

Cryogenic OFFSET disc butterfly valves

DN 80 to DN 600 (3" to 24")
Class 150

Applications

- All liquefied gases

Working conditions

- Temperature: from -200 °C to +200 °C
- Maximum working pressure: 16 bar
- Rating: ASME B16.34 Class 150
- Pressure / Temperature rating

| | | |
|-----------|-----|--------------|
| Class 150 | PFA | until 200 °C |
| | CU | until 100 °C |

- Maximum available fluid velocity
 - 8 m/s for liquid
 - 50 m/s for gas

Materials

See page 2.

Design

- Full-lug body with flat faces (Type 4):
DN 80 (3") to DN 600 (24").
- Flanged body with raised faces (Type 7):
DN 80 (3") to DN 600 (24").
- The valves meet the safety requirements of the pressure Equipments Directive 97/23EC (PED) Appendix I for fluids of the groups 1 and 2.
- Face to face (see pages 6 and 10)
- Lip seal ring for installation in any position
- Oxygen degreasing.
- Pickling - passivation treatment

Connections

- PN10 / PN 16 / PN 20 in accordance with ISO 7005
- ASME B 16.5 Class 150

Standard options

- Cover plate with Moller-balg
- ATEX version in accordance with 94/9/EC Directive
- Fire safe design
- Sand wind protection

Standard variants

- Manual actuator MR
- Pneumactical actuator ACTAIR / DYNACTAIR (On-Off / Control)
- Limit switches box AMTROBOX R

Remarks

- Operating instructions 8450.810/.-10

Materials

| | |
|--|----------|
| Body | KSB code |
| Stainless steel ASTM A 351 gr. CF 8M / 1.4408 | 6 |
| Stainless steel ASTM A 351 gr. CF 3M | 6t |
| Disc | KSB code |
| Stainless steel ASTM A 351 gr. CF 8M / 1.4408 (with hard chromium for metallic seat) | 6 |
| Shaft | KSB code |
| Stainless steel 316L (4 bar / 10 bar) | 6 |
| Stainless steel A638 gr. 660 (16 bar) | 6f |
| Extension | KSB code |
| Stainless steel ASTM A 351 gr. CF 8M / 1.4408 | 6 |
| Seat | KSB code |
| PFA : Perfluoro-Alchoxyalkane (4 bar) | F |
| CU : Copper (10 bar / 16 bar) | CU |

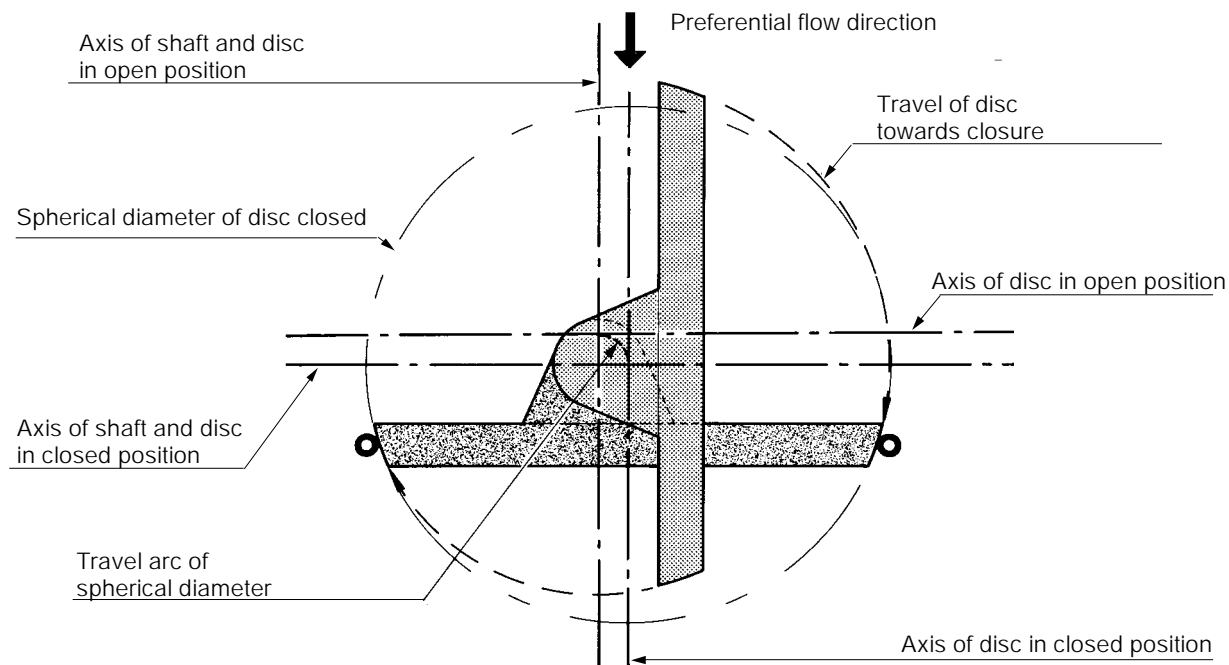
Kinematics

The compression of the seating disc edge onto the seat is achieved by double-eccentric kinematics.

The axis of the shafts is off-set to valve axis and eccentric to pipe axis.

This design eliminates the possibility of friction during operation and, as a result ensures long life service while maintaining tight shut-off characteristics.

These tight shut-off characteristics comply with to the most severe requirements of Standards.



Hydraulic characteristics

| DN | NPS | Flow coefficient in full open position | | Zeta |
|-----|-----|--|--------|------|
| | | Kv_0 | Cv_0 | |
| 80 | 3 | 190 | 220 | 1.81 |
| 100 | 4 | 340 | 400 | 1.38 |
| 150 | 6 | 980 | 1 140 | 0.84 |
| 200 | 8 | 1 850 | 2 150 | 0.75 |
| 250 | 10 | 3 350 | 3 880 | 0.56 |
| 300 | 12 | 4 870 | 5 650 | 0.55 |
| 350 | 14 | 7 070 | 8 200 | 0.48 |
| 400 | 16 | 10 350 | 12 000 | 0.38 |
| 450 | 18 | 12 500 | 14 500 | 0.42 |
| 500 | 20 | 15 090 | 17 500 | 0.44 |
| 600 | 24 | 22 410 | 26 000 | 0.41 |

Upstream / downstream sealing

The DANAIS TBT II AL valve conforms to the following sealing standards.

The DANAIS TBT II AL valve is a bi-directional valve with a preferential flow direction shown by an arrow on the body.

| Valve | With PFA seat | With metallic seat (copper) |
|------------|--|--|
| On liquids | EN 12266-1 rate A ISO 5208 category A API 598 | EN 12266-1 rate < D ISO 5208, category C API 598 MSS SP 61 ANSI / FCI 70.2 class V |
| On gas | EN 12266-1 rate A ISO 5208, category A API 598 ANSI / FCI 70.2 class VI | EN 12266-1 rate < D ISO 5208 leakage < cat. D MSS SP 61 ANSI / FCI 70.2 class VI |

Operating torque (in Nm)

