

Wavin SuperTemp CPVC
Handbook

Wavin SuperTemp CPVC

high-temperature pressure piping system
for potable plumbing



An Orbia business.

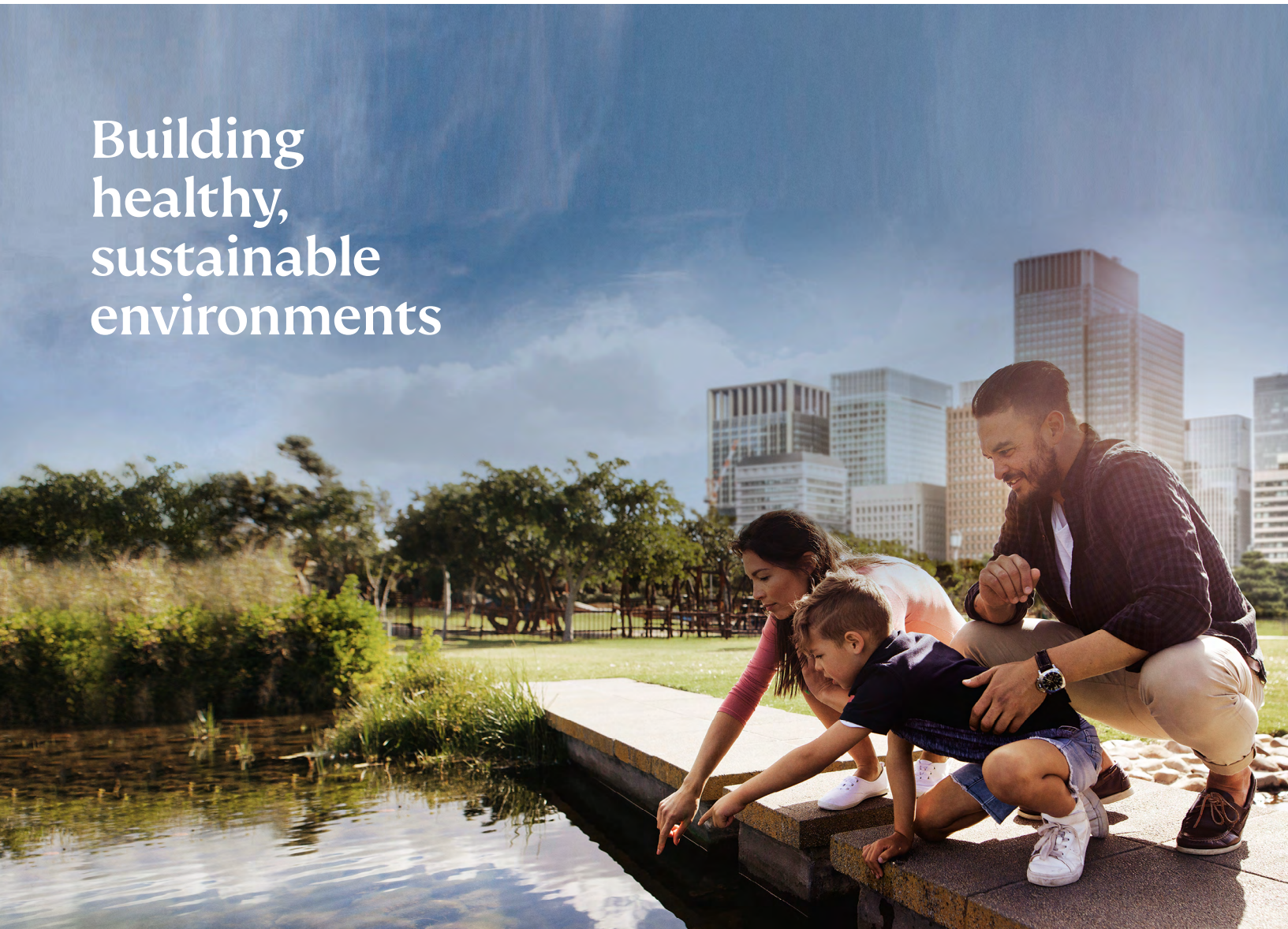
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Who we are

