

DETAILED PROCESS VALVE SPECIFICATION SHEETS

1. GENERAL

1.1 Description

- .1 Provide the valve type as indicated in the Drawings by the valve symbol shown. See the valve tables attached to this Section for guidance to specific valve types suitable for a given commodity and line size.

1.2 Measurement and Payment

- .1 Requirements of this Section shall not be measured separately for payment and shall be carried in the Construction Contractor's Balance of Contract Cost item.

1.3 Definitions

- .1 Abbreviations used:
 - .1 ARV - Air Relief or Vacuum Safety Valve.
 - .2 BFV - Butterfly Valve.
 - .3 BV - Ball Valve.
 - .4 CV - Check Valve.
 - .5 FCV - Flow Control Valve.
 - .6 PV - Plug Valve.
 - .7 KV - Knife Gate Valve.
 - .8 SOL - Solenoid Valve

2. PRODUCTS (NOT USED)

3. EXECUTION (NOT USED)

DETAILED PROCESS VALVE SPECIFICATION SHEETS

ARV

GENERAL:						
			OPERATING LIMITS		DESIGN LIMITS	
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Air and Vacuum Relief Valve	ARV	Liquid	500	0-40	1000	40
TYPICAL SERVICE:						
Direct acting air						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL	Reference Document				
Body	Cast Iron ASTM A126, Gr.B	Size Range		<50 mm		
Float	Stainless Steel	Rating		Class 125		
Seats	Buna-N	Body/Valve Ends		Threaded		
Stem	Stainless Steel	Type of Disc				
Internal Linkage	Stainless Steel	Operator				
		Actuator				
		Lining				
		Coating				
NOTES:						
1. Air valves shall be designed for automatically exhausting air from a pipeline when it is being filled with water at a high rate. They should be designed to automatically ventilate a pipeline where it is being emptied of water. The air flow rate shall be sufficiently high to prevent the development of high vacuum pressure in the line.						
2. The valves shall be suitable for wastewater application.						
3. Complete with isolation ball valve as recommended by the manufacturer.						
4. Complete with throttle device.						
ACCEPTABLE PRODUCTS						
APCO	Valmatic		Cla-Val			
Crispin	ARI					

DETAILED PROCESS VALVE SPECIFICATION SHEETS

FCV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Flow Control Valve – Plug Valve	FCV	Liquid	0-750	5-30	1200	35
TYPICAL SERVICE						
Automatically Modulating Flow Control Valve for Liquid Service						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL		Reference Document		API 599	
Body	Cast Iron A126 Class B (Ballcentric plug valve body)		Size Range		100 mm	
Plug	Rubber Coated Ductile Iron ASTM A536		Rating		Class 125	
Disc Trim	Not Mandatory		Body/Valve Ends		Flanged	
Seats	Buna-N or EPDM		Type of Disc			
			Operator			
			Actuator		Electrical	
			Lining			
			Coating			
NOTES						
ACCEPTABLE PRODUCTS						
Flomatic	Cla-Val	Watt	Singer			
Mueller-Pratt	DeZurik		Keystone-Emerson			

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BV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Ball Valve	BV	Liquid	0 – 900	5 to 30	1400	35
TYPICAL SERVICE						
On/Off Valve for Process Lines for wastewater and sludge						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL		Reference Document	MSS-SP72 (Note 2)		
Body	Cast Steel or Cast Iron or Steel		Size Range	50 mm to 150 mm (Note 3)		
Ball	Stainless Steel (304 or 316), Cast Iron/Teflon Fused		Rating	CWP 1400 kPag		
Packing	Reinforced PTFE or AFE		Body/Valve Ends	Flanged		
Seats	Reinforced PTFE		Pattern	Two-Piece, Full Port		
Shaft	Stainless Steel (304 or 315) (Note 1)		Operator	Gear if ≥ 150 mm		
			Actuator			
			Lining			
			Coating			
NOTES						
1. Blowout proof stem.						
2. Provide Class 125 to suit PVC piping.						
3. Provide trunnion mounted ball on all valves 250 mm diameter and greater.						
ACCEPTABLE PRODUCTS						
Kitz 150 SCTBZM-N		Watts G4000 ≤150 mm / CF 1800 ≤ 250 mm	Velan F-10402-SSGI		American Valve 4000	
Crane/Virgo S2-RFI-F-C6-F-L						
Bray - Flow-Tek		Series F15				

