



# *Vogt Valves* *Catalog and Application Manual*

VVENCT0000-05



*Experience In Motion*



Vogt Valves, Sulphur Springs, TX

## ***Vogt Valves*** ***A History in the Making***

*In the late 1890s, Vogt pioneered the early development of ammonia absorption refrigeration systems that made artificial ice. This business, plus Vogt's fledgling boiler business, created an internal need for quality valves that initiated Vogt's early entry into the valve manufacturing business.*

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*The early reputation of Vogt's quality valves and rapidly growing petroleum processing industry created an outside demand that would firmly establish Vogt in the mass production of high-quality forged steel valves.*

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*For more than 100 years, Vogt's leadership has been evident in the production of forged steel gate, globe, angle and check valves in most popular materials, trims and bonnet configurations.*

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*Today, Vogt valves support a worldwide network of distributors with access to the world's largest capability for manufacturing of forged steel valves.*

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**GATE VALVE INDEX**

Press. Class	Material	Bonnet Joint	Gasket	End Connection	Bonnet Type	Wall Thick.	Ports	SERIES							
								Threaded	Socket Weld	Butt Weld	Flanged				
150	A105	Bolted	Spiral Wound		OS&Y		Conv	See Class 800	See Class 800	See Class 300	353				
	A182 F316/ F316 L				OS&Y		Conv				358				
	A350 LF2				OS&Y		Conv				32353				
300	A105	Bolted	Spiral Wound		OS&Y		Conv	See Class 800	See Class 800	BW363	363				
	A182 F316/ F316 L				OS&Y		Full				BW13363	13363			
	A350 LF2				OS&Y		Conv				BW368	368			
					OS&Y		Full				BW13368	13368			
600	A105	Bolted	Spiral Wound		OS&Y		Conv	See Class 800	See Class 800	BW373	373				
	A182 F316/ F316 L				OS&Y		Full				BW13373	13373			
	A350 LF2				OS&Y		Full				BW13373	13373			
					OS&Y		API 600				Full		11403		
					OS&Y		Conv					BW378	378		
					OS&Y		Full					BW13378	13378		
800	A105	Bolted	Spiral Wound		OS&Y		Conv	12111	SW12111	BW12111					
					OS&Y		Full				13111	SW13111			
					OS&Y		Conv				12601	SW12601	BW12601		
					OS&Y		Full				13601	SW13601			
					OS&Y		Full				11103	SW11103			
					OS&Y		Conv				12161	SW12161			
					OS&Y		Conv				TT12111				
					OS&Y		Conv				ST 12111	SS12111			
					OS&Y		Conv				CT12111	CS12111			
					OS&Y		Conv				2801	SW2801			
					OS&Y		Conv				2801B	SW2801B			
					OS&Y		Conv				2811	SW2811			
	Bellows Seal					OS&Y		Conv	2801	SW2801					
						OS&Y		Conv				2801B	SW2801B		
						OS&Y		Conv				2811	SW2811		
						OS&Y		Conv				TT2801			
						OS&Y		Conv				TT2811			
						OS&Y		Conv				ST2801	SS2801		
	Extended Male Socket Weld end					OS&Y		Conv	CT2801	CS2801					
						OS&Y		Conv				CT2901	CS2901		
						OS&Y		Conv				CT2911	CS2911		
						OS&Y		Conv				CT2801	CS2801		
						OS&Y		Conv				CT2901	CS2901		
						OS&Y		Conv				CT2911	CS2911		
Extended Male Couplet end					OS&Y		Conv	59851	SW59851						
					OS&Y		Conv				32111	SW32111			
					OS&Y		Full				33111	SW33111			
					OS&Y		Conv				23801	SW32801			
					OS&Y		Full				33801	SW33801			
					OS&Y		Conv				12401	SW12401	BW12401		
Union	Spiral Wound	Bolted			OS&Y		Conv	13401	SW13401						
					OS&Y		Conv				12602	SW12602	BW12602		
					OS&Y		Full				13602	SW13602			
					OS&Y		Conv				2831	SW2831			
					OS&Y		Conv				TT2831				
					OS&Y		Conv				ST2831	SS2831			
A350 LF2	Bolted	Spiral Wound			OS&Y		Conv	59951	SW59951						
					OS&Y		Conv				82401	SW82401			
					OS&Y		Conv				12421	SW12421			
					OS&Y		Conv				12921	SW12921			
					OS&Y		Conv				12321	SW12321			
					OS&Y		Conv				12521	SW12521			
A182 F316/ F316 L	Bolted	Spiral Wound			OS&Y		Conv	15111	SW15111	BW15111					
					OS&Y		Full				16111	SW16111			
					OS&Y		API 600				1033	SW1033			
					OS&Y		API 600				1043	SW1043			
					OS&Y		Conv							15373	
					OS&Y		Full							16373	
A182 F316H A182 F5 A182 F9 A182 F11, CL2 A182 F22 CL 3	Bolted	Spiral Wound			OS&Y		Conv	15521	SW15521						
					OS&Y		Conv				15831	SW15831			
					OS&Y		Conv				15321	SW15321			
					OS&Y		Conv				15521	SW15521			
					OS&Y		Conv				15801	SW15801			
					OS&Y		Conv				ST15801	SS15801			
1500LTD 2500*	A105	Weld		Threaded	OS&Y		Conv	66703	SW66703						
					OS&Y		Full				66743	SW66743			
					OS&Y		Full				66713	SW66713			
					OS&Y		Full				66773	SW66773			
					OS&Y		Full				66791	SW66791			
					OS&Y		Full				66791	SW66791			
2680*	A350 LF2	Weld			OS&Y		Conv	66703	SW66703						
					OS&Y		Full				66743	SW66743			
					OS&Y		Full				66713	SW66713			
					OS&Y		Full				66773	SW66773			

\* Threaded series rated at 2500 LTD and Socket Weld series rated at 2680 LTD

GLOBE VALVE INDEX													
Press. Class	Material	Bonnet Joint	Gasket	SEAT	Configuration	Bonnet Type	Wall Thick.	Ports	SERIES				
									Threaded	Socket Weld	Butt Weld	Flanged	
150	A105	Bolted	Bellows Seal	Integral		OS&Y		Conv				473B	
	A182 F316/F316 L											478B	
	A105	Bolted	Spiral Wound	Integral		OS&Y		Conv	See Class 800	See Class 800		473	
	A182 F316/F316 L A350 LF2											478	
300	A105	Bolted	Bellows Seal	Integral		OS&Y		Conv				32473	
	A182 F316/F316 L											483B	
	A105	Bolted	Spiral Wound	Integral		OS&Y		Conv	See Class 800	See Class 800	BW483	483	
	A182 F316/F316 L A350 LF2											BW488	488
	A105	Bolted	Spiral Wound	Removable		OS&Y		Conv				32488	
	A350 LF2											BW32488	32488
600	A105	Bolted	Bellows Seal	Integral		OS&Y		Conv				22483	
	A182 F316/F316 L											36483	
	A105	Bolted	Spiral Wound	Integral		OS&Y		Conv	See Class 800	See Class 800	BW493	493	
	A182 F316/F316 L A350 LF2											BW498	498
	A105	Bolted	Spiral Wound	Removable		OS&Y		Conv				32493	
	A350 LF2											BW32793	32493
	A105					OS&Y		Conv				22493	
	A350 LF2												36493
	A105					OS&Y		Full	43241				
	A105					OS&Y	API 600	Full					10403
800	A105	Bolted	Bellows Seal	Integral		OS&Y		Conv	12141B	SW12141B			
	A182 F316/F316 L								12501B	SW12501B			
	A105	Bolted	Spiral Wound	Integral		OS&Y		Conv	12141	SW12141	BW12141		
									13141	SW13141			
						OS&Y		Conv	1971	SW1971			
					Angle			Conv	12443	SW12443			
					Throttling Needle Pt. Removable		OS&Y		Conv	22461	SW22461		
									Conv	22141	SW22141		
							OS&Y		Full	23141	SW23141		
					Integral		ISS	API 600	Full	10103	SW10103		
					Integral	Extended Male Thread end	OS&Y		Conv	12181	SW12181		
					Integral	Extended Male Socket Weld end	OS&Y			TT12141			
					Integral	Extended Male Couplet end	OS&Y			ST12141	SS12141		
					Weld		OS&Y		Conv	2821	SW2821		
					Y pattern				Full	810	SW810		
			Union	Spiral Wound	Integral		OS&Y		Conv	801	SW801		
							ISS		Conv	851	SW851		
		A350 LF2	Bolted	Spiral Wound	Integral		OS&Y		Conv	32141	SW32141		
										Full	33141	SW33141	
							OS&Y		Conv	32821	SW32821		
		A182 F316/F316 L	Bolted	Spiral Wound	Integral		OS&Y		Conv	12501	SW12501		
										Full	13501	SW13501	
							OS&Y		Conv	2841	SW2841		
		A182 F316H	Bolted	Spiral Wound	Integral		OS&Y		Conv	82501	SW82501		
		A182 F5											
		A182 F11, CL2	Weld		Integral		OS&Y		Full	811	SW811		
		A182 F22 CL 3								Bolted	Spiral Wound	Integral	
							OS&Y		Full	12551	SW12551		
									Full	822	SW822		
	1500	A105	Bolted	Spiral Wound	Integral		OS&Y		Conv	15141	SW15141	BW15141	
										Full	16141	SW16141	
								OS&Y		Conv	15443	SW15443	
			Ring Joint	Removable			OS&Y	API 600	Full	1003	SW1003		10683
			Spiral Wound	Integral	Flanged		OS&Y		Conv	1023	SW1023		10603
							OS&Y		Conv	15821	SW15821		
		A350 LF2	Bolted	Spiral Wound	Integral		OS&Y		Conv	35821	SW35821		
		A182 F316/F316 L	Weld		Integral		OS&Y		Conv	15501	SW15501		
		A182 F11, CL2	Bolted	Spiral Wound	Integral		OS&Y		Conv	15351	SW15351		
		A182 F22 CL 3											
1500LTD		A105	Weld		Integral		OS&Y		Conv				SW65723
1690	A105	Screw								Sp. Wound	Integral	Y pattern	OS&Y
	A350 LF2	Weld		Integral	Y pattern	OS&Y		Conv	31510	SW31510			
	A182 F11, CL2												Conv
						OS&Y		Conv	1511	SWR1511			
	A182 F22 CL 3	Weld	Sp. Wound	Integral	Y pattern	OS&Y		Conv	1522	SW1522			
													Conv
2500* 2680*	A105	Weld		Integral	Y pattern	OS&Y		Full	66723	SW66723			
			Screw	Sp. Wound			OS&Y		Full	R2510	SWR2510		
		A350 LF2	Weld		Integral	Y pattern	OS&Y		Full	66753	SW66753		
		A182 F11, CL2	Weld		Integral	Y pattern	OS&Y		Full	66733	SW66733		
							OS&Y		Full	R2511	SWR2511		
		A182 F22 CL 3	Weld	Sp. Wound	Integral	Y pattern	OS&Y		Full	66793	SW66793		
						OS&Y		Full	R2522	SWR2522			
	A182 F91	Weld		Integral		OS&Y		Full	66783	SW66783			
													Full

\* Threaded series rated at 2500 LTD and Socket Weld series rated at 2680 LTD

**CHECK VALVE INDEX**

Press. Class	Material	Bonnet Joint	Gasket	SEAT	Configuration	Type	Wall Thick.	Ports	SERIES													
									Threaded	Socket Weld	Butt Weld	Flanged										
150	A105	Bolted	Spiral Wound	Integral		Piston		Conv	See Class 800	See Class 800			573									
				Renewable		Pstn/Spring							570									
				Swing		Swing							5673									
	A182 F316/F316 L	Bolted	Spiral Wound	Integral		Piston		Conv						578								
				Renewable		Pstn/Spring								579								
				Swing		Swing								5678								
	A350 LF2	Bolted	Spiral Wound	Integral		Piston		Conv						32573								
				Renewable		Pstn/Spring								32570								
				Swing		Swing								32673								
300	A105	Bolted	Spiral Wound	Integral		Piston		Conv	See Class 800	See Class 800			583									
				Renewable		Pstn/Spring								580								
				Swing		Swing								5683								
	A182 F316/F316 L	Bolted	Spiral Wound	Integral		Piston		Conv						588								
				Renewable		Pstn/Spring								589								
				Swing		Swing								5688								
	A350 LF2	Bolted	Spiral Wound	Integral		Piston		Conv						32583								
				Renewable		Pstn/Spring								32580								
				Swing		Swing								32683								
600	A105	Bolted	Spiral Wound	Integral		Piston		Conv	See Class 800	See Class 800			593									
				Renewable		Pstn/Spring								590								
				Swing		Swing								5693								
	A182 F316/F316 L	Bolted	Spiral Wound	Integral		Piston		Conv						598								
				Renewable		Pstn/Spring								599								
				Swing		Swing								5698								
	A350 LF2	Bolted	Spiral Wound	Integral		Piston		Conv						32593								
				Renewable		Pstn/Spring								32590								
				Swing		Swing								32693								
800	A105	None	None	Integral	Also available as ANGLE	Swing		Conv	S74	SWS74												
						ZL Piston			701ZL	SW701ZL												
						Ball			B701 (AB701)	SWB701												
		Piston				701 (A701)	SW701	BW701														
		Ball/Spring				B710 (AB710)	SWB710															
		Pstn/Spring				710 (A710)	SW710															
		Ball		Full		B13701	SWB13701															
		Piston				13701	SW13701															
		Ball/Spring				B13710	SWB13710															
		Pstn/Spring				13710	SW13710															
		Renewable																				
		Removable						API 600														
		Union	Flat	Removable			Piston		Conv	9091	SW9091											
		Integral					Ball			B9091	SWB9091											
		A350 LF2	Bolted	Spiral Wound		Integral			Ball		Conv	54853	SW54853									
	Piston									B32701	SWB32701											
	Pstn/Spring									32701	SW32701											
	Swing									32710	SW32710											
	Renewable									S32701	SWS32701											
	Swing																					
	A182 F316/F316 L	Bolted	Spiral Wound	Integral			Ball		Conv	B718	SWB718											
							Piston			718	SW718	BW718										
							Ball/Spring			B780	SWB780											
							Pstn/Spring			780	SW780											
							Ball		Full	B13718	SWB13718											
							Piston			13718	SW13718											
							Ball/Spring			B13780	SWB13780											
Pstn/Spring									13780	SW13780												
Renewable																						
Swing								Conv	S718	SWS718												
Union							Flat	Integral		Ball			54853	SW54853								
A182 F316H							Bolted	Sp. Wound	Integral			Piston		Conv	82718	SW82718						
	1500	A105	Bolted	Spiral Wound	Integral																	
																			Ball		Conv	B15701
Piston									15701	SW15701	BW15593									15593		
A182 F316/F316 L	Bolted	Spiral Wound	Integral			Ball		Full	16701	SW16701												
						Ball/Spring		Conv	B15710	SWB15710												
						Pstn/Spring			15710	SW15710			15590									
						Full			16710	SW16710												
						Conv			B15718	SWB15718												
						Piston			15718	SW15718	BW15598		15598									
1690	A105	Weld		Integral	Y pattern	Pstn/Spring		Conv														
															Full			1610	SW1610			
															1611	SW1611						
															1622	SW1622						
															2610	SW2610						
															2611	SW2611						
2500*	A105	Weld		Integral	Y pattern	Pstn/Spring		Conv														
															2622	SW2622						
															2680*	A105	Weld		Integral	Y pattern	Pstn/Spring	
2610	SW2610																					
2611	SW2611																					

**HYDRAULIC CHECK VALVES INDEX**

3000	A105	Screw	Flat	Integral		Piston		Conv	1551	SW1551		
				Removable		Ball			B1551	SWB1551		
6000	A105	Screw	Flat	Integral		Pstn/Spring		Conv	2191	SW2191		
				Removable		Pstn/Spring			4881	SW4881		

**METER GLOBE VALVES INDEX**

3000	A105	Screw	Flat	Removable		Disc	ISS	Conv	1871	SW1871		
				Removable	Angle	Plug Stem	ISS		1331	SW1331		
				Disc	ISS	Conv	2891	SW2891				
4000	A105	Union	Flat	Integral		Needle Pt.	ISS	Conv	58431	SW58431		
5000	A105	Screw	Flat	Integral	Angle	Needle Pt.	ISS	Conv	9841	SW9841		
									9871	SW9871		
									9821	SW9821		
6000	A105	Screw	Flat	Removable		Disc	ISS	Conv	4881	SW4881		

SERIES TYPE PAGE		G = GATE L = GLOBE C = CHECK										VALVE SERIES INDEX			
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351	G 22	701	C 90	2591	L 64	CT12141	L 66	B13718	C 90	B15780	C 96	32443	L 75	36373	G 25
352	G 22	A701	C 97	R2591	L 65	ST12141	L 66	13750	C 90	15801	G 31	32461	L 73	36483	L 80
353	G 22	AB701	C 97	2610	C 102	TT12141	L 66	B13750	C 90	BT15801	G 34	32473	L 50	36493	L 80
358	G 22	B701	C 90	R2610	C 103	12161	G 28	13751	C 90	CT15801	G 34	32483	L 51	36701	C 96
361	G 23	S701	C 106	2611	C 102	12181	L 56	B13751	C 90	ST15801	G 34	32493	L 52	B36701	C 96
362	G 23	710	C 90	R2611	C 103	12188	L 56	13780	C 90	15821	L 59	32570	C 92	36710	C 96
363	G 23	A710	C 97	2622	C 102	12321	G 20	B13780	C 90	15831	G 31	B32570	C 92	B36710	C 96
368	G 23	AB710	C 97	R2622	C 103	12351	L 48	13921	G 20	15841	L59	32573	C 92	36801	G 31
371	G 24	B710	C 90	2691	C 102	12401	G 20	15111	G 27	15851	G 31	B32573	C 92	41000	G 132
372	G 24	718	C 90	R2691	C 103	12401C	G 41	BT15111	G 34	15861	G 31	32580	C 93	42211	G 38
373	G 24	B718	C 90	2801	G 30	12421	G 20	CT15111	G 34	BT15901	G 34	B32580	C 93	42241	L 79
378	G 24	S718	C 106	2801B	G 40	12443	L 75	ST15111	G 34	CT15901	G 34	32583	C 93	43111	G 39
473	L 50	730	C 89	BT2801	G 32	12501	L 48	15141	L 55	ST15901	G 34	B32583	C 93	43211	G 38
473B	L 72	750	C 90	CT2801	G 32	12501C	L 82	15321	G 27	15921	G 27	32590	C 94	43241	L 78
473VP	L 75	B750	C 90	ST2801	G 32	12521	G 20	15343	L 77	16111	G 27	B32590	C 94	B43721	C 98
478	L 50	751	C 90	TT2801	G 32	12543	L 75	15351	L 55	16321	G 27	32593	C 94	52461	L 74
478VP	L 75	B751	C 90	2811	G 29	12551	L 48	15373	G 25	16373	G 25	B32593	C 94	54853	C 100
483	L 51	S751	C 106	2821	L 58	12601	G 42	15378	G 25	16378	G 25	S32673	C 108	54863	C 100
483B	L 72	S761	C 106	2831	G 30	12602	G 42	15401	G 27	16401	G 27	S32683	C 108	58431	L 85
483VP	L 75	780	C 90	2831B	G 40	12603	G 42	15401C	G 41	16421	G 27	S32693	C 108	59851	G 37
488	L 51	B780	C 90	2841	L 58	12604	G 42	15421	G 27	16521	G 27	32701	C 90	59951	G 37
488VP	L 75	801	L 57	2851	G 30	12605	G 42	15443	L 77	16701	C 96	B32701	C 90	65703	G 31
493	L 52	810	L 60	2861	G 30	12921	G 20	15493	L 53	B16701	C 96	S32701	C 106	65713	G 31
493B	L 72	811	L 60	2891	L 84	13111	G 20	15498	L 53	16710	C 96	32710	C 90	65723	L 59
493VP	L 75	822	L 60	BT2901	G 32	13111ER	G 38	15501	L 55	B16710	C 96	B32710	C 90	65773	G 31
498	L 52	851	L 56	CT2901	G 32	13141	L 48	15521	G 27	16718	C 96	32801	G 30	66703	G 36
498VP	L 75	891	L 60	ST2901	G 32	13141B	L 72	15543	L 77	B16718	C 96	32801B	G 40	66713	G 36
570	C 92	1003	L 69	TT2901	G 32	13141ER	L 71	15551	L 55	16750	C 96	32821	L 58	66723	L 63
B570	C 92	1023	L 69	3801	G 30	13321	G 20	15590	C 95	B16750	C 96	33111	G 20	66733	L 63
573	C 92	1033	G 46	3801B	G 40	13351	L 48	B15590	C 95	16751	C 96	33141	L 48	66743	G 36
B573	C 92	1043	G 46	3831	G 30	13361	G 23	15593	C 95	B16751	C 96	33363	G 23	66773	G 36
578	C 92	1331	L 83	3831B	G 40	13362	G 23	B15593	C 95	16760	C 96	33373	G 24	66783	L 63
B578	C 92	1510	L 61	3991	L 88	13363	G 23	15598	C 95	B16760	C 96	33701	C 90	66791	G 36
579	C 92	R1510	L 62	4835	C 104	13368	G 23	B15598	C 95	16761	C 96	B33701	C 90	66793	L 63
B579	C 92	1511	L 61	4881	C 111	13371	G 24	15599	C 95	B16761	C 96	33710	C 90	82401	G 20
580	C 93	R1511	L 62	9091	C 99	13372	G 24	B15599	C 95	16780	C 96	B33710	C 90	82501	L 48
B580	C 93	1522	L 61	B9091	C 99	13373	G 24	S15693	C 109	B16780	C 96	33801	G 30	82718	C 90
583	C 93	R1522	L 62	9821	L 86	13378	G 24	S15698	C 109	16801	G 31	33801B	G 40	82831	G 30
B583	C 93	1551	C 110	9841	L 87	13401	G 20	15701	C 96	16831	G 31	34835	C 104	83401	G 20
588	C 93	B1551	C 110	9871	L 86	13401C	G 41	B15701	C 96	16851	G 31	35111	G 27	83501	L 48
B588	C 93	1591	L 61	10103	L 68	13421	G 20	S15701	C 107	16861	G 31	35141	L 55	85401	G 27
589	C 93	R1591	L 62	10403	L 67	13474B	L 72	15710	C 96	16921	G 27	35373	G 25	85831	G 31
B589	C 93	1610	C 101	10603	L 70	13483B	L 72	B15710	C 96	21000	G 132	35443	L 77	86401	G 27
590	C 94	1611	C 101	10683	L 70	13493B	L 72	15718	C 96	22141	L 81	35493	L 53	86831	G 31
B590	C 94	1622	C 101	11103	G 43	13501	L 48	B15718	C 96	22142	L 81	35590	C 95		
593	C 94	1691	C 101	11403	G 44	13521	G 20	S15718	C 107	22461	L 73	B35590	C 95		
B593	C 94	1871	L 83	11603	G 45	13551	L 48	15750	C 96	22483	L 80	35593	C 95		
598	C 94	1971	L 54	11683	G 45	13601	G 42	B15750	C 96	22493	L 80	B35593	C 95		
B598	C 94	1971VP	L 76	12111	G 20	13602	G 42	15751	C 96	22501	L 81	S35693	C 109		
599	C 94	2191	C 110	12111ER	G 38	13603	G 42	B15751	C 96	22561	L 73	35701	C 96		
B599	C 94	2271	112	BT12111	G 32	13604	G 42	S15751	C 107	23141	L 78	B35701	C 96		
S673	C 108	2510	L 64	CT12111	G 32	13605	G 42	15760	C 96	S32074	C 105	S35701	C 107		
S678	C 108	R2510	L 65	ST12111	G 32	13701	C 90	B15760	C 96	32111	G 20	35710	C 96		
S683	C 108	2511	L 64	TT12111	G 32	B13701	C 90	15761	C 96	32141	L 48	B35710	C 96		
S688	C 108	R2511	L 65	12141	L 48	13710	C 90	B15761	C 96	32353	G 22	35801	G 31		
S693	C 108	2522	L 64	12141B	L 72	B13710	C 90	S15761	C 107	32363	G 23	35821	L 59		

## Description of Series Number System for Vogt Valves

Series Number  
(typical)

2" SW12111F8M

Optional specification

SW12111F8M-09

SW12111F8M-09P(EPED)

	Size:
-04	1/2" DN 15
-05	3/4" DN 20
-06	1 DN 25
-07	1 1/4 DN 32
-08	1 1/2 DN 40
-09	2 DN 50
-10	2 1/2 DN 65
-11	3" DN 80
-13	4" DN 100

**Prefix:**

The letter beginning the Vogt series number is normally indicative of the valve connection. Historically, a few design features have also been used as part of the prefix S, B, and R. A fully female threaded valve as the traditional Vogt standard does not have a prefix number.

**Prefix Description:**

- (Blank)** - Female NPT (both ends)
- B** - Ball Check (female NPT)
- BS** - Female SW by Male Butt Weld (Extended Body)
- BT** - Female Thd by Male Butt Weld (Extended Body)
- BW** - Butt Weld
- CS** - Female SW by Male Couplet
- CT** - Female Thd by Male Couplet
- D** - Dial and Indicator
- FF** Flat Face Flanged
- R** - In-Line Repair (female NPT)
- RJ** - Ring Joint Flanges
- S** - Swing Check (female NPT)
- SWS** Swing Check SW
- SS** - Female SW by Male SW
- ST** - Female NPT by Male SW
- SW** - Socket Weld
- SWB** - Ball Check (SW)
- SWR** - In-line Repair (SW)
- SWS** - Swing Check (SW)
- TS** - Female SW by Male NPT
- TSW** - Female NPT by Female SW
- TT** - Female NPT by Male NPT
- TBW** - Female NPT by Butt Weld

**Valve Design/Material:**

This numeric character uniquely identifies the valve to its design (gate, globe, angle, check, etc.) and pressure boundary material of construction (A105, A182-F5, F11, F316, etc.).

**Suffix:**

This alphanumeric character ending of the Vogt valve series number is normally indicative of the valve internal trim package or service application. A valve with the traditional Vogt standard trim package and packing is not assigned a suffix number.

**Suffix Description:**

- (Blank)** - Standard Trim
- B** - Bellows Valve
- C** - Cryogenic Valve
- CL** - Chlorine Valve Trim - Monel/Hastelloy
- ER** - Emissions Reduction - Double Packed with Lantern Ring
- F8M** - 316 Trim
- F8H** - 316 Trim - Full Hard Faced
- FHF** - Full Hard Faced (unless standard)
- FT** - Full Trace (Pressure Retaining components)
- HF** - Hard Faced Disc (F316 Globe and Check)
- HF2** - UOP Alkylation - Full Port Valve Only
- HF4** - UOP Alkylation - Full Port Valve Only
- HF5** - UOP Alkylation - Full Port Valve Only
- HF6** - UOP Alkylation
- HF7** - UOP Alkylation - Locking Device
- MB6** - 13% Chrome Trim All Hard Faced - NACE\*
- MB8** - 316 Trim Full Hard Faced - NACE\*
- MBS** - Monel Trim Hard Faced Wedge - NACE\*
- MM** - Monel Trim - Grafoil Packing and Gasket
- MMP** - Phillips Alkylation
- MMT** - Monel Trim - Teflon Packing and Gasket
- MT** - Chlorine Valve Trim - Monel/Teflon Disc/Hastelloy
- MTG** - Vogt Alkylation
- MTP** - Phillips Alkylation - Monel/Teflon Disc
- NA6** - 13% Cr Trim - NACE\*
- NA8** - 316 Trim - NACE\*
- NAS** - Monel Trim - NACE\*
- SR** - Nuclear Safety Related
- T** - Teflon Packing and Gasket
- VP** - Flow Control Trim (Globe Valve)
- ZLB** - Zero Leakage Check Valve - Buna N
- ZLE** - Zero Leakage Check Valve - Ethylene Propylene
- ZLN** - Zero Leakage Check Valve - Neoprene
- ZLV** - Zero Leakage Check Valve - Viton

**EPED** - Valves thus noted are constructed under the European Pressure Equipment Directive 97/23/EC - This specification applies to all pressure classes of the ASME B16.34 Vogt product (gate, globe and check valves) size 1.25" through 4" (DN 32-DN 100), pressure classes 150 through 2680 LTD. Valves size 1" and smaller are not within the scope of this specification.

Not all sizes, end connections, or trim configurations are available with all Valve Series. Please check for availability.

\*NACE - Materials meet requirements of NACE MR0103 for sour service



## API 602 Trim Number Versus Vogt Trim Description

API TRIM No.	API NOMINAL TRIM DESC.	TRIM DESC.	SERIES SUFFIX	TYPICAL IN VALVE SERIES	NOTES
1	13 Cr (No Hardfacing)	Trim: 13% Cr	None (Standard)	22461 22141	(1) Offer Trim 8.
2	304 (No Hardfacing)	None	None	None	(2) Offer 316/316L Trim
3	310 (No Hardfacing)	None	None	None	
4	Hard F6 (No Hardfacing)	None	None	None	Offer 1/2 or FHF
5 5A	Hardfaced (13 Cr Stem)	Trim 13% Cr Wedge/Seats: HF	FHF	12111FHF	(3) 5=Stellite 5A=NiCr Hardfacing
		Trim 13% Cr Disc/Seat: HF	FHF None (If Standard)	12141FHF 1510 (4) 2510	
6	F6 and CuNi (13 Cr and Monel Overlay)	None	None	None	(5) Offer MM Trim
7	F6 and Hard F6 (13 Cr Stem)	None	None	None	Offer FHF Trim
8 8A	F6 and Hardfaced	Trim 13% Cr Seat: HF	None	12111	(6) 1/2 HF
		Trim 13% Cr Seat: HF	None	12141	
		Trim 13% Cr Seat: HF	HF	10403HF	
9	Monel	Trim: Monel	MM	12111MM	
10	316	Trim: 316	None	12501 718	
11	Monel & Hardfaced (Monel Trim 1/2 HF)	Trim: Monel Seat: HF	MM	12141MM 701MM	
12	316 & Hardfaced (1/2 HF 316)	Trim: 316 Seat: HF	F8M	12111F8M 12401	
		Trim: 316 Seat: HF	F8M	12141F8M 12501F8M	
13	Alloy 20	None	None	None	
14	Alloy 20 & Hardfaced (1/2 HF Alloy)	None	None	None	
15	Hardfaced (304 FHF Trim)	None	None	None	(7)
16	Hardfaced (316 FHF Trim)	Trim: 316 Wedge/Seat: HF	F8H	12111F8H 12401FHF	
		Trim: 316 Disc/Seat: HF	FHF	12501FHF	
17	Hardfaced (347 FHF Trim)	None	None	None	
18	Hardfaced (Alloy 20 FHF)	None	None	None	

1) Other Vogt Valves with Cr trim and no HF seating meet the API 602 Trim 1 except for minimum hardness. API Trim 8 can be substituted for Trim 1 under API 602 Table 12 alternative trim rules.

2) API Trim 10 can be substituted for Trim 2 under API 602 Table 12 alternative trim rules.

3) Trim 5 requires Stellite (cobalt based) alloys. Trim 5A allows non-cobalt base hard facing alloys.

4) Many Vogt valves are supplied as standard with FHF trim but do not carry the FHF designator with the Series No. Typical of these as these Series 1510, 1610, 2510 and 2610. Most Class 1500 and higher F11 and F22 valves have FHF trims but are carried by the series designator.

5) API 602 Trim 8 can be substituted for Trim 6 under API 602 Table 12 alternative trim rules.

6) Most Vogt carbon and alloy steel gate and globe and 316/316L stainless steel gate valves have 1/2 HF seating surfaces. Such valves do not necessarily carry "HF" designator in their Series Suffix Number.

7) API Trim 16 can be substituted for Trim 15 under API 602 Table 12 alternative trim rules.

## Cross-Reference of ASTM Material Specifications

### Covering Cast and Forged Valves

MATERIAL	FORGINGS	CASTINGS	WROUGHT FITTINGS
Carbon Steel Cold Temperature Service	A105 A350-LF2	A216-WCB A352-LCC	A234-WPB A420-WPL6
Carbon-1/2 Moly Alloy Steel Cold Temperature Service	A182-F1	A217-WC1 A352-LC1	A234-WP1
3-1/2 Nickel Alloy Steel Low Temperature Service	A350-LF3	A352-LC3	A420-WPL3
1/2 Cr-1/2 Mo Alloy Steel 1/2 Cr-1/2 Mo-1 Ni Alloy Steel 3/4 Cr-1 Mo-3/4 Ni Alloy Steel 1 Cr-1/2 Mo Alloy Steel	A182-F2  A182-F12 CL2	A217-WC4 A217-WC5	A234-WP12 CL2
1-1/4 Cr-1/2 Mo Alloy Steel 2-1/4 Cr-1 Mo Alloy Steel 5 Cr-1/2 Mo Alloy Steel 5 Cr-1/2 Mo Alloy Steel 9 Cr-1 Mo Alloy Steel 13 Cr Alloy Steel	A182-F11 CL2 A182-F22 CL3 A182-F5 A182-F5a A182-F9 A182-F6	A217-WC6 A217-WC9  A217-C5 A217-C12 A743-CA15	A234-WP11 CL2 A234-WP22 CL3 A234-WP5  A234-WP9
Type 304 Stainless Steel (18 Cr-8 Ni) Standard Low Carbon High Temperature Service	A182-F304 A182-F304L A182-F304H	A351-CF8 A351-CF3 A351 CF10	A403-WP304 A403-WP304L A403-WP304H
Type 310 Stainless Steel (25 Cr-20 Ni) Type 316 Stainless Steel (16 Cr-12 Ni-2 Mo) Standard Low Carbon High Temperature Service	A182-F310H  A182-F316 A182-F316L A182-F316H	A351-CK20  A351-CF8M A351-CF3M A351-CF10M	A403-WP310  A403-WP316 A403-WP316L A403-WP316H
Type 317 Stainless Steel (18 Cr-13 Ni-3 Mo) Type 321 Stainless Steel (18 Cr-10 Ni-Ti) Standard High Temperature Service	A182 - F317  A182-F321 A182-F321H	A351 - CG8M	A403-WP317  A403-WP321 A403-WP321H
Type 347 Stainless Steel (18 Cr-10 Ni-Cb) Standard High Temperature Service	A182-F347 A182-F347H	A351-CF8C	A403-WP347 A403-WP347H
Type 348 Stainless Steel (18 Cr-10 Ni-Cb) Standard High Temperature Service	A182-F348 A182-F348H		A403-WP348 A403-WP348H

## Forging Materials

<p><b>ASTM A105 Carbon Steel (0.24 Carbon max.)</b> Where temperatures are moderate and corrosion resistance is not critical</p> <table border="0"> <tr><td>C</td><td>0.18 - 0.24</td><td>TS Min. psi(Mpa): 70,000(485)</td></tr> <tr><td>Mn</td><td>1.00 - 1.35</td><td>YS Min. psi(Mpa): 36,000(250)</td></tr> <tr><td>Si</td><td>0.15 - 0.30</td><td>EL (2" Min.): 22%</td></tr> <tr><td>P</td><td>0.030 Max.</td><td>RA Min.: 30%</td></tr> <tr><td>S</td><td>0.015 - 0.040</td><td>Hardness, Bhn: Max. 187</td></tr> <tr><td>Cr</td><td>0.20</td><td></td></tr> <tr><td>Ni</td><td>0.20</td><td></td></tr> <tr><td>Mo</td><td>0.06</td><td></td></tr> <tr><td>V</td><td>0.02</td><td></td></tr> <tr><td>Cb</td><td>0.02</td><td></td></tr> <tr><td>Cu</td><td>0.20</td><td></td></tr> </table> <p>Total Residuals = 0.50</p>	C	0.18 - 0.24	TS Min. psi(Mpa): 70,000(485)	Mn	1.00 - 1.35	YS Min. psi(Mpa): 36,000(250)	Si	0.15 - 0.30	EL (2" Min.): 22%	P	0.030 Max.	RA Min.: 30%	S	0.015 - 0.040	Hardness, Bhn: Max. 187	Cr	0.20		Ni	0.20		Mo	0.06		V	0.02		Cb	0.02		Cu	0.20		<p><b>ASTM A182, Grade F9 - 9Cr - 1Mo</b> For services where the higher chrome alloys are preferred and where high temperature stability and oxidation resistance of the lower alloy steels are inadequate.</p> <table border="0"> <tr><td>C</td><td>0.15 Max.</td><td>TS Min. psi(Mpa): 85,000(585)</td></tr> <tr><td>Mn</td><td>0.30 - 0.60</td><td>YS Min. psi(Mpa): 55,000(380)</td></tr> <tr><td>P</td><td>0.030 Max.</td><td>EL (2" Min.): 20%</td></tr> <tr><td>S</td><td>0.030 Max.</td><td>RA Min.: 40%</td></tr> <tr><td>Si</td><td>0.50 - 1.00</td><td>Hardness, Bhn: 179 - 217</td></tr> <tr><td>Cr</td><td>8.00 - 10.00</td><td></td></tr> <tr><td>Mo</td><td>0.90 - 1.10</td><td></td></tr> </table>	C	0.15 Max.	TS Min. psi(Mpa): 85,000(585)	Mn	0.30 - 0.60	YS Min. psi(Mpa): 55,000(380)	P	0.030 Max.	EL (2" Min.): 20%	S	0.030 Max.	RA Min.: 40%	Si	0.50 - 1.00	Hardness, Bhn: 179 - 217	Cr	8.00 - 10.00		Mo	0.90 - 1.10										
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<p><b>ASTM A350, LF2 (0.24 Carbon max.)</b> Where cold temperature (-50°F) impact strength is essential.</p> <table border="0"> <tr><td>C</td><td>0.18 - 0.24</td><td>TS Min. psi(Mpa): 70,000(485)</td></tr> <tr><td>Mn</td><td>1.00 - 1.35</td><td>YS Min. psi(Mpa): 36,000(250)</td></tr> <tr><td>Si</td><td>0.15 - 0.30</td><td>EL (2" Min.): 22%</td></tr> <tr><td>P</td><td>0.030 Max.</td><td>RA Min.: 30%</td></tr> <tr><td>S</td><td>0.015 - 0.040</td><td>Hardness, Bhn: Max. 197</td></tr> <tr><td>Cr</td><td>0.20</td><td>-50F Charpy: Min. Impact</td></tr> <tr><td>Ni</td><td>0.20</td><td>Energy (Ft/Lb): (J)</td></tr> <tr><td>Mo</td><td>0.06</td><td>Average of Each</td></tr> <tr><td>V</td><td>0.02</td><td>Set of 3 Specimen: 15(20)</td></tr> <tr><td>Cb</td><td>0.02</td><td>For One Specimen: 12(15)</td></tr> <tr><td>Cu</td><td>0.20</td><td></td></tr> </table> <p>Total Residuals = 0.50</p>	C	0.18 - 0.24	TS Min. psi(Mpa): 70,000(485)	Mn	1.00 - 1.35	YS Min. psi(Mpa): 36,000(250)	Si	0.15 - 0.30	EL (2" Min.): 22%	P	0.030 Max.	RA Min.: 30%	S	0.015 - 0.040	Hardness, Bhn: Max. 197	Cr	0.20	-50F Charpy: Min. Impact	Ni	0.20	Energy (Ft/Lb): (J)	Mo	0.06	Average of Each	V	0.02	Set of 3 Specimen: 15(20)	Cb	0.02	For One Specimen: 12(15)	Cu	0.20		<p><b>ASTM A182, Grade F91 - 9Cr - 1Mo - V</b> For high temperature Boiler applications requiring high strength alloys.</p> <table border="0"> <tr><td>C</td><td>0.08 - 0.12</td><td>TS Min. psi(Mpa): 85,000(585)</td></tr> <tr><td>Mn</td><td>0.30 - 0.60</td><td>YS Min. psi(Mpa): 60,000(415)</td></tr> <tr><td>P</td><td>0.020 Max.</td><td>EL (2" Min.): 20%</td></tr> <tr><td>S</td><td>0.010 Max.</td><td>RA Min.: 40%</td></tr> <tr><td>Si</td><td>0.20 - 0.50</td><td>Hardness, Bhn: Max 248</td></tr> <tr><td>Cr</td><td>8.00 - 9.50</td><td></td></tr> <tr><td>Mo</td><td>0.85 - 1.05</td><td></td></tr> <tr><td>Cb</td><td>0.06 - 0.10</td><td></td></tr> <tr><td>Ni</td><td>0.40 Max</td><td></td></tr> <tr><td>V</td><td>0.18 - 0.25</td><td></td></tr> </table>	C	0.08 - 0.12	TS Min. psi(Mpa): 85,000(585)	Mn	0.30 - 0.60	YS Min. psi(Mpa): 60,000(415)	P	0.020 Max.	EL (2" Min.): 20%	S	0.010 Max.	RA Min.: 40%	Si	0.20 - 0.50	Hardness, Bhn: Max 248	Cr	8.00 - 9.50		Mo	0.85 - 1.05		Cb	0.06 - 0.10		Ni	0.40 Max		V	0.18 - 0.25	
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<p><b>ASTM A182, Grade F11, Class 2 (0.15 Carbon max.) 1-1/4Cr - 1/2Mo</b> To minimize graphitization encountered with carbon and carbon moly steels at high temperatures</p> <table border="0"> <tr><td>C</td><td>0.10 - 0.15</td><td>TS Min. psi(Mpa): 70,000(485)</td></tr> <tr><td>Mn</td><td>0.30 - 0.80</td><td>YS Min. psi(Mpa): 40,000(275)</td></tr> <tr><td>P</td><td>0.040 Max.</td><td>EL (2" Min.): 20%</td></tr> <tr><td>S</td><td>0.015 - 0.035</td><td>RA Min.: 30%</td></tr> <tr><td>Si</td><td>0.50 - 1.00</td><td>Hardness, Bhn: 143 - 207</td></tr> <tr><td>Cr</td><td>1.00 - 1.50</td><td></td></tr> <tr><td>Mo</td><td>0.44 - 0.65</td><td></td></tr> </table>	C	0.10 - 0.15	TS Min. psi(Mpa): 70,000(485)	Mn	0.30 - 0.80	YS Min. psi(Mpa): 40,000(275)	P	0.040 Max.	EL (2" Min.): 20%	S	0.015 - 0.035	RA Min.: 30%	Si	0.50 - 1.00	Hardness, Bhn: 143 - 207	Cr	1.00 - 1.50		Mo	0.44 - 0.65		<p><b>ASTM A182, Grade F316 / F316L - 18Cr - 8Ni - 3Mo</b> For corrosion resistance applications where high temperature strength is required. Has restricted carbon level to minimize sensitization. Do not use for Service temperatures above 1000 °F.</p> <table border="0"> <tr><td>C</td><td>0.030 Max.</td><td>TS Min. psi(Mpa): 75,000(515)</td></tr> <tr><td>Mn</td><td>2.00 Max.</td><td>YS Min. psi(Mpa): 30,000(205)</td></tr> <tr><td>P</td><td>0.040 Max.</td><td>EL (2" Min.): 30%</td></tr> <tr><td>S</td><td>0.020 - 0.030</td><td>RA Min.: 30%</td></tr> <tr><td>Si</td><td>1.00 Max.</td><td></td></tr> <tr><td>Ni</td><td>10.00 - 14.00</td><td></td></tr> <tr><td>Cr</td><td>16.00 - 18.00</td><td></td></tr> <tr><td>Mo</td><td>2.00 - 3.00</td><td></td></tr> </table>	C	0.030 Max.	TS Min. psi(Mpa): 75,000(515)	Mn	2.00 Max.	YS Min. psi(Mpa): 30,000(205)	P	0.040 Max.	EL (2" Min.): 30%	S	0.020 - 0.030	RA Min.: 30%	Si	1.00 Max.		Ni	10.00 - 14.00		Cr	16.00 - 18.00		Mo	2.00 - 3.00																			
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<p><b>ASTM A182, Grade F22, Class 3 (0.15 Carbon max.) 2-1/4Cr - 1/2Mo</b> Where elevated temperature, surface stability and greater strength than F11 are needed</p> <table border="0"> <tr><td>C</td><td>0.15 Max.</td><td>TS Min. psi(Mpa): 75,000(515)</td></tr> <tr><td>Mn</td><td>0.30 - 0.60</td><td>YS Min. psi(Mpa): 40,000(275)</td></tr> <tr><td>P</td><td>0.040 Max.</td><td>EL (2" Min.): 20%</td></tr> <tr><td>S</td><td>0.015 - 0.035</td><td>RA Min.: 30%</td></tr> <tr><td>Si</td><td>0.50 Max.</td><td>Hardness, Bhn: 156 - 207</td></tr> <tr><td>Cr</td><td>2.00 - 2.50</td><td></td></tr> <tr><td>Mo</td><td>0.87 - 1.13</td><td></td></tr> </table>	C	0.15 Max.	TS Min. psi(Mpa): 75,000(515)	Mn	0.30 - 0.60	YS Min. psi(Mpa): 40,000(275)	P	0.040 Max.	EL (2" Min.): 20%	S	0.015 - 0.035	RA Min.: 30%	Si	0.50 Max.	Hardness, Bhn: 156 - 207	Cr	2.00 - 2.50		Mo	0.87 - 1.13		<p><b>ASTM A182, Grade F316H - 18Cr - 8Ni - 3Mo</b> For corrosion resistance applications where extreme temperature strength is expected. Has restricted carbon range for high temperature strength above 1000 °F.</p> <table border="0"> <tr><td>C</td><td>0.04 - 0.10</td><td>TS Min. psi(Mpa): 75,000(515)</td></tr> <tr><td>Mn</td><td>2.00 Max.</td><td>YS Min. psi(Mpa): 30,000(205)</td></tr> <tr><td>P</td><td>0.040 Max.</td><td>EL (2" Min.): 30%</td></tr> <tr><td>S</td><td>0.020 - 0.030</td><td>RA Min.: 30%</td></tr> <tr><td>Si</td><td>1.00 Max.</td><td></td></tr> <tr><td>Ni</td><td>10.00 - 14.00</td><td></td></tr> <tr><td>Cr</td><td>16.00 - 18.00</td><td></td></tr> <tr><td>Mo</td><td>2.00 - 3.00</td><td></td></tr> </table>	C	0.04 - 0.10	TS Min. psi(Mpa): 75,000(515)	Mn	2.00 Max.	YS Min. psi(Mpa): 30,000(205)	P	0.040 Max.	EL (2" Min.): 30%	S	0.020 - 0.030	RA Min.: 30%	Si	1.00 Max.		Ni	10.00 - 14.00		Cr	16.00 - 18.00		Mo	2.00 - 3.00																			
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<p><b>ASTM A182, Grade F5 - 5Cr - 1/2Mo</b> With moderately corrosive fluids and in oil refineries where high temperature stability and oxidation resistance of the lower alloy steels are inadequate.</p> <table border="0"> <tr><td>C</td><td>0.15 Max.</td><td>TS Min. psi(Mpa): 70,000(485)</td></tr> <tr><td>Mn</td><td>0.30 - 0.60</td><td>YS Min. psi(Mpa): 40,000(275)</td></tr> <tr><td>P</td><td>0.030 Max.</td><td>EL (2" Min.): 20%</td></tr> <tr><td>S</td><td>0.015 - 0.035</td><td>RA Min.: 35%</td></tr> <tr><td>Si</td><td>0.50 Max.</td><td>Hardness, Bhn: 143 - 217</td></tr> <tr><td>Ni</td><td>0.50 Max.</td><td></td></tr> <tr><td>Cr</td><td>4.00 - 6.00</td><td></td></tr> <tr><td>Mo</td><td>0.44 - 0.65</td><td></td></tr> </table>	C	0.15 Max.	TS Min. psi(Mpa): 70,000(485)	Mn	0.30 - 0.60	YS Min. psi(Mpa): 40,000(275)	P	0.030 Max.	EL (2" Min.): 20%	S	0.015 - 0.035	RA Min.: 35%	Si	0.50 Max.	Hardness, Bhn: 143 - 217	Ni	0.50 Max.		Cr	4.00 - 6.00		Mo	0.44 - 0.65																																									
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## Valve Trim Materials

### Description and General Use

#### 13% Chromium

Stainless Steel

Type 410

This stainless steel material lends itself to hardening by heat treatment and is excellent for contacting parts such as stems, gates and discs.

#### 13% Chromium

Stainless Steel

Type 416

High-quality stainless steel yoke nut material having excellent anti-galling characteristics for better operating threads.

#### 18% Chromium

8% Nickel

2% Molybdenum

Stainless Steel

Type 316

Type 316L

Provides excellent resistance to corrosive media at high temperatures and toughness for service at low temperatures.

#### 18% Chromium

Stainless Steel

Type 440 C

Used for hardened balls in ball check valves.

#### Nickel-Copper

Monel

Alloy K500

This wrought material is precipitation hardened and possesses excellent corrosion resistance, high-strength properties and hardness for internal valve components.

#### Monel

Alloy 400

Non-hardened alloy, except by work hardened, that has high strength and toughness over a wide temperature range. Has excellent corrosion resistance in chlorine and alkyation service.

#### Alloy 20

Alloy 20 is corrosion resistant to hot sulfuric acids when compared to austenitic stainless steels such as such as 316 or 317.

### Description and General Use

#### Cobalt Base

and Nickel Base

#### Hard-Facing Materials

Hard-facing materials, when used on seating surfaces of Gate, Globe and Check Valves, give extended service life and trouble-free operation.

#### Nickel-Moly-Chromium

Hastelloy C-276

A high-nickel alloy with exceptional resistance to corrosive attack by chlorine gas.

#### Precipitation-Hardened Stainless Steel

Grade 630 17-4 PH

Provides corrosion resistance and high strength for stems in NACE applications.

#### S-Monel

Grade M-25S

Material used for Monel castings.

#### ASTM A743, Grade CA-15

Material used for 13 CR castings. The cast equivalent to type 410 stainless steel.

#### Cast Cobalt

RCoCr-A

Material used for cobalt castings. The cast equivalent to Stellite #6.

#### Cast 316

Grade CF8M

Material used for 18-8 castings.

#### Inconel 625

Material is used for its high strength, excellent fabricability (including joining) and outstanding corrosion resistance.

#### Incoloy 825

Material is a nickel-iron-chromium alloy with additions of molybdenum, copper and titanium. The alloy's chemical composition is designed to provide exceptional resistance to many corrosive environments.

## Recommended Valve Orientation

VALVE TYPE	STEM ORIENTATION HORIZONTAL LINE <sup>(1)</sup>	STEM ORIENTATION VERTICAL LINE <sup>(2)</sup>
Gate	Any (except vertical down) Preferred vertical stem upright	Any Preferred stem horizontal
Gate Valve <sup>(3)</sup> Motor/air-operated	Any (except vertical down) Preferred vertical stem upright	Any Preferred stem horizontal
Globe-T pattern	Any (except vertical down) Preferred vertical stem upright	Any Preferred stem horizontal
Globe-T pattern <sup>(3)</sup> Motor/air-operated	Any (except vertical down) Preferred vertical stem upright	Any Preferred stem horizontal
Globe-Y pattern	Any Preferred stem at $\pm 50^\circ$ to pipe run in upright position.	Any Preferred stem at $\pm 50^\circ$ to normal of pipe run
Globe-Y pattern <sup>(3)</sup> Motor/air-operated	Any Preferred stem at $\pm 50^\circ$ to pipe run in upright position.	Any Preferred stem at $\pm 50^\circ$ to normal of pipe run
Angle	Any (except vertical down) Preferred vertical stem upright	Any Preferred stem vertical upright
Angle <sup>(3)</sup> Motor/air-operated	Any (except vertical down) Preferred vertical stem upright	Any Preferred stem vertical upright
Ball or Piston lift check valve-T pattern (no spring) (includes stop check valve)	Preferred vertical Upright Rotation off top dead center $\pm 40^\circ$	Not recommended
Ball or Piston lift check valve-T pattern (spring-controlled)	Preferred vertical upright Rotation off top dead center $\pm 90^\circ$	Any
Piston lift check valve-Y pattern (spring-controlled)	Preferred vertical upright Rotation off top dead center $\pm 90^\circ$	Any
Swing check valve	Preferred vertical upright Rotation off top dead center $\pm 30^\circ$	Any, but upward vertical flow required
Stop check valves	Preferred vertical Upright Rotation off top dead center $\pm 40^\circ$	Not recommended

### General

- Gate, globe, angle and spring-controlled check valve designs oriented with stems or body run vertical down orient the valve body cavities in such a manner that debris can be collected and not get flushed out. This may cause unreliable valve operation. A vertical stem down or body run down orientation is not recommended for fluid service that may include debris.
- Recommended orientation of motor/air-operated valves may be changed by the recommended orientation of the actuator.

### Notes

- <sup>(1)</sup> A  $\pm 5^\circ$  variation off horizontal for the pipe would not change the recommended except for swing check valves. This valve design will not close by gravity if the piping is off horizontal, which allows the swing check mechanism to swing away from the seat.
- <sup>(2)</sup> A  $\pm 5^\circ$  off variation vertical for vertical piping does not change the recommendations in the table.
- <sup>(3)</sup> For small-bore socket welding and threaded valves equipped with a motor or air operator mounted in a horizontal plane, it is recommended that external supports be added to the piping arrangement to remove the load from the connecting socket welds or threads of the valve.

## ***Gate Valve***

Gate valves are designed to operate in a fully open or fully closed position. When open, the media will flow with minimal turbulence and pressure drop through the valve.

Vogt gate valves are available with a variety of bonnet types, body and trim materials, and stem packings, in addition to a broad range of pressure classes and end connections including extended bodies.

The rugged construction of forged gate valves provide an extended life of safe operation. Metal-to-metal seating surfaces accommodate the widest range of pressure-temperature conditions.

Dimensions in the catalog selection pages are in inches and millimeters.

Dimensions are subject to change without notice.

*See pages 20 – 46 for gate valve selections.*



## ***Globe Valve***

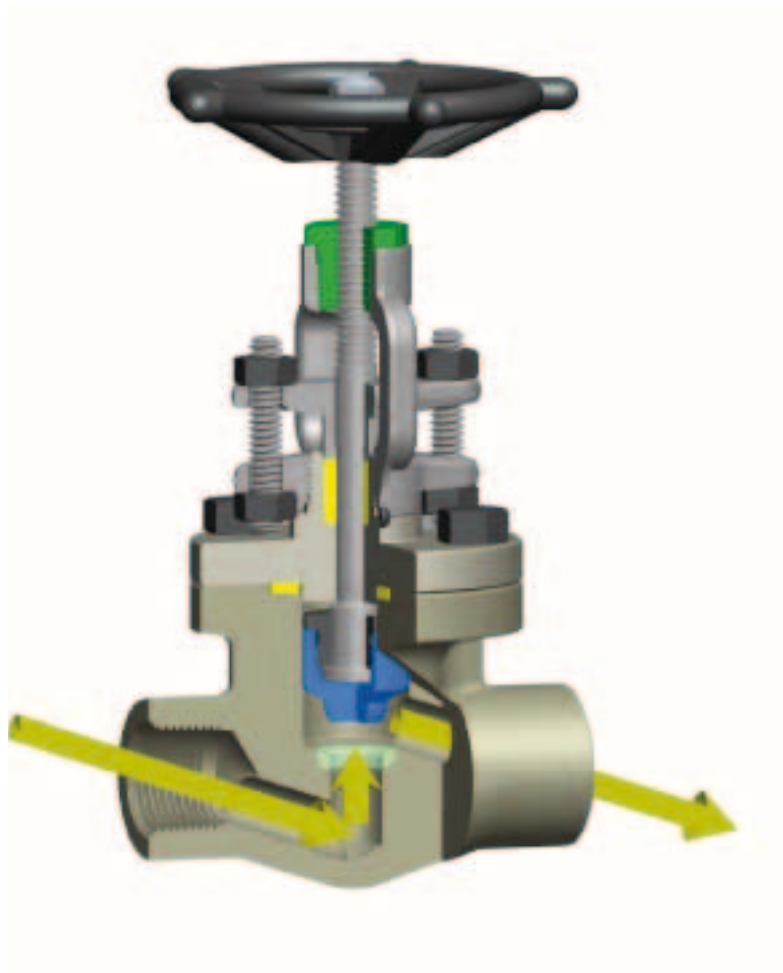
Globe and angle valves are suitable for throttling as well as shut-off. They are customarily installed so that the media pressure and preferred flow direction are under the disc (as illustrated). Flow above the disc is also acceptable.

The Vogt globe and angle valve lines provide a variety of design variations to fulfill your requirements. Flow characteristics can be determined from the Cv Factors listed.

Dimensions in the catalog selection pages are in inches and millimeters.

Dimensions are subject to change without notice.

*See pages 48 – 88 for globe valve selections.*

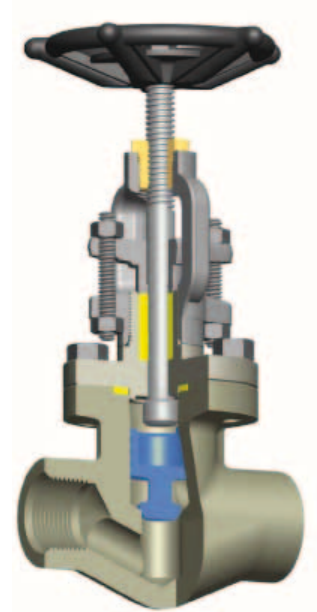


## Stop Check Valve (Non-Return Valve)

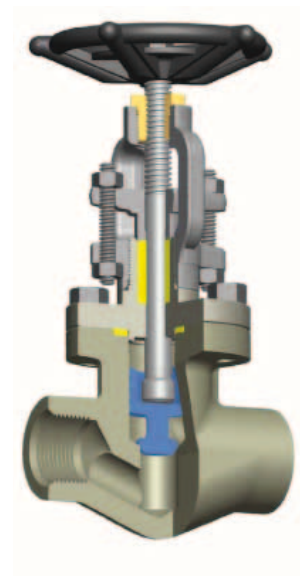
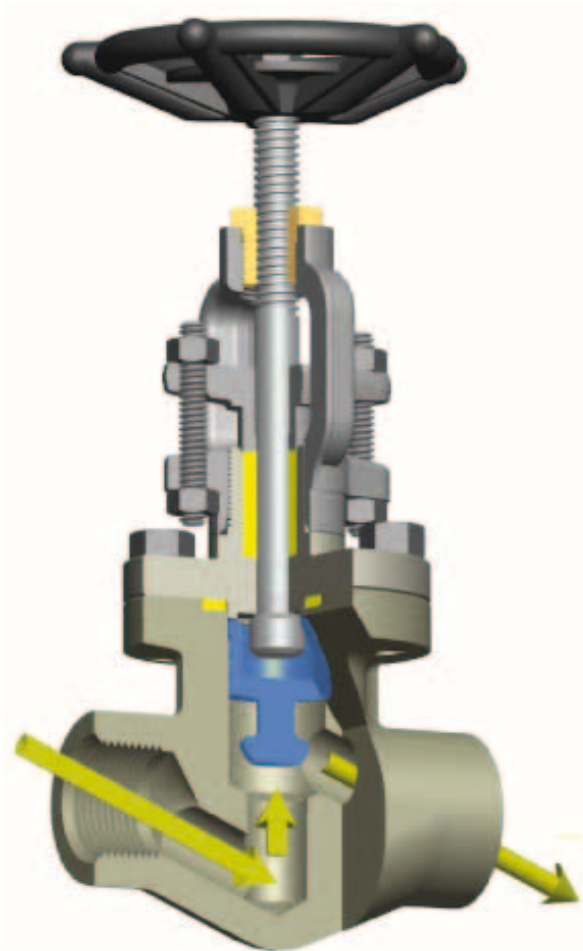
Stop check valves are used as a one-directional flow check valve with a positive shut-off to prevent flow from either direction.

Stop check valves are available in any configuration as the globe valve, by replacing the disc with a disc check from the corresponding check valve, and modifying the stem for “push” only.

Stop check valves are designated by the globe valve series with the suffix of “SC,” such as 12141SC, etc.



Valve in the open position to allow for one-directional flow control.



Valve in the closed position to stop flow in both directions.



## Check Valve

Check valves are forged from fine-grain steel and are available with threaded, socket weld or flanged ends. Most bonnet designs, including bolted, seal weld, union and bonnetless-type check valves are manufactured to meet a wide variety of service applications.

Piston or ball, spring-controlled check valve designs for horizontal or vertical (upward) flow applications for the most often specified pressure classes are available. A spring can be added to piston check valves not currently equipped with that option if specified on the order.

A swing check valve may be used for horizontal or vertical (upward) flow applications. Vogt's "Y" pattern check valves complement our "Y" pattern and Inline repairable globe valve lines used in refineries, chemicals, power and related industries.

Ball check valves are primarily used for fluids of high viscosity. Piston and ball valves should not be used in applications where rusting or rust particles are present or anticipated. Swing check valves are more tolerant for applications of this nature.

Vogt check valves (non-spring-controlled) should be sized to provide a minimum of 2 psi pressure drop for ball and piston type valves and ½ psi for swing check type valves. This will ensure that the valves will not be subject to noisy operation and premature wear of parts.

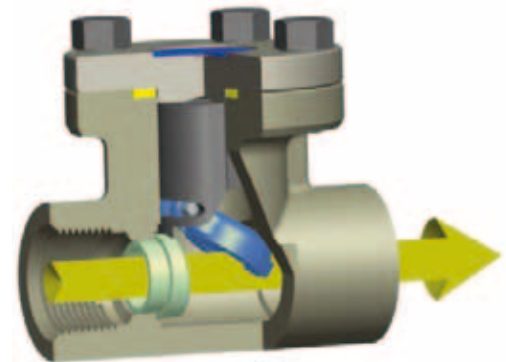
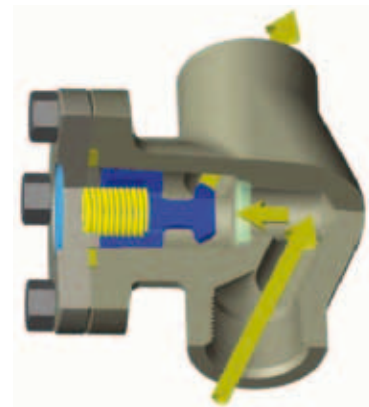
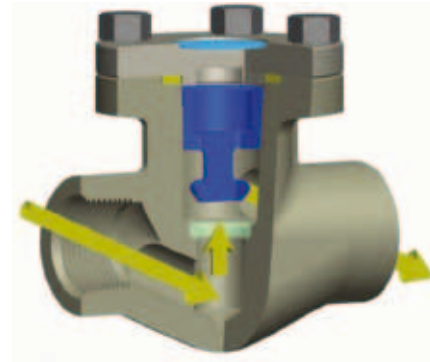
Spring-controlled piston check valves are the Vogt preference for reciprocating compressor service in which a history of noisy check valve operation has been experienced.

Check valves are designed to prevent reverse flow. Leakage rate for Vogt check valves with metal-to-metal seats are dependent on the amount of back pressure and the viscosity of the flowing medium. The recommended pressure differential should be 300 to 500 psi minimum for proper seating of the disc. Metal-seated check valves should not be used in gas or low back pressure liquid applications or if zero leakage is desired. See page 91 for Vogt zero leakage check valves with O-Ring sealing.

Cv values listed are for non-spring-controlled check valves only.

The Cv value for spring-control is variable due to pressure and flow against a varying spring tension as the disc opens, and therefore is not listed in the tables.

See pages 90 – 111 for check valve selections.



**Cracking/Opening pressures**  
(701, 15701, 573, 583, 593, etc.)

- ½" – 0.61 psi
- ¾" – 0.61 psi
- 1" – 0.52 psi
- 1¼" – 0.57 psi
- 1½" – 0.57 psi
- 2" – 0.58 psi

Standard spring-controlled check valves have cracking pressure of 10-12 psi. Others available upon request.

## Auxiliary Operators

The superstructure of Vogt valves are FORGED, RUGGED and lend themselves to the adaptation of auxiliary operators.

Any of Vogt gate and globe valves with bolted or seal-welded bonnets can be furnished with choice of operators. Auxiliary operators are generally limited to 1" and larger size valves. Request for quotations are invited.

Auxiliary operators for Vogt valves are normally custom mounted in our plant where limit and torque switches, as applicable, can be set and valves tested to users' specifications.



Air Operated Valve



Motor Operated Valve

## Vogt Valves for Sour Service NACE Standard MR0103<sup>(1)</sup>

Vogt offers gate, globe and check valves utilizing fabrication processes, welds and materials selected from NACE MR0103. These valves are available with written certification to NACE Standard MR0103 “Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments” when specified.

In addition to H<sub>2</sub>S, carbon dioxide (CO<sub>2</sub>) and water containing chlorides may also be present in crude oils and gases. This environment can lead to degradation of exposed material by weight loss corrosion (pitting, crevice and general corrosion) and other forms of environmental embrittlement.

MR0103 covers only materials resistant to SSC but other considerations must be recognized and properly dealt with to assure efficient and safe control of hazardous media.

ENVIRONMENT (For oil/gas sour service environments in -20°F to 800°F temp range)	SUGGESTED TRIM	VALVE TRIM CODE	SPECIAL CHARACTERISTICS
H <sub>2</sub> S and H <sub>2</sub> O H <sub>2</sub> S, H <sub>2</sub> O and CO <sub>2</sub> H <sub>2</sub> S, H <sub>2</sub> O and Chlorides H <sub>2</sub> S, H <sub>2</sub> O, CO <sub>2</sub> and Chlorides	13 Cr.	NA6	Soft 13 Cr. Trim 304/Flexible Graphite Spiral Wound Gasket Flexible Graphite Packing B7M Bonnet Bolting Hard faced Seats Full Rating
		MB6	Full Hard Faced
H <sub>2</sub> S and H <sub>2</sub> O H <sub>2</sub> S, H <sub>2</sub> O and CO <sub>2</sub>	316	NA8	Solution Annealed 316 Trim 316/Flexible Graphite Spiral Wound Gasket Flexible Graphite Packing B7M Bonnet Bolting Hard faced Seats Full Rating
		MB8	Full Hard Faced
H <sub>2</sub> S and H <sub>2</sub> O and CO <sub>2</sub> H <sub>2</sub> S, H <sub>2</sub> O and Chlorides H <sub>2</sub> S, H <sub>2</sub> O, CO <sub>2</sub> and Chlorides  In multiphase systems significant general corrosion may occur for monel trim at service temperatures above 300° F when CO <sub>2</sub> , H <sub>2</sub> S and Chlorides are present.	Monel	NAS	Monel Trim Monel/Flexible Graphite Spiral Wound Gasket Flexible Graphite Packing B7M Bonnet Bolting Full Rating
		MBS	Hard faced Gate(Gate Valve only)



Vogt NACE valves use bonnet bolting meeting the exposed bolting requirements of NACE MR0103. NACE bolting other than Vogt standard can be provided at the option of the end user.

**Inquiries for NACE valves for hydrocarbon production applications to NACE MR0175/ISO 15156 are also invited.** See page 129.