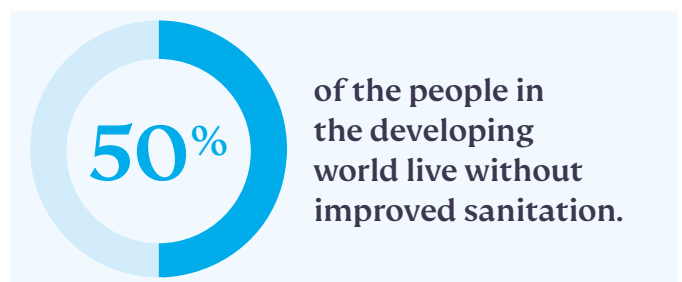
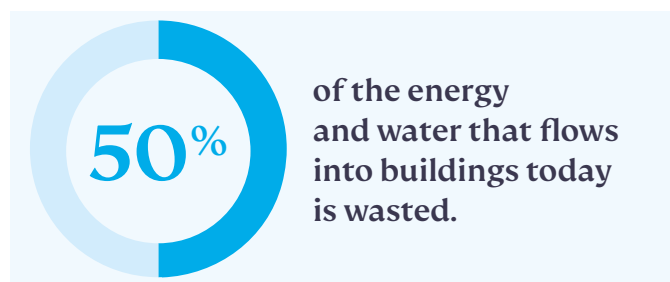
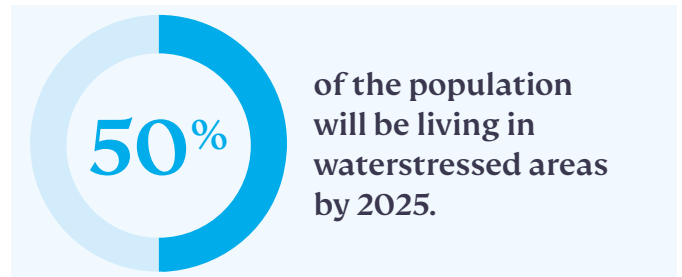
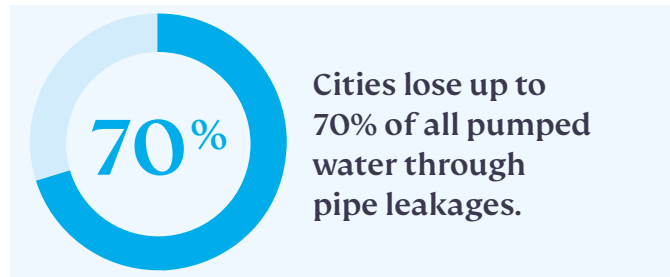
- 🕒 Wavin is an innovative solution provider for the building and infrastructure industry across multiple continents. Backed by 60+ years of expertise, we are geared up to tackle some of the world's biggest challenges around: water supply, sanitation, climate-resilient cities and building performance.
- 🕒 At Wavin, we focus on creating positive change in the world and our passion is building livable and loveable places. We engage and collaborate with city leaders, engineers, planners and installers to help make cities future-proof and buildings comfortable and energy-efficient.
- 🕒 As a leading supplier of plastic systems and solutions, we connect customers to better solutions for above and below ground projects in the following application areas: water management, heating and cooling, water and gas distribution, waste water drainage and datacom. Wavin headquarters are located in Amsterdam, the Netherlands.
- 🕒 Wavin is part of Orbia, a community of companies bound together by a shared purpose: to advance life around the world. Wavin has 12'000+ employees in 40+ countries worldwide and operates under brands like Wavin, Amanco, Plastigama and Pavco.

Building healthy, sustainable environments



Our purpose

Today we face major challenges



Potable water is our most valuable asset, without it, life on Earth as we know it, would be impossible. We face great challenges in today's world, one of them is not only to provide access to fresh water, but also to provide safe and efficient water supply for mankind.

Safe and efficient water supply

In a world of precious water resources, we make every drop count



Product general information

Product general information

CPVC is a high-temperature plastic pressure piping system introduced for potable plumbing in 1959. It has also been used extensively all over the world.

The Plastic Pipe Institution (PPI) defines CPVC as PVC (polyvinyl chloride) that has been chlorinated via a free radical chlorination reaction. CPVC is produced by adding chlorine to PVC in a water slurry or fluidized bed chlorination process. The chlorination reaction is initiated by ultraviolet light. The chlorinated PVC is compounded with ingredients necessary for the desired properties for further processing. The chlorine added to PVC gives CPVC higher temperature performance and improved fire and corrosion resistance.

CPVC tubing & fittings comes in nominal sizes ranging from 1/2 to 2 in. copper tube size (CTS), and are certified for use in cold and hot potable water applications.

Features and benefits

- ① NSF certified for drinkable potable water service.
- ① Corrosion resistant to chlorine, and other common disinfectants used in municipal water systems.
- ① Lightweight, easy to transport.
- ① Resistance to corrosion, tuberculation, deposits.
- ① No flame used for joining, solvent cement joints.

Applications



Residential

- Single-family home
- Condos & Apartments
- Senior Living communities
- Universities student houses

Commercial

- Shopping centers
- Restaurants
- Hotels
- Healthcare facilities

CPVC

Top features

CPVC contains unique characteristics:

- ⌚ Low waste on site due to its high impact resistance.
- ⌚ Can be installed where central water heating systems are required.
- ⌚ Replaces other materials, such as metal or copper for easier installations.
- ⌚ Complete portfolio that includes pipes, fittings, welds and tools.
- ⌚ Manufactured under the ASTM D2846 / ASTM F439 / ASTM F493 Standards.
- ⌚ Low thermal conductivity.
- ⌚ Hydraulic efficiency.
- ⌚ Free of external and internal corrosion.
- ⌚ Self-extinguishing, does not spread flame.
- ⌚ LOW VOC welding.



Standards & Certifications

Specification

Pipes and Fittings shall be manufactured from virgin rigid CPVC (chlorinated polyvinyl chloride) vinyl compounds with a cell class of 23448 as identified in ASTM D 1784. CPVC Pipes and Fittings come in nominal sizes ranging from 1/2 to 2 inches copper tube size (CTS) and are certified for use in cold and hot potable water applications.

Standards

Pipes:

ASTM D2846

This specification covers requirements, test methods, and methods of marking for chlorinated poly vinyl chloride plastic hot-and-cold water distribution system components made in one standard dimension ratio (SDR 11) and intended for water service up to a certain temperature.

ASTM F441

This specification covers chlorinated poly vinyl chloride (CPVC) pipes made in Schedule 40 and 80 sizes and pressure-rated for water.

