



**Vogt  
Forged Steel  
Valves**

**VV-26 Rev.1 1-01-15  
Price Schedule  
Effective: January 1, 2015  
Supercedes Price Schedule VV-25  
Dated: August 1, 2013**

**1511 Jefferson Street  
Sulphur Springs, TX 75482**

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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	BW353	353	
	A182 F316/F316 L				OS&Y		Conv			BW358	358	
	A350 LF2				OS&Y		Conv			BW32353	32353	
300	A105	Bolted	Spiral Wound		OS&Y		Conv	See Class 800	See Class 800	BW363	363	
					OS&Y		Full			BW13363	13363	
	A182 F316/F316 L				OS&Y		Conv			BW368	368	
					OS&Y		Full			BW13368	13368	
	A350 LF2				OS&Y		Conv			BW32363	32363	
					OS&Y		Full			BW33363	33363	
600	A105	Bolted	Spiral Wound		OS&Y		Conv	See Class 800	See Class 800	BW373	373	
					OS&Y		Full			BW13373	13373	
					OS&Y	API 600	Full				11403	
	A182 F316/F316 L				OS&Y		Conv			BW378	378	
					OS&Y		Full			BW13378	13378	
	A350 LF2				OS&Y		Conv			BW32373	32373	
					OS&Y		Full		BW33373	33373		
800	A105	Bolted	Spiral Wound		OS&Y		Conv	12111	SW12111	BW12111		
					OS&Y		Full	13111	SW13111			
					OS&Y	API 600	Full	11103	SW11103			
					ISS		Conv	12161	SW12161			
				Extended Male Thread end	OS&Y			TT12111				
				Extended Male Socket Weld end	OS&Y		Conv	ST 12111	SS12111			
		Extended Male Couplet end	OS&Y			CT12111	CS12111					
		Weld	Bellows Seal		OS&Y		Conv	2801	SW2801			
					OS&Y		Conv	2801B	SW2801B			
					ISS		Conv	2811	SW2811			
			Extended Male Thread end	OS&Y		Conv	TT2801					
				ISS		Conv	TT2811					
	Extended Male Socket Weld end		OS&Y		Conv	ST2801	SS2801					
	Extended Male Couplet end	OS&Y		Conv	CT2801	CS2801						
	Reinforced Ext. Male Couplet end	ISS		Conv	CT2901	CS2901						
		ISS		Conv	CT2911	CS2911						
	Union	Spiral Wound		ISS		Conv	59851	SW59851				
	A350 LF2	Bolted	Spiral Wound		OS&Y		Conv	32111	SW32111			
					OS&Y		Full	33111	SW33111			
		Weld		OS&Y		Conv	32801	SW32801				
				OS&Y		Full	33801	SW33801				
	A182 F316/F316L	Bolted	Spiral Wound		OS&Y		Conv	12401	SW12401			
					OS&Y		Full	13401	SW13401			
		Weld				Conv	2831	SW2831				
Extended Male Thread end			OS&Y		Conv	TT2831						
Extended Male Socket Weld end			OS&Y		Conv	ST2831	SS2831					
Extended Male Couplet end		OS&Y		Conv	CT2831	CS2831						
Union		Spiral Wound		ISS		Conv	59951	SW59951				
Bolted		Spiral Wound		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					
1500	A105	Bolted	Spiral Wound		OS&Y		Conv	15111	SW15111	BW15111		
					OS&Y	API 600	Full	16111	SW16111			
					OS&Y	API 600	Full	1033	SW1033			
			OS&Y	API 600	Full	1043	SW1043					
		Weld	Spiral Wound	Flanged		OS&Y		Conv				15373
						OS&Y		Full				16373
					OS&Y	API 600	Full				11603	
		OS&Y		Conv					11683			
		OS&Y		Conv	15801	SW15801						
	Extended Male Socket Weld end	OS&Y		Conv	ST15801	SS15801						
	A350 LF2	Bolted	Spiral Wound		OS&Y		Conv	35111	SW35111			
					OS&Y		Conv	15401	SW15401			
A182 F316/F316 L	Bolted	Spiral Wound		OS&Y		Conv	15831	SW15831				
				OS&Y		Conv	15321	SW15321				
	Weld	Spiral Wound		OS&Y		Conv	15321	SW15321				
				OS&Y		Conv	15521	SW15521				
2500* 2680*	A105	Weld	Threaded		OS&Y		Full	66703	SW66703			
	A350 LF2				OS&Y		Full	66743	SW66743			
	A182 F11, CL2				OS&Y		Full	66713	SW66713			
	A182 F22 CL 3				OS&Y		Full	66773	SW66773			
	A182 F91				OS&Y		Full	66791	SW66791			

\* 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												478							
A350 LF2													32473							
300	A105	Bolted	Bellows Seal	Integral		OS&Y		Conv						483B						
	A182 F316/F316 L													488B						
	A105	Bolted	Spiral Wound	Integral		OS&Y		Conv	See Class 800	See Class 800	BW483			483						
	A182 F316/F316 L													BW488	488					
	A350 LF2													BW32483	32483					
	A105	Bolted	Spiral Wound	Removable		OS&Y		Conv							22483					
A350 LF2	36483																			
600	A105	Bolted	Bellows Seal	Integral		OS&Y		Conv						493B						
	A182 F316/F316 L													498B						
	A105	Bolted	Spiral Wound	Integral		OS&Y		Conv	See Class 800	See Class 800	BW493			493						
	A182 F316/F316 L													BW498	498					
	A350 LF2													BW32493	32493					
	A105	Bolted	Spiral Wound	Removable		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			
															Angle	13141	SW13141			
															Throttling	1971	SW1971			
															Needle Pt.	12443	SW12443			
															Removable	22461	SW22461			
																22141	SW22141			
		Integral	OS&Y	API 600	Full	23141	SW23141													
						10103	SW10103													
						12181	SW12181													
		Integral	OS&Y			Conv										TT12141				
																Extended Male Thread end	ST 12141	SS12141		
																Extended Male Socket Weld end	CT12141	CS12141		
	Integral	OS&Y							Conv											
															Extended Male Couplet end	2821	SW2821			
	Weld	OS&Y		Integral					Conv						810	SW810				
															Y pattern	801	SW801			
	Union	OS&Y	Spiral Wound	Integral					Conv						851	SW851				
															ISS					
	A350 LF2	Bolted	Spiral Wound	Integral		OS&Y			Conv						32141	SW32141				
															Weld	33141	SW33141			
	A182 F316/F316L	Bolted	Spiral Wound	Integral		OS&Y			Conv						12501	SW12501				
															Weld	13501	SW13501			
	A182 F316H	Bolted	Spiral Wound	Integral		OS&Y			Conv						2841	SW2841				
															A182 F5	82501	SW82501			
	A182 F11, CL2	Weld		Integral		OS&Y			Conv						12251	SW12251				
811															SW811					
A182 F22 CL 3	Bolted	Spiral Wound	Integral		OS&Y			Conv						12351	SW12351					
														Weld	12551	SW12551				
A182 F22 CL 3	Weld		Integral		OS&Y			Full						822	SW822					
1500	A105	Bolted	Spiral Wound	Integral		OS&Y		Conv						15141	SW15141	BW15141				
														Throttling	16141	SW16141				
			Ring Joint	Removable	OS&Y	API 600	Full										15443	SW15443		15493VP
																	Spiral Wound	1003	SW1003	
	Integral	OS&Y		Flanged					Conv						1023	SW1023		10603		
	Weld	OS&Y		Integral					Conv						15821	SW15821				
																35821	SW35821			
	A350 LF2	Bolted	Spiral Wound	Integral		OS&Y			Conv						35141	SW35141				
															Weld	15501	SW15501			
A182 F316/F316 L	Bolted	Spiral Wound	Integral		OS&Y			Conv						15841	SW15841					
														Weld	15351	SW15351				
A182 F11, CL2	Bolted	Spiral Wound	Integral		OS&Y			Conv						15551	SW15551					
														Weld						
1690	A105	Weld		Integral	Y pattern	OS&Y		Conv						1510	SW1510					
														Screw	Sp. Wound	R1510	SWR1510			
	A350 LF2	Weld		Integral	Y pattern	OS&Y			Conv						31510	SW31510				
															Screw	Sp. Wound	1511	SW1511		
	A182 F11, CL2	Weld		Integral	Y pattern	OS&Y			Conv						R1511	SWR1511				
															Screw	Sp. Wound	1522	SW1522		
A182 F22 CL 3	Weld		Integral	Y pattern	OS&Y			Conv						R1522	SWR1522					
														Screw	Sp. Wound					
2500* 2680*	A105	Weld		Integral	Y pattern	OS&Y		Full						66723	SW66723					
														Screw	Sp. Wound	2510	SW2510			
	A350 LF2	Weld		Integral	Y pattern	OS&Y			Full						66753	SW66753				
															Screw	Sp. Wound	32510	SW32510		
	A182 F11, CL2	Weld		Integral	Y pattern	OS&Y			Full						66733	SW66733				
															Screw	Sp. Wound	2511	SW2511		
	A182 F22 CL 3	Weld		Integral	Y pattern	OS&Y			Full						66793	SW66793				
															Screw	Sp. Wound	2522	SW2522		
	A182 F91	Weld		Integral	Y pattern	OS&Y			Full						R2522	SWR2522				
															Screw	Sp. Wound	66783	SW66783		

