

BUTTERFLY VALVE INSTALLATION INTRUCTIONS

1.1 This manual is applicable ARITA Butterfly Valve 1" - 48", flange connection methods included : Wafer / Lug Type. (shown below)

WAFER TYPE

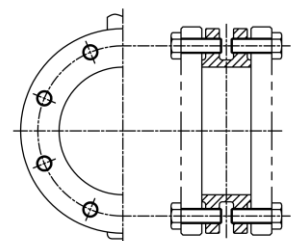
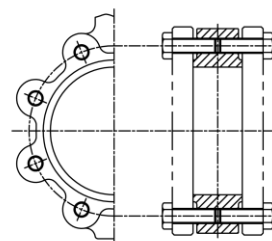
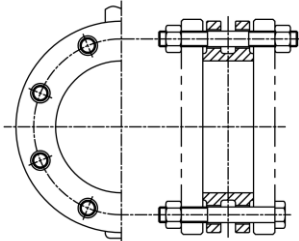
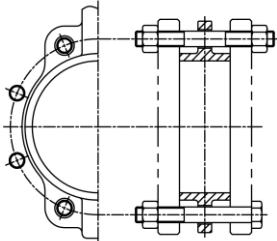
LUG TYPE

FLANGELESS 1" - 24"

U SECTION 28" - 48"

FLANGELESS 2" - 24"

U SECTION 28" - 48"



Storage	2.1 Disc at 5° - 10° position, prohibit or protruding Disc Butterfly Valve is fully closed. (Figure 2.1)
	2.2 Interior preservation, avoid debris into the valve passage Damage the Disc and the Seat sealing surface. Especially in rubber seat should not prolonged exposure to sunlight and ozone environment.

Figure 2.1

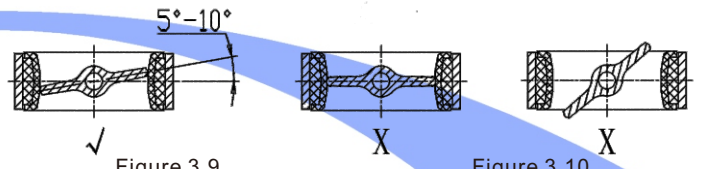
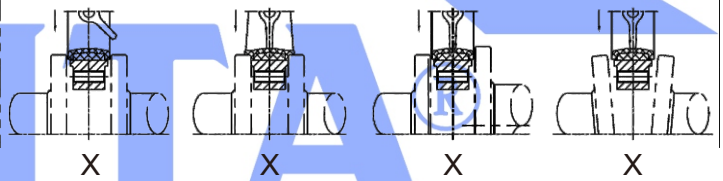


Figure 3.9

Figure 3.10

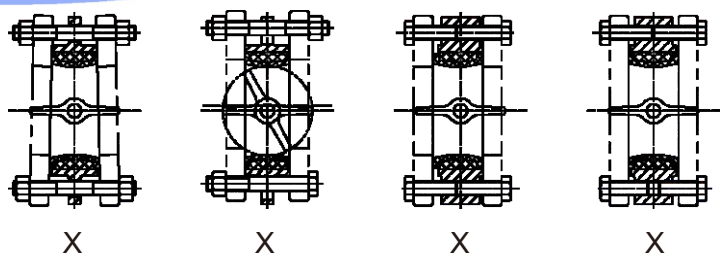
! Inspection goods before install / shipment :	
3.1	Confirm flange standard, use of medium, temperature, pressure and other requirements scope of use suitable for Butterfly Valve.
3.2	Ensure the flange surface, Seat, clean the sealing surface of the Disc, free of foreign material in the valve cavity.
3.3	Open, close the valve ensure functioning properly, drive securely connected, normal motion
! Valve Flange Pipe positioning	
3.4	Valve installation from the other originals at least six pipe diameters away.