(1) MR0103 is a material standard – not a design standard. It is an aid in the selection of materials for those “Sour Environment” applications with conditions present which could result in SSC. See page 129.

## Vogt Valves for Nuclear Service

Vogt offers gate, globe and check valves of forged carbon steel in ½" to 2" sizes, in ASME Section III Type construction. Pressure classes 150, 300, 600, 900 and 1500 are offered. The FLOWSERVE Vogt valve for nuclear service (with “N” Stamp) is manufactured by FLOWSERVE Edward Valves in Raleigh, NC under its Nuclear Program.

Request for quotations are invited.

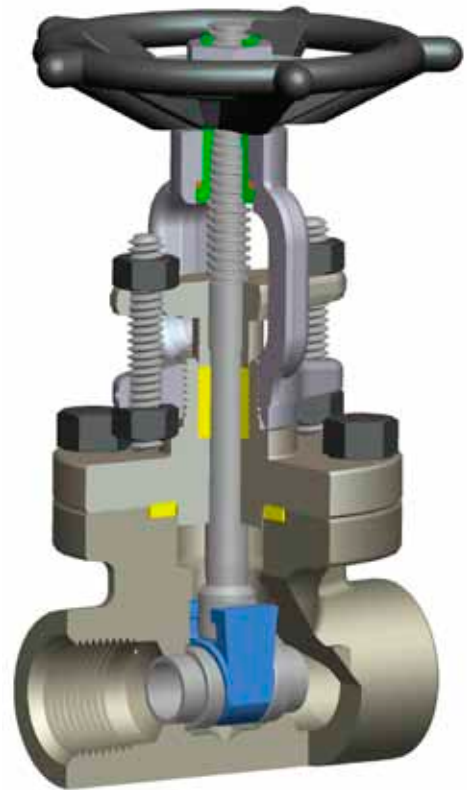
# 12111 Gate Valve

## Class 800 Gate Valve

- 1 Conventional Port
- 2 Full Port



See pages 22 - 24



### The Core of the Pressure Class 150, 300, 600 & 800 Gate Valve

CONNECTION	SERIES		BODY/BONNET	TRIM	RATING	
	1	2				
Threaded Socket Weld (SW) Threaded/Socket Weld (TSW) Butt Weld (BW)*	12111	13111	A105	13 Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
	32111	33111	A350 LF2	13 Cr	1975 PSI @ -50 F	136.2 BAR @ -46 C
	12401	13401	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
	82401	83401	F316H	316H		
	12321	13321	F11,Cl.2(1-1/4 Cr.)	13 Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C
	12521	13521	F22,Cl.3(2-1/4 Cr.)			
	12421	13421	F5(5 Cr.)			
	12921	13921	F9(9 Cr.)			

\*See page 26 for Butt Weld Ends

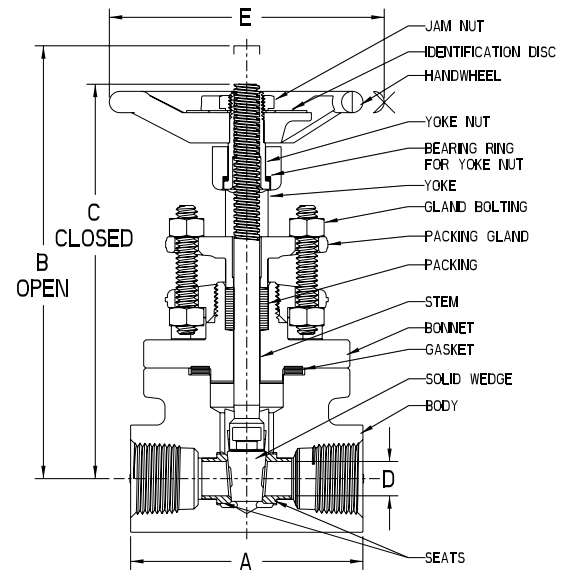
(UOP) Universal Oil Products Approved - For HF Alkylation Service						
CONNECTION	1	2	BODY/BONNET	TRIM	RATING	
Threaded Socket Weld (SW)	12111HF6		A105	13 Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		13111HF4	A105	Monel	1975 PSI @ 100 F	136.2 BAR @ 38 C
	12111HF7		A105	13 Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		13111HF5	A105	Monel	1975 PSI @ 100 F	136.2 BAR @ 38 C

# 12111 Gate Valve

## Class 800 Gate Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Wedge  
 Hard Faced Seats  
 API 602  
 ASME B16.34



### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	
-04	NPS	½	3.38	6.30	5.74	.50	4.00	5.0	9.6	1
	DN	15	86	160	146	12.7	102	2.3		
-05	NPS	¾	3.38	6.30	5.74	.50	4.00	4.8	9.7	
	DN	20	86	160	146	12.7	102	2.2		
-06	NPS	1	4.00	8.37	7.43	.75	4.75	8.4	20.3	
	DN	25	102	213	189	19.1	121	3.8		
-07	NPS	1¼	4.75	10.12	8.71	1.25	5.75	16.7	80.5	
	DN	32	121	257	221	31.8	146	7.6		
-08	NPS	1½	4.75	10.12	8.71	1.25	5.75	16.2	91.6	
	DN	40	121	257	221	31.8	146	7.3		
-09	NPS	2	5.25	11.12	9.40	1.50	7.00	21.8	117.6	
	DN	50	133	282	239	38.1	178	9.9		
-10	NPS	2½	7.00	14.09	11.76	2.00	8.00	39.8	174	
	DN	65	178	358	299	50.8	203	18.1		
-11	NPS	3	8.00	17.96	15.01	2.75	9.75	75.0	203.9	API 602 and LP2 ONLY
	DN	80	203	456	381	69.9	248	34.0		

-04	NPS	½	3.38	6.30	5.75	.50	4.00	5.0	9.6	2
	DN	15	86	160	146	12.7	102	2.3		
-05	NPS	¾	4.0	8.37	7.43	.75	4.75	8.6	28.7	
	DN	20	102	213	189	19.1	121	3.9		
-06	NPS	1	4.38	9.80	8.59	1.0	5.75	12.2	46.5	
	DN	25	111	249	218	25.4	146	5.5		
-07	NPS	1¼	4.75	10.12	8.71	1.25	5.75	16.7	80.5	
	DN	32	121	257	221	31.8	146	7.6		
-08	NPS	1½	5.25	11.12	9.40	1.50	7.0	23.0	109.6	
	DN	40	133	282	239	38.1	178	10.4		
-09	NPS	2	7.00	14.09	11.76	2.00	8.0	41.8	181.0	
	DN	50	178	358	299	50.8	203	19.0		

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

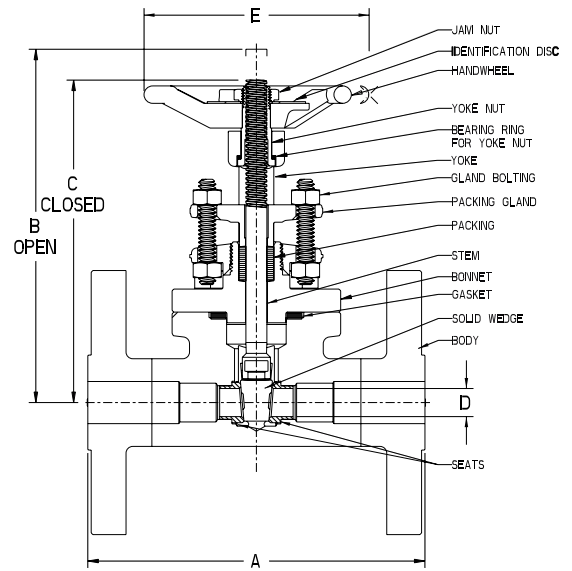
Refer to page 113 for end connections.

Refer to pages 116-117 for other ratings.

# Forged Gate Valves

## Class 150 Gate Valve Conventional Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Solid Wedge
- Hard Faced Seats
- API 602
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		
1/16 RF Flat Face	FF	353	A105	13% Cr	285 PSI @ 100 F	19.6 BAR @ 38 C
		32353	A350 LF2	13% Cr	285 PSI @ 100 F	19.6 BAR @ 38 C
					285 PSI @ -50 F	19.6 BAR @ -46 C
		358	F316/F316L	316	275 PSI @ 100 F	19.0 BAR @ 38 C
		351	F11*, Cl.2	13% Cr	290 PSI @ 100 F	19.8 BAR @ 38 C
352	F22*, Cl.3	13% Cr	290 PSI @ 100 F	19.8 BAR @ 38 C		

*\*F11 & F22 not available in all sizes*

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	A105 ONLY
-04	NPS	½	4.25	6.30	5.74	.50	4.00	6.4	9.6	
	DN	15	108	160	146	12.7	102	2.9		
-05	NPS	¾	4.62	6.30	5.74	.50	4.00	8.0	9.7	
	DN	20	117	160	146	12.7	102	3.6		
-06	NPS	1	5.00	8.37	7.43	.75	4.75	12.3	20.3	
	DN	25	127	213	189	19.1	121	5.6		
-08	NPS	1½	6.50	10.12	8.71	1.25	5.75	23.0	91.6	
	DN	40	165	257	221	31.8	146	10.4		
-09	NPS	2	7.00	11.12	9.40	1.50	7.00	31.7	117.6	
	DN	50	178	282	239	38.1	178	14.4		
-10	NPS	2½	7.50	14.09	11.76	2.00	8.00	53.7	174	
	DN	65	191	358	299	50.8	203	24.4		
-11	NPS	3	8.00	14.09	11.76	2.00	8.00	57.6	203.9	
	DN	80	203	358	299	50.8	203	26.1		
-13	NPS	4	9.00	17.96	15.01	2.75	9.75	98.0	230.0	
	DN	100	229	456	381	69.9	248	44.5		

Refer to page 8 for optional trim and service configurations.  
Refer to page 113 for end connections.

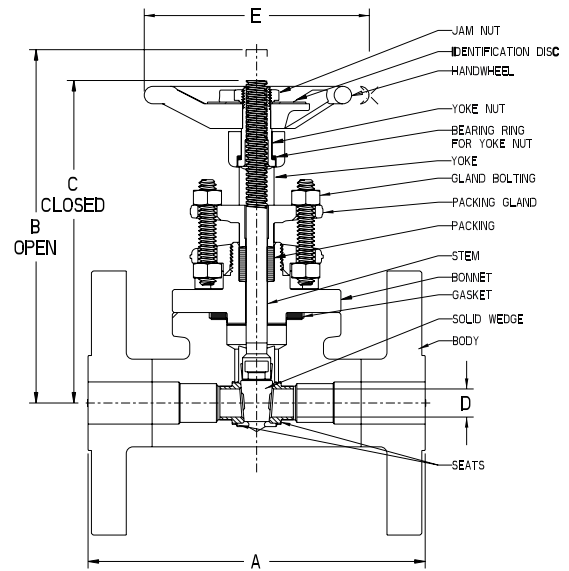
Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Gate Valves

## Class 300 Gate Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Wedge  
 Hard Faced Seats  
 API 602  
 ASME B16.34



CONNECTION	SERIES		BODY/BONNET	TRIM	RATING	
	1	2				
1/16 RF Flat Face FF	363	13363	A105	13% Cr	740 PSI @ 100 F	51.1 BAR @ 38 C
	32363	33363	A350 LF2	13% Cr	740 PSI @ 100 F	51.1 BAR @ 38 C
	368	13368	F316/F316L	316	720 PSI @ 100 F	49.6 BAR @ 38 C
	361	13361	F11*,Cl.2	13% Cr	750 PSI @ 100 F	51.7 BAR @ 38 C
	362	13362	F22*,Cl.3	13% Cr	750 PSI @ 100 F	51.7 BAR @ 38 C

*\*F11 & F22 not available in all sizes*

### Dimensions

1								
SIZE	A	B	C	D	E	WEIGHT	Cv	
-04 NPS ½	5.5	6.30	5.74	.50	4.00	8.0	9.6	9.6
DN 15	140	160	146	12.7	102	3.6		
-05 NPS ¾	6.00	6.30	5.74	.50	4.00	10.8	9.7	9.7
DN 20	152	160	146	12.7	102	4.9		
-06 NPS 1	6.50	8.37	7.43	.75	4.75	15.5	20.3	20.3
DN 25	165	213	189	19.1	121	7.0		
-08 NPS 1½	7.50	10.12	8.71	1.25	5.75	29.2	91.6	91.6
DN 40	191	257	221	31.8	146	13.2		
-09 NPS 2	8.50	11.12	9.40	1.50	7.00	37.6	117.6	117.6
DN 50	216	282	239	38.1	178	17.1		
-10 NPS 2½	9.50	14.09	11.76	2.00	8.00	61.6	174	174
DN 65	241	358	299	50.8	203	27.9		
-11 NPS 3	11.12	14.09	11.76	2.00	8.00	71.6	203.9	203.9
DN 80	282	358	299	50.8	203	32.5		
-13 NPS 4	12.00	17.96	15.01	2.75	9.75	121.9	230.0	230.0
DN 100	305	456	381	69.9	248	55.3		

A105 ONLY

2									
SIZE	A	B	C	D	E	WEIGHT	Cv		
-04 NPS ½	5.50	6.30	5.74	.50	4.00	8.6	9.6	9.6	
DN 15	140	160	146	12.7	102	3.9			
-05 NPS ¾	6.00	8.37	7.44	.75	4.75	13.9	28.7	28.7	
DN 20	152	213	189	19.1	121	6.3			
-06 NPS 1	6.50	9.80	8.59	1.00	5.75	18.5	46.5	46.5	
DN 25	165	249	218	25.4	146	8.4			
-08 NPS 1½	7.50	11.12	9.40	1.50	7.00	33.2	109.6	109.6	
DN 40	191	282	239	38.1	178	15.1			
-09 NPS 2	8.50	14.09	11.76	2.00	8.00	53.1	181.0	181.0	
DN 50	216	358	299	50.8	203	24.1			

**SEE PAGE 26 FOR BUTT WELD ENDS**

Refer to page 8 for optional trim and service configurations.  
 Refer to page 113 for end connections.

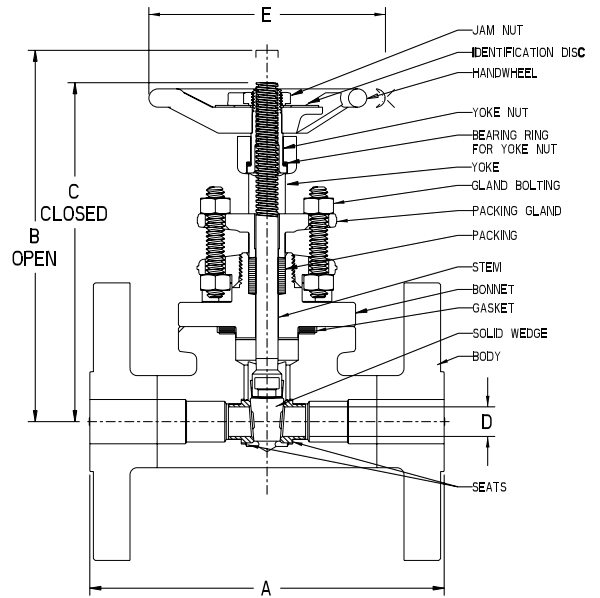
Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

# Forged Gate Valves

## Class 600 Gate Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Wedge  
 Hard Faced Seats  
 API 602  
 ASME B16.34



CONNECTION		SERIES		BODY/BONNET	TRIM	RATING	
		1	2			1480 PSI @ 100 F	102.1 BAR @ 38 C
1/4 RF Ring Joint	RJ	373	13373	A105	13% Cr	1480 PSI @ 100 F	102.1 BAR @ 38 C
		32373	33373	A350 LF2	13% Cr	1480 PSI @ 100 F	102.1 BAR @ 38 C
		378	13378	F316/F316L	316	1440 PSI @ 100 F	99.3 BAR @ 38 C
		371	13371	F11*, Cl.2	13% Cr	1500 PSI @ 100 F	103.4 BAR @ 38 C
		372	13372	F22*, Cl.3	13% Cr	1500 PSI @ 100 F	103.4 BAR @ 38 C

\*F11 & F22 not available in all sizes

### Dimensions

SIZE		A	B	C	D	E	WEIGHT	Cv
-04	NPS 1/2	6.50	6.30	5.74	.50	4.00	8.6	9.6
	DN 15	165	160	146	12.7	102	3.9	
-05	NPS 3/4	7.50	6.30	5.74	.50	4.00	11.8	9.7
	DN 20	191	160	146	12.7	102	5.4	
-06	NPS 1	8.50	8.37	7.43	.75	4.75	17.6	20.3
	DN 25	216	213	189	19.1	121	8.0	
-08	NPS 1 1/2	9.50	10.12	8.71	1.25	5.75	32.0	91.6
	DN 40	241	257	221	31.8	146	14.5	
-09	NPS 2	11.50	11.12	9.40	1.50	7.00	43.2	117.6
	DN 50	292	282	239	38.1	178	19.6	
-10	NPS 2 1/2	13.00	14.09	11.76	2.00	8.00	70.5	174
	DN 65	330	358	299	50.8	203	32.0	
-11	NPS 3	14.00	14.09	11.76	2.00	8.00	80.7	203.9
	DN 80	356	358	299	50.8	203	36.6	
-13	NPS 4	17.00	17.96	15.01	2.75	9.75	152.1	230.0
	DN 100	432	456	381	69.9	248	69.0	

A105 ONLY

SIZE		A	B	C	D	E	WEIGHT	Cv
-04	NPS 1/2	6.50	6.30	5.74	.50	4.00	8.6	9.6
	DN 15	165	160	146	12.7	102	3.9	
-05	NPS 3/4	7.50	8.37	7.44	.75	4.75	14.7	28.7
	DN 20	191	213	189	19.1	121	6.7	
-06	NPS 1	8.50	9.80	8.59	1.00	5.75	20.4	46.5
	DN 25	216	249	218	25.4	146	9.3	
-08	NPS 1 1/2	9.50	11.12	9.40	1.50	7.00	37.0	109.6
	DN 40	241	282	239	38.1	178	16.8	
-09	NPS 2	11.50	14.09	11.76	2.00	8.00	58.8	181.0
	DN 50	292	358	299	50.8	203	26.7	

SEE PAGE 26 FOR BUTT WELD ENDS

Refer to page 8 for optional trim and service configurations.  
 Refer to page 113 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

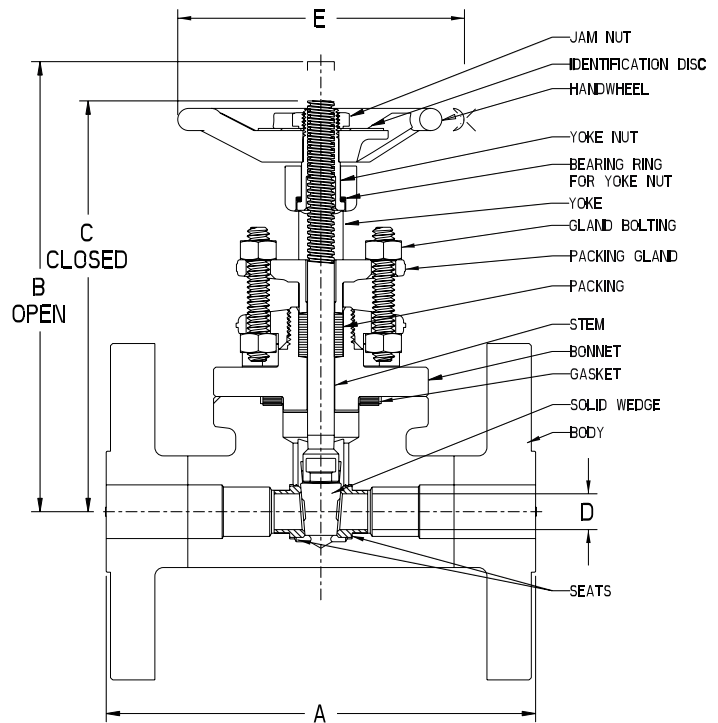


# Forged Gate Valves

## Class 1500 Flanged Gate Valve

- 1 Conventional Port
- 2 Full Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Solid Wedge
- Hard Faced Seats
- API 602
- ASME B16.34



CONNECTION		SERIES		BODY/BONNET	TRIM	RATING	
		1	2				
1/4 RF Ring Joint	RJ	15373	16373	A105	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
		35373	36373	A350 LF2	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
		15378	16378	F316/F316L	316	3600 PSI @ 100 F	248.2 BAR @ 38 C

### Dimensions

1									
SIZE		A	B	C	D	E	WEIGHT	Cv	
-04	NPS ½	8.50	7.51	6.90	.50	4.75	17.5	9.6	
	DN 15	216	191	175	12.7	121	7.9		
-05	NPS ¾	9.00	7.51	6.90	.50	4.75	20.9	9.7	
	DN 20	229	191	175	12.7	121	9.5		
-06	NPS 1	10.00	9.69	8.77	.75	7.00	34.7	20.3	
	DN 25	254	246	223	19.1	178	15.7		
-08	NPS 1½	12.00	11.40	9.98	1.25	8.00	55.8	91.6	
	DN 40	305	290	253	31.8	203	25.3		
-09	NPS 2	14.50	13.84	12.15	1.50	9.75	94.9	117.6	
	DN 50	368	352	309	38.1	248	43.0		

2									
SIZE		A	B	C	D	E	WEIGHT	Cv	
-04	NPS ½	8.50	7.51	6.90	.50	4.75	17.5	9.6	
	DN 15	216	191	175	12.7	121	7.9		
-05	NPS ¾	9.00	9.69	8.78	.75	7.00	29.3	28.7	
	DN 20	229	246	223	19.1	178	13.3		
-06	NPS 1	10.00	11.31	9.96	1.00	8.00	46.2	46.5	
	DN 25	254	287	253	25.4	203	21.0		
-08	NPS 1½	12.00	13.84	12.15	1.50	9.75	75.0	109.6	
	DN 40	305	352	309	38.1	248	34.0		
-09	NPS 2	14.50	17.15	14.82	2.00	9.75	129.4	181.0	A105
	DN 50	368	436	376	50.8	248	58.7		

Refer to page 8 for optional trim and service configurations.  
Refer to page 113 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Gate Valves-Butt Weld Ends

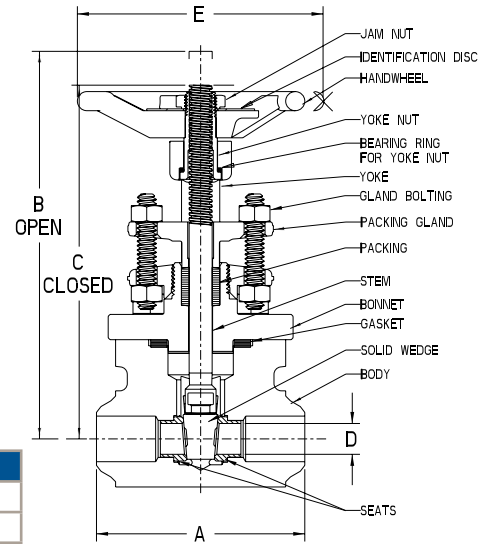
## Butt Weld Class 150, 300, 600, 800 Conventional Port Gate Valve

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Solid Wedge  
Hard Faced Seats  
API 602  
ASME B16.34

**BUTT-WELDING ENDS PER ASME B16.25** – Refer to page 114

BW end-to-end dimensions for Class 800 valves are Vogt standard. ASME B16.10 has no requirements for Class 800 valves.

S40 Suffix for Schedule 40  
S80 Suffix for Schedule 80  
S160 Suffix for Schedule 160  
Example: BW12111S40



CLASS	SERIES	BODY/BONNET	TRIM	RATING	
150	BW353	A105	13 Cr	285 PSI @ 100 F	19.6 BAR @ 38 C
300	BW363	A105	13 Cr	740 PSI @ 100 F	51.1 BAR @ 38 C
600	BW373	A105	13 Cr	1480 PSI @ 100 F	102.1 BAR @ 38 C
800	BW12111	A105	13 Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
	BW32111	A350 LF2	13 Cr	1975 PSI @ 100 F 1975 PSI @ -50 F	136.2 BAR @ 38 C 136.2 BAR @ -46 C
	BW12401	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
	BW82401	F316H	316H	1920 PSI @ 100 F	132.4 BAR @ 38 C
	BW12321	F11,Cl.2(1-1/4 Cr.)	13 Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C
	BW12521	F22,Cl.3(2-1/4 Cr.)	13 Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C
	BW12421	F5(5 Cr.)	13 Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C
	BW12921	F9(9 Cr.)	13 Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C

### Dimensions

SIZE		SCH			A 150	A 300	A 600	A 800	B	C	D	E	WEIGHT	Cv		
		40	80	160										SCH 40	SCH 80	SCH 160
-04	NPS ½	X	X					3.38	6.30	5.74	.41	4.00	5.0	9.6	9.2	
	DN 15	X	X					85.9	160	146	10.4	102	2.3			
-05	NPS ¾	X	X	X				3.38	6.30	5.74	.50	4.00	4.8	9.7	9.6	8.8
	DN 20	X	X	X				85.9	160	146	12.7	102	2.2			
-06	NPS 1	X	X	X			8.50	4.00	8.37	7.43	.75	4.75	8.4	20.3	20.1	18.2
	DN 25	X	X	X			215.9	101.6	213	189	19.1	121	3.8			
-07	NPS 1¼	X						4.75	10.12	8.71	1.25	5.75	16.7	80.5		
	DN 32	X						120.7	257	221	31.8	146	7.6			
-08	NPS 1½	X	X			7.50	9.50	4.75	10.12	8.71	1.25	5.75	16.2	91.6	89.4	
	DN 40	X	X			190.5	241.3	120.7	257	221	31.8	146	7.3			
-09	NPS 2	X	X	X	8.50	8.50	11.50	5.25	11.12	9.40	1.50	7.00	21.8	117.6	116.1	102.3
	DN 50	X	X	X	215.9	215.9	292.1	133.4	282	239	38.1	178	9.9			
-10	NPS 2½	X	X		9.50	9.50	13.00	7.00	14.09	11.76	2.00	8.00	40.2	174	171.9	
	DN 65	X	X		241.3	241.3	330.2	177.8	358	299	50.8	203	18.2			
-11	NPS 3	X	X	X	11.12	11.12	14.00		14.09	11.76	2.00	8.00	48.9	203.9	202.6	193.7
	DN 80	X	X	X	282.4	282.4	355.6		358	299	50.8	203	22.2			
-11	NPS 3	X	X					8.00	17.96	15.01	2.75	9.75	74.7	203.9	202.6	
	DN 80	X	X					203.2	456	381	69.9	248	33.9			
-13	NPS 4	X	X	X	12.00	12.00	17.00	8.00	17.96	15.01	2.75	9.75	72.2	230	229	
	DN 100	X	X	X	304.8	304.8	431.8	203.2	456	381	69.9	248	32.7			

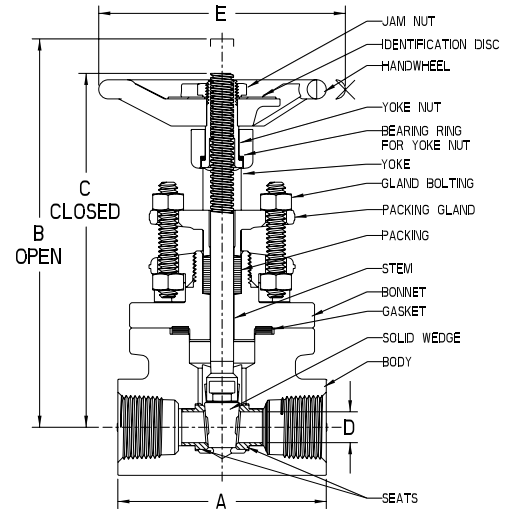
A105 ONLY

# Forged Gate Valves

## Class 1500 Gate Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Wedge  
 Hard Faced Seats  
 API 602  
 ASME B16.34



CONNECTION	SERIES		BODY/BONNET	TRIM	RATING		
	1	2					
Threaded Socket Weld	SW	15111	16111	A105	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
		35111	36111	A350 LF2	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
	TSW	15401	16401	F316/F316L	316	3600 PSI @ 100 F	284.2 BAR @ 38 C
		85401	86401	F316H	316H	3705 PSI @ -50 F	255.3 BAR @ -46 C
Threaded x Socket Weld	TSW	15321	16321	F11,C1.2	*13% Cr	3750 PSI @ 100 F	258.6 BAR @ 38 C
		15521	16521	F22,C1.3			
Butt Weld**	BW	15421	16421	F5			
		15921	16921	F9			

\*Hardfaced Wedge/Seats \*\* BW end-to-end is Vogt standard and does not meet B16.10

### Dimensions

SIZE	SCH 40	SCH 80	SCH 160	A	B	C	D	E	WEIGHT	Cv				
										SCH 40	SCH 80	SCH 160		
1	-04	NPS ½	X	X		4.00	7.51	6.90	.50	4.75	8.9	9.6	9.2	
		DN 15	X	X		101.6	191	175	12.7	121	4.0			
	-05	NPS ¾	X	X	X	4.00	7.51	6.90	.50	4.75	9.7	9.7	9.6	8.8
		DN 20	X	X	X	101.6	191	175	12.7	121	4.4			
	-06	NPS 1	X	X	X	4.75	9.69	8.77	.75	7.00	17.5	20.3	20.1	18.2
		DN 25	X	X	X	120.7	246	223	19.1	178	7.9			
-07	NPS 1¼	X			5.25	11.40	9.98	1.25	8.00	27.3	80.5			
	DN 32	X			133.4	290	253	31.8	203	12.4				
-08	NPS 1½	X	X	X	5.25	11.40	9.98	1.25	8.00	66.7	91.6	89.4	76.8	
	DN 40	X	X	X	133.4	290	253	31.8	203	30.3				
-09	NPS 2	X	X	X	7.00	13.84	12.15	1.50	9.75	45.1	117.6	116.1	102.3	
	DN 50	X	X	X	177.8	352	309	38.1	248	20.5				
2	-04	NPS ½	X	X		4.00	7.51	6.90	.50	4.75	17.5	9.6	9.2	
		DN 15	X	X		101.6	191	175	12.7	121	7.9			
	-05	NPS ¾	X			4.75	9.69	8.77	.75	7.00	17.9	28.7		
		DN 20	X			120.7	246	223	19.1	178	8.1			
	-06	NPS 1				5.25	11.31	9.96	1.00	8.00	28.3	46.5		
		DN 25				133.4	287	253	25.4	203	12.8			
	-07	NPS 1¼	X			5.25	11.40	9.98	1.25	8.00	27.3	80.5		
		DxAzN 32	X			133.4	290	253	31.8	203	12.4			
	-08	NPS 1½				7.00	13.84	12.15	1.50	9.75	75.0	109.6		
		DN 40				177.8	352	309	38.1	248	34.0			

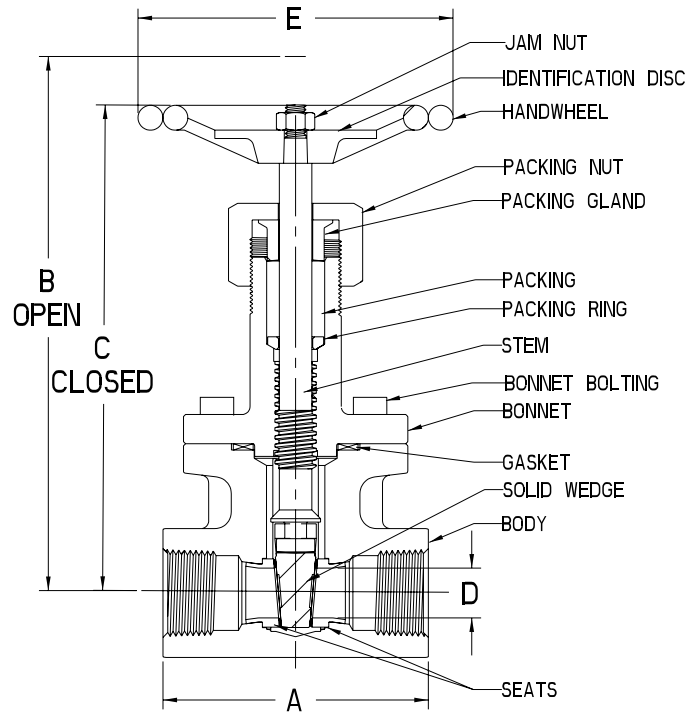
S40 Suffix for Schedule 40  
 S80 Suffix for Schedule 80  
 S160 Suffix for Schedule 160  
 Example: BW15111S80

Refer to page 8 for optional trim and service configurations.  
 Refer to pages 11-12 for full materials description.  
 Refer to page 114 and 115 for end connections.  
 Refer to pages 116-117 for other ratings.

# Forged Gate Valves

## Class 800 Conventional Port Gate Valve

- Round Bolted Bonnet
- Spiral Wound Gasket
- Inside Screw Stem
- Screw Gland
- Solid Wedge
- Hard Faced Seats
- API 602
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		
Threaded	SW	12161	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
Socket Weld						
Threaded/ Socket Weld						

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv
-04	NPS	½	3.38	6.44	5.88	.50	4.00	4.8	9.6
	DN	15	86	164	149	12.7	102	2.2	
-05	NPS	¾	3.38	6.44	5.88	.50	4.00	4.7	9.7
	DN	20	86	164	149	12.7	102	2.1	
-06	NPS	1	4.00	8.31	7.38	.75	4.75	7.9	20.3
	DN	25	102	211	187	19.1	121	3.6	
-07	NPS	1¼	4.75	10.75	9.38	1.25	5.75	16.4	80.5
	DN	32	121	273	238	31.8	146	7.4	
-08	NPS	1½	4.75	10.75	9.38	1.25	5.75	16.1	91.6
	DN	40	121	273	238	31.8	146	7.3	
-09	NPS	2	5.25	12.25	10.56	1.50	7.00	23.6	117.6
	DN	50	133	311	268	38.1	178	10.7	

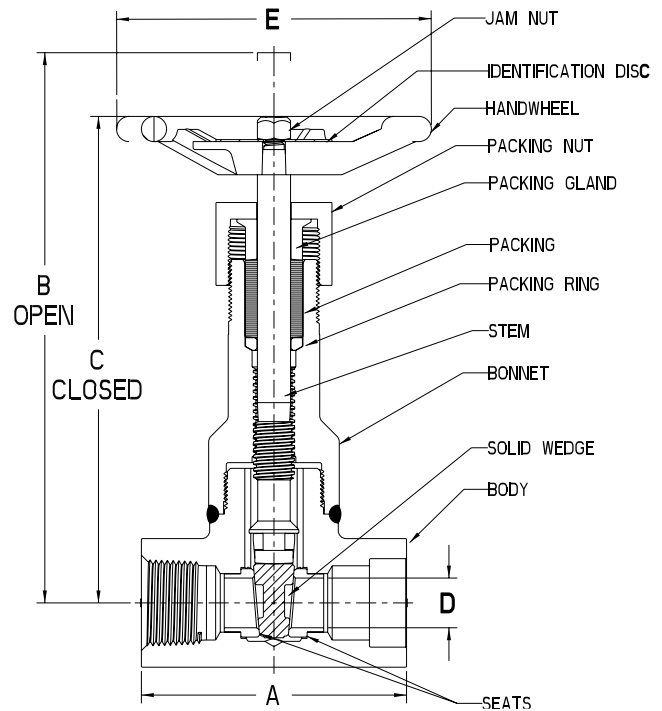
Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Gate Valves

## Class 800 Conventional Port Gate Valve

- Welded Bonnet
- Inside Screw Stem
- Screw Gland
- Solid Wedge
- Hard Faced Seats
- API 602
- ASME B16.34



CONNECTION		SERIES	BODY/BONNET	TRIM	RATING	
Threaded	SW	2811	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
Socket Weld						
Threaded/ Socket Weld						

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv
-04	NPS	½	3.38	6.62	6.00	.50	4.00	3.2	9.6
	DN	15	86	168	152	12.7	102	1.5	
-05	NPS	¾	3.38	6.62	6.00	.50	4.00	3.1	9.7
	DN	20	86	168	152	12.7	102	1.4	
-06	NPS	1	4.00	8.38	7.44	.75	4.75	6.1	20.3
	DN	25	102	213	189	19.1	121	2.8	
-07	NPS	1¼	4.75	10.81	9.38	1.25	5.75	11.6	80.5
	DN	32	121	275	238	31.8	146	5.3	
-08	NPS	1½	4.75	10.81	9.38	1.25	5.75	11.0	91.6
	DN	40	121	275	238	31.8	146	5.0	
-09	NPS	2	5.25	12.12	10.56	1.50	7.00	18.5	117.6
	DN	50	133	308	268	38.1	178	8.4	

Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

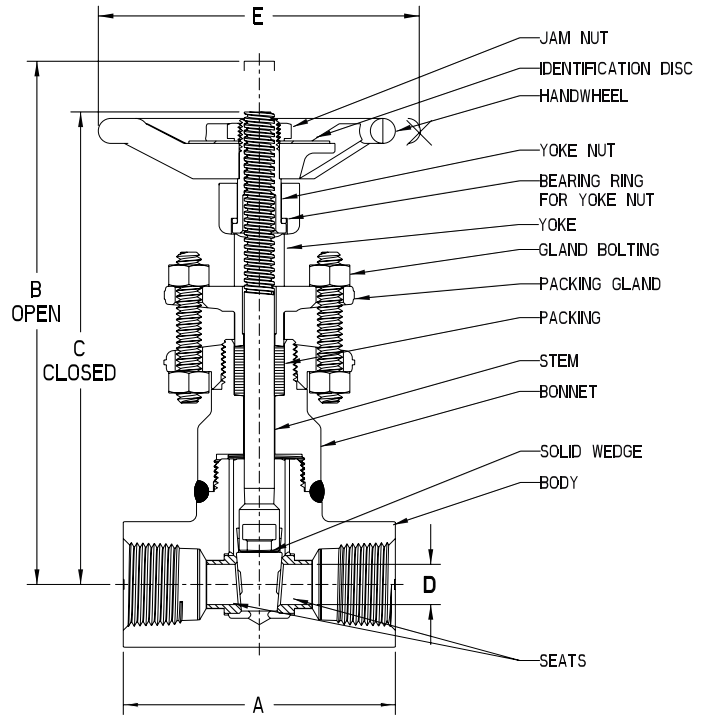
Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Gate Valves

## Class 800 Gate Valve

- 1 Conventional Port
- 2 Full Port

- Welded Bonnet
- Outside Screw & Yoke
- Bolted Gland
- Solid Wedge
- Hard Faced Seats
- API 602
- ASME B16.34



CONNECTION	SERIES		BODY/BONNET	TRIM	RATING		
	1	2					
Threaded Socket Weld Threaded/Socket Weld	SW	2801	3801	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		32801	33801	A350 LF2	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
	TSW	2831	3831	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
		82831		F316H	316H	1920 PSI @ 100 F	132.4 BAR @ 38 C
		2851		F11,Cl.2	13% Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C
		2861		F22,Cl.3			

### Dimensions

SIZE	A		B		C		D		E		WEIGHT	Cv
	1	2	1	2	1	2	1	2	1	2		
1 -04	NPS 1/2	3.38	6.50	5.87	.50	4.00	3.6				9.6	
	DN 15	86	165	149	12.7	102	1.6					
-05	NPS 3/4	3.38	6.50	5.87	.50	4.00	3.4				9.7	
	DN 20	86	165	149	12.7	102	1.5					
-06	NPS 1	4.00	8.38	7.43	.75	4.75	6.6				20.3	
	DN 25	102	213	189	19.1	121	3.0					
-07	NPS 1 1/4	4.75	10.14	8.71	1.25	5.75	11.5				80.5	
	DN 32	121	258	221	31.8	146	5.2					
-08	NPS 1 1/2	4.75	10.14	8.71	1.25	5.75	11.1				91.6	
	DN 40	121	258	221	31.8	146	5.0					
-09	NPS 2	5.25	11.12	9.40	1.50	7.00	16.1				117.6	
	DN 50	133	282	239	38.1	178	7.3					

SIZE	A		B		C		D		E		WEIGHT	Cv
	1	2	1	2	1	2	1	2	1	2		
2 -04	NPS 1/2	3.38	6.50	5.87	.50	4.00	3.6				9.6	
	DN 15	86	165	149	12.7	102	1.6					
-05	NPS 3/4	4.0	8.38	7.43	.75	4.75	6.8				28.7	
	DN 20	102	213	189	19.1	121	3.1					
-06	NPS 1	4.75	10.13	8.59	1.00	5.75	12.4				46.5	
	DN 25	121	257	218	25.4	146	5.6					
-07	NPS 1 1/4	4.75	10.14	8.71	1.25	5.75	11.5				80.5	
	DN 32	121	258	221	31.8	146	5.2					
-08	NPS 1 1/2	5.25	11.09	9.40	1.50	7.00	17.4				109.6	
	DN 40	133	282	239	38.1	178	7.9					
-09	NPS 2	7.00	14.09	11.76	2.00	9.75	32.4				181.0	
	DN 50	178	358	299	50.8	248	14.7					

Refer to page 8 for optional trim and service configurations.  
Refer to page 114 and 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Gate Valves

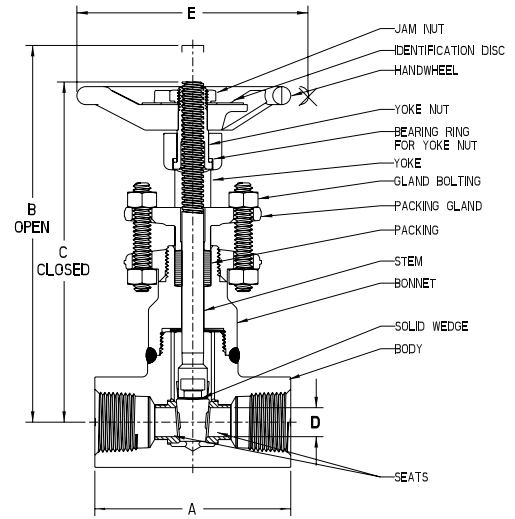
## Class 1500 Gate Valve

- 1 Conventional Port
- 2 Full Port

## Class 1500 LTD

- 1 Conventional Port

- Welded Bonnet
- Outside Screw & Yoke
- Bolted Gland
- Solid Wedge
- Hard Faced Seats
- API 602
- ASME B16.34



CLASS	CONNECTION	SERIES		BODY/BONNET	TRIM	RATING		
		1	2					
Standard	Threaded Socket Weld Threaded/Socket Weld Butt Weld**	SW TSW BW	15801	16801	A105	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
			35801	36801	A350 LF2	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
							3705 PSI @ -50 F	255.3 BAR @ -46 C
			15831	16831	F316/F316L	316	3600 PSI @ 100 F	248.2 BAR @ 38 C
			85831	86831	F316H	316H		
			15851	16851	F11, Cl.2	*13% Cr	3750 PSI @ 100 F	258.6 BAR @ 38 C
15861	16861	F22, Cl.3						
LTD	Threaded Socket Weld Threaded/Socket Weld	SW TSW	65703		A105	*13% Cr	3750 PSI @ 100 F	258.6 BAR @ 38 C
			65713		F11, Cl.2			
			65773		F22, Cl.3			

\*Hardfaced Wedge/Seats \*\*BW end-to-end is Vogt standard and does not meet B16.10

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv
1 -04	NPS 1/2	4.00	7.54	6.90	.50	4.75	6.7
	DN 15	102	192	175	12.7	121	3.0
-05	NPS 3/4	4.00	7.54	6.90	.50	4.75	6.5
	DN 20	102	192	175	12.7	121	2.9
-06	NPS 1	4.75	9.69	8.77	.75	7.00	13.2
	DN 25	121	246	223	19.1	178	6.0
-07	NPS 1 1/4	5.25	11.40	9.98	1.25	8.00	20.5
	DN 32	133	290	253	31.8	203	9.3
-08	NPS 1 1/2	5.25	11.40	9.98	1.25	8.00	20.0
	DN 40	133	290	253	31.8	203	9.1
-09	NPS 2	7.00	13.84	12.15	1.50	9.75	34.8
	DN 50	178	352	309	38.1	248	15.8

S40 Suffix for Schedule 40  
 S80 Suffix for Schedule 80  
 S160 Suffix for Schedule 160  
 Example: BW2801S40  
 See page 27 for allowable schedules.

SIZE	A	B	C	D	E	WEIGHT	Cv
2 -04	NPS 1/2	4.00	7.54	6.90	.50	4.75	6.7
	DN 15	102	192	175	12.7	121	3.0
-05	NPS 3/4	4.75	9.69	8.77	.75	7.00	13.5
	DN 20	121	246	223	19.1	178	6.1
-06	NPS 1	5.25	11.21	9.86	1.00	8.00	21.6
	DN 25	133	285	250	25.4	203	9.8
-07	NPS 1 1/4	5.25	11.40	9.98	1.25	8.00	20.5
	DN 32	133	290	253	31.8	203	9.3
-08	NPS 1 1/2	7.00	13.84	12.15	1.50	9.75	35.1
	DN 40	178	352	309	38.1	248	15.9

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

Refer to pages 114-115 for end connections.

Refer to pages 116-117 for other ratings.

# Forged Gate Valves – Extended Body Valves

## Class 800 Conventional Port Gate Valve

CONNECTION			
Extended Male End	Female End		
Butt Weld	Threaded	BT	(B)
Butt Weld	Socket Weld	BS	
Couplet	Threaded	CT	(C)
Couplet	Socket Weld	CS	
Socket Weld	Threaded	ST*	(S)
Socket Weld	Socket Weld	SS	
Threaded	Threaded	TT	(T)
Threaded	Socket Weld	TS	

	SERIES	BODY/BONNET	TRIM	RATING	
1	2801*	A105	13%Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
	2831	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
2	2901	A105	13%Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
	2931	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
	2951	F11, Cl.2(1-1/4 Cr.)	13%Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C
	2961	F22, Cl.3(2-1/4 Cr.)			
3	12111	A105	13%Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
	32111	A350 LF2		1975 PSI @ -50 F	136.2 BAR @ -46 C
	12401	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
	12321	F11, Cl.2(1-1/4 Cr.)	13%Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C
	12521	F22, Cl.3(2-1/4 Cr.)			
	12421	F5(5 Cr.)			
	12921	F9(9 Cr.)			

\*Example Series Designation: ST2801, CT2901, BT12111, etc.

### Dimensions

SIZE		A(B)	A(C)	A(S)	A(T)	B	C(B)	C(C)	C(S)	C(T)	D	D(T)	E	F	G	H	J	K	WEIGHT	Cv
-04	NPS 1/2	4.00	4.38	4.00	4.00	1.69	.64	.64	.64	.52	.50	.41	1.25	6.50	5.86	4.00	.81	.84	4.3	6.5
	DN 15	102	111	102	102	43	16.3	16.3	16.3	13.2	12.7	10.4	31.8	165	149	102	20.6	21.3	2.0	
-05	NPS 3/4	4.00	4.38	4.00	4.00	1.69	.64	.64	.64	.64	.50	.47	1.25	6.50	5.86	4.00	.81	1.05	4.2	9.0
	DN 20	102	111	102	102	43	16.3	16.3	16.3	16.3	12.7	11.9	31.8	165	149	102	20.6	26.7	1.9	
-06	NPS 1	4.38	4.75	4.38	4.38	2.00	.89	.89	.89	.89	.75	.69	1.56	8.38	7.43	4.75	1.06	1.32	7.6	27.7
	DN 25	111	121	111	111	51	22.6	22.6	22.6	22.6	19.1	17.5	39.6	213	189	121	26.9	33.5	3.4	
-08	NPS 1 1/2	5.00	5.00	5.00	5.00	2.38	1.47	1.47	1.47	1.47	1.25	1.25	2.25	10.14	8.71	5.75	1.69	1.90	13.2	78.0
	DN 40	127	127	127	127	60	37.3	37.3	37.3	37.3	31.8	31.8	57.2	258	221	146	42.9	48.3	6.0	
-04	NPS 1/2	7.00	7.00	7.00	7.00	1.69	.75	.75	.64	.52	.50	.41	1.56	6.50	5.86	4.00	.97	.84	5.4	9.6
	DN 15	178	178	178	178	43	19.1	19.1	16.3	13.2	12.7	10.4	39.6	165	149	102	24.6	21.3	2.4	
-05	NPS 3/4	7.00	7.00	7.00	7.00	1.69	.75	.75	.75	.64	.50	.47	1.56	6.50	5.86	4.00	.97	1.05	5.4	9.7
	DN 20	178	178	178	178	43	19.1	19.1	19.1	16.3	12.7	11.9	39.6	165	149	102	24.6	26.7	2.4	
-06	NPS 1	7.50	7.50	7.50	7.50	2.00	1.00	1.00	1.00	.89	.75	.69	1.94	8.38	7.43	4.75	1.22	1.32	9.3	20.3
	DN 25	191	191	191	191	51	25.4	25.4	25.4	22.6	19.1	17.5	49.3	213	189	121	31.0	33.5	4.2	
-08	NPS 1 1/2	8.00	8.00	8.00	8.00	2.38	1.50	1.50	1.50	1.47	1.25	1.25	2.56	10.14	8.71	5.75	1.72	1.90	16.5	78.0
	DN 40	203	203	203	203	60	38.1	38.1	38.1	37.3	31.8	31.8	65.0	258	221	146	43.7	48.3	7.5	
-09	NPS 2	10.00	10.00	10.00	10.00	2.63	1.94	1.94	1.94	1.81	1.50	1.50	3.12	11.09	9.40	7.00	2.16	2.38	24.0	117.6
	DN 50	254	254	254	254	67	49.3	49.3	49.3	46.0	38.1	38.1	79.2	282	239	178	54.9	60.5	10.9	
-04	NPS 1/2	7.00	7.00	4.50	4.50	1.69	.75	.75	.64	.52	.50	.41	1.56	6.29	5.73	4.00	.97	.84	6.8	9.6
	DN 15	178	178	114	114	43	19.1	19.1	16.3	13.2	12.7	10.4	39.6	160	146	102	24.6	21.3	3.1	
-05	NPS 3/4	7.00	7.00	4.50	4.50	1.69	.75	.75	.75	.65	.50	.47	1.56	6.29	5.73	4.00	.97	1.05	6.8	9.7
	DN 20	178	178	114	114	43	19.1	19.1	19.1	16.5	12.7	11.9	39.6	160	146	102	24.6	26.7	3.1	
-06	NPS 1	7.50	7.50	5.25	5.25	2.10	1.00	1.00	1.00	.89	.75	.69	1.94	8.37	7.43	4.75	1.22	1.32	11.2	20.3
	DN 25	191	191	133	133	53	25.4	25.4	25.4	22.6	19.1	17.5	49.3	213	189	121	31.0	33.5	5.1	
-08	NPS 1 1/2	8.00	8.00	6.38	6.38	2.38	1.50	1.50	1.50	1.47	1.25	1.25	2.56	10.12	8.71	5.75	1.72	1.90	20.4	78.0
	DN 40	203	203	162	162	60	38.1	38.1	38.1	37.3	31.8	31.8	65.0	257	221	146	43.7	48.3	9.3	
-09	NPS 2	10.00	10.00	6.00	6.00	2.92	1.94	1.94	1.81	1.81	1.50	1.50	3.12	11.12	9.42	7.00	2.16	2.38	27.0	117.6
	DN 50	254	254	152	152	74	49.3	49.3	46.0	46.0	38.1	38.1	79.2	282	239	178	54.9	60.5	12.2	

Refer to page 8 for optional trim and service configurations.

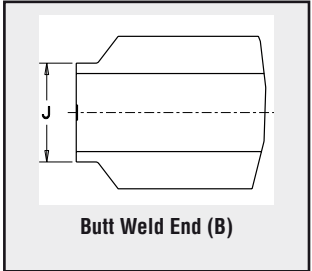
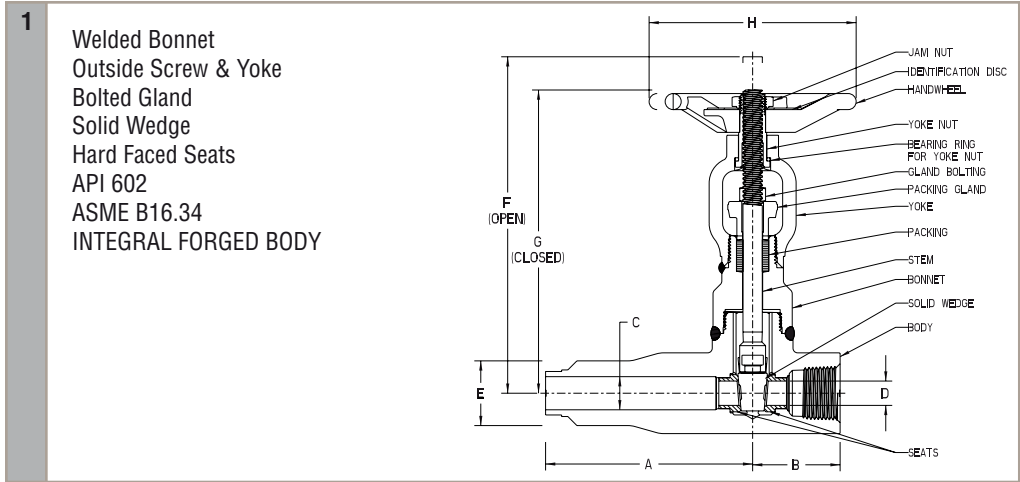
Refer to page 115 for female end connections.

Refer to pages 11-12 for full materials description.

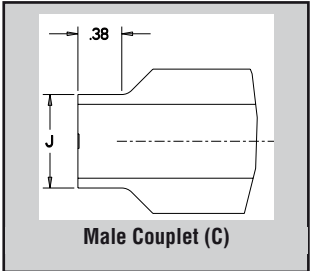
Refer to pages 116-117 for other ratings.



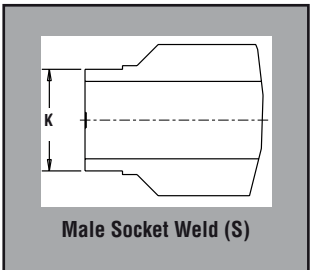
**GATE Class 800**



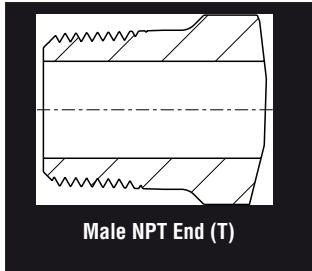
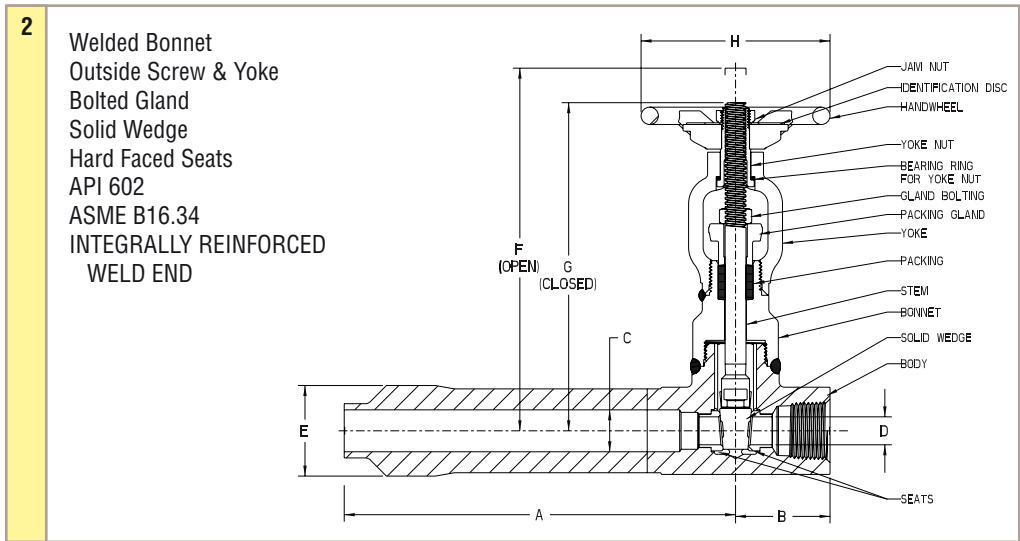
**(B)**



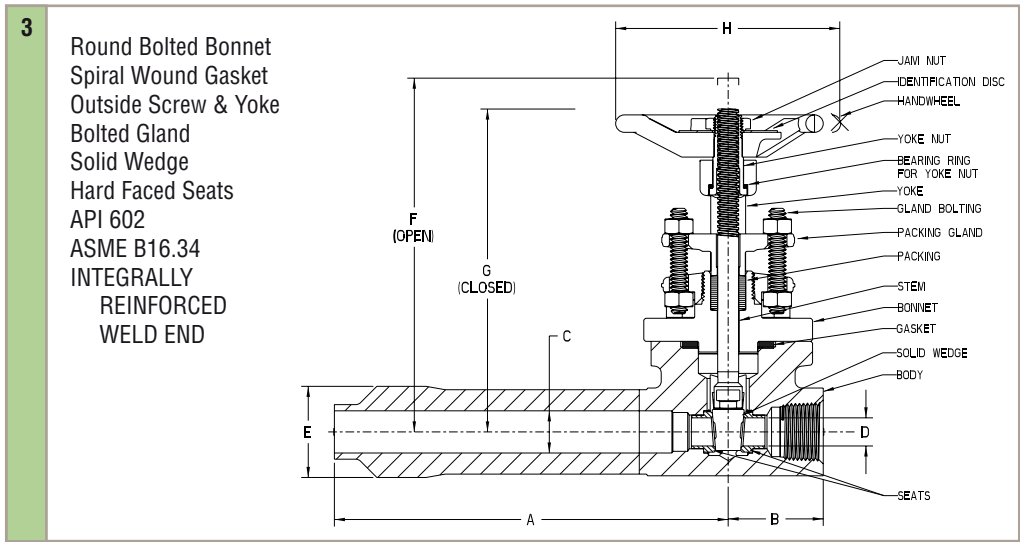
**(C)**



**(S)**



**(T)**



# Forged Gate Valves – Extended Body Valves

## Extended Body/Class 1500 Conventional Port Gate Valve

CONNECTION			
Extended Male End	Female End		
Butt Weld	Threaded	BT	(B)
Butt Weld	Socket Weld	BS	
Couplet	Threaded	CT	(C)
Couplet	Socket Weld	CS	
Socket Weld	Threaded	ST*	(S)
Socket Weld	Socket Weld	SS	

	SERIES	BODY/BONNET	TRIM	RATING	
1	15801*	A105	13%Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
	15831	F316/F316L	316	3600 PSI @ 100 F	248.2 BAR @ 38 C
2	15901	A105	13%Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
	15931	F316/F316L	316	3600 PSI @ 100 F	248.2 BAR @ 38 C
	15951	F11, Cl.2(1-1/4 Cr.)	13%Cr	3750 PSI @ 100 F	258.6 BAR @ 38 C
	15961	F22, Cl.3(2-1/4 Cr.)			
3	15111	A105	13%Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
	35111	A350 LF2		3705 PSI @ -50 F	255.3 BAR @ -46 C
	15401	F316/F316L	316	3600 PSI @ 100 F	248.2 BAR @ 38 C
	15321	F11, Cl.2(1-1/4 Cr.)	13%Cr	3750 PSI @ 100 F	258.6 BAR @ 38 C
	15521	F22, Cl.3(2-1/4 Cr.)			
	15421	F5(5 Cr.)			
	15921	F9(9 Cr.)			

\*Example Series Designation: ST15801, CT15901, BT15111, etc.