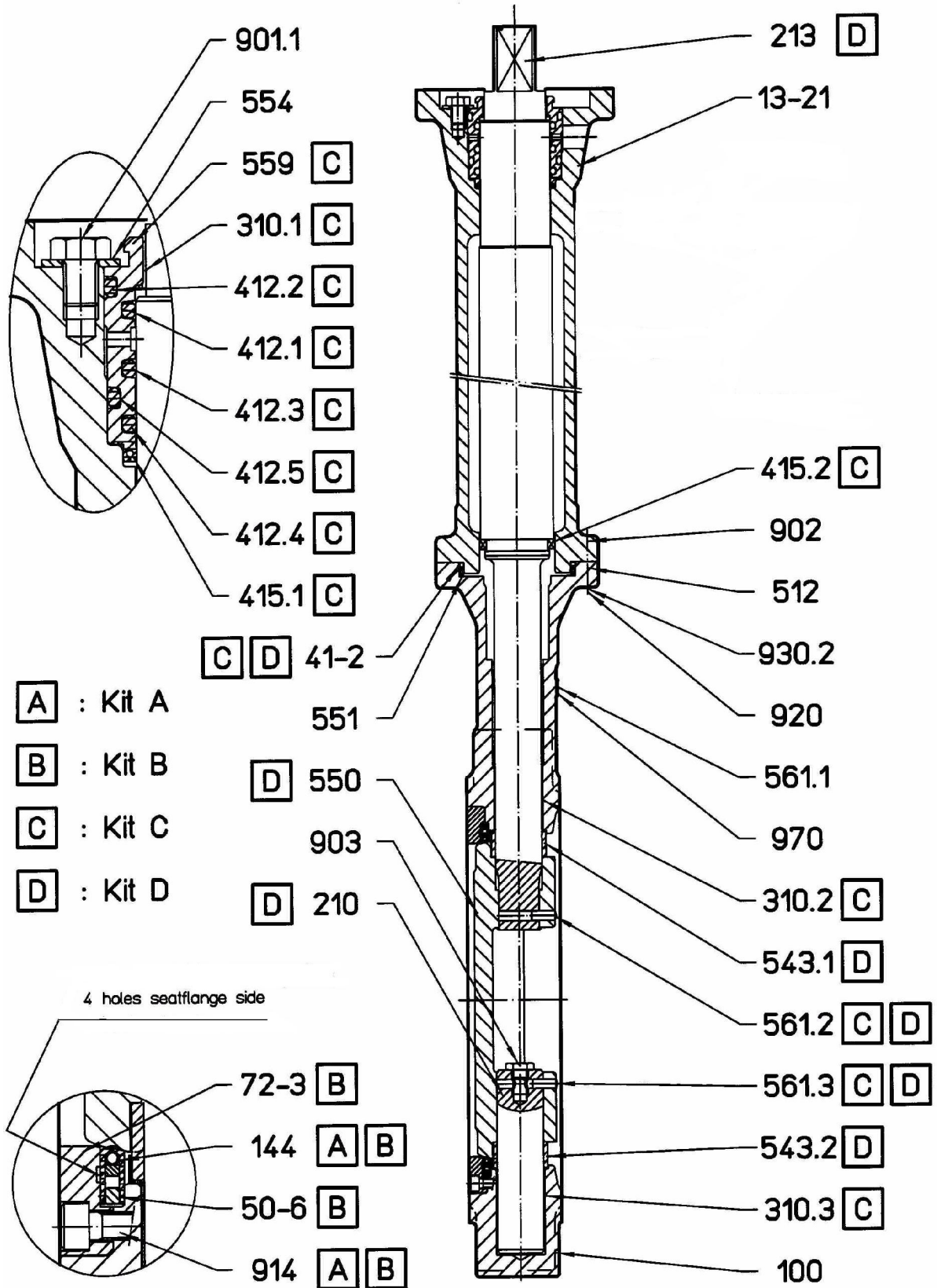
With PFA seat

| DN | NPS | Interface | | Torque |
|-----|-----|-----------|--------|------------------|
| | | Plate | Square | Nm for P ≤ 4 bar |
| 80 | 3 | F10 | 19 | 30 |
| 100 | 4 | F10 | 19 | 40 |
| 150 | 6 | F12 | 22 | 80 |
| 200 | 8 | F12 | 22 | 150 |
| 250 | 10 | F14 | 25 | 210 |
| 300 | 12 | F16 | 36 | 410 |
| 350 | 14 | F16 | 36 | 500 |
| 400 | 16 | F16 | 36 | 700 |
| 450 | 18 | F25 | 50 | 1010 |
| 500 | 20 | F25 | 50 | 1300 |
| 600 | 24 | F25 | 60 | 1930 |

With metallic seat (copper)

| DN | NPS | Interface | | | Torque | | | | | | |
|-----|-----|-----------|----------------------|----------------------|--------|------|------|------|------|------|------|
| | | Plate | Square P ≤ 10 bar | Square P ≤ 16 bar | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 80 | 3 | F10 | 19 | 19 | 100 | | | | | | |
| 100 | 4 | F10 | 19 | 19 | 120 | | | | | 130 | 140 |
| 150 | 6 | F12 | 25 | 25 | 300 | | | 320 | 340 | 360 | |
| 200 | 8 | F12 | 30 | 30 | 500 | | | 550 | 590 | 630 | |
| 250 | 10 | F14 | 36 | 36 | 860 | | | 930 | 1000 | 1070 | |
| 300 | 12 | F16 | 36 | 40 | 1260 | | | 1370 | 1480 | 1590 | |
| 350 | 14 | F16 | 36 | 50 | 1860 | | | 2030 | 2200 | 2370 | |
| 400 | 16 | F16 | 50 | 50 | 2680 | | | 2920 | 3150 | 3390 | |
| 450 | 18 | F25 | 50 | 60 | 3550 | | 3900 | 4260 | 4620 | 4980 | |
| 500 | 20 | F25 | 50 | 70 | 3900 | | 4370 | 4840 | 5310 | 5790 | 6260 |
| 600 | 24 | F25 | 60 | 70 | 5150 | 5840 | 6550 | 7260 | 7970 | 8680 | 9390 |

Construction - Lug type body - Type 4



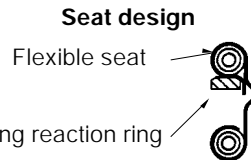
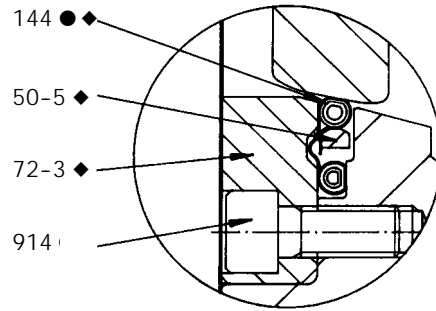
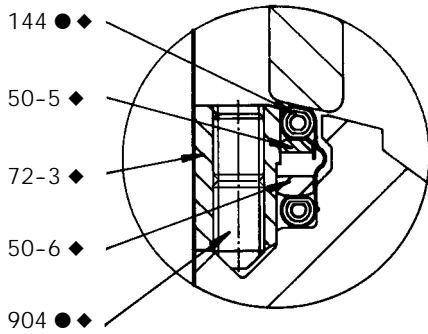
Parts list - Lug type body - Type 4

| Item | Designation | Materials |
|-----------------------------|------------------------|--|
| Commun parts | | |
| 100 | Body | Stainless steel A351 gr CF8M (1.4408) or CF3M |
| 13-21 | Extension | Stainless steel A351 gr CF8M (1.4408) |
| 310.1 | Self lubricating strip | Stainless steel + PTFE |
| 310.2 | Self lubricating strip | Stainless steel + PTFE |
| 310.3 | Self lubricating strip | Stainless steel + PTFE |
| 41-2 | Static joint | Nickel |
| 412.1 | O-ring | Viton |
| 412.2 | O-ring | Viton |
| 412.3 | O-ring | Viton |
| 412.4 | O-ring | Viton |
| 412.5 | O-ring | Viton |
| 415.1 | Lip seal ring | PTFE + ELGILOY |
| 415.2 | Lip seal ring | PTFE + ELGILOY |
| 512 | Adjusting ring | Stainless steel |
| 543 | Spacer bush | Stainless steel |
| 550 | Disc | Stainless steel A351 gr CF8M (1.4408) with hard chromium or stellite overlay on edge |
| 551 | Spacer disc | Stainless steel |
| 553.1 | Thrust insert | Stainless steel |
| 553.2 | Thrust insert | Stainless steel + PTFE |
| 554 | Plain washer | Stainless steel |
| 559 | Gasket holder | Stainless steel |
| 561.1 | Grooved pin | Stainless steel |
| 561.2 | Grooved pin | Stainless steel |
| 561.3 | Grooved pin | Stainless steel |
| 901.1 | Hexagon head screw | Stainless steel |
| 902 | Stud | Stainless steel |
| 920 | Hexagon nut | Stainless steel |
| 930.2 | Retainer | Stainless steel |
| 970 | Identity plate | Stainless steel |
| Valve 4 bar / 10 bar | | |
| 210 | Shaft | Stainless steel 316L |
| 213 | Drive shaft | Stainless steel 316L |
| Valve 16 bar | | |
| 210 | Shaft | Stainless steel A638 gr 660 |
| 213 | Drive shaft | Stainless steel A638 gr 660 |

Lug type with flexible metallic seat (copper): working pressure 10/16 bar

DN 80 to 250 (3 to 10")

DN 300 to 600 (12 to 24")



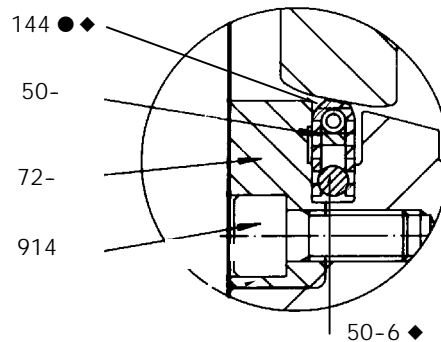
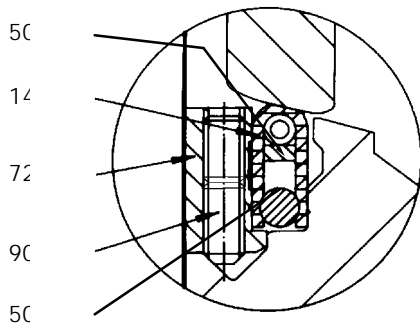
● Kit seat A
◆ Kit seat B

| Item | Designation | DN | Materials |
|------|-------------------|------------|---------------------------|
| 50-5 | Reaction ring | 50 to 600 | Stainless steel |
| 50-6 | Tightening ring | 50 to 250 | Stainless steel |
| 72-3 | Tightening flange | 50 to 600 | Stainless steel |
| 144 | Metallic seat | 50 to 600 | Copper |
| 904 | Grub screw | 50 to 250 | Stainless steel cl. A4.70 |
| 914 | Cheese-head screw | 300 to 600 | Stainless steel cl. A4.70 |

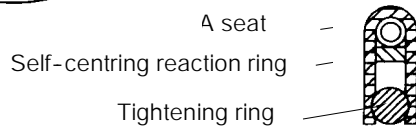
Lug type with PFA seat: working pressure 4 bar

DN 50 to 250 (2" to 10")

DN 300 to 600 (12" to 24")

