

Butterfly Valve

ISORIA 10/16

DN 40-1000

PS 10 bar: ISORIA 10

PS 16 bar: ISORIA 16

Type Series Booklet



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Type Series Booklet ISORIA 10/16

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Butterfly Valves

Centred-disc Butterfly Valves

ISORIA 10/16



Main applications

- Water extraction
- Chemical industry
- Cooling circuits
- Seawater desalination/reverse osmosis
- Flue gas desulphurisation
- Food and beverage industry
- Pulp and paper industry
- Spray irrigation systems
- Descaling units
- General irrigation systems
- Washing plants
- Paint shops
- Shipbuilding
- Mixing
- Mining
- Pipelines and tank farms
- Swimming pools
- Process engineering
- Sugar industry
- Pressure boosting
- Industrial recirculation systems
- Water treatment/conditioning
- Fire-fighting systems

Fluids handled

- Condensate
- Cleaning agents

- Distillate
- Wash water
- Seawater
- Service water
- Cooling water
- Fire-fighting water
- Drinking water
- Brackish water
- Grey water
- River water, lake and groundwater
- Abrasive fluids
- Aggressive fluids
- Fluids containing mineral oils
- Solids-laden fluids
- Fluids containing gas
- Corrosive fluids
- Explosive fluids
- Inorganic fluids
- Organic fluids
- Polymerising/crystallising fluids
- Radioactive fluids
- Toxic fluids
- Volatile fluids
- Gas
- Oil
- Brine
- Solvents

Operating data

Operating properties

Characteristic	Value	
	ISORIA 10	ISORIA 16
Nominal pressure	PN 10	PN 16
Nominal size	DN 40-1000	
Max. permissible pressure	10 bar	16 bar
Max. permissible temperature	+200 °C	
Min. permissible temperature	-10 °C	
Actuation at ΔP at ambient temperature:	max. 10 bar	max. 16 bar
Vacuum operation down to	0.3 bar absolute	
Max. permissible flow velocity at operating pressure	1.5 to 3 m/s (max.) for water	

Pressure limits of liner based on pressure/materials tables of liners

Design details

Design

- Wafer-type body with flat faces - T1: DN 40 - 1000
- Semi-lug body - T2: DN 40 - 600
- Full-lug body with flat faces - T3: DN 40 - 600

- Full-lug body with raised faces - T4: DN 40 - 600
- Flanged body with flat faces - T5: DN 150 - 1000
- Downstream dismantling possible with body types T2, T3, T4 and T5
- Dead-end service with counterflange possible with all body types
- Design to EN 593 and ISO 10631
- Top flange to ISO 5211
- 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.
- Face-to-face length to ISO 5752-20 and EN 558-1-20
- EN, ASME, JIS, AWWA connections possible.
- Body with polyurethane coating, thickness 80 µm, colour: RAL 5002, blue.
- Valve disc made of nodular cast iron, epoxy-coated, thickness 80 µm, colour: RAL 8012, brown
- 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).

Variants

- Valve cleaned and packaged, free from substances which impair the adhesive strength of paint
- S / SR / SP / CR / CM quarter-turn levers
- MN / MR manual gearboxes
- ACTELEC electric actuators
- ACTAIR / DYNACTAIR pneumatic actuators
- HQ hydraulic actuators
- AMTROBOX limit switch box
- AMTRONIC valve controller with compressed air supply via directional control valve
- SMARTRONIC intelligent positioner
- ATEX-compliant version in accordance with the 2014/34/EU Directive

Body materials

Overview of available materials

Material	Material number	Body	DN (max.)	KSB code
EN-GJL-250	JL 1040	T1	DN 40-600	3t
EN-JS1030 ASTM A536 gr. 60.40.18	JS 1030	T1	DN 650-1000	3g
EN-JS1030	JS 1030	T2	DN 40-600	3g
ASTM A 216 gr. CCC		T3	DN 40-600	1
EN-JS1030	JS 1030	T4	DN 40-600	3g
EN-JS1030	JS 1030	T5	DN 150-600	3g
EN-JS1030 ASTM A536 gr. 60.40.18	JS 1030	T5	DN 650-1000	3g

Product benefits

- Spherically machined valve disc with rounded sealing contour
 - ensures durable and permanently tight shut-off
- Splined or keyed connection between stem and valve disc
 - Dry stem, no contact with fluid handled
- Sealing to atmosphere and tight shut-off are ensured,
 - even when the actuator has been removed
- Marking indicates position of valve disc
- Stem and actuating stem in anti-blow out design with screw or circlip
 - Stem and actuator stem are retained in the body.
- Valve equipped with stainless steel bearings with reinforced PTFE coating
- The elastomer liner provides tight sealing at the flanged line connections, eliminating the need for a flange gasket.
- Valve certified to
 - ACS / DVGW / WRAS / BELGAQUA for drinking water applications, with EPDM elastomer liner
 - DVGW / NF ROB GAZ for mineral gas applications (ISORIA 10 only):
 - with EG liner: - 20 °C to +60 °C
 - with K liner: - 5 °C to +60 °C
- Valve actuation options:
 - Manual
 - Electric
 - Pneumatic
 - Hydraulic

Related documents

Other applicable documentation

Document	Reference number
Operating manual	8449.8

Purchase order specifications

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

Technical data
Max. permissible pressures for ISORIA 10 liners

DN	NPS	Max. permissible pressure PS [bar]			
		XA - XC - XV - K - Y - NH - CB	VA - VC	EG	CC - SK - NB
40-500	1½-20	10	10	10	6
550	22	10	10	/	/
600	24	10	10	10	6
650	26	10	/	/	/
700	28	10	6	/	/
750	30	10	/	/	/
800-1000	32-40	10	6	/	/

Max. permissible pressures for ISORIA 16 liners

DN	NPS	Max. permissible pressure PS [bar]	
		XA - XC - XV - K	Y
40-600	1½-24	16	16
650-1000	26-40	16	-

Vacuum resistance

DN	NPS	Liner mounting method	Minimum pressure	Maximum temperature	
			[bar absolute]	XV	Other liners
40-300	1½-12	Non-glued (standard)	$1,33 \cdot 10^{-5}$ (10^{-2} torr)	130 °C	80 °C
350-1000	14-40	Non-glued (standard)	0,3	130 °C	80 °C
350-1000	14-40	Glued (optional)	$1,33 \cdot 10^{-5}$ (10^{-2} torr)	80 °C	80 °C

Hydraulic characteristics

DN	NPS	Flow coefficient with disc fully open		Zeta
		Kvo	Cvo	
40	1½	53	62	1,46
50	2	133	154	0,56
65	2½	240	280	0,49
80	3	410	475	0,39
100	4	655	760	0,37
125	5	900	1044	0,48
150	6	1800	2090	0,25
200	8	3550	4120	0,20
250	10	7350	8453	0,12
300	12	9100	10465	0,16
350	14	11200	12880	0,19
400	16	14800	17020	0,19
450	18	19700	22655	0,17
500	20	25000	28750	0,16
550	22	31700	36455	0,15
600	24	36400	41860	0,16
650	26	37700	43730	0,20
700	28	47500	55100	0,17
750	30	51500	59740	0,19
800	32	63500	73660	0,16
900	36	84700	98250	0,15
1000	40	108500	125860	0,14

Actuating torques (in Nm)

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

ISORIA 10

DN	NPS	Liners XA, XC, XV, K with lubricating fluid	All liners with non-lubricating fluid and ¹⁾
40	1½	8	20
50	2	16	30
65	2½	24	40
80	3	32	50
100	4	48	70
125	5	64	100
150	6	104	140
200	8	136	210
250	10	198	330
300	12	342	520
350	14	450	720
400	16	585	980
450	18	720	1200
500	20	900	1500
550	22	1080	1800
600	24	1260	2100
650	26	1700	2600
700	28	2000	3000
750	30	2300	3500
800	32	2600	4000
900	36	3400	5000
1000	40	4100	6000

ISORIA 16

DN	NPS	Liners XA, XC, XV, K with lubricating fluid only
40	1½	16
50	2	24
65	2½	32
80	3	40
100	4	56
125	5	80
150	6	112
200	8	168
250	10	297
300	12	468
350	14	648
400	16	882
450	18	1080
500	20	1350
550	22	1620
600	24	1890
650	26	3200
700	28	3600
750	30	3900
800	32	4000
900	36	5000
1000	40	6000

1) Other liners (except XA, XC, XV, K) with lubricating fluid

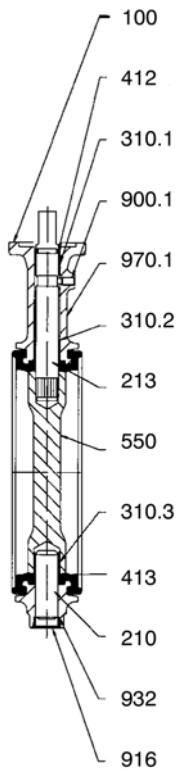
Materials

DN 40-1000

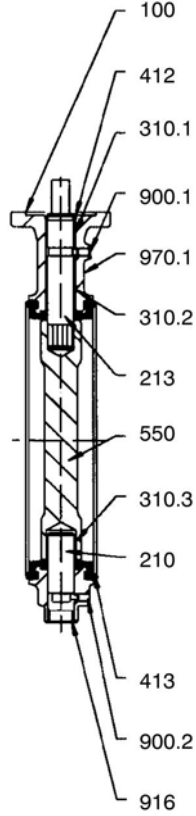
Sectional drawing

DN 40 - 200

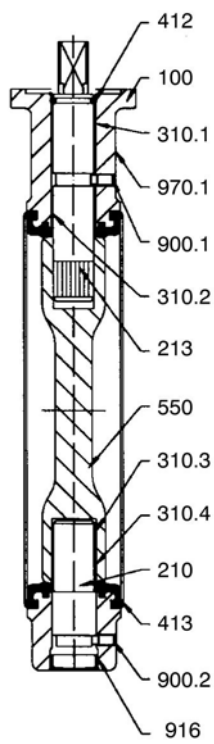
Parts 310.1, 310.2,
 310.3 on DN 200 only