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



### **Prefix - End Connection Only**

B - Ball Check (Threaded)  
BS - Male Butt Weld by Female Socket Weld  
BT - Male Butt Weld by Female Threaded  
BW - Butt Weld  
CS - Male Couplet by Female Socket Weld  
CT - Male Couplet by Female Threaded  
R - In-Line Repairable (Threaded)  
RJ - Ring Joint Flanges  
S - Swing Check (Threaded)  
SWS - Swing Check (Socket Weld)  
SS - Extended Male Socket Weld by Female Socket Weld  
ST - Female Threaded by Male Socket Weld  
SW - Socket Weld  
SWB - Ball Check (Socket Weld)  
SWR - In-Line Repairable (Socket Weld)  
TS - Extended Male Threaded by Female Socket Weld  
TSW - Threaded by Socket Weld  
TT - Extended Male Threaded by Female Threaded

### **Suffix - Trim Packages Only**

B - Bellows Valve  
C - Cryogenic Valve  
CL - Chlorine Valve Trim - Monel/Hastelloy  
ER - Emissions Reduction - Double Packed with Lantern Ring  
F8M - 316 Trim  
F8T - 316 Trim with Teflon Packing & Gasket  
FG - Food Grade  
FHF - Full Hard Face  
FHT - Full Hard Face with Teflon Packing & Gasket  
HF - Hard Faced Disc (F316 Globes & Checks)  
HF2 - UOP Alkylation  
HF4 - UOP Alkylation  
HF5 - UOP Alkylation  
HF6 - UOP Alkylation  
HF7 - UOP Alkylation  
L - Locking Device  
MB6 - 13% Chrome Trim - NACE  
MB8 - 316 Trim Hard Faced Seats & Disc/Wedge - NACE  
MBS - Monel Trim - NACE  
MM - Monel Trim - Grafoil Packing & Gasket  
MMP - Phillips Alkylation  
MMT - Monel Trim - Teflon Packing & Gasket  
MTG - Old UOP Alkylation  
MTP - Perco Alkylation  
T - Teflon Packing & Gasket  
V - Garlock EVSP 9000 Packing  
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 14

### **FREIGHT ALLOWANCE:**

Full freight allowed on individual orders of \$20,000 net value or more to one destination within the continental limits of the United States (Alaska and Hawaii excluded).

### **MINIMUM CHARGE:**

Minimum Valve Order = \$250.00 net value  
Minimum Parts Order = \$125.00 net value

### **ORDER ADDS:**

Only one (1) add per purchase order. An order add must be placed within 10 working days from the date of the original purchase order.