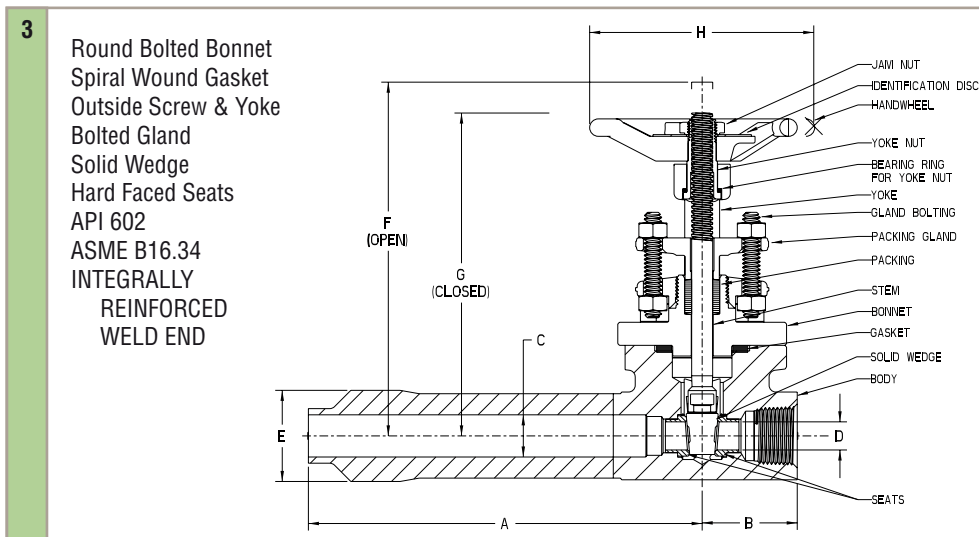
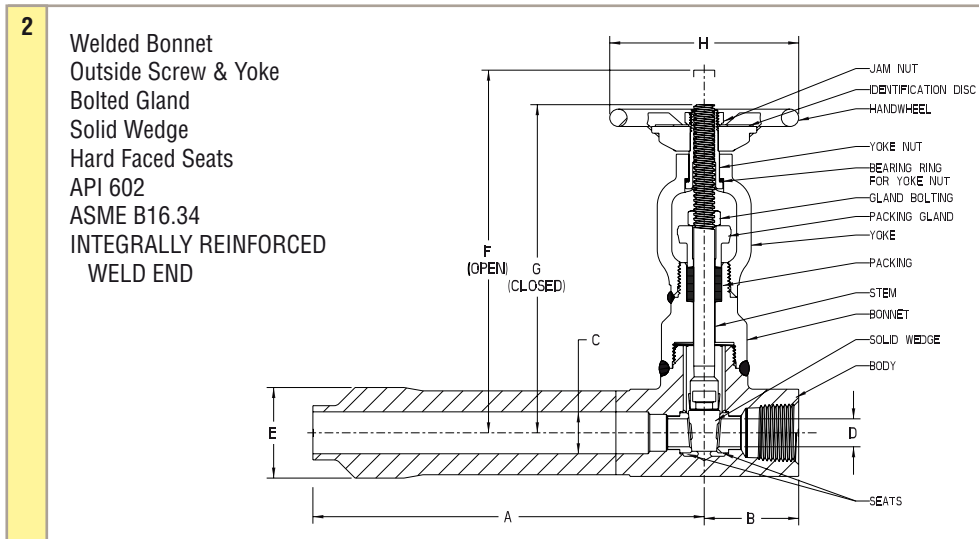
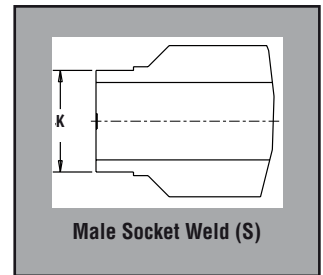
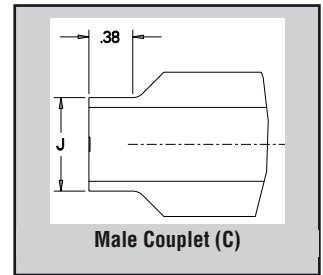
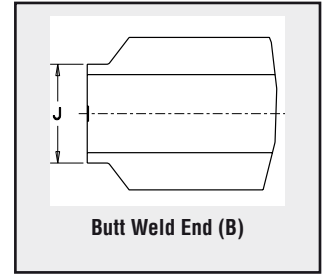
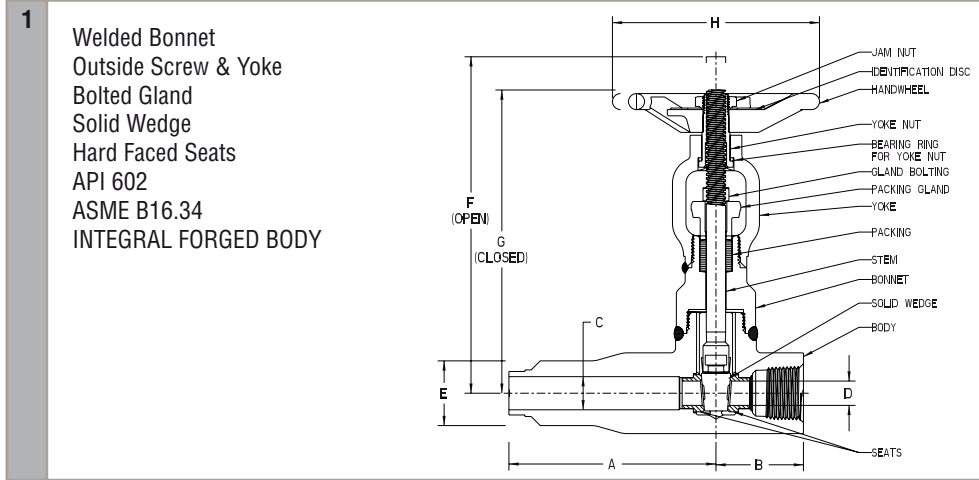
### Dimensions

SIZE	A	B	C(B)	C(C)	C(S)	D	D(T)	E	F	G	H	J	K	WEIGHT	Cv	
-04	NPS ½	4.69	2.00	.75	.75	.69	.50	.41	1.56	7.54	6.90	4.75	.81	.84	7.8	9.6
	DN 15	119	51	19.1	19.1	17.5	12.7	10.4	39.6	192	175	121	20.6	21.3	3.5	
-05	NPS ¾	4.69	2.00	.75	.75	.75	.50	.47	1.56	7.54	6.90	4.75	.81	1.05	7.7	9.7
	DN 20	119	51	19.1	19.1	19.1	12.7	11.9	39.6	192	175	121	20.6	26.7	3.5	
-06	NPS 1	5.37	2.38	1.00	1.00	1.12	.75	.69	2.25	9.69	8.77	7.00	1.22	1.32	15.5	20.3
	DN 25	136	60	25.4	25.4	28.4	19.1	17.5	57.2	246	223	178	26.9	33.5	7.0	
-04	NPS ½	6.50	2.00	.75	.75	.69	.50	.41	1.56	7.54	6.90	4.75	.97	.84	9.7	9.6
	DN 15	165	51	19.1	19.1	17.5	12.7	10.4	39.6	192	175	121	24.6	21.3	4.4	
-05	NPS ¾	7.50	2.00	.75	.75	.75	.50	.47	1.94	7.54	6.90	4.75	.97	1.05	9.6	9.7
	DN 20	191	51	19.1	19.1	19.1	12.7	11.9	49.3	192	175	121	24.6	26.7	4.4	
-06	NPS 1	7.50	2.38	1.00	1.00	1.12	.75	.69	1.94	9.69	8.77	7.00	1.22	1.32	17.2	20.3
	DN 25	191	60	25.4	25.4	28.4	19.1	17.5	49.3	246	223	178	31.0	33.5	7.8	
-08	NPS 1½	10.00	2.63	1.50	1.50	1.50	1.25	1.25	3.12	11.40	9.98	8.00	1.72	1.90	30.1	91.6
	DN 40	254	67	38.1	38.1	38.1	31.8	31.8	79.2	290	253	203	43.7	48.3	13.7	
-04	NPS ½	6.50	2.00	.75	.75	.69	.50	.41	1.56	7.51	6.90	4.75	.97	.84	10.6	9.6
	DN 15	165	51	19.1	19.1	17.5	12.7	10.4	39.6	191	175	121	24.6	21.3	4.8	
-05	NPS ¾	6.50	2.00	.75	.75	.75	.50	.47	1.56	7.51	6.90	4.75	.97	1.05	10.5	9.7
	DN 20	165	51	19.1	19.1	19.1	12.7	11.9	39.6	191	175	121	24.6	26.7	4.8	
-06	NPS 1	7.50	2.38	1.00	1.00	1.12	.75	.69	2.25	9.69	8.78	7.00	1.22	1.32	20.9	20.3
	DN 25	191	60	25.4	25.4	28.4	19.1	17.5	57.2	246	223	178	31.0	33.5	9.5	
-08	NPS 1½	10.00	2.63	1.50	1.50	1.50	1.25	1.25	3.12	11.40	9.98	8.00	1.72	1.90	36.9	91.6
	DN 40	254	67	38.1	38.1	38.1	31.8	31.8	79.2	290	253	203	43.7	48.3	16.7	

Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for female end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

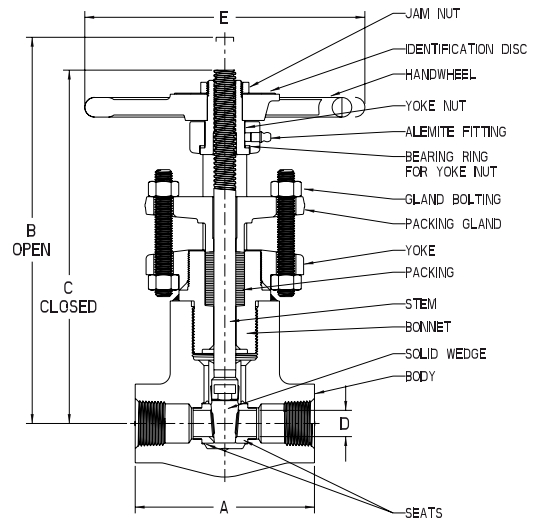
# GATE Class 1500



## Forged Gate Valves

### Class 2500/2680 Gate Valve Full Port

Welded Bonnet  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Hard Faced Wedge  
 Hard Faced Seats  
 ASME B16.34 LTD. Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		CLASS
Threaded Threaded X Socket Weld TSW	66703	A105	13% Cr.	6250 PSI @ 100 F	430.9 BAR @ 38 C	2500 LTD
	66743	A350 LF2		6250 PSI @ -50 F	430.9 BAR @ -46 C	
	66713	F11, Cl.2(1-1/4 Cr.)		6250 PSI @ 100 F	430.9 BAR @ 38 C	
	66773	F22, Cl.3(2-1/4 Cr.)				
	66791	F91				
Socket Weld	SW66703	A105	13% Cr.	6700 PSI @ 100 F	461.9 BAR @ 38 C	2680 LTD
	SW66743	A350 LF2		6700 PSI @ -50 F	461.9 BAR @ -46 C	
	SW66713	F11, Cl.2(1-1/4 Cr.)		6700 PSI @ 100 F	461.9 BAR @ 38 C	
	SW66773	F22, Cl.3(2-1/4 Cr.)				
	SW66791	F91				

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv
-04	NPS	1/2	4.00	8.84	8.28	.41	5.75	10.0	5.0
	DN	15	102	225	210	10.4	146	4.5	
-05	NPS	3/4	5.12	11.03	10.09	.75	8.00	20.7	17.5
	DN	20	130	280	256	19.1	203	9.4	
-06	NPS	1	5.12	11.03	10.09	.75	8.00	20.3	16.1
	DN	25	130	280	256	19.1	203	9.2	
-08	NPS	1 1/2	8.50	15.86	14.12	1.50	12.00	90.8	109.6
	DN	40	216	403	359	38.1	305	41.2	
-09	NPS	2	8.50	15.86	14.12	1.50	12.00	88.3	100.2
	DN	50	216	403	359	38.1	305	40.1	

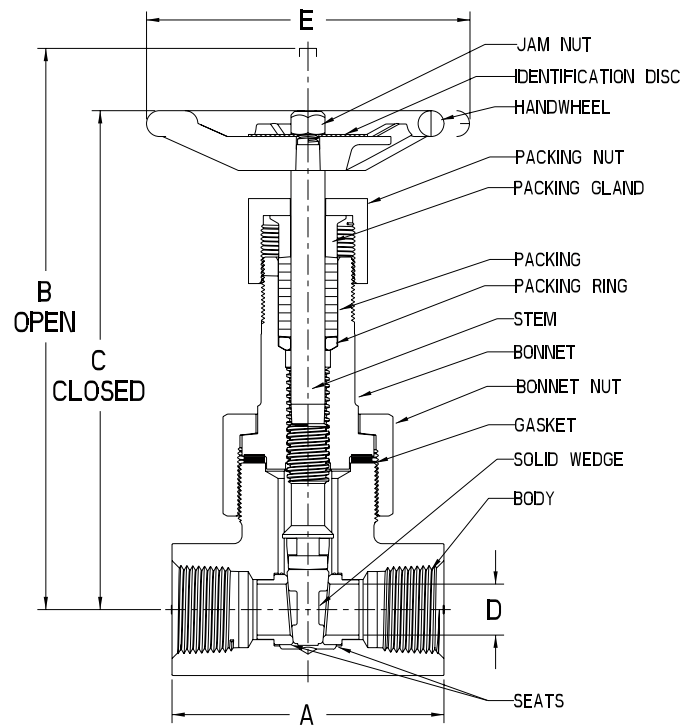
Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

## Forged Gate Valves

### Class 800 Conventional Port Gate Valve

Union Bonnet  
Spiral Wound Gasket  
Inside Screw Stem  
Screw Gland  
Solid Wedge  
Hard Faced Seats  
API 602  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING	
Threaded	59851	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
Socket Weld					
Threaded/Socket Weld	59951*	F316/F316L	316	1920 PSI @ 200 F	132.4 BAR @ 38 C

\* Not for dry service

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	
-04	NPS ½	3.38	6.44	5.88	.50	4.00	4.8	9.6
	DN 15	86	164	149	12.7	102	2.2	
-05	NPS ¾	3.38	6.44	5.88	.50	4.00	4.7	9.7
	DN 20	86	164	149	12.7	102	2.1	
-06	NPS 1	4.00	8.31	7.38	.75	4.75	7.9	20.3
	DN 25	102	211	187	19.1	121	3.6	
-07	NPS 1¼	4.75	10.75	9.38	1.25	5.75	16.4	80.5
	DN 32	121	273	238	31.8	146	7.4	
-08	NPS 1½	4.75	10.75	9.38	1.25	5.75	16.1	91.6
	DN 40	121	273	238	31.8	146	7.3	
-09	NPS 2	5.25	12.25	10.56	1.50	7.00	23.6	117.6
	DN 50	133	311	268	38.1	178	10.7	

A105 only

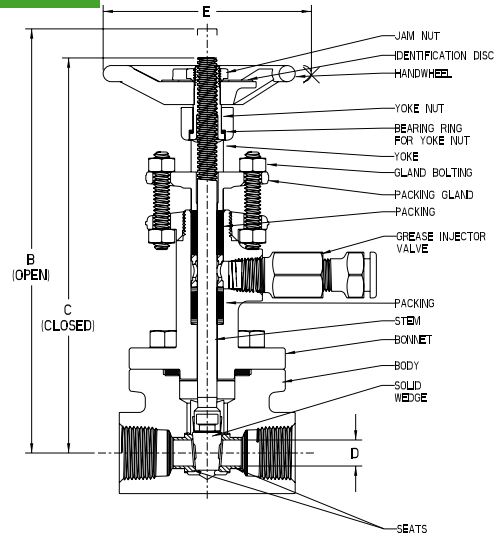
Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

**Forged Gate Valves – For HF Alkylation Service**  
**Forged Gate Valves – For Emmission Reduction**  
 Class 800 Gate Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Double Packing  
 Lantern Ring  
 Grease Injector  
 Solid Wedge  
 API 602 (12111ER & 13111ER)  
 ASME B16.34



<b>(UOP) Universal Oil Products Approved</b>							
CONNECTION	SERIES	BODY/BONNET	TRIM	SEATS	RATING		
Socket Weld	SW43211HF2	A105	Monel	Monel	1975 PSI @ 100 F	136.2 BAR @ 38 C	2
<b>Vogt Alkylation valve - contains TEFLON - max temperature 500°F</b>							
CONNECTION	SERIES	BODY/BONNET	TRIM	SEATS	RATING		
Threaded Socket Weld	SW	42211MTG	A105	Monel	1975 PSI @ 100 F	136.2 BAR @ 38 C	1
<b>Emission Reduction</b>							
CONNECTION	SERIES	BODY/BONNET	TRIM	SEATS	RATING		
Threaded Socket Weld	SW	12111ER	A105	13% Cr	13% CR Hardfaced	1975 PSI @ 100 F	1
Threaded / Socket Weld	TSW						
Threaded Socket Weld	SW	13111ER	A105	13% Cr	13% CR Hardfaced	1975 PSI @ 100 F	2
Threaded / Socket Weld	TSW						

**Dimensions**

SIZE	A	B	C	D	E	WEIGHT	Cv	
-04	NPS ½	3.38	8.15	7.59	.50	4.00	5.9	9.6
	DN 15	86	207	193	12.7	102	2.7	
-05	NPS ¾	3.38	8.15	7.59	.50	4.00	5.8	9.7
	DN 20	86	207	193	12.7	102	2.6	
-06	NPS 1	4.00	10.27	9.34	.75	4.75	9.8	20.3
	DN 25	102	261	237	19.1	121	4.4	
-07	NPS 1¼	4.75	12.12	10.72	1.25	5.75	17.7	80.5
	DN 40	121	308	272	31.8	146	17.6	
-08	NPS 1½	4.75	12.12	10.72	1.25	5.75	8.4	91.6
	DN 40	121	308	272	31.8	146	3.8	
-09	NPS 2	5.25	13.38	11.69	1.50	7.00	23.0	117.6
	DN 50	133	340	297	38.1	178	10.4	

SIZE	A	B	C	D	E	WEIGHT	Cv	
-04	NPS ½	3.38	8.15	7.59	.50	4.00	5.9	9.6
	DN 15	86	207	193	12.7	102	2.7	
-05	NPS ¾	4.00	10.27	9.34	.75	4.75	9.9	28.7
	DN 20	102	261	237	19.1	121	4.5	
-06	NPS 1	4.38	11.36	10.15	1.00	5.75	13.4	46.5
	DN 25	111	289	258	0.0	146	6.1	

Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

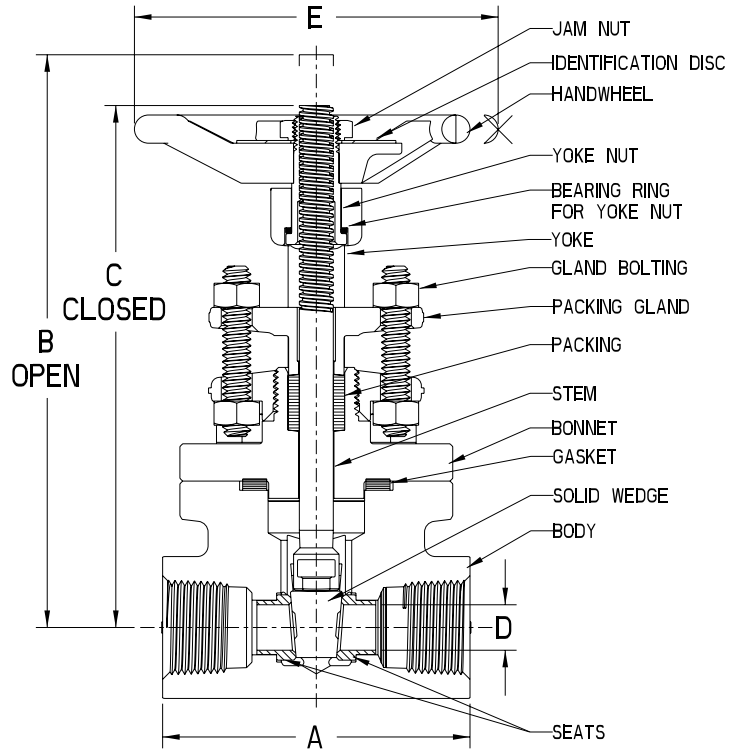
Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

# Forged Gate Valves – For HF Alkylation Service

## Class 600 Full Port Gate Valve

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Solid Wedge  
API 602  
ASME B16.34

See page 20 for Class 800 UOP Approved Alkylation Service valves.



Listed in Phillips Petroleum Company's HF Alkylation Process Design Spec. Manual

CONNECTION	SERIES	BODY/BONNET	TRIM	RATING
Threaded	43111MMP	A105	Monel	1480 PSI @ 100 F 102.1 BAR @ 38 C

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv
-04 NPS DN 1/2 15	3.38 86	6.30 160	5.75 146	.50 12.7	4.00 102	5.0 2.3	9.6
-05 NPS DN 3/4 20	4.0 102	8.37 213	7.43 189	.75 19.1	4.75 121	8.6 3.9	28.7
-06 NPS DN 1 25	4.38 111	9.80 249	8.59 218	1.0 25.4	5.75 146	12.5 5.7	46.5

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

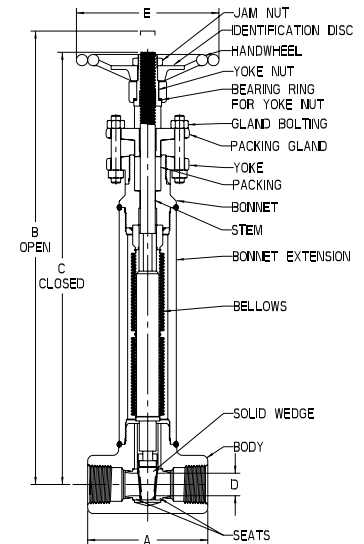
Refer to page 115 for end connections.

# Forged Gate Valves – Bellowseal

## Class 800 Gate Valve

- 1 Conventional Port
- 2 Full Port

Welded Bonnet  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Wedge  
 ASME B16.34  
 Seamless Multi-Ply Bellows 321 SS  
 Stem - 316 SS  
 Hard Faced Seats/Wedge



Bellowseal gate valves are suitable for applications requiring total containment of the flowing media frequently necessary to protect the environment and to eliminate the loss of hazardous and/or costly fluids. The valve packing is totally isolated by the bellows from the flowing media and pressure. The packing is incorporated in the valve to serve in a "back-up" role only.

CONNECTION		SERIES		BODY/BONNET	TRIM	RATING	
		1	2				
Threaded Socket Weld	SW	2801B	3801B	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		32801B	33801B	A350 LF2	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		2831B	3831B	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
Threaded/Socket Weld	TSW						

### Dimensions

SIZE	SIZE		A	B	C	D	E	WEIGHT	Cv
	NPS	DN							
1	-04	NPS ½	3.38	10.56	10.06	.50	4.00	8.2	9.6
		DN 15	86	268	256	12.7	102	3.7	
	-05	NPS ¾	3.38	10.56	10.06	.50	4.00	8.1	9.7
		DN 20	86	268	256	12.7	102	3.7	
	-06	NPS 1	4.00	12.88	12.12	.75	4.75	11.0	20.3
		DN 25	102	327	308	19.1	121	5.0	
-08	NPS 1½	5.25	20.25	18.81	1.50	7.00	28.3	109.6	
	DN 40	133	514	478	38.1	178	12.8		
-09	NPS 2	5.25	20.25	18.81	1.50	7.00	27.8	117.6	
	DN 50	133	514	478	38.1	178	12.6		
2	-04	NPS ½	3.38	10.56	10.06	.50	4.00	4.2	9.6
		DN 15	86	268	256	12.7	102	1.9	
	-05	NPS ¾	4.00	12.88	12.12	.75	4.75	11.0	28.7
		DN 20	102	327	308	19.1	121	5.0	
	-08	NPS 1½	5.25	20.25	18.81	1.50	7.00	28.3	109.6
		DN 40	133	514	478	38.1	178	12.8	

Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

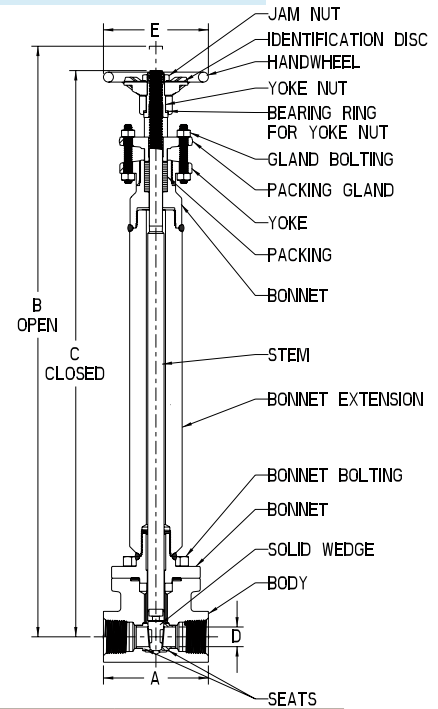


# Forged Gate Valves – Cryogenic Service to -325°F (-198°C)

## Class 800 & 1500 Gate Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Wedge  
 Hard Faced Seats  
 Extended Bonnet  
 ASME B16.34  
 MSS SP-134  
 Valve contains TEFLON – Max temp of 500° F



CONNECTION		SERIES		BODY/BONNET	TRIM	RATING		Class	
		1	2						
Threaded	Socket Weld	SW	12401C	13401C	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C	800
							1920 PSI @ -325 F	132.4 BAR @ -198 C	
Threaded/Socket Weld	TSW		15401C	16401C	F316/F34L	316	3600 PSI @ 100 F	248.2 BAR @ 38 C	1500
							3600 PSI @ -325 F	248.2 BAR @ -198 C	

### Dimensions

Size		A	B	C	D	E	WEIGHT	Cv	Class			
1	-04	NPS ½	3.38	18.30	17.74	.50	4.00	8.2		9.6	800	
		DN 15	86	465	451	12.7	102	3.7				
	-05	NPS ¾	3.38	18.30	17.74	.50	4.00	8.1	9.7			
		DN 20	86	465	451	12.7	102	3.7				
	-06	NPS 1	4.00	22.52	21.59	.75	4.75	20.4	20.3			
		DN 25	102	572	548	19.1	121	9.3				
	-07	NPS 1¼	4.75	27.06	25.84	1.25	5.75	40.0	80.5			
		DN 32	121	687	656	31.8	146	18.1				
	-08	NPS 1½	4.75	27.06	25.84	1.25	5.75	40.0	91.6			
		DN 40	121	687	656	31.8	146	18.1				
	-09	NPS 2	5.25	27.00	25.30	1.50	7.00	35.0	117.6			
		DN 50	133	686	643	38.1	178	15.9				
2	-04	NPS ½	3.38	18.30	17.74	.50	4.00	8.2	9.6	1500		
		DN 15	86	465	451	12.7	102	3.7				
	-05	NPS ¾	4.00	22.52	21.59	.75	4.75	20.5	28.7			
		DN 20	102	572	548	19.1	121	9.3				
	-06	NPS 1	4.38	22.52	21.59	1.00	5.75	37.3	46.5			
		DN 25	111	572	548	25.4	146	16.9				
	-07	NPS 1¼	4.75	27.06	25.84	1.25	5.75	40.0	80.5			
		DN 32	121	687	656	31.8	146	18.1				
	-08	NPS 1½	5.25	28.21	26.52	1.50	7.0	35.0	109.6			
		DN 40	133	717	674	38.1	178	15.9				
	1	-04	NPS ½	4.00	20.79	20.18	.50	4.75	14.9		9.6	1500
			DN 15	102	528	513	12.7	121	6.8			
-05		NPS ¾	4.00	20.79	20.18	.50	4.75	14.7	9.7			
		DN 20	102	528	513	12.7	121	6.7				
-06		NPS 1	4.75	21.51	20.59	.75	7.0	25.0	20.3			
		DN 25	121	546	523	19.1	178	11.3				
-07		NPS 1¼	5.25	26.53	25.11	1.25	8.0	39.6	80.5			
		DN 32	133	674	638	31.8	203	18.0				
-08		NPS 1½	5.25	26.53	25.11	1.25	8.0	39.0	91.6			
		DN 40	133	674	638	31.8	203	17.7				
-09		NPS 2	7.00	27.53	25.84	1.50	9.75	64.1	117.6			
		DN 50	178	699	656	38.1	248	29.1				
2	-04	NPS ½	4.00	20.79	20.18	.50	4.75	14.9	9.6	1500		
		DN 15	102	528	513	12.7	121	6.8				
	-05	NPS ¾	4.75	21.51	20.59	.75	7.0	25.5	28.7			
		DN 20	121	546	523	19.1	178	11.6				
	-06	NPS 1	4.38	22.52	21.59	1.00	5.75	37.3	46.5			
		DN 25	111	572	548	25.4	146	16.9				
	-07	NPS 1¼	5.25	26.53	25.11	1.25	8.0	39.6	80.5			
		DN 32	133	674	638	31.8	203	18.0				
	-08	NPS 1½	7.00	27.53	25.84	1.50	9.75	65.0	109.6			
		DN 40	178	699	656	38.1	248	29.5				

Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

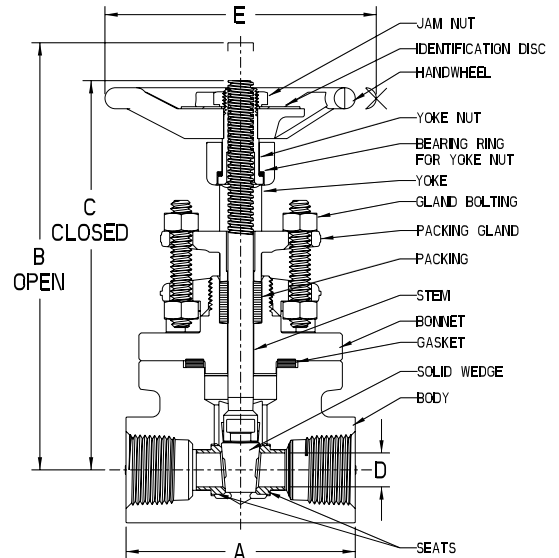
Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

# Forged Gate Valves – Meets API-600 Required Wall Thickness

## Class 800 Gate Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Wedge  
 Hard Faced Seats  
 Meets API-600 Required Wall Thickness  
 API 602  
 ASME B16.34



CONNECTION	SERIES		BODY/BONNET	TRIM	RATING		
	1	2					
Threaded Socket Weld Threaded x Socket Weld	SW TSW	12601	13601	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		12602	13602	A350 LF2	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		12603	13603	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
		12604	13604	F11, Cl.2	*13% Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C
		12605	13605	F22, Cl.3	*13% Cr	2000 PSI @ 100 F	137.9 BAR @ 38 C

\*Hardfaced Wedge/Seats

### Dimensions

SIZE	SIZE		A	B	C	D	E	WEIGHT	Cv
	NPS	DN							
1	-04	NPS ½	4.00	7.51	6.90	.50	4.75	8.9	9.6
		DN 15	101.6	191	175	12.7	121	4.0	
	-05	NPS ¾	4.00	7.51	6.90	.50	4.75	9.7	9.7
		DN 20	101.6	191	175	12.7	121	4.4	
	-06	NPS 1	4.75	9.69	8.77	.75	7.00	17.5	20.3
		DN 25	120.7	246	223	19.1	178	7.9	
	-07	NPS 1¼	5.25	11.40	9.98	1.25	8.00	27.3	80.5
		DN 32	133.4	290	253	31.8	203	12.4	
	-08	NPS 1½	5.25	11.40	9.98	1.25	8.00	66.7	91.6
		DN 40	133.4	290	253	31.8	203	30.3	
	-09	NPS 2	7.00	13.84	12.15	1.50	9.75	45.1	117.6
		DN 50	177.8	352	309	38.1	248	20.5	

2	-04	NPS ½	4.00	7.51	6.90	.50	4.75	17.5	9.6
		DN 15	101.6	191	175	12.7	121	7.9	
	-05	NPS ¾	4.75	9.69	8.77	.75	7.00	17.9	28.7
		DN 20	120.7	246	223	19.1	178	8.1	
	-06	NPS 1	5.25	11.31	9.96	1.00	8.00	28.3	46.5
		DN 25	133.4	287	253	25.4	203	12.8	
	-07	NPS 1¼	5.25	11.40	9.98	1.25	8.00	27.3	80.5
		DN 32	133.4	290	253	31.8	203	12.4	
	-08	NPS 1½	7.00	13.84	12.15	1.50	9.75	75.0	109.6
		DN 40	177.8	352	309	38.1	248	34.0	

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

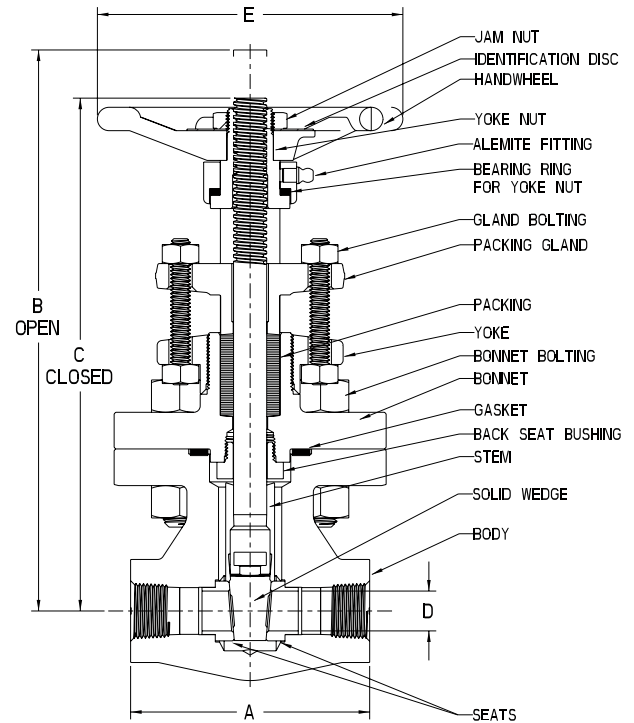
Refer to pages 114-115 for end connections.

Refer to pages 116-117 for other ratings.

## Forged Gate Valves – Meets API-600 Required Wall Thickness

### Class 800 Full Port Gate Valve

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Solid Wedge
- Hard Faced Seats
- Meets API 600 required wall thickness
- ASME B16.34



CONNECTION		SERIES	BODY/BONNET	TRIM	RATING	
Threaded	SW	11103	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
Socket Weld						

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv
-04	NPS	½	3.62	9.52	8.78	.56	4.75	12.4	9.6
	DN	15	92	242	223	14.2	121	5.6	
-05	NPS	¾	4.50	10.56	9.65	.75	5.75	19.9	28.7
	DN	20	114	268	245	19.1	146	9.0	
-06	NPS	1	5.00	11.75	10.56	1.0	7.00	29.4	46.5
	DN	25	127	298	268	25.4	178	13.3	
-07	NPS	1¼	6.50	14.12	12.62	1.25	8.00	41.2	80.5
	DN	32	165	359	321	31.8	203	18.7	
-08	NPS	1½	7.25	16.37	14.68	1.50	9.75	63.0	109.6
	DN	40	184	416	373	38.1	248	28.6	
-09	NPS	2	9.00	19.00	16.81	2.00	9.75	90.8	181.0
	DN	50	229	483	427	50.8	248	41.2	

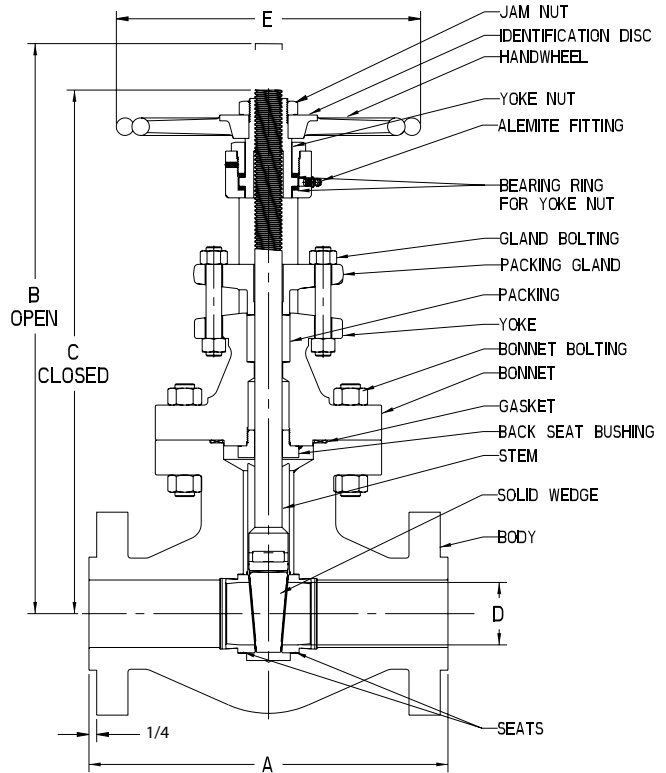
Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Gate Valves – Meets API-600 Required Wall Thicknesses

## Class 600 gate Valve Full Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Solid Wedge
- Hard Faced Seats
- Meets API 600 required wall thickness
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING
1/4 RF	11403	A105	13% Cr	1480 PSI @ 100 F 102.1 BAR @ 38 C

SIZE	A	B	C	D	E	WEIGHT	Cv
-04	NPS ½	6.50	10.44	9.69	.56	4.75	19.5
	DN 15	165	265	246	14.2	121	8.8
-05	NPS ¾	7.50	11.31	10.38	.75	5.75	31.2
	DN 20	191	287	264	19.1	146	14.2
-06	NPS 1	8.50	12.56	11.44	1.00	7.00	45.0
	DN 25	216	319	291	25.4	178	20.4
-07	NPS 1¼	9.00	14.12	12.62	1.25	8.00	57.4
	DN 32	229	359	321	31.8	203	26.0
-08	NPS 1½	9.50	16.38	14.69	1.50	9.75	76.2
	DN 40	241	416	373	38.1	248	34.6
-09	NPS 2	11.50	19.00	16.81	2.00	9.75	105.0
	DN 50	292	483	427	50.8	248	47.6

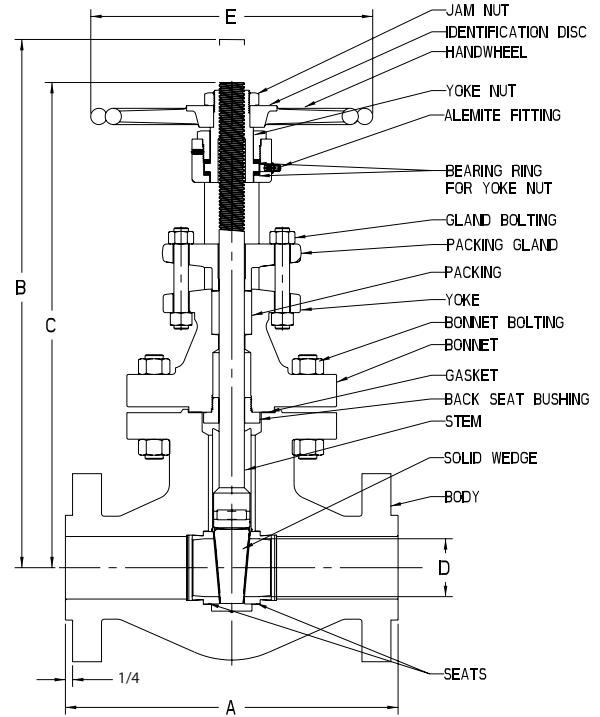
Refer to page 8 for optional trim and service configurations.  
Refer to page 113 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

## Forged Gate Valves – Meets API-600 Required Wall Thicknesses

### Class 1500 Full Port Flanged Gate Valve

- Round Bolted Bonnet
- Outside Screw & Yoke
- Bolted Gland
- Solid Wedge
- Hard Faced Seats
- Meets API 600 required wall thickness
- ASME B16.34



BONNET GASKET	CONNECTION	SERIES	BODY/BONNET	TRIM	RATING	
Flat Gasket Joint	1/4 RF	11603	A105	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
Ring Joint Gasket (Not illustrated)	Ring Joint (Not illustrated)	11683	A105	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv
-04	NPS	1/2	8.50	12.12	11.38	.56	7.00	43.3	11.8
	DN	15	216	308	289	14.2	178	19.6	
-05	NPS	3/4	9.00	14.00	12.94	.75	7.00	55.0	28.7
	DN	20	229	356	329	19.1	178	24.9	
-06	NPS	1	10.00	15.62	14.50	.88	8.00	76.0	32.0
	DN	25	254	397	368	22.4	203	34.5	
-07	NPS	1 1/4	11.00	17.75	16.44	1.12	9.75	92.0	83.2
	DN	32	279	451	418	28.4	248	41.7	
-08	NPS	1 1/2	12.00	20.12	18.38	1.38	12.00	117.8	109.6
	DN	40	305	511	467	35.1	305	53.4	
-09	NPS	2	14.50	23.56	21.25	2.00	13.75	230.0	181.0
	DN	50	368	598	540	50.8	349	104.3	

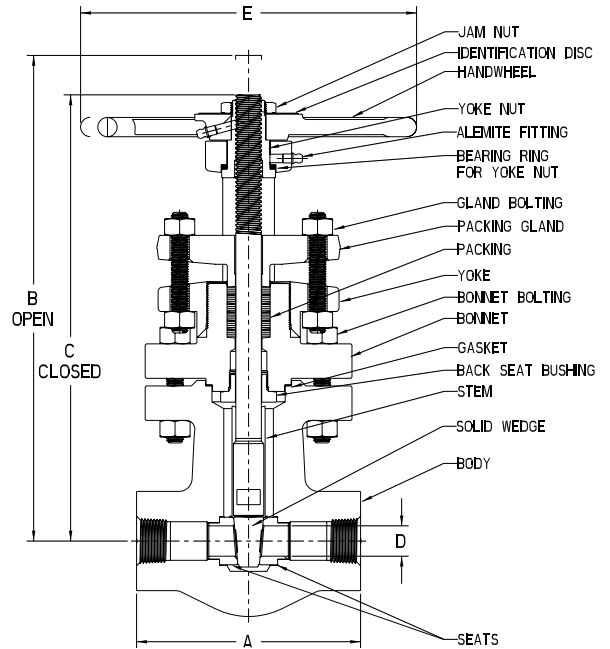
Refer to page 8 for optional trim and service configurations.  
Refer to page 113 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Gate Valves

## Class 1500 Full Port Gate Valve

Round Bolted Bonnet  
 Outside Screw & Yoke  
 Bolted Gland  
 Solid Wedge  
 Hard Faced Seats  
 Meets API 600 required wall thickness  
 ASME B16.34



BONNET GASKET	CONNECTION	SERIES	BODY/BONNET	TRIM	RATING
Flat Gasket Joint	Threaded Socket Weld SW	1033	A105	13% Cr	3705 PSI @ 100 F 255.3 BAR @ 38 C
Ring Joint Gasket (Not illustrated)	Threaded Socket Weld SW	1043	A105	13% Cr	3705 PSI @ 100 F 255.3 BAR @ 38 C

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv
-04	NPS ½	4.50	10.75	10.00	.56	5.75	21.9
	DN 15	114	273	254	14.2	146	9.9
-05	NPS ¾	5.00	11.81	10.90	.75	7.00	29.9
	DN 20	127	300	277	19.1	178	13.6
-06	NPS 1	6.50	14.06	12.94	.88	8.00	44.4
	DN 25	165	357	329	22.4	203	20.1
-07	NPS 1¼	7.25	13.38	14.88	1.25	9.75	63.0
	DN 32	184	340	378	31.8	248	28.6
-08	NPS 1½	9.00	18.75	17.12	1.38	9.75	100.0
	DN 40	229	476	435	35.1	248	45.4
-09	NPS 2	9.50	21.00	18.69	2.00	12.00	116.3
	DN 50	241	533	475	50.8	305	52.8

Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

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- Monel<sup>2</sup>
- NACE
- 316
- 317
- 321
- 347
- 2205
- F5
- F11
- F22
- F91
- LF2

<sup>1</sup> Registered trademark of Haynes International

<sup>2</sup> Registered trademark of the International Nickel Company, Inc.



# 12141 Globe Valve

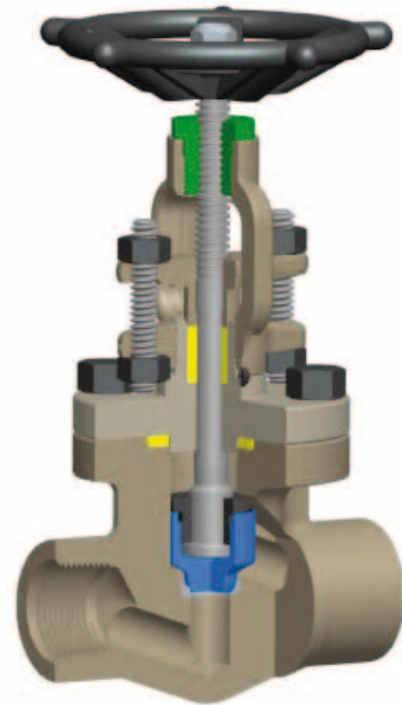
## Class 800 Globe Valve

1 Conventional Port

2 Full Port



See page 50 - 52



### The core of the pressure class 150, 300, 600, & 800 globe valve

CONNECTION	SERIES		BODY/BONNET	TRIM	SEAT	RATING		
	1	2						
Threaded Socket Weld Threaded/Socket Weld Butt Weld (Sch 40)**	SW	12141	13141	A105	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C
		32141	33141	A350 LF2	13% Cr	HF	1975 PSI @ -50 F	136.2 BAR @ -46 C
	TSW BW	12501	13501	F316/F316L	316		1920 PSI @ 100 F	132.4 BAR @ 38 C
		82501	83501	F316H	316H			
		12351	13351	F11,Cl.2(1-1/4 Cr.)	13% Cr	HF	2000 PSI @ 100 F	137.9 BAR @ 38 C
		12551	13551	F22,Cl.3(1-1/4 Cr.)				

\*\*BW end-to-end is a Vogt standard and does not meet B16.10

Refer to page 8 for optional trim and service configurations.

Refer to pages 114-115 for end connections.

Refer to pages 11-12 for full materials description.

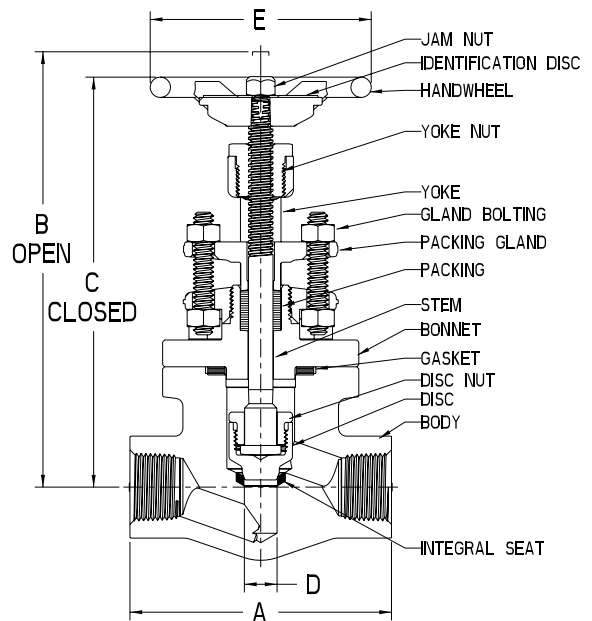
Refer to pages 116-117 for other ratings.



# Class 800 Globe Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Loose Disc  
Integral Seat  
ASME B16.34



## Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS	½	3.75	6.63	6.24	.50	4.00	5.1	2.4	4.7	12	1
	DN	15	95	169	158	12.7	102	2.3				
-05	NPS	¾	4.00	6.66	6.24	.50	4.00	5.5	4.3	5.0	12	
	DN	20	102	169	158	12.7	102	2.5				
-06	NPS	1	4.62	8.52	7.91	.75	4.75	9.5	7.3	6.1	10	
	DN	25	117	216	201	19.1	121	4.3				
-07	NPS	1 ¼	6.25	10.42	9.62	1.28	5.75	21.0	14.2	8.0	10	
	DN	32	159	265	244	32.5	146	9.5				
-08	NPS	1½	6.25	10.42	9.62	1.28	5.75	20.1	20.4	8.0	10	
	DN	40	159	265	244	32.5	146	9.1				
-09	NPS	2	7.75	11.09	10.17	1.53	8.00	30.8	23.1	7.4	8	
	DN	50	197	282	258	38.9	203	14.0				
-10	NPS	2½	9.00	13.09	12.39	2.00	8.00	50.2	35.6	5.6	8	
	DN	65	229	338	315	50.8	203	22.8				

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

-04	NPS	½	4.00	6.63	6.24	.50	4.00	5.7	3.0	4.7	12	2
	DN	15	102	169	158	12.7	102	2.6				
-05	NPS	¾	4.62	8.52	7.91	.75	4.75	9.8	6.8	6.1	10	
	DN	20	117	216	201	19.1	121	4.4				
-06	NPS	1	6.25	10.42	9.62	1.28	5.75	21.5	14.5	8.0	10	
	DN	25	159	265	244	32.5	146	9.8				
-07	NPS	1¼	6.25	10.42	9.62	1.28	5.75	20.6	17.2	8.0	10	
	DN	32	159	265	244	32.5	146	9.3				
-08	NPS	1½	7.75	11.09	10.17	1.53	8.00	31.8	24.4	7.4	8	
	DN	40	197	282	258	38.9	203	14.4				
-09	NPS	2	9.00	13.09	12.39	2.00	8.00	51.8	37.6	5.6	8	
	DN	50	229	338	315	50.8	203	23.5				

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

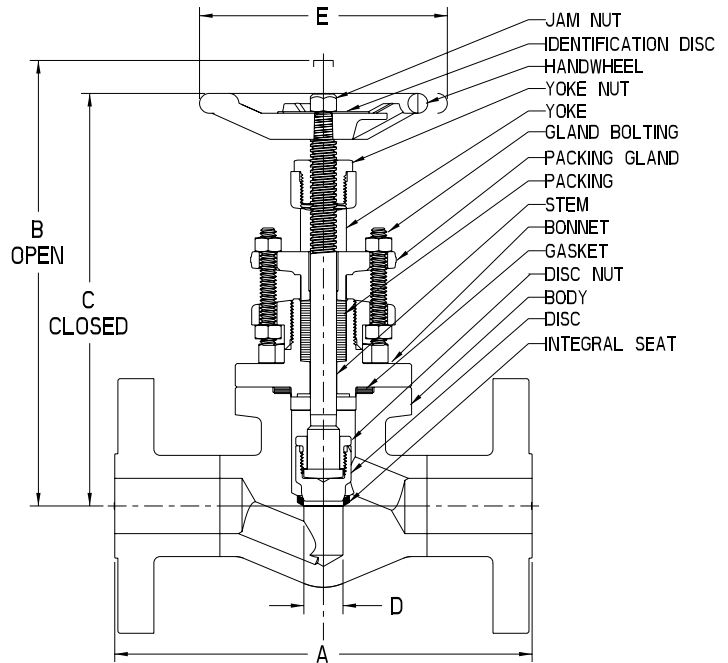
Refer to pages 114-115 for end connections.

Refer to pages 116-117 for other ratings.

# Forged Globe Valves

## Class 150 Globe Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Loose Disc  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
1/16 RF Flat Face	473	A105	13% Cr	HF	285 PSI @ 100 F	19.6 BAR @ 38 C
	32473	A350 LF2	13% Cr	HF	285 PSI @ 100 F	19.6 BAR @ 38 C
					285 PSI @ -50 F	19.6 BAR @ -46 C
478	F316/F316L	316		275 PSI @ 100 F	19.0 BAR @ 38 C	

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	4.25	6.63	6.24	.50	4.00	7.0	2.4	4.7	12
	DN	15	108	168	158	12.7	102	3.2			
-05	NPS	¾	4.62	6.63	6.24	.50	4.00	8.4	4.3	4.7	12
	DN	20	117	168	158	12.7	102	3.8			
-06	NPS	1	5.00	8.54	7.91	.75	4.75	13.1	7.3	6.3	10
	DN	25	127	217	201	19.1	121	5.9			
-08	NPS	1½	6.50	10.42	9.62	1.28	5.75	26.2	20.4	8.0	10
	DN	40	165	265	244	32.5	146	11.9			
-09	NPS	2	8.00	11.09	10.17	1.50	8.00	40.0	23.1	7.4	8
	DN	50	203	282	258	38.1	203	18.1			
-11	NPS	3	9.50	13.09	12.39	2.00	8.00	66.7	33.4	5.6	8
	DN	80	241	338	315	50.8	203	30.3			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.  
Refer to page 113 for end connections.

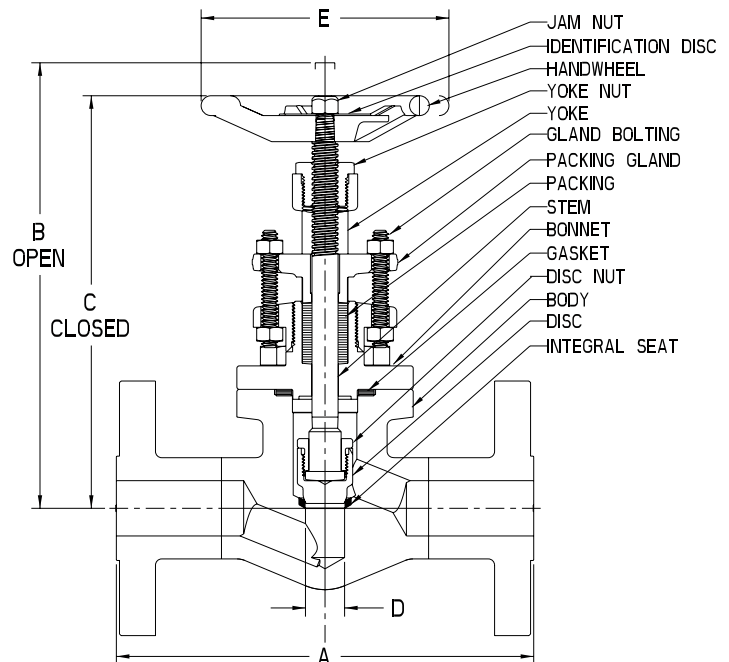
P – Pitch of stem thread.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

## Forged Globe Valves

### Class 300 Globe Valve Conventional Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Loose Disc  
 Integral Seat  
 ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
1/16 RF Flat Face	483	A105	13% Cr	HF	740 PSI @ 100 F	51.1 BAR @ 38 C
	32483	A350 LF2	13% Cr	HF	740 PSI @ 100 F	51.1 BAR @ 38 C
					740 PSI @ -50 F	51.1 BAR @ -46 C
488	F316/F316L	316		720 PSI @ 100 F	49.6 BAR @ 38 C	

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	6.00	6.63	6.24	.50	4.00	8.5	2.4	4.7	12
	DN	15	152	168	158	12.7	102	3.9			
-05	NPS	¾	7.00	6.63	6.24	.50	4.00	11.3	4.3	4.7	12
	DN	20	178	168	158	12.7	102	5.1			
-06	NPS	1	8.00	8.54	7.91	.75	4.75	17.6	7.3	6.3	10
	DN	25	203	217	201	19.1	121	8.0			
-08	NPS	1½	9.00	10.42	9.62	1.28	5.75	33.3	20.4	8.0	10
	DN	40	229	265	244	32.5	146	15.1			
-09	NPS	2	10.50	11.09	10.17	1.53	8.00	46.2	23.1	7.4	8
	DN	50	267	282	258	38.9	203	21.0			
-11	NPS	3	12.50	13.09	12.39	2.00	8.00	80.3	33.4	5.6	8
	DN	80	318	338	315	50.8	203	36.4			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 113 for end connections.

P – Pitch of stem thread.

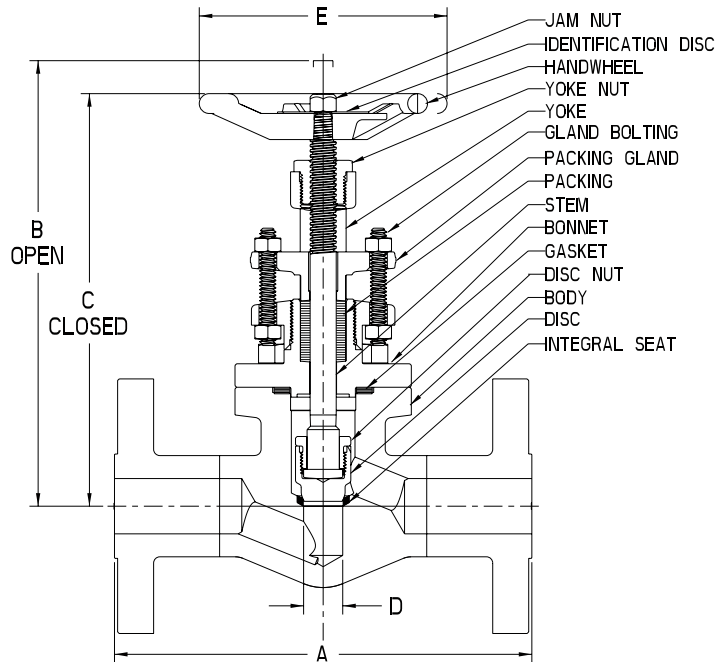
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

## Forged Globe Valves

### Class 600 Globe Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Loose Disc  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
1/4 RF Ring Joint	493	A105	13% Cr	HF	1480 PSI @ 100 F	102.1 BAR @ 38 C
	32493	A350 LF2	13% Cr	HF	1480 PSI @ 100 F	102.1 BAR @ 38 C
					1480 PSI @ -50 F	102.1 BAR @ -46 C
498	F316/F316L	316		1440 PSI @ 100 F	99.3 BAR @ 38 C	

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	1/2	6.50	6.63	6.24	.50	4.00	9.0	2.4	4.7	12
	DN	15	165	168	158	12.7	102	4.1			
-05	NPS	3/4	7.50	6.63	6.24	.50	4.00	12.2	4.3	4.7	12
	DN	20	191	168	158	12.7	102	5.5			
-06	NPS	1	8.50	8.54	7.91	.75	4.75	18.4	7.3	6.3	10
	DN	25	216	217	201	19.1	121	8.3			
-08	NPS	1 1/2	9.50	10.42	9.62	1.28	5.75	35.5	20.4	8.0	10
	DN	40	241	265	244	32.5	146	16.1			
-09	NPS	2	11.50	11.09	10.17	1.53	8.00	50.0	23.1	7.4	8
	DN	50	292	282	258	38.9	203	22.7			
-11	NPS	3	14.00	13.09	12.39	2.00	8.00	87.7	33.4	5.6	8
	DN	80	356	338	315	50.8	203	39.8			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

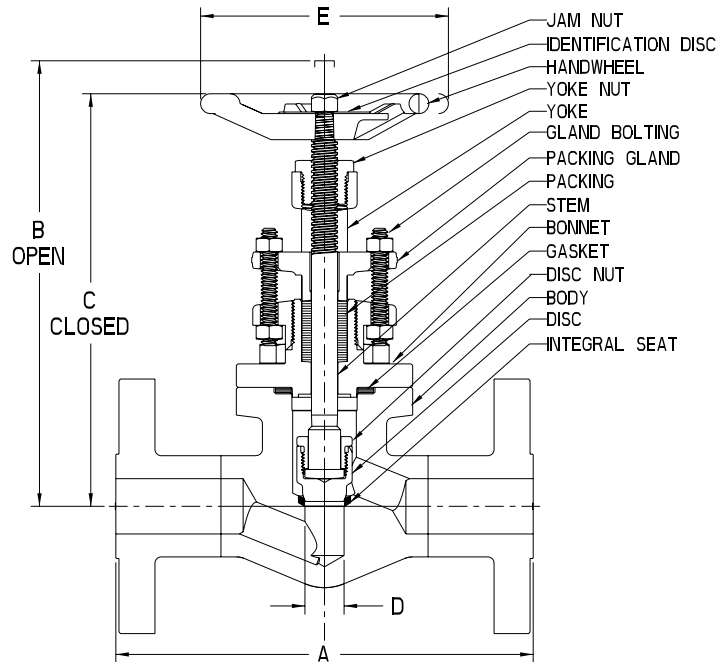
Refer to page 113 for end connections.

Refer to pages 116-117 for other ratings.

## Forged Globe Valves

### Class 1500 Globe Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Loose Disc  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING		
1/4 RF Ring Joint	RJ	15493	A105	13% Cr	HF	3705 PSI @ 100 F	255.3 BAR @ 38 C
		35493	A350 LF2	13% Cr	HF	3705 PSI @ 100 F	255.3 BAR @ 38 C
						3705 PSI @ -50 F	255.3 BAR @ -46 C
15498	A182/F316L	316			3600 PSI @ 100 F	248.2 BAR @ 38 C	

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	8.50	7.88	7.41	0.50	4.75	18.2	3.1	4.7	10
	DN	15	216	200	188	12.7	121	8.3			
-05	NPS	¾	9.00	7.88	7.41	0.50	4.75	21.6	3.3	4.7	10
	DN	20	229	200	188	12.7	121	9.8			
-06	NPS	1	10.00	10.12	9.50	0.75	7.00	38.1	5.9	6.2	10
	DN	25	254	257	241	19.1	178	17.3			
-08	NPS	1½	12.00	10.97	10.41	1.12	8.00	60.6	13.8	4.5	8
	DN	40	305	279	264	28.4	203	27.5			
-09	NPS	2	14.50	13.31	12.50	1.38	9.75	106.5	21.4	6.5	8
	DN	50	368	338	318	35.1	248	48.3			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 113 for end connections.

P – Pitch of stem thread.

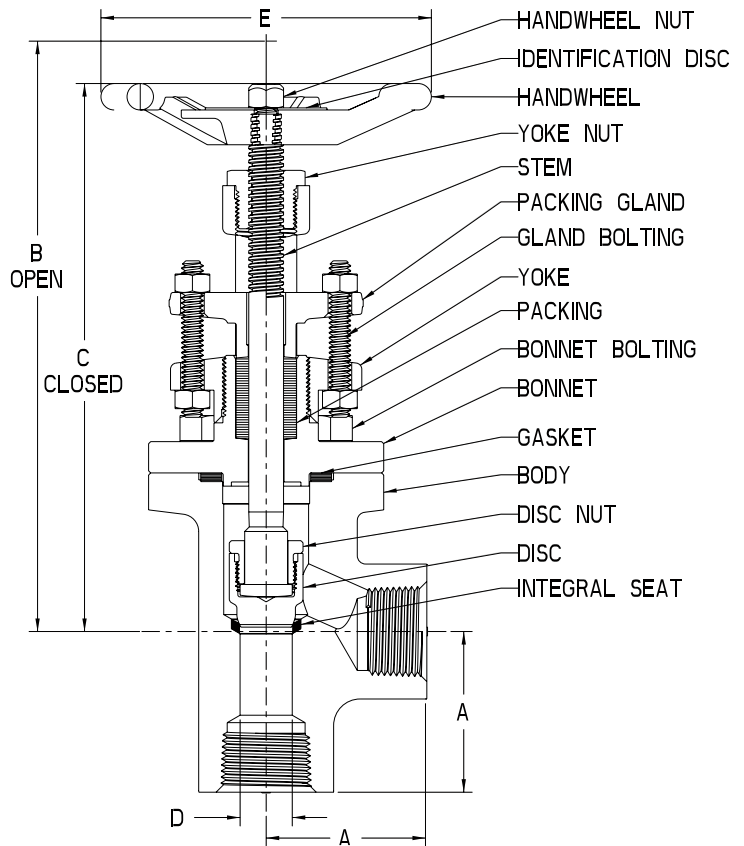
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged Angle Valves

## Class 800 Globe Valve Conventional Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Loose Disc
- Integral Hard Faced Seat
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
Threaded Socket Weld	SW	1971	A105	13% Cr	HF	1975 PSI @ 100 F 136.2 BAR @ 38 C

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS ½	1.62	6.66	6.26	0.50	4.00	4.8	2.6	4.8	12
	DN 15	41	169	159	12.7	102	2.2			
-05	NPS ¾	1.75	6.66	6.26	0.50	4.00	5.1	4.5	4.8	12
	DN 20	44	169	159	12.7	102	2.3			
-06	NPS 1	2.31	8.49	7.88	0.75	4.75	9.0	11.9	6.1	10
	DN 25	59	216	200	19.1	121	4.1			
-07	NPS 1¼	2.44	9.91	9.11	1.28	5.75	16.60	21.0	8.0	10
	DN 32	62	252	231	32.5	146	7.5			
-08	NPS 1½	2.44	9.91	9.11	1.28	5.75	16.1	31.4	8.0	10
	DN 40	62	252	231	32.5	146	7.3			
-09	NPS 2	3.56	13.35	12.37	1.53	8.00	37.4	52.0	7.8	8
	DN 50	90	339	314	38.9	203	17.0			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

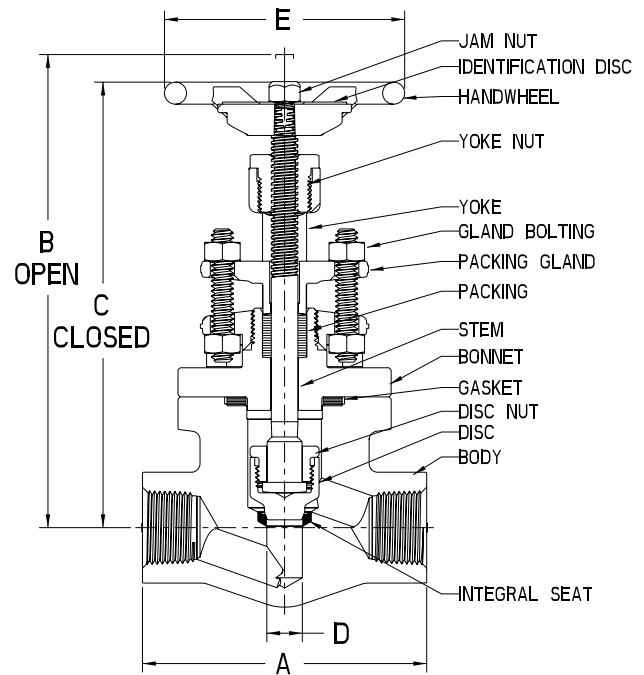
P – Pitch of stem thread.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Globe Valves

## Class 1500 Globe Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Loose Disc  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING		
Threaded Socket Weld	SW	15141	A105	13% Cr	HF	3705 PSI @ 100 F	255.3 BAR @ 38 C
		35141	A350 LF2	13% Cr	HF	3705 PSI @ 100 F	255.3 BAR @ 38 C
						3705 PSI @ -50 F	255.3 BAR @ -46 C
		15501	F316/F316L	316		3600 PSI @ 100 F	248.2 BAR @ 38 C
		15351	F11 Cl.2	13% Cr	HF	3750 PSI @ 100 F	258.6 BAR @ 38 C
15551	F22 Cl.3	13% Cr	HF	3750 PSI @ 100 F	258.6 BAR @ 38 C		

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	4.50	7.90	7.49	0.50	4.75	10.0	3.1	4.1	10
	DN	15	114	201	190	12.7	121	4.5			
-05	NPS	¾	4.50	7.90	7.49	0.50	4.75	9.8	3.3	4.1	10
	DN	20	114	201	190	12.7	121	4.4			
-06	NPS	1	6.25	10.16	9.62	0.75	7.00	22.4	5.9	5.4	10
	DN	25	159	258	244	19.1	178	10.2			
-07	NPS	1¼	7.75	11.02	10.54	1.12	8.00	36.0	13.8	3.8	8
	DN	32	197	280	268	28.4	203	16.3			
-08	NPS	1½	7.75	11.02	10.54	1.12	8.00	35.3	13.8	3.8	8
	DN	40	197	280	268	28.4	203	16.0			
-09	NPS	2	9.00	13.30	12.56	1.38	9.75	61.4	21.4	5.9	8
	DN	50	229	338	319	35.1	248	27.9			

**T** – Approximate number of turns from open to close.

**P** – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

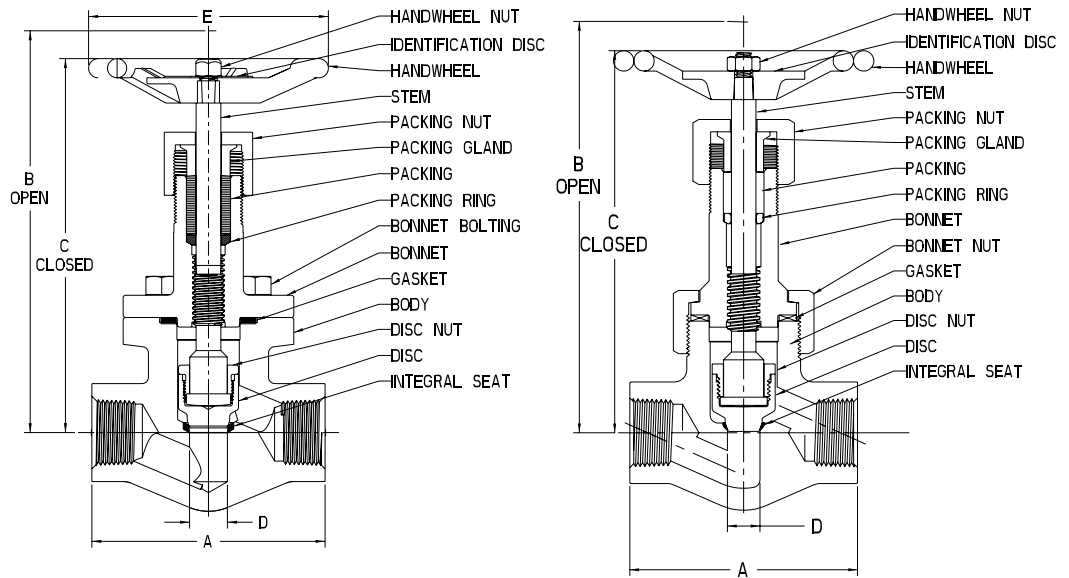
# Forged Globe Valves

Class 800

Globe Valve

Conventional Port

Round Bolted Bonnet  
or Union Bonnet  
Spiral Wound Gasket  
Inside Screw Stem  
Screw Gland  
Loose Disc  
Integral Seat  
ASME B16.34



## Round Bolted Bonnet

CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
Threaded Socket Weld	12181	A105	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C
	12188	A182 F316	13% Cr		1920 PSI @ 100 F	132.4 BAR @ 38 C

## Union Bonnet

CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
Threaded Socket Weld	SW 851	A105	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C

## Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	3.75	6.36	5.96	0.50	4.00	5.0	2.4	4.8	12
	DN	15	95	162	151	12.7	102	2.3			
-05	NPS	¾	4.00	6.36	5.96	0.50	4.00	5.3	4.3	4.8	12
	DN	20	102	162	151	12.7	102	2.4			
-06	NPS	1	4.62	7.96	7.41	0.75	4.75	9.4	7.3	5.5	10
	DN	25	117	202	188	19.1	121	4.3			
-07	NPS	1¼	6.25	10.25	9.50	1.28	5.75	20.7	14.2	10.5	10
	DN	32	159	260	241	32.5	146	9.4			
-08	NPS	1½	6.25	10.25	9.50	1.28	5.75	19.6	20.4	10.5	10
	DN	40	159	260	241	32.5	146	8.9			
-09	NPS	2	7.75	11.60	10.73	1.53	8.00	32.3	23.1	7.0	8
	DN	50	197	295	273	39	203	14.7			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

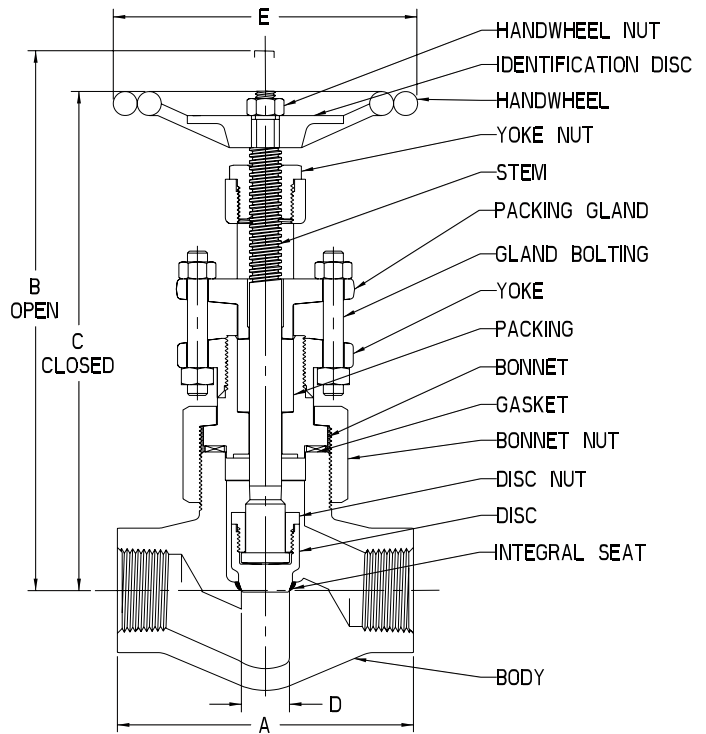
Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.



## Forged Globe Valves

### Class 800 Globe Valve Conventional Port

- Union Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Loose Disc
- Integral Hard Faced Seat
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING		
Threaded Socket Weld	SW	801	A105	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	3.25	6.62	6.19	0.50	4.00	4.1	2.4	5.2	12
	DN	15	83	168	157	12.7	102	1.9			
-05	NPS	¾	3.50	6.62	6.19	0.50	4.00	4.3	4.3	5.2	12
	DN	20	89	168	157	12.7	102	2.0			
-06	NPS	1	4.62	8.50	7.78	0.75	4.75	8.4	7.3	7.2	10
	DN	25	117	216	198	19.1	121	3.8			
-07	NPS	1¼	6.25	10.44	9.56	1.28	5.75	18.3	14.2	8.8	10
	DN	32	159	265	243	32.5	146	8.3			
-08	NPS	1½	6.25	10.44	9.56	1.28	5.75	17.7	20.4	8.8	10
	DN	40	159	265	243	32.5	146	8.0			
-09	NPS	2	7.75	11.06	10.06	1.53	8.00	28.3	23.1	8.0	8
	DN	50	197	281	256	39	203	12.8			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 115 for end connections.

P – Pitch of stem thread.