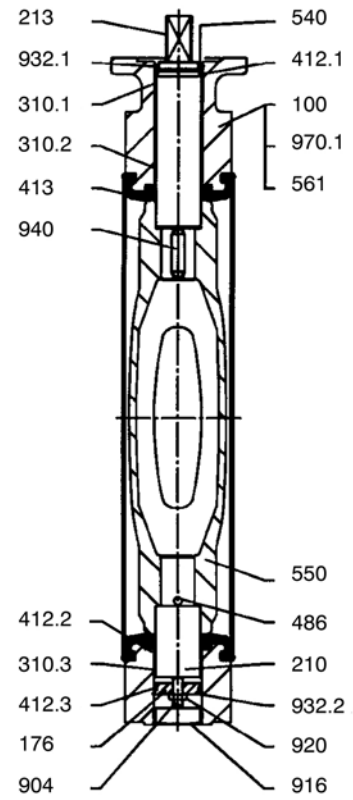
DN 250 - 300



DN 350 - 600



DN 650 - 1000



List of components

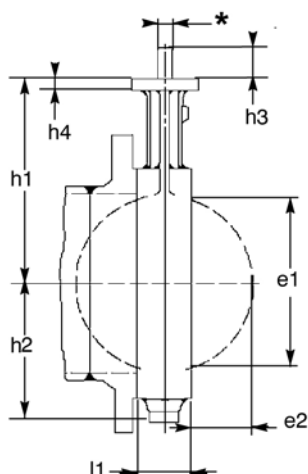
Part No.	Description	DN	Materials	KSB code
100	Body T1	40 - 600	Lamellar graphite cast iron JL1040	3t
100	Body T1	650 - 1000	Nodular cast iron JS1030 ASTM A536 Gr. 60.40.18	3g
100	Body T2	40 - 600	Nodular cast iron JS1030	3g
100	Body T3	40 - 600	Steel	1
100	Body T4	40 - 600	Nodular cast iron JS1030	3g
100	Body T5	150 - 600	Nodular cast iron JS1030	3g
100	Body T5	650 - 1000	Nodular cast iron JS1030 ASTM A536 Gr. 60.40.18	3g
176	Bottom	650 - 1000	Steel	
210 ²⁾	Stem	40 - 600	Stainless steel 1.4029 (13% Cr)	6k
210 ²⁾	Stem	650 - 1000	Stainless steel 1.4028 (13% Cr)	6k
210 ²⁾	Stem	40 - 600	Stainless steel 1.4057 (17% Cr)	6e
210 ²⁾	Stem	650 - 1000	Stainless steel 1.4057 (17% Cr)	6e
213 ²⁾	Actuating stem	40 - 600	Stainless steel 1.4029 (13% Cr)	6k
213 ²⁾	Actuating stem	650 - 1000	Stainless steel 1.4028 (13% Cr)	6k
213 ²⁾	Actuating stem	40 - 600	Stainless steel 1.4057 (17% Cr)	6e
213 ²⁾	Actuating stem	650 - 1000	Stainless steel 1.4057 (17% Cr)	6e
310.1 ²⁾	Plain bearing	200 - 1000	Steel with reinforced PTFE coating	
310.2 ²⁾	Plain bearing	200 - 1000	Steel with reinforced PTFE coating	
310.3 ²⁾³⁾	Plain bearing	200 - 1000	Steel with reinforced PTFE coating	
310.4 ²⁾³⁾	Plain bearing	350 - 600	Steel with reinforced PTFE coating	
412 ²⁾³⁾⁴⁾	O-ring	40 - 600	Nitrile	
412.1 ²⁾³⁾⁴⁾	O-ring	650 - 1000	Nitrile	
412.2 ²⁾³⁾⁴⁾	O-ring	650 - 1000	Nitrile	
412.3 ²⁾³⁾⁴⁾	O-ring	650 - 1000	Nitrile	
413 ⁴⁾	Liner	40 - 1000	EPDM	XA
413 ⁴⁾	Liner	40 - 1000	EPDM suitable for drinking water	XC
413 ⁴⁾	Liner	40 - 1000	EPDM, heat-resistant	XV
413 ⁴⁾	Liner	40 - 1000	High-grade Nitrile	K
413 ⁴⁾	Liner	40 - 1000	Carboxylated Nitrile	CB ⁵⁾
413 ⁴⁾	Liner	40 - 1000	Carboxylated Nitrile, white	CC ⁵⁾
413 ⁴⁾	Liner	40 - 1000	HYPALON (chlorosulfonated) polyethylene	Y
413 ⁴⁾	Liner	40 - 1000	VITON, acid-resistant fluoroelastomer	VA ⁵⁾
413 ⁴⁾	Liner	40 - 1000	VITON, heat-resistant fluoroelastomer	VC ⁵⁾
413 ⁴⁾	Liner	40 - 1000	Epichlorohydrin	EG ⁵⁾
413 ⁴⁾	Liner	40 - 1000	Silicone, heat-resistant	SK ⁵⁾
413 ⁴⁾	Liner	40 - 1000	Polybutadiene natural rubber	NB ⁵⁾
413 ⁴⁾	Liner	40 - 1000	HNBR hydrogenated Nitrile butadiene rubber	NH ⁵⁾
486 ²⁾	Ball	650 - 1000	Steel	
540 ²⁾³⁾⁴⁾	Bush	650 - 1000	Acetal	
550 ³⁾	Valve disc	40 - 1000	Nodular cast iron JS1030	3g
550 ³⁾	Valve disc	650 - 1000	Nodular cast iron JS1030 ASTM A536 Gr. 60.40.18	3g
550 ³⁾	Valve disc	40 - 600	Nodular cast iron JS1030, Halar-coated	3a
550 ³⁾	Valve disc	40 - 1000	Nodular cast iron JS1030, Ebonite-coated	3p ⁵⁾
550 ³⁾	Valve disc	40 - 1000	Nodular cast iron JS1030, Rilsan-coated	3r ⁵⁾
550 ³⁾	Valve disc	40 - 300	Nodular cast iron JS1030, EPDM-coated	3x ⁵⁾
550 ³⁾	Valve disc	40 - 200	Stainless steel 1.4401	6
550 ³⁾	Valve disc	250 - 1000	Stainless steel 1.4408 / ASTM A351 Gr. CF8M	6
550 ³⁾	Valve disc	40 - 200	Stainless steel 1.4401, polished	6i

- 2) Stem spare parts kit
3) Valve disc spare parts kit
4) Liner spare parts kit
5) For ISORIA 10 only

Part No.	Description	DN	Materials	KSB code
550 ³⁾	Valve disc	250 - 600	Stainless steel 1.4408 / ASTM A351 Gr. CF8M, polished	6i
550 ³⁾	Valve disc	40 - 1000	Aluminium bronze CC333G	2
550 ³⁾	Valve disc	40 - 1000	ASTM A890 Gr. CD4MCu, equivalent of NORIDUR	5a ⁵⁾
550 ³⁾	Valve disc	40 - 1000	ASTM A890 Gr. CE3MN, equivalent of NORICLOR	5g ⁵⁾
550 ³⁾	Valve disc	40 - 1000	Stainless steel, austenitic, URANUS B6	6u ⁵⁾
550 ³⁾	Valve disc	40 - 1000	HASTELLOY C	7c ⁵⁾
561	Half round head grooved pin	650 - 1000	Stainless steel	
900.1 ²⁾³⁾⁴⁾	Stem anti-blow out device (screw)	40 - 1000	Stainless steel	
900.2 ²⁾³⁾⁴⁾	Stem anti-blow out device (screw)	250 - 1000	Stainless steel	
904 ²⁾	Adjusting screw	650 - 1000	Steel	
916 ²⁾³⁾⁴⁾	Plug	40 - 1000	Polyethylene	
920 ²⁾	Nut	650 - 1000	Galvanised steel	
932 ²⁾³⁾⁴⁾	Serrated washer	40 - 200	Steel	
932.1 ²⁾³⁾⁴⁾	Circlip	650 - 1000	Steel	
932.2 ²⁾³⁾⁴⁾	Circlip	650 - 1000	Steel	
940 ²⁾	Key	650 - 1000	Steel	
970.1	Name plate	40 - 600	Adhesive polyester	
970.1	Name plate	650 - 1000	Stainless steel	

Dimensions

Drawings



* Flat ends in $\varnothing z$ or $\sphericalangle s$

Dimensions

[mm]

DN	NPS	l1	h1	h2	Top flange to ISO 5211		Stem end Flat end				Stem end Square end		Valve disc	
					No.	h4	s	$\varnothing z$	h3	$\sphericalangle s$	h3	e1	e2	
40	1½	33	105	51	F05	10	11	14	24	/	/	32	4	
50	2	43	109	55	F05	10	11	14	24	/	/	33	4	
65	2½	46	136	67	F05	10	11	14	24	/	/	55	11	
80	3	46	142	73	F05	10	11	14	24	/	/	71	17	
100	4	52	163	92	F05	10	14	18	24	/	/	90	23	
125	5	56	176	105	F05	10	14	18	30	/	/	119	35	
150	6	56	194	120	F07	12	14	18	30	/	/	144	46	
200	8	60	222	150	F07	12	19	25	35	/	/	196	69	
250	10	68	255	194	F10	15	19	25	35	/	/	249	92	
300	12	78	282	226	F12	18	22	28	40	/	/	297	111	
350	14	78	335	269	F12	23	/	/	/	25	45	326	127	
400	16	102	380	298	F14	23	/	/	/	36	55	370	140	
450	18	114	410	329	F14	23	/	/	/	36	55	422	160	
500	20	127	440	359	F14	27	/	/	/	36	55	470	178	
550	22	154	475	406	F16	27	/	/	/	50	65	522	195	
600	22	154	495	439	F16	27	/	/	/	50	65	566	215	
650	26	165	535	451	F16	26	/	/	/	50	65	620	235	
700	28	165	560	482	F16	26	/	/	/	50	65	671	260	
750	30	190	590	513	F16	26	/	/	/	50	65	717	273	
800	32	190	615	546	F16	26	/	/	/	50	65	769	298	
900	36	203	665	588	F25	30	/	/	/	60	80	869	341	
1000	40	216	735	646	F25	30	/	/	/	60	80	970	385	

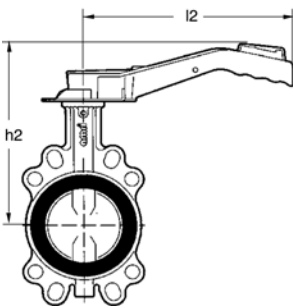
Manual actuation

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

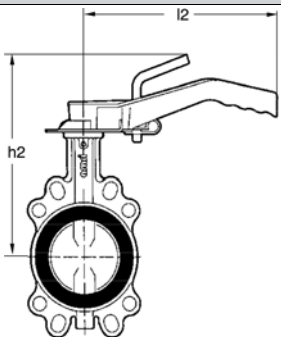
For valves handling non-lubricating fluids (gas), a max. flow velocity of 50 m/s applies.