ASTM F442

Requirements and test methods for materials, workmanship, dimensions, sustained pressure, burst pressure, flattening, and extrusion quality. Methods of marking are also given.

Fittings:

ASTM D2846

This specification covers requirements, test methods, and methods of marking for chlorinated poly vinyl chloride plastic hot-and-cold water distribution system components made in one standard dimension ratio (SDR 11) and intended for water service up to a certain temperature.

ASTM F438

This specification covers chlorinated poly vinyl chloride (CPVC) Schedule 40 socket-type pipe fittings. Included are requirements for materials, workmanship, dimensions, and burst pressure.

Certifications



NSF/ANSI 14

Plastics Piping System Components and Related Materials. Establishes the minimum physical, performance and health effects requirements for plastics piping system components and related materials.

NSF/ANSI/CAN 61

Drinking Water System Components – Health Effects. Establishes the benchmark criteria for evaluating health effects of many drinking water system components, including plastic piping.

Solvent cement (weld)

Solvent cement joints shall be made using CPVC cement conforming to:

ASTM F493

This specification provides requirements for chlorinated poly (vinyl chloride) (CPVC) solvent cements to be used in joining chlorinated poly (vinyl chloride) pipe, tubing, and socket-type fittings.

CPVC System advantages at a glance



Chlorine resistant,
which is a widely used
chemical to guarantee
a safe water supply.



Affordable and
easy to install, with
some basic steps, see
installation instructions.



Self-extinguishing:
the material can cease
burning once the source of
the flame has been remove.



No special tools required
for installation.



Technical information (pipes & fittings)

Design and technical data

Table 1

Characteristic	Value	Units
Thermal conductivity (Tc)	0.16	W/m°K
Roughness Coefficient (ks)	0.001	
Expansion and Contraction Coefficient (α)	0.000039	in/in/°F
Temperature of Malfunction (in 100h)	95 (203)	°C (°F)

Brackets

Proper support of the pipes is very important to get good results during the installation and the functioning of the system. In practice, the distance between supports depends on the size of the pipe, the working temperature, and the pipe wall thickness. The following table indicates the recommended support spacing. The brackets should not imprison the pipe nor prevent the necessary longitudinal movements due to thermal expansions. Rigid fixing is only recommended on valves and fittings placed near strong changes in direction. With the exception of the joints, all fittings must be individually supported, and valves must be anchored to prevent torque in the line.

The vertical sections must be guided with U-rings or bolts. A CPVC pipe line should not be laid adjacent to a steam line or chimney separately.

Table 2

SUPPORT SPACING TABLE				
Recommended distance in [ft] between brackets in CPVC CTS SuperTemp Pipe SDR 11 for different temperatures				
Nominal diameter	Working temperature			
inch (")	73°F	100°F	140°F	180°F
1/2	3.9	3.9	3.6	3.0
3/4	4.9	4.6	3.9	3.0
1	5.6	4.9	4.6	3.0
1 1/4	5.9	5.6	4.9	3.9
1 1/2	6.6	5.9	5.6	3.9
2	7.5	6.9	6.6	3.9

Hydraulic design

CPVC pipe systems, as other materials, have to take into account different stress conditions, in order to provide an adequate design and system performance. These stresses can be caused by the hydrostatic pressure, water hammer, fill or dead loads and live loads.

a) Internal hydrostatic pressure

To determine the maximum hydrostatic pressure to which PVC or CPVC pipes can be exposed, it is necessary to know what the design hydrostatic stress (S) is. S is defined as the estimated value of the maximum tensile stress in its cross direction, caused by the water pressure, and which can be applied continuously on the tube walls with a high degree of reliability that no failure will occur.

Wavin pipe dimensions are based on their wall thickness, per recommendation of ISO-R-161 Plastic pipes for the transportation of fluids, which relates the dimensions of the pipe, with the hydrostatic pressure and working pressure, as follows:

$$S = \frac{\left(\frac{D}{e} - 1\right) \cdot P}{2}$$

Where:

- S = hydrostatic design stress, (psi) = HDB/FS
- HDB = hydrostatic design basis, (psi)
- FS = safety factor
- FS = 2, for pipes by pressure ranges (pressure rating)
- FS = 2.5; for pipes by pressure class (pressure class) which includes a safety margin for the effect of overpressures
- P = working pressure, (psi)
- D = outside diameter, (in)
- e = wall thickness, (in)

The HDB value for CPVC is 70 (1000 psi) @ (180°F)

Therefore $S = 1000/2 = 500$ psi

Adjusting the previous equation, we have:

$$P = \frac{2S}{SDR - 1}$$

Where:

$D / e = SDR$ (Standard Dimensional Ratio)

According to the last equation, and knowing the value of the hydrostatic design basis, corresponding to the compound CPVC 23448 (70 kg/cm²), the working pressures are obtained for the SDR values commonly used in WAVIN for the manufacturing of pipes, is shown on the table below.

Table 3

SDR	Working Pressure @ 82°C [kg/cm ²] (psi)	Working Pressure (inch of water)
11	7 (100)	2770

The information on this table is extremely useful for selecting the appropriate SDR for the pressures to be determined in the hydraulic design. A proper use of this information will allow optimal designs.