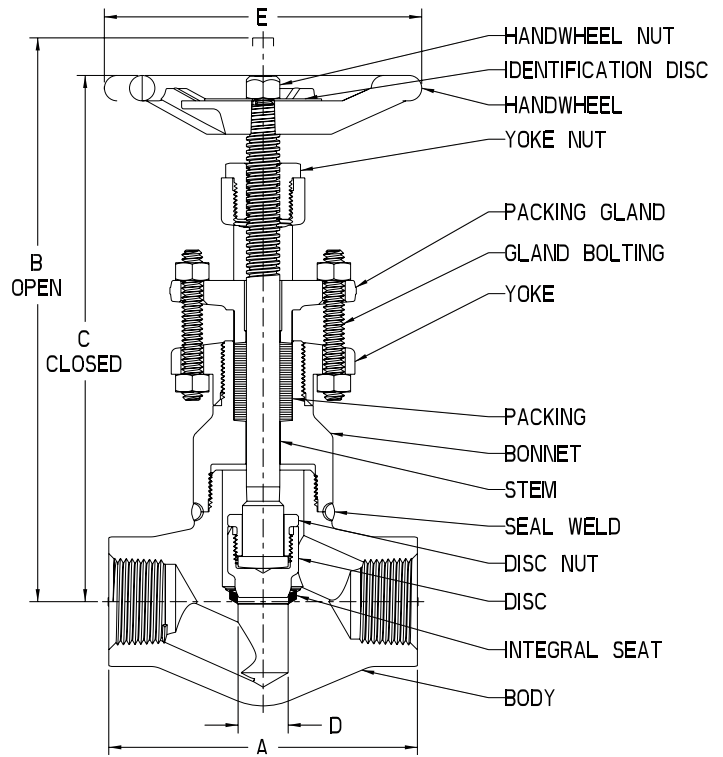
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged Globe Valves

## Class 800 Globe Valve Conventional Port

Welded Bonnet  
 Outside Screw & Yoke  
 Bolted Gland  
 Loose Disc  
 Integral Seat  
 ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING		
Threaded Socket Weld	SW	2821	A105	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C
		32821	A350 LF2	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C
						1975 PSI @ -50 F	136.2 BAR @ -46 C
		2841	A182 F316	316		1920 PSI @ 100 F	132.4 BAR @ 38 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	3.25	6.66	6.21	0.50	4.00	3.7	2.4	5.4	12
	DN	15	83	169	158	12.7	102	1.7			
-05	NPS	¾	3.50	6.66	6.21	0.50	4.00	4.0	4.3	5.4	12
	DN	20	89	169	158	12.7	102	1.8			
-06	NPS	1	4.62	8.44	7.88	0.75	4.75	7.8	7.3	5.6	10
	DN	25	117	214	200	19.1	121	3.5			
-07	NPS	1¼	6.25	10.39	9.62	1.28	5.75	16.4	14.2	7.7	10
	DN	32	159	264	244	32.5	146	7.4			
-08	NPS	1½	6.25	10.39	9.62	1.28	5.75	15.5	20.4	7.7	10
	DN	40	159	264	244	32.5	146	7.0			
-09	NPS	2	7.75	11.06	10.22	1.53	8.00	25.3	23.1	6.7	8
	DN	50	197	281	260	39	203	11.5			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 115 for end connections.

P – Pitch of stem thread.

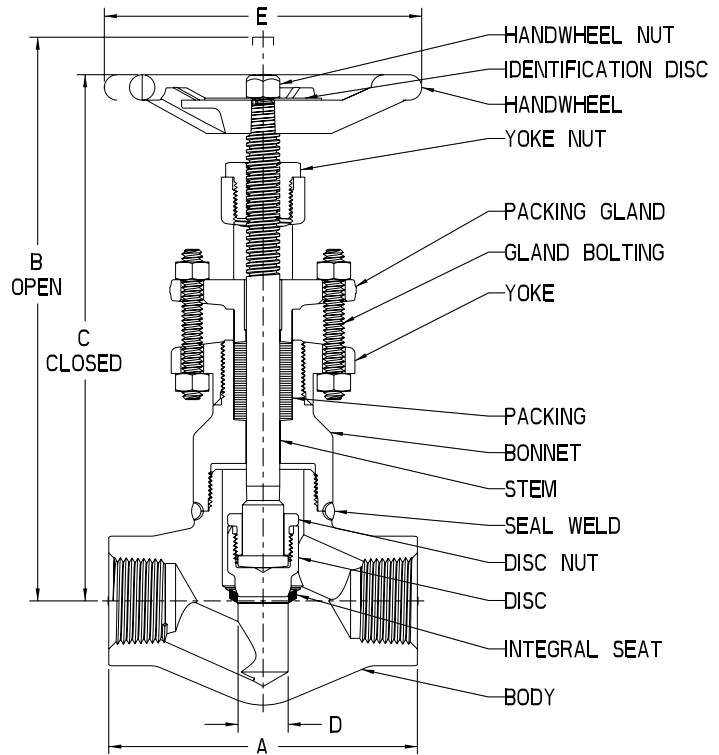
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged Globe Valves

## Class 1500 and Class 1500 LTD Globe Valve Conventional Port

Welded Bonnet  
 Outside Screw & Yoke  
 Bolted Gland  
 Loose Disc  
 Integral Seat  
 ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	CLASS
Threaded Socket Weld	15821	A105	13% Cr	HF	3705 PSI @ 100 F 255.3 BAR @ 38 C	1500
	35821	A350 LF2	13% Cr	HF	3705 PSI @ 100 F 255.3 BAR @ 38 C	
					3705 PSI @ -50 F 255.3 BAR @ -46 C	
	15841	A182 F316	316		3600 PSI @ 100 F 248.2 BAR @ 38 C	

Socket Weld	SW65723	A105	13% Cr	HF	3750 PSI @ 100 F 258.6 BAR @ 38 C	1500 LTD
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### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS ½	4.50	7.90	7.46	0.50	4.75	10.5	3.1	4.4	10
	DN 15	114	201	189	12.7	121				
-05	NPS ¾	4.50	7.90	7.46	0.50	4.75	10.3	3.3	4.4	10
	DN 20	114	201	189	12.7	121				
-06	NPS 1	6.25	10.14	9.59	0.75	7.00	23.2	5.9	5.5	10
	DN 25	159	258	244	19.1	178				
-07	NPS 1¼	7.75	11.11	10.51	1.12	8.00	23.2	13.8	4.8	8
	DN 32	197	282	267	28.4	203				
-08	NPS 1½	7.75	11.11	10.51	1.12	8.00	36.1	13.8	4.8	8
	DN 40	197	282	267	28.4	203				
-09	NPS 2	9.00	13.27	12.53	1.38	9.75	62.4	21.4	5.9	8
	DN 50	229	337	318	35.1	248				

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 115 for end connections.

P – Pitch of stem thread.

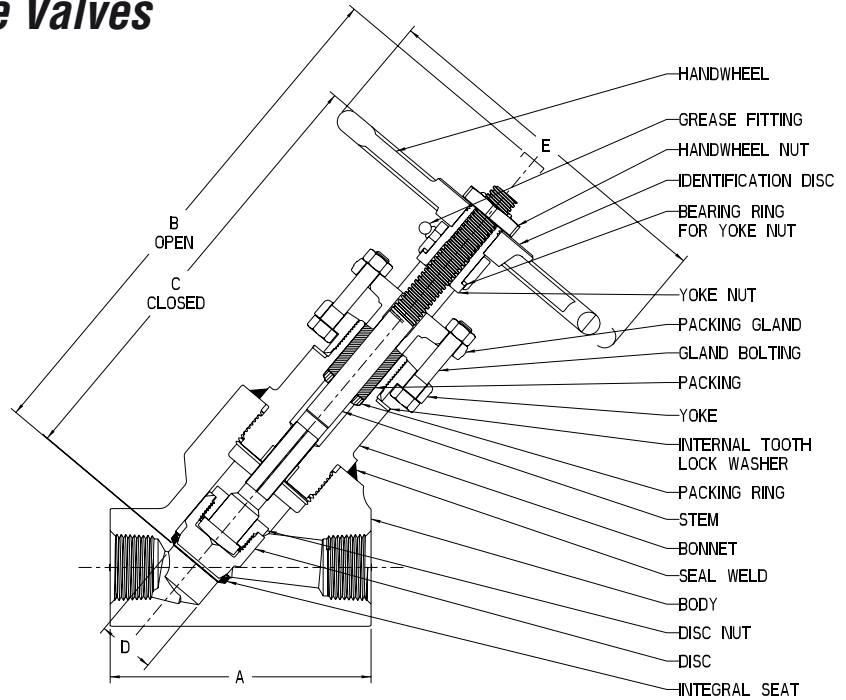
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged “Y” Pattern Globe Valves

## Class 800 Globe Valve Full Port

- Seal Welded Bonnet
- Outside Screw & Yoke
- Bolted Gland
- Removable Yoke/Operating Mechanism
- Gate Valve Operating Mechanism
- Repackable with Endless Packing Rings
- Loose Hard Faced Disc
- Integral Hard Faced Seat
- ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
Threaded Socket Weld	810	A105	13% Cr	HF	2000 PSI @ 100 F	137.9 BAR @ 38 C
	811	F11 Cl.2				
	822	F22 Cl.3				
	891	F91				

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	4.00	9.12	8.50	0.75	5.75	8.4	4.5	6.2	10
	DN	15	102	232	216	19.1	146	3.8			
-05	NPS	¾	4.00	9.12	8.50	0.75	5.75	8.2	9.1	6.2	10
	DN	20	102	232	216	19.1	146	3.7			
-06	NPS	1	5.12	10.43	9.58	1.12	7.00	13.5	21.3	8.5	10
	DN	25	130	265	243	28.4	178	6.1			
-08	NPS	1½	7.50	14.55	13.13	2.00	11.75	35.2	70	11.4	8
	DN	40	191	370	334	50.8	298	16.0			
-09	NPS	2	7.50	14.55	13.13	2.00	11.75	33.6	79.1	11.4	8
	DN	50	191	370	334	50.8	298	15.2			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 115 for end connections.

P – Pitch of stem thread.

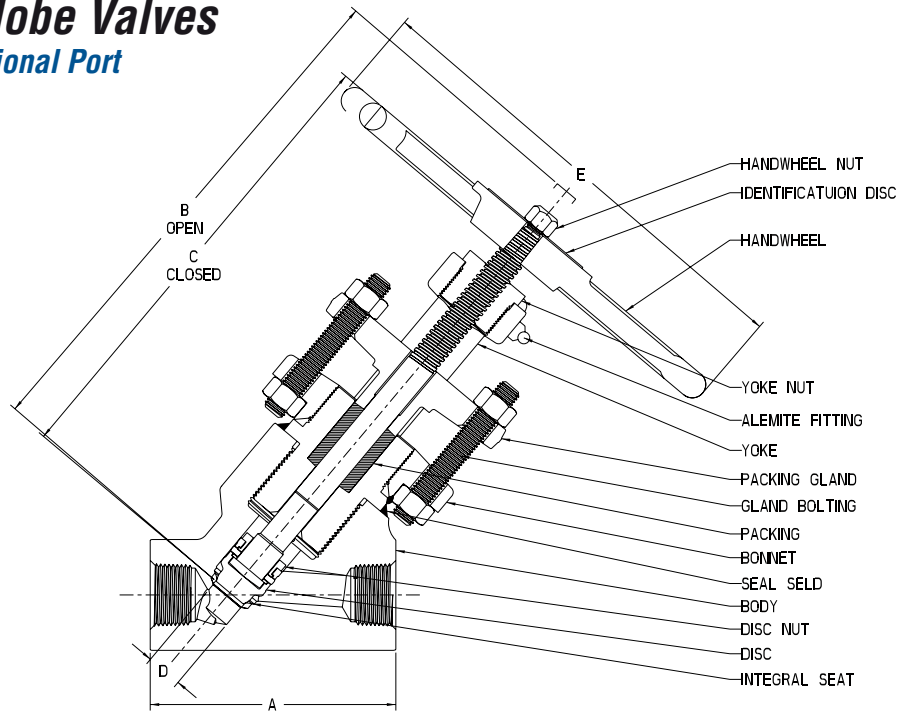
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged "Y" Pattern Globe Valves

## Class 1690 Globe Valve Conventional Port

Welded Bonnet  
 Outside Screw & Yoke  
 Bolted Gland  
 Loose Solid Stellite Disc  
 Integral Hard Faced Seat  
 ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
Threaded Socket Weld	1510	A105	13% Cr	HF	4225 PSI @ 100 F	291.3 BAR @ 38 C
	1511	F11 Cl.2				
	1522	F22 Cl.3				
	1591	F91				

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	4.00	9.07	8.63	0.50	7.00	9.5	6.00	4.4	10
	DN	15	102	230	219	12.7	178	4.3			
-05	NPS	¾	4.00	9.07	8.63	0.50	7.00	9.4	4.0	4.4	10
	DN	20	102	230	219	12.7	178	4.3			
-06	NPS	1	5.12	10.98	10.39	0.75	9.75	19.2	9.3	4.7	8
	DN	25	130	279	264	19.1	248	8.7			
-08	NPS	1½	7.50	16.90	15.50	1.53	12.00	47.7	57.8	11.2	8
	DN	40	191	429	394	38.9	305	21.6			
-09	NPS	2	7.50	16.90	15.50	1.53	12.00	46.3	48.9	11.2	8
	DN	50	191	429	394	38.9	305	21.0			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 115 for end connections.

P – Pitch of stem thread.

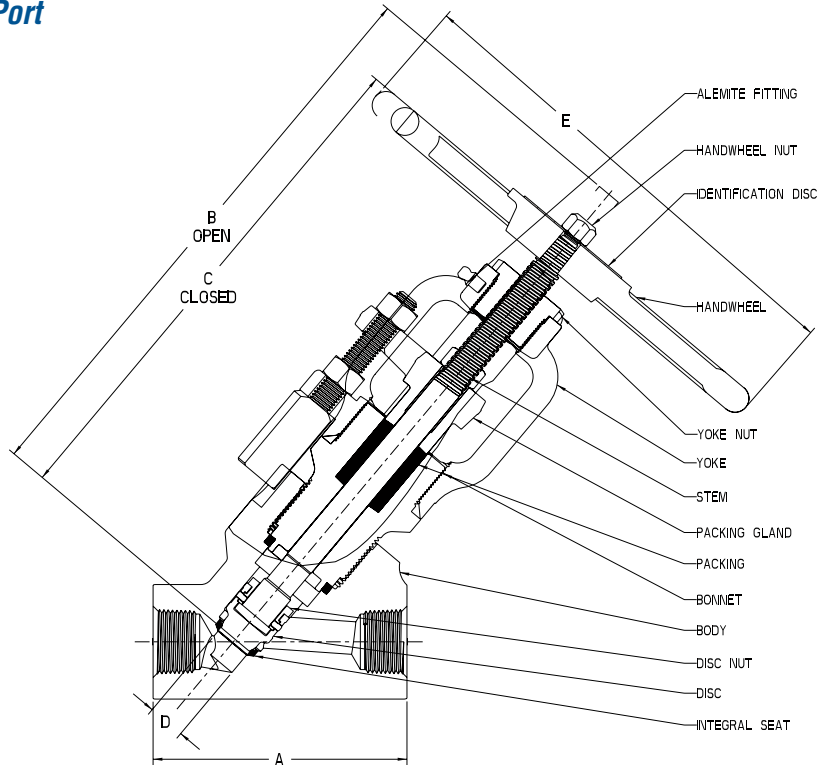
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged “Y” Pattern Repairable Globe Valves

## Class 1690 Globe Valve Conventional Port

- Inline Repairable
- Screw Bonnet
- Outside Screw & Yoke
- Bolted Gland
- Loose Solid Stellite Disc
- Integral Hard Faced Seat
- ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
Threaded Socket Weld	R 1510	A105	13% Cr	HF	4225 PSI @ 100 F	291.3 BAR @ 38 C
	R 1511	F11 Cl.2				
	R 1522	F22 Cl.3				
	R 1591	F91				

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	5.12	11.78	11.07	0.75	9.75	20.7	1.5	5.7	8
	DN	15	130	299	281	19.1	248	9.4			
-05	NPS	¾	5.12	11.78	11.07	0.75	9.75	20.4	3.9	5.7	8
	DN	20	130	299	281	19.1	248	9.3			
-06	NPS	1	5.12	11.78	11.07	0.75	9.75	20.1	7.9	5.7	8
	DN	25	130	299	281	19.1	248	9.1			
-08	NPS	1½	7.50	17.47	16.32	1.53	12.00	49.3	29.3	9.2	8
	DN	40	191	444	415	38.9	305	22.4			
-09	NPS	2	7.50	17.47	16.32	1.53	12.00	47.8	39.8	9.2	8
	DN	50	191	444	415	38.9	305	21.7			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

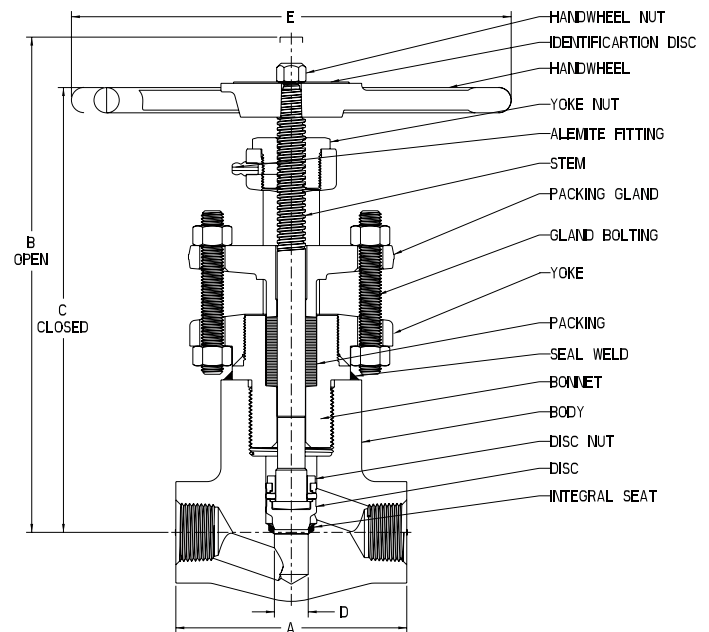
Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Globe Valves

## Class 2500/2680 Globe Valve Full Port

Welded Bonnet  
 Outside Screw & Yoke  
 Bolted Gland  
 Loose Solid Stellite Disc  
 Integral Hard Faced Seat  
 ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING		CLASS
Threaded	66723	A105	13% Cr	HF	6250 PSI @ 100 F	430.9 BAR @ 38 C	2500 LTD
	66733	F11 Cl.2					
	66793	F22 Cl.3					
	66783	F91					

Socket Weld	SW 66723	A105	13% Cr	HF	6700 PSI @ 100 F	461.9 BAR @ 38 C	2680 LTD
	SW 66733	F11 Cl.2					
	SW 66793	F22 Cl.3					
	SW 66783	F91					

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	4.00	9.07	8.63	0.52	7.00	10.5	1.2	4.4	10
	DN	15	102	230	219	13.2	178	4.8			
-05	NPS	¾	5.12	10.98	10.39	0.75	9.75	21.6	4.3	5.9	10
	DN	20	130	279	264	19.1	248	9.8			
-06	NPS	1	5.12	10.98	10.39	0.75	9.75	21.2	5.8	4.7	8
	DN	25	130	279	264	19.1	248	9.6			
-08	NPS	1½	8.50	16.36	15.43	1.53	12.00	74.8	17.6	7.4	8
	DN	40	216	416	392	38.9	305	33.9			
-09	NPS	2	8.50	16.36	15.43	1.53	12.00	72.8	19.3	7.4	8
	DN	50	216	416	392	38.9	305	33.0			

**T** – Approximate number of turns from open to close.

**P** – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

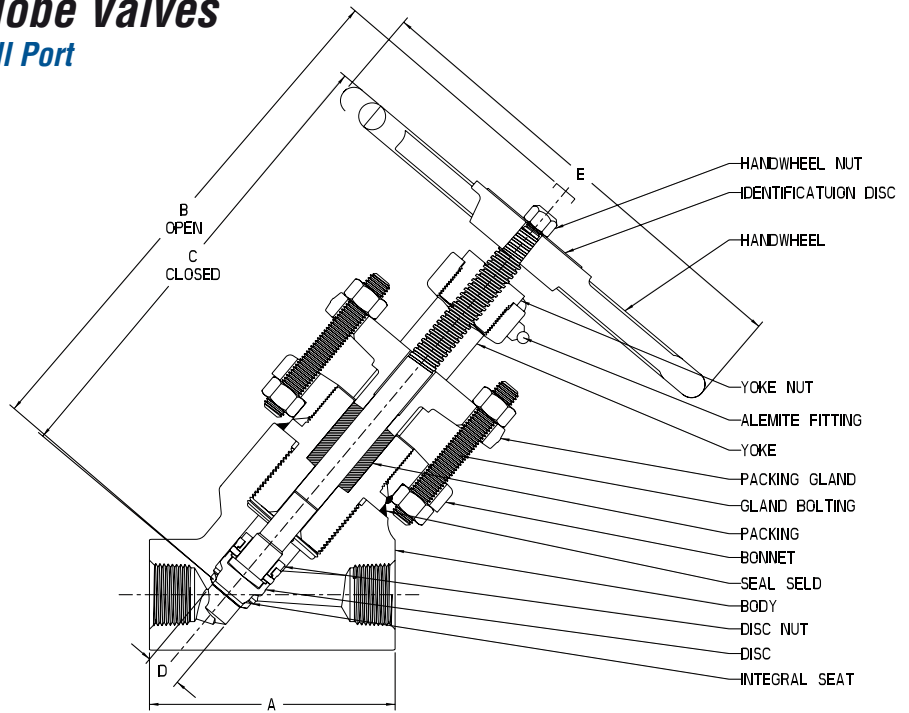
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

# Forged "Y" Pattern Globe Valves

## Class 2500/2680 Globe Valve Full Port

Welded Bonnet  
 Outside Screw & Yoke  
 Bolted Gland  
 Loose Solid Stellite Disc  
 Integral Hard Faced Seat  
 ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	CLASS	
Threaded	2510	A105	13% Cr	HF	6250 PSI @ 100 F	430.9 BAR @ 38 C	2500 LTD
	2511	F11 Cl.2					
	2522	F22 Cl.3					
	2591	F91					

Socket Weld	SW 2510	A105	13% Cr	HF	6700 PSI @ 100 F	461.9 BAR @ 38 C	2680 LTD
	SW 2511	F11 Cl.2					
	SW 2522	F22 Cl.3					
	SW 2591	F91					

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS ½	4.00	9.07	8.63	0.50	7.00	9.5	6.0	4.4	10
	DN 15	102	230	219	12.7	178	4.3			
-05	NPS ¾	5.12	10.98	10.39	0.75	9.75	19.5	8.4	4.7	8
	DN 20	130	279	264	19.1	248	8.8			
-06	NPS 1	5.12	10.98	10.39	0.75	9.75	19.2	9.3	4.7	8
	DN 25	130	279	264	19.1	248	8.7			
-08	NPS 1½	8.25	16.62	15.38	1.53	12.00	65.6	32.9	9.9	8
	DN 40	210	422	391	38.9	305	29.8			
-09	NPS 2	8.25	16.62	15.38	1.53	12.00	63.5	49.4	9.9	8
	DN 50	210	422	391	38.9	305	28.8			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

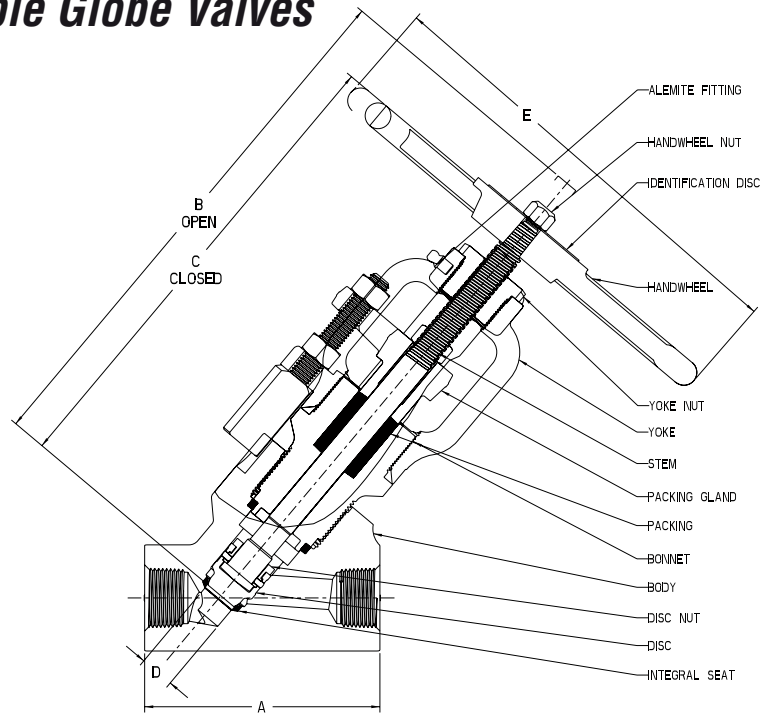
Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.



# Forged “Y” Pattern Repairable Globe Valves

## Class 2500/2680 Globe Valve Full Port

- Inline Repairable
- Screw Bonnet
- Outside Screw & Yoke
- Bolted Gland
- Loose Solid Stellite Disc
- Integral Hard Faced Seat
- ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	CLASS	
Threaded	R 2510	A105	13% Cr	HF	6250 PSI @ 100 F	430.9 BAR @ 38 C	2500 LTD
	R 2511	F11 Cl.2					
	R 2522	F22 Cl.3					
	R 2591	F91					

Socket Weld	SWR 2510	A105	13% Cr	HF	6700 PSI @ 100 F	461.9 BAR @ 38 C	2680 LTD
	SWR 2511	F11 Cl.2					
	SWR 2522	F22 Cl.3					
	SWR 2591	F91					

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS ½	5.12	11.78	11.07	0.75	9.75	20.7	6.0	5.7	8
	DN 15	130	299	281	19.1	248	9.4			
-05	NPS ¾	5.12	11.78	11.07	0.75	9.75	20.4	8.4	5.7	8
	DN 20	130	299	281	19.1	248	9.3			
-06	NPS 1	5.12	11.78	11.07	0.75	9.75	20.1	9.3	5.7	8
	DN 25	130	299	281	19.1	248	9.1			
-08	NPS 1½	8.25	17.50	16.32	1.53	12.00	68.3	32.9	9.4	8
	DN 40	210	445	415	38.9	305	31.0			
-09	NPS 2	8.25	17.50	16.32	1.53	12.00	66.3	49.4	9.4	8
	DN 50	210	445	415	38.9	305	30.1			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

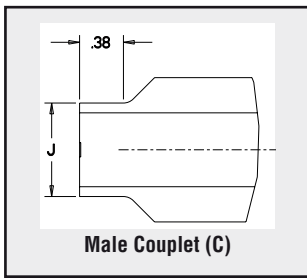
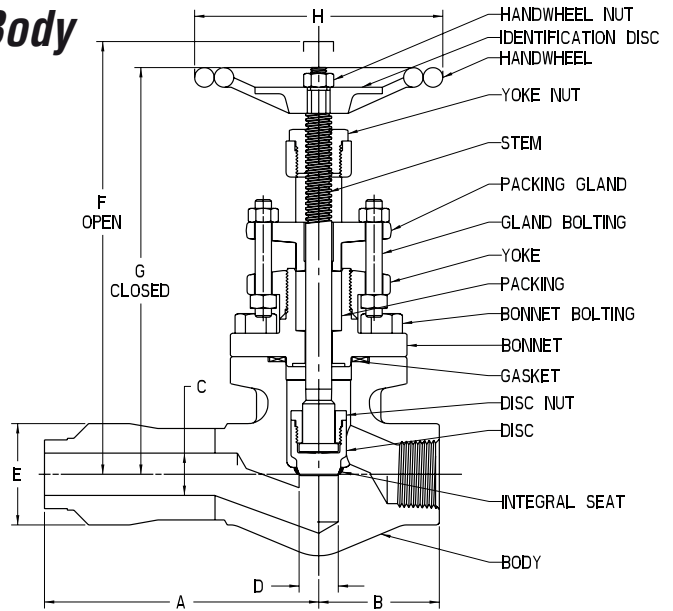
P – Pitch of stem thread.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

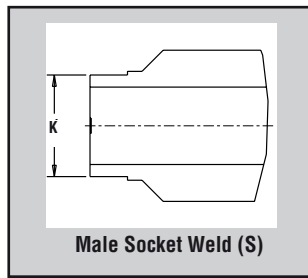
# Forged Globe Valves – Extended Body

## Class 800 Globe Valve

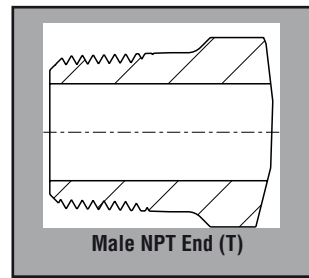
- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Loose Disc
- Integral Hard Faced Seat
- ASME B16.34



(C)



(S)



(T)

EXTENDED END CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
Male Couplet	CT12141	A105	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C
Male Socket Weld	ST12141	A105	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C
Male Threaded	TT12141	A105	13% Cr	HF	1920 PSI @ 100 F	132.4 BAR @ 38 C

### Dimensions

SIZE		A (C)	A (S)	A (T)	B	C (C)	C (S)	C (T)	D	E	F	G	H	J	K	Cv	T	P
-04	NPS ½	7.00	4.50	4.50	2.00	0.75	0.52	0.52	0.50	1.56	6.62	6.19	4.00	0.97	0.84	2.4	5.2	12
	DN 15	178	114	114	51	19	13	13	12.7	40	168	157	102	25	21			
-05	NPS ¾	7.00	4.50	4.50	2.00	0.75	0.65	0.65	0.50	1.56	6.62	6.19	4.00	0.97	1.05	4.3	5.2	12
	DN 20	178	114	114	51	19	17	17	12.7	40	168	157	102	25	27			
-06	NPS 1	5.75	5.25	5.25	2.31	1.00	0.81	0.81	0.75	1.94	8.44	7.81	4.75	1.22	1.32	7.3	6.3	10
	DN 25	146	133	133	59	25	21	21	19.1	49	214	198	121	31	34			
-08	NPS 1½	6.50	6.00	6.00	3.12	1.47	1.47	1.47	1.28	2.56	10.38	9.47	5.75	1.72	1.90	20.4	9.1	10
	DN 40	165	152	152	79	37	37	37	32.5	65	264	241	146	44	48			
-09	NPS 2	6.50	6.00	6.00	3.88	2.00	1.81	1.81	1.53	3.12	11.06	10.00	8.00	2.22	2.38	23.1	8.5	8
	DN 50	165	152	152	99	51	46	46	38.9	79	281	254	203	56	60			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

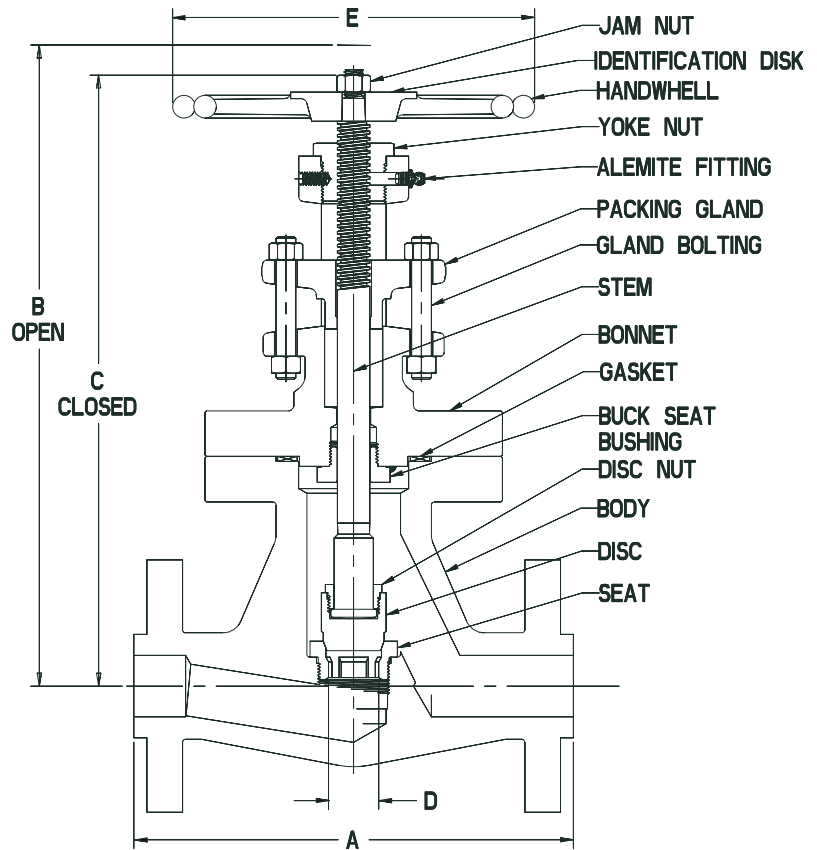
Refer to page 115 for female end connections.

Refer to pages 116-117 for other ratings.

## Forged Globe Valves – Meets API-600 Required Wall Thicknesses

### Class 600 Globe Valve Full Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Loose Disc
- Renewable Seat
- ASME B16.34
- Meets API-600 required wall thickness



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING
1/4 RF	10403	A105	13% Cr	1480 PSI @ 100 F 102.1 BAR @ 38 C

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	6.50	10.62	10.19	0.50	4.75	19.5	3.4	4.3	10
	DN	15	165	270	259	12.7	121	8.8			
-05	NPS	¾	7.50	11.69	11.06	0.72	5.75	31.2	7.3	5.0	8
	DN	20	191	297	281	18.3	146	14.2			
-06	NPS	1	8.50	12.94	11.91	0.97	7.00	53.1	11.9	8.2	8
	DN	25	216	329	303	24.6	178	24.1			
-07	NPS	1¼	9.00	14.56	13.88	1.16	8.00	57.1	15.6	5.4	8
	DN	32	229	370	353	29.5	203	25.9			
-08	NPS	1½	9.50	15.97	15.09	1.50	9.75	76.2	28.2	7.0	8
	DN	40	241	406	383	38.1	248	34.6			
-09	NPS	2	11.50	18.09	17.12	1.88	9.75	97.7	46.9	7.8	8
	DN	50	292	459	435	47.8	248	44.3			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 113 for end connections.

P – Pitch of stem thread.

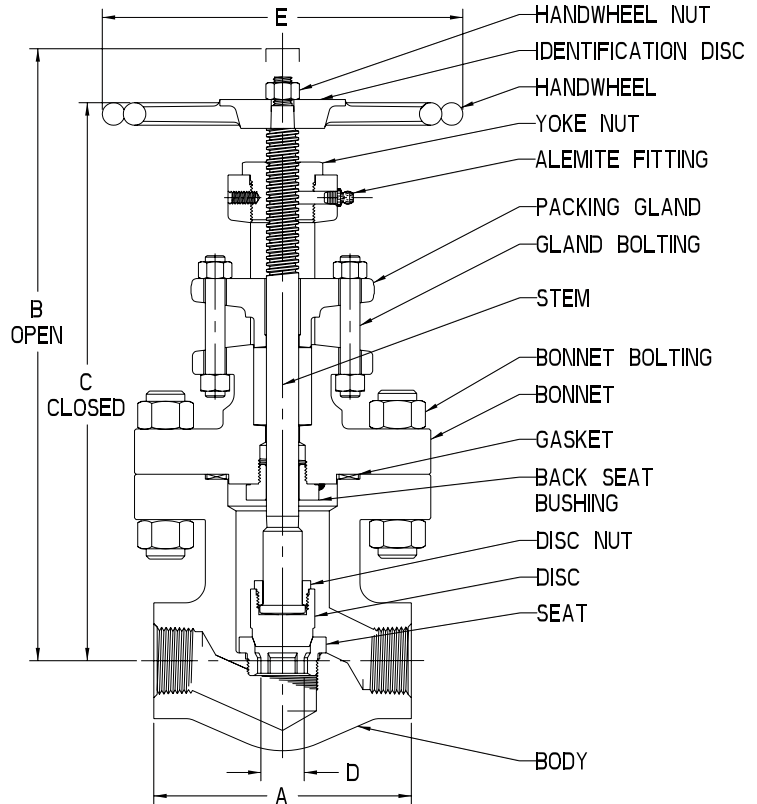
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

## Forged Globe Valves – Meets API-600 Required Wall Thicknesses

### Class 800 Globe Valve Full Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Loose Disc
- Renewable Seat
- ASME B16.34
- Meets API-600 required wall thickness



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING	
Threaded Socket Weld	SW	10103	A105	13% Cr	1975 PSI @ 100 F 136.2 BAR @ 38 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	3.62	9.62	9.25	0.50	4.75	12.6	3.4	4.4	12
	DN	15	92	244	235	12.7	121	5.7			
-05	NPS	¾	4.50	10.81	10.31	0.75	5.75	19.3	7.3	6.0	12
	DN	20	114	275	262	19.1	146	8.8			
-06	NPS	1	5.00	11.88	11.31	1.00	7.00	28.8	11.9	5.7	10
	DN	25	127	302	287	25.4	178	13.1			
-07	NPS	1¼	6.50	14.06	13.50	1.22	8.00	40.0	15.6	5.6	10
	DN	32	165	357	343	31.0	203	18.1			
-08	NPS	1½	7.25	16	15.06	1.50	9.75	56.4	28.2	9.4	10
	DN	40	184	406	383	38.1	248	25.6			
-09	NPS	2	9.00	18.09	17.12	1.88	9.75	85.9	46.9	7.8	8
	DN	50	229	459	435	47.8	248	39.0			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

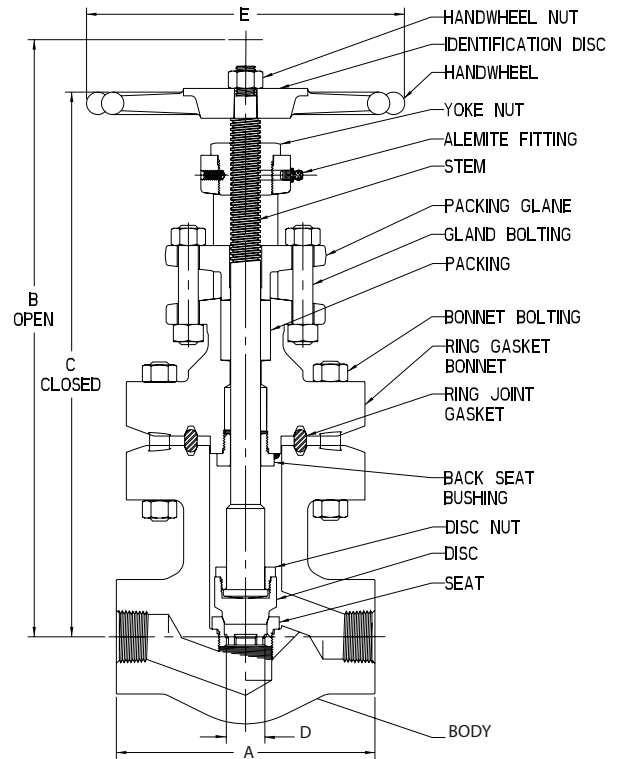
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

## Forged Globe Valves – Meets API-600 Required Wall Thicknesses

### Class 1500 Globe Valve Full Port

- Round Bolted Bonnet
- Flat Gasket Joint & Ring Gasket Joint
- Outside Screw & Yoke
- Bolted Gland
- Loose Disc
- Renewable Seat
- ASME B16.34
- Meets API-600 required wall thickness



BONNET GASKET	CONNECTION	SERIES	BODY/BONNET	TRIM	RATING	
Flat Gasket Joint (Not illustrated)	Threaded Socket Weld SW	1023	A105	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
Ring Joint Gasket	Threaded Socket Weld SW	1003	A105	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	4.50	11.97	11.34	0.50	5.75	21.6	3.6	5.0	8
	DN	15	114	304	288	12.7	146	9.8			
-05	NPS	¾	5.00	13.09	12.06	0.75	7.00	29.6	6.0	8.2	8
	DN	20	127	332	306	19.1	178	13.4			
-06	NPS	1	6.50	15.34	14.34	1.00	8.00	44.6	10.2	8.0	8
	DN	25	165	390	364	25.4	203	20.2			
-07	NPS	1¼	7.25	16.75	16.22	1.22	9.75	62.8	15.1	4.2	8
	DN	32	184	425	412	31.0	248	28.5			
-08	NPS	1½	9.00	18.81	18.00	1.50	9.75	98.3	24.2	6.5	8
	DN	40	229	478	457	38.1	248	44.6			
-09	NPS	2	9.50	20.72	19.65	1.88	12.00	114.7	39.8	6.4	6
	DN	50	241	526	499	47.8	305	52.0			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

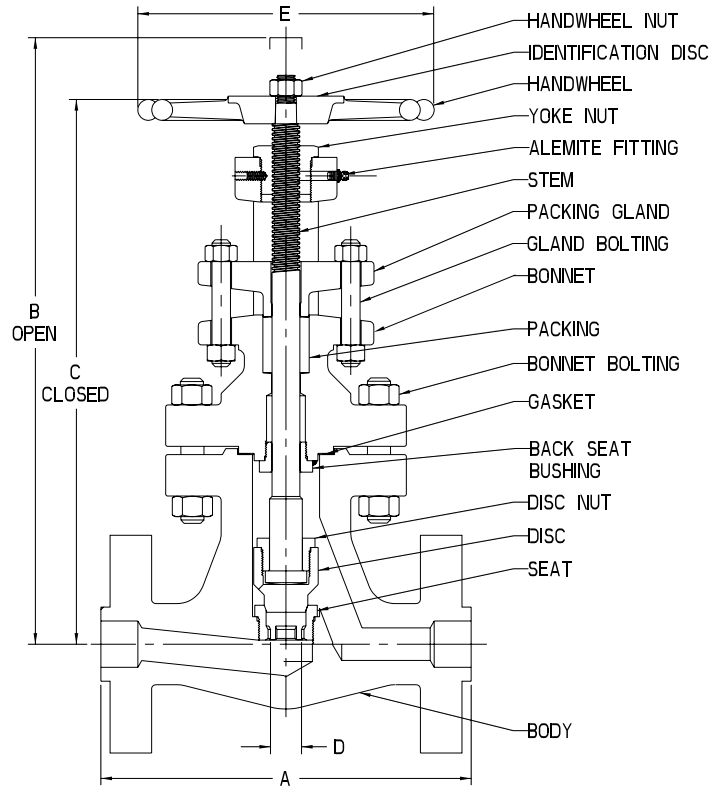
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

## Forged Globe Valves – Meets API-600 Required Wall Thicknesses

### Class 1500 Globe Valve Full Port

- Round Bolted Bonnet
- Flat Gasket Joint & Ring Gasket Joint
- Outside Screw & Yoke
- Bolted Gland
- Loose Disc
- Renewable Seat
- ASME B16.34
- Meets API-600 required wall thickness



BONNET GASKET	CONNECTION	SERIES	BODY/BONNET	TRIM	RATING
Flat Gasket Joint	1/4 RF	10603	A105	13% Cr	3705 PSI @ 100 F 255.3 BAR @ 38 C
Ring Joint Gasket (Not illustrated)	Ring Joint RJ (Not illustrated)	10683	A105	13% Cr	3705 PSI @ 100 F 255.3 BAR @ 38 C

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS 1/2	8.50	13.12	12.50	0.50	7.00	48.2	3.6	5.0	8
	DN 15	216	333	318	12.7	178	21.9			
-05	NPS 3/4	9.00	15.00	14.38	0.72	7.00	60.2	6.0	5.0	8
	DN 20	229	381	365	18.3	178	27.3			
-06	NPS 1	10.00	16.12	15.31	0.97	8.00	78.0	10.2	6.5	8
	DN 25	254	409	389	24.6	203	35.4			
-07	NPS 1 1/4	11.00	17.31	16.75	1.19	9.75	93.5	15.1	4.5	8
	DN 32	279	440	425	30.2	248	42.4			
-08	NPS 1 1/2	12.00	19.75	18.75	1.50	12.00	119.3	24.2	6.0	6
	DN 40	305	502	476	38.1	305	54.1			
-09	NPS 2	14.50	22.94	22.00	1.88	13.75	230.0	39.8	5.6	6
	DN 50	368	583	559	47.8	349	104.3			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.  
Refer to page 113 for end connections.

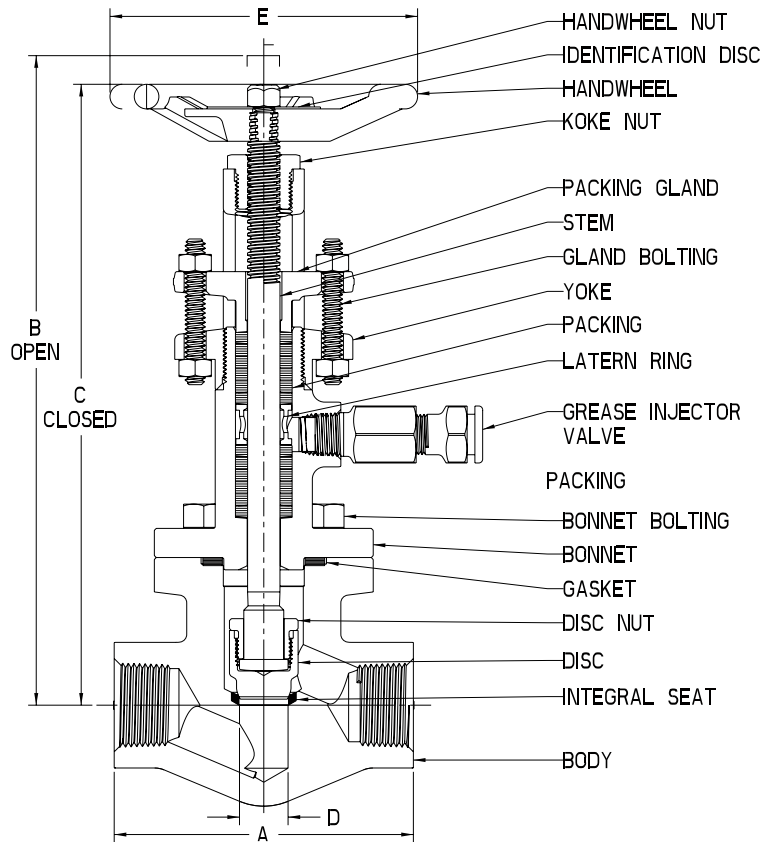
Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Globe Valves – For Emission Reduction

## Class 800 Globe Valve

- 1 Conventional Port
- 2 Full Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Double Packing
- Lantern Ring
- Grease Injector
- Loose Disc
- Integral Hard Faced Seat



CONNECTION		SERIES		BODY/BONNET	TRIM	RATING		
		1	2					
Threaded	Socket Weld	SW	12141ER	13141ER	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C

### Dimensions

SIZE		A	B	C	D	E	WEIGHT	Cv	T	P
1	-04 NPS ½	3.75	8.28	7.86	0.50	4.00	5.9	2.4	5.0	12
	DN 15	95	210	200	12.7	102	2.7			
	-05 NPS ¾	4.00	8.28	7.86	0.50	4.00	6.6	4.3	5.0	12
	DN 20	102	210	200	12.7	102	3.0			
	-06 NPS 1	4.62	10.20	9.59	0.75	4.75	10.2	7.3	6.1	10
	DN 25	117	259	244	19.1	121	4.6			
-08 NPS 1½	6.25	11.94	11.14	1.28	5.75	21.7	20.4	8.0	10	
DN 40	159	303	283	32.5	146	9.8				
-09 NPS 2	7.75	13.40	12.48	1.53	8.00	32.7	23.1	7.4	8	
DN 50	197	340	317	38.9	203	14.8				

SIZE		A	B	C	D	E	WEIGHT	Cv	T	P
2	-04 NPS ½	3.75	8.28	7.86	.50	4.00	5.9	2.4	5.0	12
	DN 15	95	210	200	12.7	102	2.7			
	-05 NPS ¾	4.62	10.20	9.59	0.75	4.75	10.4	6.8	6.1	10
	DN 20	117	259	244	19.1	121	4.7			
	-06 NPS 1	6.25	11.94	11.14	1.28	5.75	23.0	14.5	8.0	10
	DN 25	159	303	283	32.5	146	10.4			
-08 NPS 1½	7.75	13.4	12.48	1.53	8.00	33.7	24.4	7.4	8	
DN 40	197	340	317	38.9	203	15.3				

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 115 for end connections.

P – Pitch of stem thread.

Refer to pages 11-12 for full materials description.

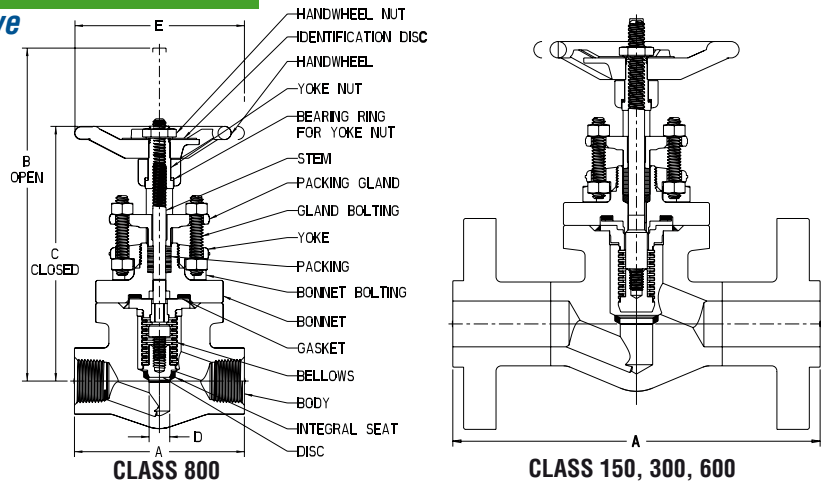
Refer to pages 116-117 for other ratings.

# Forged Globe Valves – Bellowseal

Class 150, 300, 600, 800 Globe Valve

- 1 Conventional Port
- 2 Full Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Multi-Ply Bellows: 316L
- Disc: Hard Faced 316
- Seat: Integral Hard Faced
- ASME B16.34



Bellowseal globe valves are suitable for applications requiring total containment of the flowing media frequently necessary to protect the environment and to eliminate the loss of hazardous and/or costly fluids. The valve packing and bonnet gasket are totally isolated by the bellows from the flowing media and pressure. The packing and gasket are incorporated in the valve to serve in a "backup" role only.

CONNECTION	SERIES		BODY/BONNET	STEM	SEAT	RATING		CLASS	
	1	2				285 PSI @ 100 F	19.6 BAR @ 38 C		
1/16 RF	473B	13474B	A105	13% Cr	HF	285 PSI @ 100 F	19.6 BAR @ 38 C	150	
1/16 RF	483B	13483B	A105	13% Cr	HF	740 PSI @ 100 F	51.1 BAR @ 38 C	300	
1/4 RF	493B	13493B	A105	13% Cr	HF	1480 PSI @ 100 F	102.1 BAR @ 38 C	600	
Threaded Socket Weld	SW	12141B	13141B	A105	13% Cr	HF	1975 PSI @ 100 F	136.2 BAR @ 38 C	800

## Dimensions

SIZE	A							Weight				Cv	T	P			
	150	300	600	800	B	C	D	E	150	300	600				800		
1	-04	NPS ½	4.25	6.00	6.50	3.75	6.32	6.13	.50	4.00	7.0	8.7	8.8	5.2	2.2	2.3	12
		DN 15	108	152	165	95	161	156	12.7	102	3.2	3.9	4.0	2.4			
	-05	NPS ¾	4.62	7.00	7.50	4.00	6.32	6.13	.50	4.00	8.4	11.5	12.0	5.6	3.9	2.3	12
		DN 20	117	178	191	102	161	156	12.7	102	3.8	5.2	5.4	2.5			
	-06	NPS 1	5.00	8.00	8.50	4.62	6.88	6.62	.75	4.75	12.5	15.5	17.7	8.5	5.2	2.6	10
		DN 25	127	203	216	117	175	168	19.1	121	5.7	7.0	8.0	3.9			
-09	NPS 2	8.00	10.50	11.50	7.75	10.00	9.50	1.53	8.00	38.2	43.8	49.3	29.0	20.5	4.0	8	
	DN 50	203	267	292	197	254	241	38.9	203	17.3	19.9	22.4	13.2				
2	-05	NPS ¾		7.00	7.50	4.00	6.88	6.62	0.75	4.75		15.1	14.5	8.7	5.7	3.1	12
		DN 20		178	191	102	175	168	19.1	121		6.8	6.6	3.9			
	-08	NPS 1½		9.00	9.50	7.75	10.04	9.43	1.53	7.00		43.8	49.3	29.0	21.2	6.1	10
		DN 40		229	241	197	255	240	38.9	178		19.9	22.4	13.2			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

Refer to page 113 & 115 for end connections.

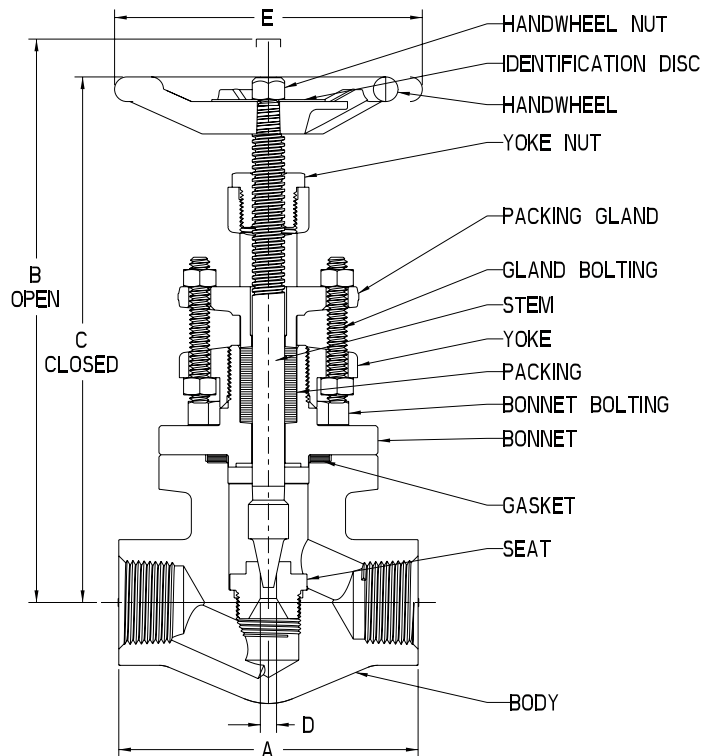
Refer to pages 116-117 for other ratings.



# Forged Globe Valves – For Flow Control Service

## Class 800 Globe Valve Needle Point Stem/Seat

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Needle Point Flow Control
- Renewable Seat
- Dial & indicator option\*
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	*DIAL	RATING
Threaded Socket Weld	22461	A105	13% Cr		1975 PSI @ 100 F 136.2 BAR @ 38 C
	D22461	A105	13% Cr	Dial	1975 PSI @ 100 F 136.2 BAR @ 38 C
	32461	A350 LF2	13% Cr		1975 PSI @ 100 F 136.2 BAR @ 38 C
					1975 PSI @ -50 F 136.2 BAR @ -46 C
	22561	A182 F316	316		1920 PSI @ 100 F 132.4BAR @ 38 C

\*See page 75 for Dial and Indicator

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	3.75	6.68	6.37	0.19	4.00	5.0	0.7	3.7	12
	DN	15	95	170	162	4.8	102	2.3			
-05	NPS	¾	4.00	6.76	6.40	0.19	4.00	5.4	1.0	4.3	12
	DN	20	102	172	163	4.8	102	2.4			
-06	NPS	1	4.62	8.70	8.11	0.25	4.75	9.3	1.5	5.9	10
	DN	25	117	221	206	6.4	121	4.2			

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 115 for end connections.

P – Pitch of stem thread.

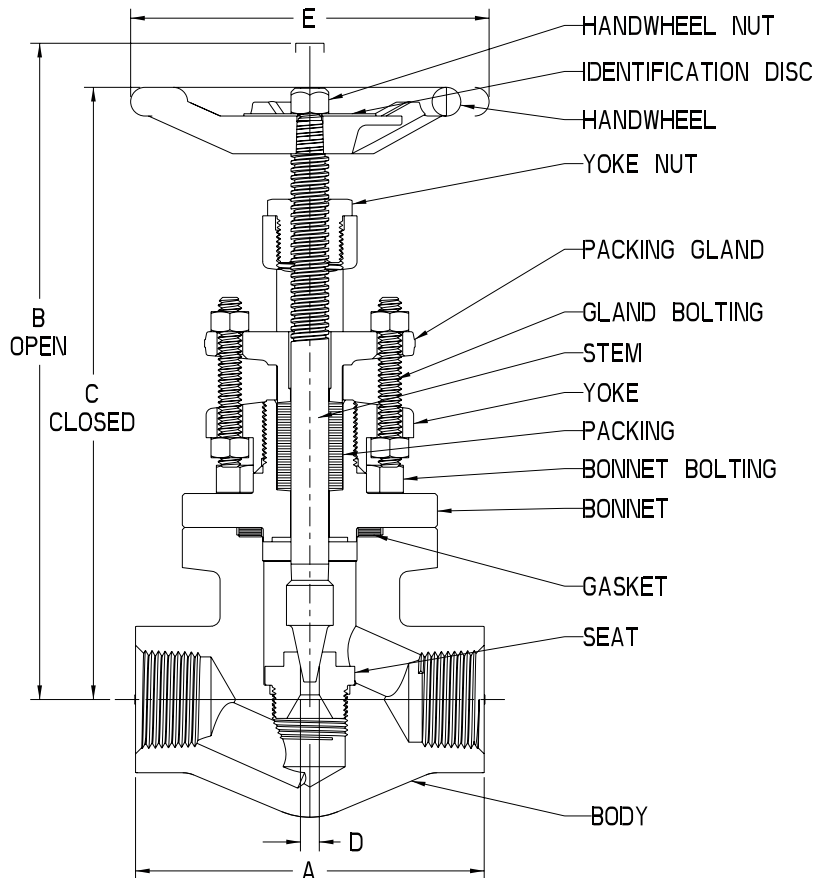
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged Globe Valves – For Flow Control Service

## Class 1500 Globe Valve Needle Point Stem/Seat

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Needle Point Flow Control
- Renewable Seat
- Dial & Indicator option\*
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	*DIAL	RATING
Threaded Socket Weld	52461	A105	13% Cr		3705 PSI @ 100 F 255.3 BAR @ 38 C
	D52461	A105	13% Cr	Dial	

\*See page 75 for Dial and Indicator

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	4.62	7.55	7.19	0.19	4.75	10.0	0.7	3.6	10
	DN	15	117	192	183	4.8	121	4.5			
-05	NPS	¾	4.62	7.55	7.19	0.19	4.75	9.8	1.0	3.6	10
	DN	20	117	192	183	4.8	121	4.4			
-06	NPS	1	6.25	10.20	9.62	0.25	7.00	22.4	1.5	5.8	10
	DN	25	159	259	244	6.4	178	10.2			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

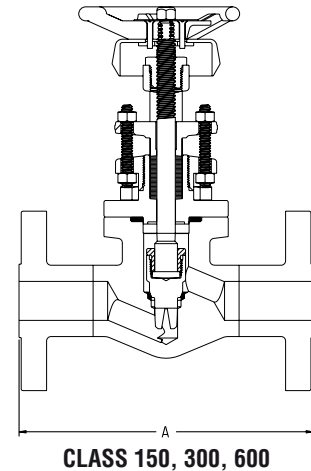
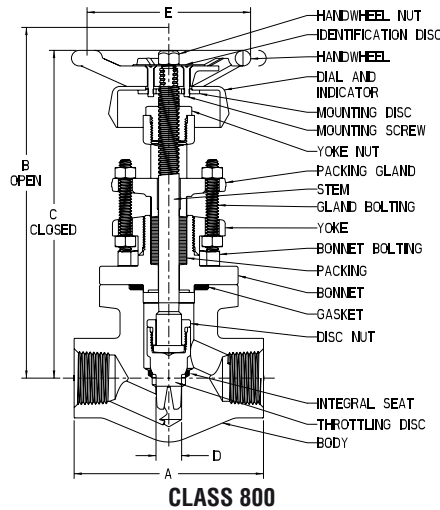
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

# Forged Globe Valves – For Flow Control Service

## Class 150, 300, 600, 800 Globe Valve Conventional Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Loose V-Port Disc
- Integral Hard Faced Seat
- Dial & Indicator
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		CLASS	
1/16 RF	473VP	A105	13% Cr	285 PSI @ 100 F	19.6 BAR @ 38 C	150	
1/16 RF	483VP	A105	13% Cr	740 PSI @ 100 F	51.1 BAR @ 38 C	300	
1/4 RF	493VP	A105	13% Cr	1480 PSI @ 100 F	102.1 BAR @ 38 C	600	
1/16 RF	478VP	A182 F316	316	285 PSI @ 100 F	19.6 BAR @ 38 C	150	
1/16 RF	488VP	A182 F316	316	740 PSI @ 100 F	51.1 BAR @ 38 C	300	
1/4 RF	498VP	A182 F316	316	1480 PSI @ 100 F	102.1 BAR @ 38 C	600	
Threaded Socket Weld	SW	12443	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C	800
		32443	A350 LF2	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C	800
					1975 PSI @ -50 F	136.2 BAR @ -46 C	
		12543	A182 F316	316	1920 PSI @ 100 F	132.4 BAR @ 38 C	800

### Dimensions

SIZE	A						WEIGHT						Cv	T	P	
	150	300	600	800	B	C	D	E	150	300	600	800				
-04	NPS ½	4.25	6.00	6.50	3.75	6.82	6.57	0.38	4.00	7.4	8.9	9.3	5.5	1.5	3.0	12
	DN 15	108	152	165	95	173	167	9.7	102	3.4	4.0	4.2	2.5			
-05	NPS ¾	4.62	7.00	7.50	4.00	6.82	6.48	0.44	4.00	8.7	11.9	12.5	5.9	2.4	4.1	12
	DN 20	117	178	191	102	173	165	11.2	102	3.9	5.4	5.7	2.7			
-06	NPS 1	5.00	8.00	8.50	4.62	8.56	8.00	0.63	4.75	13.8	18.2	19.0	10.1	4.5	5.6	10
	DN 25	127	203	216	117	217	203	16.0	121	6.3	8.3	8.6	4.6			
-08	NPS 1½	6.50	9.00	9.50	6.25	10.42	9.76	0.94	5.75	27.5	34.6	36.8	21.4	9.7	6.6	10
	DN 40	165	229	241	159	265	248	23.9	146	12.5	15.7	16.7	9.7			
-09	NPS 2	8.00	10.50	11.50	7.75	11.00	10.10	1.19	8.00	41.9	48.1	51.9	32.7	14.6	7.2	8
	DN 50	203	267	292	197	279	257	30	203	19.0	21.8	23.5	14.8			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

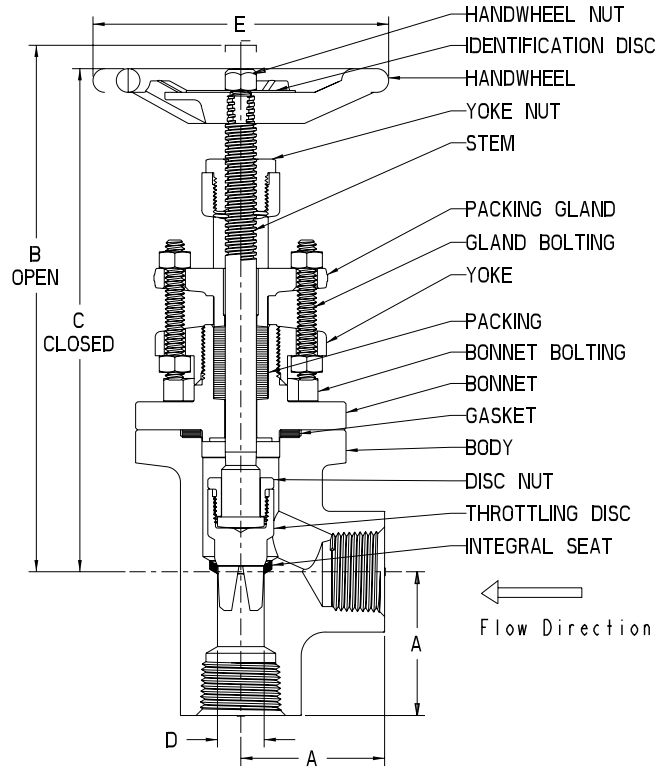
Refer to page 113 and 115 for end connections.

Refer to pages 116-117 for other ratings.

