CHARLOTTE
PIPE AND FOUNDRY COMPANY

Plastics
Product Knowledge Guide

(Updated February 2024)

BR-PK

You can't beat the system.®

Charlotte Pipe's Retail Division

Charlotte Pipe and Foundry Company is the largest manufacturer of DWV pipe and fitting systems in the country, producing the industry's broadest range of standard and specialty DWV products.

Our product line includes ABS, PVC, and CPVC CTS FlowGuard Gold® pipe and fittings for both residential and commercial plumbing systems. Sizes range from ¼ to 16 inches, based on material.

In fact, we employ more than 1,700 loyal, hard-working associates, have six extrusion plants and are headquartered in Charlotte, NC. This gives us the capacity to fill orders completely and in a timely manner.

Our largest plastics plant in Monroe, North Carolina, which comprises more than one million square feet of manufacturing and warehouse space.

Advantages to Choosing Charlotte Pipe

Along with an extensive line of quality products, Charlotte Pipe is known for our "Best in Class" customer service, competitive pricing, and continuing reinvestment in our state of the art manufacturing facilities. We take care of our customers' needs during the order process and beyond. We have dedicated associates for account management, customer service, assortment planning, e-commerce and more.

We also offer numerous electronic services including our website, charlottepipe.com/retail, and Charlotte Pipe Connect, our database of product information that provides information for your e-commerce sites and internal databases.

In addition, our services include Electronic Data Interchange (EDI), order confirmation and Advanced Shipment Notifications (ASN), invoice options and Automatic Clearing House (ACH) payments – all designed to make it easy for you to do business with Charlotte Pipe.

Retail Services Include:

- Planogram Support
- Bin Tags and Header Boards Offered

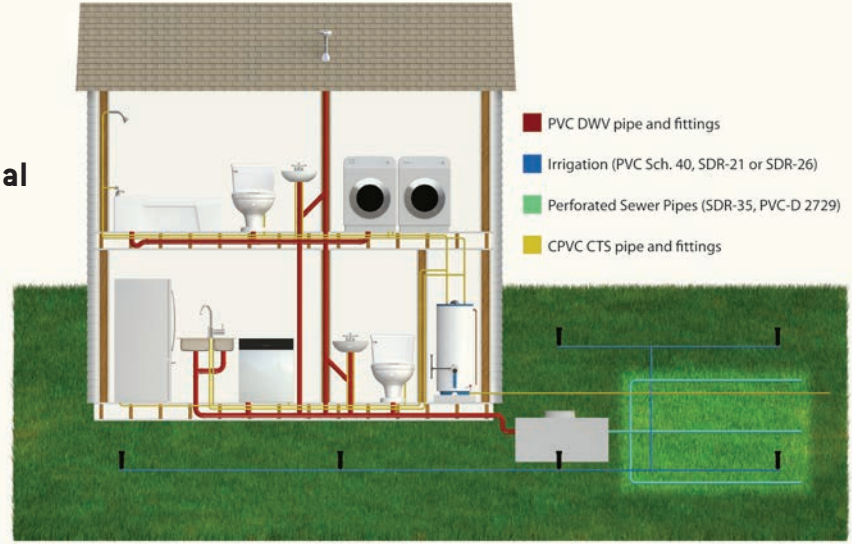
Our hundreds of thousands of square feet of modern warehouse space stocked with inventory, along with investments in the latest tooling and machinery, make it possible for us to meet increasing demand for our products and to produce the highest-quality pipe and fittings in the industry. This includes a quality barcode and/or labeling on each product.

Charlotte Pipe provides support for planograms, including field support, product market research analysis, and product sequencing. POP signage such as bin tags and header boards can be ordered via our online shop. Hardcopy product literature is also available to order on our online shop at no charge to our customers.

Contents

Contents

Standard Residential Plumbing



Check your local codes for installation requirements.

Common Industry Abbreviations

Abbreviation	Description
ABS	Acrylonitrile Butadiene Styrene
ASTM	American Society for Testing and Materials
CPVC	Chlorinated Polyvinyl Chloride
CTS	Copper Tube Size
DWV	Drain, Waste, Vent
FIP	Female Iron Pipe Size
FPT	Female Pipe Thread
H	Hub
ID	Inside Diameter
IPS	Iron Pipe Size
MIP	Male Iron Pipe Size

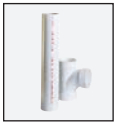
Abbreviation	Description
MPT	Male Pipe Thread
NSF	National Sanitation Foundation
OD	Outside Diameter
PSI	Pounds per Square Inch
PVC	Polyvinyl Chloride
S	Socket
SPG	Spigot
1/4 bend	90-degree bend
1/6 bend	60-degree bend
1/8 bend	45-degree bend
1/16 bend	22.5-degree bend

>> Pipe Reference Guide

Product	Sizes Available																		
	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4	5	6	8	10	12	14	15	16
FlowGuard Gold® CPVC CTS SDR 11			•	•	•	•	•	•											
PVC Schedule 80	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•		•
PVC Schedule 40			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
PVC Schedule 40 DWV*						•	•	•		•	•	•	•	•	•	•	•		•
PVC Schedule 30*										•									
PVC DWV Cellular Core*							•	•		•	•		•	•	•	•			
PVC Well Casing								•	•	•	•		•	•	•	•	•		•
PVC SDR 13.5 (PR315)			•																
PVC SDR 21 (PR200)				•	•	•	•	•	•	•	•		•						
PVC SDR 26 (PR160)						•	•	•	•	•	•		•						
PVC SDR 35 Sewer Main Belled-End*											•		•						
PVC SDR 35 Sewer Main Gasketed*											•		•	•					
PVC D 2729 Sewer and Drain*										•	•		•						
ABS Plus® Foam Core*							•	•		•	•		•						

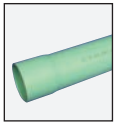
*Non-Pressure

Materials for Drain, Waste & Vent (DWV) — NOT FOR PRESSURE



PVC Schedule 40 DWV Pipe and Fittings
- Most widely used material today.
- Manufactured from polyvinyl chloride.
- White in color.
- Use correct primer and cement.

ABS Schedule 40 DWV Pipe and Fittings
- Manufactured from acrylonitrile butadiene styrene.
- Black in color.
- More common in the western U.S.
- Use correct cement.



PVC SDR 35 ASTM D 3034 Sewer Main Pipe
- Manufactured from polyvinyl chloride.
- Green in color.
- Used in sanitary sewer applications.
- Available in gasketed or solvent weld.

PVC Sewer and Drain Pipe
- Manufactured from polyvinyl chloride.
- ASTM D 2729.
- White in color.
- Perforated or solid wall.
- Applications include leach fields, downspout drainage, French drains.

Drainage (DWV) Fitting Pattern
Sanitary Turn

DWV stands for:
D = drains from tubs and sinks
W = waste from toilets
V = vents for air into/out of the system

PVC Schedule 40 DWV Pipe & PVC DWV Fittings For Non-Pressure Applications

>> Note: Solid Wall and Cellular Core Pipe

PVC DWV Fittings can be installed with cellular core pipe or "dual marked" solid wall pipe.

ASTM F 891 cellular core pipe is lighter, cuts faster and costs less. Never use for pressure applications.

Solid wall PVC pipe is often rated for **both** pressure (ASTM D 1785) and non-pressure (ASTM D 2665) applications — often referred to as "dual marked." When solid wall **or** cellular core pipe is used with PVC DWV fittings, the resulting system is **NOT** pressure rated.

