



SERIES RS
28" - 54"

BUTTERFLY VALVE

RS SERIES

Trueline's RS series butterfly valves offer an economical package of large diameter valves with features aimed at solution oriented services. Our unique rigid back seating mates to an offset disc for a valve designed at low maintenance and minimum wear and torque characteristics. The end result is a large diameter valve you can depend on for years of trouble free service.

Component characteristics:

A) Body

Both the wafer and lug version of the RS features a single piece cast design. The strength characteristics (as detailed by the finite analysis below) far exceeds the forces encountered within the offered pressure ratings.

The neck has been extended to accommodate piping insulation.

The wafer model also features 4 semi lugs to ease installation.

B) Eccentric Disc

The eccentric disc is contoured to allow for maximum flows in the fully open position. The entire periphery of the disc seating surfaces is polished for maximum sealing and minimum torque.

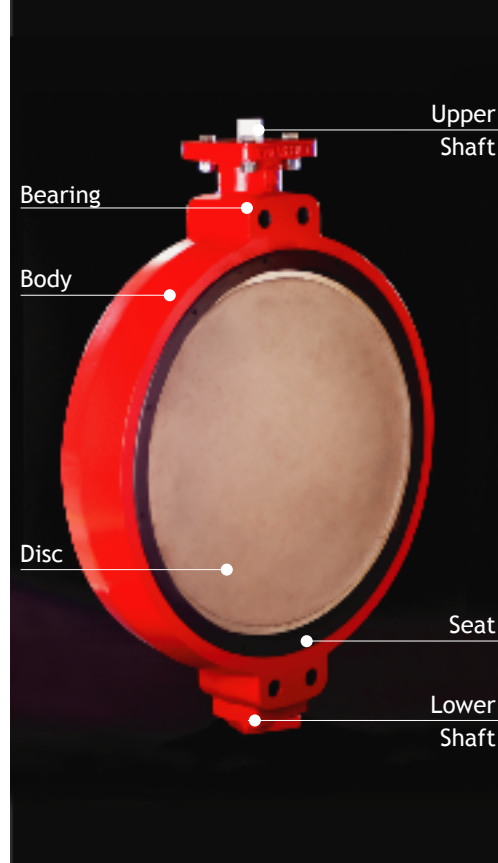
The disc is also available in (optional) CTFE, HT-65 & HT-2200 hardening infusions. Consult factory for details.

C) Shaft

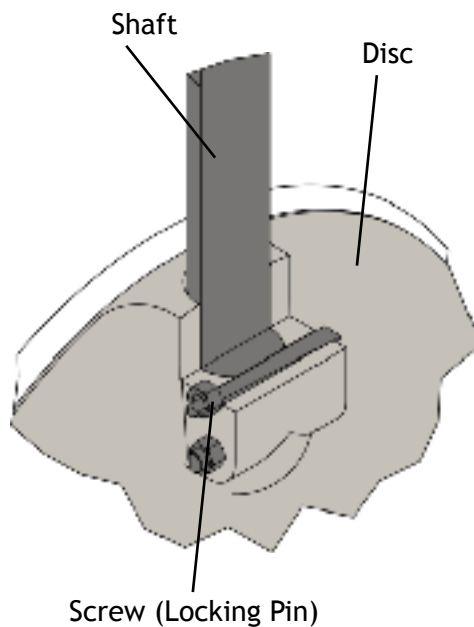
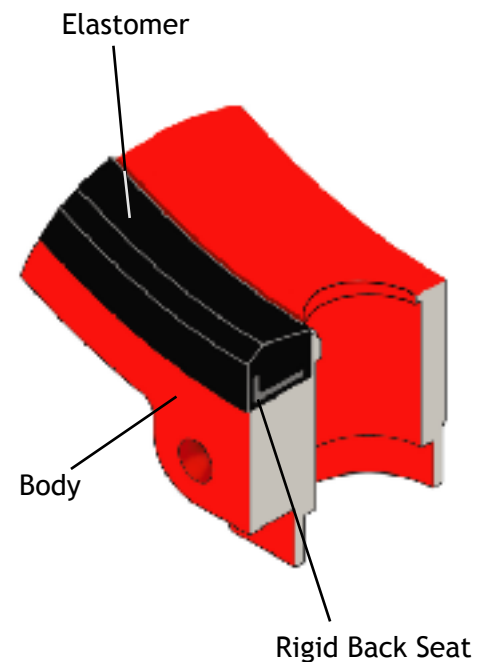
The self centering upper and lower shafts form a trunnion unit with the disc for perfect centering within the body and seat. The disc is secured to the upper shaft by means of tangentially mounted locking disc pins. Torque loads are dispersed efficiently which prevents shearing. Each shaft rides on their own bearings to once again minimize torque loads.

