

**ACCESSORIES AVAILABLE**

Ball Valve	
Stem Extensions	X
2" Operating Nut	X
Locking Handles	X

Please contact customer service for information.

FLUID FLOW COEFFICIENT

Valve Size	Cv*
1/2"	22
3/4"	55
1"	112
1-1/4"	178
1-1/2"	285
2"	540

*Gallons per minute @ 1 psi pressure drop.

MAXIMUM PRESSURE/TEMPERATURE

See Table 4 (page 10) & Table 5 (page 11) for maximum pressure at various temperatures.

PVC WITH EPDM O-RINGS

Style	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Socket	V07191N	V08191N	V10191N	V14191N	V17191N	V20191N
Thread	V07201N	V08201N	V10201N	V14201N	V17201N	V20201N

NEW: PVC WITH VITON® O-RINGS

Style	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Socket	V07192N	V08192N	V10192N	V14192N	V17192N	V20192N

CPVC WITH VITON® O-RINGS

Style	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Socket	V07194N	V08194N	V10194N	V14194N	V17194N	V20194N
Thread	V07204N	V08204N	V10204N	V14204N	V17204N	V20204N



MATERIAL CONSIDERATIONS

FYI

Never use plastic fittings or valves with compressed air or gases. To do so could be harmful or fatal.

MATERIAL CONSIDERATIONS

When faced with the selection of piping materials to convey a particular liquid (i.e. hot water, corrosive chemicals) chemical engineers are confronted with a variety of materials both in plastics and metals. For each application a piping material is selected by its specific physical, chemical and thermal properties. Once acceptable performance characteristics are established for any material then the cost to purchase, install and maintain an economical piping system can be determined.

This catalog describes PVC and CORZAN® CPVC materials for pressure fittings and PVC, CORZAN CPVC, PP, and PVDF valve products with various "seal" options. Selection information is provided as well as design and specification recommendations to incorporate these components into piping projects.

OVERVIEW OF THERMOPLASTIC MATERIALS (FITTINGS AND VALVES)

PVC (POLYVINYL CHLORIDE)

Conforms to ASTM D-1784
Cell Class 12454

Since the mid 1950's, PVC has become the most frequently specified plastic piping material because of its performance versus cost. PVC has excellent rigidity and long-term strength. PVC can be used in systems up to 140°F with appropriate reductions in pressure. PVC is resistant and generally inert to most mineral acids, bases, salts and paraffinic hydrocarbon solutions. There is some attack from chlorinated or aromatic hydrocarbons, esters or ketones. The resistance of PVC to certain other fluid mixtures such as fuel oils with moderate aromatic content cannot be determined on the basis of immersion testing alone. For this class of fluid mixtures, actual use data must be obtained by the user.

Applications include the following: potable water, irrigation, chilled water, deionized water, chemical drainage, plating and chemical processing, among others. Be sure to consult the Chemical Resistance



Table in this catalog prior to use. Joining is accomplished by solvent cementing, threading or flanging.

CORZAN® CPVC (CHLORINATED POLYVINYL CHLORIDE)

Conforms to ASTM D-1784
Cell Class 23447

This material retains all the desirable properties of PVC but expands the useful performance range in many of the same chemical environments up to 210°F with appropriate reductions in pressure. Corzan CPVC has not only extended the performance range of "PVC type" products to handle hot corrosive liquids, it can also be used in hot and cold water applications. Joining is accomplished by solvent cementing, threading or flanging. Be sure to consult the Chemical Resistance Table in this catalog prior to use. For additional information on CORZAN, see pages 128-129.

PP (POLYPROPYLENE)

Conforms to ASTM D-4101

Polypropylene is a complementary material to the "PVC's" in terms of both temperature range and chemical resistance capability. Polypropylene is very resistant to most organic solvents as well as many acids and alkalis. It has also gained use in hydrocarbon environments, salt water applications, waste disposal, crude oil gathering systems, and laboratory and industrial drainage systems. Colonial uses natural unpigmented homopolymer polypropylene material. This material is severely degraded by UV radiation and therefore should be protected from direct exposure to the sun and other UV exposure. Polypropylene is capable of withstanding temperatures up to 180°F (with appropriate pressure reduction). Polypropylene components are joined by thermoseal fusion, threading or flanging.