# Forged Angle Valves – For Flow Control Service

## Class 800 Globe Valve

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Loose V-Port Disc
- Integral Hard Faced Seat
- Dial & Indicator option\*
- ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	*DIAL	RATING
Threaded Socket Weld	1971VP	A105	13% Cr		1975 PSI @ 100 F 136.2 BAR @ 38 C
	D1971VP	A105	13% Cr	Dial	

\*See page 75 for Dial and Indicator

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS ½	1.62	6.82	6.57	0.37	4.00	5.1 2.3	1.6	3.0	12
	DN 15	41	173	167	9.4	102				
-05	NPS ¾	1.75	6.82	6.48	0.44	4.00	5.4 2.4	2.6	4.1	12
	DN 20	44	173	165	11.2	102				
-06	NPS 1	2.31	8.53	8.08	0.75	4.75	9.1 4.1	10.1	4.5	10
	DN 25	59	217	205	19.1	121				
-08	NPS 1½	2.44	9.91	9.25	0.94	5.75	16.7 7.6	16.2	6.6	10
	DN 40	62	252	235	23.9	146				
-09	NPS 2	3.56	13.35	12.37	1.19	8.00	37.4 17.0	21.0	7.8	8
	DN 50	90	339	314	30	203				

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

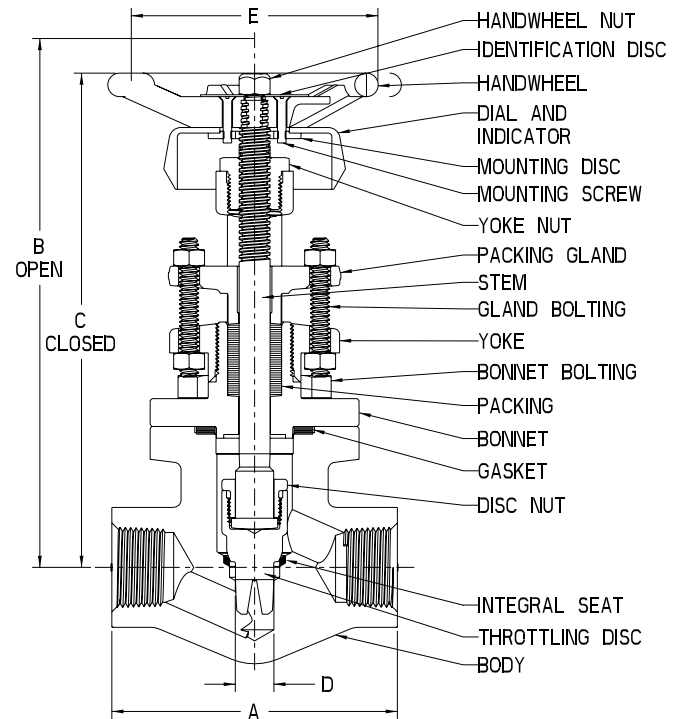
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

# Forged Globe Valves – For Flow Control Service

## Class 1500 Globe Valve Conventional Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Loose V-Port Disc  
 Integral Hard Faced Seat  
 Dial & Indicator  
 ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		
Threaded Socket Weld	SW	15443	A105	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
		35443	A350 LF2	13% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C
					3705 PSI @ -50 F	255.3 BAR @ -46 C
		15343	F11 Cl.2	13% Cr	3750 PSI @ 100 F	258.6 BAR @ 38 C
15543	F22 Cl.3	13% Cr	3750 PSI @ 100 F	258.6 BAR @ 38 C		

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	4.50	7.89	7.54	0.44	4.75	10.5	1.5	3.5	10
	DN	15	114	200	192	11.2	121	4.8			
-05	NPS	¾	4.50	7.89	7.54	0.44	4.75	10.3	2.4	3.5	10
	DN	20	114	200	192	11.2	121	4.7			
-06	NPS	1	6.25	10.14	9.71	0.62	7.00	23.2	4.5	4.3	10
	DN	25	159	258	247	15.7	178	10.5			
-08	NPS	1½	7.75	11.02	10.43	0.94	8.00	36.1	11.5	4.7	8
	DN	40	197	280	265	23.9	203	16.4			
-09	NPS	2	9.00	13.31	12.53	1.03	9.75	62.4	13	6.2	8
	DN	50	229	338	318	26.2	248	28.3			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

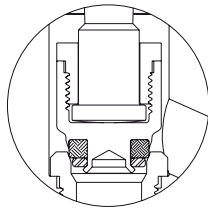
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

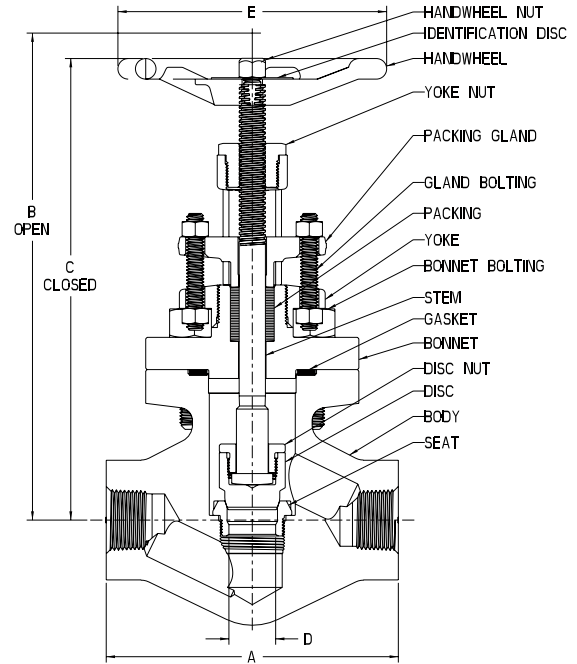
# Forged Globe Valves – For HF Alkylation Service

## Class 600/800 Globe Valve Full Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Loose Disc
- Renewable Seat
- ASME B16.34



Disc with Teflon Insert (MTP)



Listed in Phillips Petroleum Company's HF Alkylation Process Design Spec. Manual. Valve contains Teflon - 500 F max. temperature

CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		CLASS
Threaded	43241MMP	A105	Monel	1480 PSI @ 100 F	102.1 BAR @ 38 C	600
	43241MTP		Monel/Teflon			

(UOP) Universal Oil Products Approved

CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		CLASS
Socket Weld	SW23141HF4	A105	Monel	1975 PSI @ 100 F	136.2 BAR @ 38 C	800
	SW23141HF5					

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P	CLASS
-04	NPS	½	4.00	6.62	6.34	0.41	4.00	5.1	0.7	3.4	12	Class 600 Class 800
	DN	15	102	168	161	10.4	102	2.3				
-05	NPS	¾	4.62	8.44	8.06	0.69	4.75	9.1	5.9	3.8	10	
	DN	20	117	214	205	17.5	121	4.1				
-06	NPS	1	6.25	10.38	9.88	1.00	5.75	21.4	13.7	5.0	10	
	DN	25	159	264	251	25.4	146	9.7				
-08	NPS	1½	7.75	11.09	10.41	1.44	8	31.7	21	6.8	10	
	DN	40	197	282	264	36.6	203	14.4				
-09	NPS	2	7.75	28.22	27.30	1.53	8.00	52.0	34	7.4	8	
	DN	50	197	717	693	39	203	23.6				

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

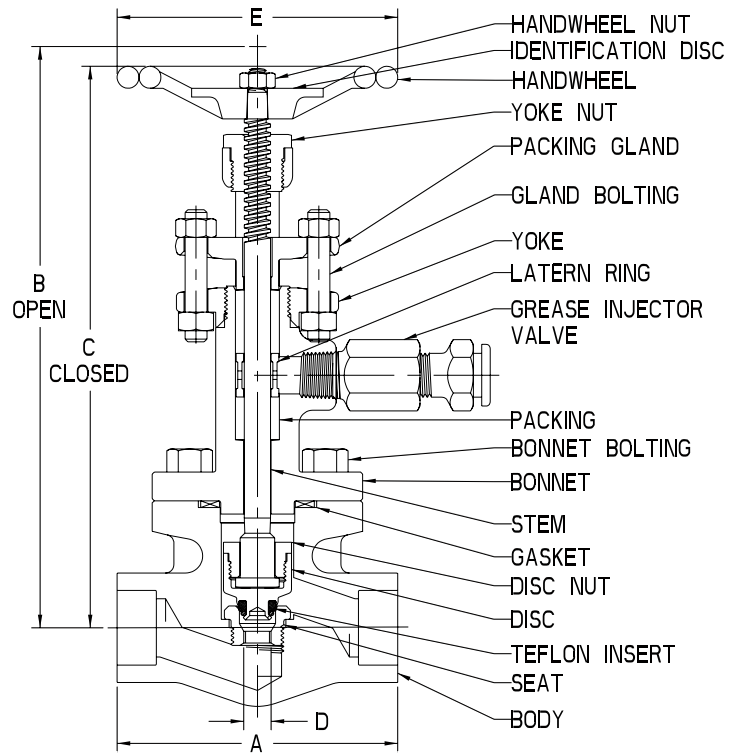
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

# Forged Globe Valves – For HF Alkylation Service

## Class 800 Globe Valve Conventional Port

- Round Bolted Bonnet
- Spiral Wound Gasket
- Outside Screw & Yoke
- Bolted Gland
- Double Packing
- Lantern Ring
- Grease Injector
- Teflon-Inserted Disc
- Renewable Seat



**HYDROFLUORIC ACID (HF) ALKYLATION VALVES. UOP APPROVED.**

CONNECTION	SERIES	BODY/BONNET	TRIM	RATING	
Threaded	SW	42241MTG	Monel/Teflon	1975 PSI @ 100 F	136.2 BAR @ 38 C
Socket Weld		42241HF2			

Valve contains Teflon - 500 F max. temperature

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	3.75	8.28	8.00	0.41	4.00	5.9	1.7	3.4	12
	DN	15	95	210	203	10.4	102	2.7			
-05	NPS	¾	4.00	8.28	8.00	0.41	4.00	6.60	3.1	3.4	12
	DN	20	102	210	203	10.4	102	3.0			
-06	NPS	1	4.62	10.19	9.75	0.69	4.75	10.20	5.9	4.4	10
	DN	25	117	259	248	17.5	121	4.6			
-08	NPS	1½	6.25	11.94	11.28	1.22	5.75	21.7	18.4	6.6	10
	DN	40	159	303	287	31.0	146	9.8			
-09	NPS	2	7.75	13.40	12.48	1.44	8.00	82.7	22.5	7.4	8
	DN	50	197	340	317	37	203	37.5			

UOP Approved

**T** – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 115 for end connections.

**P** – Pitch of stem thread.

Refer to pages 11-12 for full materials description.

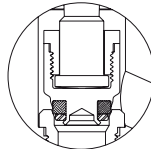
Refer to pages 116-117 for other ratings.

# Forged Globe Valves – For Water-Free Chlorine Service

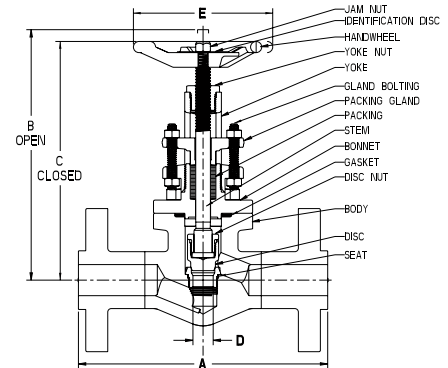
## Forged Globe Valves – Removable Seat

### Class 300/600 Globe Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Loose Disc  
Renewable Seat  
ASME B16.34



Disc with Teflon Insert (MT)



REMOVABLE SEAT						
CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		CLASS
1/16 RF	22483	A105	13% Cr	740 PSI @ 100 F	51.1 BAR @ 38 C	300
	36483	A350 LF2		740 PSI @ 100 F	51.1 BAR @ 38 C	
				740 PSI @ -50 F	51.1 BAR @ -46 C	
1/4 RF	22493	A105	13% Cr	1480 PSI @ 100 F	102.1 BAR @ 38 C	600
	36493	A350 LF2		1480 PSI @ 100 F	102.1 BAR @ 38 C	
				1480 PSI @ -50 F	102.1 BAR @ -46 C	

WATER-FREE CHLORINE SERVICE						
Chlorine Service Temperature Not to Exceed 300°F						
CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		CLASS
1/16 RF	22483CL	A105	Monel/Hastelloy	740 PSI @ 100 F	51.1 BAR @ 38 C	300
	22483MT			740 PSI @ 100 F	51.1 BAR @ 38 C	
	36483CL	A350 LF2		740 PSI @ -50 F	51.1 BAR @ -46 C	
	36483MT			740 PSI @ -50 F	51.1 BAR @ -46 C	
1/4 RF	22493CL	A105	Monel/Hastelloy	1480 PSI @ 100 F	102.1 BAR @ 38 C	600
	22493MT			1480 PSI @ 100 F	102.1 BAR @ 38 C	
	36493CL	A350 LF2		1480 PSI @ -50 F	102.1 BAR @ -46 C	
	36493MT			1480 PSI @ -50 F	102.1 BAR @ -46 C	

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P	CLASS			
-04	NPS	½	6.00	6.63	6.36	0.41	4.00	8.5	1.7	3.2	12	300			
	DN	15	152	168	162	10.4	102	3.9							
-05	NPS	¾	7.00	6.63	6.36	0.41	4.00	11.6	3.1	3.2	12		600		
	DN	20	178	168	162	10.4	102	5.3							
-06	NPS	1	8.00	8.54	8.14	0.69	4.75	17.6	5.9	4.0	10			600	
	DN	25	203	217	207	17.5	121	8.0							
-08	NPS	1½	9.00	10.48	10.02	1.22	5.75	33.4	18.4	4.6	10				600
	DN	40	229	266	255	31.0	146	15.1							
-09	NPS	2	10.50	11.09	10.41	1.44	8.00	46.4	22.5	5.4	8	600			
	DN	50	267	282	264	36.6	203	21.0							
-04	NPS	½	6.50	6.63	6.36	0.41	4.00	9.0	1.7	3.2	12		600		
	DN	15	165	168	162	10.4	102	4.1							
-05	NPS	¾	7.50	6.63	6.31	0.41	4.00	12.3	3.1	3.8	12			600	
	DN	20	191	168	160	10.4	102	5.6							
-06	NPS	1	8.50	8.54	8.14	0.69	4.75	18.4	5.9	4.0	10				600
	DN	25	216	217	207	17.5	121	8.3							
-08	NPS	1½	9.50	10.48	10.02	1.22	5.75	35.6	18.4	4.6	10	600			
	DN	40	241	266	255	31.0	146	16.1							
-09	NPS	2	11.50	11.09	10.41	1.44	8.00	50.2	22.5	5.4	8		600		
	DN	50	292	282	264	36.6	203	22.8							

T – Approximate number of turns from open to close.

Refer to page 8 for optional trim and service configurations.

Refer to page 113 for end connections.

P – Pitch of stem thread.

Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

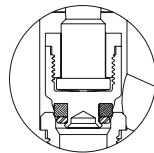


# Forged Globe Valves – For Water-Free Chlorine Service

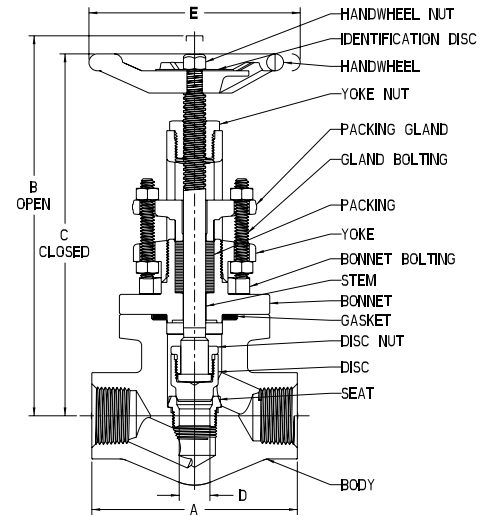
## Forged Globe Valves – Removable Seat

### Class 800 Globe Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Outside Screw & Yoke  
Bolted Gland  
Loose Disc  
Renewable Seat  
ASME B16.34



Disc with Teflon Insert (MT)



REMOVABLE SEAT						
CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		
Threaded Socket Weld	SW	22141	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		22142	A350 LF2	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
					1975 PSI @ -50 F	136.2 BAR @ -46 C
22501	A182 F316	316	1920 PSI @ 100 F	132.4 BAR @ 38 C		

WATER-FREE CHLORINE SERVICE				Chlorine Service Temperature Not to Exceed 300°F		
CONNECTION	SERIES	BODY/BONNET	TRIM	RATING		
Threaded Socket Weld	SW	22141CL	A105	Monel/Hastelloy	1975 PSI @ 100 F	136.2 BAR @ 38 C
		22141MT	A105	Monel/Hastelloy	1975 PSI @ 100 F	136.2 BAR @ 38 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	3.75	6.66	6.43	0.41	4.00	5.2	1.7	2.8	12
	DN	15	95	169	163	10.4	102	2.4			
-05	NPS	¾	4.00	6.66	6.40	0.41	4.00	5.6	3.1	3.1	12
	DN	20	102	169	163	10.4	102	2.5			
-06	NPS	1	4.62	8.54	8.18	0.69	4.75	9.5	5.9	3.6	10
	DN	25	117	217	208	17.5	121	4.3			
-07	NPS	1¼	6.25	10.42	9.96	1.22	5.75	21.1	13.7	4.6	10
	DN	32	159	265	253	31.0	146	9.6			
-08	NPS	1½	6.25	10.42	9.96	1.22	5.75	20.2	18.4	4.6	10
	DN	40	159	265	253	31.0	146	9.2			
-09	NPS	2	7.75	11.09	10.41	1.44	8.00	30.6	22.5	5.4	8
	DN	50	197	282	264	37	203	13.9			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

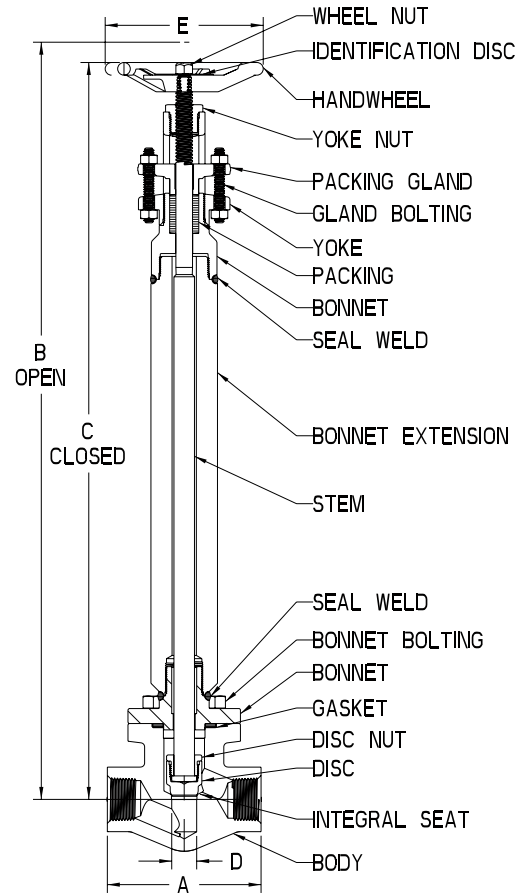
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

## Forged Globe Valves – Cryogenic Service to -325°F (-198°C)

### Class 800 Globe Valve Conventional Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Outside Screw & Yoke  
 Bolted Gland  
 Loose Disc  
 Integral Seat  
 Extended Bonnet  
 ASME B16.34  
 MSS SP-134  
 Valve contains TEFLON – Max temp of 500°F



CONNECTION		SERIES	BODY/BONNET	TRIM	RATING	
Threaded Socket Weld	SW	12501C	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C
					1920 PSI @ -325 F	132.4 BAR -198 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	3.75	21.22	20.78	0.50	4.00	12.3	2.4	5.3	12
	DN	15	95	539	528	12.7	102	5.6			
-05	NPS	¾	4.00	21.22	20.78	0.50	4.00	13.00	4.3	5.3	12
	DN	20	102	539	528	12.7	102	5.9			
-06	NPS	1	4.62	22.76	22.15	0.75	4.75	21.5	7.3	6.1	10
	DN	25	117	578	563	19.1	121	9.8			
-08	NPS	1½	6.25	27.64	26.72	1.28	5.75	35.0	20.4	9.2	10
	DN	40	159	702	679	32.5	146	15.9			
-09	NPS	2	7.75	26.72	25.80	1.53	8.00	44.2	23.1	7.4	8
	DN	50	197	679	655	39	203	20.0			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

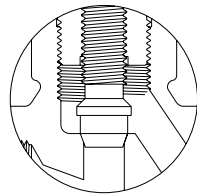
Refer to page 115 for end connections.

Refer to pages 116-117 for other ratings.

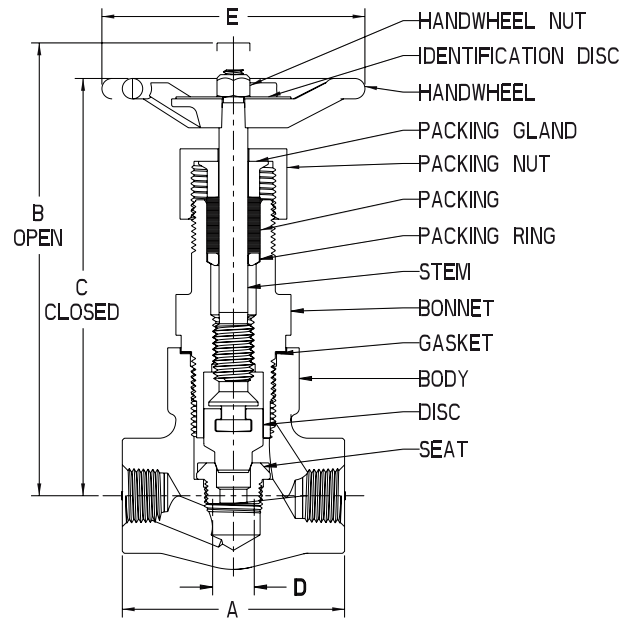
# Forged Globe Valves – For Hydraulic Oil Service

## Type 3000 Globe Valve Conventional Port

- Screw Bonnet
- Flat Gasket
- Inside Screw Stem
- Loose Plug Type Disc or Plug Stem
- Renewable Seat or Integral Seat
- Temperature Not to Exceed 450°F
- Not Recommended for Steam or Dry Gas Service



PLUG STEM 1331



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING
Threaded Socket Weld	1871	A105	13% Cr	13CR	3000 PSI @ 100 F 206.8 BAR @ 38 C
	1331	A105	13% Cr	INT	

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P	SERIES
-04	NPS	½	3.38	6.88	6.38	0.56	4.00	5.1	2.9	5.5	11	1331
	DN	15	86	175	162	14.2	102	2.3				
-05	NPS	¾	4.00	7.50	7.00	0.56	4.75	8.4	3.8	5.0	10	
	DN	20	102	191	178	14.2	121	3.8				
-06	NPS	1	5.00	8.43	7.72	0.81	5.75	14.4	8.1	6.4	9	
	DN	25	127	214	196	20.6	146	6.5				
-07	NPS	1¼	6.25	9.06	8.50	1.06	7.00	19.0	15.3	4.5	8	
	DN	32	159	230	216	26.9	178	8.6				
-08	NPS	1½	6.75	10.75	9.69	1.28	8.00	23.8	18.4	8.5	8	
	DN	40	171	273	246	32.5	203	10.8				
-09	NPS	2	8.25	11.09	10.15	1.53	8.75	55.8	25.5	6.6	7	
	DN	50	210	282	258	38.9	222	25.3				

-04	NPS	½	3.38	6.89	6.50	0.52	4.00	5.3	2.9	4.3	11	1871
	DN	15	86	175	165	13.2	102	2.4				
-05	NPS	¾	4.00	8.06	7.56	0.53	4.75	8.8	3.8	5.0	10	
	DN	20	102	205	192	13.5	121	4.0				
-06	NPS	1	5.00	9.14	8.65	0.83	5.75	15.0	8.1	4.4	9	
	DN	25	127	232	220	21.1	146	6.8				
-07	NPS	1¼	6.25	10.08	9.39	1.00	7.00	19.9	15.3	5.5	8	
	DN	32	159	256	239	25.4	178	9.0				
-08	NPS	1½	6.75	10.83	9.81	1.22	8.00	28.8	18.4	8.2	8	
	DN	40	171	275	249	31.0	203	13.1				
-09	NPS	2	8.25	12.53	11.51	1.55	8.75	57.2	25.5	7.1	7	
	DN	50	210	318	292	39.4	222	25.9				

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

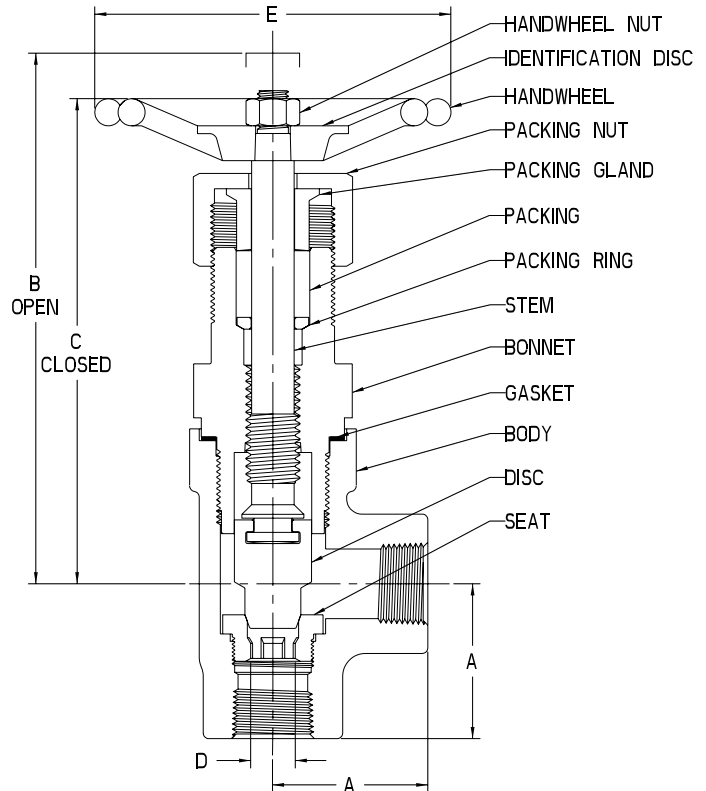
Refer to pages 11-12 for full materials description.

Refer to page 115 for end connections.

# Forged Angle Valves – For Hydraulic Oil Service

## Type 3000 Angle Valve Conventional Port

- Screw Bonnet
- Flat Gasket
- Inside Screw Stem
- Screw Gland
- Loose Plug Type Disc
- Renewable Seat
- Temperature Not to Exceed 450°F
- Not Recommended for Steam Service or Dry Gas Service



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING
Threaded	SW	2891	A105	13% Cr	13CR
Socket Weld					3000 PSI @ 100 F
					206.8 BAR @ 38 C
					206.8 BAR @ 232 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	1.18	6.52	5.90	0.50	4.00	5.4	2.6	6.8	11
	DN	15	30	166	150	12.7	102	2.4			
-05	NPS	¾	2.19	8.00	7.38	0.50	4.75	8.0	4.5	6.2	10
	DN	20	56	203	187	12.7	121	3.6			
-06	NPS	1	2.50	8.94	7.97	0.72	5.75	11.4	11.9	8.7	9
	DN	25	64	227	202	18.3	146	5.2			
-07	NPS	1¼	3.00	9.22	8.53	0.97	7.00	16.5	19.0	5.5	8
	DN	32	76	234	217	24.6	178	7.5			
-08	NPS	1½	3.38	10.12	9.44	1.19	8.00	25.0	25.0	5.4	8
	DN	40	86	257	240	30.2	203	11.3			
-09	NPS	2	4.12	10.50	9.75	1.41	9.75	35.2	49.0	5.3	7
	DN	50	105	267	248	35.8	248	16.0			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

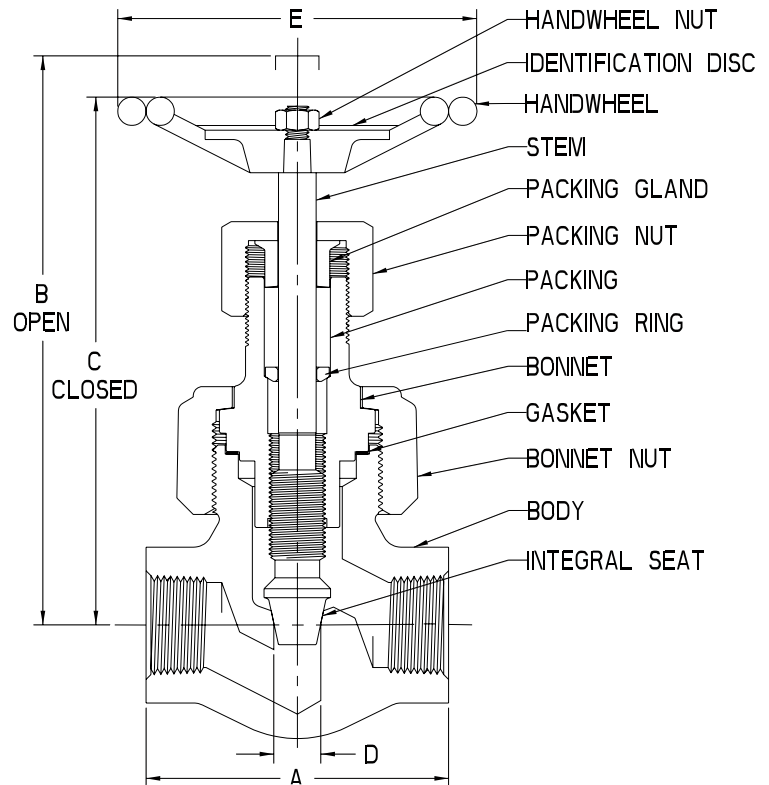
Refer to pages 11-12 for full materials description.

Refer to page 115 for end connections.

## Forged Globe Valves – For Hydraulic Meter & Gauge Line Service

### Type 4000 Angle Valve Conventional Port

Union Bonnet  
 Flat Gasket Joint  
 Inside Screw Stem  
 Screw Gland  
 Needle Point Control  
 MSS-SP-105  
 Temperature Not to Exceed 450°F  
 Not Recommended for Steam or Dry Gas Service



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING
Threaded Socket Weld	SW	58431	A105	13% Cr	INT
					4000 PSI @ 100 F 4000 PSI @ 450 F
					275.8 BAR @ 38 C 275.8 BAR @ 232 C

### Dimensions

SIZE			A	B	C	D	E	WEIGHT	Cv	T	P
-04	NPS	½	2.75	5.47	4.97	0.38	3.25	2.9	1.8	10.0	20
	DN	15	70	139	126	9.7	83	1.3			
-05	NPS	¾	3.38	6.88	6.25	0.50	4.00	5.9	3.5	11.3	18
	DN	20	86	175	159	12.7	102	2.7			
-06	NPS	1	4.00	7.75	7.00	0.62	4.75	8.8	5.8	12.0	16
	DN	25	102	197	178	15.7	121	4.0			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

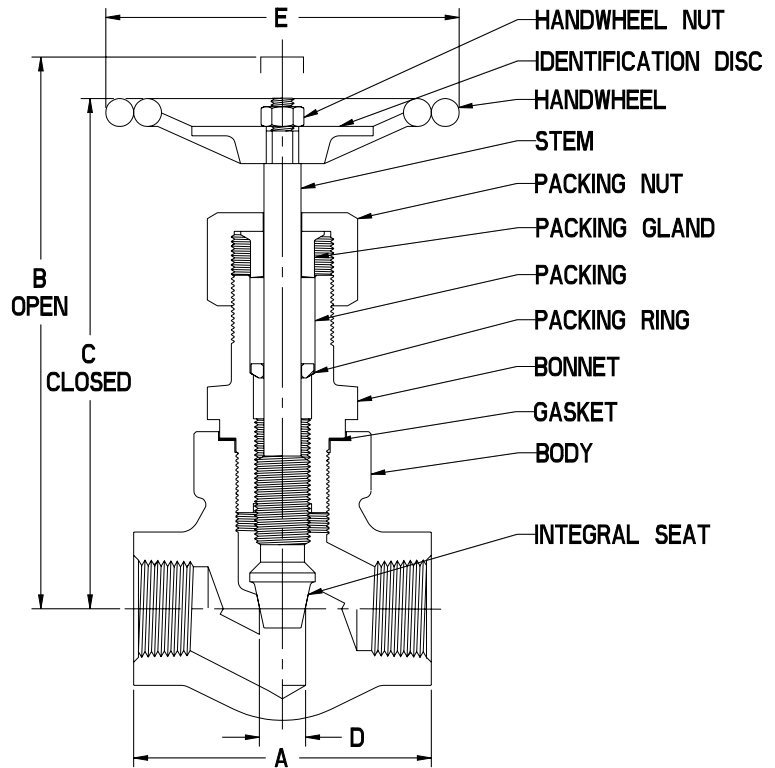
Refer to pages 11-12 for full materials description.

Refer to page 115 for end connections.

# Forged Globe Valves – For Hydraulic Meter & Gauge Line Service

## Type 5000 Globe Valve Conventional Port

Screw Bonnet  
 Flat Gasket Joint  
 Inside Screw Stem  
 Screw Gland  
 Needle Point Control  
 MSS-SP-105  
 Temperature Not to Exceed 450°F  
 Not Recommended for Steam or Dry Gas Service



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING	
Threaded	9871	A105	13% Cr	INT	5000 PSI @ 100 F	344.7 BAR @ 38 C
Socket Weld	SW 9821	A182 F316	13% Cr	INT	5000 PSI @ 450 F	344.7 BAR @ 232 C

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS ½	2.75	5.47	4.97	0.38	3.25	2.7	1.8	10.0	20
	DN 15	70	139	126	9.7	83	1.2			
-05	NPS ¾	3.38	6.78	6.25	0.50	4.00	5.0	3.5	9.5	18
	DN 20	86	172	159	12.7	102	2.3			
-06	NPS 1	4.00	7.75	7.00	0.62	4.75	7.3	5.8	12.0	16
	DN 25	102	197	178	15.7	121	3.3			
-07	NPS 1¼	4.75	8.71	7.85	0.75	5.75	13.2	7.6	7.7	9
	DN 32	121	221	199	19.1	146	6.0			
-08	NPS 1½	6.25	9.79	8.95	1.00	7.00	18.8	11.7	6.7	8
	DN 40	159	249	227	25.4	178	8.5			
-09	NPS 2	7.75	11.12	10.06	1.25	8.00	28.6	17.7	7.4	7
	DN 50	195	282	256	31.8	203	13.0			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

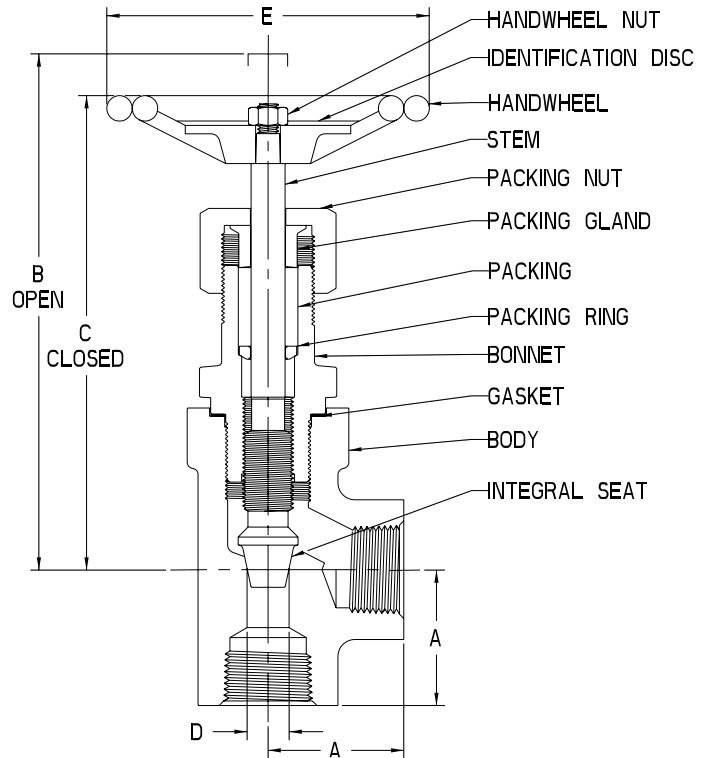
Refer to pages 11-12 for full materials description.

Refer to page 115 for end connections.

## Forged Angle Valves – For Hydraulic Meter & Gauge Line Service

### Type 5000 Angle Valve Conventional Port

Screw Bonnet  
 Flat Gasket Joint  
 Inside Screw Stem  
 Screw Gland  
 Needle Point Control  
 Integral Seat  
 MSS-SP-105  
 Temperature Not to Exceed 450°F  
 Not Recommended for Steam or Dry Gas Service



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING
Threaded Socket Weld	SW	9841	A105	13% Cr	INT
					5000 PSI @ 100 F 5000 PSI @ 450 F
					344.7 BAR @ 38 C 344.7 BAR @ 232 C

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS ½	1.38	5.47	4.97	0.38	3.25	2.7	2.6	10.0	20
	DN 15	35	139	126	9.7	83	1.2			
-05	NPS ¾	1.69	6.77	6.24	0.50	4.00	5.3	4.5	9.5	18
	DN 20	43	172	158	12.7	102	2.4			
-06	NPS 1	2.00	7.75	7.00	0.62	4.75	6.8	11.9	12.0	16
	DN 25	51	197	178	15.7	121	3.1			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

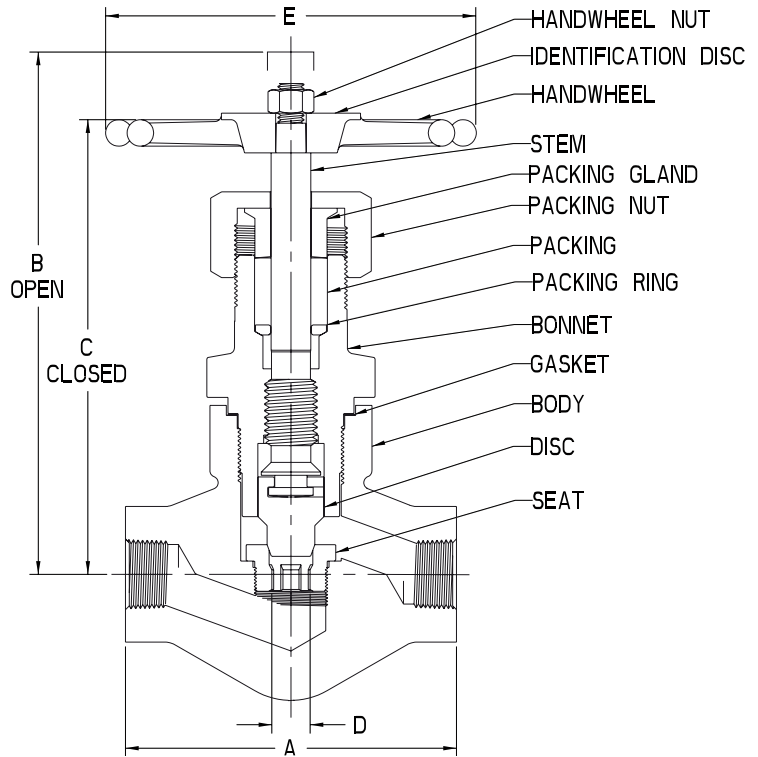
Refer to pages 11-12 for full materials description.

Refer to page 115 for end connections.

# Forged Globe Valves – For Hydraulic Oil Service

## Type 6000 Globe Valve Full Port

- Screw Bonnet
- Flat Gasket Joint
- Inside Screw Stem
- Screw Gland
- Loose Plug Type Disc
- Renewable Seat
- Temperature Not to Exceed 450°F
- Not Recommended for Steam Service or Dry Gas Service



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	RATING		
Threaded Socket Weld	SW	3991	A105	13% Cr	13CR	6000 PSI @ 100 F 6000 PSI @ 450 F	413.7 BAR @ 38 C 413.7 BAR @ 232 C

### Dimensions

SIZE	A	B	C	D	E	WEIGHT	Cv	T	P	
-04	NPS ½	4.00	8.00	7.62	0.39	4.75	9.0	2.9	3.8	10
	DN 15	102	203	194	9.9	121	4.1			
-05	NPS ¾	5.00	8.70	8.24	0.58	5.75	15.0	3.8	4.1	9
	DN 20	127	221	209	14.7	146	6.8			
-06	NPS 1	6.25	9.88	9.31	0.75	7.00	21.2	8.1	4.6	8
	DN 25	159	251	236	19.1	178	9.6			
-07	NPS 1¼	6.75	11.00	10.44	0.97	8.00	31.1	15.3	3.9	7
	DN 32	171	279	265	24.6	203	14.1			
-08	NPS 1½	8.25	12.86	12.01	1.29	8.75	60.5	18.4	6.0	7
	DN 40	210	327	305	32.8	222	27.4			
-09	NPS 2	8.50	12.94	12.19	1.54	12.00	65.7	25.5	5.3	7
	DN 50	216	329	310	39.1	305	29.8			

T – Approximate number of turns from open to close.

P – Pitch of stem thread.

Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

Refer to page 115 for end connections.



# MARPAC Union End Check Valves (2"– 3")

## Petro and HB-Lug Union Ends for applications to 2000 psig

### Exceptional Performance

- Short poppet travel, for quick closing, minimal backflow and gentle seating action
- Annular flow, for minimum pressure drop
- Union end allows efficient use of space

### Exceptional Versatility

- Available with bronze or 316 stainless steel trim to suit your application
- Sturdy, thick poppet to support full line pressure, even with the nut removed
- Available in 2" and 3" sizes, with octagonal or Lug nut unions, for a variety of applications
- Socket-weld union end available

### Exceptional Value

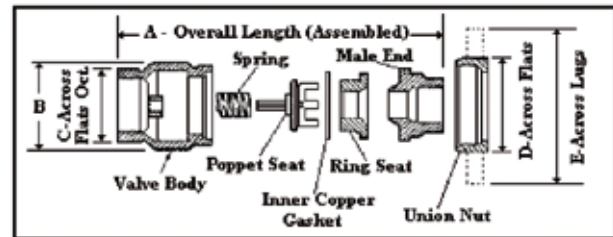
- Union end reduces fitting and labor costs, both in installation and maintenance
- Carbon steel body casting for durability (WCC)
- Zinc-coated carbon steel A105 union end and nut
- Seats can be re-lapped in the field, to minimize downtime



MARPAC PETRO®  
Union End Check Valves  
Series 730P  
2000 psi NSCWP  
Octagonal Nut



MARPAC HB-LUG®  
Union End Check Valves  
Series 730H  
2000 psi NSCWP  
Lug Nut



### SPECIFICATIONS - REPRESENTATIVE DIMENSIONS & WEIGHT

SIZE	A	B	C	D	E	PETRO Wt. lbs. @	HB-LUG Wt. lbs. @
2	6	3 3/4	3	4 3/32	6 1/4	10.7	12.1
3	7 1/4	5 3/16	4 3/16	5 3/4	8 1/4	22.9	25.1

### STANDARD ASSEMBLIES - HB-Lug: Series 730H, 2000 psi NSCWP, Lug Nut & Petro: Series 730P, 2000 psi NSCWP, Octagonal

SERIES	END CONNECTION	MATERIAL (FINISH)			
		BODY	MALE END	NUT	TRIM: RING SEAT, POPPET
730H	Threaded	Carbon Steel (Manganese Phosphate Coated)	Carbon Steel (Zinc)	Carbon Steel (Zinc)	Bronze or 316SS
730P	Threaded	Carbon Steel (Manganese Phosphate Coated)	Carbon Steel (Zinc)	Carbon Steel (Zinc)	Bronze or 316SS

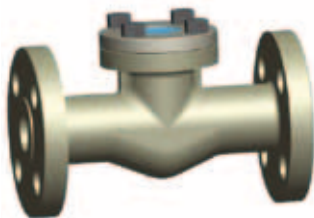
### TEMPERATURE / PRESSURE RATINGS

TEMPERATURE	BRONZE TRIM	STAINLESS TRIM
100°F	2000 PSI	2000 PSI
200°F	2000 PSI	1817 PSI
300°F	2000 PSI	1623 PSI
400°F	1929 PSI	1543 PSI
500°F	1671 PSI	1509 PSI

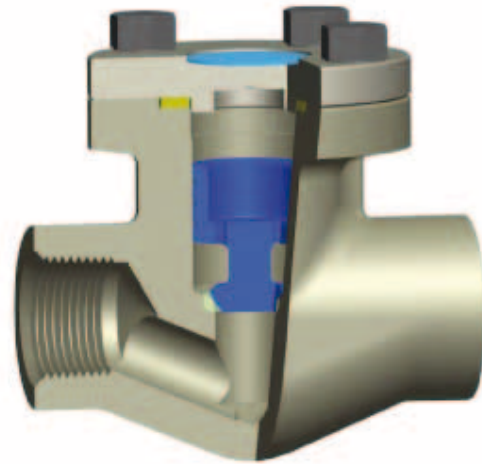
# 701 Check Valve

## Class 800 Check Valve

- 1 Conventional Port
- 2 Full Port



see pages 92 - 94



The core of the pressure class 150, 300, 600, & 800 check valve

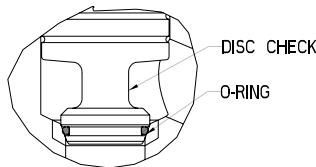
CONNECTION	SERIES		BODY/BONNET	SEAT	DISC	BALL	SPRING	RATING (SEE PAGES 116 - 117)	
	1	2						1975 PSI @ 100 F	136.2 BAR @ 38 C
Threaded Socket Weld Butt Weld	SW BW*	701	13701	A105	HF	13% Cr		1975 PSI @ 100 F	136.2 BAR @ 38 C
		751	13751	A182 F11	HF	13% Cr		2000 PSI @ 100 F	137.9 BAR @ 38 C
	718	13718	F316/F316L		316			1920 PSI @ 100 F	132.4 BAR @ 38 C
	82718		A316H		316H			1920 PSI @ 100 F	132.4 BAR @ 38 C
	32701	33701	A350 LF2	HF	13% Cr			1975 PSI @ 100 F	136.2 BAR @ 38 C
								1975 PSI @ -50 F	136.2 BAR @ -46 C
	710	13710	A105	HF	13% Cr		302	1975 PSI @ 100 F	136.2 BAR @ 38 C
	750	13750	A182 F11	HF	13% Cr		302	2000 PSI @ 100 F	137.9 BAR @ 38 C
	780	13780	F316/F316L		316		302	1920 PSI @ 100 F	132.4 BAR @ 38 C
	32710	33710	A350 LF2	HF	13% Cr		302	1975 PSI @ 100 F	136.2 BAR @ 38 C
								1975 PSI @ -50 F	136.2 BAR @ -46 C
	B701	B13701	A105	HF		18% Cr		1975 PSI @ 100 F	136.2 BAR @ 38 C
	B751	B13751	A182 F11	HF		18% Cr		2000 PSI @ 100 F	137.9 BAR @ 38 C
	B718	B13718	F316/F316L			316		1920 PSI @ 100 F	132.4 BAR @ 38 C
	B32701	B33701	A350 LF2	HF		18% Cr		1975 PSI @ 100 F	136.2 BAR @ 38 C
								1975 PSI @ -50 F	136.2 BAR @ -46 C
	B710	B13710	A105	HF		18% Cr	302	1975 PSI @ 100 F	136.2 BAR @ 38 C
	B750	B13750	A182 F11	HF		18% Cr	302	2000 PSI @ 100 F	137.9 BAR @ 38 C
	B780	B13780	F316/F316L			316	302	1920 PSI @ 100 F	132.4 BAR @ 38 C
	B32710	B33710	A350 LF2	HF		18% Cr	302	1975 PSI @ 100 F	136.2 BAR @ 38 C
							1975 PSI @ -50 F	136.2 BAR @ -46 C	

\*BW end-to-end is Vogt standard and does not meet B16.10

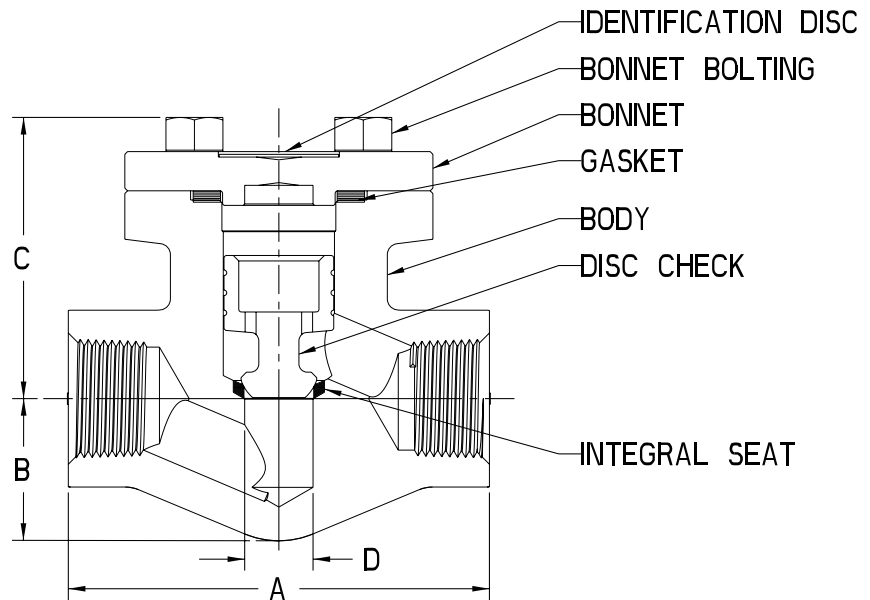
# Class 800 Check Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal Type  
Piston or Ball Check  
Integral Seat  
ASME B16.34

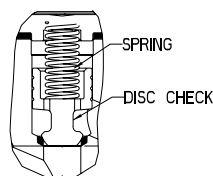


Soft Insert "ZL" Ring  
Zero Leakage  
**701ZL SERIES**

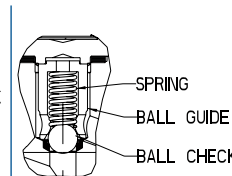


- 701ZLB – Buna N ..... -20°F to 250°F
- 701ZLE – Ethylene Propylene ... -20°F to 300°F
- 701ZLN – Neoprene ..... -20°F to 240°F
- 701ZLV – Viton ..... -20°F to 400°F

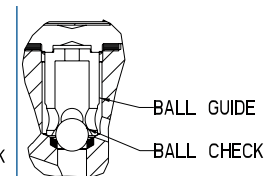
See pages 121-126 for Compound Selection  
Furnished in Non-Spring Control Disc Check Valves only



**710 SERIES**



**B710 SERIES**



**B701 SERIES**

## Dimensions

SIZE	A	B	C	D	WEIGHT	Cv*	1
-04	NPS ½	3.75	1.00	2.55	0.50	3.6	2.1
	DN 15	95	25	65	12.7	1.6	
-05	NPS ¾	4.00	1.12	2.55	0.50	3.9	3.2
	DN 20	102	28	65	12.7	1.8	
-06	NPS 1	4.62	1.56	3.09	0.75	6.5	5.8
	DN 25	117	40	78	19.1	2.9	
-07	NPS 1¼	6.25	2.25	4.49	1.28	17.3	13.3
	DN 32	159	57	114	32.5	7.8	
-08	NPS 1½	6.25	2.25	4.49	1.28	16.4	18.3
	DN 40	159	57	114	32.5	7.4	
-09	NPS 2	7.75	2.68	4.95	1.53	25.1	25.3
	DN 50	197	68	126	38.9	11.4	

SIZE	A	B	C	D	WEIGHT	Cv*	2
-04	NPS ½	4.00	1.12	2.55	0.50	4.0	3.2
	DN 15	102	28	65	12.7	1.8	
-05	NPS ¾	4.62	1.56	3.09	0.75	6.8	6.9
	DN 20	117	40	78	19.1	3.1	
-06	NPS 1	6.25	2.25	4.49	1.28	17.6	16.0
	DN 25	159	57	114	32.5	8.0	
-07	NPS 1¼	6.25	2.25	4.49	1.28	17.3	18.3
	DN 32	159	57	114	32.5	7.8	
-08	NPS 1½	7.75	2.68	4.95	1.53	26.0	25.5
	DN 40	197	68	126	38.9	11.8	
-09	NPS 2	9.00	3.50	5.96	2.00	45.1	36.9
	DN 50	229	89	151	50.8	20.5	

Refer to page 8 for optional trim and service configurations.

Refer to pages 114-115 for end connections.

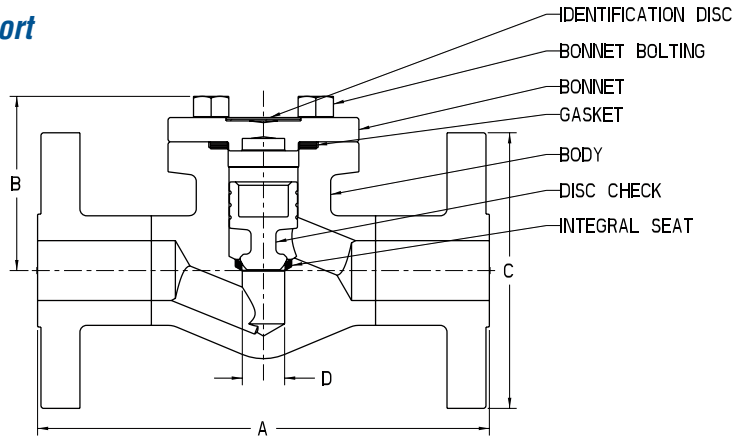
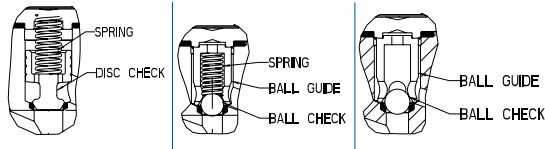
**\*NOTE: The Cv values are for non-spring control valves only**

Refer to pages 11-12 for full materials description.

# Forged Check Valves

## Class 150 Forged Check Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal Type  
Piston Check  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	SEAT	DISC	BALL	SPRING	RATING		
1/16 RF Flat Face	573	A105	HF	13% Cr			285 PSI @ 100 F	19.6 BAR @ 38 C	
	32573	A350 LF2	HF	13% Cr			285 PSI @ 100 F	19.6 BAR @ 38 C	
							285 PSI @ -50 F	19.6 BAR @ -46 C	
	578	F316/F316L			316		275 PSI @ 100 F	19.0 BAR @ 38 C	
	570	A105	HF	13% Cr		302	285 PSI @ 100 F	19.6 BAR @ 38 C	
	32570	A350 LF2	HF	13% Cr			302	285 PSI @ 100 F	19.6 BAR @ 38 C
								285 PSI @ -50 F	19.6 BAR @ -46 C
	579	F316/F316L			316		302	275 PSI @ 100 F	19.0 BAR @ 38 C
	FF	B573	A105	HF		18% Cr		285 PSI @ 100 F	19.6 BAR @ 38 C
		B32573	A350 LF2	HF				285 PSI @ 100 F	19.6 BAR @ 38 C
								285 PSI @ -50 F	19.6 BAR @ -46 C
		B578	F316/F316L			316		275 PSI @ 100 F	19.0 BAR @ 38 C
		B570	A105	HF		18% Cr	302	285 PSI @ 100 F	19.6 BAR @ 38 C
		B32570	A350 LF2	HF				302	285 PSI @ 100 F
	285 PSI @ -50 F							19.6 BAR @ -46 C	
B579	F316/F316L			316		302	275 PSI @ 100 F	19.0 BAR @ 38 C	

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv*
-04	NPS	1/2	4.25	2.55	3.5	0.50	5.5	2.1
	DN	15	108	65	89	12.7	2.5	
-05	NPS	3/4	4.62	2.55	3.88	0.50	6.8	3.2
	DN	20	117	65	99	12.7	3.1	
-06	NPS	1	5.00	3.09	4.25	0.75	10.1	5.8
	DN	25	127	78	108	19.1	4.6	
-08	NPS	1 1/2	6.50	4.49	5.00	1.28	22.4	18.3
	DN	40	165	114	127	32.5	10.2	
-09	NPS	2	8.00	4.94	6.00	1.53	34.2	25.3
	DN	50	203	125	152	38.9	15.5	

\*The Cv values are for non-spring control valves only

Refer to page 8 for optional trim and service configurations.

Refer to page 113 for end connections.

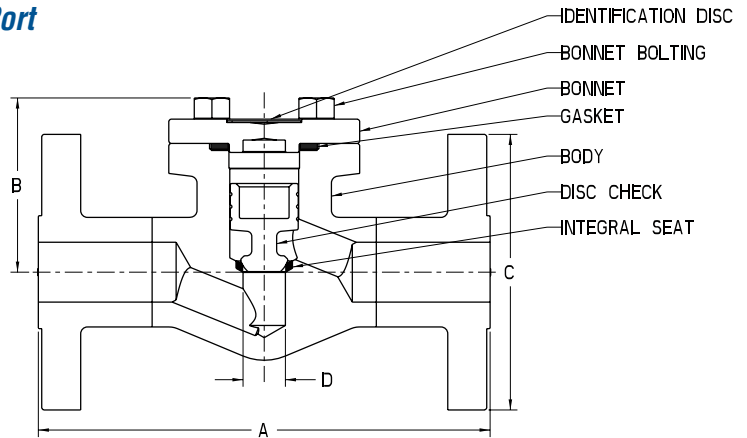
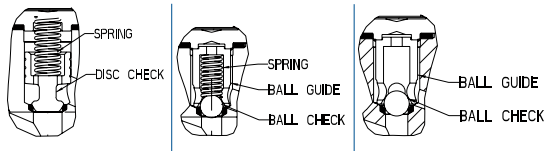
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged Check Valves

## Class 300 Forged Check Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal Type  
Piston Check  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	SEAT	DISC	BALL	SPRING	RATING		
1/16 RF Flat Face	FF	583	A105	HF	13% Cr		740 PSI @ 100 F	51.1 BAR @ 38 C	
		32583	A350 LF2	HF	13% Cr		740 PSI @ 100 F	51.1 BAR @ 38 C	
							740 PSI @ -50 F	51.1 BAR @ -46 C	
		588	F316/F316L		316			720 PSI @ 100 F	49.6 BAR @ 38 C
		580	A105	HF	13% Cr		302	740 PSI @ 100 F	51.1 BAR @ 38 C
								740 PSI @ -50 F	51.1 BAR @ -46 C
		32580	A350 LF2	HF	13% Cr		302	740 PSI @ 100 F	51.1 BAR @ 38 C
								740 PSI @ -50 F	51.1 BAR @ -46 C
		589	F316/F316L		316		302	720 PSI @ 100 F	49.6 BAR @ 38 C
		B583	A105	HF			18% Cr	740 PSI @ 100 F	51.1 BAR @ 38 C
								740 PSI @ -50 F	51.1 BAR @ -46 C
		B32583	A350 LF2	HF			18% Cr	740 PSI @ 100 F	51.1 BAR @ 38 C
740 PSI @ -50 F	51.1 BAR @ -46 C								
B588	F316/F316L			316		720 PSI @ 100 F	49.6 BAR @ 38 C		
B580	A105	HF		18% Cr	302	740 PSI @ 100 F	51.1 BAR @ 38 C		
B32580	A350 LF2	HF			18% Cr	740 PSI @ 100 F	51.1 BAR @ 38 C		
						740 PSI @ -50 F	51.1 BAR @ -46 C		
B589	F316/F316L			316	302	720 PSI @ 100 F	49.6 BAR @ 38 C		

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv*
-04	NPS	½	6.00	2.55	3.75	0.50	6.9	2.1
	DN	15	152	65	95	12.7	3.1	
-05	NPS	¾	7.00	2.55	4.62	0.50	9.9	3.2
	DN	20	178	65	117	12.7	4.5	
-06	NPS	1	8.00	3.09	5.00	0.75	14.5	5.8
	DN	25	203	78	127	19.1	6.6	
-08	NPS	1½	9.00	4.49	6.12	1.28	29.5	18.3
	DN	40	229	114	155	32.5	13.4	
-09	NPS	2	10.50	4.94	6.50	1.53	40.3	25.3
	DN	50	267	125	165	38.9	18.3	

\*The Cv values are for non-spring control valves only

Refer to page 8 for optional trim and service configurations.

Refer to page 113 for end connections.

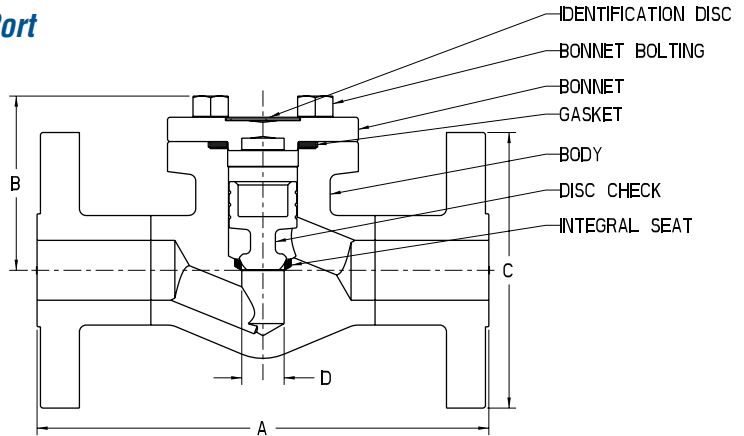
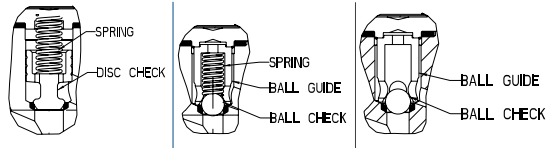
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

# Forged Check Valves

## Class 600 Forged Check Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal Type  
Piston Check  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	SEAT	DISC	BALL	SPRING	RATING		
1/4 RF Ring Joint	RJ	593	A105	HF	13% Cr		1480 PSI @ 100 F	102.1 BAR @ 38 C	
		32593	A350 LF2	HF	13% Cr		1480 PSI @ 100 F	102.1 BAR @ 38 C	
							1480 PSI @ -50 F	102.1 BAR @ -46 C	
		598	F316/F316L		316			1440 PSI @ 100 F	99.3 BAR @ 38 C
		590	A105	HF	13% Cr		302	1480 PSI @ 100 F	102.1 BAR @ 38 C
		32590	A350 LF2	HF	13% Cr		302	1480 PSI @ 100 F	102.1 BAR @ 38 C
								1480 PSI @ -50 F	102.1 BAR @ -46 C
		599	F316/F316L		316		302	1440 PSI @ 100 F	99.3 BAR @ 38 C
		B593	A105	HF		18% Cr		1480 PSI @ 100 F	102.1 BAR @ 38 C
		B32593	A350 LF2	HF		18% Cr		1480 PSI @ 100 F	102.1 BAR @ 38 C
								1480 PSI @ -50 F	102.1 BAR @ -46 C
		B598	F316/F316L			316		1440 PSI @ 100 F	99.3 BAR @ 38 C
		B590	A105	HF		18% Cr	302	1480 PSI @ 100 F	102.1 BAR @ 38 C
		B32590	A350 LF2	HF		18% Cr	302	1480 PSI @ 100 F	102.1 BAR @ 38 C
1480 PSI @ -50 F	102.1 BAR @ -46 C								
B599	F316/F316L			316	302	1440 PSI @ 100 F	99.3 BAR @ 38 C		

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv*
-04	NPS	1/2	6.50	2.55	3.75	0.50	7.4	2.1
	DN	15	165	65	95	12.7	3.4	
-05	NPS	3/4	7.50	2.55	4.62	0.50	10.6	3.2
	DN	20	191	65	117	12.7	4.8	
-06	NPS	1	8.50	3.09	5.00	0.75	15.3	5.8
	DN	25	216	78	127	19.1	6.9	
-08	NPS	1 1/2	9.50	4.49	6.12	1.28	31.7	18.3
	DN	40	241	114	155	32.5	14.4	
-09	NPS	2	11.50	4.95	6.50	1.53	44.1	25.3
	DN	50	292	126	165	38.9	20.0	

\*The Cv values are for non-spring control valves only

Refer to page 8 for optional trim and service configurations.

Refer to page 113 for end connections.

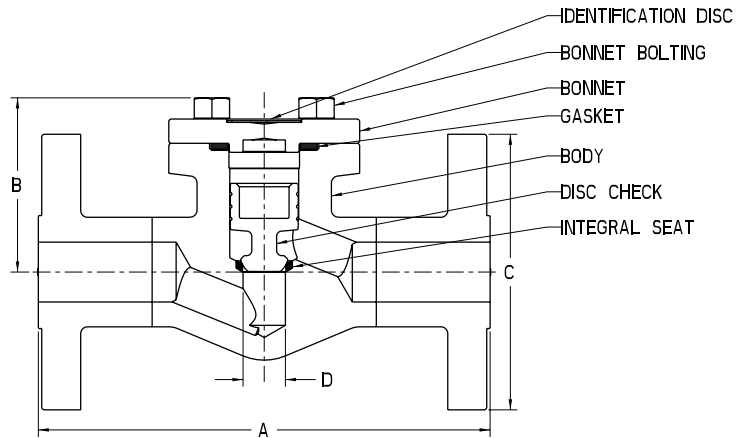
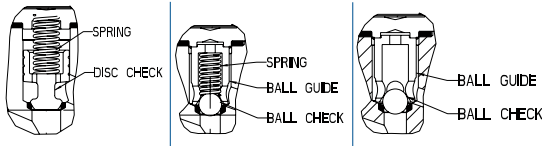
Refer to pages 11-12 for full materials description.

Refer to pages 116-117 for other ratings.

## Forged Check Valves

### Class 1500 Forged Check Valve Conventional

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal Type  
Piston Check  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	SEAT	DISC	BALL	SPRING	RATING			
1/4 RF Ring Joint	RJ	15593	A105	HF	13% Cr		3705 PSI @ 100 F	255.3 BAR @ 38 C		
		35593	A350 LF2	HF	13% Cr		3705 PSI @ 100 F	255.3 BAR @ 38 C		
							3705 PSI @ -50 F	255.3 BAR @ -46 C		
		15598	F316/F316L		316			3600 PSI @ 100 F	248.2 BAR @ 38 C	
		15590	A105	HF	13% Cr		302	3705 PSI @ 100 F	255.3 BAR @ 38 C	
		35590	A350 LF2	HF	13% Cr		302	3705 PSI @ 100 F	255.3 BAR @ 38 C	
								3705 PSI @ -50 F	255.3 BAR @ -46 C	
		15599	F316/F316L		316		302	3600 PSI @ 100 F	248.2 BAR @ 38 C	
		B15593	A105	HF			18% Cr		3705 PSI @ 100 F	255.3 BAR @ 38 C
		B35593	A350 LF2	HF			18% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C	
								3705 PSI @ -50 F	255.3 BAR @ -46 C	
		B15598	F316/F316L			316		3600 PSI @ 100 F	248.2 BAR @ 38 C	
		B15590	A105	HF			18% Cr	302	3705 PSI @ 100 F	255.3 BAR @ 38 C
		B35590	A350 LF2	HF			18% Cr	3705 PSI @ 100 F	255.3 BAR @ 38 C	
3705 PSI @ -50 F	255.3 BAR @ -46 C									
B15599	F316/F316L			316	302	3600 PSI @ 100 F	248.2 BAR @ 38 C			

### Dimensions

SIZE	A	B	C	D	WEIGHT	Cv*
-04	NPS 1/2	8.50	3.06	4.75	0.50	16.4
	DN 15	216	78	121	13	7.4
-05	NPS 3/4	9.00	3.06	5.12	0.50	19.9
	DN 20	229	78	130	13	9.0
-06	NPS 1	10.00	4.45	5.88	0.75	33.6
	DN 25	254	113	149	19	15.2
-08	NPS 1 1/2	12.00	5.03	7.00	1.12	54.6
	DN 40	305	128	178	28	24.8
-09	NPS 2	14.50	6.14	8.50	1.38	99.9
	DN 50	368	156	216	35	45.3

\*The Cv values are for non-spring control valves only

Refer to page 8 for optional trim and service configurations.

Refer to page 113 for end connections.

Refer to pages 11-12 for full materials description.

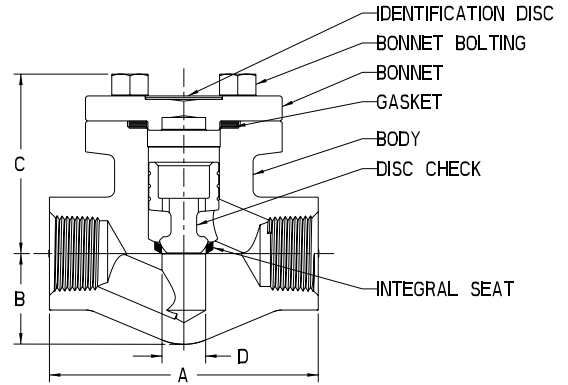
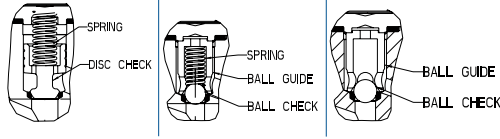
Refer to pages 116-117 for other ratings.

