



SARASIN-RSBD™

Changeover Valves

Starvalve

QUALITY ASSURANCE

Trillium operates quality programmes to cover the full scope of their activities. Comprehensive quality systems have been developed to serve the power, oil and gas and industrial markets which they serve.

The company holds approvals to or complies with:

- ASME Section III 'N', 'NPT', 'NV'
- ASME Section I 'V'
- ASME Section VIII 'UV'
- EN ISO 9001: 2008
- EN ISO 14001: 2004
- OHSAS 18001: 2007
- API Q1 TO API LICENCES API 6D (6D-0182) AND API 6A (6A-0445)
- API STD 520
- API STD 526
- API STD 527
- API STD 2000
- ISO 4126

The Quality systems have been approved for the supply of products to meet the requirements of the Pressure Equipment Directive (PED) and compliance modules A, D1, H, B&D have been applied in categories I through IV respectively.

The company is committed to compliance with legislation and has an established environment and health and safety policy.

An ongoing commitment to customer care is met through the process of continuous improvement and the further development of our systems and processes towards meeting ISO 9001:2008.

SARASIN-RSBD™

The Sarasin-RSBD™ range of products is manufactured in accordance with ASME, API and ISO standards and therefore can meet most of worldwide customers requirements. The company holds approvals or complies with:

- EN ISO 9001:2008 - EN ISO 14001:2004
- OHSAS 18001: 2007
- PED 97/23/EC Module B+D Category IV
- ATEX 94/9/EC
- ASME Section I 'V' - ASME Section VIII 'UV'
- API STD 520 - API STD 526 - API STD 527
- API STD 2000
- ISO 4126
- SELO

Specifically, Trillium can design and manufacture special valves to meet special customer requirements.



ATWOOD & MORRILL™
Engineered Isolation & check valves
BATLEY VALVE®
High Performance Buttery Valves
BDK™
Industrial Valves
BLAKEBOROUGH®
Control & Severe Service Valves
HOPKINSONS®
Parallel Slide Gate & Globe Valves
MAC VALVE®
Ball & Rotary Gate Valves
SARASIN-RSBD™
Pressure Safety Devices
SEBIM™
Nuclear Valves
TRICENTRIC®
Triple Offset Buttery Valves

Portfolio of engineered service solutions and aftermarket support



TRILLIUM FLOW TECHNOLOGIES™

Trillium provides critical service and safety valves, specialist pumps and service support to flow control and rotating equipment. Our world-wide reputation is based on engineering excellence applied to a comprehensive range of specialist products and effective customer support.

We have the capability to deliver complete valve solutions for major projects in the power generation, oil and gas exploration and general industrial sectors. Our global network of service operations specialise in the maintenance, upgrade and management of power and industrial assets at customer sites.

Trillium manufactures the Sarasin-RSBD range of pressure safety valves and safety devices for oil and gas, petrochemical and chemical industries, pipelines, thermal and nuclear power plants, sugar refineries and pulp mills.

VALVE TESTING

All pressure containing items are hydrostatically tested, seat leakage tested and functionally tested.

We can also perform gas, packing emission, cryogenic and advanced functional testing, as well as seismic testing for nuclear applications.

MATERIAL TESTING

- Non-destructive examination by radiography, ultrasonics, magnetic particle and liquid penetrant.
- Chemical analysis by computer controlled direct reading emission spectrometer.
- Mechanical testing for tensile properties at ambient and elevated temperatures, bend and hardness testing. Charpy testing at ambient, elevated and sub-zero temperatures.

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Features

“Starvalve” is a changeover valve designed to couple two Pressure Safety Valves (PSV). Two different concepts are available.

The “Single way” designed to be used when the process system does not allow any interruption for emergency maintenance of the PSV. A quick change flow way can easily be made by switching over the rotating disc enabling pressurization of the second PSV while closing the pressure way of the first PSV, which therefore provides a continuous protection of the process system.

