

Butterfly Valve

DANAIS 150

Class 150 and PN 25
DN 50-1200 (2"-48")
Double-offset Disc
Plastomer, Elastomer or Metal Seat

Type Series Booklet



Legal information/Copyright

Type Series Booklet DANAÏS 150

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Butterfly Valves

Double-offset Butterfly Valves

DANAIS 150



Main applications

- Nuclear power stations
- Hot-water heating systems
- District heating
- Chemical industry
- Air-conditioning systems
- Food and beverage industry
- Pulp and paper industry
- Petrochemical industry
- Pharmaceutical industry
- Shipbuilding
- Mining
- Pipelines and tank farms
- Process engineering
- Refineries
- Sugar industry
- Pressure boosting
- Industrial recirculation systems

Medien

- Fuels
- Hot water
- Hot water
- Fluids containing mineral oils
- Solids-laden fluids
- Aggressive fluids
- Heat transfer media / oils
- Corrosive fluids

- Combustible fluids
- Toxic fluids
- Volatile fluids
- Gas
- Oil
- Solids (ores, sand, gravel, ash)
- Steam
- Vacuum

Operating data

Operating properties

Parameter	Value
Nominal pressure	Class 150 - PN10/16/25
Nominal size	DN 50-1200 (2"-48")
Max. permissible pressure	25 bar (16 bar for aluminium bronze)
Max. permissible temperature	-50 °C to +260 °C
Actuation at ΔP	Max. 20 bar (15.5 bar for aluminium bronze)
Vacuum operation down to	0 bar absolute
Max. permissible flow velocity at operating pressure	4 m/s for liquids 50 m/s for clean gases

The permissible operating temperature depends on the seat material (⇒ Page 5) . Temperatures above 260 °C on request.

Design details

Design

- Wafer-type body with flat faces - T1: DN 50-600 (2"-24")
- Full-lug body:
 - With flat faces - T3: DN 50-800 (2"-32")
 - With raised faces - T4 : DN 50-1200 (2"-48")
- Four interchangeable seat types: plastomer, fire-safe plastomer, metal or elastomer
- Dead-end service and downstream dismantling possible with full-lug bodies (T4).
- Face-to-face length to EN 558-20, ISO 5752-20 (except DN 350: EN 558 / ISO 5752-25) and API 609 Table 2 Class 150
- EN, ASME, JIS connections
- Marked in accordance with EN 19
- Absolutely tight shut-off (no leakage visible to the naked eye) in either direction of flow in accordance with EN 12266-1, leakage rate A, and ISO 5208, category A.
- Steel body: anti-corrosive primer coat and optional two-layer or three-layer coating system
- Stainless steel body: pickled and passivated
- Fire-safe to API 607
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EC (PED) for fluids in Groups 1 and 2.
- Valves with actuators can meet the requirements of the 2006/42/EC Machinery Directive for partly completed machinery.

- The valves meet the requirements of the REACH 1907/2006 regulation. None of the substances listed in the candidate list and in Annex XIV of the regulation is present in a concentration above 0.1 % (w/w) (Article 33/REACH).
- ATEX-compliant version in accordance with the 2014/34/EU Directive

Variants

- S / SR / SP / CR / CM quarter-turn levers
- MN / MR manual gearboxes
- ACTAIR / DYNACTAIR pneumatic actuators
- ACTELEC electric actuators
- HQ hydraulic actuators
- AMTROBOX limit switch box
- AMTRONIC valve controller with compressed air supply via directional control valve
- SMARTRONIC positioner and process controller
- Other actuators on request

Body materials

Overview of materials available for wafer-type body (T1) and full-lug body (T3/T4)

Material	Material number	Temperature limit	KSB code
Carbon steel	ASTM A216 gr. WCC / 1.0619	-29 °C to +260 °C	1
Stainless steel	ASTM A351 gr. CF 8M / 1.4408	-50 °C to +260 °C	6
Stainless steel	ASTM A351 gr. CF 3M / 1.4409	-50 °C to +260 °C	6t
Stainless steel	ASTM A351 gr. CF 3M Mo >2.75	-50 °C to +260 °C	6m
Nodular cast iron (only for body type T1 and DN 80 to 800)	ASTM A536 gr. 60-40-18	-10 °C to +260 °C	3g
High-strength stainless steel	ASTM A351 gr. CK3MCuN (254SMO®)	-29 °C to +260 °C	7d
Aluminium bronze	ASTM B148 gr. C95800	-29 °C to +260 °C	2

Product benefits

- Gland packing can be replaced without removing the lantern:
 - Service-friendly
 - Lower costs
- Stem in anti-blow-out design
 - Actuator can be removed safely
 - Protection of persons
- Stem perfectly guided by long bearings
 - Ensures tight shut-off. The highest sealing capability on the market, even at full pressure rating.
- Valve body closed at the bottom
 - Reliable sealing to atmosphere
- Flat-face flanges
 - Excellent sealing at the flanged line connections
- Closed-position travel stop

- Protects seat from damage in the event of improper operation
- Patented seat design
 - Ensures tight shut-off. The highest sealing capability on the market, even at full pressure rating.
 - Long service life
 - Easy to service
- Body seat protected against abrasion
 - Long service life
- Median rib body
 - For greater ease of installation between a variety of flange types

Related documents

Other applicable documentation

Document	Reference No.
Actuator selection	8460.15
Operating manual	8450.810

On all enquiries/orders please specify

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

Pressure/temperature ratings

Pressure PN10, PN16, PN25

In pressure classes PN10, PN16 and PN25 (European materials), the DANAIS 150 valve meets the requirements of EN 12516-1. The values given in the table must be adhered to if the valves are to comply with Pressure Equipment Directive 97/23/EC.

Pressure class	Materials		Operating pressure in [bar] at temperatures in [°C]										
	Body	Seat	-50	-10	0	20	100	135	150	180	200	220	260
PN10	Carbon steel 1.0619	Plastomer ¹⁾	Not permitted	9,7	9,7	9,7	8,5	8,1	7,9	7,4	3,3	0,0	-
		Elastomer ²⁾	Not permitted	9,7	9,7	9,7	8,5	-	-	-	-	-	-
		Stainless steel 301	Not permitted	9,7	9,7	9,7	8,5	8,1	7,9	7,4	7,1	6,9	6,4
	Stainless steel 1.4408	Plastomer ¹⁾	9,7	9,7	9,7	9,7	8,3	7,7	7,5	7,1	3,3	0,0	-
		Stainless steel 301	9,7	9,7	9,7	9,7	8,3	7,7	7,5	7,1	6,9	6,7	6,3
	Stainless steel 1.4409	Pure plastomer	9	9	9	8,9	7,8	7,3	7,1	-	-	-	-
PN16	Carbon steel 1.0619	Plastomer ¹⁾	Not permitted	15,6	15,6	15,6	13,6	13,0	12,7	10,0	3,3	0,0	-
		Elastomer ²⁾	Not permitted	15,6	15,6	15,6	13,6	-	-	-	-	-	-
		Stainless steel 301	Not permitted	15,6	15,6	15,6	13,6	13,0	12,7	11,9	11,4	11,0	10,2
	Stainless steel 1.4408	Plastomer ¹⁾	15,5	15,5	15,5	15,5	13,3	12,4	12,0	10,0	3,3	0,0	-
		Stainless steel 301	15,5	15,5	15,5	15,5	13,3	12,4	12,0	11,4	11,0	10,7	10,1
	Stainless steel 1.4409	Pure plastomer	15,5	15,5	15,5	15,5	13,3	12,4	11,4	10,0	3,3	0,0	-
PN25	Carbon steel 1.0619	Plastomer ¹⁾	Not permitted	24,4	24,4	24,4	21,3	20,3	15,8	10,0	3,3	0,0	-
		Stainless steel 301	Not permitted	24,4	24,4	24,4	21,3	20,3	19,8	18,6	17,8	17,2	15,9
	Stainless steel 1.4408	Plastomer ¹⁾	24,3	24,3	24,3	20,7	19,3	15,8	10,0	3,3	0,0	-	-
		Stainless steel 301	24,3	24,3	24,3	20,7	19,3	18,7	17,8	17,2	16,7	15,8	-
	Stainless steel 1.4409	Pure plastomer	22,5	22,5	22,5	22,5	19,5	19,3	17,8	-	-	-	-

Pressure Class 150

In pressure class 150 (ASTM materials), the DANAIS 150 valve complies with ASME B16.34 Class 150 "Standard Class" as per the following table (except for ASTM B148 gr. C95800).

Pressure class	ASTM material variant		Operating pressure in [bar] at a temperature in [°C]										
	Body	Seat	-50	-29	0	50	100	135	150	180	200	220	260
Class 150	A216 gr. WCC	Plastomer ¹⁾	Not permitted	20,0	19,9	20,0	17,7	16,4	15,8	10,0	3,3	0,0	-
		Elastomer ²⁾	Not permitted		20,0	20,0	17,7	-	-	-	-	-	-
		Stainless steel 301	Not permitted	20,0	20,0	20,0	17,7	16,4	15,8	14,7	13,8	13,2	11,7
	A351 gr. CF8M	Plastomer ¹⁾	19,0	19,0	19,0	18,4	16,2	15,2	14,8	10,0	3,3	0,0	-
		Stainless steel 301	19,0	19,0	19,0	18,4	16,2	15,2	14,8	15,6	13,7	13,0	11,7
	A351 gr. CK3MCuN	Plastomer ¹⁾	Not permitted	20,0	20,0	19,5	17,7	16,4	15,8	10,0	3,3	0,0	-
		Stainless steel 301	19,0	19,0	19,0	18,4	16,2	15,2	14,8	15,6	13,7	13,0	11,7
	A351 gr. CF3M	Plastomer ¹⁾	19,0	19,0	19,0	18,4	16,2	15,2	14,8	10,0	3,3	0,0	-
	A351 gr. CF3M Mo > 2,75	Stainless steel 301	19,0	19,0	19,0	18,4	16,2	15,2	14,8	15,6	13,7	13,0	11,7
	A536 gr. 60-40-18	Elastomer ²⁾	Not permitted		17,2	17,2	16,2	-	-	-	-	-	-
	B148 gr. C95800	Plastomer ¹⁾	Not permitted	15,5	15,5	15,5	15,0	14,5	14,0	10,0	3,3	0,0	-

* A temperature limit of 150 °C applies to pure PTFE and pure PTFE fire-safe.