>> Description

- Rigid pipe and fittings.
- Pipe and fittings are white in color.
- Joined with solvent cement conforming to applicable ASTM standards.
- Fittings have a gradual sanitary turn.

>> Application

- Drain household sanitary waste (kitchen, bathroom).
- Sanitary sewer.
- Drain ground water.
- NOT for pressure applications.
- NOT for compressed air or gasses.

PVC Schedule 40 DWV Pipe & PVC DWV Fittings For Non-Pressure Applications

>> Standards
- ASTM D 1785 Schedule 40 Solid Wall PVC Pipe
- ASTM F 891 Cellular Core PVC DWV Pipe
- ASTM D 2665 PVC DWV Pipe & Fittings
- NSF Standard 14

>> Dimensional Standard
- Schedule 40 Iron Pipe Size (IPS)

>> Cell Class
- 12454 PVC Solid Wall Pipe & Fittings
- 11432 PVC DWV Cellular Core Pipe

>> Maximum Working Temperature
- 140° F

>> Maximum Working Pressure
- 0 (zero) PSI
- PVC DWV is NOT a pressure-rated piping system.
- Recommended test is 10 feet of hydrostatic pressure, which equals 4.3 PSI.

>> Joining Method

Solvent Weld Joints
- Solvent cements must meet ASTM D 2564.
- Primer is required.
- May be joined with a slip joint compression fitting (a trap adapter, for example).

Threaded Joints
- Threading PVC 40 pipe is NOT recommended.
- Male Iron Pipe size (MIP) and Female Iron Pipe size (FIP) adapters are available.

PVC Schedule 40 DWV Pipe & PVC DWV Fittings For Non-Pressure Applications

>> Product Offering/Data

ASTM D 1785 & ASTM D 2665

Dual Marked Pipe

Size	OD	Nominal ID	Min Wall	Weight Per 100 ft. (lbs.)
1¼"	1.660	1.380	0.140	42.4
1½"	1.900	1.610	0.145	51.8
2"	2.375	2.067	0.154	69.5
3"	3.500	3.068	0.216	144.2
4"	4.500	4.026	0.237	205.5
5"	5.563	5.047	0.258	272.5
6"	6.625	6.065	0.280	361.2
8"	8.625	7.981	0.322	543.6

PVC & ABS DWV Fittings For Non-Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Coupling
Part No. PVC 100
- Used to join two pipes together; extend pipe.
- H x H

Trap Adapter, Male with 1½" Plastic Nut and Washers to Fit 1½" and 1¼" Traps
Part No. PVC 103R
- Used to secure the sink drain line to the P-Trap.
- SPG x Slip w/ plastic nut

Trap Adapter, Female
Part No. PVC 104P
- Used to secure the sink drain line to the P-Trap.
- H x Slip w/ washer and polyethylene nut

Flush Bushing
Part No. PVC 107
- Used to connect two pipes of different diameters.
- SPG x H

Male Adapter, octagon shoulders for tightening purposes
Part No. PVC 109
- Has male threads on one end and the other end adapts to the pipe being used.
- H x MPT

1/4 Bend
Part No. PVC 300
- Used to turn pipe 90 degrees; also called a 90 degree Elbow.
- H x H

1/8 Bend
Part No. PVC 321
- Used to turn pipe 45 degrees; also called a 45 degree Elbow.
- H x H

Sanitary Tee
Part No. PVC 400
- Used to connect three lines together or to branch off a main line.
- All Hub

PVC & ABS DWV Fittings For Non-Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering. Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Female Adapter
Part No. PVC 101
- Has female threads on one end and the other end adapts to the type of pipe being used.
- FPT x H

Pipe Increaser-Reducer
Part No. PVC 102
- Used to join two pipes of different diameters together. For DWV applications, diameter cannot be reduced downstream.
- H x H

Cleanout Adapter with Cleanout Plug
Part No. PVC 105X
- Used to seal off pipe, fittings and cleanouts.
- Spigot

Cleanout Plug
Part No. PVC 106
- Screws into cleanout adapter to seal off a pipe.
- MPT

Flush Cleanout Plug
Part No. PVC 110
- Screws into cleanout adapter to seal off a pipe.
- MPT

Cap
Part No. PVC 116
- Used to seal off the end of a pipe.
- Socket

1/4 Bend, Street
Part No. PVC 302
- Used to turn the pipe 90 degrees.
- One end is spigot and the other end is hub.
- SPG x H

Long Sweep 1/4 Bend
Part No. PVC 304
- Used to turn pipe 90 degrees. Sometimes referred to as a long radius elbow.
- H x H

PVC & ABS DWV Fittings For Non-Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Long Sweep 1/4 Bend, Street
Part No. PVC 309
- Used to turn the pipe 90 degrees. Sometimes referred to as a long radius elbow. One end is spigot and the other end is hub.
- H x SPG

1/6 Bend
Part No. PVC 319
- Used to turn the pipe 60 degrees.
- H x H

1/6 Bend, Street
Part No. PVC 320
- Used to turn the pipe 60 degrees. One end is spigot and the other end is hub.
- H x SPG

1/8 Bend, Street
Part No. PVC 323
- Used to turn the pipe 45 degrees.
- One end is spigot and the other end is hub.
- SPG x H

1/16 Bend
Part No. PVC 324
- Used to turn the pipe 22 1/2 degrees; also called a 22 1/2 degree Elbow.
- H x H

1/16 Bend, Street
Part No. PVC 326
- Used to turn the pipe 22 1/2 degrees.
- One end is spigot and the other end is hub.
- SPG x H

Double 1/4 Bend
Part No. PVC 327
- Used to turn two branching lines 90 degrees and to connect them to a main line.
- H x H x H

Double Sanitary Tee
Part No. PVC 428
- Used to connect lines together.
- All Hub

PVC & ABS DWV Fittings For Non-Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Cleanout Tee w/ Cleanout Plug
Part No. PVC 444X
- Used to provide access to drain lines.
- H x H x FPT

Two-Way Cleanout
Part No. PVC 448
- Used to provide above-ground access to vertical piping.
- All Hub

Double Fixture Fitting
Part No. PVC 500
- Used to branch line to two plumbing fixtures.
- All Hub

Combination Wye and 1/8 Bend (One Piece)
Part No. PVC 501
- Used to connect a plumbing fixture to a drain line.
- All Hub

Wye
Part No. PVC 600
- Used to branch a drain line at a 45 degree angle.
- All Hub

Double Wye
Part No. PVC 611
- Used to branch two drain lines at 45 degree angles.
- All Hub

Tail Piece Adapter w/ Plastic Nut and Packing Ring
Part No. PVC 704P
- Used to connect the P-Trap to the drain line.
- SPG x Slip w/ Plastic Nut

P-Trap
Part No. PVC 706X
- Used to prevent sewer gas from entering the building/room.
- H x H

Closet Flange w/ Knockout
Part No. PVC 800K
- Used to secure toilet bowl to the drain line/floor.
- H
- Available with and without knockout.
- Available with metal or plastic ring.

ABS Plus® Foam Core Pipe & ABS DWV Fittings For Non-Pressure Applications

>> Description

- Rigid pipe and fittings.
- Pipe and fittings are black in color.
- Joined with solvent cement conforming to ASTM D 2235.
- Fittings have a gradual sanitary turn.

>> Application

- Drain household sanitary waste (kitchen, bathroom).
- Sanitary sewer.
- Drain ground water.
- NOT for pressure applications.
- NOT for compressed air or gasses.

