



## **2-Piece Flanged Floating Ball Valves**

Class: 150 - 1500 Sizes: 1/2" - 10"



















dependable cast and forged steel Ball Valves in the industry. Our products are manufactured and tested in accordance with respective API, ASME, and ANSI standards. With features such as double block and bleed capabilities, secondary sealant injections, and spring energized self relieving seats, the SCV design offers many features and options beneficial for oil, gas, and liquid applications making it one of the most preferred ball valves on the market.

Innovative valve solutions.®

[ Product Preview ]

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

## 2-Piece Flanged Floating Ball Valves

- Basic Design: ANSI/ASME B16.34, conforms to API 6D
- Inspection & Testing: API 598
- Flange Dimensions: ANSI/ASME 16.5 (1/2" 10")
- Face-to-Face: ANSI/ASME B16.10
- Fire Safe: API 607/BS 6755

## 3-Piece Trunnion Ball Valves - API 6A

- Basic Design: API 6A
- Inspection and Testing: API 6A
- Flange Dimensions: API 6A
- Face-to-Face: API 6A
- Fire Safe: API 607/BS 6755

## 3-Piece Trunnion Ball Valves - API 6D Bolted & Welded Body Construction

- Basic Design: API 6D
- Inspection and Testing: API 6D
- Flange Dimensions: 1" 24" ANSI/ASME B16.5 (2" 24"); 26" & up ANSI/ASME B16.47
- Face-to-Face: Flanged ANSI/ASME B16.10; Buttweld ANSI/ASME B16.25
- Fire Safe: API 607/BS 6755



**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.



Southern California Valve's product lines include commodity valves as well as specialty valves in all Sizes, Pressure Classes & Metallurgy; including Carbon Steel, Stainless Steel & Exotic Alloys. The valve types include Gate, Globe, Swing Check - Bolted Bonnet & Pressure Seal Bonnet, Ball - floating, trunnion, rising stem, Thru-Conduit Gate - slab and expanding, Swing Check - Full and Regular Port, Lubricated Plugs, Dual Plate Checks - wafer and flanged. Southern California Valve's High Quality Standards demand 100% pressure testing of every valve to insure its reliability and full customer satisfaction.

At Southern California Valve, we pride ourselves with high quality products in the commodity and specialty valve lines, as well as, timely deliveries, and competitive prices.

## Company History

Southern California Valve was established in 1972. The primary focus of the Company was to provide full inline field service for valve maintenance as well as in house valve modifications. While serving the Power Industry, Paper & Pulp, Oil & Gas, and the Petro Chemical Industry; through years of dedication and commitment to quality and service, Southern California Valve has become one of the largest West Coast full range, field service companies, with a reputation for superior quality.

In the mid 1970s, Southern California Valve entered the valve manufacturing industry, primarily serving the Power Industry. Since that time, Southern California Valve has expanded their products to cover a broad range of valves. Southern California Valve holds the API 6A & API 6D Monogram, API Q1 Quality Management System, and ASME "R" stamp. The Corporate office and manufacturing facility is located in Santa Fe Springs, California. The Sales and Projects office is located in Friendswood, Texas.

## Mission Statement

Southern California Valve is committed to consistently providing products that meet or exceed customer and regulatory specifications. SCV aims to enhance customer satisfaction through implementing the highest levels of quality standards while assuring full conformity to those requirements.

## **Table of Contents**

	Page
Table of Contents	1
Complete Product Line	
· Certifcations	3
American Petroleum Institute (API)	
• ISO 9001:2008	
Canadian Registration Numbers	
• CE PED	
Figure Number Chart	4 & 5
Technical Data for Optional Seal & Seat Selections	6
Seal & Seat Pressure Temperaure Chart	7
Valve ID Tag & Valve Markings Identification	8
2-PIECE FULL PORT FLANGED FLOATING BALLS	9
Expanded View	10
Bill of Materials & Features	11
150 Class Full Port	12
150 Class Reduced Port	13
300 Class Full Port	14
300 Class Reduced Port	15
600 Class Full Port	16
600 Class Reduced Port	17
1500 Class Full Port	18
Cv Values	19
Operating Torques	19
Pressure Temperature Ratings	20, 21, & 22
Flange Dimensions	24 & 25
Industry Standards for Valve Manufacturing	26
Terms and Conditions	27

## SCV Figure Number Chart Note: SCV Figure Chart is subject to change without notice.



	5 61		- 1 /s		
Valve Type	Bore Size	Pressure Class	Body/Bonnet	Body Material	Trim Material
BAL = Ball	.02 = 1/16"	.5 = 50	B = Bolted	01 = Cast Iron	10 = CR13
DBV = Double Ball Valve	.03 = 1/8"	.7 = 75	L = Lug	02 = A352/LCC	11 = CR13/HF
DCK = Dual Wafer Check	.25 = 1/4"	01 = 150	N = NRS Bolted	03 = A352/LC2	12 = CR13 HF/HF
DSP = Dual Seal Plug	.50 = 1/2"	02 = 200	P = Pressure Seal	04 = CF8	13 = A105/ENP
FCK = Full Port Check	.07 = 9/16"	03 = 300	S = Seal Weld	05 = Ductile	14 = Steel/Chrome
GAT = Gate	.08 = 13/16"	04 = 400	T = Top Entry	06 = CF8M	15 = LF2/ENP
GLB = Globe	.75 = 3/4"	06 = 600	U = Union	08 = A216 WCC	16 = 416
PCK = Piston Check	01 = 1"	08 = 800	W = Wafer	09 = WC9/F22	17 = 17 4-PH
PLG = Plug	1.2 = 1-1/16"	09 = 900	Y = Y-Pattern	10 = A216 WCB	20 = Alloy 20
RSB = Rising Stem Ball	1.3 = 1-1/8"	12 = 125		11 = A352 LCB	21 = Alloy 20/HF
SCK = Swing Check	1.4 = 1-1/4"	15 = 1500		12 = A350 LF2	22 = F-22
TCG = Thru Conduit Gate	1.5 = 1-1/2"	17 = 175		13 = A105	25 = Inconel Overlay
TCK = Tilting Disc Check	1.8 = 1-13/16"	20 = 2000		14 = LC3/LF3	28 = Sanicro 28
WCK = Wafer Check	02 = 2"	25 = 2500		15 = A217 C5	30 = 4130
	2.2 = 2-1/16"	30 = 3000		16 = WC6/F11	31 = 321
	2.3 = 2-1/8"	45 = 4500		17 = 17-4 PH	32 = 316L
	2.5 = 2-1/2"	50 = 5000		18 = LF6	33 = 304/HF
	2.7 = 2-9/16"	60 = 6000		19 = LF4	34 = 304
	03 = 3"	10 = 10000		20 = Alloy 20	35 = 316/HF
	3.3 = 3-16"	05 = 15000		22 = F-22	36 = 316
	04 = 4"	37 = 3705		24 = 254 SMO	37 = 317/HF
	4.2 = 4-1/16"			25 = F5	38 = 317
	05 = 05"			26 = F91	39 = 1040
	06 = 06"			27 = C12A	41 = 410/F6a
	08 = 08"			28 = Sanicro 28	42 = Full Teflon
	10 = 10"			29 = C12/F9	44 = F44 Duplex
	12 = 12"			30 = AISI 4130	47 = 347
	14 = 14"			31 = 321	48 = 347/HF
	16 = 16"			32 = 321L	49 = Carpenter
	18 = 18"			33 = 304L	50 = Monel
	20 = 20"			34 = 304	51 = F51 Duplex
	22 = 22"			35 = 316L	52 = Nickel Alloy
	24 = 24"			36 = 316	53 = F53 Duplex
	26 = 26"			37 = 317L	54 = A516/ENP 55 = F55 Duplex
	30 = 30"			38 = 317	
	32 = 32"			40 = AISI 4140	56 = A36/ENP
	36 = 36"			41 = 410/F6a	57 = A537/ENP
	40 = 40"			44 = F44 Duplex	60 = Duplex
	42 = 42"			47 = 347	61 = Super Duplex
	48 = 48"			48 = 347L	62 = Inconel 625
	50 = 50"			49 = Carpenter	63 = Inconel 600
	54 = 54"			50 = Monel	69 = Naval Brass
	60 = 60"			51 = F51 Duplex	70 = Bronze
	72 = 72"			52 = Nickel Alloy	71 = Aluminum
	78 = 78"			53 = F53 Duplex	78 = Inconel 718
	72 = 72"			54 = ASTM A516	80 = Alu/Brz
	78 = 78"			55 = F55 Duplex	81 = Ni Alu/Brz
				56 = ASTM A36	82 = Inconel 825
				57 = ASTM A537	83 = Hastelloy
				60 = Duplex	86 = 8026
				61 = Super Duplex	87 = 487
				62 = Inconel 625	90 = Titanium
				63 = Inconel 600	91 = Tantalum
				65 = F65	92 = Inconel 925
				69 = Naval Brass	93 = Tungsten Carbide
				70 = Bronze	96 = Zirconium
				71 = Aluminum	97 = Nickel Boron
				78 = Inconel 718	
				80 = Alu Bronze	
				81 = Ni Alu/Brz	
				82 = Inconel 825	
				83 = Hastelloy B	
				84 = Hastelloy C	
				86 = AISI 8026	
				87 = 487	
				90 = Titanium	
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Ends	Operation	Configuration	Seal Material	Seat Material	Special
C = Clamp	B = Bare Stem	32 = 3 Way 2 Port	4 = 304 Ring	D = Devlon	By Pass
F = Flat	D = Dual Acting	3F = 3 Way Floater	6 = 316 Ring	G = Graphite	Cadium Coat
H = Hub	E = Electric	3T = 3 Way Trunnion	B = Buna	K = PCTFE	Cryogenic
J = RTJ	G = Gear	43 = 4 Way 3 Port	E = EPDM	M = Metal Seated	Epoxy Paint
N = Nipples	H = Handwheel	4F = 4 Way Floater	F = Fluorosilicone	N = Nylon	Lip Seal
$M = SW \times TH$	L = Lever	4T = 4 Way Trunnion	G = Grafoil	O = Nova	Metal Hardface
O = ODD	O = Oil/Gas	EX = Expanding	H = HNBR	P = PEEK	Metal Tungsten Carbide
R = RF	S = S/Return	FF = Full Floater	K = Kalrez	R = RPTFE	Nitride
S = SW	Y = Hydraulic	FT = Full Trunnion	N = Neoprene	T = Teflon	Outside WT
T=TH		RF = Red, Floater	P = Polyuerethane		QPQ Inturnal
W = WE		RT = Red, Trunnion	R = NBR		Slam Retard
$A = RF \times BW$		SJ = Steam Jacket	S = Silicone		Stancoat
$B = RTJ \times BW$			T = Teflon		Sub Sea
			U = Floursint		Teflon Lined
			V = Viton		Top Extension
					Zinc Base

## **Figure Number Profile**

1 BAL 02 01 B 13 6 7 8 9 10 11 12 X

No.	Figure Number Code	Description
1	Valve Type	Identifies the valve body design (gate, globe, ball, plug, etc.)
2	Bore Size	Identifies nominal port size (1/4" to 78")
3	Pressure Class	Identifies pressure classes ranging from 50 to 15,000
4	Body/Bonnet	Identifies body and bonnet material configuration (bolted bonnet, pressure seal, top entry, etc.)
5	Body Material	Identifies body material composition (A105, WCB, Stainless Steel, F51, etc.)
6	Trim Material	Identifies trim material composition (ENP, 316, F6, Cr13, HF, etc.)
7	Ends	Identifies end connection configuration (weld end, RTJ, socket weld, hub, etc.)
8	Operation	Identifies valve operation mechanism (electric, gear, hydraulic, lever, etc.)
9	Configuration (ball & expanding gate only)	Identifies valve configuration (floater, trunnion, etc.)
10	Seal Material	Identifies seal material composition (Buna, EPDM, Grafoil, HNBR, Neoprene, Teflon, etc.)
11	Seat Material	Identifies seat material composition (Devlon, Graphite, PCTFE, Nylon, PEEK, Teflon, etc.)
12	Special	Identifies special treatments or configurations (when applicable)