# Forged Check Valves

## Class 1500 Forged Check Valve

- 1 Conventional Port
- 2 Full Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal Type  
Piston Check/Ball Check  
Integral Seat  
ASME B16.34



CONNECTION	SERIES		BODY/BONNET	SEAT	DISC	BALL	SPRING	RATING	
	1	2						3705 PSI @ 100 F	255.3 BAR @ 38 C
Threaded Socket Weld SW	15701	16701	A105	HF	13% Cr			3705 PSI @ 100 F	255.3 BAR @ 38 C
	35701	36701	A350 LF2	HF	13% Cr			3705 PSI @ 100 F 3705 PSI @ -50 F	255.3 BAR @ 38 C 255.3 BAR @ -46 C
	15718	16718	F316/F316L		316			3600 PSI @ 100 F	248.2 BAR 2@ 38 C
	15751	16751	F11 Cl.2	HF	13% Cr			3750 PSI @ 100 F	258.6 BAR @ 38 C
	15761	16761	F22 Cl.3	HF	13% Cr			3750 PSI @ 100 F	258.6 BAR @ 38 C
	15710	16710	A105	HF	13% Cr		302	3705 PSI @ 100 F	255.3 BAR @ 38 C
	35710	36710	A350 LF2	HF	13% Cr		302	3705 PSI @ 100 F 3705 PSI @ -50 F	255.3 BAR @ 38 C 255.3 BAR @ -46 C
	15780	16780	F316/F316L		316		302	3600 PSI @ 100 F	248.2 BAR 2@ 38 C
	15750	16750	F11 Cl.2	HF	13% Cr		302	3750 PSI @ 100 F	258.6 BAR @ 38 C
	15760	16760	F22 Cl.3	HF	13% Cr		302	3750 PSI @ 100 F	258.6 BAR @ 38 C
	B15701	B16701	A105	HF		18% Cr		3705 PSI @ 100 F	255.3 BAR @ 38 C
	B35701	B36701	A350 LF2	HF		18% Cr		3705 PSI @ 100 F 3705 PSI @ -50 F	255.3 BAR @ 38 C 255.3 BAR @ -46 C
	B15718	B16718	F316/F316L			316		3600 PSI @ 100 F	248.2 BAR 2@ 38 C
	B15751	B16751	F11 Cl.2	HF		18% Cr		3750 PSI @ 100 F	258.6 BAR @ 38 C
	B15761	B16761	F22 Cl.3	HF		18% Cr		3750 PSI @ 100 F	258.6 BAR @ 38 C
	B15710	B16710	A105	HF		18% Cr	302	3705 PSI @ 100 F	255.3 BAR @ 38 C
	B35710	B36710	A350 LF2	HF		18% Cr	302	3705 PSI @ 100 F 3705 PSI @ -50 F	255.3 BAR @ 38 C 255.3 BAR @ -46 C
	B15780	B16780	F316/F316L			316	302	3600 PSI @ 100 F	248.2 BAR 2@ 38 C
	B15750	B16750	F11 Cl.2	HF		18% Cr	302	3750 PSI @ 100 F	258.6 BAR @ 38 C
	B15760	B16760	F22 Cl.3	HF		18% Cr	302	3750 PSI @ 100 F	258.6 BAR @ 38 C

### Dimensions

SIZE	A	B	C	D	WEIGHT	Cv*	1	SIZE	A	B	C	D	WEIGHT	Cv*	2
-04	NPS 1/2	4.50	1.56	3.22	0.50	7.5	3.2	-04	NPS 1/2	4.50	1.56	3.22	0.50	7.5	3.2
	DN 15	114	40	82	13	3.4			DN 15	114	40	82	13	3.4	
-05	NPS 3/4	4.50	1.56	3.22	0.50	7.4	3.3	-05	NPS 3/4	6.25	2.25	4.45	0.75	18.1	6.9
	DN 20	114	40	82	13	3.4			DN 20	159	57	113	19	8.2	
-06	NPS 1	6.25	2.25	4.45	0.75	18.0	6.3	-06	NPS 1	7.75	2.68	5.05	1.12	30.1	16.0
	DN 25	159	57	113	19	8.2			DN 25	197	68	128	28	13.7	
-07	NPS 1 1/4	7.75	2.68	5.05	1.12	29.9	13.3	-07	NPS 1 1/4	7.75	2.68	5.05	1.12	29.9	18.3
	DN 32	197	68	128	28	13.6			DN 32	197	68	128	28	13.6	
-08	NPS 1 1/2	7.75	2.68	5.05	1.12	29.2	11.0	-08	NPS 1 1/2	9.00	3.50	6.14	1.38	54.0	25.5
	DN 40	197	68	128	28	13.2			DN 40	229	89	156	35	24.5	
-09	NPS 2	9.00	3.50	6.14	1.38	53.7	19.6	-09	NPS 2	9.00	3.50	6.56	2.00	49.7	36.9
	DN 50	229	89	156	35	24.4			DN 50	229	89	167	51	22.5	

Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

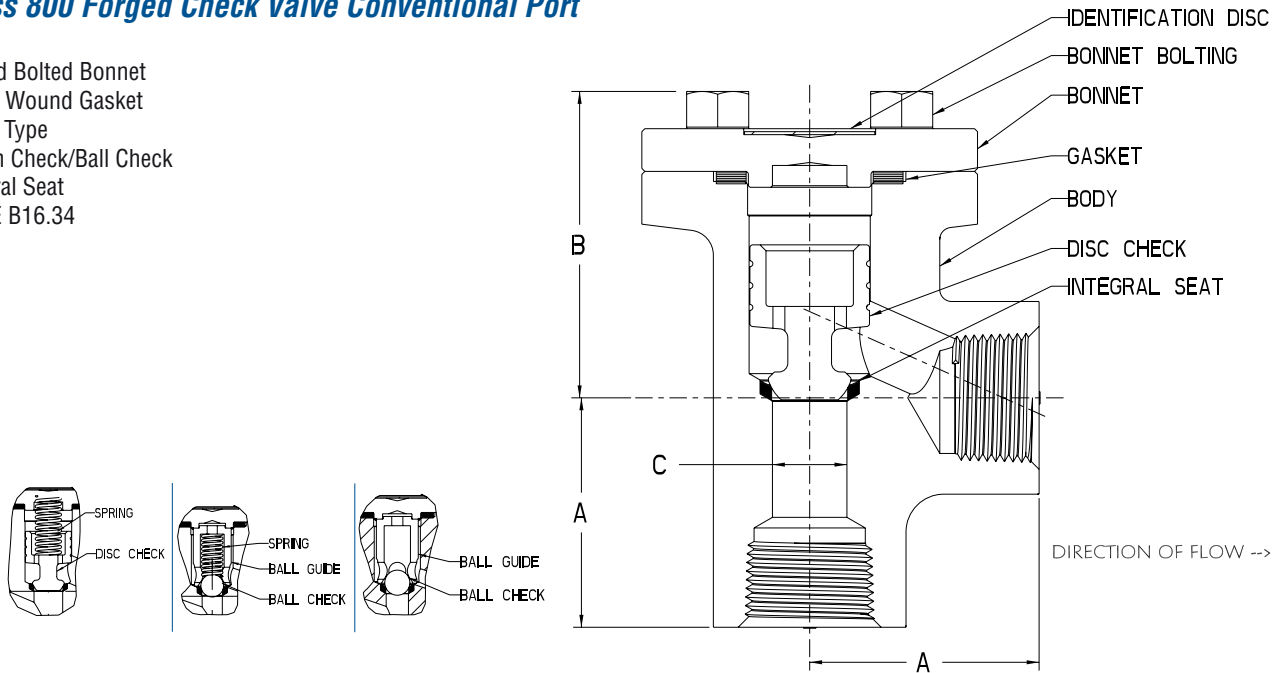
**\*NOTE: The Cv values are for non-spring control valves only**



# Forged Check Valves

## Class 800 Forged Check Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Angle Type  
Piston Check/Ball Check  
Integral Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	SEAT	DISC	BALL	SPRING	RATING
Threaded Socket Weld	A701	A105	HF	13% Cr			1975 PSI @ 100 F 136.2 BAR @ 38 C
	A710	A105	HF	13% Cr		302	1975 PSI @ 100 F 136.2 BAR @ 38 C
	AB701	A105	HF		18% Cr		1975 PSI @ 100 F 136.2 BAR @ 38 C
	AB710	A105	HF		18% Cr	302	1975 PSI @ 100 F 136.2 BAR @ 38 C

### Dimensions

SIZE			A	B	C	WEIGHT	Cv*
-04	NPS	1/2	1.62	2.52	0.50	3.2	2.3
	DN	15	41	64	12.7	1.5	
-05	NPS	3/4	1.75	2.52	0.50	3.5	3.5
	DN	20	44	64	12.7	1.6	
-06	NPS	1	2.31	3.09	0.75	6.0	9.5
	DN	25	59	78	19.1	2.7	
-07	NPS	1 1/4	2.44	4.00	1.28	12.8	19.7
	DN	32	62	102	32.5	5.8	
-08	NPS	1 1/2	2.44	4.00	1.28	12.3	28.2
	DN	40	62	102	32.5	5.6	
-09	NPS	2	3.56	5.58	1.53	30.9	49.5
	DN	50	90	142	38.9	14.0	

\*NOTE: The Cv values are for non-spring control valves only

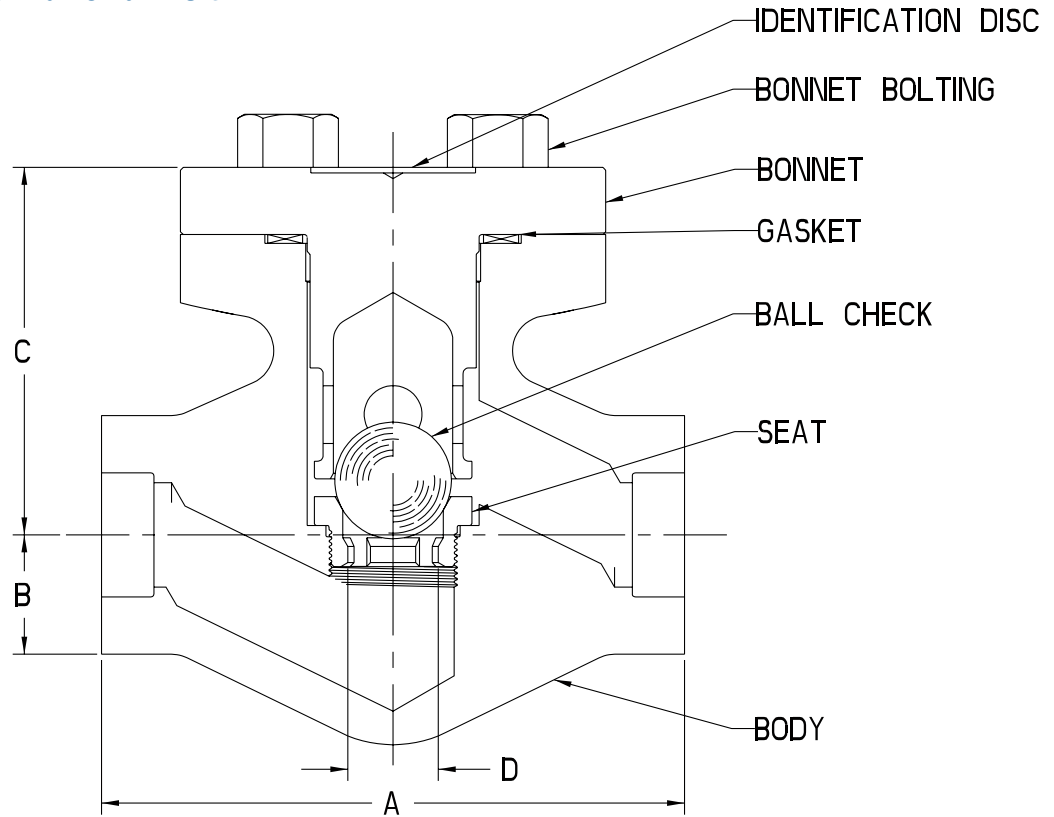
Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

# Forged Check Valves – For HF Alkylation Service

## Class 800 Forged Check Valve Full Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal Type  
Ball Check  
Removable Seat  
ASME B16.34  
UOP APPROVED



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING	
Socket Weld	SWB43721HF2	A105	MONEL	1975 PSI @ 100 F	136.2 BAR @ 38 C
	SWB43721HF4				
	SWB43721HF5				

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	½	4.00	1.12	2.56	0.41	3.5	0.7
	DN	15	102	28	65	10.4	1.6	
-05	NPS	¾	4.62	1.56	3.06	0.66	6.5	5.9
	DN	20	117	40	78	16.8	2.9	
-06	NPS	1	6.25	2.25	4.50	1.00	17.5	11.8
	DN	25	159	57	114	25.4	7.9	
-08	NPS	1½	7.75	2.69	4.88	1.44	25.8	22.6
	DN	40	197	68	124	36.6	11.7	
-09	NPS	2	9.00	3.50	5.94	1.88	47.4	32.6
	DN	50	229	89	151	47.8	21.5	

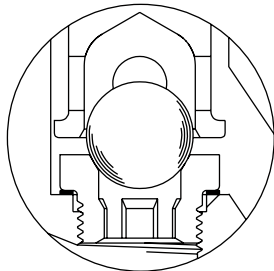
Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

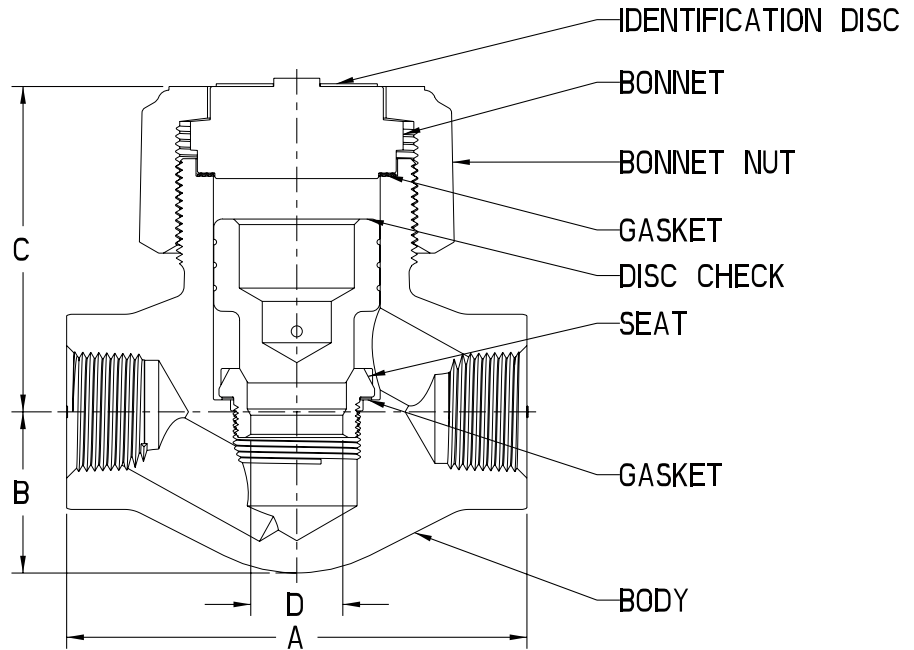
# Forged Check Valves

## Class 800 Forged Check Valve Full Port

Union Bonnet  
 Flat Gasket Joint  
 Horizontal Type  
 Piston Check/Ball Check  
 Renewable Seat  
 ASME B16.34



**BALL CHECK**



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING
Threaded Socket Weld SW	9091	A105	13% Cr	1975 PSI @ 100 F 136.2 BAR @ 38 C
	B9091		13% Cr Seat	
			18% Cr Ball	

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	½	3.38	1.12	2.96	0.53	4.1	3.6
	DN	15	86	28	75	14	1.9	
-05	NPS	¾	4.00	1.50	3.31	0.75	6.6	6.7
	DN	20	102	38	84	19	3.0	
-06	NPS	1	5.00	1.75	3.62	1.00	8.9	11.8
	DN	25	127	44	92	25	4.0	
-07	NPS	1¼	6.25	2.38	3.96	1.19	14.4	20.2
	DN	32	159	60	101	30	6.5	
-08	NPS	1½	6.75	2.67	4.62	1.48	22.5	26.1
	DN	40	171	68	117	38	10.2	
-09	NPS	2	8.25	3.12	4.85	1.94	43.3	40.0
	DN	50	210	79	123	49	19.6	

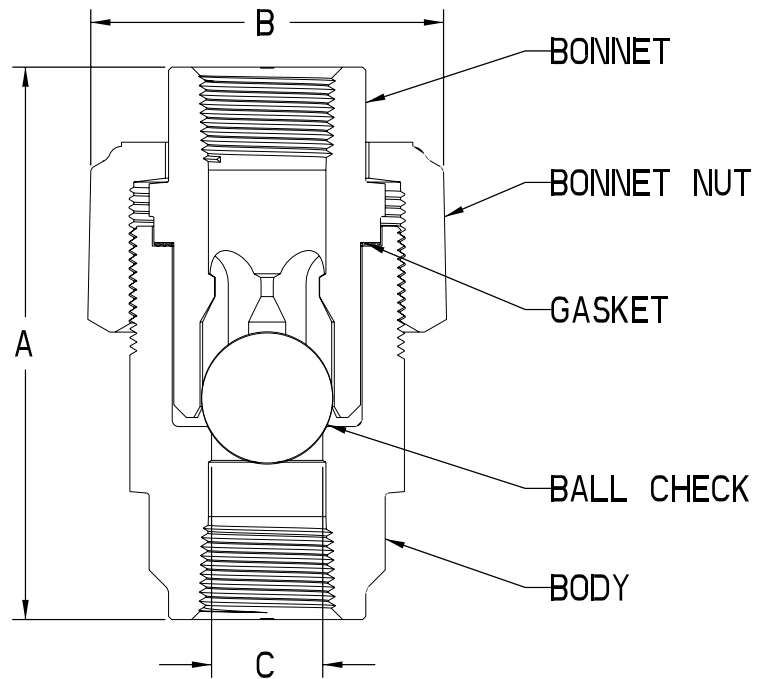
Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

## Forged Check Valves

### Class 800 Forged Check Valve Full Port

Union Bonnet  
 Flat Gasket Joint  
 Horizontal or Vertical Upward Flow  
 Ball Check  
 Integral Seat  
 ASME B16.34



CONNECTION	SERIES	BODY/BONNET	TRIM	RATING	
Threaded Socket Weld SW	54853	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
	54863	F316/F316L	316	1920 PSI @ 100 F	132.4 BAR @ 38 C

### Dimensions

SIZE			A	B	C	WEIGHT	Cv
-04	NPS	½	3.38	2.74	0.55	2.3	8.7
	DN	15	86	70	14	1.0	
-05	NPS	¾	3.88	3.18	0.81	3.8	15.1
	DN	20	99	81	21	1.7	
-06	NPS	1	5.29	3.46	1.06	6.2	30.5
	DN	25	134	88	27	2.8	
-07	NPS	1¼	5.46	3.79	1.28	8.0	29.1
	DN	32	139	96	33	3.6	
-08	NPS	1½	5.62	4.46	1.53	11.6	37.7
	DN	40	143	113	39	5.3	
-09	NPS	2	6.72	4.94	2.00	18.2	45.3
	DN	50	171	125	51	8.3	

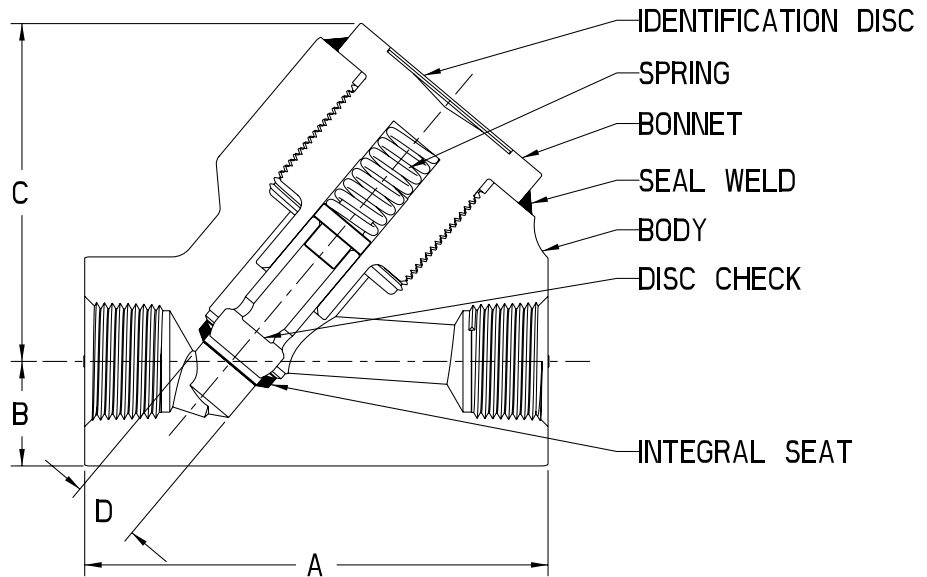
Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

# Forged Check Valves

## Class 1690 Forged Check Valve Conventional Port

Welded Bonnet  
 "Y" Pattern  
 Horizontal or Vertical Upward Flow  
 Spring Control Hard Faced Piston Check  
 Integral Hard Faced Seat  
 ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	SPRING	RATING	
Threaded Socket Weld SW	1610	A105	13% Cr	HF	302 SS	4225 PSI @ 100 F	291.3 BAR @ 38 C
	1611	A182 F11					
	1622	A182 F22					
	1691	A182 F91					

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	½	4.00	0.81	2.71	0.50	4.3	-
	DN	15	102	21	69	13	2.0	
-05	NPS	¾	4.00	0.81	2.71	0.50	4.1	-
	DN	20	102	21	69	13	1.9	
-06	NPS	1	5.12	1.16	3.74	0.75	9.6	-
	DN	25	130	29	95	19	4.4	
-07	NPS	1¼	7.50	1.69	5.02	1.54	24.3	-
	DN	32	191	43	128	39	11.0	
-08	NPS	1½	7.50	1.69	5.02	1.53	23.7	-
	DN	40	191	43	128	39	10.8	
-09	NPS	2	7.50	1.69	5.02	1.53	22.3	-
	DN	50	191	43	128	39	10.1	

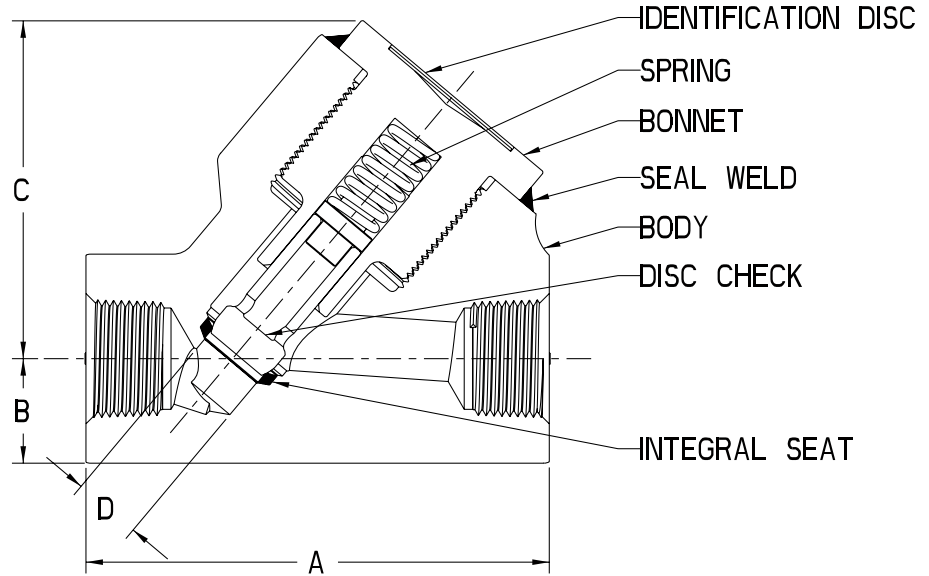
Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

# Forged Check Valves

## Class 2500/2680 Forged Check Valve Full Port

Welded Bonnet  
 "Y" Pattern  
 Horizontal or Vertical Upward Flow  
 Spring Control Hard Faced Piston Check  
 Integral Hard Faced Seat  
 ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	SPRING	RATING		CLASS
Threaded	2610	A105	13% Cr	HF	302 SS	6250 PSI @ 100 F	430.9 @ 38 C	2500 LTD
	2611	F11 Cl.2						
	2622	F22 Cl.3						
	2691	F91						
Socket Weld	SW2610	A105	13% Cr	HF	302 SS	6700 PSI @ 100 F	461.9 @ 38 C	2680 LTD
	SW2611	F11 Cl.2						
	SW2622	F22 Cl.3						
	SW2691	F91						

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	1/2	4.00	0.81	2.71	0.50	4.3	-
	DN	15	102	21	69	13	2.0	
-05	NPS	3/4	5.12	1.16	3.74	0.75	9.9	-
	DN	20	130	29	95	19	4.5	
-06	NPS	1	5.12	1.16	3.74	0.75	9.6	-
	DN	25	130	29	95	19	4.4	
-08	NPS	1 1/2	8.25	2.06	5.37	1.53	38.9	-
	DN	40	210	52	136	39	17.6	
-09	NPS	2	8.25	2.06	5.37	1.53	36.9	-
	DN	50	210	52	136	39	16.7	

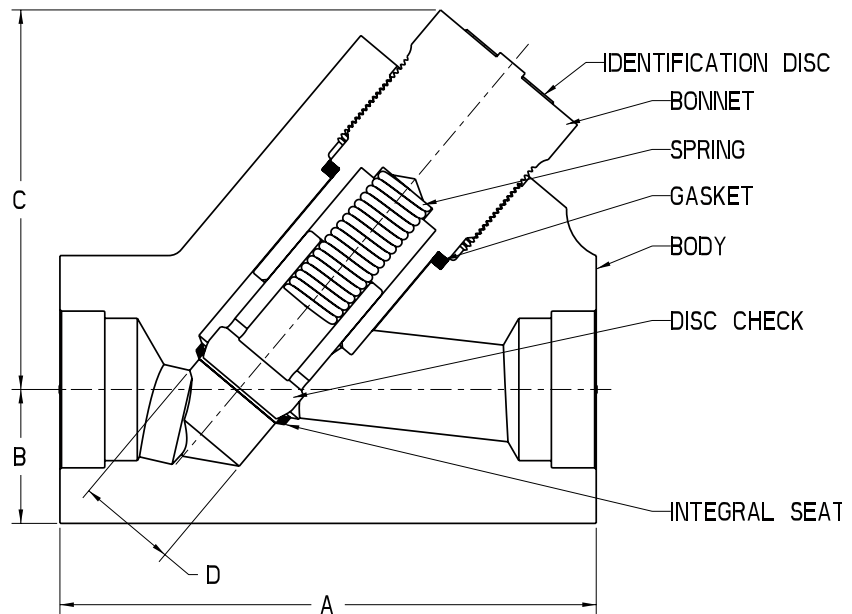
Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

# Forged Check Valves

## Class 2500/2680 Forged Check Valve Full Port

Screw Bonnet  
 "Y" Pattern  
 Horizontal or Vertical Upward Flow  
 Spring Control Hard Faced Piston Check  
 Integral Hard Faced Seat  
 ASME B16.34 LTD Pressure Class



CONNECTION	SERIES	BODY/BONNET	TRIM	SEAT	SPRING	RATING		CLASS
Threaded	R2610	A105	13% Cr	HF	302 SS	6250 PSI @ 100 F	430.9 @ 38 C	2500 LTD
	R2611	F11 Cl.2						
	R2622	F22 Cl.3						
	R2691	F91						
Socket Weld	SWR2610	A105	13% Cr	HF	302 SS	6700 PSI @ 100 F	461.9 @ 38 C	2680 LTD
	SWR2611	F11 Cl.2						
	SWR2622	F22 Cl.3						
	SWR2691	F91						

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	1/2	4.00	0.81	3.20	0.50	4.6	-
	DN	15	102	21	81	13	2.1	
-05	NPS	3/4	5.12	1.16	4.23	0.75	10.6	-
	DN	20	130	29	107	19	4.8	
-06	NPS	1	5.12	1.16	4.23	0.75	10.3	-
	DN	25	130	29	107	19	4.7	
-08	NPS	1 1/2	8.25	2.06	5.84	1.53	40.0	-
	DN	40	210	52	148	39	18.1	
-09	NPS	2	8.25	2.06	5.48	1.53	38.0	-
	DN	50	210	52	148	39	17.2	

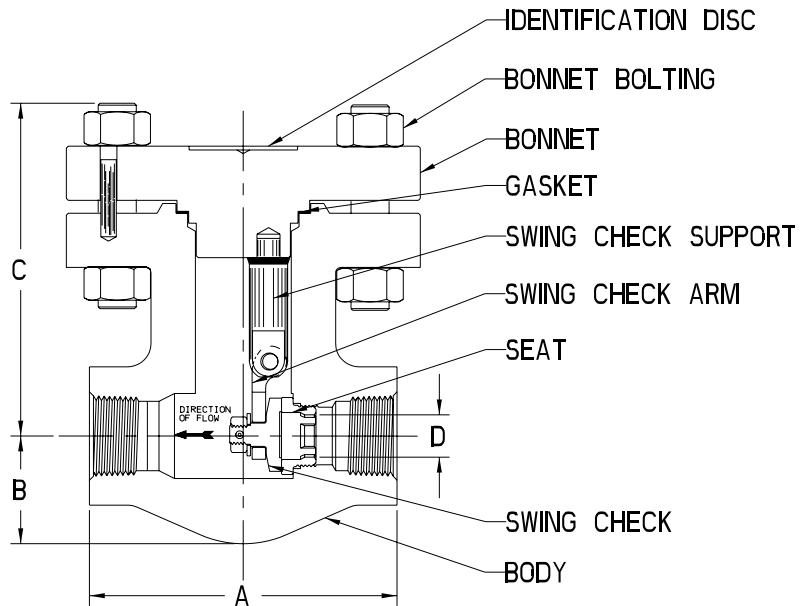
Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

## Forged Check Valves— Meets API-600 Required Wall Thicknesses

### Class 800 Forged Check Valve Conventional Port

Round Bolted Bonnet  
 Flat Gasket Joint  
 Horizontal or Vertical Upward Flow  
 Swing Check  
 Removable Seat  
 ASME B16.34 LTD  
 Meets API600 Required Wall Thickness



CONNECTION		SERIES	BODY/BONNET	TRIM	RATING	
Threaded Socket Weld	SW	4835	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		34835	A350 LF2		1975 PSI @ 100 F	136.2 BAR @ 38 C
					1975 PSI @ -50 F	136.2 BAR @ 38 C

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	1/2	4.00	1.31	4.62	0.34	13.2	3.3
	DN	15	102	33	117	8.6	6.0	
-05	NPS	3/4	4.00	1.31	4.62	0.39	13.0	4.4
	DN	20	102	33	117	9.9	5.9	
-06	NPS	1	5.00	1.75	5.50	0.69	22.1	17.0
	DN	25	127	44	140	17.5	10.0	
-07	NPS	1 1/4	6.50	2.19	6.38	0.97	29.1	28.2
	DN	25	165	56	162	24.6	13.2	
-08	NPS	1 1/2	6.50	2.19	6.38	1.19	30.2	43.0
	DN	25	165	56	162	30.2	13.7	
-09	NPS	2	7.25	2.64	6.94	1.44	39.9	63.0
	DN	50	184	67	176	36.6	18.1	

Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

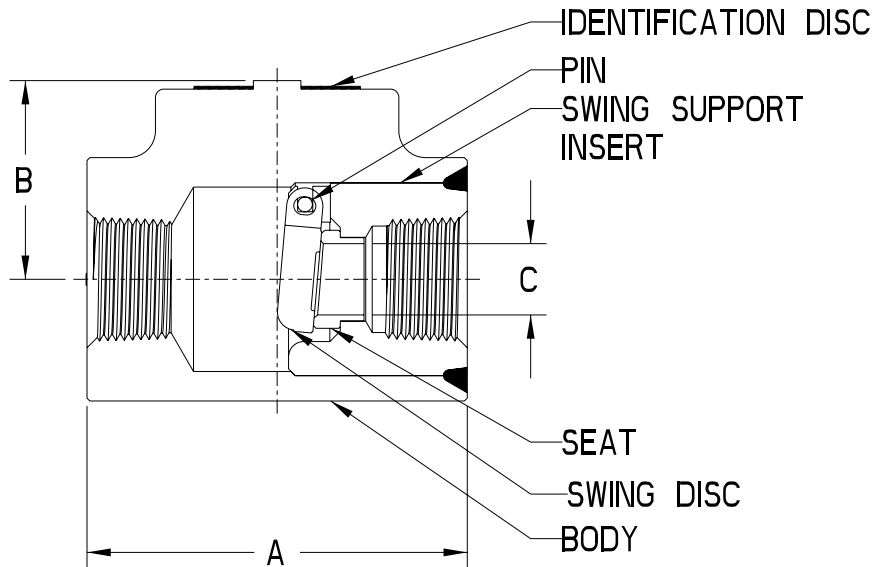
Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.



# Forged Check Valves

## Class 800 Forged Check Valve Conventional Port

No Bonnet  
 Horizontal or Vertical Upward Flow  
 Swing Type Check  
 Welded Seat Insert  
 Hard Faced Seat  
 ASME B16.34



CONNECTION		SERIES	BODY/BONNET	TRIM	RATING	
Threaded Socket Weld	SW	S74	A105	13% Cr	1975 PSI @ 100 F	136.2 BAR @ 38 C
		S32074	A350 LF2			

### Dimensions

SIZE			A	B	C	WEIGHT	Cv
-04	NPS	½	3.50	1.75	0.50	4.6	9.2
	DN	15	89	44	13	2.1	
-05	NPS	¾	3.50	1.75	0.50	4.4	6.8
	DN	20	89	44	13	2.0	
-06	NPS	1	4.00	2.00	0.75	5.5	22.0
	DN	25	102	51	19	2.5	
-08	NPS	1 ½	5.00	2.50	1.25	10.4	54.6
	DN	40	127	64	32	4.7	
-09	NPS	2	6.62	3.38	1.50	23.9	81.9
	DN	50	168	86	38	10.8	

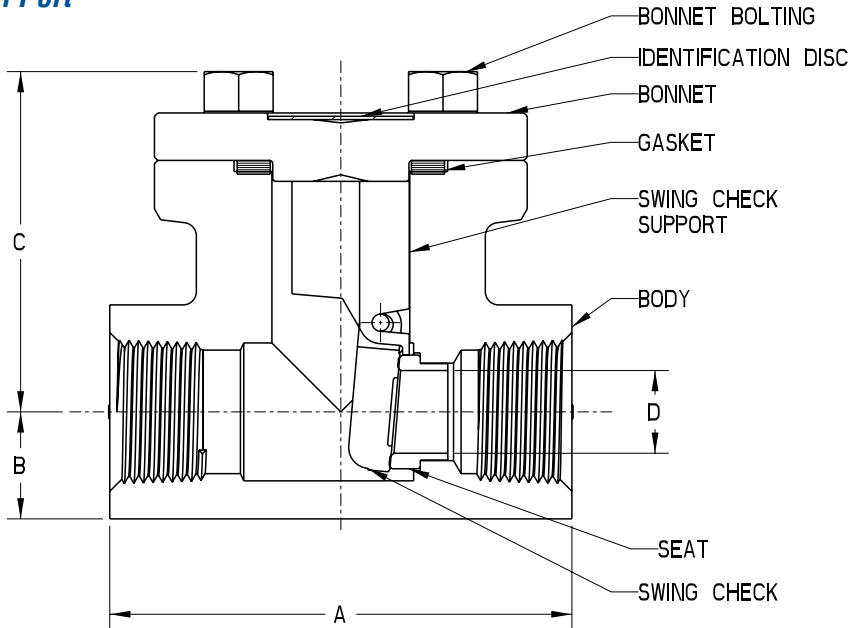
Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

# Forged Check Valves

## Class 800 Check Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal or Vertical Upward Flow  
Swing Check  
Hard Faced Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	DISC	SEAT	RATING		
Threaded Socket Weld	SW	S701	A105	13% Cr	316 HF	1975 PSI @ 100 F	136.2 BAR @ 38 C
		S32701	A350 LF2	13% Cr	316 HF	1975 PSI @ 100 F	136.2 BAR @ 38 C
						1975 PSI @ -50 F	136.2 BAR @ -46 C
		S718	F316/F316L	HF	316 HF	1920 PSI @ 100 F	132.4 BAR 2@ 38 C
		S751	F11 Cl.2	13% Cr	13% Cr HF	2000 PSI @ 100 F	137.9 BAR @ 38 C
S761	F22 Cl.3						

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	½	3.38	0.78	2.35	0.50	3.3	9.2
	DN	15	86	20	60	12.7	1.5	
-05	NPS	¾	3.38	0.78	2.35	0.50	3.1	6.8
	DN	20	86	20	60	12.7	1.4	
-06	NPS	1	4.19	0.97	3.09	0.75	5.5	22.0
	DN	25	106	25	78	19.1	2.5	
-08	NPS	1½	5.44	1.28	4.48	1.25	12.9	54.6
	DN	40	138	33	114	31.8	5.9	
-09	NPS	2	5.94	1.56	4.94	1.50	16.7	81.9
	DN	50	151	40	125	38.1	7.6	

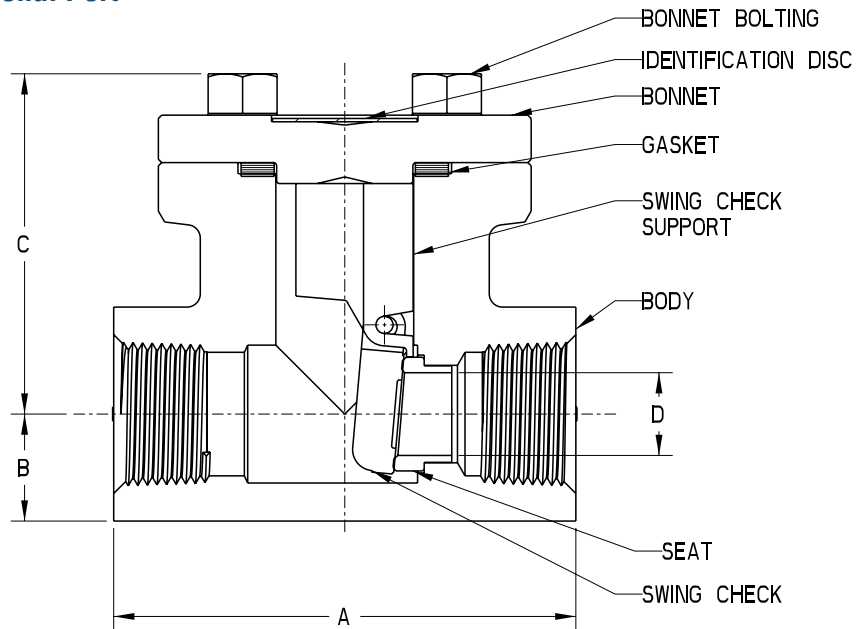
Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

## Forged Check Valves

### Class 1500 Check Valve Conventional Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Horizontal or Vertical Upward Flow  
 Swing Check  
 Hard Faced Seat  
 ASME B16.34



CONNECTION	SERIES	BODY/BONNET	DISC	SEAT	RATING		
Threaded Socket Weld	SW	S15701	A105	13% Cr	316 HF	3705 PSI @ 100 F	255.3 BAR @ 38 C
		S35701	A350 LF2	13% Cr	316 HF	3705 PSI @ 100 F	255.3 BAR @ 38 C
						3705 PSI @ -50 F	255.3 BAR @ -46 C
		S15718	F316/F316L	HF	316 HF	3600 PSI @ 100 F	248.2 BAR @ 38 C
		S15751	F11 Cl.2	13% Cr	13% Cr HF	3750 PSI @ 100 F	258.6 BAR @ 38 C
S15761	F22 Cl.3	13% Cr	13% Cr HF	3750 PSI @ 100 F	258.6 BAR @ 38 C		

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	½	4.00	0.97	3.22	0.50	6.5	9.2
	DN	15	102	25	82	12.7	2.9	
-05	NPS	¾	4.00	0.97	3.22	0.50	6.3	6.8
	DN	20	102	25	82	12.7	2.9	
-06	NPS	1	4.75	1.28	4.45	0.75	13.7	22.0
	DN	25	121	33	113	19.1	6.2	
-08	NPS	1½	5.25	1.56	5.05	1.25	20.2	54.6
	DN	40	133	40	128	31.8	9.2	
-09	NPS	2	7.00	1.88	6.45	1.50	38.2	81.9
	DN	50	178	48	164	38.1	17.3	

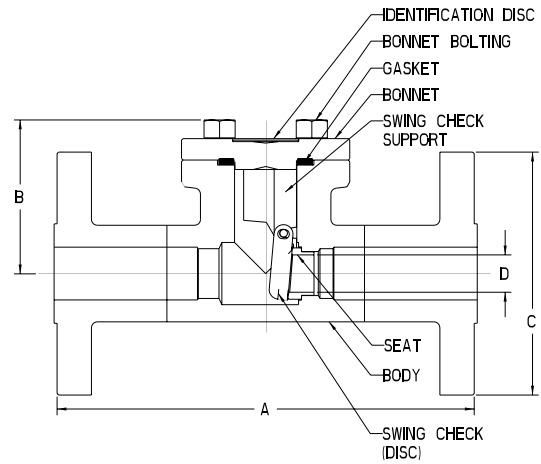
Refer to page 8 for optional trim and service configurations.  
 Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

# Forged Check Valves

## Class 150, 300, 600 Forged Check Valve Conventional Port

Round Bolted Bonnet  
Spiral Wound Gasket  
Horizontal or Vertical Upward Flow  
Swing Check  
Hard Faced Seat  
ASME B16.34



CONNECTION	SERIES	BODY/BONNET	DISC	SEAT	RATING		CLASS
1/16 RF	S673	A105	13% Cr	316 HF	285 PSI @ 100 F	19.6 BAR @ 38 C	150
	S32673	A350 LF2	13% Cr	316 HF	285 PSI @ 100 F	19.6 BAR @ 38 C	
					285 PSI @ -50 F	19.6 BAR @ -46 C	
S678	F316/F316L	HF	316 HF	275 PSI @ 100 F	19.0 BAR 2@ 38 C		
1/16 RF	S683	A105	13% Cr	316 HF	740 PSI @ 100 F	51.1 BAR @ 38 C	300
	S32683	A350 LF2	13% Cr	316 HF	740 PSI @ 100 F	51.1 BAR @ 38 C	
					740 PSI @ -50 F	51.1 BAR @ -46 C	
S688	F316/F316L	HF	316 HF	720 PSI @ 100 F	49.6 BAR 2@ 38 C		
1/4 RF	S693	A105	13% Cr	316 HF	1480 PSI @ 100 F	102.1 BAR @ 38 C	600
	S32693	A350 LF2	13% Cr	316 HF	1480 PSI @ 100 F	101.1 BAR @ 38 C	
					1480 PSI @ -50 F	102.1 BAR @ -46 C	
S698	F316/F316L	HF	316 HF	1440 PSI @ 100 F	99.3 BAR 2@ 38 C		

### Dimensions

SIZE			A			B	C			D	WEIGHT			Cv
			150	300	600		150	300	600		150	300	600	
-04	NPS	½	4.25	5.5	6.5	2.35	3.50	3.75	3.75	0.50	4.9	6.4	7.0	9.2
	DN	15	108	140	165	60	89	95	95	12.7	2.2	2.9	3.2	
-05	NPS	¾	4.62	6.00	7.50	2.35	3.88	4.70	4.62	0.50	6.4	9.2	10.2	6.8
	DN	20	117	152	191	60	99	119	117	12.7	2.9	4.2	4.6	
-06	NPS	1	5.00	8.50	8.50	3.09	4.28	4.88	5.00	0.75	9.3	13.4	14.2	22.0
	DN	25	127	216	216	78	109	124	127	19.1	4.2	6.1	6.4	
-08	NPS	1½	6.50	9.50	9.50	4.48	5.00	6.12	6.12	1.25	19.0	26.2	28.0	54.6
	DN	40	165	241	241	114	127	155	155	31.8	8.6	11.9	12.7	
-09	NPS	2	8.00	10.50	11.50	4.93	6.00	6.50	6.50	1.50	33.4	39.5	43.4	81.9
	DN	50	203	267	292	125	152	165	165	38.1	15.1	17.9	19.7	

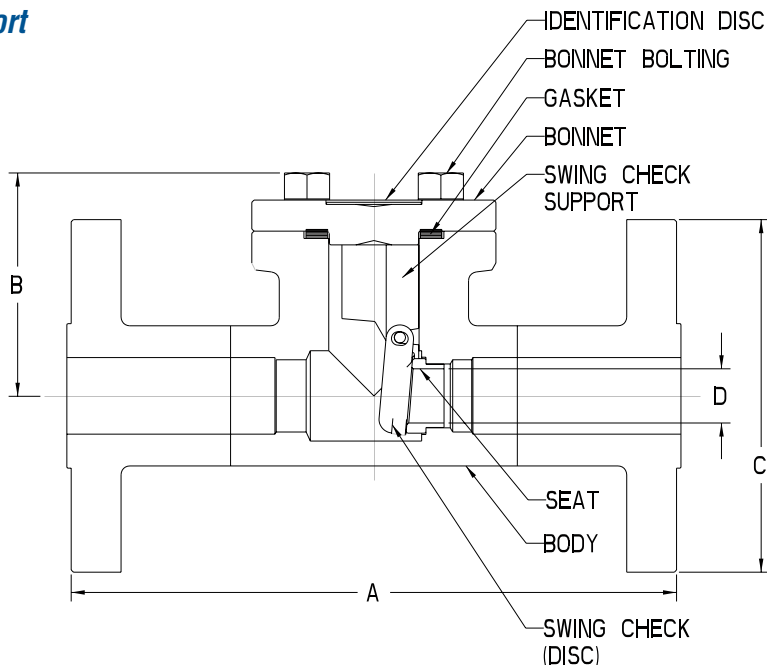
Refer to page 8 for optional trim and service configurations.  
Refer to page 113 for end connections.

Refer to pages 11-12 for full materials description.  
Refer to pages 116-117 for other ratings.

## Forged Check Valves

### Class 1500 Check Valve Conventional Port

Round Bolted Bonnet  
 Spiral Wound Gasket  
 Horizontal or Vertical Upward Flow  
 Swing Check  
 Hard Faced Seat  
 ASME B16.34



CONNECTION	SERIES	BODY/BONNET	DISC	SEAT	RATING	
1/4 RF	S15693	A105	13% Cr	316 HF	3705 PSI @ 100 F	255.3 BAR @ 38 C
	S35693	A350 LF2	13% Cr	316 HF	3705 PSI @ 100 F	255.3 BAR @ 38 C
					3705 PSI @ -50 F	255.3 BAR @ -46 C
S15698	F316/F316L	HF	316 HF	3600 PSI @ 100 F	248.2 BAR @ 38 C	

### Dimensions

SIZE			A	B	C	D	WEIGHT	Cv
-04	NPS	½	8.50	3.06	4.75	0.50	16.4	9.2
	DN	15	216	78	121	12.7	7.4	
-05	NPS	¾	9.00	3.06	5.12	0.50	19.9	6.8
	DN	20	229	78	130	12.7	9.0	
-06	NPS	1	10.00	4.45	5.88	0.75	31.8	22.0
	DN	25	254	113	149	19.1	14.4	
-08	NPS	1½	12.00	5.05	7.00	1.25	50.0	54.6
	DN	40	305	128	178	31.8	22.7	
-09	NPS	2	14.50	6.45	8.50	1.50	90.2	81.9
	DN	50	368	164	216	38.1	40.9	

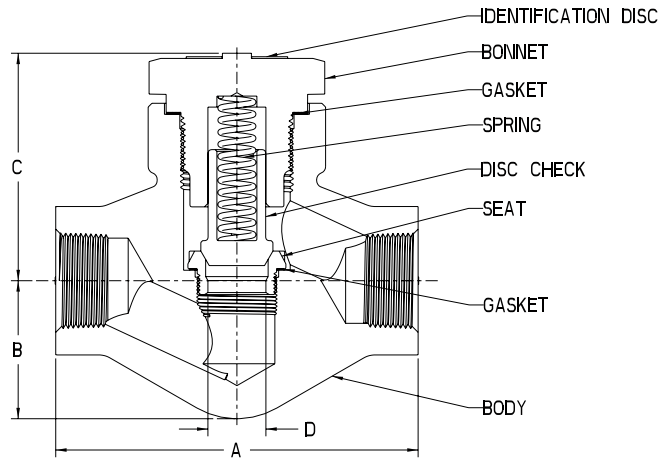
Refer to page 8 for optional trim and service configurations.  
 Refer to page 113 for end connections.

Refer to pages 11-12 for full materials description.  
 Refer to pages 116-117 for other ratings.

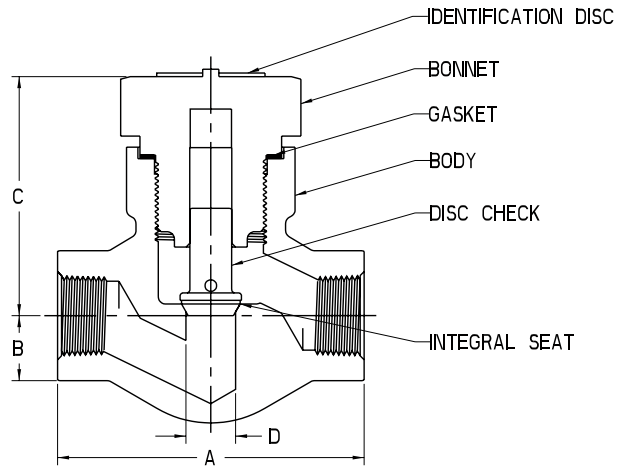
# Forged Check Valves – For Air, Water and Oil Service

## Type 3000 Forged Check Valve

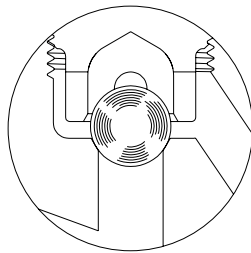
- Screw Bonnet
- Flat Gasket Joint
- Horizontal or Vertical Upward Flow for 2191
- Horizontal Flow for 1551
- Spring Control
- Piston Check
- Renewable Seat
- Non-shock pressure
- Temperature Not to Exceed 450°F
- Not Recommended for Steam or Dry Gas Service



MODEL 2191



1551 FOR OIL SERVICE ONLY



BALL CHECK

- Screw Bonnet
- Flat Gasket Joint
- Horizontal Type
- Piston or Ball Check
- Integral Seat

CONNECTION	SERIES	BODY/BONNET	DISC	SEAT	SPRING	RATING
Threaded Socket Weld SW	1551	A105	13% Cr	INTG	N/A	3000 PSI @ 100 F 3000 PSI @ 450 F
	B1551	A105	18% Cr Ball			
	2191	A105	13% Cr	13% Cr	302 SS	206.8 BAR @ 38 C 206.8 BAR @ 232 C

### Dimensions

SIZE	A	B	C	D	WEIGHT	Cv*
-04	NPS ½	3.38	1.12	3.09	0.52	3.8
	DN 15	86	28	78	13	1.7
-05	NPS ¾	4.00	1.50	3.50	0.53	5.8
	DN 20	102	38	89	14	2.6
-06	NPS 1	5.00	1.75	3.90	0.75	8.7
	DN 25	127	44	99	19	3.9
-07	NPS 1¼	6.25	2.38	3.92	1.00	13.6
	DN 32	159	60	100	25	6.2
-08	NPS 1½	6.75	2.67	4.27	1.22	20.4
	DN 40	171	68	108	31	9.3
-09	NPS 2	8.25	3.37	4.09	1.47	41.2
	DN 50	210	86	124	37	18.7

2191

SIZE	A	B	C	D	WEIGHT	Cv*
-04	NPS ½	3.38	1.12	2.81	0.50	3.7
	DN 15	86	28	71	13	1.7
-05	NPS ¾	4.00	1.50	3.50	0.56	6.0
	DN 20	102	38	89	14	2.7
-06	NPS 1	5.00	1.75	3.90	0.81	8.7
	DN 25	127	44	99	21	3.9
-07	NPS 1¼	6.25	2.38	3.75	1.06	13.7
	DN 32	159	60	95	27	6.2
-08	NPS 1½	6.75	2.69	4.25	1.28	20.6
	DN 40	171	68	108	33	9.3
-09	NPS 2	8.25	3.37	4.87	1.53	40.1
	DN 50	210	86	124	39	18.2

B1551

1551

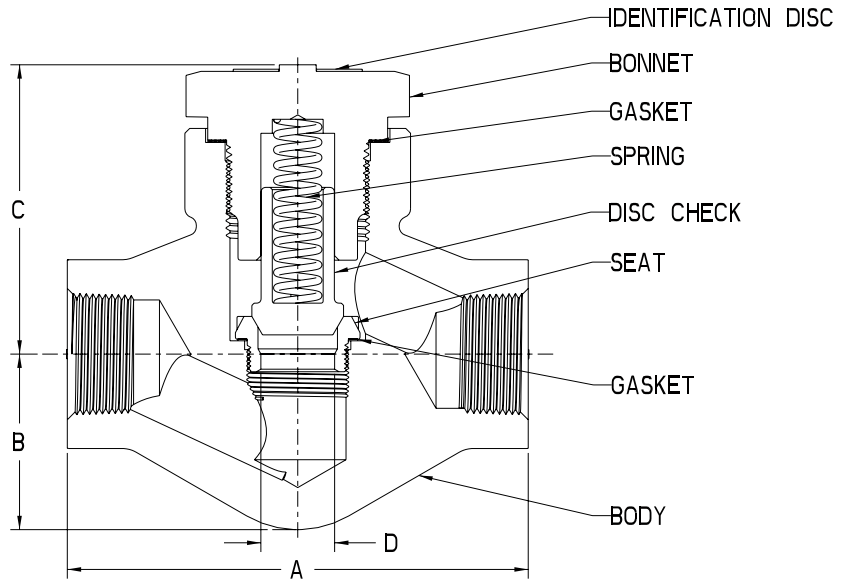
Refer to page 8 for optional trim and service configurations.

Refer to pages 11-12 for full materials description.

# Forged Check Valves – For Air, Water and Oil Service

## Type 6000 Forged Check Valve

- Screw Bonnet
- Flat Gasket Joint
- Horizontal or Vertical or Upward Flow
- Spring Control
- Piston Check
- Renewable Seat
- Non-shock pressure
- Temperature Not to Exceed 450°F
- Not Recommended for Steam or Dry Gas Service



CONNECTION	SERIES	BODY/BONNET	DISC	SEAT	SPRING	RATING		
Threaded Socket Weld	SW	4881	A105	13% Cr	13% Cr	302 SS	6000 PSI @ 100 F 6000 PSI @ 450 F	413.7 BAR @ 38 C 413.7 BAR @ 232 C

### Dimensions

SIZE	A	B	C	D	WEIGHT	Cv	
-04	NPS ½	4.00	1.50	3.12	0.41	5.7	-
	DN 15	102	38	79	10	2.6	
-05	NPS ¾	5.00	1.75	3.50	0.53	7.2	-
	DN 20	127	44	89	14	3.3	
-06	NPS 1	6.25	2.38	4.00	0.75	14.5	-
	DN 25	159	60	102	19	6.6	
-07	NPS 1¼	6.75	2.67	4.39	1.00	22.3	-
	DN 32	171	68	112	25	10.1	
-08	NPS 1½	8.25	3.37	4.65	1.22	41.6	-
	DN 40	210	86	118	31	18.9	
-09	NPS 2	8.50	3.38	5.75	1.47	51.9	-
	DN 50	216	86	146	37	23.5	

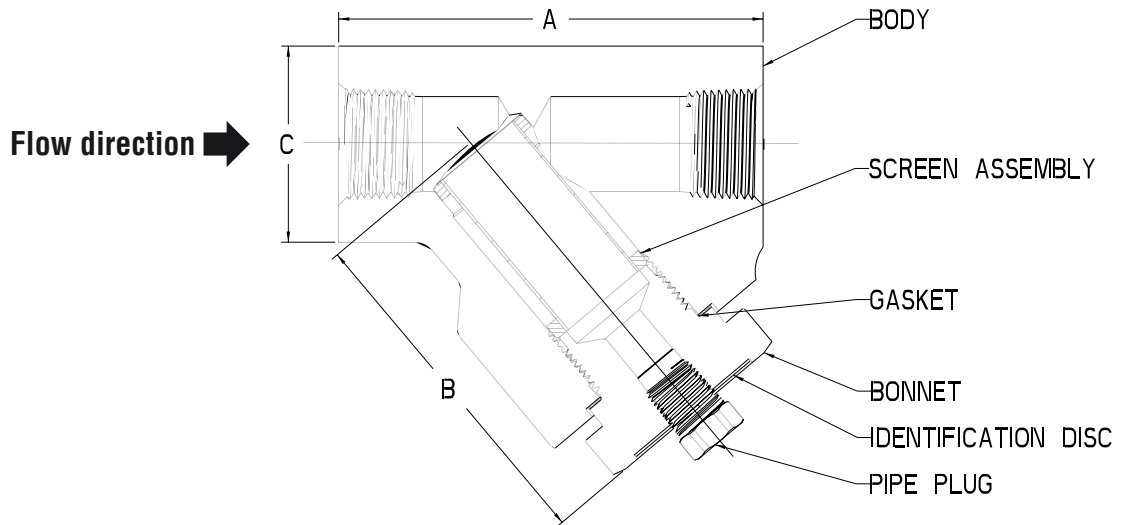
Refer to page 8 for optional trim and service configurations.  
Refer to page 115 for end connections.

Refer to pages 11-12 for full materials description.

# Strainer

## Type 3000 "Y" Type Strainer For Air, Water & Oil Service

Horizontal or Vertical  
Screw Bonnet  
Replaceable Screen



STRAINERS ARE FURNISHED WITH 40 MESH, 31 GAUGE TYPE 316 STAINLESS STEEL SCREEN.

CONNECTION	SERIES	BODY/BONNET	RATING
Threaded Socket Weld	SW	2271	A105
			3000 PSI @ 100 F
			206.8 BAR @ 38 C

### Dimensions

SIZE	A	B	C	WEIGHT	Cv	REPLACEMENT SCREEN
-03	NPS 3/8	2.50	2.29	1.50	2.5	56171
	DN 10	64	58	38	1.1	
-04	NPS 1/2	3.00	2.70	1.75	4.1	56172
	DN 15	76	69	44	1.9	
-05	NPS 3/4	3.50	3.15	2.00	3.2	56173
	DN 20	89	80	51	1.5	
-06	NPS 1	5.00	4.10	2.31	8.6	56174
	DN 25	127	104	59	3.9	
-07	NPS 1 1/4	5.00	4.17	2.31	7.7	56679
	DN 32	127	106	59	3.5	
-08	NPS 1 1/2	7.50	5.84	3.38	21.1	56176
	DN 40	191	148	86	9.6	
-09	NPS 2	7.50	5.91	3.38	18.0	56177
	DN 50	191	150	86	8.2	

Refer to pages 11-12 for full materials description.

Refer to page 115 for end connections.

