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KTN
Kara Technology News

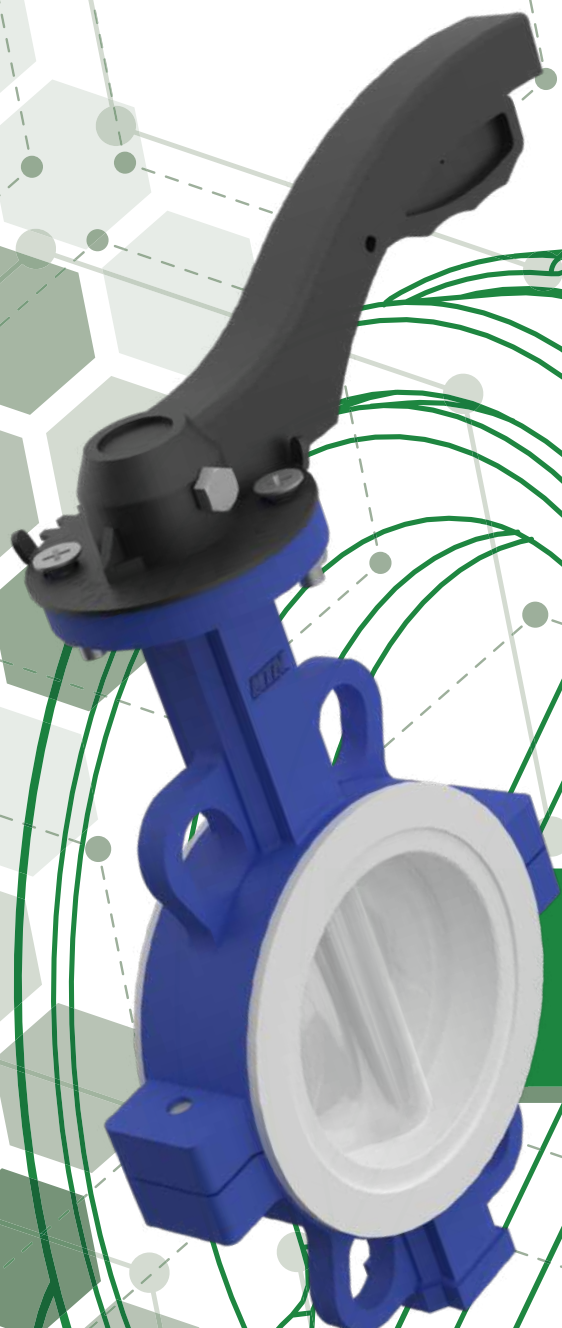


FIG. 266TT

PTFE SEAT PFA DISC WAFER BUTTERFLY VALVE

DN50/300 | PN16

KTN BUTTERFLY TWO-PIECE SERIES:

Our **two-piece wafer** or lug design with extended neck and concentric disc **allows 2" to 12" piping insulation**, the flange holes are drilled according to **international standards**, provided with **non corrosive bushing** and **self-adjusting stem seal**. The **body is epoxy coated**, the painting thickness can reach up to 3 ~ 4mm. Our design offers **absolutely tight sealing** with flow in either direction. The temperature range (depending on pressure, medium and material) is from -35 to +200°C.

The valve body and disc are accurately machined with state of art technology resulting in **low operating torque, reliability and long life service**. The **PTFE seat prevents corrosions and increases durability**. The seat is lined with pure PTFE/PFA. Our seats in PTFE are in compliance with **FDA standard**.

The stem is made in two pieces and is mechanically retained in the body neck and no part of the stem is exposed to the media. The **seat is totally encapsulated by the body**, isolating the body from the media so no additional gaskets are required.

Our valves are rated for bubble-tight shut-off for bidirectional service to 16 bar on sizes 2" -12" and 10 bar on special sizes from 14" to 48".

Our 266IT **can be disassembled**, for **recycling** and **parts can be replaced**. Can be installed as lugged type at the end of the pipe.

1 Body:

Epoxy coated two piece body, all bodies meet **ASME Class 150 and DIN 3840 pressure ratings**. The extended neck design in all valve sizes allows for 2" piping insulation and **provides easy access** for mounting actuators. The **locating holes** in the wafer version provide quick and **precise alignment** during valve installation eliminating disc interference with adjacent pipe.

