

## High Performance valve with PTFE or metallic seat



**DN 50 to 1200 (2 to 48")**

**Pressure Class: Class 150 and B 25**

**Design in accordance with EN 12516 and ASME B16.34**

### Applications

- Oil and gas, chemicals, petrochemicals, nuclear industry.
- Sugar industry, pulp and paper, geothermy, marine.
- L.P. steam, vacuum, and any application requiring the use of an off-set disc valve.

### Working conditions

- Temperature :  
from -50 °C min. up to +260 °C max. for body in 1.4408  
from -29 °C min. up to +260 °C max. for body in 1.0619  
The working temperature depends on the media and on the material of the seat. For upper temperatures, please consult us.
- Allowable pressure (PS) : 25 bar, at ambient temperature.
- Operating under differential pressure  $\Delta P$  limited to 20 bar.
- Vacuum service down to 0 absolute bar.
- Maximum fluid velocity under allowable pressure:  
4 m/s for liquids and 50 m/s for clean gases.

### Materials

See page 2.

### Design

- Wafer type body (Type 1): DN 50 to 1200
- Full-lug type body with raised faces (Type 4): DN 50 to 1200
- Three interchangeable seats: reinforced PTFE, reinforced PTFE fire-safe or metallic seat.
- Double-eccentric kinematics.
- Face-to-face in accordance with EN 558 series 20, ISO 5752 series 20 (except DN 350 : ISO 5752 series 25) and API 609 table 2 standards.
- Possible mounting between flanges according to EN 1092-1, ASME and JIS B2220. See page 15.
- Actuation mounting plate in accordance with ISO 5211 and NF E 29-402 standards.
- Marking in accordance with EN 19 standard.
- Actuation mounting plate in accordance with ISO 5211 and NF E 29-402 standards.

- Marking in accordance with EN 19 standard.
- Downstream/upstream tightness in accordance with standards referred page 3.
- Perfectly tight shut-off valves (zero leakage visible to the naked eye) in the two flow directions in accordance with EN 12266-1 leak level A and ISO 5208 category A standards.
- Steel body: paint grey colour, thickness 30  $\mu\text{m}$ , Stainless steel body: pickling and passivation.
- The valves meet the safety requirements of the Pressure Equipments Directive 97/23/EC (PED) Appendix I for fluids of the groups 1 and 2.
- A remote valve can be considered as a partly completed machine in compliance with the requirements of the machinery directive 2006/42/EC.
- The valves comply with the requirements of the REACH regulation . See page 13.
- Fire-safe in accordance with API 607.

### Standard variants

- 1/4-turn handles "S" series
- Manual actuator MN / MR
- Pneumatic actuator ACTAIR / DYNACTAIR
- Electric actuator ACTELEC
- Hydraulic actuator ACTO / DYNACTO / ENNACTO
- Position detection AMTROBOX
- Pneumatic distribution for On-Off function AMTRONIC
- Positioner and control unit SMARTRONIC
- ATEX version in accordance with 94/9/EC directive

### Remarks

- Actuator selection 8460.15/-90
- Operating instructions 8450.810/-10

### Data to be supplied when ordering

- DANAIS 150 valve in accordance with Type series booklet 8460.11/10-10.
- Size, Materials (body, disc, seat).
- Working conditions: nature of fluid, pressure, flow, etc.
- Connection, flange facing finish, etc.
- Actuation.



## Materials

Body	Temperature refer to § Pressure / temperature below	KSB code
Steel ASTM A 216 gr. WCC / 1.0619	-29 °C to +260 °C	1
Stainless steel ASTM A 351 gr. CF 8M / 1.4408	-50 °C to +260 °C	6
Shaft		KSB code
Stainless steel ASTM A 564 gr. 630 / 1.4542	-50 °C to +260 °C	6e
Stainless steel 1.4462 $\Delta PS \leq 16$ bar DN 50 to 450	-50 °C to +260 °C	7e
Stainless steel ASTM A 479 gr. 316L / 1.4404 $\Delta PS \leq 10$ bar DN 500 to 1200	-50 °C to +260 °C	6
Disc		KSB code
Stainless steel ASTM A 351 gr. CF 8M / 1.4408	-50 °C to +260 °C	6
AMRING® seat		KSB code
Reinforced PTFE	-50 °C to +220 °C	FB
Reinforced PTFE fire-safe	-50 °C to +220 °C	FF
Type 301 stainless steel / 1.4310 DN 50 to 600	-50 °C to +260 °C	6a

The materials selection depends on the nature of the fluid and its temperature.

- Corrosive fluids:
  - Body and disc: stainless steel (6)
  - Shafts: stainless steel 1.4462 (7e) or A 479 gr. 316L (6)
  - Seat: according to the fluid (agressiveness degree, working temperature). Please refer to the above table.
- Non-corrosive fluids
  - Body: steel (1) or stainless steel (6)
  - Disc: stainless steel (6)
  - Shafts : stainless steel A 564 gr. 630 / 1.4542 (6e)
  - Seat: according to the working temperature. Please refer to the above table.

## Pressure / temperature

In pressure class B 10, B 16, B 25 (european materials), DANAİS 150 valves are in accordance with EN 12516-1 standard. The values in the table below must be used for valves which have to comply with PED 97/23/EC:

Pressure Class	Material		Working pressure in bar at temperature °C									
	Body	Seat	-50	-10	20	100	135	150	180	200	220	260
B 10	1.0619	PTFE fire-safe	forbidden	9,7	9,7	8,5	8,1	7,9	7,4	3,3	0,0	0,0
		Metallic	forbidden	9,7	9,7	8,5	8,1	7,9	7,4	7,1	6,9	6,4
	1.4408	PTFE fire-safe	9,7	9,7	9,7	8,3	7,7	7,5	7,1	3,3	0,0	0,0
		Metallic	9,7	9,7	9,7	8,3	7,7	7,5	7,1	6,9	6,7	6,3
B 16	1.0619	PTFE fire-safe	forbidden	15,6	15,6	13,6	13,0	12,7	10,0	3,3	0,0	0,0
		Metallic	forbidden	15,6	15,6	13,6	13,0	12,7	11,9	11,4	11,0	12,2
	1.4408	PTFE fire-safe	15,5	15,5	15,5	13,3	12,4	12,0	10,0	3,3	0,0	0,0
		Metallic	15,5	15,5	15,5	13,3	12,4	12,0	11,4	11,0	10,7	10,1
B 25	1.0619	PTFE fire-safe	forbidden	24,4	24,4	21,3	20,3	15,8	10,0	3,3	0,0	0,0
		Metallic	forbidden	24,4	24,4	21,3	20,3	19,8	18,6	17,8	17,2	15,9
	1.4408	PTFE fire-safe	24,3	24,3	24,3	20,7	19,3	15,8	10,0	3,3	0,0	0,0
		Metallic	24,3	24,3	24,3	20,7	19,3	18,7	17,8	17,2	16,7	15,8

In pressure class 150 (ASTM materials), DANAİS 150 valves meet ASME B 16-34 cl.150 "Standard class" requirements, according to the following table:

Pressure Class	Material		Working pressure in bar at temperature °C									
	Body	Seat	-50	-29	38	100	135	150	180	200	220	260
Class 150	A 216 gr. WCC	PTFE fire-safe	forbidden	20,0	20,0	17,7	16,4	15,8	10,0	3,3	0,0	0,0
	A 216 gr. WCC	Metallic	forbidden	20,0	20,0	17,7	16,4	15,8	14,7	14,0	13,2	11,7
	A 351 gr. CF8M	PTFE fire-safe	19,0	19,0	19,0	16,0	15,2	14,8	10,0	3,3	0,0	0,0
	A 351 gr. CF8M	Metallic	19,0	19,0	19,0	16,0	15,2	14,8	15,6	13,5	13,0	11,7

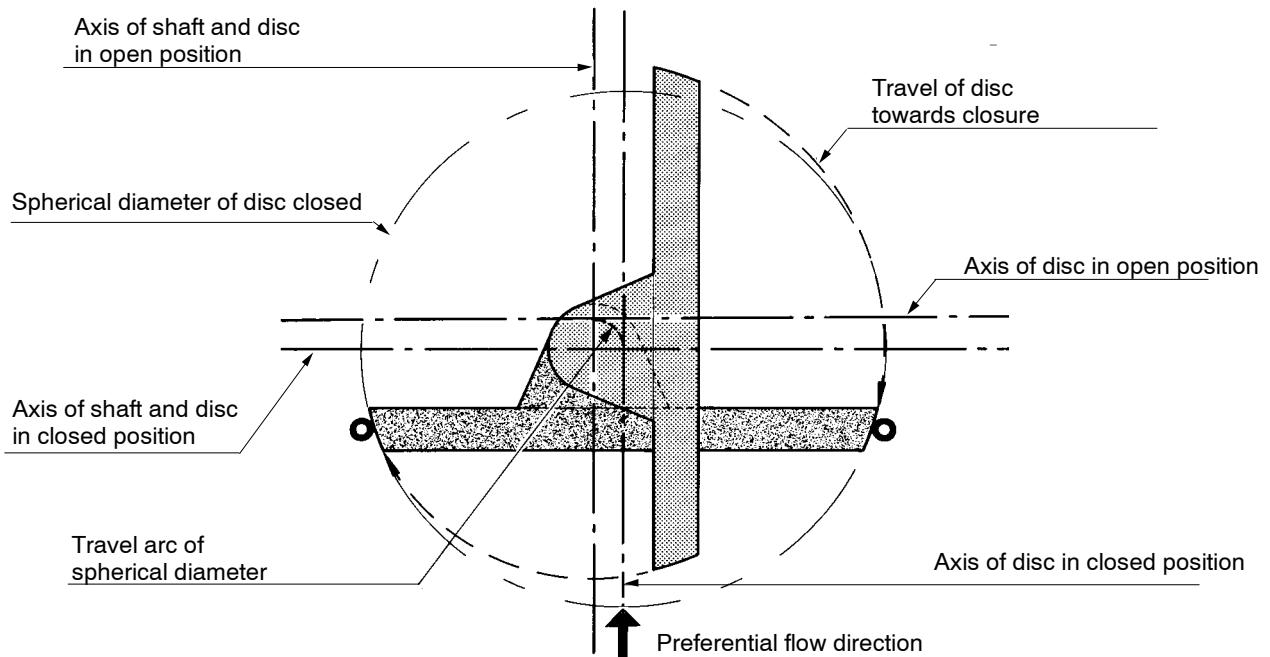
### Kinematics

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 lasting service while maintaining tight shut-off characteristics.

