

# YFD342 BUTTERFLY VALVE



## Product Description

YFD342X Double Eccentric Flanged Butterfly Valve (Soft Seal Version)

This valve adopts a double eccentric structure, which minimizes disc-seat friction during operation, reducing torque by 30% for smoother control.

It offers two premium soft sealing options: EPDM, ideal for water treatment and HVAC systems with excellent elasticity and corrosion resistance, and NBR, perfect for oil and grease applications with superior oil resistance.

Both materials ensure bubble-tight zero leakage and a service life exceeding 30,000 cycles. Available in sizes DN100-DN4000, it supports manual, gear, or automated operation, meeting diverse industrial flow control needs.



### Technical Data

Size range	DN40-DN2600
Pressure range	PN 10-16/Class 150/JIS10K
Temperature	EPDM : -10°C to +100 °C NBR: - 10°C to + 80 °C
Design	EN593
Face to face	13/14 to-EN558 ISO5752-and BS155
Connection	EN1092-1 (DIN2501)
Coating	Electrostatic Powder Epoxy/Spray
Testing	API598
Medium	Water,oil,Gas

### Application Range

- HVAC Systems
- Pumping Stations
- Water Treatment Plants
- Reservoirs and Tanks
- Irrigation
- Industrial Applications

### Related Products

- YFZ44T METAL SEAT GATE VALVE
- YFPZ73X KNIFE GATE VALVE
- YFH44X SWING CHECK VALVE



HVAC



IRRIGATION



POTABLEWATER



INDUSTRY

# YFD342X BUTTERFLY VALVE



## Product Description

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### 1. Double Eccentric Structure

The valve stem is offset from both the valve seat sealing centerline and the pipeline centerline, forming a cam-like opening and closing trajectory. The butterfly disc only contacts the valve seat at small angles at the start and end of the opening/closing process, which greatly reduces friction and extends the service life of sealing components.

### 2. Hydrodynamic Disc Design

The disc shape is tailored to fluid mechanics, reducing water flow resistance and turbulence, cutting energy consumption, and minimizing pipeline vibration and noise. It also reduces stress on pumps, pipelines, and the valve itself, making it suitable for stable operation in large-scale pipe networks such as water supply, irrigation, and power plant cooling systems.

### 3. Dry Shaft Design

The valve stem is completely isolated from the medium, avoiding corrosion risks, reducing maintenance requirements, and extending the valve's service life. It is especially suitable for scenarios with high cleanliness requirements, such as drinking water and irrigation systems.

### 4. Stainless Steel Disc Retainer

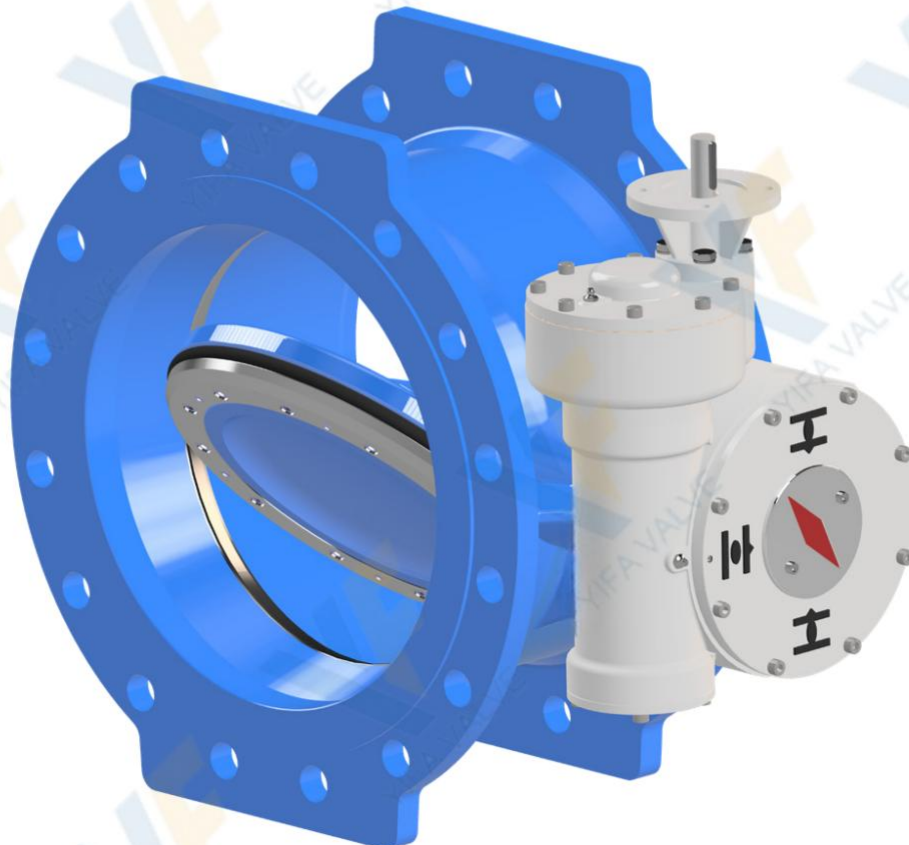
A stainless steel retainer is used to fix the rubber gasket, ensuring the gasket does not fall off under high-pressure or bidirectional flow conditions. This prevents premature failure of the retainer and enhances sealing reliability.

### 5. Bidirectional Sealing

It supports bidirectional zero-leakage shutoff, with no flow direction restrictions during installation. This reduces installation errors and rework costs, and can replace check valves to reduce inventory types.

### 6. Self-Lubricating Bearing

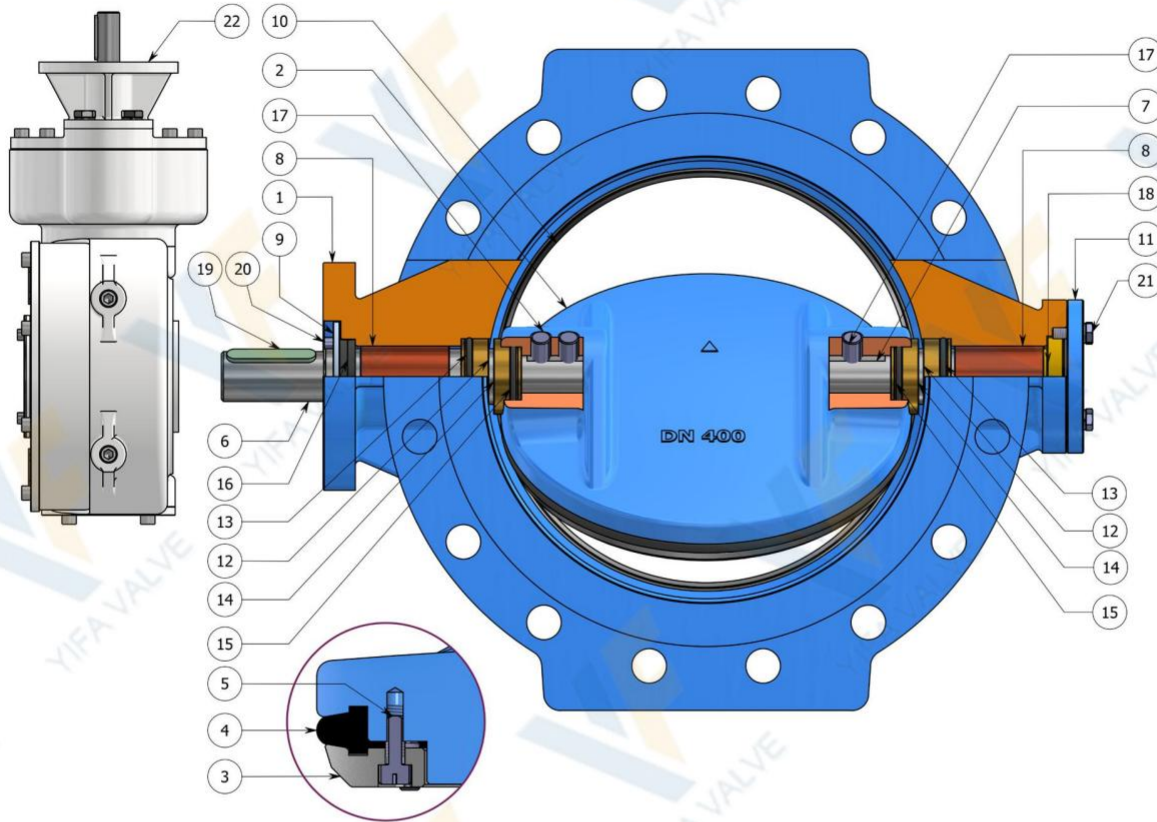
No external lubrication is required, reducing maintenance labor and downtime. The self-lubricating feature of the bearing reduces wear, ensuring smooth opening and closing even after long-term idle periods.