2 Seat design:

The **inner seat** is machined with a **curvature** from the center to the edge, this unique seat geometry **minimize the contact forces** between the disc and seat as the disc approaches, or opens from closed position. As a result the valve permits **lower torques** and **reduces seat wear**.

3 Disc:

The disc is made stainless steel encapsulated with a thick layer (minimum 3mm) of pure PTFE/PFA, it increases **resistance to wear and corrosion against to the most acidic fluids**.

4 Butterfly spring disc:

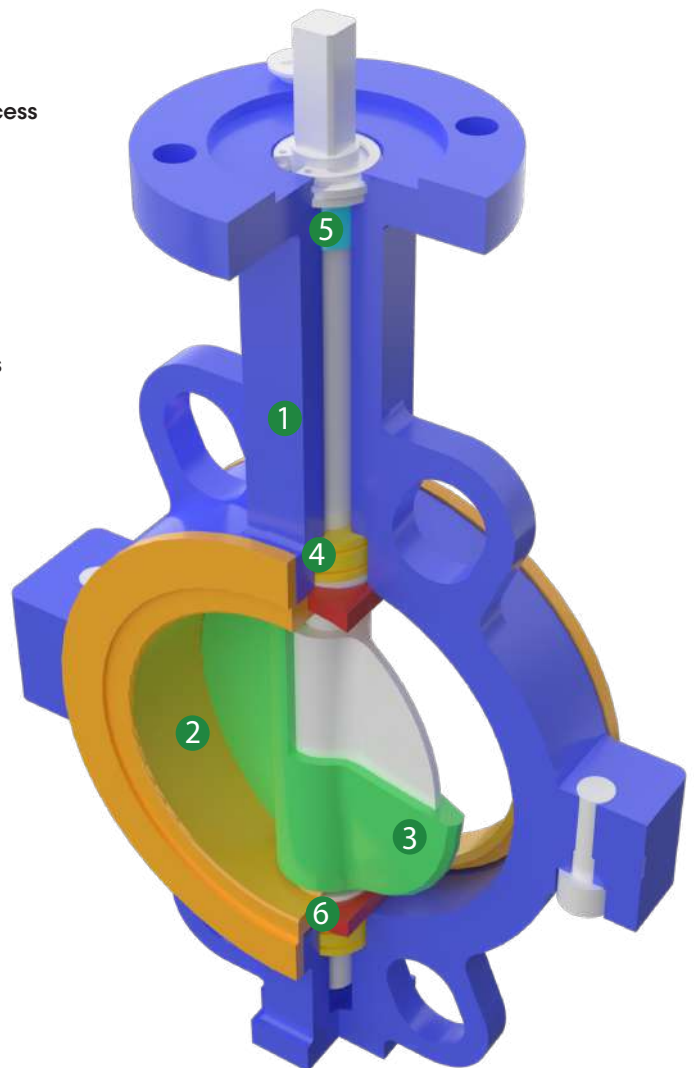
Two seats of spring discs **imposes elastic force** on the press sleeve and compacts the O ring and the seat, **improving axial sealing** and **providing bearing stress** for the seat and disc to **cover elasticity shortage** of the PTFE seat. This effectively prevents the **media leakage** from the valve cavity.

5 Top stem bushing:

A **top stem bushing** is retained by a stainless steel ring, is provided to **absorb actuator side thrusts** and **assures smooth interaction** between **upper shaft** and **lower shaft**.

