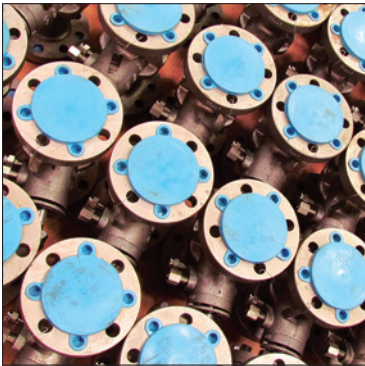






Southern California Valve



**SOUTHERN CALIFORNIA VALVE** manufactures some of the most dependable cast and forged steel Pressure Balance Lubricated Valves in the industry. Southern California Valve Lubricated Type Plug Valves are available in Short, Regular, and Venturi Pattern. The different patterns vary as regards end to end dimension and port area for a given size of valve. Regular Pattern valves have the largest port area. Short Pattern valves have a reduced port area as a consequence of their compact face-to-face dimensions which are identical to those for wedge gate valves. Venturi Pattern valves have a reduced port area and a flow path approximating a venturi shape to aid pressure recovery. The valve designs conform to API 599, API 6D, and B16.34. Face-to-face and end-to-end dimensions conform to ANSI B16.10.

Innovative valve solutions.®

# SCV Pressure Balanced Lubricated Plug Valves - API 6D

[ Product Preview ]

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

## Pressure Balanced Lubricated Plug Valves - API 6D

- Basic Design: ANSI/ASME B16.34
- Inspection & Testing: API 599 & API 6D
- Flange Dimensions: ANSI/ASME 16.5 (2"-36")
- Face-to-Face: ANSI/ASME B16.10

**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.





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# Complete Product Line

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

## Carbon & Stainless Bolted Bonnet Gates

Sizes: 2" - 60"  
Class: 150 - 2500  
Design: API 600



## Carbon & Stainless Pressure Seal Gates

Sizes: 2" - 24"  
Class: 600 - 2500  
Design: API 600



## Carbon Steel Thru Conduit Slab & Expandin

Sizes: 2" - 36"  
Class: 150 - 1500  
Design: API 6D



## Carbon & Stainless Bolted Bonnet Globes

Sizes: 2" - 24"  
Class: 150 - 2500  
Design: BS1873  
B16.34



## Carbon & Stainless Pressure Seal Globes

Sizes: 2" - 16"  
Class: 600 - 2500  
Design: BS1873  
B16.34



## Carbon & Stainless Pressure Seal Checks

Sizes: 2" - 24"  
Class: 600 - 2500  
Design: API 600  
B16.34



## Carbon & Stainless Bolted Cover Full Port Swing Checks

Sizes: 2" - 52"  
Class: 150 - 2500  
Design: API 6D



## Carbon Steel Bolted Cover Piston Checks

Sizes: 1" - 24"  
Class: 150 - 2500  
Design: API 6D



## Dual Plate Checks Wafer & Lug

Wafer Sizes: 1.5" - 84"  
Wafer Class: 150 - 2500  
Lug Sizes: 2" - 48"  
Lug Class: 150 - 900  
Design: API 594



## Carbon & Stainless 2-Piece Floating Balls

Sizes: 1/2" - 12"  
Class: 150 - 300  
Design: B16.34



## Carbon & Stainless 3-Piece Trunnion Balls

Sizes: 2-1/16" - 13-5/8"  
Pressure: 2000, 3000 & 5000  
Design: API 6A



## Carbon & Stainless 3-Piece Trunnion Balls Bolted & Welded Body

Sizes: 2" - 48"  
Class: 150 - 2500  
Design: API 6D



## Carbon & Stainless Double Block & Bleed Trunnion Balls

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



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

Sizes: 2" - 24"  
Class: 150 - 2500  
Pressure: 2000 - 15000  
Design: API 6D  
API 6DSS



## Carbon & Stainless 3-Piece Full Port Balls

Sizes: 1/4" - 3"  
Class: 3705 W.O.G.  
Design: B16.34



## Forged Steel Gates

Sizes: 3/8" - 2"  
Class: 800 - 2500  
Design: API 602



## Forged Steel Globes

Sizes: 3/8" - 2"  
Class: 800 - 2500  
Design: API 602



## Forged Steel Swing Checks

Sizes: 3/8" - 2"  
Class: 800 - 2500  
Design: API 602



## Forged Steel Piston Checks

Sizes: 3/8" - 2"  
Class: 800 - 2500  
Design: API 602



## Carbon Steel Dual Seal Expanding Plugs

Sizes: 2" - 24"  
Class: 150 - 900  
Design: API 6D



## Carbon Steel Lubricated Plugs

Sizes: 1/2" - 36"  
Class: 150 - 2500  
Design: API 6D



## Carbon & Stainless Rising Stem Balls

Sizes: 2" - 24"  
Class: 150 - 1500  
Design: API 6D





# SCV Figure Number Chart

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



Valve Type	Bore Size	Pressure Class	Body/Bonnet	Body Material		Trim Material
BAL = Ball	.02 = 1/16"	.5 = 50	B = Bolted	01 = Cast Iron	90 = Titanium	10 = CR13
DBV = Double Ball Valve	.03 = 1/8"	.7 = 75	H = Bar Stock	02 = A352/LCC	91 = Tantalum	11 = CR13/HF
DCK = Dual Wafer Check	.25 = 1/4"	12 = 125	L = Lug	03 = A352/LC2	96 = Zirconium	12 = CR13 HF/HF
DSP = Dual Seal Plug	.50 = 1/2"	01 = 150	N = NRS Bolted	04 = CF8		13 = A105/ENP
FCK = Full Port Check	.07 = 9/16"	02 = 200	P = Pressure Seal	05 = Ductile		14 = Steel/Chrome
GAT = Gate	.08 = 13/16"	03 = 300	R = Threaded Body	06 = CF8M		15 = LF2/ENP
GLB = Globe	.75 = 3/4"	04 = 400	S = Seal Weld	08 = A216 WCC		16 = 416
PCK = Piston Check	01 = 1"	06 = 600	T = Top Entry	09 = WC9/F22		17 = 17 4-PH
PLG = Plug	1.2 = 1-1/16"	08 = 800	U = Union	10 = A216 WCB		18 = LF3+ENP
RSB = Rising Stem Ball	1.3 = 1-1/8"	09 = 900	W = Wafer	11 = A352 LCB		20 = Alloy 20
SCK = Swing Check	1.4 = 1-1/4"	11 = 1000	Y = Y-Pattern	12 = A350 LF2		21 = Alloy 20/HF
TCG = Thru Conduit Gate	1.5 = 1-1/2"	15 = 1500		13 = A105		22 = F-22
TCK = Tilting Disc Check	1.8 = 1-13/16"	17 = 175		14 = LC3/LF3		25 = Inconel Overlay
WCK = Wafer Check	02 = 2"	20 = 2000		15 = A217 C5		28 = Sanicro 28
	2.2 = 2-1/16"	25 = 2500		16 = WC6/F11		30 = 4130
	2.3 = 2-1/8"	30 = 3000		17 = 17-4 PH		31 = 321
	2.5 = 2-1/2"	37 = 3705		18 = A108		32 = 316L
	2.7 = 2-9/16"	45 = 4500		19 = LF4		33 = 304/HF
	03 = 3"	50 = 5000		20 = Alloy 20		34 = 304
	3.3 = 3-16"	60 = 6000		21 = LF6		35 = 316/HF
	04 = 4"	10 = 10000		22 = F-22		36 = 316
	4.2 = 4-1/16"	05 = 15000		24 = 254 SMO		37 = 317/HF
	05 = 05"			25 = F5		38 = 317
	06 = 06"			26 = F91		39 = 1040
	08 = 08"			27 = C12A		41 = 410/F6a
	10 = 10"			28 = Sanicro 28		42 = Full Teflon
	12 = 12"			29 = C12/F9		44 = F44 Duplex
	14 = 14"			30 = AISI 4130		47 = 347
	16 = 16"			31 = 321		48 = 347/HF
	18 = 18"			32 = 321L		49 = Carpenter
	20 = 20"			33 = 304L		50 = Monel
	22 = 22"			34 = 304		51 = F51 Duplex
	24 = 24"			35 = 316L		52 = Nickel Alloy
	26 = 26"			36 = 316		53 = F53 Duplex
	30 = 30"			37 = 317L		54 = A516/ENP
	32 = 32"			38 = 317		55 = F55 Duplex
	36 = 36"			40 = AISI 4140		56 = A36/ENP
	40 = 40"			41 = 410/F6a		57 = A537/ENP
	42 = 42"			44 = F44 Duplex		60 = Duplex
	48 = 48"			47 = 347		61 = Super Duplex
	50 = 50"			48 = 347L		62 = Inconel 625
	54 = 54"			49 = Carpenter		63 = Inconel 600
	60 = 60"			50 = Monel		69 = Naval Brass
	72 = 72"			51 = F51 Duplex		70 = Bronze
	78 = 78"			52 = Nickel Alloy		71 = Aluminum
	72 = 72"			53 = F53 Duplex		78 = Inconel 718
	78 = 78"			54 = ASTM A516		80 = Alu/Brz
				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		88 = A890-4A
				63 = Inconel 600		89 = A890-5A
				65 = F65		90 = Titanium
				69 = Naval Brass		91 = Tantalum
				70 = Bronze		92 = Inconel 925
				71 = Aluminum		93 = Tungsten Carbide
				78 = Inconel 718		96 = Zirconium
				80 = Alu Bronze		97 = Nickel Boron
				81 = Ni Alu/Brz		
				82 = Inconel 825		
				83 = Hastelloy B		
				84 = Hastelloy C		
				86 = AISI 8026		
				87 = 487		
				88 = A890-4A		
				89 = A890-5A		



7

8

9

10

11

12

Ends	Operation	Configuration	Seal Material	Seat Material	Special
A = RF x BW	B = Bare Stem	32 = 3 Way 2 Port	4 = 304 Ring	D = Devlon	By Pass
B = RTJ x BW	D = Dual Acting	3F = 3 Way Floater	6 = 316 Ring	G = Graphite	Cadium Coat
C = Clamp	E = Electric	3T = 3 Way Trunnion	A = Aflas O-Ring	K = PCTFE	Cryogenic
D = RF x RTJ	G = Gear	43 = 4 Way 3 Port	B = Buna	M = Metal Seated	Epoxy Paint
F = Flat	H = Handwheel	4F = 4 Way Floater	E = EPDM	N = Nylon	Lip Seal
H = Hub	L = Lever	4T = 4 Way Trunnion	F = Fluorosilicone	O = Nova	Metal Hardface
J = RTJ	O = Oil/Gas	EX = Expanding	G = Grafoil	P = PEEK	Metal Tungsten Carbide
N = Nipples	S = S/Return	FF = Full Floater	H = HNBR	R = RPTFE	Nitride
M = SW x TH	Y = Hydraulic	FT = Full Trunnion	K = Kalrez	T = Teflon	Outside WT
O = ODD		RF = Red, Floater	N = Neoprene		QPQ Inturnal
R = RF		RT = Red, Trunnion	P = Polyuerethane		Slam Retard
S = SW		SJ = Steam Jacket	R = NBR		Stancoat
T = TH			S = Silicone		Sub Sea
W = WE			T = Teflon		Teflon Lined
			U = Floursint		Top Extension
			V = Viton		Zinc Base

## Figure Number Profile

1	2	3	4	5	6	7	8	9	10	11	12	
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
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

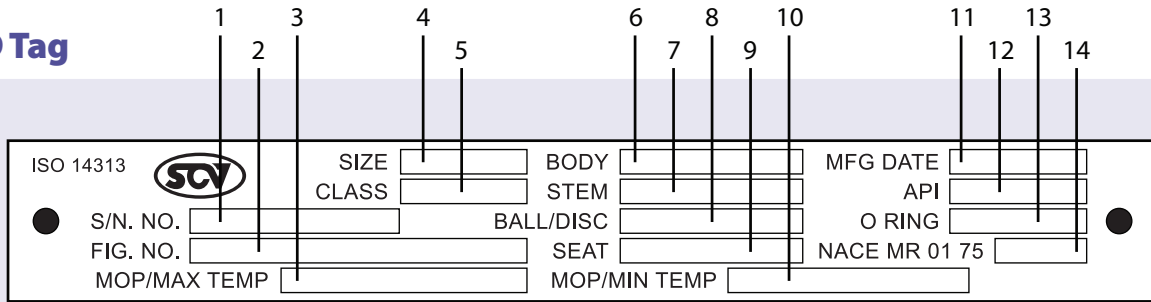
Valve Type	Sample Figure #	Description
Trunnion Ball	BAL0201B1313RLFT-HD	Ball Valve, 2", 150#, Bolted Bonnet, A105 Body, ENP Trim, HNBR Seals, Devlon Seats, Raised Face, Lever Operated, Full Port, Trunnion Mtd.
Floating Ball	BAL0201B1036RLFF-/T	Ball Valve, 2", 150#, Bolted Bonnet, A216 WCB Body, 316SS 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	FCR0409B1011J	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	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	RSB1006B1036RGFT-HR	Rising Stem Ball, 10", 600#, Bolted Bonnet, WCB Body, 316SS Trim, HNBR Seals, RPTFE Seats, Raised Face, Gear Operated

Note: Wedge Gates, Globes, Swing Checks, Piston Checks, Wafer Checks are metal-to-metal seats as standard.

Note: Subject to change without notice.

