



**SCV VALVE**  
Innovative Valve Solutions®

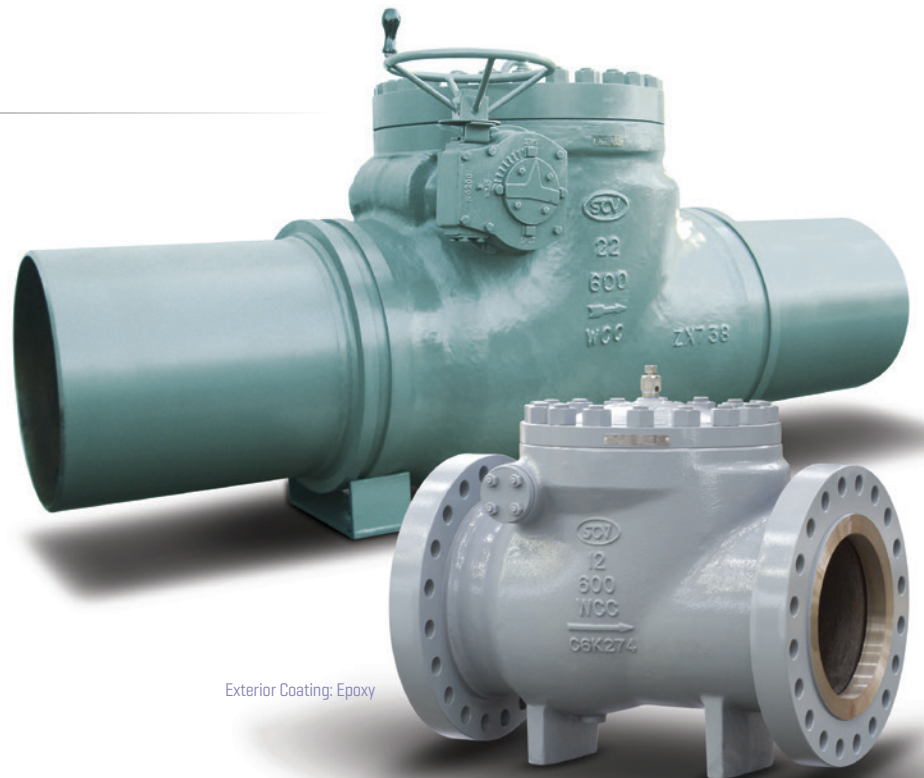


[281] 482-4728 • [www.scvvalve.com](http://www.scvvalve.com)

## Full Port Swing Check Valves - API 6D

Class: 150 - 2500

Sizes: 2" - 36"



Exterior Coating: Epoxy



**SCV VALVE**



**SCV VALVE** manufactures a premium array of check valves. Our products are manufactured and tested in accordance with respective API, ASME, and ANSI standards.

SCV Valve is a global leader in valve manufacturing for power, paper and pulp, oil and gas, and petro-chemical industries. SCV check valves have serviced critical backflow prevention applications for more than 40 years. From pipelines to chemical processing, SCV offers a complete line of full port swing checks in a variety of materials making them appropriate for many environments, temperatures and pressures, that will accommodate your most stringent needs. Our check valve product line has positioned SCV as a go-to source for all of your backflow prevention needs. The Full Port Swing Checks can be installed in horizontal or vertical, upward flow pipelines.

SCV utilizes a replaceable seat design for simple field service and replacement. Seat materials are selected based on valve application, media, temperature, pressure and other conditions. Standard seat materials are ASTM A105 in carbon steel designs and A352 LCC in stainless steel designs.

**Innovative Valve Solutions.®**

# SCV Full Port Swing Check Valves

[ Product Preview ]

For more information call us @ [281] 482-4728 or visit our website @ [www.scvvalve.com](http://www.scvvalve.com)

## Full Port Swing Check Valves - API 6D

- Basic Design: API 6D & ANSI B16.34
- Wall Thickness: API 6D
- Face-to-Face Dimension: ANSI/ASME B16.10
- Flange End Dimension: ANSI/ASME B16.5 [2' to 24"] MSS SP-44 [26" & up]
- Butt-Weld End Dimension: ANSI/ASME B16.25
- Inspection & Testing: API 6D

## Design Features

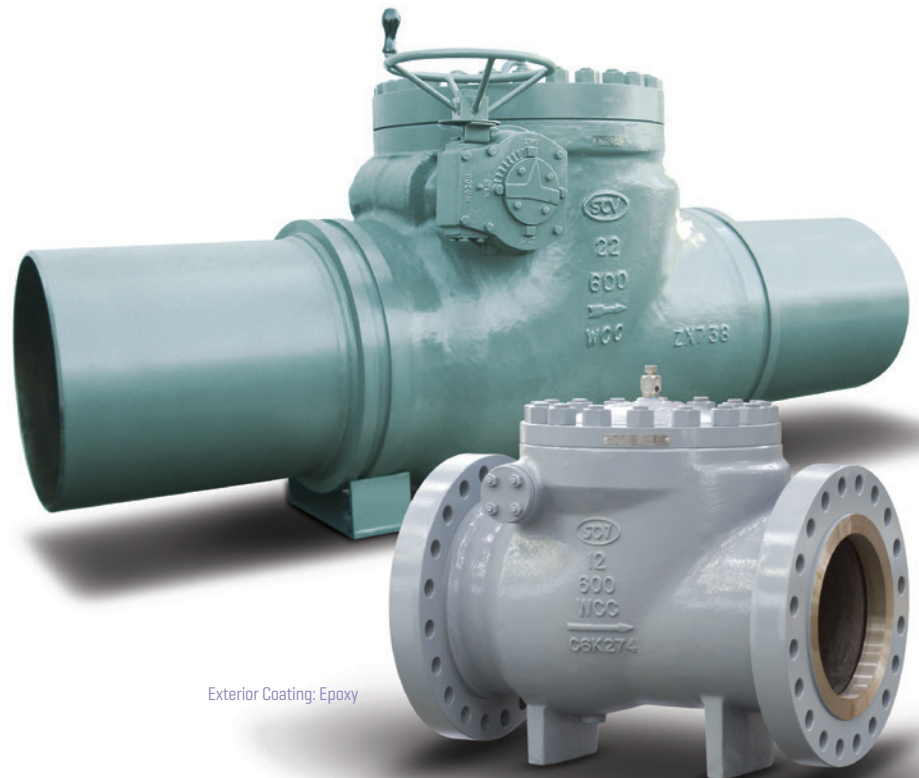
SCV Full Port Swing Check Valves are all designed to operate without any assistance, reacting to dominate flow direction. Minimal forward flow will instantly open the valve disc, while zero flow closes the valve disc preventing backflow. Optional mechanical devices (manual levers or gear operators) are available to manually or remotely open or close the valve. The full port design results in lower turbulence and pressure drops than competitors. Full Port Swing Check Valves are fully "piggable" to accommodate inspection and cleaning devices. Available sizes range from 2" thru 36" in Classes 150 thru 2500.

## Optional Features

- Extended Shaft Gland/Seal Assembly
- Extended Shaft Cover
- Lock Open Lever
- Lock Open Gear
- Slam Retarder

**Note:** Not recommended for throttling applications.

**Note:** SCV reserves the right to change any technical design and dimensional data without prior notice. Please contact SCV to confirm all Dimensions and Data offered in this catalog.



Exterior Coating: Epoxy



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# Complete Product Line

Call SCV Valve today @ (281) 482-4728 for all your valve needs or visit us on the web @ [www.scvvalve.com](http://www.scvvalve.com).

## THRU CONDUIT GATES - SLAB & EXPANDING

**Design: API 6D**

Sizes: 2" - 42"  
Class: 150 - 1500

Standard stock.

**Design: API 6A**

Sizes: 9", 11" & 13-5/8"  
Pressure: 2000, 3000, 5000

Limited inventory availability.  
All sizes and pressure classes made to order.



## PISTON CHECKS

**Design: API 6D**

Sizes: 2" - 24"  
Class: 150 - 2500

Standard stock.



## GLOBES

**Design: API 623**

Sizes: 2" - 24"  
Class: 150 - 2500

Limited inventory availability.  
All sizes and pressure classes made to order.



## 3-PIECE TRUNNION BALLS

**Design: API 6D**

Sizes: 2" - 42"  
Class: 150 - 2500

Standard stock.

**Design: API 6A**

Sizes: 2-1/16" - 7-1/6"  
Pressure: 2000, 3000, 5000

Limited inventory availability.  
All sizes and pressure classes made to order.

Bore Coating: Scotchkote™ 134



## FULL PORT SWING CHECKS

**Design: API 6D**

Sizes: 2" - 36"  
Class: 150 - 2500

Standard stock.



Exterior Coating: Epoxy

## WEDGE GATES

**Design: API 600**

Sizes: 2" - 48"  
Class: 150 - 2500

Limited inventory availability. All sizes and pressure classes made to order.



## FLOATING BALL VALVES

**Design: B16.34**

Sizes: 1/2" - 12"  
Class: 150 - 1500

Standard stock.

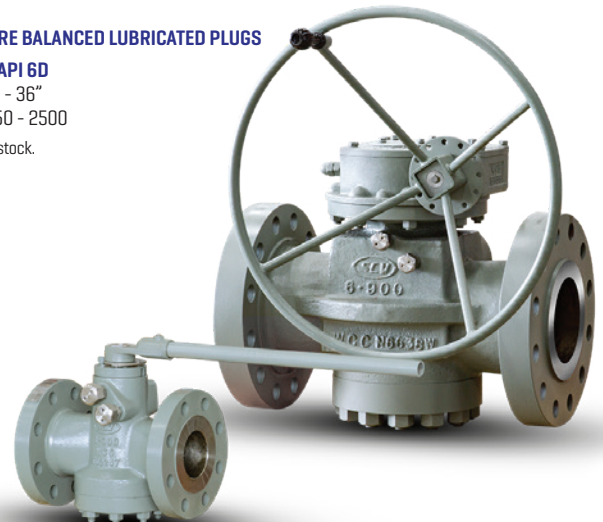


## PRESSURE BALANCED LUBRICATED PLUGS

**Design: API 6D**

Sizes: 2" - 36"  
Class: 150 - 2500

Standard stock.



# Certifications & Registrations

## American Petroleum Institute (API)

### API 6A Certification



Note: Extension letter available on our website.

### API 6D Certification



Note: Extension letter available on our website.