# YFD342X BUTTERFLY VALVE



## Material Table DN100-DN2600

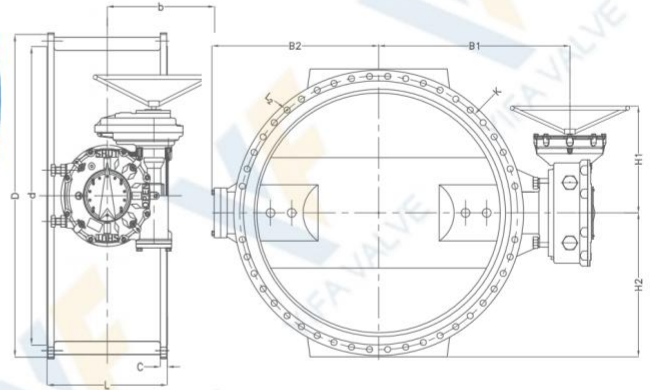


PART NO	DESCRIPTION	MATERIAL	STANDARD	PART NO	DESCRIPTION	MATERIAL	STANDARD
1	Body	Ductile Iron	EN-GJS-500/7	12	Body Sleeve	Bronze	
2	Disc	Ductile Iron	EN-GJS-500/7	13	O-Ring Seal	EPDM Rubber	
3	Retaining Ring	Stainless Steel Grade 316		14	Disc Sleeve	Bronze	
4	Disc Seal	EPDM Rubber		15	O-Ring Seal	EPDM Rubber	
5	Retainer Bolts	Stainless Steel Grade 304		16	Shaft Seal	EPDM Rubber	
6	Driving Shaft	X20Cr13(AISI 420)		17	Disc Pin	X20Cr13	
7	Stub Shaft	X20Cr13(AISI 420)		18	Thrust Pad	Copper Alloy	
8	Bearing	Self-lubricating PTFE/Steel/Tin		19	Parallel Key	Medium carbon steel	
9	Gland	Ductile Iron	EN-GJS-500/7	20	Gland Bolts	Stainless Steel Grade 304	
10	Body Seat	Stainless Steel Grade 309L		21	Cover Bolts	Stainless Steel Grade 304	
11	Bottom Cover	S235JR		22	Gearbox	Ductile Iron	

# YF342X

## BUTTERFLY VALVE

Worm Gear PN10 DN100-DN2600

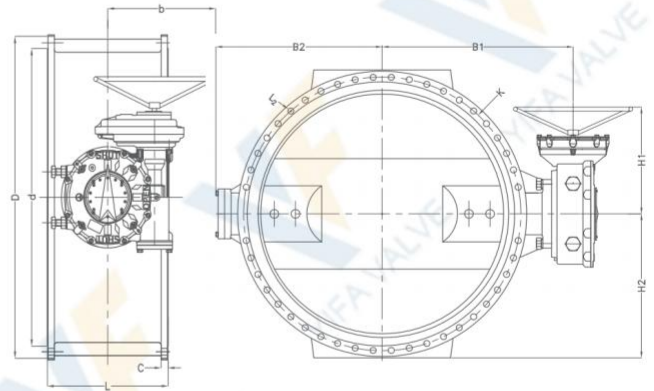


DN	FACE TO FACE			MAIN VALVE DIMENSIONS					PN10 BAR FLANGE DIMENSIONS						
	SERIES20	SERIES13	SERIES14	H1	H2	B1	B2	b	D	d	C	K	N	L2	BOLTS
100		127	90	155	110	210	10	133	220	156	19	180	8	19	M16
150		140	210	193	145	260	143	184	285	211	19	240	8	23	M20
200		152	230	193	75	305	170	184	340	266	20	295	8	23	M20
250	68	165	250	220	215	35	240	200	400	319	22	350	2	23	M20
300	78	178	270	220	215	360	280	200	455	370	24.5	400	2	23	M20
350	78	190	290	220	275	390	315	200	505	429	24.5	460	16	23	M20
400	02	216	310	260	305	430	350	270	565	480	24.5	515	16	28	M24
450	114	222	330	260	325	475	375	270	65	530	26.5	565	20	28	M24
500	2	229	350	260	356	500	45	270	670	582	26.5	620	20	28	M24
600	154	267	390	330	430	560	475	340	780	682	30	725	20	31	MZ
700	165	292	430	370	460	645	510	350	895	794	33	840	24	31	MZ
800	190	318	470	370	540	700	565	350	1015	901	35	950	24	34	M30
900		330	500	420	600	800	630	380	1115	1001	37.5	1050	28	34	M30
1000		410	550	500	640	870	685	580	1230	1112	40	1160	28	37	M33
100		410	590	610	700	950	840	680	1340	1215	42.5	1270	32	37	M33
1200		470	630	610	770	1000	890	680	1455	1328	45	1380	32	40	M36
1400		530	710	610	900	1100	970	680	1675	1530	46	1590	36	43	M39
1500		530	750	610	970	1160	1020	680	1785	1640	47.5	1700	36	43	M39
1600		600	790	660	1030	1275	30	780	1915	1750	49	1820	40	49	M45
1800		670	870	660	100	1400	1230	780	2115	1950	52	2020	44	49	M45
2000		760	950	970	180	1540	1340	840	2325	2150	56	2230	48	49	M45
2200		760	1030	1000	1300	1710	1480	930	2550	2370	59	2440	52	56	M52
2400		850*	1100*	1000	1400	1810	1580	930	2750	2570	62	2650	56	56	M52
2500		850*	1100*	1100	1460	1880	1635	980	2860	2670	65	2750	56	56	M52
2600		850*	1100*	100	1510	1940	1690	980	2960	2780	65	2850	60	56	M52

# YFD342X BUTTERFLY VALVE



Worm Gear PN16 DN100-DN2600



DN	FACE TO FACE			MAIN VALVE DIMENSIONS				PN10 BAR FLANGE DIMENSIONS							
	SERIES <sub>20</sub>	SERIES <sub>13</sub>	SERIES <sub>14</sub>	H1	H2	B1	B2	b	D	d	C	K	N	L2	BOLTS
100		127	190	155	110	210	110	133	220	156	19	180	8	9	M16
150		140	210	193	145	260	143	184	285	211	19	240	8	23	M20
200		152	230	193	75	305	70	184	340	266	20	295	12	23	M20
250	68	165	250	220	215	315	240	200	400	319	22	355	12	28	M24
300	78	178	270	220	215	360	280	200	455	370	24.5	410	12	28	M24
350	78	190	290	220	275	390	315	270	520	429	26.5	470	16	28	M24
400	102	216	310	260	305	430	350	340	580	480	28.0	525	16	31	M27
450	114	222	330	330	325	475	375	340	640	548	30.0	585	20	31	M27
500	127	229	350	330	356	500	410	350	715	609	315.0	650	20	34	M30
600	154	267	390	370	430	560	475	380	840	720	36	770	20	37	MB3
700	165	292	430	420	460	645	510	580	910	794	40	840	24	37	M33
800	190	318	470	500	540	700	565	580	1025	901	43	950	24	40	M36
900		330	510	500	600	800	630	680	1125	1001	46.5	1050	28	40	M36
1000		410	550	610	640	870	685	680	1255	1112	50	1170	28	43	M39
100		410	590	610	700	950	840	680	1355	1215	35.0	1270	32	43	M39
200		470	630	660	770	1000	890	780	1485	1328	57	1390	32	49	M45
1400		530	770	970	900	1100	970	840	1685	1530	60	1590	36	49	M45
1500		530	750	970	970	1160	1020	840	1820	1640	62.5	1710	36	56	M52
1600		600	790	970	1030	1275	1130	840	1930	1750	65	1820	40	56	M52
1800		670	870	970	1100	1400	1230	840	2130	1950	70	2020	44	56	M52
2000		760	950	1000	1180	1540	1340	840	2345	2150	75	2230	48	62	M56
2200		760	1030	1000	1300	1710	1480	930	2555	2370	80	2440	56	62	M56
2400		850*	1100	1000	1400	1810	1580	930	2765	2570	86	2650	56	62	M56
2500		850*	1100*	1100	1460	1880	1635	980	2870	2670	86	2750	60	62	M56
2600		850*	1100*	1100	1510	1940	1690	980	2965	280	91	2850	60	62	M56

# YFD342X

## BUTTERFLY VALVE



### Torque

Size	Pn6		PN10		Pn16	
	ΔP=100		ΔP=150		ΔP=200	
	WET	DRY	WET	DRY	WET	DRY
DN50	13	20.8	13.9	22.1	15.1	24.2
DN65	13.8	26.1	15.4	29.2	17.2	32.7
DN80	21	39.9	21.7	41.1	23.1	43.7
DN100	34.9	63.8	37.1	67.8	39.8	72.8
DN125	53.8	93.8	57.9	101	61.9	108
DN150	84.5	149	93.9	165	102	174
DN200	154	264	173	297	192	330
DN250	249	423	286	486	323	549
DN300	371	605	429	699	490	799
DN350	466	699	550	825	625	969
DN400	632	947	755	1133	846	1307
DN450	831	1246	1012	1518	1131	1787
DN500	1093	1639	1350	2025	1431	2288
DN600	1679	2519	2111	3166	2301	3711
DN700	3010	4515	3272	4908	4253	6380
DN750	3487	5231	3767	5650	4897	7345
DN800	3963	6103	4308	6462	5600	8400
DN900	4913	7369	5257	7886	6834	10251
DN1000	8367	12550	8926	13389	11603	17405
DN1050	8433	12649	9024	13536	11731	17596
DN1200	11733	17600	12555	18833	16321	24482

Note:

- 1、The above "WET" means the test fluid is water or other non-lubricating mediums." DRY" means the test medium is dry compressed air.
- 2、When the valve serves in a too low working temperature, operating torque will increase with the consequence of increased hardness of rubber in low temperature.