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

Levers S - SR

Lever S ▪ Can be locked in end positions	DN	NPS	Max. velocity [m/s]	Levers S + SR with all fluids		
				l2 [mm]	h2 [mm]	Weight ⁶⁾ [kg]
	40	1½	3,0	180	160	0,5
	50	2	3,0	180	165	0,5
	65	2½	3,0	180	191	0,5
	80	3	3,0	180	197	0,5
	40	1½	3,0	260	180	0,6
	50	2	3,0	260	185	0,6
	65	2½	3,0	260	211	0,6
	80	3	3,0	260	217	0,6
	100	4	3,0	330	248	0,7
	125	5	3,0	330	262	0,7
	150	6	3,0	330	279	0,7

Lever SP

Lever SP ▪ Can be locked in all positions	DN	NPS	Max. velocity [m/s]	Lever SP with all fluids		
				l2 [mm]	h2 [mm]	Weight ⁶⁾ [kg]
	40	1½	3,0	260	205	0,7
	50	2	3,0	260	210	0,7
	65	2½	3,0	260	236	0,7
	80	3	3,0	260	242	0,7
	100	4	3,0	330	263	0,8
	125	5	3,0	330	277	0,8
	150	6	3,0	330	294	0,8

6) The weights given refer to the actuating element.
7) High actuating torque, manual gearbox recommended

Levers CR - CM

	DN	NPS	Max. velocity	Levers CR - CM				
				l1	d1	l2	h5	Weight ⁶⁾
			[m/s]	[mm]	[mm]	[mm]	[mm]	[kg]
	40	1½	3,0	33	108	CR165	175	0,8
	50	2	3,0	43	118	CR165	179	0,8
	65	2½	3,0	46	132	CR165	206	0,8
	80	3	3,0	46	138	CR165	212	0,8
	100	4	3,0	52	150	CR230	246	1,2
	125	5	3,0	56	234	CR300	272	1,7
	150	6	3,0	56	260	CR300	290	1,7
	200	8	3,0	60	322	CR510 ⁷⁾	332	3,1
	250	10	3,0	68	394	CR510 ⁷⁾	365	3,1
	300	12	3,0	78	462	CR510 ⁷⁾	392	3,1

Manual gearbox MR for ISORIA 10

With lubricating fluids with liners XA, XC, XV and K												
	DN	NPS	Max. velocity	Actuator	A	B	C	D	E	h2	Weight ^{s)}	
			[m/s]		[mm]	[mm]	[mm]	[mm]	[mm]			[kg]
	40	1½	3,0	MR25	62	184	66	64	225	256	7	
	50	2	3,0	MR25	62	184	66	64	225	261	7	
	65	2½	3,0	MR25	62	184	66	64	225	287	7	
	80	3	3,0	MR25	62	184	66	64	225	293	7	
	100	4	3,0	MR25	62	184	66	64	225	314	7	
	125	5	3,0	MR25	62	184	66	64	225	328	7	
	150	6	3,0	MR25	62	184	66	64	225	345	7	
	200	8	3,0	MR25	62	184	66	64	225	373	7	
	250	10	3,0	MR25	62	184	66	64	225	406	7	
	300	12	3,0	MR50	74	184	77	76	225	445	10	
	350	14	3,0	MR50	74	184	77	76	225	498	10	
	400	16	3,0	MR100	86	233	88	88	350	617	15	
	450	18	2,5	MR100	86	233	88	88	350	647	15	
	500	20	2,5	MR100	86	233	88	88	350	677	15	
	550	22	2,0	MR200	120	270	108	117	350	723	24	
	600	24	2,5	MR200	120	270	108	117	350	743	24	
	650	26	2,0	MR200	120	270	108	117	350	783	24	
	700	28	2,0	MR200	120	270	108	117	350	808	24	
	750	30	2,0	MR400	229	332	115	125	350	860	58	
	800	32	2,0	MR400	229	332	115	125	350	885	58	
900	36	1,5	MR400	229	332	115	125	350	898	58		
1000	40	1,5	MR400	229	332	115	125	350	1005	58		

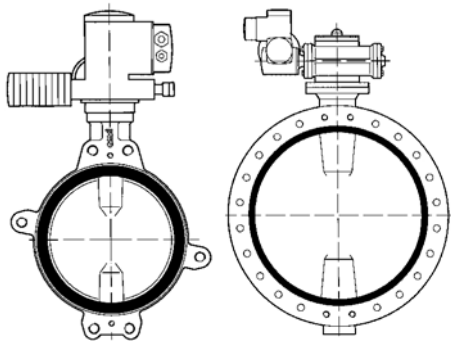
Manual gearbox MR for ISORIA 10 and 16

ISORIA 10: with non-lubricating fluid, with all liners												
ISORIA 10: with lubricating fluid, with liners other than XA, XC, XV and K (velocity see table)												
ISORIA 16: with lubricating fluids, with liners XA, XC, XV and K												
	DN	NPS	Max. velocity	Actuator	A	B	C	D	E	h2	Weight ^{s)}	
			[m/s]		[mm]	[mm]	[mm]	[mm]	[mm]			[kg]
	40	1½	*	MR25	62	184	66	64	225	256	7	
	50	2	*	MR25	62	184	66	64	225	261	7	
	65	2½	*	MR25	62	184	66	64	225	287	7	
	80	3	*	MR25	62	184	66	64	225	293	7	
	100	4	*	MR25	62	184	66	64	225	314	7	
	125	5	*	MR25	62	184	66	64	225	328	7	
	150	6	*	MR25	62	184	66	64	225	345	7	
	200	8	*	MR25	62	184	66	64	225	373	7	
	250	10	*	MR50	74	184	77	76	225	418	10	
	300	12	*	MR50	74	184	77	76	225	445	10	
	350	14	*	MR100	86	233	88	88	350	572	15	
	400	16	*	MR100	86	233	88	88	350	617	15	
	450	18	*	MR200	120	270	108	117	350	658	24	
	500	20	*	MR200	120	270	108	117	350	688	24	
	550	22	*	MR200	120	270	108	117	350	723	24	
	600	24	*	MR200	120	270	108	117	350	743	24	
	650	26	*	MR400	229	332	115	125	350	805	58	
	700	28	*	MR400	229	332	115	125	350	830	58	
	750	30	*	MR400	229	332	115	125	350	860	58	
	800	32	*	MR400	229	332	115	125	350	885	58	
900	36	*	MR600	271	511	155	140	600	1074	105		
1000	40	*	MR600	271	511	155	140	600	1144	105		

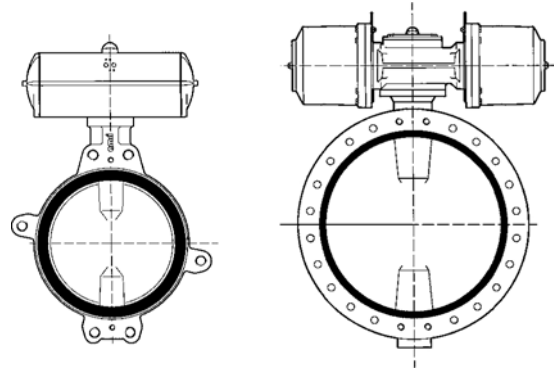
* 50 [m/s] with non-lubricating fluid: gas

Variants

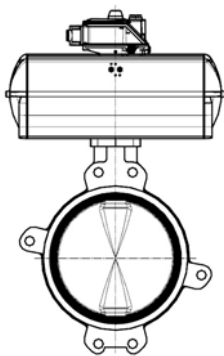
ACTELEC



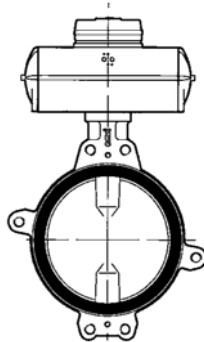
ACTAIR / DYNACTAIR



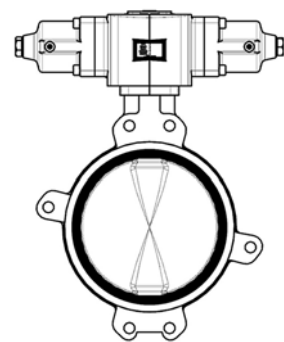
**ACTAIR +
 AMTRONIC / SMARTRONIC**



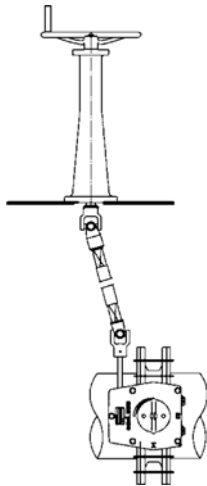
**ACTAIR +
 AMTROBOX**



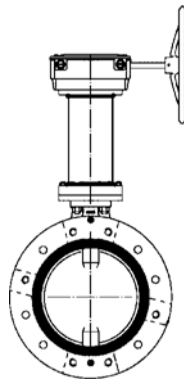
HQ



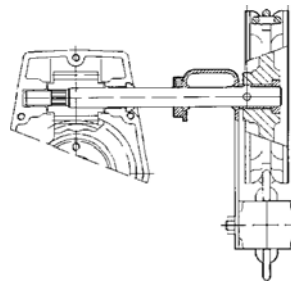
Deck stand



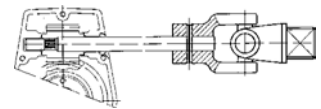
Neck extension



Chain wheel



Cardan connection



Notes on installation

Connections

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

- EN 1092 PN 6 (ISORIA 10 only), 10 and 16
- ASME B16.1 Cl.125 and B16.5 Cl.150
- ASME B16.47 Cl.150 Series A
- MSS SP44 Cl.150
- AWWA C207 Cl. B, D and E
- AS 2129 Tables D and E
- BS 10 Tables D and E
- JIS B2220, B2238 and B2239 5K, 10K, 16K and 20K (ISORIA 16 only)

Wafer-type body - T1

Wafer-type bodies - T1 can be installed between all the above-mentioned line connections.