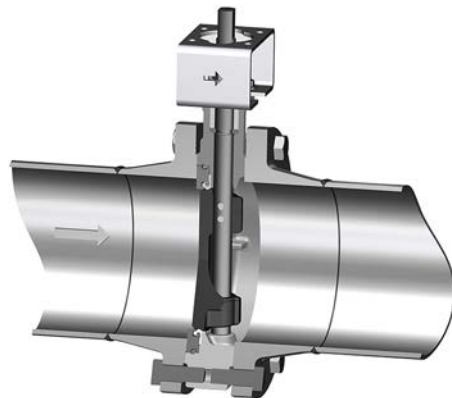
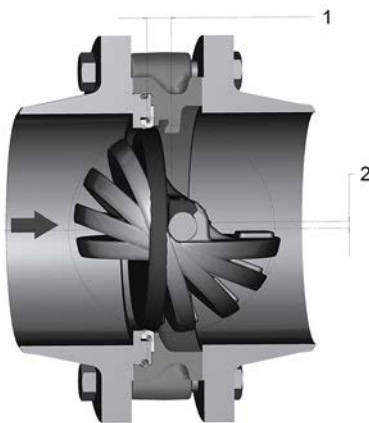
1) Plastomer = PTFE / PTFE fire-safe / pure PTFE* / pure PTFE fire-safe*

2) Elastomer = VITON® (FKM) / NBR

Technical data

Kinematics

- The valve disc is pressed onto the seat by a double-offset kinematics.
- Double offset:
 - The axis of rotation is offset from the seat/disc interface (1).
 - The axis of rotation is offset from the piping centreline (2).
- This design prevents friction between the seat and the sealing surface of the valve disc as the valve discs opens and closes.
- The valve's shut-off capability is maintained even after a very large number of actuating cycles.
- The butterfly valve's shut-off capability meets the most stringent specifications and standards.



1. First offset
2. Second offset

Shut-off

- The valve complies with the standards listed below.
- The valve is bi-directional, with a preferred flow direction indicated by the arrow on the yoke (direction of differential pressure applied to valve disc).

Valves	Plastomer-seated and elastomer-seated	Metal-seated
For liquids	EN 12266-1 Leakage rate A ISO 5208 Category A API 598	EN 12266-1 Leakage rate D ISO 5208 Category D MSS SP 61
For gases	EN 12266-1 Leakage rate A ISO 5208 Category A API 598 ANSI / FCI 70.2 Class VI	EN 12266-1 Leakage rate D ISO 5208 Category D MSS SP 61

Torque [Nm]

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

Plastomer-seated and elastomer-seated

DN	NPS	Differential pressure ΔP [bar]							
		Preferred flow direction				Non-preferred flow direction			
		6	10	16	20	6	10	16	20
50	2	20	20	30	30	20	20	20	20
65	2½	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	1140	570	780	1080	1290
400	16	820	980	1340	1570	780	1060	1490	1770
450	18	1130	1370	1880	2210	1080	1480	2090	2490
500	20	1380	1680	2310	2740	1320	1820	2570	3070
550 ³⁾	22	1820	2220	3100	3690	1740	2450	3510	4220
600	24	2210	2720	3820	4560	2130	3000	4320	5200
650	26	2590	3200	4510	4)	2970	4050	5660	4)
700	28	2900	3630	5130	4)	3810	5090	7000	4)
750	30	3670	4580	6530	4)	4530	6390	8950	4)
800	32	4300	5350	7660	4)	5460	7410	10340	4)
900	36	5600	7040	10130	4)	7150	9740	13630	4)
1000	40	7500	9510	13820	4)	9450	13060	18470	4)
1200	48	11450	14670	21540	4)	16200	21670	32350	4)

³⁾ DN 550 is available for elastomer-seated valves, bodies of type T1 made of nodular cast iron or carbon steel (WCC) and for bodies made of carbon steel (WCC).

⁴⁾ Contact KSB.

Metal seat

DN	NPS	Differential pressure ΔP [bar]															
		Preferred flow direction								Non-preferred flow direction							
		Liquid fluid				Non-liquid fluid				Liquid fluid				Non-liquid fluid			
		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	2½	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	110	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	1100	1220	410	500	650	750	800	930	1130	1270
300	12	590	680	860	990	1130	1260	1510	1680	560	700	920	1060	1100	1290	1560	1750
350	14	860	1000	1290	1490	1590	1790	2160	2420	820	1050	1400	1630	1550	1840	2270	2560
400	16	1170	1360	1770	2040	2140	2410	2930	3280	1120	1440	1920	2240	2090	2480	3080	3470
450	18	1590	1870	2450	2830	2900	3280	4000	4480	1530	1980	2660	3110	2840	3390	4210	4750
500	20	1920	2270	2990	3460	3480	3950	4840	5430	1860	2410	3240	3790	3420	4090	5090	5760
600	24	2980	3560	4760	5560	5220	5950	7380	8340	2890	3830	5290	6190	5130	6230	7880	8970

Hydraulic characteristics

[Kv0 in m³/h / bar^{0.5}] and [Cv0 in GUS / min / psi^{0.5}]

DN	NPS	Flow coefficient with disc fully open		Zeta
		Kv0	Cv0	
50	2	70	80	2,04
65	2½	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
550 ³⁾	22	18750	21750	0,42
600	24	22410	26000	0,41
650	26	24655	28600	0,47
700	28	26900	31200	0,53
750	30	32600	37820	0,48
800	32	38000	44100	0,45
900	36	59100	68600	0,30
1000	40	76700	89000	0,27
1200	48	143000	165880	0,16

Fire-safe design

Lloyd's Register approved design to API 607

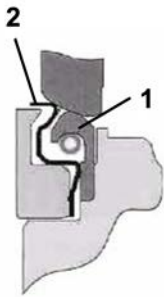
Designs:

Tight shut-off

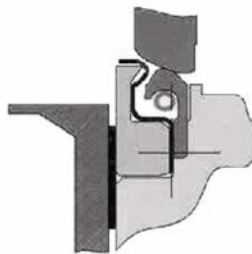
Plastomer seat (1) and fire-safe metal seat made of stainless steel (2)

1. Plastomer seat
2. Disc spring-type fire-safe metal seat

Valve before installation in piping

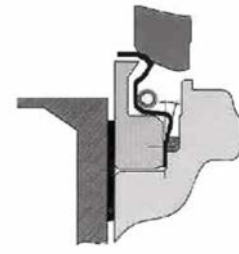


Before fire Normal operation Valve installed in piping



When the valve is installed between the flanges, the fire-safe metal seat straightens. There is no contact between this metal seat and the valve disc. Shut-off is ensured by the plastomer seat.

After fire



The plastomer seat is destroyed by the fire. The metal seat resumes its original shape and contacts the valve disc. During the fire, the metal seat ensures continued shut-off in compliance with the leakage rate stipulated by API 607.

Fire-safe design is recommended for body type T4 (full-lug body).

In the event of a fire, the flange bolting is thermally isolated and protected by the body lugs.

This protection limits bolt deformation in a fire, thus maintaining the sealing effect of the flange gaskets.

Sealing at the stem passage

Expanded graphite gland packing

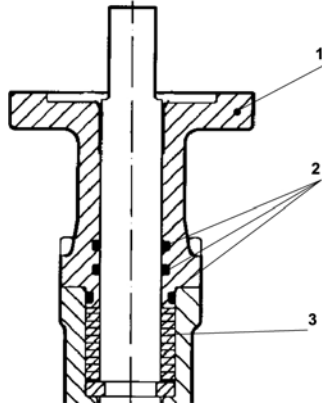
Extension option - DN 50 to 600 (up to DN 800 for nodular cast iron and aluminium bronze)

This option is recommended for applications in aggressive environments (marine, salt, petrochemical industry, etc.).

The extension replaces the yoke/gland follower assembly and protects the valve/actuator interface against the environment.

The Viton® O-rings provide a secondary seal at the stem passage.

Max. operating temperature: +220 °C



- 1: Top flange to EN ISO 5211
- 2: Secondary seal by Viton® (FKM) O-rings
- 3: Primary seal by expanded graphite gland packing