# YFD342X

## BUTTERFLY VALVE



### Pressure drops

#### FLOW COEFFICIENT (KV)

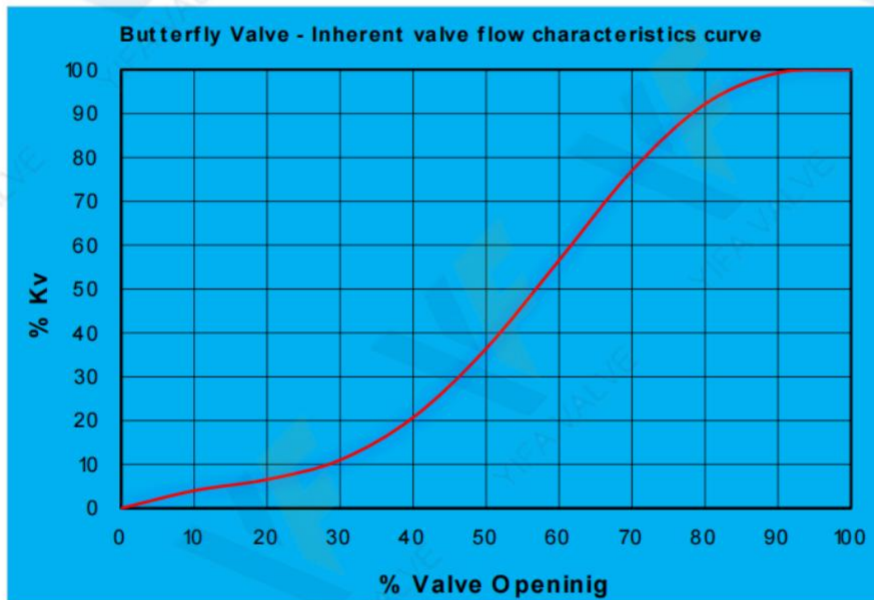
The Kv-value [m<sup>3</sup> per hour] is a measure of the valves ability to pass flow. It is defined as the flow of water at a temperature of 5°C to 30°C at AP of 1 bar through a fully open valve.

$$KV = Q / \sqrt{\Delta P} \text{ (FOR WATER APP)}$$

Q: FLOW RATE MEASURED IN M<sup>3</sup>/HOUR

ΔP : DIFFERENTIAL PRESSURE ACROSS THE VALVE MEASURED IN BARS

CV: FLOW COEFFICIENT IN US GALLON/MIN = 1.16 KV



DN	250	300	350	400	450	500	600	700	800	900	1000	1100
KV	2560	3600	5620	7752	11337	16560	22216	31448	42699	54911	68084	78123

DN	1200	1400	1500	1600	1800	2000	2200	2400	2500	2600
KV	100480	144600	159200	188510	242198	324150	395600	406900	505300	627400

# YFD342X BUTTERFLY VALVE



## Cv Value

Concentric Butterfly Valve Flow Coefficient Cv Value (in<sup>2</sup>)

### VELOCITY LIMITS

THE MAXIMUM FLOW RATES FOR BUTTERFLY VALVES ARE PRESCRIBED IN EN593.

Butterfly Valves are designed to safely open and close at the highest differential pressure acting on the closed valve disc at the rated pressure. However in case of excessive flow velocities the dynamic torque acting on the valve components might damage the valve even if the rated pressure is not exceeded. Thus valve ratings should be selected according to both pressure and flow.

Pressure	Maximum flow rate (m/sec)
Up to 6 bars	2.5
10	3
16	4
25	5

If the actual velocity exceeds the corresponding pressure value, it is necessary to select a higher pressure rating or a different valve type which is more suitable for such an application.

### HEAD LOSS CHARACTERISTICS

The head loss characteristics show how much pressure (Head) is lost through a fully open valve. Each valve has its own head loss factor which is used to calculate the total pressure drop at a given flow rate and using the following formula.

$$\Delta H = K \cdot (V^2 / 2G) \quad \Delta H = \text{HEAD LOSS (M)}$$

V = AVERAGE VELOCITY (M/SEC) K = RESISTANCE COEFFICIENT

DN	250	300	350	400	450	500	600	700	800	900	1000	1100
K	0.53	0.52	0.5	0.47	0.47	0.42	0.37	0.33	0.3	0.27	0.25	0.24

DN	1200	1400	1500	1600	1800	2000	2200	2400	2500	2600
K	0.24	0.23	0.23	0.22	0.22	0.21	0.21	0.21	0.20	0.20

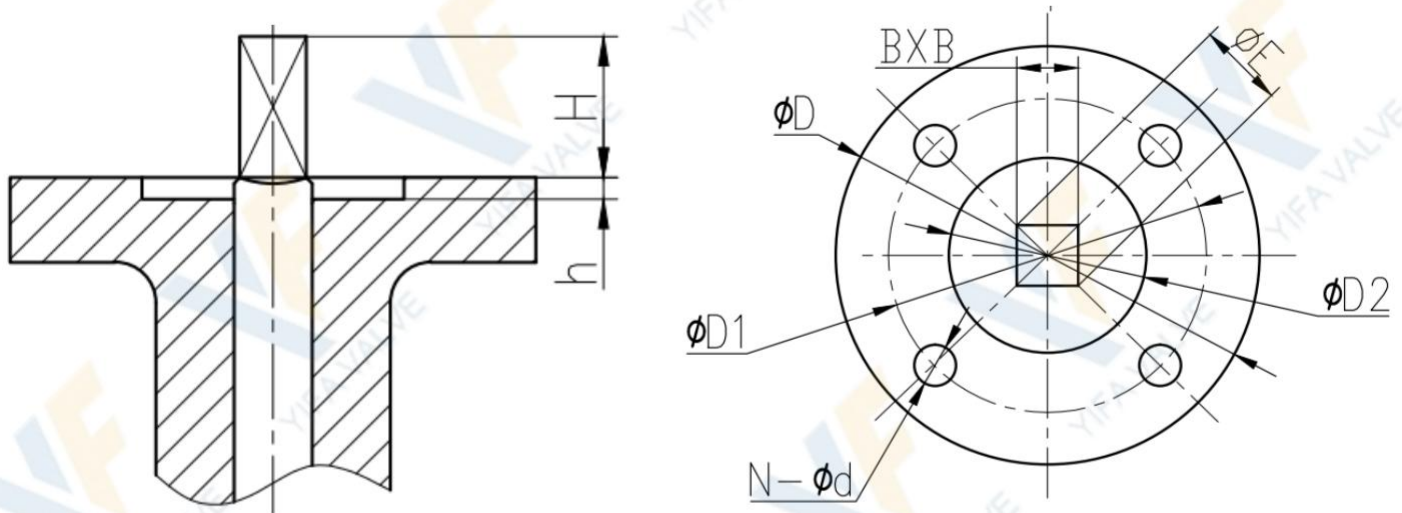
### USING BUTTERFLY VALVES FOR THROTTLING PURPOSES

If a butterfly valve is intended for use in a throttling application, there are a number of parameters that must be considered so as to avoid damaging the valve or other pipeline components. In case a modulating valve is required to control flow, pressure, or level it is highly recommended using an automatic control valve that is specifically designed for such applications.

# YFD342X BUTTERFLY VALVE



## Top Flange



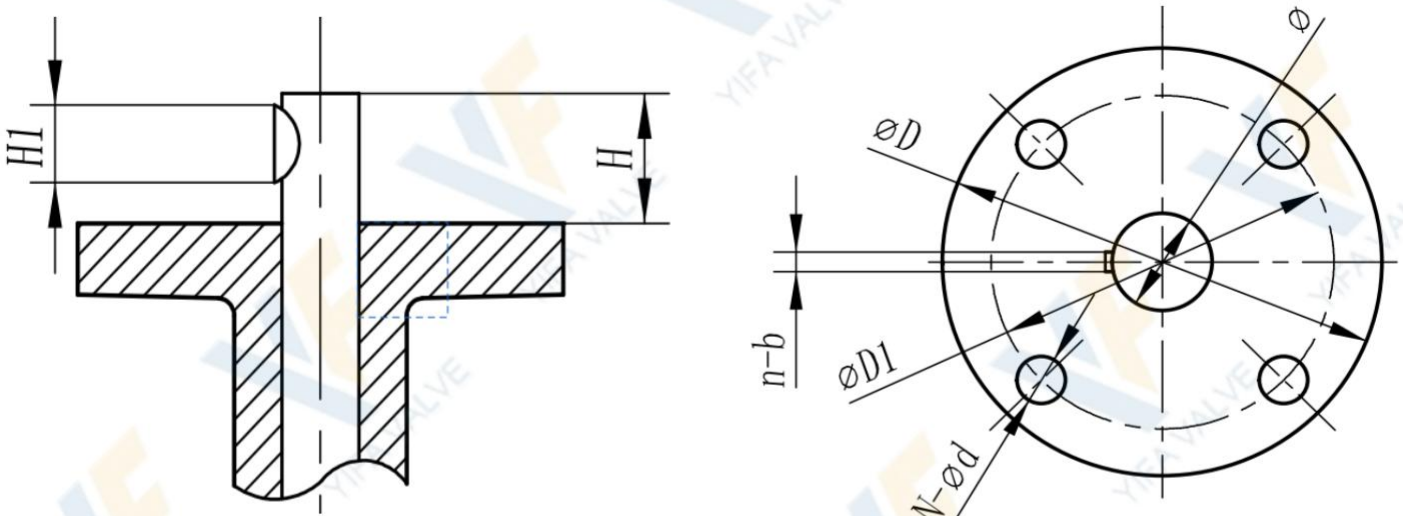
ISO5211 Top Flange DN50-DN600  
Square Stem