Hydraulic flow research and analysis have established that flow conditions in PVC pressure systems can be calculated conservatively using the Hazen-Williams formula. The equation is as follows:

US units:

$$Q = 0.283CDi^{2.63} S^{0.54}$$

Where:

Q = flow (gpm)

Di = internal diameter (inches)

C = Hazen-Williams coefficient, 150 for PVC / CPVC

S = hydraulic gradient = H / L

Friction losses in a pipe can be calculated using the next equation:

$$hf = \frac{10.44 * L * Q^{1.852}}{C^{1.85} * Di^{4.865}}$$

Where:

hf = head loss due to friction (ft)

L = length of pipe (ft)

Q = flow rate of water (gpm)

C = Hazen-Williams constant

Di= Diameter (inches)

Water hammer design

A moving column of liquid has a certain inertia, which is proportional to its weight and speed. When the flow stops quickly, for example, when closing a valve, inertia is converted into an increase in pressure. The longer the line and the higher the velocity of the liquid, the greater it will be the pressure overload.

These surging pressures can become sufficiently great to burst any type of pipe. This phenomenon is known by the name of "Water Hammer".

The main causes for this phenomenon to occur are:

1. The rapid opening and closing of a valve.
2. The starting and stopping a pump station.
3. The accumulation and movement of air pockets inside the pipes.

When closing a valve, the maximum expected overpressure can be calculated as follows:

$$Pr = \frac{Wa\Delta V}{144g}$$

Where:

Pr = pressure rise above flow pressure (psi)

W = specific weight of liquid (62.4 lb/ft³)

a = velocity of pressure wave (ft/s)

ΔV = velocity change (ft/s)

g = gravitational constant (32.17 ft/s²)

and a =

$$a = \frac{4659}{\sqrt{1 + \left(\frac{K}{E}\right) * (SDR - 2)}}$$

Where:

a = velocity of pressure wave (ft/s)

K = Bulk modulus of elasticity of fluid (312000 psi) @ 73°F

E = Modulus of elasticity of CPVC (400000 psi)

SDR = Standard dimensional ratio (D/e)

Thermal performance

All materials are subject to stress and shear forces which we require to understand in order to control their overall performance.

The resistance of plastic pipes is subject to variations on temperature. As temperature increases, the resistance to internal pressure decreases, and with that its working pressure requires to be adjusted. For this purpose, the following table contains the correction factors for the maximum working pressure with respect to the operating temperature for CPVC.

Table 4

Temperature (°F)	Pressure Reduction Factor	Final Working Pressure (psi)
73.4°F	1	400
100.4°F	0.82	328
140°F	0.50	200
179.6°F	0.25	100

Thus, for a CPVC SDR 11 pipe, when it is subject to a temperature of 73.4°F, its reducing factor is 1, therefore, the working pressure is or 400 psi, on the other hand for a temperature of 179.6°F, the maximum operating pressure will be 100 psi.

Linear expansion

Furthermore, changes in temperature, both in the liquid and on the environment, produce variations in the length of plastic pipes when exposed. For this reason, it is important to compensate the thermal expansion or contraction.

Thermal expansion/contraction can be calculated using the following formula:

Where: $\Delta L = 12\alpha L (\Delta T)$

Δl = change in pipe length (in)
 α = Coefficient of thermal expansion = 3.4×10^{-5} , in./in / °F
 L = length of pipe run, ft

Expansion loops and offsets have to be defined using the following calculation:

$$L_o = \left(\frac{3E}{2S}\right)^{\frac{1}{2}} (D_o \cdot \Delta L)^{1/2}$$

Where:

L_o = Offset and loop lengths, in
 E = Modulus of elasticity at maximum system temperature, lb/in2
 S = Allowable stress at maximum system temperature, lb/in2
 D_o = Pipe Outside diameter, in
 ΔL = Change in length, in

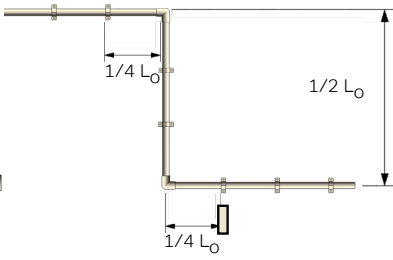
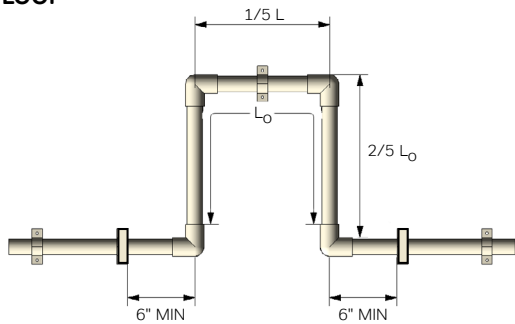
Table 5
Table based on the previous formula

Thermal Expansion ΔL (in.), CPVC 4120-05 Pipe ^A										
Temp. Change ΔT °F	Length of Pipe Run in Feet (L)									
	10	20	30	40	50	60	70	80	90	100
30	0-12	0.24	0.37	0.49	0.61	0.73	0.86	0.98	1.10	1.22
40	0.16	0.33	0.49	0.65	0.82	0.98	1.14	1.31	1.47	1.63
50	0.20	0.41	0.61	0.82	1.02	1.22	1.43	1.53	1.84	2.04
60	0.24	0.49	0.73	0.98	1.22	1.47	1.71	1.96	2.20	2.45
70	0.29	0.57	0.86	1.14	1.43	1.71	2.00	2.28	2.57	2.86
80	0.33	0.65	0.98	1.31	1.63	1.96	2.28	2.61	2.94	3.26
90	0.37	0.73	1.10	1.47	1.84	2.20	2.57	2.94	3.30	3.67
100	0.41	0.82	1.22	1.63	2.04	2.45	2.86	3.26	3.67	4.08

^A Calculated using Eq 3 with the coefficient of thermal expansion for CPVC 4120-05 of 3.4×10^{-5} , in./in °F.