Semi-lug body - T2

DN	NPS	EN 1092			MSS SP44 cl.150	JIS B2220, B2238, B2239			
		PN 6 ⁸⁾	PN 10	PN 16		5K	10K	16K	20K ⁹⁾
40	1½	✓▲	✓	✓	•	✓	✓	✓	✓
50	2	✓	✓	✓	•	✓	✓	✓■	✓■
65	2½	✓	✓	✓	•	✓	✓	✓■	✓■
80	3	✓	✓	✓	•	✓	✓	✓	✓
100	4	✓	✓	✓	•	✓	✓	✓	✓
125	5	✓	✓	✓	•	✓	✓	✓■	✓■
150	6	✓	✓	✓	•	✓	✓	✓■	✓■
200	8	✓	✓▲	✓	•	✓	✓▲	✓■	✓■
250	10	✓	✓▲	✓	•	✓	✓	✓■	✓■
300	12	✓	✓	✓	✓	✓	✓■	✓■	✓■
350	14	✓	✓	✓	✓	✓	✓	✓	✓
400	16	✓	✓	✓	✓	✓	✓	✓	✓
450	18	✓	✓	✓	✓	✓	✓	✓	✓
500	20	✓	✓	✓	✓	✓	✓	✓	✓
550	22	•	•	•	✓	✓	✓	✓	✓
600	24	✓	✓	✓	✓	✓	✓	✓	✓

DN	NPS	ASME		AWWA C207 B,D,E	BS10		AS2129	
		B16.1 Cl. 125	B16.5 Cl. 150		Table D	Table E	Table D	Table E
40	1½	✓	✓	•	✓	✓	✓	✓
50	2	✓	✓	•	✓	✓	✓	✓
65	2½	✓	✓	•	✓	✓	✓	✓
80	3	✓	✓	•	✓	✓	✓	✓
100	4	✓	✓	✓	✓■	✓	✓■	✓
125	5	✓	✓	✓	✓	✓	✓	✓
150	6	✓	✓	✓	✓▲	✓	✓	✓
200	8	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲
250	10	✓	✓	✓	✓■	✓▲	✓■	✓▲
300	12	✓	✓	✓	✓▲	✓	✓▲	✓
350	14	✓	✓	✓	✓	✓	✓	✓
400	16	✓	✓	✓	✓	✓	✓	✓
450	18	✓	✓	✓	✓	✓	✓	✓
500	20	✓	✓	✓	✓	✓	✓	✓
550	22	•	•	✓	✓	✓	✓	✓
600	24	✓	✓	✓	✓	✓	✓	✓

Description

Symbol	Description	Symbol	Description
✓	Installation possible	•	Non-standardised connection
■	Downstream dismantling not possible	▲	Fit washer between bolt and body

8) ISORIA 10-specific
9) ISORIA 16-specific

Full-lug body with flat faces -T3

DN	NPS	EN 1092			MSS SP44 Cl.150	JIS B2220, B2238, B2239			
		PN 6 ⁸⁾	PN 10	PN 16		5K	10K	16K	20K ⁹⁾
40	1½	☒	✓	✓	•	✓	✓	✓	☒
50	2	☒	✓	✓	•	✓	✓	✓	☒
65	2½	☒	✓	✓	•	✓	✓	✓	☒
80	3	☒	✓	✓	•	✓	✓	✓	☒
100	4	☒	✓	✓	•	✓	✓	✓	☒
125	5	☒	✓	✓	•	✓	✓	✓	☒
150	6	☒	✓	✓	•	✓	✓	♦	☒
200	8	☒	✓	✓	•	✓	✓	✓	☒
250	10	☒	✓	✓	•	✓	✓	✓	☒
300	12	☒	✓	✓	✓	✓	♦	✓	☒
350	14	☒	✓	✓	✓	✓	✓	✓	☒
400	16	☒	✓	✓	✓	✓	✓	✓	☒
450	18	☒	✓	✓	✓	✓	✓	✓	☒
500	20	☒	✓	✓	✓	✓	✓	✓	☒
550	22	☒	•	•	✓	✓	✓	✓	☒
600	24	☒	✓	✓	✓	✓	✓	✓	☒

DN	NPS	ASME		AWWA C207 B,D,E	BS10		AS2129	
		B16.1 Cl.125	B16.5 Cl.150		Table D	Table E	Table D	Table E
40	1½	✓	✓	•	☒	☒	☒	☒
50	2	✓	✓	•	☒	☒	☒	☒
65	2½	✓	✓	•	☒	☒	☒	☒
80	3	✓	✓	•	☒	☒	☒	☒
100	4	✓	✓	✓	☒	☒	☒	☒
125	5	✓	✓	✓	☒	☒	☒	☒
150	6	✓	✓	✓	☒	☒	☒	☒
200	8	✓	✓	✓	☒	☒	☒	☒
250	10	✓	✓	✓	☒	☒	☒	☒
300	12	✓	✓	✓	☒	☒	☒	☒
350	14	✓	✓	✓	☒	☒	☒	☒
400	16	✓	✓	✓	☒	☒	☒	☒
450	18	✓	✓	✓	☒	☒	☒	☒
500	20	✓	✓	✓	☒	☒	☒	☒
550	22	•	•	✓	☒	☒	☒	☒
600	24	✓	✓	✓	☒	☒	☒	☒

Description

Symbol	Description	Symbol	Description
✓	Installation possible	•	Non-standardised connection
☒	Contact KSB.	♦	Installation not possible

Full-lug body with raised faces -T4

DN	NPS	EN 1092			MSS SP44 Cl.150	JIS B2220, B2238, B2239			
		PN 6 ⁸⁾	PN 10	PN 16		5K	10K	16K	20K ⁹⁾
40	1½	✓	✓	✓	•	✓	✓	✓	✓
50	2	✓	✓	✓	•	✓	✓	♦	♦
65	2½	✓	✓	✓	•	✓	✓	♦	♦
80	3	✓	✓	✓	•	✓	✓	✓	✓
100	4	-	✓	✓	•	✓	✓	✓	✓
125	5	✓	✓	✓	•	✓	✓	♦	♦
150	6	✓	✓	✓	•	✓	✓	♦	♦
200	8	✓	✓	✓	•	✓	✓	♦	♦
250	10	✓	✓	✓	•	✓	✓	♦	♦
300	12	✓	✓	✓	✓	✓	♦	♦	♦
350	14	✓	✓	✓	✓	✓	✓	✓	✓
400	16	✓	✓	✓	✓	✓	✓	✓	✓
450	18	✓	✓	✓	✓	✓	✓	✓	✓
500	20	✓	✓	✓	✓	✓	✓	✓	✓
550	22	•	•	•	✓	✓	✓	✓	✓
600	24	✓	✓	✓	✓	✓	✓	✓	✓

DN	NPS	ASME		AWWA C207 B,D,E	BS10		AS2129	
		B16.1 Cl.125	B16.5 Cl.150		Table D	Table E	Table D	Table E
40	1½	✓	✓	•	✓	✓	✓	✓
50	2	✓	✓	•	✓	✓	✓	✓
65	2½	✓	✓	•	✓	✓	✓	✓
80	3	✓	✓	•	✓	✓	✓	✓
100	4	✓	✓	✓	♦	✓	♦	✓
125	5	✓	✓	✓	✓	✓	✓	✓
150	6	✓	✓	✓	✓	✓	✓	✓
200	8	✓	✓	✓	✓	✓	✓	✓
250	10	✓	✓	✓	♦	✓	♦	✓
300	12	✓	✓	✓	✓	✓	✓	✓
350	14	✓	✓	✓	✓	✓	✓	✓
400	16	✓	✓	✓	♦	♦	♦	♦
450	18	✓	✓	✓	♦	✓	♦	✓
500	20	✓	✓	✓	♦	♦	♦	♦
550	22	•	•	✓	♦	♦	♦	♦
600	24	✓	✓	✓	♦	♦	♦	♦

Description

Symbol	Description	Symbol	Description
✓	Installation possible	•	Non-standardised connection
⚠	Contact KSB.	♦	Installation not possible

Flanged body with flat faces -T5

DN	NPS	EN 1092			MSS SP44 Cl.150	JIS B2220, B2238, B2239			
		PN 6 ⁸⁾	PN 10	PN 16		5K	10K	16K	20K ⁹⁾
150	6	✓	✓	✓	•	✓	✓	✓	✓
200	8	✓	✓	✓	•	✓	✓	✓	✓
250	10	✓	✓	✓	•	✓	✓	✓■	✓■
300	12	✓	✓	✓	✓	✓	✓	✓	✓
350	14	✓	✓	✓	✓	✓	✓	✓	✓
400	16	✓	✓	✓	✓	✓	✓	✓	✓
450	18	✓	✓	✓	✓	✓	✓	♦	♦
500	20	✓	✓	✓	✓	✓	✓	✓	✓
550	22	•	•	•	✓	✓	✓	♦	♦
600	24	✓	✓	✓	✓	✓	✓	✓	✓
650	26	•	•	•	✓■	✓■	✓■	♦	⚙
700	28	✓■	✓■	✓■	✓■	✓■	✓■	♦	⚙
750	30	•	•	•	✓■	✓■	✓■	♦	⚙
800	32	✓■	✓■	✓■	✓■	✓■	✓■	♦	⚙
900	36	✓■	✓■	✓■	✓■	✓■	✓■	♦	♦
1000	40	✓■	✓■	✓■	✓■	✓■	✓■	♦	♦

DN	NPS	ASME			AWWA C207 B,D,E	BS10		AS2129	
		B16.1 Cl.125	B16.5 Cl.150	B16.47 Cl.150		Table D	Table E	Table D	Table E
150	6	✓	✓	•	✓	✓	✓	✓	✓
200	8	✓	✓	•	✓	✓	✓	✓	✓
250	10	✓	✓	•	✓	♦	✓	♦	✓
300	12	✓	✓	•	✓	✓	✓	✓	✓
350	14	✓	✓	•	✓	✓	✓	✓	✓
400	16	✓	✓	•	✓	✓	✓	✓	✓
450	18	✓	✓	•	✓	✓	✓	✓	✓
500	20	✓	✓	•	✓	✓	✓	✓	✓
550	22	•	•	•	✓	✓	✓	✓	✓
600	24	✓	✓	•	✓	✓	✓	✓	✓
650	26	•	•	✓■	✓■	•	•	•	•
700	28	•	•	✓■	✓■	✓■	✓■	✓■	✓■
750	30	✓■	•	✓■	✓■	✓■	✓■	✓■	✓■
800	32	•	•	✓■	✓■	•	•	✓■	✓■
900	36	✓■	•	✓■	✓■	✓■	✓■	✓■	✓■
1000	40	•	•	✓■	✓■	✓■	✓■	✓■	✓■

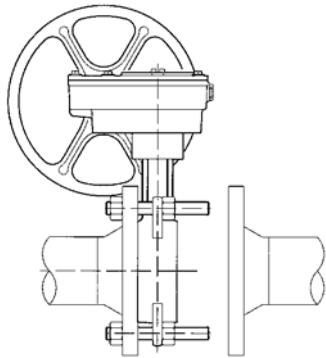
Description

Symbol	Description	Symbol	Description
✓	Installation possible	•	Non-standardised connection
■	Downstream dismantling not possible	♦	Installation not possible
■	Flanged installation possible	▲	Fit washer between bolt and body
⚙	Contact KSB.		