SIZE	φD	φD1	φD2	N-φd	h	H	BXB		ØE
							PN10	PN16	
DN50	65	50	35	4-8	4	25	9X9		12.6
DN65	65	50	35	4-8	4	25	9X9		12.6
DN80	65	50	35	4-8	4	25	9X9		12.6
DN100	90	70	55	4-10	4	28	11X11		15.8
DN125	90	70	55	4-10	4	28	14X14		18.9
DN150	90	70	55	4-10	4	28	14X14		18.9
DN200	125	102	70	4-12	4	33	17X17		22.1
DN250	125	102	70	4-12	4	33	22X22		28.45
DN300	125	102	70	4-12	4	33	22X22		31.6
DN350	125	102	70	4-12	4	45	22X22		31.6
DN400	175	140	100	4-18	5	52	27		33.15
DN450	175	140	100	4-18	5	52	27		38
DN500	175	140	100	4-18	5	64	32		41.15
DN600	210	165	130	4-22	6	70	36		50.65

# YFD342X BUTTERFLY VALVE



## Top Flange



ISO5211 Top Flange DN50-DN1200  
Round Stem

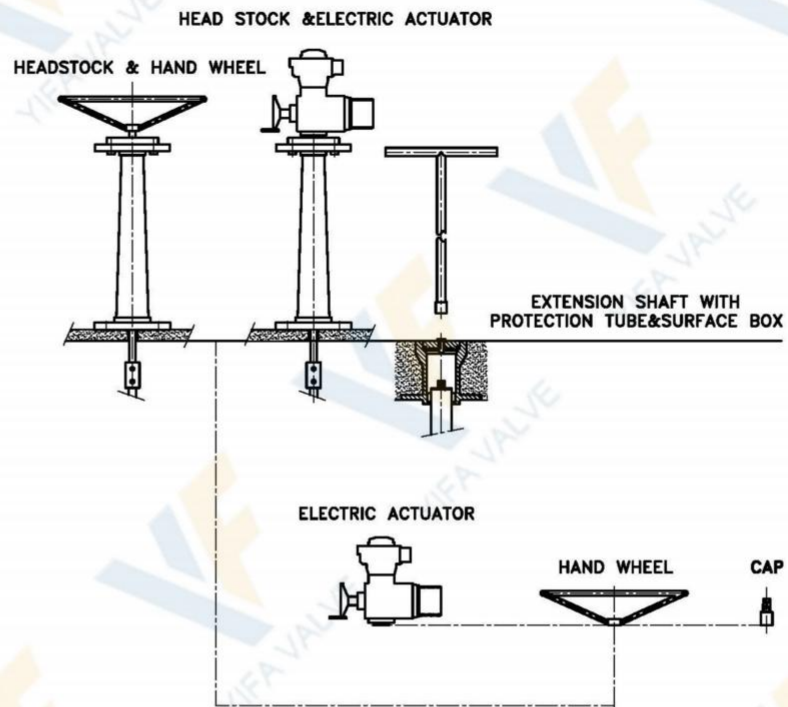
DN mm	ISO5211	ØD	ØD1	N-ød	n-b		H1	H	Ø	
					PN10	PN16			PN10	PN16
50	F05	65	50	4-8	1-3		15.7	32	12.6	
65	F05	65	50	4-8	1-3		15.7	32	12.6	
80	F05	65	50	4-8	1-3		15.7	32	12.6	
100	F07	90	70	4-10	1-5		18.6	32	15.77	
125	F07	90	70	4-10	1-5		18.6	32	18.92	
150	F07	90	70	4-10	1-5		18.6	32	18.92	
200	F10	125	102	4-12	1-5		27.4	45	22.1	
250	F10	125	102	4-12	1-8		27.4	45	28.5	
300	F10	125	102	4-12	1-8		27.4	45	31.7	
350	F10	125	102	4-12	1-8		27.4	45	31.7	
400	F14	175	140	4-18	1-10		45	52	33.15	37.95
450	F14	175	140	4-18	1-10	1-12	45	52	38.00	42.86
500	F14	175	140	4-18	1-12	1-14	55	64	41.15	45.72
550	F16	210	165	4-22	1-16		60	64	50.65	
600	F16	210	165	4-22	1-16	2-16	65	70	50.65	53.98
700	F25	300	254	8-18	2-18		85	95	63.35	
750	F25	300	254	8-18	2-18		85	95	63.35	
800	F25	300	254	8-18	2-18		85	95	63.35	
900	F25	300	254	8-18	2-20		130	130	75	
1000	F25	300	254	8-18	2-22		130	130	85	
1050	F25	300	254	8-18	2-22		150	150	85	
1100	F25	300	254	8-18	2-22		150	150	85	
1200	F30	350	298	8-22	2-28		150	150	100	

# YFD342X BUTTERFLY VALVE



## Selection for Actuator

YIFA offers butterfly valves with various actuation options. Thanks to quarter-turn operation, they are easy to use and ideal for automation. Actuation options include manual, pneumatic, electric, and hydraulic, with ON/OFF or modulating control.

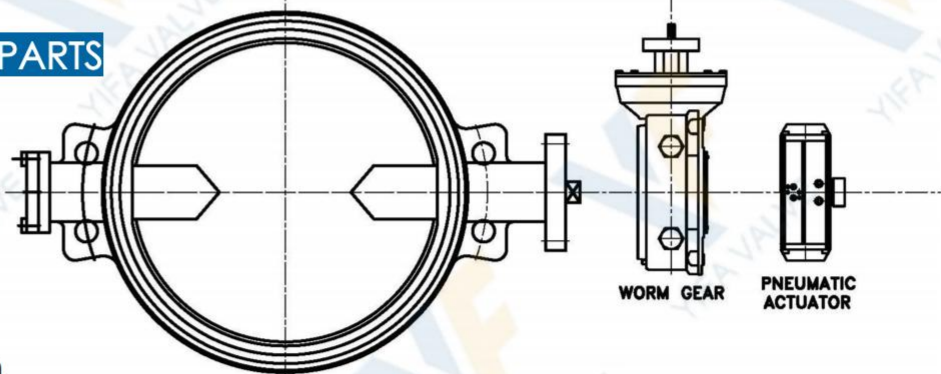


## SELECTION FOR SPARE PARTS

- Solenoid valve
- Air filter
- Limit switch
- Proximity switch
- Positioner
- Distribution box

• Hoist for platform operation

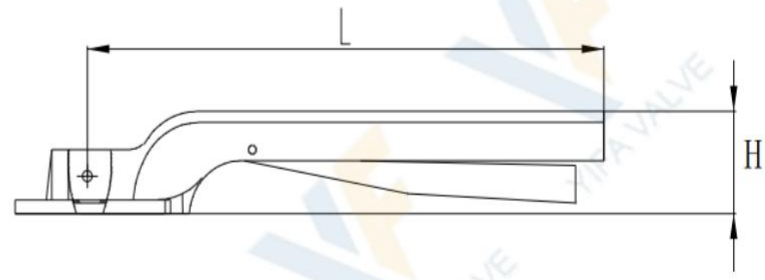
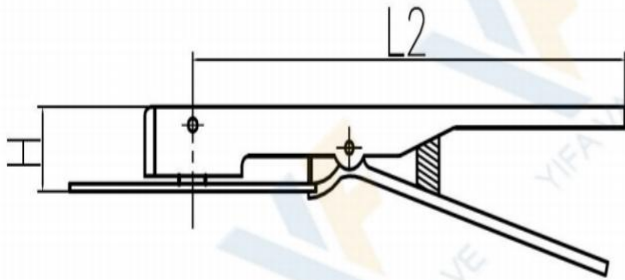
If customers have special requirements for valve stem, they shall provide the distance from platform to center of valve pipeline.



# YFD342X BUTTERFLY VALVE



## Handle



Iron/SS304 Handle

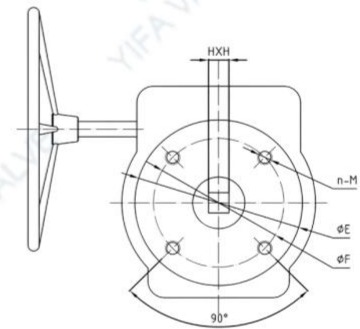
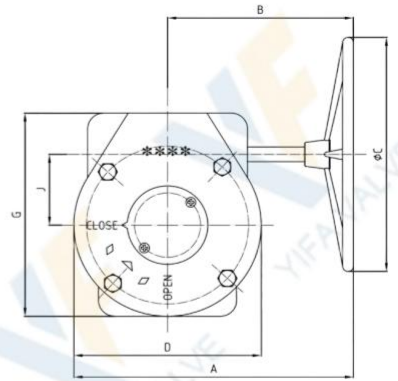
DN	H	L2	Square	TopFlange
50	27	240	9	F05
65	27	240	9	F05
80	27	240	9	F05
100	27	240	11	F07
125	27	255	14	F07
150	27	255	14	F07
200	32	360	17	F10
250	32	350	22	F10
300	32	350	22	F10

DN	H	L2	Square	TopFlange
50	60	197	9	F05
65	60	197	9	F05
80	60	197	9	F05
100	67	207	11	F07
125	72	277	14	F07
150	72	277	14	F07
200	90	324	17	F10



