

# NE, NF, NP, NT & DS Series



*Engineering  
GREAT Solutions*

**Concentric Valves  
API 609 Standard - Category A**

# Butterfly Valves NE, NF, NP & NT Series

The NE/NF and NP/NT Series are the most requested IMI InterAtiva's butterfly valves due to their high compatibility with several types of operations, easy maintenance, variety of materials, interchangeability of components as well as their excellent performance.

## Highlights

- > Concentric disc
- > Monoblock body
- > Variety of materials
- > Manual or automatic actuation

## Features

### > Body

Monoblock casted body available in Wafer and Lug configurations. Special Flanged configurations from 4" to 24".

In the Wafer configuration, an integral ring in the body (NE/NP Series) or semi-lugs (NF/NT Series) allow the correct alignment of the valve between flanges. Its long neck allows thermal insulation from the pipe.

### > Disc

The thin-contoured disc provides a higher flow coefficient (Cv) than those with a through stem, resulting in a lower head loss. The disc edge is hand polished, producing low torque, full sealing and longer seat life.

Diversity of materials including stainless steel, duplex, carbon steel, cast iron and various types of coatings.

### > Upper and lower stem

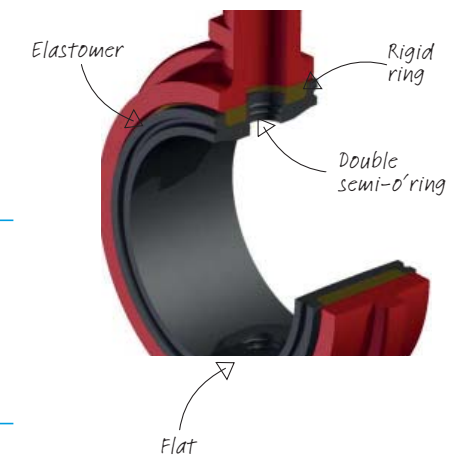
The disc-to-stem connection is made by a squared fitting. The result is a system that does not use pins, plugs or screws, eliminating the possibility of leakage by these components.

The standard material is Stainless Steel ASTM A-276 410, but a wide range of materials is available upon request.

Upper stem and top flange according to ISO 5211 / DIN 3337 provide a safe connection with lever, gearbox, pneumatic, electric and other actuators. A retaining system guarantees the blowout-proof feature of the Stem.

### > Bearing

Polypropylene (NE/NP Series) and bronze (NF/NT Series) bearings eliminate friction between body and the stem, providing low torque and long service life to the stem.



### > Seat

The seat completely covers the body, avoiding its contact with the fluid. Gaskets are not required for installation between flanges. The seat extends the face-to-face of the body, making the seal between the body and the pipe flanges.

The elastomer is vulcanized to a rigid ring, forming a "cartridge" which provides:

- Easy installation, no specific disc position required;
- Eliminates high torque and premature seat failure caused by elastomer distortions;
- Simplifies the replacement of the seat, since no special tools are required for it;
- High resistance in vacuum services.

The stem is sealed by the disc contact with the seat and through two semi-o-rings molded into the stem hole.

## Specifications

### Construction standard

API 609 Category A

### End

Wafer / Lug / Flanged  
Short and long body

### Face to face

API 609 Category A  
ISO 5752 Col. 20  
MSS SP-67  
(except DN 16" and 18" NT Series)

### Dimensions

NE/NP: 1½" to 12"  
NF/NT: 14 to 24"

### Pressure limits

NE/NF: 50 to 250 psi  
NP/NT: 100 to 150 psi

### Seat

NBR Buna-N / Neoprene / EPDM / Hypalon  
Viton / Buna GA-1 / SBR /  
Carboxylated Nitrile

### Materials

Ductile iron ASTM A-536 Gr.65.45.12  
Stainless Steel A-351 CF8M / CF8  
Carbon Steel A-216 WCB  
Ductile iron with E-CTFE / Nylon / Nickel  
Stainless Steel ASTM A-276 410  
Bronze Aluminum  
Stainless Steel Duplex