### ISO 9001:2015 Certificate



### CE PED Certificate



### Canadian Registration Number

- Alberta  
- OC07063.2
- New Brunswick  
- OC07063.27
- Northwest Territory  
- OC07063.25
- Nunavut  
- OC07063.2N
- Ontario  
- OC07063.25
- Yukon  
- OC07063.2
- British Columbia  
- OC07063.21
- New Foundland & Labrador  
- OC07063.20
- Novascotia  
- OC07063.27
- Manitoba  
- OC07063.24
- Prince Edward Island  
- OC07063.29

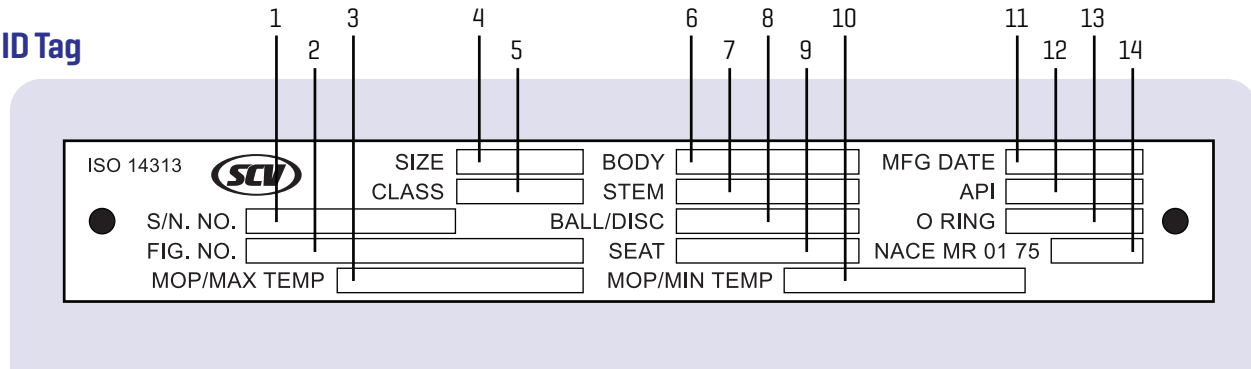






# Valve ID Tag & Valve Markings Identification

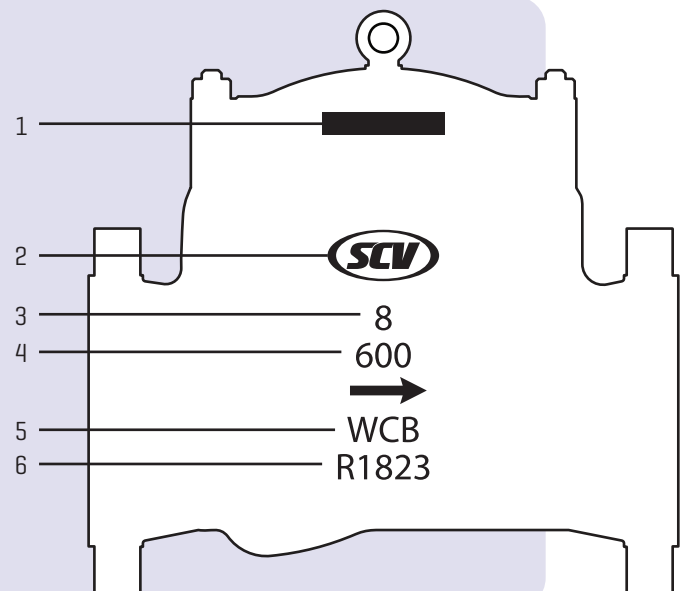
## Valve ID Tag



No.	Figure Number Code	Description
1	Serial Number	Identifies certified manufacturers serial number
2	Figure Number	Identifies the detailed valve configuration (valve type, bore size, pressure class, materials, etc.)
3	MOP/Max. Temp.	Identifies the maximum operating pressure in PSI and maximum operating temperature in Fahrenheit
4	Size	Identifies bore size
5	Pressure Class	Identifies pressure classifications per API requirements
6	Body Material	Identifies body metal material composition (A105, WCB, F51, CF8M, etc.)
7	Stem Material	Identifies stem material composition (A105, 410SS, 17-4pH, etc.)
8	Ball/Disc Material	Identifies ball/disc material composition (A105, 316SS, ENP, etc.)
9	Seat Material	Identifies seat material composition (PEEK, Teflon, Nylon, etc.)
10	MOP/Min. Temp.	Identifies the maximum operating pressure in PSI and minimum operating temperature in Fahrenheit
11	Manufacturing Date	Identifies the date the valve manufacturing completion date
12	API Conformance	Identifies API conformance (600, 6D, 6A, etc.)
13	O Ring	Identifies the O Ring material composition (Viton, Viton GLT, etc.)
14	NACE MR 01 75	Identifies corrosion resistance

## Valve Markings

No.	Valve ID Components
1	Tag
2	Brand
3	Size
4	Pressure Class
5	Body Material
6	Heat Number





**SCV VALVE**

## Full Port Swing Check Valves - API 6D Class: 150 - 2500/Sizes: 2" - 36"



Design and Manufacturing Standards	
Basic Design	API 6D & ANSI B16.34
Wall Thickness	API 6D
Face-to-Face Dimension	ANSI/ASME B16.10
Flange End Dimension	ANSI/ASME B16.5 [2" to 24"] MSS SP-44 [26" & up]
Butt-Weld End Dimension	ANSI/ASME B16.25
Inspection & Testing	API 6D



Exterior Coating: Epoxy

# Optional Features

## Extended Shaft Gland/Seal Assembly

The gland seal assembly is standard for extended shaft valve designs and bolts to the valve body to allow for lock open lever, lock open gear, slam retarder, or extended shaft cover installation. It also features a shaft seal and a lubricant /sealant injection port.

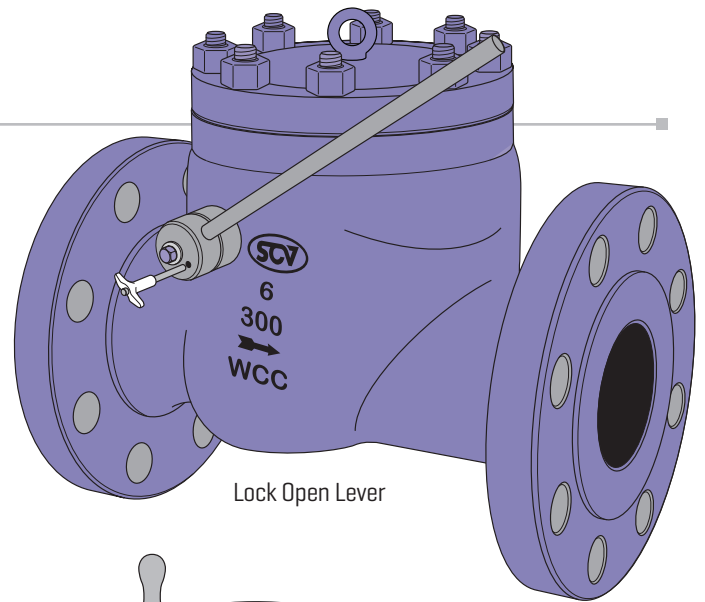
## Extended Shaft Cover

Used to protect the extended shaft when lock open devices are not being utilized.

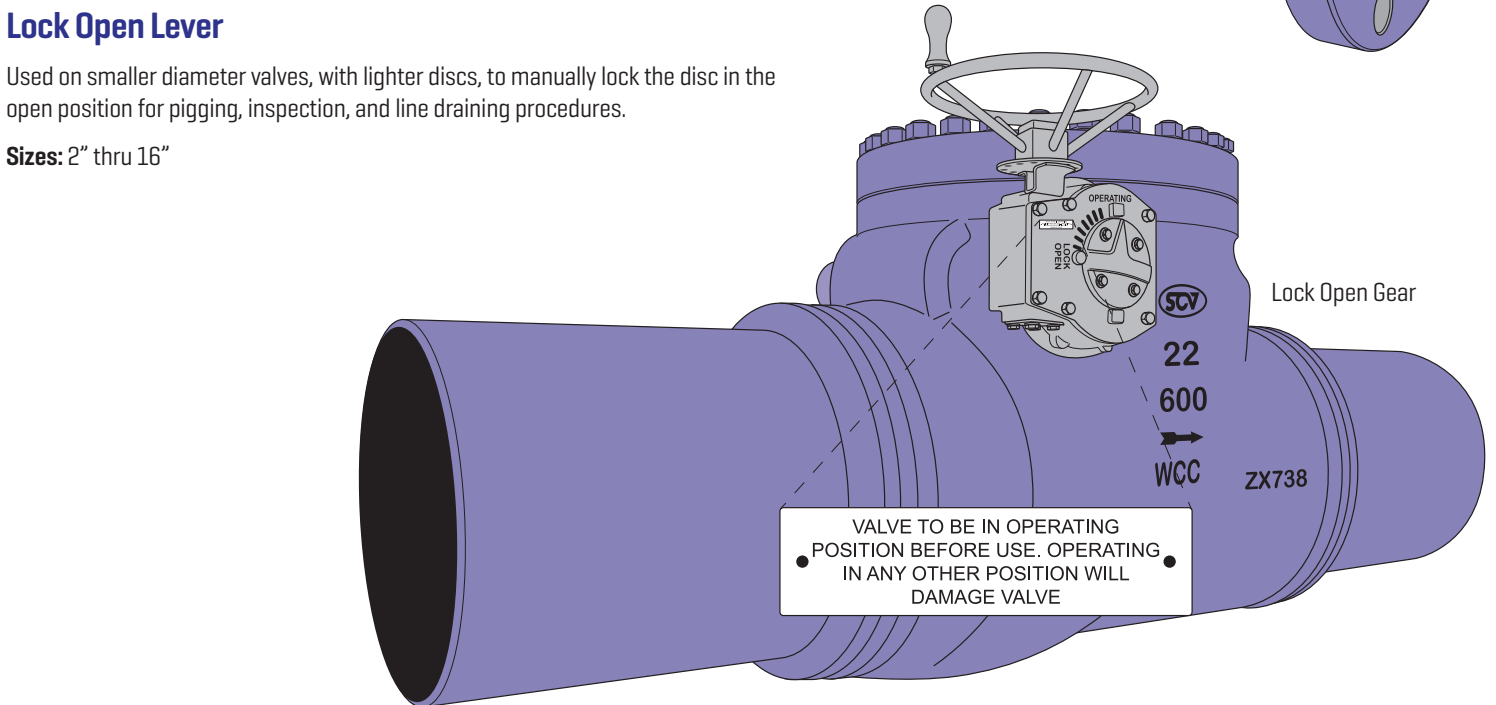
## Lock Open Lever

Used on smaller diameter valves, with lighter discs, to manually lock the disc in the open position for pigging, inspection, and line draining procedures.

Sizes: 2" thru 16"



Lock Open Lever



Lock Open Gear

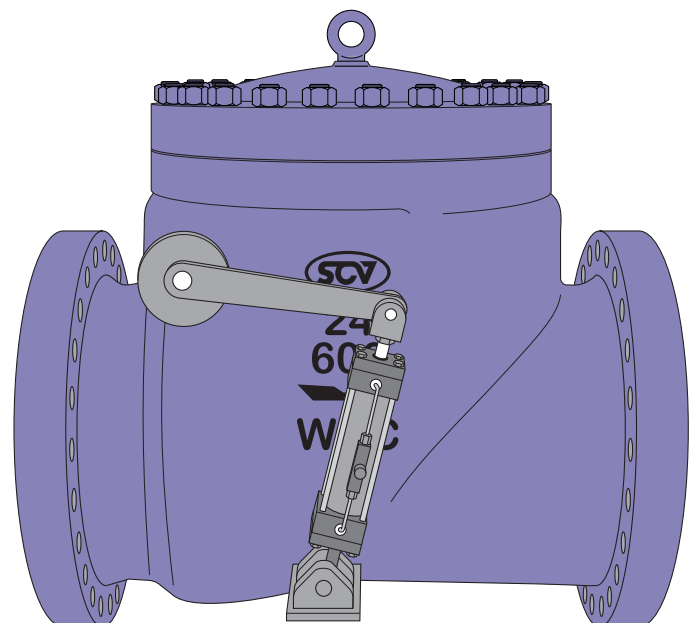
## Lock Open Gear

Used on larger diameter valves, with heavier discs, to manually lock the disc in the open position for pigging, inspection, and line draining procedures.

Sizes: 18" thru 36"

## Slam Retarder

Used to decelerate the disc during closing to prevent slamming against the seat during backflow situations which could result in valve damage or malfunction. A hydraulic assembly with an adjustable governor regulates the speed of closure.