## **Sample Figure Numbers & Descriptions**

Valve Type	Sample Figure #	Description
Trunnion Ball	BAL0201B1313RLFT-HD	Ball Valve, 2", 150#, Bolted Bonnet, A105 Body, ENP Trim, HNBR Seals, Devlon Seats, Raised Face, Lever Operated, Full Port, Trunnion Mtd.
Floating Ball	BAL0201B1036RLFF-/T	Ball Valve, 2", 150#, Bolted Bonnet, A216 WCB Body, 316SS Trim, PTFE Seats, Raised Face, Lever Oper., Full Port, Floating Ball
Dual Plate Wafer Check	DCK0406W1035R	Dual Plate Wafer Check, 4", 600#, Wafer Style, A216 WCB Body, 316SS/HF Trim, Raised Face
Full Port Swing Check	FCK0409B1011J	Full Port Swing Check, 4", 900#, Bolted Bonnet, A216 WCB Body, Cr13/HF Trim, Ring Type Joint
Wedge Gate	GAT0303P1035RH	Wedge Gate, 3", 300#, Pressure Seal, WCB, 316SS/HF Trim, Raised Face, Hand Wheel Operated
Globe	GLB0803B1011RH	Globe, 8", 300#, Bolted Bonnet, WCB, Cr13/HF Trim, Raised Face, Hand Wheel Operated
Swing Check	Swing Check SCK0601B1036R Swing Check, 6", 150#, Bolted Bonnet, WCB, Cr13/HF Trim, Raised Face	
Lubricated Plug	PLG0803B1041RL-VM	Lubricated Plug Valve, 8", 300#, Bolted Bonnet, WCB, 410SS Trim, Viton Seals, Hardface Seats, Raised Face, Lever Operated
Dual Seal Plug	DSP0803B1011RG	Dual Seal Plug, 8", 300#, bolted Bonnet, WCB, Cr13/HF Trim, Raised Face, Gear Operated
Thru Conduit Gate	TCG0603B1036RG-VM	Thru Conduit Gate, 6", 300#, Bolted Bonnet, WCB, 316SS Trim, Viton Seals, Hardface Seats, Raised Face, Gear Operated
Expanding Gate	TCG0603B1036RGEX-VM	Thru Conduit Gate, 6", 300#, Bolted Bonnet, WCB, 316SS Trim, Viton Seals, Hardface Seats, Raised Face, Gear Operated, Expanding
Rising Stem Ball	RSB1006B1036RG-/R	Rising Stem Ball, 10", 600#, Bolted Bonnet, WCB Body, 316SS Trim, RPTFE Seats, Raised Face, Gear Operated

## **SCV Figure Number Chart**



Valve Type	Bore Size	Pressure Class	Body/Bonnet	Body Material	Trim Material
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		.5 = 50			10 = CR13
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	03 = 3"	10 = 10000		20 = Alloy 20	35 = 316/HF
	3.3 = 3-16"	05 = 15000		22 = F-22	36 = 316
	04 = 4"			24 = 254 SMO	37 = 317/HF
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				82 = Inconel 825	
				83 = Hastelloy B	
				84 = Hastelloy C	
				86 = AISI 8026	
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				90 = Tranium 91 = Tantalum	
				96 = Zirconium	
				90 – ZIICOHIUM	

## **SCV Figure Number Chart**







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Ends	Operation	Configuration	Seal Material	Seat Material	Special
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J = RTJ	G = Gear	43 = 4 Way 3 Port	E = EPDM	M = Metal Seated	Epoxy Paint
N = Nipples	H = Handwheel	4F = 4 Way Floater	F = Fluorosilicone	N = Nylon	Lip Seal
$M = SW \times TH$	L = Lever	4T = 4 Way Trunnion	G = Grafoil	O = Nova	Metal Hardface
O = ODD	O = Oil/Gas	EX = Expanding	H = HNBR	P = PEEK	Metal Tungsten Carbide
R = RF	S = S/Return	FF = Full Floater	N = Neoprene	R = RPTFE	Nitride
S = SW	Y = Hydraulic	FT = Full Trunnion	P = Polyuerethane	T = Teflon	Outside WT
T=TH		RF = Red, Floater	R = NBR		QPQ Inturnal
W = WE		RT = Red, Trunnion	S = Silicone		Slam Retard
		SJ = Steam Jacket	T = Teflon		Stancoat
			U = Floursint		Sub Sea
			V = Viton		Teflon Lined
					Top Extension
					Zinc Base

## **Figure Number Profile**

1 BAL 02 01 B 13 13 R L FT - H D X

No.	Figure Number Code	Description
1	Valve Type	Identifies the valve body design (gate, globe, ball, plug, etc.)
2	Bore Size	Identifies nominal port size (1/4" to 78")
3	Pressure Class	Identifies pressure classes ranging from 50 to 15,000
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5	Body Material	Identifies body material composition (A105, WCB, Stainless Steel, F51, etc.)
6	Trim Material	Identifies trim material composition (ENP, 316, F6, Cr13, HF, etc.)
7	Ends	Identifies end connection configuration (weld end, RTJ, socket weld, hub, etc.)
8	Operation	Identifies valve operation mechanism (electric, gear, hydraulic, lever, etc.)
9	Configuration (ball & expanding gate only)	Identifies valve configuration (floater, trunnion, etc.)
10	Seal Material	Identifies seal material composition (Buna, EPDM, Grafoil, HNBR, Neoprene, Teflon, etc.)
11	Seat Material	Identifies seat material composition (Devlon, Graphite, PCTFE, Nylon, PEEK, Teflon, etc.)
12	Special	Identifies special treatments or configurations (when applicable)

## **Sample Figure Numbers & Descriptions**

Valve Type	Sample Figure #	Description
Trunnion Ball BAL0201B1313RLFT-HD		Ball Valve, 2", 150#, Bolted Bonnet, A105 Body, ENP Trim, HNBR Seals, Devlon Seats, Raised Face, Lever Operated, Full Port, Trunnion Mtd.
Floating Ball	BAL0201B1036RLFF-/T	Ball Valve, 2", 150#, Bolted Bonnet, A216 WCB Body, 316SS Trim, PTFE Seats, Raised Face, Lever Oper., Full Port, Floating Ball
Dual Plate Wafer Check	DCK0406W1035R	Dual Plate Wafer Check, 4", 600#, Wafer Style, A216 WCB Body, 316SS/HF Trim, Raised Face
Full Port Swing Check	FCK0409B1011J	Full Port Swing Check, 4", 900#, Bolted Bonnet, A216 WCB Body, Cr13/HFTrim, Ring Type Joint
Wedge Gate	GAT0303P1035RH	Wedge Gate, 3", 300#, Pressure Seal, WCB, 316SS/HF Trim, Raised Face, Hand Wheel Operated
Globe	GLB0803B1011RH	Globe, 8", 300#, Bolted Bonnet, WCB, Cr13/HF Trim, Raised Face, Hand Wheel Operated
Swing Check	SCK0601B1036R	Swing Check, 6", 150#, Bolted Bonnet, WCB, Cr13/HF Trim, Raised Face
Lubricated Plug	PLG0803B1041RL-VM	Lubricated Plug Valve, 8", 300#, Bolted Bonnet, WCB, 410SS Trim, Viton Seals, Hardface Seats, Raised Face, Lever Operated
Dual Seal Plug	DSP0803B1011RG	Dual Seal Plug, 8", 300#, bolted Bonnet, WCB, Cr13/HF Trim, Raised Face, Gear Operated
Thru Conduit Gate	TCG0603B1036RG-VM	Thru Conduit Gate, 6", 300#, Bolted Bonnet, WCB, 316SS Trim, Viton Seals, Hardface Seats, Raised Face, Gear Operated
Expanding Gate	TCG0603B1036RGEX-VM	Thru Conduit Gate, 6", 300#, Bolted Bonnet, WCB, 316SS Trim, Viton Seals, Hardface Seats, Raised Face, Gear Operated, Expanding
Rising Stem Ball	RSB1006B1036RG-/R	Rising Stem Ball, 10", 600#, Bolted Bonnet, WCB Body, 316SS Trim, RPTFE Seats, Raised Face, Gear Operated

## **Technical Data for Optional Seal & Seat Selections**

## **Optional Seal Selections**

Code	Material	Description
В	BUNA	Also called Buna N or Nitrile, this sealing material is widely used because of its compatability with most hydraulic fluid media, including petroleum oils, water, water glycol, Di-Ester based fluids, air, and inactive gases. The temperature of this material ranges from -54C to +135C (-65F to +275F).
N	NEOPRENE	This sealing material is excellent for refrigerants, amonia, and freon. Its temperature range is from -37C to +107C (-35F to +225F).
E	EPDM	Also called Ethylene-Propylene, this sealing material is recommended for low pressure steam, hot water, phosphate ester base fluid, weak alkalines, and acids. This material is not recommended for petroleum service, hydrocarbons, alchohol, and radiation. Its temperature range is -54C to 149C (-65F to +250F).
v	VITON	Also called Fluorocarbon Rubber (FKM), this material is known for being excellent in condition up to +204C (+400F). Viton offers excellent resistence to aggressive fuels and chemicals.
Т	PTFE	Teflon has excellent resistence to a wide range of chemicals. It is excellent at pressures below 1500 PSI. It can withstand temperatures up to +204C(+400F).
R	NBR	NBR is typically resistant to mineral oil-based lubricants and greases, hydraulic fluids, hydrocarbons, and water. NBR is not resistant to polar solvents or chlorinated hydrocarbons. The material's temperature range is from -30C to +100C (-22F to +212F).
н	HNBR	HNBR is simply hydrogenated NBR. It is typically resistant to mineral oil-based lubricants and greases, hydraulic fluids, hydrocarbons, and water just like NBR. HNBR is more resistent to heat, o-zone, and aging than NBR. The material's temperature range is from -30C to +100C (-22F to +212F).
s	SILICONE	This material is capable of operating in a wide temperature range and has excellent resistence to o-zone, water, weathering, and aging. This material is generally not resistent to fuels, oils, steams, acids, or high pressures. This materials temperature range is from -65C to +250C (-85F to +482F).
F	FLUOROSILICONE	This material is far more resistent to oils and fules than other silicones. The temperature range, however, is limited from -73C to +177C (-100F to +350F).
G	GRAPHOIL	Grafoil is chemically resistant to attack from nearly all organic and inorganic fluids with exception of highly oxidizing chemicals and highly concentrated oxidizing mineral acids. The material is good up to +538C (+1000F) as well as at cryogenic temperatures.
U	FLUORSINT	This material contains a mica filler and offers superb mechanical properties such as resistence to abrasion, wear, and extrusion. It is ideal for high pressure applications and offers low co-efficient of friction. Its temperature range is from -46C to +343C (-50F to +650F).

Note: Additional options available upon request

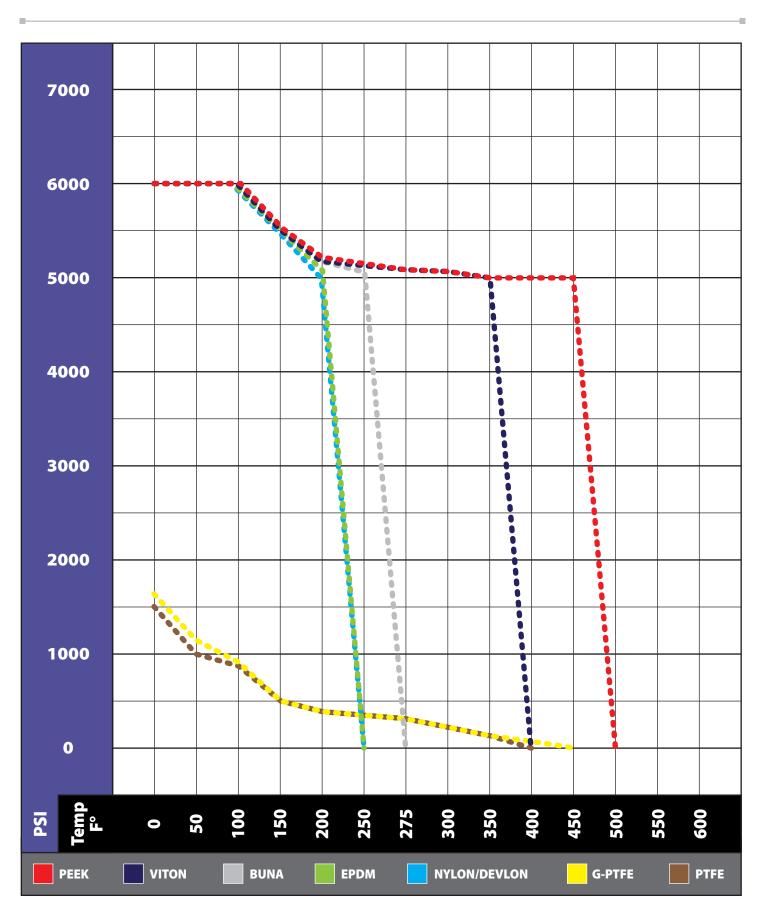
## **Optional Seat Selections**

Code	Material	Description
D	DEVLON	Devlon is a polyamide with additives which allow it to perform at -46C to +121C (-50F to +250F). This material covers a wide range of applications while having excellent wear poperties, low friction, and improved impact strength.
M-S	METAL (STELLITE)	Metal seats hardfaced with Stellite 6 are recommended for use in high temperature fluid and gas applications. The temperature range of the material allows it to get up to the maximum temperature of the valve body material.
м-тс	METAL (TUNGSTEN CARBIDE)	Metal seats hardfaced with Tungsten Carbide are recommended for use in high temperature fluid and gas applications. The temperature range of the material allows it to get up to the maximum temperature of the valve body material.
N	NYLON	Nylon is offered for high pressure applications. The material is ideal for use in high pressure air, oil, and other gas media but is not suitable for strong oxidizing agents. The temperature range of this material is -34C to +121C (-29F to +250F).
О	NOVA	This Teflon based product is filled with glass amorphous carbon powder and graphite. It has a lower thermal contraction-expansion than PTFE and is ideal for steam or thermal fluid applications up to +288C (+550F).
P	PEEK	Peek offers a unique combination of chemical, mechanical, and thermal properties. This material is excellent for high temperatures up to +260C (+500F).
Т	TEFLON (VIRGIN PTFE)	PTFE is a fluorocarbon-based polymer. This material has excellent chemical resistance and co-efficient of friction. The material is not recommended for liquid alkalis and flourine. Its temperature range is good from -34C to +204C (-30F to +400F).
К	PCTFE	Kel-F is a fluorocarbon based polymer offering a unique combination of physical and mechanical characteristics such as non-flamability, chemical resistance, and near zero moisture absorbtion. The temperature range of this material is from -240C to +204C (-400F to +400F).
R	RPTFE	PTFE's mechanical properties are enhanced by adding a percentage of filler material to provide improved strength, stability, and wear resistance. The temperature range of this material is -46C to +232C (-50F to +450F).