FIG.1 Methods for Controlling Expansion/Contraction

LOOP



CHANGE OF DIRECTION

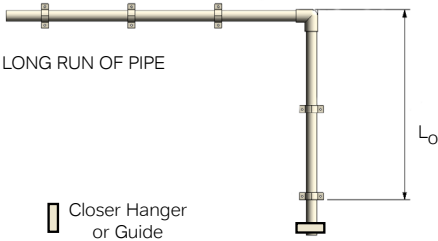


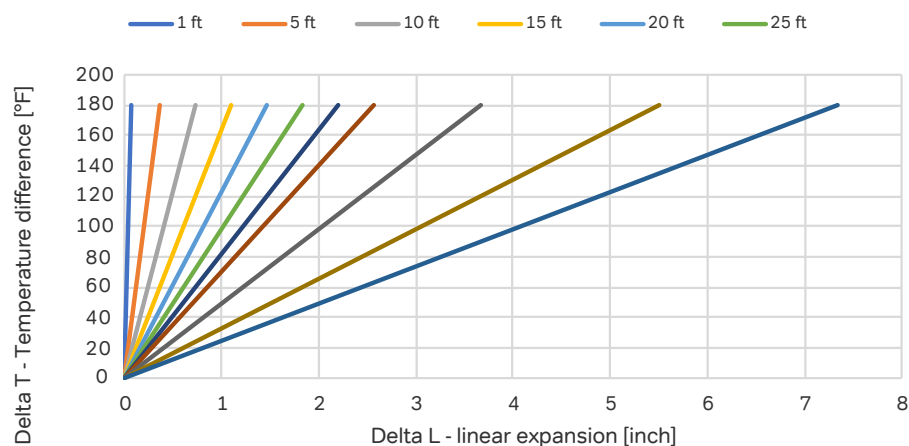
Table 6

Use the following table to obtain E and S.

Temperature Derating Factors for CPVC 4120-05 (23447) Allowable and Modulus of Elasticity					
Temperature °F (°C)		Derating Factor ^A	Allowable Stress (s)(psi)	Derating Factor	Modulus of Elasticity (psi)
73	(23)	1.00	2000	1.00	423,000
80	(27)	0.96	1920	0.98	415,000
90	(32)	0.91	1820	0.94	398,000
100	(38)	0.82	1640	0.91	385,000
110	(43)	0.74	1480	0.87	368,000
120	(49)	0.65	1300	0.84	355,000
130	(54)	0.57	1140	0.81	343,000
140	(60)	0.50	1000	0.78	330,000
150	(67)	0.45	900	0.74	313,000
160	(71)	0.40	800	0.71	300,000
170	(77)	0.32	640	0.67	283,000
180	(82)	0.25	500	0.74	271,000
190	(88)	0.22	440	0.71	258,000
200	(94)	0.20	400	0.57	241,000

A Stress derating factors are also applied to CPVC 4120-05 pipe pressure ratings for elevated temperature compensation

Linear expansion at different pipe lengths



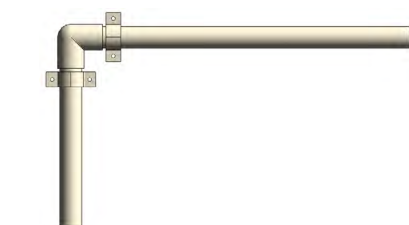
Pipe fixing

Pipeline route design must be appropriate for the system material, which means that the thermal coefficient of expansion, expansion allowance, given operating conditions (combination of pressure and temperature levels) and the type of pipe joints must be all considered. Pipeline systems should be fastened with both fixed and slidably mounted fixture points, allowing for appropriate linear expansion of the pipe .

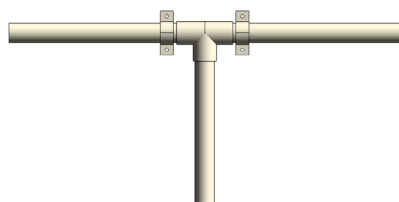
Pipe fixing techniques

Pipe fixing is generally done through two types of supports:

- ① Fixed points (FP): This is a type of fastening where no allowance for pipe expansion is made, i.e. the pipe cannot move along its axis in the place of support (cannot slide).
- ① Sliding point (SP): This is a type of fixing where the pipe is not allowed to move sideways but expansion movements are not restricted (elongation, shrinkage).



