

Wafer type soft seat doubleeccentric butterfly valves series DR are the products of Shenyang Henyi Eneterprise Co.,Ltd which has been designed and manufactured to comply with requirement of ISO 9001:2000 and which can meet the needs of API 609 and NACE too. The valves of this series provide rational configuration, reliable performance and easy operation.

FEATURES

*Double-eccentric design(see Fig.1)

No seal ring and idsc contact/friction in the open or intermediate position.

Notably reducing friction duration of seal ring and disc while opening or closing valve,elongating service life.

Smaller operator may be selected, reducing valve complete cost.

*Seat with reinforced material

The seat can made from reinforced PTFE with certain graphite, improving antifriction performance and wear resistance, elongating service life.

The seat can made from PTFE added carbon fibre in,ts tensile strength have greatly increase.

*Unique seat seal ring(see Fig.2)

Lip-seal design of seat can make compensation dfficiently for temperature and pressure changes.

The sealing is achieved by elastic deformation of lip-seal type seat seal ring. not by their each other extrusion, so as to elingate service life and reduce torque for disc adjustment.

Simply remove bonnet and replace damaged seal ring to disassembly of disk and shaft are unnecessary.

*Excellent for control performance

Superior control(incl.On and off) characteristics.

Inherent flow characteristic is modified equal percentage.

Wide control range,the disc can be controlled within 0-90

*fire resistance disgn available on request

Fire resistance type valves will be tested to API607 and BS6755 part2.

*Many models,wide application range

Nominal pressure:1.6-5.0MPa

Nominal size:100-1000mm.

Working temperature:-29-180

Applicable media:chlorine,oxygen,steam,some high vacuum and erosive acids and alkalis.

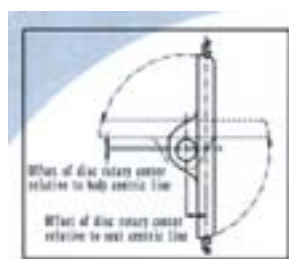


Fig. 1

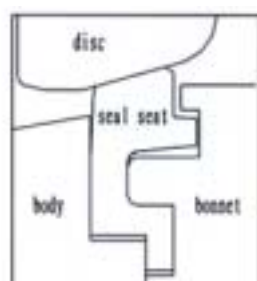


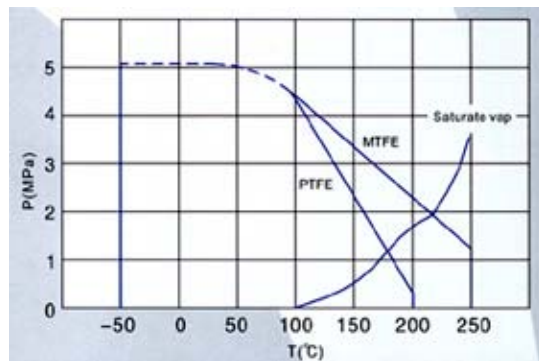
Fig. 2

***Standards and Specifications**

ANSI B16.5	Settl Pipe Flanges and Flanged Fittings	ASME	Valve with nuclear energy designation
ANSI B16.34	Steel Valves Flanged and Butt Welded End		(class II,class III)
ANSI B31.1	Power Piping	MSS SP-25	Marking System for Valves
ANSI B31.3	Chemical Plant and Petroleum Refinery Piping	MSS SP-55	Quality Standards for Steel Castings
ANSI B31.4	Liquid Transportation systems for Hydrocarbons(Liquid Petroleum)	MSS SP-68	High pressure eccentric seat butterfly valves
ANSI B31.8	Gas transmission and distribution piping systems	NACE MR-0175	Sulfide Stress Cracking Resistant Metallic
ANSI/FCI 70-2	For Control Valve Seat Leakage		Materials for Oil Field Equipment
API 598	Valve inspection and Testing		
API 607	Fire Test for Soft-Seated Quarter-turn valves		
API 609	Valves:Double Flanged,Lug-and Wafer-type		

Seat pressure temperature rating

Seat pressure-temperature rating curve.shown by graph at right, are correlative curve of differential pressure rating between both sides of disc to temperature while idsc is in the fully closed position. The seat pressure rating range will be determine actual status of used pressure. This rating may be referential for choise of valves.