# YFD342X BUTTERFLY VALVE

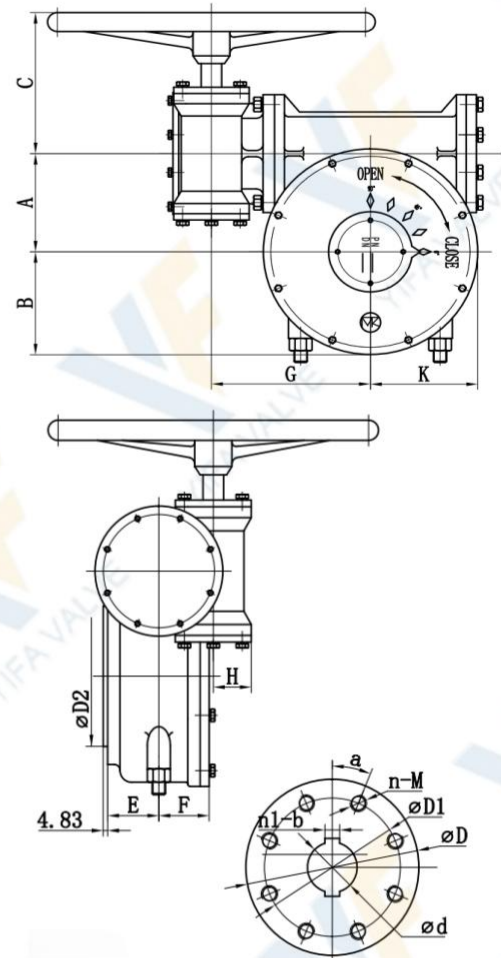
Worm Gear Box DN40-DN350



Size		Ratio	Torque (N.m)	INFORMACION						REDUCTOR					ISO 5211
mm	Inch			A	B	ØC	D	J	G	T	ØE	ØF	n-M	HXH	
DN40	1.5"	24:1	150	212	160	150	104	45	125	68	90	70	4-M8	9X9	F07
DN50	2"	24:1	150	212	160	150	104	45	125	68	90	70	4-M8	9×9	F07
DN65	2.5"	24:1	150	212	160	150	104	45	125	68	90	70	4-M8	9X9	F07
DN80	3"	24:1	150	212	160	150	104	45	125	68	90	70	4-M8	9×9	F07
DN100	4"	24:1	150	212	160	150	104	45	125	68	90	70	4-M8	11X11	F07
DN125	5"	24:1	150	212	160	150	104	45	125	68	90	70	4-M8	14X14	F07
DN150	6"	24:1	150	212	160	150	104	45	125	68	90	70	4-M8	14×14	F07
DN200	8"	30:1	500	300	227	285	145	63	170	72	125	102	4-M10	17X17	F10
DN250	10"	30:1	500	300	227	285	145	63	170	72	125	102	4-M10	22×22	F10
DN300	12"	50:1	1200	305	227	285	155	78	190	75	150	125	4-M12	22X22	F12
DN350	14"	50:1	1200	305	227	285	155	78	190	75	150	125	4-M12	22X22	F12

# YFD342X BUTTERFLY VALVE

Worm Gear Box DN400-DN1200



DN	Ratio	Torque (N.m)	A	B	C	D	D1	D2	h	E	F	H	G	K	φ	n-M	a	d	n1-b
DN400	560:1	2.5 × 103	100	105	148	197	140	/	/	64	60	45	172.5	105	300	4-M16	45	33.2	1-10
DN450	560:1	2.5 × 103	100	105	148	197	140	/	/	64	60	45	172.5	105	300	4-M16	45	38	1-10
DN500	560:1	2.5 × 103	100	105	148	197	140	/	/	64	60	45	172.5	105	300	4-M16	45	41.2	1-12
DN600	640:1	4 × 103	125	131	176	210	165	/	/	64	66	46.5	200	131	300	4-M20	45	50.7	1-16
DN700/ 800	704:1	8 × 103	140	146	198	300	254	200	4	74	88	55	228	146	400	8-M16	22.5	63.4	2-18
DN900	704:1	15 × 103	162	177	200	300	254	200	4	98	88	55	248	177	450	8-M18	22.5	75	2-20
DN1000	704:1	15 × 103	162	177	200	300	254	200	4	98	88	55	248	177	450	8-M18	22.5	85	2-22
DN1200	575:1	25 × 103	236	179	205	350	298	230	4	127	99	60	310	249	450	8-M20	22.5	105	2-28

# BUTTERFLY VALVE

## Installation

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### Pre-Installation Instructions

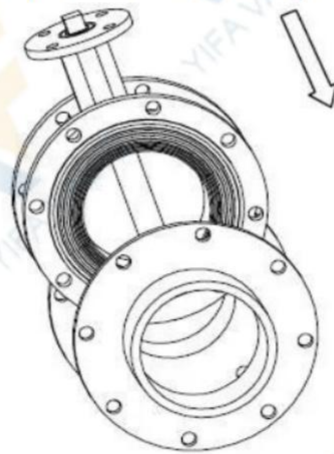
1. Before installation, clean the pipeline by blowing with air to remove foreign objects, and flush the inner surface with clean water.
2. Carefully check whether the valve specifications match the working conditions (temperature and pressure).
3. Inspect the valve passage and sealing surfaces for any debris, and remove it if found.
4. After unpacking, install the valve as soon as possible. Do not loosen any bolts or nuts on the valve.
5. Wafer butterfly valves must be installed with suitable mating flanges (dedicated butterfly valve flanges are recommended).
6. Electric butterfly valves can be installed at any angle. However, installation upside down is not recommended for easier maintenance.

During installation, ensure that the flange faces and rubber seat are properly aligned.

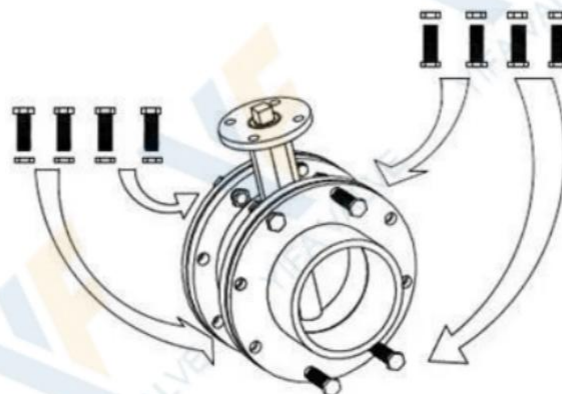
Bolts must be tightened evenly. Uneven tightening may cause deformation of the rubber seat, which can obstruct the disc or lead to leakage at the stem.

### Installation Steps

1. Place the valve between the two pre-installed flanges. Ensure that all bolt holes are properly aligned.



2. Insert the bolts and nuts (at least four sets) into the flange holes and lightly tighten them to adjust flange alignment.

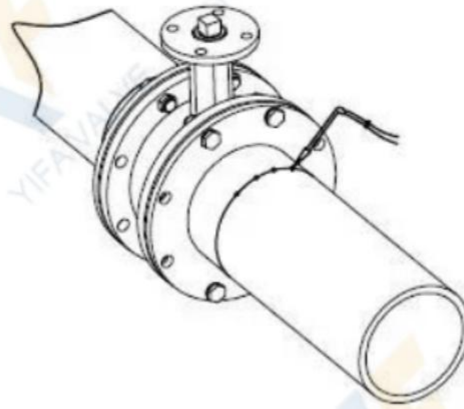


# YFD41X BUTTERFLY VALVE

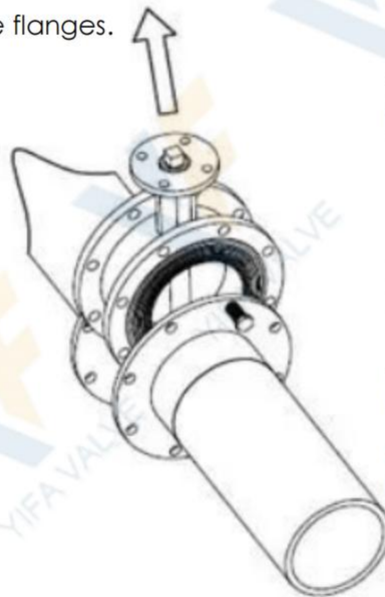


## Installation

3. Fix the flanges to the pipeline by spot welding.



4. Remove the valve from between the flanges.



### Important Notes

The valve must be placed flat before installation. Avoid impact or collision.

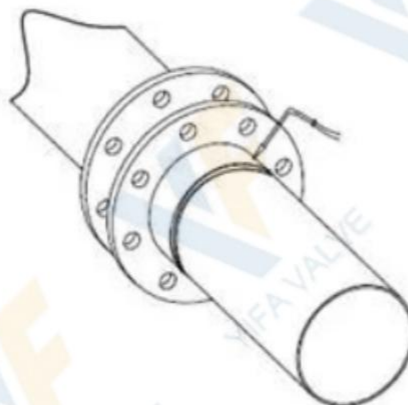
Do not forcibly stretch or compress the valve during installation.

Do not disassemble the valve without proper authorization.

After installation, it is recommended to provide proper pipeline support.

Once supports are installed, they must not be removed during operation.