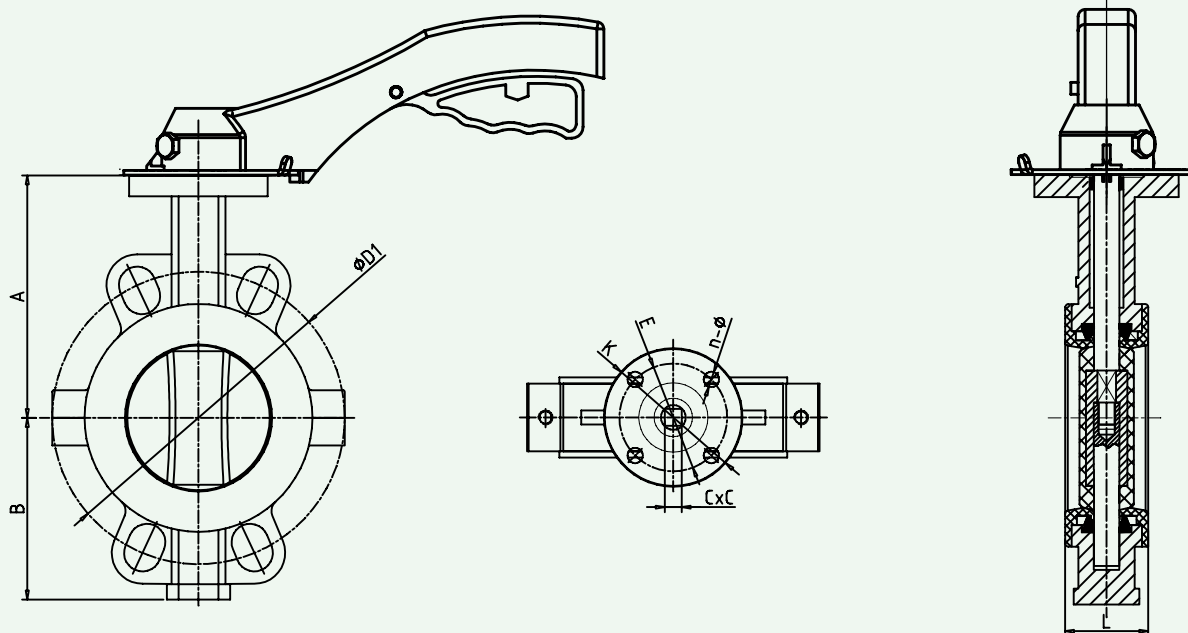
6 Seat energizer:

A **resilient seat energizer** is extended completely around the seat, including the disc hub. This **provides sufficient uniform force** for **bubble tight shut off**.



KTN 266ITT | DIMENSIONS

DUCTILE IRON BODY PTFE SEAT WAFER BUTTERFLY VALVE



OUTLINE DIMENSIONS

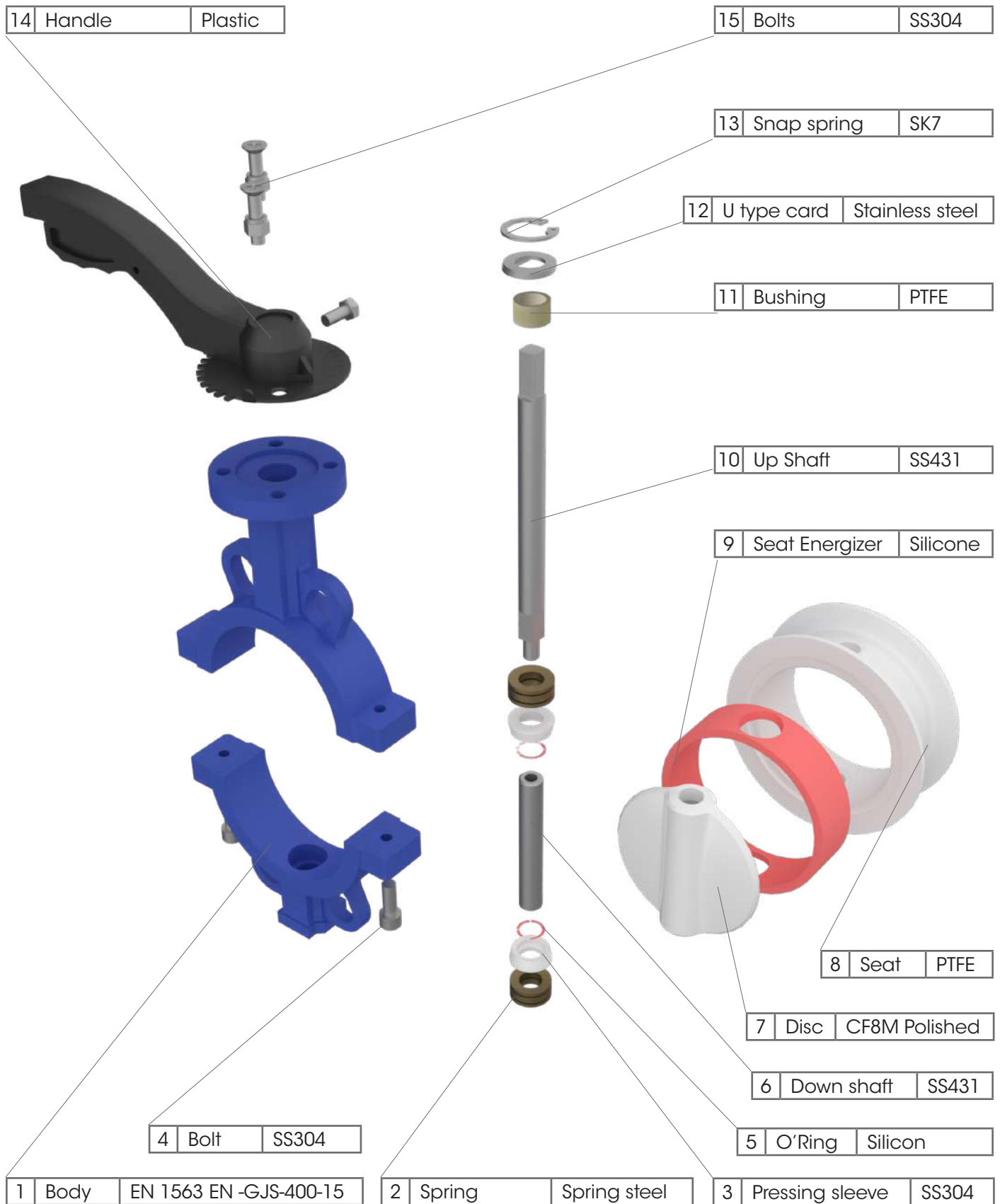
DN	"	D1 PN16	L	A	B	CXC	ISO 5211	K	E	n-Ø	Shaft height
50	2"	125	43	140	75	9x9	F05	65	50	4-7	26
65	2 1/2"	145	46	150	82	9x9	F05	65	50	4-7	26
80	3"	160	46	160	90	9x9	F05	65	50	4-7	26
100	4"	180	52	178	118	11x11	F07	90	70	4-10	26
125	5"	210	56	190	131	14x14	F07	90	70	4-10	26
150	6"	240	56	200	145	14x14	F07	90	70	4-10	26
200	8"	295	60	240	173	17x17	F10	125	102	4-12	35
250	10"	355	68	273	208	22x22	F10	125	102	4-12	35
300	12"	410	78	310	244	22x22	F10	125	102	4-12	35