Series	Ends	Type	BG	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
S 74	THD/SW	CHK	2	208	251	381	-	616	730	-	-	-
353	FLG	GA	1	165	194	235	-	342	484	1,009	1,107	2,020
353F8M	FLG	GA	3	490	490	515	-	729	1,058	1,331	1,624	3,228
353FHF	FLG	GA	3	218	253	312	-	419	613	1,112	1,220	2,238
353MB8	FLG	GA	3	490	490	515	-	729	1,058	1,331	1,624	3,228
353MM	FLG	GA	3	503	553	605	-	897	1,301	1,458	1,816	3,797
353T	FLG	GA	2	201	256	292	-	411	531	1,082	1,187	2,144
358	FLG	GA	3	711	719	980	-	1,619	2,120	-	-	-
RJ 363	RJ	GA	2	POA	POA	POA	-	POA	POA	POA	POA	POA
363	FLG	GA	1	201	220	278	-	424	575	1,300	1,268	4,137
363F8M	FLG	GA	3	484	500	583	-	844	996	1,735	1,693	POA
363FHF	FLG	GA	3	238	278	371	-	563	728	1,277	1,277	POA
363MB8	FLG	GA	3	484	500	583	-	844	996	1,735	1,693	POA
363MM	FLG	GA	3	529	574	674	-	1,038	1,376	1,735	1,891	POA
363T	FLG	GA	2	237	290	299	-	505	652	1,236	1,236	POA
BW363	BW	GA	2	491	526	572	-	939	1,055	2,323	2,323	4,137
BW363F8M	BW	GA	3	-	-	-	-	-	3,329	7,319	7,319	POA
BW363MM	BW	GA	3	-	-	-	-	-	3,329	7,319	7,319	POA
368	FLG	GA	3	766	895	1,084	-	1,988	2,986	-	-	-
RJ373	RJ	GA	2	POA	POA	POA	-	POA	POA	POA	POA	POA
373	FLG	GA	2	295	311	372	-	584	792	2,535	2,896	4,445
373F8M	FLG	GA	3	483	513	567	-	887	1,083	3,053	4,073	5,950
373FHF	FLG	GA	3	314	347	411	-	616	831	2,648	2,781	4,164
373MB8	FLG	GA	3	483	513	567	-	887	1,083	3,053	4,073	5,950
373MM	FLG	GA	3	538	594	618	-	1,129	1,433	3,179	4,074	5,951
BW373	BW	GA	2	507	542	650	-	951	1,130	2,895	4,000	5,500
378	FLG	GA	3	801	973	1,293	-	2,346	3,685	-	-	-
473	FLG	GL	2	365	404	422	-	651	926	-	1,712	-
473B	FLG	GL	2	POA	POA	POA	-	POA	POA	-	-	-
473F8M	FLG	GL	3	643	722	770	-	1,354	1,739	-	-	-
473MB8	FLG	GL	3	643	722	770	-	1,354	1,739	-	-	-
473MBS	FLG	GL	3	793	841	915	-	1,704	2,173	-	-	-
473MM	FLG	GL	3	793	841	915	-	1,704	2,173	-	-	-
483	FLG	GL	2	415	444	461	-	718	1,067	-	2,179	-
483B	FLG	GL	2	POA	POA	POA	-	POA	POA	-	-	-
483F8M	FLG	GL	3	608	735	793	-	1,395	1,766	-	-	-
483MB8	FLG	GL	3	608	735	793	-	1,395	1,766	-	-	-
483MM	FLG	GL	3	733	890	994	-	1,808	2,285	-	-	-
RJ 493	RJ	GL	2	POA	POA	POA	-	POA	POA	-	-	-
493	FLG	GL	2	438	474	512	-	783	1,098	-	-	-
493B	FLG	GL	2	POA	POA	POA	-	POA	POA	-	-	-
493F8M	FLG	GL	3	615	714	821	-	1,470	1,811	-	-	-
493MB8	FLG	GL	3	615	714	821	-	1,470	1,811	-	-	-
573	FLG	CHK	2	335	394	411	-	639	948	-	-	-
573F8M	FLG	CHK	3	549	648	745	-	1,293	1,647	-	-	-
573MB8	FLG	CHK	3	549	648	745	-	1,293	1,647	-	-	-
583	FLG	CHK	2	380	406	445	-	692	1,026	-	-	-
583F8M	FLG	CHK	3	558	657	752	-	1,321	1,675	-	-	-
583MB8	FLG	CHK	3	558	657	752	-	1,321	1,675	-	-	-
593	FLG	CHK	2	410	425	465	-	723	1,072	-	-	-
593F8M	FLG	CHK	3	612	676	777	-	1,348	1,718	-	-	-
593MB8	FLG	CHK	3	612	676	777	-	1,348	1,718	-	-	-
S673	FLG	CHK	2	613	768	858	-	1,191	1,400	-	-	-
S683	FLG	CHK	2	637	798	922	-	1,273	1,426	-	-	-
S693	FLG	CHK	2	757	939	1,102	-	1,367	1,604	-	-	-
701	THD/SW	CHK	1	100	111	140	431	332	351	POA	-	-
701F8M	THD/SW	CHK	3	282	339	347	710	663	810	-	-	-
701FHF	THD/SW	CHK	3	240	263	302	669	667	727	-	-	-
701MB8	THD/SW	CHK	3	282	339	347	710	663	810	-	-	-
701MM	THD/SW	CHK	3	369	442	497	901	854	1,057	-	-	-
701ZLB	THD/SW	CHK	2	229	241	302	551	507	585	-	-	-
701ZLE	THD/SW	CHK	2	229	241	302	551	507	585	-	-	-
701ZLN	THD/SW	CHK	2	229	241	302	551	507	585	-	-	-
701ZLV	THD/SW	CHK	2	229	241	302	551	507	585	-	-	-
B 701	THD/SW	CHK	2	161	182	204	607	555	583	-	-	-
B 701F8M	THD/SW	CHK	3	269	309	381	759	712	879	-	-	-
B 701MB8	THD/SW	CHK	3	269	309	381	759	712	879	-	-	-
B 701MM	THD/SW	CHK	3	369	442	546	901	854	1,059	-	-	-
S 701	THD/SW	CHK	2	215	258	396	722	591	754	-	-	-
S 701F8M	THD/SW	CHK	3	302	389	426	791	699	861	-	-	-
S 701FHF	THD/SW	CHK	3	302	389	426	791	699	861	-	-	-
S 701MB8	THD/SW	CHK	3	302	389	426	791	699	861	-	-	-
S 701MM	THD/SW	CHK	3	369	442	496	1,007	854	1,057	-	-	-
S 701T	THD/SW	CHK	2	289	330	488	953	803	849	-	-	-
710	THD/SW	CHK	2	161	200	251	638	550	591	-	-	-
710F8M	THD/SW	CHK	3	320	373	415	830	821	853	-	-	-
710FHF	THD/SW	CHK	3	343	403	440	876	832	853	-	-	-
B 710	THD/SW	CHK	2	224	244	292	659	600	666	-	-	-
718	THD/SW	CHK	3	486	523	826	1,385	1,427	1,701	-	-	-
718T	THD/SW	CHK	3	588	627	953	1,553	1,553	1,988	-	-	-

Series	Ends	Type	BG	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
B 718	THD/SW	CHK	3	553	624	861	1,701	1,751	2,376	-	-	-
S 718	THD/SW	CHK	3	637	746	1,027	2,024	1,798	2,408	-	-	-
801	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
810	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
811	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
822	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
851	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
1003	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
1023	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
1033	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
1043	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
1331T	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
1510	THD/SW	GL	2	752	752	828	1,806	1,896	2,010	-	-	-
R 1510	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
1511	THD/SW	GL	2	874	874	1,007	-	2,094	2,274	-	-	-
R 1511	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
1522	THD/SW	GL	2	874	874	1,007	-	2,094	2,274	-	-	-
R 1522	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
1551	THD/SW	CHK	2	328	354	430	795	795	964	-	-	-
B 1551	THD/SW	CHK	2	403	429	-	-	-	-	-	-	-
1610	THD/SW	CHK	2	635	635	839	-	1,345	1,711	-	-	-
1622	THD/SW	CHK	2	699	767	1,002	-	1,638	1,920	-	-	-
1871T	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
1971	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
2191	THD/SW	CHK	2	POA	POA	POA	POA	POA	POA	-	-	-
2510	THD/SW	GL	2	912	1,245	1,245	-	2,753	3,075	-	-	-
R 2510	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
2511	THD/SW	GL	2	1,036	1,373	1,373	-	3,231	3,645	-	-	-
R 2511	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
2522	THD/SW	GL	2	1,036	1,373	1,373	-	3,231	3,645	-	-	-
R 2522	THD/SW	GL	2	POA	POA	POA	-	POA	POA	-	-	-
2610	THD/SW	CHK	2	764	1,040	1,040	-	2,227	2,479	-	-	-
2611	THD/SW	CHK	2	891	1,104	1,159	-	2,672	2,672	-	-	-
2622	THD/SW	CHK	2	891	1,104	1,159	-	2,672	2,672	-	-	-
2801	THD/SW/TSW	GA	1	77	84	103	449	196	252	-	-	-
2801B	THD/SW/TSW	GA	2	POA	POA	POA	POA	POA	POA	-	-	-
2801F8M	THD/SW/TSW	GA	3	204	239	319	-	539	732	-	-	-
2801FHF	THD/SW/TSW	GA	3	150	180	200	483	376	432	-	-	-
2801MB8	THD/SW/TSW	GA	3	204	239	319	-	539	732	-	-	-
2801MBS	THD/SW/TSW	GA	3	444	488	501	901	1,014	1,178	-	-	-
2801MM	THD/SW/TSW	GA	3	444	488	501	901	1,014	1,178	-	-	-
2801T	THD/SW/TSW	GA	2	127	135	149	495	228	273	-	-	-
TT 2801	FT/MT	GA	2	128	133	160	460	309	-	-	-	-
TT 2801F8M	FT/MT	GA	3	318	369	487	-	932	-	-	-	-
TT 2801MB6	FT/MT	GA	3	318	369	487	-	833	-	-	-	-
TT 2801MB8	FT/MT	GA	3	318	369	487	-	932	-	-	-	-
TT 2801MM	FT/MT	GA	3	375	494	562	-	987	-	-	-	-
ST 2801	FT/MSW	GA	2	128	133	160	460	309	-	-	-	-
ST 2801F8M	FT/MSW	GA	3	318	369	487	-	932	-	-	-	-
ST 2801FHF	FT/MSW	GA	3	318	369	487	-	833	-	-	-	-
ST2801MB6	FT/MSW	GA	3	318	369	487	-	833	-	-	-	-
ST 2801MB8	FT/MSW	GA	3	318	369	487	-	932	-	-	-	-
ST 2801MBS	FT/MSW	GA	3	375	494	562	-	987	-	-	-	-
ST 2801MM	FT/MSW	GA	3	375	494	562	-	987	-	-	-	-
CT 2801	FT/MCP	GA	2	184	195	246	-	529	-	-	-	-
SS 2801	FSW/MSW	GA	2	128	133	160	460	309	-	-	-	-
SS 2801FHF	FSW/MSW	GA	3	318	369	487	-	833	-	-	-	-
SS 2801MB6	FSW/MSW	GA	3	318	369	487	-	833	-	-	-	-
2811	THD/SW	GA	2	162	183	219	529	529	586	-	-	-
TT 2811	FT/MT	GA	2	232	258	318	-	-	-	-	-	-
2821	THD/SW	GL	2	196	225	380	568	568	735	-	-	-
2821F8M	THD/SW	GL	3	368	442	549	900	900	1,050	-	-	-
2821FHF	THD/SW	GL	3	245	271	391	776	776	949	-	-	-
2831	THD/SW/TSW	GA	3	421	479	667	-	1,052	1,857	-	-	-
2831B	THD/SW/TSW	GA	2	POA	POA	POA	-	POA	POA	-	-	-
2831T	THD/SW/TSW	GA	3	500	575	803	-	1,212	2,013	-	-	-
TT 2831	FT/MT	GA	3	523	609	789	-	1,556	-	-	-	-
ST 2831	FT/MSW	GA	3	523	609	789	-	1,556	-	-	-	-
CT 2831	FT/MCP	GA	3	635	730	1,012	-	2,056	-	-	-	-
SS 2831	FSW/MSW	GA	3	523	609	789	-	1,556	-	-	-	-
2891T	THD/SW	GA	2	POA	POA	POA	POA	POA	POA	-	-	-
CT 2901	FT/MCP	GA	2	300	373	552	-	607	836	-	-	-
CT 2901MB6	FT/MCP	GA	3	361	405	526	-	931	1,381	-	-	-
CT 2901MB8	FT/MCP	GA	3	450	523	792	-	972	1,436	-	-	-
BT 2901	FT/MBW	GA	2	300	355	420	-	607	836	-	-	-
BT 2901MB6	FT/MBW	GA	3	361	405	526	-	931	1,381	-	-	-
BT 2901MB8	FT/MBW	GA	3	450	523	792	-	972	1,436	-	-	-
CS 2901	FSW/MCP	GA	2	300	373	552	-	607	836	-	-	-
CS 2901MB6	FSW/MCP	GA	3	361	405	526	-	931	1,381	-	-	-
CS 2901MB8	FSW/MCP	GA	3	450	523	792	-	972	1,436	-	-	-