Disc protruding valve face	Improper flange distance	Flange misalignment	Not parallel flange
	The seat sealing surface damage	Valve uneven forces	Valve uneven forces

3.5	Pipe flange standards must be consistent with the standard butterfly valve flange, recommended to use welded flange Butterfly Valve flange or integral flange.
3.6	Pipe diameter and flange diameter shall not impede the opening and closing of the disc.
3.7	Ends protruding valve seat face as the flange gasket, Butterfly valve installation without further seal.
! Valve installment	
3.8	Before installation ensure the valve flanged pipe and pipe cavity clean, free of foreign material.
3.9	Both ends of the pipe flanges left a certain distance, to avoid damage to the valve seat sealing surface when loaded.
3.10	Install butterfly valve before disc sealing surface non-protruding valve face. (Figure 3.9; Figure 3.10)

Figure 3.13

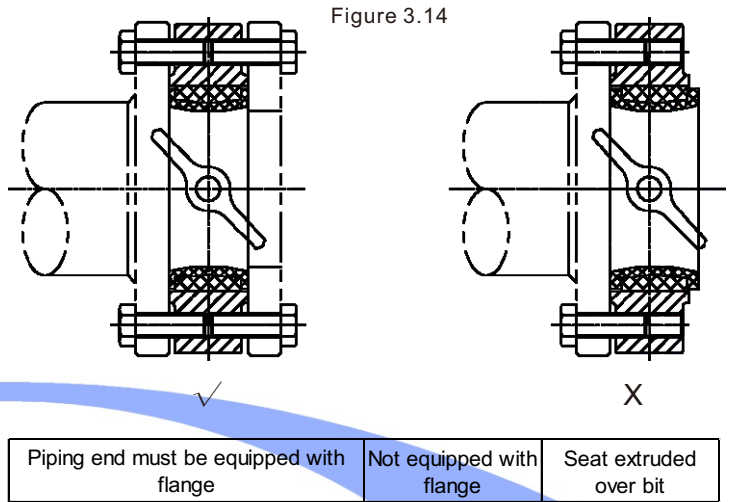


Uneven flange	Install misalignment	One end overtighten	Bolts too long
Uneven locking bolt	Unable to open and close the disc	Bolts too long	Incomplete tighten

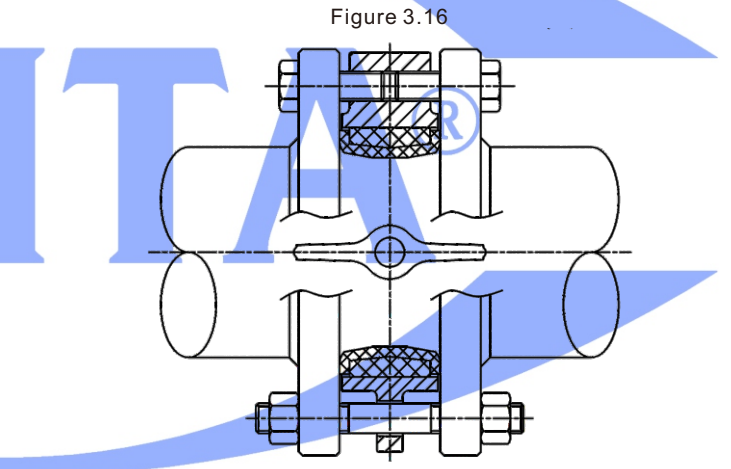
 ISO 9001:2008 CERTIFICATE NO. 0436-2002-AQ-RGC-RW-Rev.1	 Pressure accessory CERTIFICATE NO. 4588-2014-CE-RGC-ACCREDIA	 CE Notified Body No. 0490 CERTIFICATE NO. 4590-2014-CE-RGC-ACCREDIA	 Det Norske Veritas Rules for Classification of Ships Det Norske Veritas Standards for Certification 2.9 No.2, 794, 40 CERTIFICATE NO. P-12513	 SIRIM BS EN 593:2004 PA046601	 12 MAT LY 093 F-MC058-b SEAT / QUALIFICATION CERTIFICATE	 Water Regulations Advisory Scheme AW / M80310 1404521 SEAT / QUALIFICATION CERTIFICATE	 CERTIFICATE OF REGISTRATION ARITA 07011203 TRADEMARK REGISTRATION File: 14062007 & 15062017
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BUTTERFLY VALVE INSTALLATION INTRUCTIONS

