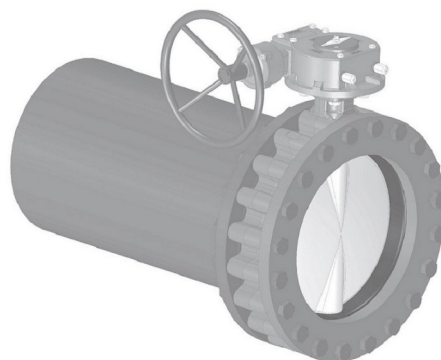
## Installation information

### Dead-end service and downstream dismantling



**Downstream dismantling**

For downstream dismantling,  
successively loosen diagonally opposed tie bolts.

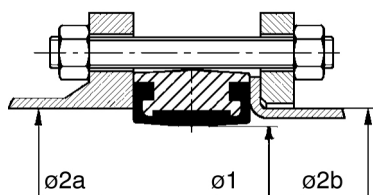


**Dead-end service**

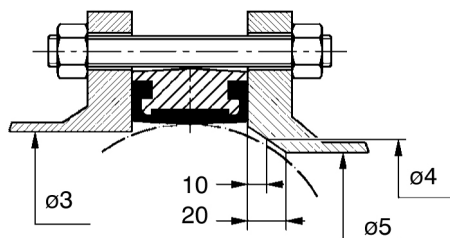
## Flange dimensions

The valves can be installed between all commercial mating flanges and line connections without requiring any flange gaskets. The elastomer liner alone provides a tight seal at the flange connections. Please verify that the connection meets the requirements given below. The flange dimensions indicated in the table apply to all body types.

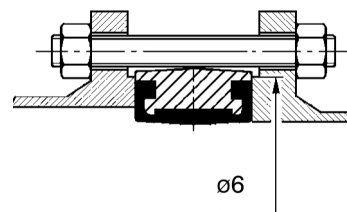
### ISORIA 20



Drawing A



Drawing B



Drawing C

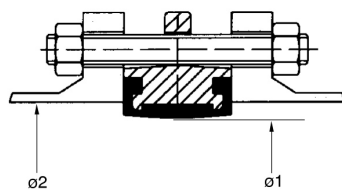
Ø2a and Ø3: flange face diameter

Ø2b: pipe OD with loose plate flange to DIN 2642 and NF E 29-251

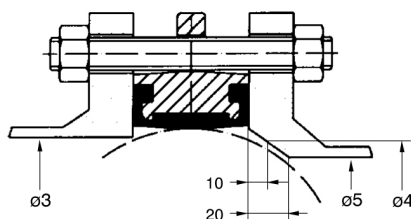
**Table 47:** Dimensions table of ISORIA 20

| DN  | NPS    | Optimum<br>Ø | Max.<br>permissible<br>Ø |     | Min.<br>permissible<br>Ø of<br>flange face | Min. Ø at a<br>distance of<br>10 mm<br>from the<br>flange face | Min. Ø at a<br>distance of<br>20mm<br>from the<br>flange face | Min.<br>permissible<br>raised face<br>Ø of<br>flanges<br>with raised<br>faces |
|-----|--------|--------------|--------------------------|-----|--------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------|
|     | [inch] |              |                          |     |                                            |                                                                |                                                               |                                                                               |
| 40  | 1½     | 32           | 44                       | 43  | -                                          | -                                                              | -                                                             | 64                                                                            |
| 40  | 1½     | 40           | 50                       | 49  | 33                                         | -                                                              | -                                                             | 73                                                                            |
| 50  | 2      | 50           | 63                       | 61  | 38                                         | -                                                              | -                                                             | 89                                                                            |
| 65  | 2½     | 65           | 78                       | 77  | 55                                         | -                                                              | -                                                             | 104                                                                           |
| 80  | 3      | 80           | 92                       | 89  | 74                                         | 53                                                             | -                                                             | 124                                                                           |
| 100 | 4      | 100          | 117                      | 115 | 92                                         | 77                                                             | 48                                                            | 147                                                                           |
| 125 | 5      | 125          | 145                      | 140 | 117                                        | 107                                                            | 88                                                            | 177                                                                           |
| 150 | 6      | 150          | 172                      | 169 | 143                                        | 137                                                            | 123                                                           | 202                                                                           |
| 200 | 8      | 195          | 223                      | 220 | 191                                        | 183                                                            | 173                                                           | 251                                                                           |
| 250 | 10     | 245          | 278                      | 273 | 241                                        | 234                                                            | 226                                                           | 305                                                                           |
| 300 | 12     | 295          | 329                      | 324 | 290                                        | 284                                                            | 276                                                           | 358                                                                           |
| 350 | 14     | 330          | 361                      | 356 | 326                                        | 321                                                            | 314                                                           | 399                                                                           |
| 400 | 16     | 380          | 412                      | 407 | 370                                        | 366                                                            | 358                                                           | 452                                                                           |
| 450 | 18     | 430          | 463                      | 457 | 422                                        | 416                                                            | 409                                                           | 505                                                                           |
| 500 | 20     | 480          | 515                      | 508 | 470                                        | 464                                                            | 457                                                           | 558                                                                           |
| 550 | 22     | 540          | 568                      | 561 | 522                                        | 516                                                            | 509                                                           | 625                                                                           |
| 600 | 24     | 580          | 617                      | 610 | 566                                        | 560                                                            | 554                                                           | 664                                                                           |

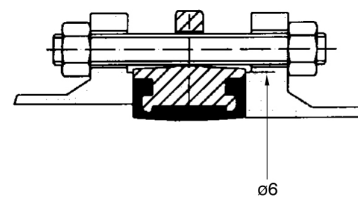
# ISORIA 25



Drawing D



Drawing E



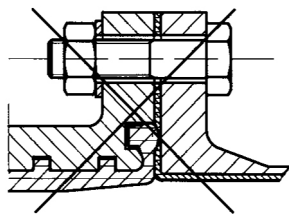
Drawing F

Installation between loose plate flanges on lap joint stub ends is not permitted.