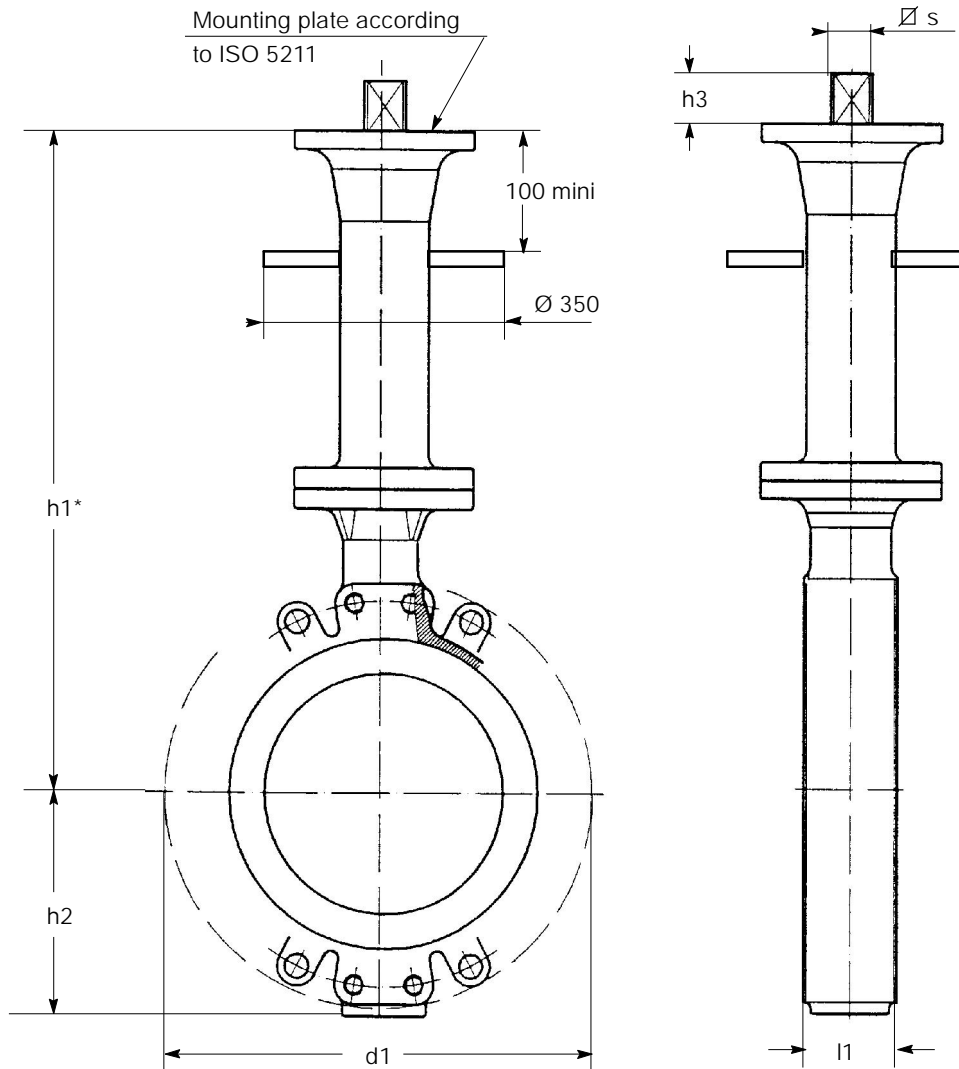


Seat design



● Kit seat A
◆ Kit seat B

| Item | Designation | DN | Materials |
|------|-------------------|------------|---------------------------|
| 50-5 | Reaction ring | 50 to 600 | Stainless steel |
| 50-6 | Tightening ring | 50 to 250 | Stainless steel |
| 72-3 | Tightening flange | 50 to 600 | Stainless steel |
| 144 | Seat | 50 to 600 | PFA |
| 904 | Grub screw | 50 to 250 | Stainless steel cl. A4.70 |
| 914 | Cheese-head screw | 300 to 600 | Stainless steel cl. A4.70 |
| 932 | Retaining ring | 300 to 600 | Stainless steel cl. A4.70 |

Dimensions - Lug type body - Type 4


mm

| DN | NPS | h1 * | h2 | d1 | l1 | ISO plate | 4 bar | | 10 bar | | 16 bar | | Weight Kg |
|-----|-----|------|-----|-----|-----|-----------|-------|----|--------|----|--------|----|-----------|
| | | | | | | | Ø s | h3 | Ø s | h3 | Ø s | h3 | |
| 80 | 3 | 760 | 94 | 188 | 46 | F10 | 19 | 33 | 19 | 33 | 19 | 33 | 12 |
| 100 | 4 | 780 | 105 | 210 | 52 | F10 | 19 | 33 | 19 | 33 | 19 | 33 | 18 |
| 150 | 6 | 870 | 129 | 257 | 56 | F12 | 22 | 38 | 25 | 43 | 25 | 43 | 28 |
| 200 | 8 | 910 | 155 | 340 | 60 | F12 | 22 | 38 | 30 | 53 | 30 | 53 | 44 |
| 250 | 10 | 910 | 202 | 417 | 68 | F14 | 25 | 43 | 36 | 53 | 36 | 53 | 69 |
| 300 | 12 | 1070 | 237 | 478 | 78 | F16 | 36 | 53 | 36 | 53 | 40 | 63 | 99 |
| 350 | 14 | 1100 | 274 | 542 | 92 | F16 | 36 | 53 | 36 | 53 | 50 | 63 | 138 |
| 400 | 16 | 1070 | 300 | 587 | 102 | F16 | 36 | 53 | 50 | 78 | 50 | 78 | 180 |
| 450 | 18 | 1070 | 329 | 657 | 114 | F25 | 50 | 78 | 50 | 78 | 60 | 78 | 233 |
| 500 | 20 | 1100 | 356 | 702 | 127 | F25 | 50 | 78 | 50 | 78 | 70 | 83 | 320 |
| 600 | 24 | 1180 | 449 | 834 | 154 | F25 | 60 | 78 | 60 | 78 | 70 | 83 | 492 |

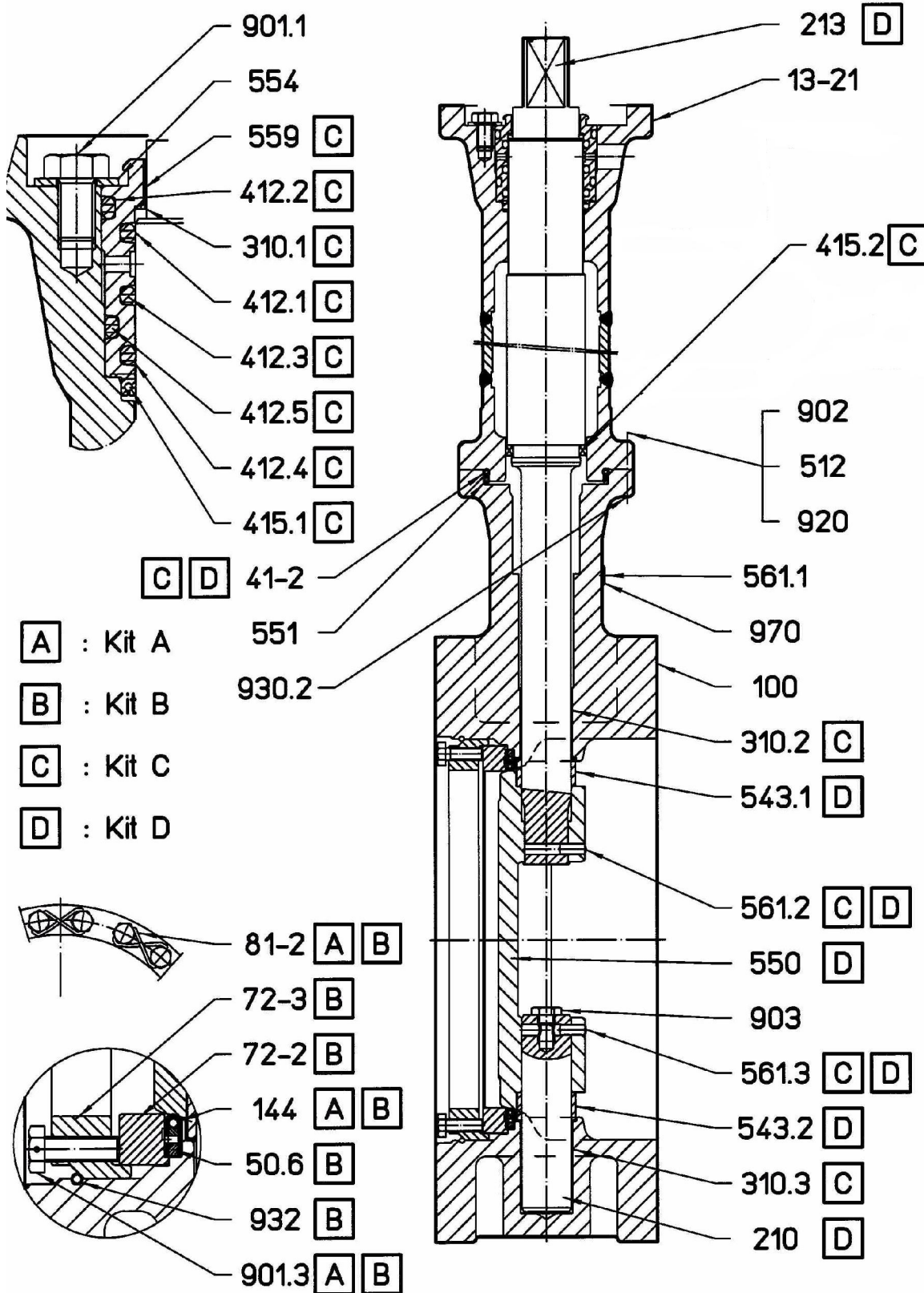
* Standard length of the neck extension
 Other dimensions available on request: see page 12

Face to face

| DN | NPS | Lug type |
|---------------|------------|---|
| 50 to 300 (1) | 2" to 12" | EN 558-1 series 20 ; API 609 table 2 class 150 and ISO 5752 series 20 |
| 350 | 14" | EN 558-1 series 20 ; API 609 table 2 class 150 and ISO 5752 series 25 |
| 400 to 600 | 16" to 24" | EN 558-1 series 20 ; API 609 table 2 class 150 and ISO 5752 series 20 |