# Valve ID Tag & Valve Markings Identification

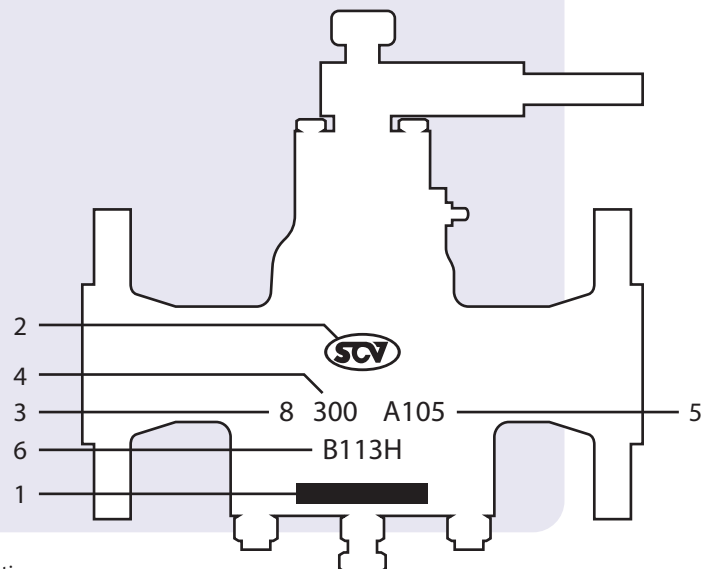
## Valve ID Tag



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

## Valve Markings

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



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



Southern California Valve

## Pressure Balanced Lubricated Plug Valves - API 6D

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

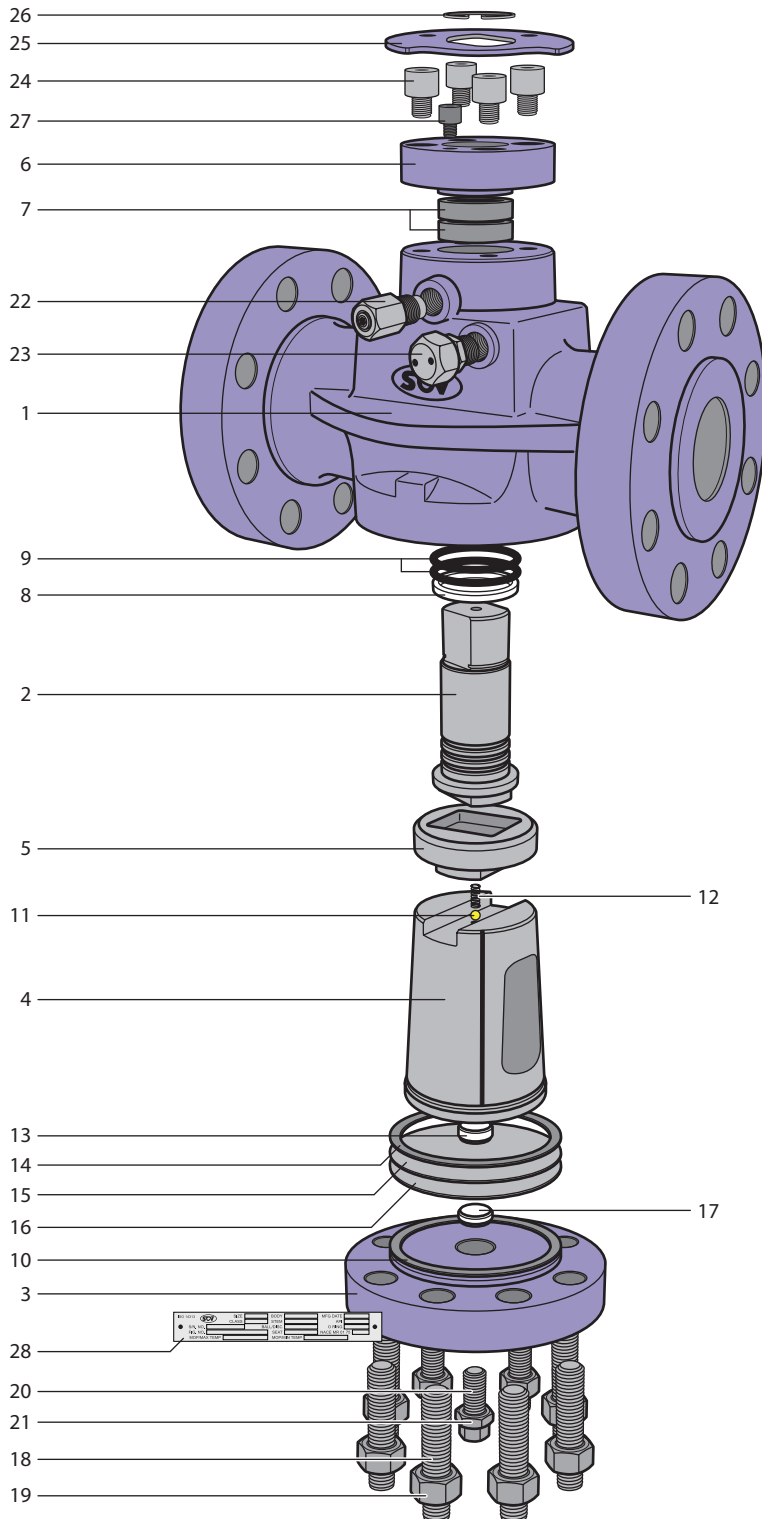


Design and Manufacturing Standards	
Basic Design	API 6D
Shell Wall Thickness	API 6D
Face to Face Dimension	API 6D
Flange End Dimension	API 6D
Inspection & Testing	API 6D
Fire Safe Design	API 6FA/BS 6755



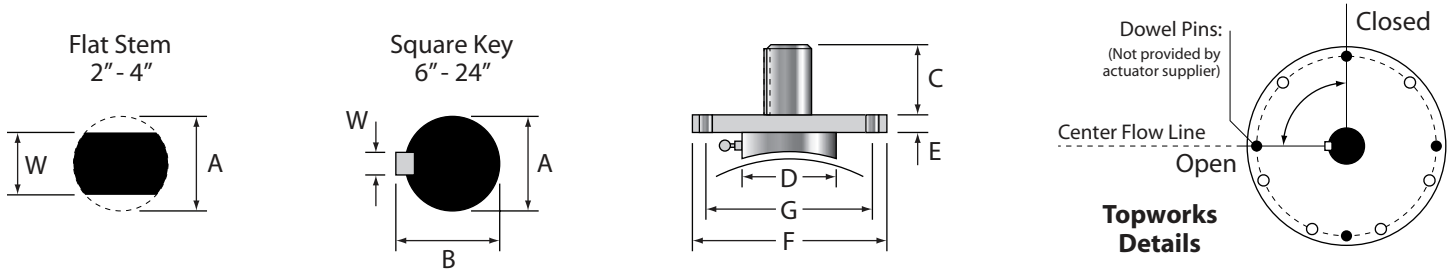
# Pressure Balanced Lubricated Plug Valves - API 6D

[ Expanded View ]



No	Name Of Part
1	Body
2	Stem
3	Bonnet
4	Plug
5	Stem Plug Adapter
6	Top Cover
7	Packing
8	Thrust Bearing
9	O Rings
10	Gasket
11	Steel Ball
12	Spring
13	Upper Pivot Disc/Pivot Center
14	Graphite Gasket
15	Steel Pillow
16	Steel Washer
17	Lower Pivot Disc
18	Stud
19	Nut
20	Plug Adjustment Screw
21	Plug Adjustment Lock Nut
22	Stem Packing Injector
23	Lubricant/Sealant Injector
24	Gland Cap Screws
25	Indicator Stop Plate
26	Stop Plate Retainer
27	Stop Bolt
28	I.D. Tag

# Pressure Balanced Lubricated Plug Valve Mounted Flanges & Stem Torque Information



NPS	CL	ISO 5211 Code	A	B	C	D	E	F Flange Dia.	G Bolt Center	H Stud Size	I Hole Dia.	L No. of Holes	W	Max. Stem Shear Torque N.M.	Break Torque N.M.
2	150	F10	28	/	34	78	17	125	102	M10	11	4	20	409	58
2	300	F10	28	/	34	78	17	125	102	M10	11	4	20	409	101
2	600	F10	28	/	33	78	17	125	102	M10	11	4	20	409	172
3	150	F12	34	/	33	90	19	150	125	M12	13.5	4	24	706	121
3	300	F12	34	/	33	90	19	150	125	M12	13.5	4	24	706	213
3	300	F12	34	37	70	90	19	150	125	M12	13.5	4	10	1141	213
3	600	F12	34	/	33	90	19	150	125	M12	13.5	4	24	706	366
4	150	F14	38	/	39	108	21	175	140	M16	18	4	28	1076	242
4	300	F14	38	/	39	108	21	175	140	M16	18	4	28	1076	435
4	600	F14	38	41	67	108	21	175	140	M16	18	4	10	1616	757
6S	150	F14	42	/	43	105	20	175	140	M16	18	4	30	1379	600
6R	150	F14	42	45	65	105	22	175	140	M16	18	4	12	2180	600
6	300	F16	50	53.5	70	120	22	210	165	M20	22	4	14	3698	1112
6R	600	F25	50	53.5	80	120	25	300	254	M16	18	8	14	3698	2035
8S	150	F16	48	/	49	116	24	210	165	M20	22	4	34	2008	1097
8S	150	F16	48	51.5	80	116	24	210	165	M20	22	4	14	3256	1097
8R	150	F25	52	56	80	116	26	300	254	M16	18	8	16	4122	1280
8S	300	F25	52	56	80	122	26	300	254	M16	18	8	16	4122	2045
8R	300	F25	52	56	90	122	22	300	254	M16	18	8	16	4122	2355
8R	600	F25	62	66	90	150	25	300	254	M16	18	8	16	7025	4505
10S	150	F25	52	56	80	115	26	300	254	M16	18	8	16	4122	1609
10R	150	F25	52	56	80	115	26	300	254	M16	18	8	16	4122	2240
10S	300	F25	62	66	90	130	25	300	254	M16	18	8	16	7025	3038
10R	300	F25	66	70.5	85	150	28	300	254	M16	18	8	20	8445	4418
10R	600	F30	78	83	130	170	28	350	298	M20	22	8	20	14000	8478
10V	600	F25	68	72.5	115	140	25	300	254	M16	18	8	20	9271	5623
12S	150	F25	62	66.4	80	134	20	300	254	M16	18	8	18	7025	2466
12R	150	F25	68	72.5	90	130	23	300	254	M16	18	8	20	9271	3380
12R	300	F30	78	83	130	160	25	350	298	M20	22	8	22	14000	7483
12V	300	F25	68	72.5	90	144	22	300	254	M16	18	8	20	9271	4248
12R	600	F30	90	95	120	168	30	350	298	M20	22	8	25	21680	12801
12V	600	F30	78	83	130	170	28	350	298	M20	22	8	22	14000	8478
14V	150	F25	66	70.5	80	143	25	300	254	M16	18	8	20	8445	2835
14V	300	F25	78	83	120	170	25	300	254	M16	18	8	22	14000	5650
14V	600	F30	90	95	120	170	30	350	298	M20	22	8	25	21680	10930
16V	150	F25	78	83	120	150	26	350	298	M20	22	8	22	14000	4174
16V	300	F30	90	95	120	164	30	350	298	M20	22	8	25	21680	8128
16V	600	F35	98	104	150	190	35	415	356	M30	33	8	28	27914	16393
18V	150	F30	90	95	120	180	26	350	298	M20	22	8	25	21680	5700
18V	300	F35	98	104	150	190	32	415	356	M30	33	8	28	27914	11531
18V	600	F35	108	114	150	200	32	415	356	M30	33	8	28	37740	22472
20v	150	F30	95	100	140	180	32	350	298	M20	22	8	25	25640	8260
20V	300	F35	108	114	150	200	35	415	356	M30	33	8	28	37750	15701
20V	600	F35	118	125	160	210	35	415	356	M30	33	8	32	49089	30554
24V	150	F35	108	114	150	210	35	415	356	M30	33	8	28	37740	14911
24V	300	F35	118	125	160	210	35	415	356	M30	33	8	32	49089	26614
24V	600	F40	138	146	200	250	40	475	406	M36	39	8	36	78915	46757

1. Nominal Torque of the actuator = the break torque \* 1.5 (safety coefficient).  
 2. The torques shown in the table is made out at the max. delt pressure when the valve is closed.  
 3. An extra torque may be taken into account for different media, on/off frequency and different materials internal parts.

# Pressure Balanced Lubricated Plug Valve Range & Index

● = Short Pattern

■ = Regular Pattern

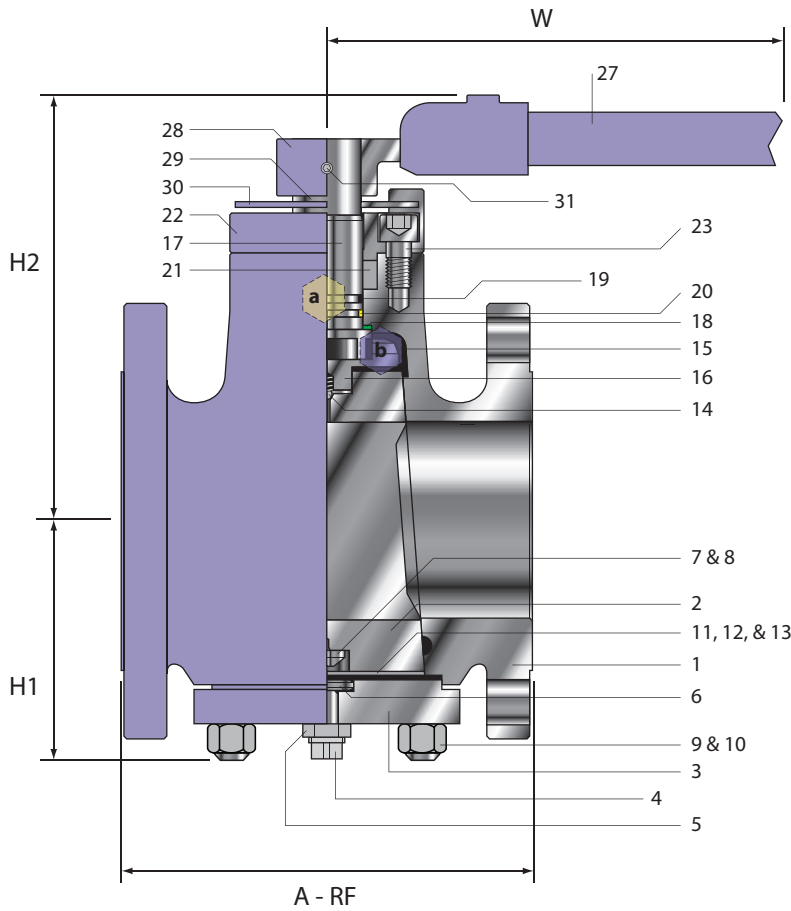
▲ = Venturi Pattern

Full Port pattern as per API 6D is available. Valves not shown in the table will be considered against specific requirements.