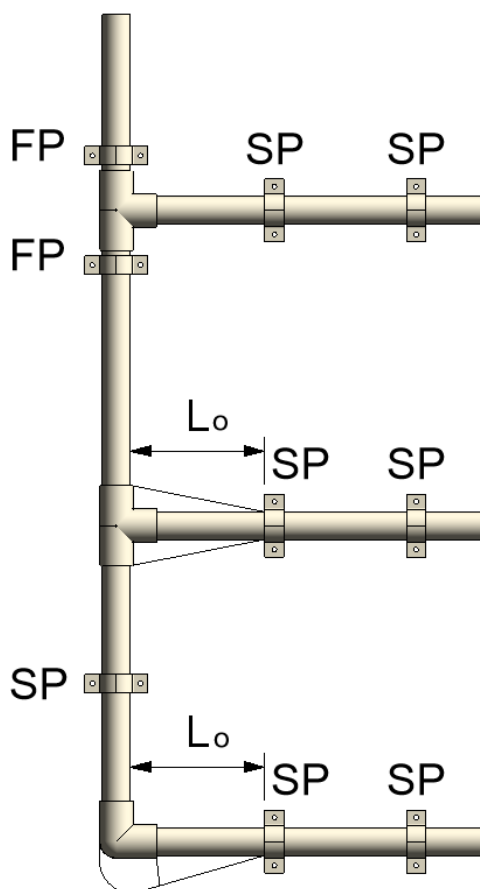
... at a pipe bend



... at a branching point



... at a fitting installation



Wavin SuperTemp CPVC Value proposition

- ⌚ A reliable, robust CPVC plumbing system that guarantees proven quality performance.
- ⌚ Produced according to global standard.
- ⌚ Enhanced portfolio which provides the best combination to reduce the amount of fittings and joints on site.



Installation instructions

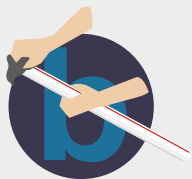
Cemented joint

The WAVIN CPVC line has fittings that are attached to pipes using welding cement, as follows:

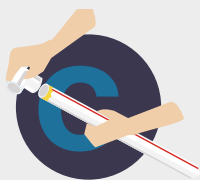


- a) Cut the pipes squarely using recommended cutters or a hacksaw. Remove any debris chips and burrs from both the pipe I.D. and O.D. before joining, with the aid of a deburring tool, or half-round coarse file. Chamfer/bevel the end of the pipe 10° - 15°. Making sure that the surface is smooth and clean from grease or moisture. The surface must not be sanded or scratched.

Note: check the fit between the end of the pipe and the fitting before starting the execution of the weldable joint. There must be a proper insertion (This occurs when the end of the pipe contacts the socket bottom).



- b) To perform an efficient welding between pipes and fittings, clean the product, make sure that both ends from fittings and pipe are free of grease or dirt.



- c) With the help of the brush, apply a thin and uniform layer of CPVC welding cement in the fitting socket and the tip of the pipe. Apply the adhesive on both areas (pipe and fitting socket), preventing excess, to ensure a perfect welding. Rotate the pipe or fitting a 1/4 turn to ensure complete and even distribution of the CPVC welding cement. Once the pipe contacts the socket bottom, hold the joint together for at least 10 to 15 seconds, or until the pipe does not back out of the socket

Note: If a primer is required by your local plumbing or building codes, then a primer conforming to ASTM F656 should be used

Warning: Improper installation of the pipe can lead to product failure (including leaks). For additional information regarding proper installation of the product, please see the [Product Manual]. The company is not responsible for any loss or damage caused by improper installation. Improper installation voids the company's warranty on the product.

Do not use or test the products in this catalog with compressed air or other gases.

Table 7

Recommended Joint Cure Times for CPVC				
Pipe Diameter	Psi	60° - 100°F	40° - 60°F	0° - 40°F
1/2" to 1 1/4"	Up to 180 psi	1 Hour	2 Hour	8 Hour
	180 psi +	6 Hour	12 Hour	48 Hour
1 1/2" to 2"	Up to 180 psi	2 Hour	4 Hour	16 Hour
	180 psi +	12 Hour	24 Hour	96 Hour

Note: This table is a guideline to determine proper joint cure time. Atmospheric temperature variance might influence curing time. If humidity is above 60%, allow 50% additional curing time. Contact the solvent cement manufacturer for more specific information.

Warning: Do not use or test the products in this catalog with compressed air or other gases.

Outdoor installation

When the PVC / CPVC pipes are exposed to solar radiation, they must be covered or protected with a paint that meets the following characteristics:

- It does not contain solvent or thinner based product.
- It must have a reflective component such as aluminum or similar.
- Adherence to CPVC must be ensured with direct application or through the application of a "primer".
- Before painting the pipe, the surface must be prepared to ensure adherence; lightly dry sand, clean and apply paint.

Exposing the pipe to solar radiation voids the warranty on the pipe. Some paints, that do not contain solvent or thinner based product, could be used to protect the pipes. Please contact our technical customer service department for approved products or email us at wavin.northamerica@wavin.com

Handling precautions

- Work in a ventilated place, without the presence of children and domestic animals.
- Avoid contact with skin and eyes and, in case of an accident, follow the information presented on the packaging.
- For greater durability, we recommend closing the packaging after each operation.
- Before using the product, make sure that it is valid within the expiry date, as indicated on the packaging.

Threaded joint

The use of the SuperTemp CPVC Line in water installations sometimes requires a transition, which is carried out by threaded joints.

- a) To ensure an effective threaded joint, clean the products, make sure both male and female threads are free of rust and debris.
- b) Check that the thread pattern of both parts to be joined are compatible.
- c) Apply the sealing tape clockwise, over the thread to be joined.



- d) Execute the threaded joint, performing manual tightening.