## NE Series



- > General application
- > Elastomer seat
- > Size from 1 ½" to 12" (40mm to 300mm)
- > Pressure limits (CWP):
  - 50 psi (Upon request)
  - 150 psi
  - 250 psi

## NP Series



- > Corrosive services
- > PTFE seat
- > Size from 1 ½" to 12" (40mm to 300mm)
- > Pressure limits (CWP):
  - 100 psi (disc coated in E-CTFE)
  - 150 psi (Stainless steel disc)

## NF Series



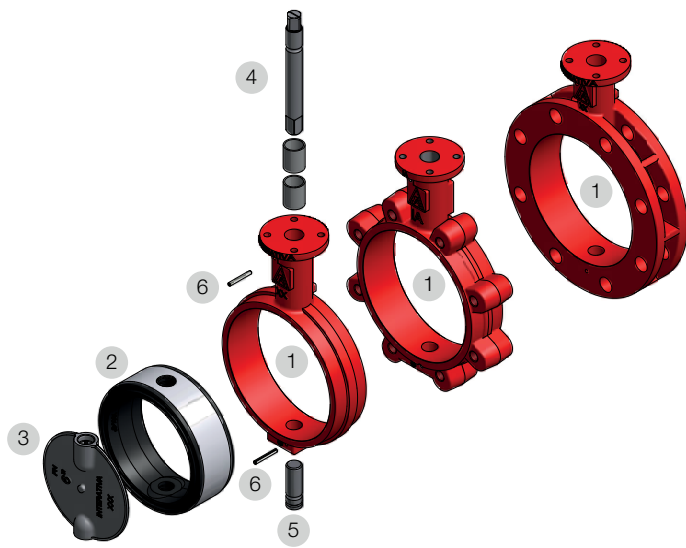
- > General application
- > Elastomer seat
- > Size from 14" to 24" (350mm to 600mm)
- > Pressure limits (CWP):
  - 50 psi (Upon request)
  - 150 psi
  - 250 psi

## NT Series



- > Corrosive services
- > PTFE seat;
- > Size from 14" to 24" (350mm to 600mm)
- > Pressure limits (CWP):
  - 100 psi (disc coated in E-CTFE)
  - 150 psi (Stainless steel disc)

**Bill of materials: NE & NP Series**



Item	Description
1	Body: Wafer / Lug / Flanged
2	Soft seat
3	Disc
4	Upper stem
5	Lower stem
6	Blowout-proof pin

**Bill of materials: NF & NT Series**



Item	Description
1	Body: Wafer / Lug / Flanged
2	Soft seat
3	Disc
4	Upper stem
5	Lower stem
6	Upper bearing
7	Lower bearing
8	Blowout-proof pin

**Materials**

NE - NF - NP - NT	Body	Disc	Seat	Stem
	Carbon steel ASTM A-216 WCB	Ductile iron A-536 65-45-12	NBR (Buna-N)	Stainless steel A-276 410
	Stainless steel ASTM A-351 CF8-M	Ductile iron with E-CTFE	Neoprene	Stainless steel A-276 316 / 316L
	Ductile iron ASTM A-536	Ductile iron with Nylon	EPDM	Stainless steel A-564 630 (17-4PH)
	Bronze	Ductile iron with Nickel	Hypalon	Others upon request
	Aluminum	Bronze / Aluminum	Viton	
	Stainless Steel Duplex	Stainless Steel Duplex	Buna GA-1	
	Others upon request	Stainless steel A-351 CF8M/CF8	SBR	
	Others upon request	Carboxylated nitrile		