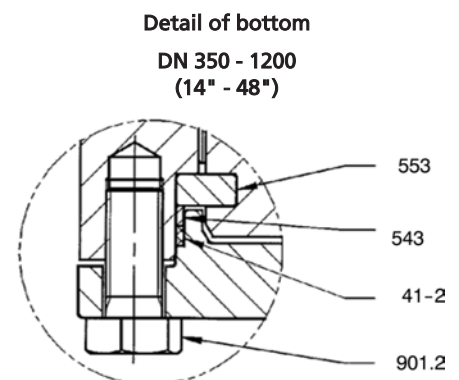
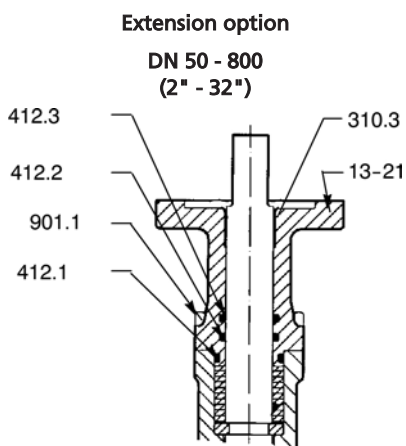
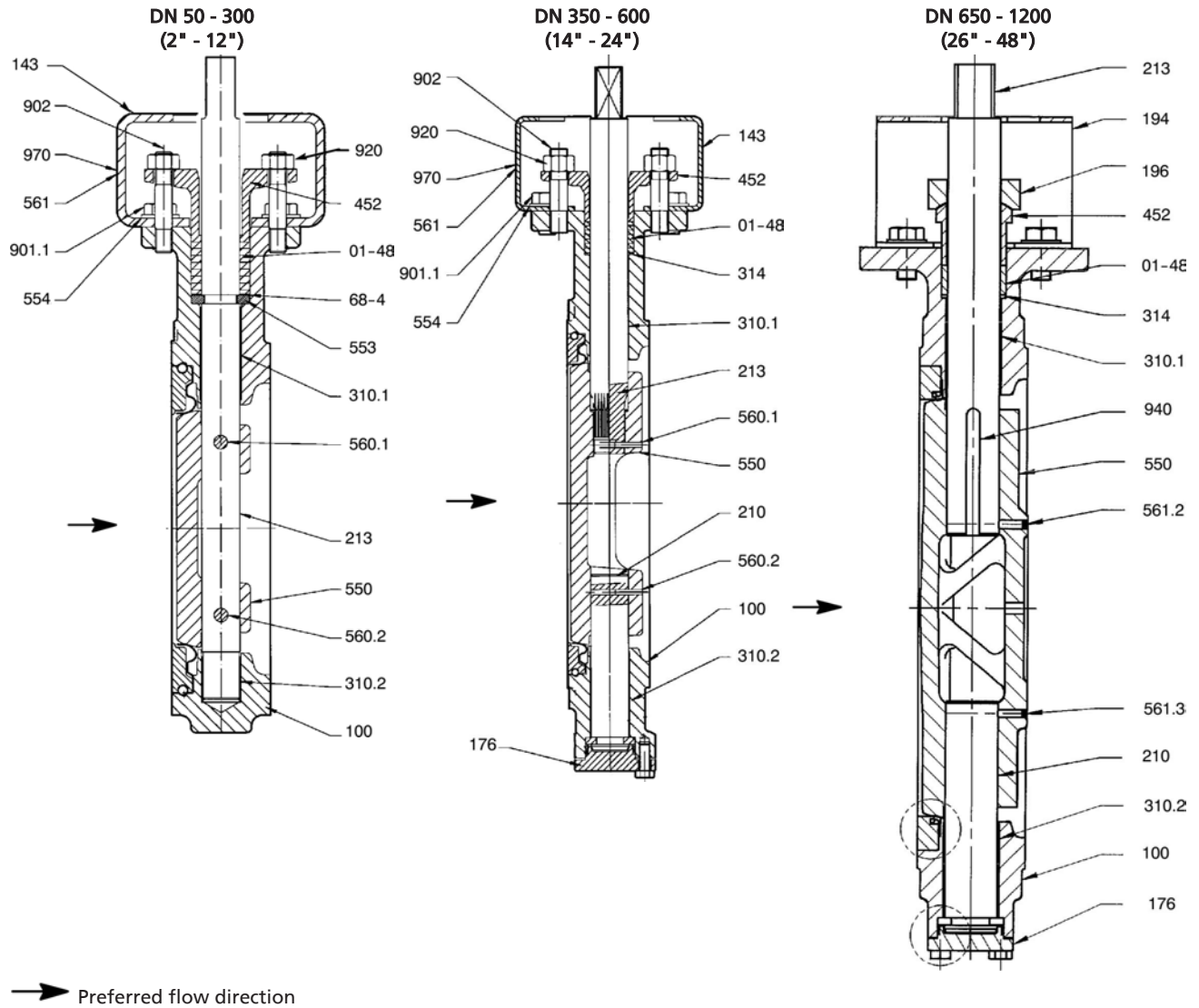
Configuration of DANAIS 150

				DANAIS				
				150	150C	150D	150T	150 Aluminium bronze
Material	ASTM material code	EN material code	KSB code	DN 50-1200 (2"-48") Body types T1 and T4	DN 80-800 (2"-32") Body types T1 and T4	DN 65-600 (2"½-24") Body types T1 and T4	DN 50-450 (2"-18") Body types T1 and T4	DN 50-800 (2"-32") Body type T3
Body								
Stainless steel	A351 gr. CF8M	1.4408	6	✓	-	-	✓	-
Stainless steel	A351 gr. CF3M	1.4409	6t	-	-	-	✓	-
Stainless steel	A351 gr. CF3M Mo > 2.75		6m	-	-	-	✓	-
High-strength stainless steel	A351 gr. CK3MCuN (254 SMO®)	1.4547	7d	-	-	✓	-	-
Nodular cast iron (body type T1 only)	A536 gr. 60-40-18		3g	-	✓	-	-	-
Aluminium bronze	B148 gr. C95800		2	-	-	-	-	✓
Carbon steel	A216 gr. WCC	1.0619	1	✓	✓	-	-	-
Actuating stem and stem								
Stainless steel	A564 gr. 630	1.4542	6e	✓	-	-	✓	-
Stainless steel	AISI 431	1.4057	6h	-	✓	-	-	-
Stainless steel		1.4462	7e (0-16 bar)	✓	-	-	✓	-
Stainless steel	A479 gr. 316L		6 (0-16 bar)	✓	-	-	-	-
Stainless steel		1.4547	7d	-	-	✓	-	-
Monel® K500	B865 NO5500	2.4375	8	-	-	-	-	✓
Valve disc								
Stainless steel	A351 gr. CF8M	1.4408	6	-	✓	-	-	-
Stainless steel*	A351 gr. CF8M	1.4408	6	✓	-	-	✓	-
Stainless steel*	A351 gr. CF3M	1.4409	6t	-	-	-	✓	-
Stainless steel*	A351 gr. CF3M Mo > 2,75		6m	-	-	-	✓	-
Aluminium bronze*	B148 gr. C95800		2	-	-	-	-	✓
Aluminium bronze	B148 gr. C95400		2a	-	✓	-	-	-
High-strength stainless steel	A351 gr. CK3MCuN (254 SMO®)	1.4547	7d	-	-	✓	-	-
Seat								
Plastomer								
PTFE, glass fibre reinforced			FB	✓	-	✓	-	-
PTFE, glass fibre reinforced + fire-safe		PTFE + 1.4404	FF	✓	-	-	-	✓
Pure PTFE			FC	-	-	-	✓	-
PTFE, pure + fire-safe		PTFE + 1.4404	FI	-	-	-	✓	-
Elastomer								
Viton® (FKM)			VD	-	✓	-	-	-
Nitrile (NBR)			KD	-	✓	-	-	-
Metal								
Stainless steel (301)		1.4310	6a	✓	-	-	-	-

*: For fire-safe plastomer seat or metal seat: chrome-plated

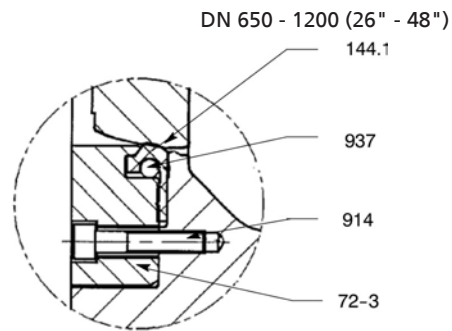
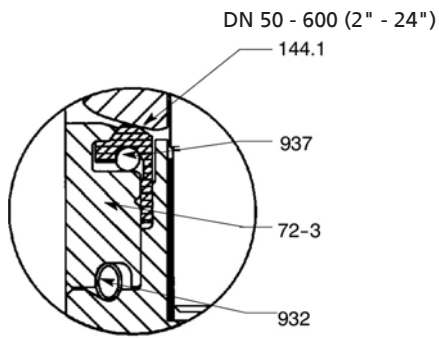
Materials

Sectional drawing

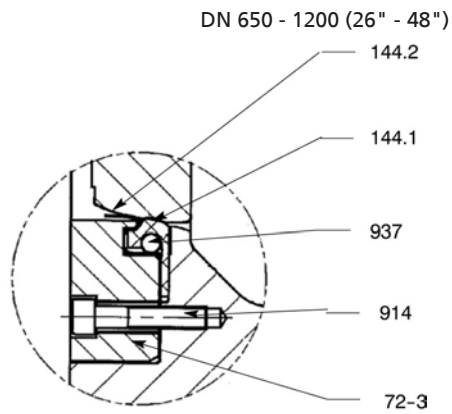
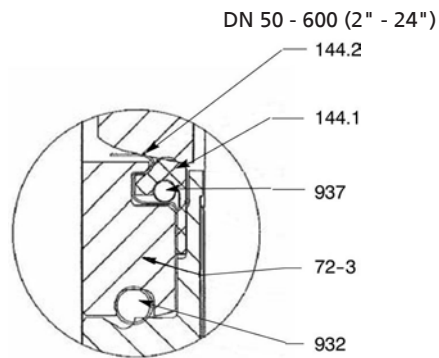


Seat details

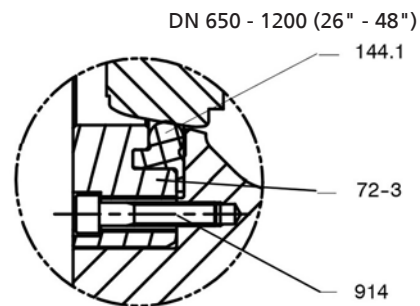
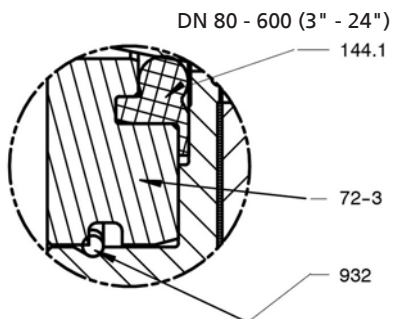
Plastomer seat



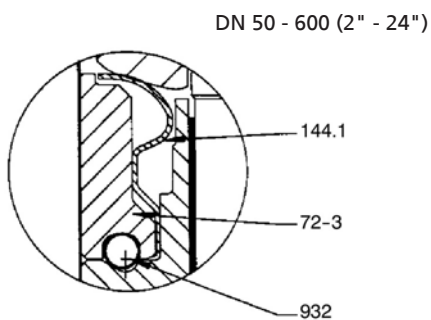
Fire-safe plastomer seat



Elastomer seat

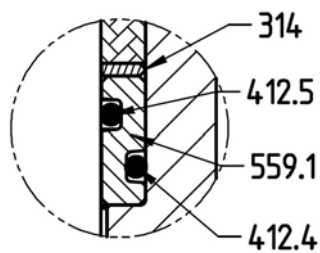


Metal seat

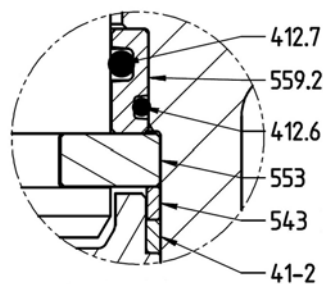


Details of aluminium bronze variant

Upper protection
DN 50 - 800 (2" - 32")



Lower protection, if applicable
DN 350 - 800 (14" - 32")



This protection prevents galvanic corrosion between the fire-safe (graphite) gland packing and the metal elements (particularly for seawater).