The “Dual way” designed when two PSV have to protect a pressurized vessel and both have to relieve 100% of the capacity simultaneously. (Case of liquefied gas storage vessels). In this case the rotating disc is set in the median position of both ways (fig 1). In case of one of the PSV, same as above the corresponding way can be temporarily closed, the other staying open and the second PSV then insuring the full protection of the vessel (fig 2L or fig 2R).

“Starvalve” is designed to provide a highly reduced “Pressure Drop” in order to prevent risk of chattering of the PSV when discharging. Sealing of discs made with soft material offering a premium tightness of the closed way. Soft goods are offered to meet with the operating conditions.

“Starvalve” materials of construction correspond with those used in the Sarasin-RSBD spring loaded and pilot operated PSV ranges, from standard carbon steel up to the most elaborate stainless and alloy steels.

“Starvalve” can be supplied with the following accessories:

- Bleed valves to depressurize the closed way
- Padlock system to prevent changing of way inadvertently
- Linkage to couple two Starvalves as described on page 8.

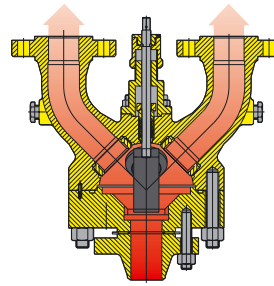
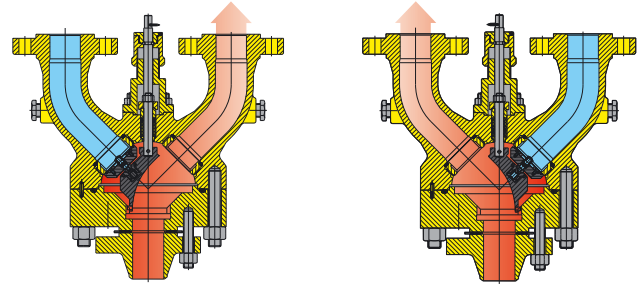


Figure 1.

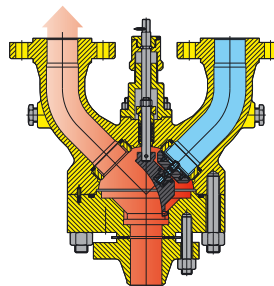


Figure 2L.

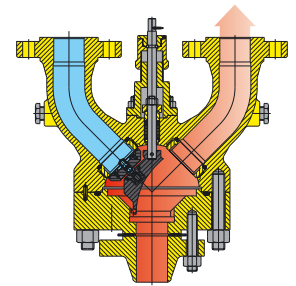
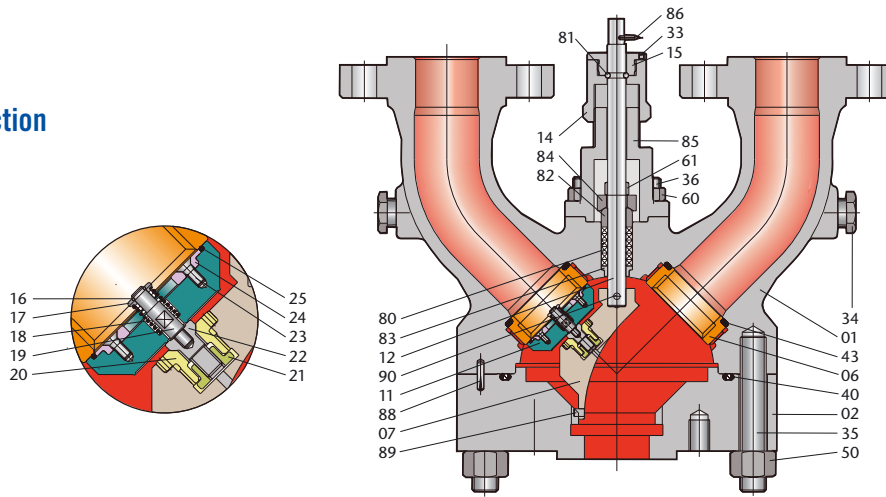


Figure 2R.