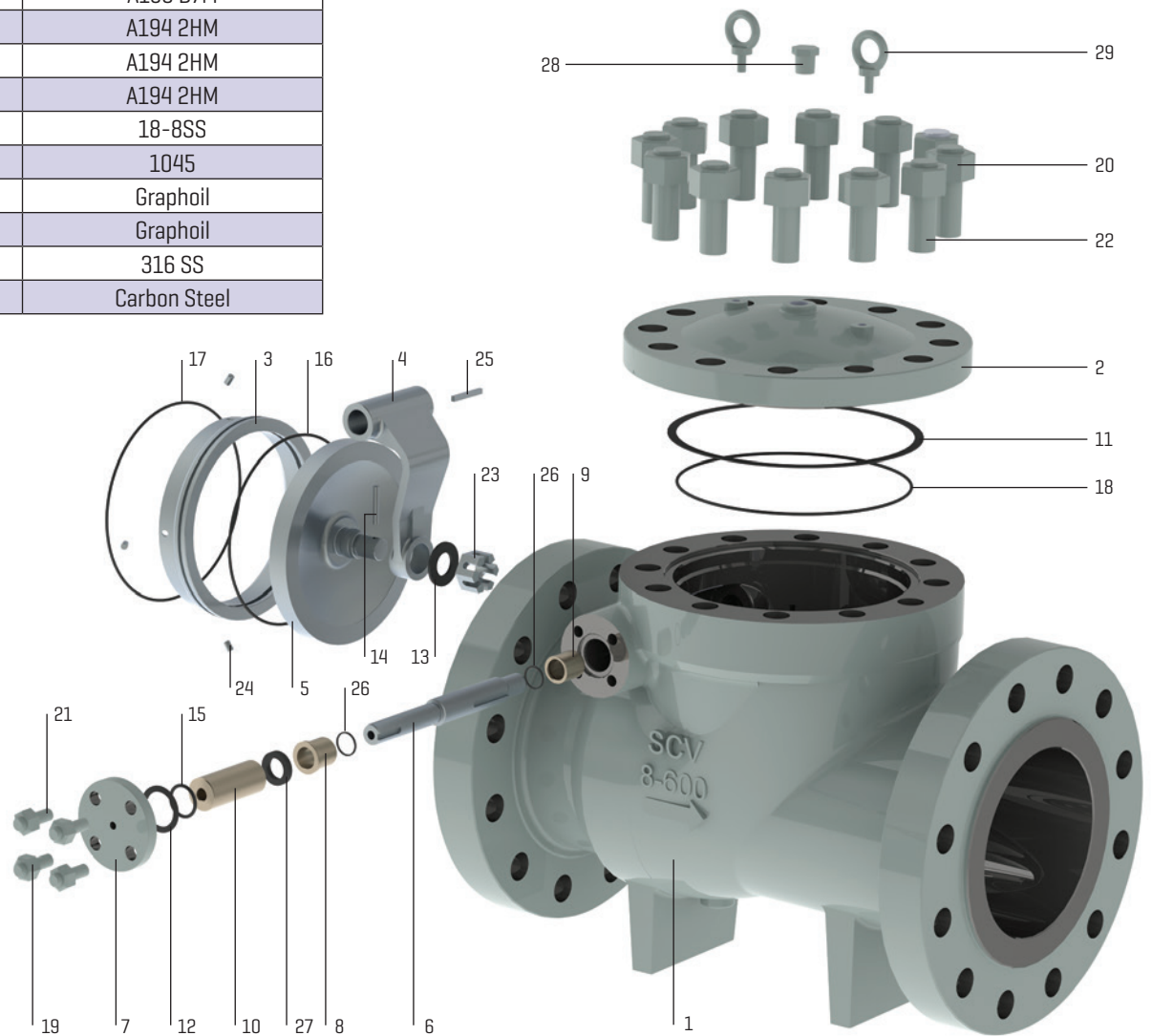


Slam Retarder

# Full Port Swing Check Valves - API 6

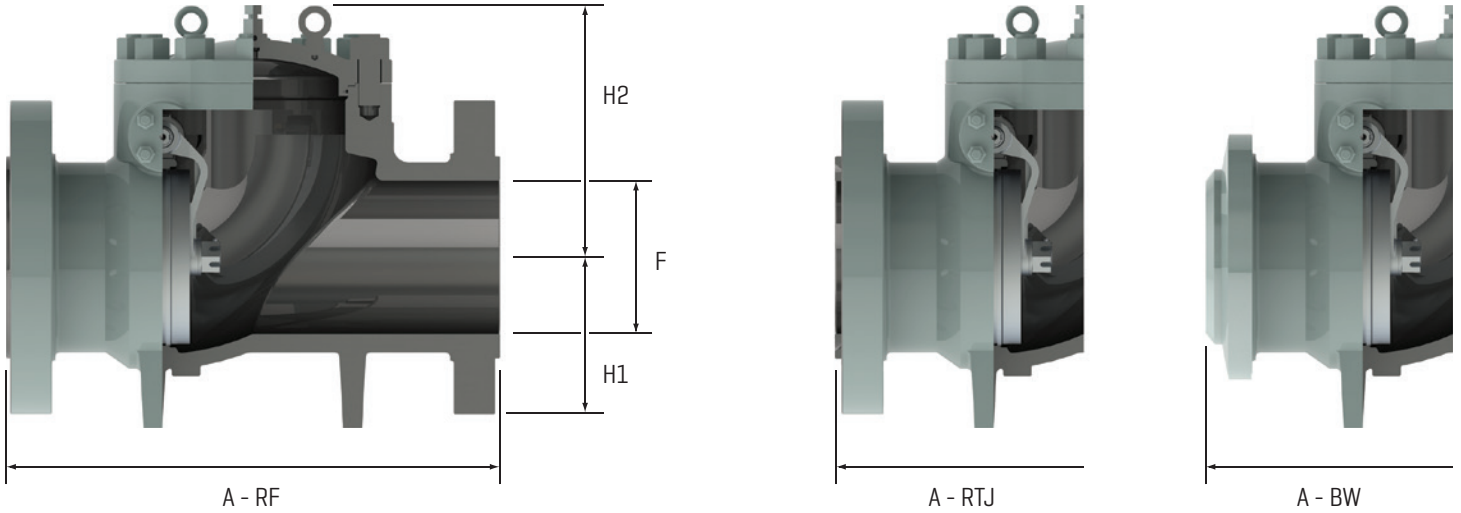
[ Expanded View & Bill of Materials ]

No.	Part	WCC
1	Body	A216 WCC
2	Bonnet	A105
3	Seat	410 + HF
4	Arm	A216 WCC
5	Disc	A216 WCC + 316
6	Shaft	316 SS
7	End Cap	A105
8	Bearing	Nitronic 60
9	End Bearing	Nitronic 60
10	Spacer	A105
11	Gasket	SS Graphite
12	Gasket	SS Graphite
13	Washer	304 SS
14	Pin	304 SS
15	O-Ring	VITON
16	O-Ring	VITON
17	O-Ring	VITON
18	O-Ring	VITON
19	Stud	A193 B7M
20	Stud	A193 B7M
21	Heavy Hex Nut	A194 2HM
22	Heavy Hex Nut	A194 2HM
23	Slotted Hex Nut	A194 2HM
24	Set Screw	18-8SS
25	Key	1045
26	Graphoil Rope	Graphoil
27	Graphoil Rope	Graphoil
28	NPT Plug	316 SS
29	Eye Bolt	Carbon Steel



# Full Port Swing Check Valve Dimensions

Size: 2" - 36"  
Class: 150 - 2500



CLASS 150	SIZE	NPS	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30	36
		DN	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	900
	A - RF	IN	8.0	9.5	9.5	11.5	14.0	19.5	24.5	27.5	31.0	34.0	38.5	38.5	51.0	57.0	60.0	77.0
		MM	203	241	241	292	356	495	622	699	787	864	978	978	1295	1448	1524	1956
	A - BW	IN	8.0	9.5	9.5	11.5	14.0	19.5	24.5	27.5	31.0	34.0	38.5	38.5	51.0	57.0	60.0	77.0
		MM	203	241	241	292	356	495	622	699	787	864	978	978	1295	1448	1524	1956
	F	IN	2.01	/	2.99	4.02	5.98	7.99	9.92	11.89	13.15	15.28	17.17	19.29	23.31	/	/	/
		MM	51	/	76	102	152	203	252	302	334	388	436	490	592	/	/	/
	H1	IN	1.93	4.02	2.56	3.19	4.21	5.59	6.77	7.56	8.9	9.76	10.83	12.13	14.37	21	22.5	26
		MM	49	102	65	81	107	142	172	192	226	248	275	308	365	533	571	600
H2	IN	4.25	6.4	5.67	6.89	9.45	11.14	14.37	16.3	17.8	19.37	20.79	22.74	27.17	40.0	45.2	53.1	
	MM	108	163	144	175	240	283	365	414	452	492	528	575	690	1016	1149	1349	
WGT (RF)	LB	35	49	66	97	172	260	520	758	930	1398	1799	2165	3925	4521	4644	7389	
	KG	16	22	30	44	78	118	236	344	422	634	816	982	1780	2050	2108	3350	
WGT (BW)	LB	26	33	46	57	137	201	450	646	776	1195	1579	1879	3528	4300	4424	6946	
	KG	12	15	21	26	62	91	204	293	352	542	716	852	1600	1950	2008	3150	

CLASS 300	SIZE	NPS	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30	36
		DN	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	900
	A - RF	IN	10.5	12.5	12.5	14.0	17.5	21.0	24.5	28.0	33.0	34.0	38.5	40.0	53.0	59.0	62.75	82.0
		MM	267	318	318	356	445	553	622	711	838	864	978	1016	1346	1499	1594	2083
	A - BW	IN	10.5	12.5	12.5	14.0	17.5	21.0	24.5	28.0	33.0	34.0	38.5	40.0	53.0	59.0	62.75	82.0
		MM	267	318	318	356	445	553	622	711	838	864	978	1016	1346	1499	1594	2083
	F	IN	2.01	/	2.99	4.02	5.98	7.99	9.92	11.89	13.15	15.28	17.17	19.29	23.31	/	/	/
		MM	51	/	76	102	152	203	252	302	334	388	436	490	592	/	/	/
	H1	IN	1.89	4.0	2.56	3.11	4.21	5.59	6.5	7.99	9.13	10.04	11.22	12.28	14.76	21	22.5	26
		MM	48	102	65	79	107	142	165	203	232	255	285	312	375	533	571	600
H2	IN	4.41	7.1	5.83	7.09	9.88	12.28	14.76	16.73	18.23	19.88	21.3	23.03	27.52	45.2	50.0	60.6	
	MM	112	180	148	180	251	312	375	425	463	505	541	585	699	1149	1270	1540	
WGT (RF)	LB	53	82	99	150	302	485	595	1092	1498	2095	2646	3304.5	4851	6174	7497	11025	
	KG	24	37	45	68	137	220	270	495	680	950	1200	1500	2200	2800	3400	5000	
WGT (BW)	LB	46	77	77	112	242	401	463	1014	1157	1764	2139	2688	3925	5292	6505	9482	
	KG	21	35	35	51	110	182	210	460	525	800	970	1220	1780	2400	2950	4300	