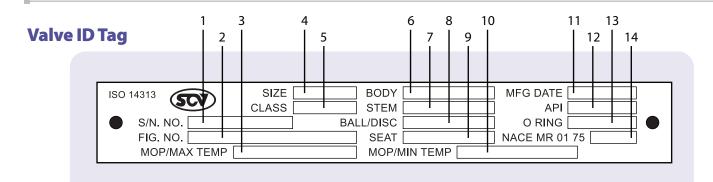
Note: Additional options available upon request

## **Seal & Seat Pressure Temperature Chart**

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



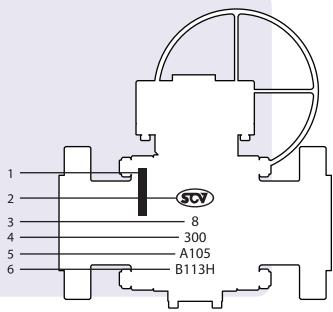
## **Valve ID Tag & Valve Markings Identification**



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	API Conformance	Identifies API conformance (600, 6D, 6A, etc.)
11	Manufacturing Date	Identifies the date the valve manufacturing completion date
12	MOP/Min.Temp.	Identifies the maximum operating pressure in PSI and minimum operating temperature in Fahrenheit
13	O Ring	Identifies the O Ring material composition (Viton, Viton GLT, etc.)
14	NACE MR 01 75	Identifies corrosion resistance

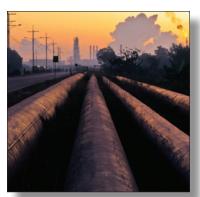
## **Valve Markings**

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



**Note:** SCV reserves the right to modify our products for improvement without prior notice.











## 2-Piece Flanged Floating Ball Valves Full & Reduced Port

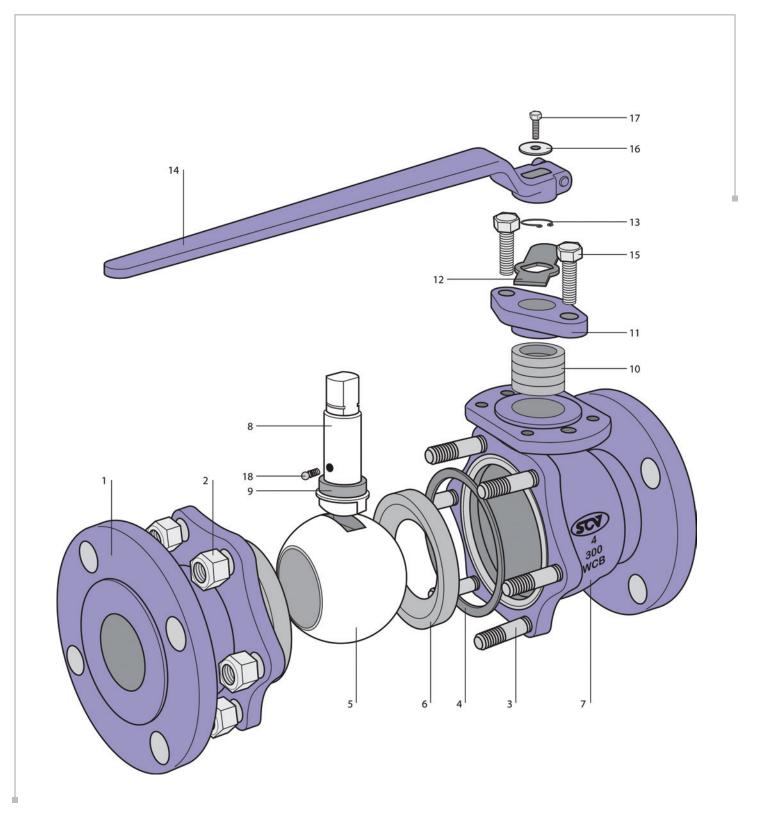
Class: 150 - 1500/Sizes: 1/2" - 12"

Design a	nd Manufacturing Standards
Basic Design	ANSI/ASME B16.34, conforms to API 6D
Face to Face Dimension	ANSI/ASME B16.10
Flange End Dimension	ANSI/ASME B16.5
Inspection & Testing	API 598
Fire Safe Design	API 607/BS 6755



# 2-Piece Flanged Floating Ball Valves Full & Reduced Port

[ Expanded View ]



## 2-Piece Flanged Floating Ball Valves Full & Reduced Port

[ Bill of Materials & Features ]

## **Bill of Materials**

No	Name of Part	Stainless Steel	Carbon Steel
1	Body End Cap	ASTM A351-CF8M	ASTM A216-WCB
2	Nut	AISI/ASME 304/GR.8	Carbon Steel/GR.2H
3	<b>Body Joint Bolt</b>	AISI/ASME 304/GR.B8	Carbon Steel/GR.B7
4	Body Gasket	PTFE	PTFE
5	Ball	ASTM A351-CF8M/316	ASTM A351-CF8M/316
6	Seat	PTFE	PTFE
7	Body	ASTM A351-CF8M	ASTM A216-WCB
8	Stem	ASTM A276-316	ASTM A276-316
9	Stem Thrustwasher	PTFE	PTFE
10	Stem Packing	PTFE	PTFE
11	Gland Flange	ASTM A351-CF8	ASTM A351-CF8
12	Handle Stop	AISI/ASME 304	AISI/ASME 304
13	Snapring	AISI/ASME 420	AISI/ASME 420
14	Handle	Carbon Steel	Carbon Steel
15	Gland Bolt	AISI/ASME 304	AISI/ASME 304
16	Washer	AISI/ASME 304	AISI/ASME 304
17	Cap Screw	AISI/ASME 304	AISI/ASME 304
18	Anti-static Device	316SS	316SS

Note: Additional materials available upon request

## **Features**

			ı with										

Solid ball construction provides structural integrity and minimizes flow turbulence

Mounting pad complies with ISO 5211 for ease and interchangeability of actuation

Bottom-loaded blow-out proof stem

Investment cast body & end cap on sizes 1/2" to 4". Sand cast body & end cap on sizes 5" to 10"

Body joint is designed to prevent excessive compression of valve internals, resulting in a consistent and low operating torque

Basic design complies with ASME/ANSI B16.34

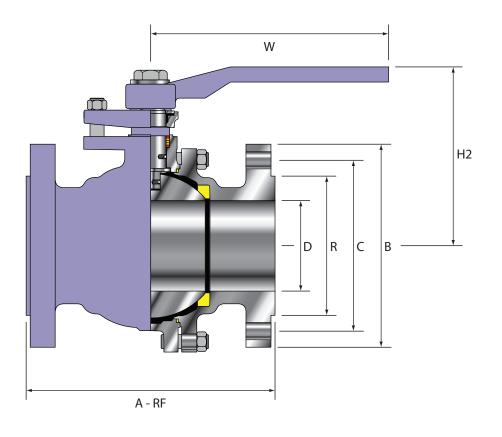
Flanged ends comply with ASME/ANSI B16.5

Face-to-face dimensions comply with ASME/ANSI B16.10

Tested according to ANSI/ASME B16.34 & API 598

Fire Tested to API 607/BS 6577

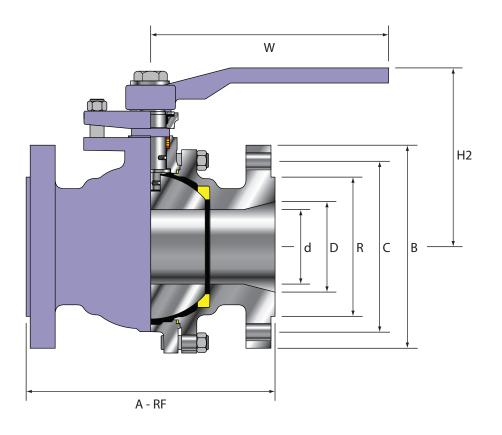
# 2-Piece Flanged Floating Ball Valves Full Port Size: 1/2" - 10"



	Siz	ze	Bore	End - to - End	Raised Face OD	Bolt Circle Diameter	Flange OD	Center - to - Top	Lever Length	Weights LBS/KG
			D	A - RF	R	C	В	H2	W	LB5/KG
	NPS	.5*	0.59	4.25	1.38	2.38	3.50	3.15	5.12	5
	DN	15	15	108	35	61	89	80	130	2.3
	NPS	.75*	.079	4.62	1.69	2.75	3.88	3.27	5.12	7
	DN	20	20	117	43	70	99	83	130	3.0
	NPS	1*	1.00	5.00	2.00	3.12	4.25	3.82	6.30	10
	DN	25	25	127	51	79	108	97	160	4.5
9	NPS	1.5*	1.57	6.50	2.88	3.88	5.00	4.37	9.06	15
5	DN	40	40	165	73	99	127	111	230	7.0
-	NPS	2*	1.97	7.00	3.62	4.75	6.00	4.65	9.06	21
S	DN	50	50	178	92	121	152	118	230	9.5
AS	NPS	2.5*	2.56	7.50	4.12	5.50	7.00	5.67	15.75	33
4	DN	65	65	191	105	140	178	144	400	15.0
5	NPS	3*	3.15	8.00	5.00	6.00	7.50	6.06	15.75	42
	DN	80	80	203	127	152	191	154	400	19.0
	NPS	4*	3.94	9.00	6.19	7.50	9.00	6.85	18.11	73
	DN	100	100	229	157	191	229	174	460	33.0
	NPS	6*	5.91	15.50	8.50	9.50	1 1.00	9.45	21.65	165
	DN	150	150	394	216	241	279	240	550	75.0
	NPS	8	7.87	18.00	10.62	11.75	13.50	11.81	39.37	253
	DN	200	200	457	270	299	343	300	1000	115.0
	NPS	10	9.84	21.00	12.75	14.25	16.00	13.98	39.37	506
	DN	250	250	533	324	362	406	355	1000	230.0

<sup>\* =</sup> Lever operated

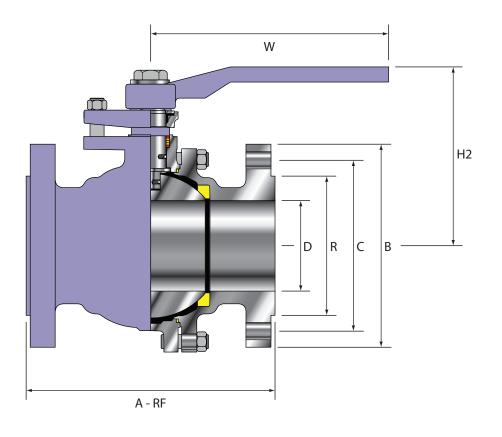
# 2-Piece Flanged Floating Ball Valves Reduced Port Size: 2" - 10"