3.11 Valve when lifting, prohibited hoisting gearbox or valve neck.
3.12 The need for welding flange to flange welded to the spot welding pipe, bolts and valves remove after completion of spot welding pipe flange, then complete the overall welding, before mounting the valve, ensure the pipes and flanges have been cooling, strictly prohibited welding flange after valve installed.
3.13 Valve installation, ensure that the two parallel pipe flange end, valves and pipes are concentric. (Figure 3.13)
3.14 End of the line valve installed, to be fitted with flanges, to prevent the seat extruded position. (Figure 3.14)
3.15 Valves commonly installed vertically, horizontally loaded. Other installation methods require explanation with suppliers, and to take special measures. Valve should be left mounted to the pipeline operation and maintenance space.



3.16 Embedding valve between the flanges, before tightening the bolts required the valve disc to the on position, and to ensure that the valve disc and pipeline without collision. Then complete the tighten operation. (Figure 3.16)
3.17 To ensure good sealing, the method uses the diagonal tighten flange bolts fastening. (Figure 3.17)
3.18 Prohibited the valve as pipe supports and lifting points, to set up an effective support pipeline.
3.19 Before testing and cleaning the pipeline, valve must in open position.
3.20 Pipe during operation due to temperature, vibration and other reasons, may cause bolted looseness, valve position changes. Require regular inspection and timely reset thermal locking.



Before locking bolts disc must in open position

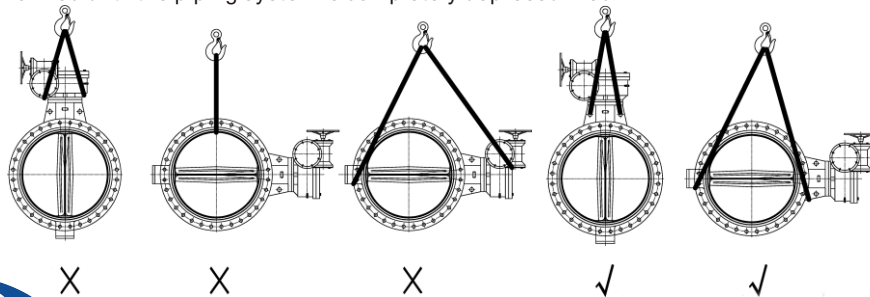


When moving a valve with the crane or lifting devices, firmly hold the valve with belt, care not to damage the stem and operator. Keep off lifting the operator to protect injuries caused by unsecured.

When handling the valve, care should be taken not to scratch the disc edge or seat.

Never complete the welding process (after tacking) with the valve between pipe flanges. This causes severe seat damage due to heat transfer.

No valve maintenance, including removal of manual operator, manual or power actuators, should be performed until the piping system is completely depressurized.



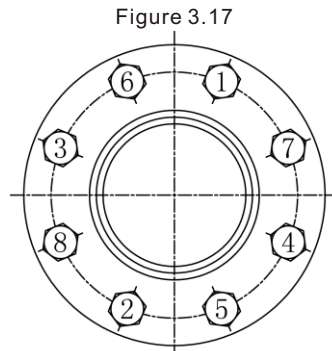
BUTTERFLY VALVE INSTALLATION INTRUCTIONS

Mounting bolt tightening torque

Valve size	Tightening Torque	
	lbs.ft	Nm
2" - 4"	20 - 30	27 - 40
5" - 8"	33 - 50	45 - 70
10"	53 - 75	72 - 102
12"	80 - 110	110 - 150
14" - 16"	140 - 200	190 - 270
18" - 20"	150 - 210	200 - 285
22" - 30"	215 - 300	290 - 406
36"	300 - 375	406 - 510
42" - 48"	350 - 425	475 - 576



CAUTION



Tighten flange bolts
in diagonal sequence

Place the valve between the flanges with the flange bores and valve body aligned properly.
 The disc should be in the 10 °degree open position.
 Span the body with bolts.
 Take this assembly of flange body flange and align it properly to the pipe.
 Tack weld the flanges to the pipe.
 When tack welding is complete, remove the bolts and the valve from the pipe flanges and complete the welding of the flanges.
 Ensure to let the pipe and flanges cool before installing the valve.