>> Standards

- ASTM F 1488 Co-extruded Composite Pipe
- ASTM D 2661 ABS DWV Fittings
- NSF Standard 14

>> Dimensional Standard

- Schedule 40 Iron Pipe Size (IPS)

>> Cell Class

- 42222 Cellular Core PVC DWV Pipe
- 32222 ABS DWV Fittings

>> Maximum Working Temperature

- 140° F

ABS Plus® Foam Core Schedule 40 DWV Pipe & ABS DWV Fittings For Non-Pressure Applications

>> Maximum Working Pressure

- 0 (zero) PSI
- ABS DWV is NOT a pressure-rated piping system.
- Recommended test is 10 feet of hydrostatic pressure, which equals 4.3 PSI.

>> Joining Method

Solvent Weld Joints

- Solvent cements must meet ASTM D 2235
- Primer is not recommended.
- May be joined with a slip joint compression fitting (trap adapter, for example).

Threaded Joints

- Threading ABS-40 Cellular pipe is NOT recommended.
- Male Iron Pipe size (MIP) and Female Iron Pipe size (FIP) adapters are available.

ABS Plus® Foam Core Schedule 40 DWV Pipe & ABS DWV Fittings For Non-Pressure Applications

>> Product Offering/Data

ASTM F 628 Cellular Core ABS DWV Pipe

Size	OD	Nominal ID	Min Wall	Weight Per 100 ft. (lbs.)
1½"	1.900	1.59	0.145	27.1
2"	2.375	2.06	0.154	37.0
3"	3.500	3.06	0.216	74.5
4"	4.500	4.00	0.237	107.1
6"	6.625	6.06	0.280	187.8

Notices, Cautions and Warnings Please refer to www.charlottepipe.com for all applicable notices, cautions and warnings for this product group. You may also contact us at (800) 438-6091 for additional safety, installation or application information.
Notices: N-2; N-3; N-6; N-7; N-9; N-11; N-12; N-13; N-15; N-19; N-22; N-27; N-35; N-37; N-38 **Cautions:** C-2, C-4, C-6
Warnings: W-2; W-3; W-4; W-5; W-6; W-9; W-10; W-12; W-13; W-14; W-18; W-21; W-22; W-23; W-24; W-26; W-28; W-29; W-30; W-31; W-35; W-37

Installation of PVC DWV & ABS DWV Pipe & Fittings Systems (1¼"–4" diameter)

1

CUT PIPE

Cut pipe square with axis.

2

REMOVE BURRS & BEVEL

Remove burrs and bevel (chamfer) the end of the pipe 10°-15°.

3

CLEAN AND DRY PIPE AND FITTINGS

Remove surface dirt, grease or moisture with a clean, dry cloth.

4

DRY FIT

With light pressure, pipe should go one-half to one-third of the way into the fitting hub. Do not use pipe and fittings that are too tight or too loose.

5

APPLICATOR

Use an applicator that is one-half the size of the pipe's diameter.

6

COAT WITH PRIMER AND CEMENT

Only use primer on PVC. Primer is not recommended on ABS. Apply a full, even coat of cement on the outside diameter of the pipe and to the inside hub of the fitting, and again to the outside of the pipe.

7

JOIN & CURE

While the cement is fluid, insert the pipe into fitting hub, giving a quarter turn to ensure an even distribution of cement within the joint. Allow the joint to cure prior to hydrostatic testing. See the solvent cement manufacturer's recommendations.

PVC Schedule 40 DWV Pipe & PVC DWV Fittings For Non-Pressure Applications

>> Cure Times

Minimum Cure Time to Test

Size	60°-100°F	40°-60°F	0°-40°F
1¼" to 3"	2 Hours	4 Hours	16 Hours
4" to 8"	6 Hours	12 Hours	48 Hours
10" to 12"	24 Hours	40 Hours	8 Days

Cure times shown are sufficient to complete a hydrostatic test at 4.3 PSI with 60% humidity and cold water. Full cure may take significantly longer.

Cure times are a function of air temperature, water temperature, humidity and pipe size. Increase the cure time for more demanding conditions.

>> Special Considerations

- Do NOT air test.
- Teflon® tape should be used for 1-inch or smaller and paste-type, non-hardening thread sealant on 1¼ inch or larger.
- UV sensitivity.
- Do NOT install permanently in direct sunlight without painting with water-based latex paint or covering with insulation.
- Support every 4 feet.

Notices, Cautions and Warnings Please refer to www.charlottepipe.com for all applicable notices, cautions and warnings for this product group. You may also contact us at (800) 438-6091 for additional safety, installation or application information.
Notices: N-2; N-3; N-6; N-7; N-9; N-11; N-12; N-13; N-15; N-19; N-22; N-27; N-35; N-37; N-38 **Cautions:** C-2, C-4, C-6 **Warnings:** W-2; W-3; W-4; W-5; W-6; W-9; W-10; W-12; W-13; W-14; W-18; W-21; W-22; W-23; W-24; W-26; W-28; W-29; W-30; W-31; W-35; W-37

ABS Plus® Foam Core Pipe & ABS DWV Fittings For Non-Pressure Applications

>> Cure Times

Minimum Cure Time to Test

Size	60˚- 100˚F	40˚- 60˚F	0˚- 40˚F
1½" to 3"	2 Hours	4 Hours	16 Hours
4" & 6"	6 Hours	12 Hours	48 Hours

Cure times shown are sufficient to complete a hydrostatic test at 4.3 PSI with 60% humidity and cold water. Full cure may take significantly longer.

Cure times are a function of air temperature, water temperature, humidity and pipe size. Increase the cure time for more demanding conditions. For more specific information, contact the cement manufacturer.

>> Special Considerations

- Do NOT air test.
- Teflon® tape should be used for 1-inch or smaller and paste-type, non-hardening thread sealant on 1¼ inch or larger.
- UV sensitivity.
- Do NOT install permanently in direct sunlight without painting with water-based latex paint, or covering with insulation.
- Support every 4 feet.

Materials for Pressurized Systems

PVC Schedule 40 Pipe and Fittings

- Check pipe label for pressure rating.*
- White in color.
- Use correct primer and cement.

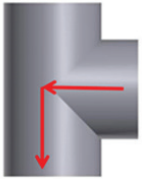
FlowGuard Gold® CPVC CTS Pipe and Fittings

- Use for hot and cold water.
- Manufactured from chlorinated polyvinyl chloride.
- Cream or tan in color.
- Sized the same as copper.

*Consult the Charlotte Pipe Plastics Technical Manual for Pressure Ratings.

PVC Schedule 80 Pipe and Fittings

- Dark gray in color.
- Thicker wall allows it to withstand higher pressure (PSI).
- Use correct primer and cement.



Pressure Fitting Pattern
90 Degree Angle

PVC Schedule 40 Pipe & Fittings For Pressure Applications

>> Description

- Rigid pipe and fittings.
- Pipe and fittings are white in color.
- Joined with solvent cement conforming to ASTM D 2564.
- PVC Schedule 40 pressure fittings must be used. Pressure fittings will have straight angular turns.
- Do NOT use fittings with gradual sanitary turns for pressure systems.

>> Application

- Distribute potable (drinking) water under pressure up to a building. Never use inside.
- Irrigation/sprinkler systems.
- Drain condensate waste from heating and air conditioning systems.
- NOT for compressed air or gasses.