D) Interchangeable Seat

The elastomer seat features a rigid backing which reduces seat deformation. This results in lower torques and longer seat life. The laterally mounted seat takes the place of flange gasket on the seat side, making for an easy seat interchange without having to disassemble the valve. Designed to contact the disc equally throughout it's periphery, the specially molded seat is built to provide years of trouble free service.



Seat Detail



Design standards:

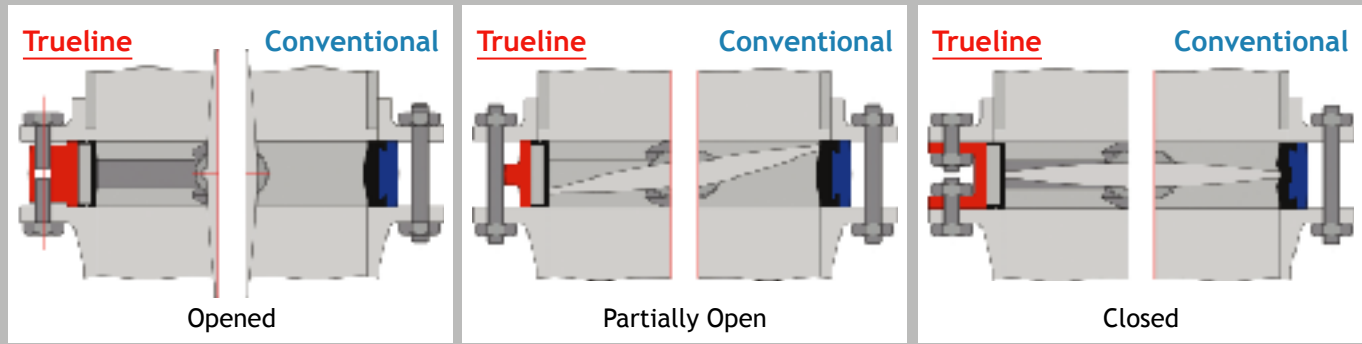
Construction

- ▣ Face to face
 - ▣ API609 Category A
 - ▣ ISO 5752 Column 20
 - ▣ AWWA C504
 - ▣ MSS-SP67
- ▣ Flange drilling
 - ▣ ASME/ANSI B16.10
- ▣ Test
 - ▣ API598
 - ▣ ASME/ANSI B16.34
 - ▣ MSS-SP68
- ▣ Coupling of the top plate
 - ▣ ISO 5211/DIN3337

E) Bushing

There are bronze shaft bearings for both the upper and lower shafts. The use of bearings provide long term shaft protection from body to shaft frictions and reduces cycling torques.

Trueline Sealing System - Greater Durability



Trueline advantages

- :: Minimized elastomer contact prevents the seal from distorting, which eliminates wear and leakage.
- :: Integral rigid ring eliminates seat distortion. Valve may be installed in the fully closed position.
- :: Molded in O'Ring on seat sidewall eliminates the need for flange gaskets when used with ANSI flanges.

Disadvantages of the conventional seats

- :: High concentration of elastomer mass in the sealing process; greater opportunity for deformation and seat tearing.
- :: Greater possibility to bulge through fluid absorption, causing excessive torque increases.
- :: Opening torques may be directly affected by incorrect installation, resulting in lower seat life.

Flange Requirements:

Trueline Valves are intended for installation between flanges according to ASME/ANSI 125/150, DIN PN10/16, NBR 7675 PN 10/16, JIS PN10. Although weld neck flanges are recommended, Trueline allows installation between slip on flanges without de-rating the pressure rating, providing the valve is correctly aligned. For dead end service with downstream flange removed, use weld neck or socket weld flanges only.