Series	Ends	Type	BG	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
BS 2901	FSW/MBW	GA	2	300	355	420	-	607	836	-	-	-
BS 2901MB6	FSW/MBW	GA	3	361	405	526	-	931	1,381	-	-	-
BS 2901MB8	FSW/MBW	GA	3	450	523	792	-	972	1,436	-	-	-
CT 2911	FT/MCP	GA	2	615	632	764	-	1,520	-	-	-	-
3991	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
3991T	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
4835	THD/SW	CHK	2	POA	POA	POA	POA	POA	POA	-	-	-
4835F8M	THD/SW	CHK	3	POA	POA	POA	-	POA	POA	-	-	-
4881	THD/SW	CHK	2	POA	POA	POA	POA	POA	POA	-	-	-
9091	THD/SW	CHK	2	POA	POA	POA	POA	POA	POA	-	-	-
B 9091	THD/SW	CHK	2	POA	POA	POA	POA	POA	POA	-	-	-
9821	THD/SW	GL	2	POA	POA	POA	-	-	-	-	-	-
9821T	THD/SW	GL	2	POA	POA	POA	-	-	-	-	-	-
9841T	THD/SW	GL	2	POA	POA	POA	-	-	-	-	-	-
9871	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
9871T	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
10103	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	POA	POA	-
10403	FLG	GL	2	POA	POA	POA	POA	POA	POA	POA	POA	-
10603	FLG	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
10683	FLG	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
11103	THD/SW	GA	2	POA	POA	POA	POA	POA	POA	POA	POA	POA
11403	FLG	GA	2	POA	POA	POA	POA	POA	POA	POA	POA	-
11603	FLG	GA	2	POA	POA	POA	POA	POA	POA	-	-	-
11683	FLG	GA	2	POA	POA	POA	POA	POA	POA	-	-	-
12111	THD/SW/TSW	GA	1	65	72	89	428	189	243	1,069	2,301	-
12111ER	THD/SW/TSW	GA	2	POA	POA	POA	POA	POA	POA	-	-	-
12111F8M	THD/SW/TSW	GA	3	207	238	318	525	541	712	-	-	-
12111FHF	THD/SW/TSW	GA	3	135	147	192	455	327	434	-	-	-
12111NA6	THD/SW/TSW	GA	3	108	121	169	POA	281	332	-	-	-
12111NA8	THD/SW/TSW	GA	3	179	223	280	POA	439	556	-	-	-
12111MB6	THD/SW/TSW	GA	3	104	114	169	POA	281	332	-	-	-
12111MB8	THD/SW/TSW	GA	3	207	238	318	525	541	712	-	-	-
12111MBS	THD/SW/TSW	GA	3	245	289	360	579	635	894	-	-	-
12111MM	THD/SW/TSW	GA	3	245	289	360	579	635	894	-	-	-
12111MMT	THD/SW/TSW	GA	3	359	405	501	-	901	1,252	-	-	-
12111T	THD/SW/TSW	GA	2	140	142	162	495	260	308	-	-	-
TT 12111	FT/MT	GA	2	245	259	325	-	697	1,258	-	-	-
TT 12111F8M	FT/MT	GA	3	398	481	624	-	1,050	1,754	-	-	-
TT 12111MB6	FT/MT	GA	3	398	481	624	-	1,050	1,754	-	-	-
TT 12111MB8	FT/MT	GA	3	398	481	624	-	1,050	1,754	-	-	-
ST 12111	FT/MSW	GA	2	245	259	325	-	697	1,258	-	-	-
ST 12111F8M	FT/MSW	GA	3	398	458	530	-	1,050	1,754	-	-	-
ST 12111FHF	FT/MSW	GA	3	286	307	395	-	756	1,287	-	-	-
ST 12111MB6	FT/MSW	GA	3	398	458	624	-	1,050	1,754	-	-	-
ST 12111MB8	FT/MSW	GA	3	398	458	624	-	1,050	1,754	-	-	-
BT 12111	FT/MBW	GA	2	245	249	325	-	664	1,258	-	-	-
BT 12111MB6	FT/MBW	GA	3	398	458	605	-	1,050	1,754	-	-	-
BT 12111MB8	FT/MBW	GA	3	398	458	605	-	1,050	1,754	-	-	-
CT 12111	FT/CPT	GA	2	245	249	325	-	664	1,258	-	-	-
CT 12111MB6	FT/CPT	GA	3	398	458	624	-	1,050	1,754	-	-	-
CT 12111MB8	FT/CPT	GA	3	398	458	624	-	1,050	1,754	-	-	-
CS 12111	FSW/CPT	GA	2	245	249	325	-	664	1,258	-	-	-
CS 12111MB6	FSW/CPT	GA	3	398	458	624	-	1,050	1,754	-	-	-
CS 12111MB8	FSW/CPT	GA	3	398	458	624	-	1,050	1,754	-	-	-
12141	THD/SW	GL	1	117	141	158	507	329	443	1,787	-	-
12141B	THD/SW	GL	2	POA	POA	POA	POA	POA	POA	-	-	-
12141F8M	THD/SW	GL	3	358	428	497	-	947	1,279	-	-	-
12141FHF	THD/SW	GL	3	251	261	287	570	546	710	-	-	-
12141MB8	THD/SW	GL	3	358	428	497	-	947	1,279	-	-	-
12141MBS	THD/SW	GL	3	417	456	600	-	982	1,399	-	-	-
12141MM	THD/SW	GL	3	417	456	600	-	982	1,399	-	-	-
12141T	THD/SW	GL	2	192	203	235	-	386	503	-	-	-
TT 12141	FT/MT	GL	2	435	463	563	-	1,107	1,587	-	-	-
ST 12141	FT/MSW	GL	2	435	463	563	-	1,107	1,587	-	-	-
CT 12141	FT/MCP	GL	2	435	463	563	-	1,107	1,587	-	-	-
12161	THD/SW/TSW	GA	2	POA	POA	POA	POA	POA	POA	-	-	-
12161F8M	THD/SW/TSW	GA	3	POA	POA	POA	POA	POA	POA	-	-	-
12161MM	THD/SW/TSW	GA	3	POA	POA	POA	-	POA	POA	-	-	-
12181	THD/SW	GL	2	265	281	347	656	720	885	-	-	-
12321	THD/SW/TSW	GA	2	325	381	538	-	817	1,084	1,920	-	-
12321FHF	THD/SW/TSW	GA	3	395	451	623	-	922	1,269	-	-	-
12351	THD/SW	GL	2	518	596	720	1,233	1,270	1,731	2,728	-	-
12401	THD/SW/TSW	GA	3	382	453	663	1,102	1,082	1,453	3,116	-	-
12401C	THD/SW/TSW	GA	3	POA	POA	POA	-	POA	POA	-	-	-
12401FHF	THD/SW/TSW	GA	3	515	605	890	1,428	1,360	1,828	-	-	-
12401MB8	THD/SW/TSW	GA	3	614	733	1,062	1,652	1,652	2,256	-	-	-
12401T	THD/SW/TSW	GA	3	447	520	733	1,131	1,188	1,611	-	-	-
TT 12401	FT/MT	GA	3	474	529	772	-	1,204	-	-	-	-
ST 12401	FT/MSW	GA	3	474	529	772	-	1,204	-	-	-	-
12421	THD/SW/TSW	GA	2	360	428	583	880	965	1,224	-	-	-