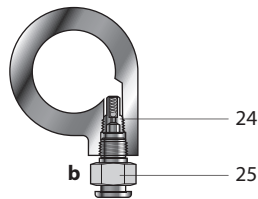
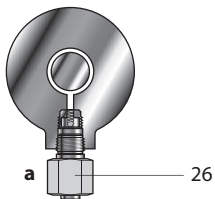
CLASS	150			300			600		900		1500		2500
	S	R	V	S	R	V	R	V	R	V	R	V	R
2	●	■		●			■		■		■		■
50													
3	●	■		●			■		■		■		■
75													
4	●	■		●			■		■		■		■
100													
6	●	■		●	■		■	▲	■		■		■
150													
8	●	■			■		■	▲	■		■		■
200													
10	●	■			■			▲	■		■		■
250													
12	●	■			■			▲	■		■		■
300													
14			▲			▲		▲		▲		▲	
350													
16			▲			▲		▲		▲		▲	
400													
18			▲			▲		▲		▲		▲	
450													
20			▲			▲		▲		▲		▲	
500													
24			▲			▲		▲		▲		▲	
600													
26			▲			▲							
650													
28			▲			▲							
700													
30			▲			▲							
750													
36			▲			▲							
900													

# Short Pattern - Pressure Balanced Lubricated Plug Valves

Size: 2" - 6" Class: 150



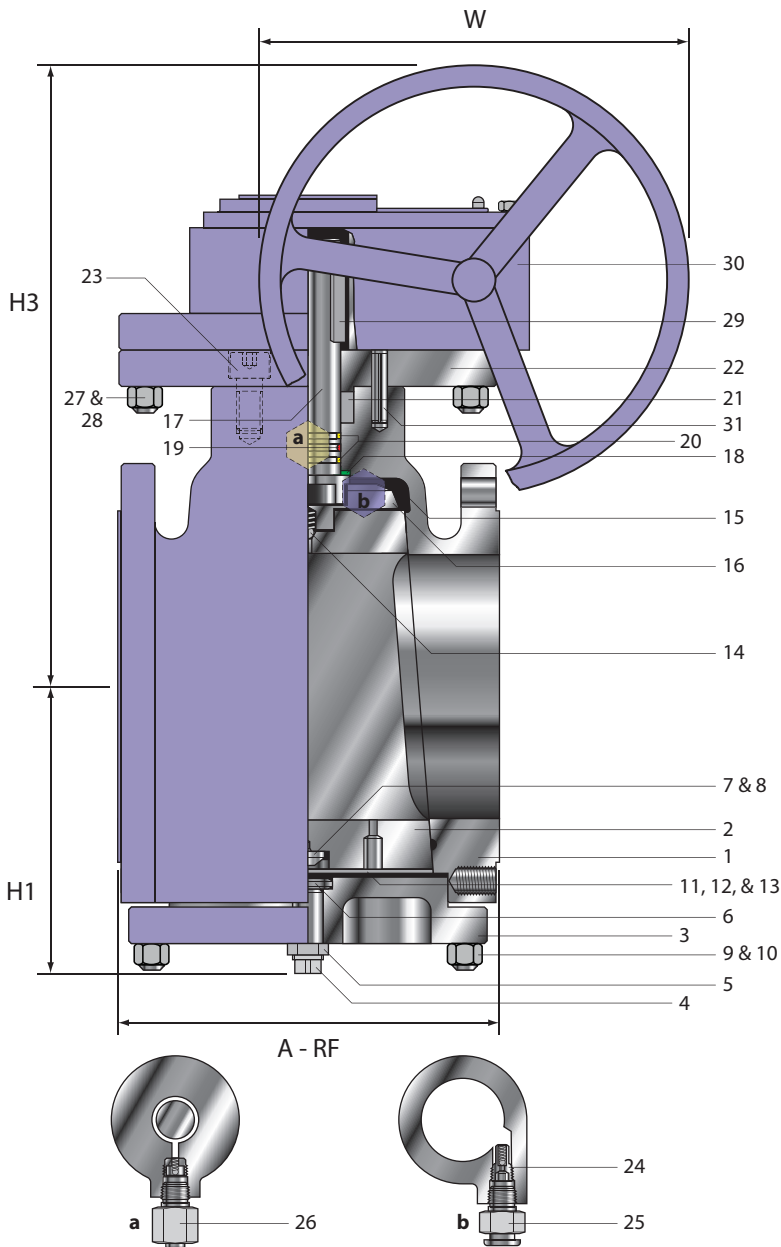
No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105 WCC
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Lever	Carbon Steel
28	Hub	Carbon Steel
29	Indicator Stop Plate	Carbon Steel
30	Stop Plate Retainer	AISI 1566
31	Set Screw	Carbon Steel



CLASS 150	Size	A - RF	H1	H2	W	WGT LBS/KG
	NPS 2	7.01	3.84	5.83	14	42
	DN 50	178	95	148	350	19
	NPS 3	7.99	4.25	6.61	20	73
	DN 75	203	108	168	500	33
	NPS 4	9.02	5	7.91	24	115
	DN 100	229	127	201	600	52
	NPS 6	10.51	6.65	9.9	32	176
DN 150	267	169	251	800	80	

# Short Pattern - Pressure Balanced Lubricated Plug Valves

Size: 6" - 12" Class: 150



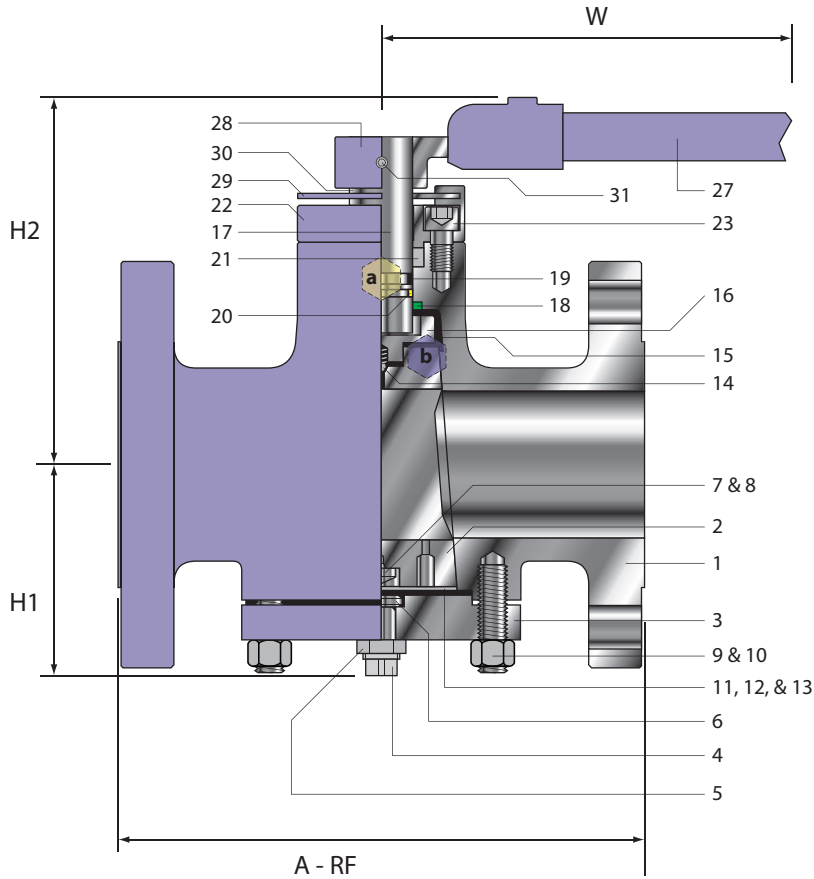
No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105 WCC
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Ductile Iron
31	Positioning Pin	Carbon Steel

CLASS 150	Size		A - RF	H1	H3	W	WGT LBS/KG
	NPS	6	10.51	6.85	19.33	18	176
	DN	150	267	174	491	450	80
	NPS	8	11.5	8.46	23.31	24	348
	DN	200	292	215	592	600	158
	NPS	10	13	9.65	24.29	24	540
	DN	250	330	245	617	600	245
	NPS	12	14.02	11.22	25.98	24	772
DN	300	356	285	660	600	350	

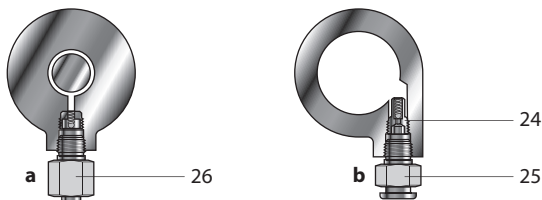


# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 2" - 6" Class: 150



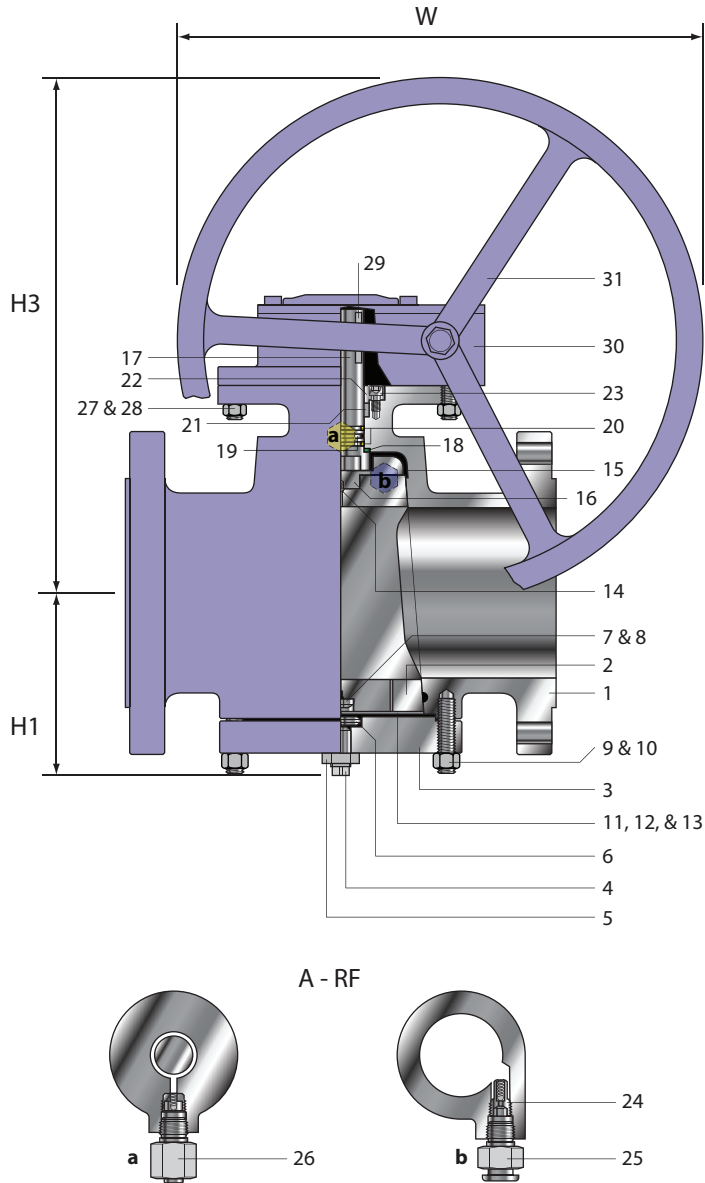
No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105 WCC
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Lever	Carbon Steel
28	Hub	Carbon Steel
29	Indicator Stop Plate	Carbon Steel
30	Stop Plate Retainer	AISI 1566
31	Set Screw	Carbon Steel



CLASS 150	Size		A - RF	H1	H2	W	WGT LBS/KG
	NPS	2	8	4.63	7	14	47
	DN	50	203	118	178	350	21.3
	NPS	3	9.5	6.34	8.63	20	101
	DN	75	241	161	219	500	46
	NPS	4	12	7.05	9.25	24	187
	DN	100	305	179	235	600	85
	NPS	6	15.5	7.2	10.4	32	187
DN	150	432	183	264	800	85	

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 6" - 12" Class: 150

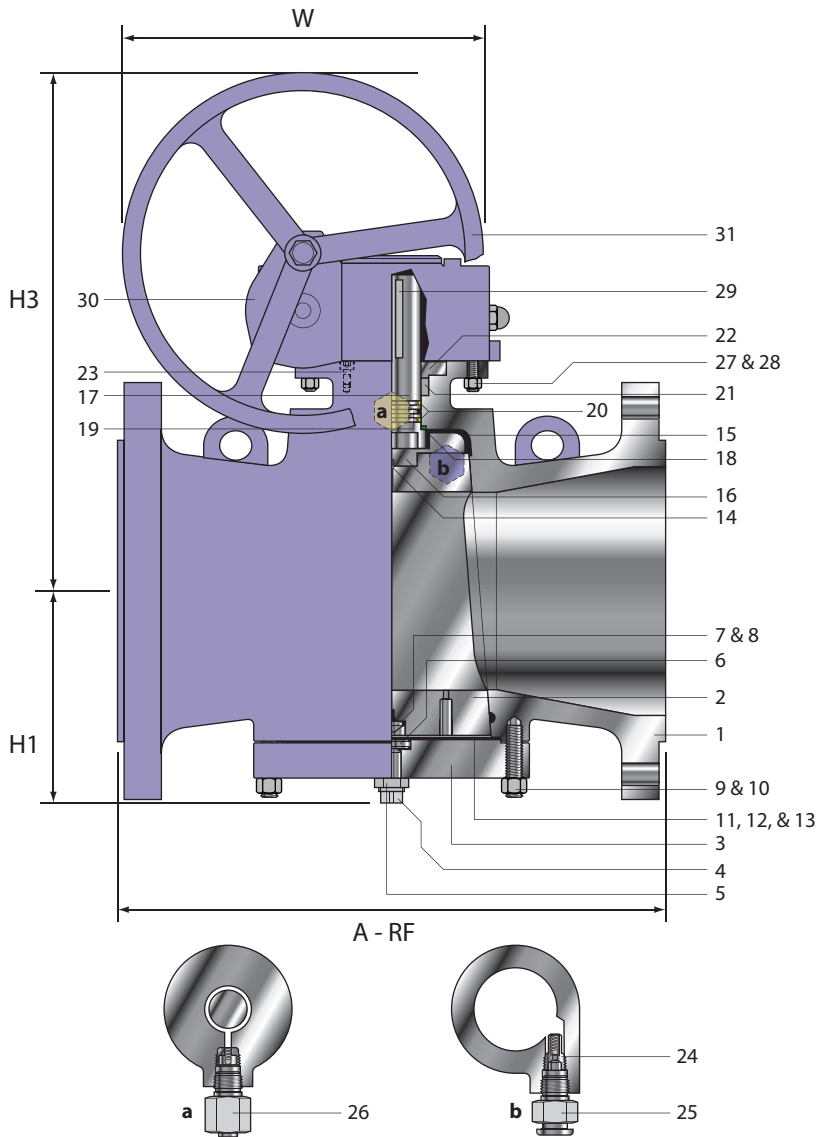


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Gland	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel

CLASS 150	Size	A - RF	H1	H3	W	WGT LBS/KG
	NPS 6	15.5	7.2	20.16	18	202
	DN 150	394	183	512	450	92
	NPS 8	18	9.4	24.21	24	400
	DN 200	457	239	615	600	182
	NPS 10	21	11.0	26.73	24	620
	DN 250	533	279	679	600	282
	NPS 12	24	12.8	29.92	24	887
DN 300	610	325	760	600	403	