List of components in common

Part number	Description	DN	Materials	Temperature	KSB code
100	Wafer-type body with flat faces (T1) and full-lug body with raised faces (T4)	50-1200	Carbon steel A216 gr. WCC / 1.0619	-29 °C to +260 °C	1
		50-1200	Stainless steel ASTM A351 gr. CF8M / 1.4408	-50 °C to +260 °C	6
		80-800	Nodular cast iron ASTM A536 gr. 60-40-18 (for body type T1 only)	-10 °C to +260 °C	3g
		50-600	High-strength stainless steel ASTM A351 gr. CK3MCuN (254SMO®)	-29 °C to +260 °C	7d
		50-450	Stainless steel ASTM A351 gr. CF3M / 1.4409	-50 °C to +260 °C	6t
		50-450	Stainless steel ASTM A351 gr. CF3M Mo > 2,75	-50 °C to +260 °C	6m
		80-800	Aluminium bronze ASTM B148 gr. C95800	-29 °C to +260 °C	2
176	Bottom	350-1200	Stainless steel ASTM A351 gr. CF8M / 1.4408	-50 °C to +260 °C	6
		350-800	Nodular cast iron ASTM A536 gr. 60-40-18 (body type T1 only)	-10 °C to +100 °C	3g
		350-600	High-strength stainless steel ASTM A351 gr. CK3MCuN (254SMO®)	-29 °C to +100 °C	7d
		350-450	Stainless steel ASTM A351 gr. CF3M / 1.4409	-50 °C to +260 °C	6t
		350-450	Stainless steel ASTM A351 gr. CF3M Mo > 2.75	-50 °C to +260 °C	6m
		350-800	Aluminium bronze ASTM B148 gr. C95800	-29 °C to +260 °C	2
		350-1200	Stainless steel ASTM A564 gr. 630 / 1.4542 (17.4 PH)	-50 °C to +260 °C	6e
		350-1200	Stainless steel AISI 431 / 1.4057	-10 °C to +260 °C	6h
210	Stem	350-450	Stainless steel 1.4462 (0 bar < operating pressure <= 16 bar)	-50 °C to +260 °C	7e
		500-1200	Stainless steel ASTM A479 gr. 316L (0 bar < operating pressure <= 10 bar)	-50 °C to +260 °C	6
		350-600	Stainless steel 1.4547	-29 °C to +260 °C	7d
		350-800	MONEL® K500 2.4375 ASTM B865 N05500	-50 °C to +260 °C	8
		50-1200	Stainless steel ASTM A564 gr. 630 / 1.4542 (17-4 PH)	-50 °C to +260 °C	6e
		50-1200	Stainless steel AISI 431 / 1.4057	-50 °C to +260 °C	6h
		50-450	Stainless steel 1.4462 (0 bar < operating pressure <= 16 bar)	-50 °C to +260 °C	7e
		500-1200	Stainless steel ASTM A479 gr. 316L (0 bar < operating pressure <= 10 bar)	-50 °C to +260 °C	6
213	Actuating stem	50-600	Stainless steel 1.4547	-50 °C to +260 °C	7d
		80-800	MONEL® K500 2.4375 ASTM B865 N05500	-50 °C to +260 °C	8
		50-1200	Stainless steel ASTM A564 gr. 630 / 1.4542 (17-4 PH)	-50 °C to +260 °C	6e
		50-1200	Stainless steel AISI 431 / 1.4057	-50 °C to +260 °C	6h
		50-450	Stainless steel 1.4462 (0 bar < operating pressure <= 16 bar)	-50 °C to +260 °C	7e
		500-1200	Stainless steel ASTM A479 gr. 316L (0 bar < operating pressure <= 10 bar)	-50 °C to +260 °C	6
		50-600	Stainless steel 1.4547	-50 °C to +260 °C	7d
		80-800	MONEL® K500 2.4375 ASTM B865 N05500	-50 °C to +260 °C	8
310.1 ⁵⁾	Upper plain bearing	50-1200	Stainless steel with reinforced PTFE coating		

Part number	Description	DN	Materials	Temperature	KSB code
310.2 ⁵⁾	Lower plain bearing	50-1200	Stainless steel with reinforced PTFE coating		
314 ⁵⁾	Stop disc	350-1200	Stainless steel		
543 ⁵⁾	Spacer bush	350-1200	Stainless steel		
553 ⁵⁾	Upper thrust insert	50-300	Stainless steel, hardened		
	Thrust insert, two-piece	350-1200	Stainless steel		
560.1 ⁵⁾	Pin	50-600	Stainless steel 1.4542		
560.2 ⁵⁾					
68-4 ⁶⁾ 5)	Lock washer	50-300	Stainless steel		
901.2	Hexagon head bolt	350-1200	Stainless steel		
940 ⁵⁾	Key	650-1200	Stainless steel		
970	Name plate	50-1200	Stainless steel		

List of components, model with plastomer seat / DN 50 - 1200

Part number	Description	Materials	Temperature	KSB code
01-48 ⁶⁾ 5)	Gland packing	Pure PTFE / expanded graphite (optional)		
144.1 ⁷⁾	Plastomer seat	PTFE, glass fibre reinforced	-50 °C to +220 °C	FB
		Pure PTFE		FC
41-2 ⁶⁾ 5)	Static seal	Pure PTFE / expanded graphite (optional)		
72-3	Retaining flange	Stainless steel		
550	Valve disc	Stainless steel	-50 °C to +260 °C	6
		ASTM A351 gr. CF8M / 1.4408		
		Stainless steel	-50 °C to +260 °C	6t
		ASTM A 351 gr. CF3M / 1.4409		
		Stainless steel	-50 °C to +260 °C	6m
		ASTM A 351 gr. CF3M Mo > 2,75		
932 ⁷⁾	Upper circlip	High-strength stainless steel	-50 °C to +260 °C	7d
		ASTM A351 gr. CK3MCuN (254SMO®)		
937 ⁷⁾	Retaining wire	Stainless steel		

List of components, model with fire-safe plastomer seat / DN 50 - 1200

Part number	Description	Materials	Temperature	KSB code
01-48 ⁶⁾ 5)	Gland packing	Graphite, expanded		
144.1 ⁷⁾	Plastomer seat	PTFE, glass fibre reinforced	-50 °C to +220 °C	FF
144.2 ⁷⁾	Fire-safe metal seat	Stainless steel		
		ASTM A240 gr. 316L / 1.4404		
144.1 ⁷⁾	Plastomer seat	Pure PTFE	-50 °C to +220 °C	FI
144.2 ⁷⁾	Fire-safe metal seat	Stainless steel		
		ASTM A240 gr. 316L / 1.4404		
144.1 ⁷⁾	Plastomer seat	PTFE, glass fibre reinforced	-50 °C to +220 °C	FD
144.2 ⁷⁾	Fire-safe metal seat	Stainless steel		
		INCONEL 600		
41-2 ⁶⁾ 5)	Static seal	Graphite, expanded		
550	Valve disc	Stainless steel	-50 °C to +260 °C	6
		ASTM A351 gr. CF8M / 1.4408		
		Stainless steel	-50 °C to +260 °C	6t
		ASTM A 351 gr. CF3M / 1.4409		

⁵⁾ Guiding elements spare parts kit

⁶⁾ Stem seal spare parts kit

⁷⁾ Seat ring spare parts kit

Part number	Description	Materials	Temperature	KSB code
		Stainless steel	-50 °C to +260 °C	6m
		ASTM A 351 gr. CF3M Mo > 2,75		
		High-strength stainless steel	-50 °C to +260 °C	7d
		ASTM A351 gr. CK3MCuN (254SMO®)		
		Aluminium bronze	-50 °C to +260 °C	2
		ASTM B148 gr. C95800		
72-3	Retaining flange	Stainless steel		
932 ⁷⁾	Upper circlip	Stainless steel		
937 ⁷⁾	Retaining wire	Stainless steel		

List of components, model with elastomer seat / DN 50 - 1200

Part number	Description	Materials	Temperature	KSB code
01-48 ⁶⁾⁵⁾	Gland packing	PTFE	-50 °C to +260 °C	
144.1 ⁸⁾	Elastomer seat	VITON® (FKM) (ΔP = 16 bar max)	-5 °C to +100 °C	VD
		Nitrile (NBR) (ΔP = 16 bar max)	-10 °C to +100 °C	KD
41-2 ⁶⁾⁵⁾	Static seal	PTFE	-50 °C to +260 °C	
72-3	Retaining flange	Carbon steel	-29 °C to +260 °C	
550	Valve disc	Stainless steel	-50 °C to +260 °C	6
		ASTM A351 gr. CF8M / 1.4408		
		Stainless steel	-50 °C to +260 °C	6t
		ASTM A351 gr. CF3M / 1.4409		
		Available up to DN 450 (18")		
		Stainless steel	-50 °C to +260 °C	6m
		ASTM A351 gr. CF3M Mo > 2.75		
		Available up to DN 450 (18")		
		High-strength stainless steel	-50 °C to +260 °C	7d
		ASTM A351 gr. CK3MCuN (254SMO®)		
		Aluminium bronze	-29 °C to +260 °C	2
		ASTM B148 gr. C95800		
		Available up to DN 800 (32")		
932 ⁷⁾	Upper circlip	Stainless steel		

List of components, model with metal seat / DN 50 - 600

Part number	Description	Materials	Temperature	KSB code
01-48 ⁶⁾⁵⁾	Gland packing	Graphite, expanded / PTFE (optional)		
144.1 ⁷⁾	Metal seat	Stainless steel 301 / 1.4310	-50 °C to +260 °C	6a
41-2 ⁶⁾⁵⁾	Static seal	Graphite, expanded / PTFE (optional)		
550	Valve disc	Stainless steel	-50 °C to +260 °C	6
		ASTM A351 gr. CF8M / 1.4408		
		Hard chrome plated		
72-3	Retaining flange	Stainless steel		
932 ⁷⁾	Upper circlip	Stainless steel		