Body pressure-temperature rating

Right table lists body maximum working pressure-temperature ratings,only for reference. Body pressuretemperature rating test must be performed with disc open.

Body pressure ratings,KN/mm²			
Temperature,	Body material		
	Carbon steel	Stainless steel	Monel
-29-38	5.11	5	1.1
50	5.01	4.81	-----
100	4.64	4.22	-----
150	4.52	3.85	-----
200	4.38	3.57	-----
250	4.17	3.34	-----
300	3.87	3.16	----
Test pressure	7.76	7.59	6.2

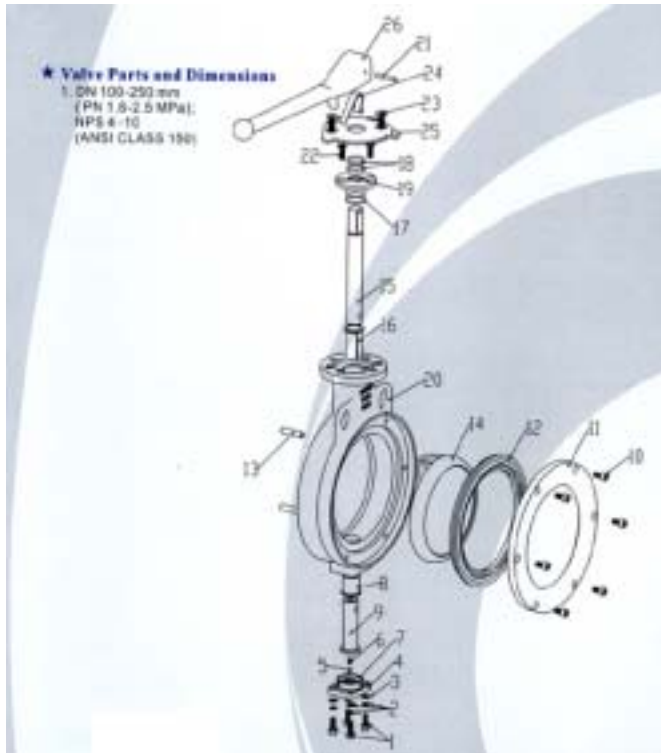
Flow coefficient

Right table lists reference values of flow coefficient in imperial units Cv for butterfly valve series DR in various nominal size Dn. The flow coefficient Cv are volumetric flow rate, In US gallons per minute at 15.6 resulting in a 1 psi pressure drop. the flow coefficient in metric units Kv are volumetric flow rate, in cubic metres per hour, of water at a temperature between 5 and 40 passing through a valve and resulting in a pressure loss of 1 bar(14.7 psi). $K_v=C_v/1.156$

DN(mm)	Cv(USgal/min)	DN(mm)	Cv(USgal/min)
100	400	450	9300
150	1050	500	11300
200	1800	600	18500
250	3150	700	25350
300	4750	800	33100
350	5200	900	47500
400	6900	1000	58640