# Venturi Pattern - Pressure Balanced Lubricated Plug Valves

Size: 14" - 36" Class: 150

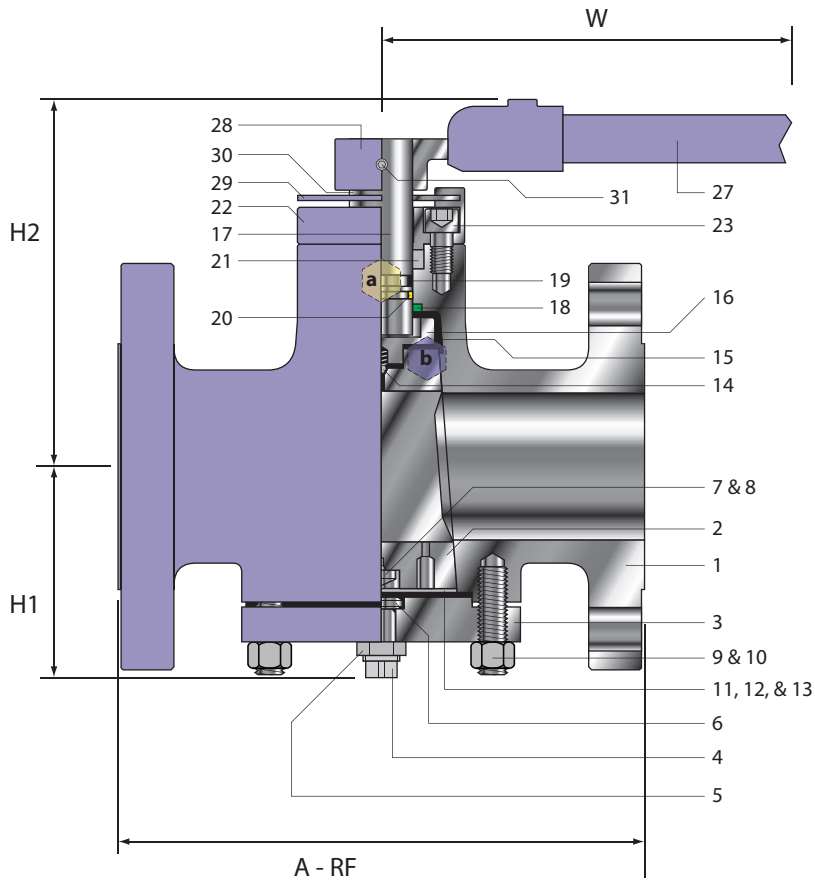


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel

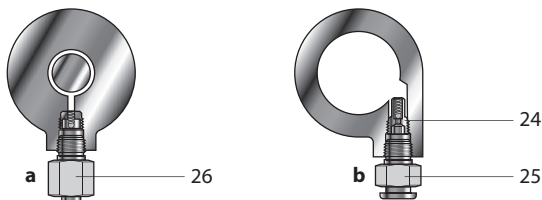
CLASS 150	Size		A - RF	H1	H3	W	WGT LBS/KG
	NPS	DN					
	14	350	27.01	10.43	26.18	24	1477
	16	400	30	12.48	32.6	24	1731
	18	450	34.02	16.4	30.1	24	1951
	20	500	35.98	18.4	30.8	24	2130
	24	600	42.01	20.3	31.5	24	4092
	30	750	50.98	228	41.1	24	8155
	36	900	.63	*	*	24	*

# Short Pattern - Pressure Balanced Lubricated Plug Valves

Size: 2" - 6" Class: 300



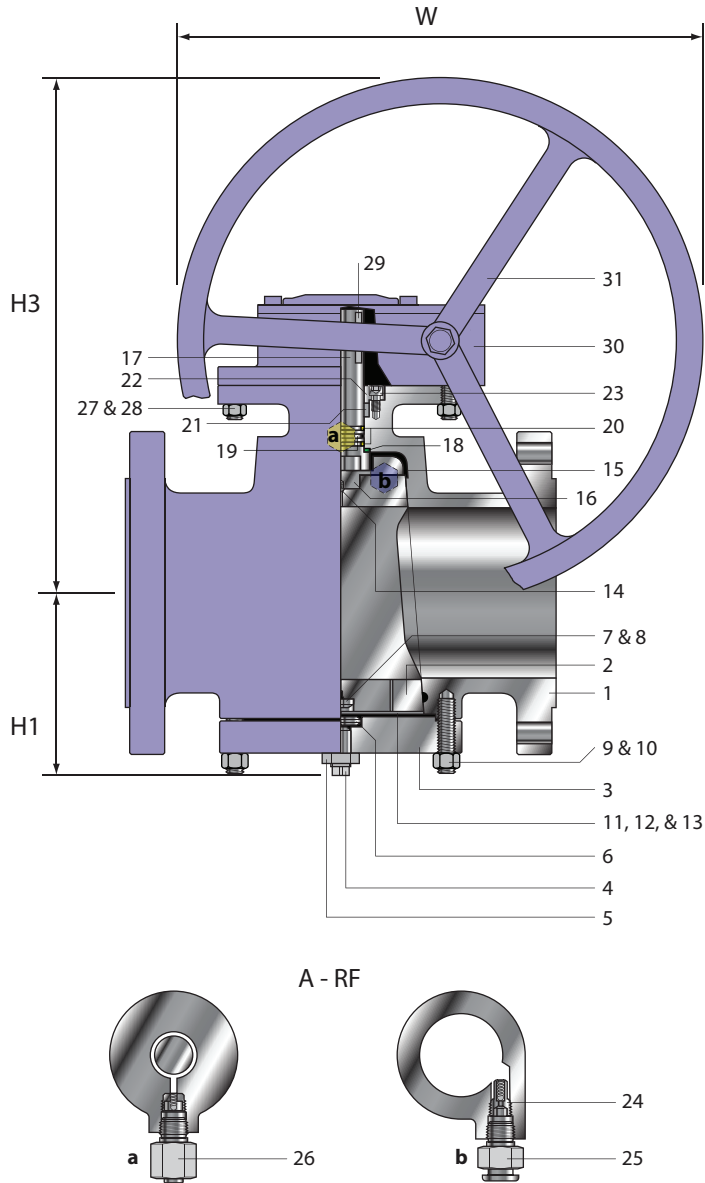
No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105 WCC
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Lever	Carbon Steel
28	Hub	Carbon Steel
29	Indicator Stop Plate	Carbon Steel
30	Stop Plate Retainer	AISI 1566
31	Set Screw	Carbon Steel



CLASS 300	Size	A - RF	H1	H2	W	WGT LBS/KG
	NPS 2	8.5	3.74	5.83	14	46
	DN 50	216	95	148	350	21
	NPS 3	11.14	4.41	6.61	20	84
	DN 75	283	112	168	500	38
	NPS 4	12.01	5.35	7.91	24	132
	DN 100	305	136	201	600	60
	NPS 6	15.87	6.9	9.72	32	188
DN 150	403	175	247	800	85	

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 4" - 12" Class: 300

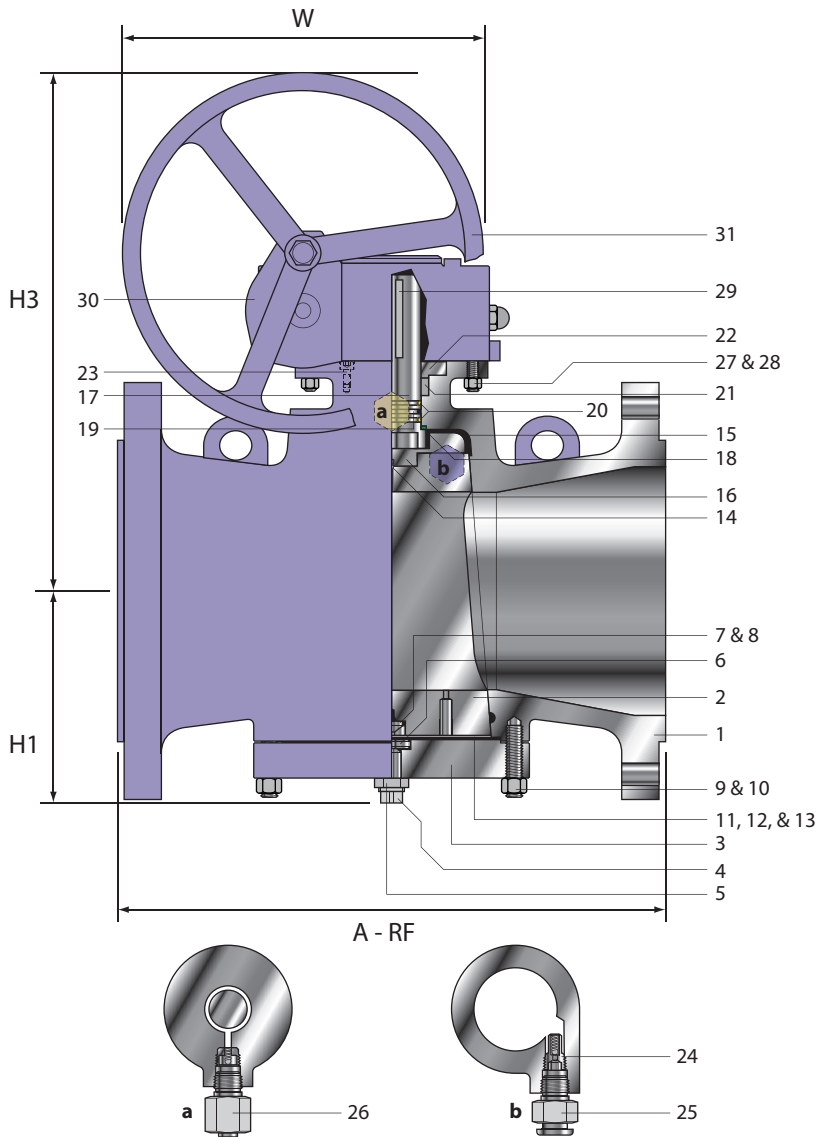


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Gland	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel

CLASS 300	Size		A - RF	H1	H3	W	WGT LBS/KG
	NPS	4	12	5.35	8.5	10	132
	DN	100	305	136	216	250	60
	NPS	6	15.87	6.89	10.55	14	392
	DN	150	403	175	268	350	178
	NPS	8	19.76	8.23	11.46	18	609
	DN	200	502	209	291	450	276
	NPS	10	22.36	9.69	12.91	24	784
	DN	250	568	246	328	600	356
	NPS	12	27.99	11.22	18.7	32	1120
DN	300	711	285	475	800	508	

# Venturi Pattern - Pressure Balanced Lubricated Plug Valves

Size: 14" - 36" Class: 300

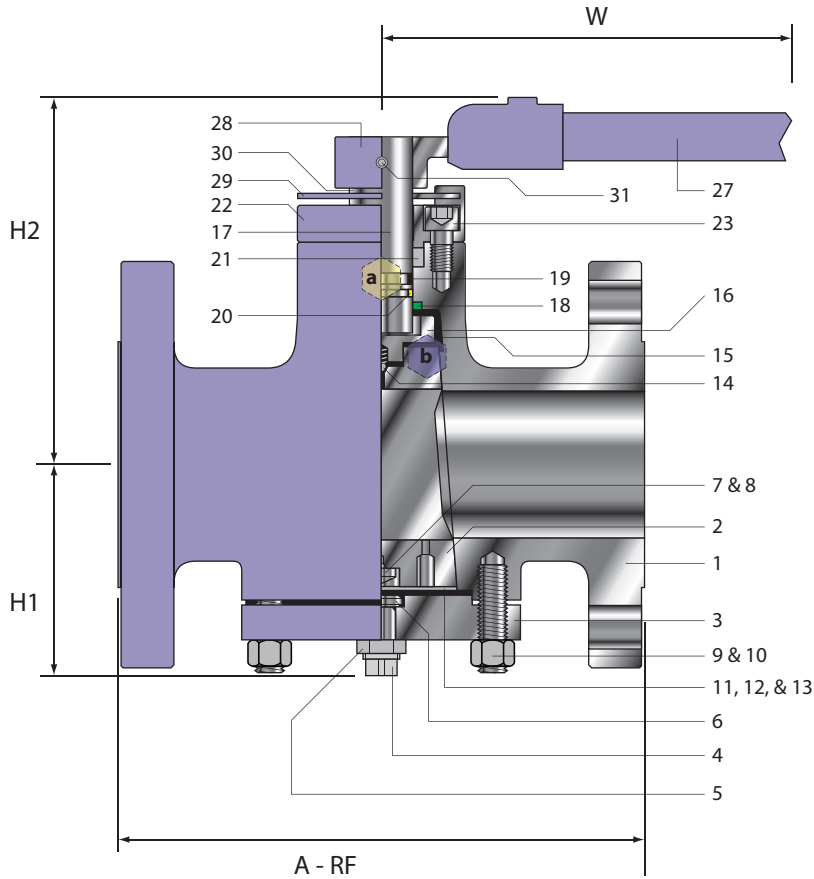


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel

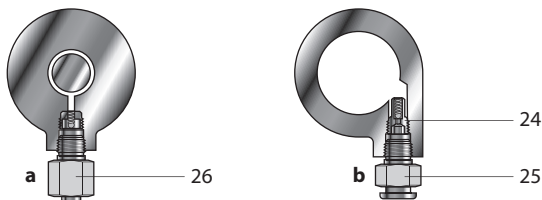
CLASS 300	Size		A - RF	H1	H3	W	WGT LBS/KG
	NPS	14	30	10.43	26.18	24	1755
	DN	350	762	265	665	600	796
	NPS	16	32.99	12.48	32.6	24	1989
	DN	400	838	317	828	600	902
	NPS	18	35.98	16.4	30.1	24	2418
	DN	450	914	416	765	600	1097
	NPS	20	39.02	18.5	37	24	3474
	DN	500	991	470	940	600	1576
	NPS	24	45	20.7	38.2	24	4530
DN	600	1143	525	970	600	2060	
NPS	30	55	*	*	24	*	
DN	750	1397	*	*	600	*	
NPS	36	67.99	*	*	24	*	
DN	900	1727	*	*	600	*	