Flanges should clean with a synthetic detergent to make them rust free. Ensure the seat of valves are oil free.
 Flange faces are required to be free from scratches, distortion or unevenness.
 Edges of flange welded areas shall be thoroughly chamfered to protect seat of valves.
 Prior to valve mounting, cleaning the pipe bores.
 Remove rusts, dusts scales, welding spatters and other foreign objects which may affect valve sealing performance.
 Set jack bolts under the pipes for flat support at the same height, and adjust the flange to flange distance.
 The distance of 6mm to 10mm room may be allowed, beside the both sides of the valve body.
 Ensure to leave the valve disc left open by 10 ° from the full closed position, when the valve is mounting on.
 Mount the valve carefully so that flange faces may not damage the seat.
 Temporarily set a couple of bolts into lower bolt holes of two pipe flanges to hanging the valve.
 Insert another two bolts into higher bolt holes of two flanges, make correct centering between pipes and the valve.
 Align it by temporary tightening of bolts.
 Trial open the valve to check if there is no disturbing contact between the valve disc and the flanges.
 Remove the jack bolts, insert all bolts around the valve.
 Tighten them alternately and diagonally till the flanges contact the valve body.

Bolts snugged, not torque tight, disc edge within body face-to-face but not fully closed, no flange gasket.
 Results: No disc edge damage, proper sealing allowed.
 Pipe spread and aligned, the disc rotate smoothly.
 Results: no undesirable beginning seating / unseating torque, disc edge protected.
 Piping aligned properly when bolts tightened, disc in full open position.
 Results: The disc with clears an adjacent pipe inner diameter, seat face sealing properly, no excessive initial torque.

Safety measures shall be sufficiently taken when valves used for toxic or explosive fluid service are dismantled or disassembled.
 Safety measures shall be taken to store or dispose valves used for toxic or explosive fluid service.
 They need to be isolated not to allow any access by strangers.
 When valves need to dismantled, ensure to thoroughly relieve the line pressure beforehand.
 Loosening piping bolts under the line pressure causes a danger.
 Any residual fluid left inside the pipeline must be completely drained to prevent an injury caused to those handling valves.



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BUTTERFLY VALVE INSTALLATION INTRUCTIONS

WAFER TYPE

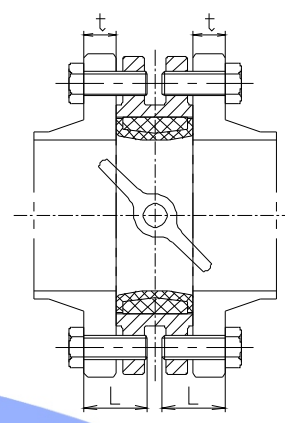
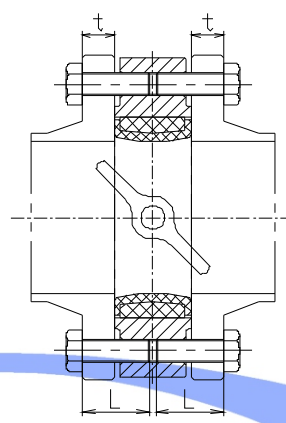
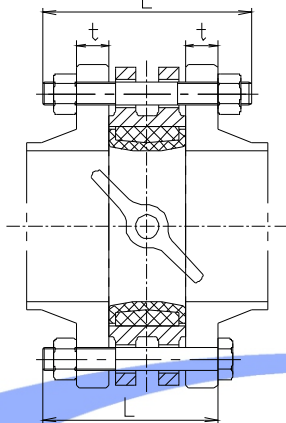
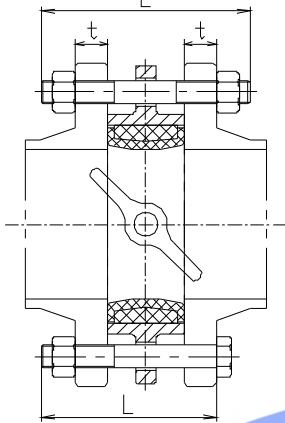
FLANGELESS 1" - 26"