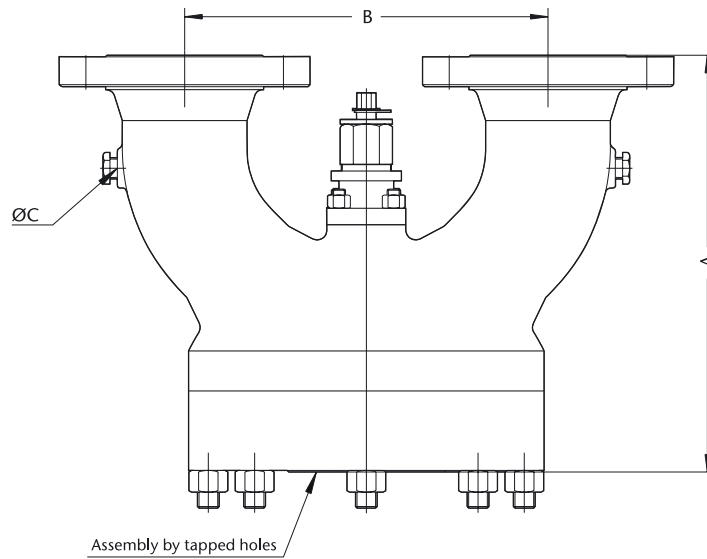
Materials of Construction



Rep	Designation	Carbon steel		Stainless steel
		Standard	Low temperature	Material code 16
		Material code 30	Material code 19	
01	Body	SA 216 Gr WCC	SA 352 Gr LCC	SA 351 Gr CF8M
02	Base	SA 216 Gr WCC / SA 105	SA 352 Gr LCC / SA 350 Gr LF2	SA 351 Gr CF8M / SS 316L
06	Nozzle	SS 316L	SS 316L	SS 316L
07	Deflector	SS 316L	SS 316L	SS 316L
11	Disc	17/4 PH ST ST	17/4 PH ST ST	SS 316L
12	Shaft	SS 316L	SS 316L	SS 316L
14	Reaction Nut	SS 316L	SS 316L	SS 316L
15	Check Nut	SS 316L	SS 316L	SS 316L
16	Rush	SS 316	SS 316	SS 316
17	Washer	SS 316L	SS 316L	SS 316L
18	Spring	SS 316	SS 316	SS 316
19	Stem	SS 316L	SS 316L	SS 316L
20	Disc Nut	SS 316L	SS 316L	SS 316L
21	Check Nut	SS 316L	SS 316L	SS 316L
22	Disc Shaft	SS 17/4 PH ST ST	17/4 PH ST ST	SS 316L
23	Screw	Stainless Steel	Stainless Steel	Stainless Steel
24	Retaining Plate	SS 316L	SS 316L	SS 316L
25	Gasket	*	*	*
33	Stop Screw	Stainless Steel	Stainless Steel	Stainless Steel
34	Plug	Carbon Steel	Carbon Steel	Stainless Steel
35	Threaded Rod	SA 193 Gr B7	SA 320 Gr L7	SA 193 Gr B8T
36	Threaded Rod	SA 193 Gr B7	SA 320 Gr L7	SA 193 Gr B8T
37	Packing G. Threaded Rod	SA 193 Gr B7	SA 320 Gr L7	SA 193 Gr B8T
40	Body Gasket	*	*	*
43	Nozzle Gasket	*	*	*
50	Base Nut	SA 194 Gr 2H	SA 194 Gr 2H	SA 194 Gr 8
60	Support Nut	SA 194 Gr 2H	SA 194 Gr 2H	SA 194 Gr 8
61	P. G. Flange Nut	SA 194 Gr 2H	SA 194 Gr 2H	SA 194 Gr 8
80	Packing	*	*	*
81	Ball	Stainless Steel	Stainless Steel	Stainless Steel
82	Packing Gland	SS 17/4 PH	SS 17/4 PH	SS 17/4 PH
83	Stuffing Box Bushing	SS 17/4 PH	SS 17/4 PH	SS 17/4 PH
84	Packing Gland Flange	SS 316L	SS 316L	SS 316L
85	Support	SA 351 CF3M / SS 316L	SA 351 CF3M / SS 316L	SA 351 CF3M / SS 316L
86	Index	Stainless Steel	Stainless Steel	Stainless Steel
88	Pin	Stainless Steel	Stainless Steel	Stainless Steel
89	Position Pin	Stainless Steel	Stainless Steel	Stainless Steel
90	Pin	Stainless Steel	Stainless Steel	Stainless Steel

* on application.