	Si	ze	Во	ore	End - to - End	Raised Face OD	Bolt Circle Diameter	Flange OD	Center - to - Top	Lever Length	Weights LBS/KG
			D	d	A - RF	R	C	В	H2	W	LB3/KG
	NPS	2 x 1*	2.00	1.00	7.00	3.62	4.75	6.00	4.65	9.06	21
	DN	25	51.00	25.00	178	92	121	152	118	230	9.5
7	NPS	3 x 2*	3.00	2.00	8.00	5.00	6.00	7.50	6.06	15.75	42
<b>—</b>	DN	50	76.00	51.00	203	127	152	191	154	400	19.0
S	NPS	4 x 3*	4.00	3.00	9.00	6.19	7.50	9.00	6.85	18.11	73
S	DN	80	102.00	76.00	229	157	191	229	174	460	33.0
4	NPS	6 x 4*	6.00	4.00	15.50	8.50	9.50	1 1.00	9.45	21.65	165
	DN	100	152.00	102.00	394	216	241	279	240	550	75.0
	NPS	8 x 6	8.00	6.00	18.00	10.62	11.75	13.50	11.81	39.37	253
	DN	150	203.00	152.00	457	270	299	343	300	1000	115.0
	NPS	10 x 8	10.00	8.00	21.00	12.75	14.25	16.00	13.98	39.37	506
	DN	200	254	203	533	324	362	406	355	1000	230.0

<sup>\*</sup> = Lever operated

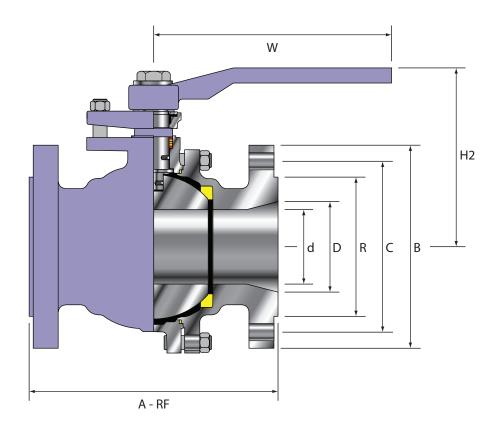
# 2-Piece Flanged Floating Ball Valves Full Port Size: 1/2" - 10"



	Si	ze	Bore	End - to - End	Raised Face OD	Bolt Circle Diameter	Flange OD	Center - to - Top	Lever Length	Weights LBS/KG
			D	A - RF	R	C	В	H2	W	LD3/KG
	NPS	.5*	0.59	5.50	1.38	2.62	3.75	2.48	5.12	5.5
	DN	15	15	140	35	67	95	63	130	2.5
	NPS	.75*	.079	6.00	1.69	3.25	4.62	2.68	5.12	8
	DN	20	20	152	43	83	117	68	130	3.6
	NPS	1*	1.00	6.50	2.00	3.5	4.88	2.99	6.30	12
	DN	25	25	165	51	89	124	76	160	5.5
9	NPS	1.5*	1.57	7.50	2.88	4.50	6.12	3.46	9.06	23
30	DN	40	40	191	73	114	155	88	230	10.5
	NPS	2*	1.97	8.50	3.62	5.00	6.50	3.70	9.06	32
S	DN	50	50	216	92	127	165	94	230	14.5
S	NPS	2.5*	2.56	9.50	4.12	5.88	7.50	4.53	15.75	52
4	DN	65	65	241	105	149	191	115	400	23.5
5	NPS	3*	3.15	11.12	5.00	6.62	8.25	4.72	15.75	66
	DN	80	80	282	127	168	210	120	400	30.0
	NPS	4*	3.94	12.00	6.19	7.88	10.00	7.68	18.11	143
	DN	100	100	305	157	200	254	195	460	65.0
	NPS	6*	5.91	16	8.50	10.62	12.50	9.45	21.65	209
	DN	150	150	403	216	270	318	240	550	95.0
	NPS	8	7.87	20	10.62	13.00	15.00	11.81	39.37	330
	DN	200	200	502	270	330	381	300	1000	150.0
	NPS	10	9.84	22.38	12.75	15.25	17.50	13.98	39.37	550
	DN	250	250	568	324	387	445	355	1000	250.0

<sup>\* =</sup> Lever operated

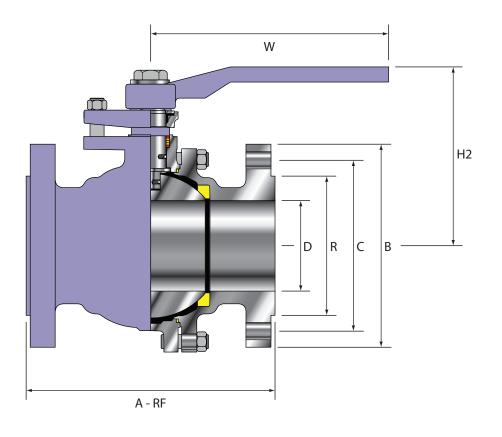
# 2-Piece Flanged Floating Ball Valves Reduced Port Size: 2" - 10"



	Si	ze	Вс	ore	End - to - End	Raised Face OD	Bolt Circle Diameter	Flange OD	Center - to - Top	Lever Length	Weights LBS/KG
			D	d	A - RF	R	C	В	H2	W	LB3/KG
	NPS	2 x 1*	2.00	1.00	8.50	3.62	5.00	6.50	3.70	9.06	32
	DN	25	51.00	25.00	216	92	127	165	94	230	14.5
30	NPS	3 x 2*	3.00	2.00	11.12	5.00	6.62	8.25	4.72	15.75	66
	DN	50	76.00	51.00	282	127	168	210	120	400	30.0
S	NPS	4 x 3*	4.00	3.00	12.00	6.19	7.88	10.00	7.68	18.11	143
S	DN	80	102.00	76.00	305	157	200	254	195	460	65.0
4	NPS	6 x 4*	6.00	4.00	16	8.50	10.62	12.50	9.45	21.65	209
	DN	100	152.00	102.00	403	216	270	318	240	550	95.0
	NPS	8 x 6	8.00	6.00	20	10.62	13.00	15.00	11.81	39.37	330
	DN	150	203.00	152.00	502	270	330	381	300	1000	150.0
	NPS	10 x 8	10.00	8.00	22.38	12.75	15.25	17.50	13.98	39.37	550
	DN	200	254	203	568	324	387	445	355	1000	250.0

<sup>\*</sup> = Lever operated

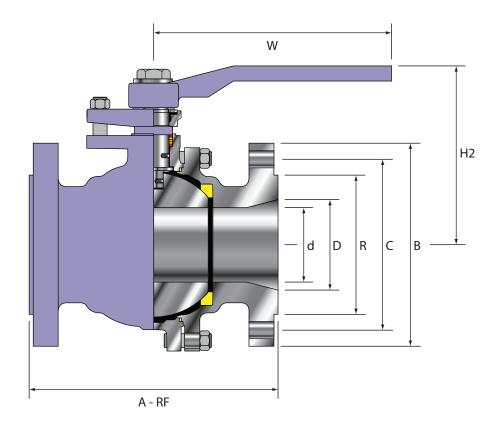
# 2-Piece Flanged Floating Ball Valves Full Port Size: 1/2" - 6"



	Si	ze	Bore	End - to - End	Raised Face OD	Bolt Circle Diameter	Flange OD	Center - to - Top	Lever Length	Weights LBS/KG
			D	A - RF	R	C	В	H2	W	LD3/RG
	NPS	.5*	.51	6.5	/	2.63	3.74	3.54	4.72	12
	DN	15	13	165	/	66.7	95	90	120	5
	NPS	.75*	.75	7.5	/	3.25	4.53	3.66	5.52	18
9	DN	20	19	190	/	82.6	115	93	140	8
9	NPS	1*	1	8.5	/	3.50	4.92	3.94	6.49	25
	DN	25	25	210	/	88.9	125	100	165	11
S	NPS	1.5*	1.5	9.5	/	4.50	6.10	4.96	7.87	30
S	DN	40	38	241	/	114.3	155	126	200	14
4	NPS	2*	2	11.5	3.62	5.00	6.50	5.31	9.06	40
5	DN	50	51	292	92	127	165	135	230	18
	DN	3*	3	14	5.00	6.62	8.25	6.7	15.75	75
	NPS	80	76	356	127	168	210	170	400	34
	DN	4*	4	17	6.19	8.5	10.75	8.1	18.11	165
	NPS	100	102	432	157	200	254	206	460	75
	DN	6	6	22	8.50	11.5	14	13.1	21.65	221
	MM	150	152	559	216	270	318	331	550	101

<sup>\* =</sup> Lever operated

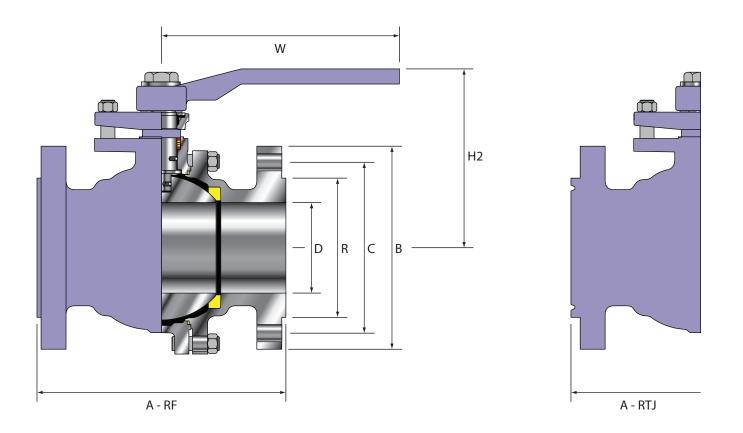
# 2-Piece Flanged Floating Ball Valves Reduced Port Size: 3" - 6"



00	Size		Вс	ore	End - to - End	Raised Face OD	Bolt Circle Diameter	Flange OD	Center - to - Top	Lever Length	Weights LBS/KG
9			D	d	A - RF	R	C	В	H2	W	LD5/NG
	DN	3 x 2*	2	2	14	5.00	6.62	8.25	5.6	15.75	75
S	NPS	50	51	51	356	127	168	210	142	400	34
S	DN	4 x 3*	3	3	17	6.19	8.5	10.75	6.7	18.11	165
4	NPS	80	76	76	432	157	216	273	170	460	75
	DN	6 x 4	4	4	22	8.50	11.5	14	8.1	21.65	221
	MM	100	102	102	559	216	292	356	206	550	101

<sup>\* =</sup> Lever operated

# 2-Piece Flanged Floating Ball Valves Full Port Size: 1/2" - 2"



	9	Size	Bore	End - t	o - End	Raised Face OD	Bolt Circle Diameter	Flange OD	Center - to - Top	Lever Length	Weights LBS/KG
0			D	A - RF	A - RTJ	R	C	В	H2	W	LB5/KG
Ö	IN	.5*	.51	8.5	8.6	/	3.3	4.7	3.9	9.06	14
I	MM	13	13	216	219	/	83	120	99	230	6
	IN	.75*	.75	9	9.1	/	3.5	5.2	4	9.06	20
S	MM	19	19	229	231	/	89	130	102	230	9
S	IN	1*	1	10	10.0	/	4.1	5.9	4.5	9.06	29
4	MM	25	25	254	257	/	102	150	115	230	13
	IN	1.5*	1.5	12	12.2	/	4.9	7.1	5.7	9.06	40
U	MM	38	38	305	308	/	124	180	144	230	18
	IN	2*	1.97	14.48	14.6	3.62	5.00	6.50	6.29	9.06	48
	MM	51	50	368	371	92	127	165	160	230	22

<sup>\* =</sup> Lever operated

## 2-Piece Flanged Floating Ball Valves Full & Reduced Port Flow Coefficients Cv Values and Opening Torques for Soft Seats

## **Flow Coefficients Cv Values**

The Flow Coefficiency (Cv) of a valve is the rate of gallons per minute of water at 60° F through a fully opened valve at a pressure drop of 1 PSI across the valve.

C:	1:	50	30	00	60	00	1500
Size	Full Port	Reduced Port	Full Port	Reduced Port	Full Port	Reduced Port	Full Port
.5	24	14	24	14	21	/	14
.75	55	31	55	31	44	/	34
1	100	55	100	55	75	/	60
1.5	260	123	260	123	237	/	180
2	450	218	450	218	405	/	305
2.5	720	340	720	340	590	/	/
3	1100	490	1100	490	745	590	/
4	2200	880	2200	880	1830	1000	/
6	5500	1980	5500	1980	4570	2860	/
8	10000	3500	10000	3500	/	/	/
10	17000	5460	17000	5460	/	/	/

## **Opening Torques for Soft Seats**

The operating torques are in foot pounds and are calculated based on soft seats, normal temperatures, and clean media.