List of components, yoke and gland follower / DN 50 - 1200

Part No.	Description	DN	Material
143	Yoke	50-1200	Sherardised steel
452	Gland follower	50-1200	Stainless steel
554	Washer	50-1200	Stainless steel

⁸⁾ Seat ring spare parts kit

Part No.	Description	DN	Material
901.1	Hexagon head bolt	50-1200	Stainless steel A4-70
902	Stud	50-1200	Stainless steel A4-70
920	Hexagon nut	50-1200	Stainless steel A4-70

List of neck extension components (option)

Part number	Description	DN	Materials
13-21	Extension	50-600	Stainless steel
		80-800	Nodular cast iron
		80-800	Aluminium bronze
			ASTM B148 gr. C95800
310.3 ⁶⁾⁵⁾	Lower plain bearing	350-600	Stainless steel + PTFE
412.1 ⁶⁾⁵⁾	O-ring	50-600	VITON® (FKM)
412.2 ⁶⁾⁵⁾	O-ring	50-600	VITON® (FKM)
412.3 ⁶⁾⁵⁾	O-ring	50-600	VITON® (FKM)
901.1	Hexagon head bolt	50-600	Stainless steel A4-70

List of components, details of aluminium bronze variant

Upper protection

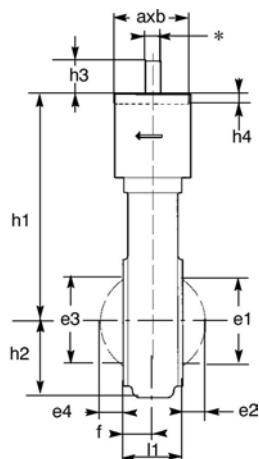
Part number	Description	DN	Materials
314	Thrust bearing	50 - 800	Aluminium bronze
412.4 ⁶⁾⁵⁾	O-ring	50 - 800	VITON® (FKM)
412.5 ⁶⁾⁵⁾	O-ring	50 - 800	VITON® (FKM)
559.1 ⁶⁾⁵⁾	Seal retainer	50- 800	Aluminium bronze

Lower protection

Part number	Description	DN	Materials
412.6 ⁶⁾⁵⁾	O-ring	350 - 800	VITON® (FKM)
412.7 ⁶⁾⁵⁾	O-ring	350 - 800	VITON® (FKM)
41-2 ⁶⁾⁵⁾	Static seal	50 - 800	Graphite
543 ⁵⁾	Spacer bush	350 - 800	Aluminium bronze
553 ⁵⁾	Lower thrust insert	350 - 800	Aluminium bronze
559.2 ⁶⁾⁵⁾	Seal retainer	350 - 800	Aluminium bronze

Dimensions

Wafer-type body with flat faces -T1



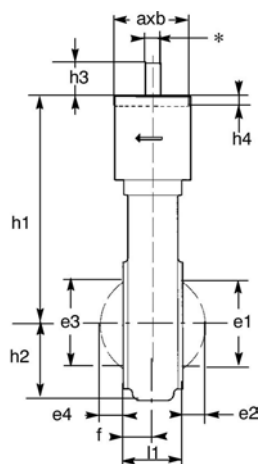
* Flat end s in Ø z or Ø s

Dimensions in mm

DN	NPS	l1	h1 ⁹⁾	h2	f	Top flange to ISO 5211		a	b	Square stem end		Flat stem end			Valve disc open			
						No.	h4			Ø s	h3	Ø 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	2½	46	175	60	23,0	F05	5	55	105	-	-	11	14	24	41	6	48	9
80	3	46	185	68	24,0	F05	5	55	105	-	-	11	14	24	59	13	61	15
100	4	54	200	82	27,0	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	38,0	F12	5	120	190	25	45	-	-	-	225	82	230	80
300	12	80	365	230	42,0	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	61,0	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
550 ³⁾	22	146	634	422	73	F25	8	275	320	50	65	-	-	-	495	189	489	179
600	24	154	660	455	77,0	F25	8	275	320	50	65	-	-	-	546	201	546	211
650	26	165	720	511	82,5	F25	8	300	320	55	80	-	-	-	585	222	606	232
700	28	165	750	537	82,5	F25	8	300	320	60	80	-	-	-	619	238	640	248
750	30	190	780	569	95,0	F25	8	300	320	60	80	-	-	-	663	250	688	262
800	32	190	810	599	95,0	F25	8	300	320	70	110	-	-	-	715	275	740	287
900	36	203	930	657	101,5	F30	10	320	400	70	110	-	-	-	821	322	845	333
1000	40	216	1000	730	108,0	F30	10	320	400	80	111	-	-	-	914	362	942	376
1200	48	254	1170	860	127,0	F35	12	380	500	90	110	-	-	-	1070	423	1103	439

⁹⁾ In the standard design, h1 is identical for the yoke and for the extension option.

Full-lug body - T3/T4



* Flat end s in Ø z or Ø s

Dimensions in mm

DN	NPS	l1	h1 ⁹⁾	h2	f	Top flange to ISO 5211		a	b	Square stem end		Flat stem end			Valve disc open			
						No.	h4			Square end 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 ¹⁰⁾	2½	46	175	67	23,0	F05	5	55	105	-	-	11	14	24	41	6	48	9
65 ¹¹⁾	2½	46	175	82	23,0	F05	5	55	105	-	-	11	14	24	41	6	48	9
80 ¹²⁾	3	46	185	70	24,0	F05	5	55	105	-	-	11	14	24	59	13	61	15
80 ¹³⁾	3	46	185	89	24,0	F05	5	55	105	-	-	11	14	24	59	13	61	15
100	4	54	200	104	27,0	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 ¹⁴⁾	8	62	290	157	34,5	F10	5	95	145	-	-	19	25	35	177	62	175	59
200 ¹⁵⁾	8	62	290	169	34,5	F10	5	95	145	-	-	19	25	35	177	62	175	59
250	10	70	335	205	38,0	F12	5	120	190	25	45	-	-	-	225	82	230	80
300 ¹⁶⁾	12	80	365	230	42,0	F12	5	120	190	27	45	-	-	-	265	96	266	98
300 ¹⁷⁾	12	80	365	235	42,0	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	61,0	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
550 ³⁾	22	146	634	422	73,0	F25	8	275	320	50	65	-	-	-	495	189	489	179
600	24	154	660	455	77,0	F25	8	275	320	50	65	-	-	-	546	201	546	211
650	26	165	720	511	82,5	F25	8	300	320	55	80	-	-	-	585	222	606	232
700	28	165	750	537	82,5	F25	8	300	320	60	80	-	-	-	619	238	640	248
750	30	190	780	569	95,0	F25	8	300	320	60	80	-	-	-	663	250	688	262
800	32	190	810	599	95,0	F25	8	300	320	70	110	-	-	-	715	275	740	287
900	36	203	930	657	101,5	F30	10	320	400	70	110	-	-	-	821	322	845	333
1000	40	216	1000	730	108,0	F30	10	320	400	80	111	-	-	-	914	362	942	376
1200	48	254	1170	860	127,0	F35	12	380	500	90	110	-	-	-	1070	423	1103	439

¹⁰⁾ Installed between flanges EN 1092-1 PN 10 and 16 - 4 holes, ASME B16-5 Cl. 150 and JIS B2220 10K

¹¹⁾ Installed between flanges EN 1092-1 PN 10 and 16 - 8 holes, PN 25 and JIS B2220 16K and 20K

¹²⁾ Installed between flanges ISO 7005 PN 20 and ASME B16-5 Cl. 150

¹³⁾ Installed between flanges EN 1092 PN 10, 16, 25 and JIS B2220 10K, 16K, 20K

¹⁴⁾ Installed between flanges EN 1092-1 PN 10 and ASME B16-5 Cl. 150

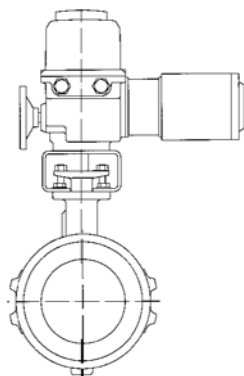
¹⁵⁾ Installed between flanges EN 1092-1 PN 16, 25 and JIS B2220 10K, 16K, 20K

¹⁶⁾ Installed between flanges EN 1092-1 PN 10, 16 and ASME B16-5 Cl. 150

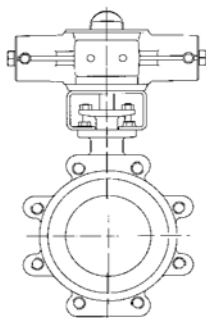
¹⁷⁾ Installed between flanges EN 1092-1 PN 25 and JIS B2220 10K, 16K, 20K

Variants

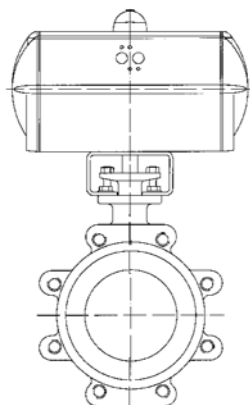
ACTELEC electric actuator



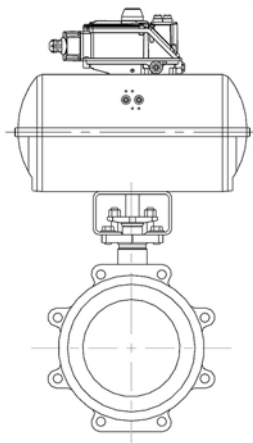
HQ hydraulic actuator



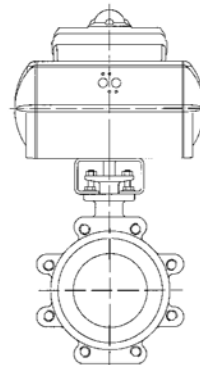
ACTAIR pneumatic actuator



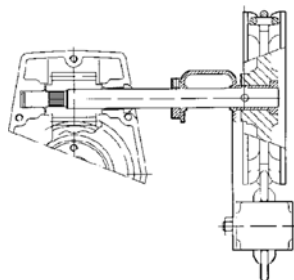
**ACTAIR + AMTRONIC
ACTAIR + SMARTRONIC
positioner**



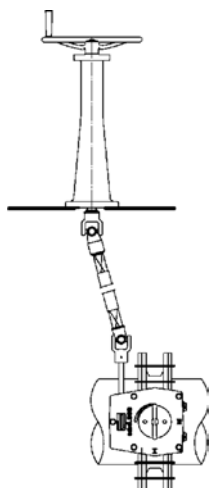
**ACTAIR +
AMTROBOX, AMTROBOX S, AMTROBOX R,
AMTROBOX EEx-ed, AMTROBOX EEx-ia**



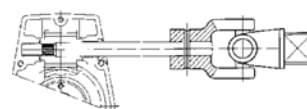
Chain wheel



Deck stand



Cardan connection



Installation instructions

Connections

The valves can be installed between flanges to EN 1092-1 PN 10, PN 16 and PN 25, ASME B16.5 Class 150, JIS B2220 10K, 16K and 20K (other line connections on request).