U SECTION 28" - 48"

LUG TYPE

FLANGELESS 2" - 24"

U SECTION 28" - 48"



The following table selection flange as : welding neck flange.

When the site select other flange, please choose according to the actual thickness of the flange bolt length.

VALVE SIZE	EN 1092-1/11/PN10							EN 1092-1/11/PN16						
	FLANGE THICKNESS t	THREAD	LENGTH OF BOLTS / L					FLANGE THICKNESS t	THREAD	LENGTH OF BOLTS / L				
			WAFER			LUG				WAFER			LUG	
			STUD BOLT	HEX BOLT	PCS.	HEX BOLT	PCS.			STUD BOLT	HEX BOLT	PCS.	HEX BOLT	PCS.
1"	18	M12	95	80	4			18	M12	95	80	4		
1.5"	18	M16	110	90	4			18	M16	110	90	4		
2"	18	M16	120	100	4	35	4x2	18	M16	120	100	4	35	4x2
2.5"	18	M16	120	100	4	35	4x2	18	M16	120	100	4	35	4x2
3"	20	M16	120	110	4	40	8x2	20	M16	120	110	4	40	8x2
4"	20	M16	130	110	4	45	8x2	20	M16	130	110	4	45	8x2
5"	22	M16	140	120	4	45	8x2	22	M16	140	120	4	45	8x2
6"	22	M20	150	130	4	45	8x2	22	M20	150	120	4	45	8x2
8"	24	M20	160	130	4	50	8x2	24	M20	160	130	4	50	12x2
10"	26	M20	160	140	4	50	12x2	26	M24	170	150	4	50	12x2
12"	26	M20	180	150	4	60	12x2	28	M24	190	160	4	60	12x2
14"	26	M20	180	150	4	60	16x2	30	M24	190	160	4	60	16x2
16"	26	M24	190	170	4	60	16x2	32	M27	210	180	4	70	16x2
18"	28	M24	220	190	4	70	20x2	34	M27	240	200	4	80	20x2
20"	28	M24	240	220	4	70	20x2	36	M30	270	240	4	90	20x2
24"	30	M27	270	240	4	70	20x2	40	M33	300	270	4	100	20x2
28"	35	M27	300	270	24	70	24x2							
32"	38	M30	330	300	24	80	24x2							
36"	38	M30	350	320	28	80	28x2							
40"	44	M33	380	350	28	90	28x2							
48"	55	M36	460	430	32	90	32x2							