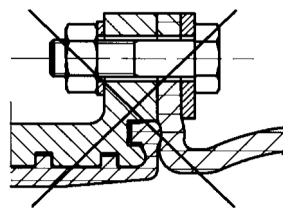
Table 48: Dimensions table of ISORIA 25

| DN   | NPS    | Optimum Ø | Max. permissible Ø | Min. permissible Ø of flange face | Min. Ø at a distance of 10 mm from the flange face | Min. Ø at a distance of 20mm from the flange face | Min. permissible raised face Ø of flanges with raised faces |
|------|--------|-----------|--------------------|-----------------------------------|----------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------|
|      | [inch] | Ø1        | Ø2                 | Ø3                                | Ø4                                                 | Ø5                                                | Ø6                                                          |
| 32   | 1¼     | 32        | 33                 | -                                 | -                                                  | -                                                 | 64                                                          |
| 40   | 1½     | 40        | 41                 | 33                                | -                                                  | -                                                 | 73                                                          |
| 50   | 2      | 50        | 51                 | 38                                | -                                                  | -                                                 | 89                                                          |
| 65   | 2½     | 65        | 66                 | 55                                | -                                                  | -                                                 | 104                                                         |
| 80   | 3      | 80        | 81                 | 74                                | 53                                                 | -                                                 | 124                                                         |
| 100  | 4      | 100       | 101                | 92                                | 77                                                 | 48                                                | 147                                                         |
| 125  | 5      | 125       | 126                | 117                               | 107                                                | 88                                                | 177                                                         |
| 150  | 6      | 150       | 151                | 143                               | 137                                                | 123                                               | 202                                                         |
| 200  | 8      | 195       | 201                | 191                               | 183                                                | 173                                               | 251                                                         |
| 250  | 10     | 245       | 251                | 241                               | 234                                                | 226                                               | 305                                                         |
| 300  | 12     | 295       | 302                | 290                               | 284                                                | 276                                               | 358                                                         |
| 350  | 14     | 330       | 337                | 326                               | 321                                                | 314                                               | 399                                                         |
| 400  | 16     | 380       | 387                | 370                               | 366                                                | 358                                               | 452                                                         |
| 450  | 18     | 430       | 438                | 422                               | 416                                                | 409                                               | 505                                                         |
| 500  | 20     | 480       | 488                | 470                               | 464                                                | 457                                               | 558                                                         |
| 550  | 22     | 540       | 549                | 522                               | 516                                                | 509                                               | 625                                                         |
| 600  | 24     | 580       | 589                | 566                               | 560                                                | 554                                               | 664                                                         |
| 700  | 28     | 700       | 700                | 683                               | 668                                                | 661                                               | Flanges with flat faces only                                |
| 800  | 32     | 800       | 799                | 782                               | 766                                                | 760                                               |                                                             |
| 900  | 36     | 900       | 900                | 880                               | 860                                                | 854                                               |                                                             |
| 1000 | 40     | 1000      | 1000               | 976                               | 958                                                | 952                                               |                                                             |

## Coated flange



Flange with rubber coating



Expansion bellows

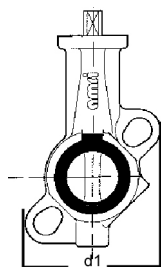
N.B.: Direct installation between rubber-coated flanges or with expansion bellows is not permitted. Contact us.

## Installation between flanges made of polyethylene

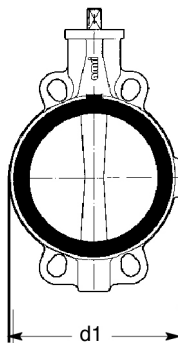
- Installation between flanges with flat faces is permitted.
- Installation between flanges with grooved faces is not permitted.

## Bolting and weights

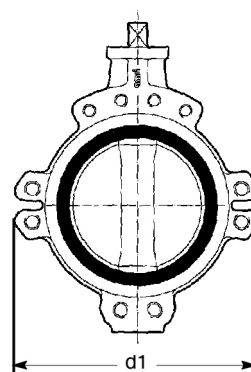
### Bolting and weights for semi-lug body - T2



Drawing of ISORIA 20/25 T2 DN 40



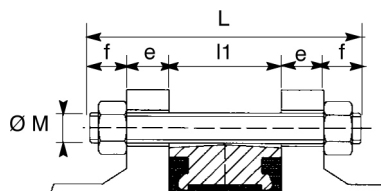
Drawing of ISORIA 20/25 T2 DN 150



ISORIA 20/25 T2 DN 600

The drawings do not indicate the exact product design  
(number of tapped lugs/tapped holes/through-holes)