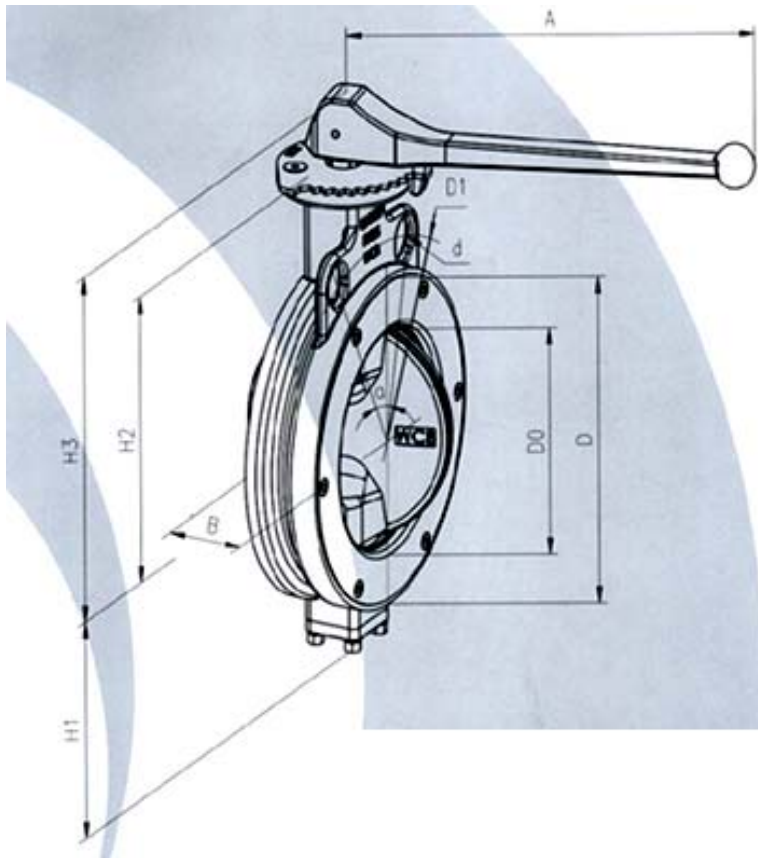
Operating torque

DN(mm)	PN		DN(mm)	PN	
	1.6-2.5Mpa	5.0Mpa		1.6-2.5Mpa	5.0Mpa
100	54	54	450	1594	1753
150	164	180	500	1985	2180
200	271	300	600	2890	3180
250	422	465	700	4600	-----
300	595	654	800	6000	-----
350	831	915	900	8120	-----
400	1044	1150	1000	13000	-----



Part List

No.	Name	Material			No.	Name	Material		
1	Bolt	Carbon steel	304		14	Disc	WVB	CF8	CF8M
2	Spring washer				15	Upper shaft	17-4PH		
3	Flat washer				16	Upper sleeve	SF-1		
4	Down cover	WCB	CF8	CF8M	17	O-ring	NBR or FKM		
5	Ball	Stainless steel			18				
6	Sping				19	Gland	CF8	CF8M	
7	O-ring	NBR or FKM			20	Body	WCB	CF8	CF8M
8	Down sleeve	SF-1			*21	Pin	Carbon steel		
9	Down shaft	17-4PH			22	Screw			
10	Screw	Carbon steel	304		*23				
11	Valve cover	WCB	CF8	CF8M	*24	Spring plate			
12	Seat	PTFE or reinforced PTFE			*25	Gear disk			
13	Pin	304			*26	Hand lever			
* For DN200 and DN250, there is a lack of this part.									