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 2" - 4" Class: 600



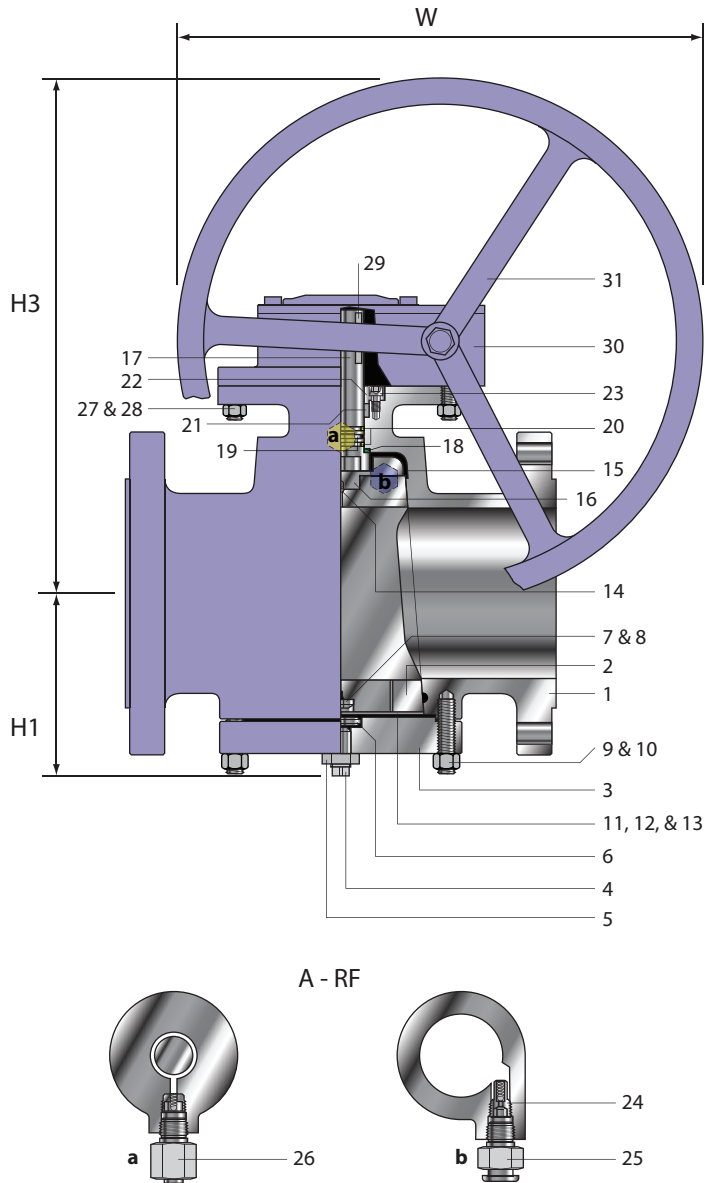
No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105 WCC
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Lever	Carbon Steel
28	Hub	Carbon Steel
29	Indicator Stop Plate	Carbon Steel
30	Stop Plate Retainer	AISI 1566
31	Set Screw	Carbon Steel



600	Size		A - RF	A - RTJ	H1	H2	W	WGT LBS/KG
	NPS	2	11.5	11.6	3.82	5.83	22	47
DN	50	292	295	97	148	550	21.3	
NPS	3	14.37	14.1	4.41	6.61	28	101	
DN	75	356	359	112	168	700	46	
NPS	4	17	17.1	5.35	8.27	40	187	
DN	100	432	435	136	210	1000	85	

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 4" - 12" Class: 600



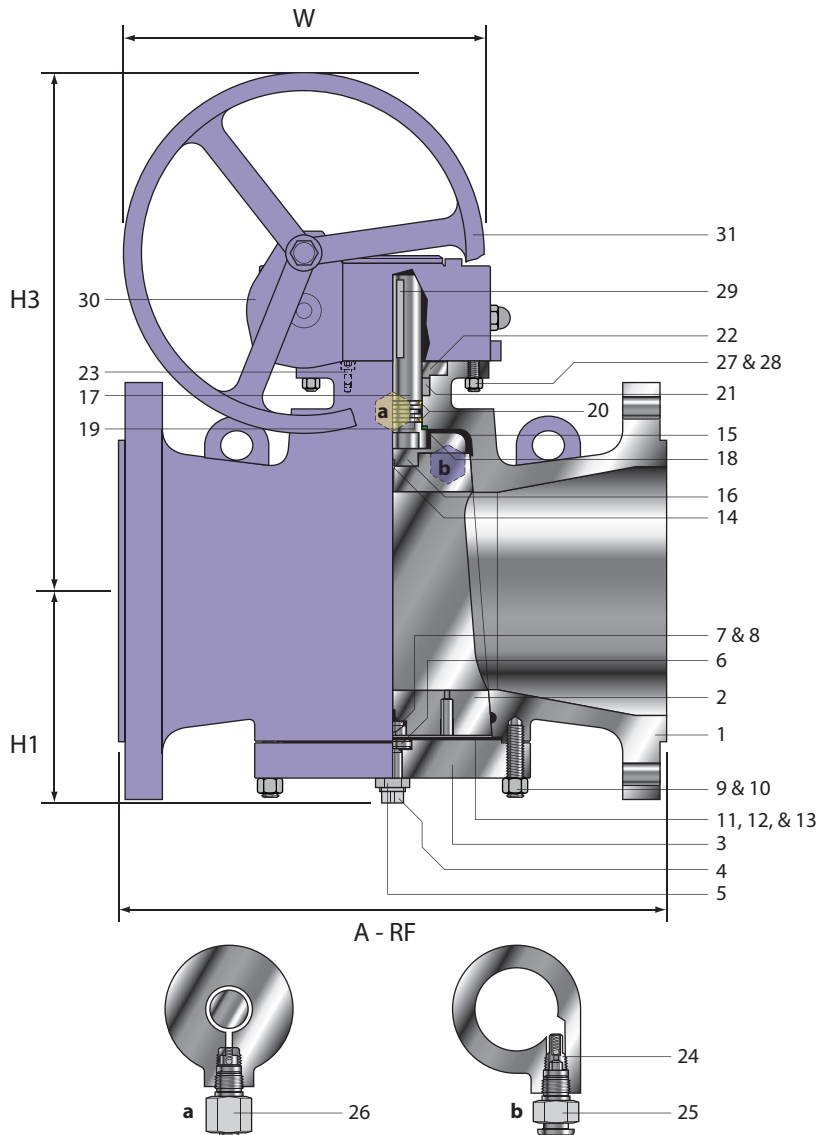
No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Gland	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel

CLASS 600	Size		A - RF	A - RTJ	H1	H3	W	WGT LBS/KG
	NPS	4	17	17.1	5.35	13.78	10	187
	DN	100	432	435	136	350	250	85
	NPS	6	22.01	22.1	9.75	17.52	14	560
	DN	150	559	562	248	445	350	254
	NPS	8	25.98	26.1	11.8	22.83	18	896
	DN	200	660	664	298	580	450	406
	NPS	10	30.98	31.1	12.3	30.5	18	1290
	DN	250	787	791	313	775	450	584
	NPS	12	33	33.1	14.8	27.7	24	1367
DN	300	838	841	375	704	600	620	



# Venturi Pattern - Pressure Balanced Lubricated Plug Valves

Size: 6" - 24" Class: 600

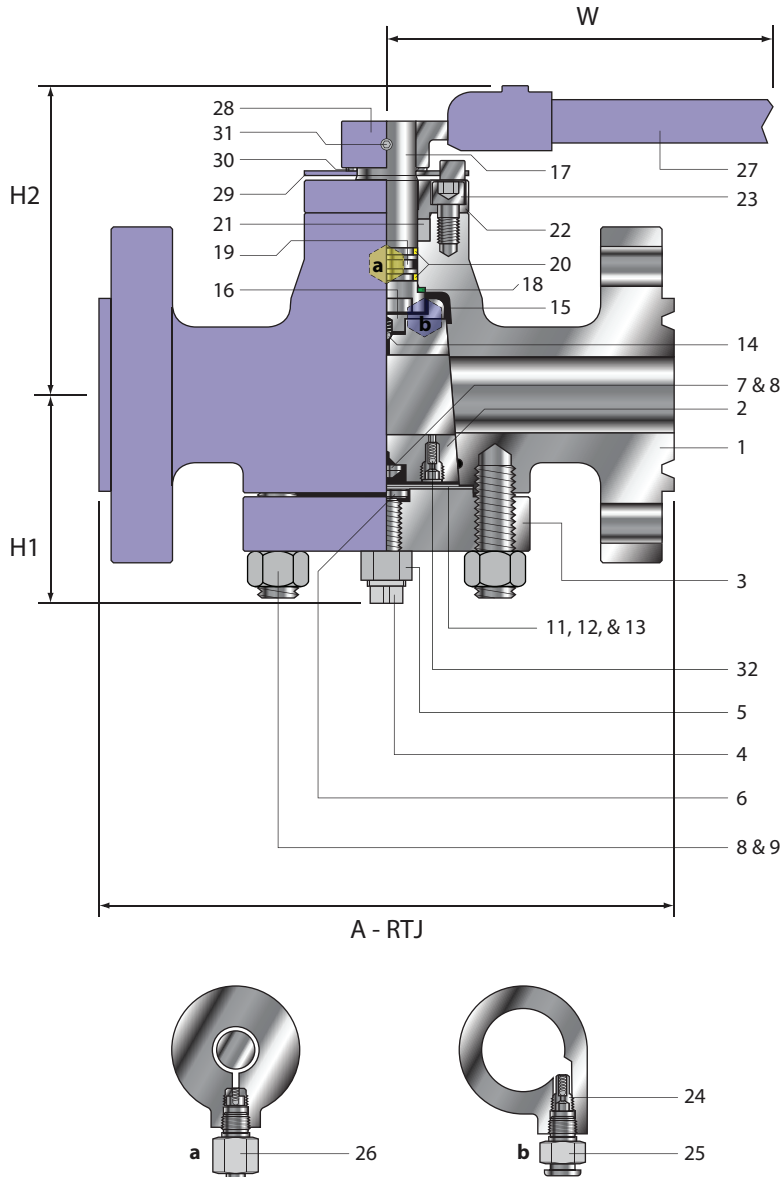


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel

CLASS 600	Size		A - RF	A - RTJ	H1	H3	W	WGT LBS/KG
	NPS	DN						
	6	150	22	22.1	5.35	20.67	24	330
	8	200	25.98	26.1	7.28	22.44	24	670
	10	250	30.98	31.1	9.13	24.02	24	965
	12	300	32.99	33.1	13.2	30.4	24	1358
	14	350	35	35.1	14.8	32.5	24	1905
	16	400	39.02	39.1	16.9	33.3	32	2575
	18	450	42.99	43.1	18.3	35.4	32	3644
	20	500	47	47.2	18.8	37.2	32	4079
	24	600	55	55.4	19.5	34.3	32	4764
			1397	1407	496	870	800	2161

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 2" - 3" Class: 900

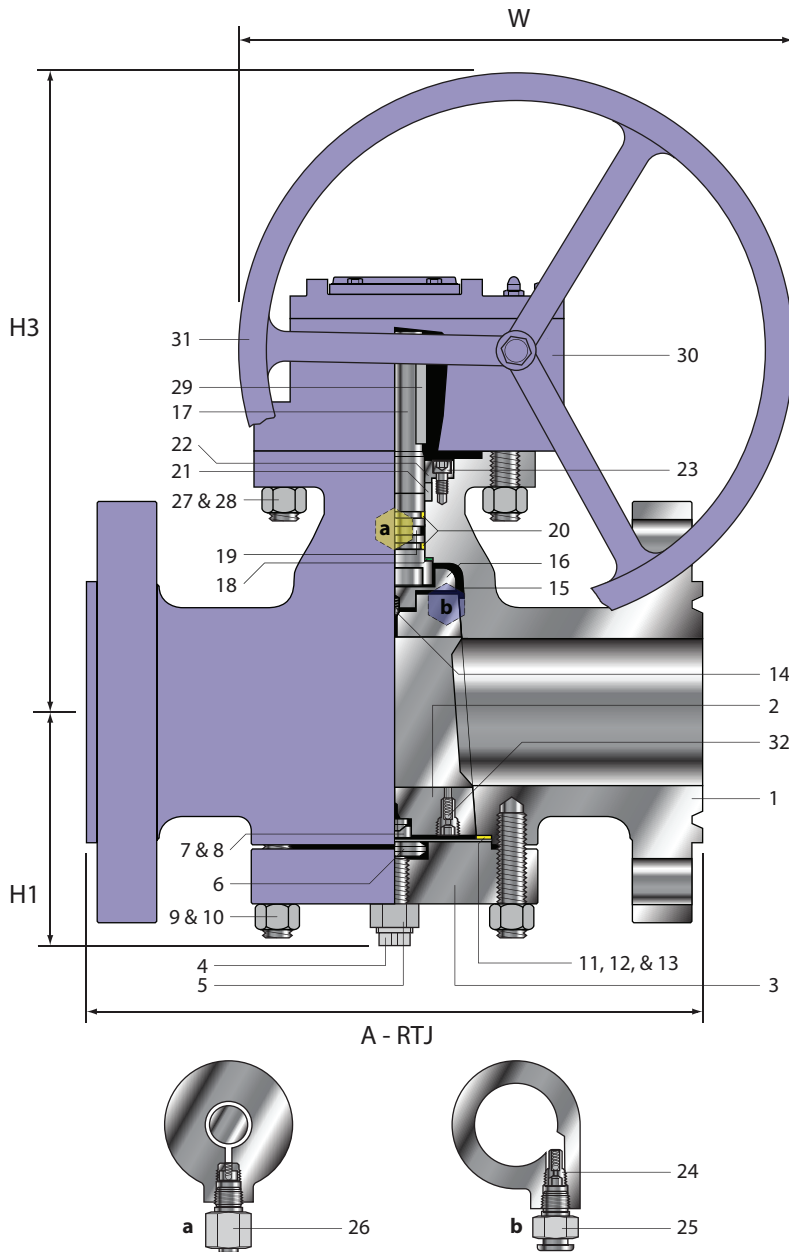


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105 WCC
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Lever	Carbon Steel
28	Hub	Carbon Steel
29	Indicator Stop Plate	Carbon Steel
30	Stop Plate Retainer	AISI 1566
31	Set Screw	Carbon Steel
32	Inline Check	Carbon Steel/Stainless Steel

900	Size		A - RF	A - RTJ	H1	H2	W	WGT LBS/KG
	NPS	2	/	14.6	5.31	7.13	32	54
	DN	50	/	371	135	181	800	24.5
	NPS	3	15	15.12	7.09	8.7	40	250
	DN	75	381	384	180	221	1000	114