TORQUE & WEIGHT

Rated pressure	TORQUE VALUE (N.m)	WEIGHT (Kg)
50	25	2,8
65	35	3,21
80	45	3,63
100	75	6,17
125	120	8,77
150	160	9,81
200	320	15,78
250	460	24,32
300	650	33,6

KTN 266ITT | PARTS & MATERIALS

DUCTILE IRON BODY PTFE SEAT WAFER BUTTERFLY VALVE



KTN 266ITT | CONNECTION DIMENSIONS

DUCTILE IRON BODY PTFE SEAT WAFER BUTTERFLY VALVE

WAFER

DN	OUTER DIAMETER OF FLANGE				DIAMETER OF CENTER CIRCLE				NUMBER AND DIAMETER OF BOLT HOLES			
	150LB	PN10	PN16	JIS10K	150LB	PN10	PN16	JIS10K	150LB	PN10	PN16	JIS10K
50	150	165	165	155	120.7	125	125	120	4-19	4-19	4-19	4-19
65	180	185	185	175	139.7	145	145	140	4-19	4-19	4-19	4-19
80	190	200	200	185	152.4	160	160	150	4-19	8-19	8-19	8-19
100	230	220	220	210	190.5	180	180	175	8-19	8-19	8-19	8-19
125	255	250	250	250	215.9	210	210	210	8-22	8-19	8-19	8-23
150	280	285	285	280	241.3	240	240	240	8-22	8-23	8-23	8-23
200	345	340	340	330	298.5	295	295	290	8-22	8-23	12-23	12-23
250	405	395	405	400	362	350	355	355	12-26	12-23	12-28	12-25
300	485	445	460	445	431.8	400	410	400	12-26	12-23	12-28	16-25
350	535	505	520	490	476.3	460	470	445	12-29	16-23	16-28	16-25
400	595	565	580	560	539.8	515	525	510	16-29	16-28	16-31	16-27
450	635	615	640	620	577.9	565	585	565	16-32	20-28	20-31	20-27
500	700	670	715	675	635	620	650	620	20-32	20-28	20-34	20-27
600	815	780	540	795	749.3	725	770	730	20-35	20-31	20-37	24-33
700	927	895	910	905	863.6	840	840	840	28-35	24-31	24-37	24-33
800	1060	1015	1025	1020	977.9	950	950	950	28-42	24-34	24-41	28-33
900	1168	1115	1125	1120	1085.85	1050	1050	1050	32-42	28-34	28-41	28-33