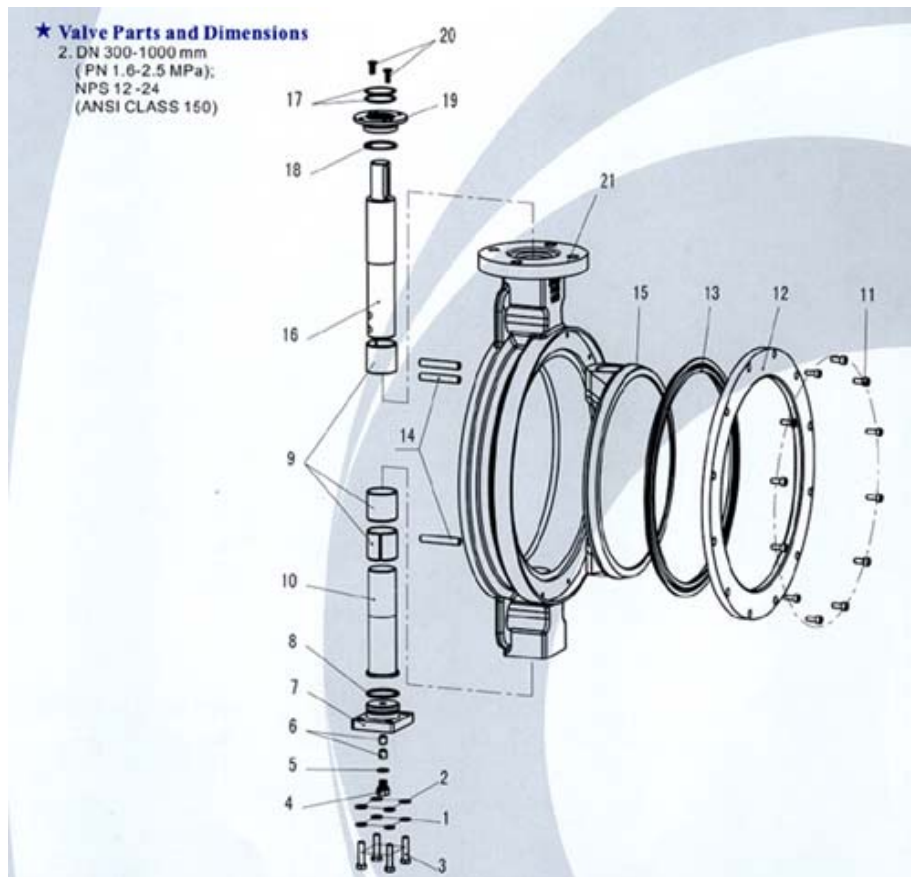
Dimensions,NPS4-10(ANSI CLASS 150)

NPS	Approximate Dimensions(mm)									
	D0	D	H1	H2	H3	ANSI CLASS150			a	A
						B	D1	d		
4"	95	164	100	135	182	54	190.5	19	45 °	250
6"	144	215	130	175	232	57	241.3			280
8"	190	270	165	215	255	64	361.95	22	30 °	-----
10"	238	325	200	255	300	71	476.25			-----

Dimension, DN100-250mm(PN1.6-2.5MPa)

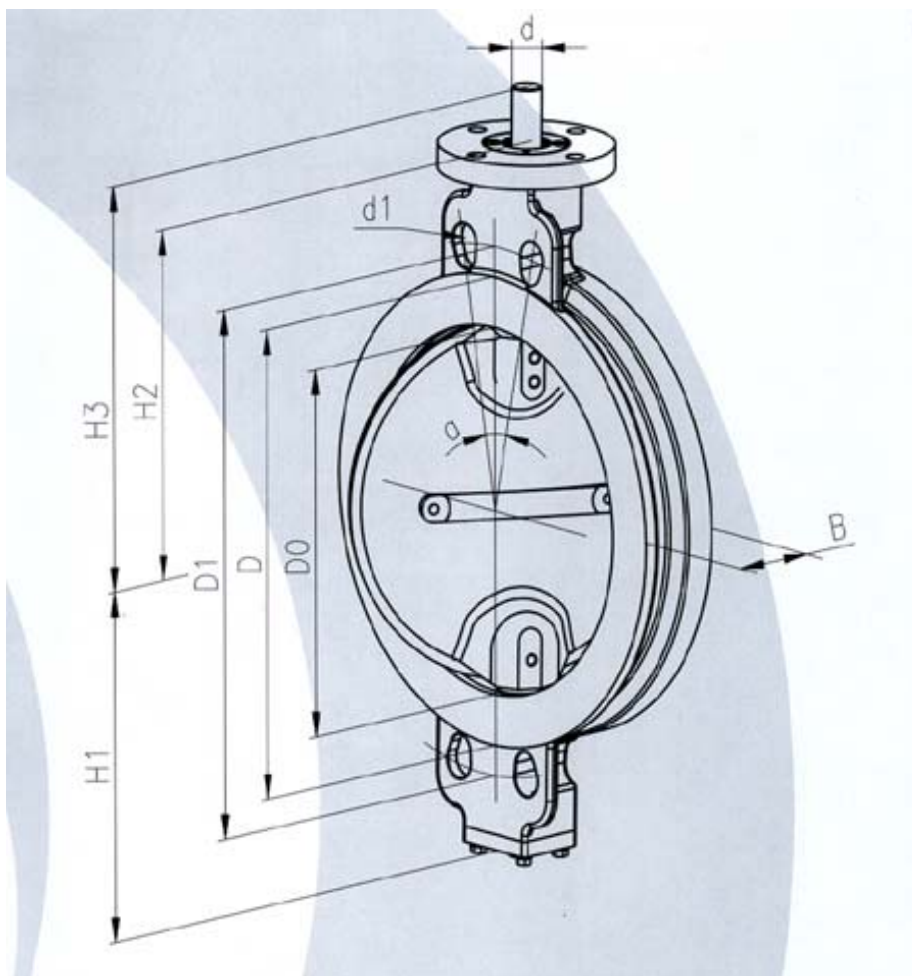
DN(mm)	Approximate Dimensions (mm)												
	D0 φ	D φ	H1	H2	H3	PN=1.6Mpa	PN=2.5Mpa	PN=1.6Mpa	PN=2.5Mpa	PN=1.6Mpa	PN=2.5Mpa	a	A
						B		D1		d			
100	95	164	100	135	182	52		180	190	18	22	45	250
150	144	215	130	175	232	56		240	250	22	26		280
200	190	270	165	215	255	60		295	310			26	30
250	238	325	200	255	300	68		355	370				

