



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 industry / beverage industry
- Paper industry / pulp 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
- 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 water 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

Table 1: Operating properties

Characteristic	Value	
	ISORIA 10	ISORIA 16
Nominal pressure	PN 10	PN 16
Nominal size	DN 40 - 1000	DN 40 - 1000
Max. permissible pressure [bar]	10	16
Min. permissible temperature [°C]	≥ -10	≥ -10
Max. permissible temperature [°C]	≤ +200	≤ +200
Actuation at ΔP [bar] at ambient temperature	10 max.	16 max.
Vacuum operation down to	0.3 bar absolute	
Max. permissible flow velocity at operating pressure	2 - 3 m/s max. for liquid or lub- ricating fluids	
Temperature [°C] with		
XA liner	-20 to +90	
XC liner	-20 to +90	
XV liner	-20 to +130	
K liner	-5 to +90	
CB liner	-5 to +100	
CC liner	0 to +60	
NB liner	-30 to +60	
NH liner	-5 to +130	
Y liner	-5 to +100	
VC liner	0 to +200	
EG liner	-25 to +100	
SK liner	-30 to +200	

Liner pressure limits based on pressure/materials table for 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

Valve body materials

Table 2: Overview of available materials

Material	Material number	Type	DN max.	KSB code
EN-GJL-250	JL1040	T1	DN 40-600	3t
EN-JS1030	JS 1030	T1	DN 650-1000	3g
ASTM A536 Gr. 60.40.18				
EN-JS1030	JS 1030	T2	DN 40-600	3g
ASTM A 216 Gr. WCC		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	JS 1030	T5	DN 650-1000	3g
ASTM A536 Gr. 60.40.18				

See list of components in the "Materials" section.

- Full-lug body with raised faces - T4: DN 40 - 600
- Flanged body with flat faces - T5: DN 650 to 1000 (DN 150 to 600 on request)
- Downstream dismantling possible with body types T2, T3, T4 and T5
- Dead-end service with counterflange possible with all body types (except T1 body)
- Body with polyurethane coating, thickness 80 µm, colour: RAL 5002, blue
- Valve discs made of nodular cast iron, epoxy-coated, thickness 80 µm, colour: RAL 8012, reddish brown
- Plug at valve bottom
- Design to EN 593 and ISO 10631
- Top flange and square valve shaft end to ISO 5211
- Marking in accordance with EN 19
- Absolutely tight shut-off in either direction of flow in accordance with EN 12266-1, leakage rate A, and ISO 5208, category A.
- EN, ASME, JIS, AWWA connections possible.
- Face-to-face length to ISO 5752-20 and EN 558-1-20

Variants

- Butterfly valve cleaned and packaged, free from paint wetting impairment substances
- Quarter-turn levers of the S+ / SR+ / SP+ / CR+ / CM+ type series
- MA+ manual gearbox
- MS / MC manual gearboxes
- Electric quarter-turn actuators
- Electric multi-turn actuators
- ACTAIR EVO / DYNACTAIR EVO pneumatic actuators
- HQ EVO hydraulic actuators
- AMTROBOX for open/closed position signalling
- AMTRONIC U on/off control unit
- SMARTRONIC U positioner
- Anti-static design for manually actuated valves

Product benefits

- The spherical contact between valve disc and liner ensures durable and permanently tight shut-off.
- Splined or keyed connection between shaft and valve disc: dry shaft, no contact with fluid handled
- Tight shut-off and sealing to atmosphere is ensured even when the actuator has been removed.
- Visual indication of valve disc position
- The anti-blow out device (screw) prevents the shaft and actuating shaft from being pushed out of the body.
- Valve equipped with plain bearings made of polymer and steel with reinforced PTFE coating, depending on the nominal size
- The elastomer liner provides tight sealing at the flanged line connections, eliminating the need for an extra gasket.

Product information

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

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

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

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

EC Machinery Directive 2006/42/EC

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

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

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

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

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

Certifications

Table 3: Overview

Label	Effective in:	Comment
	Worldwide	-
	Germany	Approved in accordance with the German drinking water regulation
	Switzerland	Approved in accordance with Swiss drinking water regulation
	Belgium	Approved in accordance with the Belgian drinking water regulation
	United Kingdom	Approved in accordance with the UK drinking water regulation
	France	Approved in accordance with the French drinking water regulation
	Worldwide	Elastomeric parts meet FDA standards.
	Worldwide	Approved for marine applications
	Worldwide	Approved for marine applications
	Worldwide	Approved for marine applications
	France	Approved for gas applications
	Germany	Approved for gas applications
	Europe	Certificate confirming food contact suitability as per European Regulation (EC) No. 1935/2004

Related documents

Table 4: Information/documents

Document	Reference number
Operating manual	8449.8

Purchase order specifications

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

Technical data

Permissible pressures for liners

Table 5: ISORIA 10

DN	NPS [inch]	Max. permissible pressure PS [bar]				
		XA - XC - XV - K - Y - CB	NH	VC	EG	CC - SK - NB
40-300	1½-12	10	10	10	10	6
350-500	14-20	10	6	10	10	6
550	22	10	6	10	-	-
600	24	10	6	10	10	6
650	26	10	6	-	-	-
700	28	10	6	6	-	-
750	30	10	6	-	-	-
800-1000	32-40	10	6	6	-	-

Table 6: ISORIA 16

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

Vacuum resistance

Table 7: Vacuum resistance data

DN	NPS [inch]	Liner mounting method	Min. pressure	Max. temperature
			[bar absolute]	All liners
40-300	1½-12	Non-glued (standard)	1,33 · 10 ⁻⁵ (10 ⁻² torr)	See "Operating data"
350-1000	14-40	Non-glued (standard)	0,3	
350-1000	14-40	Glued (optional)	1,33 · 10 ⁻⁵ (10 ⁻² torr)	80 °C

Hydraulic characteristics of butterfly valves

Table 8: Table: KvO and CvO [mm]

DN	NPS [inch]	Flow coefficient with valve 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

DN	NPS	Flow coefficient with valve disc fully open		Zeta
	[inch]	Kvo	Cvo	
800	32	63500	73660	0,16
900	36	84700	98250	0,15
1000	40	108500	125860	0,14

Actuating torques

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

Table 9: Table: actuating torques [Nm] for ISORIA 10

DN	NPS	Liners XA, XC, XV, K with lubricating fluid	All liners with non-lubricating fluid and ¹⁾
	[inch]		
40	1½	8	16
50	2	16	24
65	2½	24	32
80	3	32	40
100	4	48	56
125	5	64	80
150	6	104	112
200	8	136	168
250	10	198	297
300	12	342	468
350	14	450	648
400	16	585	882
450	18	720	1080
500	20	900	1350
550	22	1080	1620
600	24	1260	1890
650	26	1700	2600
700	28	2000	3000
750	30	2300	3500
800	32	2600	4000
900	36	3400	5000
1000	40	4100	6000

Table 10: Table: actuating torques [Nm] for ISORIA 16

DN	NPS	Liners XA, XC, XV, K with lubricating fluid only
	[inch]	
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

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

DN	NPS	Liners XA, XC, XV, K with lubricating fluid only
	[inch]	
750	30	3900
800	32	4000
900	36	5000
1000	40	6000