Series	Ends	Type	BG	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
12421FHF	THD/SW/TSW	GA	3	510	578	823	1,120	1,205	1,464	-	-	-
12443	THD/SW	GL	2	457	551	636	-	1,134	1,511	-	-	-
12501	THD/SW	GL	3	519	558	897	1,668	1,637	2,099	3,424	-	-
12501C	THD/SW	GL	3	POA	POA	POA	-	POA	POA	-	-	-
12501HF	THD/SW	GL	3	POA	POA	POA	-	POA	POA	-	-	-
12501MB8	THD/SW	GL	3	792	843	1,299	-	2,211	3,019	-	-	-
12501T	THD/SW	GL	3	618	639	1,002	1,742	1,794	2,383	-	-	-
12521	THD/SW/TSW	GA	2	363	408	601	835	876	1,213	-	-	-
12521FHF	THD/SW/TSW	GA	3	513	558	751	985	1,026	1,244	-	-	-
12551	THD/SW	GL	2	522	601	725	1,303	1,303	1,795	-	-	-
12921	THD/SW/TSW	GA	2	374	484	591	1,595	1,839	2,544	-	-	-
13111	THD/SW/TSW	GA	2	138	195	367	428	437	675	-	-	-
13111ER	THD/SW/TSW	GA	2	POA	POA	POA	POA	POA	-	-	-	-
13111F8M	THD/SW/TSW	GA	3	242	310	527	-	756	1,595	-	-	-
13111FHF	THD/SW/TSW	GA	3	152	214	364	554	554	803	-	-	-
13111MB8	THD/SW/TSW	GA	3	242	310	527	-	756	1,595	-	-	-
13141	THD/SW	GL	2	349	399	541	946	1,038	1,446	-	-	-
13141FHF	THD/SW	GL	3	371	400	579	968	1,278	1,686	-	-	-
13373	FLG	GA	2	488	620	775	-	1,116	1,631	-	-	-
13401	THD/SW/TSW	GA	3	POA	POA	POA	-	POA	POA	-	-	-
13401FHF	THD/SW/TSW	GA	3	POA	POA	POA	-	POA	POA	-	-	-
13701	THD/SW	CHK	2	282	321	391	822	902	1,167	-	-	-
15111	THD/SW/TSW	GA	2	411	443	522	821	862	1,180	-	-	-
15111F8M	THD/SW/TSW	GA	3	473	524	649	1,065	1,100	1,561	-	-	-
15111FHF	THD/SW/TSW	GA	3	446	483	560	875	901	1,200	-	-	-
15111MB8	THD/SW/TSW	GA	3	473	524	649	1,065	1,100	1,561	-	-	-
15111MBS	THD/SW/TSW	GA	3	524	656	804	1,207	1,207	1,910	-	-	-
15141	THD/SW	GL	2	454	498	583	866	990	1,291	-	-	-
15141F8M	THD/SW	GL	3	514	633	777	1,069	1,173	1,587	-	-	-
15141MB8	THD/SW	GL	3	514	633	777	1,069	1,173	1,587	-	-	-
15141MBS	THD/SW	GL	3	536	610	728	1,126	1,127	1,593	-	-	-
15321	THD/SW/TSW	GA	2	690	786	928	-	2,063	2,389	-	-	-
15351	THD/SW	GL	2	826	976	1,169	-	2,475	3,130	-	-	-
RJ 15373	RJ	GA	2	1,398	1,708	1,917	-	2,735	3,596	-	-	-
RJ 15373FHF	RJ	GA	3	1,445	1,754	1,986	-	2,903	3,762	-	-	-
15373	FLG	GA	2	1,080	1,400	1,612	-	2,435	3,307	-	-	-
15373F8M	FLG	GA	3	1,127	1,454	1,715	-	2,600	3,672	-	-	-
15373FHF	FLG	GA	3	1,111	1,446	1,670	-	2,589	3,517	-	-	-
15373MB8	FLG	GA	3	1,127	1,454	1,715	-	2,600	3,672	-	-	-
15401	THD/SW/TSW	GA	3	873	1,050	1,155	-	2,215	3,302	-	-	-
15401FHF	THD/SW/TSW	GA	3	1,015	1,444	1,550	-	2,950	4,100	-	-	-
15443	THD/SW	GL	2	1,411	2,128	2,402	-	3,305	4,419	-	-	-
RJ 15493	RJ	GL	2	1,748	1,922	2,242	-	3,103	4,102	-	-	-
15493	FLG	GL	2	1,442	1,620	1,948	-	2,814	3,827	-	-	-
15493MB8	FLG	GL	3	1,545	1,653	2,020	-	2,949	4,039	-	-	-
15501	THD/SW	GL	3	1,206	1,537	2,204	3,539	3,839	4,700	-	-	-
RJ 15593	RJ	CHK	2	1,729	1,901	2,218	-	3,070	4,058	-	-	-
15593	FLG	CHK	2	1,427	1,603	1,927	-	2,784	3,786	-	-	-
15701	THD/SW	CHK	2	392	438	544	871	871	1,149	-	-	-
15701F8M	THD/SW	CHK	3	467	525	694	-	1,085	1,458	-	-	-
15701FHF	THD/SW	CHK	3	413	446	641	-	840	1,124	-	-	-
15701MB8	THD/SW	CHK	3	467	525	694	-	1,085	1,458	-	-	-
B 15701	THD/SW	CHK	2	418	457	585	1,066	871	1,182	-	-	-
15718	THD/SW	CHK	3	771	995	1,226	-	2,663	3,069	-	-	-
15801	THD/SW/TSW	GA	2	384	421	507	835	805	1,051	-	-	-
15801F8M	THD/SW/TSW	GA	3	421	475	645	-	946	1,329	-	-	-
15801FHF	THD/SW/TSW	GA	3	393	424	540	-	817	1,135	-	-	-
15801MB8	THD/SW/TSW	GA	3	421	475	645	-	946	1,329	-	-	-
15801MBS	THD/SW/TSW	GA	3	490	559	685	-	1,128	1,627	-	-	-
15801MM	THD/SW/TSW	GA	3	490	559	685	-	1,128	1,627	-	-	-
ST 15801	FT/MSW	GA	2	553	565	776	-	-	-	-	-	-
ST 15801F8M	FT/MSW	GA	3	887	925	1,127	-	-	-	-	-	-
15821	THD/SW	GL	2	474	498	583	866	866	1,291	-	-	-
15821F8M	THD/SW	GL	3	514	596	777	1,069	1,069	1,483	-	-	-
15821FHF	THD/SW	GL	3	544	570	658	1,080	1,112	1,344	-	-	-
15821MB8	THD/SW	GL	3	514	596	777	1,069	1,069	1,483	-	-	-
15831	THD/SW/TSW	GA	3	1,167	1,409	1,585	-	3,589	-	-	-	-
16111	THD/SW/TSW	GA	2	575	655	954	1,398	1,427	1,699	-	-	-
21000		GA	2	POA	POA	POA	-	POA	POA	-	-	-
22141CL	THD/SW	GL	2	810	840	998	1,926	1,925	2,451	-	-	-
22141F8M	THD/SW	GL	3	414	437	538	908	1,044	1,324	-	-	-
22141MM	THD/SW	GL	3	561	589	713	1,279	1,279	1,610	-	-	-
22141MT	THD/SW	GL	3	810	840	998	1,926	1,925	2,451	-	-	-
22461	THD/SW	GL	2	305	354	475	-	-	-	-	-	-
22461FHF	THD/SW	GL	3	436	480	601	-	-	-	-	-	-
22483CL	FLG	GL	2	995	1,104	1,396	-	2,224	2,771	-	-	-
22493CL	FLG	GL	2	1,017	1,172	1,544	-	2,408	2,913	-	-	-
22493MT	FLG	GL	3	1,017	1,172	1,544	-	2,408	2,913	-	-	-
32111	THD/SW/TSW	GA	2	233	253	314	-	598	742	1,482	2,565	-
32111F8M	THD/SW/TSW	GA	3	420	491	618	-	1,085	1,436	1,896	2,708	-