**Weight (Kg)<sup>1</sup>**

NE - NP	End	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	Wafer	1,5	2,5	4	4,5	5	7	9	13	20	34
	Lug	2	3	4,5	5	7,5	11	13	18,5	29	43,5
	Flanged	-	-	-	-	-	-	16	26	38	58,5
NF - NT	End	14"			16"		18"		20"		24"
	Wafer	51			72		93		112		170
	Lug	60			92		109		151		230
	Flanged	83			103		130		185		245

## Dimensional Table

Values in millimeters (mm)

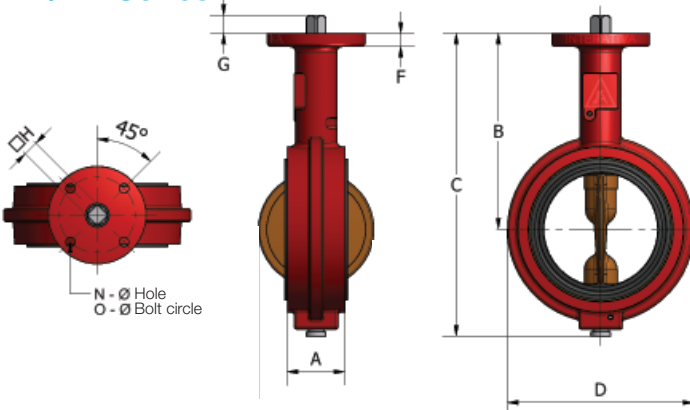
NE Series	DN	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	A	33	44	47	47	54	57	57	63	71	81
	B	130	143	156	162	181	197	210	240	286	310
	C	191	216	235	248	281	310	334	397	476	552
	D	88	102	121	133	172	194	219	276	337	406
	F	10	12	12	12	12	12	12	12	12	12
	G	25	15	15	15	15	20	20	20	25	25
	H	11	14	14	14	14	17	17	17	17	22
	N	7	7 & 9	7 & 9	7 & 9	7 & 9	9	9	9 & 11	11	11
	O	50	50 & 70	50 & 70	50 & 70	50 & 70	70	70	70 & 102	102	102
	ISO 5211	F05	F05 & F07	F05 & F07	F05 & F07	F05 & F07	F07	F07	F07 & F10	F10	F10

NP Series	DN	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	A	33	42	45	45	52	54	56	61	66	77
	B	130	143	156	162	181	197	210	240	286	310
	C	191	216	235	248	281	310	334	397	476	552
	D	88	102	121	133	172	194	219	276	337	406
	F	10	12	12	12	12	12	12	12	12	12
	G	25	15	15	15	15	20	20	20	25	25
	H	11	14	14	14	14	17	17	17	17	22
	N	7	7 & 9	7 & 9	7 & 9	7 & 9	9	9	9 & 11	11	11
	O	50	50 & 70	50 & 70	50 & 70	50 & 70	70	70	70 & 102	102	102
	ISO 5211	F05	F05 & F07	F05 & F07	F05 & F07	F05 & F07	F07	F07	F07 & F10	F10	F10

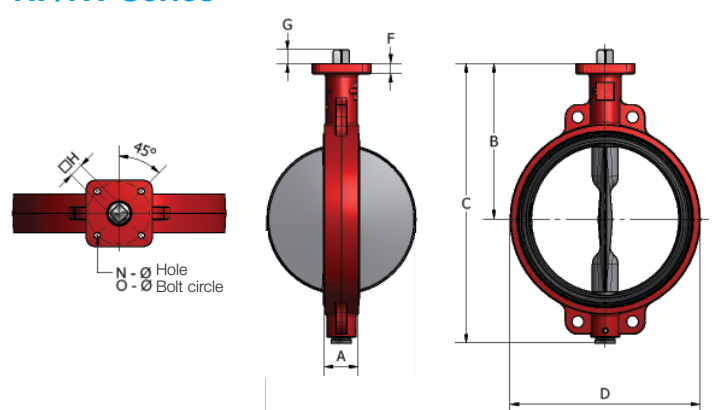
NF Series	DN	14"	16"	18"	20"	24"
	A	77	99	112	125	152
	B	350	375	401	427	491
	C	641	676	743	794	914
	D	432	486	546	603	718
	F	22	22	22	22	22
	G	31	31	40	40	49
	H	27	27	36	36	46
	N	13	13	17	17	23
	O	125	125	140	140	165
	ISO 5211	F12	F12	F14	F14	F16