(1) DN 80- 3" : only in accordance with API 609 table 2 class 150 standard

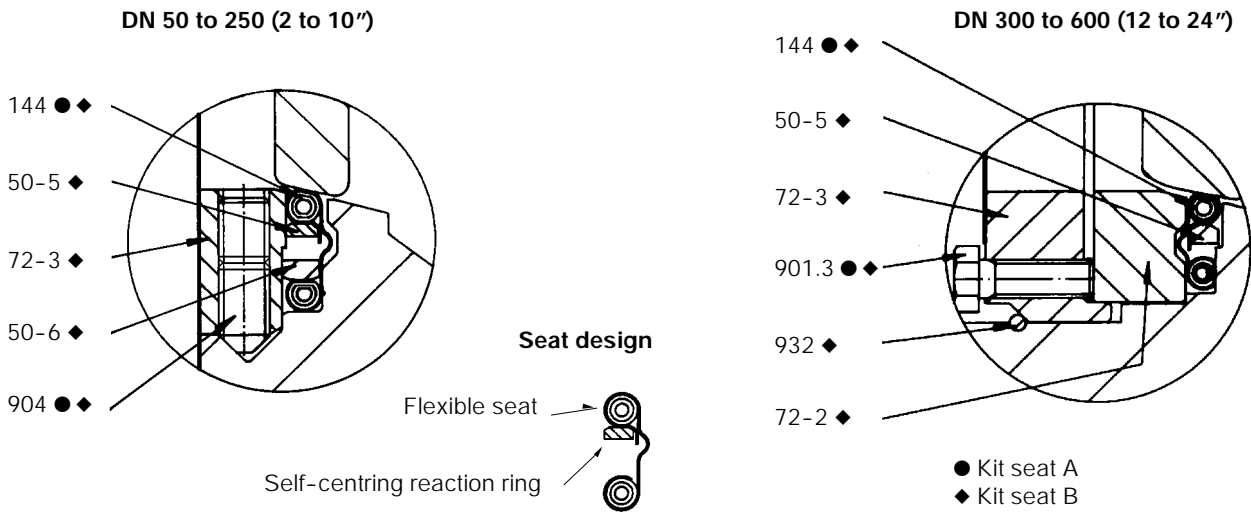
Construction - Flanged type body - Type 7



Parts list - Flanged type body - Type 7

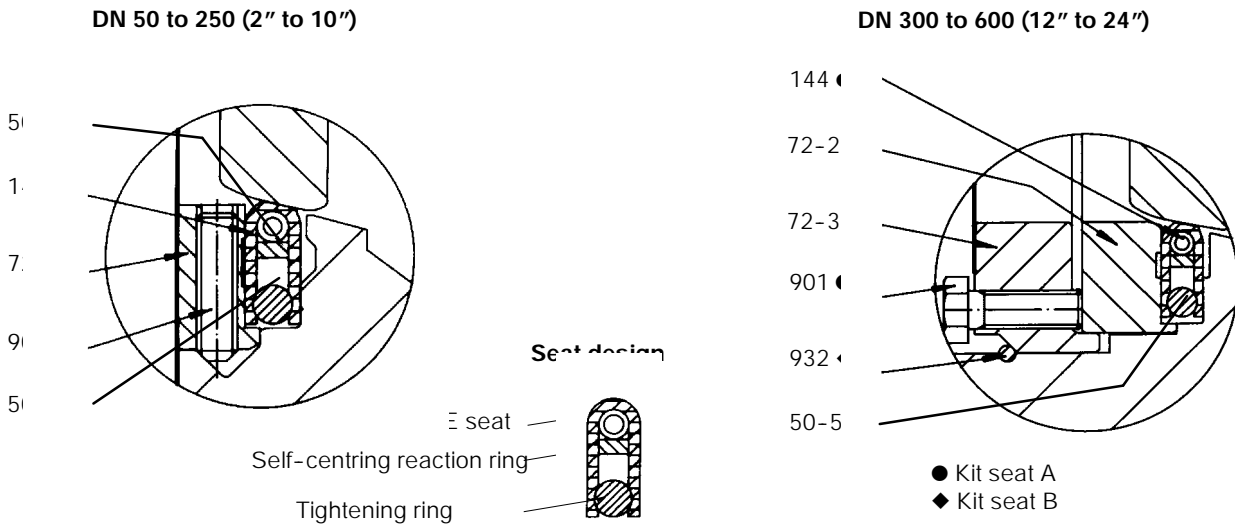
| Item | Designation | Materials |
|-----------------------------|------------------------|--|
| Commun parts | | |
| 100 | Body | Stainless steel A351 gr CF8M (1.4408) or CF3M |
| 13-21 | Extension | Stainless steel A351 gr CF8M (1.4408) |
| 310.1 | Self lubricating strip | Stainless steel + PTFE |
| 310.2 | Self lubricating strip | Stainless steel + PTFE |
| 310.3 | Self lubricating strip | Stainless steel + PTFE |
| 41-2 | Static joint | Nickel |
| 412.1 | O-ring | Viton |
| 412.2 | O-ring | Viton |
| 412.3 | O-ring | Viton |
| 412.4 | O-ring | Viton |
| 412.5 | O-ring | Viton |
| 415.1 | Lip seal ring | PTFE + ELGILOY |
| 415.2 | Lip seal ring | PTFE + ELGILOY |
| 512 | Adjusting ring | Stainless steel |
| 543 | Spacer bush | Stainless steel |
| 550 | Disc | Stainless steel A351 gr CF8M (1.4408) with hard chromium or stellite overlay on edge |
| 551 | Spacer disc | Stainless steel |
| 553.1 | Thrust insert | Stainless steel |
| 553.2 | Thrust insert | Stainless steel + PTFE |
| 554 | Plain washer | Stainless steel |
| 559 | Gasket holder | Stainless steel |
| 561.1 | Grooved pin | Stainless steel |
| 561.2 | Grooved pin | Stainless steel |
| 561.3 | Grooved pin | Stainless steel |
| 81-2 | Wire | Stainless steel |
| 901.1 | Hexagon head screw | Stainless steel |
| 902 | Stud | Stainless steel |
| 920 | Hexagon nut | Stainless steel |
| 930.2 | Retainer | Stainless steel |
| 970 | Identity plate | Stainless steel |
| Valve 4 bar / 10 bar | | |
| 210 | Shaft | Stainless steel 316L |
| 213 | Drive shaft | Stainless steel 316L |
| Valve 16 bar | | |
| 210 | Shaft | Stainless steel A638 gr 660 |
| 213 | Drive shaft | Stainless steel A638 gr 660 |

Flanged type body - Flexible metallic seat (copper): working pressure 10/16 bar



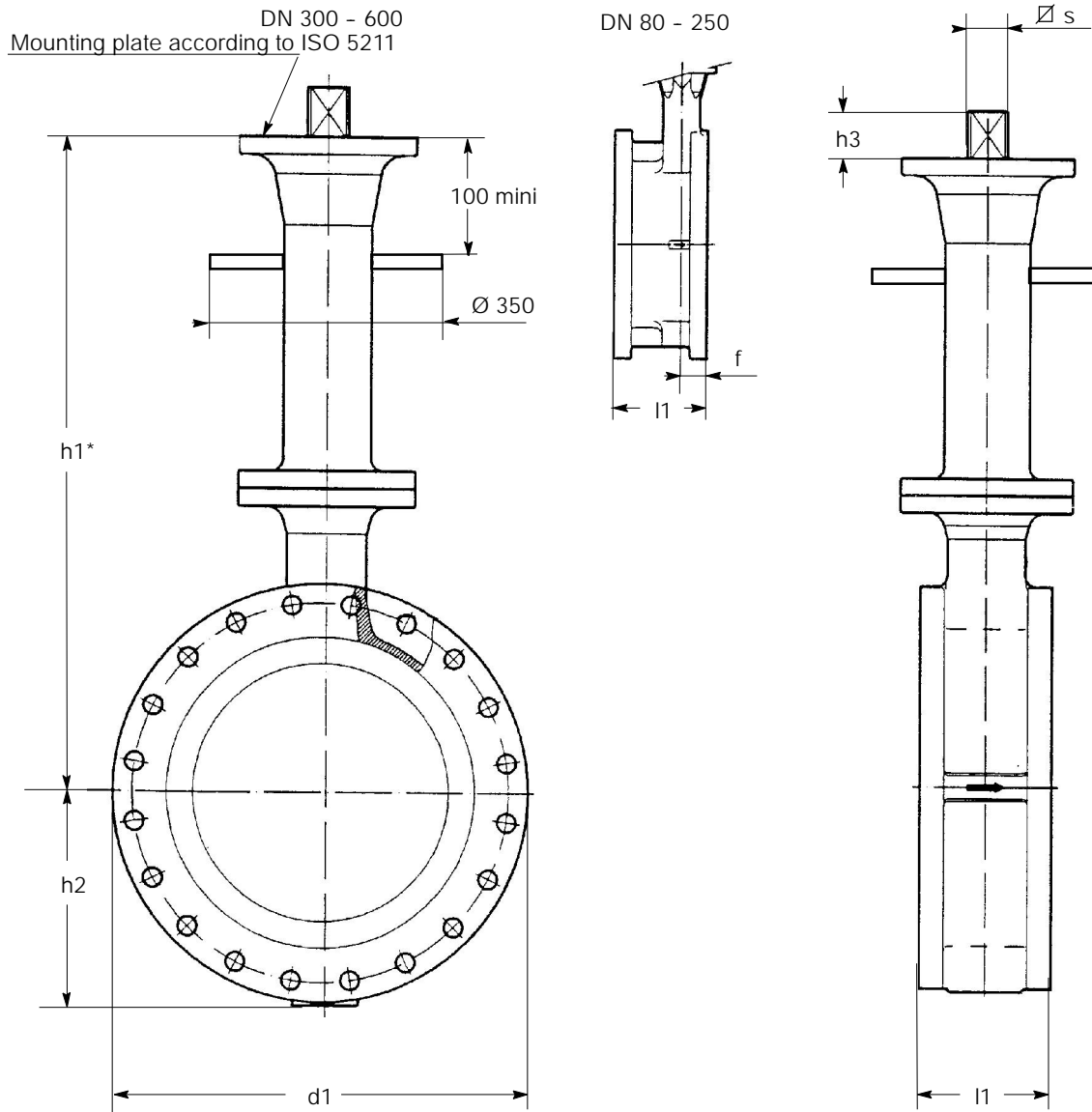
| Item | Designation | DN | Materials |
|-------|-------------------|------------|---------------------------|
| 50-5 | Reaction ring | 50 to 600 | Stainless steel |
| 50-6 | Tightening ring | 50 to 250 | Stainless steel |
| 72-2 | Centring flange | 300 to 600 | Stainless steel |
| 72-3 | Tightening flange | 50 to 600 | Stainless steel |
| 144 | Metallic seat | 50 to 600 | Copper |
| 901.3 | Hexagonal screw | 300 to 600 | Stainless steel cl. A4.70 |
| 904 | Grub screw | 50 to 250 | Stainless steel cl. A4.70 |
| 932 | Retaining ring | 300 to 600 | Stainless steel cl. A4.70 |