PVDF (POLYVINYLDENE FLUORIDE)

This material further extends the operating temperature/pressure range of thermoplastic piping while maintaining chemical resistance to most acids, alkalis, alcohol, aliphatic and aromatic solvents and certain halogens. Generally, PVDF is not recommended for ketones and esters.

VALVES

OVERVIEW

Colonial valves are designed and built to require very little maintenance and provide years of trouble-free service. Our unique polymeric locking strip provides the utmost in personal safety in our true union ball valves. The Super "C" compact valve is the smoothest turning, lowest torque compact valve available.

TRUE UNION BALL VALVE (TUBV) SPECIFICATIONS

All thermoplastic true union ball valves (1/2" through 6") shall be produced of PVC type I, cell classification 12454 or CPVC type IV, cell classification 23447 or PP or PVDF material. Valve o-rings shall be made of EPDM, Santoprene® or Viton® material. The valve stem shall have two o-rings. The valve body shall have two stem stops. The valve carrier shall have a full block polymeric locking strip. Valve seats shall be Teflon® material. Valves shall be operated by a handle or pneumatically or electrically by an actuator. Valves shall be capable of being field retrofit with a pneumatic or electric actuator. Valves shall be full port (equal to or greater than the minimum inside diameter of sch 80 pipe). End connectors shall be of socket, thread or flange type. Valves shall meet or exceed the European DIN 3441 standard for pressure rating. Valves shall be capable of being adjusted externally for seat wear.

BUTTERFLY VALVE SPECIFICATIONS

All thermoplastic butterfly valves (3" through 8") shall have bodies of one piece, full-face construction produced of PVC type I, cell classification 12454 material. Elastomeric liner and o-rings shall be EPDM material. Elastomeric liner shall have an integrally molded flange face seal. Valve disc shall be produced of PVC type I, cell classification 12454 material. Valve shaft and index plate shall be stainless steel. Valve shaft shall be of blowout-proof design. Operation shall be by lever handle, gear operator, electric or pneumatic actuation. Valves shall be capable of being field retrofit with a pneumatic or electric actuator.

SINGLE UNION BALL VALVE (SUBV) SPECIFICATIONS

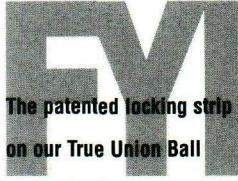
All thermoplastic single union ball valves (1/2" through 2") shall be produced of PVC type I, cell classification 12454 or CPVC type IV, cell classification 23447 or PP or PVDF material. Valve o-rings shall be made of EPDM, Santoprene or Viton material. Valve seats shall be Teflon material. Valves shall be operated by a handle or pneumatically or electrically by an actuator. Valves shall be full port (equal to or greater than the minimum inside diameter of sch 80 pipe). End connectors shall be of socket, thread or flange type. Valves shall meet or exceed the European DIN 3441 standard for pressure rating. Valves shall be capable of being adjusted externally for seat wear.

MULTI-PORT VALVE SPECIFICATIONS

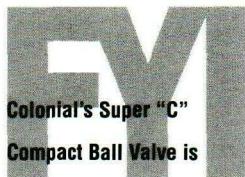
All thermoplastic multi-port valves (1/2" through 2") shall be produced of PVC type I, cell classification 12454 or CPVC Type IV, cell classification 23447. Valve o-rings shall be made of EPDM or Viton material. Valve seats shall be Teflon material. Valves shall be operated by a handle or pneumatically or electrically by an actuator. Valves shall be capable of being field retrofit with a pneumatic or electric actuator. Valves shall be full port (equal to or greater than the minimum inside diameter of sch 80 pipe). Valves shall have three union nuts for ease of disassembly. End connectors shall be of socket, thread or flange type. Valves shall meet or exceed the European DIN 3441 standard for pressure rating. Valves shall be capable of being adjusted externally for seat wear.

SUPER "C" COMPACT BALL VALVE SPECIFICATIONS

All thermoplastic compact ball valves (1/2" through 2") shall be of sealed unit type. Valves shall be produced of PVC type I, cell classification 12454 or CPVC type IV, cell classification 23447 material. Valves shall have independent internal carrier for maximum seat life. Valve seats shall be produced of Teflon or Santoprene material. Valve o-rings shall be made of EPDM, Viton or Santoprene material. Valve stem shall have two o-rings. The valve body shall have two stem stops. Valves shall be



FYI
The patented locking strip
on our True Union Ball
Valves is the strongest
carrier anti-blowout
device on the market.