Wafer-type body with flat faces -T1

DN	NPS	EN 1092			ASME		JIS B2220			
		PN 10	PN 16	PN 25	B16.5 Cl.150	B16.47 Cl.150 Series A	5k	10K	16K*	20K
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 ³⁾	22	•	•	•	✓	•	✓•	✓•	✓•	✓•
600	24	✓	✓	✓	✓	•	✓•	✓	✓	✓
650	26	•	•	•	•	✓	✓•	✓	✓	•
700	28	✓	✓	✓	•	✓	✓•	✓	✓	•
750	30	•	•	•	•	✓	✓•	✓	✓	•
800	32	✓	✓	✓	•	✓	✓•	✓	✓	•
900	36	✓	✓	✓	•	✓	☒	✓	✓	•
1000	40	✓	✓	✓	•	✓	☒	✓	✓	•
1200	48	✓	✓	✓	•	✓	☒	✓	✓	•

Full-lug body - T3*/T4

DN	NPS	EN 1092			ASME		JIS B2220			
		PN 10	PN 16	PN 25	B16.5 Cl.150	B16.47 Cl.150 Series A	5k	10K	16K*	20K
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 ³⁾	22	•	•	•	✓	•	✓	✓	✓	✓
600	24	✓	✓	✓	✓	•	☒	☒	☒	☒
650	26	•	•	•	•	✓	✓	✓	☒	•
700	28	✓	✓	☒	•	✓	✓	✓	☒	•
750	30	•	•	•	•	✓	✓	✓	☒	•
800	32	✓	✓	☒	•	✓	✓	✓	☒	•
900	36	✓	✓	☒	•	✓	☒	✓	☒	•
1000	40	✓	✓	☒	•	✓	☒	✓	☒	•
1200	48	✓	✓	☒	•	✓	☒	✓	☒	•

*: body type T3 = from DN 50 to 800 only

Key

Symbol	Description	Symbol	Description
✓	Installation possible	•	Non-standardised connection
☞	Contact KSB.	16K*	To JIS B2238 DN > 24"

Dead-end service and downstream dismantling

Downstream dismantling



Dead-end service



Use of standard valves for dead-end service or downstream dismantling:

- Line connection type T1 (wafer-type): dead-end service or downstream dismantling not permitted
- Line connection types T3 and T4 (full-lug-type): dead-end service or downstream dismantling permitted

DANAIS 150 valves	Gas or liquids*		Liquids	
	Hazardous (Group 1)	Non-hazardous (Group 2)	Hazardous (Group 1)	Non-hazardous (Group 2)
Class 150 **	All DN:	All DN:	All DN:	All DN:
PN 25 **	Not permitted	$\Delta PS = 15 \text{ bar max.}$	$\Delta PS = 15 \text{ bar max.}$	$\Delta PS = 15 \text{ bar max.}$

ΔPS : Differential pressure

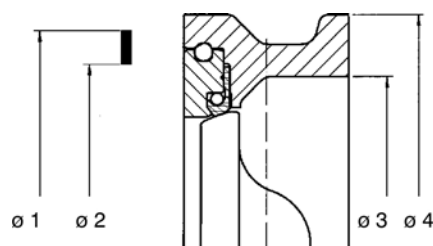
* Liquids whose vapour pressure at the max. permissible temperature is at least 0.5 bar higher than the normal atmospheric pressure (1013 mbar)

** If the stem is made of AISI 316L, ΔPS is limited to 10 bar max..

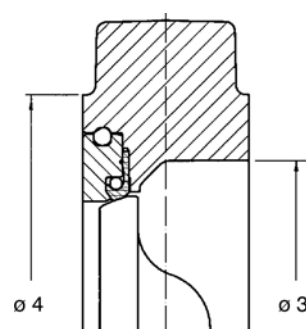
Note: A valve installed at the end of a pipeline and closed with a blind flange must not be regarded as a dead-end valve.

Definition of sealing element

Wafer-type body with flat faces - T1



Full-lug body - T3*/T4

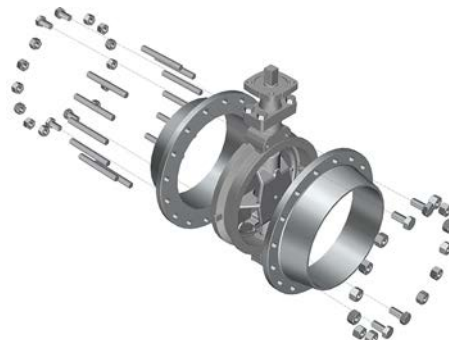
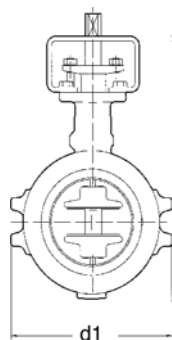


DN	NPS	Sealing element					Connections	
		Minimum dimensions		Maximum dimensions			T1	T3*/T4
		Max. ID	Min. OD	Min. ID	Min. OD			
		Ø 2	Ø 1	Ø 3	Ø 4 - T1	Ø 4 - T3*/T4		
50	2	69,6	84,6	62,0	90,5	91,0	PN 10/16/25 - ASME B16.5 Cl.150 - JIS 10K/16K/20K	
65	2½	83,6	98,6	75,0	108,0	104,0	PN 10/16 - ASME B16.5 Cl.150 - JIS 10K	
						117,0	PN 25 - JIS 16K/20K	
80	3	101,2	116,6	91,0	125,0	126,0	ASME B16.5 Cl.150	
						131,0	PN 10/16/25 - JIS 10K/16K/20K	
100	4	126,6	142,6	117,0	154,0	156,5	PN 10/16/25 - ASME B16.5 Cl.150 - JIS 10K/16K/20K	
125	5	153,6	169,6	144,0	183,0	185,0	PN 10 - ASME B16.5 Cl.150	
150	6	180,6	199,1	171,0	214,0	215,0		
200	8	231,5	253,5	222,0	267,0	269,0		
						265,0		
250	10	286,9	305,5	275,0	321,5	323,0	PN 10/16/25 - ASME B16.5 Cl.150 - JIS 10K/16K/20K	
300	12	339,3	358,5	327,0	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	359,0	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	410,0	467,5	469,0	PN 10/16/25 - ASME B16.5 Cl.150 - JIS 10K/16K/20K	
450	18	478,5	510,0	461,0	530,5	532,5	JIS 5k/10k/16k	
500	20	528,0	562,0	512,0	581,5	583,5		
550 ³⁾	22	620,0	635,0		556	-		
600	24	635,0	671,0	614,0	689,5	691,5	PN 10/16/25 - ASME B16.5 Cl.150 - JIS 10K/16K/20K	
650	26	673,0	705,0	654,0	740,0	747,0	ASME B16.47 Cl.150 Series A - JIS 10K/16K	
700	28	722,0	756,0	704,0	794,0	794,0	PN 10/16/25 - ASME B16.47 Cl.150 Series A - JIS 10K/16K	
						798,0	PN 10/16/25 - ASME B16.47 Cl.150 Series A - JIS 10K/16K	
750	28	774,0	807,0	754,0	855	853,0	ASME B16.47 Cl.150 Series A - JIS 10K/16K	
						855,0	ASME B16.47 Cl.150 Series A	
800	32	830,0	864,0	804,0	899,0	899,0	PN 10/16/25 - ASME B16.47 Cl.150 Series A - JIS 10K/16K	
						912,0	ASME B16.47 Cl.150 Series A - JIS 10K	
900	36	930,0	964,0	904,0	999,0	999,0	PN 10/16/25 - ASME B16.47 Cl.150 Series A - JIS 10K/16K	
						1020,0	ASME B16.47 Cl.150 Series A	
1000	40	1030,0	1074,0	1004,0	1114,0	1114,0	PN 10/16/25 - ASME B16.47 Cl.150 Series A - JIS 10K/16K	
						1122,0	ASME B16.47 Cl.150 Series A	
1200	48	1232,0	1280,0	1205,0	1329,0	1329,0	PN 10/16/25 - ASME B16.47 Cl.150 Series A - JIS 10K/16K	
						1357,0	ASME B16.47 Cl.150 Series A	
Note:		For DN ≤ 600 we recommend to use spiral wound gaskets to ISO 7483 - PN 10 to 25.						
		For DN > 600 we recommend to use spiral wound gaskets to EN 1514-2.						