NT Series	DN	14"	16"	18"	20"	24"
	A	77	86,5	105	129	152
	B	350	375	402	427	491
	C	641	676	743	794	914
	D	432	486	546	603	718
	F	22	22	22	22	22
	G	31	31	40	40	49
	H	27	27	36	36	46
	N	13	13	17	17	23
	O	125	125	140	140	165
	ISO 5211	F12	F12	F14	F14	F16

### NE/NP Series



### NF/NT Series

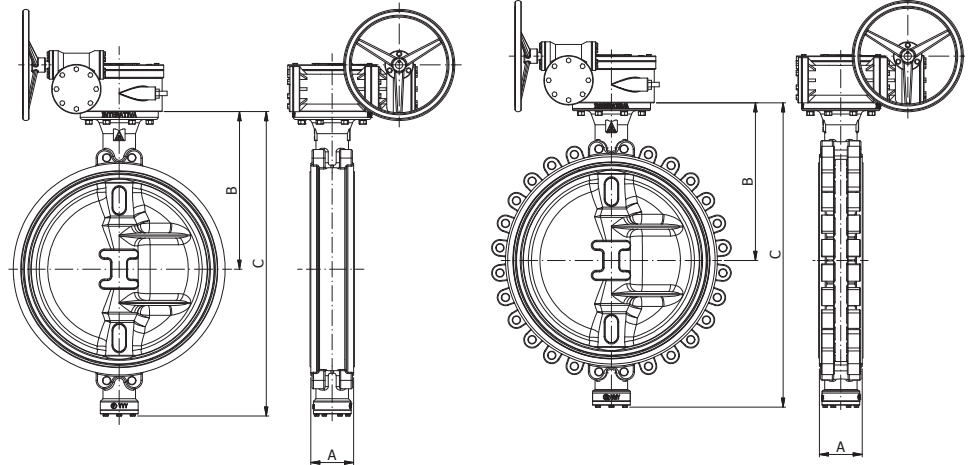


# DS Series

Valves of large diameters.

**Note:**

1. Face to Face normative dimensions in millimeters (mm)
2. Flange connection is in strict accordance with ASME / ANSI B16.5 or ASME / ANSI B16.47
3. Consult IMI Interativa for other diameters, connections or pressure.



## Concentric butterfly valve with elastomer seat

	<b>ND</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>ØI</b>	<b>N</b>	<b>M</b>	<b>ØY</b>	<b>Wafer</b>	<b>Lug</b>
(in)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Kg)	(Kg)
26	650	165	540	580	630	59	630	600	252	376
28	700	165	545	580	680	59	430	600	296	449
30	750	190	570	610	740	80	477	600	343	530
32	800	190	600	630	790	80	517	600	393	619
34	850	203	645	675	840	80	517	600	446	716
36	900	203	660	690	876	80	517	600	503	821
40	1000	216	730	760	975	80	529	700	625	1058
42	1050	216	755	785	1040	96	585	700	691	1190
44	1100	216	765	810	1090	96	603	700	759	1331
48	1200	254	880	895	1190	96	603	700	904	1642
52	1300	254	965	975	1290	96	603	700	1060	1993
56	1400	300	1030	1045	1390	130	950	700	1225	2386
60	1500	300	1040	1050	1500	130	990	700	1400	2823