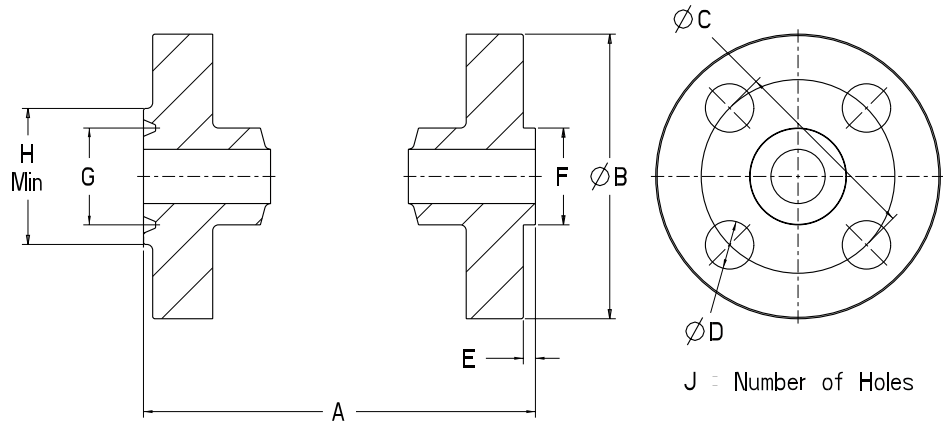


# End Connections

## Raised Face & Ring Joint Flange

Valve flanges conform to ASME Standard B16.5 and end-to-end dimensions conform to ASME B16.10

- A0 - Raised Face - Gate, Globe, Check
- A1 - Raised Face - Gate
- A2 - Raised Face - Globe, Check
- A3 - Ring Joint - Gate, Globe
- A4 - Raised Face - Swing Check



### Dimensions

			CLASS 150									
SIZE			A1	A2	B	C	D	E	F	G	H	J
-04	NPS	½	4.25	4.25	3.50	2.38	0.62	0.06	1.38			
	DN	15	108.0	108.0	88.9	60.45	15.8	1.52	35.1			4
-05	NPS	¾	4.62	4.62	3.88	2.75	0.62	0.06	1.69			
	DN	20	117.4	117.4	98.6	69.85	15.8	0.06	42.9			4
-06	NPS	1	5.00	5.00	4.25	3.12	0.62	0.06	2.00	1.875	2.50	
	DN	25	127.0	127.0	108.0	79.25	15.8	1.52	50.8	47.63	63.5	4
-07	NPS	1¼	5.50	5.50	4.62	3.50	0.62	0.06	2.50	2.250	2.88	
	DN	32	139.7	139.7	117.4	88.90	15.8	1.52	63.5	57.15	73.2	4
-08	NPS	1½	6.50	6.50	5.00	3.88	0.62	0.06	2.88	2.562	3.25	
	DN	40	165.1	165.1	127.0	98.55	15.8	1.52	73.2	65.07	82.6	4
-09	NPS	2	7.00	8.00	6.00	4.75	0.75	0.06	3.62	3.250	4.00	
	DN	50	177.8	203.2	152.4	120.65	19.1	1.52	92.0	82.55	101.6	4
-10	NPS	2½	7.50	8.50	7.00	5.50	0.75	0.06	4.12	4.000	4.75	
	DN	65	190.5	215.9	177.8	139.70	19.1	1.52	104.7	101.60	120.7	4
-11	NPS	3	8.00	9.50	7.50	6.00	0.75	0.06	5.00	4.500	5.25	
	DN	80	203.2	241.3	190.5	152.40	19.1	1.52	127.0	114.30	133.4	4
-13	NPS	4	9.00	11.50	9.00	7.50	0.75	0.06	6.19	5.875	6.75	
	DN	100	228.6	292.1	228.6	190.50	19.1	1.52	157.2	149.23	171.5	8

			CLASS 300										
SIZE			A1	A2	A4	B	C	D	E	F	G	H	J
5.50		6.00	6.00	3.75	2.62	0.62	0.06	1.38	1.344	2.00			
		152.4	152.4	95.3	66.55	15.8	1.52	35.1	34.14	50.8			4
6.00		7.00	7.00	4.62	3.25	0.75	0.06	1.69	1.688	2.50			
		177.8	177.8	117.4	82.55	19.1	0.06	42.9	42.88	63.5			4
6.50		8.00	8.50	4.88	3.50	0.75	0.06	2.00	2.00	2.75			
		165.1	203.2	215.9	124.0	88.90	19.1	1.52	50.8	50.80	69.9		4
7.00		8.50	9.00	5.25	3.88	0.75	0.06	2.50	2.375	3.12			
		177.8	215.9	228.6	133.4	98.55	19.1	1.52	63.5	60.33	79.3		4
7.50		9.00	9.50	6.12	4.50	0.88	0.06	2.88	2.688	3.56			
		190.5	228.6	241.3	155.5	114.30	22.4	1.52	73.2	68.28	90.4		4
8.50		10.50	10.50	6.50	5.00	0.75	0.06	3.62	3.250	4.25			
		215.9	266.7	266.7	165.1	127.00	19.1	1.52	92.0	82.55	108.0		8
9.50		11.50	11.50	7.50	5.88	0.88	0.06	4.12	4.000	5.00			
		241.3	292.1	292.1	190.5	149.35	22.4	1.52	104.7	101.60	127.0		8
11.12		12.50	12.50	8.25	6.62	0.88	0.06	5.00	4.875	5.75			
		282.5	317.5	317.5	209.6	168.15	22.4	1.52	127.0	123.83	146.1		8
12.00		14.00	14.00	10.00	7.88	0.88	0.06	6.19	5.875	6.88			
		304.8	355.6	355.6	254.0	200.15	22.4	1.52	157.2	149.23	174.8		8

### Dimensions

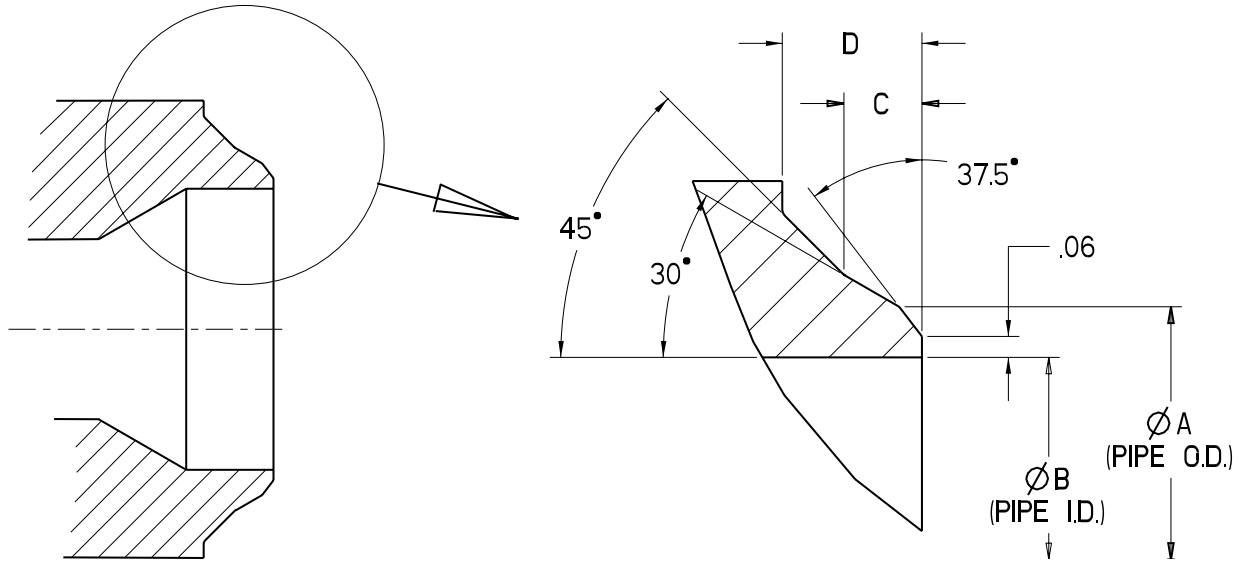
			CLASS 600									
SIZE			A1	A2	B	C	D	E	F	G	H	J
-04	NPS	½	6.50	6.50	3.75	2.62	0.62	0.25	1.38	1.344	2.00	
	DN	15	165.1	165.1	95.3	66.55	15.8	6.35	35.1	34.14	50.8	4
-05	NPS	¾	7.50	7.50	4.62	3.25	0.75	0.25	1.69	1.688	2.50	
	DN	20	190.5	190.5	117.4	82.55	19.1	0.06	42.9	42.88	63.5	4
-06	NPS	1	8.50	8.50	4.88	3.50	0.75	0.25	2.00	2.00	2.75	
	DN	25	215.9	215.9	124.0	88.90	19.1	6.35	50.8	50.80	69.9	4
-07	NPS	1¼	9.00	9.00	5.25	3.88	0.75	0.25	2.50	2.375	3.12	
	DN	32	228.6	228.6	133.4	98.55	19.1	6.35	63.5	60.33	79.3	4
-08	NPS	1½	9.50	9.50	6.12	4.50	0.88	0.25	2.88	2.688	3.56	
	DN	40	241.3	241.3	155.5	114.30	22.4	6.35	73.2	68.28	90.4	4
-09	NPS	2	11.50	11.62	6.50	5.00	0.75	0.25	3.62	3.250	4.25	
	DN	50	292.1	295.2	165.1	127.00	19.1	6.35	92.0	82.55	108.0	8
-10	NPS	2½	13.00	13.12	7.50	5.88	0.88	0.25	4.12	4.000	5.00	
	DN	65	330.2	333.3	190.5	149.35	22.4	6.35	104.7	101.60	127.0	8
-11	NPS	3	14.00	14.12	8.25	6.62	0.88	0.25	5.00	4.875	5.75	
	DN	80	355.6	358.7	209.6	168.15	22.4	6.35	127.0	123.83	146.1	8
-13	NPS	4	17.00	17.12	10.75	8.50	1.00	0.25	6.19	5.875	6.88	
	DN	100	431.8	434.9	273.1	215.90	25.4	6.35	157.2	149.23	174.8	8

			CLASS 1500									
SIZE			A0	A3	B	C	D	E	F	G	H	J
8.50		8.50	4.75	3.25	0.88	0.25	1.38	1.562	2.38			
		215.9	215.9	120.7	82.55	22.4	6.35	35.1	39.67	60.5		4
9.00		9.00	5.12	3.50	0.88	0.25	1.69	1.750	2.62			
		228.6	228.6	130.1	88.90	22.4	0.06	42.9	44.45	66.6		4
10.00		10.00	5.88	4.00	1.00	0.25	2.00	2.000	2.81			
		254.0	254.0	149.4	101.60	25.4	6.35	50.8	50.80	71.4		4
11.00		11.00	6.25	4.38	1.00	0.25	2.50	2.375	3.19			
		279.4	279.4	158.8	111.25	25.4	6.35	63.5	60.33	81.0		4
12.00		12.00	7.00	4.88	1.12	0.25	2.88	2.688	3.62			
		304.8	304.8	177.8	123.95	28.5	6.35	73.2	68.28	92.0		4
14.50		14.62	8.50	6.50	1.00	0.25	3.62	3.750	4.88			
		368.3	371.4	215.9	165.10	25.4	6.35	92.0	95.25	124.0		8
16.50		16.62	9.62	7.50	1.12	0.25	4.12	4.250	5.38			
		419.1	422.2	244.4	190.50	28.5	6.35	104.7	107.95	136.7		8
18.50		18.62	10.50	8.00	1.25	0.25	5.00	5.375	6.62			
		469.9	473.0	266.7	203.20	31.8	6.35	127.0	136.53	168.2		8
21.50		21.62	12.25	9.50	1.38	0.25	6.19	6.375	7.62			
		546.1	549.2	311.2	241.30	35.1	6.35	157.2	161.93	193.6		8

# End Connections

## Butt Weld End Valves

Conforms to ASME B16.25

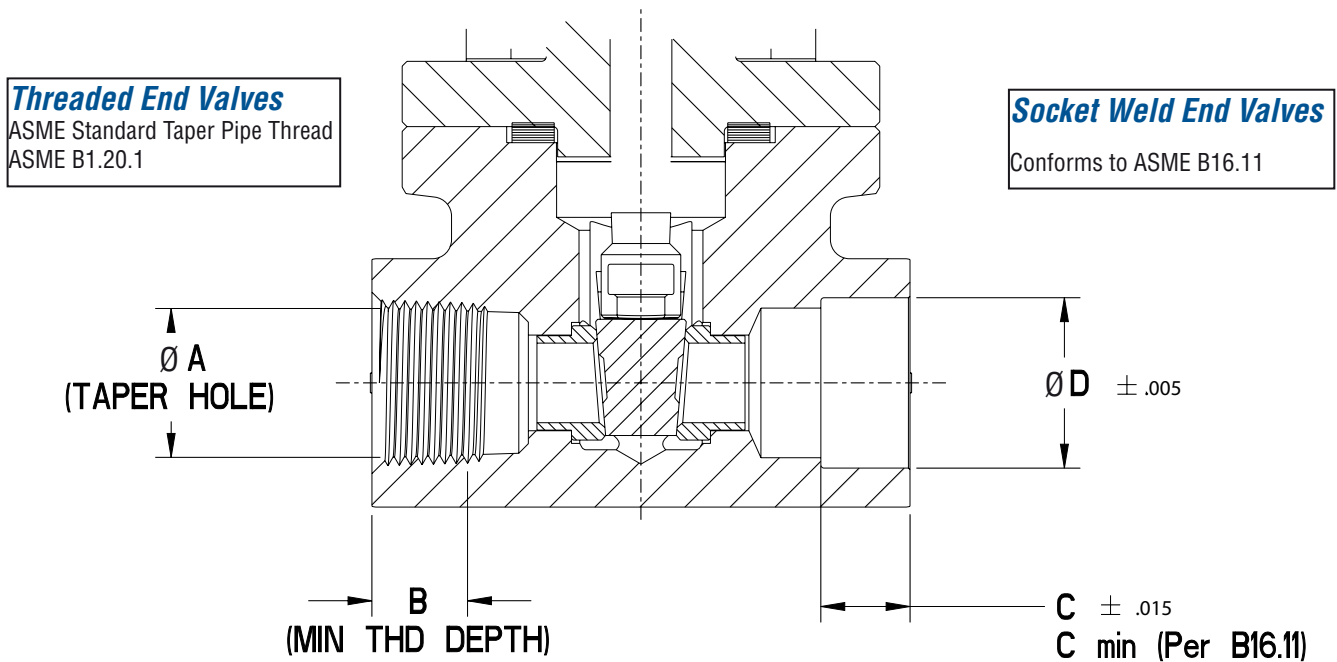


### Dimensions

SIZE		A	SCH 40			SCH 80			SCH 160			SCH XXS		
			B	C	D	B	C	D	B	C	D	B	C	D
-04	NPS ½	0.84	0.622	0.16	0.22	0.546	0.22	0.29	0.466	0.28	0.37	0.252	0.44	0.59
	DN 15	21.3	15.8	4.2	5.5	13.87	5.6	7.5	11.84	7.1	9.5	6.4	11.2	14.9
-05	NPS ¾	1.05	0.824	0.17	0.23	0.742	0.23	0.31	0.614	0.33	0.44	0.434	0.46	0.62
	DN 20	26.7	20.93	4.3	5.7	18.85	5.9	7.8	15.6	8.3	11.1	11.02	11.7	15.7
-06	NPS 1	1.315	1.049	0.2	0.27	0.957	0.27	0.36	0.815	0.38	0.5	0.599	0.54	0.72
	DN 25	33.4	26.64	5.1	6.8	24.31	6.8	9.1	20.7	9.5	12.7	15.21	13.6	18.2
-07	NPS 1¼	1.66	1.38	0.21	0.28	1.278	0.29	0.38	1.16	0.38	0.5	0.896	0.57	0.76
	DN 32	42.2	35.05	5.3	7.1	32.46	7.3	9.7	29.46	9.5	12.7	22.76	14.6	19.4
-08	NPS 1½	1.9	1.61	0.22	0.29	1.5	0.3	0.4	1.338	0.42	0.56	1.1	0.6	0.8
	DN 40	48.3	40.89	5.5	7.4	38.1	7.6	10.2	33.99	10.7	14.3	27.94	15.2	20.3
-09	NPS 2	2.375	2.067	0.23	0.31	1.939	0.33	0.44	1.689	0.51	0.69	1.503	0.65	0.87
	DN 50	60.3	52.5	5.9	7.8	49.25	8.3	11.1	42.9	13.1	17.4	38.18	16.6	22.2
-10	NPS 2½	2.875	2.469	0.3	0.41	2.323	0.41	0.55	2.125	0.56	0.75	1.771	0.83	1.1
	DN 65	73	62.71	7.7	10.3	59	10.5	14	53.98	14.3	19.1	44.98	21	28
-11	NPS 3	3.5	3.068	0.32	0.43	2.9	0.45	0.6	2.624	0.66	0.88	2.3	0.9	1.2
	DN 80	88.9	77.93	8.2	11	73.66	11.4	15.2	66.65	16.7	22.3	58.42	22.9	30.5
-13	NPS 4	4.5	4.026	0.36	0.47	3.826	0.51	0.67	3.438	0.8	1.06	3.152	1.01	1.35
	DN 100	114.3	102.26	9	12	97.18	12.8	17.1	87.33	20.2	27	80.06	25.7	34.2

## End Connections

### Threaded End Valves



### Dimensions

SIZE	THREADED				SOCKET WELD		
	A	B	THD'S/IN	C	C MIN	D	
-04	NPS ½	0.725	0.59	14	0.44	0.38	0.860
	DN 15	18.42	15.0		11.2	9.7	21.84
-05	NPS ¾	0.935	0.59	14	0.56	0.50	1.070
	DN 20	23.75	15.0		14.2	12.7	27.18
-06	NPS 1	1.173	0.75	11½	0.56	0.50	1.335
	DN 25	29.79	19.1		14.2	12.7	33.91
-07	NPS 1¼	1.518	0.78	11½	0.56	0.50	1.680
	DN 32	38.56	19.8		14.2	12.7	42.67
-08	NPS 1½	1.756	0.81	11½	0.56	0.50	1.920
	DN 40	44.60	20.6		14.2	12.7	48.77
-09	NPS 2	2.231	0.84	11½	0.69	0.62	2.411
	DN 50	56.67	21.3		17.5	15.8	61.24
-10	NPS 2½	2.666	1.25	8	0.69	0.62	2.911
	DN 65	67.72	31.8		17.5	15.8	73.94
-11	NPS 3	3.293	1.31	8	0.69	0.62	3.540
	DN 80	83.64	33.3		17.5	15.8	89.92

## Pressure-temperature Ratings for Vogt Products

RATINGS ARE IN ACCORDANCE WITH ASME B16.34-2004, STANDARD CLASS. - PRESSURE (PSIG)																										
SERVICE TEMP	CLASS 150					CLASS 300					CLASS 600					CLASS 800					CLASS 1500					
	A105	F316	F11	F22	LF2	A105	F316	F11	F22	LF2	A105	F316	F11	F22	LF2	A105	F5	F316	316H	LF2	F9	F11	F22	A105	F5	F316
-50 F		275			285		720			740				1440					1920		1975				3600	
-20 TO 100 F	285	275	290	290	285	740	720	750	750	740	1480	1440	1500	1500	1480	1975	2000	1920	1920	1975	2000	2000	2000	3705	3750	3600
200 F	260	235	260	260	260	680	620	750	750	680	1360	1240	1500	1500	1360	1810	1965	1655	1655	1810	2000	2000	2000	3395	3680	3095
300 F	230	215	230	230	230	655	560	720	720	655	1310	1120	1445	1445	1310	1745	1865	1495	1495	1745	1940	1925	1940	3270	3495	2795
400 F	200	195	200	200	200	635	515	695	695	635	1265	1025	1385	1410	1265	1690	1780	1370	1370	1690	1880	1850	1880	3170	3345	2570
500 F	170	170	170	170	170	605	480	665	665	605	1205	955	1330	1330	1205	1610	1725	1275	1275	1610	1775	1775	1775	3015	3230	2390
600 F	140	140	140	140	140	570	450	605	605	570	1135	900	1210	1210	1135	1515	1615	1205	1205	1515	1615	1615	1615	2840	3025	2255
650 F	125	125	125	125	125	550	440	590	590	550	1100	885	1175	1175	1100	1465	1570	1180	1185	1465	1570	1570	1570	2745	2940	2210
700 F	110	110	110	110	110	530	435	570	570	530	1060	870	1135	1135	1060	1415	1515	1160	1160	1415	1515	1515	1515	2655	2840	2170
750 F	95	95	95	95	95	505	425	530	530	505	1015	855	1065	1065	1015	1350	1420	1140	1140	1350	1420	1420	1420	2535	2660	2135
800 F	80	80	80	80	80	410	420	510	510	410	825	845	1015	1015	825	1100	1355	1125	1125	1100	1355	1355	1355	2055	2540	2110
850 F	65	65	65	65	65	320	420	485	485	320	640	835	975	975	640	850	1300	1115	1115	850	1300	1300	1300	1595	2435	2090
900 F	50	50	50	50	50	230	415	450	450	230	460	830	900	900	460	615	995	1105	1105	615	1200	1200	1200	1150	1870	2075
950 F	35	35	35	35	35	135	385	320	385	135	275	775	640	755	275	365	735	1030	1030	365	1005	850	1030	685	1370	1930
1000 F	20	20	20	20	20	85	365	215	265	85	170	725	430	535	170	225	530	970	970	225	675	575	710	430	995	1820
1050 F								145	175				290	350			385		960		460	385	465		720	
1100 F								95	110				190	220			255		815		300	255	295		480	
1150 F								65	70				130	135			165		630		200	175	180		310	
1200 F								40	40				80	80			95		495		140	110	110		170	
1250 F																			390							
1300 F																			310							
1350 F																			255							
1400 F																			200							
1450 F																			155							
1500 F																			110							

RATINGS ARE IN ACCORDANCE WITH ASME B16.34-2004, STANDARD CLASS. - PRESSURE (BAR)																										
SERVICE TEMP	CLASS 150					CLASS 300					CLASS 600					CLASS 800					CLASS 1500					
	A105	F316	F11	F22	LF2	A105	F316	F11	F22	LF2	A105	F316	F11	F22	LF2	A105	F5	F316	316H	LF2	F9	F11	F22	A105	F5	F316
-46 C		19.0			19.6		49.6			51.1				99.3					132.4		136.2				248.2	
-29 TO 38C	19.6	19.0	19.8	19.8	19.6	51.1	49.6	51.7	51.7	51.1	102.1	99.3	103.4	103.4	102.1	136.2	137.9	132.4	132.4	136.2	137.9	137.9	137.9	255.3	258.6	248.2
50 C	19.2	18.4	19.5	19.5	19.2	50.1	48.1	51.7	51.7	50.1	100.2	96.2	103.4	103.4	100.2	133.7	137.3	128.3	128.3	133.7	137.9	137.9	137.9	250.6	257.5	240.6
100 C	17.7	16.2	17.7	17.7	17.7	46.6	42.2	51.5	51.5	46.6	93.2	84.4	103.0	103.0	93.2	124.3	134.5	112.5	112.5	124.3	137.4	137.3	137.4	233.0	252.2	211.0
150 C	15.8	14.8	15.8	15.8	15.8	45.1	38.5	49.7	50.3	45.1	90.2	77.0	99.5	100.3	90.2	120.2	128.5	102.7	102.7	120.2	133.8	132.6	133.8	225.4	240.9	192.5
200 C	13.8	13.7	13.8	13.8	13.8	43.8	35.7	48.0	48.6	43.8	87.6	71.3	95.9	97.2	87.6	116.8	123.4	95.1	95.1	116.8	129.6	127.9	129.6	219.0	231.3	178.3
250 C	12.1	12.1	12.1	12.1	12.1	41.9	33.4	46.3	46.3	41.9	83.9	66.8	92.7	92.7	83.9	111.8	119.5	89.0	89.0	111.8	123.6	123.6	123.6	209.7	224.1	166.9
300 C	10.2	10.2	10.2	10.2	10.2	39.8	31.6	42.9	42.9	39.8	79.6	63.2	85.7	85.7	79.6	106.2	114.3	84.3	84.3	106.2	114.3	114.3	114.3	199.1	214.4	158.1
325 C	9.3	9.3	9.3	9.3	9.3	38.7	30.9	41.4	41.4	38.7	77.4	61.8	82.6	82.6	77.4	103.2	110.2	82.4	82.4	103.2	110.2	110.2	110.2	193.6	206.6	154.4
350 C	8.4	8.4	8.4	8.4	8.4	37.6	30.3	40.3	40.3	37.6	75.1	60.7	80.4	80.4	75.1	100.2	107.3	80.9	80.9	100.2	107.3	107.3	107.3	187.8	201.1	151.6
375 C	7.4	7.4	7.4	7.4	7.4	36.4	29.9	38.9	38.9	36.4	72.7	59.7	77.6	77.6	72.7	97.0	103.5	79.7	79.7	97.0	103.5	103.5	103.5	181.8	194.1	149.4
400 C	6.5	6.5	6.5	6.5	6.5	34.7	29.4	36.5	36.5	34.7	69.4	58.9	73.3	73.3	69.4	92.6	97.6	78.5	78.5	92.6	97.6	97.6	97.6	173.6	183.1	147.2
425 C	5.5	5.5	5.5	5.5	5.5	28.8	29.1	35.2	35.2	28.8	57.5	58.3	70.0	70.0	57.5	76.7	93.4	77.7	77.7	76.7	93.4	93.4	93.4	143.8	175.1	145.7
450 C	4.6	4.6	4.6	4.6	4.6	23.0	28.8	33.7	33.7	23.0	46.0	57.7	67.7	67.7	46.0	61.3	90.2	76.9	76.9	61.3	90.2	90.2	90.2	115.0	169.0	144.2
475 C	3.7	3.7	3.7	3.7	3.7	17.4	28.7	31.7	31.7	17.4	34.9	57.3	63.4	63.4	34.9	46.5	74.3	76.4	76.4	46.5	84.5	84.5	84.5	87.2	139.3	143.4
500 C	2.8	2.8	2.8	2.8	2.8	11.8	28.2	25.7	28.2	11.8	23.5	56.5	51.5	56.5	23.5	31.4	57.0	75.3	75.3	31.4	75.3	68.6	75.3	58.8	106.9	140.9
538 C	1.4	1.4	1.4	1.4	1.4	5.9	25.2	14.9	18.4	5.9	11.8	50.0	29.8	36.9	11.8	15.7	36.5	66.8	66.8	15.7	46.7	39.7	49.2	29.5	68.6	125.5
550 C								12.7	15.6				25.4	31.3			32.1		66.5		40.0	33.9	41.7		60.2	
575 C								8.8	10.5				17.6	21.1			23.5		63.8		27.9	23.5	28.1		44.0	
600 C								6.1	6.9				12.2	13.8			16.2		53.1		19.1	16.3	18.4		30.3	
625 C								4.3	4.5				8.5	8.9			10.7		42.1		13.2	11.4	11.9		20.0	
650 C								2.8	2.8				5.7	5.7			6.3		33.8		9.4	7.6	7.6		11.8	
675 C																			27.5							
700 C																			22.3							
725 C																			18.7							
750 C																			15.6							
775 C																			12.1							
800 C																			9.3							
816 C																			7.7							

A105 ASTM A105 (2) F9 ASTM A182 F9 (1) F316 ASTM A182 F316/F316L (1) F11 ASTM A182 F11 Cl 2 (3) (4) 316H ASTM A183 F316H F22 ASTM A182 F22 Cl 3 (3) F5 ASTM A182 F5

(1) F316 Stainless Steel containing Max. Carbon of .030 - Do not use above 1000 F(538C)  
 (2) A105 & LF2 are permitted but not recommended for prolonged use above 800 F (427C)  
 (3) F11 & F22 are permitted but not recommended for prolonged use above 1100 F (593C)  
 (4) F11 to be Normalized and Tempered only

# Pressure-temperature Ratings for Vogt Products

STANDARD CLASS. - PRESSURE					RATINGS ARE IN ACCORDANCE WITH ASME B16.34-2004, LIMITED CLASS. - PRESSURE (PSIG)																									
CLASS 1500					CLASS 800 LTD					CLASS 1500 LTD					CLASS 1690 LTD					CLASS 2500 LTD					CLASS 2680 LTD					
316H	LF2	F9	F11	F22	SERVICE TEMP	A105	F11	F22	F91	A105	F11	F22	F91	A105	F11	F22	F91	A105	F11	F22	F91	A105	F11	F22	F91	A105	F11	F22	F91	
	3705				-50 F																									
3600	3705	3750	3750	3750	-20 TO 100 F	2000	2000	2000	2000	3750	3750	3750	3750	4225	4225	4225	4225	6250	6250	6250	6250	6700	6700	6700	6700					
3095	3395	3750	3750	3750	200 F	2000	2000	2000	2000	3750	3750	3750	3750	4225	4225	4225	4225	6250	6250	6250	6250	6700	6700	6700	6700					
2795	3270	3640	3610	3640	300 F	1975	2000	1975	2000	3700	3750	3695	3750	4170	4225	4165	4225	6170	6250	6160	6250	6615	6700	6605	6700					
2570	3170	3530	3465	3530	400 F	1955	2000	1940	2000	3665	3750	3640	3750	4130	4225	4100	4225	6105	6250	6065	6250	6545	6700	6500	6700					
2390	3015	3325	3325	3325	500 F	1955	2000	1935	2000	3665	3750	3620	3750	4130	4225	4080	4225	6105	6250	6035	6250	6545	6700	6470	6700					
2255	2840	3025	3025	3025	600 F	1955	2000	1925	2000	3665	3750	3605	3750	4130	4225	4060	4225	6105	6250	6010	6250	6545	6700	6440	6700					
2210	2745	2940	2940	2940	650 F	1905	2000	1905	2000	3575	3750	3580	3750	4030	4225	4035	4225	5960	6250	5965	6250	6390	6700	6395	6700					
2170	2655	2840	2840	2840	700 F	1945	1955	1885	1955	3455	3665	3535	3665	3895	4130	3985	4130	5760	6110	5895	6110	6175	6550	6320	6550					
2135	2535	2660	2660	2660	750 F	1695	1945	1885	1945	3170	3645	3535	3645	3570	4105	3985	4105	5285	6070	5895	6070	5665	6505	6320	6510					
2110	2055	2540	2540	2540	800 F	1375	1920	1885	1920	2570	3600	3535	3600	2895	4055	3985	4055	4285	6000	5895	6000	4595	6430	6320	6430					
2090	1595	2435	2435	2435	850 F	1060	1805	1805	1805	1996	3385	3385	3385	2245	3815	3815	3815	3320	5645	5645	5645	3560	6050	6050	6050					
2075	1150	2245	2245	2245	900 F	765	1565	1600	1600	1435	2935	3000	3000	1615	3305	3380	3380	2395	4895	5000	5000	2565	5245	5360	6360					
1930	685	1885	1595	1930	950 F	465	1075	1275	1275	875	2040	2410	2410	990	2305	2725	2725	1485	3445	4075	4075	1595	3700	4380	4380					
1820	430	1270	1080	1335	1000 F	295	745	925	1160	570	1445	1785	2250	650	1640	2030	2555	1000	2520	3120	3925	1085	2725	3375	4245					
1800		855	720	875	1050 F		495	600	1160		960	1170	2250		1095	1330	2555		1680	2040	3925		1815	2205	4245					
1525		565	480	550	1100 F		330	375	1040		640	730	2015		730	835	2290		1120	1280	3520		1210	1385	3810					
1185		375	325	345	1150 F		225	235	765		435	460	1490		495	520	1695		760	800	2600		825	865	2810					
925		255	205	205	1200 F		145	145	495		275	275	960		310	310	1095		480	480	1680		520	520	1815					
735					1250 F																									
585					1300 F																									
480					1350 F																									
380					1400 F																									
290					1450 F																									
205					1500 F																									

STANDARD CLASS. - PRES-SURE					RATINGS ARE IN ACCORDANCE WITH ASME B16.34-2004, LIMITED CLASS. - PRESSURE (BAR)																									
CLASS 1500					CLASS 800 LTD					CLASS 1500 LTD					CLASS 1690 LTD					CLASS 2500 LTD					CLASS 2680 LTD					
316H	LF2	F9	F11	F22	SERVICE TEMP	A105	F11	F22	F91	A105	F11	F22	F91	A105	F11	F22	F91	A105	F11	F22	F91	A105	F11	F22	F91	A105	F11	F22	F91	
	255.3				-46 C																									
248.2	255.3	258.6	258.6	258.6	-29 TO 38C	137.9	137.9	137.9	137.9	258.6	258.6	258.6	258.6	291.3	291.3	291.3	291.3	430.9	430.9	430.9	430.9	461.9	461.9	461.9	461.9					
240.6	250.6	258.6	258.6	258.6	50 C	137.9	137.9	137.9	137.9	258.6	258.6	258.6	258.6	291.3	291.3	291.3	291.3	430.9	430.9	430.9	430.9	461.9	461.9	461.9	461.9					
211.0	233.0	257.6	257.4	257.6	100 C	137.7	137.9	137.7	137.9	258.2	258.6	258.1	258.6	290.9	291.3	290.8	291.3	430.9	430.9	430.2	430.9	461.3	461.9	461.2	461.9					
192.5	225.4	250.8	248.7	250.9	150 C	136.1	137.9	135.9	137.9	255.2	258.6	254.8	258.6	287.5	291.3	287.1	291.3	425.3	430.9	424.6	430.9	455.9	461.9	455.2	461.9					
178.3	219.0	243.4	239.8	243.4	200 C	134.8	137.9	133.9	137.9	252.9	258.6	251.1	258.6	284.9	291.3	282.9	291.3	421.4	430.9	418.5	430.9	451.7	461.9	448.6	461.9					
166.9	209.7	231.8	231.8	231.8	250 C	134.8	137.9	133.3	137.9	252.6	258.6	249.9	258.6	284.6	291.3	281.6	291.3	421.1	430.9	416.5	430.9	451.4	461.9	446.5	461.9					
158.1	199.1	214.4	214.4	214.4	300 C	134.8	137.9	132.7	137.9	252.6	258.6	248.9	258.6	284.6	291.3	280.4	291.3	421.1	430.9	414.8	430.9	451.4	461.9	444.7	461.9					
154.4	193.6	206.6	206.6	206.6	325 C	133.6	137.9	132.3	137.9	250.6	258.6	248.0	258.6	282.3	291.3	279.4	291.3	417.6	430.9	413.3	430.9	447.7	461.9	443.1	461.9					
151.6	187.8	201.1	201.1	201.1	350 C	130.4	137.1	131.2	137.1	244.6	257.1	246.0	257.1	275.6	289.7	277.2	289.7	407.6	428.6	410.0	428.6	436.9	459.5	439.5	459.5					
149.4	181.8	194.1	194.1	194.1	375 C	125.6	134.7	130.0	134.7	235.5	252.5	243.8	252.5	265.3	284.5	274.7	284.5	392.5	420.9	406.3	420.9	420.8	451.2	435.6	451.2					
147.2	173.6	183.1	183.1	183.1	400 C	115.7	133.9	130.0	133.9	217.0	251.2	243.8	251.2	244.5	282.9	274.7	282.9	361.7	418.3	406.3	418.3	387.7	448.4	435.6	448.4					
145.7	143.8	175.1	175.1	175.1	425 C	95.9	132.4	130.0	132.4	179.8	248.2	248.3	248.2	202.6	279.6	274.7	279.6	299.6	413.7	406.3	413.7	321.2	443.5	435.6	443.5					
144.2	115.0	169.0	169.0	169.1	450 C	76.7	125.7	125.7	125.7	143.8	235.8	235.8	235.8	162.0	265.7	265.7	265.7	239.6	393.1	393.1	393.1	256.9	421.4	421.4	421.4					
143.4	87.2	158.2	158.2	158.2	475 C	58.1	114.0	114.0	114.0	109.0	213.7	213.7	213.7	122.8	240.8	240.8	240.8	181.6	356.3	356.3	356.3	194.7	382.0	382.0	382.0					
140.9	58.8	140.9	128.6	140.9	500 C	39.2	85.8	95.2	95.2	73.5	160.8	178.6	178.6	82.8	182.2	201.2	201.2	122.4	268.0	297.5	279.5	131.2	287.3	318.9	318.9					
125.5	29.5	87.5	74.5	92.2	538 C	20.4	51.4	63.6	80																					

## $C_v$ Factors

TYPICAL SERIES NO.	NPS	½	¾	1	1¼	1½	2	2½	3	4
	DN	15	20	25	32	40	50	65	80	100
353, 363, 373, 353R, 12401C, 2801, 2811, 2831, 12111, 12161, 12321, 12401, 12421, 12521, 15111, 15373, 15801, ST15801, 32111, 35111, 42211MTG, 59851, 59951		9.6	9.7	20.3	80.5	91.6	117.6	174.0	203.9	230.0
13111, 13373, 16111, 43111MMP, SW-43211HF2		9.6	28.7	46.5	80.5	109.6	181.0	-	-	-
11103, 11403		9.6	28.7	46.5	80.5	109.6	181.0	242.3	322.7	-
2801B		9.6	9.7	20.3	-	109.6	117.6	-	-	-
CT-2801, ST-2801, TT-2801, CT-2831, ST-2831, TT-2831		6.5	9.0	27.7	-	78.0	-	-	-	-
CT-2901, CT, BT, TT, ST-12111		9.6	9.7	20.3	-	78.0	-	-	-	-
1033, 1043, 11603, 11683		11.8	28.7	32.0	83.2	109.6	181.0	-	-	-
66703, 66713		5.0	17.4	16.1	-	109.6	100.2	-	-	-
473, 483, 493, 801, 851, 2821, 12141, 12181, 12501, 12501C		2.4	4.3	7.3	14.2	20.4	23.1	-	-	-
473B, 483B, 493B, 12141B		2.2	5.7	5.2	-	21.1	20.5	-	-	-
22141CL, 22141F8M, 22141MT, 22493CL, 22493MT, 42241HF2		1.7	3.1	5.9	13.7	18.4	22.5	-	-	-
10103, 10403		3.4	7.3	11.9	15.5	28.2	46.9	-	85.1	-
SW-23141HF4, 43241MMP, 43241MTP		0.7	5.9	13.7	-	21.0	34.0	-	-	-
13141		3.0	6.8	14.5	17.2	24.4	37.6	-	-	-
CT-12141, ST-12141, TT-12141		2.4	4.3	7.3	-	20.4	-	-	-	-
12443		1.46	2.38	4.54	-	9.65	14.6	-	-	-
1971		2.6	4.5	11.9	21.0	31.4	52.0	-	-	-
22461		0.68	0.99	1.5	-	-	-	-	-	-
15141, 15493, 15821 SCH 160		3.1	3.3	5.9	-	13.8	21.4	-	-	-
1003, 1023, 10603, 10683		3.6	6.0	10.2	15.1	24.2	39.8	-	-	-
15443		1.46	2.38	4.54	-	11.5	13.0	-	-	-
1510, 1511, 1522 SCH 160		6.0	4.0	9.3	-	57.8	48.9	-	-	-
66723, 66733, 66793 SCH XXH		1.2	4.3	5.8	-	17.6	19.3	-	-	-
2510, 2511, 2522 SCH XXH		6.0	8.9	9.3	-	32.9	49.4	-	-	-
1331T, 1871T		2.9	3.8	8.1	15.3	18.4	25.5	-	-	-
2891T, 9841T		2.6	4.5	11.9	19.0	25.0	49.0	-	-	-
9821T, 9871T, 58431T		1.8	3.5	5.8	7.6	11.7	17.7	-	-	-
573, 583, 593, 701, 701ZL, B701, 718, B718, 32701, 82718		2.1	3.2	5.8	13.3	18.3	25.3	-	-	-
9091, B9091		3.6	6.7	11.8	20.2	26.1	43.3	-	-	-
SWB-43721HF2		0.7	5.9	11.8	-	22.6	32.6	-	-	-
4835		3.3	4.4	17.0	28.2	43.0	63.0	-	-	-
13701		3.2	6.9	16.0	18.3	25.5	36.9	-	-	-
54853, 54863		8.7	15.1	30.5	29.1	37.7	45.3	-	-	-
S74, S701		9.2	6.8	22.0	-	54.6	81.9	-	-	-
15593, 15701, B15701		3.2	3.3	6.3	13.3	11.0	19.6	-	-	-
1551, B1551		2.1	4.1	7.3	10.5	17.6	23.3	-	-	-
810, 811, 822		4.5	9.1	21.3	-	70.0	79.1	-	-	-

SCH 40 used for testing except as noted

## Flow Data Utilizing Cv Factors

FORMULAS			Fluid Flow Nomenclature
TYPE FLOW	FLOW RATE	PRESSURE DROP	
LIQUID	$Q = C_v \sqrt{\frac{\Delta P}{S}}$	$\Delta P = S \left(\frac{Q}{C_v}\right)^2$	<p><math>C_v</math> – Flow coefficient for valves and fittings.</p> <p><math>P_1</math> – Absolute inlet pressure. (PSIA)</p> <p><math>\Delta P</math> – Pressure drop in pounds per square inch. (PSI)</p> <p><math>Q</math> – Liquid flow in gallons per minute. (GPM)</p> <p><math>q'_m</math> – Rate of gas flow in cubic feet per minute at standard conditions, 14.7 psia and 60°F. (SCFM)</p> <p><math>S</math> – Specific gravity of flowing liquid relative to water at 60°F.</p> <p><math>S_g</math> – Specific gravity of gas relative to air.</p> <p><math>s</math> – Number of degrees of superheat for steam in °F.</p> <p><math>T_1</math> – Absolute inlet temperature in degrees Rankine. (°R)</p> <p><math>W</math> – Steam or vapor flow rate in pounds per hour. (LBS./HR.)</p>
GAS	WHEN $\Delta P < .5P_1$	$q'_m = 22.6 C_v \sqrt{\frac{\Delta P \times P_1}{T_1 S_g}}$	
	WHEN $\Delta P \geq .5P_1$	$q'_m = \frac{13.9 P_1 C_v}{\sqrt{S_g T_1}}$	
DRY SATURATED STEAM		$\Delta P = \frac{.00195 T_1 S_g}{P_1} \left(\frac{q'_m}{C_v}\right)^2$	
WHEN $\Delta P < .5P_1$	$W = 2.97 C_v \sqrt{\Delta P \times P_1}$		
WHEN $\Delta P \geq .5P_1$	$W = 1.82 C_v P_1$	$\Delta P = \frac{.113}{P_1} \left(\frac{W}{C_v}\right)^2$	
SUPERHEATED STEAM		$\Delta P = \frac{.113}{P_1} \left(\frac{W(1 + .0007s)}{C_v}\right)^2$	
WHEN $\Delta P < .5P_1$	$W = \frac{2.97 C_v \sqrt{\Delta P \times P_1}}{(1 + .0007s)}$		
WHEN $\Delta P \geq .5P_1$	$W = \frac{1.82 C_v P_1}{(1 + .0007s)}$		

## Flow Data Utilizing Cv Factors (Metric Version)

FORMULAS			Fluid Flow Nomenclature
TYPE FLOW	FLOW RATE	PRESSURE DROP	
LIQUID	$Q = .865 C_v \sqrt{\frac{\Delta P}{S}}$	$\Delta P = 1.34 S \left(\frac{Q}{C_v}\right)^2$	<p><math>C_v</math> – Flow coefficient for valves and fittings.</p> <p><math>P_1</math> – Absolute inlet pressure. (BAR)</p> <p><math>\Delta P</math> – Pressure drop in bars.</p> <p><math>Q</math> – Liquid flow in cubic meters per hour.</p> <p><math>q'_H</math> – Rate of gas flow in cubic meters per hour at standard conditions, 1.01 BAR @ 15.6°C.</p> <p><math>S</math> – Specific gravity of flowing liquid relative to water at 16°C.</p> <p><math>S_g</math> – Specific gravity of gas relative to air.</p> <p><math>s</math> – Number of degrees of superheat for steam in °C.</p> <p><math>T_1</math> – Absolute inlet temperature in degrees Kelvin. (°K)</p> <p><math>W</math> – Steam or vapor flow rate in kilograms per hour. (KGS./HR.)</p>
GAS	WHEN $\Delta P < .5P_1$	$q'_H = 414.97 C_v \sqrt{\frac{\Delta P \times P_1}{T_1 S_g}}$	
	WHEN $\Delta P \geq .5P_1$	$q'_H = \frac{255.2 P_1 C_v}{\sqrt{S_g T_1}}$	
DRY SATURATED STEAM		$\Delta P = \frac{5.81 \times 10^{-6} T_1 S_g}{P_1} \left(\frac{q'_H}{C_v}\right)^2$	
WHEN $\Delta P < .5P_1$	$W = 19.53 C_v \sqrt{\Delta P \times P_1}$		
WHEN $\Delta P \geq .5P_1$	$W = 11.97 C_v P_1$	$\Delta P = \frac{.00262}{P_1} \left(\frac{W}{C_v}\right)^2$	
SUPERHEATED STEAM		$\Delta P = \frac{0.00274}{P_1} \left(\frac{W(1 + 0.00123s)}{C_v}\right)^2$	
WHEN $\Delta P < .5P_1$	$W = \frac{19.1 C_v \sqrt{\Delta P \times P_1}}{(1 + 0.00123s)}$		
WHEN $\Delta P \geq .5P_1$	$W = \frac{11.71 C_v \times P_1}{(1 + 0.00123s)}$		

## ***Meeting the Demands of Today***

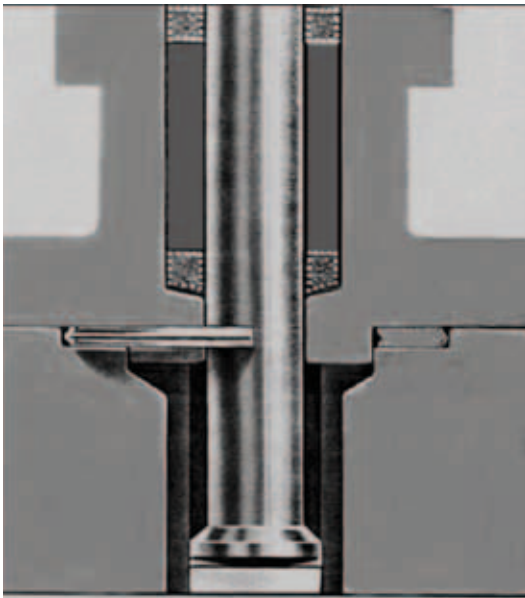
### **Asbestos-Free Valves**

Asbestos-Free Packing  
Asbestos-Free Gasket

SAFE – EFFICIENT in retaining high and low temperature media.

### **ADVANCED TECHNOLOGY PROVIDES:**

- Environmental acceptance
- Elimination of media contamination
- Leak-proof integrity
- High thermal conductivity
- Self-lubricating operation
- Shrinkage resistance
- Corrosion-resistant inhibitor
- Less frequent maintenance
- Longer service life



### **STANDARD PACKING**

Vogt standard valves are packed with one of the following asbestos-free packing sets:

### **FLEXIBLE GRAPHITE PACKING**

A 95% by weight minimum carbon packing set that consists of a cylindrical ring of flexible graphite packing supported on the top and bottom and braided graphite filament packing rings. The packing dispersed and embedded active corrosion inhibitor to protect against stem pitting. It may be used in fluids having a pH range of 0-14. The packing has minimal residues as follows:

Leachable Chlorides: 100PPM maximum  
Total Chlorides: 500PPM Maximum  
Total Sulfur: 1000PPM Maximum  
PTFE: None

### **MOLDED TFE TEFLON-SHAPED PACKING**

Vogt valves that have a series number suffixed with the letter “T” are packed with a molded, shaped TFE packing. This virgin TFE material needs no corrosion inhibitor in its composition, and its self-energizing shape ensures superior service and low gland bolting loads in high pressure liquid and dry gas applications. It may also be used in fluids having a pH range of 0-14. Temperature range: -120°F to 500°F (-84° to 260°C).

Since this packing has directional sealing, it can be reoriented for valves used in vacuum and/or combination vacuum/pressure service.

### **OTHER PACKING**

Other packing sets can be placed in Vogt valves at the user's option.



**Material Compatability Chart**

1- Acceptable for Use  
0 - Not Acceptable for Use

Chemical	A105, A182 F5, F9, F11, F22				Teflon	Viton	Neoprene	Ethylene Propylene	Buna N	Flexible Graphite Packing
	A182 F316	13 CR	Type 316	Monel						
Acetaldehyde	1	1	1	1	1	1	0	0		
Acetate Solvents	1	1	1	1	1	0	0	1	0	
Acetic Acid (100%)	0	1	0	1	1	1	1	0	1	0
Acetic Acid (crude)	0	1		1	1					1
Acetic Acid Vapors	0	1	0	1	1					1
Acetic Anhydride	0	1	0	1	1	1	0			1
Acetone	1	1	1	1	1	1	0	0	1	0
Air	1	1	1	1	1	1	1	1	1	1
Alcohol - Amyl	1	1	1	1	1	1	1		1	1
Alcohol - Butyl	1	1	1	1	1	1	1		1	1
Alcohol - Diacetone	1	1	1	1	1	1	1		1	1
Alcohol - Ethyl	1	1	1	1	1	1	1	1	1	1
Alcohol - Isopropyl	1	1	1	1	1	1	1		1	1
Alcohol - Methyl	1	1	1	1	1	1	0	1	1	1
Alcohol - Oleyl				1		1			1	
Alkaform		1	1	1						
Alum 10%	0	1	1	1	1	1	1	1	1	1
Alumina				1	1	1	1	1		
Aluminum Acetate	0	1	1	1	1					
Aluminum Chloride	0	1	0	1	1	1	1	1	1	1
Aluminum Fluoride		1	1	1	1	1	1	1		
Aluminum Hydroxide		1	1	1	1	1	1	1		
Aluminum Sulfate 10% (boiling)	0	1	1	1	1	1	1	1	1	
Aluminum Sulfate, Saturate (boiling)	0	1	1	0	1	1	1	1		
Aluminum Sulfate, Saturate (room)	0	1	1	1	1	1	1	1		
Amines	1	1	1	1	1	0	1	1	0	
Ammonia (gas or liquid)	1	1	1	1	1	1		1		
Ammonia, Dry	1	1	1	1	1	0	1	1	0	
Ammonium Bicarbonate	1	1	1	0	1	1				
Ammonium Carbonate	1	1	1	1	1	1				
Ammonium Chloride	0	1	0	1	1	1	1	1	1	
Ammonium Diphosphate		1	1	1	1	1	1	1	1	
Ammonium Hydroxide	1	1	1	0	1	1	1	1	1	1
Ammonium Hydrozide		1	1		1	1	1	1	1	
Ammonium Monosulfate		1	1	1	1	1	0	1	1	
Ammonium Nitrate	1	1	1	0	0	1	1	1	1	1
Ammonium Oxalate	1	1	1	1	1					
Ammonium Persulfate	0	1	1	0	0					
Ammonium Phosphate(di)	1	1	1	1	1					
Ammonium Phosphate(mono)	1	1	1	0	1	1	1	1	1	
Ammonium Phosphate(tri)	1	1	1	1	1		1			
Ammonium Sulfate	0	1	1	1	1				1	
Ammonium Thiocyanate					1	1				
Amyl Acetate	1	1	1	1	1	1	0	0	1	0
Amyl Chloride	1	1	1	1	1	1	0	0	0	
Aniline Dyes		1	1	1	1	1				
Aniline Hydrochloride	0	0	0	1	1	1	0			
Aniline Oils		1	1	1	1	1	0			
Aniline Sulfite		1	1	1	1	1	0	0		
Aniline to 80F	1	1	1	1	1	1	0	0	0	1
Antimony Chloride				1	0					

Chemical	A105, A182 F5, F9, F11, F22				Teflon	Viton	Neoprene	Ethylene Propylene	Buna N	Flexible Graphite Packing
	A182 F316	13 CR	Type 316	Monel						
Antimony Trichloride	0	0	0	1	1	1				
Antioxidants				1	1	1				
Archlor	1									
Arsenic Acid	0	1	1	0	1	1	1	1	1	1
Arsenic Trichloride				1	1					
Asphalt	1	1	1	1	1	1	1	0	1	
Barium Carbonate	1	1	1	1	1	1	1	1	0	
Barium Chloride	0	1	1	1	1	1	1	1	1	
Barium Hydrate		1	1	1	1					
Barium Hydroxide	1	1	1	1	1	1	1	1	1	
Barium Nitrate	1	1	1							
Barium Sulfate		1	1	1	1	1	1	1	1	
Barium Sulfide	1	1	1	1	0	1	1	1	1	
Beer	0	1	1	1	1	1	1	0	1	
Beet Sugar Liquor	1	1	1	1	1	1	1	1	1	
Benzaldehyde	1	1	1	1	1	0	0	1	0	
Benzene(Benzol)	1	1	1	1	1	1	0	0	0	1
Benzensulfonic Acid				1	1					
Benzoic Acid	0	1	1	1	1	1	0	0	0	
Black Liquor	1	1	1	1	1	1	1	1	1	
Blast Furnace Gas		1				1				
Bleaching Powder, Wet	0	1	1	0	0	1	1	1	1	
Boiler Acid - Phosphate type				1		1				
Boiler Compounds (ph 8.0)				1						
Borax Liquors	1	1	1	1	1	1	1	0	1	1
Bordeaux Mixture				1		1				
Boric Acid	0	1	0	1	1	1	1	1	1	1
Boron Trichloride	1									
Boron Trifluoride	0	1	1							
Brine - Alkaline	0	1	1	1	1	0	1	0		
Bromine(dry)	0	0	0	0	1	0	1	0	1	
Bromine(wet)		1	0	1	0	1	0	0	1	
Butadiene	1	1	1	1	1	1		1	1	
Butane	1	1	1	1	1	1	1	1	0	1
Buttermilk	0	1	1	0	1	1	1	1	1	
Butyl Acetate	1	1	1	1	1	1	0	0	0	0
Butyl Catechol Tert				1						
Butyl Cellusolve		1	1	1						
Butyl Chloride 100%	0	1	1	1	1	1				
Butyl Stearate		1	1							
Butylene		1	1	1	1	1		0		
Butyl-p-Aminopheno				1						
Butyric Acid	0	1	1	1	1	1	1		1	
Cadmium Sulfate		1	1	1	1					
Calcium Acetate		1	1	1						
Calcium Bisulfite	0	1	0	1	0	1	1	1	1	1
Calcium Carbonate		1	1	1	1	1	1	1	1	1
Calcium Chlorate	1	1	1	1	1					
Calcium Chloride	1	1	1	1	1	1	1	1	1	1
Calcium Hydroxide	1	1	1	1	1	1	1	1	1	1
Calcium Hypochlorite	0	1	0	1	0	1	1			1
Calcium Nitrate (40%)		1	1	1						
Calcium Sulfate	1	1	1	1	1	1	1	1	1	1



**Material Compatability Chart**

 1- Acceptable for Use  
 0 - Not Acceptable for Use

Chemical	Material										
	A105, A182 F5, F9, F11, F22, A182 F316	13 CR	Type 316	Monel	Hastelloy	Teflon	Viton	Neoprene	Ethylene Propylene	Buna N	Flexible Graphite Packing
Ethylene Dichloride	1	1	1	1				1			
Ethylene Glycol	1	1	1	1	1	1	1	1	1	1	1
Ethylene Oxide	1	1	1	1		1	0	0	1		
Fatty Acids	0	1	1	1	1	1				1	
Ferric Chloride	0	0	0	0	0	1	1	1	1	1	
Ferric Hydroxide					1	0					
Ferric Nitrate	0	1	0	1	0	0	1	1	1	1	
Ferric Sulfate	0	1	1	0	0	1	1	1	1	1	
Ferrous Ammonium Citrate					1						
Ferrous Chloride solution	0	0	0	0	0	1	1	1	1	1	1
Ferrous Sulfate 10%	0	1	1	1	1	1	1	1	1	1	1
Filter Aid				1			1				
Fish Oil	1	1	1	1		1			1		
Flue Gases	1	1	1	1	1	1					
Fluoboric Acid		1	1	1		1	1	1			
Fluorine (dry)	1	1	1	1	1	0				1	
Fluosilicic Acid	0	1	1	1	1	1	1				
Formaldehyde cold	1	1	1	1	1	1	1			1	
Formalin	1	1									
Formic Acid	0	1	1	1	1	1	1			1	
Freon (dry)	1	1	1	1	1	1	1			1	
Freon (wet)	0	1	1	1	1	1	1			1	
Fruit Juices	0	1	0	1	1	1	1	1	1	1	
Fuel Oil	1	1	1	1	1	1	1	0	1	1	
Fumeric Acid			1			1	1	1	1		
Furfural	1	1	1	1	1	1	1	0	1	1	
Gallic Acid 5%	0	1	1	1	1	1	1	1	1	1	
Gasoline (antioxidant)				1				0			
Gasoline (refined)	1	1	1	1	1	1	1	0	1	1	
Gasoline (sour)	1	1	1	0	1	1	1	0	1	1	
Gelatin	1	1	1	1		1	1	1	1	1	
Ginger Ale	0	1	1								
Glauber's Salt	1	1	1				1				
Glucose	1	1	1	1	1	1	1	1	1	1	1
Glue (most)	1	1	1	1	1	1	1	1	1	1	1
Glutamic Acid	1	1	1	1							
Glycerine	1	1	1	1	1	1	1	1	1	1	1
Glycerol	1	1	1	1	1	1	1	1	1	1	1
Grease (edible)	1	1	1	1		1	0	1			
Green Sulfate Liquor	1	1	1	1			1				
Gypsum	1	1	1								
Hagan Solution					1						
Heptane (liquified)	1	1	1	1		1	1	0			
Hexamine	1	1	1	1							
Hexane	1	1	1	1	1	1				1	
Hydabromic Acid	0	0	0	0		1	1			1	
Hydrofluoric Acid (5%)	1	0	0	0	1	1	1	0	1		
Hydrofluoric Acid (50%)	0	0	0	0	0	1	1	1	0	1	
Hydrofluoric Acid (60%)	0	0	0	0	1	1	1	0	1		
Hydraulic Oil	1	1	1	1	1	1	1	0	1		
Hydrazine Hydrate	1	1	1								
Hydrocarbons (alkylated)				1	1	1		1		1	
Hydrocarbons (chlorinated)					1	1	0		1		

Chemical	Material										
	A105, A182 F5, F9, F11, F22, A182 F316	13 CR	Type 316	Monel	Hastelloy	Teflon	Viton	Neoprene	Ethylene Propylene	Buna N	Flexible Graphite Packing
Hydrocarbons (H2SO4)						1				1	
Hydrochloric Acid, Cold 10%	0	0	0	0	0	1	1				1
Hydrocyanic Acid 100%	1	1	1	1	1	1	1	1	1	1	
Hydrofluosilicic Acid 100%	0	1	1	1	1	1	1	1	1	1	
Hydrogen Chloride (gas)	1	1	1	1	1	1					
Hydrogen Fluoride	1										
Hydrogen Gas	1	1	1	1	1		1	1	1	1	1
Hydrogen Peroxide 33%	0	1	0	1	1	1	1	0	1	1	0
Hydrogen Sulfide (dry) 100%	0	1	1	1	1	1	1	1	1	1	1
Hydrogen Sulfide (wet) 100%	0	1	1	1	0	1	1	1	1	1	1
Hydroquinone	1	1	1	1							
HYPO (hyposulfite soda)	1	1	1	1							
Iodoform	0	1	1				1	1	0		
Ink	0	1	1	1			1	1			1
Iodine solution	0	1	1	0	1		1	1			1
Isobutane		1	1	1			1	0	0		
Isobutyl Acetate		1	1	1			1				
Isoctane	1	1	1	1	1	1	1	1	0	1	
Isopropyl Acetate		1	1				1	0	0		
Isopropyl Ether	1	1	1	1	1	1	1	0	0	1	
Jet Fuel	1	1	1	1	1	1	1	1	0	1	1
Kerosene	1	1	1	1	1	1	1	1	0	1	1
Ketchup	0	1	1	1	1	1	1	1	1	1	1
Ketones 100%	1	1	1	1	1	1	1	0	0	0	1
Lacquer Solvents	1	1	1	1	1	1	1	0	0	0	1
Lactic Acid diluted	0	1	0	1	0	1	1	1	1	0	1
Lard oil	1	1	1	1	1	1		1		1	
Latex	1	1	1								
Lead Acetate	0	1	1	1	1	1	1	1			
Lead Nitrate	1							1			
Lead Sulfamate								1			
Levulinic Acid						1					
Lime Slurry	1	1	1	1	1	1	1	1	1	1	1
Lime Sulfur		1	1	1			1	1	1	1	
Linoleic Acid	0	1	1	1			1				1
Linseed Oil	1	1	1	1	1	1	1	1	0	0	1
Liquid Petroleum Gas (L. P. G.)	1	1	1	1	1	1	1	1	0	1	
Lithium Chloride	1	1	1	1			1				1
Lithium Hydroxide		1	1	1							
Lubricating Oils	1	1	1	1	1	1		1	0	1	
Magnesium Carbonate	1	1	1	1	1	1	1				
Magnesium Chloride	1	1	1	1	1	1	1	1	1	1	1
Magnesium Hydroxide	1	1	1	1	1	1	1	1	1	1	1
Magnesium Nitrate		1	1	1	0						
Magnesium Oxide						1			1		
Magnesium Oxychloride	0	0	0								
Magnesium Sulfate	1	1	1	1	1	1	1	1	1	1	1
Maleic Acid 100%	1	1	0	1	1	1	1	1	1	1	1
Maleic Anhydride						1					
Malic Acid		1	1	1	1	1	1	1	1	1	1
Malt Beverages						1		1	1	1	
Manganese Carbonate		1	1	1							
Manganese Chloride		1	1	1							

**Material Compatibility Chart**

 1 - Acceptable for Use  
 0 - Not Acceptable for Use

Chemical	Material						
	A105, A182 F5, F9, F11, F22 A182 F316	13 CR	Type 316	Monel	Hastelloy	Teflon	Viton
Manganese Sulfate	1	1	1	1		1	1
Mash		1	1	1			
Mayonnaise	0	1	1	1	1	1	1
Melamine Resins	0	0	1				
Meraptobenzothiazole			1				
Mercaptans	1						
Mercuric Bichloride	1	1	0				
Mercuric Chloride	0	0	0	0	1	1	1
Mercuric Cyanide	0	1	1	1			1
Mercurous Nitrate	0	1	1	0			
Mercury	1	1	1	1	1	1	1
Mercury Salts	0	0			1	1	1
Mesityl Oxide	1						
Methane	1	1	1	1	1	1	1
Methyl Acetate	1	1	1	1	1	0	1
Methyl Acrylate	1	1					
Methyl Benzene			1				
Methyl Cellosolve	1	1	1	1	1	1	0
Methyl Chloride (dry)	0	1	1	1	1	0	0
Methyl Ethyl Ketone	1	1	1	1	1	0	0
Methyl Formate 100%	1	1	1	1	1		0
Methyl Isobutyl Ketone	1	1	1			0	0
Methyl Ketone							
Methyl Methacrylate	0						
Methylene Chloride	1	1	1	1	1		1
Milk	0	1	1	0		1	1
Mine Water	0	1	1	0	0	1	1
Mineral Oil U. S. P. pure	1	1	1	1	1	1	0
Molasses	1	1	1	1	1	1	1
Monochloroacetic Acid	0	0	0	0	1	1	1
Monochlorobenzene		1				0	0
Monochlorodifluoromethane	1	1					
Monoethanolamine	1						1
Mustard	0	1	1				1
Nalco Solution			1			1	
Naphtha	1	1	1	1	1	1	0
Naphthalene 100%	1	1	1	1	1	1	0
Naphthalenic Acid	0	1	1				
Natural Gas	1	1	1	1	1	1	0
Nickel Acetate						1	
Nickel Chloride	0	1	0	1	1	1	1
Nickel Nitrate		1	1	0	1	1	1
Nickel Plating Solution	0	0	0				
Nickel Sulfate	0	1	1	1	1	1	1
Nitric Acid (10%)	0	1	0	1	0	0	0
Nitric Acid (30%)	0	1	0	1	0	0	0
Nitric Acid (60%)	0	1	0	1	0	0	0
Nitric Acid (80%)	0	1	0	0	0	1	0
Nitric Acid (crude)	0	0	0	0	0	1	0
Nitrobenzene	1	1	1	1	1	0	0
Nitroethane	1						
Nitropropane	1						
Nitrous Acid	0						

Chemical	Material						
	A105, A182 F5, F9, F11, F22 A182 F316	13 CR	Type 316	Monel	Hastelloy	Teflon	Viton
Nitrous Oxide	0				0	0	
Nordihydroguaraetic Acid				0			
Oakite				1			
Octyl Alcohol				1			1
Oleic Acid 100%	1	1	1	1	1	1	0
Oleum spirits	1	1	1	0	1	1	0
Olive Oil	0	1	1	1	1	1	1
Organic Esters				1			
Oxalix Acid cold	0	1	0	1	1	1	1
Oxygen	1	1	1	1	1	1	1
Ozone (wet)	0	1	1	1	1	1	
Palm Oil	0	1	1	1	1		1
Palmitic Acid				1			
Palmitic Acid	1	1	1	1		1	1
Paraffin	1	1	1	1	1	1	1
Paraffin Oil	1	1	1	1	1		1
Para-formaldehyde				1		1	0
Paraldehyde				1		1	0
Paregoric Compound	0	1	1				
Parez 607	0	0	0			1	
Peanut Oil		1	1	1			
Pectin	0						
Pelargonic Acid				0			
Penicillin Solution	0			1			1
Pentane		1	1			1	1
Perfume	0	1	1				
Petroleum Oils (refined)	1	1	1	1			
Petroleum Oils (sour)	1	1	0	1			
Phenol 100%	1	1	1	1	1	1	0
Phenolic Resins	1	1					
Phenolic Sulfonate	1						
Phenosulfonic Acid	1	1	1				
Phoscaloid				1			
Phosgene	1						
Phosphoric Acid, <45%	0	1	0	1	0	1	1
Phosphoric Acid, 0%-45%	0	1	0	1	1	1	1
Phosphoric Acid, Crude	0	1	0	1	0	1	1
Phosphoric Anhydride	0	1	1				
Phosphorus Trichloride		1	1	0			
Phosphorus, Molten	1	1	1	1	1		1
Phtalic Acid	0					1	1
Phtalic Anhydride	1	1	1	1			1
Picric Acid, solution	0	1	1	0	1	1	1
Pine Oil	1	1	1	1	1	1	0
Pitch				1		1	0
Plating Solution				0			
Potassium Alum						1	1
Potassium Antimonate							1
Potassium Bicarbonate	1	1					1
Potassium Bichromate	1	1	0				
Potassium Bisulfate				0			
Potassium Bromide	0	1	1	1	1	1	1
Potassium Carbonate	1	1	1	1	1	1	1

**Material Compatability Chart**

1- Acceptable for Use  
0 - Not Acceptable for Use

Chemical	Material				
	A105, A182 F5, F9, F11, F22, A182 F316	13 CR	Type 316	Monel	Hastelloy
Potassium Chlorate	1	1	1	1	0
Potassium Chloride	0	1	1	1	1
Potassium Chromate	1	1	1	1	1
Potassium Cyanide	1	1	1	1	1
Potassium Dichromate	1	1	1	1	1
Potassium Diphosphate	1	1	1		
Potassium Ferricyanide	0	1	1	1	1
Potassium Ferrocyanide	0	1	1	1	1
Potassium Hydrate	1	1	1	1	1
Potassium Hydroxide	1	1	1	1	1
Potassium Hypochlorite	0	1	1	0	0
Potassium Iodide	0	1	1	1	1
Potassium Monophosphates	1	1	1		
Potassium Nitrate	1	1	1	1	1
Potassium Oxalate	1	1	1		
Potassium Permanganate	1	1	1	0	
Potassium Peroxide	1	1			
Potassium Phosphate (acid)	1			1	
Potassium Phosphate (alkaline)	1			1	
Potassium Sulfate	1	1	1	1	1
Potassium Sulfide	0	1	1	0	
Potassium Triphosphate	1	1	1		
Prestone				1	
Producer Gas	1	1	1	1	
Propane Gas	1	1	1	1	
Propane, Liquified	1	1	1		
Propene, Liquified				1	
Propyl Alcohol	1	1	1		
Propylene Dichloride	1			1	
Propylene Glycol	1	1	1	1	
Propylene Oxide	1	1	1		
Pyrethrum Sol.				1	
Pyridine	1	0	1	0	
Pyrogallic Acid	1	1	1	1	
Pyroligneous Acid	0				
Qualsol 80				0	
Querbracho				1	
Quinine Bisulfate	0	1	1	1	1
Quinine Sulfate	0	1	1	1	1
Resorcinol				1	
Rosin (dark)	0	1	1	1	1
Rosin (light)	0	1	1	1	1
Rustang				1	
Sal Ammoniac	0	1	1	1	1
Salicylic Acid	0	1	1	1	1
Santobrite				1	
Santomerse				1	
Santophen				0	
Santosite				0	
Shellac	1	1	1	1	1
Shellac Orange	1	1	1	1	
Silicon Tetrachloride	1			1	
Silicon Tetraiodide				1	

Chemical	Material				
	A105, A182 F5, F9, F11, F22, A182 F316	13 CR	Type 316	Monel	Hastelloy
Silver Bromide	0	1	1	1	1
Silver Chlorate	0	0	0	1	0
Silver Cyanide	0	1	1	1	1
Silver Nitrate		1	1	1	1
Silver Plating Solution	1	1			
Sizing, Acid				0	
Sizing, Alkaline				1	
Sludge Acid		1	1	0	
Soap (molten)	1	1	1	1	1
Sodium Acetate	1	1	1	0	1
Sodium Acid Sulfate					1
Sodium Aluminate	1	1	1	1	1
Sodium Benzoate				1	1
Sodium Bicarbonate	1	1	1	1	1
Sodium Bichromate	1	1	1	0	
Sodium Bisulfate	0	1	1	1	1
Sodium Bisulfite	1	1	0		1
Sodium Borate	1	1	1	1	1
Sodium Bromide	0	1	0	1	1
Sodium Chloride	1	1	1	1	1
Sodium Chromate	2	1	1	1	1
Sodium Citrate	3	1	1	1	1
Sodium Coarbonate (soda ash)	1	1	1	1	1
Sodium Cyanide	0	1	1	0	1
Sodium Dichromate	1	1	1		1
Sodium Diphosphate	1	1	1		
Sodium Diphsophate	1	1	1		1
Sodium Ethylate	1				
Sodium Ferrocyanide				1	1
Sodium Fluoride	0	1	0	1	1
Sodium Glutamate	1				
Sodium Hydroxide 0%-20%	1	1	1	1	1
Sodium Hydroxide 20% or Hot	0	1	0	1	1
Sodium Hydrsulfite				1	1
Sodium Hypochlorite 20%	0	0	0	0	0
Sodium Hyposulfite	0	1	1	1	1
Sodium Lactate	0				
Sodium Methylate				1	
Sodium Monophosphate		1	1	1	1
Sodium Naphthsulfonate				1	
Sodium Nitrate	1	1	1	1	0
Sodium Nitrite	1	1	1		
Sodium Oleate	1				
Sodium Orthosilicate				1	1
Sodium Perborate	1	1	1	1	1
Sodium Peroxide	1	1	1	1	1
Sodium Phosphate	1	1	1	1	1
Sodium Plumbite				1	
Sodium Polyphosphate	1	1	1		1
Sodium Pyrophosphate				1	1
Sodium Resinate	1			1	
Sodium Salicylate	1				
Sodium Salts	1	1	1		1

**Material Compatibility Chart**

 1- Acceptable for Use  
 0 - Not Acceptable for Use

Chemical	A105, A182 F5, F9, F11, F22						
	A182 F316	13 CR	Type 316	Monel	Hastelloy	Teflon	Viton
Sodium Silicate	1	1	1	1	1	1	1
Sodium Silicofluoride				1			
Sodium Sulfate	1	1	1	1	1	1	1
Sodium Sulfide	0	1	1	1	1	1	1
Sodium Sulfite	1	1	1	1	0	0	
Sodium Tetraborate	1	1	1			1	1
Sodium Tetraphosphate				1			1
Sodium Triphosphate	1	1	1			1	1
Sodium-M-Phosphate	1	1	1			1	1
Sodium-M-Silicate				1			1
Sorbitol	0						
Soybean Oil	1	1	1	1	1	1	1
Stanic Chloride	0	0	0	0	0	1	
Stannous Bisulfate					1		
Stannous Chloride	0	1	1				
Starch	1	1	1	1	1	1	1
Steam	1	1	1	1	1	1	0
Steam Condensate	1	1	1	1	1	1	1
Stearic Acid 100%	1	1	1	1	1	1	1
Stoddard Solvent	1	1	1	1			
Styrene (dry)	1	1	1	1			1
Sugar Solution	0	1	1	1	1	1	1
Sulfate Liquor	1	1	1	1			1
Sulfate Oils					1		
Sulfite Liquor	0	1	1	0			1
Sulfur (molten)	0	1	1	1	1	1	0
Sulfur Chloride	0	0	0	1	1	0	0
Sulfur Dioxide (dry) 100%	1	1	1	1	1	0	0
Sulfur Trioxide (dry) 100%	1	1	1	1	1	0	0
Sulfuric Acid (spent)				1			
Sulfuric Acid 0%-10%	0	1	0	1	1	1	0
Sulfuric Acid 10%-75%	0	1	0	1	1	1	0
Sulfuric Acid 75%-90%	0	0	0	0	0	1	0
Sulfuric Acid 90%-95%	1	1	0	1	0	1	0
Sulfuric Acid 95%-100%	1	0	1	0	1	1	0
Sulfurous Acid	0	1	0	1	0	1	1
Sulphonyl Chloride	0	0					
Talc Slurry				1			1
Tall Oil	1	1	1	1	1		1
Tallow, Molten				1		1	1
Tannic Acid	0	1	1	1	1	1	1
Tannin				1		1	1
Tanning Liquor							
Tar	1	1	1	1	1	0	0
Tar Acids				1			
Tartaric Acid	0	1	1	1	1	1	1
Tennox				1			
Terpene Monocyclic	1						
Tetrachloroethane	1	1					
Tetramine							
Tetraphosphoglucosate				1		1	
Tetraphosphoric Acid				1			
Thiamine Hydrochloride						1	

Chemical	A105, A182 F5, F9, F11, F22						
	A182 F316	13 CR	Type 316	Monel	Hastelloy	Teflon	Viton
Thiophene					1		
Tin Plating Solution							
Titanium Tetrachloride	0			1	0		
Toluene or Toluol	1	1	1	1	1	1	1
Toluene Sulfanic Acid					1		
Tomato Juice	1	1	1	1	1		
Toxaphene				1			
Transmission Oil	1	1	1				
Tretolite				1			
Trichloroacetic Acid	0	0				1	1
Trichlorobenzene							0
Trichloroethylene	1	1	1	1	1	1	0
Trichloromonofluoroethane	1	1					
Trichloropropane	1	1	1	1	1	1	
Trichlorotrifluoroethane	1	1					
Triethanolamine	1	1	1	1		1	1
Triethylamine				1		1	1
Triodium Phosphate	1	1					
Triphenylphosphite	1	1					
Tripotassium Phosphate	1	1				1	1
Trisodium Phosphate	1	1	1	1			1
Turpentine	1	1	1	1	1	1	0
Uric Acid	1	1	1	1			
Varnish	1	1	1	1	1	1	0
Vegetable Oils	1	1	1	1	1	1	1
Vinegar	0	1	1	1	1	1	1
Vinyl Acetate	1	1	1	1	1	1	
Vinyl Chloride	1	1	1	1	1	1	
Water - Fresh	1	1	1	1	1	1	1
Water - Sea	0	1	0	1	1	1	1
Wax (molten)	1	1	1	1			1
Whiskey and Wines	0	1	0	1	0		1
White Liquor	1	1	1	1			1
Xylene	1	1	1	1	1	1	0
Zeolite				1		1	1
Zinc Acetate	0	1	1	1		1	1
Zinc Ammonium Chloride						1	1
Zinc Carbonate							
Zinc Chloride	0	1	0	1	1	1	1
Zinc Cyanide Solution	0						
Zinc Hydrosulfite	1	1				1	1
Zinc Plating Solution							
Zinc Sulfate	0	1	1	1	1	1	1
Zinc Sulfate (acid)	0	1	1	1		1	1

## Glossary of Abbreviations and Terms Used in the Valve Industry

**AARRH** - Arithmetic Average Roughness Height  
**AISI** - American Iron and Steel Institute  
**API** - American Petroleum Institute  
**ANSI** - American National Standards Institute, Inc.  
**ASME** - American Society of Mechanical Engineers  
**ASTM** - American Society for Testing and Materials  
**AWS** - American Welding Society

**BB** - Bolted Bonnet  
**BHN** - Brinell Hardness Number  
**Blind Flange** - A flange with no flow way bore, used to provide a pressure-tight closure of a flanged opening.  
**Btu** - British Thermal Unit  
**BWE** - Butt Weld Ends

**C or Cel** - Celsius Degrees  
**CI** - Cast Iron  
**CI** - Chlorine Institute  
**CR 13** - 13% Chromium Stainless Steel  
**CRES** - Corrosion Resistant Steel  
**Cv** - The number of U.S. gallons per minute of water at 700°F that will flow through a valve at a pressure drop of one psi.  
**CWP** - Cold Working Pressure

**DN** - Diameter Nominal (Metric)

**ELL** - Elbow

**FAS** - Free Alongside Steamer  
**F or Fahr** - Fahrenheit Degrees  
**F & D** - Faced and Drilled  
**FF** - Flat Face  
**FHF** - Full Hard Faced  
**FLG** - Flanged  
**FOB** - Free On Board  
**FTTG** - Fitting

**G** - Gas  
**gpm** - Gallons per Minute

**HF** - Hard Faced  
**HW** - Handwheel

**IBBM** - Iron Body Bronze Mounted  
**ID** - Inside Diameter  
**INT** - Integral  
**IPS** - Iron Pipe Size  
**ISRS** - Inside Screw Rising Stem  
**ISNRS** - Inside Screw Non. Rising Stem

**Kg** - Kilograms  
**Km** - Kilometers

**LH** - Left Hand

**MAV** - Motor Actuated Valve  
**mm** - Millimeter  
**MOV** - See MAV  
**MSS** - Manufacturers Standardization Society of the Valve & Fitting Industry

**NACE** - National Association of Corrosion Engineers  
**NPS** - National Pipe Size  
**NPT** - National Standard Pipe Thread Taper  
**NRS** - Non Rising Stem

**OD** - Outside Diameter  
**One-Piece-Stem** - An inseparable Stem and Disc made from one piece of metal.

**OS&Y** - Outside Screw and Yoke  
**OWG** - Oil, Water & Gas (See CWP)

**PN** - Pressure Nominal (Metric)  
**Psi** - Pounds per square Inch  
**Psia** - Pounds per square Inch absolute  
**Psig** - Pounds per square Inch gage  
**P/T** - Pressure - Temperature

**Rc** - Rockwell "C" Hardness  
**RF** - Raised Face  
**RH** - Right Hand  
**RMS** - Root Mean Square Roughness Height  
**RS** - Rising Stem  
**RTJ** - Ring-Type Joint

**S** - Steam  
**SAE** - Society of Automotive Engineers  
**SC** - Swing Check Valve  
**Sch. Or Sched.** - Schedule (Pipe Wall Thickness)  
**SCFM** - Standard Cubic Feet per Minute  
**Screw Bonnet** - Body and Bonnet threaded together  
**SE** - Screwed Ends  
**Seal Weld** - Threaded Joint Back Welded for Seal  
**SS** - Stainless Steel  
**Stem Nut** - Operating Nut  
**Stuffing Box** - Packing Chamber  
**STD** - Standard Wall Thickness  
**Stop Check** - A Check Valve in which the closure member can be mechanically closed.  
**SWE** - Socket Weld End  
**SWP** - Steam Working Pressure

**T** - Tee  
**Thd.** - Threaded  
**TIR** - Total Indicator Reading

**UB** - Union Bonnet

**W** - Water  
**Wedge** - Gate  
**WOG** - Water, Oil and Gas (See CWP)  
**WSP** - Working Steam Pressure  
**WWP** - Working Water Pressure

**XS** - Extra Strong Wall Thickness  
**XXS** - Double Extra Strong Wall Thickness

**Y** - Wye Valve, Fitting or Strainer  
**Yoke Bushing** - Operating Stem Nut  
**Yoke Nut** - Stem Nut

Refer to MSS-SP-96 for additional Abbreviations and Terms used in the Valve and Fitting Industry. (Manufacturers Standardization Society, 127 Park Street N.E., Vienna, VA 22180)

## Standards in the Valve Industry

Codes and standards play an important role in the design and production of forged steel valves, fittings and unions. These Codes and standards cover material, product dimensions, design, examination, inspection, testing procedure, pressure/temperature ratings and safety.