>> Standards

- ASTM D 1785 Plain End Pipe thru 16"
- ASTM D 2665 1¼"–12" Dual Marked Pipe
- ASTM D 2466 Fittings
- NSF Standard 14
- NSF Standard 61 Health Effects

>> Dimensional Standard

- Schedule 40 Iron Pipe Size (IPS)

PVC Iron Pipe Size (IPS) Schedule Pipe

>> Size goes up ↑ — Pressure rating goes down ↓

Size	PVC Schedule 40 Max Work PSI 73˚F (23˚C)	PVC Schedule 80 Max Work PSI 73˚F (23˚C)
1/2"	600	850
3/4"	480	690
1"	450	630
1 1/4"	370	520
1 1/2"	330	470
2"	280	400
2 1/2"	300	420
3"	260	370
4"	220	320
5"	190	290
6"	180	280
8"	160	250

PVC Standard Dimension Ratio (SDR) Pipe

- >> Defines a constant ratio between outside diameter and wall thickness.
- >> All diameters within a specific Standard Dimension Ratio have same pressure rating.
- >> Lower number = thicker wall.
- >> Also referred to as "Class" or "PR".
- >> Examples – SDR 13.5, SDR 21, SDR 26.

Part Number	Nom. Size	SDR	Max Working PSI 73° F (23° C)
PVC 23155B	½" x 20'	13.5	315
PVC 20007B	¾" x 10'	21	200
PVC 20007B	¾" x 20'	21	200
PVC 20010B	1" x 20'	21	200
PVC 20012B	1¼" x 20'	21	200
PVC 20015B	1½" x 20'	21	200
PVC 20020B	2" x 20'	21	200
PVC 20025B	2½" x 20'	21	200
PVC 20030B	3" x 20'	21	200
PVC 20040B	4" x 20'	21	200
PVC 20060B	6" x 20'	21	200
PVC 16012B	1¼" x 20'	26	160
PVC 16015B	1½" x 20'	26	160
PVC 16020B	2" x 20'	26	160
PVC 16025B	2½" x 20'	26	160
PVC 16030B	3" x 20'	26	160
PVC 16040B	4" x 20'	26	160
PVC 16060B	6" x 20'	26	160

PVC Schedule 40 Pipe & Fittings For Pressure Applications

>> Cell Class/Material Code

- Cell Class: 12454 (Type 1)
- Material Code: PVC 1120

>> Maximum Working Temperature

- 140° F
- For special applications, threaded connections, unions and flanges. A temperature de-rating factor must be used to determine the pressure rating at temperatures hotter than 73° F.

Please visit **www.charlottepipe.com** for additional information.

>> Maximum Working Pressure

See Product Offering/Data chart on page 23.

>> Joining Method

Solvent Weld Joints

- Solvent cements must meet ASTM D 2564.
- Primer is required.
- May be flanged with Schedule 80 flanges.
- Threading PVC 40 pipe is NOT recommended.
- Male Iron Pipe size (MIP) and Female Iron Pipe size (FIP) adapters are available.

PVC Schedule 40 Pipe & Fittings For Pressure Applications

>> Product Offering/Data

ASTM D 1785 Solid Wall Plain End PVC Pipe

Size	OD	Nominal ID	Min Wall	Weight Per 100 ft. (lbs.)	Max Work PSI 73˚F (23˚C)
½"	0.840	0.622	0.109	15.1	600
¾"	1.050	0.824	0.113	21.1	480
1"	1.315	1.049	0.133	31.3	450
1¼"*	1.660	1.380	0.140	42.4	370
1½"*	1.900	1.610	0.145	51.8	330
2"*	2.375	2.067	0.154	69.5	280
2½"	2.875	2.469	0.203	107.0	300
3"*	3.500	3.068	0.216	141.0	260
4"*	4.500	4.026	0.237	205.5	220
5"*	5.563	5.047	0.258	272.5	190
6"*	6.625	6.065	0.280	361.2	180
8"*	8.625	7.981	0.322	543.6	160

*Dual marked ASTM D 1785 and ASTM D 2665

PVC Schedule 40 Pressure Ratings

	Pressure Rating (psi) @ 73°F					Pressure Rating (psi) @ 140°F				
Size	Pipe	Socket Fittings	Threaded Fittings	Unions (Socket)	Unions (Threaded)	Pipe	Socket Fittings	Threaded Fittings	Unions (Socket)	Unions (Threaded)
½″	600	360	300	150	150	132	79	66	33	33
¾″	480	288	240	150	150	106	63	53	33	33
1″	450	270	225	150	150	99	59	50	33	33
1¼″	370	222	185	150	150	81	49	41	33	33
1½″	330	198	165	150	150	73	44	36	33	33
2″	280	168	140	150	150	62	37	31	33	33
2½″	300	180	150	-	-	66	40	33	-	-
3″	260	156	130	-	-	57	34	29	-	-
4″	220	132	110	-	-	48	29	24	-	-
5″	190	114	95	-	-	42	25	21	-	-
6″	180	108	90	-	-	40	24	20	-	-
8″	160	96	80	-	-	35	21	18	-	-
10″	140	84	70	-	-	31	18	15	-	-
12″	130	78	65	-	-	29	17	14	-	-
14″	130	78	65	-	-	29	17	14	-	-
16″	130	78	65	-	-	29	17	14	-	-

PVC Schedule 40 Fittings For Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Coupling
Part No. PVC 2100
- Used to join two pipes together; extend pipe.
- S x S

Reducer Coupling
Part No. PVC 2100
- Used to transition from a larger diameter pipe to a smaller one.
- S x S

Female Adapter
Part No. PVC 2101
- Used to join a male threaded fitting on one side and PVC on the other.
- S x FPT

Coupling
Part No. PVC 2102
- Used to join two pipes together; extend pipe.
- FPT x FPT

Riser Extension
Part No. PVC 2103
- Used to join two pipes together; extend pipe.
- FPT x MPT

Reducer Bushing (Flush Style)
Part No. PVC 2108
- Used to join a male threaded fitting to a pipe or fitting of a different diameter.
- (SPG x FPT), (MPT x FPT)

Male Adapter
Part No. PVC 2109
- Used to join a female threaded fitting.
- MPT x S

Reducer Bushing (Flush Style)
Part No. PVC 2107
- Used to join pipes of different diameters.
- SPG x S

PVC Schedule 40 Fittings For Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Plug
Part No. PVC 2113
- Used to seal off pipe, fittings and cleanouts.
- MPT

Plug
Part No. PVC 2118
- Used to seal off pipe, fittings and cleanouts.
- SPG

Cap
Part No. PVC 2116
- Used to seal off end of pipe.
- S

Cap
Part No. PVC 2117
- Used to seal off end of pipe.
- FPT

90° Elbow
Part No. PVC 2300
- Used to turn the pipe 90 degrees; also called a 1/4 bend.
- S x S

90° Street Elbow
Part No. PVC 2307
- Used to connect two different size pipes at a 90 degree turn.
- (S x S), (S x FPT)

90° Elbow
Part No. PVC 2301
- Used to turn the pipe 90 degrees; also called a 1/4 bend.
- (FPT x S), (FPT x FPT)

90° Street Elbow
Part No. PVC 2304
- Used to turn the pipe 90 degrees; also called a 1/4 bend.
- (SPG x S), (MPT x S), (MPT x FPT)

PVC Schedule 40 Fittings For Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

45° Elbow
Part No. PVC 2309
- Used to turn the pipe 45 degrees; also called a 1/8 bend.
- S x S

Tee
Part No. PVC 2400
- Used to connect three lines together or to branch off the main line.
- S x S x S

Reducing Tee
Part No. PVC 2401
- Used to connect one to three different size pipes together.
- S x S x FPT

Cross
Part No. PVC 2410
- Used to connect multiple pipes together.
- S x S x S x S

Side Outlet Elbow
Part No. PVC 2520
- Used to connect a male threaded fitting and two lines in a 90 degree turn.
- S x S x FPT

HVAC Condensate Traps* (Non-Pressure)

Condensate P Trap
Part No. PVC 2700
- Used to protect HVAC condensers and condensate from contaminants.
- SPG x SPG

Condensate Running Trap
Part No. PVC 2701
- Used to protect HVAC condensers and condensate from contaminants.
- SPG x SPG

*Condensate traps do not conform to ASTM D 2466.