тте орегас	e operating torques are in loot pounds and are calculated based on sort seats, normal temperatures, and clean media.  150 300 600 1500													
Size	ISO5211	1	50	30	00	60	00	1500						
Size	1505211	Full Port	Reduced Port	Full Port	Reduced Port	Full Port	Reduced Port	Full Port						
.5	F03/F04	5	5	7	7	13	/	26						
.75	F03/F04	7	7	12	12	18	/	37						
1	F05/506	12	12	18	18	30	/	74						
1.5	F05/F06	26	26	37	37	67	/	133						
2	F10	37	37	52	52	81	/	199						
2.5	FIU	59	59	74	74	122	/	/						
3		89	89	118	118	221	221	/						
4	F10/F12	133	133	207	207	443	443	/						
6		177	177	738	738	1438	1438	/						
8	F14	708	708	1549	1549	/	/	/						
10	F16	1328	1328	2508	2508	/	/	/						
				Notes										
1	Torques may cha	ange with different	mediums and trim r	naterials.										
2	All valves are at	normal temperatur	e with PTFE seats for	Class 150 and 300 l	bs. Nylon seats for c	lass 600 through 15	00.							
3	All torques are a	t maximum differer	ntial. Safety factor no	t included.										

## **Pressure Temperature Ratings - ASME B16.34**

Note: Pressures in PSI

	Temp. F	A105	WCB	LF2	wcc	LCB	WC6	LCC	C5	C12	C12A	316	CF8M	F51	F53
	-20 to 100	285	285	285	290	265	290	290	290	290	290	275	275	290	290
	200	260	260	260	260	255	260	260	260	260	260	235	235	260	260
	300	230	230	230	230	230	230	230	230	230	230	215	215	230	230
	400	200	200	200	200	200	200	200	200	200	200	195	195	200	200
	500	170	170	170	170	170	170	170	170	170	170	170	170	170	170
	600	140	140	140	140	140	140	140	140	140	140	140	140	140	140
	650	125	125	125	125	125	125	125	125	125	125	125	125	125	125
	700	110	110	110	110	110	110	110	110	110	110	110	110	110	110
	750	95	95	95	95	95	95	95	95	95	95	95	95	95	95
	800	80	80	80	80	80	80	80	80	80	80	80	80	/	/
0	850	65	65	65	65	65	65	65	65	65	65	65	65	/	/
N	900	50	50	50	50	50	50	50	50	50	50	50	50	/	/
	950	35	35	35	35	35	35	35	35	35	35	35	35	/	/
	1000	20	20	20	20	20	20	20	20	20	20	20	20	/	/
	1050	/	/	/	/	/	20	/	20	20	20	20	20	/	/
	1100	/	/	/	/	/	20	/	20	20	20	20	20	/	/
	1150	/	/	/	/	/	20	/	20	20	20	20	20	/	/
	1200	/	/	/	/	/	15	/	15	20	20	20	20	/	/
	1250	/	/	/	/	/	/	/	/	/	/	20	20	/	/
	1300	/	/	/	/	/	/	/	/	/	/	20	20	/	/
	1350	/	/	/	/	/	/	/	/	/	/	20	20	/	/
	1400	/	/	/	/	/	/	/	/	/	/	20	20	/	/
	1450	/	/	/	/	/	/	/	/	/	/	20	20	/	/
	1500	/	/	/	/	/	/	/	/	/	/	15	15	/	/
	Temp. F	A105	WCB	LF2	WCC	LCB	WC6	LCC	<b>C</b> 5	C12	C12A	316	CF8M	F51	F53
	Temp. F -20 to 100	<b>A105</b> 740	<b>WCB</b> 740	<b>LF2</b> 740	<b>WCC</b> 750	<b>LCB</b> 695	WC6 750	<b>LCC</b> 750	<b>C5</b> 750	<b>C12</b> 750	<b>C12A</b> 750	<b>316</b> 720	<b>CF8M</b> 720	<b>F51</b> 750	<b>F53</b> 750
	-20 to 100	740	740	740	750 750 730	695	750	750	750 750 730	750	750	720	720	750	750
	-20 to 100 200 300 400	740 680 655 635	740 680 655 635	740 680	750 750 730 705	695 660 640 615	750 750	750 750 730 705	750 750	750 750 730 705	750 750	720 620	720 620	750 745 665 615	750 745
	-20 to 100 200 300 400 500	740 680 655 635 605	740 680 655 635 605	740 680 655	750 750 730	695 660 640 615 585	750 750 720	750 750 730	750 750 730	750 750 730 705 665	750 750 730	720 620 560 515 480	720 620 560	750 745 665	750 745 665 615 580
	-20 to 100 200 300 400 500 600	740 680 655 635 605 570	740 680 655 635 605 570	740 680 655 635 605 570	750 750 730 705 665 605	695 660 640 615 585 550	750 750 720 695	750 750 730 705 665 605	750 750 730 705 665 605	750 750 730 705 665 605	750 750 730 705	720 620 560 515	720 620 560 515	750 745 665 615 580 555	750 745 665 615 580 555
	-20 to 100 200 300 400 500 600 650	740 680 655 635 605 570 550	740 680 655 635 605 570 550	740 680 655 635 605 570 550	750 750 730 705 665 605 590	695 660 640 615 585 550 535	750 750 720 695 665 605 590	750 750 730 705 665 605 590	750 750 730 705 665 605 590	750 750 730 705 665 605 590	750 750 730 705 665 605 590	720 620 560 515 480 450 440	720 620 560 515 480 450 440	750 745 665 615 580 555 545	750 745 665 615 580 555 545
	-20 to 100 200 300 400 500 600 650 700	740 680 655 635 605 570 550	740 680 655 635 605 570 550	740 680 655 635 605 570 550	750 750 730 705 665 605 590 555	695 660 640 615 585 550 535 510	750 750 720 695 665 605 590 570	750 750 730 705 665 605 590 555	750 750 730 705 665 605 590 570	750 750 730 705 665 605 590 570	750 750 730 705 665 605 590 570	720 620 560 515 480 450 440 435	720 620 560 515 480 450 440 435	750 745 665 615 580 555 545 540	750 745 665 615 580 555 545 540
	-20 to 100 200 300 400 500 600 650 700 750	740 680 655 635 605 570 550 530 505	740 680 655 635 605 570 550 530	740 680 655 635 605 570 550 530	750 750 730 705 665 605 590 555 505	695 660 640 615 585 550 535 510 475	750 750 720 695 665 605 590 570 530	750 750 730 705 665 605 590 555 505	750 750 730 705 665 605 590 570 530	750 750 730 705 665 605 590 570	750 750 730 705 665 605 590 570 530	720 620 560 515 480 450 440 435 425	720 620 560 515 480 450 440 435 425	750 745 665 615 580 555 545 540 530	750 745 665 615 580 555 545
	-20 to 100 200 300 400 500 600 650 700 750 800	740 680 655 635 605 570 550 530 505 410	740 680 655 635 605 570 550 530 505 410	740 680 655 635 605 570 550 530 505 410	750 750 730 705 665 605 590 555 505 410	695 660 640 615 585 550 535 510 475 390	750 750 720 695 665 605 590 570 530 510	750 750 730 705 665 605 590 555 505 410	750 750 730 705 665 605 590 570 530 510	750 750 730 705 665 605 590 570 530 510	750 750 730 705 665 605 590 570 530 510	720 620 560 515 480 450 440 435 425 420	720 620 560 515 480 450 440 435 425 420	750 745 665 615 580 555 545 540 530	750 745 665 615 580 555 545 540
00	-20 to 100 200 300 400 500 600 650 700 750 800	740 680 655 635 605 570 550 530 505 410 320	740 680 655 635 605 570 550 530 505 410 320	740 680 655 635 605 570 550 530 505 410 320	750 750 730 705 665 605 590 555 505 410 320	695 660 640 615 585 550 535 510 475 390 300	750 750 720 695 665 605 590 570 530 510 485	750 750 730 705 665 605 590 555 505 410 320	750 750 730 705 665 605 590 570 530 510 485	750 750 730 705 665 605 590 570 530 510 485	750 750 730 705 665 605 590 570 530 510 485	720 620 560 515 480 450 440 435 425 420	720 620 560 515 480 450 440 435 425 420 420	750 745 665 615 580 555 545 540 530 /	750 745 665 615 580 555 545 540 530 /
300	-20 to 100 200 300 400 500 600 650 700 750 800 850 900	740 680 655 635 605 570 550 530 505 410 320 230	740 680 655 635 605 570 550 530 505 410 320 230	740 680 655 635 605 570 550 530 505 410 320 230	750 750 730 705 665 605 590 555 505 410 320 225	695 660 640 615 585 550 535 510 475 390 300 200	750 750 720 695 665 605 590 570 530 510 485 450	750 750 730 705 665 605 590 555 505 410 320 225	750 750 730 705 665 605 590 570 530 510 485 375	750 750 730 705 665 605 590 570 530 510 485 450	750 750 730 705 665 605 590 570 530 510 485 450	720 620 560 515 480 450 440 435 425 420 420	720 620 560 515 480 450 440 435 425 420 420 415	750 745 665 615 580 555 545 540 530 /	750 745 665 615 580 555 545 540 530 / / /
300	-20 to 100 200 300 400 500 600 650 700 750 800 850 900	740 680 655 635 605 570 550 530 505 410 320 230	740 680 655 635 605 570 550 530 505 410 320 230	740 680 655 635 605 570 550 530 505 410 320 230	750 750 730 705 665 605 590 555 505 410 320 225 135	695 660 640 615 585 550 535 510 475 390 300 200	750 750 720 695 665 605 590 570 530 510 485 450 320	750 750 750 730 705 665 605 590 555 505 410 320 225 135	750 750 730 705 665 605 590 570 530 510 485 375 275	750 750 750 730 705 665 605 590 570 530 510 485 450 375	750 750 730 705 665 605 590 570 530 510 485 450 385	720 620 560 515 480 450 440 435 425 420 415 385	720 620 560 515 480 450 440 435 425 420 420 415 385	750 745 665 615 580 555 545 540 530 /	750 745 665 615 580 555 545 540 7 7 7 7
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950	740 680 655 635 605 570 550 530 505 410 320 230 135 85	740 680 655 635 605 570 550 530 505 410 320 230 135 85	740 680 655 635 605 570 550 530 505 410 320 230 135 85	750 750 750 730 705 665 605 590 555 505 410 320 225 135 85	695 660 640 615 585 550 535 510 475 390 300 200 135 85	750 750 750 750 720 695 665 605 590 570 530 510 485 450 320 215	750 750 750 730 705 665 605 590 555 505 410 320 225 135 85	750 750 730 705 665 605 590 570 530 510 485 375 275	750 750 750 730 705 665 605 590 570 530 510 485 450 375 255	750 750 730 705 665 605 590 570 530 510 485 450 385 365	720 620 560 515 480 450 440 435 425 420 415 385 365	720 620 560 515 480 450 440 435 425 420 420 415 385 365	750 745 665 615 580 555 545 540  745 745 745 745 745 745 750 745 750 750 750 760 7750 7750 7750 7750 77	750 745 665 615 580 555 545 540 530 / / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000	740 680 655 635 605 570 550 530 505 410 320 230 135 85	740 680 655 635 605 570 550 530 505 410 320 230 135 85	740 680 655 635 605 570 550 530 505 410 320 230 135 85	750 750 750 750 750 730 705 665 605 590 555 505 410 320 225 135 85 /	695 660 640 615 585 550 535 510 475 390 300 200 135 85	750 750 750 750 750 720 695 665 605 590 570 530 510 485 450 320 215 145	750 750 750 750 750 730 705 665 605 590 555 505 410 320 225 135 85 /	750 750 750 750 750 730 705 665 605 590 570 530 510 485 375 275 200 145	750 750 750 750 730 705 665 605 590 570 530 510 485 450 375 255	750 750 730 705 665 605 590 570 530 510 485 450 385 365	720 620 560 515 480 450 440 435 425 420 420 415 385 365	720 620 560 515 480 450 440 435 425 420 420 415 385 365 160	750 745 665 615 580 555 545 540 7 7 7 7 7 7 7	750 745 665 615 580 555 545 540 530 / / / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050 1100	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	750 750 750 750 730 705 665 605 590 555 505 410 320 225 135 85 /	695 660 640 615 585 550 535 510 475 390 300 200 135 85 /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 730 705 665 605 590 555 505 410 320 225 135 85 /	750 750 750 750 730 705 665 605 590 570 530 510 485 375 275 200 145	750 750 750 750 750 750 750 750 750 750	750 750 730 705 665 605 590 570 530 510 485 450 385 365 360 300	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305	750 745 665 615 580 555 545 540 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	750 745 665 615 580 555 545 540 7 7 7 7 7 7 7 7
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050 1100 1150	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	740 680 655 635 605 570 550 530 505 410 320 230 135 85	750 750 750 750 750 750 750 750 665 665 605 590 555 505 410 320 225 135 85 / /	695 660 640 615 585 550 535 510 475 390 300 200 135 85	750 750 750 750 750 750 750 750 750 695 665 605 590 570 530 510 485 450 320 215 145 95 65	750 750 750 750 750 750 750 750 665 605 590 555 505 410 320 225 135 85 / /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 750 665 665 605 590 570 530 510 485 450 375 255 170 115 75	750 750 730 705 665 605 590 570 530 510 485 450 385 365 360 300 225	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235	750 745 665 615 580 555 545 540 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	750 745 665 615 580 555 545 540 530 / / / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 1150 1200	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	750 750 750 750 750 750 750 750 665 665 605 590 555 505 410 320 225 135 85 / / / /	695 660 640 615 585 550 535 510 475 390 300 200 135 85 /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 665 605 590 555 505 410 320 225 135 85 / / / /	750 750 750 750 750 730 705 665 605 590 570 530 510 485 375 275 200 145 100 60 35	750 750 750 750 750 730 705 665 605 590 570 530 510 485 450 375 255 170 115 75 50	750 750 750 750 750 730 705 665 605 590 570 530 510 485 450 385 365 360 300 225 145	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235	750 745 665 615 580 555 545 540 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200 1250	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	750 750 750 750 750 750 750 750 750 665 665 605 590 555 505 410 320 225 135 85 / / / / /	695 660 640 615 585 550 535 510 475 390 300 200 135 85 /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 665 605 590 555 505 410 320 225 135 85 / /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 750 665 605 590 570 530 510 485 450 375 255 170 115 75 50 /	750 750 750 750 730 705 665 605 590 570 530 510 485 450 385 365 360 300 225 145 /	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185 145	750 745 665 615 580 555 545 540 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	750 745 665 615 580 555 545 540 7 7 7 7 7 7 7 7
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 11200 1250 1300	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	750 750 750 750 750 750 750 750 665 665 605 590 555 505 410 320 225 135 85 / / / /	695 660 640 615 585 550 535 510 475 390 300 200 135 85 /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 665 605 590 555 505 410 320 225 135 85 / / / /	750 750 750 750 750 750 730 705 665 605 590 570 530 510 485 375 275 200 145 100 60 35 /	750 750 750 750 750 750 750 750 750 665 605 590 570 530 510 485 450 375 255 170 115 75 50 /	750 750 750 750 750 750 750 750 7665 665 605 590 570 530 510 485 450 385 365 360 300 225 145 /	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185 145	720 620 560 515 480 450 440 435 425 420 420 415 385 365 160 305 235 185 145	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / /	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 1100 1150 1200 1250 1300 1350	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	750 750 750 750 750 750 750 750 750 750	695 660 640 615 585 550 535 510 475 390 300 200 135 85 /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 665 605 590 555 505 410 320 225 135 85 / / / /	750 750 750 750 750 730 705 665 605 590 570 530 510 485 375 275 200 145 100 60 35 / /	750 750 750 750 750 730 705 665 605 590 570 530 510 485 450 375 255 170 115 75 50 /	750 750 750 750 750 730 705 665 605 590 570 530 510 485 450 385 365 360 300 225 145 / /	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185 145 115 95	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185 145 115 95	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / / / / / /	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / /
	-20 to 100  200  300  400  500  600  650  700  750  800  850  900  950  1000  1150  1150  1200  1250  1300  1350  1400	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / / / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / / / / /	750 750 750 750 750 750 750 750 750 750	695 660 640 615 585 550 535 510 475 390 300 200 135 85 / / / /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 665 605 590 555 505 410 320 225 135 85 / / / /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 750 7665 665 605 590 570 530 510 485 450 375 255 170 115 75 50 / / / /	750 750 750 750 750 750 750 750 750 7665 665 605 590 570 530 510 485 450 385 365 360 300 225 145 / / / /	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185 145 115 95 75	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185 145 115 95 75	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / / / / / /	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 1100 1150 1200 1250 1300 1350	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 / / / / / /	740 680 655 635 605 570 550 530 505 410 320 230 135 85 /	750 750 750 750 750 750 750 750 750 750	695 660 640 615 585 550 535 510 475 390 300 200 135 85 /	750 750 750 750 750 750 750 750 750 750	750 750 750 750 750 750 750 750 665 605 590 555 505 410 320 225 135 85 / / / /	750 750 750 750 750 730 705 665 605 590 570 530 510 485 375 275 200 145 100 60 35 / /	750 750 750 750 750 730 705 665 605 590 570 530 510 485 450 375 255 170 115 75 50 /	750 750 750 750 750 730 705 665 605 590 570 530 510 485 450 385 365 360 300 225 145 /	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185 145 115 95	720 620 560 515 480 450 440 435 425 420 415 385 365 160 305 235 185 145 115 95	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / / / / / /	750 745 665 615 580 555 545 540 530 / / / / / / / / / / / / / / /