Colonial's Super "C"
Compact Ball Valve is
the only valve on the
market with an internal
floating carrier. This
design provides for
maximum service life.

operated by a handle or pneumatically or electrically by an actuator. Valves shall be full port (equal to or greater than the minimum inside diameter of sch 80 pipe). Valves shall be capable of being field retrofit with a pneumatic or electric actuator.

MIP (MOLDED IN PLACE) BALL VALVE SPECIFICATIONS

All thermoplastic MIP ball valves (1/2" through 2") shall be of one-piece construction and produced of PVC type I, cell classification 12454 material. Valve seats shall be of Teflon or Santoprene material. Valve stem o-ring shall be of EPDM or Santoprene material. Handle shall be attached with thermoplastic locking pin. The valve shall contain no metal components.

CTS (COPPER TUBE SIZE) BALL VALVES SPECIFICATIONS

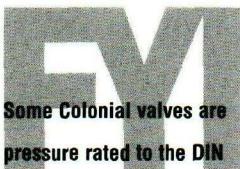
All thermoplastic CTS ball valves (1/2" and 3/4") shall be of one-piece construction and produced of CPVC type IV, cell classification 23447 material. Valve seats shall be of Teflon or Santoprene material. Handle shall be attached with thermoplastic locking pin. The valve shall contain no metal components.

BALL CHECK VALVE SPECIFICATIONS

All thermoplastic ball check valves (1/2" through 3") shall be of single union design and produced of PVC type I, cell classification 12454 or CPVC type IV, cell classification 23447 or PP or PVDF material. Seat shall be made of Viton. End connectors shall be of socket, thread or flange type.

WYE LINE STRAINER SPECIFICATIONS

All thermoplastic wye line strainers shall be produced of PVC type I, cell classification 12454 or CPVC, cell classification 23447. Strainer assembly shall have a union nut for ease of removal during cleaning. Strainer screens shall be of stainless steel or polypro material. Screens shall be of 20 or 40 mesh in stainless steel and 20 mesh in polypro material. End connectors shall be of socket or thread type.



Some Colonial valves are pressure rated to the DIN 3441. For a complete list see pages 163-165.

Valves, flanges, unions and strainers have different pressure/temperature capabilities than fittings. To determine their maximum suggested design pressures, use tables 4 and 5.

FITTING EXAMPLE:

A sch 40 PVC 2" Tee will be subjected to temperatures of 100°F. What is the maximum suggested design pressure at this temperature?

Step 1:

From Table 2, the maximum suggested design pressure at 73°F is 168 psi.

Step 2:

This value is then multiplied by the temperature correction factor from Table 3 (168 X .62 = 104 psi).

The maximum suggested design pressure for a sch 40 PVC 2" Tee at 100°F is 104 psi.

MAXIMUM SUGGESTED DESIGN PRESSURE (VALVES, FLANGES, UNIONS AND STRAINERS)

These heavy-duty components are currently not defined or pressure rated in any ASTM standard. Because these components contain elastomeric seals, they have different pressure capabilities than fittings. At room temperature they are limited by the elastomeric seal. At higher temperatures they are limited by the plastic material. Table 4 shows the maximum suggested design pressures for various sizes of these components at 73°F. To determine the pressure for temperatures above 73°F, multiply the maximum suggested design pressure from Table 4 by the temperature correction factor from Table 5.

VALVE EXAMPLE:

A PVC 3/4" true union ball valve is to be used at a temperature of 110°F. What is the maximum suggested design pressure at this temperature?

Step 1:

From Table 4, the maximum suggested design pressure at 73°F is 235 psi.

Table 4: Maximum Suggested Design Pressure for Valves, Flanges, Unions and Strainers @ 73°F

*6" Ball Valve is a venturi design from our 4" TUBV with 6 x 4 couplings

Nom Size (in)	Butterfly Valves				Flanges				Ball Check Valves				Super "C" Compact Ball Valves & Wye Line Strainers				MIP (Molded In Place) Ball Valves & Laboratory Ball Valves				True Union Ball Valves (TUBV)				Unions				CTS (Copper Tube Size) Ball Valves				Multi-Port Ball Valves				Single Union Ball Valves (SUBV)			
	PVC CPVC	PVC CPVC	PP PVC CPVC PVDF	PVC CPVC	PVC	PVC CPVC	PP PVDF	PVC CPVC	PVC CPVC	CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC	PVC CPVC									
1/2		150	150	150	150	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150								
3/4		150	150	150	150	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150								
1		150	150	150	150	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150	235	150								
1-1/4		150	150	150	150	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150								
1-1/2		150	150	150	150	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150								
2		150	150	150	150	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150	200	150								
3	150	150	150				150		150		150		150		150		150		150		150		150		150		150		150		150		150							
4	150	150					150		150		150		150		150		150		150		150		150		150		150		150		150		150							
6	150	150					150*		150*		150*		150*		150*		150*		150*		150*		150*		150*		150*		150*		150*		150*							
8		150																																						
10		150																																						
12		150																																						