**N.B.: Bolting is not included in our standard scope of supply.**



Length of tie bolt for semi-lug body – T2

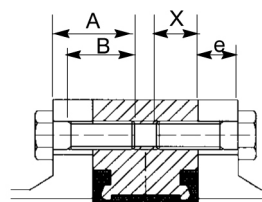
$$L = l1 + 2e + 2f$$

L: minimum length of tie bolts

l1: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie bolt



Length of bolt at shaft passage for semi-lug body – T2

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

## ISORIA 20

**Table 49:** Dimensions [mm] and weights [kg] for semi-lug body T2 – line connections to EN 1092-1

| DN  | NPS    | l1  | d1  | EN 1092-1 PN 16         |     |      |                    |     | EN 1092-1 PN 25         |     |      |                    |     | [kg]  |
|-----|--------|-----|-----|-------------------------|-----|------|--------------------|-----|-------------------------|-----|------|--------------------|-----|-------|
|     | Ø M    |     |     | Tie bolt <sup>14)</sup> |     | Bolt |                    | Ø M | Tie bolt <sup>14)</sup> |     | Bolt |                    |     |       |
|     |        |     |     | f                       | Qty | X    | Qty <sup>15)</sup> |     | f                       | Qty | X    | Qty <sup>15)</sup> |     |       |
|     | [inch] |     |     |                         |     |      |                    |     |                         |     |      |                    |     |       |
| 32  | 1¼     | 33  | 103 | M16                     | 20  | 4    | -                  | -   | M16                     | 20  | 4    | -                  | -   | 1,2   |
| 40  | 1½     | 33  | 110 | M16                     | 20  | 4    | -                  | -   | M16                     | 20  | 4    | -                  | -   | 1,3   |
| 50  | 2      | 43  | 122 | M16                     | 20  | 4    | -                  | -   | M16                     | 20  | 4    | -                  | -   | 1,8   |
| 65  | 2½     | 46  | 139 | M16                     | 20  | 4/8  | -                  | -   | M16                     | 20  | 4/8  | -                  | -   | 2,3   |
| 80  | 3      | 46  | 145 | M16                     | 20  | 8    | -                  | -   | M16                     | 20  | 8    | -                  | -   | 3,2   |
| 100 | 4      | 52  | 152 | M16                     | 20  | 8    | -                  | -   | M20                     | 24  | 8    | -                  | -   | 4,5   |
| 125 | 5      | 56  | 185 | M16                     | 20  | 8    | -                  | -   | M24                     | 29  | 8    | -                  | -   | 6,7   |
| 150 | 6      | 56  | 210 | M20                     | 24  | 8    | -                  | -   | M24                     | 29  | 8    | -                  | -   | 7,5   |
| 200 | 8      | 60  | 346 | M20                     | 24  | 12   | -                  | -   | M24                     | 29  | 12   | -                  | -   | 14,0  |
| 250 | 10     | 68  | 413 | M24                     | 29  | 12   | -                  | -   | M27                     | 32  | 12   | -                  | -   | 20,0  |
| 300 | 12     | 78  | 520 | M24                     | 29  | 6    | 24                 | 6   | M27                     | 32  | 10   | 27                 | 6   | 48,0  |
| 350 | 14     | 78  | 539 | M24                     | 29  | 10   | 24                 | 6   | M30                     | 35  | 10   | 30                 | 6   | 60,0  |
| 400 | 16     | 102 | 604 | M27                     | 32  | 10   | 27                 | 6   | M33                     | 38  | 10   | 33                 | 6   | 80,0  |
| 450 | 18     | 114 | 657 | M27                     | 32  | 14   | 27                 | 6   | M33                     | 28  | 14   | 33                 | 6   | 110,0 |
| 500 | 20     | 127 | 716 | M30                     | 35  | 12   | 30                 | 8   | M33                     | 24  | 12   | 33                 | 8   | 145,0 |
| 550 | 22     | 154 | 782 | 16)                     | 16) | 16)  | 16)                | 16) | 16)                     | 16) | 16)  | 16)                | 16) | 16)   |
| 600 | 24     | 154 | 836 | M33                     | 38  | 10   | 33                 | 10  | M36                     | 42  | 10   | 36                 | 10  | 220,0 |

**Table 50:** Dimensions [mm] and weights [kg] for semi-lug body T2 – line connections to ASME, MSS and JIS

| DN  | NPS    | l1  | d1  | ASME B16.5 class 150 <sup>17)</sup><br>ASME B16.1 class 125 <sup>17)</sup><br>MSS SP 44 Cl. 150 <sup>17)</sup><br>ASME B16.47 Cl. 150 Series A <sup>17)</sup> |     |      |                    |     | JIS B2220, B2238, B2239<br>16K |     |      |                    |    | [kg]  |
|-----|--------|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|--------------------|-----|--------------------------------|-----|------|--------------------|----|-------|
|     | UNC    |     |     | Tie bolt <sup>14)</sup>                                                                                                                                       |     | Bolt |                    | Ø M | Tie bolt <sup>14)</sup>        |     | Bolt |                    |    |       |
|     | [inch] |     |     | f                                                                                                                                                             | Qty | X    | Qty <sup>15)</sup> |     | f                              | Qty | X    | Qty <sup>15)</sup> |    |       |
| 32  | 1¼     | 33  | 108 | 1/2                                                                                                                                                           | 17  | 4    | -                  | -   | M16                            | 20  | 4    | -                  | -  | 1,2   |
| 40  | 1½     | 33  | 108 | 1/2                                                                                                                                                           | 17  | 4    | -                  | -   | M16                            | 20  | 4    | -                  | -  | 1,3   |
| 50  | 2      | 43  | 118 | 5/8                                                                                                                                                           | 20  | 4    | -                  | -   | M16                            | 20  | 8    | -                  | -  | 1,8   |
| 65  | 2½     | 46  | 132 | 5/8                                                                                                                                                           | 20  | 4    | -                  | -   | M16                            | 20  | 8    | -                  | -  | 2,3   |
| 80  | 3      | 46  | 138 | 5/8                                                                                                                                                           | 20  | 4    | -                  | -   | M20                            | 24  | 8    | -                  | -  | 3,2   |
| 100 | 4      | 52  | 150 | 5/8                                                                                                                                                           | 20  | 8    | -                  | -   | M20                            | 24  | 8    | -                  | -  | 4,5   |
| 125 | 5      | 56  | 234 | 3/4                                                                                                                                                           | 24  | 8    | -                  | -   | M22                            | 26  | 8    | -                  | -  | 6,7   |
| 150 | 6      | 56  | 260 | 3/4                                                                                                                                                           | 24  | 8    | -                  | -   | M22                            | 26  | 12   | -                  | -  | 7,5   |
| 200 | 8      | 60  | 322 | 3/4                                                                                                                                                           | 24  | 8    | -                  | -   | M22                            | 26  | 12   | -                  | -  | 14,0  |
| 250 | 10     | 68  | 394 | 7/8                                                                                                                                                           | 29  | 12   | -                  | -   | M24                            | 29  | 12   | -                  | -  | 20,0  |
| 300 | 12     | 78  | 462 | 7/8                                                                                                                                                           | 29  | 6    | 24                 | 6   | M24                            | 29  | 10   | 24                 | 6  | 48,0  |
| 350 | 14     | 78  | 538 | 1                                                                                                                                                             | 32  | 6    | 27                 | 6   | M30 x 3                        | 35  | 10   | 30                 | 6  | 60,0  |
| 400 | 16     | 102 | 604 | 1                                                                                                                                                             | 32  | 10   | 27                 | 6   | M30 x 3                        | 35  | 16   | 30                 | 6  | 80,0  |
| 450 | 18     | 114 | 656 | 1½ <sub>8</sub>                                                                                                                                               | 35  | 10   | 30                 | 6   | M30 x 3                        | 35  | 14   | 30                 | 6  | 110,0 |
| 500 | 20     | 127 | 716 | 1½ <sub>8</sub>                                                                                                                                               | 35  | 12   | 30                 | 8   | M30 x 3                        | 35  | 12   | 30                 | 8  | 145,0 |
| 550 | 22     | 154 | 804 | 1¾ <sub>4</sub>                                                                                                                                               | 38  | 12   | 32                 | 8   | M36 x 3                        | 42  | 12   | 36                 | 8  | 180,0 |
| 600 | 24     | 154 | 836 | 1¾ <sub>4</sub>                                                                                                                                               | 38  | 10   | 32                 | 10  | M36 x 3                        | 42  | 14   | 36                 | 10 | 220,0 |