“RSS” Single Way Type

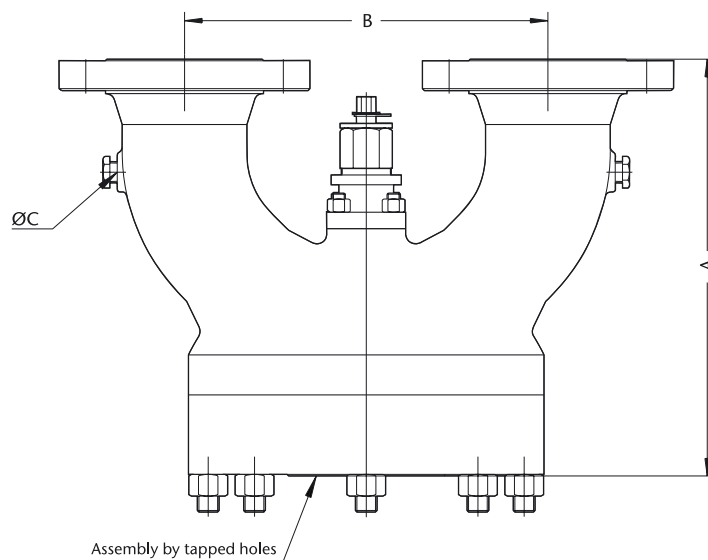


Dimensions

COV Inlet / Outlet	Dimension	Series		
		150	300	600
2" - 2x1"	A RF	305	305	305
	B	262	262	262
	Weight	54	56	56
2" - 2x1 1/2"	A RF	305	305	305
	B	262	262	262
	Weight	58	60	60
2" - 2x2"	A RF	305	305	305
	B	262	262	262
	Weight	60	62	62
3" - 2x2"	A RF	358	358	358
	B	305	305	305
	Weight	105	108	108
3" - 2x3"	A RF	358	358	358
	B	305	305	305
	Weight	105	108	108
4" - 2x3"	A RF	426	426	444
	B	368	368	368
	Weight	140	146	161
4" - 2x4"	A RF	426	426	444
	B	368	368	368
	Weight	140	146	161
6" - 2x4"	A RF	570	570	570
	B	432	432	432
	Weight	225	250	285
6" - 2x6"	A RF	570	570	570
	B	432	432	432
	Weight	225	250	285
8" - 2x6"	A RF	671	671	671
	B	495	495	495
	Weight	363	395	440
8" - 2x8"	A RF	671	671	671
	B	495	495	495
	Weight	363	395	440

Pressure rating 900# and higher on application. Other sizes on application.

“RSD” Dual Way Type



Dimensions

COV Inlet / Outlet	Dimension	Series		
		150	300	600
2" - 2 x 1"	A RF	305	305	305
	B	262	262	262
	Weight	54	56	56
3" - 2 x 1 1/2"	A RF	358	358	358
	B	305	305	305
	Weight	100	102	102
3" - 2 x 2"	A RF	358	358	358
	B	305	305	305
	Weight	102	104	104
4" - 2 x 3"	A RF	426	426	444
	B	368	368	368
	Weight	135	140	150
6" - 2 x 3"	A RF	570	570	570
	B	432	432	432
	Weight	220	245	280
6" - 2 x 4"	A RF	570	570	570
	B	432	432	432
	Weight	220	245	280
8" - 2 x 6"	A RF	671	671	671
	B	495	495	495
	Weight	350	380	420

Pressure rating 900# and higher on application. Other sizes on application.