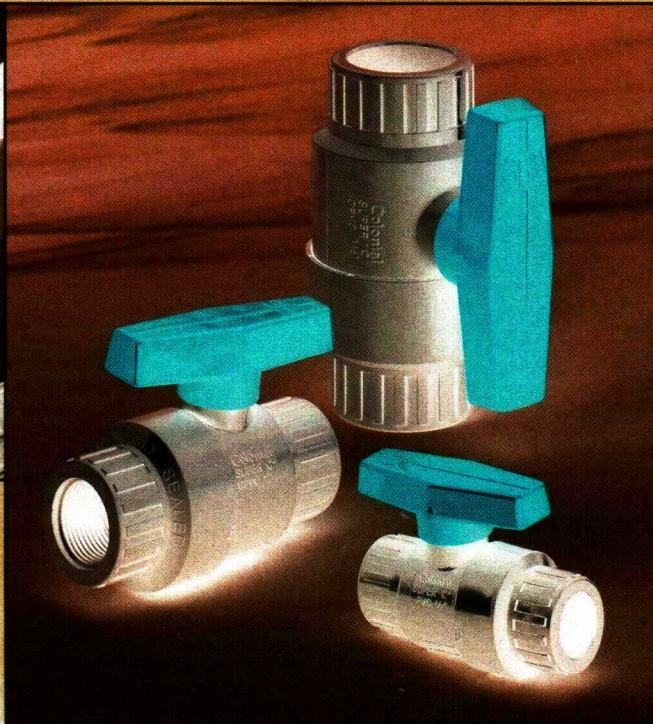


When compared with other brands of compacts this valve is in a class by itself. It utilizes the same ball and stem as our true union valve. This means it has the same robust stem diameter and two stem o-rings as the true union. It is the only compact valve with a separate and independent floating carrier. This provides the valve with the longest turning life and lowest torque on the market. As the seat and ball wear, the floating carrier automatically moves forward to provide a positive seal.

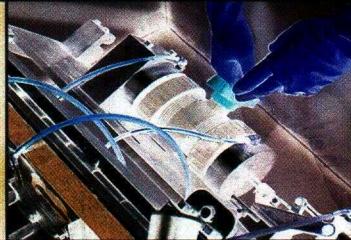
Ideally suited for the most demanding industrial, commercial, agricultural and irrigation environments, this valve is permanently sealed at the factory and is not repairable. Available in PVC and CPVC with EPDM or Viton® o-rings.



New accessories available.

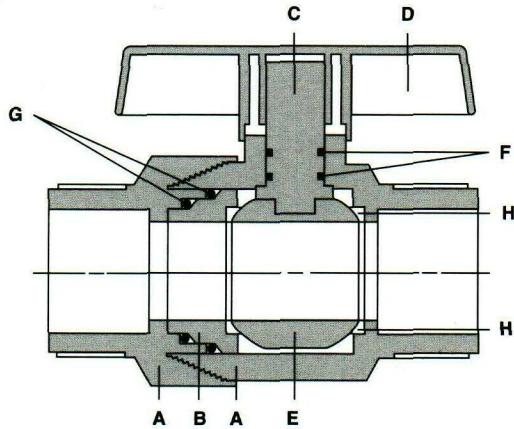


See page 73 for valve actuation. This catalog contains information on parts offered at the date of printing. Please refer to our current list price sheets for any additional parts or sizes now offered.



Each and every industrial ball valve is tested under high pressure for structural integrity and low pressure for a bubble-tight seal.

- Available with PVC or CPVC body; EPDM or Viton® o-rings.
- ABS handle available in a variety of colors.
- Floating ball design for high pressure, permanent seal.
- Two stem o-rings for double leak protection.
- Unique floating carrier design provides the longest turning life, lowest torque and smoothest turning on the market.
- Full port design (same I.D. as schedule 80 pipe) produces minimum turbulence at high flow rates.
- Teflon® ball seats.