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BV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Ball Valve	BV	Liquid/Air	0-850	5-120	1275	140
TYPICAL SERVICE						
General service valve for process air, process liquid and utility lines						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL		Reference Document		Body Material: ASTM A351 (Note 2)	
Body	316SS CF8M body		Size Range		10 mm to 65 mm	
Ball	Stainless Steel - floating		Rating		CWP 1000 kPag	
Packing	Reinforced PTFE		Body/Valve Ends		Female Threaded or Flanged (Note 3)	
Seats	Reinforced PTFE		Pattern		Two-Piece, Full Port	
Shaft	Stainless Steel (Note 1)		Operator		Lockable Lever; Gear if ≥ 150 mm	
Stem	Blow out proof		Actuator		Manual or Electrical	
			Lining			
			Coating			
NOTES						
1. Blowout-proof stem.						
2. When this valve is installed into a gas service it must comply with the applicable Gas Safety Branch requirements: also refer to Division 40.						
3. For SA service flanged connections only, threaded valves for this service is unacceptable.						
ACCEPTABLE PRODUCTS						
M. A. Stewart Model G2						
Apollo 76F-100-A Series (full port) or approved equal						
Bray – Flow-Tek			Series: S80	Coordinate with contractor for flange or threaded requirements		

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BV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Ball Valve	BV	Liquid	100-750	5 to 40	1000	60
TYPICAL SERVICE						
Chemical Lines, Sample Lines, Utility Lines						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL		Reference Document		Material: ASTM D1784 (Grade A)	
Body	PVC		Size Range		10 mm to 65 mm	
Ball	PVC – floating ball		Rating		CWP 1000 kPag	
Packing	O-Ring, EPDM or Viton (Note 4)		Body/Valve Ends		Schedule 80, Female Threaded, True Union	
Seats	PTFE		Pattern		Full Port	
Shaft	PVC (Note 1)		Operator		Lockable Lever	
Stem	Blow out proof		Actuator			
			Lining			
			Coating			
NOTES						
1. Blowout-proof stem.						
2. Bi-directional.						
3. This valve is for use in PVC piping systems only.						
4. Material to be compatible with commodity.						
5. NSF certified.						
ACCEPTABLE PRODUCTS						
Chemline 21 Series		Hayward Safe-Block		Nibco Tru-Block PVC		Fabco Superbloc
IPEX VX-True Union						

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CV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Check Valve	CV	Liquid	0-750	5-30	1200	35
TYPICAL SERVICE						
Check valve for non-potable water and Flushing water (Note 1)						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL		Reference Document		AWWA C508	
Body	Cast Iron or Ductile Iron		Size Range		50 mm to 150 mm	
Disc	Cast or Ductile Iron or Solid Bronze		Rating		Class 125	
Seats	Bronze		Valve Ends		Flanged	
Hinge pin, trim	Stainless Steel or Bronze		Type of Disc		Swing Check (Note 1)	
			Operator		Note 1	
			Actuator			
			Lining			
			Coating		Fusion bonded epoxy coating, interior and exterior	
NOTES						
1. For all check valves greater than 75 mm on pump discharges, provide weighted lever arm.						
ACCEPTABLE PRODUCTS						
Crane 383 / 34612	DeZurik		Newman Hattersley T651		Milliken 801BBW	
Jenkins 587J / 477LJ						
Val-Matic	Series 7800 Swing Check Valve		Coordinate with contractor for flange or threaded requirement.			

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CV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°)
Check Valve	CV	Liquid	0-550	5-100	850	115
TYPICAL SERVICE						
Chemical Lines, Sample Lines, Utility Lines						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL	Reference Document				
Body	PVC	Size Range		25 mm to 50 mm		
Disc	(Note 1)	Rating		Sch. 80		
		Valve Ends		Flanged / Threaded / True Union		
		Type of Disc		Ball Check (Note 1)		
		Operator				
		Actuator				
		Lining				
		Coating				
NOTES						
1. PVC ball.						
2. Viton seat and seal.						
ACCEPTABLE MANUFACTURERS						
Chemline	Fabco	Nibco		Hayward True Check		