Flanged type body - PFA seat: working pressure 4 bar



| Item | Designation | DN | Materials |
|------|--------------------|------------|---------------------------|
| 50-5 | Reaction ring | 50 to 600 | Stainless steel |
| 50-6 | Tightening ring | 50 to 250 | Stainless steel |
| 72-2 | Centring flange | 300 to 600 | Stainless steel |
| 72-3 | Tightening flange | 50 to 600 | Stainless steel |
| 144 | Seat | 50 to 600 | PFA |
| 901 | Hexagon-head screw | 300 to 600 | Stainless steel cl. A4.70 |
| 904 | Grub screw | 50 to 250 | Stainless steel cl. A4.70 |
| 932 | Retaining ring | 300 to 600 | Stainless steel cl. A4.70 |

Dimensions - Flanged type body - Type 7



mm

| DN | NPS | h1* | h2 | d1 | l1 | f | ISO plate | 4 bar | | 10 bar | | 16 bar | | Weight Kg |
|-----|-----|------|-----|-----|-----|------|-----------|-------|----|--------|----|--------|----|-----------|
| | | | | | | | | Ø s | h3 | Ø s | h3 | Ø s | h3 | |
| 80 | 3 | 760 | 95 | 190 | 114 | 33,5 | F10 | 19 | 33 | 19 | 33 | 19 | 33 | 26 |
| 100 | 4 | 780 | 115 | 229 | 127 | 36,0 | F10 | 19 | 33 | 19 | 33 | 19 | 33 | 35 |
| 150 | 6 | 870 | 140 | 279 | 140 | 38,0 | F12 | 22 | 38 | 25 | 43 | 25 | 43 | 50 |
| 200 | 8 | 910 | 172 | 343 | 152 | 42,5 | F12 | 22 | 38 | 30 | 53 | 30 | 53 | 77 |
| 250 | 10 | 910 | 203 | 406 | 165 | 46,5 | F14 | 25 | 43 | 36 | 53 | 36 | 53 | 104 |
| 300 | 12 | 1070 | 242 | 483 | 178 | | F16 | 36 | 53 | 36 | 53 | 40 | 63 | 157 |
| 350 | 14 | 1100 | 274 | 535 | 190 | | F16 | 36 | 53 | 36 | 53 | 50 | 63 | 202 |
| 400 | 16 | 1070 | 300 | 600 | 216 | | F16 | 36 | 53 | 50 | 78 | 50 | 78 | 267 |
| 450 | 18 | 1070 | 329 | 635 | 222 | | F25 | 50 | 78 | 50 | 78 | 60 | 78 | 308 |
| 500 | 20 | 1100 | 356 | 700 | 229 | | F25 | 50 | 78 | 50 | 78 | 70 | 83 | 418 |
| 600 | 24 | 1180 | 449 | 826 | 267 | | F25 | 60 | 78 | 60 | 78 | 70 | 83 | 592 |

* Standard length of the neck extension
 Other dimensions available on request: see page 12

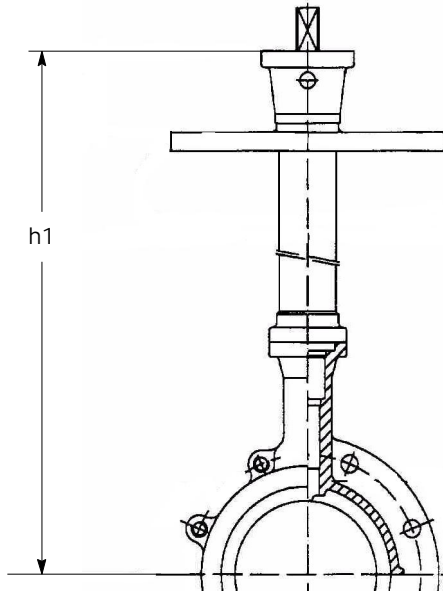
Face to face

The face to face dimensions of DANAIS TBT II AL valves with flanged type body are in accordance with ISO 5752 series 13, EN 558-1 series 13 standards.

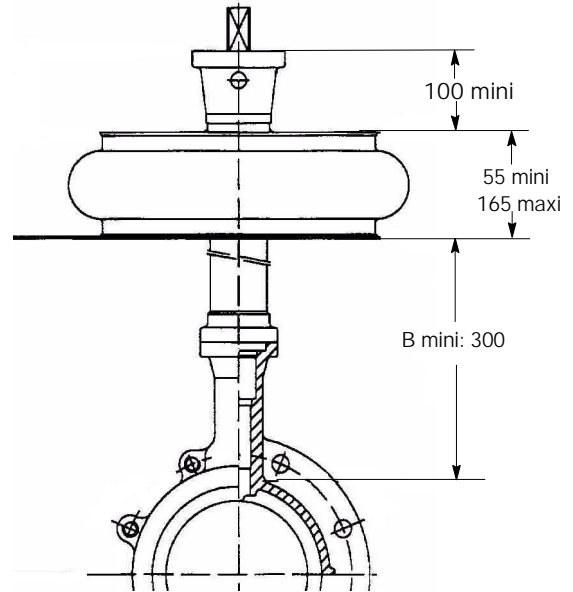
Options

Neck extension

Dimensions available on request



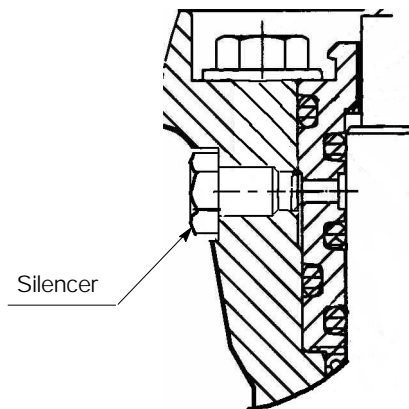
Cover plate with Moller-Balg



| mm | | | | | | B* | |
|-----|-----|--------|--------|-----|--------|--------|-------------------------|
| DN | NPS | size 1 | size 2 | h1 | size 3 | size 4 | with balg hight mini 55 |
| 80 | 3 | 510 | 560 | 630 | | | 305 |
| 100 | 4 | 530 | 580 | 650 | | | 307 |
| 150 | 6 | 580 | 650 | 780 | | | 331,5 |
| 200 | 8 | 650 | 780 | 870 | | | 354 |
| 250 | 10 | 720 | 870 | | | 1070 | 417,5 |
| 300 | 12 | 780 | 870 | | | 1180 | 452 |
| 350 | 14 | 870 | 910 | | | 1180 | 516,5 |
| 400 | 16 | 910 | | | 1180 | 1280 | 530 |
| 450 | 18 | | 1180 | | 1280 | 1380 | |
| 500 | 20 | | 1180 | | 1280 | 1380 | |
| 600 | 24 | | 1280 | | 1380 | / | |

