



SXE Ball Check Valve

Respectfully Submitted To:

EBA Engineering Consultants Ltd.

Attention: Joe Blow
1234 45 Avenue NW
Calgary, Alberta

Syncrude Canada Ltd.

Attention: Jim Bob
1234 45 Avenue NW
Calgary, Alberta

Prepared by:

Rice Resource Technologies Inc.
9333 41 Avenue NW
Edmonton, Alberta T6E 6R5

Name Place Holder, Account Manager
Rice Earth Sciences
403.XXX.XXXX
nameplaceholder@riceeng.com

Fluid thinking. Solid results.



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Product Data Sheet



introduction

< STANDARDS >



ASTM D1784
 ASTM D2466
 ASTM D2467
 ASTM F439
 ASTM D2464
 ASTM F437
 ASTM F1498



ANSI B1.20.1
 ANSI B16.5

IPEX EasyFit SXE Ball Check Valves represent the latest innovation in thermoplastic valve manufacturing technology. The SXE introduces an advanced method of installation, providing trouble free service for industrial, OEM and water service applications. This popular style of check valve features a true union design allowing for easy removal and maintenance. Optimized fluid dynamic design, smooth machined ball, and tight dimensional tolerances reduce pressure drop. Just 3 psi of back pressure is needed for positive shut off in both vertical and horizontal orientations. Threaded carrier allows for safe disconnection for upstream maintenance. The SXE utilizes EasyFit features such as Transparent Plug Housing for custom labeling, Union Nut Rotation Control with EasyFit Handle Tool, and Safe Block Carrier Tightening with EasyFit Torque Wrench. SXE EasyFit Ball Check Valves are part of our complete systems of pipe, valves, and fittings, engineered and manufactured to our strict quality, performance, and dimensional standards.

Valve Availability	
Body Material:	PVC, CPVC
Size Range:	1/2" through 2"
Pressure:	232 psi

Sample Specification



1.0 Check Valves – SXE

1.1 Material

- The valve body, ball, end connectors, and unions shall be made of PVC compound which shall meet or exceed the requirements of cell classification 12454 according to ASTM D1784.
- or The valve body, ball, end connectors, and unions shall be made of Corzan® CPVC compound which shall meet or exceed the requirements of 23447 according to ASTM D1784.
- These compounds shall comply with standards that are equivalent to NSF Standard 61 for potable water.

1.2 Seals

- The o-ring seals shall be made of EPDM which shall comply with standards that are equivalent to NSF Standard 61 for potable water.
- or The o-ring seals shall be made of Viton® (FPM) which shall comply with standards that are equivalent to NSF Standard 61 for potable water.
- 1.3 All other wetted and non-wetted parts of the valves shall comply with standards that are equivalent to NSF Standard 61 for potable water.

2.0 Connections

2.1 Socket style

- The IPS socket PVC end connectors shall conform to the dimensional standards ASTM D2466 and ASTM D2467.
- or The IPS socket CPVC end connectors shall conform to the dimensional standard ASTM F439.

2.2 Threaded style

- The female NPT threaded PVC end connectors shall conform to the dimensional standards ASTM D2464, ASTM F1498, and ANSI B1.20.1.
- or The female NPT threaded CPVC end connectors shall conform to the dimensional standards ASTM F437, ASTM F1498, and ANSI B1.20.1.

Sample Specification (cont'd)



3.0 Design Features

- The valve shall have true union ends.
- The valve cavity shall feature optimized profile design to reduce pressure drop and improve Cv value
- The ball shall be fully machined to achieve high surface finish and accurate dimensional tolerance.
- The valve body and union nuts shall have deep square style threads for increased strength.
- The Main-seal carrier shall be a safe block design and allow for safe disconnection of the union nut for upstream maintenance. Main-seal carrier shall be compatible with the EasyFit multifunctional handle and EasyFit Torque Wrench for precise component tightening.
- The union nuts shall be compatible with the EasyFit multifunctional handle and EasyFit Torque Wrench for precise tightening.
- The valve shall have a transparent plug housing for use with EasyFit Labeling System for custom identification.

3.1 Pressure Rating

- All valves shall be rated at 232 psi at 73°F.
- All valves shall be suitable for use with liquids having a specific gravity less than 0.05 lb/in³.

3.2 Markings

- All valves shall be marked to indicate size, material designation, and manufacturers name or trade mark.

3.3 Color Coding

- All PVC valves shall be color-coded dark gray.
- or All CPVC valves shall be color-coded light gray.