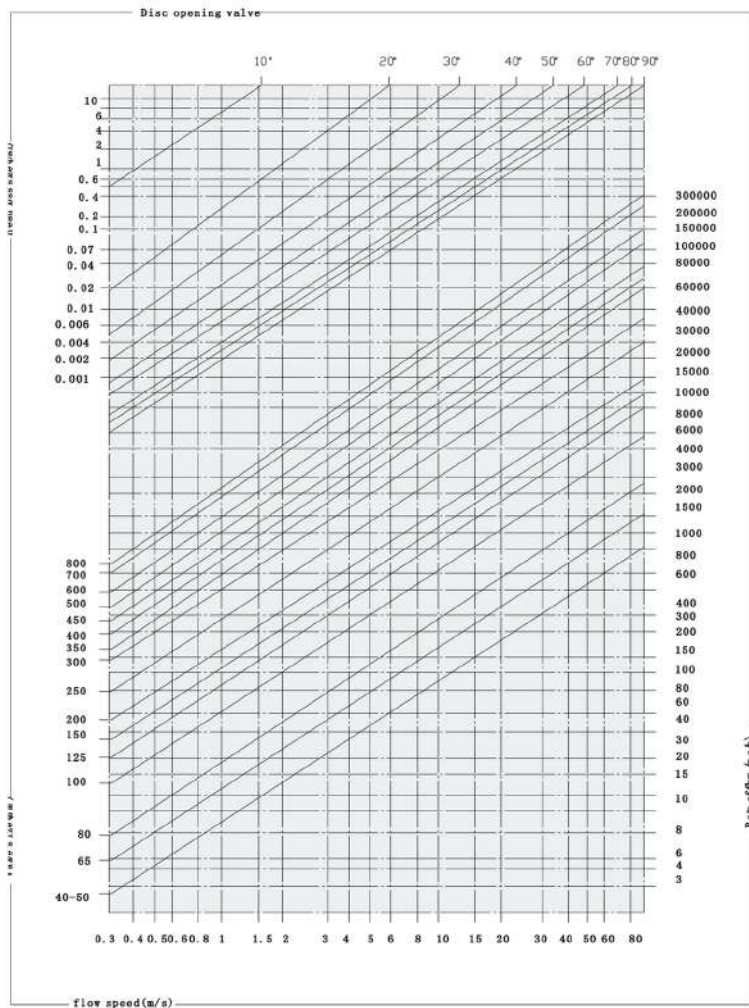
LUG

DN	OUTER DIAMETER OF FLANGE				DIAMETER OF CENTER CIRCLE				NUMBER AND DIAMETER OF BOLT HOLES			
	150LB	PN10	PN16	JIS10K	150LB	PN10	PN16	JIS10K	150LB	PN10	PN16	JIS10K
50	150	165	165	155	120.7	125	125	120	4-5/8" - 11UNC	4-M16	4-M16	4-M16
65	180	185	185	175	139.7	145	145	140	4-5/8" - 11UNC	4-M16	4-M16	4-M16
80	190	200	200	185	152.4	160	160	150	4-5/8" - 11UNC	8-M16	8-M16	8-M16
100	230	220	220	210	190.5	180	180	175	8-5/8"-11UNC	8-M16	8-M16	8-M16
125	255	250	250	250	215.9	210	210	210	8-3/4"-10UNC	8-M16	8-M16	8-M20
150	280	285	285	280	241.3	240	240	240	8-3/4"-10UNC	8-M20	8-M20	8-M20
200	345	340	340	330	298.5	295	295	290	8-3/4"-10UNC	8-M20	12-M20	12-M20
250	405	395	405	400	362	350	355	355	12-7/8"-9UNC	12-M20	12-M24	12-M22
300	485	445	460	445	431.8	400	410	400	12-7/8"-9UNC	12-M20	12-M24	16-M22
350	535	505	520	490	476.3	460	470	445	12-1"-8UNC	16-M20	16-M24	16-M22
400	595	565	580	560	539.8	515	525	510	16-1"-8UNC	16-M24	16-M27	16-M24
450	635	615	640	620	577.9	565	585	565	16-1 1/8"-8UNC	20-M24	20-M27	20-M24
500	700	670	715	675	635	620	650	620	20-1 1/8"-8UNC	20-M24	20-M30	20-M24
600	815	780	540	795	749.3	725	770	730	20-1 1/4"-8UNC	20-M27	20-M33	24-M30
700	927	895	910	905	863.6	840	840	840	28-1 1/4"-8UNC	24-M27	24-M33	24-M30
800	1060	1015	1025	1020	977.9	950	950	950	28-1 1/2"-8UNC	24-M30	24-M36	28-M30
900	1168	1115	1125	1120	1085.85	1050	1050	1050	32-1 1/2"-8UNC	28-M30	28-M36	28-M30