Series	Ends	Type	BG	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
32111MB8	THD/SW/TSW	GA	3	420	491	618	-	1,085	1,436	1,896	2,708	-
32141	THD/SW	GL	2	350	406	495	-	962	1,258	-	-	-
32141F8M	THD/SW	GL	3	585	632	803	-	1,383	1,963	-	-	-
32141MB8	THD/SW	GL	3	585	632	803	-	1,383	1,963	-	-	-
32353	FLG	GA	2	519	591	717	-	1,048	1,409	-	2,359	-
32353F8M	FLG	GA	3	693	803	1,020	-	1,435	2,100	-	3,311	-
32353MB8	FLG	GA	3	693	803	1,020	-	1,435	2,100	-	3,311	-
32363	FLG	GA	2	524	619	746	-	1,185	1,596	-	2,544	-
32363F8M	FLG	GA	3	767	875	1,080	-	1,657	2,279	-	3,488	-
32363MB8	FLG	GA	3	767	875	1,080	-	1,657	2,279	-	3,488	-
32373	FLG	GA	2	528	667	889	-	1,335	1,839	-	2,680	-
32373MB8	FLG	GA	3	718	881	1,191	-	1,727	2,436	-	3,827	-
32473	FLG	GL	2	696	774	949	-	1,792	2,291	-	-	-
32473MB8	FLG	GL	3	929	1,080	1,433	-	2,428	3,316	-	-	-
32483	FLG	GL	2	713	791	975	-	1,945	2,340	-	-	-
32483F8M	FLG	GL	3	947	1,102	1,534	-	2,477	3,383	-	-	-
32483MB8	FLG	GL	3	947	1,102	1,534	-	2,477	3,383	-	-	-
32493	FLG	GL	2	745	841	1,102	-	1,943	2,483	-	-	-
32493MB8	FLG	GL	3	964	1,129	1,486	-	2,530	3,401	-	-	-
32573	FLG	CHK	2	674	694	964	-	1,736	2,217	-	-	-
32573MB8	FLG	CHK	3	898	1,044	1,386	-	2,350	3,210	-	-	-
32583	FLG	CHK	2	733	816	1,000	-	1,891	2,411	-	-	-
32593	FLG	CHK	2	745	836	1,028	-	1,935	2,444	-	-	-
32701	THD/SW	CHK	2	333	397	464	-	888	1,207	-	-	-
32701F8M	THD/SW	CHK	3	555	603	772	-	1,385	1,963	-	-	-
32701MB8	THD/SW	CHK	3	555	603	772	-	1,385	1,963	-	-	-
B 32701	THD/SW	CHK	2	371	389	464	-	862	1,207	-	-	-
B 32701F8M	THD/SW	CHK	3	529	603	772	-	1,560	2,113	-	-	-
S 32701	THD/SW	CHK	2	333	552	772	-	1,251	1,492	-	-	-
S 32701F8M	THD/SW	CHK	3	529	603	772	-	1,385	1,963	-	-	-
35111	THD/SW/TSW	GA	2	740	827	953	-	1,545	2,115	-	-	-
35111MB8	THD/SW/TSW	GA	3	864	1,014	1,193	-	1,914	2,789	-	-	-
54853	THD/SW	CHK	2	POA	POA	POA	POA	POA	POA	-	-	-
54853F8M	THD/SW	CHK	3	POA	POA	POA	-	POA	POA	-	-	-
54853MB8	THD/SW	CHK	3	POA	POA	POA	-	POA	POA	-	-	-
54853MBS	THD/SW	CHK	3	POA	POA	POA	-	POA	POA	-	-	-
54853MM	THD/SW	CHK	3	POA	POA	POA	-	POA	POA	-	-	-
54863	THD	CHK	3	POA	POA	POA	POA	POA	POA	-	-	-
58431T	THD/SW	GL	2	POA	POA	POA	-	-	-	-	-	-
59851	THD/SW/TSW	GA	1	POA	POA	POA	POA	POA	POA	-	-	-
59851F8M	THD/SW/TSW	GA	3	POA	POA	POA	POA	POA	POA	-	-	-
59851MBS	THD/SW/TSW	GA	3	POA	POA	POA	POA	POA	POA	-	-	-
59851MM	THD/SW/TSW	GA	3	POA	POA	POA	POA	POA	POA	-	-	-
59951	THD/SW/TSW	GA	3	POA	POA	POA	-	-	-	-	-	-
59951T	THD/SW/TSW	GA	3	POA	POA	POA	-	-	-	-	-	-
66703	THD/SW/TSW	GA	2	785	1,004	1,004	-	2,056	2,422	-	-	-
66713	THD/SW/TSW	GA	2	984	1,337	1,337	-	2,721	3,008	-	-	-
66723	THD/SW	GL	2	785	1,004	1,004	-	2,056	2,422	-	-	-
66733	THD/SW	GL	2	984	1,337	1,337	-	2,721	3,008	-	-	-
66773	THD/SW/TSW	GA	2	993	1,325	1,350	-	2,808	3,096	-	-	-
66793	THD/SW	GL	2	993	1,325	1,350	-	2,808	3,096	-	-	-