COMPONENTS AND MATERIALS

Part Letter	Component	Quantity	Material
A	Body/End Piece	1	PVC, CPVC
B	Floating Carrier	1	PVC, CPVC
C	Stem	1	PVC, CPVC
D	Handle	1	ABS
E	Ball	1	PVC, CPVC
F	Stem O-Rings	2	EPDM, Viton®
G	Carrier O-Rings	2	EPDM, Viton®
H	Seats	2	Teflon®

Teflon® is a registered trademark of DuPont. Only DuPont makes Teflon. Viton® is a registered trademark of DuPont Dow Elastomers.

COLORED AND ROUND REPLACEMENT HANDLES FOR TRUE UNION AND SUPER C BALL VALVES

In many industrial or irrigation applications, it is beneficial to employ a simple, yet reliable method of identifying one pipeline from another. In addition to marking the pipe or valves, a color-code method can be implemented. Colonial's color replacement handles are available for 1/2 – 2" sizes of True Union and Super C Compact Ball Valves.

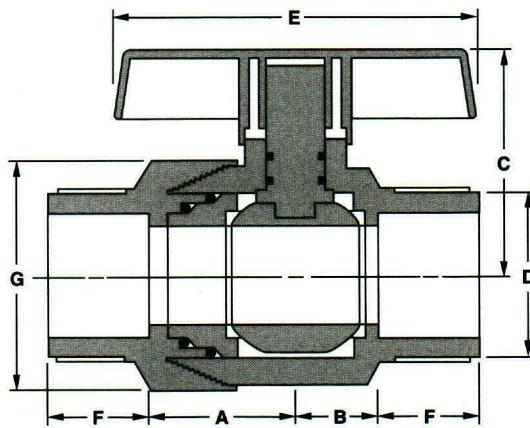
Round handles are offered for 1/2 – 1" True Union and Super C Ball Valves. Since the Open/Close Torque on these small diameter valves is low, the round handles are offered to prevent accidental movement of the handle from the bump of an arm or the catch of a pant leg.



COLORED AND ROUND REPLACEMENT HANDLES

Color/Style	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Black	V07101KBK	V08101KBK	V10101KBK	V14101KBK	V17101KBK	V20101KBK
Blue	V07101KBL	V08101KBL	V10101KBL	V14101KBL	V17101KBL	V20101KBL
Green	V07101KG	V08101KG	V10101KG	V14101KG	V17101KG	V20101KG
Yellow	V07101KY	V08101KY	V10101KY	V14101KY	V17101KY	V20101KY
White	V07101KW	V08101KW	V10101KW	V14101KW	V17101KW	V20101KW
Orange*	V07101K	V08101K	V10101K	V14101K	V17101K	V20101K
Round	V07101KR	V08101KR	V10101KR	N/A	N/A	N/A

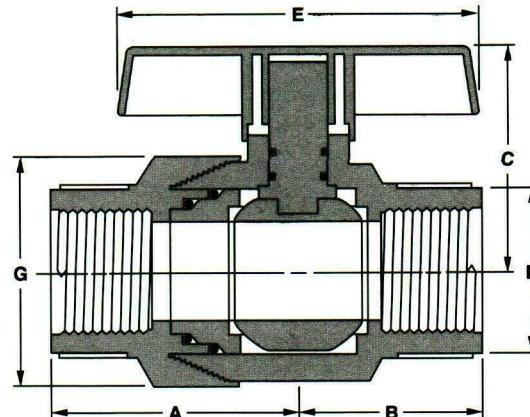
*Stock Replacement

**SUPER "C" BALL VALVES**

Slip X Slip

	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
A	1-7/32	1-15/32	1-9/16	2-1/4	2-1/8	2-3/16
B	11/16	3/4	31/32	1-5/16	1-3/16	1-7/16
C	1-7/8	2-11/32	2-5/8	3-1/2	3-1/2	3-7/8
D	1-11/32	1-9/16	1-7/8	2-19/32	2-19/32	3-1/8
E	3-7/32	3-7/16	4	5	5	5
F	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2
G	1-25/32	2-7/32	2-17/32	3-1/2	3-1/2	4-3/16

- Larger stem design reduces the chance of stem breakage.
- Two stem stops for positive shut off.
- Pressure to 150 psi @ 73°F (non-shock water).
- 100% thermoplastic design eliminates process or atmospheric corrosion.
- 1/2" thru 2" sizes available.
- Available in schedule 80 socket or NPT (female) thread.
- Socket and threads meet dimensional requirements of ASTM D-2467, D-2464, F-439 and F-437.
- Easily actuated (actuator kits available).
- Designed and engineered in the U.S.A.
- For factory-customized, vented ball, see Valve Problems and Solutions on page 87.