# Full Port Swing Check Valve Dimensions

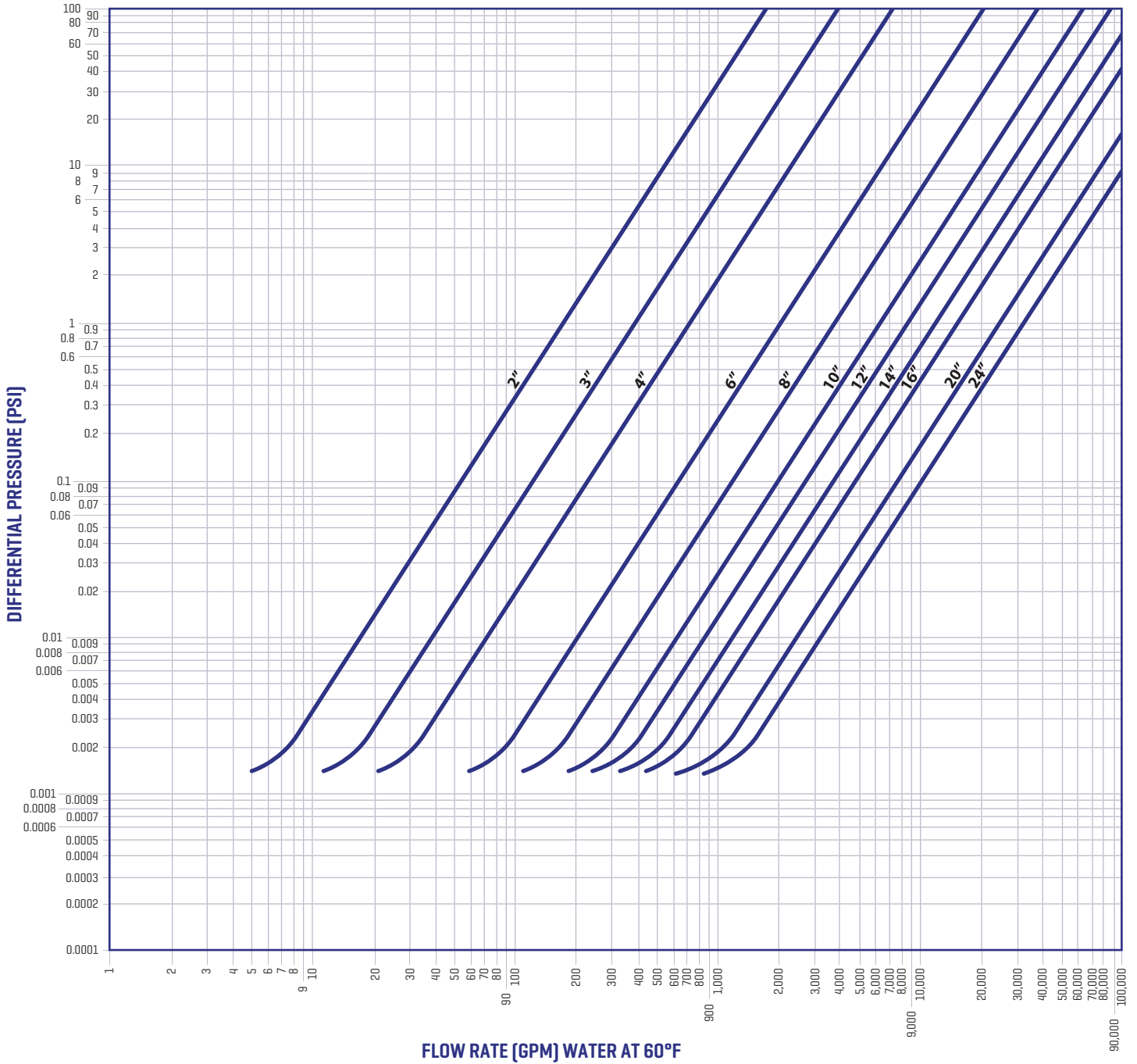
CLASS 600	SIZE	NPS	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30
		DN	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750
A - RF	IN	11.5	14.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0	63.0	65.0	
	MM	292	356	356	432	559	660	787	838	889	991	1092	1194	1397	1600	1651	
A - RTJ	IN	11.62	14.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	63.5	65.5	
	MM	295	359	359	435	562	664	791	841	892	994	1095	1200	1407	1613	1664	
A - BW	IN	11.5	14.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0	63.0	65.0	
	MM	292	356	356	432	559	660	787	838	889	991	1092	1194	1397	1600	1651	
F	IN	2.01	/	2.99	4.02	5.98	7.99	9.92	11.89	13.15	15.28	17.17	19.29	23.31	/	/	
	MM	51	/	76	102	152	203	252	302	334	388	436	490	592	/	/	
H1	IN	2.09	4.0	2.72	3.89	4.69	6.14	7.36	8.46	9.72	10.59	11.89	12.99	15.47	23.5	27.5	
	MM	53	102	69	86	119	156	187	215	247	269	302	330	393	597	698	
H2	IN	4.92	8.6	6.36	7.48	10.51	13.43	15.87	18.23	20.67	22.24	24.69	26.69	31.34	53.1	56.3	
	MM	125	219	161.5	190	267	341	403	463	525	565	627	678	796	1349	1429	
WGT [RF]	LB	88	121	159	254	551	926	1349	1786	2426	3638	3969	6168	7197	9041	11025	
	KG	40	55	72	115	250	420	612	810	1100	1650	1800	2800	3264	4100	5000	
WGT [BW]	LB	68	99	132	176	452	805	1085	1577	1940	2955	3197	5177	5654	7718	9482	
	KG	31	45	60	80	205	365	492	715	880	1340	1450	2350	2564	3500	4300	

CLASS 900	SIZE	NPS	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30
		DN	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750
A - RF	IN	14.5	15.0	15.0	18.0	24.0	29.0	33.0	38.0	40.5	44.5	48.0	52.0	61.0	69.0	73.0	
	MM	368	381	381	457	610	737	838	965	1029	1130	1219	1321	1549	1753	1854	
A - RTJ	IN	14.62	16.62	16.62	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.5	52.5	61.75	69.9	73.9	
	MM	371	422	422	460	613	740	841	968	1038	1140	1232	1333	1568	1775	1876	
A - BW	IN	14.5	15.0	15.0	18.0	24.0	29.0	33.0	38.0	40.5	44.5	48.0	52.0	61.0	69.0	73.0	
	MM	368	381	381	457	610	737	838	965	1029	1130	1219	1321	1549	1753	1854	
F	IN	2.05	/	2.99	4.02	5.98	7.99	9.92	12.01	12.68	14.68	/	/	/	/	/	
	MM	52	/	76	102	152	203	252	305	322	373	/	/	/	/	/	
H1	IN	4	5	3.03	3.7	8.86	6.42	7.72	8.98	10	10.83	16.5	18.0	26.5	25.25	30	
	MM	61	127	77	94	225	163	196	228	254	275	419	457	546	641	762	
H2	IN	5.2	13.7	7.28	8.86	11.69	14.96	17.4	20	23.66	24.02	36.3	41.4	47.2	55.1	61.8	
	MM	132	349	185	225	297	380	442	508	601	610	921	1051	1200	1400	1569	
WGT [RF]	LB	154	243	243	471	838	1375	2536	3197	3859	5336	7166	8820	12789	17309	19955	
	KG	70	110	110	214	380	624	1150	1450	1750	2420	3250	4000	5800	7800	9050	
WGT [BW]	LB	110	192	187	383	662	1088	2095	2602	3197	4520	5954	7275	9923	14663	16868	
	KG	50	87	85	174	300	494	950	1180	1450	2050	2700	3300	4500	6650	7650	

CLASS 1500	SIZE	NPS	2	2.5	3	4	6	8	10	12	14	16	18	20	24
		DN	50	65	80	100	150	200	250	300	350	400	450	500	600
A - RF	IN	14.5	18.5	18.5	21.5	27.75	32.75	39.0	44.5	49.5	54.5	60.5	65.5	76.5	
	MM	368	470	470	546	705	832	991	1130	1257	1383	1537	1664	1943	
A - RTJ	IN	14.62	18.62	18.62	21.62	28.0	33.13	39.38	45.12	50.25	55.38	61.38	66.38	77.62	
	MM	371	473	473	549	711	841	1000	1146	1276	1407	1559	1686	1972	
A - BW	IN	14.5	18.5	18.5	21.5	27.75	32.75	39.0	44.5	49.5	54.5	60.5	65.5	76.5	
	MM	368	470	470	546	705	832	991	1130	1257	1383	1537	1664	1943	
F	IN	2.01	/	2.99	4.02	5.75	7.64	9.53	15.35	/	/	/	/	/	
	MM	51	/	76	102	146	194	242	390	/	/	/	/	/	
H1	IN	2.83	5.25	3.5	4.17	5.43	6.93	8.35	9.76	16.25	17.25	19.0	20.5	24.0	
	MM	72	133	89	106	138	176	212	248	412	438	482	520	609	
H2	IN	6.61	13.7	8.82	10.32	13.27	16.63	19.69	20.98	40.8	42.0	47.1	51.1	57.1	
	MM	168	349	224	262	337	422.5	500	553	1035	1067	1197	1299	1451	
WGT [RF]	LB	154	243	375	662	1531	2624	4079	7336	7938	10805	14553	17971	25909	
	KG	70	110	170	300	695	1190	1850	3330	3600	4900	6600	8150	11750	
WGT [BW]	LB	110	192	298	540	1234	2128	3263	6080	6251	8599	11576	14222	19845	
	KG	50	87	135	245	560	965	1480	2760	2835	3900	5250	6450	9000	

CLASS 2500	SIZE	NPS	2	2.5	3	4	6	8	10	12	14	16
		DN	50	65	80	100	150	200	250	300	350	400
A - RF	IN	17.75	22.75	22.75	26.5	36.0	40.25	42.13	56.0	62.0	68.0	
	MM	451	578	578	673	914	1022	1070	1422	1575	1727	
A - RTJ	IN	17.87	23.0	23.0	26.88	36.5	40.87	50.88	56.88	62.88	68.88	
	MM	454	584	584	683	927	1038	1292	1445	1597	1750	
A - BW	IN	17.75	22.75	22.75	26.5	36.0	40.25	42.13	56.0	62.0	68.0	
	MM	451	578	578	673	914	1022	1070	1422	1575	1727	
F	IN	1.65	/	2.44	3.42	5.16	7.05	8.78	10.43	/	/	
	MM	42	/	62	87	131	179	223	265	/	/	
H1	IN	3.15	6.0	3.86	4.65	5.94	7.36	9.06	10	17.5	19.25	
	MM	80	152	98	118	151	187	230	254	444	489	
H2	IN	6.93	16.5	9.92	11.22	14.37	17.83	21.26	23.46	47.2	51.1	
	MM	176	419	252	285	365	453	540	596	1200	1299	
WGT [RF]	LB	331	529	772	1433	3197	5622	8709	12568	/	/	
	KG	150	240	350	650	1450	2550	3950	5700	/	/	
WGT [BW]	LB	225	430	477	839	2646	4851	6946	10033	13671	17861	
	KG	102	195	216	381	1200	2200	3150	4550	6200	8100	

# Pressure Loss Curves for Swing Check Valves



Flow Coefficient for Fully Open Valves	
2	174
3	394
4	722
6	2,062
8	3,774
10	6,359
12	8,751
14	11,882
16	15,922
18	20,000
20	24,618
24	32,879

The equations listed are the basis for the above graph. The formulas can be used to find the actual flow coefficient for a given condition of flow.