Materials

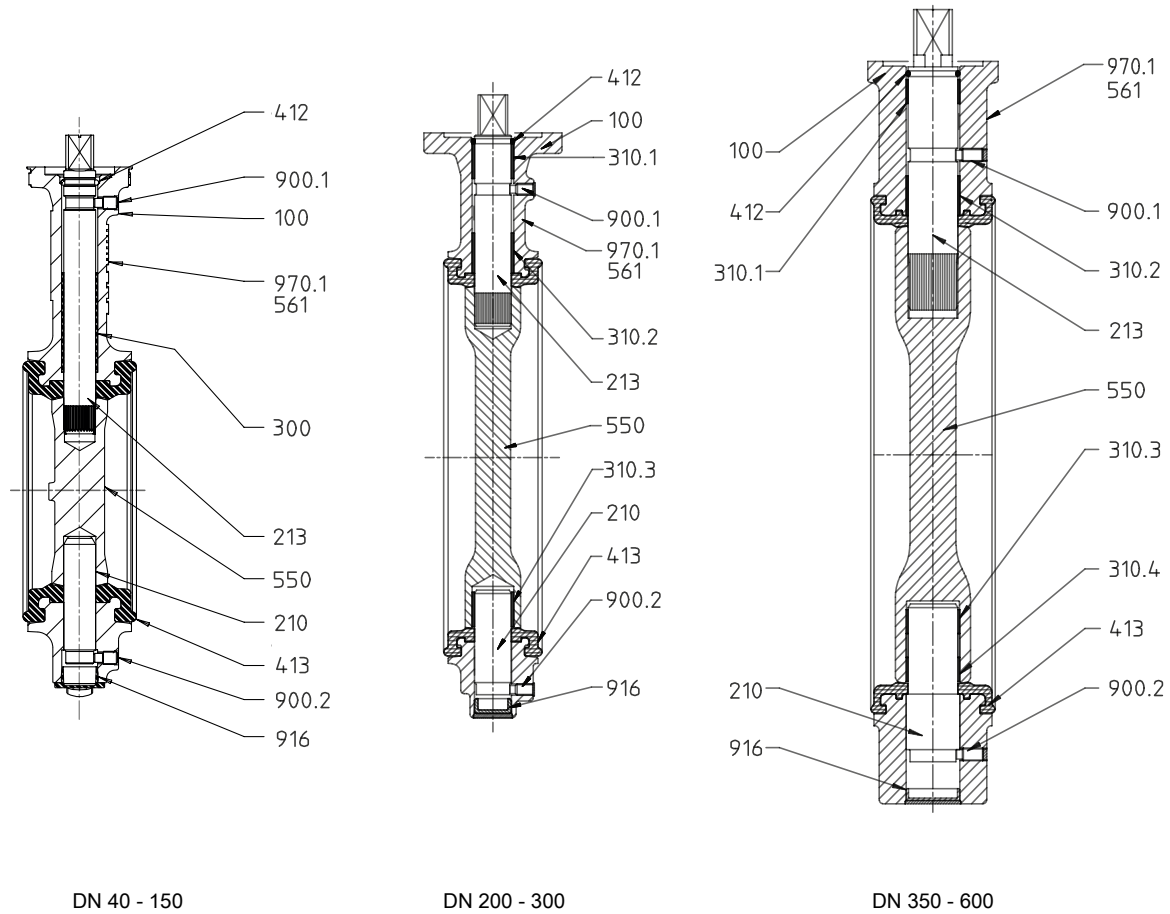


Fig. 1: Sectional drawings of ISORIA 10/16 for DN 40 - 600

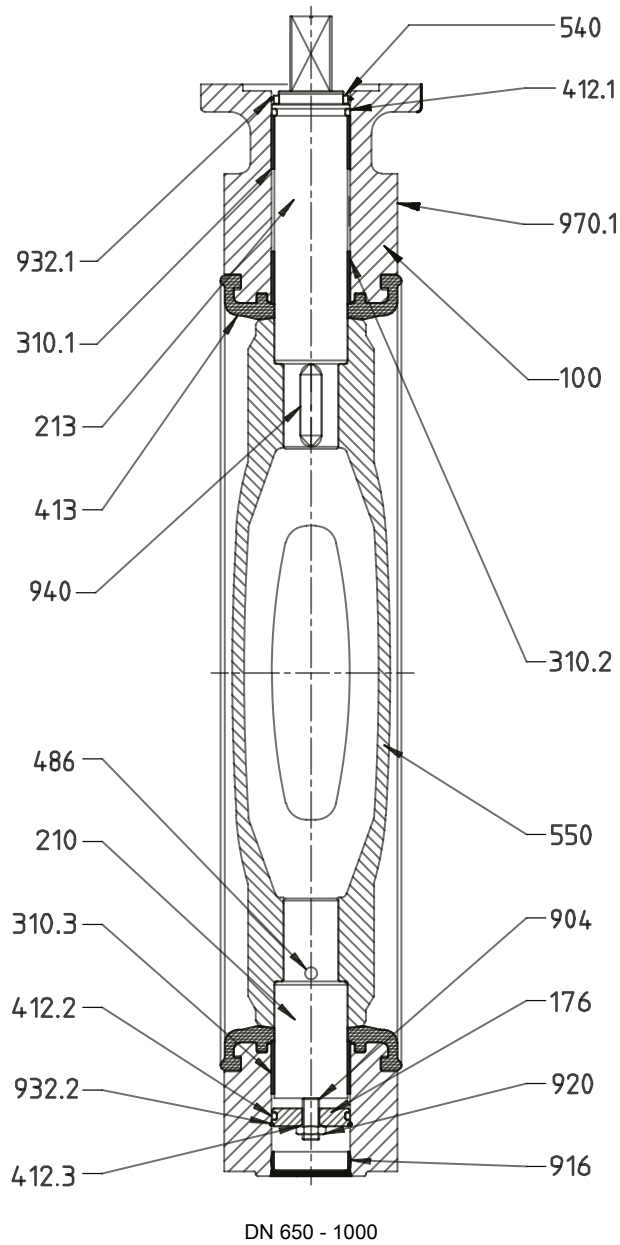


Fig. 2: Sectional drawings of ISORIA 10/16 for DN 650 - 1000

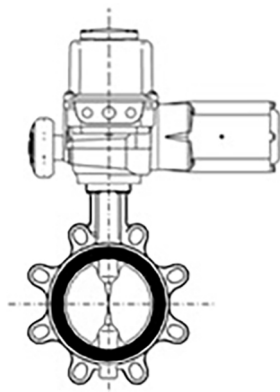
Table 11: List of components

Part No.	Description	DN	Materials	KSB code
100	Body T1	40 - 600	Lamellar graphite cast iron JL 1040	3t
100	Body T1	650 - 1000	Nodular cast iron JS 1030 ASTM A536 Gr. 60.40.18	3g
100	Body T2	40 - 600	Nodular cast iron JS 1030	3g
100	Body T3	40 - 600	Steel ASTM A216 Gr. WCC	1
100	Body T4	40 - 600	Nodular cast iron JS 1030	3g
100	Body T5	150 - 600	Nodular cast iron JS 1030	3g
100	Body T5	650 - 1000	Nodular cast iron JS 1030 ASTM A536 Gr. 60.40.18	3g
176	Bottom	650 - 1000	Steel	
210 ²⁾	Shaft	40 - 600	Stainless steel 1.4028 (13 % Cr)	6k
210 ²⁾	Shaft	650 - 1000	Stainless steel 1.4028 (13 % Cr)	6k
210 ²⁾	Shaft	40 - 600	Stainless steel 1.4057 (17 % Cr)	6h
210 ²⁾	Shaft	650 - 1000	Stainless steel 1.4542 (17 % Cr)	6e
213 ²⁾	Actuating shaft	40 - 600	Stainless steel 1.4028 (13 % Cr)	6k
213 ²⁾	Actuating shaft	650 - 1000	Stainless steel 1.4028 (13 % Cr)	6k
213 ²⁾	Actuating shaft	40 - 600	Stainless steel 1.4057 (17 % Cr)	6h
213 ²⁾	Actuating shaft	650 - 1000	Stainless steel 1.4542 (17 % Cr)	6e
300 ²⁾	Plain bearing	40 - 150	Polymer	
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	Nitrile HC	K
413 ⁴⁾	Liner	40 - 1000	Carboxylated nitrile	CB ⁵⁾
413 ⁴⁾	Liner	40 - 600	Carboxylated nitrile, white	CC ⁵⁾
413 ⁴⁾	Liner	40 - 1000	HYPALON (chlorosulfonated) polyethylene	Y
413 ⁴⁾	Liner	40 - 1000	Fluoroelastomer VITON, heat-resistant	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	Hydrogenated nitrile butadiene rubber (HNBR)	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 JS 1030	3g
550 ³⁾	Valve disc	650 - 1000	Nodular cast iron JS 1030 ASTM A536 Gr. 60.40.18	3g
550 ³⁾	Valve disc	40 - 600	Nodular cast iron JS 1030, Halar-coated	3a
550 ³⁾	Valve disc	40 - 1000	Nodular cast iron JS 1030, Ebonite-coated	3p ⁵⁾
550 ³⁾	Valve disc	40 - 1000	Nodular cast iron JS 1030, Rilsan-coated	3r ⁵⁾
550 ³⁾	Valve disc	40 - 300	Nodular cast iron JS 1030, EPDM-coated	3x ⁵⁾
550 ³⁾	Valve disc	40 - 1000	Stainless steel 1.4408 / ASTM A351 Gr. CF8M	6
550 ³⁾	Valve disc	40 - 200	Stainless steel 1.4401, polished	6i

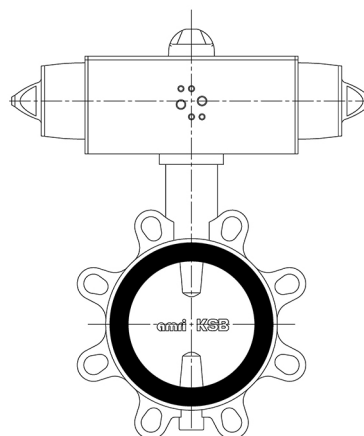
- ²⁾ Part from shaft spare parts kit
³⁾ Part from valve disc spare parts kit
⁴⁾ Part from liner spare parts kit
⁵⁾ For ISORIA 10 only

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. 1B / CD4MCu, equivalent of NOR-IDUR®	5a ⁵⁾
550 ³⁾	Valve disc	40 - 1000	ASTM A890 Gr. CE3MN, equivalent of NORICLOR®	5g ⁵⁾
550 ³⁾	Valve disc	40 - 1000	Austenitic stainless steel URANUS B6	6u ⁵⁾
550 ³⁾	Valve disc	40 - 1000	HASTELLOY C	7c ⁵⁾
561	Half round head grooved pin	40 - 600	Stainless steel	
900.1 ²⁾³⁾⁴⁾	Screw (shaft anti-blow out device)	40 - 1000	Stainless steel	
900.2 ²⁾³⁾⁴⁾	Screw (shaft anti-blow out device)	40 - 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	
932.1 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 - 1000	Stainless steel	

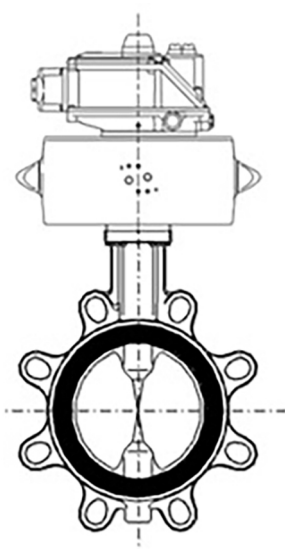
Variants



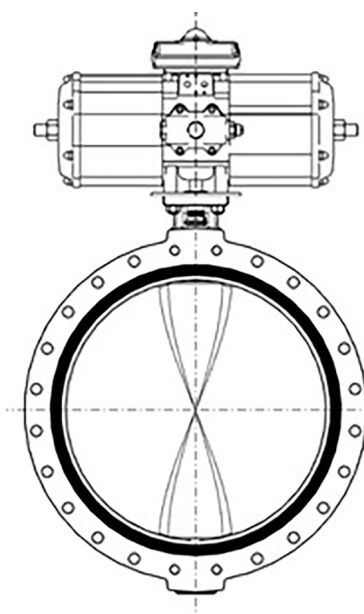
Electric actuator



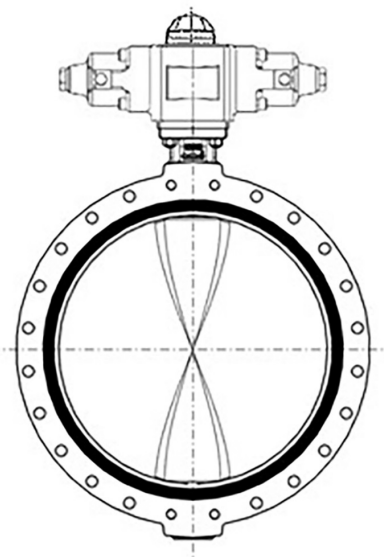
ACTAIR EVO / DYNACTAIR EVO pneumatic actuators



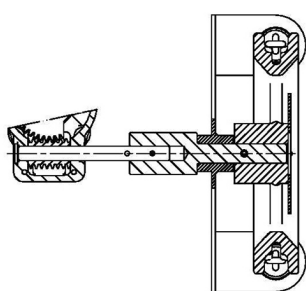
AMTRONIC U / SMARTRONIC U compressed air supply, positioner



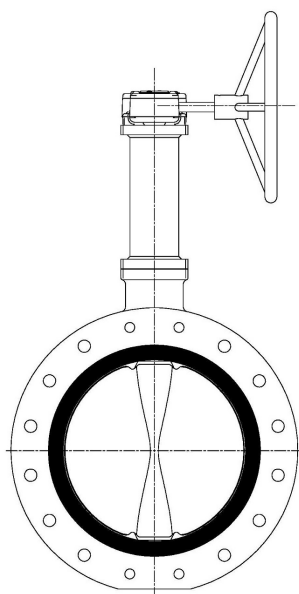
AMTROBOX, AMTROBOX R, AMTROBOX Ex-ia limit switch box



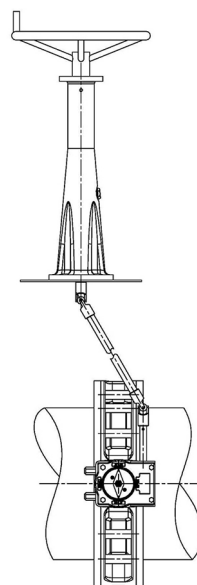
HQ EVO Hydraulic actuator



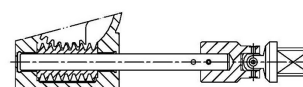
Actuation via chain wheel



Actuation via extension



Deck stand



Cardan connection

Dimensions and weights

Dimensions of ISORIA 10/16

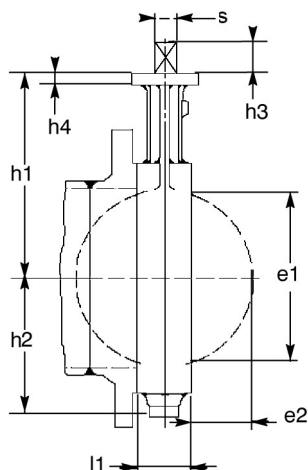


Fig. 3: ISORIA 10/16 with bare shaft end

Table 12: Dimensions [mm]