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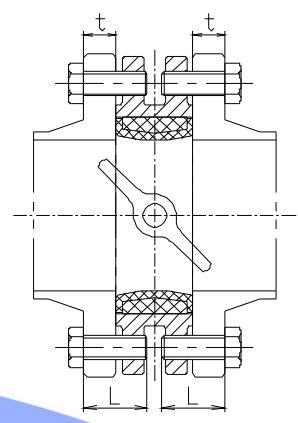
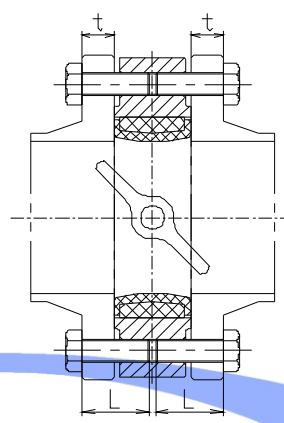
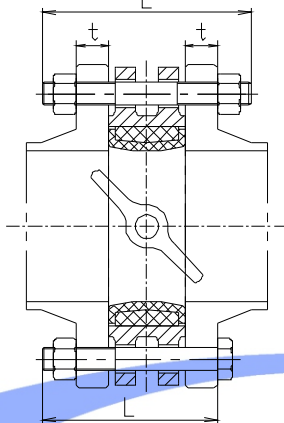
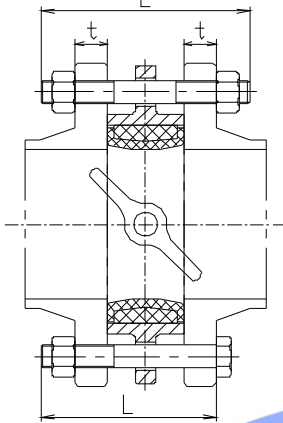
LUG TYPE

FLANGELESS 1" - 26"

U SECTION 28" - 48"

FLANGELESS 2" - 24"

U SECTION 28" - 48"



The following table selection flange as : welding neck flange.
When the site select other flange, please choose according to the actual thickness of the flange bolt length.

VALVE SIZE	JIS B 2220 WN 5K							JIS B 2220 WN 10K						
	FLANGE THICKNESS t	THREAD	LENGTH OF BOLTS/ L				FLANGE THICKNESS t	THREAD	LENGTH OF BOLTS/ L					
			WAFER		LUG				WAFER		LUG			
		STUD BOLT	HEX BOLT	PCS.	HEX BOLT	PCS.			STUD BOLT	HEX BOLT	PCS.	HEX BOLT	PCS.	
1"	10	M10	70	60	4		14	M16	95	80	4			
1.5"	12	M12	85	70	4		16	M16	100	90	4			
2"	14	M12	100	90	4	30	16	M16	110	100	4	35	4x2	
2.5"	14	M12	100	90	4	35	18	M16	120	100	4	35	4x2	
3"	14	M16	110	90	4	35	18	M16	120	100	4	35	8x2	
4"	16	M16	120	100	4	40	18	M16	130	110	4	40	8x2	
5"	16	M16	130	110	4	40	20	M20	140	120	4	45	8x2	
6"	18	M16	130	110	4	45	22	M20	150	130	4	45	8x2	
8"	20	M20	150	130	4	45	22	M20	150	130	4	50	12x2	
10"	22	M20	160	130	4	50	24	M22	160	140	4	55	12x2	
12"	22	M20	170	150	4	50	24	M22	170	150	4	60	16x2	
14"	24	M22	170	150	4	60	26	M22	180	150	4	60	16x2	
16"	24	M22	180	160	4	60	28	M24	200	180	4	60	16x2	
18"	24	M22	200	180	4	60	30	M24	220	200	4	70	20x2	
20"	24	M22	230	200	4	60	40	M24	260	240	4	80	20x2	
22"	26	M24	260	240	20		42	M30	300	280	20			
24"	26	M24	260	240	4	60	42	M30	300	280	4	90	24x2	
26"							44	M30	330	300	24			
28"							56	M30	350	320	24	100	24x2	
30"							60	M30	350	320	24	110	24x2	
32"							60	M30	380	340	28	110	28x2	
36"							62	M30	400	360	28	110	28x2	
40"							66	M36	420	400	28	120	28x2	
44"							72	M36	480	440	28	130	28x2	
48"							76	M36	500	480	32	130	32x2	