## **Pressure Temperature Ratings - ASME B16.34**

Note: Pressures in PSI

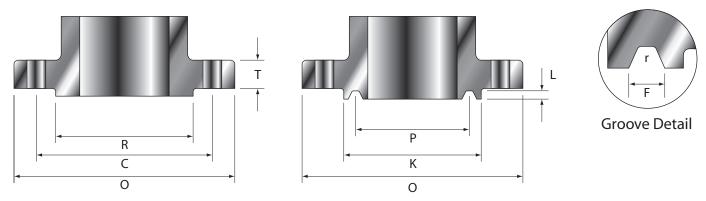
	Temp. F	A105	WCB	LF2	wcc	LCB	WC6	LCC	C5	C12	C12A	316	CF8M	F51	F53
	-20 to 100	1480	1480	1480	1500	1395	1500	1500	1500	1500	1500	1440	1440	1500	1500
	200	1360	1360	1360	1500	1320	1500	1500	1500	1500	1500	1240	1240	1490	1490
	300	1310	1310	1310	1455	1275	1445	1455	1455	1455	1455	1120	1120	1335	1335
	400	1265	1265	1265	1405	1230	1385	1405	1410	1410	1410	1025	1025	1230	1230
	500	1205	1205	1205	1330	1175	1330	1330	1330	1330	1330	995	995	1160	1160
	600	1135	1135	1135	1210	1105	1210	1210	1210	1210	1210	900	900	1115	1115
	650	1100	1100	1100	1175	1065	1175	1175	1175	1175	1175	885	885	1095	1095
	700	1060	1060	1060	1110	1025	1135	1110	1135	1135	1135	870	870	1085	1085
	750	1015	1015	1015	1015	955	1065	1015	1065	1065	1065	855	855	1065	1065
	800	825	825	825	825	780	1015	825	1015	1015	1015	845	845	/	/
0	850	640	640	640	640	595	975	640	975	975	975	835	835	/	/
9	900	460	460	460	445	405	900	445	745	900	900	830	830	/	/
<b>6</b>	950	275	275	275	275	275	640	275	550	755	775	775	775	/	/
	1000	170	170	170	170	170	430	170	400	505	725	725	725	/	/
	1050	/	/	/	/	/	290	/	290	345	720	720	720	/	/
	1100	/	/	/	/	/	190	/	200	225	605	610	610	/	/
	1150	/	/	/	/	/	130	/	125	150	445	475	475	/	/
	1200	/	/	/	/	/	80	/	70	105	290	370	370	/	/
	1250	/	/	/	/	/	/	/	/	/	/	295	295	/	/
	1300	/	/	/	/	/	/	/	/	/	/	235	235	/	/
	1350	/	/	/	/	/	/	/	/	/	/	190	190	/	/
	1400	/	/	/	/	/	/	/	/	/	/	150	150	/	/
	1450	/	/	/	/	/	/	/	/	/	/	115	115	/	/
	1500	/	/	/	/	/	/	/	/	/	/	85	85	/	/
	Temp. F	A105	WCB	LF2	WCC	LCB	WC6	LCC	<b>C</b> 5	C12	C12A	316	CF8M	F51	F53
	Temp. F -20 to 100	A105	WCB 2220	<b>LF2</b> 2220	WCC 2250	<b>LCB</b> 2090	WC6 2250	LCC 2250	<b>C5</b> 2250	C12 2250	C12A 2250	<b>316</b> 2160	<b>CF8M</b> 2160	<b>F51</b> 2250	<b>F53</b> 2250
	-20 to 100	2220	2220	2220	2250	2090	2250	2250	2250	2250	2250	2160	2160	2250	2250
	-20 to 100 200 300 400	2220 2035	2220 2035	2220 2035	2250 2250 2185 2110	2090 1980	2250 2250 2165 2080	2250 2250	2250 2250 2185 2115	2250 2250	2250 2250	2160 1860	2160 1860	2250 2230 2000 1845	2250 2230
	-20 to 100 200 300 400 500	2220 2035 1965	2220 2035 1965	2220 2035 1965	2250 2250 2185 2110 1995	2090 1980 1915	2250 2250 2165 2080 1995	2250 2250 2185	2250 2250 2185 2115 1995	2250 2250 2185 2115 1995	2250 2250 2185	2160 1860 1680 1540 1435	2160 1860 1680	2250 2230 2000 1845 1740	2250 2230 2000
	-20 to 100 200 300 400	2220 2035 1965 1900	2220 2035 1965 1900	2220 2035 1965 1900	2250 2250 2185 2110 1995 1815	2090 1980 1915 1845	2250 2250 2165 2080	2250 2250 2185 2110	2250 2250 2185 2115 1995 1815	2250 2250 2185 2115	2250 2250 2185 2115	2160 1860 1680 1540 1435 1355	2160 1860 1680 1540	2250 2230 2000 1845 1740 1670	2250 2230 2000 1845
	-20 to 100 200 300 400 500 600 650	2220 2035 1965 1900 1810 1705 1650	2220 2035 1965 1900 1810 1705 1650	2220 2035 1965 1900 1810 1705 1650	2250 2250 2185 2110 1995 1815 1765	2090 1980 1915 1845 1760 1655 1600	2250 2250 2165 2080 1995 1815 1765	2250 2250 2185 2110 1995 1815 1765	2250 2250 2185 2115 1995 1815 1765	2250 2250 2185 2115 1995 1815 1765	2250 2250 2185 2115 1995 1815 1765	2160 1860 1680 1540 1435 1355 1325	2160 1860 1680 1540 1435 1355 1325	2250 2230 2000 1845 1740 1670 1640	2250 2230 2000 1845 1740 1670 1640
	-20 to 100 200 300 400 500 600 650 700	2220 2035 1965 1900 1810 1705 1650 1590	2220 2035 1965 1900 1810 1705 1650 1590	2220 2035 1965 1900 1810 1705 1650 1590	2250 2250 2185 2110 1995 1815 1765 1665	2090 1980 1915 1845 1760 1655 1600 1535	2250 2250 2165 2080 1995 1815 1765 1705	2250 2250 2185 2110 1995 1815 1765 1665	2250 2250 2185 2115 1995 1815 1765 1705	2250 2250 2185 2115 1995 1815 1765 1705	2250 2250 2185 2115 1995 1815 1765 1705	2160 1860 1680 1540 1435 1355 1325 1305	2160 1860 1680 1540 1435 1355 1325 1305	2250 2230 2000 1845 1740 1670 1640 1625	2250 2230 2000 1845 1740 1670 1640 1625
	-20 to 100 200 300 400 500 600 650 700 750	2220 2035 1965 1900 1810 1705 1650 1590	2220 2035 1965 1900 1810 1705 1650 1590	2220 2035 1965 1900 1810 1705 1650 1590 1520	2250 2250 2185 2110 1995 1815 1765 1665 1520	2090 1980 1915 1845 1760 1655 1600 1535 1430	2250 2250 2165 2080 1995 1815 1765 1705	2250 2250 2185 2110 1995 1815 1765 1665 1520	2250 2250 2185 2115 1995 1815 1765 1705	2250 2250 2185 2115 1995 1815 1765 1705 1595	2250 2250 2185 2115 1995 1815 1765 1705 1595	2160 1860 1680 1540 1435 1355 1325 1305 1280	2160 1860 1680 1540 1435 1355 1325 1305 1280	2250 2230 2000 1845 1740 1670 1640 1625 1595	2250 2230 2000 1845 1740 1670 1640
	-20 to 100 200 300 400 500 600 650 700 750 800	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175	2250 2250 2165 2080 1995 1815 1765 1705 1595	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235	2250 2250 2185 2115 1995 1815 1765 1705 1595	2250 2250 2185 2115 1995 1815 1765 1705 1595	2250 2250 2185 2115 1995 1815 1765 1705 1595	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265	2250 2230 2000 1845 1740 1670 1640 1625 1595	2250 2230 2000 1845 1740 1670 1640 1625
00	-20 to 100 200 300 400 500 600 650 700 750 800	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265	2250 2230 2000 1845 1740 1670 1640 1625 1595 /	2250 2230 2000 1845 1740 1670 1640 1625
006	-20 to 100 200 300 400 500 600 650 700 750 800 850 900	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245	2250 2230 2000 1845 1740 1670 1640 1625 1595 /	2250 2230 2000 1845 1740 1670 1640 1625
006	-20 to 100 200 300 400 500 600 650 700 750 800 850 900	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160	2250 2230 2000 1845 1740 1670 1640 1625 1595 /	2250 2230 2000 1845 1740 1670 1640 1625
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /
	-20 to 100  200  300  400  500  600  650  700  750  800  850  900  950  1000  1050	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760 515	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /	2250 2230 2000 1845 1740 1670 1640 1625
	-20 to 100  200  300  400  500  600  650  700  750  800  850  900  950  1000  1050  1100	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255 /	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430 290	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430 300	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760 515 340	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080 905	2160 1860 1680 1540 1435 1355 1305 1280 1265 1255 1245 1160 1090 1080 915	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /
	-20 to 100  200  300  400  500  600  650  700  750  800  850  900  950  1000  1050  1100  1150	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430 290	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430 300 185	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760 515 340 225	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080 905 670	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1245 1160 1090 1080 915 710	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /
	-20 to 100  200  300  400  500  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255 /	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430 290 195 125	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430 300 185 105	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760 515 340 225 155	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080 905 670 430	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1245 1160 1090 1080 915 710 555	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710 555	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / / / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200 1250	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / / /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255 /	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430 290 195 125 /	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430 300 185 105 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760 515 340 225 155 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080 905 670 430 /	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710 555 440	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710 555 440	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / / / / / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 11200 1250 1300	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255 /	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430 290 195 125 /	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430 300 185 105	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760 515 340 225 155 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080 905 670 430 /	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710 555 440 350	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710 555 440 350	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / / / / / / / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 1150 1200 1250 1300 1350	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / / /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255 /	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430 290 195 125 /	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430 300 185 105 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760 515 340 225 155 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080 905 670 430 / /	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1245 1160 1090 1080 915 710 555 440 350 290	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710 555 440 350 290	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / / / / / / / / / / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 1150 1200 1250 1300 1350 1400	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / / / /	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / / /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255 /	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430 290 195 125 / / / /	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430 300 185 105 / / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 760 515 340 225 155 / / / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080 905 670 430 / / / /	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1245 1160 1090 1080 915 710 555 440 350 290 225	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710 555 440 350 290 225	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / / / / / / / / / / / / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 1150 1200 1250 1300 1350	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255 / / / /	2220 2035 1965 1900 1810 1705 1650 1590 1520 1235 955 690 410 255	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / / /	2090 1980 1915 1845 1760 1655 1600 1535 1430 1175 895 605 410 255 /	2250 2250 2165 2080 1995 1815 1765 1705 1595 1525 1460 1350 955 650 430 290 195 125 /	2250 2250 2185 2110 1995 1815 1765 1665 1520 1235 955 670 410 255 / / /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1120 825 595 430 300 185 105 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1130 760 515 340 225 155 /	2250 2250 2185 2115 1995 1815 1765 1705 1595 1525 1460 1350 1160 1090 1080 905 670 430 / /	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1245 1160 1090 1080 915 710 555 440 350 290	2160 1860 1680 1540 1435 1355 1325 1305 1280 1265 1255 1245 1160 1090 1080 915 710 555 440 350 290	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / / / / / / / / / / / /	2250 2230 2000 1845 1740 1670 1640 1625 1595 / / /