4.0 All valves shall be Xirtec® 140 or Corzan® by IPEX or approved equal.

Valve Selection

Size (inches)	Body Material	O-ring Material	IPEX Part Number		Pressure Rating
			IPS Socket	FNPT Threaded	
1/2	PVC	EPDM	052013		232 psi
		Viton®	052022		
	CPVC	EPDM	052121		
		Viton®	052127		
3/4	PVC	EPDM	052014		
		Viton®	052023		
	CPVC	EPDM	052122		
		Viton®	052128		
1	PVC	EPDM	052015		
		Viton®	052027		
	CPVC	EPDM	052123		
		Viton®	052133		
1-1/4	PVC	EPDM	052016		
		Viton®	052028		
	CPVC	EPDM	052124		
		Viton®	052134		
1-1/2	PVC	EPDM	052017		
		Viton®	052030		
	CPVC	EPDM	052125		
		Viton®	052135		
2	PVC	EPDM	052018		
		Viton®	052120		
	CPVC	EPDM	052126		
		Viton®	052136		

Body Material:

- PVC CPVC

Size (inches):

- 1/2
 3/4
 1
 1-1/4
 1-1/2
 2

Seals:

- EPDM
 Viton® (FPM)

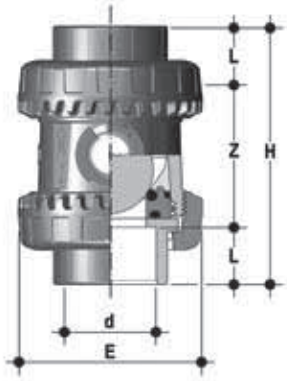
End Connections:

- Socket (IPS)
 Threaded (FNPT)

IPEX Part Number:

Technical Data

dimensions



Dimension (inches)

Size	d	d		L	Z	H	E
		Socket	Threaded				
1/2	0.60	0.84	1/2 NPT	0.89	2.01	3.78	2.13
3/4	0.77	1.05	3/4 NPT	1.00	2.13	4.13	2.48
1	0.98	1.32	1 NPT	1.13	2.34	4.61	2.84
1-1/4	1.26	1.66	1-1/4 NPT	1.26	2.84	5.35	3.35
1-1/2	1.57	1.90	1-1/2 NPT	1.38	3.03	5.79	3.94
2	1.97	2.38	2 NPT	1.50	3.84	6.85	4.65

weights

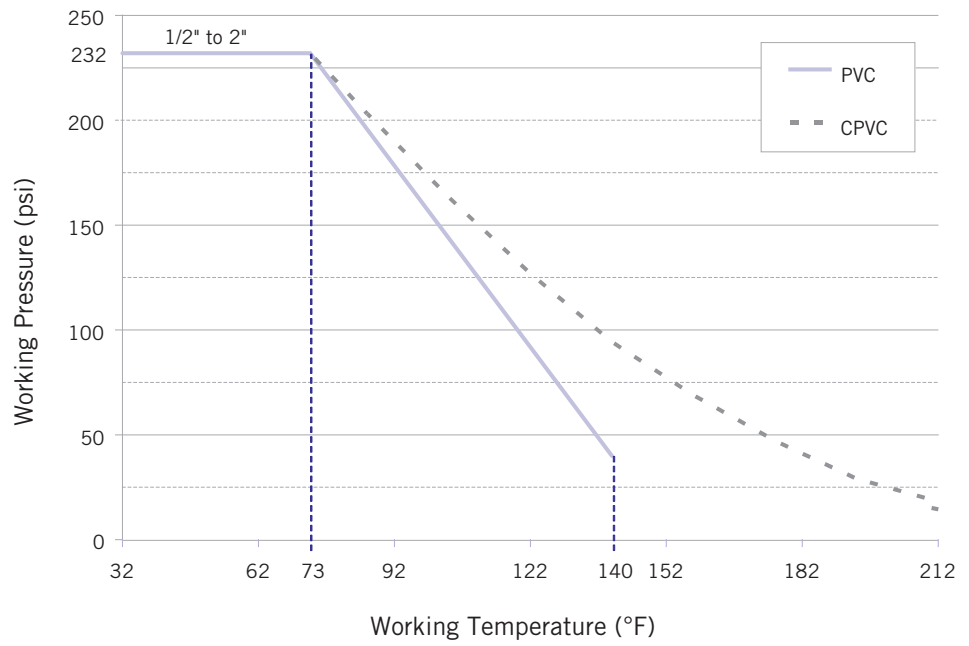


Approximate Weight (lbs)

Size	PVC		CPVC	
	IPS Socket	FNPT Threaded	IPS Socket	FNPT Threaded
1/2	0.33	0.33	0.33	0.33
3/4	0.42	0.42	0.42	0.42
1	0.66	0.66	0.66	0.66
1-1/4	1.01	1.01	1.01	1.01
1-1/2	1.49	1.49	1.49	1.49
2	2.38	2.38	2.38	2.38