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WAFER TYPE

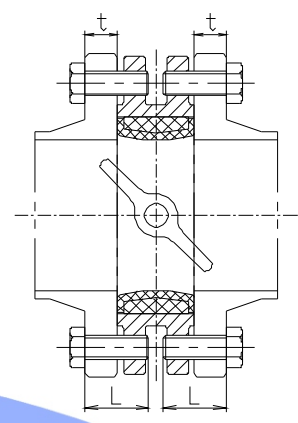
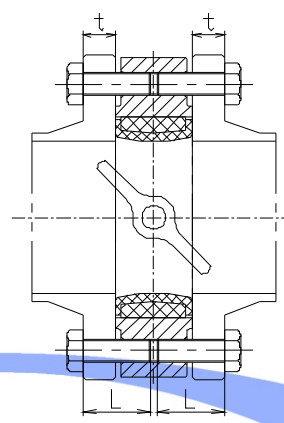
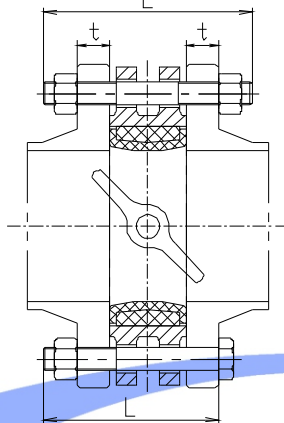
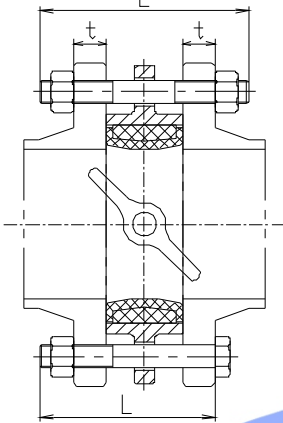
LUG TYPE

FLANGELESS 1" - 26"

U SECTION 28" - 48"

FLANGELESS 2" - 24"

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The following table selection flange as : welding neck flange.

When the site select other flange, please choose according to the actual thickness of the flange bolt length.

VALVE SIZE	ASME B16.5/B16.47, Ser.A CLASS150							AS 2129 TABLE E						
	FLANGE THICKNESS t	THREAD	LENGTH OF BOLTS/ L				FLANGE THICKNESS t	THREAD	LENGTH OF BOLTS/ L					
			WAFER			LUG			WAFER			LUG		
			STUD BOLT	HEX BOLT	PCS.	HEX BOLT	PCS.			STUD BOLT	HEX BOLT	PCS.	HEX BOLT	PCS.
1"	12.7	1/2-13UNC	85	70	4			10	M12	80	65	4		
1.5"	15.9	1/2-13UNC	95	80	4			13	M12	85	80	4		
2"	17.5	5/8-11UNC	120	100	4	35	4x2	14	M16	110	90	4	30	4x2
2.5"	20.7	5/8-11UNC	130	110	4	40	4x2	14	M16	110	90	4	35	4x2
3"	22.3	5/8-11UNC	130	110	4	40	4x2	14	M16	110	90	4	35	4x2
4"	22.3	5/8-11UNC	140	120	4	45	8x2	17	M16	130	110	4	40	8x2
5"	22.3	3/4-10UNC	150	120	4	45	8x2	17	M16	130	110	4	40	8x2
6"	23.9	3/4-10UNC	150	130	4	50	8x2	17	M20	140	110	4	40	8x2
8"	27	3/4-10UNC	160	140	4	55	8x2	19	M20	150	120	4	45	8x2
10"	28.6	7/8-9UNC	170	150	4	60	12x2	22	M20	160	130	4	50	12x2
12"	30.2	7/8-9UNC	190	160	4	60	12x2	25	M24	180	160	4	60	12x2
14"	33.4	1-8UNC	200	170	4	70	12x2	29	M24	190	160	4	60	12x2
16"	35	1-8UNC	210	180	4	70	16x2	32	M24	210	180	4	70	12x2
18"	38.1	1 1/8-7UNC	240	220	4	80	16x2	35	M24	230	200	4	70	16x2
20"	41.3	1 1/8-7UNC	280	240	4	90	20x2	38	M24	260	240	4	80	16x2
22"								44	M27	300	270	16		
24"	46.1	1 1/4-7UNC	320	280	4	100	20x2	48	M30	320	280	4	90	16x2
26"	68.3	1 1/4-7UNC	380	340	24									
28"	71.4	1 1/4-7UNC	380	340	28	120	28x2	51	M30	350	300	20	100	20x2
30"	74.7	1 1/4-7UNC	380	360	28	120	28x2	54	M33	350	320	20	100	20x2
32"	81	1 1/2-6UNC	430	400	28	140	28x2	54	M33	380	340	20	100	20x2
36"	90.4	1 1/2-6UNC	480	420	32	150	32x2	64	M33	400	380	24	110	24x2
40"	90.4	1 1/2-6UNC	480	440	36	150	36x2	67	M36	420	400	24	120	24x2
42"	96.8	1 1/2-6UNC	520	480	36	160	36x2							
44"	101.6	1 1/2-6UNC	550	500	40	160	40x2							
48"	108	1 1/2-6UNC	580	550	44	180	44x2							