DN	NPS	l1	h1	h2					Actuator flange ISO 5211		Square shaft end		Valve disc	
	[inch]			T1	T2	T3	T4	T5	No.	h4	∅s	h3	e1	e2
40	1½	33	105	57	56	57	57	-	F05	10	L11	12	32	4
50	2	43	110	62	62	62	62	-	F05	10	L11	12	33	4
65	2½	46	136	76	82	83	83	-	F05	10	L11	12	55	11
80	3	46	142	82	89	93	89	-	F05	10	L11	12	71	17
100	4	52	163	98	103	106	105	-	F05	10	L14	16	90	23
125	5	56	177	111	118	119	119	-	F05	10	L14	16	119	35
150	6	56	194	129	131	131	130	145	F07	12	L14	16	144	46
200	8	60	222	158	161	164	161	169	F07	12	L17	19	196	69
250	10	68	255	195	197	198	199	200	F10	15	L22	24	249	92
300	12	78	282	231	231	232	233	237	F12	18	L22	24	297	111
350	14	78	335	267	270	262	265	260	F12	23	L27	29	326	127
400	16	102	380	298	302	292	297	289	F14	23	L36	38	370	140
450	18	114	410	329	329	329	329	332	F14	23	L36	38	422	160
500	20	127	440	359	358	350	359	370	F14	27	L36	38	470	178
550	22	154	475	406	406	406	406	406	F16	27	L46	48	522	195
600	22	154	495	439	439	439	439	439	F16	27	L46	48	566	215
650	26	165	535	448	-	-	-	448	F16	26	L46	48	620	235
700	28	165	560	479	-	-	-	479	F16	26	L46	48	671	260
750	30	190	590	510	-	-	-	510	F16	26	L46	48	717	273
800	32	190	615	543	-	-	-	543	F16	26	L46	48	769	298
900	36	203	665	585	-	-	-	585	F25	30	L55	57	869	341
1000	40	216	735	643	-	-	-	643	F25	30	L55	57	970	385

Manual override

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

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

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

Dimensions and weights of ISORIA 10/16 + lever S+/SR+

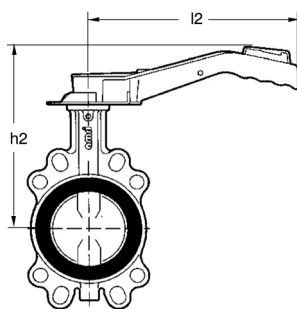


Fig. 4: Unit comprising ISORIA 10/16 + lever S+/SR+

S+ lever: can be locked in end positions

SR+ lever: can be locked in 9 positions

Table 13: Actuation via lever S+/SR+ [mm]

DN	NPS [inch]	Max. velocity [m/s]	l2	h2	[kg] ⁶⁾
40	1½	3,0	180	163	0,5
			260	179	0,6
50	2	3,0	180	168	0,5
			260	184	0,6
65	2½	3,0	180	194	0,5
			260	210	0,6
80	3	3,0	180	200	0,5
			260	216	0,6
100	4	3,0	260	237	0,6
			330	245	0,7
125	5	3,0	260 ⁷⁾	251	0,6
			330	259	0,7
150	6	3,0	260 ⁷⁾	268	0,6
			330	276	0,7
200	8	3,0	330 ⁷⁾	304	0,7

⁶⁾ The weights given refer to the actuating element.

⁷⁾ High actuating torque, manual gearbox recommended

Dimensions and weights of ISORIA 10/16 + lever SP+

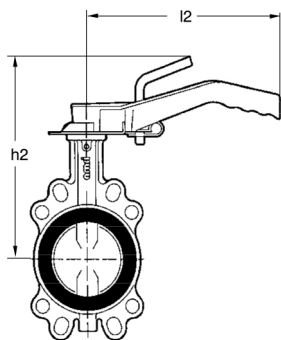


Fig. 5: Unit comprising ISORIA 10/16 + lever SP+

SP+ lever: can be locked in any position

Table 14: Actuation via SP+ lever [mm]

DN	NPS	Max. velocity	l2	h2	[kg] ⁸⁾
	[inch]	[m/s]			
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	260	263	0,7
			330	263	0,8
125	5	3,0	260 ⁹⁾	277	0,7
			330	277	0,8
150	6	3,0	260 ⁹⁾	294	0,7
			330	294	0,8
200	8	3,0	330 ⁹⁾	322	0,8

⁸⁾ The weights given refer to the actuating element.

⁹⁾ High actuating torque, manual gearbox recommended

Dimensions and weights of ISORIA 10/16 + lever CR+/CM+

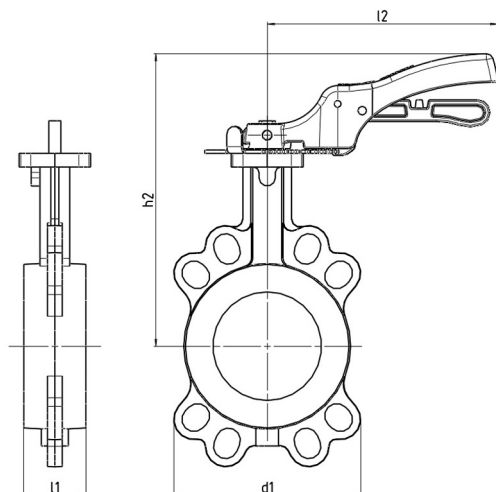


Fig. 6: Unit comprising ISORIA 10/16 + lever CR+/CM+

Table 15: Actuation via lever CR+/CM+ [mm]

DN	NPS [inch]	Max. velocity [m/s]	l1	d1	l2	h2	[kg] ¹⁰⁾
40	1½	3,0	33	108	165	178	0,8
					230	191	1,2
50	2	3,0	43	118	165	182	0,8
					230	195	1,2
65	2½	3,0	46	132	165	209	0,8
					230	222	1,2
80	3	3,0	46	138	165	215	0,8
					230	228	1,2
100	4	3,0	52	150	230	249	1,2
					300	262	1,7
125	5	3,0	56	234	230 ¹¹⁾	262	1,2
					300	275	1,7
150	6	3,0	56	260	230 ¹¹⁾	280	1,2
					300 ¹¹⁾	293	1,7
					510	307	3,1
200	8	3,0	60	322	300 ¹¹⁾	321	1,7
					510	335	3,1
250	10	3,0	68	394	510 ¹¹⁾	368	3,1
300	12	3,0	78	462	510 ¹¹⁾	395	3,1

¹⁰⁾ The weights given refer to the actuating element.

¹¹⁾ High actuating torque, manual gearbox recommended

Dimensions and weights of ISORIA 10/16 + manual gearbox MA+

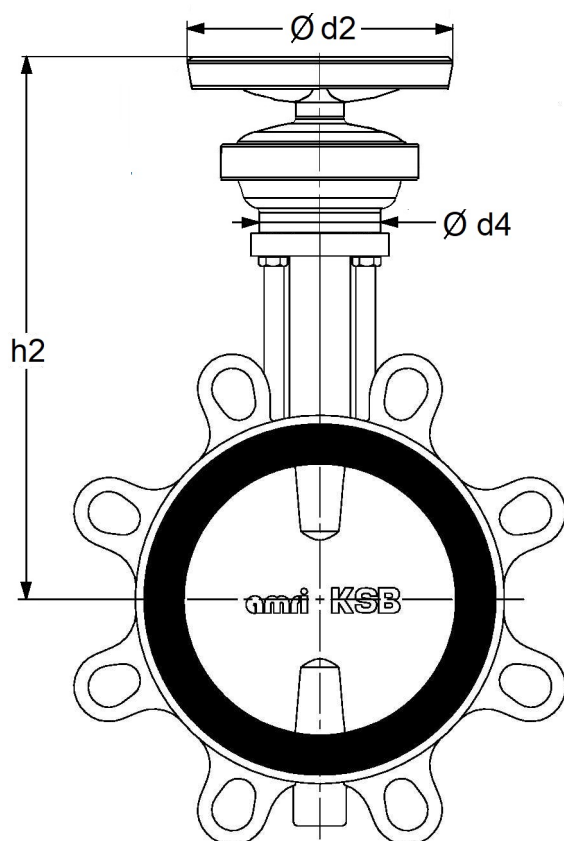


Fig. 7: Unit comprising ISORIA 10/16 + manual gearbox MA+

Table 16: Actuation via MA+ manual gearbox for ISORIA 10/16 [mm]

DN	NPS [inch]	Max. velocity [m/s]	Type	d2	h2	d4	[kg] ¹²⁾
40	1½	3,0	MA12+	140	199	60	1,5
50	2	3,0	MA12+	140	204	60	1,5
65	2½	3,0	MA12+	140	230	60	1,5
80	3	3,0	MA12+	140	236	60	1,5
100	4	3,0	MA12+	140	257	70	1,5
125	5	3,0	MA12+	140	271	70	1,5
150	6	3,0	MA25+	225	322	95	3
200	8	3,0	MA25+	225	350	95	3

¹²⁾ The weights given refer to the actuating element.

Dimensions and weights of ISORIA 10/16 + MS manual gearbox

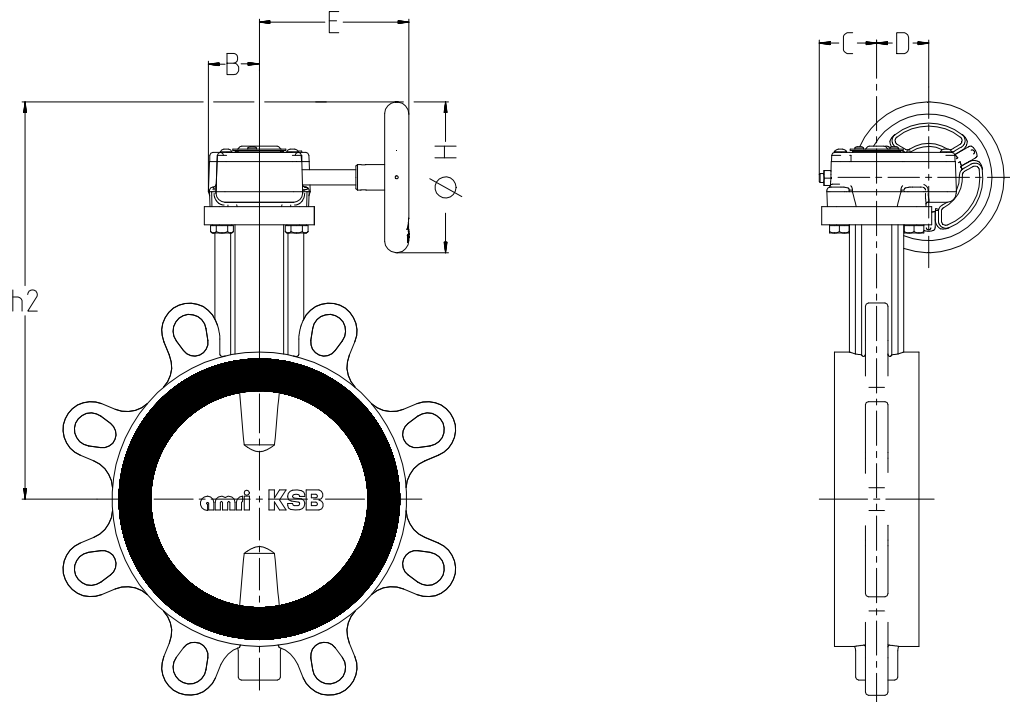


Fig. 8: Unit comprising ISORIA 10/16 + MS manual gearbox

Table 17: Actuation via MS manual gearbox for ISORIA 10 (lubricating fluid, with liners XA, XC, XV and K) [mm]

DN	NPS	Max. velocity	Type	B	C	D	E	H	h2	[kg] ¹³⁾
	[inch]	[m/s]								
40	1½	3,0	MS15	38	38	34,5	153	100	175	1,2
50	2	3,0	MS15	38	38	34,5	153	100	179	1,2
65	2½	3,0	MS15	38	38	34,5	153	100	206	1,2
80	3	3,0	MS15	38	38	34,5	153	100	212	1,2
100	4	3,0	MS15	38	38	34,5	153	100	233	1,2
125	5	3,0	MS15	38	38	34,5	153	100	246	1,2
150	6	3,0	MS15	38	38	34,5	153	100	264	1,2
200	8	3,0	MS30	46	46	41,5	229	200	350	2,6
250	10	3,0	MS30	46	46	41,5	229	200	383	2,6
300	12	3,0	MS50	57,5	59,5	55	244	250	441	5,6
350	14	3,0	MS50	57,5	59,5	55	244	250	494	5,6
400	16	3,0	MS100	67,5	70	69	298	400	618	9
450	18	2,5	MS100	67,5	70	69	298	400	648	9
500	20	2,5	MS100	78	70	69	298	400	678	9
550	22	2,5	MS200	78	67	81,5	255	400	728	11,9
600	24	2,5	MS200	78	67	81,5	255	400	748	11,9
650	26	2,5	MS200	78	67	81,5	255	400	788	11,9
700	28	2,5	MS200	78	67	81,5	255	400	813	11,9
750	30	2,0	MS450	107,5	111	53	328	400	846	28
800	32	2,0	MS450	107,5	111	53	328	400	871	28
900	36	2,0	MS700	142,5	142,5	130	417	500	970	43
1000	40	2,0	MS700	142,5	142,5	130	417	500	1040	43

¹³⁾ The weights given refer to the actuating element.