Installation of PVC Schedule 40 Pressure Pipe & Fittings Systems (½"–4" diameter)

1

CUT PIPE

Cut pipe square with axis.

2

REMOVE BURRS & BEVEL

Remove burrs and bevel (chamfer) the end of the pipe 10°-15°.

3

CLEAN AND DRY PIPE AND FITTINGS

Remove surface dirt, grease or moisture with a clean, dry cloth.

4

DRY FIT

With light pressure, pipe should go one-half to one-third of the way into the fitting hub. Do not use pipe and fittings that are too tight or too loose.

5

APPLICATOR

Use an applicator that is one-half the size of the pipe's diameter.

6

COAT WITH PRIMER AND CEMENT

Only use primer on PVC. Primer is not recommended on ABS. Apply a full, even coat of cement on the outside diameter of the pipe and to the inside hub of the fitting, and again to the outside of the pipe.

7

JOIN & CURE

While the cement is fluid, insert the pipe into fitting hub, giving a quarter turn to ensure an even distribution of cement within the joint. Allow the joint to cure prior to hydrostatic testing. See the solvent cement manufacturer's recommendations.

PVC Schedule 40 Pipe & Fittings For Pressure Applications

>> Cure Times

Minimum Cure Time to Test at 180 PSI

Size	60°- 100°F	40°- 60°F	0°- 40°F
½" to 1¼"	1 Hour	2 Hours	8 Hours
½" to 3"	2 Hours	4 Hours	16 Hours
4" to 8"	6 Hours	12 Hours	48 Hours
10" to 16"	24 Hours	48 Hours	8 Days

Cure times shown are sufficient to complete a hydrostatic test at 100 PSI with 60% humidity and cold water. Full cure may take significantly longer.

Cure times are a function of air temperature, water temperature, humidity and pipe size. Increase the cure time for more demanding conditions. For more specific information, contact the cement manufacturer.

>> Special Considerations

- Do NOT air test.
- Chemical Compatibility. See Charlotte Pipe and Foundry's Plastics Technical and Installation Manual.
- UV sensitivity.
- Do NOT install permanently in direct sunlight without painting with water-based latex paint, or covering with insulation.
- Teflon® tape should be used for 1-inch or smaller and paste-type, non-hardening thread sealant on 1¼ inch or larger.

Notices, Cautions and Warnings Please refer to www.charlottepipe.com for all applicable notices, cautions and warnings for this product group. You may also contact us at (800) 438-6091 for additional safety, installation or application information.
Notices: N-2; N-3; N-4; N-5; N-6; N-7; N-8; N-9; N-10; N-11; N-12; N-14; N-15; N-17; N-19; N-22; N-27; N-32; N-34; N-38 **Cautions:** C-2, C-4, C-6, C-8 **Warnings:** W-2; W-3; W-4; W-5; W-6; W-9; W-12; W-13; W-14; W-15; W-17; W-18; W-21; W-22; W-23; W-24; W-26; W-28; W-29; W-35; W-37

FlowGuard Gold® CPVC Copper Tube Size (CTS)

The contractor's choice for hot and cold domestic water piping applications

- >> CPVC CTS has been used for hot and cold domestic water applications for decades.
- >> CPVC CTS piping systems conform to NSF International Standard 61, ensuring the safety of products that come into contact with drinking water.

FlowGuard Gold Advantages

- >> Corrosion resistance. FlowGuard Gold is not attacked by aggressive water that may destroy copper pipe.
- >> Chlorine resistance. FlowGuard Gold is not degraded by chlorinated water that may damage PEX pipe.
- >> Healthy water. FlowGuard Gold compounds meet the stringent safety requirements of ANSI/NSF (National Sanitation Foundation) Standard 61, so you know that we are meeting the highest purity standard for the industry.
- >> FlowGuard Gold is made from a specially compounded formula, ensuring high impact resistance even at low temperatures.

FlowGuard Gold® CPVC Copper Tube Size (CTS) Pipe & Fittings For Pressurized Hot & Cold Water Applications

>> Description

- Rigid pipe and fittings.
- Pipe and fittings are cream or tan in color with the pipe having a gold stripe.
- Joined with solvent cement conforming to ASTM F 493.

>> Application

- Distribute hot and cold potable (drinking) water under pressure.
- NOT for compressed air or gasses.

>> Standards

- ASTM D 2846 Pipe & Fittings
- ASTM F 493 Solvent Cement
- NSF Standard 14
- NSF Standard 61 Health Effects
- CSA 137.6-M Canadian Standard

>> Dimensional Standard

- SDR 11 Copper Tube Size (CTS) Outside Diameter (OD)

>> Cell Class/Material Code

- Cell Class: 24448 (Type IV)
- Material Code: CPVC 4120

FlowGuard Gold® CPVC Copper Tube Size (CTS) Pipe & Fittings For Pressurized Hot & Cold Water Applications

>> Maximum Working Temperature

- 180° F (82° C)

>> Maximum Working Pressure

- 400 PSI at 73° F
- 100 PSI at 180° F

>> Joining Method

Solvent Weld Joints

- Solvent cements must meet ASTM F 493.
- Yellow FlowGuard Gold cements may be used without primer, **where approved by code.**
- Compression fittings with a brass ferrule may be used.

Threaded Joints

- Threading the pipe is NOT recommended
- Use CPVC CTS male adapters in cold water applications only.
- Use CPVC CTS x brass threaded transition fittings for hot water applications.
- Do NOT use compression fittings with brass ferrules to connect to CPVC CTS pipe or fittings where water temperatures will exceed 140° F.
- CPVC CTS pipe can be used with standard brass ferrules to make compression connections where the operating temperature will NOT exceed 140° F. Apply Teflon (PTFE) tape over the ferrule to allow for the dissimilar thermal expansion and contraction characteristics of the metal ferrule and the plastic pipe.

FlowGuard Gold® CPVC Copper Tube Size (CTS) Pipe & Fittings For Pressurized Hot & Cold Water Applications

>> Temperature De-rating Factor

Temperature	Pressure Rating
73° F	400 PSI
80° F	400 PSI
90° F	360 PSI
100° F	325 PSI
120° F	260 PSI
140° F	200 PSI
160° F	160 PSI
180° F	100 PSI

>> Special Considerations

- Do NOT air test.
- See current chemical compatibility sheet in product packaging or visit **www.charlottepipe.com** for additional information.
- Teflon® tape should be used for 1-inch or smaller and paste-type, non-hardening thread sealant on 1¼ inch or larger.
- UV sensitivity.
- Do NOT install permanently in direct sunlight without painting with water-based latex paint, or covering with insulation.