Category of the Sealing* Cold Work Pressure (CWP):

SIZE (in)	PRESSURE (psi)	PRESSURE (bar)
28" - 54"	150	10

*Preferential flow sense.

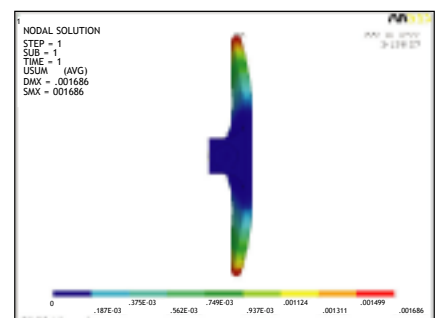
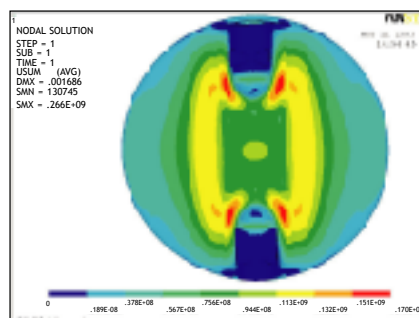
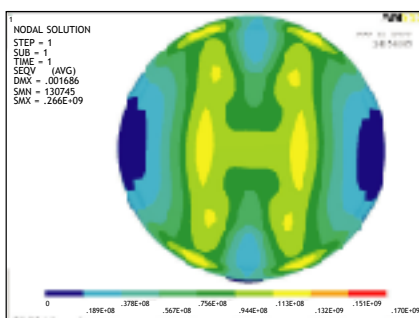
End of Line Applications:

MAXIMUM PRESSURE	CONDITIONS
150 psi (10 Bar)	Valve fixed between two flanges
75 psi (5 Bar)	Valve fixed in one of the flanges

Speed limits for ON-OFF services

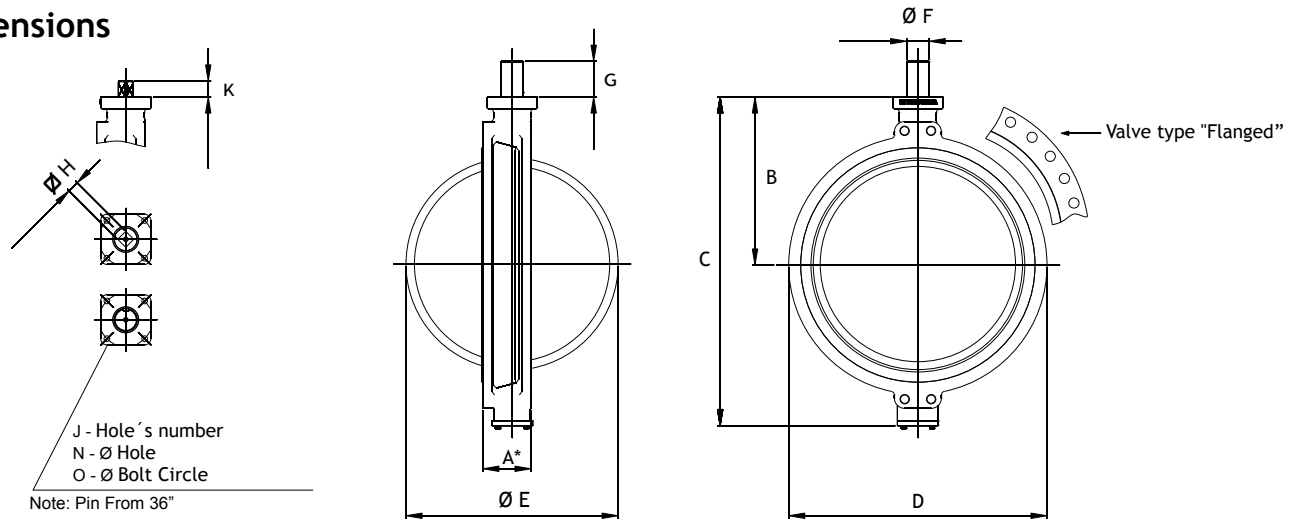
Fluid	9 m/s 29.53 ft/s
Gases	54 m/s 177.17 ft/s