Material standards are developed by such organizations as the American Society for Testing and Materials (ASTM), the American Iron and Steel Institute (AISI), the Society of Automotive Engineers (SAE) and the National Association of Corrosion Engineers (NACE).

The American National Standards Institute, Inc. (ANSI) has a membership comprised of both user and producer groups and serves as the national coordinator for the majority of code and product standards related to the Valve and Fittings Industry. Product standards are also developed and issued by individual user and/or manufacturing agencies such as the American Society of Mechanical Engineers (ASME), American Petroleum Institute (API) and the Manufacturers' Standardization Society (MSS).

Procedural and Safety standards are issued by ANSI, MSS and ASME.

Following is a partial list of the codes and standards that have a direct bearing on the design and production of Vogt's forged steel valves, fittings and unions. The codes and standards are interrelated as the following descriptions project:

### ASME Boiler & Pressure Vessel Code

- Section I – Power Boilers
- Section II – Material Specifications
- Section III – Nuclear Power Plant Components
- Section V – Non-destructive Examination
- Section VIII – Pressure Vessels
- Section IX – Welding and Brazing Qualifications

The previous codes (Sections I, III and VIII) cover construction requirements for Boilers, Pressure Vessels and Nuclear Components that require Authorized Inspection Agency involvement. Section I and VIII codes relate to the Boiler and Pressure Vessel proper and not to external piping. Section III code includes rules for nuclear components including piping. Section II, V and IX codes cover material, non-destructive examination and welding requirements, respectively, for ASME construction.

### ASME Codes for Pressure Piping

- B31.1 – Power Piping
- B31.2 – Fuel Gas Piping
- B31.3 – Process Piping
- B31.4 - Pipeline Transportation Systems for Liquid Hydrocarbon and Other Liquids
- B31.5 - Refrigeration Piping and Heat Transfer Components
- B31.8 - Gas Transmission and Distribution Piping Systems
- B31.9 - Building Services Piping Systems
- B31.11 - Slurry Transportation Piping Systems

The above are piping construction codes that include requirements for design, materials, fabrication, examination, testing, inspection and components. Valve, fitting, and flange requirements used in these piping systems are normally referenced standards, as follows:

### Inspection and Testing

- MSS-SP-61 - Pressure Testing of Steel Valves
- API-598 - Valve Inspection and Testing

The above highly recognized standards provide detailed instructions for the inspection and testing of valves.

### Valve Standards

- ASME B16.34 - Valves Flanged, Threaded and Welding End
- API-600 / ISO 10434 – Bolted Bonnet Steel Gate Valves for Petroleum and Natural Gas Industries
- API-602 / ISO 15761 – Steel Gate, Globe and Check Valves for Sizes DN 100 and Smaller for the Petroleum and Natural Gas Industries

MSS-SP-99 - Instrument Valves

MSS-SP-105 - Instrument Valves for Code Applications

MSS-SP-134 - Valves for Cryogenic Service Including Requirements for Body/Bonnet Extensions

The above are component (valve) standards used for construction of Vogt valves as noted in this catalog



## Standards in the Valve Industry

### Valve and Flange Details

ASME B16.5 - Pipe Flanges and Flanged Fittings

ASME B16.11 - Forged Fittings, Socket-Welding and Threaded

ASME B1.20.1 - Pipe Threads, General Purpose, Inch

ASME B16.10 - Face to Face and End to End Dimensions of Valves

ASME B16.20 - Metallic Gaskets for Pipe Flanges: Ring Joint, Spiral Wound, and Jacketed

ASME B16.25 - Buttwelding Ends

MSS-SP-6 - Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings

MSS-SP-25 - Standard Marking Systems for Valves, Fittings, Flanges and Unions

MSS-SP-45 - Bypass and Drain Connections

The above standards are detailed dimensional, marking, finish and bypass valve and fitting instructions for use in the manufacture of valves, flanges and fittings. The product standards normally refer to these standards for detailed instructions.

### NACE Standard

MR0175 / ISO 15156-1 Petroleum and Natural Gas Industries- Materials for use in H<sub>2</sub>S-containing Environments in Oil and Gas Production.

This standard is a recognized practice for selection of materials for construction of valves to be used in a sour environment. Such materials are recommended when Stress Corrosion Cracking (SCC) and/or Sulfide Stress Cracking (SSC) is anticipated.

MR0103 Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments.

This standard is a recognized practice for selection of materials for construction of valves to be used in a sour environment. Such materials are recommended when Sulfide Stress Cracking (SSC) is anticipated.

### Chlorine Institute

Pamphlet # 6 – Piping Systems for Dry Chlorine

This publication is intended to provide useful information concerning the construction of Chlorine piping systems including valves.

For detailed Material Standards used by Vogt valves, see pages 11 and 12.

Addresses:

American Iron & Steel Institute (AISI)  
1140 Connecticut Ave., NW  
Suite 705  
Washington, DC 20036

American National Standards Institute (ANSI)  
1819 L Street, NW  
6th floor  
Washington, DC 20036

American Petroleum Institute (API)  
1220 L Street, NW  
Washington, DC 20005-4070

American Society of Mechanical Engineers (ASME)  
ASME International  
Three Park Avenue  
New York, NY 10016-5990

American Society of Testing and Materials  
100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959

Manufacturers Standardization Society of the Valve & Fitting Industry  
127 Park Street, N.E.  
Vienna, VA 22180-4602

NACE International  
1440 South Creek Drive  
Houston, TX 77084-4906

Society of Automotive Engineers (SAE)  
400 Commonwealth Drive  
Warrendale, PA 15096-0001

The Chlorine Institute, Inc.  
1300 Wilson Blvd.  
Arlington, VA 22209

# Replacement Parts

## REPLACEMENT PARTS FOR VOGT VALVES

Vogt valves are carefully made from selected materials to give long, trouble-free service when properly installed in applications for which they were designed. Proper care and maintenance in the field can contribute significantly to maximum performance. Much of the field maintenance is of a routine nature and can be readily performed by the user. However, major repairs are discouraged and it is recommended that valves be returned to the factory for inspection and rework when major repairs are indicated.

The following information is offered as an aid to field maintenance of Vogt valves. However, Vogt valves repaired in the field do NOT carry the "Product Warranty" of valves repaired in our own facilities.

### PRELIMINARY CONSIDERATIONS

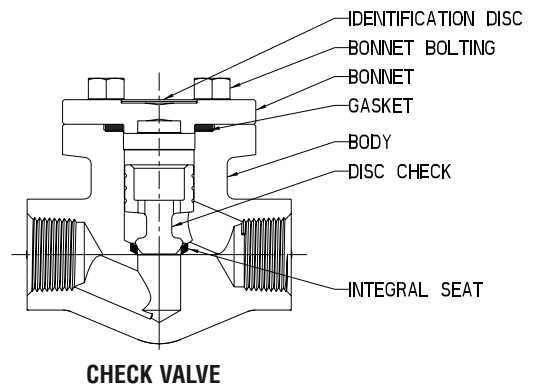
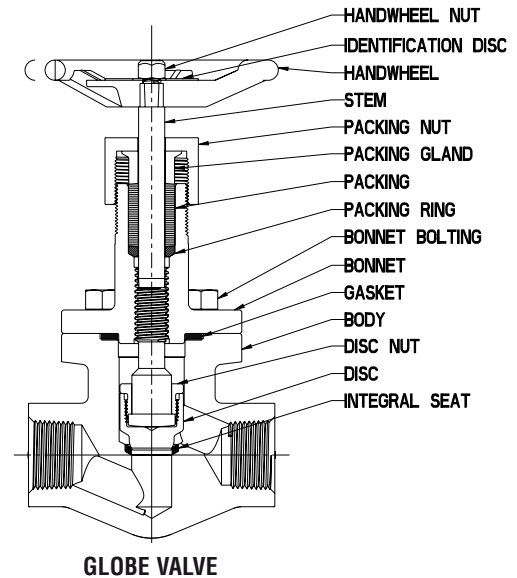
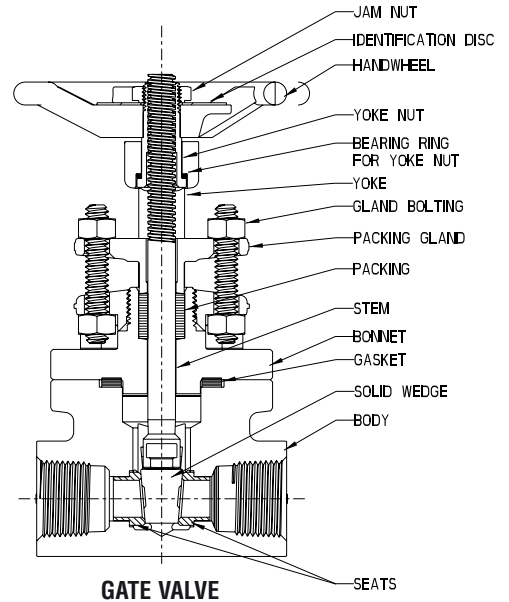
1. Use experienced, trained personnel.
2. Observe all standard safety precautions.
3. If possible, remove the valve from the line so that work can be done in a clean, well-lit area.
4. Use genuine Vogt replacement parts.
5. Use proper tools.
6. Pressure-test the valve before reinstalling. This is particularly essential on valves intended for critical service.
7. Remember that improper repairs can be hazardous.

### REPLACEMENT PARTS – HOW TO ORDER

Genuine replacement parts are available for Vogt current standard valves and can usually be shipped from stock. All parts are made to gauge with the same careful inspection and laboratory control given original valves.

Orders for replacement parts should clearly identify the items required and should specify the correct name of the part, valve size, series number, drawing number, revision number and material, etc. This information is shown on the identification disc that is attached to the hand-wheel. The date of purchase and/or the order number will further identify the parts, especially those for special valves.

(See page 131 for Gasket and Packing Sets and page 132 for Bonnet assemblies)



## Packing and Gaskets

A high degree of standardization of Flowserve Vogt valves permits a small stock of replacement packing and gaskets to service your Vogt valves. The following matrix and part number tables provide the details for the purchasing of replacement gaskets for your Vogt bolted bonnet valves and packing for our popular class 150, 300, 600, 800, 1500, 1690 and 2680 gate, globe and angle valves.\*

Packing Matrix

PRESSURE CLASS	NPS DN	½ 15	¾ 20	1 25	1¼ 32	1½ 40	2 50	2½ 65	3 80	4 100
150 Conventional Port		B	B	C	D	D	E	F	F	G
300 Conventional Port		B	B	C	D	D	E	F	F	G
600 Conventional Port		B	B	C	D	D	E	F	F	G
800 Conventional Port		B*	B	C	D	D	E	F	F	-
1500 Conventional Port		J	J	D	E	E	F	-	-	-
600 and 800 Full Port		B	C	D	-	E	F	-	-	-
1500 Full Port		B	D	E	E	F	-	-	-	-
Class 800 LTD Class		C	C	D	-	F	F	-	-	-
Class 1690 LTD Class		C	C	E	-	G	G	-	-	-
Class 2680 LTD (Globe)		C	E	E	-	G	G	-	-	-
Class 2680 LTD Class (Gate)		C	E	E	-	H	H	-	-	-

Gasket Matrix (Spiral-wound Type)

PRESSURE CLASS	NPS DN	½ 15	¾ 20	1 25	1¼ 32	1½ 40	2 50	2½ 65	3 80	4 100
150 Conventional Port		A	A	B	C	C	D	E	E	F
300 Conventional Port		A	A	B	C	C	D	E	E	F
600 Conventional Port		A	A	B	C	C	D	E	E	F
800 Conventional Port		A*	A	B	C	C	D	E	E	-
1500 Conventional Port		A	A	B	C	C	D	-	-	-
600 and 800 Full Port		A	B	G	-	D	E	-	-	-
1500 Full Port		A	B	C	C	D	-	-	-	-

Packing Set Part Numbers

MATRIX	FLEXIBLE GRAPHITE		FLUOROPOLYMER
	PACKING SET PN**	PACKING CARTRIDGE PN***	PACKING SET PN**
B	55163	55175	55276
C	55166	55176	55286
D	55167	55177	55287
E	55169	55178	55288
F	55170	-	55289
G	55171	-	55285
J	55165	55179	55294
H	55173	-	-

\* API 602/ASME B16.34 type valves—see valve description. For other valves, consult your Flowserve distributor.

\*\* Order packing by Packing Set PN. Individual rings of complete set will be supplied.

\*\*\* One-piece or two-piece Packing Cartridge will be supplied when this PN is used.

Gasket Usage Table

GASKET	WHERE USED
304/Graphite	A105, A182-F5, F9, F11 Cl 2, F22 C I3 Valves
316/Graphite	A182, F316 Valves
316/fluoropolymer	"T" Suffix Trimmed Valves
Monel/Graphite	MM & HF Acid Trimmed Valves
Monel/fluoropolymer	Chlorine Valves

Gasket Part Numbers

GASKET MATRIX	PART NUMBER	SPIRAL-WOUND GASKET DESCRIPTION
A	55002	304/Graphite-filled
	55003	316/Graphite-filled
	55004	316/fluoropolymer-filled
	55005	Monel/Graphite-filled
	55006	Monel/fluoropolymer-filled
B	55007	304/Graphite-filled
	55008	316/Graphite-filled
	55009	316/fluoropolymer-filled
	55010	Monel/Graphite-filled
	55011	Monel/fluoropolymer-filled
C	55025	304/Graphite-filled
	55026	316/Graphite-filled
	55027	316/fluoropolymer-filled
	55028	Monel/Graphite-filled
	55029	Monel/fluoropolymer-filled
D	55017	304/Graphite-filled
	55018	316/Graphite-filled
	55019	316/fluoropolymer-filled
	55020	Monel/Graphite-filled
	55021	Monel/fluoropolymer-filled
E	55030	304/Graphite-filled
	55031	316/Graphite-filled
	55032	316/fluoropolymer-filled
	55033	Monel/Graphite-filled
	55034	Monel/fluoropolymer
F	55042	304/Graphite-filled
	55043	316/Graphite-filled
	55044	316/fluoropolymer-filled
	55045	Monel/Graphite-filled
	-	Monel/fluoropolymer
G	55012	304/Graphite-filled
	55013	316/Graphite-filled
	55014	316/fluoropolymer-filled
	55015	Monel/Graphite-filled
	55016	Monel/fluoropolymer

## Class 800 Gate Valve Conventional Port Bonnet Replacement Assemblies

Emission Reduction  
Standard

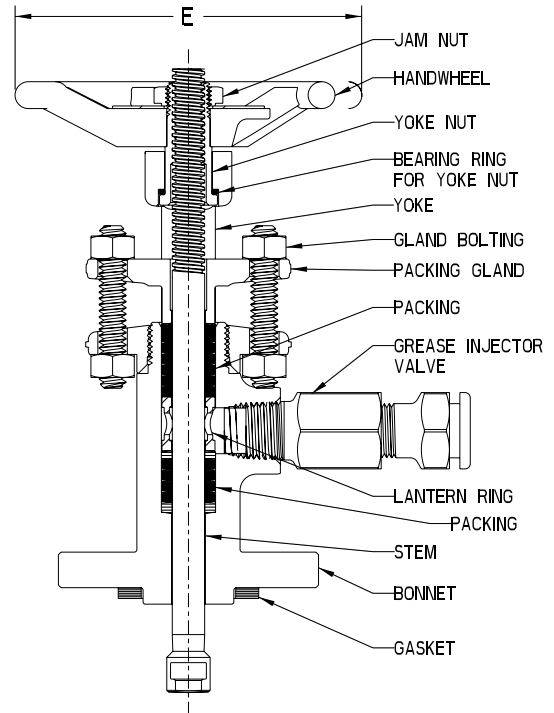
Some valve end users find it more expedient to replace the bonnet subassembly, complete with new packing, when repacking small bore valves. To support this maintenance philosophy, Vogt valve users may purchase A105 bonnet subassemblies for replacement on their Vogt valves by specifying the parts numbers noted below. The removed bonnet assemblies, if not damaged and are serviceable, can be repacked in a valve repair shop environment and be used during a later valve repacking cycle.

- Repacking made easy
- Promotes quick change
- Completely packed and ready to install
- Supports valve repacking in valve shop environment
- High degree of standardization permits retrofitting of popular Vogt Class 150, 300, 600 and 800, 13 Cr trimmed, bolted bonnet valves

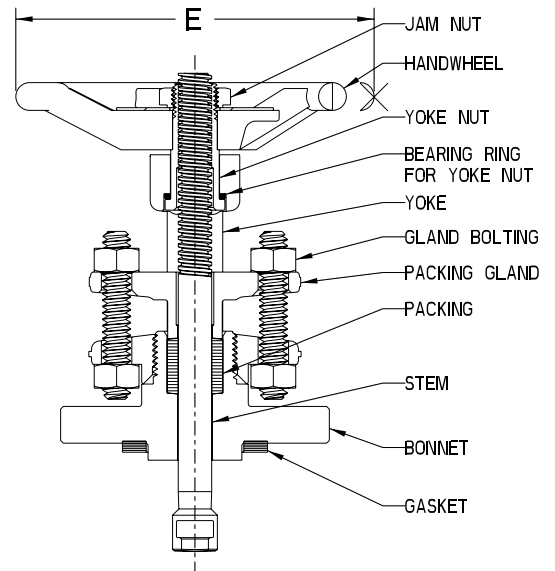
The Replacement Bonnet Assembly Packages can be easily installed on most existing in-line Compact Design Gate Valves in Classes 150, 300, 600 and 800, of A105 bolted bonnet design with 13 Cr. trim. Specify the desired replacement Bonnet Assembly Package for the valve size and series you intend to repack by replacing the bonnet subassembly.

SIZE	EMISSION REDUCTION RETROFIT BONNET ASSEMBLY PACKAGE	STANDARD RETROFIT BONNET ASSEMBLY PACKAGE	E	
			IN	MM
½ ¾	41000-04	21000-04	4.00	102
1	41000-06	21000-06	4.75	121
1-¼ 1-½	41000-08	21000-08	5.75	146
2	41000-09	21000-09	7.00	178

Write for Vogt's installation procedure covering instructions for proper field replacement of these bonnet subassemblies.



**SERIES 41000**  
**EMISSION REDUCTION**  
**A105/13% CR. TRIM**



**SERIES 21000**  
**STANDARD**  
**A105/13% CR. TRIM**

## Torque Requirements

MAX HANDWHEEL CLOSING TORQUE FT-LB										
SIZE	CLASS 800 GATE	CLASS 800 FULL PORT GATE	CLASS 1500 GATE	CLASS 1500 FULL PORT GATE	CLASS 2500 FULL PORT GATE	CLASS 800 GLOBE	CLASS 800 FULL PORT GLOBE	CLASS 1500 GLOBE	CLASS 1690 GLOBE	CLASS 2680 FULL PORT GLOBE
½"	15	15	25	25	30	15	15	25	25	30
¾"	15	20	25	35	75	15	30	25	25	75
1"	20	40	35	55	75	30	40	35	40	75
1¼"	50	50	75	75				60		
1½"	50	70	75	115	175	40	75	60	125	175
2"	70	100	115	N/A	175	75	100	100	125	175

RECOMMENDED MAXIMUM BONNET BOLT TORQUES (DRY, UN-LUBRICATED VALUES)								
		½	¾	1	1 ¼	1 ½	2	3
CLASS 800	QTY - BOLT DIAMETER	4 - 3/8"	4 - 3/8"	4 - 7/16"	4 - 5/8"	4 - 5/8"	4 - 5/8"	8 - 3/4"
	TORQUE - B7 (ft-lb)	35	35	45	125	125	125	175
	TORQUE - B16 (ft-lb)	35	35	45	125	125	125	175
	TORQUE - B8M (ft-lb)	35	35	45	115	115	115	156
CLASS 1500	QTY - BOLT DIAMETER	4 - 1/2"	4 - 1/2"	4 - 9/16"	8 - 9/16"	8 - 9/16"	8 - 5/8"	
	TORQUE - B7 (ft-lb)	85	85	100	100	100	125	
	TORQUE - B16 (ft-lb)	85	85	100	100	100	125	
	TORQUE - B8M (ft-lb)	75	75	100	100	100	115	

**REDUCE ABOVE VALUES BY 25% TO 30% IF ANY TYPE OF LUBRICATION IS USED ON BOLTING**

MAXIMUM PACKING GLAND BOLTING TORQUE				
SIZE	CLASS 150, 300, 600 & 800 CONV. PORT	CLASS 300, 600 & 800 FULL PORT	CLASS 1500	CLASS 1500 FULL PORT
½"	1.8 ft-lb	1.8 ft-lb	4.2 ft-lb	4.2 ft-lb
¾"	1.8 ft-lb	3.7 ft-lb	4.2 ft-lb	7.5 ft-lb
1"	3.7 ft-lb	4.0 ft-lb	7.5 ft-lb	13.9 ft-lb
1¼"	4.0 ft-lb		13.9 ft-lb	13.9 ft-lb
1½"	4.0 ft-lb	7.5 ft-lb	13.9 ft-lb	15.9 ft-lb
2"	7.5 ft-lb	8.5 ft-lb	15.9 ft-lb	
2½"	8.5 ft-lb			
3"	8.5 ft-lb			
4"	12.0 ft-lb			

## ***Care and Maintenance of Vogt Forged Steel Valves***

### ***Valve Care Before Installation***

Vogt valves are carefully made from selected materials to give long, trouble-free service when properly installed in applications for which they were designed. Proper care and maintenance in the field can contribute significantly to maximum performance.

The care the valve receives between the time it is shipped by the manufacturer and installed in the piping system is important. During this period, the valve can be handled many times and can be kept in storage for long periods. Industrial valves are not delicate, but they are mechanical devices that should be treated as such and handled with care.

Vogt always provides valves with appropriate end covers to protect the end connections and to prevent foreign material from entering the valve. In addition, small valves are shipped in sealed cartons while larger valves are usually palletized. If at all practical, keep the valves in the cartons or on pallets with the end covers in place until ready to be installed. Storing the valves off the ground and indoors is always preferable. When stored outside, valves should be off the ground and protected by a weatherproof cover.

Prior to installation, the valves and nameplates should be checked for proper identification to be sure the valve is the proper type and of suitable pressure class. Actuate the valve to check for possible damage from shipping and handling. Also, it is extremely important to inspect the interior of both the valve and the adjoining pipe for cleanliness. By far, the major cause of seat leakage and seat damage is foreign material in the line. Also, inspect the end connections to be sure that pipe threads and flange faces are free of scratches, nicks or dents.

### ***Routine Inspection and Maintenance***

Once the right valve is properly installed, field maintenance is of a generally routine nature and can be readily performed by the user. The critical areas of the valve include the stem threads and those locations where leakage will most likely occur – the stem packing, the bonnet joint, the seat and the end connections. It is desirable that a maintenance program be established that will include periodic inspection of the noted critical areas. Stem threads should be lubricated prior to installation and periodically as part of the regular inspection. A high pressure and temperature lubricant such as Dow Corning Molykote™ G-n paste should be used.

The most common location of a noticeable leak is at the stem seal. Leakage at the stem can usually be stopped by adjusting the packing. If leakage cannot be stopped by packing adjustment, repacking is indicated. However, back-seating the valve and attempting to repack under pressure is hazardous and is not recommended. Rather than attempting to repack under pressure, it is preferable to use the backseat to control stem leakage until a shutdown provides safe repacking conditions.

### ***Major Field Repair***

Maintenance involving rework or replacement parts is considered major repair. When circumstances dictate field repair of Vogt valves, the following information is offered as an aid. It must be pointed out, however, that the Vogt valves repaired in the field are no longer under “Product Warranty,” and in no event is Vogt liable for any cause whatsoever. There are no warranties of any kind whatsoever, expressed or implied, other than those stated in Vogt’s current Terms and Conditions.

#### **Preliminary Considerations for Valve Repair:**

1. Use experienced, trained personnel.
2. Observe all standard safety precautions.
3. If possible, remove the valve from the line so that work can be done in a clean, well-lit area.
4. Use genuine Vogt replacement parts.
5. Use proper tools.
6. Pressure test the valve before reinstalling. This is particularly essential on valves intended for critical service.
7. Remember that improper repairs can be hazardous.

## Care and Maintenance of Vogt Forged Steel Valves

### Replacement Parts ... How to Order

Genuine replacement parts are available for Vogt current standard valves and can usually be shipped from stock. All parts are made to gauge with the same careful inspection and laboratory control given original valves.

Orders for replacement parts should clearly identify the items required and should specify the correct name of the part, valve size, series number, drawing number, revision number and material, etc. This information is shown on the identification disc that is attached to the hand-wheel. The date of purchase and/or the order number will further identify the parts, especially those for special valves.

The embossed number on each hand-wheel, having a prefix letter "V", is the pattern number of the hand-wheel and has no relation to the ordering of other valve parts. Prices for valve parts will be furnished on application.

### Tools For Installing Replacement Parts

Wrenches are available (price on application) for the removal and replacement of renewable seats for globe, angle and check valves. The wrenches are machined to an accurate finish to fit the drive notches or lugs of the seat and are properly heat treated for strength and toughness.

### Disassembly

Small valves of the union bonnet type or of the new screw bonnet type are readily disassembled by unscrewing the union nut or the bonnet. In bolted bonnet valves, the nut should be removed from the bonnet stud bolts or hexagon head cap screws removed from the body. Tight bolt threads may be loosened by applying penetrating oil to the threads or by selectively heating the bolt at the point of the thread engagement. On bonnet joints of the through bolt type, the bolts may be cut between the body and bonnet flanges for removal.

### Stems

Tight stems in valves of the O.S. & Y. type are caused by either dry, worn packing or non-lubrication of the yoke nut threads. Applying a few drops of oil to the stem threads and packing and opening and closing the valve a few times, may loosen the stem. At the same time, make sure the packing gland bolting is pulled down evenly so the gland will not bind against the stem. However, care should be taken not to over-compress the packing.

A tight stem in an inside screw valve may also result from worn or over-compressed packing, or the stem bonnet threads may "freeze" from excessive service temperatures or from corrosive fluids in the valve. If the stem turns freely after all packing is removed and if the surface of the stem in contact with the packing is in good condition, a new packing is the remedy. If the stem is still tight, turn the valve to the upright position, fill the stuffing box with penetrating oil and let soak. If the stem remains tight, a new bonnet and stem are required or, if practical, an O.S. & Y type valve could be substituted.

### Bonnet Joints

On valves of the union bonnet type, repairs can be made without removing the valve from the line, provided there is enough wrench room for loosening and tightening the bonnet nut. Before loosening the bonnet nut, be sure the valve has been relieved of all pressure. A few hammer taps to the side of the bonnet nut or around the body neck on screw bonnet type valves will loosen the nut or bonnet. Gasket joints require a smooth, clean surface on both the body and the bonnet gasket faces and a new gasket is recommended for reassembly. On bolted bonnet valves in high-temperature service and particularly where severe thermal cycling is involved, it is recommended that bolt torque be checked periodically. This recommendation applies to gland bolting as well.

### Packing

Vogt valves have well-proportioned stuffing boxes filled with the best grade packing material available. Before repacking, be sure to have the right grade, type and size of packing.

**Repacking under pressure is hazardous and is not recommended.** The backseat should be used as a temporary measure to control stem leakage until a shutdown provides safe repacking conditions.

Wipe all parts of the stuffing box, inside and out, before installing the new packing. Vogt uses a split ring type packing. If this type is used for replacement, take care to stagger the ring slits so that they are not in-line. After putting in a few rings, tamp them into place well, using the packing gland as a tamping tool. Then add enough packing to fill the stuffing box. Pressure on the packing is applied by the packing nut or gland flange bolting, depending on valve design, which bears on a gland in the stuffing box. Gland bolting should be tightened evenly to obtain the proper packing compression for leak-free service. Upon reassembling the valve, a few turns of the hand-wheel and a few drops of oil applied on the stem just above the packing will help work-in the packing to the stem.

(See page 131 for Gaskets and Packing Sets and page 132 for Bonnet assemblies)

## Care and Maintenance of Vogt Forged Steel Valves

### Disc and Seat

Leakage through the seat and disc is not always easy to detect, but when definitely known to exist, immediate repair is recommended since delay may permanently damage the disc, seat or both.

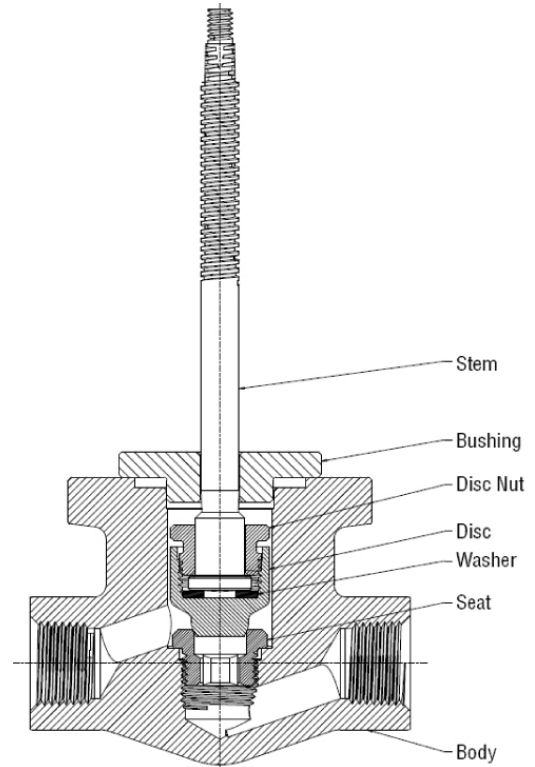
The internal repair of gate valves 2" and smaller is usually found to be uneconomical. However, if a gate valve is disassembled for inspection or cleaning, care should be taken when removing the wedge to note and mark its orientation with respect to the valve body so that when the wedge is reinserted in the valve, it will have precisely the same relationship to the seats that it had in the original assembly.

The seat threads in angle, globe and check valve bodies should be carefully inspected to make sure they are in useable condition. When installing new seats by using proper seat tools, the seats should be screwed tightly into the valve body, then unscrewed and examined to make sure they are making continuous contact for tight seal.

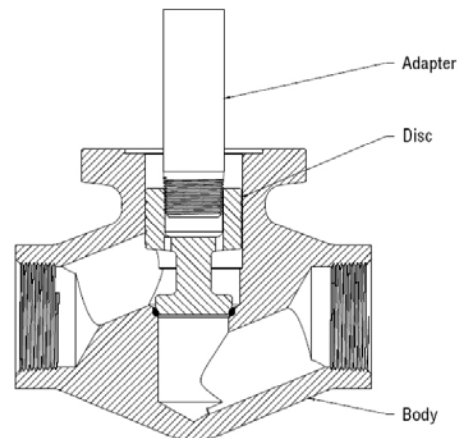
If seating surfaces show galling, slight pitting, grooving or indentations not deeper than 0.010", lapping will usually restore the surfaces sufficiently to permit tight closure. Defects deeper than 0.010" can seldom be corrected by lapping, but seating surfaces can be remachined or new parts installed. For re-lapping the seat and disc of Vogt globe, angle or check valves, use a fine and a coarse grade emery base compound such as Clover Compound A and D. Apply a light coat of fine, or A, compound to the seating surface of the disc or one-piece stem, insert disc or one-piece stem into seat, and lap using an oscillating motion. Lap a few minutes and then wipe seating surfaces clean. This will clearly show the extent of damage. If severe damage is noted, use the coarse, or D, compound and lap until all defects are removed. Then finish with the fine, or A, compound. It is recommended that the face of the disc be "blued" to check for contact between seating surfaces after final lapping.

Globe and angle valves require a lapping guide fixture to maintain alignment during the lapping operation. A fixture as shown in GLOBE Figure may be made or, for O.S. and Y. valves, a valve bonnet with yoke nut removed may be used. For re-lapping loose disc globe valves, place a washer between the disc and head of the stem and retighten the disc nut, as shown in GLOBE Figure.

Vogt piston check valves require an adapter to screw or mate into the piston for lapping the piston seating surface to the seat. The bore of the valve body serves as a guide for lapping, see CHECK Figure. Ball check valves are primarily used for fluids of high viscosity and the rolling action of the ball maintains seating surfaces in good condition until ball size or ball guide is worn and replacement parts are needed.



**GLOBE FIGURE**



**CHECK FIGURE**



# Weight and Pressure Conversion

## Weight Conversion

### Pounds to Kilograms

(1 pound = 0.4536 kilograms)

Pounds	0	1	2	3	4	5	6	7	8	9
0	0.00	0.45	0.91	1.36	1.81	2.27	2.72	3.18	3.63	4.08
10	4.54	4.99	5.44	5.90	6.35	6.80	7.26	7.71	8.16	8.62
20	9.07	9.53	9.98	10.43	10.89	11.34	11.79	12.25	12.70	13.15
30	13.61	14.06	14.52	14.97	15.42	15.88	16.33	16.78	17.24	17.69
40	18.14	18.60	19.05	19.50	19.96	20.41	20.87	21.32	21.77	22.23
50	22.68	23.13	23.59	24.04	24.49	24.95	25.40	25.86	26.31	26.76
60	27.22	27.67	28.12	28.58	29.03	29.48	29.94	30.39	30.84	31.30
70	31.75	32.21	32.66	33.11	33.57	34.02	34.47	34.93	35.38	35.83
80	36.29	36.74	37.20	37.65	38.10	38.56	39.01	39.46	39.92	40.37
90	40.82	41.28	41.73	42.18	42.64	43.09	43.55	44.00	44.45	44.91

### Kilograms to Pounds

(1 kilograms = 2.2046 pounds)

Kilograms	0	1	2	3	4	5	6	7	8	9
0	0.00	2.20	4.41	6.61	8.82	11.02	13.23	15.43	17.64	19.84
10	22.05	24.25	26.46	28.66	30.86	33.07	35.27	37.48	39.68	41.89
20	44.09	46.30	48.50	50.71	52.91	55.12	57.32	59.52	61.73	63.93
30	66.14	68.34	70.55	72.75	74.96	77.16	79.37	81.57	83.77	85.98
40	88.18	90.39	92.59	94.80	97.00	99.21	101.41	103.62	105.82	108.03
50	110.23	112.43	114.64	116.84	119.05	121.25	123.46	125.66	127.87	130.07
60	132.28	134.48	136.69	138.89	141.09	143.30	145.50	147.71	149.91	152.12
70	154.32	156.53	158.73	160.94	163.14	165.35	167.55	169.75	171.96	174.16
80	176.37	178.57	180.78	182.98	185.19	187.39	189.60	191.80	194.01	196.21
90	198.41	200.62	202.82	205.03	207.23	209.44	211.64	213.85	216.05	218.26
90	40.82	41.28	41.73	42.18	42.64	43.09	43.55	44.00	44.45	44.91

## Pressure Conversion

### Bar to Pounds per Square Inch (psi)

(1 Bar = 105 Pa = 14.5 psi)

1 to 20		21 to 40		41 to 60		61 to 80		81 to 100	
Bar	psi	Bar	psi	Bar	psi	Bar	psi	Bar	psi
1	14.5	21	304.6	41	594.7	61	884.7	81	1174.8
2	29.0	22	319.1	42	609.2	62	899.2	82	1189.3
3	43.5	23	333.6	43	623.7	63	913.7	83	1203.8
4	58.0	24	348.1	44	638.2	64	928.2	84	1218.3
5	72.5	25	362.6	45	652.7	65	942.7	85	1232.8
6	87.0	26	377.1	46	667.2	66	957.2	86	1247.3
7	101.5	27	391.6	47	681.7	67	971.8	87	1261.8
8	116.0	28	406.1	48	696.2	68	986.3	88	1276.3
9	130.5	29	420.6	49	710.7	69	1000.8	89	1290.8
10	145.0	30	435.1	50	725.2	70	1015.3	90	1305.3
11	159.5	31	449.6	51	739.7	71	1029.8	91	1319.8
12	174.0	32	464.1	52	754.2	72	1044.3	92	1334.3
13	188.5	33	478.6	53	768.7	73	1058.8	93	1348.9
14	203.1	34	493.1	54	783.2	74	1073.3	94	1363.4
15	217.6	35	507.6	55	797.7	75	1087.8	95	1377.9
16	232.1	36	522.1	56	812.2	76	1102.3	96	1392.4
17	246.6	37	536.6	57	826.7	77	1116.8	97	1406.9
18	261.1	38	551.1	58	841.2	78	1131.3	98	1421.4
19	275.6	39	565.6	59	855.7	79	1145.8	99	1435.9
20	290.1	40	580.2	60	870.2	80	1160.3	100	1450.4

# Temperature Conversion

## Celsius (C) to Fahrenheit (F) - Fahrenheit (F) to Celsius (C)

-459.4° to 0°			1° to 60°			61° to 290°			300° to 890°			900° to 3000°		
C	Cel. or Fah.	F	C	Cel. or Fah.	F	C	Cel. or Fah.	F	C	Cel. or Fah.	F	C	Cel. or Fah.	F
-273	-459.4		-17.2	1	33.8	16.1	61	141.8	149	300	572	482	900	1652
-268	-450		-16.7	2	35.6	16.7	62	143.6	154	310	590	488	910	1670
-262	-440		-16.1	3	37.4	17.2	63	145.4	160	320	608	493	920	1688
-257	-430		-15.6	4	39.2	17.8	64	147.2	166	330	626	499	930	1706
-251	-420		-15.0	5	41.0	18.3	65	149.0	171	340	644	504	940	1724
-246	-410		-14.4	6	42.8	18.9	66	150.8	177	350	662	510	950	1742
-240	-400		-13.9	7	44.6	19.4	67	152.6	182	360	680	516	960	1760
-234	-390		-13.3	8	46.4	20.0	68	154.4	188	370	698	521	970	1778
-229	-380		-12.8	9	48.2	20.6	69	156.2	193	380	716	527	980	1796
-223	-370		-12.2	10	50.0	21.1	70	158.0	199	390	734	532	990	1814
-218	-360		-11.7	11	51.8	21.7	71	159.8	204	400	752	538	1000	1832
-212	-350		-11.1	12	53.6	22.2	72	161.6	210	410	770	549	1020	1868
-207	-340		-10.6	13	55.4	22.8	73	163.4	216	420	788	560	1040	1904
-201	-330		-10.0	14	57.2	23.3	74	165.2	221	430	806	571	1060	1940
-196	-320		-9.4	15	59.0	23.9	75	167.0	227	440	824	582	1080	1976
-190	-310		-8.9	16	60.8	24.4	76	168.8	232	450	842	593	1100	2012
-184	-300		-8.3	17	62.6	25.0	77	170.6	238	460	860	604	1120	2048
-179	-290		-7.8	18	64.4	25.6	78	172.4	243	470	878	616	1140	2084
-173	-280		-7.2	19	66.2	26.1	79	174.2	249	480	896	627	1160	2120
-169	-273	-459.4	-6.7	20	68.0	26.7	80	176.0	254	490	914	638	1180	2156
-168	-270	-454	-6.1	21	69.8	27.2	81	177.8	260	500	932	649	1200	2192
-162	-260	-436	-5.6	22	71.6	27.8	82	179.6	266	510	950	660	1220	2228
-157	-250	-418	-5.0	23	73.4	28.3	83	181.4	271	520	968	671	1240	2264
-151	-240	-400	-4.4	24	75.2	28.9	84	183.2	277	530	986	682	1260	2300
-146	-230	-382	-3.9	25	77.0	29.4	85	185.0	282	540	1004	693	1280	2336
-140	-220	-364	-3.3	26	78.8	30.0	86	186.8	288	550	1022	704	1300	2372
-134	-210	-346	-2.8	27	80.6	30.6	87	188.6	293	560	1040	732	1350	2462
-129	-200	-328	-2.2	28	82.4	31.1	88	190.4	299	570	1058	760	1400	2552
-123	-190	-310	-1.7	29	84.2	31.7	89	192.2	304	580	1076	788	1450	2642
-118	-180	-292	-1.1	30	86.0	32.2	90	194.0	310	590	1094	816	1500	2732
-112	-170	-274	-0.6	31	87.8	32.8	91	195.8	316	600	1112	843	1550	2822
-107	-160	-256	0.0	32	89.6	33.3	92	197.6	321	610	1130	871	1600	2912
-101	-150	-238	0.6	33	91.4	33.9	93	199.4	327	620	1148	899	1650	3002
-96	-140	-220	1.1	34	93.2	34.4	94	201.2	332	630	1166	927	1700	3092
-90	-130	-202	1.7	35	95.0	35.0	95	203.0	338	640	1184	954	1750	3182
-84	-120	-184	2.2	36	96.8	35.6	96	204.8	343	650	1202	982	1800	3272
-79	-110	-166	2.8	37	98.6	36.1	97	206.6	349	660	1220	1010	1850	3362
-73	-100	-148	3.3	38	100.4	36.7	98	208.4	354	670	1238	1038	1900	3452
-68	-90	-130	3.9	39	102.2	37.2	99	210.2	360	680	1256	1066	1950	3542
-62	-80	-112	4.4	40	104.0	37.8	100	212.0	366	690	1274	1093	2000	3632
-57	-70	-94	5.0	41	105.8	43	110	230	371	700	1292	1121	2050	3722
-51	-60	-76	5.6	42	107.6	49	120	248	377	710	1310	1149	2100	3812
-46	-50	-58	6.1	43	109.4	54	130	266	382	720	1328	1177	2150	3902
-40	-40	-40	6.7	44	111.2	60	140	284	388	730	1346	1204	2200	3992
-34	-30	-22	7.2	45	113.0	66	150	302	393	740	1364	1232	2250	4082
-29	-20	-4	7.8	46	114.8	71	160	320	399	750	1382	1260	2300	4172
-23	-10	14	8.3	47	116.6	77	170	338	404	760	1400	1288	2350	4262
-18	0	32	8.9	48	118.4	82	180	356	410	770	1418	1316	2400	4352
			9.4	49	120.2	88	190	374	416	780	1436	1343	2450	4442
			10.0	50	122.0	93	200	392	421	790	1454	1371	2500	4532
<b>Conversion Formulas</b>  $C = \frac{5}{9}(F - 32)$ $F = \frac{9}{5}C + 32$			10.6	51	123.8	99	210	410	427	800	1472	1399	2550	4622
			11.1	52	125.6	104	220	428	432	810	1490	1427	2600	4712
			11.7	53	127.4	110	230	446	438	820	1508	1454	2650	4802
			12.2	54	129.2	116	240	464	443	830	1526	1482	2700	4892
			12.8	55	131.0	121	250	482	449	840	1544	1510	2750	4982
			13.3	56	132.8	127	260	500	454	850	1562	1538	2800	5072
			13.9	57	134.6	132	270	518	460	860	1580	1566	2850	5162
			14.4	58	136.4	138	280	536	466	870	1598	1593	2900	5252
			15.0	59	138.2	143	290	554	471	880	1616	1621	2950	5342
			15.6	60	140.0	149	300	572	477	890	1634	1649	3000	5432

Locate temperature in middle column. If in degrees Celsius, read Fahrenheit equivalent in right hand column; if in degrees Fahrenheit, read Celsius equivalent in left hand column.

# Dimensional Data for Standard & Schedule Pipe

## Carbon Steel Pipe

NPS-Black numbers are inches and pounds DN-Blue numbers are millimeter and kilograms

PIPE	NPS DN	1/8 8	1/4 8	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	2 1/2 65	3 80	3 1/2 95	4 100	5 125	6 150	8 200	10 250	12 300			
	Outside Dia.	0.405 10.3	0.540 13.7	0.675 17.1	0.840 21.3	1.050 26.7	1.315 33.4	1.660 42.2	1.900 48.3	2.375 60.3	2.875 73.0	3.500 88.9	4.000 101.6	4.500 114.3	5.563 141.3	6.625 168.3	8.625 219.1	10.750 273.0	12.750 323.8			
Standard	Inside Dia.	0.269 6.8	0.364 9.2	0.493 12.5	0.622 15.8	0.824 20.9	1.049 25.6	1.380 35.1	1.610 40.9	2.067 52.5	2.469 62.7	3.068 77.9	3.548 90.1	4.026 102	5.047 128	6.065 154	7.981 203	10.020 255	12.000 305			
	Wall Thick.	0.068 1.73	0.088 2.24	0.091 2.31	0.109 2.77	0.113 2.87	0.133 3.38	0.140 3.56	0.145 3.68	0.154 3.91	0.203 5.16	0.216 5.49	0.226 5.74	0.237 6.02	0.258 6.55	0.280 7.11	0.322 8.18	0.365 9.27	0.375 9.53			
	Wt. Per Ft.	0.24 0.37	0.42 0.63	0.57 0.84	0.85 1.27	1.13 1.69	1.68 2.50	2.27 3.39	2.72 4.05	3.65 5.44	5.79 8.63	7.58 11.29	9.11 13.57	10.79 16.07	14.62 21.77	18.97 28.26	28.55 42.55	40.48 60.31	49.56 73.88			
Extra Heavy	Inside Dia.	0.215 5.4	0.302 7.7	0.423 10.7	0.546 13.9	0.742 18.8	0.957 24.3	1.278 32.5	1.50 38.1	1.939 49.2	2.323 59.0	2.900 73.7	3.364 85.4	3.826 97.2	4.813 122	5.761 146	7.625 194	9.750 248	11.750 298			
	Wall Thick.	0.095 2.41	0.119 3.02	0.126 3.20	0.147 3.73	0.154 3.91	0.179 4.55	0.191 4.85	0.200 5.08	0.218 5.54	0.276 7.01	0.300 7.62	0.318 8.08	0.337 8.56	0.375 9.53	0.432 10.97	0.500 12.70	0.600 15.24	0.600 17.70			
	Wt. Per Ft.	0.31 0.47	0.54 0.80	0.74 1.10	1.09 1.62	1.47 2.20	2.17 3.24	3.00 4.47	3.63 5.41	5.02 7.48	7.66 11.41	10.25 15.27	12.51 18.63	14.98 22.32	20.78 30.97	28.57 42.56	43.39 64.64	54.74 81.55	65.42 97.46			
Double Extra Heavy	Inside Dia.				0.252 6.4	0.434 11.0	0.599 15.2	0.896 22.6	1.100 27.9	1.503 38.2	1.771 50.4	2.300 58.4		3.152 80.1	4.063 103	4.897 124	6.875 175					
	Wall Thick.				0.294 7.47	0.308 7.82	0.358 9.09	0.382 9.70	0.400 10.15	0.436 11.07	0.552 15.24	0.600 15.24		0.674 17.12	0.750 19.05	0.864 21.95	0.875 22.23					
	Wt. Per Ft.				1.71 2.55	2.44 3.64	3.66 5.45	5.21 7.77	6.41 9.56	9.03 13.44	13.69 20.39	18.58 27.68		27.54 41.03	38.55 57.43	53.16 79.22	72.4 107.92					
Schedule 10	Inside Dia.																					
	Wall Thick.																					
	Wt. Per Ft.																					
Schedule 20	Inside Dia.																6.125 206	10.250 260	12.250 311			
	Wall Thick.																0.250 6.35	0.250 6.35	0.250 6.35			
	Wt. Per Ft.																22.36 33.31	28.04 41.77	33.38 49.73			
Schedule 30	Inside Dia.																8.071 205	10.136 257	12.090 307			
	Wall Thick.																0.277 7.04	0.307 7.80	*0.330 8.38			
	Wt. Per Ft.																24.70 36.81	34.24 51.03	43.77 65.20			
Schedule 40	Inside Dia.	0.269 6.8	0.364 9.2	0.493 12.5	0.622 15.8	0.824 20.9	1.049 26.6	1.380 35.1	1.610 40.9	2.067 52.5	2.469 62.7	3.068 77.9	3.548 90.1	4.026 102	5.047 128	6.065 154	7.981 203	10.020 255	11.938 303			
	Wall Thick.	0.068 1.73	0.088 2.24	0.091 2.31	0.109 2.77	0.113 2.87	0.133 3.38	0.140 3.56	0.145 3.68	0.154 3.91	0.203 5.16	0.216 5.49	0.226 5.74	0.237 6.02	0.258 6.55	0.280 7.11	0.322 8.18	0.365 9.27	0.406 10.32			
	Wt. Per Ft.	0.24 0.32	0.42 0.63	0.57 0.84	0.85 1.27	1.13 1.69	1.66 2.50	2.27 3.39	2.72 4.05	3.65 5.44	5.79 8.63	7.58 11.29	9.11 13.57	10.79 16.07	14.62 21.77	18.97 28.26	28.55 42.55	40.48 60.31	53.52 79.73			
Schedule 60	Inside Dia.																7.813 198	9.750 248	11.626 295			
	Wall Thick.																0.406 10.31	+0.500 12.70	0.562 14.27			
	Wt. Per Ft.																35.64 53.08	54.74 81.55	73.15 108.96			
Schedule 80	Inside Dia.	0.215 5.5	0.302 7.7	0.423 10.7	0.546 13.9	0.742 18.8	0.957 24.3	1.278 32.5	1.50 38.1	1.939 49.3	2.323 59.0	2.900 73.7	3.364 85.4	3.826 97.2	4.813 122	5.761 145	7.625 194	9.564 243	11.376 289			
	Wall Thick.	0.095 2.41	0.119 3.02	0.126 3.20	0.147 3.73	0.154 3.91	0.179 4.55	0.191 4.85	0.200 5.08	0.218 5.54	0.276 7.01	0.300 7.62	0.318 8.08	0.337 8.56	0.375 9.53	0.432 10.97	0.500 12.70	0.594 15.02	0.688 17.48			
	Wt. Per Ft.	0.31 0.47	0.54 0.80	0.74 1.10	1.09 1.62	1.47 2.20	2.17 3.24	3.00 4.47	3.63 5.41	5.02 7.48	7.66 11.41	10.25 15.27	12.51 18.63	14.98 22.32	20.78 30.97	28.57 42.56	43.39 64.64	64.43 96.01	88.63 132.08			
Schedule 100	Inside Dia.																7.439 189	9.314 237	11.084 281			
	Wall Thick.																0.594 15.09	0.719 18.26	0.844 21.44			
	Wt. Per Ft.																50.95 75.92	77.03 114.75	107.32 159.91			
Schedule 120	Inside Dia.																3.624 92.0	4.563 116	5.501 140	7.189 183	9.064 230	10.75 273
	Wall Thick.																0.438 11.13	0.500 12.70	0.562 14.27	0.719 18.26	0.844 21.44	1.000 25.40
	Wt. Per Ft.																19.00 26.32	27.04 40.28	36.39 54.20	60.71 88.26	89.24 133.06	125.49 186.97
Schedule 140	Inside Dia.																	7.001 179	8.750 222	10.50 267		
	Wall Thick.																	0.812 20.62	1.000 25.40	1.125 28.58		
	Wt. Per Ft.																	67.76 100.92	104.13 155.15	139.67 208.14		
Schedule 160	Inside Dia.				0.466 11.8	0.614 15.6	0.815 20.7	1.160 29.5	1.338 34.0	1.689 42.9	2.125 54.0	2.624 66.6		3.438 87.3	4.313 110	5.189 132	6.813 173	8.500 216	10.126 257			
	Wall Thick.				0.188 4.78	0.219 5.56	0.250 6.35	0.250 6.35	0.281 7.14	0.344 8.74	0.375 9.53	0.438 11.13		0.531 13.49	0.625 15.88	0.719 18.26	0.906 23.01	1.125 28.58	1.312 33.32			
	Wt. Per Ft.				1.31 1.95	1.94 2.90	2.84 4.24	3.76 5.61	4.86 7.25	7.46 11.11	10.01 14.92	14.32 21.35		22.51 33.54	32.96 49.11	45.35 67.56	74.69 111.27	115.64 177.33	160.27 238.76			

## Dimensional Data for Standard & Schedule Pipe

**Stainless Steel Pipe**

*NPS-Black numbers are inches and pounds DN-Blue numbers are millimeter and kilograms*

PIPE	NPS	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12
	DN	6	8	10	15	20	25	32	40	50	63	80	95	100	125	150	200	250	300
	Outside Dia.	0.405	0.540	0.675	0.840	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.563	6.625	8.625	10.750	12.750
	Dia.	10.3	13.7	17.1	21.3	26.7	33.4	42.2	48.3	60.3	73.0	88.9	101.6	114.3	141.3	168.3	219.1	273.1	323.9
Schedule 5S (a)	Inside Dia.				0.710	0.920	1.185	1.530	1.770	2.245	2.709	3.334	3.834	4.334	5.345	6.407	8.407	10.842	12.438
	Wall Thick.				0.065	0.065	0.065	0.065	0.065	0.065	0.083	0.083	0.083	0.083	0.109	0.109	0.109	0.134	0.156
	Wt. Per Ft.				1.65	1.65	1.65	1.65	1.65	1.65	2.11	2.11	2.11	2.11	2.77	2.77	2.77	3.40	3.96
					0.54	0.69	0.87	1.11	1.28	1.61	2.48	3.03	3.48	3.92	6.36	7.60	9.93	15.19	20.98
					0.80	1.03	1.29	1.65	1.90	2.40	3.69	4.51	5.18	5.83	9.46	11.31	14.78	22.61	31.22
Schedule 10S (a)	Inside Dia.	0.307	0.410	0.545	0.674	0.884	1.097	1.442	1.682	2.157	2.635	3.260	3.760	4.260	5.295	6.357	8.329	10.420	12.390
	Wall Thick.	0.049	0.065	0.065	0.083	0.083	0.109	0.109	0.109	0.109	0.120	0.120	0.120	0.120	0.134	0.134	0.148	0.165	0.180
	Wt. Per Ft.	0.19	0.33	0.42	0.67	0.86	1.40	1.81	2.09	2.64	3.53	4.33	4.97	5.61	7.77	9.29	13.40	18.65	24.17
		0.28	0.49	0.63	1.00	1.28	2.08	2.69	3.11	3.93	5.25	6.44	7.40	8.35	11.56	13.83	19.94	27.75	36.0
Schedule 40S	Inside Dia.	0.269	0.364	0.493	0.622	0.824	1.049	1.380	1.610	2.067	2.469	3.068	3.548	4.026	5.047	6.065	7.981	10.020	11.938
	Wall Thick.	0.068	0.088	0.091	0.109	0.113	0.133	0.140	0.145	0.154	0.203	0.216	0.226	0.237	0.258	0.280	0.322	0.365	0.375
	Wt. Per Ft.	0.24	0.42	0.57	0.85	1.13	1.68	2.27	2.72	3.65	5.79	7.68	9.11	10.79	14.62	18.97	28.55	40.48	49.56
		0.36	0.63	0.85	1.26	1.68	2.50	3.38	4.05	5.43	8.62	11.43	13.56	16.06	21.76	28.23	42.49	60.24	73.75
Schedule 80S	Inside Dia.	0.215	0.302	0.423	0.546	0.742	0.957	1.278	1.500	1.999	2.323	2.900	3.354	3.828	4.813	5.761	7.625	9.75	11.75
	Wall Thick.	0.095	0.119	0.128	0.147	0.154	0.179	0.191	0.200	0.218	0.276	0.300	0.318	0.337	0.375	0.432	0.500	0.500	0.500
	Wt. Per Ft.	0.31	0.54	0.74	1.09	1.47	2.17	3.00	3.53	5.02	7.66	10.25	12.50	14.98	20.78	28.57	43.39	54.74	65.42
		0.46	0.80	1.10	1.62	2.19	3.23	4.46	5.25	7.47	11.40	15.25	18.60	22.29	30.92	42.52	64.57	81.46	97.36

(A) Wall thickness of schedule 5S and 10S does NOT permit threading in accordance with USA Standard Pipe Threads (ASME B1.20.1)

CARBON STEEL PIPE DATA: Extracted from ASME B36.10M-1985 Standards (except inside diameter and on size notation)  
 STAINLESS STEEL PIPE DATA: Extracted from ASME B36.19M-1985 Standards (except inside diameter and on size notation)

## Limited Warranty

Seller warrants that the Goods shall be free from defects in materials manufactured by Seller and in Seller's workmanship for a period of one (1) year following shipment (the "Warranty Period"). This limited warranty shall apply only in favor of Buyer, shall expire on the last day of such one (1) year period and shall be subject to the following:

- a. This warranty shall not apply to Goods that have been (i) repaired or altered by any Person other than the Seller, (ii) subjected to unreasonable or improper use or use beyond rated conditions, improper storage, negligence or accident, (iii) damaged because of use of the Goods or incorporation of the Goods into use of any Goods with other materials or equipment, after Buyer (or any other person using the Goods) has, or reasonably should have, knowledge of any defect; (iv) manufactured, fabricated or assembled by any person other than Seller (Seller shall assign to Buyer, to the extent same is assignable, any warranty Seller has received from the manufacture of such Goods); or (v) improperly installed by any person (including Buyer) other than Seller.
- b. This warranty shall not be effective unless Seller receives a written claim within thirty (30) days after discovery of any defect with respect to which a claim is made.
- c. Seller shall have the right (but not the obligation) to verify, with its own representatives, the nature and extent of any claimed defect prior to return of Goods to Seller. Upon request by Seller, Buyer shall, at its own risk and expense, promptly return the Goods in question to Seller's Plant.
- d. Buyer covenants to inform all subsequent buyers to the Goods of the limitations on and exclusion of the warranties provided herein. Buyer hereby indemnifies and agrees to hold Seller harmless from and against all losses, costs and expenses, including reasonable attorney's fees incurred by Seller as a result of any third-party claim relating to the purchase, sale or use of, otherwise relating to, the Goods covered by this agreement.
- e. Seller's liability for any breach of warranty shall be limited either to (i) repair or replacement (whichever Seller shall elect) at Seller's Plant of any Goods determined by Seller to be defective, or (ii) payment of an amount equal to the invoiced cost to the Buyer of the part or material that is defective, as Seller may elect. In no event shall Seller be required to repair, replace or reimburse Buyer for more than the part or material that is found to be defective and Seller's liability shall in no event be greater than the invoiced price of the item and shall not include labor, shipping or other costs incurred in connection with the reshipment of defective Goods to Seller or the reinstallation of such Goods after any repair or replacement. The Goods, as a whole, shall not be construed to be a "part" or "material" for the purpose of the immediately preceding sentence. Any Goods that are repaired or replaced by Seller shall be re-delivered to Buyer F.O.B. Seller's Plant and shall be warranted for the remaining term of the original Warranty Period for such Goods. THE REMEDY SET FORTH IN THIS LIMITED WARRANTY IS EXPRESSLY AGREED TO BE SOLE AND EXCLUSIVE REMEDY FOR ANY SUCH BREACH OF WARRANTY.
- f. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES (EXCEPT OF TITLE), EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED OR EXPRESS WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND CONFORMITY TO MODELS OR SAMPLES. ALL OTHER LIABILITY WHETHER IN CONTRACT OR TORT, STRICT LIABILITY, NEGLIGENCE OR OTHERWISE, IS HEREBY EXCLUDED.



## Other Vogt Documents

All of the valves discussed in this catalog have their own technical brochure. You can view them or download them or even order them by following the simple directions on the following page.

### Gate Valves:

VVENBR1002	Emission Reduction Gate Valve and Retrofit Bonnet Assembly
VVENBR1004	Forged Steel Bellowsal Gate Valves Class 800
VVENBR1006	Forged Steel Gate, Globe and Check Valves
VVENBR1022	Extended Body Forged Steel Valves, Welded Bonnet, Bolted Bonnet, Class 800 & 1500
VVENBR10019	Motor-Operated Gate and Globe Valves

### Globe Valves:

VVENBR1005	Forged Steel Bellowsal Globe Valves Class 150, 300, 600 & 800
VVENBR1006	Forged Steel Gate, Globe and Check Valves
VVENBR1007	Forged Steel Globe Valves for Water-Free Chlorine Service, Class 300, 600 & 800
VVENBR1008	Forged Steel "Y" Pattern Class 1690 and 2680
VVENBR1015	Forged Steel Flow Control Valves
VVENBR1016	"Y" Pattern Globe Valves, Class 800
VVENBR1018	"Y" Pattern Globe and Check Valves, Class 1690 & 2680
VVENBR1019	Motor-Operated Gate and Globe Valves

### Check Valves:

VVENBR1003	Zero-Leakage Forged Steel Check Valves
VVENBR1006	Forged Steel Gate, Globe and Check Valves
VVENBR1018	"Y" Pattern Globe and Check Valves, Class 1690 & 2680"

### All Valves:

VVENBR0002	Vogt Special Applications Product Catalog
VVENBR0003	Vogt Valve Product Overview

### Other Special Bulletins:

VVENBR1009	Forged Steel: ASTM A350, Grade LF2
VVENBR1011	Bellowsal Valves
VVENBR1012	Fugitive Emissions: A Leakage Viewpoint
VVENBR1013	A Treatise on Leakage
VVENBR1017	Sour Service Valve Applications
VVENBR1020	Post Weld Heat Treatment (PWHT) of Socket Weld Valves
VVENBR1021	HF Alkylation Service Valve Applications - Forged Steel Alkylation Valves



### To Access Literature On-line

Every item in this catalog has a brochure containing a great deal of technical product detail. It's easy to find... it's free... and you do not need a password.

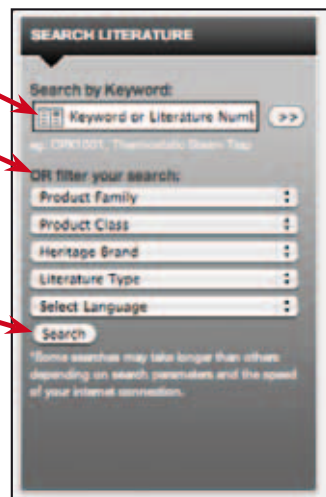
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