5. Fully weld the flanges onto the pipeline.



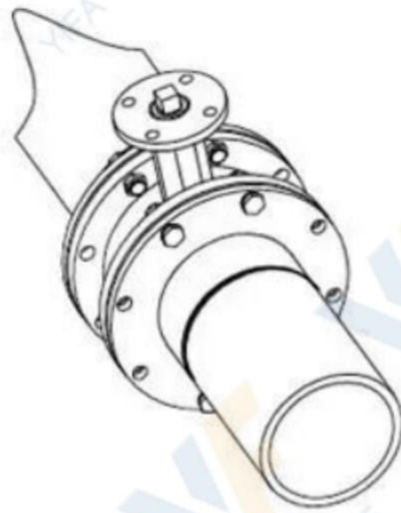
# YFD41X BUTTERFLY VALVE



## Installation

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6. Install the valve after the welded joint cools down. Ensure there is sufficient clearance for the valve to move between the flanges to prevent damage to the valve, and keep the butterfly plate at a certain opening (gaskets shall be added for flange butterfly valves). Adjust the valve position and tighten all bolts (do not over-tighten them). Open the valve to ensure the butterfly plate can open and close freely, and then keep the butterfly plate slightly open.



### Important Notes

The valve must be placed flat before installation. Avoid impact or collision.

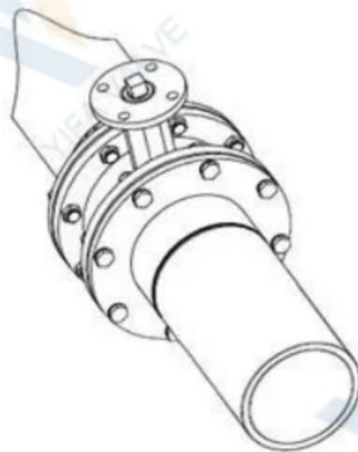
Do not forcibly stretch or compress the valve during installation.

Do not disassemble the valve without proper authorization.

After installation, it is recommended to provide proper pipeline support.

Once supports are installed, they must not be removed during operation.

7. Cross-tightening: tighten all nuts.



8. Confirm again that the valve operates freely, and ensure that the disc does not contact the pipe.

## Seal parts

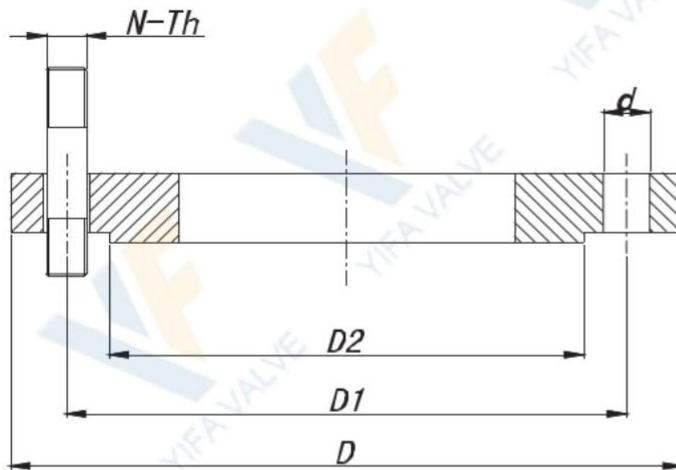
Parts	Characteristic	Low/High Temperature		Recommended
NR	High elasticity	-20	85	-5~70
NBR	Oil resistivity	-30	100	-15~90
EPDM	Aging resistance, ozone resistance, corrosion resistance	-40	125	-25~110
HT EPDM	Same as above, added heat resistance	-40	150	-25~135
SBR (wear-resistant)	Excellent traction performance and wear resistance	-30	100	-15~80
CR (neoprene)	Oil, heat, flame, sunlight, ozone, acid and alkali resistance	-30	125	-15~100
Hypalon	Oxidation resistance, resistance to winding and cracking	-40	120	-25~110
FPM (viton)	Chemical and most oils resistance, (except ketones & esters)	-20	200	-5~150
MVQ (silicon)	High and low temperature resistance, oil, corrosion resistance	-55	200	-30~180
PU	Chemical, oil, wear, low temperature, aging resistance	-20	120	-5~90
FEP (F46)	Chemical resistance, radiation resistance	-20	150	-5~120
PTFE	Heat, cold, acid, alkali, organic solvents resistant	-60	180	-45~150
RPTFE	Corrosion resistance, low friction coefficient	-60	180	-45~150
PFA	Excellent chemical corrosion resistance, low friction coefficient	-196	200	-60~180
PPL	High temperature and chemical corrosion resistance	-60	230	-45~200
UPVC	Corrosion and pressure resistance, hygiene	-30	100	-15~80
CPVC	Corrosion and pressure resistance, hygiene	-30	110	-15~95
PVDF	Anti aging and chemical resistance	-30	100	-15~70
PEEK	High temperature and chemical resistance	-60	300	-45~260
Flexible graphite	Cold and hot resistant, corrosion resistant, self-lubricating	-200	600	-60~550
Ceramic fiber	Fire, high temperature resistance, low thermal conductivity	-200	1050	-60~950
Metal to metal	High temperature, high pressure, wear, corrosion resistance	Refer to the material		

Unit: Degree

## Inspection Standards and Requirements

Inspection Standards and Requirements							
		ISO5208:2008 / GB/T13927			API598-2004		
Shell strength	Medium temperature	5~40			5~40		
	Medium	Water, kerosene, air, suitable gas			Water, kerosene, air, suitable gas		
	Test pressure	Norminal pressure (PN)×1.5			Norminal pressure×1.5		
	Minimum duration of the test	DN	Seconds		NPS	Check valve	Others
		≤50	15		≤2"	60	15
		65~200	60		2½"~6"	60	60
≥250		180		8"~12"	60	120	
Assessment	No visible leakage allowed			No visible leakage allowed			
Back seal	Test pressure	DN	PN	Pressure	NPS	Class	Pressure
		≤80	All	0.6Mpa	All	≤300	0.4~0.7Mpa
		100~200	≤5.0	0.6Mpa			
		100~200	>5.0	PN × 1.1		>300	Class x 1.1
	≥250	All	PN × 1.1				
Assessment	No visible leakage allowed			No visible leakage allowed			
High pressure sealing test	Test pressure	DN	PN	Pressure	Class	Ductile iron	Steel
		≤80	All	PN × 1.1 (liquid)	150	1.7 Mpa	Class x 1.1
		100~200	≤5.0	0.5~0.7Mpa (air)			
		100~200	>5.0	PN × 1.1 (liquid)	300	4.4 Mpa	
		≥250	All	0.5~0.7Mpa (air)			
		Minimum duration of the test	DN	Metal seal	Resilient seal	NPS	Check valve
	≤50	15	15	≤2"	60	15	
	65~200	30	15	2½"~6"	60	60	
	250~450	60	30	8"~12"	60	120	
	≥500	120	60	≥14"	120	120	
	Assessment	Class (level)	Liquid leakage	Air leakage	NPS	Liquid & Air	Liquid & Air
		A	No visible leakage allowed (mm <sup>3</sup> /s)		≤2"	Liquid:3cm <sup>3</sup> /in. min Air:0.042m <sup>3</sup> /in.h	0 drop(bubble)/min
		B	DN x 0.01	DN x 0.3	2½"~6"		12 & 24
		C	DN x 0.03	DN x 3	8"~12"		20 & 40
	D	DN x 0.1	DN x 30	≥14"		2 & 4 / in ·min	
	Low pressure sealing test	Medium	Air, suitable gas			Air, suitable gas	
Test pressure		0.5~0.7 Mpa			0.4~0.7 Mpa		
		DN	Metal seal	Resilient seal	NPS	Check valve	Others
		≤50	15	15	≤2"	60	15
Minimum duration of the test		65~200	30	15	2½"~6"	60	60
		250~450	60	30	8"~12"	60	120
		≥500	120	60	≥14"	120	120
Assessment		Class (level)	Air leakage		NPS	Air leakage	
		A	No visible leakage allowed (mm <sup>3</sup> /s)		≤2"		0 bubble /min
		B	DN x 0.3		2½"~6"	0.042 m <sup>3</sup> /in ·h	24
	C	DN x 3		8"~12"		40	
D	DN x 30		≥14"		4 / in ·min		

## Flange connection dimensions



- D- Flange outer diameter
- D1- Bolt circle diameter
- D2- Diameter of sealing surface
- N-Th Bolt size
- d- Bolt hole diameter

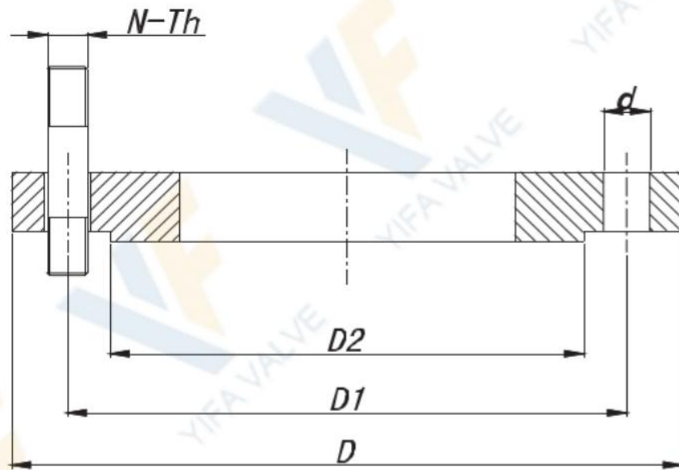
### PN10 (DIN2632)