**SUPER "C" BALL VALVES**

FPT X FPT

	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
A	2-3/32	2-15/32	2-11/16	3-1/2	3-1/2	3-11/16
B	1-9/16	1-25/32	2-1/16	2-9/16	2-9/16	2-15/16
C	1-7/8	2-11/32	2-5/8	3-1/2	3-1/2	3-7/8
D	1-11/32	1-9/16	1-7/8	2-19/32	2-19/32	3-1/8
E	3-7/32	3-7/16	4	5	5	5
G	1-25/32	2-7/32	2-17/32	3-1/2	3-1/2	4-3/16

STANDARDS BY PRODUCT LINE

PVC VALVES

True Union, Single Union, Multi-Port, MIP (Molded In Place), Compact (Super "C"), Ball Check, Butterfly	
ASTM D-1784	Material Standard
ASTM D-2467	Socket Dimensions
ASTM D-2464	Thread Dimensions
ASTM D-2564	PVC Solvent Cement
ASTM D-2855	PVC Solvent Cementing Procedure
ASTM F-656	Primers for Solvent Cementing
ANSI B1.20.1	Taper Pipe Threads (formerly B2.1)
ANSI B16.5	Class 150 Steel Flange Hole Pattern
DIN 3441	Requirements and Testing of PVC Valves (<i>True Union, Single Union & Multi-Port valves only.</i>)

CPVC VALVES

True Union, Single Union, Multi-Port, MIP (Molded In Place), Compact (Super "C"), Ball Check	
ASTM D-1784	Material Standard
ASTM F-439	Socket Dimensions
ASTM F-437	Thread Dimensions
ASTM F-493	CPVC Solvent Cement
ANSI B1.20.1	Taper Pipe Threads (formerly B2.1)
ANSI B16.5	Class 150 Steel Flange Hole Pattern
DIN 3441	Requirements and Testing of PVC Valves (<i>CPVC True Union, Single Union & Multi-Port valves meet the pressure testing requirements of this standard.</i>)

PP VALVES

True Union, Single Union, Multi-Port, Ball Check	
ASTM D-4101	Polypropylene Materials
ANSI B1.20.1	Taper Pipe Threads (formerly B2.1)

PVDF VALVES

True Union, Single Union, Ball Check

ASTM D-3222	PVDF Materials
ANSI B1.20.1	Taper Pipe Threads (formerly B2.1)
DIN 3441	Requirements and Testing of PVC Valves (<i>PVDF True Union & Single Union valves meet the pressure testing requirements of this standard.</i>)

CPVC CTS (COPPER TUBE SIZE) VALVES

ASTM D-1784	Material Standard
ASTM D-2846	Dimensional Specifications (sockets, threads and wall thickness)
ASTM F-493	CPVC Solvent Cement
ANSI B1.20.1	Taper Pipe Threads (formerly B2.1)
NSF14/61	Potable Water

PVC SCH 40 FITTINGS

(White or Gray)

ASTM D-1784	Material Standard
ASTM D-2466	Dimensional Specifications
ASTM D-2774	Buried Pipe Specifications
ASTM D-2564	PVC Solvent Cement
ASTM D-2855	PVC Solvent Cementing Procedure
ASTM F-656	Primers for Solvent Cementing
ANSI B1.20.1	Taper Pipe Threads (formerly B2.1)
NSF14/61	Potable Water

PVC SCH 80 FITTINGS

(Gray)

ASTM D-1784	Material Standard
ASTM D-2467	Dimensional Specifications (sockets)
ASTM D-2464	Dimensional Specifications (threads)
ASTM D-2774	Buried Pipe Specifications
ASTM D-2564	PVC Solvent Cement
ASTM D-2855	PVC Solvent Cementing Procedure
ASTM F-656	Primers for Solvent Cementing
ANSI B1.20.1	Taper Pipe Threads (formerly B2.1)
NSF14/61	Potable Water
ANSI B16.5	Class 150 Flange Hole Pattern