FlowGuard Gold® CPVC Copper Tube Size (CTS) Pipe & Fittings For Pressurized Hot & Cold Potable Water Applications

>> Product Offering/Data

FlowGuard Gold Copper Tube Size (CTS) CPVC

Size	Average OD	Nominal ID	Min Wall	Weight Per 100 ft. (lbs.)	Max Work PSI	
					73° F 23° C	180° F 82° C
1/2"	0.625	0.485	0.068	8.3	400	100
3/4"	0.875	0.713	0.080	13.9	400	100
1"	1.125	0.921	0.102	22.2	400	100
1 1/4"	1.375	1.125	0.125	33.3	400	100
1 1/2"	1.625	1.329	0.148	46.6	400	100
2"	2.125	1.739	0.193	79.5	400	100

Notices, Cautions and Warnings Please refer to www.charlottepipe.com for all applicable notices, cautions and warnings for this product group. You may also contact us at (800) 438-6091 for additional safety, installation or application information.
Notices: N-2; N-3; N-4; N-5; N-6; N-7; N-8; N-9; N-10; N-11; N-12; N-14; N-15; N-17; N-19; N-22; N-27; N-32; N-34; N-38 **Cautions:** C-2, C-4, C-6, C-8 **Warnings:** W-2; W-3; W-4; W-5; W-6; W-9; W-12; W-13; W-14; W-15; W-17; W-18; W-21; W-22; W-23; W-24; W-26; W-28; W-29; W-35; W-37

FlowGuard Gold® CPVC Copper Tube Size (CTS) Fittings

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Coupling
Part No. CTS 2100
- Used to join two pipes together; extend pipe.
- S x S

Transition Coupling
Part No. CTS 2100 I
- Used to transition from a larger diameter pipe to a smaller one.
- CTS Socket x Schedule 40 Socket

Female Adapter, Brass Threads, Low Lead
Part No. CTS 2105 L
- Used to join a metallic male threaded fitting on one side and CPVC on the other. Can be used for hot water applications.
- Brass FPT x CTS Socket

Reducer Bushing
Part No. CTS 2107
- Used to join pipes of different diameters.
- S x SPG

Transition Bushing
Part No. CTS 2107 I
- Used to transition from Copper Tube Size (CTS) to Iron Pipe Size (IPS) systems.
- CTS Socket x IPS Spigot

Male Adapter
Part No. CTS 2109
- Used to join a female threaded fitting. For cold water applications only.
- MPT x ALL-CPVC Socket

FlowGuard Gold® CPVC Copper Tube Size (CTS) Fittings

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Male Adapter, Reducing
Part No. CTS 2110
- Used to join a female threaded fitting of a different diameter to CPVC on the other end. For cold water applications only.
- ALL-CPVC Socket x MPT

Male Adapter, Street
Part No. CTS 2111
- Used to join a female threaded fitting and CPVC on the other end. For cold water applications only.
- MPT x CPVC Spigot

Male Adapter, Brass Threads, Low Lead
Part No. CTS 2115 L
- Used to join a metallic female threaded fitting on one side and CPVC on the other. Can be used for hot water applications.
- Brass MPT x CTS Socket

Cap
Part No. CTS 2116
- Used to seal off end of pipe.
- S

90° Elbow
Part No. CTS 2300
- Used to turn the pipe 90 degrees; also called a ¼ bend.
- S x S

Drop Ear Elbow
Part No. CTS 2300 D
- Used to turn the pipe 90 degrees. Intended to be secured to wall framing.
- ALL-CPVC Socket x Socket

FlowGuard Gold® CPVC Copper Tube Size (CTS) Fittings

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

CPVC/Brass Drop Ear 90° Elbow,
Brass Threads, Low Lead
Part No. CTS 2302 L

- Used to turn the pipe 90 degrees. Intended to be secured to wall framing. Can be used for hot water applications.
- Brass FPT x CPVC Socket

90° Street Elbow
Part No. CTS 2304

- Used to turn pipe 90 degrees.
- SPG x S

45° Elbow
Part No. CTS 2309

- Used to turn the pipe 45 degrees.
- S x S

45° Street Elbow
Part No. CTS 2310

- Used to turn the pipe 45 degrees. One end is spigot and the other end is hub.
- SPG x S

Tee
Part No. CTS 2400

- Used to connect three lines together or to branch off the main line.
- S x S x S

Reducing Tee
Part No. CTS 2400

- Used to connect one to three different size pipes together.
- S x S x S

Installation of FlowGuard Gold® CPVC Copper Tube Size (CTS) Pipe & Fittings Systems

1 CUT PIPE

Cut pipe square with axis.

2 REMOVE BURRS & BEVEL

Remove burrs and bevel (chamfer) the end of the pipe 10°-15°.

3 CLEAN AND DRY PIPE AND FITTINGS

Remove surface dirt, grease or moisture with a clean, dry cloth.

4 DRY FIT

With light pressure, pipe should go one-half to one-third of the way into the fitting hub. Do not use pipe and fittings that are too tight or too loose.

5 APPLICATOR

Use an applicator that is one-half the size of the pipe's diameter.

6 COAT WITH CEMENT

Primer is not necessary for CTS, however, check with your local plumbing codes. Apply a full, even coat of cement on the outside diameter of the pipe and to the inside hub of the fitting, and again coat the outside of the pipe.

7 JOIN & CURE

While the cement is fluid, insert the pipe into fitting hub, giving a quarter turn to ensure an even distribution of cement within the joint. Allow the joint to cure prior to hydrostatic testing. See the solvent cement manufacturer's recommendations.

FlowGuard Gold® CPVC Copper Tube Size (CTS) Pipe & Fittings For Pressurized Hot & Cold Water Applications

>> Cure Times

Minimum Cure Time to Test at 100 PSI

Size	60° F	40° F	32° F	0° F
1/2"	10 min.	10 min.	15 min.	30 min.
3/4"	10 min.	15 min.	15 min.	30 min.
1"	10 min.	15 min.	20 min.	30 min.
1 1/4"	10 min.	15 min.	20 min.	30 min.
1 1/2"	15 min.	15 min.	30 min.	45 min.
2"	15 min.	15 min.	30 min.	60 min.

Cure times shown are sufficient to complete a hydrostatic test at 100 PSI with 60% humidity and cold water. Full cure may take significantly longer.

Cure times are a function of air temperature, water temperature, humidity and pipe size. Increase the cure time for colder temperatures or higher humidity.

Special Considerations

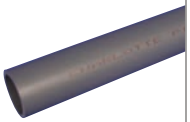
>> Pipe Threads

- Use Teflon® tape thread sealant for threaded connections 1 inch or smaller. Use a paste-type non-hardening thread sealant for threaded connections 1¼ inch or larger.
- Do NOT use CPVC plastic threaded male adapters on hot water lines or when connecting to water heaters. Special brass threaded male adapters are available and recommended.
- Do NOT use CPVC plastic threaded female adapters. Special brass threaded female adapters are available and recommended.

WARNING

Testing with or use of compressed air or gas in ABS / CPVC / PVC pipe or fittings can result in explosive failures and cause severe injury or death.

- NEVER test with or transport/store compressed air or gas in ABS / CPVC / PVC pipe or fittings.
- NEVER test ABS / CPVC / PVC pipe or fittings with compressed air or gas, or air over water boosters.
- ONLY use ABS / CPVC / PVC pipe or fittings for water or approved chemicals.
- Refer to warnings on PPFA's website and ASTM D 1785.



PVC Schedule 80 Pipe & Fittings For Pressure Applications

>> Description

- Rigid pipe and fittings.
- Pipe and fittings are dark gray in color.
- Joined with solvent cement conforming to ASTM D 2564.
- PVC Schedule 80 pressure fittings with straight, angular turns must be used.
- Do NOT use DWV fittings with gradual sanitary turns in pressure systems.

>> Application

- Distribution of pressurized liquids.
- Can be used in industrial applications. See Charlotte Pipe's Chemical Compatibility Chart for more information.
- NOT for compressed air or gasses.