These tight shut-off characteristics conform to the most exacting requirements and standards.



### Upstream / downstream sealing

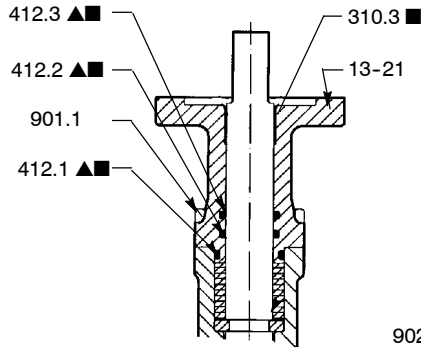
The DANAIS 150 valve conforms to the following sealing standards.

The DANAIS 150 valve is a bi-directional valve with a preferential flow direction shown by an arrow on the yoke (preferential flow direction disc side).

Valve	With PTFE seat or PTFE safe-fire	With metallic seat
On liquid	EN 12266-1 rate A ISO 5208 category A API 598	EN 12266-1 rate D ISO 5208 category D MSS SP 61
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

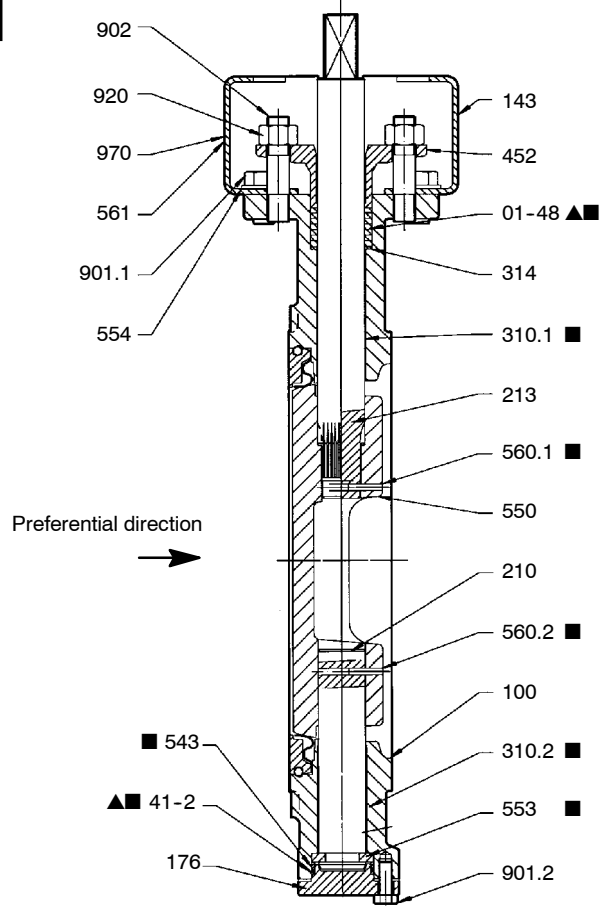
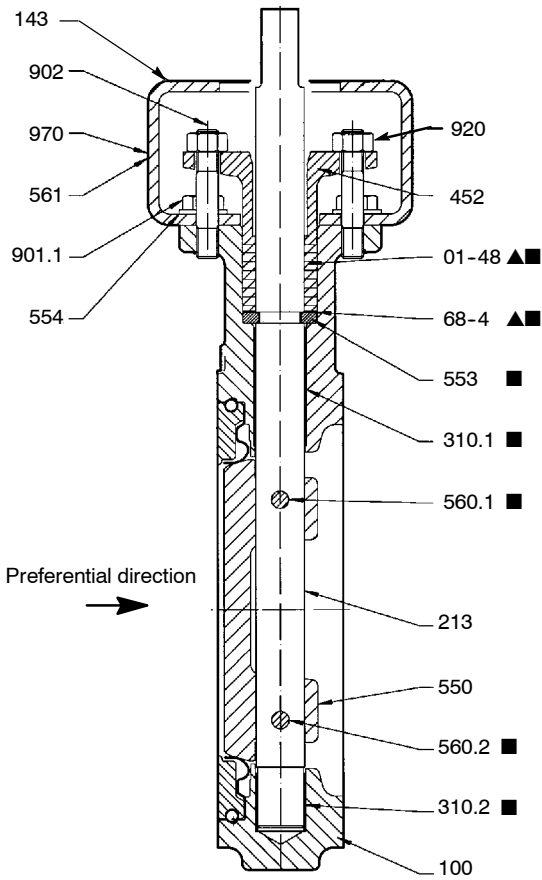
Construction DN 50 to 600

Extension option

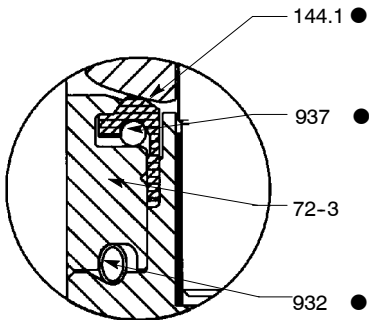


DN 50 to 300 (2" to 12")  
Standard version  
Yoke + thrust washer

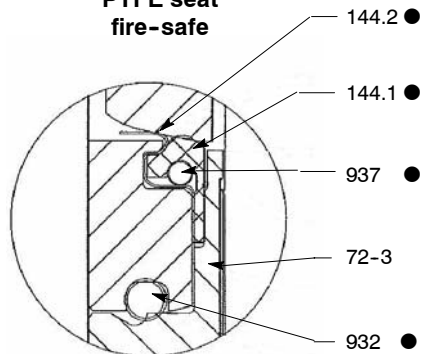
DN 350 to 600 (14" to 24")  
Standard version  
Yoke + thrust washer



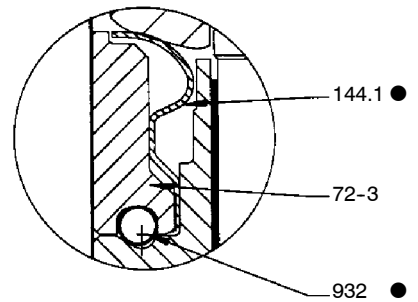
PTFE seat



PTFE seat  
fire-safe



Metallic seat



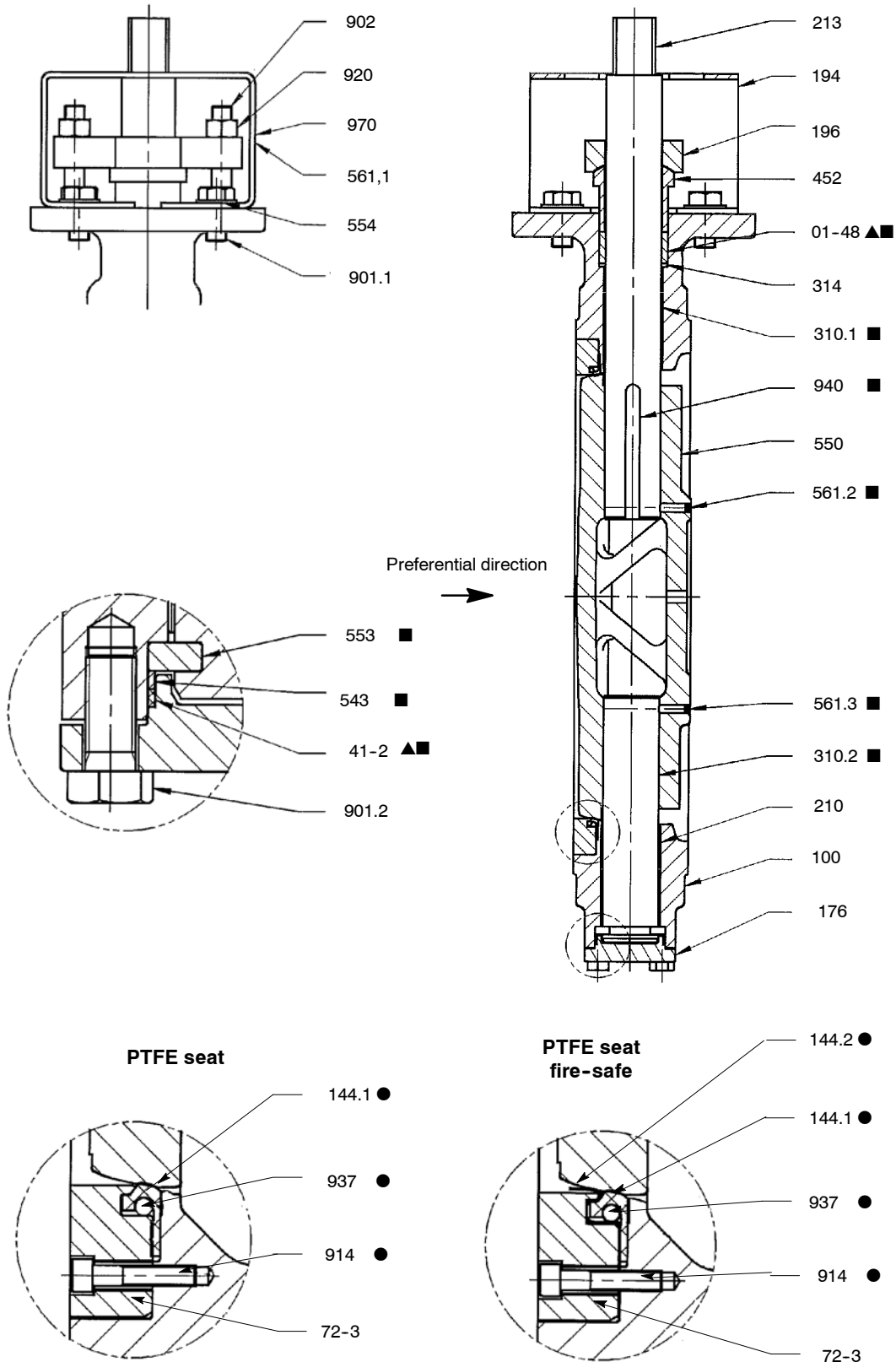
● Spare parts kit for seat    ▲ Spare parts kit for sealing packing    ■ Spare parts for guiding