Table 18: Actuation via MS manual gearbox for ISORIA 10 (lubricating fluid, with liners other than XA, XC, XV and K, non-lubricating fluid with all liners) [mm]

DN	NPS	Max. velocity	Type	B	C	D	E	H	h2	[kg] ¹⁴⁾
	[inch]	[m/s]								
40	1½	3,0	MS15	38	38	34,5	153	100	1755	1,2
50	2	3,0	MS15	38	38	34,5	153	100	179	1,2
65	2½	3,0	MS15	38	38	34,5	153	100	206	1,2
80	3	3,0	MS15	38	38	34,5	153	100	212	1,2
100	4	3,0	MS15	38	38	34,5	153	100	233	1,2
125	5	3,0	MS15	38	38	34,5	153	100	246	1,2
150	6	3,0	MS15	38	38	34,5	153	100	264	1,2
200	8	3,0	MS30	46	46	41,5	229	200	350	2,6
250	10	3,0	MS30	46	46	41,5	229	200	383	2,6
300	12	3,0	MS50	57,5	59,5	55	244	250	441	5,6
350	14	3,0	MS100	67,5	70	69	298	400	573	9
400	16	3,0	MS100	67,5	70	69	298	400	618	9
450	18	2,5	MS100	67,5	70	69	298	400	648	9
500	20	2,5	MS200	78	67	81,5	255	400	693	11,9
550	22	2,5	MS200	78	67	81,5	255	400	728	11,9
600	24	2,5	MS200	78	67	81,5	255	400	748	11,9
650	26	2,5	MS450	107,5	111	53	328	400	791	28
700	28	2,5	MS450	107,5	111	53	328	400	816	28
750	30	2,0	MS450	107,5	111	53	328	400	846	28
800	32	2,0	MS450	107,5	111	53	328	400	871	28
900	36	2,0	MS700	142,5	142,5	130	417	500	970	43
1000	40	2,0	MS700	142,5	142,5	130	417	500	1040	43

Table 19: Actuation via MS manual gearbox for ISORIA 16 (lubricating fluid, with liners XA, XC, XV and K) [mm]

DN	NPS	Max. velocity	Type	B	C	D	E	H	h2	[kg] ¹⁵⁾
	[inch]	[m/s]								
40	1½	3,0	MS15	38	38	34,5	153	100	175	1,2
50	2	3,0	MS15	38	38	34,5	153	100	179	1,2
65	2½	3,0	MS15	38	38	34,5	153	100	206	1,2
80	3	3,0	MS15	38	38	34,5	153	100	212	1,2
100	4	3,0	MS15	38	38	34,5	153	100	233	1,2
125	5	3,0	MS15	38	38	34,5	153	100	246	1,2
150	6	3,0	MS15	38	38	34,5	153	100	264	1,2
200	8	3,0	MS30	46	46	41,5	229	200	350	2,6
250	10	3,0	MS30	46	46	41,5	229	200	383	2,6
300	12	3,0	MS50	57,5	59,5	55	244	250	441	5,6
350	14	3,0	MS100	67,5	70	69	298	400	573	9
400	16	3,0	MS100	67,5	70	69	298	400	618	9
450	18	2,5	MS100	67,5	70	69	298	400	648	9
500	20	2,5	MS200	78	67	81,5	255	400	693	11,9
550	22	2,5	MS200	78	67	81,5	255	400	728	11,9
600	24	2,5	MS200	78	67	81,5	255	400	748	11,9
650	26	2,5	MS450	107,5	111	53	328	400	751	28
700	28	2,5	MS450	107,5	111	53	328	400	816	28
750	30	2,0	MS450	107,5	111	53	328	400	846	28
800	32	2,0	MS450	107,5	111	53	328	400	871	28
900	36	2,0	MS700	142,5	142,5	130	417	500	970	43
1000	40	2,0	MS700	142,5	142,5	130	417	500	1040	43

¹⁴⁾ The weights given refer to the actuating element.

¹⁵⁾ The weights given refer to the actuating element.

Table 20: Actuation via MS manual gearbox for ISORIA 16 (lubricating fluid, with liner Y) [mm]

DN	NPS	Max. velocity	Type	B	C	D	E	H	h2	[kg] ¹⁶⁾
	[inch]	[m/s]								
40	1½	3,0	MS15	38	38	34,5	153	100	175	1,2
50	2	3,0	MS15	38	38	34,5	153	100	179	1,2
65	2½	3,0	MS15	38	38	34,5	153	100	206	1,2
80	3	3,0	MS15	38	38	34,5	153	100	212	1,2
100	4	3,0	MS15	38	38	34,5	153	100	233	1,2
125	5	3,0	MS15	38	38	34,5	153	100	246	1,2
150	6	3,0	MS15	38	38	34,5	153	100	264	1,2
200	8	3,0	MS30	46	46	41,5	229	200	350	2,6
250	10	3,0	MS50	57,5	59,5	55	245	250	414	5,6
300	12	3,0	MS100	67,5	70	69	298	400	520	9
350	14	3,0	MS100	67,5	70	69	298	400	573	9
400	16	3,0	MS100	67,5	70	69	298	400	618	9
450	18	2,5	MS100	67,5	70	69	298	400	648	9
500	20	2,5	MS200	78	67	81,5	255	400	693	11,9
550	22	2,5	MS200	78	67	81,5	255	400	728	11,9
600	24	2,5	MS450	107,5	111	53	328	400	751	28
650	26	2,5	MS450	107,5	111	53	328	400	791	28
700	28	2,5	MS450	107,5	111	53	328	400	816	28
750	30	2,0	MS450	107,5	111	53	328	400	846	28
800	32	2,0	MS450	107,5	111	53	328	400	871	28
900	36	2,0	MS700	142,5	142,5	130	417	500	970	43
1000	40	2,0	MS700	142,5	142,5	130	417	500	1040	43

¹⁶⁾ The weights given refer to the actuating element.

Dimensions and weights of ISORIA 10/16 + MC manual gearbox

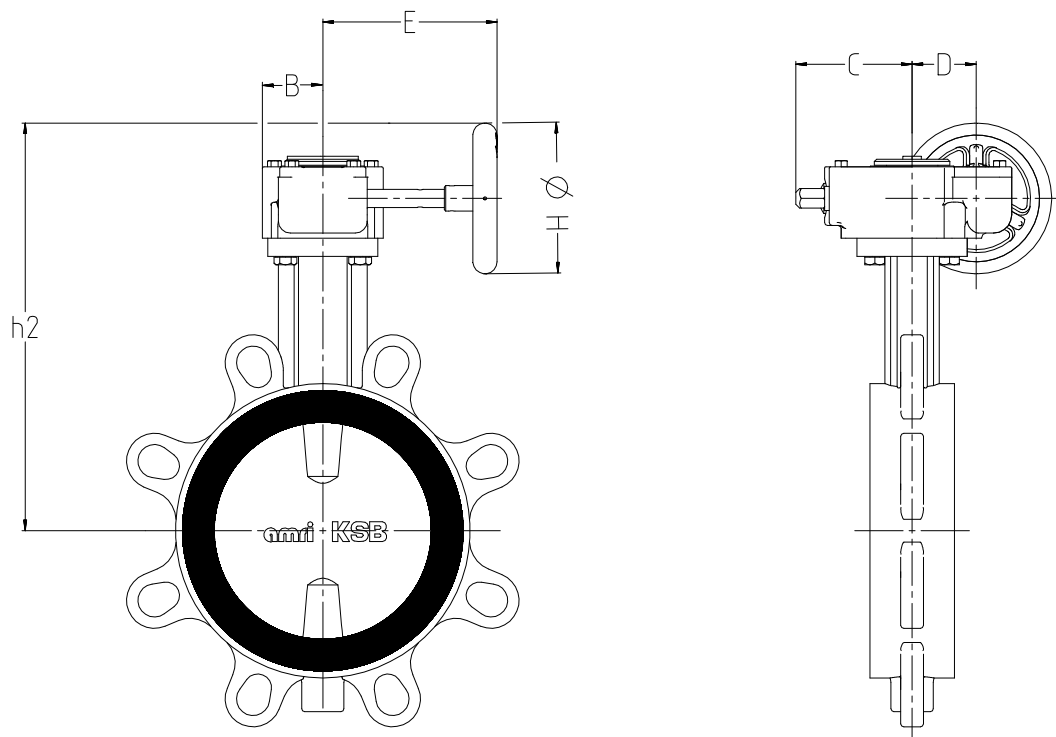


Fig. 9: Unit comprising ISORIA 10/16 + MC manual gearbox

Table 21: Actuation via MC manual gearbox for ISORIA 10 (lubricating fluid, with liners XA, XC, XV and K) [mm]

DN	NPS	Max. velocity	Type	B	C	D	E	H	h2	[kg] ¹⁷⁾
	[inch]	[m/s]								
40	1½	3,0	MC15	40	77	43	158	150	207	3,2
50	2	3,0	MC15	40	77	43	158	150	211	3,2
65	2½	3,0	MC15	40	77	43	158	150	238	3,2
80	3	3,0	MC15	40	77	43	158	150	244	3,2
100	4	3,0	MC15	40	77	43	158	150	265	3,2
125	5	3,0	MC15	40	77	43	158	150	278	3,2
150	6	3,0	MC15	40	77	43	158	150	221	3,2
200	8	3,0	MC30	51	62	52	217	200	251	4,9
250	10	3,0	MC30	51	62	52	217	200	284	4,9
300	12	3,0	MC50	51	62	52	247	250	311	5
350	14	3,0	MC100	69	99	71	297	400	376	11,3
400	16	3,0	MC100	69	99	71	297	400	421	11,3
450	18	2,5	MC100	69	99	71	297	400	451	11,3
500	20	2,5	MC100	69	99	71	297	400	481	11,3
550	22	2,5	MC200	100	116	86	285	400	517	17,5
600	24	2,5	MC200	100	116	86	285	400	537	17,5
650	26	2,5	MC200	100	116	86	285	400	577	17,5
700	28	2,5	MC200	100	116	86	285	400	602	17,5
750	30	2,0	MC450	107,5	120	53	328	400	646	27,5
800	32	2,0	MC450	107,5	120	53	328	400	671	27,5
900	36	2,0	MC700	142,5	143	130	417	500	720	42,5
1000	40	2,0	MC700	142,5	143	130	417	500	790	42,5

¹⁷⁾ The weights given refer to the actuating element.