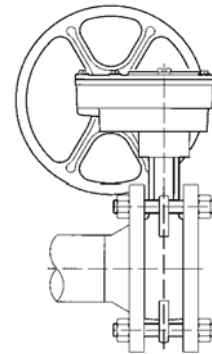
Dead-end service and downstream dismantling

Downstream dismantling

For downstream dismantling,
successively loosen diagonally opposed tie rods

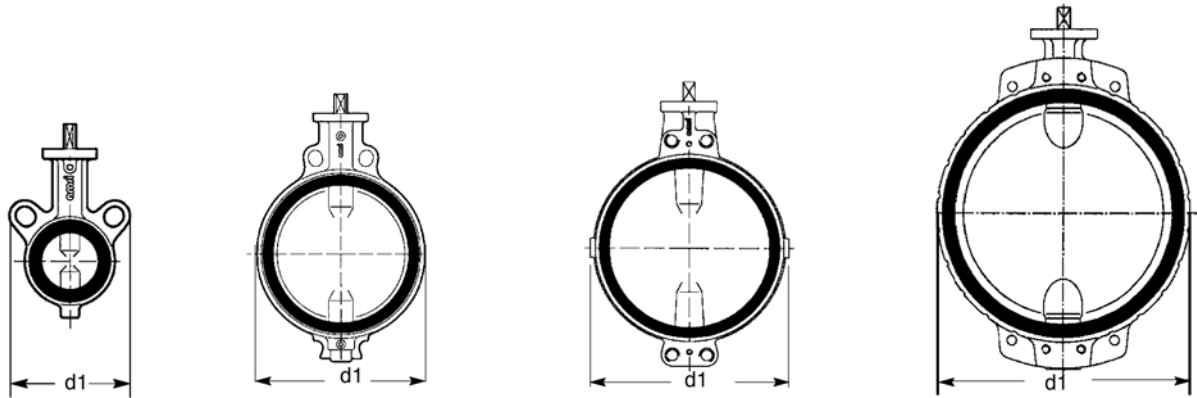


Dead-end service



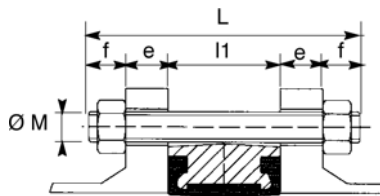
Bolting and weights

Wafer-type body - T1



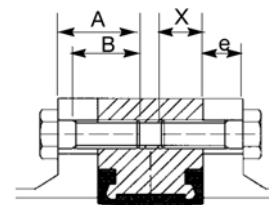
The drawings do not indicate the exact product design (number of tapped lugs/clearance holes)

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



Length of tie rod $L = l1 + 2e + 2f$

- L: minimum length of tie rods
- l1: face-to-face length of valve
- e: flange thickness (customer-specific)
- f: thickness of nut + standardised overhang of tie rod



Bolt length at stem passage

$A = e + X$

- A: max. bolt length
- X: max. thread engagement depth
- e: flange thickness (customer-specific)
- B: min. thread length > A-e

Wafer-type body - T1

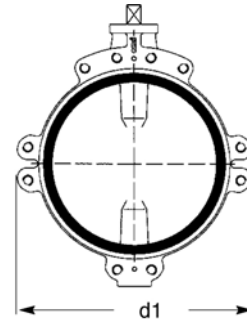
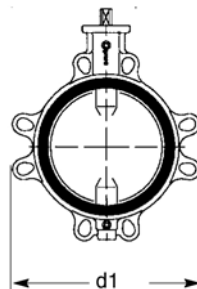
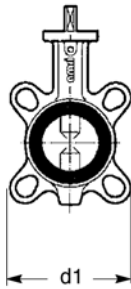
DN	NPS	I1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					Weights [kg]
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		
					f	Qty	X	Qty**		f	Qty	X	Qty**	
40	1½	33	108	M16	20	4	-	-	M16	20	4	-	-	1,1
50	2	43	118	M16	20	4	-	-	M16	20	4	-	-	1,3
65	2½	46	133	M16	20	4/8	-	-	M16	20	4/8	-	-	1,9
80	3	46	138	M16	20	8	-	-	M16	20	8	-	-	2,5
100	4	52	144	M16	20	8	-	-	M16	20	8	-	-	3,9
125	5	56	174	M16	20	8	-	-	M16	20	8	-	-	4,7
150	6	56	198	M20	24	8	-	-	M20	24	8	-	-	6,9
200	8	60	252	M20	24	8	-	-	M20	24	12	-	-	10,5
250	10	68	310	M20	24	12	-	-	M24	29	12	-	-	16,4
300	12	78	362	M20	24	12	-	-	M24	29	12	-	-	30
350	14	78	433	M20	24	16	-	-	M24	29	16	-	-	50
400	16	102	490	M24	29	16	-	-	M27	32	16	-	-	72
450	18	114	546	M24	29	16	24	4	M27	32	16	27	4	96
500	20	127	600	M24	29	20	-	-	M30	35	20	-	-	130
550	22	154	645	•	•	•	•	•	•	•	•	•	•	-
600	24	154	714	M27	32	20	-	4	M33	38	20	-	-	190
650	26	165	745	•	•	•	•	•	•	•	•	•	•	-
700	28	165	795	M27	32	20	30	4	M33	38	20	25	4	315
750	30	190	853	•	•	•	•	•	•	•	•	•	•	-
800	32	190	903	M30	35	20	33	4	M36	42	20	36	4	475
900	36	203	1111	M30	35	24	33	4	M36	42	24	36	4	545
1000	40	216	1118	M33	38	24	36	4	M39	45	24	29	4	670

DN	NPS	I1	d1	JIS B2220, B2238, B2239 10K ⁸⁾					JIS B2220, B2238, B2239 16K ⁹⁾					Weights [kg]
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		
					f	Qty	X	Qty**		f	Qty	X	Qty**	
40	1½	33	108	M16	20	4	-	-	M16	20	4	-	-	1,1
50	2	43	118	M16	20	4	-	-	M16	20	8	-	-	1,3
65	2½	46	133	M16	20	4	-	-	M16	20	8	-	-	1,9
80	3	46	138	M16	20	8	-	-	M20	24	8	-	-	2,5
100	4	52	144	M16	20	8	-	-	M20	24	8	-	-	3,9
125	5	56	174	M20	24	8	-	-	M22	26	8	-	-	4,7
150	6	56	198	M20	24	8	-	-	M22	26	12	-	-	6,9
200	8	60	252	M20	24	12	-	-	M22	26	12	-	-	10,5
250	10	68	310	M22	26	12	-	-	M24	29	12	-	-	16,4
300	12	78	362	M22	26	16	-	-	M24	29	12	-	-	30
350	14	78	433	M22	26	16	-	-	M30x3	35	16	-	-	50
400	16	102	490	M24	29	16	-	-	M30x3	35	16	-	-	72
450	18	114	546	M24	29	16	24	4	M30x3	35	16	30	4	96
500	20	127	600	M24	29	20	-	-	M30x3	35	20	-	-	130
550	22	154	645	M30	35	16	30	4	M36x3	42	16	36	4	160
600	24	154	714	M30	35	20	30	4	M36x3	42	20	36	4	190
650	26	165	745	M30	35	20	37	4	M36x3	42	20	34	4	270
700	28	165	795	M30	45	20	34	4	M39x3	45	20	34	4	315
750	30	190	853	M30	35	20	37	4	M39x3	45	20	34	4	380
800	32	190	903	M30	35	20	37	4	M45x3	50	20	35	4	475
900	36	203	1111	M30	35	24	37	4	-	-	-	-	-	545
1000	40	216	1118	M36	42	24	37	4	-	-	-	-	-	670

DN	NPS	l1	d1	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights [kg]
				UNC	Tie rod*		Bolt		
					f	Qty	X	Qty**	
40	1½	33	108	1/2"	17	4	-	-	1,1
50	2	43	118	5/8"	20	4	-	-	1,3
65	2½	46	133	5/8"	20	4	-	-	1,9
80	3	46	138	5/8"	20	4	-	-	2,5
100	4	52	144	5/8"	20	8	-	-	3,9
125	5	56	174	3/4"	24	8	-	-	4,7
150	6	56	198	3/4"	24	8	-	-	6,9
200	8	60	252	3/4"	24	8	-	-	10,5
250	10	68	310	7/8"	29	12	-	-	16,4
300	12	78	362	7/8"	29	12	-	-	30
350	14	78	433	1"	32	12	-	-	50
400	16	102	490	1"	32	16	-	-	72
450	18	114	546	1" 1/8	35	16	-	-	96
500	20	127	600	1" 1/8	35	16	30	4	130
550	22	154	645	1" 1/4	38	16	33	4	160
600	24	154	714	1" 1/4	38	20	-	-	190
650	26	165	745	1" 1/4	38	20	25	4	270
700	28	165	795	1" 1/4	38	24	25	4	315
750	30	190	853	1" 1/4	38	24	33	4	380
800	32	190	903	1" 1/2	45	24	29	4	475
900	36	203	1111	1" 1/2	45	28	29	4	545
1000	40	216	1118	1" 1/2	45	32	35	4	670

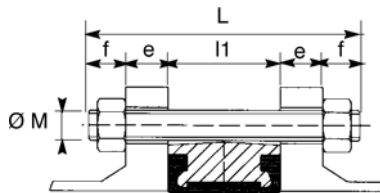
- * Quantity of nuts = Quantity of tie rods x 2
- ** Quantity of bolts x 2
- *** DN's concerned, see connection standards
- Non-standardised connection

Semi-lug type body - T2



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.



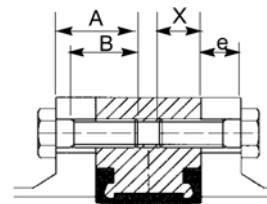
Length of tie rod $L = l1 + 2e + 2f$

L: minimum length of tie rods

l1: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie rod



Bolt length at stem passage

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: thread length > A-e

Semi-lug body - T2

DN	NPS	l1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					Weights
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**		f	Qty	X	Qty**	
40	1½	33	108	M16	20	4	-	-	M16	20	4	-	-	1,1
50	2	43	118	M16	20	4	-	-	M16	20	4	-	-	1,3
65	2½	46	132	M16	20	4/8	-	-	M16	20	4/8	-	-	1,9
80	3	46	138	M16	20	8	-	-	M16	20	8	-	-	2,5
100	4	52	150	M16	20	8	-	-	M16	20	8	-	-	3,9
125	5	56	234	M16	20	8	-	-	M16	20	8	-	-	4,7
150	6	56	260	M20	24	8	-	-	M20	24	8	-	-	6,9
200	8	60	322	M20	24	8	-	-	M20	24	12	-	-	10,5
250	10	68	394	M20	24	12	-	-	M24	29	12	-	-	16,4
300	12	78	462	M20	24	12	-	-	M24	29	12	-	-	30
350	14	78	538	M20	24	10	20	6	M24	29	10	24	6	60
400	16	102	604	M24	29	10	24	6	M27	32	10	27	6	80
450	18	114	656	M24	29	14	24	6	M27	32	14	27	6	110
500	20	127	716	M24	29	12	24	8	M30	35	12	30	8	145
550	22	154	804	•	•	•	•	•	•	•	•	•	•	•
600	24	154	836	M27	32	10	27	10	M33	38	10	33	10	220