Vogt Strainer												
2271	THD/SW	Strainer		450	450	481	667	667	690	-	-	-

MARPA Union Check Valve												
730H	THD	CHK	2	Bronze Trim			-	-	-	N/A	-	-
730H	THD	CHK	2	316SS Trim			-	-	-	POA	-	POA
730P	THD	CHK	2	Bronze Trim			-	-	-	N/A	-	-
730P	THD	CHK	2	316SS Trim			-	-	-	POA	-	POA

Vogt Alkylation valves												
12111HF6	THD/SW	GA	4	490	523	588	-	708	894	-	-	-
12111HF6	TSW	GA	4	490	523	588	-	708	894	-	-	-
12111HF7	SW	GA	4	490	523	588	-	708	894	-	-	-
12141HF6	THD/SW	GL	4	884	942	1,059	-	1,275	1,608	-	-	-
12141HF7	SW	GL	4	884	942	1,059	-	1,275	1,608	-	-	-
13111HF4	THD/SW/TSW	GA	4	632	687	1,144	-	1,820	2,680	-	-	-
13111HF5	THD/SW/TSW	GA	4	632	687	1,144	-	1,820	2,680	-	-	-
13363MMP	THD	GL	4	POA	POA	POA	-	POA	POA	-	-	-
13373MMP	THD	GL	4	POA	POA	POA	-	POA	POA	-	-	-
23141HF4	THD/SW	GL	4	896	1,236	1,618	-	2,206	2,690	-	-	-
23141HF5	THD/SW	GL	4	920	1,130	1,514	-	3,140	2,734	-	-	-
43211HF2	THD/SW/TSW	GA	4	1,245	1,275	1,640	-	-	-	-	-	-
B43721HF4	SW	CHK	4	740	1,294	1,314	-	2,275	2,651	-	-	-
B43721HF5	SW	CHK	4	740	1,294	1,314	-	2,275	2,651	-	-	-
B701HF6	SW	CHK	4	POA	POA	POA	-	POA	POA	-	-	-
B701HF7	SW	CHK	4	POA	POA	POA	-	POA	POA	-	-	-

**1. APPLICABILITY:** These Worldwide Terms and Conditions of Sale ("Terms") shall govern all sales of Seller's Equipment or Services to Buyer ("Order"). These Terms supersede any prior written or oral agreement, understanding, representation or promise, and any pre-printed or standard terms and conditions contained in Buyer's request for quote, purchase order, invoice, order acknowledgement, or similar document. These Terms may not be amended, supplemented, changed or modified except by concurrent or subsequent written agreement, signed by an authorized representative of Seller and Buyer. Seller's acknowledgement of Buyer's purchase order shall not constitute acceptance of any terms and conditions contained therein, regardless of how such terms and conditions may be prefaced or described.

**2. DEFINITIONS:**

"Buyer" means the company who accepted Seller's offer or is named in the Order.

"Equipment" means all equipment and parts manufactured and sold by Seller.

"Seller" means the company named on the Order for Equipment or Services.

"Service(s)" means work, direction of work, technical information or technical consulting and advice or other services furnished by Seller to Buyer.

**3. DELIVERY / SUSPENSION / FORCE MAJEURE:** For the delivery of Equipment within the United States, delivery shall be made EXW (in accordance with INCOTERMS 2010, as amended) Seller's plant. For the delivery of Equipment outside the United States, delivery shall be made FCA Seller's plant. Shipping dates are approximate and are based on prompt receipt of all necessary information. In case of delay in furnishing complete information, dates of shipment may be extended for a reasonable time. In the event Seller provides transport services these will be quoted as a lump sum price based on destination and shipping mode.

In the event Buyer requests a delay or suspension in completion and/or shipment of the Equipment or any part thereof for any reason, the parties shall agree upon any cost and/or scheduling impact of such delay and all such costs to Buyer's account. Any delay period beyond thirty (30) days after original scheduled shipment date shall require Buyer to (i) take title and risk of loss of such Equipment, and (ii) make arrangements for storage of such Equipment with the Seller or other party. Seller's invoice, which is contractually based on shipment, shall be issued upon Seller's readiness to ship the Equipment.

Seller shall not be liable for delay in delivery due to causes beyond its reasonable control including, but not limited to, acts of God, acts of government, acts of Buyer, fires, labor disputes, boycotts, floods, epidemics, quarantine restrictions, war, insurrection, terrorism, riot, civil or military authority, freight embargoes, transportation shortages or delays, unusually severe weather or inability to obtain necessary labor, materials or manufacturing facilities due to such causes. In the event of any such delay, the date of delivery shall be extended for a length of time equal to the period of the delay.

**4. WARRANTY:** Subject to the limitations in Section 17 herein, Seller warrants that the Equipment shall be free from defects in material, workmanship, and title. If it appears within twelve (12) months from the initial Equipment startup or until eighteen (18) months after shipment, whichever occurs first, that the Equipment or any part thereof does not conform to this warranty, and Buyer so notifies Seller within a reasonable time after discovery, Seller shall thereupon promptly correct such nonconformity by repair or replacement EXW Seller's factory or service center. Seller's sole obligation and Buyer's sole remedy under this warranty is repair or replacement at Seller's election. Seller's warranty obligation for Services shall be the earlier of either ninety (90) days from the date of initial startup or six (6) months after completion of the Service work. Seller shall not be responsible for any on-site costs, including removal and reinstallation of any warranted Equipment. Buyer agrees to provide Seller reasonable and clear access to its Equipment which may include removal of materials or structures as well as supplying any equipment, materials or structures which are necessary to provide reasonable access to the Equipment being repaired or replaced. All Equipment repaired or replaced will be re-warranted only for the remainder of the original warranty period. **THE EXPRESS WARRANTY SET FORTH HEREIN IS THE EXCLUSIVE WARRANTY OF SELLER, AND NO OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, SHALL APPLY.** Seller is not responsible for repairs or alterations made by others without mutual written agreement between Seller and Buyer. Seller does not warrant the Equipment or any repair/replacement part against the effects of erosion, corrosion, or normal wear and tear due to operation or the environment. The warranty and remedies set forth herein are conditioned upon proper storage, installation, use and maintenance of the Equipment in all material respects, and in accordance with Seller's written recommendations. Replacement parts or repairs furnished under this warranty shall be subject to the warranty provisions herein for the remaining original warranty period.

**5. PAYMENT:** All prices are net cash thirty (30) days from date of Seller's invoice, unless otherwise stated in Seller's proposal, quotation, or offer. Should Buyer for any reason default in the payment of the contract of purchase, Buyer agrees to pay all collection costs, attorney fees and expenses incurred in collecting payment, including interest on the amount due at the maximum legal rate. All transportation, insurance and similar charges incident to delivery shall be paid by Buyer. Seller shall issue its invoice upon shipment, or upon notice to Buyer that Seller is ready to ship, whichever is earlier. Depending on the value of the order, Seller may at its sole discretion require progress payments.

If Buyer's financial condition is or becomes unsatisfactory to Seller, Seller reserves the right to: (a) require payment from Buyer on a Cash In Advance (CIA) basis; (b) require a letter of credit or other acceptable security before shipment; or (c) cancel shipment at any time prior to delivery of the Equipment without further obligation or liability on the Seller's part.

**6. CHANGES:** Buyer may request modifications as to the amount, scope and/or nature of the Equipment to be supplied by a written change request. If, in the opinion of Seller, any modification will affect the agreed fixed price and/or time of delivery, Seller will notify Buyer thereof in writing and will not be obligated to perform any modification unless agreed to by Seller. Buyer shall confirm that such change is authorized and accepted by issuing an Order revision.

**7. BUYER CANCELLATION:** Buyer may cancel this Order only upon written notice and payment to Seller of reasonable and proper cancellation charges. Notwithstanding the foregoing, Buyer reserves the right to cancel any portion of an Order affected by any insolvency or suspension of Seller's operations or any petition filed or proceeding commenced by or against Seller under any state or federal law relating to bankruptcy, arrangement, reorganization, receivership or assignment for the benefit of creditors.