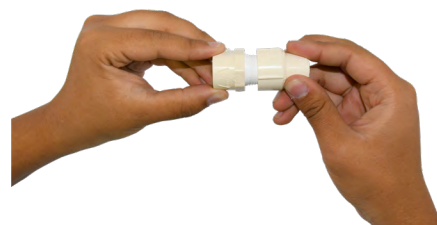


Table 8

Nominal Diameter (in)	Teflon Tape Width (in)	Lengths (ft, in)
1/2"	0.5	0,12
3/4"	0.5	1,4
1"	0.7	1,8
1 1/4"	0.7	2,11
1 1/2"	0.7	4,7
2"	0.7	6,7

Pressure test recommendations:

CPVC plumbing systems should be pressure tested according to local code requirements after the solvent cement joints have properly cured (See Table 7-Recommended joint cure times for CPVC)

CPVC should not be tested with air or other compressed gases.

Always follow local regulations, example plumbing & mechanical building code for pressure testing

Cleaning and disinfection before entering operation

- a) Use the proper gear or safety equipment before executing this task, according to your local regulations and safety guidelines.
- b) Inject water into the section of the pipe to be disinfected, keeping the outlet free.
- c) Let the water drain out to wash the pipe.
- d) Calculate the water volume required to fill the section of pipe to be disinfected and determine the amount of disinfectant to be injected, to guarantee 50mg/l concentration of chlorine.
- e) Inject drinking water into the section to be disinfected, allowing it to come out of the outlet end for a few minutes.
- f) Inject the disinfectant, either with liquid chlorine or Sodium hypochlorite, with the concentration indicated in the latter step. This can be diluted prior to water filling or injected separately.
- g) Let the solution sit for some minutes to guarantee the required concentration of 50mg / l.
- h) Leave at rest for 24 hours, during which time the concentration Chlorine must be at least 25mg / l. If it is below of this value, more disinfectant must be added.
- i) Take a water sample from the pipe being disinfected. When tested in a certified laboratory, it must be free of coliform microorganisms.
- j) Let another 24 hours pass and take another sample by the same essay.
- k) If results are satisfactory, remove the disinfection water from the tested pipes and proceed to make the definitive connection of the system.

Note: Check local codes instructions and perform any changes, new steps or improvements recommended. Do not exceed the required concentration of 50 mg/l.



Guidelines for handling and storage

- ④ Use the proper gear or safety equipment before performing this operation. Check the safety guidelines and local regulations.
- ④ This operation must be carried out with care, avoiding damaging the material.
- ④ During the loading and unloading of the pipes do not throw them to the floor or hit them.
- ④ While shipping, pipes must be tied to protect them, and use non-metallic ties. Do not overload the pipes.
- ④ Pipes should be covered and protected with an opaque material, and placed on flat surfaces to avoid damage. Also provide a proper ventilation.
- ④ To optimize shipping, pipes can be inserted into others, when their diameters allow it.
- ④ The height of the pipe load must not exceed 2.50m (8.2 ft). Pipes should be placed alternating bells and spigot, to achieve greater capacity and stability of the load.
- ④ When shipping over long distances and time, the pipe load must be protected and leave a space between the container or truck top and the pipes, to allow air circulation, and thus to avoid deformations caused by the weight of the pipes and the existing temperature.
- ④ Pipes should be stored horizontally using a flat surface or blocks of wood that allow the support to be 9 cm (3.5") wide and spaced a maximum of 1.50 m (5.0 ft).
- ④ For on-site storage, pipes must be separated by size and packed at a maximum of 1.50 m (5.0 ft) in height.
- ④ Welding cement should not be exposed to extreme heat or cold. The site must be well ventilated since solvent cement is flammable. Consult product datasheet and solvent cement manufacture's recommendations.
- ④ Pipes must be protected from the sun with an opaque material or stored under a shelter. Do not cover with polyethylene, since they cause an increase in temperature that can cause deformations. For that reason, we recommend a rooftop that allows a good ventilation to the pipes

Note: The company is not responsible for any damage to the piping system associated with improper shipping, storage, or installation, all of which may void the warranty on the pipe.



Pipes

Code / Part no.	Description
2912229	CPVC CTS PIPE 1/2 Wavin SuperTemp SDR 11 10FT
2912230	CPVC CTS PIPE 1/2 Wavin SuperTemp SDR 11 20FT
2912231	CPVC CTS PIPE 3/4 Wavin SuperTemp SDR 11 10FT
2912232	CPVC CTS PIPE 3/4 Wavin SuperTemp SDR 11 20FT
2912233	CPVC CTS PIPE 1 Wavin SuperTemp SDR 11 10FT
2912234	CPVC CTS PIPE 1 Wavin SuperTemp SDR 11 20FT

Code / Part no.	Description
2912235	CPVC CTS PIPE 1.1/4 Wavin SuperTemp SDR 11 10FT
2912236	CPVC CTS PIPE 1.1/4 Wavin SuperTemp SDR 11 20FT
2912237	CPVC CTS PIPE 1.1/2 Wavin SuperTemp SDR 11 10FT
2912238	CPVC CTS PIPE 1.1/2 Wavin SuperTemp SDR 11 20FT
2912239	CPVC CTS PIPE 2 Wavin SuperTemp SDR 11 10FT
2912240	CPVC CTS PIPE 2 Wavin SuperTemp SDR 11 20FT