To order spare parts in the kit, it is necessary to valve codification mentioned on the identity plate.

**Parts list DN 50 to 600**

Item	Designation	DN	Materials
<b>Common parts</b>			
100	Body	50 to 600	Steel ASTM A 216 gr WCC / 1.0619 or Stainless steel ASTM A 351 gr. CF 8M / 1.4408
176	Bottom	350 to 600	Stainless steel
210	Shaft	350 to 450	Stainless steel ASTM A 564 gr. 630 / 1.4542 Stainless steel 1.4462 (0 bar < PS ≤ 16 bar)
		500 - 600	Stainless steel ASTM A 564 gr.630 / 1.4542 Stainless steel ASTM A 479 gr. 316 L / 1.4404 (0 bar < PS ≤ 10 bar)
213	Driving shaft	50 to 450	Stainless steel ASTM A 564 gr.630 / 1.4542 Stainless steel 1.4462 (0 bar < PS ≤ 16 bar)
		500-600	Stainless steel ASTM A 564 gr.630 / 1.4542 Stainless steel ASTM A 479 gr. 316 L / 1.4404 (0 bar < PS ≤ 10 bar)
310.1	Upper plain bearing	50 to 600	Stainless steel + PTFE
310.2	Lower plain bearing	50 to 600	Stainless steel + PTFE
314	Thrust washer	350 to 600	Stainless steel
543	Spacer bush	350 to 600	Stainless steel
553	Upper thrust Lower thrust	50 to 300	Stainless steel
		350 to 600	
560.1	Pin	50 to 600	Stainless steel 1.4542
560.2	Pin	50 to 600	Stainless steel 1.4542
561	Grooved nail	50 to 600	Stainless steel
68-4	Foil	50 to 300	Stainless steel
901.2	Hexagon-head screw	350 to 600	Stainless steel
970	Identity plate	50 to 600	Stainless steel
<b>Valve with PTFE seat</b>			
01-48	Sealing packing	50 to 600	PTFE / option expanded graphite
144.1	Seat	50 to 600	PTFE reinforced
41-2	Static joint	350 to 600	PTFE/ option expanded graphite
72-3	Tightening flange	50 to 600	Stainless steel
550	Disc	50 to 600	Stainless steel ASTM A 351 gr. CF 8M / 1.4408
932	Inner ring	50 to 600	Stainless steel
937	Elastic wire	50 to 600	Stainless steel
<b>Valve with PTFE seat fire safe</b>			
01-48	Sealing packing	50 to 600	Expanded graphite
144.1	Seat	50 to 600	PTFE reinforced
144.2	Fire-safe sheet	50 to 600	Stainless steel A240 gr.316L / 1.4404
41-2	Static joint	350 to 600	Expanded graphite
550	Disc	50 to 600	Stainless steel ASTM A 351 gr. CF 8M / 1.4408 hard chromium plated
72-3	Tightening flange	50 to 600	Stainless steel
932	Inner ring	50 to 600	Stainless steel
937	Elastic ring	50 to 600	Stainless steel
<b>Valve with metallic seat</b>			
01-48	Sealing packing	50 to 600	Expanded graphite / option PTFE
144.1	Seat	50 to 600	301 type stainless steel
41-2	Static joint	350 to 600	Expanded graphite / option PTFE
550	Disc	50 to 600	Stainless steel ASTM A 351 gr. CF 8M / 1.4408 hard chromium plated
72-3	Tightening flange	50 to 600	Stainless steel
932	Inner ring	50 to 600	Stainless steel
<b>Standard version with yoke and thrust washer</b>			
143	Yoke	50 to 600	Sherardized steel
452	Thrust washer	50 to 600	Stainless steel
554	Plain washer	50 to 600	Stainless steel
901.1	Hexagon-head screw	50 to 600	Stainless steel
902	Stud	50 to 600	Stainless steel
920	Hexagonal nut	50 to 600	Stainless steel
<b>Extension option</b>			
13-21	Extension	50 to 600	Stainless steel
310.3	Lower plain bearing	350 to 600	Stainless steel +PTFE
412.1	O-Ring	50 to 600	Viton
412.2	O-Ring	50 to 600	Viton
412.3	O-Ring	50 to 600	Viton
901.1	Hexagon-head screw	50 to 600	Stainless steel - A4-70

Construction DN 650 to 1200



● Spare parts kit for seat    ▲ Spare parts kit for sealing packing    ■ Spare parts for guiding

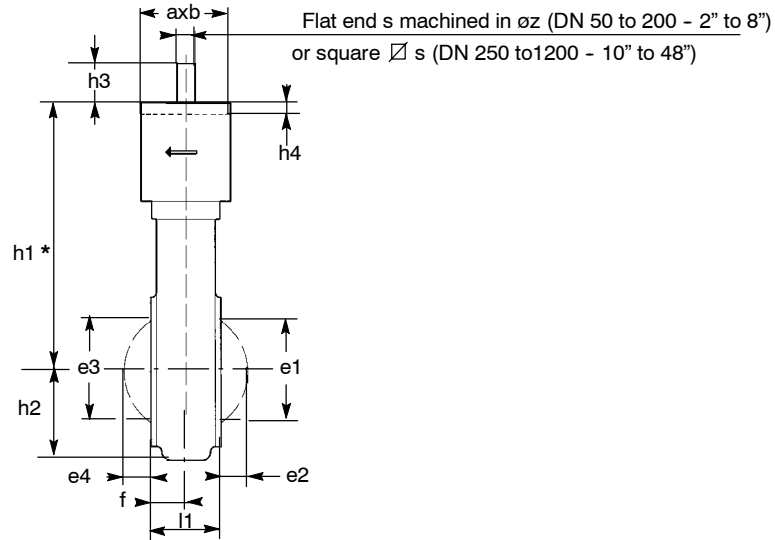
To order spare parts in the kit, it is necessary to valve codification mentioned on the identity plate.

**Parts list DN 650 to 1200**

Item	Designation	Materials
<b>Common parts</b>		
100	Body	Steel ASTM A 216 gr WCC / 1.0619 or Stainless steel ASTM A 351 gr. CF 8M / 1.4408
176	Bottom	Stainless steel ASTM A 351 gr. CF 8M / 1.4408
210	Shaft	Stainless steel ASTM A 564 gr. 630 / 1.4542 Stainless steel ASTM A 479 gr. 316 L / 1.4404 (0 bar < PS ≤ 10 bar)
213	Driving shaft	Stainless steel ASTM A 564 gr.630 / 1.4542 Stainless steel ASTM A 479 gr. 316 L / 1.4404 (0 bar < PS ≤ 10 bar)
310.1	Upper plain bearing	Stainless steel + PTFE
310.2	Lower plain bearing	Stainless steel + PTFE
314	Thrust	Stainless steel
543	Spacer bush	Stainless steel
553	Adjusting thrust 2 parts	Stainless steel
561.1	Grooved nail	Stainless steel
561.2	Pin	Stainless steel
561.3	Pin	Stainless steel
901.2	Hexagon-head screw	Stainless steel
914	Hexagon socket head screw	Stainless steel
940	Key	Stainless steel
970	Identity plate	Stainless steel
<b>Valve with PTFE seat</b>		
01-48	Sealing packing	PTFE / option expanded graphite
144	Seat	PTFE reinforced
41-2	Static joint	PTFE / option expanded graphite
72-3	Tightening flange	Stainless steel
550	Disc	Stainless steel ASTM A 351 gr. CF 8M / 1.4408
937	Elastic wire	Stainless steel
<b>Valve with PTFE seat fire safe</b>		
01-48	Sealing packing	Expanded graphite
144.1	Seat	PTFE reinforced
144.2	Fire-safe seat	Stainless steel A240 gr.316L / 1.4404
41-2	Static joint	Expanded graphite
550	Disc	Stainless steel ASTM A 351 gr. CF 8M / 1.4408 hard chromium plated
72-3	Tightening flange	Stainless steel
937	Elastic ring	Stainless steel
<b>Standard version with yoke and thrust washer</b>		
194	Yoke	Sherardized steel
196	Tightening plate	Stainless steel
452	Thrust washer	Stainless steel
554	Plain washer	Stainless steel
901.1	Hexagon-head screw	Stainless steel A2-70
902	Stud	Stainless steel A4-80
920	Hexagonal nut	Stainless steel A4-70