KTN 266ITT | HEAD LOSSES | RATE FLOW CALCULATION FORMULA

DUCTILE IRON BODY PTFE SEAT WATER BUTTERFLY VALVE

Notes: Values indicated in this page is only for information



Liquids:	$Q = \frac{KV}{\sqrt{\frac{PS}{\Delta P}}}$	
	Q	rate of flow (m³/h)
	PS	specific gravity (water=1)
	ΔP	pressure drop (bar)
Gas:	$Q = 28.5 \frac{KV}{\sqrt{\frac{PS}{P_2 \cdot \Delta P}}}$	
	Q	rate of flow (m³/h)
	PS	specific gravity (air=1)
	ΔP	pressure drop (bar) (less than 1/2 inlet pressure)
	P2	
Steam:	$Q = 28.5 \cdot KV \cdot \sqrt{P_2 \cdot \Delta P}$	
	Q	rate of flow (m³/h)
	ΔP	pressure drop (bar) (less than 1/2 inlet pressure)
	P2	outlet pressure

For different liquid, gas or steam head losses are determined by equivalent flow of water, as follows:

Qe equivalent water flow (mc/l o l/s)

Q fluid flow (mc/l o l/s)

d fluid specific gravity (Kg/mc)

Values CV (CV=1.16KV)

Flow in Gpm@1 PSI P@ Various Disc Angles

(mm)	10°	20°	30°	40°	50°	60°	70°	80°	Full 90°
40	0.04	3	6	12	23	32	46	60	69
50	0.08	4	10	20	38	54	77	106	115
65	0.17	7	17	31	55	83	122	173	187
80	0.26	10	19	33	60	99	156	234	257
100	.43	14	31	66	118	196	309	464	510
125	0.68	25	52	113	201	333	527	791	869
150	1.7	38	81	174	311	514	814	1221	1342
200	2.55	76	160	347	618	1022	1618	2426	2666
250	3.4	128	272	590	1051	1740	2754	4130	4539
300	4.3	199	421	911	1624	2688	4254	6381	7013
350	5	287	608	1317	2347	3883	6146	9217	10129
400	7	394	836	1811	3227	5340	8451	12676	13930
450	9	523	1107	2399	4274	7072	11193	16789	18449
500	12	825	1423	3084	5495	9093	14391	21587	23722
600	19	1039	2199	4764	8491	14049	22233	33351	36649

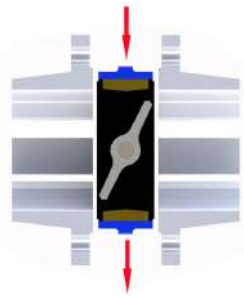


The butterfly valve can be installed on the pipeline, which is at any angle.