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 4" - 12" Class: 900

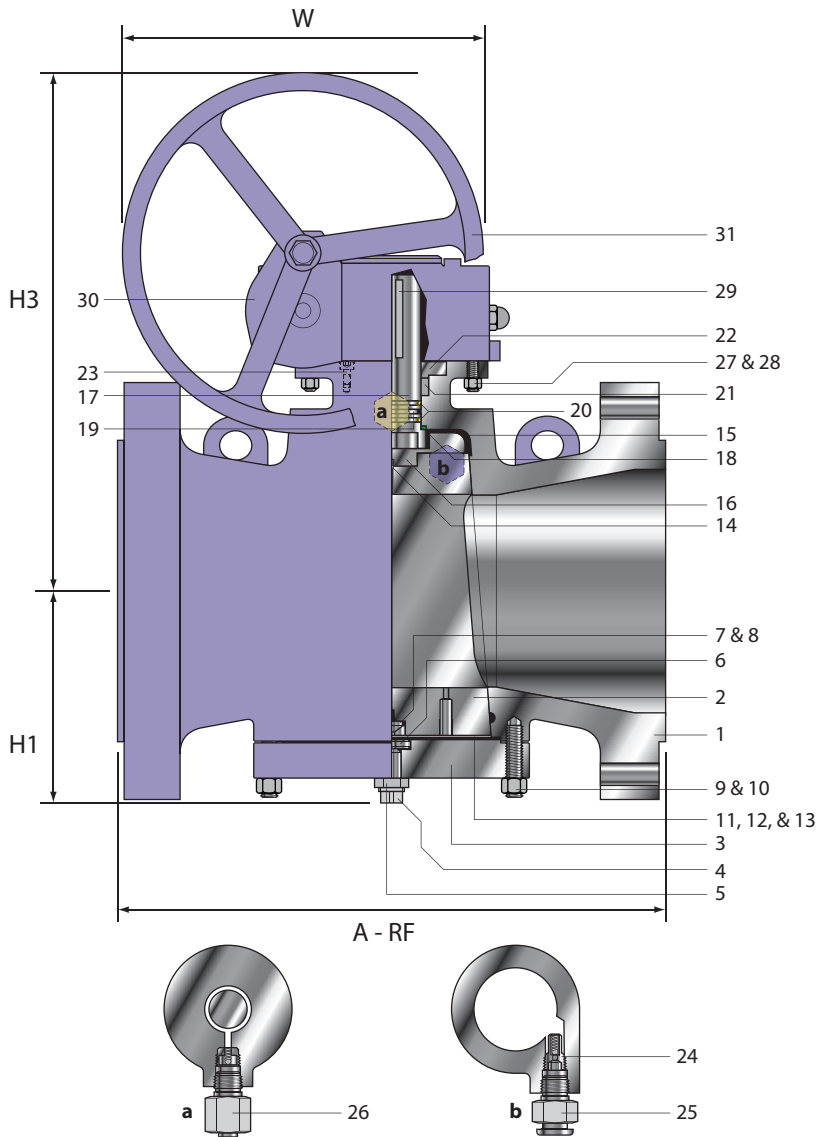


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Gland	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel
32	Inline Check	Carbon Steel/Stainless Steel

CLASS 900	Size	A - RF	A - RTJ	H1	H3	W	Gear	WGT LBS/KG
	NPS 4	18	18.11	6.57	9.08	18	108W	276
	DN 100	457	460	167	249	450		125
	NPS 6	24	24.13	10.04	15.16	24	208W	581
	DN 150	610	613	255	385	600		264
	NPS 8	29	29.13	11.89	17.56	24	308W	1300
	DN 200	737	740	302	446	600		591
	NPS 10	33	33.11	12.8	19.09	24	408W	1456
	DN 250	838	841	352	485	600		662
	NPS 12	38	38.11	15.94	21.1	24	408W	2854
DN 300	965	968	405	536	600	1295		

# Venturi Pattern - Pressure Balanced Lubricated Plug Valves

Size: 14" - 24" Class: 900

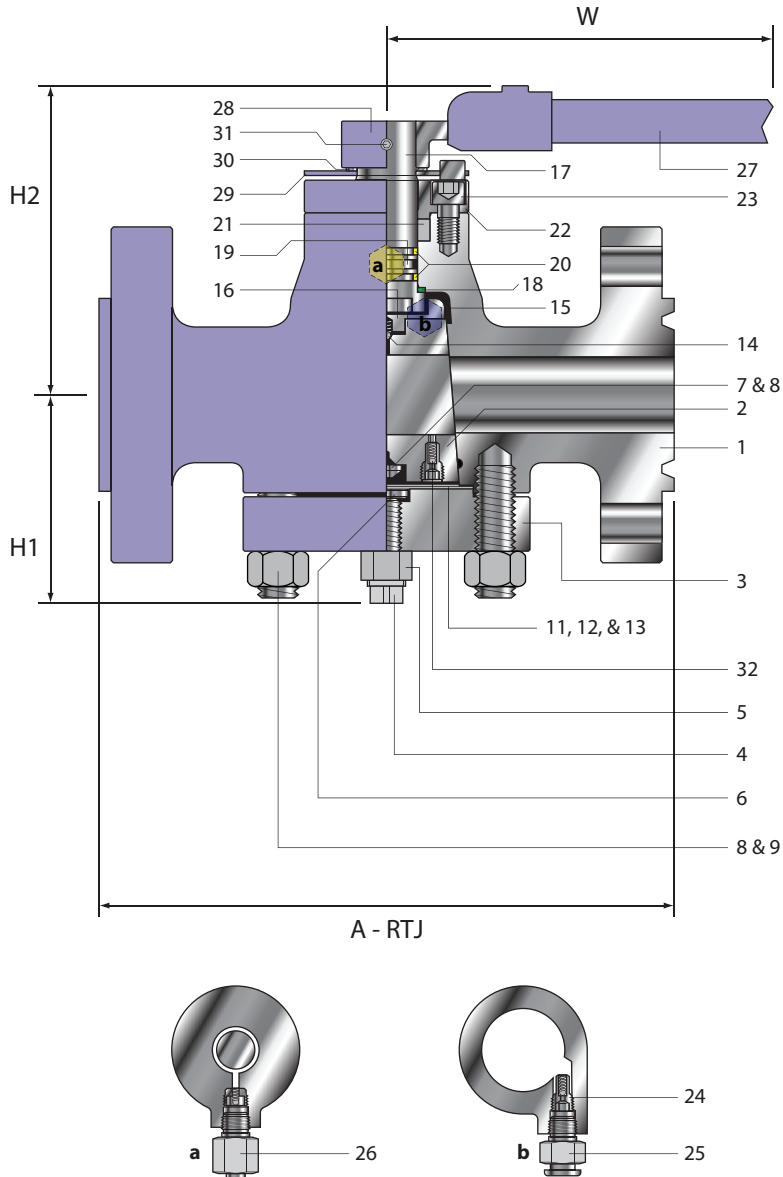


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel

CLASS 900	Size		A - RF	A-RTJ	H1	H3	W	WGT LBS/KG
	NPS	14	40.5	40.9	14.8	32.5	24	*
	DN	350	1029	1038	375	825	600	*
	NPS	16	44.5	44.9	16.9	33.3	32	4365
	DN	400	1130	1140	429	845	800	1980
	NPS	18	48	48.5	18.3	35.4	32	*
	DN	450	1219	1232	464	900	800	*
	NPS	20	52	52.5	18.8	37.2	32	9000
	DN	500	1321	1334	477	945	800	4082
	NPS	24	61	61.7	19.5	34.3	32	*
DN	600	1549	1568	496	870	800	*	

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 2" - 3" Class: 1500

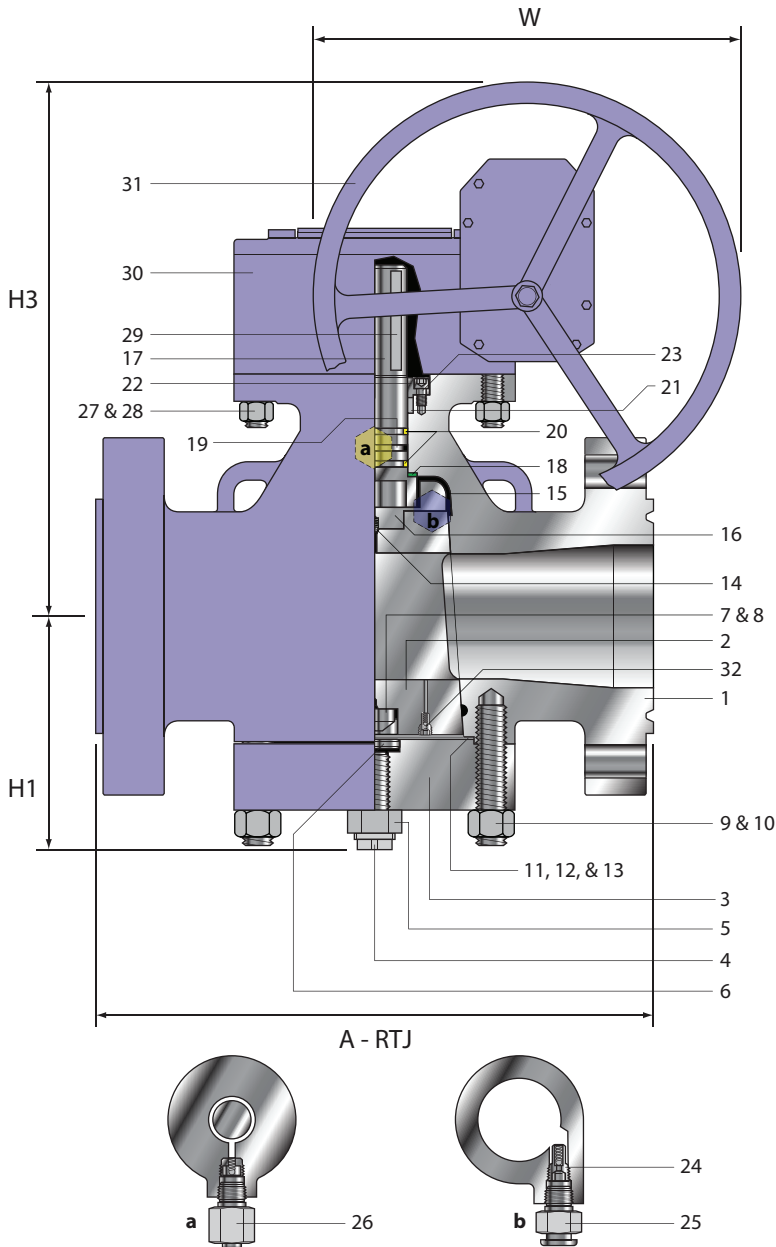


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105 WCC
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Lever	Carbon Steel
28	Hub	Carbon Steel
29	Indicator Stop Plate	Carbon Steel
30	Stop Plate Retainer	AISI 1566
31	Set Screw	Carbon Steel
32	Inline Check	Carbon Steel/Stainless Steel

1500	Size		A - RF	A - RTJ	H1	H2	W	WTS LBS/KG
	NPS	2	14.5	14.6	5.31	7.13	32	150
	DN	50	368	371	135	181	800	68
	NPS	3	18.5	18.62	7.2	8.82	40	260
	DN	75	470	473	183	224	1000	118

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 4" - 12" Class: 1500

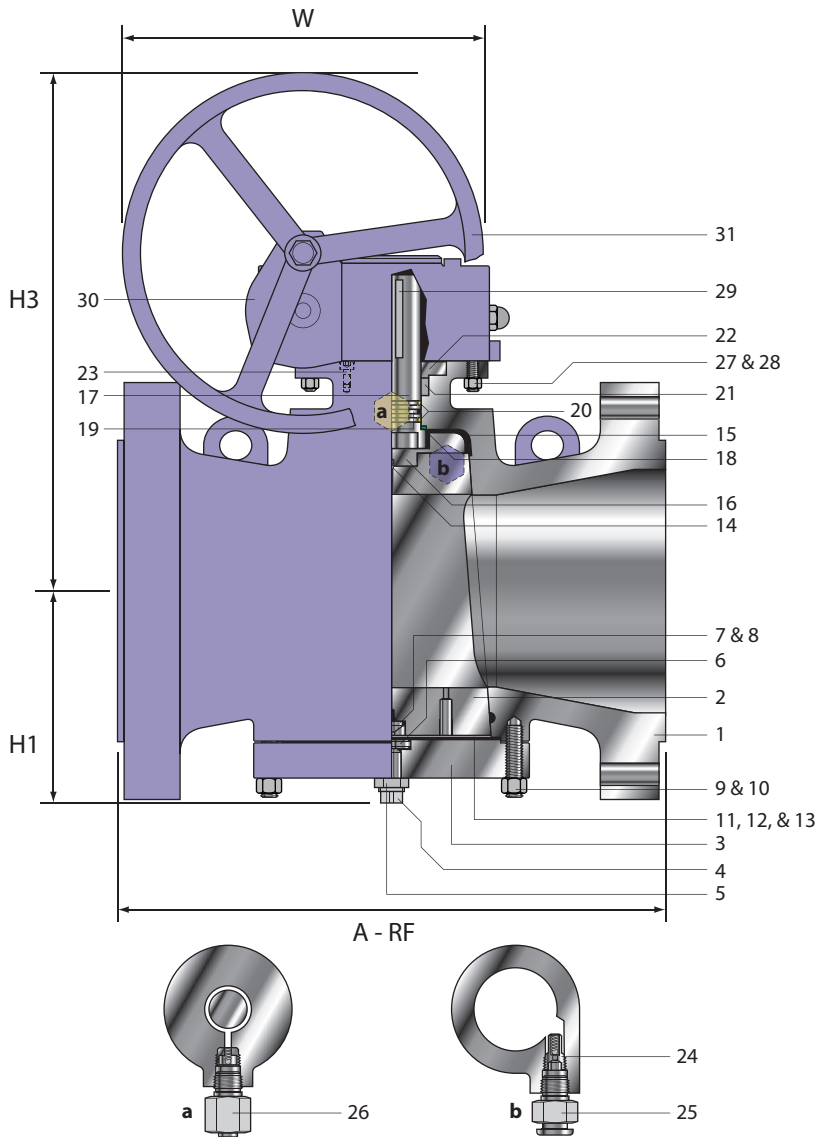


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Gland	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel
32	Inline Check	Carbon Steel/Stainless Steel

CLASS 1500	Size	A - RF	A - RTJ	H1	H3	W	Gear	WGT LBS/KG
	NPS 4	21.5	21.61	8.86	22.44	24	208W	355
	DN 100	546	549	225	570	600		161
	NPS 6	27.8	27.99	10.83	28.54	24	308W	1130
	DN 150	705	711	275	725	600		513
	NPS 8	32.8	33.11	12.6	30.12	24	408W	1710
	DN 200	832	841	320	765	600		776
	NPS 10	39	39.37	10.57	31.69	24	408W	2720
	DN 250	991	1000	370	805	600		1234
	NPS 12	44.5	45.12	16.93	34.06	24	508W	3760
DN 300	1130	1146	430	865	600	1706		