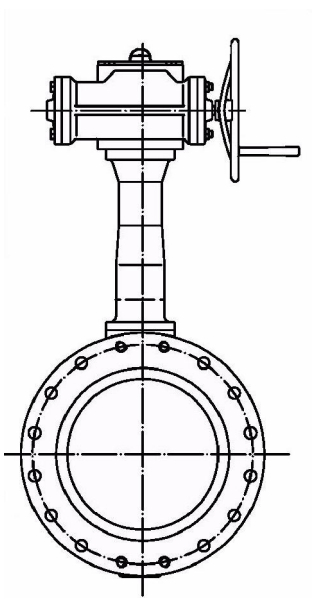
Standard size: see pages 7 and 11

Sand wind protection

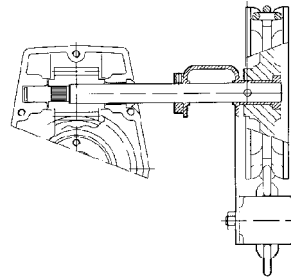


Standard variants

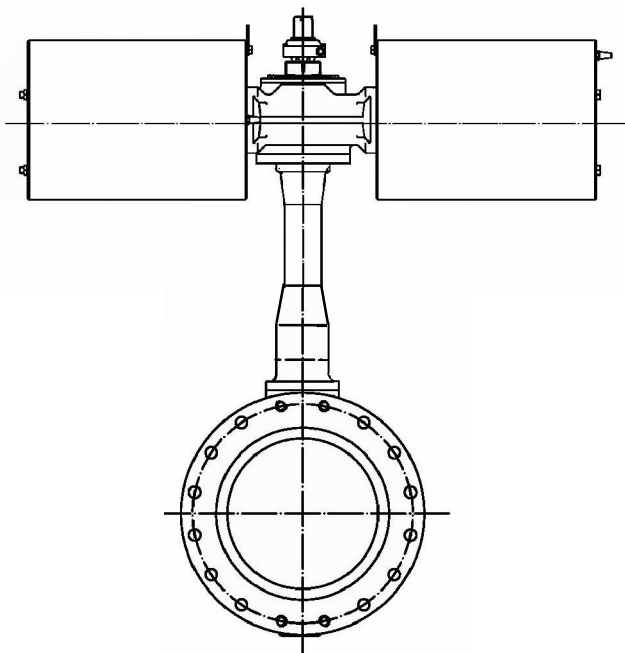
MR manual reducer



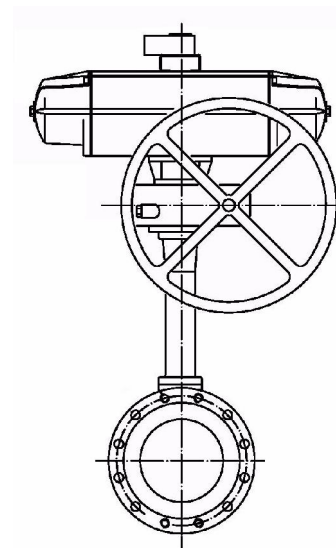
Chain wheel



DYNACTAIR pneumatic actuator



ACTAIR pneumatic actuator
with manual override



Actuator selection - Valve with PFA seat
Manual actuators MR type

| DN | NPS | Interface | | Manual actuator |
|-----|-----|-----------|--------|-----------------|
| | | Plate | Square | MR type |
| 80 | 3 | F10 | 19 | MR 25 |
| 100 | 4 | F10 | 19 | |
| 150 | 6 | F12 | 22 | |
| 200 | 8 | F12 | 22 | |
| 250 | 10 | F14 | 25 | MR 50 |
| 300 | 12 | F16 | 36 | MR 100 |
| 350 | 14 | F16 | 36 | |
| 400 | 16 | F16 | 36 | |
| 450 | 18 | F25 | 50 | MR 200 |
| 500 | 20 | F25 | 50 | |
| 600 | 24 | F25 | 60 | MR 400 |

ACTAIR double acting pneumatic actuators

| | | Interface | | ACTAIR selection | |
|-----|----|-----------|--------|---|---|
| | | Plate | Square | 3 bar ON-OFF 4 bar Throttling duties | 4-5-6 bar ON-OFF 5-6 bar Throttling duties |
| 80 | 3 | F10 | 19 | ACTAIR 12 | ACTAIR 12 |
| 100 | 4 | F10 | 19 | | |
| 150 | 6 | F12 | 22 | ACTAIR 25 | ACTAIR 25 |
| 200 | 8 | F12 | 22 | | |
| 250 | 10 | F14 | 25 | ACTAIR 50 | ACTAIR 50 |
| 300 | 12 | F16 | 36 | ACTAIR 100 | ACTAIR 100 |
| 350 | 14 | F16 | 36 | | |
| 400 | 16 | F16 | 36 | | |
| 450 | 18 | F25 | 50 | ACTAIR 200 | ACTAIR 200 |
| 500 | 20 | F25 | 50 | | |
| 600 | 24 | F25 | 60 | ACTAIR 400 | ACTAIR 400 |

DYNACTAIR single acting pneumatic actuators

| | | Interface | | DYNACTAIR selection | | |
|-----|----|-----------|--------|---|---|---|
| | | Plate | Square | 3 bar ON-OFF 4 bar Throttling duties | 4 bar ON-OFF 5 bar Throttling duties | 5-6 bar ON-OFF 6 bar Throttling duties |
| 80 | 3 | F10 | 19 | DYNACTAIR 12 | DYNACTAIR 6 | DYNACTAIR 6 |
| 100 | 4 | F10 | 19 | | | |
| 150 | 6 | F12 | 22 | DYNACTAIR 25 | DYNACTAIR 12 | DYNACTAIR 12 |
| 200 | 8 | F12 | 22 | DYNACTAIR 50 | DYNACTAIR 25 | DYNACTAIR 25 |
| 250 | 10 | F14 | 25 | | DYNACTAIR 50 | |
| 300 | 12 | F16 | 36 | DYNACTAIR 100 | DYNACTAIR 100 | DYNACTAIR 50 |
| 350 | 14 | F16 | 36 | | | |
| 400 | 16 | F16 | 36 | | | |
| 450 | 18 | F25 | 50 | DYNACTAIR 400 | DYNACTAIR 200 | DYNACTAIR 200 |
| 500 | 20 | F25 | 50 | | | |
| 600 | 24 | F25 | 60 | DYNACTAIR 800 | DYNACTAIR 400 | DYNACTAIR 400 |

Actuator selection - Valve with metallic seat (copper)

Manual actuators MR type

| DN | NPS | Interface Plate | Differential pressure ΔP | | | | | | |
|-----|-----|--------------------|----------------------------------|---|---|----|----|----|----|
| | | | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 80 | 3 | F10 | MR 25 | | | | | | |
| 100 | 4 | F10 | | | | | | | |
| 150 | 6 | F12 | MR 50 | | | | | | |
| 200 | 8 | F12 | MR 100 | | | | | | |
| 250 | 10 | F14 | | | | | | | |
| 300 | 12 | F16 | MR 200 | | | | | | |
| 350 | 14 | F16 | | | | | | | |
| 400 | 16 | F16 | MR 400 | | | | | | |
| 450 | 18 | F25 | MR 600 | | | | | | |
| 500 | 20 | F25 | | | | | | | |
| 600 | 24 | F25 | MR 800 | | | | | | |
| | | | MR 1200 | | | | | | |

ACTAIR double acting pneumatic actuators

| DN | NPS | Interface Plate | 3 bar ON-OFF 4 bar Throttling duties | | | | | | | 4 bar ON-OFF 5 bar Throttling duties | | | | | | |
|-----|-----|--------------------|---|---|---|----|----|----|----|---|---|---|----|----|----|----|
| | | | Differential pressure ΔP | | | | | | | | | | | | | |
| | | | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 80 | 3 | F10 | ACTAIR 25 | | | | | | | ACTAIR 25 | | | | | | |
| 100 | 4 | F10 | ACTAIR 25 | | | | | | | ACTAIR 25 | | | | | | |
| 150 | 6 | F12 | ACTAIR 50 | | | | | | | ACTAIR 50 | | | | | | |
| 200 | 8 | F12 | ACTAIR 100 | | | | | | | ACTAIR 100 | | | | | | |
| 250 | 10 | F14 | ACTAIR 200 | | | | | | | ACTAIR 200 | | | | | | |
| 300 | 12 | F16 | ACTAIR 400 | | | | | | | ACTAIR 200 | | | | | | |
| 350 | 14 | F16 | | | | | | | | | | | | | | |
| 400 | 16 | F16 | ACTAIR 800 | | | | | | | ACTAIR 400 | | | | | | |
| 450 | 18 | F25 | | | | | | | | | | | | | | |
| 500 | 20 | F25 | ACTAIR 1600 | | | | | | | ACTAIR 800 | | | | | | |
| 600 | 24 | F25 | | | | | | | | | | | | | | |
| | | | ACTAIR 1600 | | | | | | | ACTAIR 1600 | | | | | | |

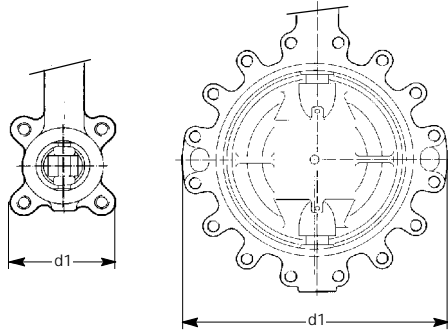
| DN | NPS | Interface Plate | 5 bar ON-OFF 6 bar Throttling duties | | | | | | | 6 bar ON-OFF | | | | | | |
|-----|-----|--------------------|---|---|---|----|----|----|----|--------------|---|---|----|----|----|----|
| | | | Differential pressure ΔP | | | | | | | | | | | | | |
| | | | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 80 | 3 | F10 | ACTAIR 12 | | | | | | | ACTAIR 12 | | | | | | |
| 100 | 4 | F10 | ACTAIR 25 | | | | | | | ACTAIR 25 | | | | | | |
| 150 | 6 | F12 | ACTAIR 50 | | | | | | | ACTAIR 50 | | | | | | |
| 200 | 8 | F12 | ACTAIR 100 | | | | | | | ACTAIR 100 | | | | | | |
| 250 | 10 | F14 | ACTAIR 200 | | | | | | | ACTAIR 200 | | | | | | |
| 300 | 12 | F16 | | | | | | | | | | | | | | |
| 350 | 14 | F16 | ACTAIR 400 | | | | | | | ACTAIR 200 | | | | | | |
| 400 | 16 | F16 | | | | | | | | | | | | | | |
| 450 | 18 | F25 | ACTAIR 800 | | | | | | | ACTAIR 400 | | | | | | |
| 500 | 20 | F25 | | | | | | | | | | | | | | |
| 600 | 24 | F25 | ACTAIR 800 | | | | | | | ACTAIR 800 | | | | | | |
| | | | ACTAIR 1600 | | | | | | | ACTAIR 1600 | | | | | | |