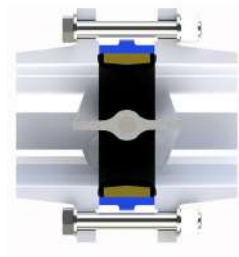
1. The valve should be installed in the location being sure to provide convenient operation, maintenance and replacement.
2. As mounting the butterfly valve, fail to consider flow direction of mediums in pipeline, that is to say, the valve can be used in double way.
3. Before installation, the butterfly valve should be stored in warehouse and prevent it from moisture and in so doing, the disc should be kept to open at an angle of 15 degree.
4. Before installation, the following processes should be completed:
 - (1) Check carefully and confirm that the operation condition of the valve is in line with the technical specification and requirements.
 - (2) Clean the disc sealing area and body sealing completely. It is not permitted to open the disc before cleaning.
 - (3) Check and confirm the handle is strongly collected to the flange and stem.
5. As mounting the butterfly valve in pipeline, the load for tightening connection bolts should be uniformed.
6. After installation, the disc must be opened in the case of the strength pressure test on pipeline being carried out.
7. After being installed, the valve should be examined regularly. The main item to be checked are as follows:
 - (1) Whether the valve seat and 'O' sealing ring have been damaged.
 - (2) Check the sealing effects of the disc sealing area.
 - (3) After the valve was examined and assembled, no scuffing happens at the time of non-off rotation.
 - (4) After the valve was examined and assembles, the sealing test should be carried out as the introduction.
 - (5) After each examination, detailed records should be filed for reference.

KTN 266ITT | INSTRUCTIONS | ASSEMBLY

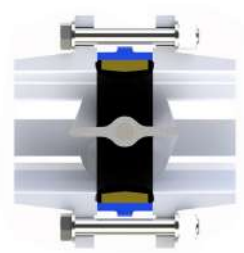
DUCTILE IRON BODY PTFE SEAT WAFER BUTTERFLY VALVE



1 Leave a space between flanges so that valve can be easily inserted and removed. Move the valve in accordance with the arrow



2 Open completely the valve before tightening flanges



3 Tighten bolts till flanges are in contact with valve body

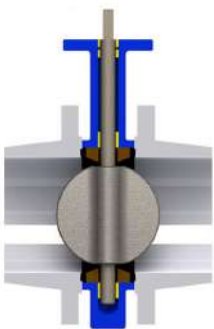


4 NOTE: Do not insert other packing between flange and valve

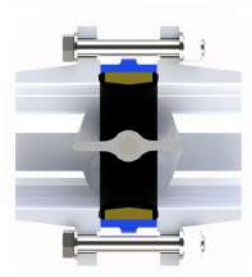
NOTE: Weld the pipe only in spots with the valve between flanges. Remove the valve before finishing welding to avoid seat damage by the heat. Clean carefully the welding to avoid slags damage on the seat.

ASSEMBLY FOR POWDERS AND MUDDY FLUIDS

In case of use with powders or muddy fluids, install the valve with horizontal rotation axis, to allow sediments to flow easily on opening



WRONG
vertical rotation axis



RIGHT
Horizontal rotation axis

END PIPING INSTALLATION

When valves are installed at the end of the piping, a counter flange as per dwg type B is needed to secure tightness at max pressure, please notice when the valves are installed as per drawing type A.