Technical Data (cont'd)

pressure – temperature ratings



Technical Data (cont'd)

flow coefficients

The flow coefficient (CV) represents the flow rate in gallons per minute (GPM) at 68°F for which there is a 1 psi pressure drop across the valve in the fully open position. These values are determined from an industry standard testing procedure which uses water as the flowing media (specific gravity of 1.0). To determine specific flow rate and pressure loss scenarios, one can use the following formula:

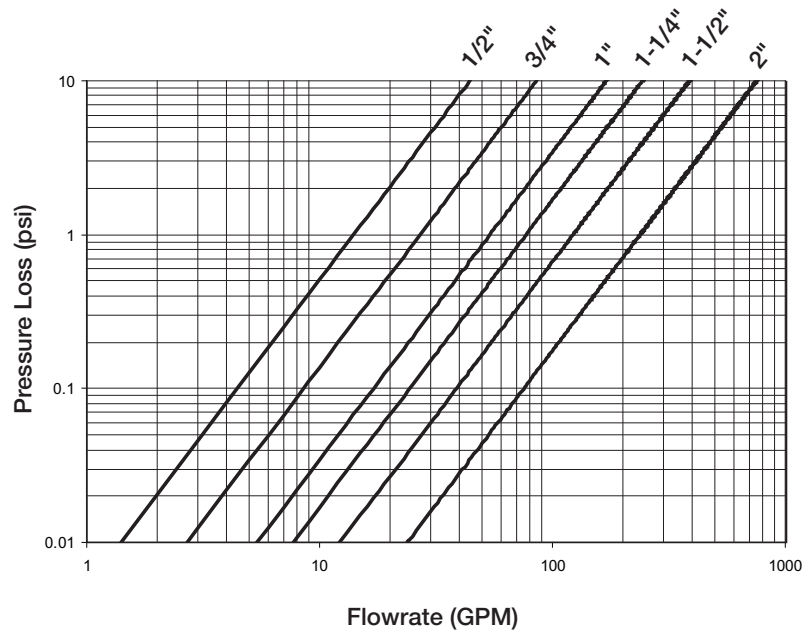
Size	CV
1/2	14.0
3/4	27.0
1	53.9
1-1/4	77.0
1-1/2	122.5
2	238

$$f = sg \times \left(\frac{Q}{C_v} \right)^2$$

Where,

- f is the pressure drop (friction loss) in psi,
- sg is the specific gravity of the fluid,
- Q is the flow rate in GPM,
- C_v is the flow coefficient.

pressure loss chart



Customize SXE EasyFit

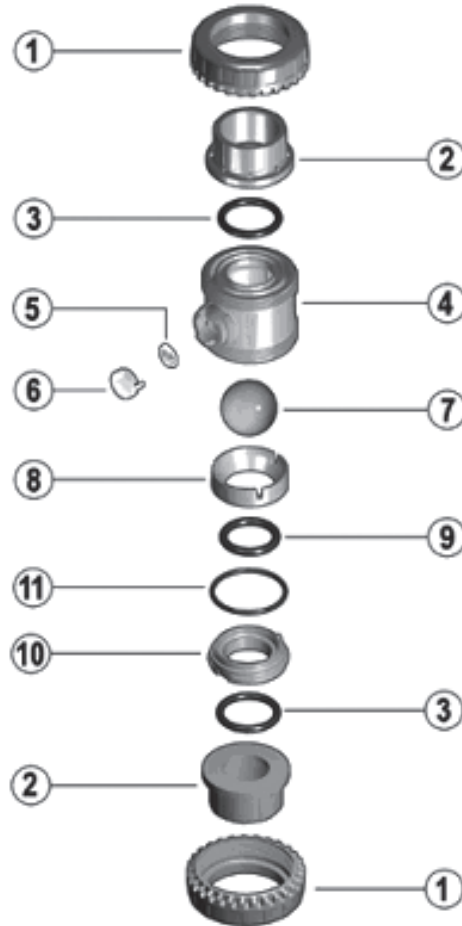
It is often necessary to customize a valve by labelling or tagging it in order to mark, protect and identify it.



SXE EasyFit valves are therefore equipped with a plastic water-resistant module designed to meet this specific need. The module is composed of a transparent PVC service plug and a white circle tag holder, with IPEX branded on one side. The tag holder is embedded in the plug and can be easily removed to be used for self labelling on its blank side. Self labelling can be done in several ways, but we recommend designing and printing custom labels through the EasyFit Labelling System (LSE).