Table 22: Actuation via MC manual gearbox for ISORIA 10 (lubricating fluid with liners other than XA, XC, XV and K, non-lubricating fluid with all liners) [mm]

DN	NPS	Max. velocity	Type	B	C	D	E	H	h2	[kg] ¹⁸⁾
	[inch]	[m/s]								
40	1½	3,0	MC15	40	77	43	158	150	207	3,2
50	2	3,0	MC15	40	77	43	158	150	211	3,2
65	2½	3,0	MC15	40	77	43	158	150	238	3,2
80	3	3,0	MC15	40	77	43	158	150	244	3,2
100	4	3,0	MC15	40	77	43	158	150	265	3,2
125	5	3,0	MC15	40	77	43	158	150	278	3,2
150	6	3,0	MC15	40	77	43	158	150	221	3,2
200	8	3,0	MC30	51	62	52	217	200	251	4,9
250	10	3,0	MC30	51	62	52	217	200	284	4,9
300	12	3,0	MC50	51	62	52	247	250	311	5
350	14	3,0	MC100	69	99	71	297	400	376	11,3
400	16	3,0	MC100	69	99	71	297	400	421	11,3
450	18	2,5	MC200	100	116	86	285	400	451	17,5
500	20	2,5	MC200	100	116	86	285	400	482	17,5
550	22	2,5	MC200	100	116	86	285	400	517	17,5
600	24	2,5	MC200	100	116	86	285	400	537	17,5
650	26	2,5	MC450	107,5	120	53	328	400	591	27,5
700	28	2,5	MC450	107,5	120	53	328	400	616	27,5
750	30	2,0	MC450	107,5	120	53	328	400	646	27,5
800	32	2,0	MC450	107,5	120	53	328	400	671	27,5
900	36	2,0	MC700	142,5	143	130	417	500	720	42,5
1000	40	2,0	MC700	142,5	143	130	417	500	790	42,5

Table 23: Actuation via MC manual gearbox for ISORIA 16 (lubricating fluid, with liners XA, XC, XV and K) [mm]

DN	NPS	Max. velocity	Type	B	C	D	E	H	h2	[kg] ¹⁹⁾
	[inch]	[m/s]								
40	1½	3,0	MC15	40	77	43	158	150	207	3,2
50	2	3,0	MC15	40	77	43	158	150	211	3,2
65	2½	3,0	MC15	40	77	43	158	150	238	3,2
80	3	3,0	MC15	40	77	43	158	150	244	3,2
100	4	3,0	MC15	40	77	43	158	150	265	3,2
125	5	3,0	MC15	40	77	43	158	150	278	3,2
150	6	3,0	MC15	40	77	43	158	150	221	3,2
200	8	3,0	MC30	51	62	52	217	200	251	4,9
250	10	3,0	MC30	51	62	52	217	200	284	4,9
300	12	3,0	MC50	51	62	52	247	250	311	5
350	14	3,0	MC100	69	99	71	297	400	376	11,3
400	16	3,0	MC100	69	99	71	297	400	421	11,3
450	18	2,5	MC200	100	116	86	297	400	451	17,5
500	20	2,5	MC200	100	116	86	285	400	482	17,5
550	22	2,5	MC200	100	116	86	285	400	517	17,5
600	24	2,5	MC200	100	116	86	285	400	537	17,5
650	26	2,5	MC450	107,5	120	53	328	400	591	27,5
700	28	2,5	MC450	107,5	120	53	328	400	616	27,5
750	30	2,0	MC450	107,5	120	53	328	400	646	27,5
800	32	2,0	MC450	107,5	120	53	328	400	671	27,5
900	36	2,0	MC700	142,5	143	130	417	500	720	42,5
1000	40	2,0	MC700	142,5	143	130	417	500	790	42,5

¹⁸⁾ The weights given refer to the actuating element.

¹⁹⁾ The weights given refer to the actuating element.

Table 24: Actuation via MC manual gearbox for ISORIA 16 (lubricating fluid, with liner Y) [mm]

DN	NPS	Max. velocity	Type	B	C	D	E	H	h2	[kg] ²⁰⁾
	[inch]	[m/s]								
40	1½	3,0	MC15	40	77	43	158	150	207	3,2
50	2	3,0	MC15	40	77	43	158	150	211	3,2
65	2½	3,0	MC15	40	77	43	158	150	238	3,2
80	3	3,0	MC15	40	77	43	158	150	244	3,2
100	4	3,0	MC15	40	77	43	158	150	265	3,2
125	5	3,0	MC15	40	77	43	158	150	278	3,2
150	6	3,0	MC15	40	77	43	158	150	221	3,2
200	8	3,0	MC30	51	62	52	217	200	251	4,9
250	10	3,0	MC30	51	62	52	217	200	284	4,9
300	12	3,0	MC100	69	99	71	297	400	323	11,3
350	14	3,0	MC100	69	99	71	297	400	376	11,3
400	16	3,0	MC200	100	116	86	285	400	422	17,5
450	18	2,5	MC200	100	116	86	285	400	452	17,5
500	20	2,5	MC200	100	116	86	285	400	482	17,5
550	22	2,5	MC200	100	116	86	285	400	517	17,5
600	24	2,5	MC450	107,5	120	53	328	400	551	27,5
650	26	2,5	MC450	107,5	120	53	328	400	591	27,5
700	28	2,5	MC450	107,5	120	53	328	400	616	27,5
750	30	2,0	MC450	107,5	120	53	328	400	646	27,5
800	32	2,0	MC450	107,5	120	53	328	400	671	27,5
900	36	2,0	MC700	142,5	143	130	417	500	720	42,5
1000	40	2,0	MC700	142,5	143	130	417	500	790	42,5

²⁰⁾ The weights given refer to the actuating element.

Line connections

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

- EN 1092 PN 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 SP 44 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)

Table 25: Wafer-type body – T1

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

Table 26: Semi-lug body (T2) for standards EN 1092, MSS SP44 Class 150, JIS B2220, JIS B2238 and JIS B2239

DN	NPS [inch]	EN 1092			MSS SP44 Class 150	JIS B2220, B2238, B2239			
		PN 6 ²¹⁾	PN 10	PN 16		5K	10K	16K	20K ²²⁾
40	1½	✓	✓	✓	•	✓	✓	✓	✓
50	2	✓	✓	✓	•	✓	✓	✓	✓
65	2½	✓	✓	✓	•	✓	✓	✓	✓
80	3	✓	✓	✓	•	✓	✓	✓	✓
100	4	✓	✓	✓	•	✓	✓	✓	✓
125	5	✓	✓	✓	•	✓	✓	✓	✓
150	6	✓	✓	✓	•	✓	✓	✓	✓
200	8	✓	✓	✓	•	✓	✓	✓	✓
250	10	✓	✓	✓	•	✓	✓	✓	✓
300	12	✓	✓	✓	✓	✓	✓	✓	✓
350	14	✓	✓	✓	✓	✓	✓	✓	✓
400	16	✓	✓	✓	✓	✓	✓	✓	✓
450	18	✓	✓	✓	✓	✓	✓	✓	✓
500	20	✓	✓	✓	✓	✓	✓	✓	✓
550	22	•	•	•	✓	✓	✓	✓	✓
600	24	✓	✓	✓	✓	✓	✓	✓	✓

Table 27: Semi-lug body (T2) for standards ASME, AWWA, BS10 and AS2129

DN	NPS [inch]	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	✓	✓	✓	✓	✓	✓	✓

²¹ ISORIA 10-specific

²² ISORIA 16-specific

Table 28: Symbols key

Symbol	Description	Symbol	Description
✓	Installation possible	•	Non-standardised connection
■	Downstream dismantling not possible		

Table 29: Full-lug body with flat faces (T3) for standards EN 1092, MSS SP44 Class 150, JIS B2220, JIS B2238 and JIS B2239

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

Table 30: Full-lug body with flat faces (T3) for standards ASME, AWWA , BS10 and AS2129

DN	NPS [inch]	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	✓	✓	✓	☒	☒	☒	☒

Table 31: Symbols key

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

Table 32: Full-lug body with raised faces (T4) for standards EN 1092, MSS SP44 Class 150, JIS B2220, JIS B2238 and JIS B2239

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

Table 33: Full-lug body with raised faces (T4) for standards ASME, AWWA , BS10 and AS2129

DN	NPS [inch]	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	✓	✓	✓	•	•	•	•

Table 34: Symbols key

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

Table 35: Flanged body with flat faces (T5) for standards EN 1092, MSS SP44 Class 150, JIS B2220, JIS B2238 and JIS B2239

DN	NPS	EN 1092			MSS SP44 cl.150	JIS B2220, B2238, B2239			
		PN 6	PN 10	PN 16		5K	10K	16K	20K
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	✓■	✓■	✓■	✓■	✓■	✓■	♦	♦

Table 36: Flanged body with flat faces (T5) for standards ASME, AWWA , BS10 and AS2129

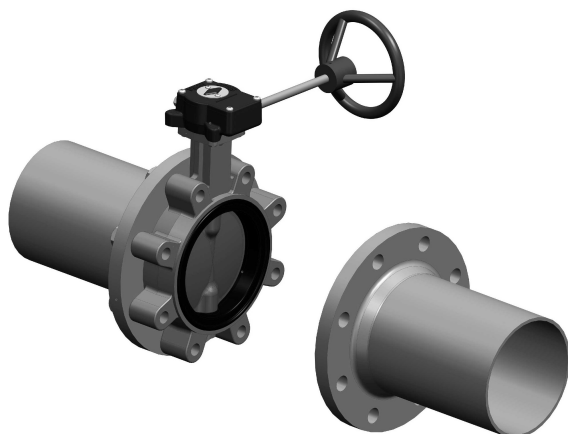
DN	NPS	ASME			AWWA C207 B,D,E	BS10		AS2129	
		B16.1 Cl. 125	B16.5 Cl. 150B16.1 Cl. 150	B16.47 Cl. 150		Table D	Table E	Table D	Table E
150	6	✓	✓	•	✓	✓	✓	✓	✓
200	8	✓	✓	•	✓	✓	✓	✓	✓
250	10	✓	✓	•	✓	♦	✓	♦	✓
300	12	✓	✓	•	✓	✓	✓	✓	✓
350	14	✓	✓	•	✓	✓	✓	✓	✓
400	16	✓	✓	•	✓	✓	✓	✓	✓
450	18	✓	✓	•	✓	✓	✓	✓	✓
500	20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

Table 37: Symbols key

Symbol	Description	Symbol	Description
✓	Installation possible	•	Non-standardised connection
■	Downstream dismantling not possible	♦	Installation not possible
■	Flanged installation possible	⚠	Contact KSB.

Installation information

Dead-end service and downstream dismantling



Downstream dismantling

For downstream dismantling,
successively loosen diagonally opposed tie bolts.



Dead-end service

Flange dimensions

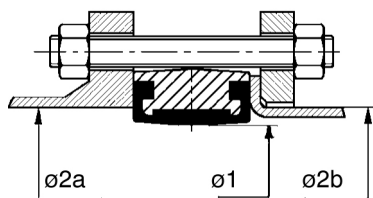
The valves can be installed between all commercial mating flanges and line connections without requiring any flange gaskets.

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

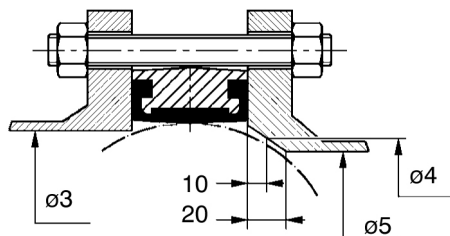
The drawings below show a valve of body type T1 installed between flanges.

Please verify that the connection meets the requirements given below.

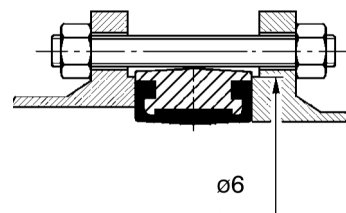
The flange dimensions indicated in the table apply to all body types.