Type A installation
without end piping

Installation is 6 Bar
max pressure



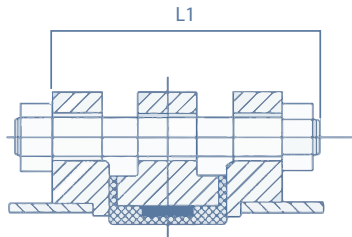
Type B installation
with end piping

Installation is 16 Bar
max pressure

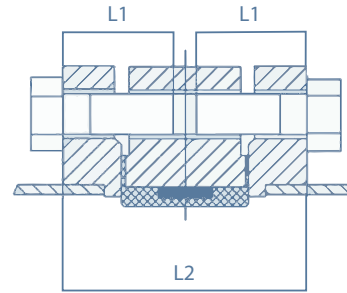
KTN 266ITT | LENGTH & QUANTITY OF BOLDS FOR VALVE INSTALLATION

DUCTILE IRON BODY PTFE SEAT WAFER BUTTERFLY VALVE

Bolt Connection of Wafer Butterfly Valve



Bolt Connection of Lug Butterfly Valve



2L1 < L2

EN1092-1 PN10/16 ISO7005PN10/16 DIN2501 PN10/16

size	1.0 Mpa					1.6Mpa				
	Stud Bolt for Type of wafer valve			Hexagon Heed Bolt for Type of Lug valve		Stud Bolt for Type of wafer valve			Hexagon heed Bolt for Type of Lug valve	
inch	Qty	DiaxL1	Length	Qty	DiaxL1	Qty	DiaxL1	Length	Qty	DiaxL1
50	4	M16x110	130	4x2	M16x40	4	M16x110	130	4x2	M16x40
65	4	M16x120	140	4x2	M16x45	4	M16x120	140	4x2	M16x45
80	8	M16x120	140	8x2	M16x45	8	M16x120	140	8x2	M16x45
100	8	M16x130	150	8x2	M16x50	8	M16x130	150	8x2	M16x50
125	8	M20x130	150	8x2	M16x50	8	M16x130	150	8x2	M16x50
150	8	M20x140	165	8x2	M20x50	8	M20x140	165	8x2	M20x50
200	8	M20x150	175	8x2	M20x55	12	M20x150	175	12x2	M20x55
250	12	M20x160	185	12x2	M20x60	12	M24x160	185	12x2	M24x60
300	12	M20x170	195	12x2	M20x65	12	M24x170	195	12x2	M24x65
350	16	M24x170	195	16x2	M20x65	16	M24x170	195	16x2	M24x65
400	16	M24x190	220	16x2	M24x75	16	M27x190	220	16x2	M27x75
450	20	M24x220	250	20x2	M24x80	20	M27x220	250	20x2	M27x80
500	20	M24x260	290	20x2	M24x90	20	M30x260	290	20x2	M30x90
600	20	M27x290	324	20x2	M27x100	20	M33x290	324	20x2	M33x100
700	24	M27x290	324	24x2	M27x100	24	M33x290	324	24x2	M33x100
800	24	M30x320	356	24x2	M30x110	24	M36x320	356	24x2	M36x110
900	28	M30x340	376	28x2	M30x130	28	M36x340	376	28x2	M36x130

ASME B16.5 150LB

size	150LB				
	Stud Bolt for Type of wafer valve			Hexagon Heed Bolt for Type of Lug valve	
inch	Qty	DiaxL1	Length	Qty	DiaxL1
50	4	5/8"x110	130	4x2	5/8"x40
65	4	5/8"x120	140	4x2	5/8"x45
80	4	5/8"x120	140	4x2	5/8"x45
100	8	3/4"x130	150	8x2	3/4"x50
125	8	3/4"x130	150	8x2	3/4"x50
150	8	3/4"x140	165	8x2	3/4"x50
200	8	3/4"x150	175	8x2	3/4"x55
250	12	7/8"x160	185	12x2	7/8"x60
300	12	7/8"x170	195	12x2	7/8"x65
350	12	1"x170	195	12x2	1"x65
400	16	1"x190	220	16x2	1"x75
450	16	9/8"x220	250	16x2	9/8"x80
500	20	9/8"x260	290	20x2	9/8"x90
600	20	5/4"x290	324	20x2	5/4"x100
700	28	5/4"x290	324	28x2	5/4"x100
800	28	3/2"x320	356	28x2	3/2"x110
900	32	3/2"x340	376	32x2	3/2"x130

This product mainly consist of body, stem, disc, seat AL-Bronze bushings etc. The rotation of actuating device makes stem and disc revolved, which ensures on-off operations and flow control. The rotation of the actuating device ensures dependability and position disc control and position disc control and water flow control. Rotate handle wheel clockwise, the valve is close.

FEATURES

1. Small in size and light in weight. Easy installation and maintenance. It can be mounted wherever needed.
2. Simple and compact construction, quick 90 degrees on-off operation.
3. Minimized operating torque, energy saving.
4. Bubbles-tight sealing with no leakage under the pressure testing.
5. Wide selection of materials, applicable for various medium.
6. Long service life. Standing the rest of tens of thousands opening/closing operations.
7. Flow curve tending to straight line. Excellent regulation performance.

TROUBLE & REMEDY

Trouble	Cause	Remedy
Leakage in sealing	Disc sealing area or body sealing seat scratched, disc is not closed completely. Hexagonal socket head bolts on clamping ring are not rightened completely	Repair the disc sealing replace repair the body sealing seat, adjust actuator to close the disc completely, tighten loosed hexagonal socked head bolts
Leakage in shaft end	The seat or The 'O' ring is not pressed completely	Replace the body sealing seat
Leakage in joint area between valve face and relevant flange on pipeline	Connection bolts are not screwed up uniformly	Tighten the connection bolts evenly