*: body type T3 = from DN 50 to 800 only

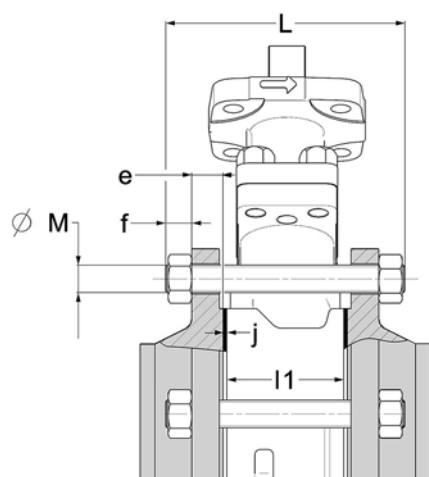
Bolting and weights

Wafer-type body with flat faces - T1



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

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



Tie rod length

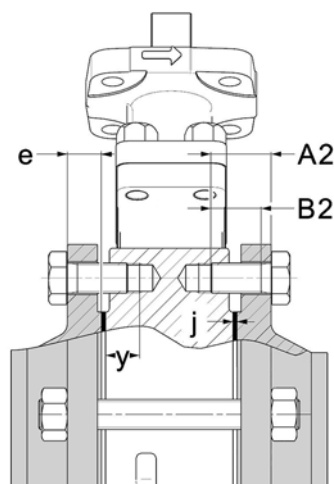
$$L = l1 + 2e + 2f + 2j$$

l1: face-to-face length of butterfly valve

e: flange thickness (customer-specific)

f: standardised tie rod overhang

j: flange gasket thickness



Bolt length at stem passage

$$A2 \max = e + Y + j$$

e: flange thickness (customer-specific)

Y: max. thread engagement depth

j: flange gasket thickness

B2: min. bolt thread length $B2 > A2 - e$

Wafer-type body with flat faces - T1

DN	NPS	I1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					Weights
				Ø M	Tie rod		Bolt A2		Ø M	Tie rod		Bolt A2		[kg]
					f	Qty	Y	Qty		f	Qty	Y	Qty	
50	2	43	104	M16	20	4	-	-	M16	20	4	-	-	3,2
65	2½	46	123	M16	20	4/8	-	-	M16	20	4/8	-	-	3,8
80	3	46	140	M16	20	8	-	-	M16	20	8	-	-	4,5
100	4	54	180	M16	20	8	-	-	M16	20	8	-	-	6,4
125	5	57	210	M16	20	8	-	-	M16	20	8	-	-	9,7
150	6	57	235	M20	24	8	-	-	M20	24	8	-	-	12,7
200	8	62	271	M20	24	8	-	-	M20	24	12	-	-	22,5
250	10	70	323	M20	24	12	-	-	M24	29	12	-	-	34,0
300	12	80	380	M20	24	12	-	-	M24	29	12	-	-	48,8
350	14	92	449	M20	24	16	-	-	M24	29	16	-	-	64,5
400	16	102	505	M24	29	16	-	-	M27	32	16	-	-	89,0
450	18	114	570	M24	29	16	32	4	M27	32	16	32	4	133,5
500	20	127	621	M24	29	16	35	4	M30	35	16	35	4	168
550	22	154	635	M27	32	16	42	4	M30	35	16	42	4	218
600	24	154	730	M27	32	16	40	4	M33	38	16	40	4	270,5
650	26	165	742	M27	32	20	39	4	M33	38	20	35	4	360
700	28	165	798	M27	32	20	39,5	4	M33	38	20	37	4	415
750	30	190	859	M30	35	20	47	4	M33	38	20	46	4	510
800	32	190	903	M30	35	20	47	4	M36	42	20	44	4	575
900	36	203	1003	M30	35	24	47	4	M36	42	24	44	4	725
1000	40	216	1118	M33	38	24	48	4	M39	45	24	48	4	930
1200	48	254	1333	M36	42	28	53	4	M45	52	28	52	4	1470,0

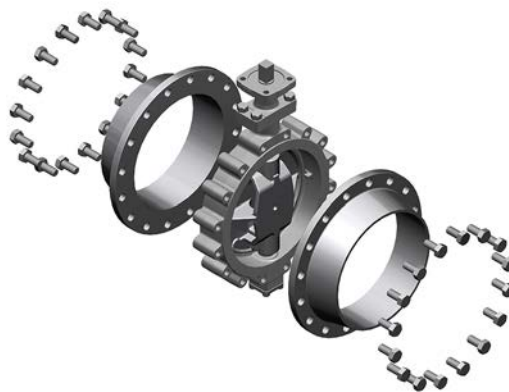
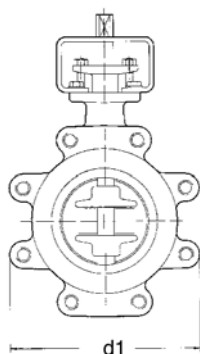
DN	NPS	I1	d1	EN 1092-1 PN 25					ASME B16.5 Class 150 For DN ≤ 600 ASME B16.47 Class 150 Series A For DN > 600					Weights
				Ø M	Tie rod		Bolt A2		*	Tie rod		Bolt A2		
					f	Qty	Y	Qty		f	Qty	Y	Qty	
50	2	43	104	M16	20	4	-	-	5/8"	20	4	-	-	3,2
65	2½	46	123	M16	20	8	-	-	5/8"	20	4	-	-	3,8
80	3	46	140	M16	20	8	-	-	5/8"	20	4	-	-	4,5
100	4	54	180	M20	24	8	-	-	5/8"	20	8	-	-	6,4
125	5	57	210	M24	29	8	-	-	3/4"	24	8	-	-	9,7
150	6	57	235	M24	29	8	-	-	3/4"	24	8	-	-	12,7
200	8	62	271	M24	29	12	-	-	3/4"	24	8	-	-	22,5
250	10	70	323	M27	29	12	-	-	7/8"	29	12	-	-	34,0
300	12	80	380	M27	32	16	-	-	7/8"	29	12	-	-	48,8
350	14	92	449	M30	35	16	-	-	1"	32	12	-	-	64,5
400	16	102	505	M33	38	16	-	-	1"	32	16	-	-	89,0
450	18	114	570	M33	38	16	31	4	1" 1/8	35	12	40	4	133,5
500	20	127	621	M33	38	16	42	4	1" 1/8	35	16	39	4	168,0
550	22	-	-	-	-	-	-	8	-	-	-	-	-	218
600	24	154	730	M36	42	16	46	4	1" 1/4	38	16	48	4	270,5
650	26	165	742	M36	42	20	34,5	4	1" 1/4	38	20	39	4	360
700	28	165	798	M39	45	20	37	4	1" 1/4	38	24	33,5	4	415,0
750	30	190	859	M39	45	20	44	4	1" 1/4	38	24	42	4	510
800	32	190	903	M45	52	20	45	4	1" 1/2	45	24	38	4	575,0
900	36	203	1003	M45	52	24	45	4	1" 1/2	45	28	40,5	4	725,0
1000	40	216	1118	M52	60	24	47	4	1" 1/2	45	32	43,5	4	930,0
1200	48	254	1333	M52	60	28	54	4	1" 1/2	45	40	47,5	4	1470,0

DN	NPS	I1	d1	JIS B2220 5K					JIS B2220 10K					Weights
				Ø M	Tie rod		Bolt A2		*	Tie rod		Bolt A2		[kg]
					f	Qty	Y	Qty		f	Qty	Y	Qty	
50	2	43	104	-	-	-	-	-	M16	20	4	-	-	3,2
65	2½	46	123	-	-	-	-	-	M16	20	4	-	-	3,8
80	3	46	140	M16	20	4	-	-	M16	20	8	-	-	4,5
100	4	54	180	M16	20	8	-	-	M16	20	8	-	-	6,4
125	5	57	210	M16	20	8	-	-	M20	24	8	-	-	9,7
150	6	57	235	M16	20	8	-	-	M20	24	8	-	-	12,7
200	8	62	271	M20	24	8	-	-	M20	24	12	-	-	22,5
250	10	70	323	M20	24	12	-	-	M22	26	12	-	-	34,0
300	12	80	380	M20	24	12	-	-	M22	26	16	-	-	48,8
350	14	92	449	M22	26	12	-	-	M22	26	16	-	-	64,5
400	16	102	505	M22	26	16	-	-	M24	29	16	-	-	89,0
450	18	114	570	M22	26	12	40	4	M24	29	16	32	4	133,5
500	20	127	621	M22	26	16	37	4	M24	29	16	35	4	168,0
550	22	-	-	M24	29	16	42	4	M30	35	16	47	4	218
600	24	154	730	M24	29	16	50	4	M30	35	20	38	4	270,5
650	26	165	742	M24	29	20	39,5	4	M30	35	20	37,5	4	360
700	28	165	798	M24	29	20	39,5	4	M30	35	20	38,5	4	415,0
750	30	190	859	M30	35	20	47	4	M30	35	20	47,0	4	510
800	32	190	903	M30	35	20	47	4	M30	35	24	41	4	575,0
900	36	203	1003	-	-	-	-	-	M30	35	24	47	4	725,0
1000	40	216	1118	-	-	-	-	-	M36	42	24	46,5	4	930,0
1200	48	254	1333	-	-	-	-	-	M36	42	28	53,0	4	1470,0

DN	NPS	I1	d1	JIS B2220 16K/20K for DN <= 600 JIS B2238 16K for DN > 600					Weights
				Ø M	Tie rod		Bolt A2		
					f	Qty	Y	Qty	[kg]
50	2	43	104	M16	20	8	-	-	3,2
65	2½	46	123	M16	20	8	-	-	3,8
80	3	46	140	M20	24	8	-	-	4,5
100	4	54	180	M20	24	8	-	-	6,4
125	5	57	210	M22	26	8	-	-	9,7
150	6	57	235	M22	26	12	-	-	12,7
200	8	62	271	M22	26	12	-	-	22,5
250	10	70	323	M24	29	12	-	-	34,0
300	12	80	380	M24	29	16	-	-	48,8
350	14	92	449	M30x3	35	16	-	-	64,5
400	16	102	505	M30x3	35	16	-	-	89,0
450	18	114	570	M30x3	35	16	32	4	133,5
500	20	127	621	M30x3	35	16	42	4	168,0
550	22	-	-	M36x3	42	16	46	4	218
600	24	154	730	M36x3	42	20	41	4	270,5
650	26	165	742	M36x3	42	20	38,5	4	360
700	28	165	798	M39x3	45	20	37	4	415,0
750	30	190	859	M39x3	45	20	48	4	510
800	32	190	903	M45x3	52	20	45	4	575,0
900	36	203	1003	M45x3	52	24	45	4	725,0
1000	40	216	1118	M52x3	60	24	47	4	930,0
1200	48	254	1333	M52x3	60	28	54	4	1470,0