<sup>14</sup> Quantity of nuts = quantity of tie bolts x 2

<sup>15</sup> Quantity of bolts x 2

<sup>16</sup> Non-standardised connection

<sup>17</sup> For DN's concerned, see connection standards.

## ISORIA 25

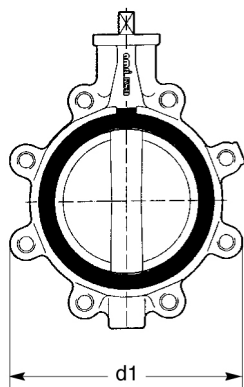
**Table 51:** Dimensions [mm] and weights [kg] for semi-lug body T2 – line connections to EN 1092-1, MSS and ASME

| DN  | NPS    | l1  | d1  | EN 1092-1 PN 25         |     |      |                    |        | MSS SP 44 Cl.150<br>ASME B16.5 class 150 |     |      |                    |    | [kg]  |
|-----|--------|-----|-----|-------------------------|-----|------|--------------------|--------|------------------------------------------|-----|------|--------------------|----|-------|
|     | Ø M    |     |     | Tie bolt <sup>14)</sup> |     | Bolt |                    | UNC    | Tie bolt <sup>14)</sup>                  |     | Bolt |                    |    |       |
|     |        |     |     | f                       | Qty | X    | Qty <sup>15)</sup> | [inch] | f                                        | Qty | X    | Qty <sup>15)</sup> |    |       |
|     | [inch] |     |     |                         |     |      |                    |        |                                          |     |      |                    |    |       |
| 32  | 1¼     | 33  | 103 | M16                     | 20  | 4    | -                  | -      | 1/2                                      | 17  | 4    | -                  | -  | 1,2   |
| 40  | 1½     | 33  | 110 | M16                     | 20  | 4    | -                  | -      | 1/2                                      | 17  | 4    | -                  | -  | 1,3   |
| 50  | 2      | 43  | 122 | M16                     | 20  | 4    | -                  | -      | 5/8                                      | 20  | 4    | -                  | -  | 1,8   |
| 65  | 2½     | 46  | 139 | M16                     | 20  | 4/8  | -                  | -      | 5/8                                      | 20  | 4    | -                  | -  | 2,3   |
| 80  | 3      | 46  | 145 | M16                     | 20  | 8    | -                  | -      | 5/8                                      | 20  | 4    | -                  | -  | 3,2   |
| 100 | 4      | 52  | 152 | M20                     | 24  | 8    | -                  | -      | 5/8                                      | 20  | 8    | -                  | -  | 4,5   |
| 125 | 5      | 56  | 185 | M24                     | 29  | 8    | -                  | -      | 3/4                                      | 24  | 8    | -                  | -  | 6,7   |
| 150 | 6      | 56  | 210 | M24                     | 29  | 8    | -                  | -      | 3/4                                      | 24  | 8    | -                  | -  | 7,5   |
| 200 | 8      | 60  | 346 | M24                     | 29  | 12   | -                  | -      | 3/4                                      | 24  | 8    | -                  | -  | 14,0  |
| 250 | 10     | 68  | 413 | M27                     | 32  | 12   | -                  | -      | 7/8                                      | 29  | 12   | -                  | -  | 20,0  |
| 300 | 12     | 78  | 520 | M27                     | 32  | 10   | 27                 | 6      | 7/8                                      | 29  | 12   | 24                 | 6  | 48,0  |
| 350 | 14     | 78  | 539 | M30                     | 35  | 10   | 30                 | 6      | 1                                        | 32  | 6    | 27                 | 6  | 60,0  |
| 400 | 16     | 102 | 604 | M33                     | 38  | 10   | 33                 | 6      | 1                                        | 32  | 10   | 27                 | 6  | 80,0  |
| 450 | 18     | 114 | 657 | M33                     | 28  | 14   | 33                 | 6      | 1 1/ 8                                   | 35  | 10   | 30                 | 6  | 110,0 |
| 500 | 20     | 127 | 716 | M33                     | 24  | 12   | 33                 | 8      | 1 1/ 8                                   | 35  | 12   | 30                 | 8  | 145,0 |
| 550 | 22     | 154 | 782 | 16)                     | 16) | 16)  | 16)                | 16)    | 1 1/ 4                                   | 38  | 12   | 32                 | 8  | 16)   |
| 600 | 24     | 154 | 836 | M36                     | 42  | 10   | 36                 | 10     | 1 1/ 4                                   | 38  | 10   | 32                 | 10 | 220,0 |