## Dimensions

### Wafer type body - Type 1



h1\* : dimension h1 identical to standard version with yoke and extension option

DN	NPS	l1	h1	h2	f	Mounting plate ISO 5211		a	b	Square shat end		Flat shaft end			Disc clearance			
						n°	h4			$\square$ s	h3	s	Ø Z	h3	e1	e2	e3	e4
50	2	43	165	53	21,5	F05	5	55	105	-	-	11	14	24	23	0	33	4
65	2 1/2	46	175	60	23	F05	5	55	105	-	-	11	14	24	41	6	48	9
80	3	46	185	68	24	F05	5	55	105	-	-	11	14	24	59	13	61	15
100	4	54	200	82	27	F05	5	55	105	-	-	14	18	24	78	18	81	21
125	5	57	225	92	28,5	F07	5	73	125	-	-	14	18	30	99	27	103	30
150	6	57	240	117	28,5	F07	5	73	125	-	-	17	22	32	127	39	131	43
200	8	62	290	153	34,5	F10	5	95	145	-	-	19	25	35	177	62	175	59
250	10	70	335	182	38	F12	5	120	190	25	45	-	-	-	225	82	230	80
300	12	80	365	230	42	F12	5	120	190	27	45	-	-	-	265	96	266	98
350	14	92	435	307	47,5	F14	5	135	210	30	55	-	-	-	308	112	311	116
400	16	102	465	332	56,5	F14	5	135	210	36	55	-	-	-	359	133	358	132
450	18	114	530	371	61	F16	8	160	250	40	65	-	-	-	418	155	418	160
500	20	127	560	398	65,5	F16	8	160	250	40	65	-	-	-	455	167	455	175
600	24	154	660	455	77	F25	8	275	320	50	65	-	-	-	546	201	546	211
650	26	Please consult us																
700	28	165	750	537	82,5	F25	8	300	320	60	80	-	-	-	625	237	630	247
750	30	Please consult us																
800	32	190	810	599	95	F25	8	300	320	70	110	-	-	-	722	274	728	286
900	36	203	930	657	101,5	F30	10	320	400	70	110	-	-	-	827	320	833	332
1000	40	216	1000	730	108	F30	10	320	400	80	111	-	-	-	921	360	928	374
1200	48	Please consult us																

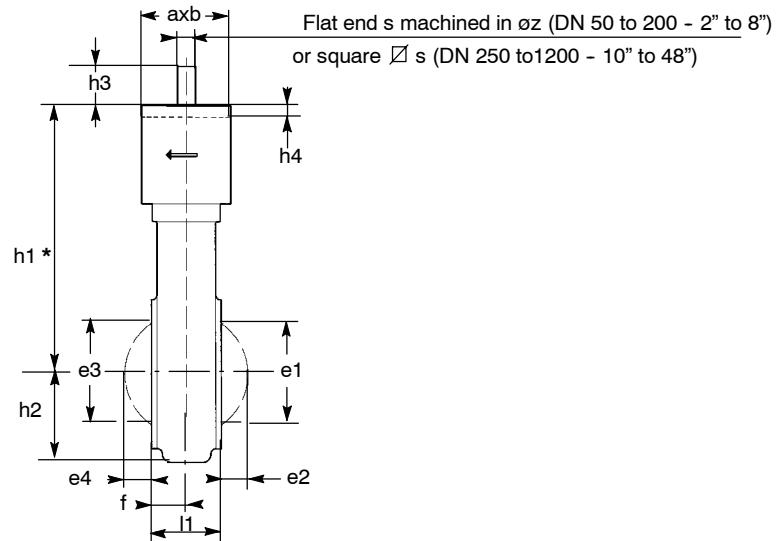
### Face to face - Wafer type and Lug type body

DN	NPS	Wafer type and lug type
50 to 300 and 400 to 600	2" to 12" and 16" to 24"	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
650 to 1200	26" to 48"	EN 558-1 series 20 ; API 609 table 2 class 150 and ISO 5752 series 20



## Dimensions

### Full lug type body - Type 4



h1\* : dimension h1 identical to standard version with yoke and extension option

mm

DN	NPS	l1	h1	h2	f	Mounting plate ISO 5211		a	b	Square shaft end		Flat shaft end			Disc clearance			
						n°	h4			∇ s	h3	s	Ø Z	h3	e1	e2	e3	e4
50	2	43	165	60	21,5	F05	5	55	105	-	-	11	14	24	23	0	33	4
65 (1)	2 ½	46	175	67	23	F05	5	55	105	-	-	11	14	24	41	6	48	9
65 (2)	2 ½	46	175	82	23	F05	5	55	105	-	-	11	14	24	41	6	48	9
80 (3)	3	46	185	70	24	F05	5	55	105	-	-	11	14	24	59	13	61	15
80 (4)	3	46	185	89	24	F05	5	55	105	-	-	11	14	24	59	13	61	15
100	4	54	200	104	27	F05	5	55	105	-	-	14	18	24	78	18	81	21
125	5	57	225	121	28,5	F07	5	73	125	-	-	14	18	30	99	27	103	30
150	6	57	240	135	28,5	F07	5	73	125	-	-	17	22	32	127	39	131	43
200 (5)	8	62	290	157	34,5	F10	5	95	145	-	-	19	25	35	177	62	175	59
200 (6)	8	62	290	169	34,5	F10	5	95	145	-	-	19	25	35	177	62	175	59
250	10	70	335	205	38	F12	5	120	190	25	45	-	-	-	225	82	230	80
300 (7)	12	80	365	230	42	F12	5	120	190	27	45	-	-	-	265	96	266	98
300 (8)	12	80	365	235	42	F12	5	120	190	27	45	-	-	-	265	96	266	98
350	14	92	435	307	47,5	F14	5	135	210	30	55	-	-	-	308	112	311	116
400	16	102	465	332	56,5	F14	5	135	210	36	55	-	-	-	359	133	358	132
450	18	114	530	371	61	F16	8	160	250	40	65	-	-	-	418	155	418	160
500	20	127	560	398	65,5	F16	8	160	250	40	65	-	-	-	455	167	455	175
600	24	154	660	455	77	F25	8	275	320	50	65	-	-	-	546	201	546	211
650	26	Please consult us																
700	28	165	750	537	82,5	F25	8	300	320	60	80	-	-	-	625	237	630	247
750	30	Please consult us																
800	32	190	810	599	95	F25	8	300	320	70	110	-	-	-	722	274	728	286
900	36	203	930	657	101,5	F30	10	320	400	70	110	-	-	-	827	320	833	332
1000	40	216	1000	730	108	F30	10	320	400	80	110	-	-	-	921	360	928	374
1200	48	Please consult us																

Mounting between flanges

- |                                                                           |                                                        |
|---------------------------------------------------------------------------|--------------------------------------------------------|
| (1) EN 1092-1 PN 10 and 16 - 4 holes, ASME B16.5 cl.150 and JIS B2220-10K | (5) EN 1092-1 PN 10 and ASME B16.5 cl.150              |
| (2) EN 1092-1 PN 10 and 16 - 8 holes, PN 25 et JIS B2220-16 K and 20K     | (6) EN 1092-1 PN 16, 25 and JIS B2220-10K, 16K and 20K |
| (3) EN 1092-1 PN 20 and ASME B16.5 cl.150                                 | (7) EN 1092-1 PN 10 and 16 et ASME B16.5 cl.150        |
| (4) EN 1092-1 PN 10, 16 and 25 and JIS B2220-10K, 16K and 20K             | (8) EN 1092-1 PN 25 and JIS B2220-10K, 16K and 20K     |

**Operating torque \* (in Nm) - DN 50 to 600**
**With PTFE seat + PTFE fire safe seat**

DN	NPS	Differential pressure $\Delta P$ in bar							
		Preferential direction				Non preferential direction			
		6	10	16	20	6	10	16	20
50	2	20	20	30	30	20	20	20	20
65	2 ½	30	30	30	40	20	20	30	30
80	3	30	40	40	50	30	30	40	40
100	4	50	50	60	70	40	50	60	70
125	5	70	80	90	100	60	70	90	100
150	6	100	110	140	160	90	110	140	160
200	8	160	180	230	260	150	190	240	280
250	10	290	340	440	510	270	350	470	550
300	12	400	470	620	720	380	500	680	790
350	14	610	720	970	1 140	570	780	1 080	1 290
400	16	820	980	1 340	1 570	780	1 060	1 490	1 770
450	18	1 130	1 370	1 880	2 210	1 080	1 480	2 090	2 490
500	20	1 380	1 680	2 310	2 740	1 320	1 820	2 570	3 070
600	24	2 210	2 720	3 820	4 560	2 130	3 000	4 320	5 200