Drawing A



Drawing B



Drawing C

Ø2a and Ø3: flange face diameter

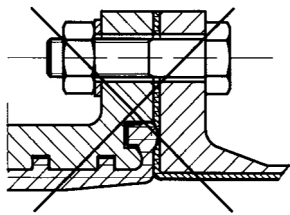
Ø2b: pipe OD with loose plate flange to DIN 2642 and NF E 29-251

Table 38: Dimensions table of ISORIA 10/16

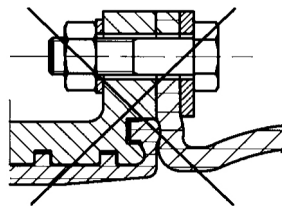
DN	NPS	Optimum Ø	Max. permissible Ø		Min. permissible Ø of flange face	Min. Ø at a distance of 10 mm from the flange face	Min. Ø at a distance of 20 mm from the flange face	Min. permissible raised face Ø of flanges with raised faces
	[inch]							
		Ø1	Ø2a	Ø2b	Ø3	Ø4	Ø5	Ø6
40	1½	40	54	49	32	-	-	77
50	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 ²³⁾	169	144	134	120	196
200	8	196	222 ²³⁾	220	196	189	178	250
250	10	249	276,5 ²³⁾	273	249	243	234	306
300	12	298	327,5 ²³⁾	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

²³⁾ Verify that body is correctly centred between the tie bolts.

Coated flange



Flange with rubber coating



Expansion bellows

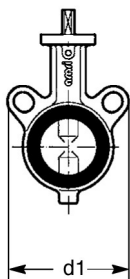
N.B.: Direct installation between rubber-coated flanges or with expansion bellows is not permitted. Contact us.

Installation between flanges made of polyethylene

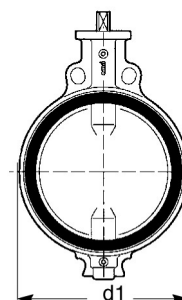
- Installation between flanges with flat faces is permitted.
- Installation between flanges with grooved faces is not permitted.

Bolting and weights

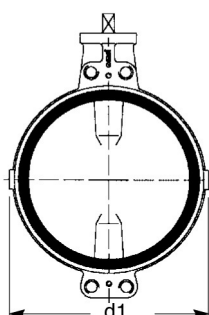
Bolting and weights for wafer-type body - T1



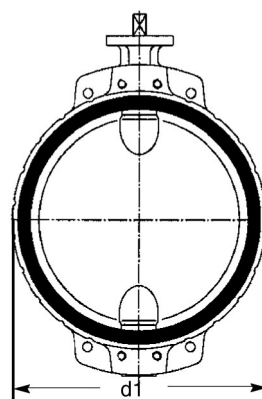
Drawing of ISORIA 10/16 T1 - DN 50



Drawing of ISORIA 10/16 T1 - DN 250



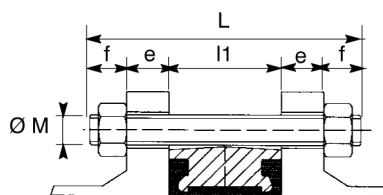
Drawing of ISORIA 10/16 T1 - DN 600



Drawing of ISORIA 10/16 T1 - DN 800

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 bolt for wafer-type body - T1

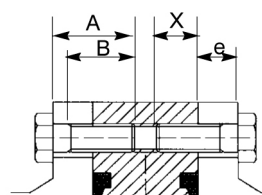
$$L = l_1 + 2e + 2f$$

L: minimum length of tie bolts

l₁: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie bolt



Length of bolt at shaft passage for wafer-type body - T1

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

Table 39: Dimensions [mm] and weights [kg] for wafer-type body T1 - connections EN 1092-1 PN 10 and PN 16

DN	NPS	l1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					[kg]
	Ø M			Tie bolt ²⁴⁾		Bolt		Ø M	Tie bolt ²⁴⁾		Bolt			
				f	Qty	X	Qty ²⁵⁾		f	Qty	X	Qty ²⁵⁾		
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	26)	26)	26)	26)	26)	26)	26)	26)	26)	26)	-
600	24	154	714	M27	32	20	-	4	M33	38	20	-	-	190
650	26	165	745	26)	26)	26)	26)	26)	26)	26)	26)	26)	26)	-
700	28	165	795	M27	32	20	30	4	M33	38	20	25	4	315
750	30	190	853	26)	26)	26)	26)	26)	26)	26)	26)	26)	26)	-
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

Table 40: Dimensions [mm] and weights [kg] for wafer-type body T1 - connections JIS B2220, B2238, B2239 10K and 16K

DN	NPS	l1	d1	JIS B2220, B2238, B2239					JIS B2220, B2238, B2239					[kg]
	[inch]			10K				16K						
				Ø M	Tie bolts ²⁴⁾		Bolt		Ø M	Tie bolt ²⁴⁾		Bolt		
					f	Qty	X	Qty ²⁵⁾		f	Qty	X	Qty ²⁵⁾	
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

²⁴⁾ Quantity of nuts = quantity of tie rods x 2

²⁵⁾ Quantity of bolts x 2

²⁶⁾ Non-standardised connection

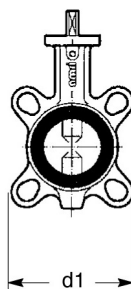
DN	NPS	l1	d1	JIS B2220, B2238, B2239 10K					JIS B2220, B2238, B2239 16K					[kg]
	Ø M			Tie bolts ²⁴⁾		Bolt		Ø M	Tie bolt ²⁴⁾		Bolt			
				f	Qty	X	Qty ²⁵⁾		f	Qty	X	Qty ²⁵⁾		
	[inch]													
800	32	190	903	M30	35	20	37	4	M45x3	50	20	35	4	475
900	36	203	1111	M30	35	24	37	4	-	-	-	-	-	545
1000	40	216	1118	M36	42	24	37	4	-	-	-	-	-	670

Table 41: Dimensions [mm] and weights [kg] for wafer-type body T1 - connections ASME and MSS SP 44 Class 150

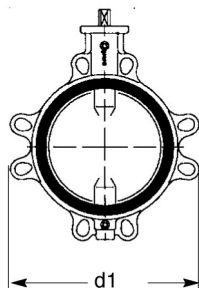
DN	NPS	I1	d1	ASME B16.5 Class 150 ²⁷⁾ ASME B16.1 Class 125 ²⁷⁾ MSS SP 44 Class 150 ²⁷⁾ ASME B16.47 Class 150 Series A ²⁷⁾					[kg]
				UNC	Tie bolt ²⁴⁾		Bolt		
	[inch]			[inch]	f	Qty	X	Qty ²⁵⁾	
40	1½	33	108	1/2	17	4	-	-	1,1
50	2	43	118	5/8	20	4	-	-	1,3
65	2½	46	133	5/8	20	4	-	-	1,9
80	3	46	138	5/8	20	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

²⁷⁾ For DN's concerned, see connection standards.

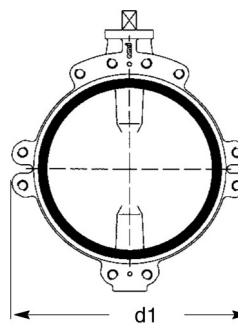
Bolting and weights for semi-lug body - T2



Drawing of ISORIA 10/16 T2 – DN 65



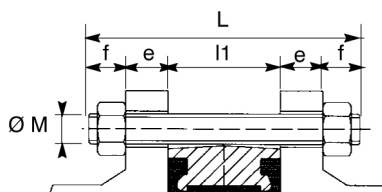
Drawing of ISORIA 10/16 T2 – DN 250



Drawing of ISORIA 10/16 T2 – DN 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 bolt for semi-lug body – T2

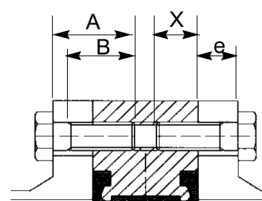
$$L = l1 + 2e + 2f$$

L: minimum length of tie bolts

l1: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie bolt



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

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

Table 42: Dimensions [mm] and weights [kg] for semi-lug body T2 – connections EN 1092-1 PN 10 and PN 16

DN	NPS	l1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					[kg]
	Ø M			Tie bolt ²⁸⁾		Bolt		Ø M	Tie bolt ²⁸⁾		Bolt			
				f	Qty	X	Qty ²⁹⁾		f	Qty	X	Qty ²⁹⁾		
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	30)	30)	30)	30)	30)	30)	30)	30)	30)	30)	30)
600	24	154	836	M27	32	10	27	10	M33	38	10	33	10	220

Table 43: Dimensions [mm] and weights [kg] for semi-lug body T2 – connections JIS B2220, B2238, B2239 10K and 16K

DN	NPS	l1	d1	JIS B2220, B2238, B2239 10K					JIS B2220, B2238, B2239 16K					[kg]
	Ø M			Tie bolt ²⁸⁾		Bolt		Ø M	Tie bolt ²⁸⁾		Bolt			
				f	Qty	X	Qty ²⁹⁾		f	Qty	X	Qty ²⁹⁾		
	[inch]													
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	M30 x 3	35	10	30	6	60
400	16	102	604	M24	29	10	24	6	M30 x 3	35	16	30	6	80
450	18	114	656	M24	29	12	24	6	M30 x 3	35	14	30	6	110
500	20	127	716	M24	29	12	24	8	M30 x 3	35	12	30	8	145
550	22	154	804	M24	35	12	30	8	M36 x 3	42	12	36	8	180
600	24	154	836	M30	35	14	30	10	M36x3	42	14	36	10	220

²⁸⁾ Quantity of nuts = quantity of tie bolts x 2

²⁹⁾ Quantity of bolts x 2

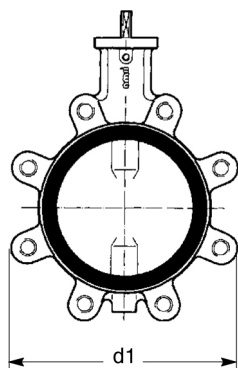
³⁰⁾ Non-standardised connection

Table 44: Dimensions [mm] and weights [kg] for semi-lug body T2 – connections ASME and MSS SP 44 Class 150

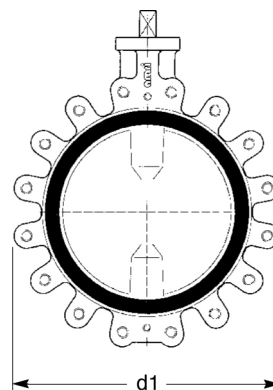
DN	NPS	I1	d1	ASME B16.5 Class 150 ³¹⁾ ASME B16.1 Class 125 ³¹⁾ MSS SP 44 Cl. 150 ³¹⁾ ASME B16.47 Cl. 150 Series A ³¹⁾					[kg]
				UNC	Tie bolt ²⁸⁾		Bolt		
	[inch]			[inch]	f	Qty	X	Qty ²⁹⁾	
40	1½	33	108	1/2	17	4	-	-	1,1
50	2	43	118	5/8	20	4	-	-	1,3
65	2½	46	132	5/8	20	4	-	-	1,9
80	3	46	138	5/8	20	4	-	-	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
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

³¹⁾ For DN's concerned, see connection standards.