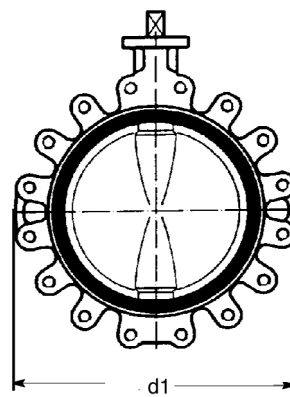
**Table 52:** Dimensions [mm] and weights [kg] for semi-lug body T2 – line connections to MSS and ASME

| DN  | NPS    | l1  | d1  | MSS SP 44 Cl.150<br>ASME B16.47 Cl. 150 Series A |                         |     |      |                    | [kg]  |
|-----|--------|-----|-----|--------------------------------------------------|-------------------------|-----|------|--------------------|-------|
|     |        |     |     | UNC                                              | Tie bolt <sup>14)</sup> |     | Bolt |                    |       |
|     | [inch] |     |     | [inch]                                           | f                       | Qty | X    | Qty <sup>15)</sup> |       |
| 32  | 1¼     | 33  | 108 | 1/2                                              | 17                      | 4   | -    | -                  | 1,2   |
| 40  | 1½     | 33  | 108 | 1/2                                              | 17                      | 4   | -    | -                  | 1,3   |
| 50  | 2      | 43  | 118 | 5/8                                              | 20                      | 4   | -    | -                  | 1,8   |
| 65  | 2½     | 46  | 132 | 5/8                                              | 20                      | 4   | -    | -                  | 2,3   |
| 80  | 3      | 46  | 138 | 5/8                                              | 20                      | 4   | -    | -                  | 3,2   |
| 100 | 4      | 52  | 150 | 5/8                                              | 20                      | 8   | -    | -                  | 4,5   |
| 125 | 5      | 56  | 234 | 3/4                                              | 24                      | 8   | -    | -                  | 6,7   |
| 150 | 6      | 56  | 260 | 3/4                                              | 24                      | 8   | -    | -                  | 7,5   |
| 200 | 8      | 60  | 322 | 3/4                                              | 24                      | 8   | -    | -                  | 14,0  |
| 250 | 10     | 68  | 394 | 7/8                                              | 29                      | 12  | -    | -                  | 20,0  |
| 300 | 12     | 78  | 462 | 7/8                                              | 29                      | 12  | 24   | 6                  | 48,0  |
| 350 | 14     | 78  | 538 | 1                                                | 32                      | 6   | 27   | 6                  | 60,0  |
| 400 | 16     | 102 | 604 | 1                                                | 32                      | 10  | 27   | 6                  | 80,0  |
| 450 | 18     | 114 | 656 | 1½ <sub>8</sub>                                  | 35                      | 10  | 30   | 6                  | 110,0 |
| 500 | 20     | 127 | 716 | 1½ <sub>8</sub>                                  | 35                      | 12  | 30   | 8                  | 145,0 |
| 550 | 22     | 154 | 804 | 1¼                                               | 38                      | 12  | 32   | 8                  | 180,0 |
| 600 | 24     | 154 | 836 | 1¼                                               | 38                      | 10  | 32   | 10                 | 220,0 |

# Bolting and weights for full-lug body with raised/flat faces - T3/T4



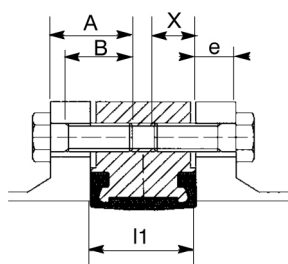
Drawing of ISORIA 20 T3/T4 DN 150



Drawing of ISORIA 20 T3/T4 DN 400

The drawings do not indicate the exact product design (number of lugs).

**N.B.: Bolting is not included in our standard scope of supply.**



$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

Length of bolts for full-lug body with raised/flat faces - T3/T4

## ISORIA 20

**Table 53:** Dimensions [mm] and weights [kg] for full-lug body with raised/flat faces T3/T4 - connection EN 1092-1

| DN  | NPS    | l1  | d1  | EN 1092-1 PN 16 |                |                    | EN 1092-1 PN 25 |                |                    | [kg]  |
|-----|--------|-----|-----|-----------------|----------------|--------------------|-----------------|----------------|--------------------|-------|
|     | [inch] |     |     | Ø M             | Bolt           |                    | Ø M             | Bolt           |                    |       |
|     |        |     |     |                 | X              | Qty <sup>18)</sup> |                 | X              | Qty <sup>18)</sup> |       |
| 32  | 1¼     | 33  | 101 | M16             | 14             | 4                  | M16             | 14             | 4                  | 2,0   |
| 40  | 1½     | 33  | 106 | M16             | 14             | 4                  | M16             | 14             | 4                  | 2,0   |
| 50  | 2      | 43  | 117 | M16             | 18             | 4                  | M16             | 18             | 4                  | 2,5   |
| 65  | 2½     | 46  | 132 | M16             | 20             | 4/8                | <sup>19)</sup>  | <sup>19)</sup> | <sup>19)</sup>     | 3,0   |
| 80  | 3      | 46  | 139 | M16             | 20             | 8                  | M16             | 20             | 8                  | 4,0   |
| 100 | 4      | 52  | 160 | M16             | 22             | 8                  | M20             | 24             | 8                  | 5,5   |
| 125 | 5      | 56  | 234 | M16             | 22             | 8                  | <sup>19)</sup>  | <sup>19)</sup> | <sup>19)</sup>     | 9,0   |
| 150 | 6      | 56  | 257 | M20             | 26             | 8                  | <sup>19)</sup>  | <sup>19)</sup> | <sup>19)</sup>     | 11,0  |
| 200 | 8      | 60  | 310 | M20             | 26             | 12                 | <sup>19)</sup>  | <sup>19)</sup> | <sup>19)</sup>     | 24,0  |
| 250 | 10     | 68  | 394 | M24             | 29             | 12                 | <sup>19)</sup>  | <sup>19)</sup> | <sup>19)</sup>     | 39,0  |
| 300 | 12     | 78  | 462 | M24             | 30             | 12                 | M27             | 34             | 16                 | 46,0  |
| 350 | 14     | 78  | 527 | M24             | 30             | 16                 | M30             | 24             | 16                 | 62,0  |
| 400 | 16     | 102 | 605 | M27             | 34             | 16                 | M33             | 40             | 16                 | 101,0 |
| 450 | 18     | 114 | 636 | M27             | 34             | 20                 | M33             | 40             | 20                 | 122,0 |
| 500 | 20     | 127 | 718 | M30             | 37             | 20                 | M33             | 40             | 20                 | 179,0 |
| 550 | 22     | 154 | 790 | <sup>19)</sup>  | <sup>19)</sup> | <sup>19)</sup>     | <sup>19)</sup>  | <sup>19)</sup> | <sup>19)</sup>     | 233,0 |
| 600 | 24     | 154 | 835 | M33             | 42             | 20                 | M36             | 45             | 20                 | 256,0 |