Finite Element Analysis



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Dimensions



VALVE		28"	30"	32"	36"	40"	42"	48"	54"	
DIMENSIONS	A	mm in	160.0 6.3	165.0 6.5	180.0 7.1	195.0 7.7	210.0 8.3	245.0 9.6	276.0 10.9	381.0 15.0
	B	mm in	578.0 22.8	603.0 23.7	628.6 24.7	679.4 26.7	736.6 29.0	771.0 30.4	888.0 35.0	1012.0 39.8
	C	mm in	1143.0 45.0	1181.0 46.5	1232.0 48.5	1341.0 52.8	1452.0 57.2	1516.0 59.7	1736.0 68.3	2020.0 79.5
	D	mm in	829.0 32.6	880.0 34.6	937.0 36.9	1045.0 41.1	1159.0 45.6	1216.0 47.9	1380.0 54.3	1683.0 66.3
	E	mm in	ø 666.4 ø 26.2	ø 717.2 ø 28.2	ø 768.0 ø 32.2	ø 858.0 ø 34.2	ø 959.6 ø 37.8	ø 1008.0 ø 39.7	ø 1189.0 ø 46.8	ø 1325.0 ø 52.2
	F	mm in		----		ø 92.075 ø 3.625	ø 101.6 ø 4.0	ø 107.95 ø 4.25		ø 171.45 ø 6.75
	G	mm in		----			140.0 5.5		152.0 6.0	210.0 8.3
	J	mm in		4 x				8 x		
	N	mm in				ø 23.0 ø 0.9				ø 32.0 ø 1.3
	O	mm in		ø 165.0 ø 6.5			ø 215.9 ø 8.5	ø 298.0 ø 11.7		ø 356.0 ø 14.0
	ISO5211			F16				F30		F35
	H (DIN 3337)	mm in		∅ 46.0 ∅ 1.8				----		
	K	mm in		55.0 2.2				----		

Table: CV* Flow Coefficient - RS Series

% OF OPENING	NOMINAL DIAMETER OF THE VALVE							
	28"	30"	32"	36"	40"	42"	48"	54"
90	41.860	52.443	54.650	77.089	91.400	102.861	132.794	168.742
80	34.325	43.003	44.813	59.667	73.990	84.574	108.786	138.235
75	38.674	35.924	37.436	49.877	62.198	69.627	89.635	113.879
70	23.023	28.844	30.058	40.086	50.406	54.680	70.485	89.523
60	13.939	18.090	18.851	25.053	30.636	32.803	43.039	54.664
50	8.790	11.328	11.805	15.572	19.307	20.830	27.331	34.713
40	5.358	7.080	7.378	9.790	11.862	12.793	16.785	21.319
30	3.014	3.986	4.154	5.936	6.925	7.326	9.612	12.208
25	2.156	2.819	2.938	4.356	4.948	5.112	6.825	8.667

* Oriented values, for specific weight of the water = 1.0 at 20°C.

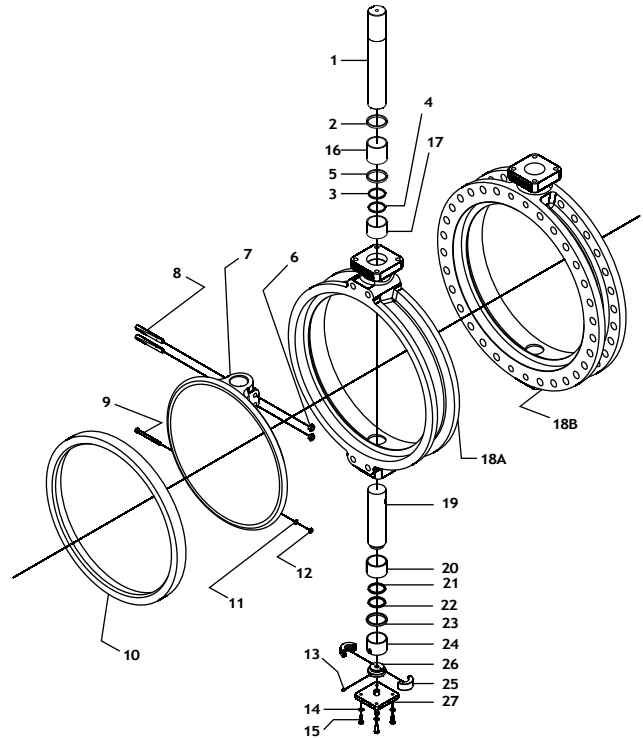
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Weight Table