Bolting and weights for full-lug body with flat faces - T3



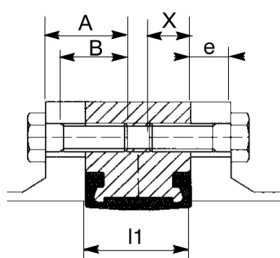
Drawing of ISORIA 10/16 T3 - DN 150



Drawing of ISORIA 10/16 T3 - DN 600

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

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



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

$$A = e + X$$

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

Table 45: Dimensions [mm] and weights [kg] for full-lug body with flat faces T3 - connections EN 1092-1, PN 10 and PN 16

DN	NPS	l1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					[kg]
	Ø M			Tie bolts ³²⁾		Bolt		Ø M	Tie bolts ³²⁾		Bolt			
				f	Qty	X	Qty ³³⁾		f	Qty	X	Qty ³³⁾		
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	³⁴⁾	-	-	³⁴⁾	³⁴⁾	³⁴⁾	-	-	³⁴⁾	³⁴⁾	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	³⁴⁾	-	-	³⁴⁾	³⁴⁾	³⁴⁾	-	-	³⁴⁾	³⁴⁾	179
600	24	154	822	M27	-	-	27	10	M33	-	-	33	10	233
600	24	154	830	³⁴⁾	-	-	³⁴⁾	³⁴⁾	³⁴⁾	-	-	³⁴⁾	³⁴⁾	233

Table 46: Dimensions [mm] and weights [kg] for full-lug body with flat faces T3 - connections JIS B2220, B2238, B2239 10K and 16K

DN	NPS	l1	d1	JIS B2220, B2238, B2239					JIS B2220, B2238, B2239					[kg]
				10K					16K					
	Ø M			Tie bolts ³²⁾		Bolt		Ø M	Tie bolt ³²⁾		Bolt			
[inch]	f	Qty	X	Qty ³³⁾	f	Qty	X	Qty ³³⁾						
40	1½	33	108	M16	-	-	14	4	M16	-	-	14	4	2
50	2	43	120	M16	-	-	18	4	³⁴⁾	-	-	³⁴⁾	³⁴⁾	2,5
65	2½	46	134	M16	-	-	20	4	³⁴⁾	-	-	³⁴⁾	³⁴⁾	3
80	3	46	140	³⁴⁾	-	-	³⁴⁾	³⁴⁾	-	-	-	-	-	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	³⁴⁾	-	-	³⁴⁾	³⁴⁾	9
150	6	56	260	M20	-	-	26	8	³⁴⁾	-	-	³⁴⁾	³⁴⁾	11
200	8	60	312	³⁴⁾	-	-	³⁴⁾	³⁴⁾	³⁴⁾	-	-	³⁴⁾	³⁴⁾	24
200	8	60	322	M20	-	-	26	12	³⁴⁾	-	-	³⁴⁾	³⁴⁾	25
250	10	68	396	M22	-	-	28	12	³⁴⁾	-	-	³⁴⁾	³⁴⁾	39
300	12	78	466	³⁴⁾	-	-	³⁴⁾	³⁴⁾	M24	-	-	30	16	46
350	14	78	510	³⁴⁾	-	-	³⁴⁾	³⁴⁾	-	-	-	-	-	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	³⁴⁾	-	-	³⁴⁾	³⁴⁾	-	-	-	-	-	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	³⁴⁾	-	-	³⁴⁾	³⁴⁾	-	-	-	-	-	233
600	24	154	830	M30	-	-	32	24	M36x3	-	-	34	24	233

³²⁾ Quantity of nuts = quantity of tie rods x 2

³³⁾ Quantity of bolts x 2

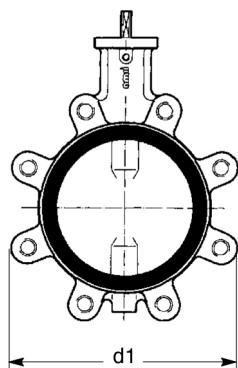
³⁴⁾ Non-standardised connection

Table 47: Dimensions [mm] and weights [kg] for full-lug body with flat faces T3 - connections ASME and MSS SP 44 Class 150

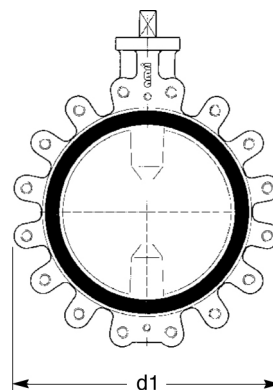
DN	NPS	l1	d1	ASME B16.5 Class 150 ³⁵⁾ ASME B16.1 Class 125 ³⁵⁾ MSS SP 44 Class 150 ³⁵⁾ ASME B16.47 Class 150 Series A ³⁵⁾					[kg]
				UNC	Tie bolt ³²⁾		Bolt		
	[inch]			[inch]	f	Qty	X	Qty ³³⁾	
40	1½	33	108	1/2	-	-	14	4	2
50	2	43	120	5/8	-	-	18	4	2,5
65	2½	46	134	5/8	-	-	20	4	3
80	3	46	140	5/8	-	-	20	4	4
80	3	46	178	³⁴⁾	-	-	³⁴⁾	³⁴⁾	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	³⁴⁾	-	-	³⁴⁾	³⁴⁾	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	³⁴⁾	-	-	³⁴⁾	³⁴⁾	70
400	16	102	598	1	-	-	34	16	101
450	18	114	622	1⅛ ₈	-	-	37	16	122
450	18	114	654	³⁴⁾	-	-	³⁴⁾	³⁴⁾	139
500	20	127	708	1⅞ ₈	-	-	37	20	145
550	22	154	774	1⅞ ₄	-	-	39	20	179
600	24	154	822	1⅞ ₄	-	-	42	20	233
600	24	154	830	³⁴⁾	-	-	³⁴⁾	³⁴⁾	233

³⁵⁾ For DN's concerned, see connection standards.

Bolting and weights for full-lug body with raised faces - T4



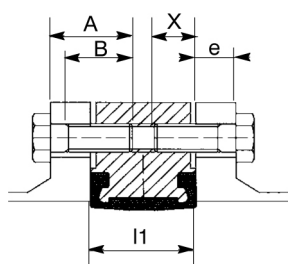
Drawing of ISORIA 10/16 T4 – DN 150



Drawing of ISORIA 10/16 T4 – DN 600

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

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



Length of bolt for full-lug body with raised faces – T4

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

Table 48: Dimensions [mm] and weights [kg] for full-lug body with raised faces T4 – connections EN 1092-1, PN 10 and PN 16

DN	NPS	l1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					[kg]
	Ø M			Tie bolt ³⁶⁾		Bolt		Ø M	Tie bolt ³⁶⁾		Bolt			
				f	Qty	X	Qty ³⁷⁾		f	Qty	X	Qty ³⁷⁾		
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	-	-	18	4	M16	-	-	18	4	3
80 ³⁸⁾	3	46	140	-	-	-	18	4	-	-	-	18	4	4
³⁹⁾ 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 ⁴⁰⁾	8	60	312	M20	-	-	26	8	-	-	-	-	-	24
200 ⁴¹⁾	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 ³⁸⁾	14	78	510	-	-	-	26	16	-	-	-	-	-	62
350 ³⁹⁾	14	78	530	M20	-	-	26	16	M24	-	-	30	16	70
400	16	102	598	M24	-	-	31	16	M27	-	-	34	16	101
450 ³⁸⁾	18	114	622	⁴²⁾	-	-	⁴²⁾	⁴²⁾	⁴²⁾	-	-	⁴²⁾	⁴²⁾	122
450 ³⁹⁾	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	⁴²⁾	-	-	⁴²⁾	⁴²⁾	⁴²⁾	-	-	⁴²⁾	⁴²⁾	179
600 ⁴³⁾	24	154	822	M27	-	-	27	10	M33	-	-	33	10	233
600 ⁴⁴⁾	24	154	830	-	-	-	-	-	-	-	-	-	-	233

Table 49: Dimensions [mm] and weights [kg] for full-lug body with raised faces T4 – connections JIS B2220, B2238, B2239 10K and 16K

DN	NPS	l1	d1	JIS B2220, B2238, B2239					JIS B2220, B2238, B2239					[kg]
				10K				16K						
	[inch]			Ø M	Tie bolt ³⁶⁾		Bolt		Ø M	Tie bolt ³⁶⁾		Bolt		
				f	Qty	X	Qty ³⁷⁾		f	Qty	X	Qty ³⁷⁾		
40	1½	33	108	M16	-	-	14	4	M16	-	-	14	4	2
50	2	43	120	M16	-	-	18	4	42)	-	-	42)	42)	2,5
65	2½	46	134	M16	-	-	20	4	42)	-	-	42)	42)	3
80 ³⁸⁾	3	46	140	-	-	-	-	-	-	-	-	-	-	4
80 ³⁹⁾	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	42)	-	-	42)	42)	9
150	6	56	260	M20	-	-	26	8	42)	-	-	42)	42)	11
200 ⁴⁰⁾	8	60	312	-	-	-	-	-	42)	-	-	42)	42)	24
200 ⁴¹⁾	8	60	322	M20	-	-	26	12	42)	-	-	42)	42)	25
250	10	68	396	M22	-	-	28	12	42)	-	-	42)	42)	39
300	12	78	466	42)	-	-	42)	42)	M24	-	-	30	16	46
350 ³⁸⁾	14	78	510	-	-	-	-	-	-	-	-	-	-	62
350 ³⁹⁾	14	78	530	M22	-	-	28	16	M30x3	-	-	34	16	70

³⁶⁾ Quantity of nuts = quantity of tie bolts x 2

³⁷⁾ Quantity of bolts x 2

³⁸⁾ 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

³⁹⁾ Installation between flanges EN 1092 PN 10, PN 16 and JIS B2220, B2238 and B2239 - 10K and 16K

⁴⁰⁾ 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

⁴¹⁾ Installation between flanges EN 1092 PN 16 and JIS B2220, B2238 and B2239-10K

⁴²⁾ Non-standardised connection

⁴³⁾ Installation between flanges EN 1092 PN 10, PN 16, ASME B16.5 Cl. 150 and JIS B2220, B2238 and B2239-5K

⁴⁴⁾ Installation between flanges JIS B2220, B2238 and B2239-10K

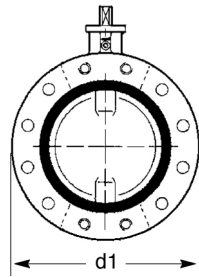
DN	NPS	l1	d1	JIS B2220, B2238, B2239					JIS B2220, B2238, B2239					[kg]
	10K			16K		16K		16K		16K				
				Ø M	Tie bolt ³⁶⁾		Bolt		Ø M	Tie bolt ³⁶⁾		Bolt		
	[inch]				f	Qty	X	Qty ³⁷⁾		f	Qty	X	Qty ³⁷⁾	
400	16	102	598	M24	-	-	31	16	M30x3	-	-	37	16	101
450 ³⁸⁾	18	114	622	42)	-	-	42)	42)	-	-	-	-	-	122
450 ³⁹⁾	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 ⁴³⁾	24	154	822	-	-	-	-	-	-	-	-	-	-	233
600 ⁴⁴⁾	24	154	830	M30	-	-	32	24	M36x3	-	-	34	24	233

Table 50: Dimensions [mm] and weights [kg] for full-lug body with raised faces T4 – connections ASME and MSS SP 44 Class 150

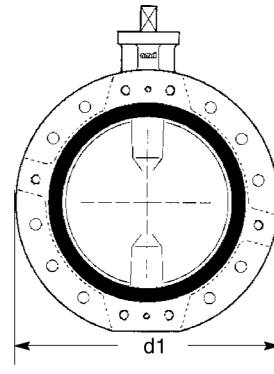
DN	NPS	l1	d1	ASME B16.5 Class 150 ⁴⁵⁾ ASME B16.1 Class 125 ⁴⁵⁾ MSS SP 44 Class 150 ⁴⁵⁾ ASME B16.47 Class 150 Series A ⁴⁵⁾						[kg]
				UNC	Tie bolt ³⁶⁾		Bolt			
	[inch]			[inch]	f	Qty	X	Qty ³⁷⁾		
40	1½	33	108	1/2	-	-	14	4	2	
50	2	43	120	5/8	-	-	18	4	2,5	
65	2½	46	134	5/8	-	-	20	4	3	
80 ³⁸⁾	3	46	140	5/8	-	-	20	4	4	
80 ³⁹⁾	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 ⁴⁰⁾	8	60	312	3/4	-	-	26	8	24	
200 ⁴¹⁾	8	60	322	-	-	-	-	-	25	
250	10	68	396	7/8	-	-	28	12	39	
300	12	78	466	7/8	-	-	28	12	46	
350 ³⁸⁾	14	78	510	1	-	-	30	12	62	
350 ³⁹⁾	14	78	530	⁴²⁾	-	-	⁴²⁾	⁴²⁾	70	
400	16	102	598	1	-	-	34	16	101	
450 ³⁸⁾	18	114	622	1 1/8	-	-	37	16	122	
450 ³⁹⁾	18	114	654	⁴²⁾	-	-	⁴²⁾	⁴²⁾	139	
500	20	127	708	1 1/8	-	-	37	20	145	
550	22	154	774	1 1/4	-	-	39	20	179	
600 ⁴³⁾	24	154	822	1 1/4	-	-	42	20	233	
600 ⁴⁴⁾	24	154	830	-	-	-	-	-	233	

⁴⁵⁾ For DN's concerned, see connection standards.