## **Pressure Temperature Ratings - ASME B16.34**

Note: Pressures in PSI

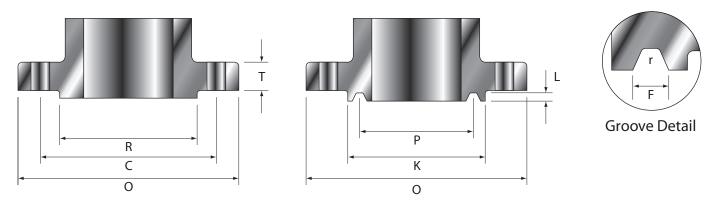
	Temp. F	A105	WCB	LF2	wcc	LCB	WC6	LCC	<b>C</b> 5	C12	C12A	316	CF8M	F51	F53
	-20 to 100	3705	3705	3705	3750	3480	3750	3750	3750	3750	3750	3600	3600	3750	3750
	200	3395	3395	3395	3750	3300	3750	3750	3750	3750	3750	3095	3095	3720	3720
	300	3270	3270	3270	3640	3190	3610	3640	3640	3640	3640	2795	2795	3335	3335
	400	3170	3170	3170	3520	3075	3465	3520	3530	3530	3530	2570	2570	3070	3070
	500	3015	3015	3015	3325	2930	3325	3325	3325	3325	3325	2390	2390	2905	2905
	600	2840	2840	2840	3025	2755	3025	3025	3025	3025	3025	2255	2255	2785	2785
	650	2745	2745	2745	2940	2665	2940	2940	2940	2940	2940	2210	2210	2735	2735
	700	2665	2665	2665	2775	2560	2840	2775	2840	2840	2840	2170	2170	2710	2710
	750	2535	2535	2535	2535	2385	2660	2535	2660	2660	2660	2135	2135	2660	2660
	800	2055	2055	2055	2055	1955	2540	2055	2540	2540	2540	2110	2110	/	/
	850	1595	1595	1595	1595	1490	2435	1595	2435	2435	2435	2090	2090	/	/
	900	1150	1150	1150	1115	1010	2245	1115	1870	2245	2245	2075	2075	/	/
	950	685	685	685	685	685	1591	685	1370	1885	1930	1930	1930	/	/
	1000	430	430	430	430	430	1080	430	995	1270	1820	1820	1820	/	/
	1050	/	/	/	/	/	720	/	720	855	1800	1800	1800	/	/
	1100	/	/	/	/	/	480	/	495	565	1510	1525	1525	/	/
	1150	/	/	/	/	/	325	/	310	375	1115	1185	1185	/	/
	1200	/	/	/	/	/	205	/	170	255	720	925	925	/	/
	1250	/	/	/	/	/	/	/	/	/	/	735	735	/	/
	1300	/	/	/	/	/	/	/	/	/	/	585	585	/	/
	1350	/	/	/	/	/	/	/	/	/	/	480	480	/	/
	1400	/	/	/	/	/	/	/	/	/	/	380	380	/	/
	1450	/	/	/	/	/	/	/	/	/	/	290	290	/	/
	1500	/	/	/	/	/	/	/	/	/	/	205	205	/	/
	Temp. F	A105	WCB	LF2	wcc	LCB	WC6	LCC	<b>C</b> 5	C12	C12A	216	CF8M	EE4	FFO
		71103	WCD	LFZ	WCC	LCD	WCO	LCC	Co	CIZ	CIZA	316	CLOIM	F51	F53
	-20 to 100	6170	6170	6170	6250	5805	6250	6250	6250	3250	6250	6000	6000	6250	6250
	-20 to 100	6170	6170	6170	6250	5805	6250	6250	6250	3250	6250	6000	6000	6250	6250
	-20 to 100 200	6170 5655	6170 5655	6170 5655	6250 6250	5805 5505	6250 6250	6250 6250	6250 6250	3250 6250	6250 6250	6000 5160	6000 5160	6250 6200	6250 6200
	-20 to 100 200 300	6170 5655 5450	6170 5655 5450	6170 5655 5450	6250 6250 6070	5805 5505 5315	6250 6250 6015	6250 6250 6070	6250 6250 6070	3250 6250 6070	6250 6250 6070	6000 5160 4660	6000 5160 4660	6250 6200 5560	6250 6200 5560
	-20 to 100 200 300 400	6170 5655 5450 5280	6170 5655 5450 5280	6170 5655 5450 5280	6250 6250 6070 5865	5805 5505 5315 5125	6250 6250 6015 5775	6250 6250 6070 5865	6250 6250 6070 5880	3250 6250 6070 5880	6250 6250 6070 5880	6000 5160 4660 4280	6000 5160 4660 4280	6250 6200 5560 5120	6250 6200 5560 5120
	-20 to 100 200 300 400 500	6170 5655 5450 5280 5025	6170 5655 5450 5280 5025	6170 5655 5450 5280 5025	6250 6250 6070 5865 5540	5805 5505 5315 5125 4885	6250 6250 6015 5775 5540	6250 6250 6070 5865 5540	6250 6250 6070 5880 5540	3250 6250 6070 5880 5540	6250 6250 6070 5880 5540	6000 5160 4660 4280 3980	6000 5160 4660 4280 3980	6250 6200 5560 5120 4840	6250 6200 5560 5120 4840
	-20 to 100 200 300 400 500 600	6170 5655 5450 5280 5025 4730	6170 5655 5450 5280 5025 4730	6170 5655 5450 5280 5025 4730	6250 6250 6070 5865 5540 5040	5805 5505 5315 5125 4885 4595	6250 6250 6015 5775 5540 5040	6250 6250 6070 5865 5540 5040	6250 6250 6070 5880 5540	3250 6250 6070 5880 5540 5040	6250 6250 6070 5880 5540 5040	6000 5160 4660 4280 3980 3760	6000 5160 4660 4280 3980 3760	6250 6200 5560 5120 4840 4640	6250 6200 5560 5120 4840 4640
	-20 to 100 200 300 400 500 600 650	6170 5655 5450 5280 5025 4730 4575	6170 5655 5450 5280 5025 4730 4575	6170 5655 5450 5280 5025 4730 4575	6250 6250 6070 5865 5540 5040 4905	5805 5505 5315 5125 4885 4595 4440	6250 6250 6015 5775 5540 5040 4905	6250 6250 6070 5865 5540 5040 4905	6250 6250 6070 5880 5540 5040 4905	3250 6250 6070 5880 5540 5040 4905	6250 6250 6070 5880 5540 5040 4905	6000 5160 4660 4280 3980 3760 3680	6000 5160 4660 4280 3980 3760 3680	6250 6200 5560 5120 4840 4640 4560	6250 6200 5560 5120 4840 4640 4560
	-20 to 100 200 300 400 500 600 650 700	6170 5655 5450 5280 5025 4730 4575 4425	6170 5655 5450 5280 5025 4730 4575 4425	6170 5655 5450 5280 5025 4730 4575 4425	6250 6250 6070 5865 5540 5040 4905 4630	5805 5505 5315 5125 4885 4595 4440 4270	6250 6250 6015 5775 5540 5040 4905 4730	6250 6250 6070 5865 5540 5040 4905 4630	6250 6250 6070 5880 5540 5040 4905 4730	3250 6250 6070 5880 5540 5040 4905 4730	6250 6250 6070 5880 5540 5040 4905 4730	6000 5160 4660 4280 3980 3760 3680 3620	6000 5160 4660 4280 3980 3760 3680 3620	6250 6200 5560 5120 4840 4640 4560 4520	6250 6200 5560 5120 4840 4640 4560 4520
00	-20 to 100 200 300 400 500 600 650 700 750	6170 5655 5450 5280 5025 4730 4575 4425 4230	6170 5655 5450 5280 5025 4730 4575 4425 4230	6170 5655 5450 5280 5025 4730 4575 4425 4230	6250 6250 6070 5865 5540 5040 4905 4630 4230	5805 5505 5315 5125 4885 4595 4440 4270 3970	6250 6250 6015 5775 5540 5040 4905 4730 4430	6250 6250 6070 5865 5540 5040 4905 4630 4230	6250 6250 6070 5880 5540 5040 4905 4730 4430	3250 6250 6070 5880 5540 5040 4905 4730 4430	6250 6250 6070 5880 5540 5040 4905 4730 4430	6000 5160 4660 4280 3980 3760 3680 3620 3560	5160 4660 4280 3980 3760 3680 3620 3560	6250 6200 5560 5120 4840 4640 4560 4520	6250 6200 5560 5120 4840 4640 4560 4520
200	-20 to 100 200 300 400 500 600 650 700 750 800	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520	5160 4660 4280 3980 3760 3680 3620 3560 3520	6250 6200 5560 5120 4840 4640 4560 4520 4430	6250 6200 5560 5120 4840 4640 4560 4520
2500	-20 to 100 200 300 400 500 600 650 700 750 800	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230	5160 4660 4280 3980 3760 3680 3620 3560 3520 3480	5160 4660 4280 3980 3760 3680 3620 3560 3520 3480	6250 6200 5560 5120 4840 4640 4560 4520 4430	6250 6200 5560 5120 4840 4640 4560 4520
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3115	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745	5160 4660 4280 3980 3760 3680 3520 3520 3480 3460	5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460	6250 6200 5560 5120 4840 4640 4560 4520 4430 /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3115 2285	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145	6250 6250 6070 5880 5540 5040 4905 4730 4430 4060 3745 3220	5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3220	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460 3220	6250 6200 5560 5120 4840 4640 4560 4520 4430 /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855 1145 715	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685 1145 715	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655 1800	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855 1145 715	6250 6250 6070 5880 5540 5040 4905 4730 4430 4060 3115 2285 1655	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145 2115	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3220 3030	5160 4660 4280 3980 3760 3680 3520 3480 3460 3220 3030	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460 3220 3030	6250 6200 5560 5120 4840 4640 4560 4520 4430 /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855 1145 715	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685 1145 715	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655 1800 1200	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855 1145 715	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3115 2285 1655 1200	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145 2115 1430	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3220 3030 3000	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460 3220 3030 3000	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460 3220 3030 3000	6250 6200 5560 5120 4840 4640 4560 4520 4430 / / /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050 1100	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855 1145 715	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685 1145 715 /	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655 1800 1200 800	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855 1145 715	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3115 2285 1655 1200 830	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145 2115 1430 945	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3220 3030 3000 2515	6000 5160 4660 4280 3980 3760 3620 3560 3520 3480 3460 3220 3030 3000 2545	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460 3220 3030 3000 2545	6250 6200 5560 5120 4840 4640 4520 4430 / / / /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050 1100 1150	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855 1145 715 /	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685 1145 715 /	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655 1800 1200 800 545	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1855 1145 715 /	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3115 2285 1655 1200 830 515	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145 2115 1430 945 630	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3220 3030 3000 2515 1855	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3220 3030 3000 2545 1970	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460 3220 3030 3000 2545 1970	6250 6200 5560 5120 4840 4640 4520 4430 / / / /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1145 715 /	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685 1145 715 /	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655 1800 1200 800 545 345	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1145 715 /	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3115 2285 1655 1200 830 515 285	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145 2115 1430 945 630 770	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3220 3030 3000 2515 1855	6000 5160 4660 4280 3980 3760 3680 3520 3480 3220 3030 3000 2545 1970 1545	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460 3220 3030 3000 2545 1970 1545	6250 6200 5560 5120 4840 4640 4560 4520 4430 / / / / /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1050 1150 1200 1250	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1145 715 /	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685 1145 715 /	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655 1800 1200 800 545 345	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1145 715 /	6250 6250 6070 5880 5540 5040 4905 4730 4430 4060 3115 2285 1655 1200 830 515 285	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145 2115 1430 945 630 770	6250 6250 6070 5880 5540 5040 4905 4730 4430 4060 3745 3220 3030 3000 2515 1855 1200	6000 5160 4660 4280 3980 3760 3680 3520 3480 3220 3030 3000 2545 1970 1545 1230	6000 5160 4660 4280 3980 3760 3680 3520 3480 3460 3220 3030 3000 2545 1970 1545 1230	6250 6200 5560 5120 4840 4640 4560 4520 4430 / / / / / /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 1100 1150 1200 1250 1300	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1145 715 /	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685 1145 715 /	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655 1800 1200 800 545 345 /	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1145 715 /	6250 6250 6070 5880 5540 5040 4905 4730 4430 4060 3115 2285 1655 1200 830 515 285	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145 2115 1430 945 630 770 /	6250 6250 6070 5880 5540 5040 4905 4730 4430 4060 3745 3220 3030 3000 2515 1855 1200 /	5160 4660 4280 3980 3760 3680 3520 3520 3480 3220 3030 2545 1970 1545 1230 970	6000 5160 4660 4280 3980 3760 3680 3520 3480 3460 3220 3030 3000 2545 1970 1545 1230 970	6250 6200 5560 5120 4840 4640 4560 4520 4430 / / / / / /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /
	-20 to 100 200 300 400 500 600 650 700 750 800 850 900 950 1000 1150 1100 1150 1200 1250 1300 1350	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 / / / / /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715 /	6170 5655 5450 5280 5025 4730 4575 4425 4230 3430 2655 1915 1145 715	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1145 715 /	5805 5505 5315 5125 4885 4595 4440 4270 3970 3255 2485 1685 1145 715 /	6250 6250 6015 5775 5540 5040 4905 4730 4430 4230 4060 3745 3655 1800 1200 800 545 345 /	6250 6250 6070 5865 5540 5040 4905 4630 4230 3430 2655 1145 715 /	6250 6250 6070 5880 5540 5040 4905 4730 4430 4060 3115 2285 1655 1200 830 515 285	3250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3145 2115 1430 945 630 770 /	6250 6250 6070 5880 5540 5040 4905 4730 4430 4230 4060 3745 3220 3030 3000 2515 1855 1200 /	5160 4660 4280 3980 3760 3680 3520 3480 3220 3030 2545 1970 1545 1230 970 800	6000 5160 4660 4280 3980 3760 3680 3620 3560 3520 3480 3460 3220 3030 3000 2545 1970 1545 1230 970 800	6250 6200 5560 5120 4840 4640 4560 4520 4430 / / / / / / / /	6250 6200 5560 5120 4840 4640 4560 4520 4430 /