* For DN200 and DN250, there is a lock of handle operator, and H3 has been measured at the stem.



Part List

No.	Name	Material			No.	Name	Material		
1	Flat washer	Carbon steel	304		12	Valve cover	WCB	CF8	CF8M
2	Spring washer				13	Valve seat	PTFE or reinforced PTFE		
3	Bolt				14	Pin	304		
4	Sexangle screw plug				15	Disc	WCB	CF8	CF8M
5	Screw plug washer	PTFE			16	Upper shaft	17-4PH		
6	Tight screw	Carbon steel	304		17	O-ring	NBR or FKM		
7	Down cover	WCB	CF8	CF8M	18				
8	O-ring	NBR or FKM			19	Gland	CF8	CF8M	
9	Sleeve	SF-1			20	Screw	Carbon steel		
10	Down shaft	17-4PH			21	Body	WCB	CF8	CF8M
11	Screw	Carbon steel	304						

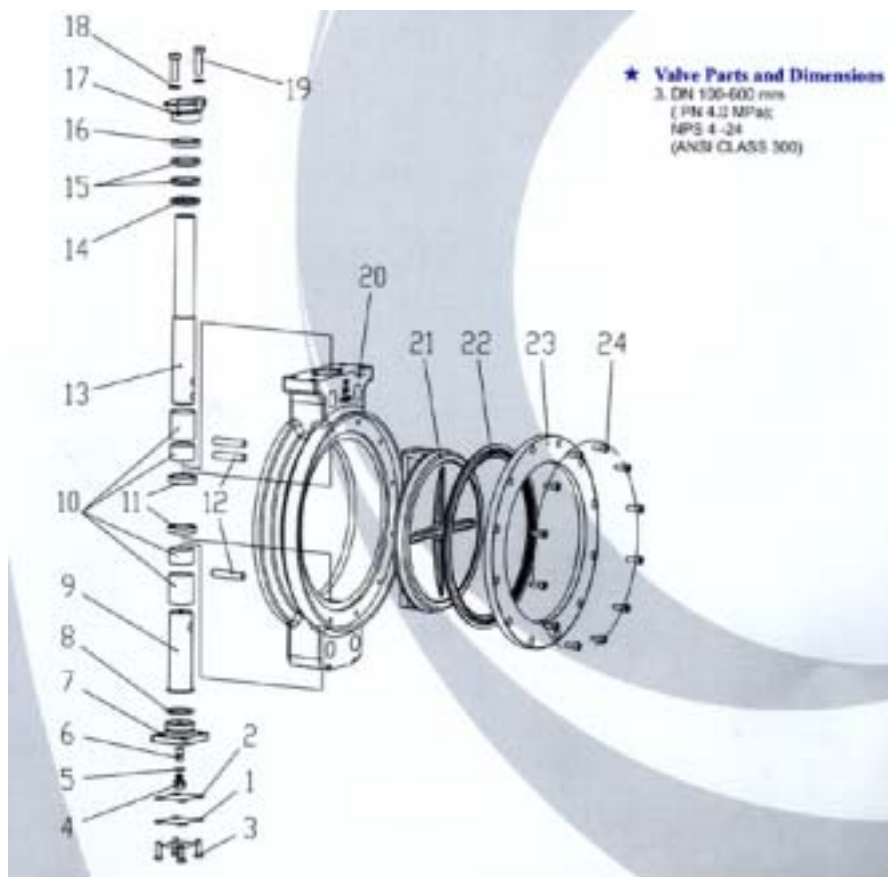


Dimension, DN 300-1000mm(PN1.6-2.5Mpa)