Glossary of Terms	
Q	Flow Rate, Liquids - GPM
Cv	Flow Coefficient
P <sub>1</sub>	Inlet Pressure
P <sub>2</sub>	Outlet Pressure
ΔP	Pressure Drop [P <sub>1</sub> - P <sub>2</sub> ]
G	Specific Gravity (Water = 1)

### Liquid (Incompressible Flow)

$$C_v = Q \sqrt{\frac{G}{\Delta P}} \quad Q = C_v \sqrt{\frac{\Delta P}{G}} \quad \Delta P = \left[ \frac{Q}{C_v} \right]^2 G$$



# Seal & Seat Pressure Temperature Chart

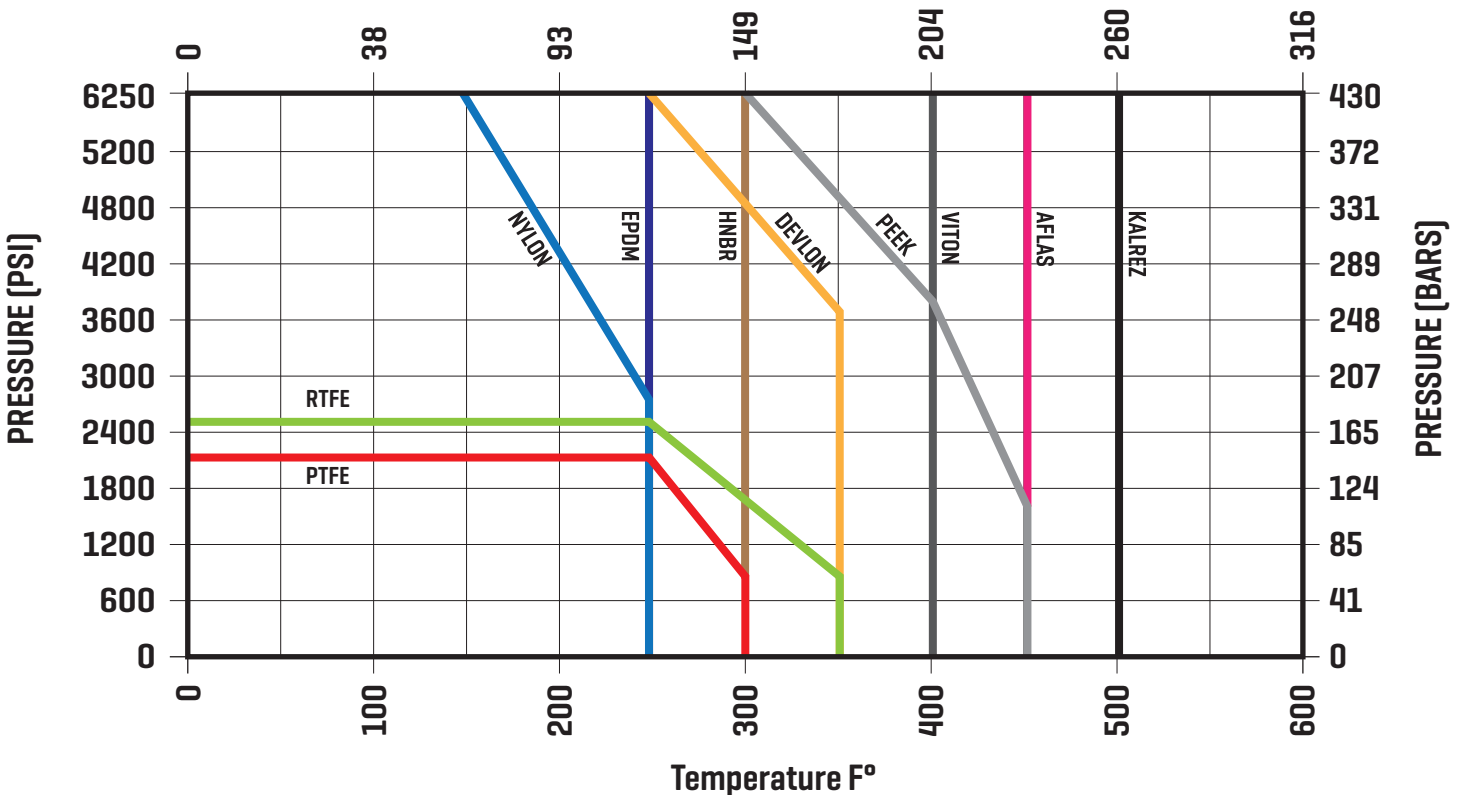
This chart depicts pressure and temperature ratings for common plastics and elastomers used in SCV Valve products.

## SCV VALVE SOFT GOOD CHEMICAL COMPATIBILITY

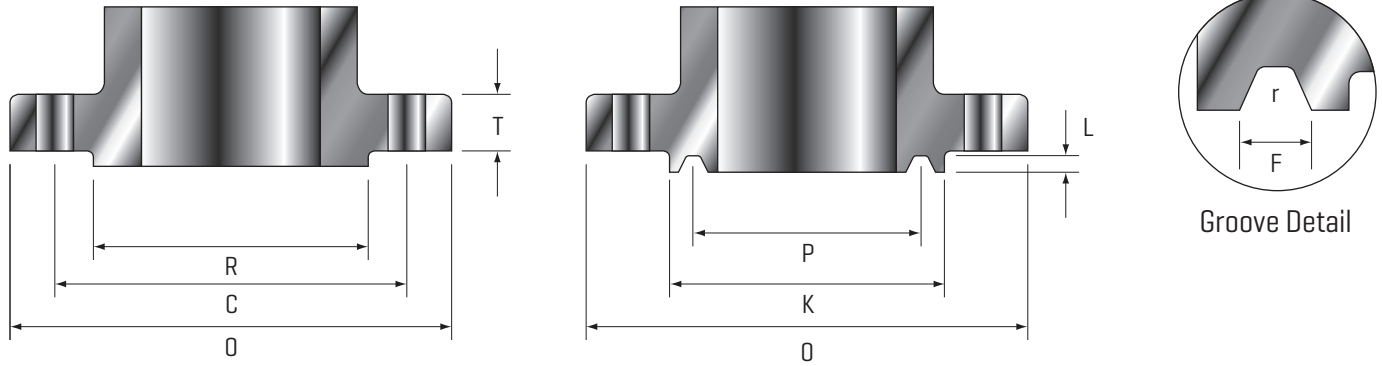
	SEAL MATERIAL			SEAT MATERIAL			
	Viton	HNBR	Kalrez	RTFE	Nylon	Devlon	PEEK
Amines	X	X	●	●	X	X	●
Ammonia	X	X	●	●	●	●	●
Butane	●	●	●	●	●	●	●
Carbon Dioxide	●	●	●	●	●	●	●
Crude Oil	●	●	●	●	●	●	●
Ethane	●	●	●	●	X	X	●
Ethylene	●	●	●	●	●	●	●
Glycol	●	●	●	●	●	X	●
Hydrocarbon	●	●	●	●	●	●	●
Hydrogen	●	●	●	●	●	●	●
Jet Fuel	*	*	●	●	X	X	●
Methane	●	●	●	●	●	●	●
Natural Gas	●	●	●	●	●	●	●
Nitrogen	●	●	●	●	●	●	●
Propane	●	●	●	●	●	●	●
Propylene	●	X	●	●	●	●	●

\* Viton OK for JP-3/4/5/6/8/9/10. \* HNBR OK for JP-3/4/5/6.

## PRESSURE TEMPERATURE CHART

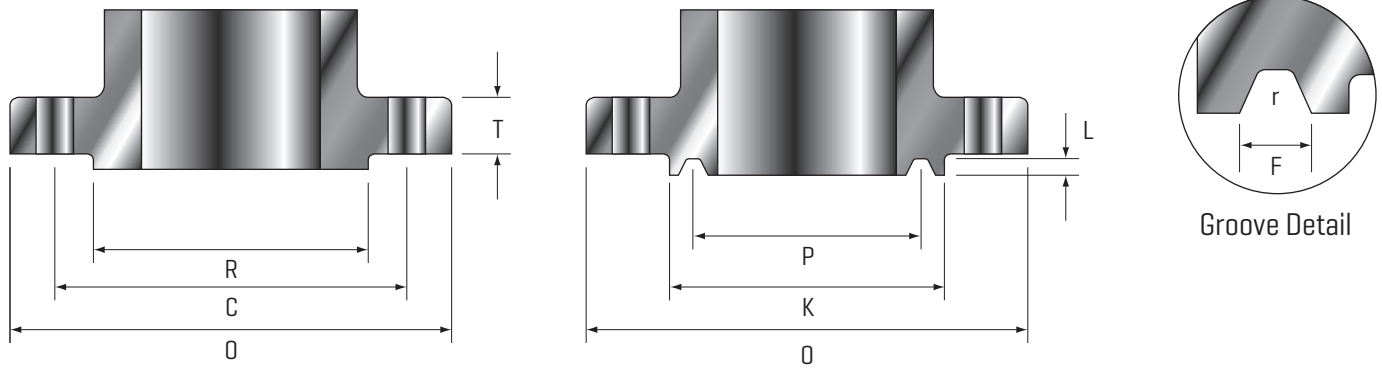


# Flange Dimensions - ANSI B16.5 & B16.47



Class	Size	Flg. Dia.	Flg. Thick.	Raised Face Dia.	Drilling			Face Dia.	Ring Joint					
					Bolt Circle Dia.	# of Bolts	Hole Dia.		Pitch Dia.	Grv. Depth	Grv. Width	Btm. Radius	Ring No.	
		O	T	R	C			K	P	L	F	r		
150	2	6.00	0.75	3.62	4.75	4	0.75	4.00	3.250	0.250	0.344	0.03	R22	
	2.5	7.00	0.88	4.12	5.50	4	0.75	4.75	4.000	0.250	0.344	0.03	R25	
	3	7.50	0.94	5.00	6.00	4	0.75	5.25	4.500	0.250	0.344	0.03	R29	
	4	9.00	0.94	6.19	7.50	8	0.75	6.75	5.875	0.250	0.344	0.03	R36	
	6	11.00	1.00	8.50	9.50	8	0.88	8.62	7.625	0.250	0.344	0.03	R43	
	8	13.50	1.12	10.62	11.75	8	0.88	10.75	9.750	0.250	0.344	0.03	R48	
	10	16.00	1.19	12.75	14.25	12	1.00	13.00	12.000	0.250	0.344	0.03	R52	
	12	19.00	1.25	15.00	17.00	12	1.00	16.00	15.000	0.250	0.344	0.03	R56	
	14	21.00	1.38	16.25	18.75	12	1.12	16.75	15.625	0.250	0.344	0.03	R59	
	16	23.50	1.44	18.50	21.25	16	1.12	19.00	17.875	0.250	0.344	0.03	R64	
	18	25.00	1.56	21.00	22.75	16	1.25	21.50	20.375	0.250	0.344	0.03	R68	
	20	27.50	1.69	23.00	25.00	20	1.25	23.50	22.000	0.250	0.344	0.03	R72	
	22	29.50	1.81	25.25	27.25	20	1.38	/	/	/	/	/	/	/
	24	32.00	1.88	27.25	29.50	20	1.38	28.00	26.500	0.250	0.344	0.03	R76	
	26	34.25	2.69	29.50	31.75	24	1.38	/	29.500	0.500	0.781	0.060	R93	
	28	36.50	2.81	31.50	34.00	28	1.38	/	31.500	0.500	0.781	0.060	R94	
30	38.75	2.94	33.75	36.00	28	1.38	/	33.750	0.500	0.781	0.060	R95		
32	41.75	3.19	36.00	38.50	28	1.62	/	36.000	0.562	0.906	0.060	R96		
34	43.75	3.25	38.00	40.50	32	1.62	/	38.000	0.562	0.906	0.060	R97		
36	46.00	3.56	40.25	42.75	32	1.62	/	40.250	0.562	0.906	0.060	R98		
300	2	6.50	0.88	3.62	5.00	8	0.75	4.25	3.250	0.312	0.469	0.03	R23	
	2.5	7.50	1.00	4.12	5.88	8	0.88	5.00	4.000	0.312	0.469	0.03	R26	
	3	8.25	1.12	5.00	6.62	8	0.88	5.75	4.875	0.312	0.469	0.03	R31	
	4	10.00	1.25	6.19	7.88	8	0.88	6.88	5.875	0.312	0.469	0.03	R37	
	6	12.50	1.44	8.50	10.62	12	0.88	9.50	8.312	0.312	0.469	0.03	R45	
	8	15.00	1.62	10.62	13.00	12	1.00	11.88	10.625	0.312	0.469	0.03	R49	
	10	17.50	1.88	12.75	15.25	16	1.12	14.00	12.750	0.312	0.469	0.03	R53	
	12	20.50	2.00	15.00	17.75	16	1.25	16.25	15.000	0.312	0.469	0.03	R57	
	14	23.00	2.12	16.25	20.25	20	1.25	18.00	16.500	0.312	0.469	0.03	R61	
	16	25.50	2.25	18.50	22.50	20	1.38	20.00	18.500	0.312	0.469	0.03	R65	
	18	28.00	2.38	21.00	24.75	24	1.38	22.62	21.000	0.312	0.469	0.03	R69	
	20	30.50	2.50	23.00	27.00	24	1.38	25.00	23.000	0.375	0.531	0.06	R73	
	22	33.00	2.62	25.25	29.25	24	1.62	27.00	25.000	0.438	0.594	0.06	R81	
	24	36.00	2.75	27.25	32.00	24	1.62	29.50	27.250	0.438	0.656	0.06	R77	
	26	38.25	3.31	29.50	34.50	28	1.75	31.88	29.500	0.500	0.781	0.06	R93	
	28	40.75	3.56	31.50	37.00	28	1.75	33.88	31.500	0.500	0.781	0.06	R94	
30	43.00	3.75	33.75	39.25	28	1.88	36.12	33.750	0.500	0.781	0.06	R95		
32	45.25	3.94	36.00	41.50	28	2.00	38.75	36.000	0.562	0.906	0.06	R96		
34	47.50	4.12	38.00	43.50	28	2.00	40.75	38.000	0.562	0.906	0.06	R97		
36	50.00	4.38	40.25	46.00	32	2.12	43.00	40.250	0.562	0.906	0.06	R98		