Combined Valves with linkage system

When the process conditions require the two PSV to discharge in a common header, two Starvalves can be combined as a tandem system where:

- The upstream Starvalve is flanged to PSV inlets
- The downstream Starvalve is flanged to the PSV outlets.

A linkage device connects the two Starvalves allowing to easily switch the corresponding ways simultaneously and therefore the corresponding PSV eliminating the risk of error.

The combined Starvalve system allows the economic reduction of the amount of piping at one inlet (upstream PSV) and one outlet (downstream PSV).

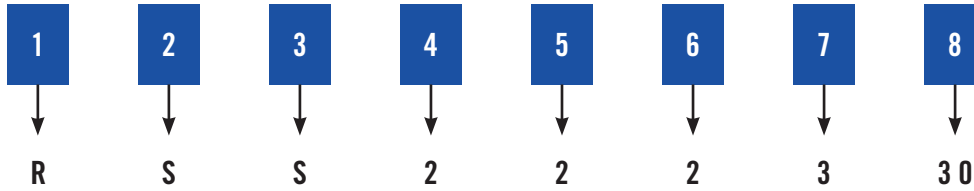


Dimensions

COV Inlet / Outlet	Dimension	Inlet			COV Inlet / Outlet	Dimension	Outlet	
		Series					Series	
		150	300	600			150	300
2" - 2 x 1"	A RF	305	305	305	2" - 2 x 2"	A RF	305	305
	B	262	262	262		B	262	262
	Weight	54	56	56		Weight	60	62
2" - 2 x 1 1/2"	A RF	305	305	305	2" - 2 x 2"	A RF	305	305
	B	262	262	262		B	262	262
	Weight	58	60	60		Weight	60	62
3" - 2 x 1 1/2"	A RF	358	358	358	3" - 2 x 3"	A RF	358	358
	B	305	305	305		B	305	305
	Weight	100	102	102		Weight	105	108
3" - 2 x 2"	A RF	358	358	358	3" - 2 x 3"	A RF	358	358
	B	305	305	305		B	305	305
	Weight	102	104	104		Weight	105	108
4" - 2 x 3"	A RF	426	426	444	4" - 2 x 4"	A RF	426	426
	B	368	368	368		B	368	368
	Weight	135	140	150		Weight	140	146
6" - 2 x 4"	A RF	570	570	570	6" - 2 x 6"	A RF	570	570
	B	432	432	432		B	432	432
	Weight	220	245	280		Weight	225	250
8" - 2 x 6"	A RF	671	671	671	8" - 2 x 8"	A RF	671	671
	B	495	495	495		B	495	495
	Weight	350	380	420		Weight	363	395

Pressure rating 900# and higher on application. Other sizes on application.

Codification



1 & 2 → **RS** = Changeover Valve

6 → **2 = Outlet Size**
 1 : 1" 6 : 6"
 2 : 2" 7 : 1 1/2"
 3 : 3" 8 : 8"
 4 : 4"

3 → **Type :**
S = Single Way
D = Dual Ways
A = Combined Valves Single Way
B = Combined Valves Dual Ways

7 → **3 = Pressure Class**
 1 : 150# Class
 2 : 300# Class
 3 : 600# Class

4 → **2 = Inlet Size**
 2 : 2" 8 : 8"
 3 : 3" 9 : 10"
 4 : 4" A : 12"
 6 : 6"

8 → **30 = Material Code**
 30 : Carbon Steel (SA 216 Gr WCC)
 16 : Stainless Steel (SA 351 Gr CF8M)
 19 : Low Temperature Carbon Steel (SA 352 Gr LCC)

5 → **2 = Body Size**
 2 : 2" 8 : 8"
 3 : 3" 9 : 10"
 4 : 4" A : 12"
 6 : 6"

The information given is for guidance only and can be revised without previous notice. They cannot replace an appropriate technical characteristic design



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