DN	D	D1	D2	N-Th	d
DN	D	D1	D2	N-Th	d
50	165	125	102	4-M16	Φ18
65	185	145	122	4-M16	Φ18
80	200	160	138	8-M16	Φ18
100	220	180	158	8-M16	Φ18
125	250	210	188	8-M16	Φ18
150	285	240	212	8-M20	Φ23
200	340	295	268	12-M20	Φ23
250	405	355	320	12-M24	Φ27
300	460	410	378	12-M24	Φ27
350	520	470	438	16-M24	Φ27
400	580	525	490	16-M27	Φ30
450	640	585	550	20-M27	Φ30
500	715	650	610	20-M30	Φ33
600	840	770	725	20-M33	Φ36
700	910	840	795	24-M33	Φ36
800	1025	950	900	24-M36	Φ39
900	1125	1050	1000	28-M36	Φ39
1000	1255	1170	1115	28-M39	Φ42
1200	1485	1390	1330	32-M45	Φ48
1400	1685	1590	1530	36-M45	Φ48
1600	1930	1820	1750	40-M52	Φ56
1800	2130	2020	1950	44-M52	Φ56
2000	2345	2230	2150	48-M56	Φ62

### PN16 (DIN2632)

DN	D	D1	D2	N-Th	d
DN	D	D1	D2	N-Th	d
50	165	125	102	4-M16	Φ18
65	185	145	122	4-M16	Φ18
80	200	160	138	8-M16	Φ18
100	220	180	158	8-M16	Φ18
125	250	210	188	8-M16	Φ18
150	285	240	212	8-M20	Φ23
200	340	295	268	12-M20	Φ23
250	405	355	320	12-M24	Φ27
300	460	410	378	12-M24	Φ27
350	520	470	438	16-M24	Φ27
400	580	525	490	16-M27	Φ30
450	640	585	550	20-M27	Φ30
500	715	650	610	20-M30	Φ33
600	840	770	725	20-M33	Φ36
700	910	840	795	24-M33	Φ36
800	1025	950	900	24-M36	Φ39
900	1125	1050	1000	28-M36	Φ39
1000	1255	1170	1115	28-M39	Φ42
1200	1485	1390	1330	32-M45	Φ48
1400	1685	1590	1530	36-M45	Φ48
1600	1930	1820	1750	40-M52	Φ56
1800	2130	2020	1950	44-M52	Φ56
2000	2345	2230	2150	48-M56	Φ62

## Flange connection dimensions



- D- Flange outer diameter
- D1- Bolt circle diameter
- D2- Diameter of sealing surface
- N-Th Bolt size
- d- Bolt hole diameter

PN10 (GB/T9113.1)

DN	D	D1	D2	N-Th	d
50	165	125	99	4-M16	Φ18
65	185	145	118	4-M16	Φ18
80	200	160	132	8-M16	Φ18
100	220	180	156	8-M16	Φ18
125	250	210	184	8-M16	Φ18
150	285	240	211	8-M20	Φ23
200	340	295	266	8-M20	Φ23
250	395	350	319	12-M20	Φ23
300	445	400	370	12-M20	Φ23
350	505	460	429	16-M20	Φ23
400	565	515	480	16-M24	Φ27
450	615	565	530	20-M24	Φ27
500	670	620	582	20-M24	Φ27
600	780	725	682	20-M27	Φ30
700	895	840	794	24-M27	Φ30
800	1015	950	901	24-M30	Φ33
900	1115	1050	1001	28-M30	Φ33
1000	1230	1160	1112	28-M33	Φ36
1200	1455	1380	1328	32-M36	Φ39

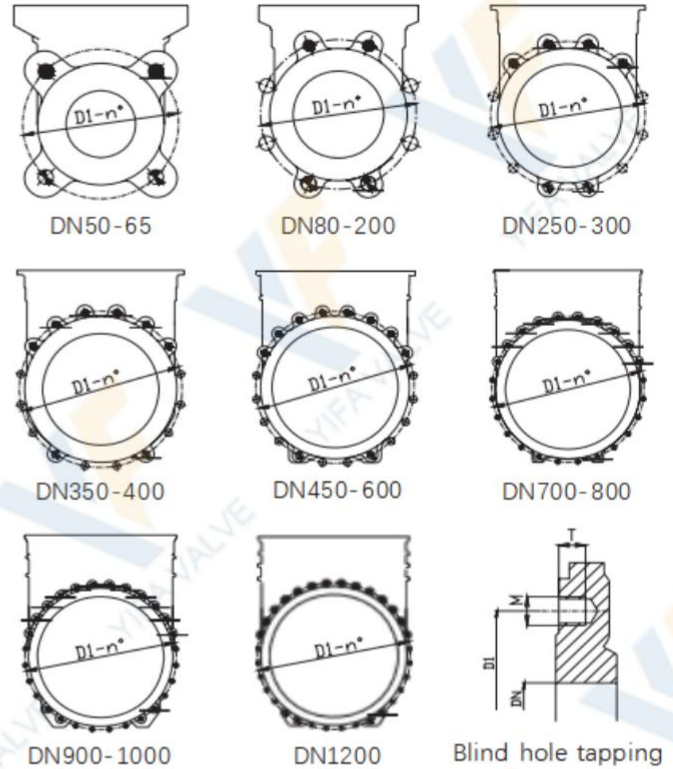
PN16 (GB/T9113.1)

DN	D	D1	D2	N-Th	d
50	165	125	99	4-M16	Φ18
65	185	145	118	4-M16	Φ18
80	200	160	132	8-M16	Φ18
100	220	180	156	8-M16	Φ18
125	250	210	184	8-M16	Φ18
150	285	240	211	8-M20	Φ23
200	340	295	266	12-M20	Φ23
250	405	355	319	12-M24	Φ27
300	460	410	370	12-M24	Φ27
350	520	470	429	16-M24	Φ27
400	580	525	480	16-M27	Φ30
450	640	585	548	20-M27	Φ30
500	715	650	609	20-M30	Φ33
600	840	770	720	20-M33	Φ36
700	910	840	794	24-M33	Φ36
800	1025	950	901	24-M36	Φ39
900	1125	1050	1001	28-M36	Φ39
1000	1255	1170	1112	28-M39	Φ42
1200	1485	1390	1328	32-M45	Φ48

## Flange and connection details

### GB/T9113.1 PN10

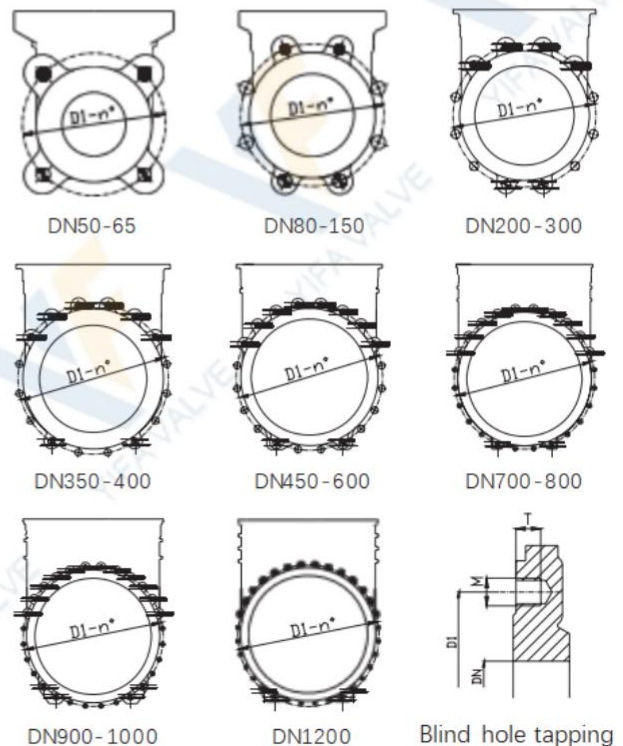
DN	D1	n°	M	T	●	⊕	+
50	125	4	M-16	10	2--0		-2
65	145	4	M-16	10	2--0		-2
80	160	8	M-16	12	2--4		-2
100	180	8	M-16	12	2--4		-2
125	210	8	M-16	14	2--4		-2
150	240	8	M-20	14	2--4		-2
200	295	8	M-20	14	2--4		-2
250	350	12	M-20	18	4--6		-2
300	400	12	M-20	21	4--6		-2
350	460	16	M-20	21	6--8		-2
400	515	16	M-24	25	6--8		-2
450	565	20	M-24	25	8--10		-2
500	620	20	M-24	26	8--10		-2
600	725	20	M-27	26	8--10		-2
700	840	24	M-27	22	10--12		-2
800	950	24	M-30	22	10--12		-2
900	1050	28	M-30	22	12--12		-4
1000	1160	28	M-33	22	12--12		-4
1200	1380	32	M-36	33	14--14		-4