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KV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Knife Gate Valve	KV	Liquid	0-100	5-30	1200	35
TYPICAL SERVICE						
General Service and Isolation valve for wastewater service						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL		Reference Document			
Body	316SS		Size Range		75 mm to 900 mm	
Disc	316SS		Rating		Class 150	
Seats	Buna N, NBR		Valve Ends		Lugged	
Seals	Buna N, NBR		Type of Disc			
Shaft	Stainless Steel		Operator		RS, Handwheel, epoxy coated	
Wiper Ring	Reinforced PTFE		Actuator		Note 1. Manual or Electrical	
Pillars	Stainless Steel		Lining			
Stem	316SS		Coating			
NOTES						
1. Bi-directional pressure rating 100 kPa, drip tight shut off with downstream flange removed.						
2. Incompliance with MSS SP-81.						
ACCEPTABLE PRODUCTS						
Trueline F8112		DeZurik KGC-BD		Pratt LVC77		MAS FCC84B
Fabro Valve C37C						

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ARV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Air Relief Valve	ARV	Liquid	420	0-40	1000	40
TYPICAL SERVICE						
Non-Potable Water						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL					
Body, Cover	Ductile Iron ANSI B16.42		Size Range	50 mm		
Cover	Ductile Iron		Rating	Class 150		
Disc retainer and diaphragm washer	Cast Steel		Valve Ends	Flanged		
Trim	Stainless Steel		Type of Disc			
Disc	Buna-N		Operator			
Diaphragm	Nylon Reinforced Buna-N		Actuator			
Stem	Stainless Steel		Lining			
Pilot Control	Bronze or Steel		Coating			
NOTES:						
<div>1. Air valves shall be designed for automatically exhausting air from a pipeline when it is being filled with water at a high rate. They should be designed to automatically ventilate a pipeline where it is being emptied of water. The air flow rate shall be sufficiently high to prevent the development of high vacuum pressure in the line.</div> <div>2. Complete with isolation ball valve as recommended by the manufacturer.</div> <div>3. Renewable resilient seat.</div> <div>4. Complete with throttle device.</div> <div>5. Concave float.</div>						
ACCEPTABLE PRODUCTS						
Singer	Flomatic			Cla-Val		
Wilkins						
Val-Matic	Series: 38					

DETAILED PROCESS VALVE SPECIFICATION SHEETS

PV

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Plug Valve	PV	Liquid	750	5-30	1200	35
TYPICAL SERVICE						
Raw Wastewater Isolation, On/Off valve for wastewater and sludge						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL		Reference Document	API 593, MSS SP-078		
Body	Cast Iron		Size Range	50 mm to 150 mm		
Plug	Cast Iron (see plug coating)		Rating	Class 150		
Seats	Nickel		Valve Ends	FF Flanges		
Seals	O-Rings, Buna-N, Acyionitrile-butadene		Type of Plug	Eccentric (Ballcentric), port area not less than 100% of pipe area		
Shaft	Steel		Operator	Square nut / gear operator		
Bearings	Stainless Steel		Actuator	Manual or Electrical		
			Lining	Abrasion Resistant		
			Plug Coating	Buna-N, Al-Clad, or Hycar, or chloro-sulfonyl polyetheylene		
			Coating			
NOTES						
1. Gear operator for 150 mm and over. 2. Square nut and lever under 150 mm.						
ACCEPTABLE PRODUCTS						
DeZurik Series PEC Eccentric		Val-Matic Series 5800R Cam-Centric		Pratt Ballcentric Plug		Victaulic Plug

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SOL

GENERAL						
TYPE OF VALVE	SYMBOL	TYPE OF COMMODITY	OPERATING LIMITS		DESIGN LIMITS	
			PRESSURE (kPag)	TEMP. (°C)	PRESSURE (kPag)	TEMP. (°C)
Solenoid Valve	SOL	Liquid	0-600	0-30	1400	50
TYPICAL SERVICE						
Non-Potable Water flushing water						
VALVE MATERIALS			VALVE DESCRIPTION			
ITEM	MATERIAL		Reference Document			
Body	Stainless Steel		Size Range		10 mm to 50 mm	
Plug	Stainless Steel (304)		Rating		CWP 1400 kPag	
Seats	Buna-N or FKM		Body/Valve Ends		Female Threaded	
Shaft	Stainless Steel (304 or 315)		Pattern			
			Operator			
Power	Coordinate with the vendor		Actuator		Solenoid	
ACCEPTABLE PRODUCTS						
ITT General Control sS21		ASCO Model Redhat		Or approved equal		

END OF SECTION