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



		Flg. Dia.		Raised		Prilling		_			Ring Join	t	
Class	Size		Flg. Thick.	Face Dia.	Bolt Circle Dia.	# of Hole Bolts Dia.	Face Dia.	Pitch Dia.	Grv. Depth	Grv. Width	Btm. Radius	Ring No.	
		0	T	R	С	Doits	Dia.	K	Р	L	F	r	140.
	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
Ŋ	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
	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
8	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



				Circlo		Prilling		_			Ring Join	t	
Class	Size	Flg. Dia.	Flg. Thick.	Circle Raise	Bolt CIrcle Dia.	# of Bolts	Hole Dia.	Face Dia.	Pitch Dia.	Grv. Depth	Grv. Width	Btm. Radius	Ring No.
		0	Т	R	C			K	Р	L	F	r	
	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
900	8	16.50	2.19	10.62	13.75	12	1.25	11.88	10.625	0.312	0.469	0.03	R49
9	10	20.00	2.50	12.75	17.00	16	1.38	14.00	12.750	0.312	0.469	0.03	R53
9	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
	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
0	8	18.50	2.50	10.62	15.50	12	1.50	12.12	10.625	0.312	0.469	0.03	R49
Ŏ	10	21.50	2.75	12.75	18.50	16	1.50	14.25	12.750	0.312	0.469	0.03	R53
900	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
	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
500	8	19.00	3.62	10.62	15.50	12	1.75	12.50	10.625	0.438	0.656	0.06	R50
9	10	23.00	4.25	12.75	19.00	12	2.00	14.62	12.750	0.438	0.656	0.06	R54
<u> </u>	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
	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
2500	4	14.00	3.00	6.19	10.75	8	1.50	7.99	6.188	0.438	0.656	0.060	R38
9	5	16.50	3.62	7.31	12.75	8	1.75	9.48	7.500	0.500	0.781	0.060	R40
- Ai	6	19.00	4.25	8.50	14.50	8	2.00	10.98	9.000	0.500	0.781	0.060	R47
N	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
						2						0.020	

# Southern California is not only known for awesome waves and sunsets.

Since 1972, **Southern California Valve** 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 on the West Coast, **Southern California Valve**'s reputation is unparalleled for producing high quality commodity and specialty valves. Our \$40 million ready-to-ship inventory is backed by timely deliveries and competitive prices on valves ranging from 1/4" thru 52", in pressure classes 150# thru 2500#.

**Southern California Valve** has a total of six strategic stocking location throughout North America including both of our corporate locations.

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

Visit us at the Valve World Expo 2010 Düsseldorf - 7th Biennial Valve World Conference & Exhibition in Düsseldorf, Germany on November 30 thru December 2, 2010. Booth #3G72

## **API 6D SS**

## API 6A

## API 6D

## Trunnion Balls 3-Piece & Top Entry Bolted & Welded Body

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

## Trunnion Balls 3-Piece

Sizes: 2-1/16" - 13-5/8" Pressure: 2000, 3000, & 5000

## Trunnion Balls Double Block & Bleed

Sizes: 2" - 16" Class: 150 - 2500

## Trunnion Balls Bolted & Welded Body

Sizes: 1" - 48" Class: 150 - 2500



## **API 6D**

#### **Piston Checks**

Sizes: 1" - 24" Class: 150 - 2500

## Swing Checks Full Port

Sizes: 2" - 52" Class: 150 - 2500

## Thru Conduit Gates Slab & Expanding

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



## Dual Plate Checks Wafer & Flanged

Wafer Sizes: 1.5" - 84" Wafer Class: 150 - 2500 Flanged Sizes: 8" - 48" Flanged Class: 150 - 900



## Southern California Valve Innovative Valve Solutions\*

#### Sales, Projects, Manufacturing, & Warehousing 3521 FM 646 Rd. North

3521 FM 646 Rd. North Santa Fe, TX 77510 Phone: (281) 482-4728 Fax: (281) 482-9728

#### Manufacturing, & Warehousing 13903 Maryton Ave. Santa Fe Springs, CA 90670 Toll Free: (800) 554-6421

Toll Free: (800) 554-6421 Phone: (562) 404-2246 Fax: (562) 404-2836

## 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 - Buttwelding 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 500 Value in the state of t

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

API 600 - Bolted bonnet steel gate valves for petroleum & natural as industries "ISO adoption from ISO 10434" API 602 - Steel gate, globe, & check valves for sizes DN100 and smaller for the petroleum & natural gas

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

 $API\ RP\ 520, Part\ 2-Sizing, selection\ \&\ installation\ of\ pressure\ relieving\ devices\ in\ refineries\ devices\ in\ refineries$ 

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

 $\label{eq:API 5B - Threading, gauging thread inspection of coring, tubing, \& line pipe threads$ 

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

 $\label{eq:continuous} \textit{APIQ1-Specification} for quality programs for the petroleum, petrochemical, \& natural gas$ 

### **National Association of Corrosion Engineers (NACE)**

MR0175 - Sulfide stress cracking resistant metallic materials for oil field equipment

 $MR0103-Materials\ resistant\ to\ sulfide\ street\ cracking\ in\ corrosive\ petroleum\ refining\ environments$ 

#### **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 & buttweld 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

#### **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

#### **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 & buttweld 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

characteristics
SP-102 - Multi-turn valve actuator attachment: flange and driving component dimensions & performance

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**

#### **Ouotation 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.

#### Shipment

All items quoted are EXW our Dock - (Ex Works - SCV Facility Sante Fe Spings, California 90670) - 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 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 therto. 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.

Time of cancellation: After start of engineering but prior to release to production.
Time of cancellation: After release to production but prior to completion of fabrication.

Time of concellation. After release to production but prior to completion of ta

• Time of cancellation: After completion of fabrication.

Cancellation Charge: 10% Cancellation Charge: 30% Cancellation Charge: 80% Cancellation Charge: 100%

#### **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 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.

Southern California Valve 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 the shortcomings of other valve products in service, SCV manufactured its first valve. Since that time, Southern California Valve has expanded our manufactured products to cover a broad range of valves. Industries served include the power, paper and pulp, oil and gas, and petro-chemical sectors.

Southern California 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.

Southern California Valve products include gates, globes, checks, balls, and plugs. Valves utilized throughout the industry must meet rigorous quality and production standards. Southern California 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, Southern California 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 on the West Coast. We pride ourselves on our high quality products, timely delivery capabilities, and competitive prices.

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

Sincerely,

Sid McCarra

President - Texas Operations
Southern California Valve

Since 1972, Southern California Valve 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 on the West
Coast, Southern California Valve's reputation is unparalleled
for producing high quality commodity and specialty valves.
Products range in sizes 1/4" - 84", 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.

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3521 FM 646 Rd. North 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 MANUFACTURING & WAREHOUSING

13903 Maryton Ave. Santa Fe Springs, CA 90670 Phone: (562) 404-2246

Phone: (562) 404-2246 Toll Free: (800) 554-6421

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