Bolting and weights for flanged body with flat faces - T5 DN 150 - 600



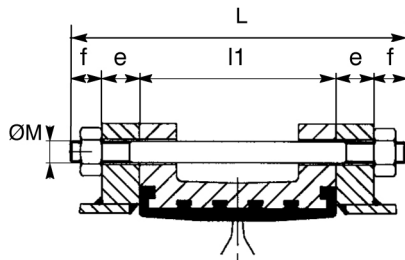
Drawing of ISORIA 10/16 T5 – DN 250



Drawing of ISORIA 10/16 T5 – DN 400

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

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



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

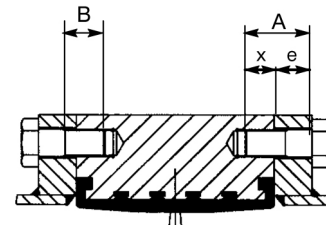
$$L = l1 + 2e + 2f$$

L: minimum length of tie bolt

l1: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie bolt



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

$$A = e + X$$

A: max. bolt length

X: max. thread engagement depth

e: flange thickness (customer-specific)

B: min. thread length > A-e

Table 51: Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – connections EN 1092-1, PN 10 and PN 16

DN	NPS	l1	d1	EN 1092-1 PN 10					EN 1092-1 PN 16					[kg]
	Ø M			Tie bolt ⁽⁴⁶⁾		Bolt		Ø M	Tie bolt ⁽⁴⁶⁾		Bolt			
				f	Qty	X	Qty ⁽⁴⁷⁾		f	Qty	X	Qty ⁽⁴⁷⁾		
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	48)	48)	48)	48)	48)	48)	48)	48)	48)	48)	48)
600	24	154	836	M27	32	10	27	10	M33	38	10	33	10	260

Table 52: Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – connections JIS B2220, B2238, B2239 10K and 16K

DN	NPS	l1	d1	JIS B2220, B2238, B2239 10K					JIS B2220, B2238, B2239 16K					[kg]
	Ø M			Tie bolt ⁴⁶⁾		Bolt		Ø M	Tie bolt ⁴⁶⁾		Bolt			
				f	Qty	X	Qty ⁴⁷⁾		f	Qty	X	Qty ⁴⁷⁾		
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

Table 53: Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – connections ASME and MSS SP 44 Class 150

DN	NPS	l1	d1	ASME B16.5 Class 150 ⁴⁹⁾ ASME B16.1 Class 125 ⁴⁹⁾ MSS SP 44 Cl.150 ⁴⁹⁾ ASME B16.47 Cl.150 Series A ⁴⁹⁾					[kg]
				UNC	Tie bolt ⁴⁶⁾		Bolt		
	[inch]			[inch]	f	Qty	X	Qty ⁴⁷⁾	
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

⁴⁶⁾ Quantity of nuts = quantity of tie bolts x 2

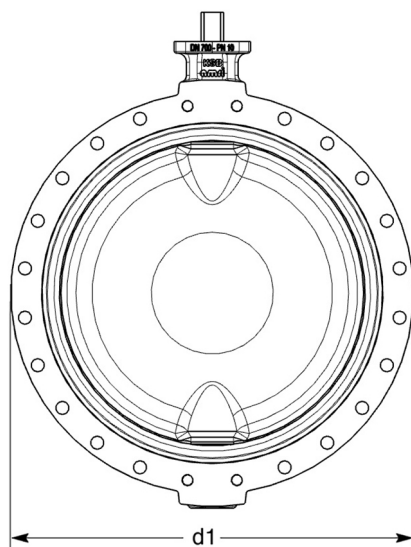
⁴⁷⁾ Quantity of bolts x 2

⁴⁸⁾ Non-standardised connection

⁴⁹⁾ For DN's concerned, see connection standards.

Bolting and weights for flanged body with flat faces - T5 DN 650 - 600

Flanged installation is permitted up to a max. differential pressure of 10 bar.

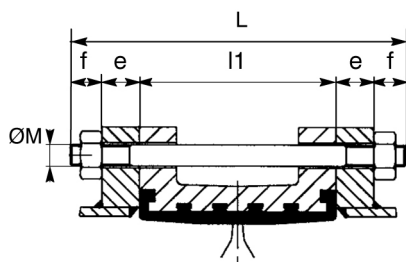


Drawing of ISORIA 10/16 T5 – DN 700

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 bolt for flanged body with flat faces – T5

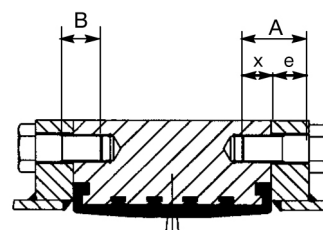
$$L = l1 + 2e + 2f$$

L: minimum length of tie bolts

l1: face-to-face length of valve

e: flange thickness (customer-specific)

f: thickness of nut + standardised overhang of tie bolt



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

$$A = e + X$$

A: max. bolt length

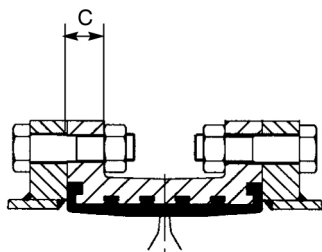
X: max. thread engagement depth

e: flange thickness (customer-specific)

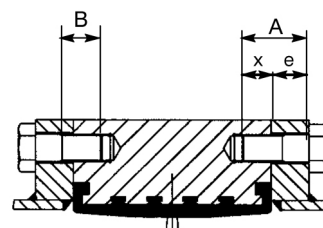
B: min. thread length > A-e

C: flange thickness

Flanged installation



Length of bolts for flanged body with flat faces – T5



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

Information on fasteners available on request

Table 54: Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – connections EN 1092-1, PN 10 and PN 16

DN	NPS	l1	d1	C	EN 1092-1 PN 10					EN 1092-1 PN 16					[kg]
	Ø M				Tie bolt ⁵⁰⁾		Bolt		Ø M	Tie bolt ⁵⁰⁾		Bolt			
					f	Qty	X	Qty ⁵¹⁾		f	Qty	X	Qty ⁵¹⁾		
650	26	165	835 ⁵²⁾	31	53)	53)	53)	53)	53)	53)	53)	53)	53)	53)	–
650	26	165	869 ⁵⁴⁾	31	53)	53)	53)	53)	53)	53)	53)	53)	53)	53)	–
700	28	165	895 ⁵²⁾	32,5	M27	32	20	27	4	–	–	–	–	–	330
700	28	165	925 ⁵⁵⁾	32,5	–	–	–	–	–	M33	38	20	25	4	350
750	30	190	965 ⁵²⁾	33,5	–	–	–	–	–	–	–	–	–	–	405
750	30	190	985 ⁵⁵⁾	33,5	–	–	–	–	–	–	–	–	–	–	425
800	32	190	1015 ⁵²⁾	35	M30	35	20	30	4	–	–	–	–	–	505
800	32	190	1075 ⁵⁵⁾	35	–	–	–	–	–	M36	42	20	36	4	525
900	36	203	1115 ⁵²⁾	37,5	M30	35	24	30	4	–	–	–	–	–	590
900	36	203	1160 ⁵⁵⁾	37,5	–	–	–	–	–	M36	42	24	36	4	620
1000	40	216	1230 ⁵²⁾	40	M33	38	24	33	4	–	–	–	–	–	740
1000	40	216	1275 ⁵⁵⁾	40	–	–	–	–	–	M39	45	24	29	4	780

Table 55: Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – connections JIS B2220, B2238, B2239 10K and 16K

DN	NPS	l1	d1	C	JIS B2220, B2238, B2239 10K					JIS B2220, B2238, B2239 16K					[kg]
					Ø M	Tie bolt ⁵⁰⁾		Bolt		Ø M	Tie bolt ⁵⁰⁾		Bolt		
	[inch]					f	Qty	X	Qty ⁵¹⁾		f	Qty	X	Qty ⁵¹⁾	
650	26	165	835 ⁵²⁾	31	M30	35	20	37	4	M30	35	20	37	4	285
650	26	165	869 ⁵⁴⁾	31	-	-	-	-	-	-	-	-	-	-	305
700	28	165	895 ⁵²⁾	32,5	M30	35	20	37	4	M30	35	20	37	4	330
700	28	165	925 ⁵⁵⁾	32,5	-	-	-	-	-	-	-	-	-	-	350
750	30	190	965 ⁵²⁾	33,5	M30	35	20	37	4	M30	35	20	37	4	405
750	30	190	985 ⁵⁵⁾	33,5	-	-	-	-	-	-	-	-	-	-	425
800	32	190	1015 ⁵²⁾	35	M30	35	24	37	4	M30	35	24	37	4	505
800	32	190	1075 ⁵⁵⁾	35	-	-	-	-	-	-	-	-	-	-	525
900	36	203	1115 ⁵²⁾	37,5	M30	35	24	37	4	M30	35	24	37	4	590
900	36	203	1160 ⁵⁵⁾	37,5	-	-	-	-	-	-	-	-	-	-	620
1000	40	216	1230 ⁵²⁾	40	M36	42	24	37	4	M36	42	24	37	4	740
1000	40	216	1275 ⁵⁵⁾	40	-	-	-	-	-	-	-	-	-	-	780

⁵⁰⁾ Quantity of nuts = quantity of tie bolts x 2

⁵¹⁾ Quantity of bolts x 2

⁵²⁾ Installation between flanges EN 1092 PN 6, 10, JIS B2220, B2238 and B2239-5K and 10K

⁵³⁾ Non-standardised connection

⁵⁴⁾ Installation between flanges EN 1092 PN 16, MSS SP 44 Cl. 150, ASME B16.1 Cl. 125

⁵⁵⁾ 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

Table 56: Dimensions [mm] and weights [kg] for flanged body with flat faces T5 – connections ASME and MSS SP 44 Cl. 150

DN	NPS	I1	d1	C	ASME B16.5 Class 150 ⁵⁶⁾ ASME B16.1 Class 125 ⁵⁶⁾ MSS SP 44 Cl.150 ⁵⁶⁾ ASME B16.47 Cl.150 Serie A ⁵⁶⁾					[kg]
	[inch]				UNC	Tie bolt ⁵⁰⁾		Bolt		
						f	Qty	X	Qty ⁵¹⁾	
650	26	165	835 ⁵²⁾	31	-	-	-	-	-	285
650	26	165	869 ⁵⁴⁾	31	1"¼	38	20	25	4	305
700	28	165	895 ⁵²⁾	32,5	-	-	-	-	-	330
700	28	165	925 ⁵⁵⁾	32,5	1"¼	38	24	25	4	350
750	30	190	965 ⁵²⁾	33,5	-	-	-	-	-	405
750	30	190	985 ⁵⁵⁾	33,5	1"¼	38	24	33	4	425
800	32	190	1015 ⁵²⁾	35	-	-	-	-	-	505
800	32	190	1075 ⁵⁵⁾	35	1"½	45	24	29	4	525
900	36	203	1115 ⁵²⁾	37,5	-	-	-	-	-	590
900	36	203	1160 ⁵⁵⁾	37,5	1"½	45	28	29	4	620
1000	40	216	1230 ⁵²⁾	40	-	-	-	-	-	740
1000	40	216	1275 ⁵⁵⁾	40	1"½	45	32	35	4	780

⁵⁶⁾ For DN's concerned, see connection standards.



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