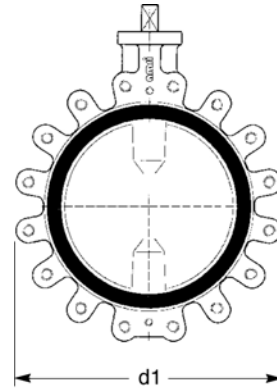
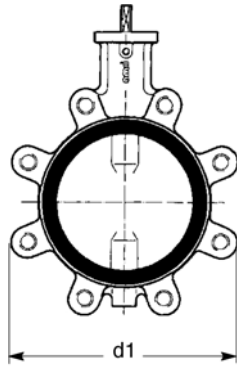
DN	NPS	l1	d1	JIS B2220, B2238, B2239 10K ⁸⁾					JIS B2220, B2238, B2239 16K ⁹⁾					Weights
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**		f	Qty	X	Qty**	
40	1½	33	108	M16	20	4	-	-	M16	20	4	-	-	1,1
50	2	43	118	M16	20	4	-	-	M16	20	8	-	-	1,3
65	2½	46	132	M16	20	4	-	-	M16	20	8	-	-	1,9
80	3	46	138	M16	20	8	-	-	M20	24	8	-	-	2,5
100	4	52	150	M16	20	8	-	-	M20	24	8	-	-	3,9
125	5	56	234	M20	24	8	-	-	M22	26	8	-	-	4,7
150	6	56	260	M20	24	8	-	-	M22	26	12	-	-	6,9
200	8	60	322	M20	24	12	-	-	M22	26	12	-	-	10,5
250	10	68	394	M22	26	12	-	-	M24	29	12	-	-	16,4
300	12	78	462	M22	26	16	-	-	M24	29	12	-	-	30
350	14	78	538	M22	26	10	22	6	M30x3	35	10	30	6	60
400	16	102	604	M24	29	10	24	6	M30x3	35	16	30	6	80
450	18	114	656	M24	29	12	24	6	M30x3	35	14	30	6	110
500	20	127	716	M24	29	12	24	8	M30x3	35	12	30	8	145
550	22	154	804	M24	35	12	30	8	M36x3	42	12	36	8	180
600	24	154	836	M30	35	14	30	10	M36x3	42	14	36	10	220

DN	NPS	l1	d1	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights
				UNC	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**	
40	1½	33	108	1/2"	17	4	-	-	1,1
50	2	43	118	5/8"	20	4	-	-	1,3
65	2½	46	132	5/8"	20	4	-	-	1,9
80	3	46	138	5/8"	20	4	-	-	2,5
100	4	52	150	5/8"	20	8	-	-	3,9
125	5	56	234	3/4"	24	8	-	-	4,7
150	6	56	260	3/4"	24	8	-	-	6,9
200	8	60	322	3/4"	24	8	-	-	10,5
250	10	68	394	7/8"	29	12	-	-	16,4
300	12	78	462	7/8"	29	12	-	-	30
350	14	78	538	1"	32	6	27	6	60
400	16	102	604	1"	32	10	27	6	80
450	18	114	656	1" 1/8	35	10	30	6	110

DN	NPS	l1	d1	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights [kg]
				UNC	Tie rod*		Bolt		
					f	Qty	X	Qty**	
500	20	127	716	1"1/8	35	12	30	8	145
550	22	154	804	1"1/4	38	12	32	8	180
600	24	154	836	1"1/4	38	10	32	10	220

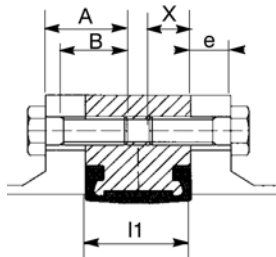
- * Quantity of nuts = Quantity of tie rods x 2
- ** Quantity of bolts x 2
- *** DN's concerned, see connection standards
- Non-standardised connection

Full-lug body with flat faces -T3



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

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



Max. bolt length

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

l1: face-to-face length of valve

Full-lug body with flat faces -T3

DN	NPS	l1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					Weights
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**		f	Qty	X	Qty**	
40	1½	33	108	M16	-	-	14	4	M16	-	-	14	4	2
50	2	43	120	M16	-	-	18	4	M16	-	-	18	4	2,5
65	2½	46	134	M16	-	-	20	4/8	M16	-	-	20	4/8	3
80	3	46	140	-	-	-	-	-	-	-	-	-	-	4
80	3	46	178	M16	-	-	20	8	M16	-	-	20	8	4,5
100	4	52	210	M16	-	-	22	8	M16	-	-	22	8	5,5
125	5	56	236	M16	-	-	22	8	M16	-	-	22	8	9
150	6	56	260	M20	-	-	26	8	M20	-	-	26	8	11
200	8	60	312	M20	-	-	26	8	-	-	-	-	-	24
200	8	60	322	-	-	-	-	-	M20	-	-	26	12	25
250	10	68	396	M20	-	-	26	12	M24	-	-	29	12	39
300	12	78	466	M20	-	-	26	12	M24	-	-	30	12	46
350	14	78	510	-	-	-	-	-	-	-	-	-	-	62
350	14	78	530	M20	-	-	26	16	M24	-	-	30	16	70
400	16	102	598	M24	-	-	31	16	M27	-	-	34	16	101
450	18	114	622	•	-	-	•	•	•	-	-	•	•	122
450	18	114	654	M24	-	-	31	20	M27	-	-	34	20	139
500	20	127	708	M24	-	-	24	8	M30	-	-	30	8	145
550	22	154	774	•	-	-	•	•	•	-	-	•	•	179
600	24	154	822	M27	-	-	27	10	M33	-	-	33	10	233
600	24	154	830	•	-	-	•	•	•	-	-	•	•	233

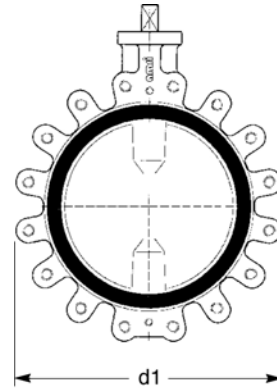
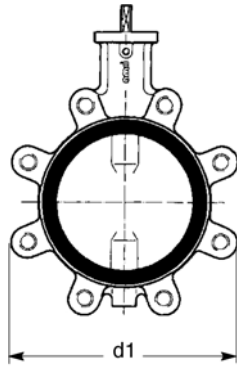
DN	NPS	l1	d1	JIS B2220, B2238, B2239 10K ⁹⁾					JIS B2220, B2238, B2239 16K ⁹⁾					Weights
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**		f	Qty	X	Qty**	
40	1½	33	108	M16	-	-	14	4	M16	-	-	14	4	2
50	2	43	120	M16	-	-	18	4	•	-	-	•	•	2,5
65	2½	46	134	M16	-	-	20	4	•	-	-	•	•	3
80	3	46	140	•	-	-	•	•	-	-	-	-	-	4
80	3	46	178	M16	-	-	20	8	M20	-	-	20	8	4,5
100	4	52	210	M16	-	-	22	8	M20	-	-	24	8	5,5
125	5	56	236	M20	-	-	23	8	•	-	-	•	•	9
150	6	56	260	M20	-	-	26	8	•	-	-	•	•	11
200	8	60	312	•	-	-	•	•	•	-	-	•	•	24
200	8	60	322	M20	-	-	26	12	•	-	-	•	•	25
250	10	68	396	M22	-	-	28	12	•	-	-	•	•	39
300	12	78	466	•	-	-	•	•	M24	-	-	30	16	46
350	14	78	510	•	-	-	•	•	-	-	-	-	-	62
350	14	78	530	M22	-	-	28	16	M30x3	-	-	34	16	70
400	16	102	598	M24	-	-	31	16	M30x3	-	-	37	16	101
450	18	114	622	•	-	-	•	•	-	-	-	-	-	122
450	18	114	654	M27	-	-	34	20	M30x3	-	-	37	20	139
500	20	127	708	M27	-	-	34	20	M30x3	-	-	37	20	145
550	22	154	774	M27	-	-	34	20	M30x3	-	-	42	20	179
600	24	154	822	•	-	-	•	•	-	-	-	-	-	233
600	24	154	830	M30	-	-	32	24	M36x3	-	-	34	24	233

DN	NPS	l1	d1	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights
				UNC	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**	
40	1½	33	108	1/2"	-	-	14	4	2
50	2	43	120	5/8"	-	-	18	4	2,5
65	2½	46	134	5/8"	-	-	20	4	3
80	3	46	140	5/8"	-	-	20	4	4

DN	NPS	l1	d1	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights	
				UNC	Tie rod*		Bolt		[kg]	
					f	Qty	X	Qty**		
80	3	46	178	●	-	-	●	●	4,5	
100	4	52	210	5/8"	-	-	22	8	5,5	
125	5	56	236	3/4"	-	-	23	8	9	
150	6	56	260	3/4"	-	-	26	8	11	
200	8	60	312	3/4"	-	-	26	8	24	
200	8	60	322	●	-	-	●	●	25	
250	10	68	396	7/8"	-	-	28	12	39	
300	12	78	466	7/8"	-	-	28	12	46	
350	14	78	510	1"	-	-	30	12	62	
350	14	78	530	●	-	-	●	●	70	
400	16	102	598	1"	-	-	34	16	101	
450	18	114	622	1 1/8	-	-	37	16	122	
450	18	114	654	●	-	-	●	●	139	
500	20	127	708	1 1/8	-	-	37	20	145	
550	22	154	774	1 1/4	-	-	39	20	179	
600	24	154	822	1 1/4	-	-	42	20	233	
600	24	154	830	●	-	-	●	●	233	

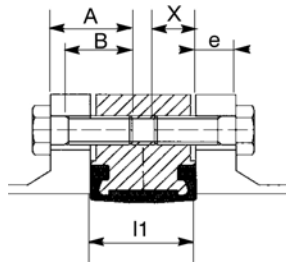
- * Quantity of nuts = Quantity of tie rods x 2
- ** Quantity of bolts x 2
- *** DN's concerned, see connection standards
- Non-standardised connection

Full-lug body with raised faces -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.