DN(mm)	Approximate Dimensions(mm)											d φ	
	D0	D	H1	H2	H3	B	PN=1.6Mpa	PN=2.5Mpa	PN=1.6Mpa	PN=2.5Mpa	PN=1.6Mpa		PN=2.5Mpa
	φ	φ					D1		d1		a		
300	282	385	278	294	344	83	410	430	φ26	φ30	30	22.4	31.8
350	334	434	314	326	381	92	470	490		φ33	22.5		
400	374	485	363	368	433	102	525	550	φ30	φ36	18		38.1
450	434	534	377	385	450	114	585	600	M27	M33	18		41.3
500	483	588	412	418	493	127	650	660	M30		15		50.8
600	582	688	473	497	582	154	770	770	M33	M36	15		65
700	682	790	520	545	640	165	840	875		M39	12.8		75
800	780	888	575	600	700	190	950	990	M36	M45	12.8		80
900	880	988	620	660	760	216	1050	1090			12.8		90
1000	975	1088	570	710	830	254	1170	1210	M39	M52			

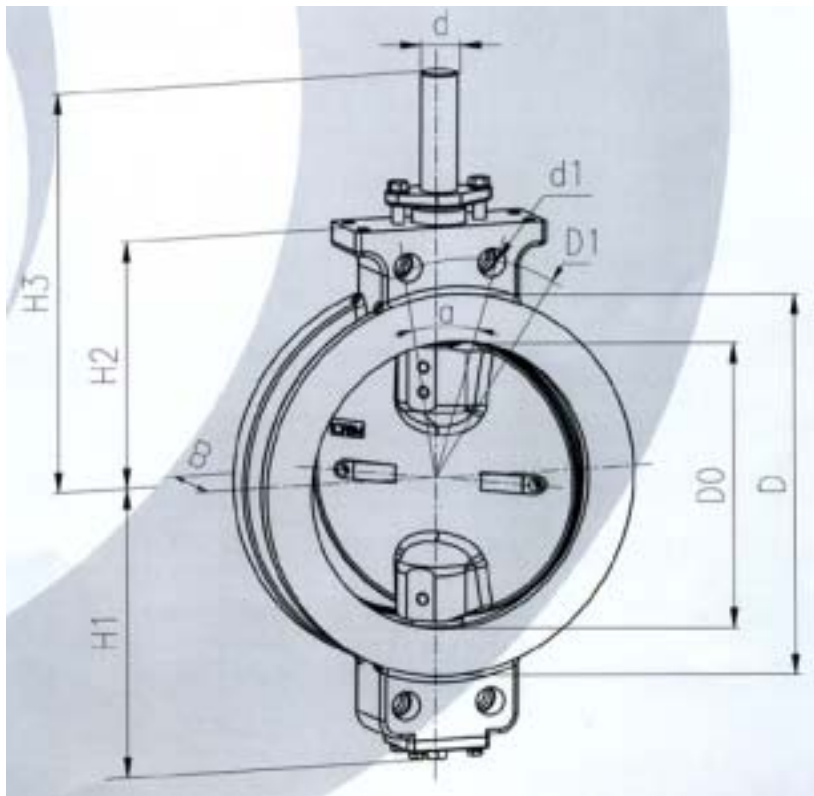
Dimensions,NPS 12"-24"(ANSI CLASS 150)