**Table 54:** Dimensions [mm] and weights [kg] for full-lug body with raised/flat faces T3/T4 - connections ASME, MSS and JIS

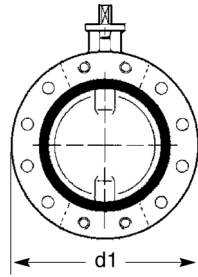
| DN  | NPS    | l1  | d1  | ASME B16.5 Cl. 150<br>ASME B16.1 class 125<br>MSS SP 44 Cl. 150<br>ASME B16.47 Cl. 150 Series A <sup>20)</sup> |      |                    | JIS B2220, B2238, B2239<br>16K |                |                    | [kg]  |
|-----|--------|-----|-----|----------------------------------------------------------------------------------------------------------------|------|--------------------|--------------------------------|----------------|--------------------|-------|
|     | [inch] |     |     | UNC                                                                                                            | Bolt |                    | Ø M                            | Bolt           |                    |       |
|     |        |     |     | [inch]                                                                                                         | X    | Qty <sup>18)</sup> |                                | X              | Qty <sup>18)</sup> |       |
| 32  | 1¼     | 33  | 101 | 1/2                                                                                                            | 14   | 4                  | M16                            | 14             | 4                  | 2,0   |
| 40  | 1½     | 33  | 106 | 1/2                                                                                                            | 14   | 4                  | M16                            | 14             | 4                  | 2,0   |
| 50  | 2      | 43  | 117 | 5/8                                                                                                            | 18   | 4                  | <sup>19)</sup>                 | <sup>19)</sup> | <sup>19)</sup>     | 2,5   |
| 65  | 2½     | 46  | 132 | 5/8                                                                                                            | 20   | 4                  | <sup>19)</sup>                 | <sup>19)</sup> | <sup>19)</sup>     | 3,0   |
| 80  | 3      | 46  | 139 | 5/8                                                                                                            | 20   | 4                  | M20                            | 20             | 8                  | 4,0   |
| 100 | 4      | 52  | 160 | 5/8                                                                                                            | 22   | 8                  | M20                            | 24             | 8                  | 5,5   |
| 125 | 5      | 56  | 234 | 3/4                                                                                                            | 23   | 8                  | <sup>19)</sup>                 | <sup>19)</sup> | <sup>19)</sup>     | 9,0   |
| 150 | 6      | 56  | 257 | 3/4                                                                                                            | 26   | 8                  | <sup>19)</sup>                 | <sup>19)</sup> | <sup>19)</sup>     | 11,0  |
| 200 | 8      | 60  | 310 | 3/4                                                                                                            | 26   | 8                  | <sup>19)</sup>                 | <sup>19)</sup> | <sup>19)</sup>     | 24,0  |
| 250 | 10     | 68  | 394 | 7/8                                                                                                            | 28   | 12                 | <sup>19)</sup>                 | <sup>19)</sup> | <sup>19)</sup>     | 39,0  |
| 300 | 12     | 78  | 462 | 7/8                                                                                                            | 28   | 12                 | M24                            | 30             | 16                 | 46,0  |
| 350 | 14     | 78  | 527 | 1                                                                                                              | 30   | 12                 | M30 x 3                        | 34             | 16                 | 62,0  |
| 400 | 16     | 102 | 605 | 1                                                                                                              | 34   | 16                 | M30 x 3                        | 37             | 16                 | 101,0 |
| 450 | 18     | 114 | 636 | 1 1/8                                                                                                          | 37   | 16                 | M30 x 3                        | 37             | 20                 | 122,0 |
| 500 | 20     | 127 | 718 | 1 1/8                                                                                                          | 37   | 20                 | M30 x 3                        | 37             | 20                 | 179,0 |
| 550 | 22     | 154 | 790 | 1 1/4                                                                                                          | 39   | 20                 | M36 x 3                        | 42             | 20                 | 233,0 |
| 600 | 24     | 154 | 835 | 1 1/4                                                                                                          | 42   | 20                 | M36 x 3                        | 34             | 24                 | 256,0 |

<sup>18)</sup> Quantity of bolts x 2

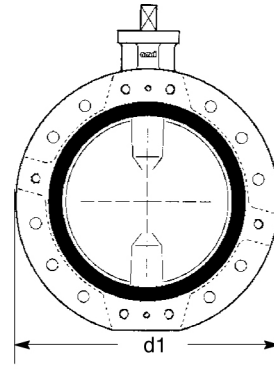
<sup>19)</sup> Non-standardised connection

<sup>20)</sup> For DN's concerned, see connection standards.