## Flow coefficient (Cv)

Approx. values considering specific weight of water 1.0 at 20°C

NE Series	Angle	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	90	54	130	200	300	550	1125	1950	3250	5000	7500
	80	50	105	160	240	475	1000	1650	2725	4300	6050
	75	46	90	130	205	400	830	1350	2200	3600	5000
	70	42	70	105	160	305	625	1030	1750	2750	4050
	60	28	53	83	125	235	490	800	1300	2150	3100
	50	16	27	42	63	120	250	410	700	1150	1600
	40	10	17	26	38	73	155	250	420	670	1000
	30	5	9	15	22	42	88	145	250	390	550
25	4	6	10	15	28	60	98	170	260	380	

NP Series	Ângulo	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	90	54	105	156	260	523	1030	1995	3341	5093	7570
	80	50	84	125	208	452	915	1688	2802	4380	6106
	75	46	72	101	177	380	759	1381	2262	3667	5046
	70	42	56	82	138	290	572	1054	1799	2801	4087
	60	28	42	65	108	223	448	818	1336	2190	3129
	50	16	21	32	54	114	228	419	719	1171	1614
	40	10	13	20	32	69	141	255	431	682	1009
	30	5	7	11	19	39	80	148	257	397	555
25	4	4	7	13	26	54	100	174	264	383	

NF Series	Angle	14"	16"	18"	20"	24"
	90	10000	12500	17500	22000	28000
	80	8100	10800	14000	17500	24000
	75	6700	9000	12000	15000	20500
	70	5100	6500	9200	11500	16500
	60	4100	5100	7100	8700	11750
	50	2200	2650	3700	4600	6100
	40	1300	1700	2300	2800	3800
	30	750	900	1250	1600	2200
25	500	650	900	1125	1500	

NP Series	Angle	14"	16"	18"	20"	24"
	90	9857	13036	17879	22454	27933
	80	7984	11263	14303	17861	23943
	75	6604	9386	12260	15309	20451
	70	5027	6778	9399	11737	16461
	60	4041	5318	7253	8879	11722
	50	2168	2763	3780	4694	6085
	40	1281	1772	2349	2857	3791
	30	739	938	1277	1633	2194
25	492	677	919	1148	1496	

## Torque

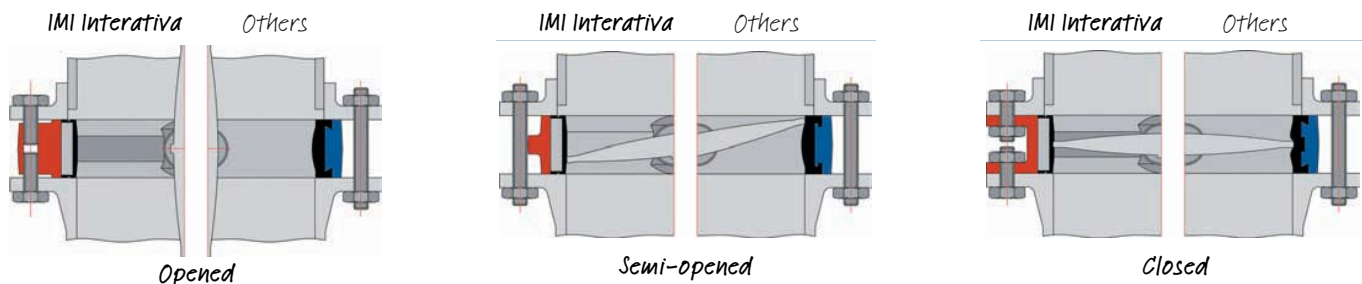
Approx. values considering water fluid at 20° C and fluid velocity up to 4,5m/s

NE Series	CWP	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	50 psi	-	8	8	10	12	16	20	40	79	131
	150 psi	12	12	12	22	30	51	62	113	203	339
	250 psi	12	25	37	58	86	135	173	288	466	791

NP Series	CWP	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	100 psi	12	20	25	30	95	140	170	300	470	550
	150 psi	12	20	25	30	95	140	170	300	470	550