VALVE	NOMINAL DIAMETER OF THE VALVE								
	28"	30"	32"	36"	40"	42"	48"	54"	
Wafer	lb	331	419	492	717	1378	1620	1962	----
	kg	150	190	223	325	625	735	890	
Flanged	lb	386	485	518	827	2050	2282	3064	6504
	kg	175	220	235	375	930	1035	1390	2950

Exploded View

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Upper Shaft	15	Hexagonal Head Screw
2	Bushing Retainer	16	Upper Spacer
3	Gasket	17	Upper Bearing
4	Gasket	18	A Wafer B Lug
5	Bushing Retainer	19	Lower Shaft
6	Braking Nut	20	Lower Bearing
7	Disc	21	Gasket
8	Locking Pin	22	Gasket
9	Hexagonal Head Screw	23	Retention Bushing
10	Seat	24	Lower Spacer
11	Lock Washer	25	Support Bearing
12	Braking Nut	26	Regulating Nut
13	Elastic Pin	27	Lower Cover
14	Washer		



Materials Selection

MODEL	WORKING PRESSURE	DIAMETER NOMINAL	BODY MATERIAL	DISC MATERIAL	SEAT MATERIAL	CONSTRUCTION	DRILLING	ACTUATION
RS	1 -Special 2 -150 psi	1 - 28"	0 - Special	0 - Special	0 - Special	1 - Wafer	0 - Special	0 - Special
		2 - 30"	1 - Carbon Steel ASTM A-216WCB	2 - Stainless Steel ASTM A-351 CF8-M	1 - NBR(Buna-N)	3 - Flanged	1 - ASME ANSI 150	1 - Bare Shaft
		3 - 32"	2 - Stainless Steel ASTM A-351 CF8-M	3 - Ductile Iron ASTM A-536 65-45-12	2 - Neoprene		2 - DIN PN10	2 - Gear Box
		4 - 36"	3 - Ductile Iron ASTM A-536 65-45-12	5 - Ductile Iron ASTM A-536 65-45-12 Nickel-plated	3 - EPDM			3 - Pneumatic Actuator
		5 - 40"	4 - Cast Iron ASTM A 126 CLB	6 - Aluminum bronze ASTM B148 9D	4 - Hypalon			4 - Hydraulic Actuator
		6 - 42"		8 - Stainless Steel ASTM A-351 CF8-M - Nickel-plated	5 - Viton			5 - Electric Actuator
		7 - 48"		9 - Stainless Steel ASTM A-351 Cf8	6 - Buna GA-1			
		8 - 54"			7 - PTFE(Teflon)			

Torque Table (lb/in)*

CPW (psi)	NOMINAL DIAMETER OF THE VALVE								
	28"	30"	32"	36"	40"	42"	48"	54"	
150	47528	57609	69850	95057	125769	141612	180555	252246	

* Torque values are based on non-compressible fluid (water) – no safety factor included.

Valve Types

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Wafer

Actuation

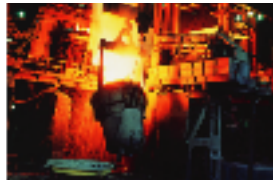
- ::Manual Gear Box
- ::Emergency Gear Box
- ::Single and Double Acting Pneumatic Actuator
- ::Electric Actuator
- ::Hydraulic Actuator



Flanged

Accessories

- ::Solenoid Valve
- ::Limit Switch (all types)
- ::Positioners (pneumatic or Electro pneumatic)
- ::Speed Control
- ::Filter Regulator
- ::Stem Extension
- ::Beacon Type Indicator
- ::Locking Device
- ::Babbit Sprocket and Chainwheel
- ::Float Actuator



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