- Blind hole thread
- ⊕ Through hole
- Drilling through

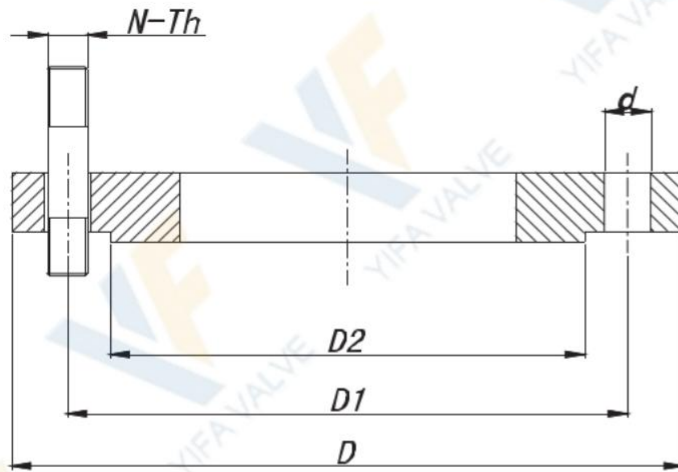
### GB/T9113.1 PN16

DN	D1	n°	M	T	●	⊕	+
50	125	4	M-16	10	2--0		-2
65	145	4	M-16	10	2--0		-2
80	160	8	M-16	12	2--4		-2
100	180	8	M-16	12	2--4		-2
125	210	8	M-16	14	2--4		-2
150	240	8	M-20	14	2--4		-2
200	295	12	M-20	14	2--4		-2
250	355	12	M-24	18	4--6		-2
300	410	12	M-24	21	4--6		-2
350	470	16	M-24	21	6--8		-2
400	525	16	M-27	25	6--8		-2
450	585	20	M-27	25	8--10		-2
500	640	20	M-30	26	8--10		-2
600	725	20	M-33	26	8--10		-2
700	840	24	M-33	22	10--12		-2
800	950	24	M-36	22	10--12		-2
900	1050	28	M-36	22	12--12		-4
1000	1170	28	M-39	22	12--12		-4
1200	1390	32	M-45	33	14--14		-4



Blind hole tapping

## Flange connection dimensions



- D- Flange outer diameter
- D1- Bolt circle diameter
- D2- Diameter of sealing surface
- N-Th Bolt size
- d- Bolt hole diameter

10K (JIS B2239-2004)

150Lb (ANSI B16.5 & ASME B16.47)

DN	D	D1	D2	N-Th	d
50	155	120	96	4-M16	Φ19
65	175	140	116	4-M16	Φ19
80	185	150	126	8-M16	Φ19
100	210	175	151	8-M16	Φ19
125	250	210	182	8-M20	Φ23
150	280	240	212	8-M20	Φ23
200	330	290	262	12-M20	Φ23
250	400	355	324	12-M22	Φ25
300	445	400	368	16-M22	Φ25
350	490	445	413	16-M22	Φ25
400	560	510	475	16-M24	Φ27
450	620	565	530	20-M24	Φ27
500	675	620	585	20-M24	Φ27
550	745	680	640	20-M30	Φ33
600	795	730	690	24-M30	Φ33
650	845	780	740	24-M30	Φ33
700	905	840	800	24-M30	Φ33
750	970	900	855	24-M30	Φ33
800	1020	950	905	28-M30	Φ33
850	1070	1000	955	28-M30	Φ33
900	1120	1050	1005	28-M30	Φ33
1000	1235	1160	1110	28-M36	Φ39
1100	1345	1270	1220	28-M36	Φ39
1200	1465	1380	1325	32-M36	Φ39
1350	1630	1540	1480	36-M42	Φ45
1500	1795	1700	1635	40-M42	Φ45

DN	D	D1	D2	N-Th	d
2D	153	120.5	92	4-5/8DUNC	Φ19
2.5D	178	139.5	105	4-5/8DUNC	Φ19
3D	191	152.5	127	4-5/8DUNC	Φ19
4D	229	190.5	157	8-5/8DUNC	Φ19
5D	254	216	186	8-3/4DUNC	Φ22
6D	280	241.5	216	8-3/4DUNC	Φ22
8D	343	298.5	270	8-3/4DUNC	Φ22
10D	407	362	324	12-7/8DUNC	Φ25
12D	483	432	381	12-7/8DUNC	Φ25
14D	534	476	413	12-1DUNC	Φ29
16D	597	539.5	470	16-1DUNC	Φ29
18D	635	578	534	16-1 1/8DUNC	Φ32
20D	699	635	584	20-1 1/8DUNC	Φ32
24D	813	749.5	692	20-1 1/4DUNC	Φ35
26D	870	806.5	749	24-1 1/4DUNC	Φ35
28D	925	863.5	800	28-1 1/4DUNC	Φ35
30D	985	914.5	857	28-1 1/4DUNC	Φ35
32D	1060	978	914	28-1 1/2DUNC	Φ41
36D	1170	1086	1022	32-1 1/2DUNC	Φ41
40D	1290	1200	1124	36-1 1/2DUNC	Φ41
42D	1345	1257	1194	36-1 1/2DUNC	Φ41
44D	1405	1314	1245	40-1 1/2DUNC	Φ41
48D	1510	1422	1359	44-1 1/2DUNC	Φ41
52D	1625	1537	1461	44-1 3/4DUNC	Φ47
56D	1745	1651	1575	48-1 3/4DUNC	Φ47
60D	1855	1759	1676	52-1 3/4DUNC	Φ47

## Flange and connection details

### JIS B2239-2004 10K

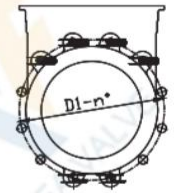
DN	D1	n°	M	T	●	⊕	+
50	120	4	M-16	10	2--0		-2
65	140	4	M-16	10	2--0		-2
80	150	8	M-16	12	2--4		-2
100	175	8	M-16	12	2--4		-2
125	210	8	M-20	14	2--4		-2
150	240	8	M-20	14	2--4		-2
200	290	12	M-20	14	2--4		-2
250	355	12	M-22	18	4--6		-2
300	400	16	M-22	21	4--6		-2
350	445	16	M-22	21	6--8		-2
400	510	16	M-24	25	6--8		-2
450	565	20	M-24	25	8--10		-2
500	620	20	M-24	26	8--10		-2
600	730	24	M-30	26	8--10		-2
700	840	24	M-30	22	10--12		-2
800	950	28	M-30	22	10--12		-2
900	1050	28	M-30	22	12--12		-4
1000	1160	28	M-30	22	12--12		-4
1200	1380	32	M-36	33	14--14		-4



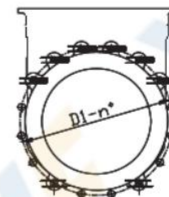
DN50-65



DN80-150



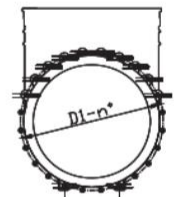
DN200-250



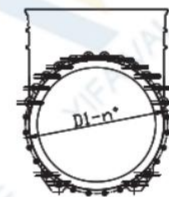
DN300-400



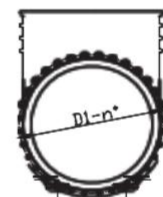
DN450-500



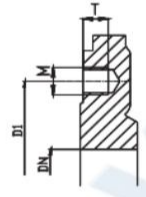
DN600-700



DN800-1000



DN1200

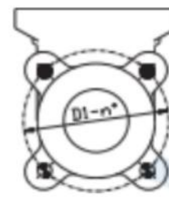


Blind hole tapping

- Blind hole thread
- ⊕ Through hole
- ⦿ Drilling through

### ANSI B16.5 & ASME B16.47 150Lb

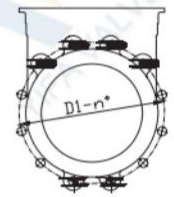
DN	D1	n°	M	T	●	⊕	+
2"	120.5	4	5/8" UNC	10	2--0		-2
2 1/2"	139.5	4	5/8" UNC	10	2--0		-2
3"	152.5	4	5/8" UNC	12	2--4		-2
4"	190.5	8	5/8" UNC	12	2--4		-2
5"	216	8	3/4" UNC	14	2--4		-2
6"	241.5	8	3/4" UNC	14	2--4		-2
8"	298.5	8	3/4" UNC	14	2--4		-2
10"	362	12	7/8" UNC	18	4--6		-2
12"	432	12	7/8" UNC	21	4--6		-2
14"	476	12	1" UNC	21	6--8		-2
16"	540	16	1" UNC	25	6--8		-2
18"	578	16	1 1/8" UNC	25	8--10		-2
20"	635	20	1 1/8" UNC	26	8--10		-2
24"	749.5	20	1 1/4" UNC	26	8--10		-2
28"	863.5	28	1 1/4" UNC	26	10--12		-2
30"	914	28	1 1/4" UNC	22	10--12		-2
32"	978	28	1 1/2" UNC	22	12--12		-4
36"	1085.8	32	1 1/2" UNC	22	12--12		-4
40"	1200.2	36	1 1/2" UNC	30	14--14		-4



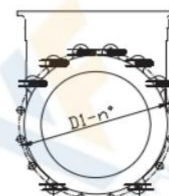
2"-3"



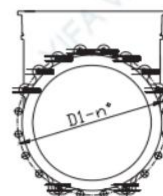
4"-8"



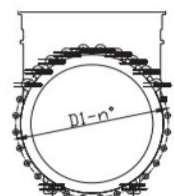
10"-14"



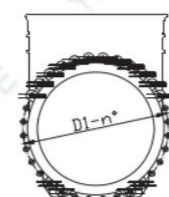
16"-18"



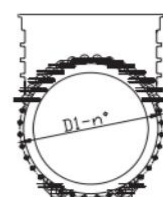
20"-24"



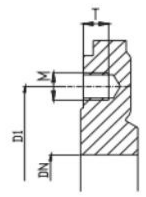
28"-32"



36"



40"



Blind hole tapping



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