**With metallic seat**

DN	NPS	Differential pressure $\Delta P$ in bar															
		Preferential direction								Non preferential direction							
		Lubricated medium				Non lubricated medium				Lubricated medium				Non lubricated medium			
		6	10	16	20	6	10	16	20	6	10	16	20	6	10	16	20
50	2	20	30	30	30	40	50	60	60	20	30	30	30	40	50	60	60
65	2 ½	30	40	40	50	60	70	80	90	30	40	40	50	60	70	80	90
80	3	40	50	60	60	80	90	110	120	40	50	60	60	80	90	40	120
100	4	70	80	90	100	130	150	180	190	70	80	90	100	130	150	180	190
125	5	90	110	130	150	190	220	260	280	90	110	130	150	190	220	260	280
150	6	140	170	210	230	280	320	380	420	140	170	210	230	280	320	380	420
200	8	250	290	350	400	500	560	660	730	240	290	360	410	480	560	670	740
250	10	430	490	620	710	820	920	1 100	1 220	410	500	650	750	800	930	1 130	1 270
300	12	590	680	860	990	1 130	1 260	1 510	1 680	560	700	920	1 060	1 100	1 290	1 560	1 750
350	14	860	1 000	1 290	1 490	1 590	1 790	2 160	2 420	820	1 050	1 400	1 630	1 550	1 840	2 270	2 560
400	16	1 170	1 360	1 770	2 040	2 140	2 410	2 930	3 280	1 120	1 440	1 920	2 240	2 090	2 480	3 080	3 470
450	18	1 590	1 870	2 450	2 830	2 900	3 280	4 000	4 480	1 530	1 980	2 660	3 110	2 840	3 390	4 210	4 750
500	20	1 920	2 270	2 990	3 460	3 480	3 950	4 840	5 430	1 860	2 410	3 240	3 790	3 420	4 090	5 090	5 760
600	24	2 980	3 560	4 760	5 560	5 220	5 950	7 380	8 340	2 890	3 830	5 250	6 190	5 130	6 230	7 880	8 970

\* The safety coefficient to define the adapted actuator is included in the torque value.

**Hydraulic characteristics - DN 50 to 600**

DN	NPS	Flow coefficient in full open position		Zeta
		K <sub>v0</sub>	C <sub>v0</sub>	
50	2	70	80	2,04
65	2 ½	110	145	2,35
80	3	190	220	1,81
100	4	340	400	1,38
125	5	600	700	1,08
150	6	980	1150	0,84
200	8	1850	2150	0,75
250	10	3350	3880	0,56
300	12	4870	5650	0,55
350	14	7070	8200	0,48
400	16	10350	12000	0,38
450	18	12500	14500	0,42
500	20	15090	17500	0,44
600	24	22410	26000	0,41

## Operating torque \* (in Nm) - DN 650 to 1200

With PTFE seat and with PTFE fire safe seat

DN	NPS	Differential pressure $\Delta P$ in bar							
		Preferential direction				Non preferential direction			
		6	10	16	20	6	10	16	20
650	26	Please consult us							
700	28	2 900	3 630	5 130	Please consult us	3 810	5 090	7 000	Please consult us
750	30	Please consult us							
800	32	4 300	5 350	7 660	Please consult us	5 460	7 410	10 340	Please consult us
900	36	5 600	7 040	10 130	Please consult us	7 150	9 740	13 630	Please consult us
1000	40	7 500	9 510	13 820	Please consult us	9 450	13 060	18 470	Please consult us
1200	48	Please consult us							

\* The safety coefficient to define the adapted actuator is included in the torque value.

## Hydraulic characteristics - DN 650 to 1200

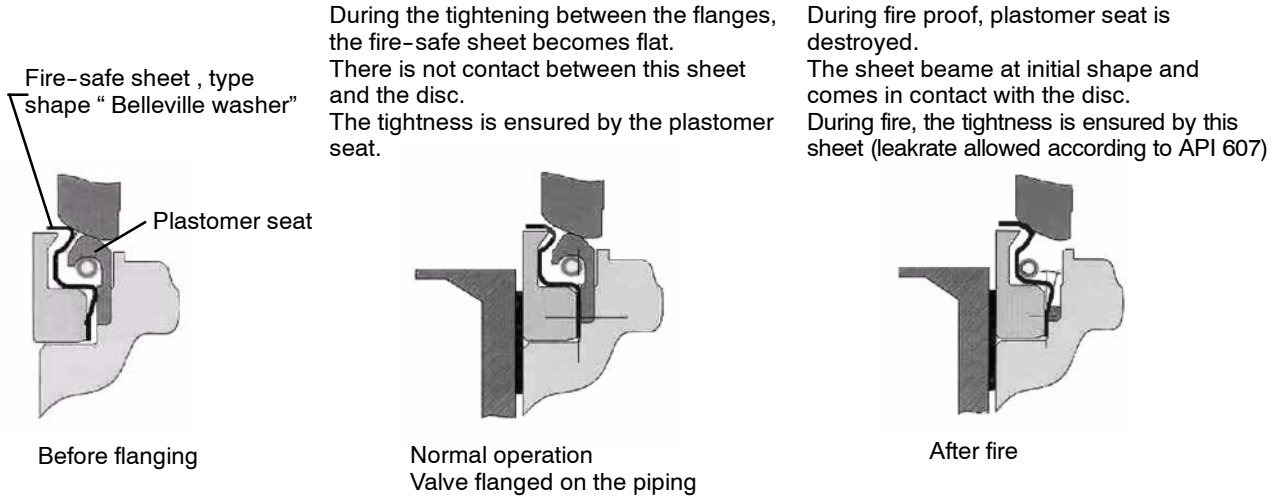
DN	NPS	Flow coefficient in full open position		Zeta
		$Kv_0$	$Cv_0$	
650	26	Please consult us		
700	28	26900	31200	0,53
750	30	Please consult us		
800	32	38000	44100	0,45
900	36	59100	68600	0,30
1000	40	76700	89000	0,27
1200	44	Please consult us		

**Fire safe version**

Version approved by Lloyd's Register in accordance with the API 607 standard.

Construction (see pages 4 and 6):

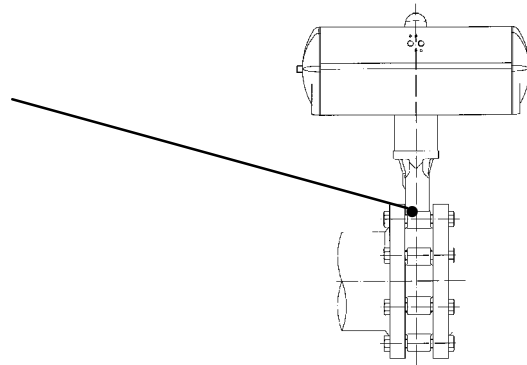
- plastomer seat and fire-safe sheet in inox,
- sealing packing in expanded graphite.



Safety safe version preconized with Type 4 body (full-lug body).

In case of fire, the flanging bolting is thermally isolated and protected by the body lugs.

This protection limits the bolting deformation in the fire and permits to keep the tightness at the level of the flanges O-rings.



**REACH regulation**

The valves comply with the requirements of the REACH regulation. None of substances included in the candidate list and in Annex XIV of this regulation are present in our valves above a concentration of 0.1% weight by weight (article 33/REACH).

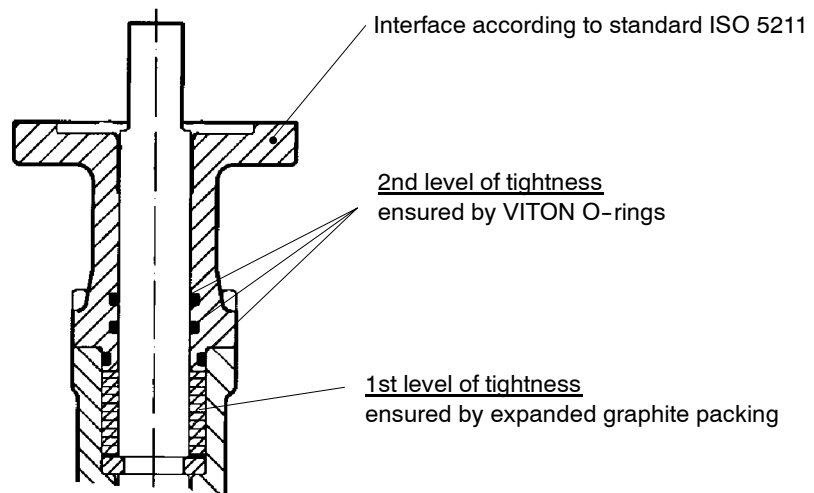
**Extension option - DN 50 to 600**

This option is recommended for the applications in the aggressive environments (marine environment, petrochemical, ...).

The stainless steel extension replaces the sub-unit yoke and thrust washer and permits to protect the interface of the actuator against the exterior ambient.

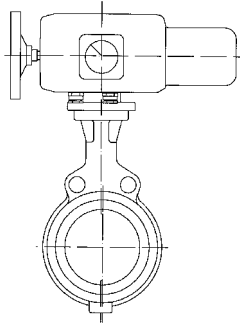
A second level of tightness is ensured at shaft passage by O-rings in VITON®.