DYNACTAIR single acting pneumatic actuators

| DN | NPS | Interface | 3 bar ON-OFF 4 bar Throttling duties | | | | | | 4 bar ON-OFF 5 bar Throttling duties | | | | | |
|-----|-----|-----------|---|---|----|----|----|----|---|---|---|----|----|----|
| | | | Differential pressure ΔP | | | | | | Differential pressure ΔP | | | | | |
| | | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 4 | 6 | 8 | 10 | 12 | 14 |
| 80 | 3 | F10 | DYN 25 | | | | | | DYN 25 | | | | | |
| 100 | 4 | F10 | DYN 25 | | | | | | DYN 25 | | | | | |
| 150 | 6 | F12 | DYN 100 | | | | | | DYN 50 | | | | | |
| 200 | 8 | F12 | DYN 100 | | | | | | DYN 100 | | | | | |
| 250 | 10 | F14 | DYN 200 | | | | | | DYN 100 | | | | | |
| 300 | 12 | F16 | DYN 200 | | | | | | DYN 200 | | | | | |
| 350 | 14 | F16 | DYN 400 | | | | | | DYN 400 | | | | | |
| 400 | 16 | F16 | DYN 800 | | | | | | DYN 400 | | | | | |
| 450 | 18 | F25 | DYN 800 | | | | | | DYN 800 | | | | | |
| 500 | 20 | F25 | DYN 800 | | | | | | DYN 800 | | | | | |
| 600 | 24 | F25 | DYN 800 | | | | | | DYN 800 | | | | | |

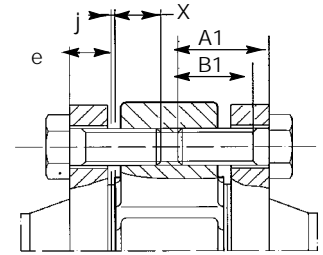
| DN | NPS | Interface | 5 bar ON-OFF 6 bar Throttling duties | | | | | | 6 bar ON-OFF | | | | | |
|-----|-----|-----------|---|---|----|----|----|----|----------------------------------|---|---|----|----|----|
| | | | Differential pressure ΔP | | | | | | Differential pressure ΔP | | | | | |
| | | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 4 | 6 | 8 | 10 | 12 | 14 |
| 80 | 3 | F10 | DYN 12 | | | | | | DYN 12 | | | | | |
| 100 | 4 | F10 | DYN 25 | | | | | | DYN 25 | | | | | |
| 150 | 6 | F12 | DYN 50 | | | | | | DYN 50 | | | | | |
| 200 | 8 | F12 | DYN 50 | | | | | | DYN 50 | | | | | |
| 250 | 10 | F14 | DYN 100 | | | | | | DYN 100 | | | | | |
| 300 | 12 | F16 | DYN 200 | | | | | | DYN 200 | | | | | |
| 350 | 14 | F16 | DYN 200 | | | | | | DYN 200 | | | | | |
| 400 | 16 | F16 | DYN 400 | | | | | | DYN 400 | | | | | |
| 450 | 18 | F25 | DYN 400 | | | | | | DYN 400 | | | | | |
| 500 | 20 | F25 | DYN 800 | | | | | | DYN 800 | | | | | |
| 600 | 24 | F25 | DYN 800 | | | | | | DYN 800 | | | | | |

Bolting and weight for full-lug type body - Type 4



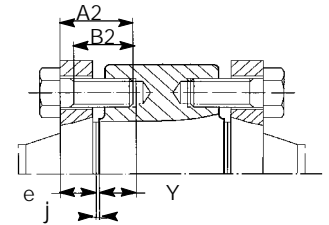
Screw length
A1 max. = e + X + j

- e : Flange thickness (customer specification)
- X : Max. implantation of the screw
- j : Thickness of the flange gasket
- B1 : Min. threaded length of the screw $B1 > A1 - e$



Screw length at shaft passages
A2 max. = e + Y + j

- e : Flange thickness (customer specification)
- Y : Max. implantation of the screw
- j : Thickness of the flange gasket
- B2 : Min. threaded length of the screw $B2 > A2 - e$



The drawings are not the correct representation of our manufacture (quantity for full-lug holes).

NB: We do not supply the bolting

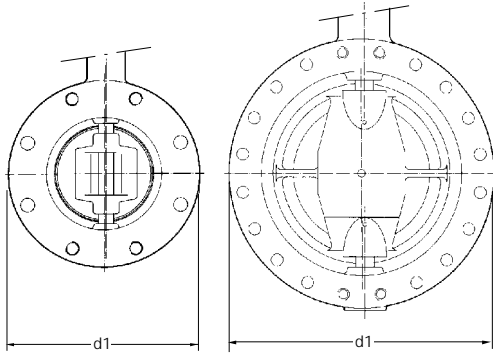
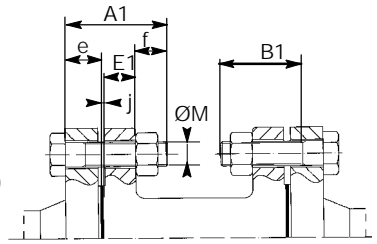
| DN | NPS | d1 | EN 1092-1 PN 10 | | | | EN 1092-1 PN 16 | | | | ISO 7005 PN 20 | | | | ASME B16-5 class 150 | | | | weight kg | | | | |
|-----|-----|-----|-----------------|----|------|----|-----------------|-----|----|------|----------------|------|-----|----|----------------------|----|------|--------|-----------|----|------|---|-------|
| | | | ØM | X | Qty* | Y | Qty* | ØM | X | Qty* | Y | Qty* | Ø M | X | Qty* | Y | Qty* | UNC | | X | Qty* | Y | Qty* |
| 80 | 3 | 188 | M16 | 21 | 8 | | | M16 | 21 | 8 | | | M16 | 21 | 4 | | | 5/8" | 21 | 4 | | | 9.0 |
| 100 | 4 | 210 | M16 | 21 | 8 | | | M16 | 21 | 8 | | | M16 | 21 | 8 | | | 5/8" | 21 | 8 | | | 11.2 |
| 150 | 6 | 270 | M20 | 24 | 8 | | | M20 | 24 | 8 | | | M20 | 24 | 8 | | | 3/4" | 24 | 8 | | | 18.5 |
| 200 | 8 | 310 | M20 | 26 | 8 | | | | | | | | M20 | 26 | 8 | | | 3/4" | 26 | 8 | | | 30.0 |
| 200 | 8 | 340 | | | | | | M20 | 26 | 12 | | | | | | | | | | | | | 31.0 |
| 250 | 10 | 417 | M20 | 26 | 12 | | | M24 | 30 | 12 | | | M24 | 30 | 12 | | | 7/8" | 30 | 12 | | | 48.0 |
| 300 | 12 | 478 | M20 | 26 | 12 | | | M24 | 30 | 8 | 35 | 4 | M24 | 26 | 12 | | | 7/8" | 26 | 12 | | | 70.0 |
| 350 | 14 | 523 | | | | | | | | | | | M27 | 39 | 12 | | | 1" | 39 | 12 | | | 99.0 |
| 350 | 14 | 542 | M20 | 37 | 16 | | | M24 | 37 | 16 | | | | | | | | | | | | | 108.0 |
| 400 | 16 | 606 | M24 | 42 | 16 | | | M27 | 44 | 16 | | | M27 | 44 | 16 | | | 1" | 44 | 16 | | | 130.0 |
| 450 | 18 | 630 | | | | | | | | | | | M30 | 51 | 12 | 40 | 4 | 1 1/8" | 51 | 12 | 40 | 4 | 167.0 |
| 450 | 18 | 657 | M24 | 40 | 16 | 24 | 4 | M27 | 44 | 16 | 24 | 4 | | | | | | | | | | | 207.0 |
| 500 | 20 | 716 | M24 | 42 | 16 | 32 | 4 | M30 | 51 | 16 | 31 | 4 | M30 | 51 | 16 | 31 | 4 | 1 1/8" | 51 | 16 | 31 | 4 | 237.0 |
| 600 | 24 | 834 | M27 | 43 | 20 | | | M33 | 52 | 16 | 48 | 4 | M33 | 52 | 16 | 47 | 4 | 1 1/4" | 52 | 16 | 47 | 4 | 363.0 |

* Quantity of screws by face

Bolting and weight for flanged type body - Type 7

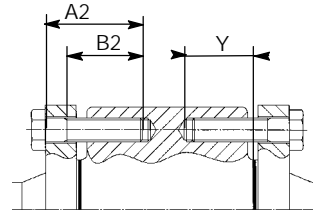
Screw length on flanges
A1 max. = e + j + E1 maxi + f

- E1 : Thickness of valve flange
- e : Thickness of flange (customer specification)
- f : Overlength of the screw
- j : Thickness of flange gasket
- B1 : Min. threaded length of the screw $B1 > A1 - e$



Screw length at shaft passages
A2 max. = e + j + Y

- e : Thickness of flange (customer specification)
- Y : Max. implantation of the screw at shaft passages
- j : Thickness of the flange gasket
- B2 : Min. threaded length of the screw $B2 > A2 - e$



The drawings are not the correct representation of our manufacture (quantity for threaded and plain holes).