Max. bolt length

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

Full-lug body with raised faces -T4

DN	NPS	I1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					Weights [kg]
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		
					f	Qty	X	Qty**		f	Qty	X	Qty**	
40	1½	33	108	M16	-	-	14	4	M16	-	-	14	4	2
50	2	43	120	M16	-	-	18	4	M16	-	-	18	4	2,5
65	2½	46	134	M16	-	-	-	-	M16	-	-	20	4	3
80 ¹⁰⁾	3	46	140	-	-	-	-	-	-	-	-	-	-	4
¹¹⁾ 80	3	46	178	M16	-	-	20	8	M16	-	-	20	8	4,5
100	4	52	210	M16	-	-	22	8	M16	-	-	22	8	5,5
125	5	56	236	M16	-	-	22	8	M16	-	-	22	8	9
150	6	56	260	M20	-	-	26	8	M20	-	-	26	8	11
200 ¹²⁾	8	60	312	M20	-	-	26	8	-	-	-	-	-	24
200 ¹³⁾	8	60	322	-	-	-	-	-	M20	-	-	26	12	25
250	10	68	396	M20	-	-	26	12	M24	-	-	29	12	39
300	12	78	466	M20	-	-	26	12	M24	-	-	30	12	46
350 ¹⁰⁾	14	78	510	-	-	-	-	-	-	-	-	-	-	62
350 ¹¹⁾	14	78	530	M20	-	-	26	16	M24	-	-	30	16	70
400	16	102	598	M24	-	-	31	16	M27	-	-	34	16	101
450 ¹⁰⁾	18	114	622	•	-	-	•	•	•	-	-	•	•	122
450 ¹¹⁾	18	114	654	M24	-	-	31	20	M27	-	-	34	20	139
500	20	127	708	M24	-	-	24	8	M30	-	-	30	8	145
550	22	154	774	•	-	-	•	•	•	-	-	•	•	179
600 ¹⁴⁾	24	154	822	M27	-	-	27	10	M33	-	-	33	10	233
600 ¹⁵⁾	24	154	830	-	-	-	-	-	-	-	-	-	-	233

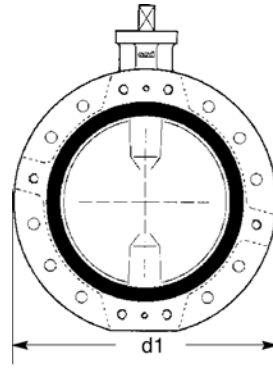
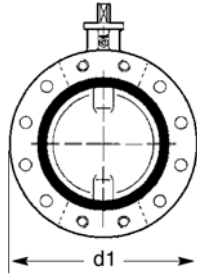
DN	NPS	I1	d1	JIS B2220, B2238, B2239 10K ⁹⁾					JIS B2220, B2238, B2239 16K ⁹⁾					Weights [kg]
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		
					f	Qty	X	Qty**		f	Qty	X	Qty**	
40	1½	33	108	M16	-	-	14	4	M16	-	-	14	4	2
50	2	43	120	M16	-	-	18	4	•	-	-	•	•	2,5
65	2½	46	134	M16	-	-	20	4	•	-	-	•	•	3
80 ¹⁰⁾	3	46	140	-	-	-	-	-	-	-	-	-	-	4
80 ¹¹⁾	3	46	178	M16	-	-	20	8	M20	-	-	20	8	4,5
100	4	52	210	M16	-	-	22	8	M20	-	-	24	8	5,5
125	5	56	236	M20	-	-	23	8	•	-	-	•	•	9
150	6	56	260	M20	-	-	26	8	•	-	-	•	•	11
200 ¹²⁾	8	60	312	-	-	-	-	-	•	-	-	•	•	24
200 ¹³⁾	8	60	322	M20	-	-	26	12	•	-	-	•	•	25
250	10	68	396	M22	-	-	28	12	•	-	-	•	•	39
300	12	78	466	•	-	-	•	•	M24	-	-	30	16	46
350 ¹⁰⁾	14	78	510	-	-	-	-	-	-	-	-	-	-	62
350 ¹¹⁾	14	78	530	M22	-	-	28	16	M30x3	-	-	34	16	70
400	16	102	598	M24	-	-	31	16	M30x3	-	-	37	16	101
450 ¹⁰⁾	18	114	622	•	-	-	•	•	-	-	-	-	-	122
450 ¹¹⁾	18	114	654	M27	-	-	34	20	M30x3	-	-	37	20	139
500	20	127	708	M27	-	-	34	20	M30x3	-	-	37	20	145
550	22	154	774	M27	-	-	34	20	M36x3	-	-	42	20	179
600 ¹⁴⁾	24	154	822	-	-	-	-	-	-	-	-	-	-	233
600 ¹⁵⁾	24	154	830	M30	-	-	32	24	M36x3	-	-	34	24	233

- 10) Installation between flanges EN 1092 PN 6, ASME B16.5 Cl. 150, JIS B2220, B2238 and B2239-5K, BS 10 Tables D and E and AS 2129 Tables D and E
- 11) Installation between flanges EN 1092 PN 10, PN 16 and JIS B2220, B2238 and B2239 - 10K and 16K
- 12) Installation between flanges EN 1092 PN 6 and 10, ASME B16.5 Cl. 150, AWWA C 207 B, D and E, BS 10 Tables D and E, AS 2129 Tables D and E and JIS B2220, B2238 and B2239-5K
- 13) Installation between flanges EN 1092 PN 16 and JIS B2220, B2238 and B2239-10K
- 14) Installation between flanges EN 1092 PN 10, PN 16, ASME B16.5 Cl. 150 and JIS B2220, B2238 and B2239-5K
- 15) Installation between flanges JIS B2220, B2238 and B2239-10K

DN	NPS	l1	d1	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights	
				UNC	Tie rod*		Bolt		[kg]	
					f	Qty	X	Qty**		
40	1½	33	108	1/2"	-	-	14	4	2	
50	2	43	120	5/8"	-	-	18	4	2,5	
65	2½	46	134	5/8"	-	-	20	4	3	
80 ¹⁰⁾	3	46	140	5/8"	-	-	20	4	4	
80 ¹¹⁾	3	46	178	-	-	-	-	-	4,5	
100	4	52	210	5/8"	-	-	22	8	5,5	
125	5	56	236	3/4"	-	-	23	8	9	
150	6	56	260	3/4"	-	-	26	8	11	
200 ¹²⁾	8	60	312	3/4"	-	-	26	8	24	
200 ¹³⁾	8	60	322	-	-	-	-	-	25	
250	10	68	396	7/8"	-	-	28	12	39	
300	12	78	466	7/8"	-	-	28	12	46	
350 ¹⁰⁾	14	78	510	1"	-	-	30	12	62	
350 ¹¹⁾	14	78	530	●	-	-	●	●	70	
400	16	102	598	1"	-	-	34	16	101	
450 ¹⁰⁾	18	114	622	1" 1/8	-	-	37	16	122	
450 ¹¹⁾	18	114	654	●	-	-	●	●	139	
500	20	127	708	1" 1/8	-	-	37	20	145	
550	22	154	774	1" 1/4	-	-	39	20	179	
600 ¹⁴⁾	24	154	822	1" 1/4	-	-	42	20	233	
600 ¹⁵⁾	24	154	830	-	-	-	-	-	233	

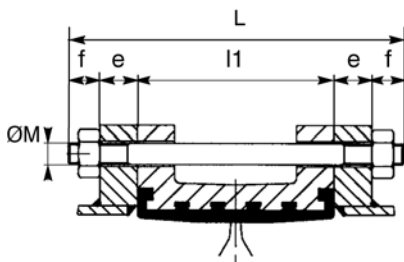
- * Quantity of nuts = Quantity of tie rods x 2
- ** Quantity of bolts x 2
- *** DN's concerned, see connection standards
- Non-standardised connection

Flanged body with flat faces - T5 - DN 150-600



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.



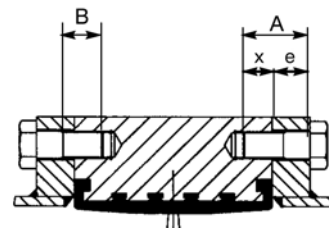
Length of tie rod $L = l1 + 2e + 2f$

L: minimum length of tie rods

l1: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie rod



Bolt length at stem passage

$A = e + X$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

Flanged body with flat faces - T5 - DN 150-600

DN	NPS	l1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					Weights
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**		f	Qty	X	Qty**	
150	6	56	260	M20	24	4	20	4	M20	24	4	16	4	11
200	8	60	322	M20	24	4	20	4	M20	24	8	16	4	23
250	10	68	394	M20	24	8	20	4	M24	29	8	24	4	40
300	12	78	462	M20	24	6	20	6	M24	29	6	24	6	60
350	14	78	538	M20	24	10	20	6	M24	29	10	24	6	80
400	16	102	604	M24	29	10	24	6	M27	32	10	27	6	105
450	18	114	656	M24	29	14	24	6	M27	32	14	27	6	130
500	20	127	716	M24	29	12	24	8	M30	35	12	30	8	180
550	22	154	804	•	•	•	•	•	•	•	•	•	•	•
600	24	154	836	M27	32	10	27	10	M33	38	10	33	10	260

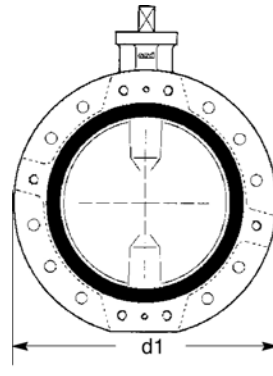
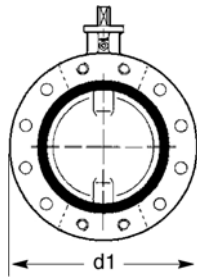
DN	NPS	l1	d1	JIS B2220, B2238, B2239 10K ⁹⁾					JIS B2220, B2238, B2239 16K ⁹⁾					Weights
				Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**		f	Qty	X	Qty**	
150	6	56	260	M20	24	4	20	4	M22	26	8	22	4	11
200	8	60	322	M20	24	8	20	4	M22	26	8	22	4	23
250	10	68	394	M22	26	8	22	4	M24	29	8	24	4	40
300	12	78	462	M22	26	10	22	6	M24	29	10	24	6	60
350	14	78	538	M22	26	10	22	6	M30x3	35	10	30	6	80
400	16	102	604	M24	29	10	24	6	M30x3	35	10	30	6	105
450	18	114	656	M24	29	12	24	6	-	-	-	-	-	130
500	20	127	716	M24	29	12	24	8	M30x3	35	12	30	8	180
550	22	154	804	M30	35	12	30	8	-	-	-	-	-	230
600	24	154	836	M30	35	14	30	10	M30x3	42	14	36	10	260

DN	NPS	l1	d1	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights
				UNC	Tie rod*		Bolt		[kg]
					f	Qty	X	Qty**	
150	6	56	260	3/4"	24	4	20	4	11
200	8	60	322	3/4"	24	4	20	4	23
250	10	68	394	7/8"	29	8	24	4	40
300	12	78	462	7/8"	29	6	24	6	60
350	14	78	538	1"	32	6	27	6	80
400	16	102	604	1"	32	10	27	6	105
450	18	114	656	1 1/8"	35	10	30	6	130
500	20	127	716	1 1/8"	35	12	30	8	180
550	22	154	804	1 1/4"	38	12	32	8	230
600	24	154	836	1 1/4"	38	10	32	10	260