# Flange Dimensions - ANSI B16.5 & B16.47



Class	Size	Flg. Dia.	Flg. Thick.	Raised Face Dia.	Drilling			Face Dia.	Ring Joint				
					Bolt Circle Dia.	# of Bolts	Hole Dia.		Pitch Dia.	Grv. Depth	Grv. Width	Btm. Radius	Ring No.
600	2	6.50	1.00	3.62	5.00	8	0.75	4.25	3.250	0.312	0.469	0.03	R23
	2.5	7.50	1.12	4.12	5.88	8	0.88	5.00	4.000	0.312	0.469	0.03	R26
	3	8.25	1.25	5.00	6.62	8	0.88	5.75	4.875	0.312	0.469	0.03	R31
	4	10.75	1.50	6.19	8.50	8	1.00	6.88	5.875	0.312	0.469	0.03	R37
	6	14.00	1.88	8.50	11.50	12	1.12	9.50	8.312	0.312	0.469	0.03	R45
	8	16.50	2.19	10.62	13.75	12	1.25	11.88	10.625	0.312	0.469	0.03	R49
	10	20.00	2.50	12.75	17.00	16	1.38	14.00	12.750	0.312	0.469	0.03	R53
	12	22.00	2.62	15.00	19.25	20	1.38	16.25	15.000	0.312	0.469	0.03	R57
	14	23.75	2.75	16.25	20.75	20	1.5	18.00	16.500	0.312	0.469	0.03	R61
	16	27.00	3.00	18.50	23.75	20	1.62	20.00	18.500	0.312	0.469	0.03	R65
	18	29.25	3.25	21.00	25.75	20	1.75	22.62	21.000	0.312	0.469	0.03	R69
	20	32.00	3.50	23.00	28.50	24	1.75	25.00	23.000	0.375	0.531	0.06	R73
22	34.25	3.75	25.25	30.62	24	1.88	27.00	25.000	0.438	0.594	0.06	R81	
24	37.00	4.00	27.25	33.00	24	2.00	29.50	27.250	0.438	0.659	0.06	R77	
900	2	8.5	1.5	3.62	6.5	8	1	4.88	3.75	0.312	0.469	0.03	R24
	2.5	9.62	1.62	4.12	7.50	8	1.12	5.39	4.250	0.312	0.469	0.03	R27
	3	9.50	1.50	5.00	7.50	8	1.00	6.12	4.875	0.312	0.469	0.03	R31
	4	11.50	1.75	6.19	9.25	8	1.25	7.12	5.875	0.312	0.469	0.03	R37
	6	15.50	2.19	8.50	12.50	12	1.25	9.50	8.312	0.312	0.469	0.03	R45
	8	18.50	2.50	10.62	15.50	12	1.50	12.12	10.625	0.312	0.469	0.03	R49
	10	21.50	2.75	12.75	18.50	16	1.50	14.25	12.750	0.312	0.469	0.03	R53
	12	24.00	3.12	15.00	21.00	20	1.50	16.50	15.000	0.312	0.469	0.03	R57
	14	25.25	3.38	16.25	22.00	20	1.62	18.38	16.500	0.438	0.656	0.06	R62
	16	27.75	3.50	18.50	24.25	20	1.75	20.62	18.500	0.438	0.656	0.06	R66
	18	31.00	4.00	21.00	27.00	20	2.00	23.38	21.00	0.500	0.781	0.06	R70
	20	33.75	4.25	23.00	29.50	20	2.12	25.50	23.000	0.500	0.781	0.06	R74
24	41.00	5.50	27.25	35.50	20	2.62	30.38	27.250	0.625	1.062	0.09	R78	
1500	2	8.50	1.50	3.62	6.50	8	1.00	4.88	3.750	0.312	0.469	0.03	R24
	2.5	9.62	1.62	4.12	7.50	8	1.12	5.38	4.250	0.312	0.469	0.03	R27
	3	10.50	1.88	5.00	8.00	8	1.25	6.62	5.375	0.312	0.469	0.03	R35
	4	12.25	2.12	6.19	9.50	8	1.38	7.62	6.375	0.312	0.469	0.03	R39
	6	15.50	3.25	8.50	12.50	12	1.50	9.75	8.312	0.375	0.531	0.06	R46
	8	19.00	3.62	10.62	15.50	12	1.75	12.50	10.625	0.438	0.656	0.06	R50
	10	23.00	4.25	12.75	19.00	12	2.00	14.62	12.750	0.438	0.656	0.06	R54
	12	26.00	4.88	15.00	22.50	16	2.12	17.25	15.000	0.562	0.906	0.06	R58
	14	29.50	5.25	16.25	25.00	16	2.38	19.25	16.500	0.625	1.062	0.09	R63
	16	32.50	5.75	18.50	27.75	16	2.62	21.50	18.500	0.688	1.188	0.09	R67
	18	36.00	6.38	21.00	30.50	16	2.88	24.12	21.000	0.688	1.188	0.09	R71
	20	38.75	7.00	23.00	32.75	16	3.12	26.50	23.000	0.688	1.312	0.09	R75
24	46.00	8.00	27.25	39.00	16	3.62	31.25	27.250	0.812	1.438	0.09	R79	
2500	2	9.25	2.00	3.62	6.75	8	1.00	4.48	4.000	0.312	0.469	0.030	R26
	2.5	10.50	2.25	4.12	7.75	8	1.13	5.86	4.375	0.375	0.531	0.060	R28
	3	12.00	2.62	5.00	9.00	8	1.25	6.61	5.000	0.375	0.531	0.060	R32
	4	14.00	3.00	6.19	10.75	8	1.50	7.99	6.188	0.438	0.656	0.060	R38
	5	16.50	3.62	7.31	12.75	8	1.75	9.48	7.500	0.500	0.781	0.060	R40
	6	19.00	4.25	8.50	14.50	8	2.00	10.98	9.000	0.500	0.781	0.060	R47
	8	21.75	5.00	10.62	17.25	12	2.00	13.38	11.000	0.562	0.906	0.060	R51
	10	26.50	6.50	12.75	21.75	12	2.50	16.73	13.500	0.688	1.188	0.090	R55
12	30.00	7.25	15.00	24.38	12	2.75	19.48	16.000	0.688	1.312	0.090	R60	

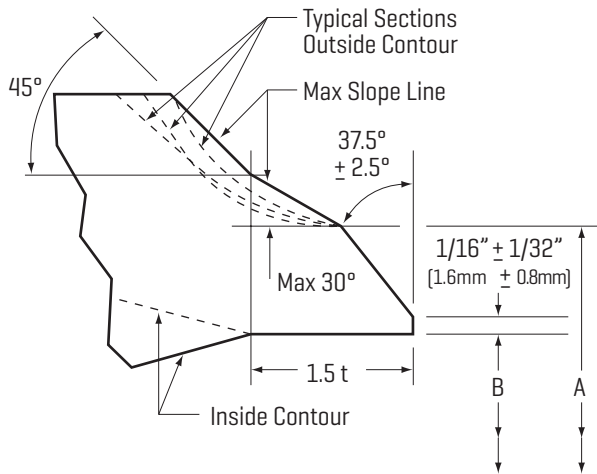
# Butt-welding Dimensions - ANSI B16.25

Nominal Pipe Size	Schedule Number or Wall	Outside Diameter (Cast Steel Valves) A		Nominal Inside Diameter B		Machined Inside Diameter C		Nominal Wall Thickness t	
		Inches	mm	Inches	mm	Inches	mm	Inches	mm
3	xxs	3-19/32	91.282	2.300	58.42	2.409	61.19	0.600	15.24
4	xxs	4-5/8	117.48	3.152	80.06	3.279	83.29	0.674	17.12
5	160	5-11/16	144.46	4.313	109.55	4.428	112.47	0.625	15.88
	xxs			4.063	103.20	4.209	106.91	0.750	19.05
6	120	6-25/32	172.34	5.501	139.72	5.600	142.24	0.562	14.27
	160			5.189	131.80	5.327	135.31	0.719	18.26
	xxs			4.897	124.38	5.072	128.83	0.864	21.95
8	100	8-23/32	223.04	7.439	188.93	7.546	191.67	0.594	15.09
	120			7.189	182.60	7.327	186.11	0.719	18.26
	140			7.001	177.83	7.163	181.94	0.812	20.62
	xxs			6.875	174.63	7.053	179.15	0.875	22.23
	160			6.813	173.05	6.998	177.75	0.960	23.01
10	50	10-15/16	277.81	9.564	242.93	9.671	245.64	0.594	15.09
	100			9.314	236.58	9.452	240.08	0.719	18.26
	120			9.064	230.23	9.234	234.54	0.844	21.44
	140			8.750	222.25	8.959	227.56	1.000	25.40
	160			8.500	215.90	8.740	222.00	1.125	28.58
12	60	12-31/32	329.41	11.626	295.30	11.725	297.82	0.562	14.27
	80			11.376	288.95	11.507	292.28	0.688	17.48
	100			11.064	281.03	11.234	284.34	0.844	21.44
	120			10.750	273.05	10.959	278.36	1.000	25.40
	140			10.500	266.70	10.740	272.80	1.125	28.58
	160			10.126	257.20	10.413	264.49	1.312	33.32
14	60	14-1/4	361.95	12.814	352.48	12.921	328.19	0.594	15.09
	80			12.500	317.50	12.646	321.21	0.750	19.05
	100			12.126	308.00	12.319	312.90	0.938	23.83
	120			11.814	300.08	12.046	305.97	1.094	27.79
	140			11.500	292.10	11.771	298.98	1.250	31.75
	160			11.188	284.18	11.498	292.05	1.406	35.71
16	60	16-1/4	412.75	14.688	373.08	14.811	376.20	0.656	16.66
	80			14.314	363.58	14.484	367.89	0.844	21.44
	100			13.938	354.03	14.155	359.54	1.031	26.19
	120			13.564	344.53	13.827	351.21	1.219	30.96
	140			13.124	333.35	13.442	341.43	1.438	36.53
	160			12.814	325.48	13.171	334.54	1.594	40.49
18	40	18-9/32	464.34	16.876	428.65	16.975	431.17	0.562	14.27
	60			16.500	419.10	16.646	422.81	0.750	19.05
	80			16.126	409.60	16.319	414.50	0.938	23.83
	100			15.688	398.48	15.936	404.50	1.156	29.36
	120			15.250	387.35	15.553	395.05	1.375	34.93
	140			14.876	377.85	15.225	386.72	1.562	39.67
	160			14.438	366.73	14.842	376.99	1.781	45.24
20	40	20-5/16	515.94	18.814	477.88	18.921	480.59	0.594	15.09
	60			18.376	466.75	18.538	470.87	0.812	20.62
	80			17.938	455.63	18.155	461.14	1.031	26.19
	100			17.438	442.93	17.717	450.01	1.281	32.54
	120			17.000	431.80	17.334	440.28	1.500	38.10
	140			16.500	419.10	16.896	429.16	1.750	44.45
	160			16.064	408.03	16.515	419.48	1.969	50.01
24	30	24-3/8	619.13	22.876	581.05	22.975	583.57	0.562	14.27
	40			22.626	574.70	22.757	578.03	0.688	17.48
	60			22.064	560.43	22.265	565.53	0.969	24.61
	80			21.564	547.73	21.827	554.41	1.219	30.96
	100			20.938	531.83	21.280	540.51	1.531	38.89
	120			20.376	517.55	20.788	528.02	1.812	46.02
	140			19.876	504.85	20.350	516.89	2.062	52.37
	160			19.314	490.58	19.859	504.42	2.344	59.54