>> Standards

- ASTM D 1785 Plain End Pipe thru 16"
- ASTM D 2467 and ASTM D 2464 Fittings
- NSF Standard 14
- NSF Standard 61 Health Effects

>> Dimensional Standard

- Schedule 80 Iron Pipe Size (IPS)

PVC Schedule 80 Pipe & Fittings For Pressure Applications

>> Cell Class/Material Code

- Cell Class: 12454 (Type 1)
- Material Code: PVC 1120

>> Maximum Working Temperature

- 140° F
- For special applications, threaded connections, unions and flanges, a temperature de-rating factor must be used to determine the pressure rating at temperatures hotter than 73° F.

Please visit **www.charlottepipe.com** for additional information.

>> Maximum Working Pressure

See Product Offering/Data chart on page 47.

>> Joining Method

Solvent Weld Joints

- Solvent cements must meet ASTM D 2564.
- Primer should be IPS P-70 or Oatey Industrial Grade.
- May be flanged with Schedule 80 flanges.
- Threading PVC 80 pipe can be done. Please visit www.charlottepipe.com for additional information.
- Male Iron Pipe size (MIP) and Female Iron Pipe size (FIP) adapters are available.

PVC Schedule 80 Pressure Ratings

	Pressure Rating (psi) @ 73° F						Pressure Rating (psi) @ 140° F					
Size	Pipe	Socket Fittings	Threaded Fittings	Flanges	Unions (Socket)	Unions (Threaded)	Pipe	Socket Fittings	Threaded Fittings	Flanges	Unions (Socket)	Unions (Threaded)
½″	850	510	425	150	235	235	187	112	94	33	52	52
¾″	690	414	345	150	235	235	152	91	76	33	52	52
1″	630	378	315	150	235	235	139	83	69	33	52	52
1¼″	520	312	260	150	235	235	114	69	57	33	52	52
1½″	470	282	235	150	235	235	103	62	52	33	52	52
2″	400	240	200	150	235	200	88	53	44	33	52	44
2½″	420	252	210	150	-	-	92	55	46	33	-	-
3″	370	222	185	150	235	185	81	49	41	33	52	41
4″	320	192	160	150	-	-	70	42	35	33	-	-
5″	290	174	145	-	-	-	64	38	32	-	-	
6″	280	168	140	150	-	-	62	37	31	33	-	-
8″	250	150	125	150	-	-	55	33	28	33	-	-
10″	230	138	115	150	-	-	51	30	25	33	-	-
12″	230	138	115	150	-	-	51	30	25	33	-	-
14″	220	132	110	-	-	-	48	29	24	-	-	-
16″	220	132	110	-	-	-	48	29	24	-	-	-

PVC Schedule 80 Pipe & Fittings For Pressure Applications

Size	OD	Wall	Weight Per 100 ft. (lbs.)	Max Work PSI 73˚F (23˚C)
1/2"	0.840	0.147	20.3	850
3/4"	1.050	0.154	27.5	690
1"	1.315	0.179	40.5	630
1 1/4"	1.660	0.191	55.9	520
1 1/2"	1.900	0.200	67.7	470
2"	2.375	0.218	93.6	400
3"	3.500	0.300	194.2	370
4"	4.500	0.337	279.3	320
6"	6.625	0.432	532.7	280

PVC Schedule 80 Fittings For Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Tee
Part No. PVC 8400
- Used to connect three lines together or to branch off the main line.
- S x S x S

Reducing Tee
Part No. PVC 8400
- Used to connect one to three different size pipes together.
- S x S x S

Tee
Part No. PVC 8401
- Used to connect three lines together or to branch off the main line.
- S x S x FPT

Tee
Part No. PVC 8402
- Used to connect three lines together or to branch off the main line.
- FPT x FPT x FPT

90° Elbow
Part No. PVC 8300
- Used to turn the pipe 90 degrees; also called a 1/4 bend.
- S x S

90° Elbow
Part No. PVC 8301
- Used to turn the pipe 90 degrees; also called a 1/4 bend.
- S x FPT

90° Elbow
Part No. PVC 8302
- Used to turn the pipe 90 degrees; also called a 1/4 bend.
- FPT x FPT

45° Elbow
Part No. PVC 8309
- Used to turn the pipe 45 degrees; also called a 1/8 bend.
- S x S

PVC Schedule 80 Fittings For Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

45° Elbow
Part No. PVC 8312
- Used to turn the pipe 45 degrees; also called a 1/8 bend.
- FPT x FPT

Wye
Part No. PVC 8600
- Used to branch a drain line at a 45 degree angle.
- S x S x S

Coupling
Part No. PVC 8100
- Used to join two pipes together; extend pipe.
- S x S

Reducer Coupling
Part No. PVC 8100
- Used to transition from a larger diameter pipe to a smaller one.
- S x S

Coupling
Part No. PVC 8102
- Used to join two pipes together; extend pipe.
- FPT x FPT

Female Adapter
Part No. PVC 8101
- Used to join a male threaded fitting on one side and PVC on the other.
- S x FPT

Male Adapter
Part No. PVC 8109
- Used to join a female threaded fitting.
- S x MPT

Reducer Bushing (Flush Style)
Part No. PVC 8107
- Used to join pipes of different diameters.
- SPG x S

PVC Schedule 80 Fittings For Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Reducer Bushing (Flush Style)
Part No. PVC 8108
- Used to join a male threaded fitting to a pipe or fitting of a different diameter.
- SPG x FPT

Reducer Bushing (Flush Style)
Part No. PVC 8200
- Used to join a male threaded fitting to a pipe or fitting of a different diameter.
- MPT x FPT

Cap
Part No. PVC 8116
- Used to seal off end of pipe.
- S

Cap
Part No. PVC 8117
- Used to seal off end of pipe.
- FPT

Plug
Part No. PVC 8113
- Used to seal off pipe, fittings and cleanouts.
- MPT

Flange (One-Piece)
Part No. PVC 8500
- Used with bolts to mechanically join pipe.
- S

Flange (One-Piece)
Part No. PVC 8560
- Used with bolts to mechanically join pipe.
- FPT

Blind Flange
Part No. PVC 8510
- Used to seal off the end of a pipe and stop the flow.

PVC Schedule 80 Fittings For Pressure Applications

The following is a partial listing of Charlotte Pipe and Foundry's product offering.
Please call (800) 438-6091 or visit www.charlottepipe.com for a complete list.

Van Stone Flange
Part No. PVC 8530
- Used with bolts to mechanically join pipe.
- S

Union with Viton® O-Ring Seal
Part No. PVC 8700
- Used to allow connection and disconnection of joints without disrupting other pipe sections.
- S x S

Union with Viton® O-Ring Seal
Part No. PVC 8800
- Used to allow connection and disconnection of joints without disrupting other pipe sections.
- FPT x FPT

Union with Viton® O-Ring Seal
Part No. PVC 8820
- Used to allow connection and disconnection of joints without disrupting other pipe sections.
- S x FPT

Union with EPDM O-Ring Seal
Part No. PVC 8710
- Used to allow connection and disconnection of joints without disrupting other pipe sections.
- S x S

Union with EPDM O-Ring Seal
Part No. PVC 8810
- Used to allow connection and disconnection of joints without disrupting other pipe sections.
- FPT x FPT

Union with EPDM O-Ring Seal
Part No. PVC 8830
- Used to allow connection and disconnection of joints without disrupting other pipe sections.
- S x FPT

Installation of PVC Schedule 80 Pipe & Fittings Systems (¼"–4" diameter)

1

CUT PIPE

Cut pipe square with axis.

2

REMOVE BURRS & BEVEL

Remove burrs and bevel (chamfer) the end of the pipe 10°-15°.