## Bolting and weights for flanged body with flat faces - T5



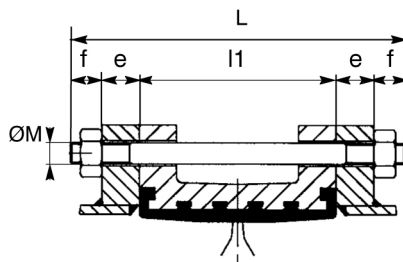
Drawing of ISORIA 20/25 T5 - DN 250



Drawing of ISORIA 20/25 T5 - DN 400

The drawings do not indicate the exact product design  
(number of tapped holes/plain holes)

**N.B.: Bolting is not included in our standard scope of supply.**



Length of tie bolt for flanged body with flat faces -  
T5

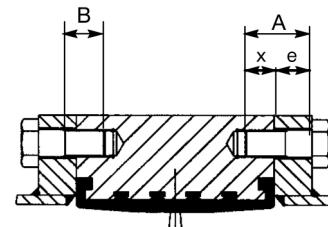
$$\text{Length of tie bolt } L = l1 + 2e + 2f$$

L: minimum length of tie bolts

l1: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie bolt



Length of bolt at shaft passage for flanged body with flat faces  
- T5

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

## ISORIA 20

**Table 55:** Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – line connections to EN 1092-1

| DN  | NPS | l1  | d1  | EN 1092-1 PN 16         |     |      |     |     | EN 1092-1 PN 25         |     |      |     |                    | [kg] |
|-----|-----|-----|-----|-------------------------|-----|------|-----|-----|-------------------------|-----|------|-----|--------------------|------|
|     | Ø M |     |     | Tie bolt <sup>21)</sup> |     | Bolt |     | Ø M | Tie bolt <sup>21)</sup> |     | Bolt |     |                    |      |
|     |     |     |     | [inch]                  | f   | Qty  | X   |     | Qty <sup>22)</sup>      | f   | Qty  | X   | Qty <sup>22)</sup> |      |
| 200 | 8   | 60  | 343 | M20                     | 24  | 8    | 16  | 4   | M24                     | 29  | 12   | -   | -                  | 23   |
| 250 | 10  | 68  | 406 | M24                     | 29  | 8    | 24  | 4   | M27                     | 32  | 12   | -   | -                  | 40   |
| 300 | 12  | 78  | 483 | M24                     | 29  | 6    | 24  | 6   | M27                     | 32  | 10   | 27  | 6                  | 60   |
| 350 | 14  | 78  | 533 | M24                     | 29  | 10   | 24  | 6   | M30                     | 35  | 16   | -   | -                  | 80   |
| 400 | 16  | 102 | 597 | M27                     | 32  | 10   | 27  | 6   | M33                     | 38  | 16   | -   | -                  | 105  |
| 450 | 18  | 114 | 640 | M27                     | 32  | 14   | 27  | 6   | M33                     | 38  | 14   | 33  | 6                  | 130  |
| 500 | 20  | 127 | 715 | M30                     | 35  | 12   | 30  | 8   | M33                     | 38  | 12   | 33  | 8                  | 180  |
| 550 | 22  | 154 | 749 | 23)                     | 23) | 23)  | 23) | 23) | 23)                     | 23) | 23)  | 23) | 23)                | 23)  |
| 600 | 24  | 154 | 840 | M33                     | 38  | 10   | 33  | 10  | M36                     | 42  | 10   | 36  | 10                 | 260  |

**Table 56:** Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – line connections to ASME, MSS and JIS

| DN  | NPS    | l1  | d1  | ASME B16.5 class 150 <sup>24)</sup><br>ASME B16.1 class 125 <sup>24)</sup><br>MSS SP 44 Cl. 150 <sup>24)</sup><br>ASME B16.47 Cl. 150 Series A <sup>24)</sup> |    |      |    |     | JIS B2220, B2238, B2239<br>16K |                |                |                |                    | [kg] |
|-----|--------|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|----|-----|--------------------------------|----------------|----------------|----------------|--------------------|------|
|     | UNC    |     |     | Tie bolt <sup>21)</sup>                                                                                                                                       |    | Bolt |    | Ø M | Tie bolt <sup>21)</sup>        |                | Bolt           |                |                    |      |
|     | [inch] |     |     | [inch]                                                                                                                                                        | f  | Qty  | X  |     | Qty <sup>22)</sup>             | f              | Qty            | X              | Qty <sup>22)</sup> |      |
| 200 | 8      | 60  | 343 | 3/4                                                                                                                                                           | 24 | 4    | 20 | 4   | M22                            | 26             | 8              | 22             | 4                  | 23   |
| 250 | 10     | 68  | 406 | 7/8                                                                                                                                                           | 29 | 8    | 24 | 4   | M24                            | 29             | 8              | 24             | 4                  | 40   |
| 300 | 12     | 78  | 483 | 7/8                                                                                                                                                           | 29 | 6    | 24 | 6   | M24                            | 29             | 10             | 24             | 6                  | 60   |
| 350 | 14     | 78  | 533 | 1                                                                                                                                                             | 32 | 6    | 27 | 6   | M30x3                          | 35             | 10             | 30             | 6                  | 80   |
| 400 | 16     | 102 | 597 | 1                                                                                                                                                             | 32 | 10   | 27 | 6   | M30x3                          | 35             | 10             | 30             | 6                  | 105  |
| 450 | 18     | 114 | 640 | 1 1/8                                                                                                                                                         | 32 | 10   | 30 | 6   | <sup>23)</sup>                 | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup>     | 130  |
| 500 | 20     | 127 | 715 | 1 1/8                                                                                                                                                         | 35 | 12   | 30 | 8   | M30x3                          | 35             | 12             | 30             | 8                  | 180  |
| 550 | 22     | 154 | 749 | 1 1/4                                                                                                                                                         | 35 | 12   | 32 | 8   | <sup>23)</sup>                 | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup>     | 230  |
| 600 | 24     | 154 | 840 | 1 1/4                                                                                                                                                         | 38 | 10   | 32 | 10  | M30x3                          | 42             | 14             | 36             | 10                 | 260  |

<sup>21)</sup> Quantity of nuts = quantity of tie bolts x 2

<sup>22)</sup> Quantity of bolts x 2

<sup>23)</sup> Non-standardised connection

<sup>24)</sup> For DN's concerned, see connection standards.