* UN thread; bolts < 1": UNC thread

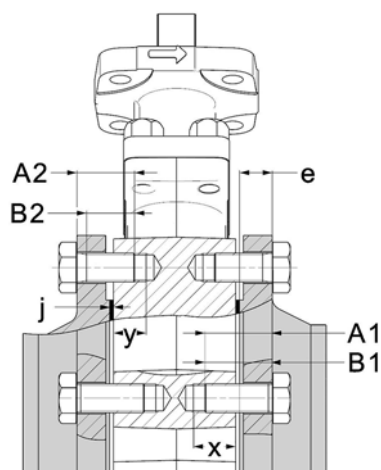
Full-lug body - T3/T4



The drawings do not indicate the exact product design

(number of lugs)

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



Bolt length

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

l1: face-to-face length of butterfly valve

e: flange thickness (customer-specific)

f: standardised tie rod overhang

j: flange gasket thickness

Bolt length at stem passage

$$A2 \max = e + Y + j$$

e: flange thickness (customer-specific)

Y: max. thread engagement depth

j: flange gasket thickness

B2: min. bolt thread length $B2 > A2 - e$

Full-lug body - T3/T4

DN	NPS	I1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					Weights
				Ø M	Tie rod		Bolt A2		Ø M	Tie rod		Bolt A2		[kg]
					f	Qty	Y	Qty		f	Qty	Y	Qty	
50	2	43	117	M16	20	4	-	-	M16	20	4	-	-	4,6
65	2½	46	131	M16	22	4	-	-	M16	22	4	-	-	5,2
65	2½	46	162	M16	22	8	-	-	M16	22	8	-	-	6,5
80	3	46	136	M16	20	8	-	-	M16	22	8	-	-	7,4
100	4	54	206	M16	24	8	-	-	M16	24	8	-	-	10,2
125	5	57	240	M16	24	8	-	-	M16	24	8	-	-	14,6
150	6	57	267	M20	27	8	-	-	M20	27	8	-	-	17,2
200	8	62	310	M20	30	8	-	-	-	-	-	-	-	25,5
200	8	62	338	-	-	-	-	-	M20	30	12	-	-	28,5
250	10	70	410	M20	30	12	-	-	M24	34	12	-	-	44,0
300	12	80	460	M20	30	12	-	-	M24	36	12	-	-	64,8
300	12	80	470	-	-	-	-	-	-	-	-	-	-	68,8
350	14	92	508	M20	30	16	-	-	M24	35	16	-	-	97,5
400	16	102	593	M24	34	16	-	-	M27	38	16	-	-	130,0
450	18	114	620	M24	32	20	-	-	M27	40	16	31	4	178,5
500	20	127	705	M24	35	20	-	-	M30	39	20	-	-	218,0
550	22	154	770	M27	54	16	42	4	M30	60	16	42	4	283,0
600	24	154	822	M27	40	20	-	-	M33	48	20	38	4	355,0
650	26	165	875	M27	46	20	39	4	M33	55	20	34,5	4	470,0
700	28	165	895	M27	46	20	39,5	4	M33	55	20	37	4	500,0
750	30	190	950	M30	50	20	47	4	M33	55	20	46	4	610,0
800	32	190	1010	M30	50	20	47	4	M36	59	20	44	4	680,0
900	36	203	1111	M30	50	20	47	4	M36	59	20	44	4	860,0
1000	40	216	1236	M33	55	24	48	4	M39	64	24	48	4	1140,0
1200	48	254	1470	M36	59	28	53	4	M45	73	28	52	4	1850,0

DN	NPS	I1	d1	EN 1092-1 PN 25					ASME B16.5 Class 150 For DN ≤ 600 ASME B16.47 Class 150 Series A For DN > 600					Weights
				Ø M	Tie rod		Bolt A2		*	Tie rod		Bolt A2		
					f	Qty	Y	Qty		f	Qty	Y	Qty	
50	2	43	117	M16	20	4	-	-	5/8"	20	4	-	-	4,6
65	2½	46	131	-	-	-	-	-	5/8"	22	4	-	-	5,2
65	2½	46	162	M16	22	8	-	-	-	-	-	-	-	6,5
80	3	46	136	M16	22	8	-	-	5/8"	22	4	-	-	7,4
100	4	54	206	M20	26	8	-	-	5/8"	24	8	-	-	10,2
125	5	57	240	M24	27	8	-	-	5/8"	27	8	-	-	14,6
150	6	57	267	M24	27	8	-	-	3/4"	27	8	-	-	17,2
200	8	62	310	-	-	-	-	-	3/4"	30	8	-	-	25,5
200	8	62	338	M24	30	12	-	-	3/4"	-	-	-	-	28,5
250	10	70	410	M27	30	12	-	-	7/8"	34	12	-	-	44,0
300	12	80	460	-	-	-	-	-	7/8"	36	12	-	-	64,8
300	12	80	470	M27	38	16	-	-	7/8"	-	-	-	-	68,8
350	14	92	508	M30	38	16	-	-	1"	37	12	-	-	97,5
400	16	102	593	M33	38	16	-	-	1"	38	16	-	-	130,0
450	18	114	620	M33	41	16	31	4	1" 1/8	40	16	-	-	178,5
500	20	127	705	M33	42	20	-	-	1" 1/8	39	20	-	-	218,0
550	22	154	770	-	-	-	-	-	-	-	-	-	-	283,0
600	24	154	822	M36	46	20	41	4	1" 1/4	48	20	-	-	355,0
650	26	165	875	M36	59	20	34,5	4	1" 1/4	55	20	35,5	4	470,0
700	28	165	895	Contact KSB.					1" 1/4	55	24	30	4	500,0
750	30	190	950	Contact KSB.					1" 1/4	55	24	39,5	4	610,0
800	32	190	1010	Contact KSB.					1" 1/2	64	24	38	4	680,0
900	36	203	1111	Contact KSB.					1" 1/2	64	28	37	4	860,0
1000	40	216	1236	Contact KSB.					1" 1/2	64	32	36	4	1140,0
1200	48	254	1470	Contact KSB.					1" 1/2	64	40	41,5	4	1850,0

DN	NPS	I1	d1	JIS B2220 5K					JIS B2220 10K					Weights
				Ø M	Tie rod		Bolt A2		*	Tie rod		Bolt A2		[kg]
					f	Qty	Y	Qty		f	Qty	Y	Qty	
50	2	43	117	-	-	-	-	-	M16	20	4	-	-	4,6
65	2½	46	131	-	-	-	-	-	M16	22	4	-	-	5,2
65	2½	46	162	-	-	-	-	-	-	-	-	-	-	6,5
80	3	46	176	M16	20	4	-	-	-	-	-	-	-	6,0
80	3	46	136	-	-	-	-	-	M20	22	8	-	-	6,0
100	4	54	206	M16	24	8	-	-	M16	24	8	-	-	10,2
125	5	57	240	M16	27	8	-	-	M20	27	8	-	-	14,6
150	6	57	267	M16	27	8	-	-	M20	27	8	-	-	17,2
200	8	62	310	M20	30	8	-	-	-	-	-	-	-	25,5
200	8	62	338	-	-	-	-	-	M20	30	12	-	-	25,5
250	10	70	410	M20	33	12	-	-	M22	33	12	-	-	44,0
300	12	80	470	M20	33	12	-	-	M22	33	12	-	-	64,8
300	12	80	470	-	-	-	-	-	-	-	-	-	-	87,7
350	14	92	508	M22	31	12	-	-	M22	31	16	-	-	87,7
400	16	102	593	M22	34	16	-	-	M24	34	16	-	-	130,0
450	18	114	620	M22	40	16	-	-	M24	32	20	-	-	163,5
500	20	127	705	M22	48	16	37	4	M24	35	20	-	-	218,0
550	22	154	635	M24	48	16	42	4	-	-	-	-	-	283,0
600	24	154	822	M24	50	16	50	4	Contact KSB.					355,0
650	26	165	875	M24	41	20	39	4	M30	50	20	36	4	470,0
700	28	165	895	M24	46	20	39	4	M30	50	20	37	4	500,0
750	30	190	950	M30	50	20	47	4	M30	50	20	47	4	610,0
800	32	190	1010	M30	50	20	47	4	-	-	-	-	-	680,0
800	32	190	1045	-	-	-	-	-	M30	50	24	39	4	750,0
900	36	203	1111	-	-	-	-	-	M30	50	24	47	4	860,0
1000	40	216	1236	-	-	-	-	-	M36	59	24	46,5	4	1140,0
1200	48	254	1470	-	-	-	-	-	M36	59	28	53,0	4	1850,0

DN	NPS	I1	d1	JIS B2220 16K/20K for DN <= 600 JIS B2238 16K for DN > 600					Weights
				Ø M	Tie rod		Bolt A2		
					f	Qty	Y	Qty	[kg]
50	2	43	117	Contact KSB.					4,6
65	2½	46	131	-	-	-	-	-	5,2
65	2½	46	162	M16	22	8	-	-	6,5
80	3	46	136	M20	22	8	-	-	6,0
100	4	54	206	M20	26	8	-	-	10,2
125	5	57	240	M22	27	8	-	-	14,6
150	6	57	267	Contact KSB.					17,2
150	6	57	288	M22	27	12	-	-	20,0
200	8	62	310	-	-	-	-	-	25,5
200	8	62	338	M22	30	12	-	-	25,5
250	10	70	410	M24	34	12	-	-	44,0
300	12	80	470	M24	36	16	-	-	64,8
350	14	92	508	M30x3	41	16	-	-	87,7
400	16	102	593	M30x3	40	16	-	-	130,0
450	18	114	620	M30x3	40	16	32	4	163,5
500	20	127	705	M30x3	40	16	-	-	218,0
550	22	154	635	-	-	-	-	-	283,0
600	24	154	822	Contact KSB.					355,0
650	26	165	875	M36x3	42	20	38,5	4	470,0
700	28	165	895	Contact KSB.					500,0
750	30	190	950	Contact KSB.					610,0
800	32	190	1010	Contact KSB.					680,0
800	32	190	1045	-	-	-	-	-	750,0
900	36	203	1111	Contact KSB.					860,0
1000	40	216	1236	Contact KSB.					1140,0
1200	48	254	1470	Contact KSB.					1850,0

* UN thread; bolts < 1": UNC thread



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