3

CLEAN AND DRY PIPE AND FITTINGS

Remove surface dirt, grease or moisture with a clean, dry cloth.

4

DRY FIT

With light pressure, pipe should go one-half to one-third of the way into the fitting hub. Do not use pipe and fittings that are too tight or too loose.

5

APPLICATOR

Use an applicator that is one-half the size of the pipe's diameter.

6

COAT WITH PRIMER AND CEMENT

Only use primer on PVC. Primer is not recommended on ABS. Apply a full, even coat of cement on the outside diameter of the pipe and to the inside hub of the fitting, and again to the outside of the pipe.

7

JOIN & CURE

While the cement is fluid, insert the pipe into fitting hub, giving a quarter turn to ensure an even distribution of cement within the joint. Allow the joint to cure prior to hydrostatic testing. See the solvent cement manufacturer's recommendations.

PVC Schedule 80 Pipe & Fittings For Pressure Applications

>> Cure Times

Minimum Cure Time to Test at 180 PSI

Size	60°-100°F	40°- 60°F	0°- 40°F
½" to 1¼"	1 Hour	2 Hours	8 Hours
½" to 3"	2 Hours	4 Hours	16 Hours
4" to 8"	6 Hours	12 Hours	48 Hours
10" to 16"	24 Hours	48 Hours	8 Days

Cure times shown are sufficient to complete a hydrostatic test at 100 PSI with 60% humidity and cold water. Full cure may take significantly longer.

Cure times are a function of air temperature, water temperature, humidity and pipe size. Increase the cure time for more demanding conditions. For more specific information, contact the cement manufacturer.

>> Special Considerations

- Do NOT air test.
- See Charlotte Pipe and Foundry's Plastics Technical and Installation Manual for chemical compatibility.
- UV sensitivity.
- Do NOT install permanently in direct sunlight without painting with water-based latex paint, or covering with insulation.
- Teflon® tape should be used for 1-inch or smaller and paste-type, non-hardening thread sealant on 1¼ inch or larger.

Notices, Cautions and Warnings Please refer to www.charlottepipe.com for all applicable notices, cautions and warnings for this product group. You may also contact us at (800) 438-6091 for additional safety, installation or application information.
Notices: N-2; N-3; N-4; N-5; N-6; N-7; N-8; N-9; N-10; N-11; N-12; N-14; N-15; N-17; N-19; N-22; N-27; N-32; N-34; N-38 **Cautions:** C-2, C-4, C-6, C-8 **Warnings:** W-2; W-3; W-4; W-5; W-6; W-9; W-12; W-13; W-14; W-15; W-17; W-18; W-21; W-22; W-23; W-24; W-26; W-28; W-29; W-35; W-37

Glossary

Acrylonitrile Butadiene Styrene (ABS) Plastics
A group of plastics made from polymers with prescribed percentages of acrylonitrile, butadiene and styrene.

Aging The effect on materials exposed to an environment for a period of time. Also, the act of exposing materials to an environment for a period of time.

Beam Loading The process of applying a specified force (load) to a piece of pipe that is supported at two points. It is usually expressed in pounds per the distance between the centers of the supports.

Belled-End A term used to describe a pipe end that has been enlarged to have the same inside dimensions as a fitting socket. It acts as a coupling when joining pipe.

Condensation Condensation is the change of the physical state of matter from gas phase into liquid phase.

Crazing Small, fine cracks on or under the surface of a plastic.

Cure To change the properties of a polymer to a stable, usable, and final state by the use of chemical agents, heat or radiation.

Deflection Temperature (Heat Distortion) The temperature which will cause a plastic specimen to deflect a certain distance when a specified load is applied.

Degradation The process where the chemical structure, physical properties or appearance of plastics deteriorates.

Glossary

Dimensional Stability The capability of a plastic part to maintain its original shape and dimensions under conditions of use.

Elasticity The property of a plastic which allows it to return to its original dimensions after deformation.

Elongation The percentage of the original length which a material will deform, under tension, without failing.

Environmental Stress Cracking Cracks which develop when a plastic part is subjected to incompatible chemicals and put under stress.

Extrusion The process used to continuously form a shape by forcing a heated or unheated plastic through a shaping orifice (die).

Filler A relatively inert material added to a plastic to modify its strength, permanence, working properties, or other qualities, or to lower costs.

Flexural Strength The measure of a material's ability to withstand a specified deformation under a beam load (bending) at 73° F. Normally expressed in PSI.

Forming A process in which the shapes of plastic pieces such as sheets, rods or tubes are changed to a desired configuration.

Fuse To join plastic parts by softening the material with heat or solvents.

Heat Resistance The ability of a material to withstand the effects of exposure to high temperatures.

Glossary

Hoop Stress The circumferential stress imposed on a pipe wall when exposed to an internal pressure load. Usually expressed in PSI.

Impact Strength A measure of a plastic part's ability to withstand the effects of dropping and/or striking. There are two commonly used test methods, Notched Izod and Tup. Notched Izod uses a pendulum-type machine to strike a notched specimen. Tup testing uses a falling weight (tup) to strike a pipe or fitting specimen.

Injection Molding The process used to form a shape by forcing a heated plastic, in a fluid state and under pressure, into the cavity of a closed mold.

Joint The point where a pipe and fitting or two pieces of pipe are connected together.

Lubricant Any substance which reduces the friction between moving solid surfaces.

Modulus A term used to describe the load required to cause a specified percentage of elongation. It is usually expressed in PSI or kilograms per square centimeter.

Non-flammable Incapable of supporting combustion.

Plastic A material that contains as an essential ingredient one or more organic polymeric substances of large molecular weight, is solid in its finished state, and, at some stage in its manufacture or in its processing into finished articles, can be shaped by flow.

Plastic Pipe A hollow cylinder of a plastic material in which the wall thicknesses are usually small when compared to the diameter and in which the inside and outside walls are essentially concentric.

Plasticizer A substance incorporated in a plastic to increase its workability, flexibility or distensibility.

Glossary

Pressure Rating The estimated maximum pressure a liquid can exert continuously inside the pipe at which the pipe will not fail.

Primer Solvent used to soften joint surfaces prior to the application of solvent cement. It is usually tinted purple.

Solvent Cement A mixture of solvents (chemicals) and plastic resins used to weld plastic pipe and fittings.

Solvent Cementing Using a solvent cement to make a pipe joint.

Standard Dimension Ratio (SDR) Pipe A type of pipe in which the dimension ratios are constant for any given class. Unlike "Schedule" pipe, the pressure rating remains constant for any specific class of SDR pipe, regardless of the pipe diameter.

Stress Crack An external or internal crack in a plastic caused by tensile stresses less than its short-time mechanical strength.

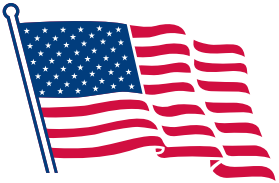
Thermal Expansion The increase in a length of a plastic part due to a change in temperature.

Thermoplastics A group of plastics which can repeatedly be softened by heating and hardened by cooling.

Thermosetting Plastics A group of plastics which, having been cured by heat, chemicals, or other means, are substantially infusable and insoluble. They are permanently hardened.

Weld Line (Knit Line) A term used to describe a mark on a molded plastic part formed by the union of two or more streams of plastic flowing together.

PO BOX 35430
CHARLOTTE
NORTH CAROLINA 28235
PHONE (704) 348 6450
(800) 572 4199
FAX (800) 553 1605
WWW.CHARLOTTEPIPE.COM



All products manufactured by
Charlotte Pipe and Foundry Company
are proudly made in the U.S.A.

MADE IN USA