# Butt-welding Dimensions - ANSI B16.25

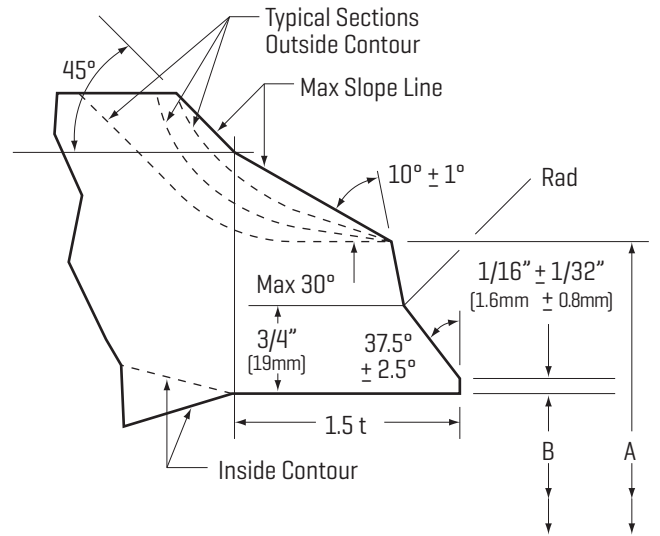
## Plain Bevel Butt-welding End for Pipe Wall Thickness is 7/8" [22.23mm] or less.

Welding end details for cast components for use without backing ring or with split backing ring.



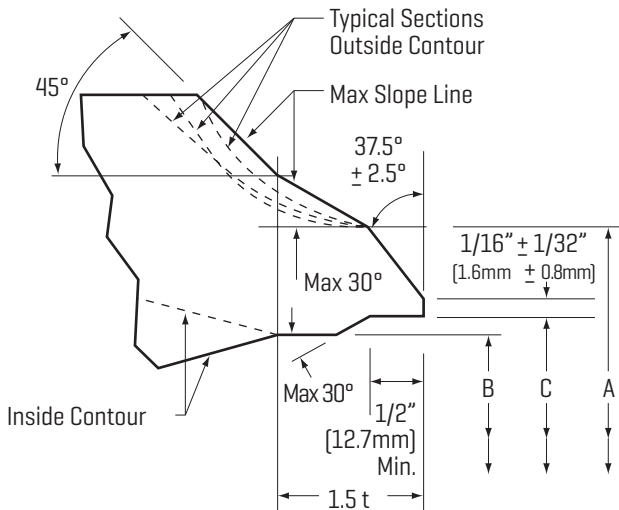
## Compound Bevel Butt-welding End for Pipe Wall Thickness Greater than 7/8" [22.23mm].

Welding end details for cast components for use without backing ring or with split backing ring.



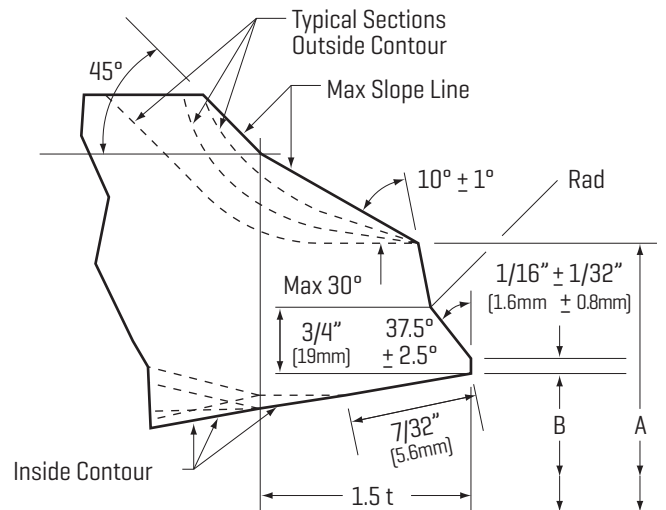
## Plain Bevel Butt-welding End for Pipe Wall Thickness is 7/8" [22.23mm] or less.

Welding end details for cast components for use with continuous rectangular or tapered backing ring.



## Compound Bevel Butt-welding End for Pipe Wall Thickness Greater than 7/8" [22.23mm].

Welding end details for cast components for use with continuous rectangular or tapered backing ring.



# Industry Standards for Valve Manufacturing

This information is for reference only.

## American Society of Mechanical Engineers (ASME)

ASME Code - Boiler & pressure vessel code  
ASME A13.1 - Scheme for the identification of piping systems  
ASME B1.1 - Unified inch screw threads, UN, & UNR thread form  
ASME B1.5 - ACME screw threads  
ASME B1.7M - Nomenclature, definitions, & letter symbols for screw threads  
ASME B1.8 - Stub ACME screw threads  
ASME B1.12 - Class 5 interference - fit thread  
ASME B1.20.1 - Pipe threads, general purpose, inch  
ASME B1.20.3 - Dry-seal pipe threads, inch  
ANSI/ASME B16.1 - Cast iron pipe flanges & flanged fittings  
ANSI/ASME B16.5 - Pipe flanges & flanged fittings: NPS 1/2" - 24"  
ASME B16.9 - Factory made wrought steel buttwelding fittings  
ANSI/ASME B16.10 - Face-to-face & end-to-end dimensions of valves  
ASME B16.11 - Forged fittings, socket welding & threaded  
ASME B16.20 - Metallic gaskets for pipe flanges: ring joint spiral wound & jacketed  
ASME B16.21 - Non-metallic flat gaskets for pipe flanges  
ASME B16.25 - Butt welding ends  
ANSI/ASME B16.33 - Manually operated metallic gas valves for use in gas piping systems up to 125 PSI (sizes NPS 1/2" - 2")  
ANSI/ASME B31.1 - Power piping  
ANSI/ASME B31.3 - Process piping  
ANSI/ASME B16.34 - Valves flanged, threaded & welding end  
ANSI/ASME B16.36 - Orifice flanges  
ANSI/ASME B16.38 - Large metallic valves for gas distribution (manually operated, NPS 2-1/2" - 12", 125 PSIG maximum)  
ANSI/ASME B16.42 - Ductile iron pipe flanges & flanged fittings: classes 150 & 300  
ANSI/ASME B16.47 - Large diameter steel flanges  
ANSI B17.1 - Keys & keyseats  
ANSI B18.2.2 - Square & hex nuts  
ASME B31.4 - Pipeline transportation systems for liquid hydrocarbons & other ammonia & alcohols  
ANSI/ASME B31.8 - Gas transmission & distribution piping systems  
ANSI/ASME B36.10 - Welded & seamless wrought steel pipe  
ANSI/ASME B36.19 - Stainless steel pipe  
ANSI FCI-2 - Control valve seat leakage

## American Society Non-destructive Test (ASNT)

ASNT-TC-1A - Recommended practice no. SNT-TC-1A 1996

## American Society for Testing and Materials (ASTM)

### American Petroleum Institute (API)

API RP 574 - Inspection practices for piping system components  
API 589 - Fire test for evaluation of valve stem packing  
API RP 591 - Process valve qualification procedure  
API 594 - Check valves-flanged, lug, wafer & buttwelding  
API 597 - Steel venturi gate valves, flanged, buttwelding ends  
API 598 - Valve inspection & testing  
API 599 - Metal plug valves - flanged, welding ends  
API 601 - Metallic gaskets for raised-face pipe flanges & flanged connections (double-jacketed corrugated & spiral wound)  
API 600 - Bolted bonnet steel gate valves for petroleum & natural gas industries "ISO adoption from ISO 10434"  
API 602 - Steel gate, globe, & check valves for sizes DN100 and smaller for the petroleum & natural gas industries  
API 603 - Corrosion-resistant, bolted bonnet gate valves-flanged & buttweld ends  
API 604 - Ductile iron gate valves, flanged ends  
API 605 - Large-diameter carbon steel flanges (nominal pipe sizes 26" - 60", classes 75, 150, 300, 400, 600, & 900 (replaced by ANSI/ASME B16.47)  
API 606 - Compact steel gate valves, extended body (included in API 602) fire test for soft-seated quarter-turn valves "ISO adoption from ISO 10497-5 2004"  
API 607 - Fire test for soft-seated quarter-turn valves "ISO adoption from ISO 10497-5 2004"  
API 608 - Metal ball valves, flanged, threaded, & welding ends  
API 609 - Butterfly valves-double flanged, lug- & wafer-type  
API RP 941 - Steel for hydrogen service at elevated temperatures & pressures in petroleum refineries & petrochemical plants  
API RP 520, Part 1 - Sizing, selection & installation of pressure relieving devices in refineries  
API RP 520, Part 2 - Sizing, selection & installation of pressure relieving devices in refineries  
API Spec 6A - Specification for wellhead & christmas tree equipment  
API Spec 6D - Specifications for pipeline valves  
API Spec 14D - Specifications for wellhead surface safety valves & underwater safety valves for offshore service  
API 5B - Threading, gauging thread inspection of coring, tubing, & line pipe threads  
API 6AM - Material toughness  
API 6FA - Fire test for valves  
API 6FC - Fire test for valves with backseats  
API 6FD - Specification for fire test for check valves  
API Q1 - Specification for quality programs for the petroleum, petrochemical, & natural gas

### National Association of Corrosion Engineers (NACE)

MR0175 - Sulfide stress cracking resistant metallic materials for oil field equipment  
MR0103 - Materials resistant to sulfide stress cracking in corrosive petroleum refining environments

### Canadian Standards Association

B51-97 - Boiler, pressure vessel, & pressure piping code  
Z245.15-96 - Steel valves  
CAN3-z299.4-85 - Quality assurance program - Category 4  
CAN3-z299.3-85 - Quality assurance program - Category 3

## British Standards Institute (BS)

BS 1414 - Gate, wedge & double disk valves: steel  
BS 1868 - Check valves: steel  
BS 1873 - Globe & check valves: steel  
BS 2080 - Flanged & butt weld end steel valves  
BS 5146 - (withdrawn) Replaced by BS 6755 p.1 steel valves testing [1986] & BS 6755 p.2 [1984]  
BS 5152 - Globe & check: cast iron  
BS 5153 - Check: cast iron  
BS 5159 - Ball: cast iron & carbon steel  
BS 5160 - Globe & check: steel  
BS 5163 - Gate, wedge & double disk: cast iron  
BS 5351 - Ball: steel  
BS 5352 - Globe & check: steel  
BS 5418 - (withdrawn) Replaced by BS EN 19 [1992] marking: general purpose industrial  
BS 5840 - Valve mating details for actuator operation  
BS 6364 - Cryogenic  
BS 6683 - Guide: installation & use of valves  
BS 6755: Part 1 - Specification for production pressure testing requirements  
BS 6755: Part 2 - Specification for fire type-testing requirements  
BS EN 19 - Marking of general purpose industrial valves