Working temperature limited to +220 °C

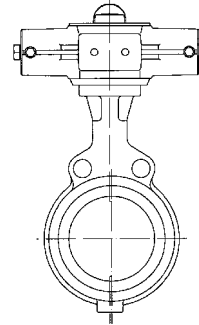


**Standard variants**

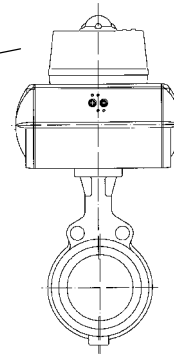
**Electric actuator ACTELEC**



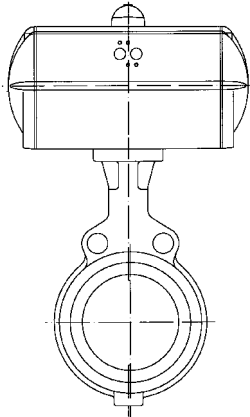
**Hydraulic actuator ACTO**



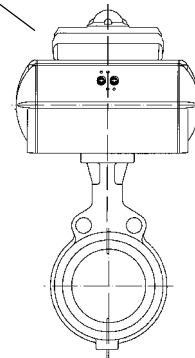
**Pneumatic distribution for On-OFF function AMTRONIC  
Positioner and control unit SMARTRONIC**



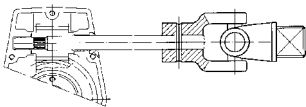
**Pneumatic actuators ACTAIR / DYNACTAIR**



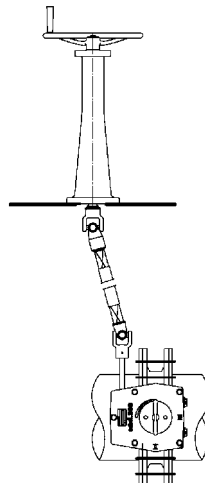
**Detection position  
AMTROBOX,  
AMTROBOX S,  
AMTROBOX R,  
AMTROBOX EEx-ed,  
AMTROBOX EEx-ia**



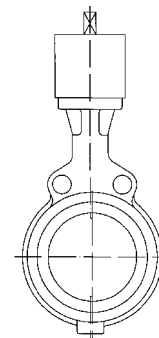
**Cardan joint**



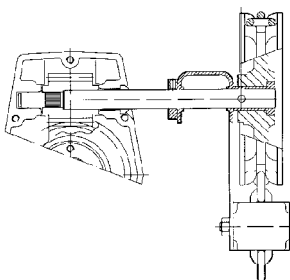
**Deck stand**



**DANAIS HT valve**



**Chain wheel**



### Connections

The valves can be fitted between flanges according to EN 1092-1 PN 10, PN 16 and PN 25 ; ASME B16.5 class 150 ; ASME B16.47 série A ; JIS B2220 10k , 16k and 20k standards. Other connections on request.

#### Wafer type body - Type 1 -

DN	NPS	EN 1092-1			ASME B16.5 cl.150	ASME B16.47 cl.150 série A	JIS B2220		
		PN 10	PN 16	PN 25			10K	16K*	20K
50	2	✓	✓	✓	✓		✓	⊠	⊠
65	2 ½	✓	✓	✓	✓		✓	✓	✓
80	3	✓	✓	✓	✓		✓	✓	✓
100	4	✓	✓	✓	✓		✓	✓	✓
125	5	✓	✓	✓	✓		✓	✓	✓
150	6	✓	✓	✓	✓		✓	✓	✓
200	8	✓	✓	✓	✓		✓	✓	✓
250	10	✓	✓	✓	✓		✓	✓	✓
300	12	✓	✓	✓	✓		✓	✓	✓
350	14	✓	✓	✓	✓		✓	✓	✓
400	16	✓	✓	✓	✓		✓	✓	✓
450	18	✓	✓	✓	✓		✓	✓	✓
500	20	✓	✓	✓	✓		✓	✓	✓
600	24	✓	✓	✓	✓		✓	✓	✓
650	26		⊠				⊠		
700	28	✓	✓	✓		✓	✓	✓	
750	30		⊠				⊠		
800	32	✓	✓	✓		✓	✓	✓	
900	36	✓	✓	✓		✓	✓	✓	
1000	40	✓	✓	✓		✓	✓	✓	
1200	48		⊠				⊠		

#### Lug type body - Type 4 -

DN	NPS	EN 1092-1			ASME B16.5 cl.150	ASME B16.47 cl.150 série A	JIS B2220		
		PN 10	PN 16	PN 25			10K	16K*	20K
50	2	✓	✓	✓	✓		✓	⊠	⊠
65	2 ½	✓	✓	✓	✓		✓	✓	✓
80	3	✓	✓	✓	✓		✓	✓	✓
100	4	✓	✓	✓	✓		✓	✓	✓
125	5	✓	✓	✓	✓		✓	✓	✓
150	6	✓	✓	✓	✓		✓	⊠	⊠
200	8	✓	✓	✓	✓		✓	✓	✓
250	10	✓	✓	✓	✓		✓	✓	✓
300	12	✓	✓	✓	✓		✓	✓	✓
350	14	✓	✓	✓	✓		✓	✓	✓
400	16	✓	✓	✓	✓		✓	✓	✓
450	18	✓	✓	✓	✓		✓	✓	✓
500	20	✓	✓	✓	✓		✓	✓	✓
600	24	✓	✓	✓	✓		⊠	⊠	⊠
650	26		⊠				⊠		
700	28	✓	✓	⊠		✓	✓	⊠	
750	30		⊠				⊠		
800	32	✓	✓	⊠		✓	✓	⊠	
900	36	✓	✓	⊠		✓	✓	⊠	
1000	40	✓	✓	⊠		✓	✓	⊠	
1200	48		⊠				⊠		

\* 16k : DN > 600 - 24" JIS B2238 standard



Fitted allowed



Please consult us



Connection not defined by this standard

### End of line and downstream dismantling

Use as end of line and downstream dismantling of the standard valves type 4 at room temperature for DN and the differential pressure ( $\Delta PS$ ) are defined hereafter.

End of line and downstream dismantling not allowed for wafer type body - Type 1.

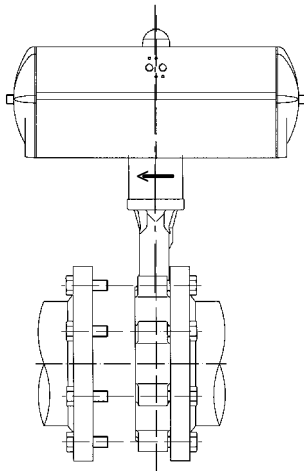
DANAİS 150	Gas or liquids*		Liquids	
	Hazardous	Non hazardous	Hazardous	Non hazardous
class 150 ** B 25	All DN: on request	All DN: $\Delta PS = 15 \text{ bar max.}$	All DN: $\Delta PS = 15 \text{ bar max.}$	All DN: $\Delta PS = 15 \text{ bar max.}$

\* Liquids having a vapour pressure at the maximum allowable temperature of not more than 0,5 bar above atmospheric pressure (1013 mbar).

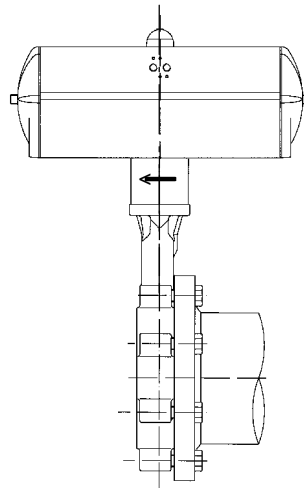
\*\* With shaft 1.4462 or ASTM A 479 gr. 316L / 1.4404 ( $\Delta PS$  limited to 10 bar)  
 $\Delta PS$  Differential pressure

**NB:** A valve fitted at the end of a pipe with a blind flange downstream is not to be considered as an end of pipe service.