## ISORIA 25

**Table 57:** Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – line connections to EN 1092-1 and ASME

| DN   | NPS | I1  | Ød1    |       | EN 1092-1 PN 25         |                |                |                |                    | ASME B16.5 class 150    |                |                |                |                    | [kg] |
|------|-----|-----|--------|-------|-------------------------|----------------|----------------|----------------|--------------------|-------------------------|----------------|----------------|----------------|--------------------|------|
|      | ØM  |     |        |       | Tie bolt <sup>21)</sup> |                | Bolt           |                | UNC                | Tie bolt <sup>21)</sup> |                | Bolt           |                |                    |      |
|      |     |     | [inch] | Steel | JS 1030                 | f              | Qty            | X              | Qty <sup>22)</sup> | [inch]                  | f              | Qty            | X              | Qty <sup>22)</sup> |      |
| 200  | 8   | 60  | 343    | -     | M24                     | 29             | 12             | -              | -                  | 3/4                     | 24             | 4              | 20             | 4                  | 23   |
| 250  | 10  | 68  | 430    | -     | M27                     | 32             | 12             | -              | -                  | 7/8                     | 29             | 8              | 24             | 4                  | 40   |
| 300  | 12  | 78  | 483    | -     | M27                     | 32             | 10             | 27             | 6                  | 7/8                     | 29             | 6              | 24             | 6                  | 60   |
| 350  | 14  | 78  | 533    | 533   | M30                     | 35             | 16             | -              | -                  | 1                       | 32             | 6              | 27             | 6                  | 80   |
| 400  | 16  | 102 | 597    | 597   | M33                     | 38             | 16             | -              | -                  | 1                       | 32             | 10             | 27             | 6                  | 105  |
| 450  | 18  | 114 | 668    | 640   | M33                     | 38             | 14             | 33             | 6                  | 1 1/8                   | 32             | 10             | 30             | 6                  | 130  |
| 500  | 20  | 127 | 715    | 715   | M33                     | 38             | 12             | 33             | 8                  | -                       | -              | -              | -              | -                  | 180  |
| 550  | 22  | 154 | 790    | 749   | <sup>23)</sup>          | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup>     | -                       | -              | -              | -              | -                  | 230  |
| 600  | 24  | 154 | 840    | 840   | M36                     | 42             | 10             | 36             | 10                 | -                       | -              | -              | -              | -                  | 260  |
| 700  | 28  | 210 | 960    | 960   | M39                     | 45             | 20             | 36             | 4                  | <sup>23)</sup>          | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup>     | 375  |
| 800  | 32  | 230 | 1085   | 1085  | M45                     | 52             | 20             | 32             | 4                  | <sup>23)</sup>          | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup>     | 500  |
| 900  | 36  | 260 | 1185   | 1185  | M45                     | 52             | 24             | 40             | 4                  | <sup>23)</sup>          | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup>     | 745  |
| 1000 | 40  | 280 | 1320   | 1320  | M52                     | 60             | 24             | 35             | 4                  | <sup>23)</sup>          | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup> | <sup>23)</sup>     | 950  |

**Table 58:** Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – line connections to ASME and MSS

| DN   | NPS   | I1  | Ød1   |         | MSS SP 44 Cl. 150<br>ASME B16.47 Cl. 150 Series A |    |      |    |                    | [kg] |
|------|-------|-----|-------|---------|---------------------------------------------------|----|------|----|--------------------|------|
|      | UNC   |     |       |         | Tie bolt <sup>21)</sup>                           |    | Bolt |    |                    |      |
|      | Steel |     | Steel | JS 1030 | [inch]                                            | f  | Qty  | X  | Qty <sup>22)</sup> |      |
| 200  | 8     | 60  | 343   | -       | 3/4                                               | -  | -    | -  | -                  | 23   |
| 250  | 10    | 68  | 430   | -       | 7/8                                               | -  | -    | -  | -                  | 40   |
| 300  | 12    | 78  | 483   | -       | 7/8                                               | 29 | 6    | 24 | 6                  | 60   |
| 350  | 14    | 78  | 533   | 533     | 1                                                 | 32 | 6    | 27 | 6                  | 80   |
| 400  | 16    | 102 | 597   | 597     | 1                                                 | 32 | 10   | 27 | 6                  | 105  |
| 450  | 18    | 114 | 668   | 640     | 1 <sup>1</sup> / <sub>8</sub>                     | 35 | 10   | 30 | 6                  | 130  |
| 500  | 20    | 127 | 715   | 715     | 1 <sup>1</sup> / <sub>8</sub>                     | 35 | 12   | 30 | 8                  | 180  |
| 550  | 22    | 154 | 790   | 749     | 1 <sup>1</sup> / <sub>4</sub>                     | 38 | 12   | 32 | 8                  | 230  |
| 600  | 24    | 154 | 840   | 840     | 1 <sup>1</sup> / <sub>4</sub>                     | 38 | 10   | 32 | 10                 | 260  |
| 700  | 28    | 210 | 960   | 960     | Contact the manufacturer.                         |    |      |    | 10                 | 375  |
| 800  | 32    | 230 | 1085  | 1085    | Contact the manufacturer.                         |    |      |    | 4                  | 500  |
| 900  | 36    | 260 | 1185  | 1185    | Contact the manufacturer.                         |    |      |    | 4                  | 745  |
| 1000 | 40    | 280 | 1320  | 1320    | Contact the manufacturer.                         |    |      |    | 8                  | 950  |







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