- * Quantity of nuts = Quantity of tie rods x 2
- ** Quantity of bolts x 2
- *** DN's concerned, see connection standards
- Non-standardised connection

Flanged body with flat faces - T5 - DN 650-1000

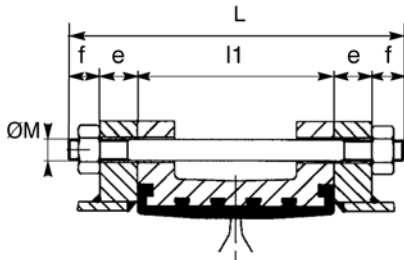
Installation between flanges permitted up to a max. differential pressure of 10 bar



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

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

Installation between flanges



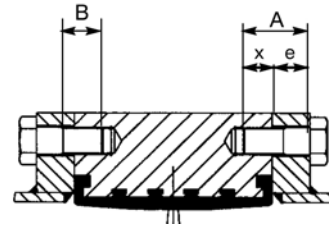
Length of tie rod $L = l1 + 2e + 2f$

L: minimum length of tie rods

l1: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie rod



Bolt length at stem passage

$A = e + X$

A: max. bolt length

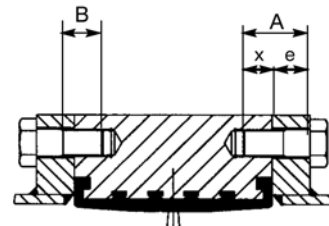
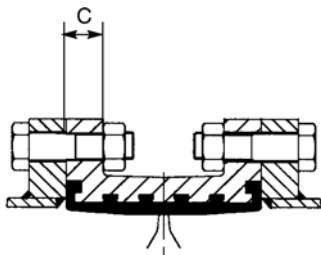
X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

C: flange thickness

Flanged installation



Information on fasteners available on request

Flanged body with flat faces - T5 - DN 650-1000

DN	NPS	I1	d1	C	EN 1092-1 PN 10					EN 1092-1 PN 16					Weights [kg]
					Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		
						f	Qty	X	Qty**		f	Qty	X	Qty**	
650	26	165	835 ¹⁶⁾	31	•	•	•	•	•	•	•	•	•	•	-
650	26	165	869 ¹⁷⁾	31	•	•	•	•	•	•	•	•	•	•	-
700	28	165	895 ¹⁶⁾	32,5	M27	32	20	27	4	-	-	-	-	-	330
700	28	165	925 ¹⁸⁾	32,5	-	-	-	-	-	M33	38	20	25	4	350
750	30	190	965 ¹⁶⁾	33,5	-	-	-	-	-	-	-	-	-	-	405
750	30	190	985 ¹⁸⁾	33,5	-	-	-	-	-	-	-	-	-	-	425
800	32	190	1015 ¹⁶⁾	35	M30	35	20	30	4	-	-	-	-	-	505
800	32	190	1075 ¹⁸⁾	35	-	-	-	-	-	M36	42	20	36	4	525
900	36	203	1115 ¹⁶⁾	37,5	M30	35	24	30	4	-	-	-	-	-	590
900	36	203	1160 ¹⁸⁾	37,5	-	-	-	-	-	M36	42	24	36	4	620
1000	40	216	1230 ¹⁶⁾	40	M33	38	24	33	4	-	-	-	-	-	740
1000	40	216	1275 ¹⁸⁾	40	-	-	-	-	-	M39	45	24	29	4	780

DN	NPS	I1	d1	C	JIS B2220, B2238, B2239 10K ⁸⁾					JIS B2220, B2238, B2239 16K ⁹⁾					Weights [kg]
					Ø M	Tie rod*		Bolt		Ø M	Tie rod*		Bolt		
						f	Qty	X	Qty**		f	Qty	X	Qty**	
650	26	165	835 ¹⁶⁾	31	M30	35	20	37	4	M30	35	20	37	4	285
650	26	165	869 ¹⁷⁾	31	-	-	-	-	-	-	-	-	-	-	305
700	28	165	895 ¹⁶⁾	32,5	M30	35	20	37	4	M30	35	20	37	4	330
700	28	165	925 ¹⁸⁾	32,5	-	-	-	-	-	-	-	-	-	-	350
750	30	190	965 ¹⁶⁾	33,5	M30	35	20	37	4	M30	35	20	37	4	405
750	30	190	985 ¹⁸⁾	33,5	-	-	-	-	-	-	-	-	-	-	425
800	32	190	1015 ¹⁶⁾	35	M30	35	24	37	4	M30	35	24	37	4	505
800	32	190	1075 ¹⁸⁾	35	-	-	-	-	-	-	-	-	-	-	525
900	36	203	1115 ¹⁶⁾	37,5	M30	35	24	37	4	M30	35	24	37	4	590
900	36	203	1160 ¹⁸⁾	37,5	-	-	-	-	-	-	-	-	-	-	620
1000	40	216	1230 ¹⁶⁾	40	M36	42	24	37	4	M36	42	24	37	4	740
1000	40	216	1275 ¹⁸⁾	40	-	-	-	-	-	-	-	-	-	-	780

DN	NPS	I1	d1	C	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights [kg]
					UNC	Tie rod*		Bolt		
						f	Qty	X	Qty**	
650	26	165	835 ¹⁶⁾	31	-	-	-	-	-	285
650	26	165	869 ¹⁷⁾	31	1"¼	38	20	25	4	305
700	28	165	895 ¹⁶⁾	32,5	-	-	-	-	-	330
700	28	165	925 ¹⁸⁾	32,5	1"¼	38	24	25	4	350
750	30	190	965 ¹⁶⁾	33,5	-	-	-	-	-	405
750	30	190	985 ¹⁸⁾	33,5	1"¼	38	24	33	4	425
800	32	190	1015 ¹⁶⁾	35	-	-	-	-	-	505
800	32	190	1075 ¹⁸⁾	35	1"½	45	24	29	4	525
900	36	203	1115 ¹⁶⁾	37,5	-	-	-	-	-	590

16) Installation between flanges EN 1092 PN 6, 10, JIS B2220, B2238 and B2239-5K and 10K

17) Installation between flanges EN 1092 PN 16, MSS SP 44 Cl. 150, ASME B16.1 Cl. 125

18) Installation between flanges EN 1092 PN 16, MSS SP 44 Cl. 150, ASME B16.1 Cl. 125, AS 2129 Cl. D and E and BS 10 Cl. D and E

DN	NPS	l1	d1	C	ASME B16.5 Class 150 *** ASME B16.1 Class 125 *** MSS SP 44 Class 150 *** ASME B16.47 Class 150 Series A ***					Weights [kg]
					UNC	Tie rod*		Bolt		
						f	Qty	X	Qty**	
900	36	203	1160 ¹⁸⁾	37,5	1"½	45	28	29	4	620
1000	40	216	1230 ¹⁶⁾	40	-	-	-	-	-	740
1000	40	216	1275 ¹⁸⁾	40	1"½	45	32	35	4	780

- * Quantity of nuts = Quantity of tie rods x 2
- ** Quantity of bolts x 2
- *** DNs concerned, see connection standards
- Non-standardised connection

Flange dimensions

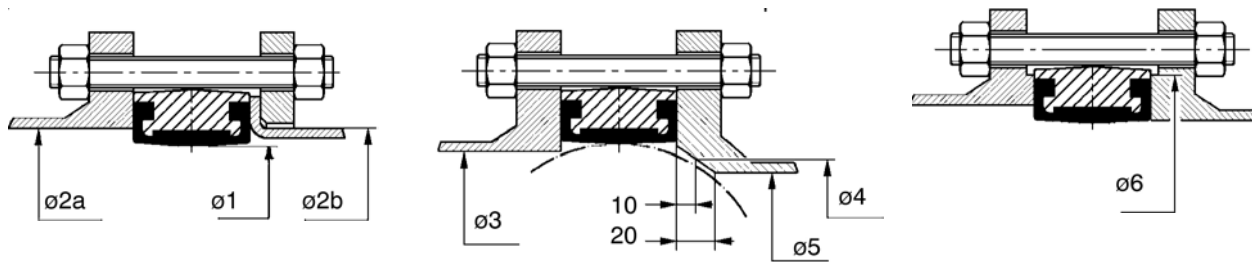
The valves can be installed between all commercial mating flanges and line connections without requiring any flange gaskets.

The elastomer liner alone provides a tight seal at the flange connections.

The drawings below show a valve of body type T1 installed between flanges.

Please verify that the connection meets the requirements given below.

The flange dimensions indicated in the table apply to all body types.



Ø2a and Ø3: flange face diameter

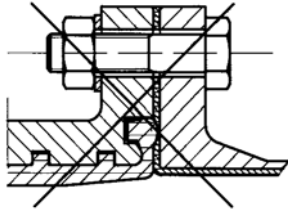
Ø2b: pipe OD with loose plate flange to DIN 2642 and NF E 29-251.

Dimensions table of ISORIA 10/16

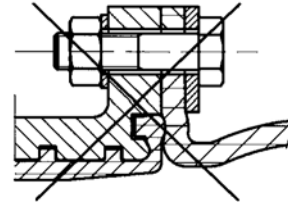
DN	NPS	Optimum Ø		Max. permissible Ø		Min. permissible Ø of flange face	Min. diameter at a distance of 10 mm from the flange face	Min. diameter at a distance of 20mm from the flange face	Min. permissible raised face Ø of flanges with raised faces
		Ø1	Ø2a	Ø2b	Ø3				
40	1½	40	54	49	32	-	-	77	
50	2	49	63	61	33	-	-	86	
65	2½	65	80	77	55	13	-	107	
80	3	77	93	89	71	50	-	121	
100	4	96	116	115	90	74	40	141	
125	5	123	141,5	140	119	107	87	171	
150	6	146	170,5 ¹⁹⁾	169	144	134	120	196	
200	8	196	222 ¹⁹⁾	220	196	189	178	250	
250	10	249	276,5 ¹⁹⁾	273	249	243	234	306	
300	12	298	327,5 ¹⁹⁾	324	297	291	283	358	
350	14	330	361	356	326	321	314	399	
400	16	380	412	407	370	366	358	452	
450	18	430	463	457	422	416	409	505	
500	20	480	515	508	470	464	457	558	
550	22	540	568	561	522	516	509	625	
600	24	580	617	610	566	560	554	664	
650	26	630	668	-	620	614	608	723	
700	28	680	718	-	671	666	660	773	
750	30	730	770	-	717	711	705	830	
800	32	780	820	-	769	764	758	880	
900	36	880	924	-	869	864	859	987	
1000	40	980	1027	-	970	965	960	1094	

19) Verify that body is correctly centred between the tie rods.

Coated flange



Flange with rubber coating



Expansion bellows

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

Installation between flanges made of polyethylene

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



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