# Venturi Pattern - Pressure Balanced Lubricated Plug Valves

Size: 6" - 18" Class: 1500

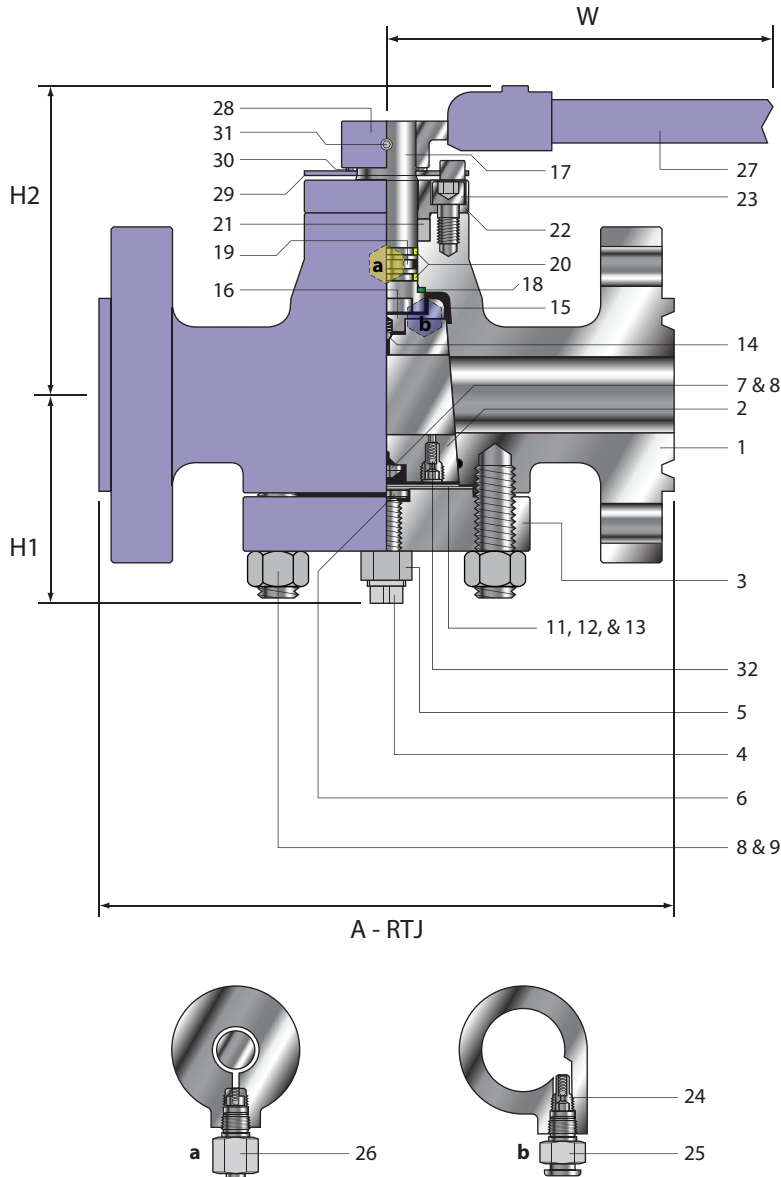


No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7M
28	Nut	A194 2HM
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel

1500	Size		A - RF	A-RTJ	H1	H3	W	WGT LBS/KG
	NPS	14	49.5	50.2	16.97	37.36	24	*
	DN	350	1257	1276	431	949	600	*
	NPS	16	54.5	55.4	19.41	38.27	24	7900
	DN	400	1384	1407	493	927	600	3583
	NPS	18	60.5	61.4	21	40.75	32	*
	DN	450	1537	1559	534	1035	800	*

# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 2" - 3" Class: 2500



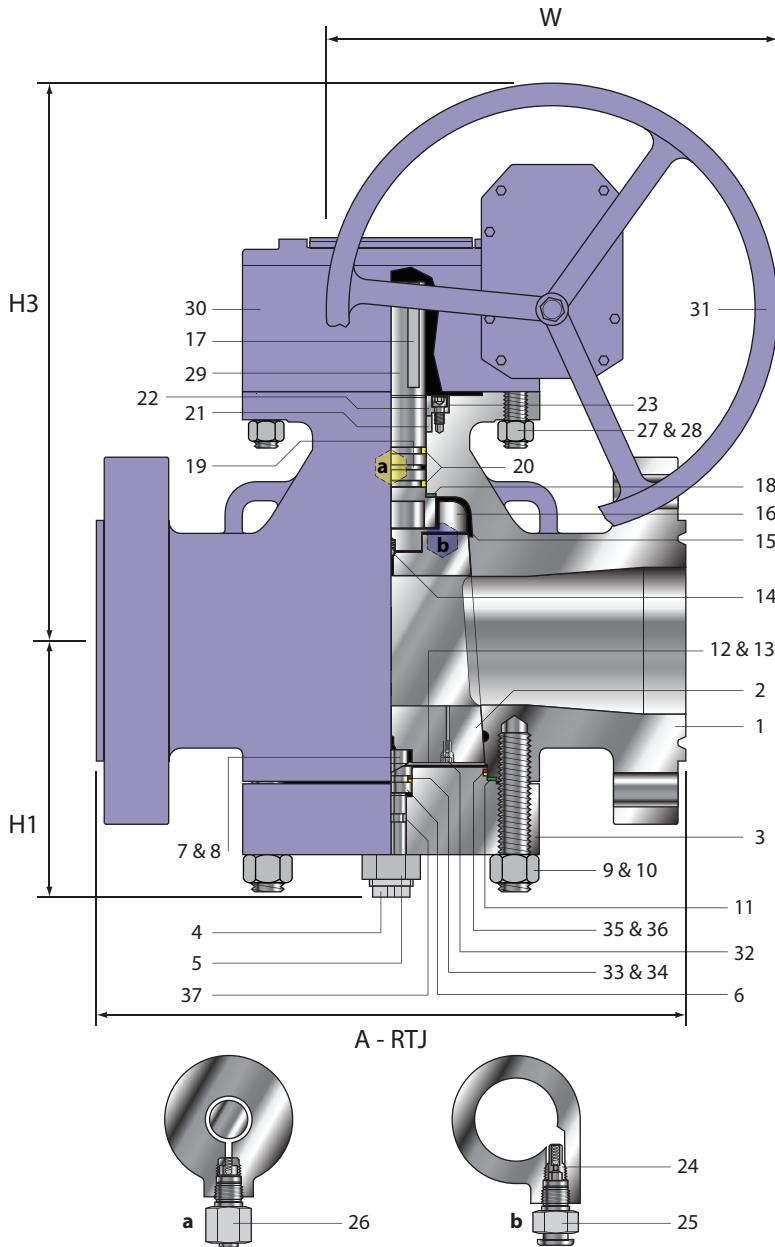
No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105 WCC
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Lever	Carbon Steel
28	Hub	Carbon Steel
29	Indicator Stop Plate	Carbon Steel
30	Stop Plate Retainer	AISI 1566
31	Set Screw	Carbon Steel
32	Inline Check	Carbon Steel/Stainless Steel

2500	Size		A - RF	A - RTJ	H1	H2	W	WGT LBS/KG
	NPS	2	17.8	17.87	5.71	7.52	40	163
	DN	50	451	454	145	191	1000	82
	NPS	3	22.8	22.99	7.6	9.21	40	342
	DN	75	578	584	193	234	1000	155



# Regular Pattern - Pressure Balanced Lubricated Plug Valves

Size: 4" - 12" Class: 2500



No	Name Of Part	Material
1	Body	A216 WCC
2	Plug	CA15 + Nitriding
3	Bonnet	A105
4	Plug Adjustment Screw	A193 B7M
5	Plug Adjustment Lock Nut	Carbon Steel
6	Lower Pivot Disc	AISI 1035
7	Upper Pivot Disc	AISI 1035
8	Pivot Center	AISI 1035
9	Stud	A193 B7M
10	Nut	A194 2HM
11	Gasket	Flexible Graphite + 304
12	Washer	304SS
13	Steel Spacer	A36
14	Ball Spring Check	304SS
15	Lube/Sealant Reservoir	/
16	Stem Plug Adapter	A105
17	Stem	A276 410
18	Thrust Bearing	PTFE
19	Grease Groove	/
20	O Ring	Viton
21	Packing	Flexible Graphite
22	Top Cover	A105
23	Gland Cap Screw	Carbon Steel
24	Inline Check	Carbon Steel/Stainless Steel
25	Lube/Sealant Injector	Carbon Steel/Stainless Steel
26	Stem Packing Injector	Carbon Steel/Stainless Steel
27	Stud	A193 B7
28	Nut	A194 2H
29	Key	AISI 1045
30	Gear	Carbon Steel/Stainless Steel
31	Handwheel	Carbon Steel/Stainless Steel
32	Inline Check	Carbon Steel/Stainless Steel
33	O Ring	Viton
34	Back Ring	PTFE
35	O Ring	Viton
36	Back Ring	PTFE
37	Packing	Flexible Graphite

CLASS 2500	Size		A - RF	A - RTJ	H1	H3	W	Gear	WGT LBS/KG
	NPS	4	26.5	26.89	9.92	23.7	24	308W	570
	DN	100	673	683	252	602	600		259
	NPS	6	36	36.5	11.85	29.72	24	308W	1440
	DN	150	914	927	301	755	600		653
	NPS	8	40.2	40.87	13.39	30.98	24	408W	2370
	DN	200	1022	1038	340	787	600		1075
	NPS	10	50	50.87	15.59	32.83	24	508W	4050
	DN	250	1270	1292	396	834	600		1837
	NPS	12	56	56.89	17.8	34.84	24	508W	5730
DN	300	1422	1445	452	885	600	2599		

# Pressure Temperature Ratings - ASME B16.34 - 2004 ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

**Note:** Pressures in PSI

150	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	290	275	275	290
200	260	260	260	260	255	260	260	260	260	260	260	235	235	260	260
300	230	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	200	195	195	200	200
500	170	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	140
650	125	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	110
750	95	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	80	/	/
850	65	65	65	65	65	65	65	65	65	65	65	65	65	/	/
900	50	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	35	/	/
1000	20	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	/	/
300	Temp. F	A105	WCB	LF2	WCC	LCB	WC6	LCC	C5	C12	C12A	316	CF8M	F51	F53
	-20 to 100	740	740	740	750	695	750	750	750	750	750	720	720	750	750
200	680	680	680	750	660	750	750	750	750	750	750	620	620	745	745
300	655	655	655	730	640	720	730	730	730	730	730	560	560	665	665
400	635	635	635	705	615	695	705	705	705	705	705	515	515	615	615
500	605	605	605	665	585	665	665	665	665	665	665	480	480	580	580
600	570	570	570	605	550	605	605	605	605	605	605	450	450	555	555
650	550	550	550	590	535	590	590	590	590	590	590	440	440	545	545
700	530	530	530	555	510	570	555	570	570	570	570	435	435	540	540
750	505	505	505	505	475	530	505	530	530	530	530	425	425	530	530
800	410	410	410	410	390	510	410	510	510	510	510	420	420	/	/
850	320	320	320	320	300	485	320	485	485	485	485	420	420	/	/
900	230	230	230	225	200	450	225	375	450	450	450	415	415	/	/
950	135	135	135	135	135	320	135	275	375	385	385	385	385	/	/
1000	85	85	85	85	85	215	85	200	255	365	365	365	365	/	/
1050	/	/	/	/	/	145	/	145	170	360	160	160	160	/	/
1100	/	/	/	/	/	95	/	100	115	300	305	305	305	/	/
1150	/	/	/	/	/	65	/	60	75	225	235	235	235	/	/
1200	/	/	/	/	/	40	/	35	50	145	185	185	185	/	/
1250	/	/	/	/	/	/	/	/	/	/	145	145	145	/	/
1300	/	/	/	/	/	/	/	/	/	/	115	115	115	/	/
1350	/	/	/	/	/	/	/	/	/	/	95	95	95	/	/
1400	/	/	/	/	/	/	/	/	/	/	75	75	75	/	/
1450	/	/	/	/	/	/	/	/	/	/	60	60	60	/	/
1500	/	/	/	/	/	/	/	/	/	/	40	40	40	/	/

# Pressure Temperature Ratings - ASME B16.34 - 2004 ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

**Note:** Pressures in PSI

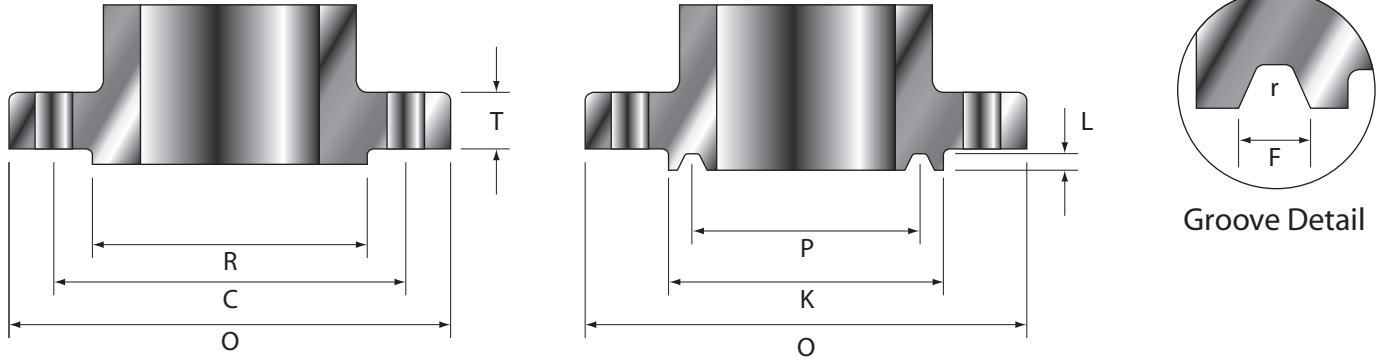
	Temp. F	A105	WCB	LF2	WCC	LCB	WC6	LCC	C5	C12	C12A	316	CF8M	F51	F53
	<b>600</b>	-20 to 100	1480	1480	1480	1500	1395	1500	1500	1500	1500	1500	1440	1440	1500
	200	1360	1360	1360	1500	1320	1500	1500	1500	1500	1500	1240	1240	1490	1490
	300	1310	1310	1310	1455	1275	1445	1455	1455	1455	1455	1120	1120	1335	1335
	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	/	/
	850	640	640	640	640	595	975	640	975	975	975	835	835	/	/
	900	460	460	460	445	405	900	445	745	900	900	830	830	/	/
	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	/	/
<b>900</b>	Temp. F	A105	WCB	LF2	WCC	LCB	WC6	LCC	C5	C12	C12A	316	CF8M	F51	F53
	-20 to 100	2220	2220	2220	2250	2090	2250	2250	2250	2250	2250	2160	2160	2250	2250
	200	2035	2035	2035	2250	1980	2250	2250	2250	2250	2250	1860	1860	2230	2230
	300	1965	1965	1965	2185	1915	2165	2185	2185	2185	2185	1680	1680	2000	2000
	400	1900	1900	1900	2110	1845	2080	2110	2115	2115	2115	1540	1540	1845	1845
	500	1810	1810	1810	1995	1760	1995	1995	1995	1995	1995	1435	1435	1740	1740
	600	1705	1705	1705	1815	1655	1815	1815	1815	1815	1815	1355	1355	1670	1670
	650	1650	1650	1650	1765	1600	1765	1765	1765	1765	1765	1325	1325	1640	1640
	700	1590	1590	1590	1665	1535	1705	1665	1705	1705	1705	1305	1305	1625	1625
	750	1520	1520	1520	1520	1430	1595	1520	1595	1595	1595	1280	1280	1595	1595
	800	1235	1235	1235	1235	1175	1525	1235	1525	1525	1525	1265	1265	/	/
	850	955	955	955	955	895	1460	955	1460	1460	1460	1255	1255	/	/
	900	690	690	690	670	605	1350	670	1120	1350	1350	1245	1245	/	/
	950	410	410	410	410	410	955	410	825	1130	1160	1160	1160	/	/
	1000	255	255	255	255	255	650	255	595	760	1090	1090	1090	/	/
	1050	/	/	/	/	/	430	/	430	515	1080	1080	1080	/	/
	1100	/	/	/	/	/	290	/	300	340	905	915	915	/	/
	1150	/	/	/	/	/	195	/	185	225	670	710	710	/	/
	1200	/	/	/	/	/	125	/	105	155	430	555	555	/	/
	1250	/	/	/	/	/	/	/	/	/	/	440	440	/	/
	1300	/	/	/	/	/	/	/	/	/	/	350	350	/	/
	1350	/	/	/	/	/	/	/	/	/	/	290	290	/	/
	1400	/	/	/	/	/	/	/	/	/	/	225	225	/	/
	1450	/	/	/	/	/	/	/	/	/	/	175	175	/	/
	1500	/	/	/	/	/	/	/	/	/	/	125	125	/	/