NF Series	CWP	14"	16"	18"	20"	24"	NT Series	CWP	14"	16"	18"	20"	24"
	50 psi	188	316	384	565	950		100 psi	760	1040	1390	1860	2900
	150 psi	509	735	950	1220	2220		150 psi	760	1040	1390	1860	2900
	250 psi	1486	1978	2430	3006	5650							

## Sealing system: longer durability



### Advantages of IMI InterAtiva sealing system

- > Less elastomer mass in the sealing process, reducing the possibility of deformation and greater tear resistance;
- > Definition of the leakage class by controlling the interference between the seat and the disc;
- > Eliminates distortion by the reinforcing rigid ring.

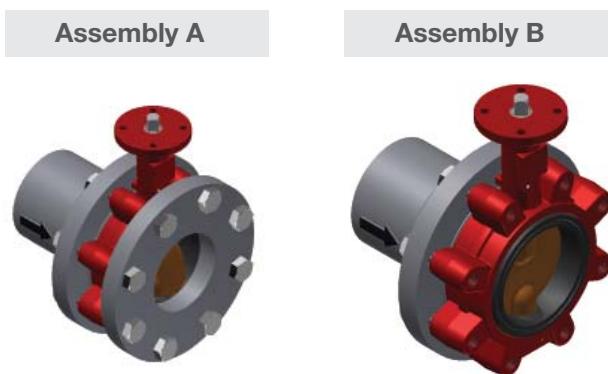
### Disadvantages of other (conventional) designs

- > Greater elastomer mass concentration in the sealing process, greater possibility of deformation and less tear resistance;
- > Greater chance of swelling through fluid absorption, causing excessive torque increase and valve locking;
- > Drive torque and sealing class control depends on valve installation;
- > Causes distortion during installation and valve closing operation.

## End-of-Line Services

Lug valves can be used for end of line service, with the downstream flange removed. Only weld neck flanges or socket weld can be used for this service.

Assembly "A" is highly recommended for end of line use as the downstream flange protects the exposed portion of the seat.



NE - NF - DS	CWP	Assembly	Note
	150 psi	A	
75 psi	B	E-CTFE coated disc	

NP - NT	CWP	Assembly	Note
	150 psi	A	Stainless Steel Disc
	75 psi	B	E-CTFE coated disc
-	B	Upon request	

## Fluid Velocity

Fluid	Velocity
Liquid	9m/s
Gas	54m/s

## Water/Fluid Hammer

Water or Fluid Hammer is a series of pressure waves in a pipe caused by the rapid obstruction of the flow of fluid in the system. Its effects may be seen in a butterfly valve as buckling of the disc and stem or cracked body.

Fluid Hammer can be reduced or eliminated by closing the valve slowly. Generally, a minimum closing time of 8 seconds is enough to eliminate it.



## Part Number Configuration - NE/NF Series

Range	NE DN.	NF DN.	Body	Disc	Seat	End	Drilling	Actuation
1 - 50 psi	1 - 2"	1 - 14"	0 - Special	0 - Special	0 - Special	1 - Wafer	0 - Special	0 - Special
2 - 150 psi	2 - 2½"	2 - 16"	1 - Stainless steel ASTM A-216 WCB	1 - Stainless steel ASTM A-351 CF8-M Polished	1 - NBR (Buna-N)	2 - Lug	1 - ASME ANSI 150	1 - No actuation
	3 - 250 psi	3 - 3"	3 - 18"	2 - Stainless steel ASTM A-351 CF8-M	2 - Stainless steel ASTM A-351 CF8-M	2 - Neoprene	3 - Flanged	2 - DIN EN 1092-1 PN 10 / PN16
4 - 4"		4 - 20"	3 - Ductile iron ASTM A-536 65-45-12	3 - Ductile iron ASTM A-536 65-45-12	3 - EPDM	3 - Pneumatic actuator		
5 - 5"		5 - 24"		5 - Ductile iron ASTM A-536 65-45-12 Nickel Plated	4 - Hypalon	4 - Hydraulic actuator		
6 - 6"				6 - Bronze Aluminum ASTM B148 9D	5 - Viton	5 - Electric actuator		
7 - 8"				7 - Stainless steel ASTM A-351 CF8-M E-CTFE Coated	6 - Buna GA-1	6 - 7 positions Lever		
8 - 10"				8 - Stainless steel ASTM A-351 CF8-M Nickel Plated	8 - SBR	7 - Floating device (buoy)		
9 - 12"				9 - Stainless steel ASTM A-351 CF8	9 - Carboxylated nitrile	8 - Extension Stem		