NPS	Approximate Dimensions (mm)									
	D0 φ	D φ	H1	H2	H3	B	ANSI CLASS 150			d φ
							D1	d	a	
12"	282	385	278	294	344	83	431.8	25	30	31.8
14"	334	434	314	326	381	92	476.2	28		
16"	374	485	363	368	433	102	539.7		22.5	33.3
18"	434	534	377	385	450	114	577.8			
10"	483	588	412	418	493	127	635	18	41.3	
24"	582	688	473	497	582	154	749.3			35
28"	682	790	520	545	640	165	-----	-----	-----	65
32"	780	888	575	600	700	190	-----	-----	-----	75
36"	880	988	620	660	760	216	-----	-----	-----	80
40"	975	1088	570	710	830	254	-----	-----	-----	90



Part List

No.	Name	Material			No.	Name	Material		
1	Spring washer	Carbon steel	304		13	Upper shaft	WCB	CF8	CF8M
2	Flat washer				14	Down Packing	PTFE		
3	Bolt				15	Middle packing	PTFE		
4	Hexagon thread stopper				16	Upper packing	PTFE		
5	Stopperwasher	PTFE			17	Gland	WCB	CF8	
6	Clamp screw	Carbon steel	304		18	Spring washer	Carbon steel	304	
7	Down cover	WCB	CF8	CF8M	19	Bolt			
8	O-ring	NBR or EPDM			20	Body	WCB	CF8	CF8M
9	Down shaft	17-4PH			21	Disc			
10	Bush	SF-1			22	Seat	PTFE or reinforced PTFE		
11	Stop bush	304			23	Cover	WCB	CF8	CF8M
12	Pin				24	Screw	Carbon steel	304	



Dimensions, DN 100-600 mm(PN4.0Mpa)

DN(mm)	Approximate Dimensions(mm)									
	D0 φ	D φ	H1	H2	H3	B	PN=4.0MPa			d φ
							D1	d1	a	
100	95	170	120	133	230	54	190	φ22	45	20
150	144	215	150	175	272	59	250	φ26		
200	190	270	192	210	300	73	320	φ30	30	28
250	238	325	241	232	349	83	385	φ33		
300	282	385	277	260	387	92	450		φ36	22.5
350	334	434	314	326	381	117	510			
400	374	485	363	351	433	133	585	φ39	18	54
450	434	534	377	431	520	149	610	M36		
500	483	588	412	405	560	159	670		M45	18
600	582	688	473	480	650	181	795			

Dimensions, NPS 4"-24" (ANSI CLASS 300)

NPS	Approximate Dimensions(mm)									
	D0 φ	D φ	H1	H2	H3	B	ANSI CLASS 300			d φ
							D1	d1 UNC	a	
4"	95	170	120	133	230	54	----	----	45	20
6"	144	215	150	175	272	59	----	----	30	
8"	190	270	192	210	300	73	----	----		22.5
10"	238	325	241	232	349	83	387.3	1-8		
12"	282	385	277	260	387	92	450.8	1 1/8-7	18	31.8
14"	334	434	314	326	381	117	514.3			
16"	374	485	363	351	433	133	571.5	1 1/4-7	15	36
18"	434	534	377	431	520	149	628.6			
20"	483	588	412	405	560	159	685.8	1 1/2-6	15	54
24"	582	688	473	480	650	181	812.8			

Example: A DN300 and PN40 series DR wafer thpe soft seat butterfly valve in GB standard face-to-face dimension,with wormwheel actuator,WCB body,A105 disc,45 stem,viton seat and PTFE packing and in fire resistance design,is written:

DR - M0300 - 040 - G - W - 11 - 3145 - F T - FD