# Pressure Temperature Ratings - ASME B16.34 - 2004 ■■■■■■■■■■

**Note:** Pressures in PSI

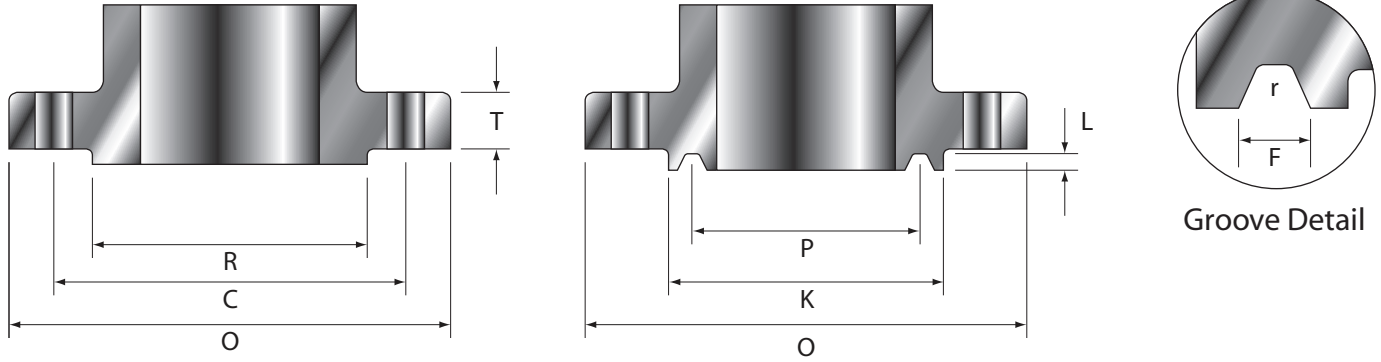
1500	Temp. F	A105	WCB	LF2	WCC	LCB	WC6	LCC	C5	C12	C12A	316	CF8M	F51	F53
	-20 to 100	3705	3705	3705	3750	3480	3750	3750	3750	3750	3750	3750	3600	3600	3750
200	3395	3395	3395	3750	3300	3750	3750	3750	3750	3750	3750	3095	3095	3720	3720
300	3270	3270	3270	3640	3190	3610	3640	3640	3640	3640	3640	2795	2795	3335	3335
400	3170	3170	3170	3520	3075	3465	3520	3530	3530	3530	3530	2570	2570	3070	3070
500	3015	3015	3015	3325	2930	3325	3325	3325	3325	3325	3325	2390	2390	2905	2905
600	2840	2840	2840	3025	2755	3025	3025	3025	3025	3025	3025	2255	2255	2785	2785
650	2745	2745	2745	2940	2665	2940	2940	2940	2940	2940	2940	2210	2210	2735	2735
700	2665	2665	2665	2775	2560	2840	2775	2840	2840	2840	2840	2170	2170	2710	2710
750	2535	2535	2535	2535	2385	2660	2535	2660	2660	2660	2660	2135	2135	2660	2660
800	2055	2055	2055	2055	1955	2540	2055	2540	2540	2540	2540	2110	2110	/	/
850	1595	1595	1595	1595	1490	2435	1595	2435	2435	2435	2435	2090	2090	/	/
900	1150	1150	1150	1115	1010	2245	1115	1870	2245	2245	2245	2075	2075	/	/
950	685	685	685	685	685	1591	685	1370	1885	1930	1930	1930	1930	/	/
1000	430	430	430	430	430	1080	430	995	1270	1820	1820	1820	1820	/	/
1050	/	/	/	/	/	720	/	720	855	1800	1800	1800	1800	/	/
1100	/	/	/	/	/	480	/	495	565	1510	1525	1525	1525	/	/
1150	/	/	/	/	/	325	/	310	375	1115	1185	1185	1185	/	/
1200	/	/	/	/	/	205	/	170	255	720	925	925	925	/	/
1250	/	/	/	/	/	/	/	/	/	/	735	735	735	/	/
1300	/	/	/	/	/	/	/	/	/	/	585	585	585	/	/
1350	/	/	/	/	/	/	/	/	/	/	480	480	480	/	/
1400	/	/	/	/	/	/	/	/	/	/	380	380	380	/	/
1450	/	/	/	/	/	/	/	/	/	/	290	290	290	/	/
1500	/	/	/	/	/	/	/	/	/	/	205	205	205	/	/
2500	Temp. F	A105	WCB	LF2	WCC	LCB	WC6	LCC	C5	C12	C12A	316	CF8M	F51	F53
	-20 to 100	6170	6170	6170	6250	5805	6250	6250	6250	3250	6250	6000	6000	6250	6250
200	5655	5655	5655	6250	5505	6250	6250	6250	6250	6250	6250	5160	5160	6200	6200
300	5450	5450	5450	6070	5315	6015	6070	6070	6070	6070	6070	4660	4660	5560	5560
400	5280	5280	5280	5865	5125	5775	5865	5880	5880	5880	5880	4280	4280	5120	5120
500	5025	5025	5025	5540	4885	5540	5540	5540	5540	5540	5540	3980	3980	4840	4840
600	4730	4730	4730	5040	4595	5040	5040	5040	5040	5040	5040	3760	3760	4640	4640
650	4575	4575	4575	4905	4440	4905	4905	4905	4905	4905	4905	3680	3680	4560	4560
700	4425	4425	4425	4630	4270	4730	4630	4730	4730	4730	4730	3620	3620	4520	4520
750	4230	4230	4230	4230	3970	4430	4230	4430	4430	4430	4430	3560	3560	4430	4430
800	3430	3430	3430	3430	3255	4230	3430	4230	4230	4230	4230	3520	3520	/	/
850	2655	2655	2655	2655	2485	4060	2655	4060	4060	4060	4060	3480	3480	/	/
900	1915	1915	1915	1855	1685	3745	1855	3115	3745	3745	3745	3460	3460	/	/
950	1145	1145	1145	1145	1145	3655	1145	2285	3145	3220	3220	3220	3220	/	/
1000	715	715	715	715	715	1800	715	1655	2115	3030	3030	3030	3030	/	/
1050	/	/	/	/	/	1200	/	1200	1430	3000	3000	3000	3000	/	/
1100	/	/	/	/	/	800	/	830	945	2515	2545	2545	2545	/	/
1150	/	/	/	/	/	545	/	515	630	1855	1970	1970	1970	/	/
1200	/	/	/	/	/	345	/	285	770	1200	1545	1545	1545	/	/
1250	/	/	/	/	/	/	/	/	/	/	1230	1230	1230	/	/
1300	/	/	/	/	/	/	/	/	/	/	970	970	970	/	/
1350	/	/	/	/	/	/	/	/	/	/	800	800	800	/	/
1400	/	/	/	/	/	/	/	/	/	/	630	630	630	/	/
1450	/	/	/	/	/	/	/	/	/	/	485	485	485	/	/
1500	/	/	/	/	/	/	/	/	/	/	345	345	345	/	/

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



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

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



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

# 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 butt welding fittings  
ANSI/ASME B16.10 - Face-to-face & end-to-end dimensions of valves  
ASME B16.11 - Forged fittings, socket welding & threaded  
ASME B16.20 - Metallic gaskets for pipe flanges: ring joint spiral wound & jacketed  
ASME B16.21 - Non-metallic flat gaskets for pipe flanges  
ASME B16.25 - Butt welding ends  
ANSI/ASME B16.33 - Manually operated metallic gas valves for use in gas piping systems up to 125 PSI (sizes NPS 1/2" - 2")  
ANSI/ASME B31.1 - Power piping  
ANSI/ASME B31.3 - Process piping  
ANSI/ASME B16.34 - Valves flanged, threaded & welding end  
ANSI/ASME B16.36 - Orifice flanges  
ANSI/ASME B16.38 - Large metallic valves for gas distribution (manually operated, NPS 2-1/2" - 12", 125 PSIG maximum)  
ANSI/ASME B16.42 - Ductile iron pipe flanges & flanged fittings: classes 150 & 300  
ANSI/ASME B16.47 - Large diameter steel flanges  
ANSI B17.1 - Keys & keyseats  
ANSI B18.2.2 - Square & hex nuts  
ASME B31.4 - Pipeline transportation systems for liquid hydrocarbons & other ammonia & alcohols  
ANSI/ASME B31.8 - Gas transmission & distribution piping systems  
ANSI/ASME B36.10 - Welded & seamless wrought steel pipe  
ANSI/ASME B36.19 - Stainless steel pipe  
ANSI FCI-2 - Control valve seat leakage

## American Society Non-destructive Test (ASNT)

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

## American Society for Testing and Materials (ASTM)

### American Petroleum Institute (API)

API RP 574 - Inspection practices for piping system components  
API 589 - Fire test for evaluation of valve stem packing  
API RP 591 - Process valve qualification procedure  
API 594 - Check valves-flanged, lug, wafer & butt welding  
API 597 - Steel venturi gate valves, flanged, butt welding ends  
API 598 - Valve inspection & testing  
API 599 - Metal plug valves - flanged, welding ends  
API 601 - Metallic gaskets for raised-face pipe flanges & flanged connections (double-jacketed corrugated & spiral wound)  
API 600 - Bolted bonnet steel gate valves for petroleum & natural gas industries "ISO adoption from ISO 10434"  
API 602 - Steel gate, globe, & check valves for sizes DN100 and smaller for the petroleum & natural gas industries  
API 603 - Corrosion-resistant, bolted bonnet gate valves-flanged & butt weld 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  
API 5B - Threading, gauging thread inspection of coring, tubing, & line pipe threads  
API 6AM - Material toughness  
API 6FA - Fire test for valves  
API 6FC - Fire test for valves with backseats  
API 6FD - Specification for fire test for check valves  
API Q1 - Specification for quality programs for the petroleum, petrochemical, & natural gas

## National Association of Corrosion Engineers (NACE)

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

## British Standards Institute (BS)

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

## Canadian Standards Association

BS1-97 - 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 & butt weld ends  
SP-44 - Steel pipeline flanges  
SP-45 - Bypass & drain connections  
SP-51 - Class 150/w corrosion resistant cast flanges & flanged fittings  
SP-53 - Quality standard for steel castings & forgings for valves, flanges, & fittings & other piping components: magnetic particle exam method  
SP-54 - Quality standard for steel castings for valves, flanges, & fittings and other piping components: radiographic examination method  
SP-55 - Quality standard for steel castings for valves, flanges other piping components-visual method for evaluation of surface irregularities  
SP-60 - Connecting flange joint between tapping sleeves & tapping valves  
SP-61 - Pressure testing of steel valves  
SP-65 - High pressure chemical industry flanges & threaded stubs for use with lens gaskets  
SP-67 - Butterfly valves  
SP-69 - ANSI/MSS edition pipe hangers & supports, selection & application  
SP-70 - Cast iron gate valves, flanged & threaded ends  
SP-71 - Gray iron swing check valves, flanged & threaded ends  
SP-72 - Ball valves with flanged or butt-welding ends for general service  
SP-79 - Socket-welding reducer inserts  
SP-81 - Stainless steel, bonnetless, flanged knife gate valves  
SP-82 - Valve pressure testing methods  
SP-84 - Valves - socket welding & threaded ends  
SP-85 - Cast iron globe & angle valves, flanged & threaded ends  
SP-86 - Guidelines for metric data in standards for valves, flanges, fittings & actuators  
SP-88 - Diaphragm valves  
SP-91 - Guidelines for manual operation of valves  
SP-92 - MSS valve user guide  
SP-93 - Quality standard for steel castings & forgings for valves, flanges & fittings & other piping components- liquid penetrant exam method  
SP-94 - Quality standard for ferritic & martensitic steel castings for valves, flanges, & fittings and other piping components - ultrasonic exam method  
SP-96 - Guidelines on terminology for valves & fittings  
SP-98 - Protective coatings for the interior of valves, hydrants, & fittings  
SP-99 - Instrument valves  
SP-101 - Part-turn valve actuator attachment-flange and driving component dimensions & performance characteristics  
SP-102 - Multi-turn valve actuator attachment: flange and driving component dimensions & performance characteristics  
SP-110 - Ball valves threaded, socket-welding, solder joint, grooved, & flared ends  
SP-117 - Bellows seals for globe & gate valves  
SP-118 - Compact steel globe and check valves-flanged, flangeless, threaded & welding ends (chemical & petroleum refinery service)  
SP-120 - Flexible graphite packing system for rising stem steel valves (design requirements)  
SP-121 - Qualification testing methods for stem packing for rising stem steel valves

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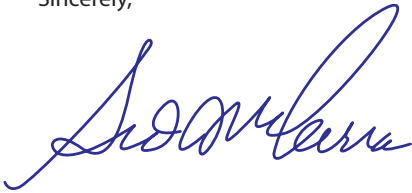
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Sid McCarra  
President - Texas Operations  
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