## Part Number Configuration - NP/NT Series

Range	NP DN.	NT DN.	Body	Disc	Seat	End	Drilling	Actuation
2 - 150 psi	1 - 2"	1 - 14"	0 - Special	0 - Special	7 - PTFE (Teflon)	1 - Wafer	0 - Special	0 - Special
4 - 100 psi	2 - 2½"	2 - 16"	1 - Stainless steel ASTM A-216 WCB	1 - Stainless steel ASTM A-351 CF8-M Polished		2 - Lug	1 - ASME ANSI 150	1 - No actuation
	3 - 3"	3 - 18"	2 - Stainless steel ASTM A-351 CF8-M	2 - Stainless steel ASTM A-351 CF8-M		3 - Flanged	2 - DIN EN 1092-1 PN 10 / PN16	2 - Gearbox
	4 - 4"	4 - 20"	3 - Ductile iron ASTM A-536 65-45-12	6 - Bronze Aluminum ASTM B148 9D		3 - Pneumatic actuator		
	5 - 5"	5 - 24"		7 - Stainless steel ASTM A-351 CF8-M E-CTFE Coated		4 - Hydraulic actuator		
	6 - 6"			8 - Stainless steel ASTM A-351 CF8-M Nickel Plated		5 - Electric actuator		
	7 - 8"			9 - Stainless steel ASTM A-351 CF8		6 - 7 positions Lever		
	8 - 10"					7 - Floating device (buoy)		
	9 - 12"					8 - Extension Stem		

## Part Number Configuration - DS Series

Range	DS DN.	Body	Disc	Seat	End	Drilling	Actuation
1 - 50 psi	1 - 26"	0 - Special	0 - Special	0 - Special	1 - Wafer	0 - Special	0 - Special
2 - 150 psi	2 - 28"	1 - Stainless steel ASTM A-216 WCB	1 - Stainless steel ASTM A-351 CF8-M Polished	1 - NBR (Buna-N)	2 - Lug	1 - ASME ANSI 150	1 - No actuation
	3 - 30"	2 - Stainless steel ASTM A-351 CF8-M	2 - Stainless steel ASTM A-351 CF8-M	3 - EPDM	3 - Flanged	2 - DIN EN 1092-1 PN 10 / PN16	2 - Gearbox
3 - 250 psi	4 - 32"	3 - Ductile iron ASTM A-536 65-45-12	3 - Ductile iron ASTM A-536 65-45-12	5 - Viton		3 - Pneumatic actuator	
	5 - 34"		5 - Ductile iron ASTM A-536 65-45-12 Nickel Plated	4 - Hydraulic actuator			
	6 - 36"		6 - Bronze Aluminum ASTM B148 9D	5 - Electric actuator			
	7 - 38"		7 - Stainless steel ASTM A-351 CF8-M E-CTFE Coated	6 - 7 positions Lever			
	8 - 40"		8 - Stainless steel ASTM A-351 CF8-M Nickel Plated	7 - Floating device (buoy)			
	9 - 42"		9 - Stainless steel ASTM A-351 CF8	8 - Extension Stem			
	10 - 44"						
	11 - 48"						
	12 - 52"						
	13 - 54"						
	14 - 56"						
15 - 60"							
16 - 72"							

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