**8. SET-OFF:** All amounts that Buyer owes Seller under an Order shall be due and payable according to the terms of an Order. Buyer is prohibited from, and shall not set-off such amounts or any portion thereof, whether or not liquidated, against sums which Buyer asserts are due it, its parent affiliates, subsidiaries or other divisions or units under other transactions with Seller, its parent affiliates, subsidiaries or other divisions or units.

**9. NON-DISCLOSURE AND NON-USE OF SELLERS' INFORMATION:** Buyer agrees that it will not use Seller's data for the manufacture or procurement of Equipment which are the subject of an Order or any similar Equipment, or cause said Equipment to be manufactured by, or procured from, any other source or reproduce said data and information or otherwise appropriate them without the written authorization of the Seller. Buyer agrees that it will not disclose or make available to any third party any of Seller's data or other information

pertaining to this Order which is proprietary to Seller without obtaining Seller's prior written consent.

**10. SPECIAL TOOLING AND DATA:** Unless otherwise agreed in writing, all material, software, data processes, equipment, facilities and special tooling, which term includes but is not limited to jigs, dies, fixtures, molds, patterns, special taps, special gages, special test equipment, other special equipment and manufacturing aids and replacements thereof, used in the manufacture of the Equipment covered by an Order shall be and remains the property of Seller. Seller retains all rights, title and interest in drawings, engineering instructions, specifications, and all other written data, if any, furnished and/or specified to be supplied with the Equipment.

**11. EXPORT / IMPORT:** Buyer agrees that it will comply with all applicable import and export control laws and/or regulations, including without limitation those of the United States and/or other jurisdictions from which the Equipment and/or technology may be supplied or to which the Equipment and/or technology may be shipped. In no event shall Buyer use, transfer, release, import, export or re-export the Equipment and/or technology in violation of such applicable laws and/or regulations.

**12. TAXES:** Seller's price, unless otherwise agreed, shall be fixed and does not include, and Seller is not responsible for, payment of any tax levied for sales, use, excise, value-added, goods and services, business (franchise or privilege) or any duties, charges or other such taxes. Seller is only responsible for any tax imposed on Seller, by taxing authorities in Seller's jurisdiction, which are based on Seller's revenue, income, net income, net assets, net worth, or capital or any taxes imposed in lieu thereof. If Seller is required to pay any taxes or other charges that are the responsibility of the Buyer, then Buyer shall promptly reimburse Seller those amounts.

**13. ASSIGNMENT:** Neither party shall assign an Order or any portion thereof without the advance, written consent of the other party, which consent shall not be unreasonably withheld.

**14. WAIVER / SEVERABILITY:** Failure by Seller to assert all or any of its rights upon any breach of an Order shall not be deemed a waiver of such rights either with respect to such breach or any subsequent breach, nor shall any waiver be implied from the acceptance of any payment of service. No waiver of any right shall extend to or affect any other right Seller may possess, nor shall such waiver extend to any subsequent similar or dissimilar breach.

If any portion of these Terms are determined to be illegal, invalid, or unenforceable, for any reason, then such provision shall be deemed stricken for purposes of the dispute in question and all other provisions shall remain in full force and effect.

**15. APPLICABLE LAW / DISPUTES:** This Order shall be interpreted in accordance with the laws of the jurisdiction in which the Seller's facility accepting the Order hereunder is located, exclusive of any choice of law provisions. The Seller and Buyer expressly agree to exclude from this Order the United Nations Convention on Contracts for the International Sale of Goods, 1980, and any successor thereto and the Contracts (Rights of Third Parties) Act of 1999.

Except as otherwise specifically agreed in writing by Buyer and Seller, any dispute relating to an Order placed by a Buyer incorporated in the United States which is not resolved by the parties shall be adjudicated by a court of competent jurisdiction in the state of Texas. All disputes arising out of or in connection with an Order placed by a Buyer incorporated outside the United States that shall be finally settled by binding arbitration in London England, under the Rules of Arbitration of the International Chamber of Commerce then in effect by one or more arbitrators appointed in accordance with said Rules.

**16. COMPLIANCE WITH LAWS / ANTI-BRIBERY:** Seller and Buyer agree to comply with all applicable laws, regulations, codes and standards, including but not limited to those of the United States and other jurisdictions where the parties conduct business. Additionally, Buyer has not and will not offer, promise, authorize or make, directly or indirectly, any payments (in money or any other item of value), contributions or gifts to any non-U.S. government agency, department, official or government owned or controlled entity in order to obtain or retain business, or secure any other improper business advantage, which would violate the U.S. Foreign Corrupt Practices Act and/or any other applicable anti-bribery laws.

**17. LIMITATION OF LIABILITY / EXCLUSION OF CONSEQUENTIAL LOSS:** The remedies set forth herein are exclusive, and the total liability of the Seller with respect to this Order, or any breach thereof, whether based on contract, warranty, tort (including negligence), indemnity, strict liability or otherwise, shall not exceed the Order price of the specific Equipment or Service which gives rise to the claim.

In all cases where Buyer claims damages allegedly arising out of defective or nonconforming Equipment or Services, Buyer's exclusive remedies and Seller's sole liability shall be those specifically provided for under Section 4 "Warranty".

**IN NO EVENT, WHETHER ARISING BEFORE OR AFTER COMPLETION OF ITS OBLIGATIONS UNDER THE CONTRACT, SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES OF ANY KIND (INCLUDING BUT NOT LIMITED TO LOSS OF USE, REVENUE OR PROFITS, INVENTORY OR USE CHARGES, COST OF CAPITAL, OR CLAIMS OF CUSTOMERS) INCURRED BY THE BUYER OR ANY THIRD PARTY.**

**18. GENERAL PROVISIONS:** (a) No Action, regardless of form, arising out of transactions under the Order, may be brought by the Buyer more than one (1) year after the cause of action has accrued. (b) Any modification to these Terms must be set forth in a written instrument signed by a duly authorized representative of Seller. (c) In the event Buyer has reason to believe the Equipment could be subject to a claim for damages or personal injury, Buyer shall immediately provide Seller with written notice of such claim, and shall provide Seller reasonable opportunity to inspect said Equipment and/or investigate the basis for such potential claim. (d) **UNLESS OTHERWISE SPECIFICALLY PROVIDED IN SELLER'S QUOTATION, EQUIPMENT AND SERVICES HEREUNDER ARE NOT INTENDED FOR USE IN ANY NUCLEAR OR NUCLEAR RELATED APPLICATIONS. IF SELLER'S QUOTATION EXPRESSLY STATE THAT THE EQUIPMENT AND SERVICES ARE INTENDED FOR NUCLEAR OR NUCLEAR RELATED APPLICATIONS, SELLER'S ADDENDUM (P-62) FOR NUCLEAR LIABILITY PROTECTION IS HEREBY INCORPORATED.** Buyer (i) accepts the Equipment and Services in accordance with the restriction set forth in the immediately preceding sentences, (ii) agrees to communicate such restriction in writing to any and all subsequent purchasers or users, and (iii) agrees to defend, indemnify and hold harmless Seller from any and all claims, losses, liability, suits, judgments and damages, including incidental and consequential damages, arising from the use of the Equipment or Services in any nuclear or nuclear related applications, whether the cause of action be based in tort, contract or otherwise, including allegations that the Seller's liability is based on negligence or strict liability.

**19. TRANSLATIONS / GOVERNING LANGUAGE:** English shall be the legal language of this Order, and all parties waive any right to use and/or rely upon any other language, translation or interpretation. The parties specifically agree that in the case of any inconsistencies or interpretation disputes, the English language version shall control.