Components



#	Component	Material	Qty
1	Union Nut	PVC	2
2	End Connector	PVC	2
3	Socket Seal (O-ring)	EPDM, FPM	2
4	Body	PVC	1
5	Tag Holder	PVC	1
6	Transparent Service Plug	PVC	1
7	Ball	PVC	1
8	Packing-presser Ring	PVC	1
9	Ball Seal (O-ring)	EPDM, FPM	1
10	Support for Ball Seat	PVC	1
11	Radial Seal (O-ring)	EPDM, FPM	1

Installation Procedures



1. For socket and threaded style connections, remove the union nuts (part #1 on previous page) and slide them onto the pipe. **It is important to first check the pipe flow direction and corresponding valve orientation as installing the valve backward will prevent it from functioning as intended.**

2. Please refer to the appropriate connection style sub-section:

a. For socket style, solvent cement the end connectors (2) onto the pipe ends. For correct joining procedure, please refer to the section entitled, “Joining Methods – Solvent Cementing” in the IPEX Industrial Technical Manual Series, “Volume I: Vinyl Process Piping Systems”. **Be sure to allow sufficient cure time before continuing with the valve installation.**

b. For threaded style, thread the end connectors (2) onto the pipe ends. For correct joining procedure, please refer to the section entitled, “Joining Methods – Threading” in the IPEX Industrial Technical Manual Series, “Volume I: Vinyl Process Piping Systems”.

3. Ensure that the valve is in the correct orientation. Carefully place the valve in the system between the two end connections.

4. Tighten both union nuts by hand. It is recommended to use the handle tool of a VXE valve (available as an accessory) or a strap wrench to tighten the union nuts sufficiently. The Easytorque wrench (available as an accessory) may also be used to complete the nut tightening in accordance to the torques indicated on instructions included; following this procedure will ensure the best installation.

Over-tightening or using steel wrenches may damage the threads on the valve body and/or the union nut, and may even cause the union nut to crack.



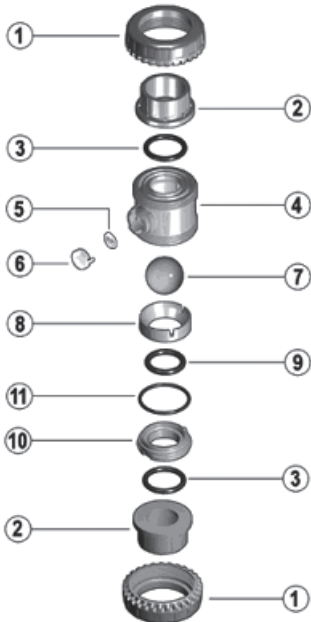
Valve Maintenance

disassembly



1. If removing the valve from an operating system, isolate the valve from the rest of the system. **Be sure to depressurize and drain the isolated branch and valve before continuing.**
2. Loosen both union nuts (1) using the handle tool or a strap wrench and drop the valve out of the line. Ensure that o-rings (3) are not lost when removing the valve from the line.
3. To disassemble, un-screw the ball seat support (10) using the EasyFit handle tool.
4. Remove the Radial Seal (11), Ball Seal (9), Packing-presser Ring (8), and the Ball (7).
5. The valve components can now be checked for problems and/or replaced.

assembly



Note: Before assembling the valve components, it is advisable to lubricate the o-rings with a water soluble lubricant. **Be sure to consult the “IPEX Chemical Resistance Guide” and/or other trusted resources to determine specific lubricant-rubber compatibilities.**

1. Re-assemble the valve following the exploded view
2. Screw the ball seat support (10) using the Easyfit handle tool or the Easytorque wrench key in accordance to the tightening torque values indicated on the included instructions.
3. Place the end connectors (2) into the union nuts (1), then thread onto the valve body taking care that the o-rings remain properly fitted in their grooves.

Testing and Operating



The purpose of system testing is to assess the quality of all joints and fittings to ensure that they will withstand the design working pressure, plus a safety margin, without loss of pressure or fluid. Typically, the system will be tested and assessed in sub-sections as this allows for improved isolation and remediation of potential problems. With this in mind, the testing of a specific installed valve is achieved while carrying out a test of the overall system.

An onsite pressure test procedure is outlined in the IPEX Industrial Technical Manual Series, “Volume I: Vinyl Process Piping Systems” under the section entitled, “Testing”. The use of this procedure should be sufficient to assess the quality of a valve installation. **In any test or operating condition, it is important to never exceed the pressure rating of the lowest rated appurtenance in the system.**

Important Points:

- Never test thermoplastic piping systems with compressed air or other gases including air-over-water boosters.
- When testing, do not exceed the rated maximum operating pressure of the valve.
- Avoid the rapid closure of valves to eliminate the possibility of water hammer which may cause damage to the pipeline or the valve.

Please contact IPEX customer service and technical support with regard to any concern not addressed in this data sheet or the technical manual.

About IPEX

IPEX is a leading supplier of thermoplastic piping systems. We provide our customers with one of the world's largest and most comprehensive product lines. All IPEX products are backed by over 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, the IPEX name is synonymous with quality and performance.

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