NB: We do not supply the bolting

| DN | NPS | d1 | E1 | EN 1092-1 PN 10 | | | | EN 1092-1 PN 16 | | | | ISO 7005 PN 20 | | | | ASME B16-5 cl 150 | | | | weight kg | | | | |
|-----|-----|-----|------|-----------------|----|------|----|-----------------|-----|----|------|----------------|------|-----|----|-------------------|----|------|--------|-----------|----|------|---|-------|
| | | | | ØM | f | Qty* | Y | Qty* | ØM | f | Qty* | Y | Qty* | ØM | f | Qty* | Y | Qty* | UNC | | f | Qty* | Y | Qty* |
| 80 | 3 | 190 | 27,0 | M16 | 20 | 4 | 24 | 4 | M16 | 20 | 4 | 24 | 4 | M16 | 20 | 4 | | | 5/8" | 20 | 4 | | | 16.0 |
| 100 | 4 | 229 | 27,0 | M16 | 20 | 4 | 24 | 4 | M16 | 20 | 4 | 24 | 4 | M16 | 20 | 4 | 24 | 4 | 5/8" | 20 | 4 | 24 | 4 | 23.5 |
| 150 | 6 | 279 | 28,5 | M20 | 24 | 4 | 25 | 4 | M20 | 24 | 4 | 25 | 4 | M20 | 24 | 4 | 25 | 4 | 3/4" | 24 | 4 | 25 | 4 | 32.0 |
| 200 | 8 | 343 | 31,5 | M20 | 24 | 4 | 28 | 4 | M20 | 24 | 8 | 28 | 4 | M20 | 24 | 4 | 28 | 4 | 3/4" | 24 | 4 | 28 | 4 | 52.0 |
| 250 | 10 | 406 | 33,5 | M20 | 24 | 8 | 30 | 4 | M24 | 29 | 8 | 30 | 4 | M24 | 29 | 8 | 30 | 4 | 7/8" | 29 | 8 | 30 | 4 | 73.0 |
| 300 | 12 | 483 | 35,0 | M20 | 24 | 8 | 32 | 4 | M24 | 29 | 8 | 32 | 4 | M24 | 29 | 8 | 32 | 4 | 7/8" | 29 | 8 | 32 | 4 | 115.0 |
| 350 | 14 | 535 | 38,0 | M20 | 24 | 12 | 35 | 4 | M24 | 29 | 12 | 35 | 4 | M27 | 32 | 8 | 35 | 4 | 1" | 32 | 8 | 35 | 4 | 147.0 |
| 400 | 16 | 600 | 40,0 | M24 | 29 | 12 | 37 | 4 | M27 | 32 | 12 | 37 | 4 | M27 | 32 | 12 | 37 | 4 | 1" | 32 | 12 | 37 | 4 | 207.0 |
| 450 | 18 | 635 | 42,5 | M24 | 29 | 16 | 39 | 4 | M27 | 32 | 16 | 39 | 4 | M30 | 35 | 12 | 39 | 4 | 1 1/8" | 35 | 12 | 39 | 4 | 243.0 |
| 500 | 20 | 700 | 46,0 | M24 | 29 | 16 | 42 | 4 | M30 | 35 | 16 | 42 | 4 | M30 | 35 | 16 | 42 | 4 | 1 1/8" | 35 | 16 | 42 | 4 | 335.0 |
| 600 | 24 | 826 | 52,0 | M27 | 32 | 16 | 48 | 4 | M33 | 38 | 16 | 48 | 4 | M33 | 38 | 16 | 48 | 4 | 1 1/4" | 38 | 16 | 48 | 4 | 463.0 |

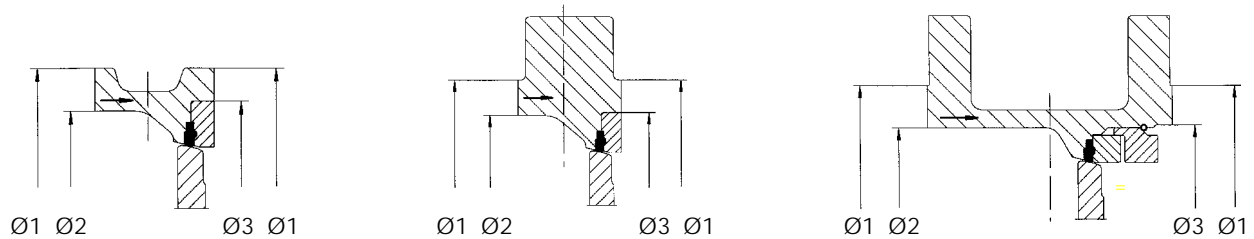
* Quantity of screws by face

Flanging dimensions

DANAIS TBT II AL valves are designed to be fitted with flat gaskets or spiral-wound gaskets between any type of flanges and connection standards currently used.

SEALING AREA ON FLANGE FACES

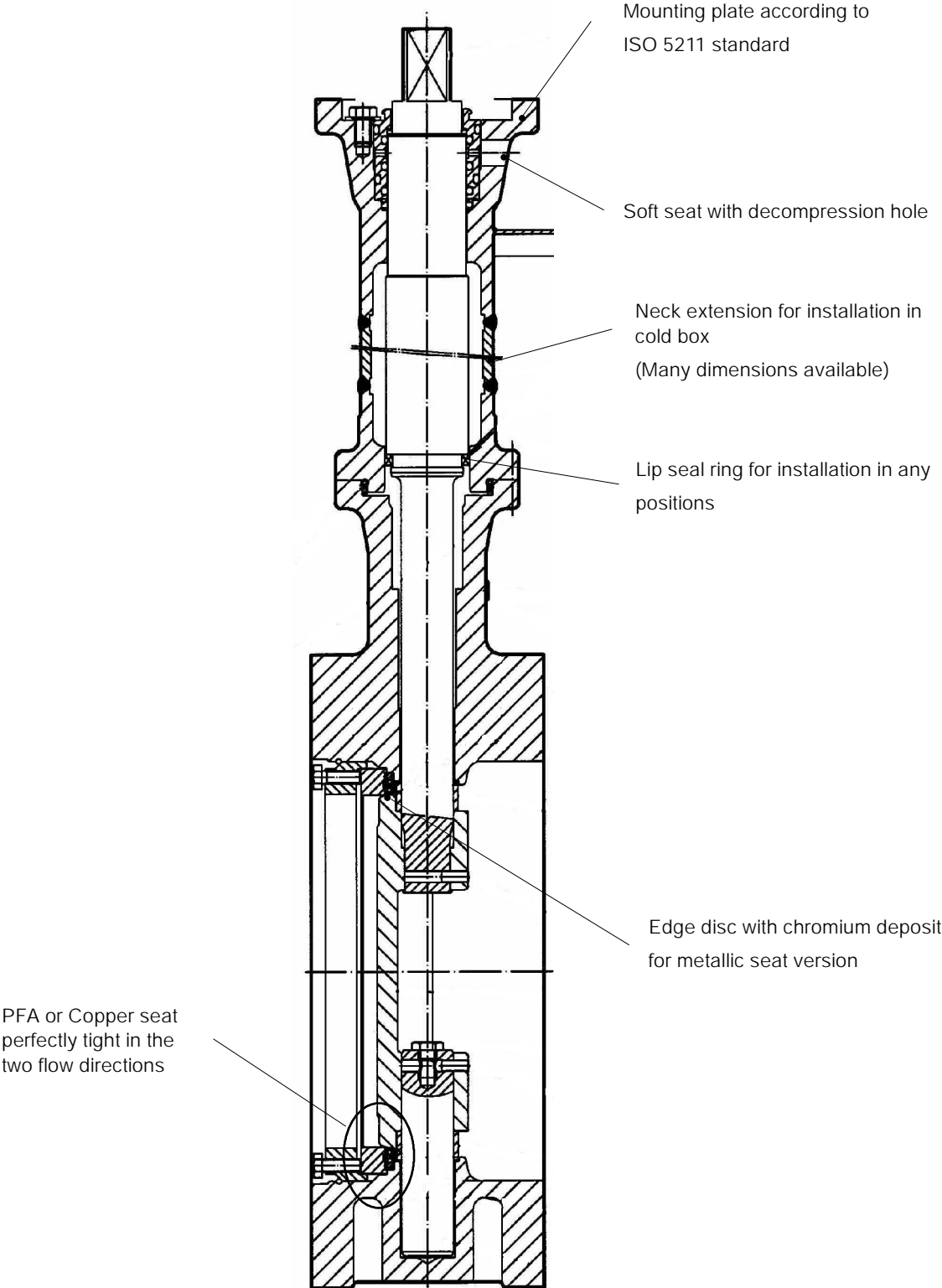
In order to ensure a correct connection, the dimensions of flange gaskets must be compatible with the dimensions mentioned in the table below.



| DN | NPS | Full-lug type body | | | Flanged type body | | |
|-----|-----|--------------------|-----|-----|-------------------|-----|-----|
| | | Ø1 | Ø2 | Ø3 | Ø1 | Ø2 | Ø3 |
| 50 | 2 | 91.9 | 62 | 73 | 91.9 | 61 | 73 |
| 65 | 2 ½ | 104.6 | 74 | 91 | 104.6 | 73 | 91 |
| 80 | 3 | 127.0 | 90 | 106 | 127.0 | 98 | 106 |
| 100 | 4 | 157.2 | 117 | 128 | 157.2 | 124 | 128 |
| 125 | 5 | 185.7 | 142 | 148 | 185.7 | 148 | 148 |
| 150 | 6 | 215.9 | 168 | 173 | 215.9 | 173 | 173 |
| 200 | 8 | 269.7 | 219 | 226 | 269.7 | 226 | 226 |
| 250 | 10 | 323.9 | 273 | 274 | 323.9 | 277 | 274 |
| 300 | 12 | 381.0 | 327 | 331 | 381.0 | 326 | 324 |
| 350 | 14 | 412.8* | 363 | 386 | 412.8 | 375 | 372 |
| 400 | 16 | 469.9 | 414 | 438 | 469.9 | 430 | 425 |
| 450 | 18 | 533.4 | 468 | 498 | 533.4 | 468 | 489 |
| 500 | 20 | 584.2 | 518 | 538 | 584.2 | 526 | 529 |
| 600 | 24 | 692.2 | 623 | 644 | 692.2 | 630 | 625 |

* Ø1: 438 for EN 1092-1 PN 10, 16

Product features - to our customer's benefit



This leaflet is not contractual and may be amended without notice.

27.06.07

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