## International Organization for Standardization

ISO 5211/1 - Industrial valves- part-turn actuator attachments  
ISO 5211/2 - Part-turn valve actuator attachment-flange & coupling performance characteristics  
ISO 5211/3 - Part-turn valve actuator attachment-dimensions of driving components  
ISO 5752 - Metal valves for use in flanged pipe systems face-to-face & center-to-face dimensions  
ISO 9000 - Quality management systems and fundamentals & vocabulary  
ISO 10012-1 - Quality assurance requirements for measuring equipment

## Manufacturers Standardization Society

SP-6 - Standard finishes for contact faces of pipe flanges & connecting-end flanges of valves & fittings  
SP-9 - Spot facing for bronze, iron & steel flanges  
SP-25 - Standard marking system for valves, fittings, flanges & unions  
SP-42 - Class 150 corrosion resistant gate, globe, angle, & check valves with flanged & butt weld ends  
SP-44 - Steel pipeline flanges  
SP-45 - Bypass & drain connections  
SP-51 - Class 150/w corrosion resistant cast flanges & flanged fittings  
SP-53 - Quality standard for steel castings & forgings for valves, flanges, & fittings & other piping components: magnetic particle exam method  
SP-54 - Quality standard for steel castings for valves, flanges, & fittings and other piping components: radiographic examination method  
SP-55 - Quality standard for steel castings for valves, flanges other piping components-visual method for evaluation of surface irregularities  
SP-60 - Connecting flange joint between tapping sleeves & tapping valves  
SP-61 - Pressure testing of steel valves  
SP-65 - High pressure chemical industry flanges & threaded stubs for use with lens gaskets  
SP-67 - Butterfly valves  
SP-69 - ANSI/MSS edition pipe hangers & supports, selection & application  
SP-70 - Cast iron gate valves, flanged & threaded ends  
SP-71 - Gray iron swing check valves, flanged & threaded ends  
SP-72 - Ball valves with flanged or butt-welding ends for general service  
SP-79 - Socket-welding reducer inserts  
SP-81 - Stainless steel, bonnetless, flanged knife gate valves  
SP-82 - Valve pressure testing methods  
SP-84 - Valves - socket welding & threaded ends  
SP-85 - Cast iron globe & angle valves, flanged & threaded ends  
SP-86 - Guidelines for metric data in standards for valves, flanges, fittings & actuators  
SP-88 - Diaphragm valves  
SP-91 - Guidelines for manual operation of valves  
SP-92 - MSS valve user guide  
SP-93 - Quality standard for steel castings & forgings for valves, flanges & fittings & other piping components-liquid penetrant exam method  
SP-94 - Quality standard for ferritic & martensitic steel castings for valves, flanges, & fittings and others piping components - ultrasonic exam method  
SP-96 - Guidelines on terminology for valves & fittings  
SP-98 - Protective coatings for the interior of valves, hydrants, & fittings  
SP-99 - Instrument valves  
SP-101 - Part-turn valve actuator attachment-flange and driving component dimensions & performance characteristics  
SP-102 - Multi-turn valve actuator attachment: flange and driving component dimensions & performance characteristics  
SP-110 - Ball valves threaded, socket-welding, solder joint, grooved, & flared ends  
SP-117 - Bellows seals for globe & gate valves  
SP-118 - Compact steel globe and check valves-flanged, flangeless, threaded & welding ends (chemical & petroleum refinery service)  
SP-120 - Flexible graphite packing system for rising stem steel valves (design requirements)  
SP-121 - Qualification testing methods for stem packing for rising stem steel valves

# Terms & Conditions

## Quotation Validity

This quotation is valid for 30 days from the date quotation is sent. Validity on special metals, including Stainless Steel, is 14 days from the date the quotation is sent. All products offered from stock are subject to prior sale.

## Shipments

All items quoted are EXW our Dock - [Ex Works - SCV Valve Facility Santa Fe, Texas 77510] - unless otherwise noted and agreed to in writing. Shipment may be billed either third party billing to the buyer or freight collect. Shipment dates offered above are forecasted delivery lead times and are estimated from the date payment terms [acceptable to seller] are established, clarification is received on all technical information, and resolution of customer's written approval of drawings is received [when required]. The equipment quoted shall be packed in accordance with seller's standard packing procedure unless otherwise noted and agreed to in writing by the seller.

## Force Majeure

If in the case of an act of God, war, riot, fire, explosion, flood, or any other circumstances of whatsoever nature which are beyond the control of the seller and which in any way affect the ability of the seller to fulfill its delivery obligations, the delivery is hindered, impeded, or delayed the seller shall be exonerated from all responsibilities and reserves the right to postpone the delivery beyond the original schedule.

## Payment terms

All terms are to be negotiated. Credit cards accepted [Master Card, Visa, American Express].

## Purchase Orders

All buyer's purchase orders supplied to the seller are to be written in the English language.

## Prices

All prices quoted are in USD as per the preceding pricing schedule. The minimum order value is \$5,000.00 [five thousand dollars], unless otherwise agreed to by seller. If for some reason any items are changed or additions to the order required, seller reserves the right to adjust prices accordingly. All sales are subject to approval of seller's credit department. If buyer fails to meet the agreed upon and established commercial terms of the contract, the seller may with-hold all subsequent deliveries until such time that the original commercial terms of the contract have been met by the buyer [or subsequent commercial terms have been agreed upon by the seller with the buyer].

## Intellectual Property

All specifications, illustrations, drawings, certificates, and other particulars supplied by seller remain the intellectual property of the seller and should not be disclosed to any third party without the prior written consent of seller.

## Governing Law; Arbitration; Jurisdiction

The terms and conditions of this quotation and any subsequent purchase order shall be construed, interpreted, and performed exclusively according to the laws of the State of Texas, USA. The courts of such state shall have exclusive jurisdiction out of all controversies arising out of or in connection with this agreement. The parties consent that process may be served upon them in any such action by registered mail at the address stated for Buyer on its purchase order, and upon SCV Valve at the address noted above in Santa Fe, Texas, or personally within or without the State of Texas. Any legal action with respect to any agreement must be commenced within one year after the cause of action has accrued. The provisions of the Uniform Commercial Code as adopted by the State of Texas, and not under the United Nations Convention on Contracts for the International Sale of Goods, shall apply.

## Warranty

All seller's products are guaranteed against defects in workmanship for a period of twelve [12] months after being placed in service, but not exceeding eighteen [18] months after shipment, when products are properly installed per seller specifications and used within the service and pressure range for which they were manufactured. Full risk of loss shall pass to the buyer upon delivery at FOB point, or destination port in case of CIF. This guarantee is limited to the replacement of any valve parts/components found to be defective either in material or workmanship. This guarantee does not extend to costs of labor, freight, or any other consequential charges. The unauthorized use of third party components and workmanship in seller's products voids this warranty.

## Limitation of Liability

The liability of the seller under this agreement or with respect to any products supplied or services performed pursuant to this agreement, whether in contract, in tort, in strict liability or otherwise, shall not exceed the purchase price paid by the buyer with respect thereto. In no event will the seller be liable in contract, in tort, in strict liability or otherwise for any special, indirect, incidental, or consequential damages. This is including but not limited to loss of anticipated profits or revenues, loss of use, non-operation or increased expense of operation of equipment, cost of capital, or claims from customer or buyer for failure or delay in achieving anticipated profits or products.

## Cancellation

No contract may be canceled by the buyer except upon written notice to seller and upon payment to seller of all costs incurred by the contract arising out of, or in connection with, the contract. Export of goods covered hereby is subject to United States Customs Control. Standard stocking items will be subject to a twenty-five percent [25%] restocking and/or cancellation charge. Non-standard stocking items will be subject to a one-hundred percent [100%] restocking and/or cancellation charge.

## Cancellation Charge

The following indicates the rates of cancellation charge of contract value for project manufactured items and/or special engineered items at various stages of production:

- |   |                                  |
|---|----------------------------------|
| • Time of cancellation: Order Acknowledgement and prior to Engineering engagement.          | <b>Cancellation Charge: 10%</b>  |
| • Time of cancellation: After start of engineering but prior to release to production.      | <b>Cancellation Charge: 30%</b>  |
| • Time of cancellation: After release to production but prior to completion of fabrication. | <b>Cancellation Charge: 80%</b>  |
| • Time of cancellation: After completion of fabrication.                                    | <b>Cancellation Charge: 100%</b> |

## Return of Goods

No product shall be returned to seller without written authorization and shipping instructions having been obtained from seller. Products authorized for returns are to be shipped freight pre-paid to the SCV Valve Facility identified in writing, unless otherwise notified, and are subject to seller's standard re-stocking fees.

## Documentation

MTR's are available at no charge upon request. The seller's standard document package is per ISO 10474 3.1B requirements. Additional requested documentation is subject to charge.

## Inspection

The customer or his authorized representative may, with four [4] weeks prior notice given to seller, visually inspect products manufactured by seller. Such seller approved inspections will be carried out in accordance with seller's standard or seller approved customer inspection procedures. If any inspection or documentation requested by the customer is over and beyond the scope and criteria initially agreed to by the seller, any costs incurred by conducting such inspection or preparation of special documents shall be paid by the buyer prior to release of the items for shipment.

## Witness Hydro-testing

Witness hydro-testing is available at a cost. A scope of buyers inspection request is to be provided to seller at order placement. Late notice of such requested inspection is subject to additional costs. The cost associated with such witness hydro request is to be agreed on prior to any such testing taking place. Payment of this type of testing to be negotiated. Additionally, any costs associated with a third party inspector will not be at the sellers expense.

The SCV valve brand was established in 1972 as a maintenance and modification company with the ability to provide full in-line valve service and repair. In the mid-1970's, after experiencing many shortcomings of other valve products in the industry, the first SCV valve was manufactured. Since that time, the SCV brand has been expanded its manufactured products to cover a broad range of valves. Industries served include the power, paper and pulp, oil and gas, and petro-chemical sectors.

SCV Valve takes sincere pride in our ability to manufacture both commodity and specialty valves that meet and exceed the needs of our customers. All sizes, pressure classes, and metallurgical compositions are managed in house utilizing the strictest quality control measures to ensure the customer's total satisfaction.

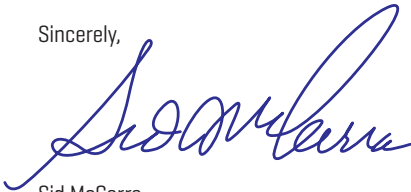
SCV Valve products include thru conduit gates, trunnion mounted balls, floating balls, wedge gates, full port swing checks, piston checks, and lubricated plugs. Valves utilized throughout the industry must meet rigorous quality and production standards.

SCV Valve has earned its API 6A, API 6D, ISO: 9001, CE-PED, and CRN certifications while operating under the API Q1 Quality Management System.

With years of dedication and commitment to quality, design, and service, SCV Valve has grown to be one of the premier valve manufacturers in the industry with the largest inventory of high pressure ball, gate, and check valves. We pride ourselves on our high quality products, timely delivery capabilities, and competitive prices.

On behalf of all of the members at SCV Valve, we thank you for the opportunity to earn your business.

Sincerely,



Sid McCarra

President

SCV Valve, LLC

Since 1972, the SCV brand has been committed to providing quality flow control products to the Power, Paper & Pulp, Oil & Gas, and Petro Chemical industries.

As one of the largest valve manufacturers, SCV Valve's reputation is unparalleled for producing high quality commodity and specialty valves. Products range in sizes 1/2" - 48", in pressure classes from 150# - 2500# and are backed by timely deliveries and competitive prices.

Call SCV today at [281]482-4728 for all your valve needs or visit us on the web @ [www.scvvalve.com](http://www.scvvalve.com).

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Santa Fe, TX 77510

**Phone:** [281] 482-4728

**Fax:** [281] 482-9728

**Hours:** 8:00 a.m. to 5:00 p.m. Central Standard

**Email:** [sales@scvvalve.com](mailto:sales@scvvalve.com)



**SCV VALVE**

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