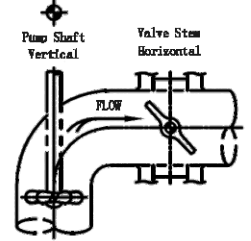
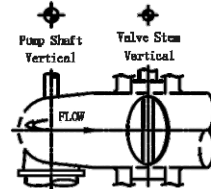
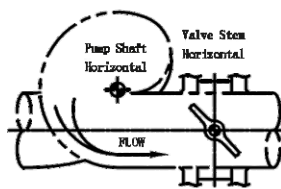
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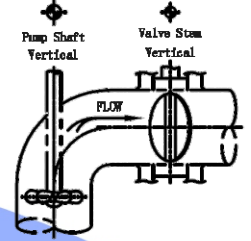
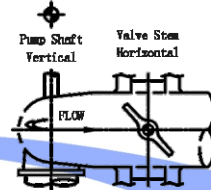
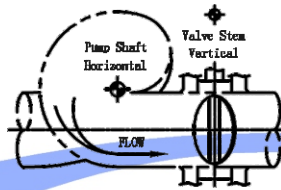
Incorrect

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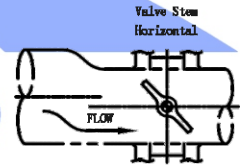
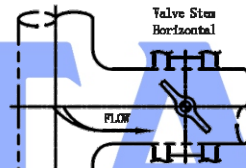
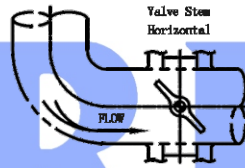
Correct

✓



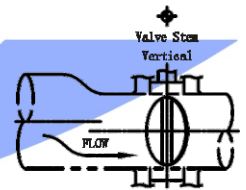
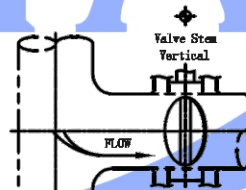
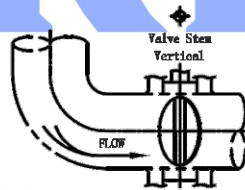
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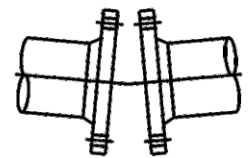
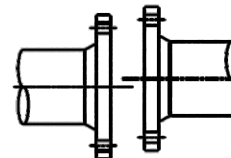
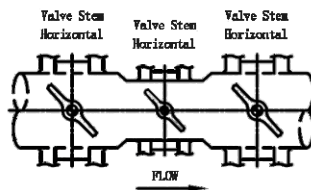
Correct

✓



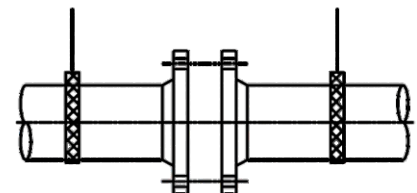
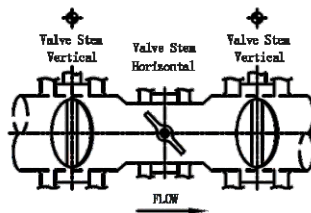
Incorrect

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Correct

✓



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