**Downstream dismantling**

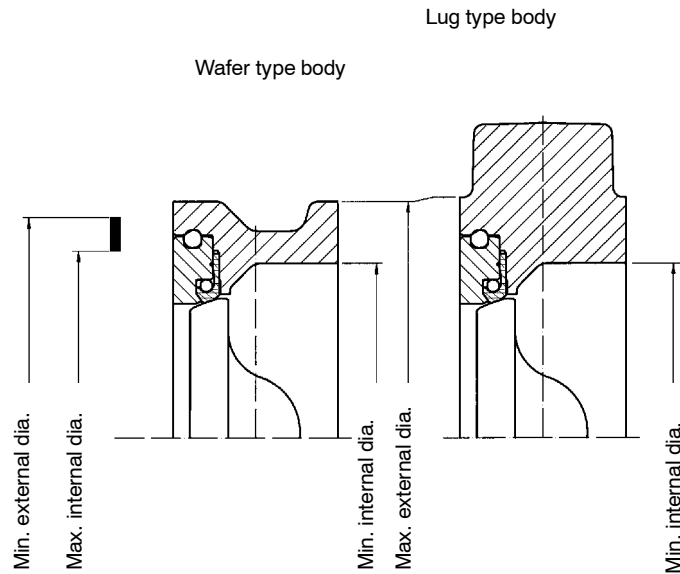


**End of line**





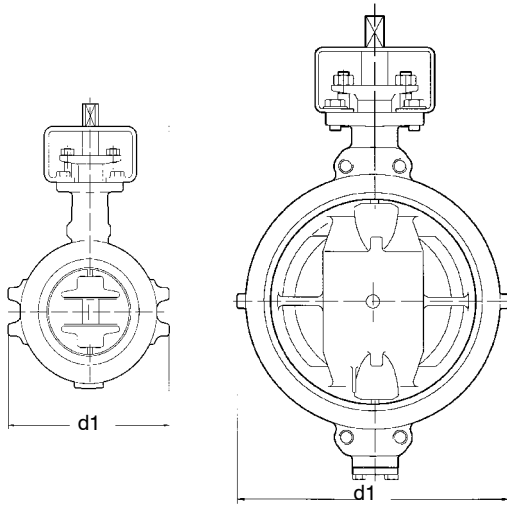
## Flange sealing



DN	NPS	Flange sealing					Connections	
		Min. area		Max. area			T1	T4
		Max. internal dia.	Min. ext. dia.	Min int. dia.	Max. external dia. Wafer type	Full lug type body		
50	2	69,6	84,6	62	90,5	91,0	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
65	2½	83,6	98,6	75	108,0	104,0	PN 10/16 - ASME B16.5 cl 150 - JIS 10K	
						117,0	PN 25 - JIS 16K/20K	
80	3	101,2	116,6	91	125,0	126,0	ASME B 16.5 cl150	
						131,0	PN 10/16/25 - JIS 10K/16K/20K	
100	4	126,6	142,6	117	154,0	156,5	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
125	5	153,6	169,6	144	183,0	185,0	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
150	6	180,6	199,1	171	214,0	215,0	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
200	8	231,5	253,5	222	267,0	269,0	PN 10 - ASME B 16.5 cl150	
						265,0	PN 16/25 - JIS 10K/16K/20K	
250	10	286,9	305,5	275	321,5	323,0	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
300	12	339,3	358,5	327	377,0	380,0	PN 10/16 - ASME B16.5 cl 150	
						388,0	PN 25 - JIS 10K/16K/20K	
350	14	374,6	400,0	359	411,5	412,0	ASME B16.5 cl 150	
						428,0	PN 10/16/25 - JIS 10K/16K/20K	
400	16	425,9	452,0	410	467,5	469,0	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
450	18	478,5	510,0	461	530,5	532,5	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
500	20	528,0	562,0	512	581,5	583,5	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
600	24	635,0	671,0	614	689,5	691,5	PN 10/16/25 - ASME B16.5 cl 150 - JIS 10K/16K/20K	
650							Please consult us	
700	28	722,0	756,0	704	794,0	794,0	PN 10/16/25 ASME B16.47 cl.150 series A JIS 10K/16K	PN 10/16 - JIS 10K ASME B16-47cl.150 series A
750							Please consult us	
800	32	830,0	864,0	804	899,0	899,0	PN 10/16/25 ASME B16.47 cl.150 series A JIS 10K/16K	PN 10/16 - JIS 10K ASME B16-47 cl.150 series A
900	36	930,0	964,0	904	999,0	999,0		
1000	40	1030,0	1074,0	1004	1114,0	1114,0		
1200							Please consult us	

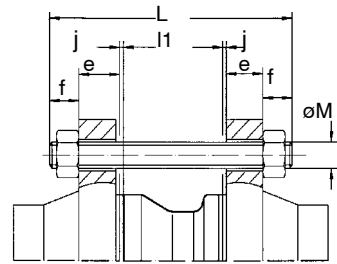
Note : The use of spiral -wound gaskets according to ISO 7483 - PN 10 to 25 is recommended for DN ≤ 600.  
The use of spiral -wound gaskets according to EN 1514-2 is recommended for DN > 600.

### Bolting and weight for wafer type body - Type 1



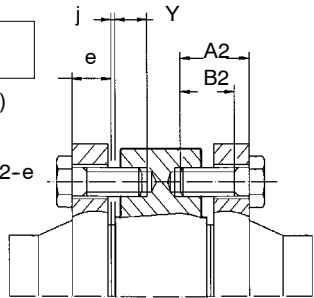
Tie-rod length  
 $L = l1 + 2e + 2f + 2j$

- l1 : Valve face to face
- e : Flange thickness (customer specification)
- f : Overlength of the tie-rod
- j : Thickness of the flange gasket



Screw length at shaft passages  
 $A2 \text{ max.} = e + Y + j$

- 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 threaded and plain holes).

**NB: We do not supply the bolting**

mm	NPS	l1	d1	øM	Tire-rod **		Screw A2		øM	Tie-rod*		Screw A2		øM	Tie-rod*		Screw A2		Weight
					f	Nb	Y	Nb*		f	Nb	Y	Nb*		f	Nb	Y	Nb*	
50	2	43	104	M16	20	4			M16	20	4			M16	20	4			3,2
65	2 1/2	46	123	M16	20	4/8			M16	20	4/8			M16	20	8			3,8
80	3	46	140	M16	20	8			M16	20	8			M16	20	8			4,5
100	4	54	180	M16	20	8			M16	20	8			M20	24	8			6,4
125	5	57	210	M16	20	8			M16	20	8			M24	29	8			9,7
150	6	57	235	M20	24	8			M20	24	8			M24	29	8			12,7
200	8	62	271	M20	24	8			M20	24	12			M24	29	12			22,5
250	10	70	323	M20	24	12			M24	29	12			M27	29	12			34,0
300	12	80	380	M20	24	12			M24	29	12			M27	32	16			48,8
350	14	92	449	M20	24	16			M24	29	16			M30	35	16			64,5
400	16	102	505	M24	29	16			M27	32	16			M33	38	16			89,0
450	18	114	570	M24	29	16	32	4	M27	32	16	31	4	M33	38	16	31	4	133,5
500	20	127	621	M24	29	16	35	4	M30	35	16	39	4	M33	38	16	42	4	168,0
600	24	154	730	M27	32	16	40	4	M33	38	16	48	4	M36	42	16	46	4	270,5
650	Please consult us																		
700	28	165	798	M27	32	20	39,5	4	M33	38	20	37	4	M39	45	20	37	4	400,0
750	Please consult us																		
800	32	190	903	M30	35	20	47	4	M36	42	20	44	4	M45	52	20	45	4	550,0
900	36	203	1003	M30	35	24	47	4	M36	42	24	44	4	M45	52	24	45	4	700,0
1000	40	216	1118	M33	38	24	48	4	M39	45	24	48	4	M52	60	24	47	4	900,0
1200	Please consult us																		

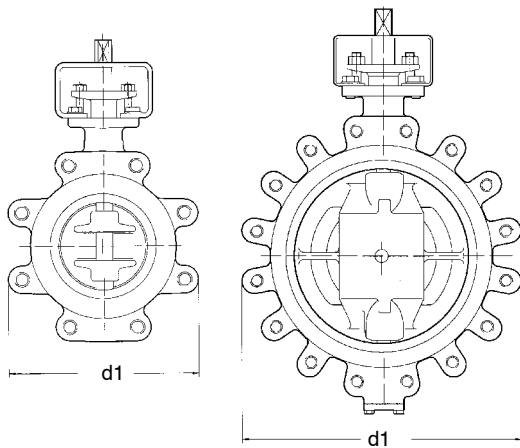
**Bolting and weight for wafer type body - Type 1**

mm	NPS	l1	d1	ASME B 16-5 cl.150 for DN ≤ 600 ASME B 16.47 cl.150 serie A for DN > 600					JIS B2220 10K					JIS B2220 16K and 20K					Weight
				UNC	Tie-rod*		Screw A2		øM	Tie-rod**		Screw A2		øM	Tie-rod**		Screw A2		
					f	Nb	Y	Nb*		f	Nb	Y	Nb*		f	Nb	Y	Nb*	
50	2	43	104	5/8"	20	4			M16	20	4			M16	20	8			3,2
65	2 1/2	46	123	5/8"	20	4			M16	20	4			M16	20	8			3,8
80	3	46	140	5/8"	20	4			M16	20	8			M20	24	8			4,5
100	4	54	180	5/8"	20	8			M16	20	8			M20	24	8			6,4
125	5	57	210	3/4"	24	8			M20	24	8			M22	26	8			9,7
150	6	57	235	3/4"	24	8			M20	24	8			M22	26	12			12,7
200	8	62	271	3/4"	24	8			M20	24	12			M22	26	12			22,5
250	10	70	323	7/8"	29	12			M22	26	12			M24	29	12			34,0
300	12	80	380	7/8"	29	12			M22	26	16			M24	29	16			48,8
350	14	92	449	1"	32	12			M22	26	16			M30x3	35	16			64,5
400	16	102	505	1"	32	16			M24	29	16			M30x3	35	16			89,0
450	18	114	570	1 1/8"	35	12	40	4	M24	29	16	32	4	M30x3	35	16	32	4	133,5
500	20	127	621	1 1/8"	35	16	39	4	M24	29	16	35	4	M30x3	35	16	42	4	168,0
600	24	154	730	1 1/4"	38	16	48	4	M30	35	20	38	4	M36x3	42	20	41	4	270,5
650	Please consult us																		
700	28	165	798	1 1/4"	38	24	33,5	4	M30	35	20	38,5	4	M39x3	45	20	37	4	400,0
750	Please consult us																		
800	32	190	903	1 1/2"	45	24	38	4	M30	35	24	41	4	M45x3	52	20	45	4	550,0
900	36	203	1033	1 1/2"	45	28	40,5	4	M30	35	24	47	4	M45x3	52	24	45	4	700,0
1000	40	216	1118	1 1/2"	45	32	43,5	4	M36	42	24	46,5	4	M52x3	60	24	47	4	900,0
1200	Please consult us																		

\* Quantity of nuts = quantity of tie-rods x 2

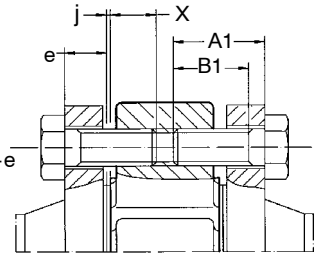
\*\* Quantity of screws by face

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



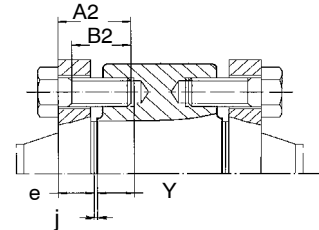
Screw length of lugs  
**A1 max. = e + X + j**

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**

mm	NPS	I1	d1	EN 1092-1 PN 10 (1)				EN 1092-1 PN 16 (1)				EN 1092-1 PN 25				d1	ASME B16-5 class 150					Weight				
				Screw A1		Screw A2		Screw A1		Screw A2		Screw A1		Screw A2			UNC	Screw A1		Screw A2						
				øM	X	Nb*	Y	Nb*	øM	X	Nb*	Y	Nb*	øM	X			Nb*	Y	Nb*	X		Nb*	Y	Nb*	
50	2	43	117	M16	20	4			M16	20	4			M16	20	4			117	5/8"	20	4			4,6	
65	2 1/2	46	131	M16	22	4			M16	22	4								131	5/8"	22	4			5,2	
65	2 1/2	46	162	M16	22	8			M16	22	8			M16	22	8			162						6,5	
80	3	46	136	M16	20	8			M16	22	8			M16	22	8			136						7,4	
80	3	46	176																176	5/8"	22	4			6,0	
100	4	54	206	M16	24	8			M16	24	8			M20	26	8			206	5/8"	24	8			10,2	
125	5	57	240	M16	24	8			M16	24	8			M24	27	8			240	3/4"	27	8			14,6	
150	6	57	267	M20	27	8			M20	27	8			M24	27	8			267	3/4"	27	8			17,2	
200	8	62	310	M20	30	8													310	3/4"	30	8			25,5	
200	8	62	338						M20	30	12			M24	30	12			338						28,5	
250	10	70	410	M20	30	12			M24	34	12			M27	30	12			410	7/8"	34	12			44,0	
300	12	80	460	M20	30	12			M24	36	12								460	7/8"	36	12			64,8	
300	12	80	470											M27	38	16			470						68,8	
350	14	92	508	M20	30	16			M24	35	16			M30	38	16			508						97,5	
350	14	92	529																529	1"	37	12			87,7	
400	16	102	593	M24	34	16			M27	38	16			M30	38	16			593	1"	38	16			130,0	
450	18	114	620	M24	32	20			M27	40	16	31	4	M33	41	16	31	4	620						178,5	
450	18	114	649																649	1 1/8"	40	16			163,5	
500	20	127	705	M24	35	20			M30	39	20			M33	42	20			705	1 1/8"	39	20			218,0	
600	24	154	822	M27	40	20			M33	48	20	38	4	M36	46	20	41	4	822	1 1/4"	48	20			355,0	
650																				Please consult us						
700	28	165	895	M27	46	20	39,5	4	M33	55	20	37	4	Please consult us						ASME B16-47 cl.150 Series A					550,0	
750																				Please consult us						
800	32	190	1010	M30	50	20	47	4	M36	59	20	44	4	Please consult us						ASME B16-47 cl.150 Series A						
900	36	203	1111	M30	50	24	47	4	M36	59	24	44	4							1049	1 1/2"	64	24	38	4	750,0
1000	40	216	1236	M33	55	24	48	4	M39	64	24	48	4							1159	1 1/2"	64	28	41	4	950,0
1200																				1275	1 1/2"	64	32	44	4	1200,0
																				Please consult us						

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

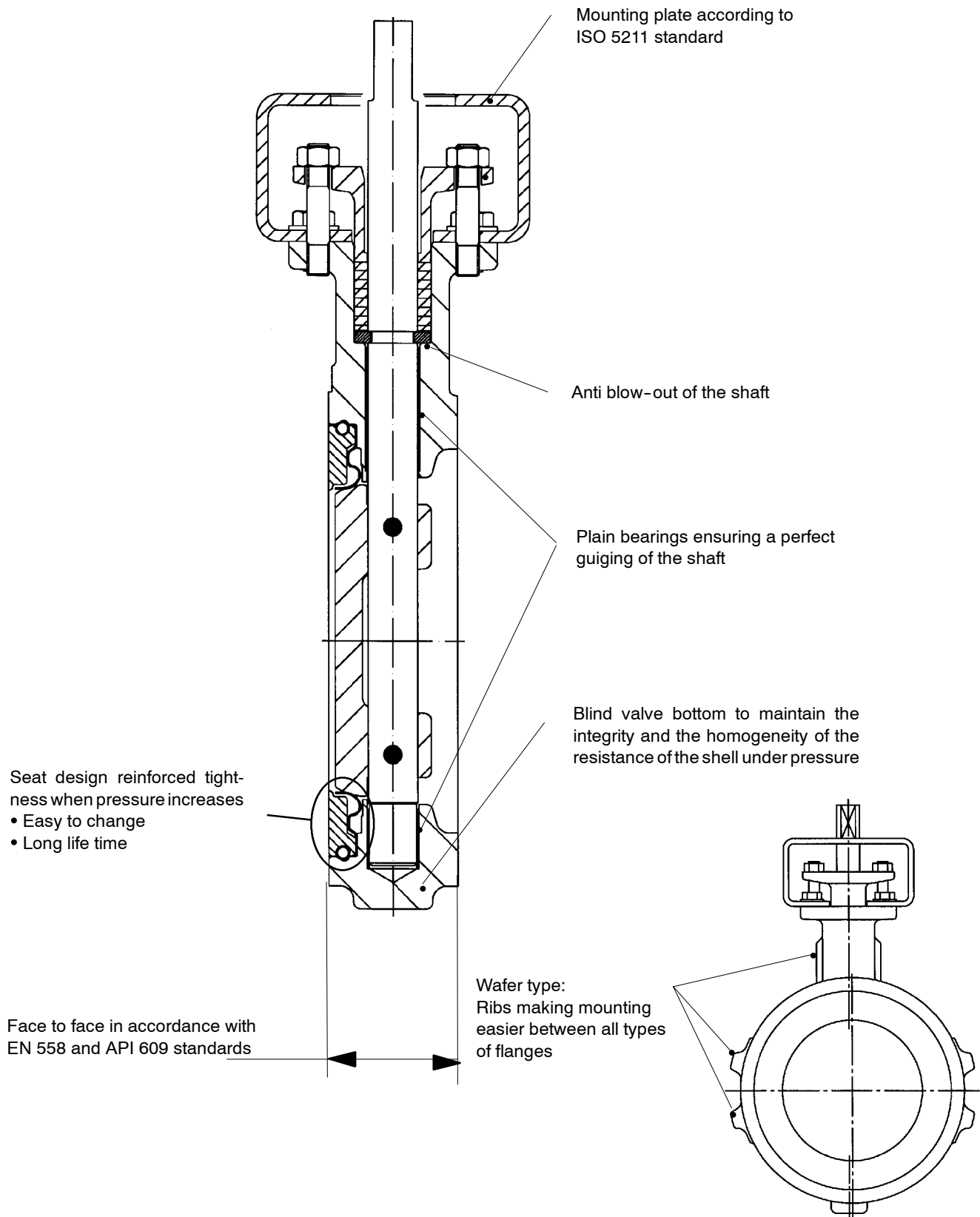
mm	NPS	l1	d1	JIS B2220-10K				JIS B2220-16K and 20K				Weight			
				Screw A1		Screw A2		øM	Screw A1		Screw A2				
				X	N b	Y	Nb*		X	Nb	Y		Nb*		
50	2	43	117	M16	20	4			Please consult us				4,6		
65	2 1/2	46	131	M16	22	4									5,2
65	2 1/2	46	162						M16	22	8				6,5
80	3	46	136	M16	22	8			M20	22	8				6,0
100	4	54	206	M16	24	8			M20	26	8				10,2
125	5	57	240	M20	27	8			M22	27	8				14,6
150	6	57	267	M20	27	8			Please consult us				17,2		
200	8	62	338	M20	30	12			M22	30	12				25,5
250	10	70	410	M22	33	12			M24	34	12				44,0
300	12	80	470	M22	33	16			M24	36	16				64,8
350	14	92	508	M22	31	16			M30x3	41	16				87,7
400	16	102	593	M24	34	16			M30x3	40	16				130,0
450	18	114	620	M24	32	20			M30x3	40	16	32	4		163,5
500	20	127	705	M24	35	20			M30x3	40	16				218,0
600	24	154	822	Please consult us								355,0			
650				Please consult us											
700	28	165	798	M30	50	20	38,5	4	Please consult us (JIS 16K)				550,0		
750				Please consult us											
800	32	190	1049	M30	50	24	41	4					750,0		
900	36	203	1111	M30	50	24	47	4	Please consult us (JIS 16K)				950,0		
1000	40	216	1236	M36	59	24	46,5	4					1200,0		
1200				Please consult us											

\* Quantity of screws by face





Product features - to our customer's benefit



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

13.01.10

8460.11/10-10