Fittings

Code / Part no.	Description
2912243	CPVC Wavin SuperTemp FEMALE ADAPTER 1/2
2912244	CPVC Wavin SuperTemp FEMALE ADAPTER 3/4
2912247	CPVC Wavin SuperTemp MALE ADAPTER 1/2
2912248	CPVC Wavin SuperTemp MALE ADAPTER 3/4
2912249	CPVC Wavin SuperTemp MALE ADAPTER 1
2912250	CPVC Wavin SuperTemp MALE ADAPTER 1.1/4
2912251	CPVC Wavin SuperTemp MALE ADAPTER 1.1/2
2912253	CPVC Wavin SuperTemp RED BUSHING 3/4x1/2
2912254	CPVC Wavin SuperTemp RED BUSHING 1x1/2
2912255	CPVC Wavin SuperTemp RED BUSHING 1x3/4
2912258	CPVC Wavin SuperTemp RED BUSHING 1.1/4x1

Code / Part no.	Description
2912261	CPVC Wavin SuperTemp RED BUSHING 1.1/2x1
2912262	CPVC Wavin SuperTemp RED BUSHING 1.1/2x1.1/4
2912273	CPVC Wavin SuperTemp ELBOW 45 1/2
2912274	CPVC Wavin SuperTemp ELBOW 45 3/4
2912275	CPVC Wavin SuperTemp ELBOW 45 1
2912276	CPVC Wavin SuperTemp 45 ELBOW 1.1/4
2912277	CPVC Wavin SuperTemp ELBOW 45 1.1/2
2912279	CPVC Wavin SuperTemp ELBOW 90 3/4
2912280	CPVC Wavin SuperTemp ELBOW 90 3/4
2912281	CPVC Wavin SuperTemp 90 ELBOW 1
2912282	CPVC Wavin SuperTemp 90 ELBOW 1.1/4

Fittings

Code / Part no.	Description
2912283	CPVC Wavin SuperTemp 90 ELBOW 1 1/2
2912293	CPVC Wavin SuperTemp CAP (SLIP) 1/2
2912294	CPVC Wavin SuperTemp CAP (SLIP) 3/4
2912295	CPVC Wavin SuperTemp CAP (SLIP) 1
2912296	CPVC Wavin SuperTemp CAP (SLIP) 1.1/4
2912297	CPVC Wavin SuperTemp CAP (SLIP) 1.1/2
2912299	CPVC Wavin SuperTemp TEE 1/2
2912300	CPVC Wavin SuperTemp TEE 3/4
2912301	CPVC Wavin SuperTemp TEE 1
2912302	CPVC Wavin SuperTemp TEE 1.1/4
2912303	CPVC Wavin SuperTemp TEE 1.1/2
2912328	CPVC Wavin SuperTemp COUPLING 1/2
2912329	CPVC Wavin SuperTemp COUPLING 3/4
2912331	CPVC Wavin SuperTemp COUPLING 1
2912333	CPVC Wavin SuperTemp COUPLING 1.1/4
2912334	CPVC Wavin SuperTemp COUPLING 1.1/2
2912337	CPVC Wavin SuperTemp UNION 3/4
2912309	CPVC Wavin SuperTemp REDUCER TEE 1X1/2
2912311	CPVC Wavin SuperTemp REDUCER TEE 1X3/4
2912310	CPVC Wavin SuperTemp REDUCER TEE 1X1/2x1/2

Code / Part no.	Description
2912312	CPVC Wavin SuperTemp REDUCER TEE 1X3/4x1/2
2912313	CPVC Wavin SuperTemp REDUCER TEE 1X3/4x3/4
2912292	CPVC Wavin SuperTemp HUBXHUB DROPEAR ELBOW 1/2
2912245	CPVC Wavin SuperTemp FEMALE ADAPTER 1
2912246	CPVC Wavin SuperTemp RED MALE ADAPTER 3/4X1/2
2912252	CPVC Wavin SuperTemp MALE ADAPTER 2
2912318	CPVC Wavin SuperTemp REDUCER TEE 1.1/2X1/2
2912319	CPVC Wavin SuperTemp REDUCER TEE 1.1/2X3/4
2912320	CPVC Wavin SuperTemp REDUCER TEE 1.1/2X1
2912322	CPVC Wavin SuperTemp REDUCER TEE 1.1/2X1.1/4
2912290	CPVC Wavin SuperTemp STREET ELBOW 90 1
2912291	CPVC Wavin SuperTemp STREET ELBOW 90 3/4x1/2
2912289	CPVC Wavin SuperTemp STREET ELBOW 90 3/4
2912288	CPVC Wavin SuperTemp STREET ELBOW 90 1/2
2912332	CPVC Wavin SuperTemp COUPLING 1X3/4
2912330	CPVC Wavin SuperTemp COUPLING 3/4X1/2
2912336	CPVC Wavin SuperTemp TRANSITION COUPLING 3/4 IPSxCTS
2912325	CPVC Wavin SuperTemp REDUCER TEE 2X1
2912327	CPVC Wavin SuperTemp REDUCER TEE 2X1.1/2
2912326	CPVC Wavin SuperTemp REDUCER TEE 2X1.1/4

Fittings

Code / Part no.	Description
2912323	CPVC Wavin SuperTemp REDUCER TEE 2X1/2
2912324	CPVC Wavin SuperTemp REDUCER TEE 2X3/4
2912317	CPVC Wavin SuperTemp REDUCER TEE 1.1/4X1X1
2912321	CPVC Wavin SuperTemp REDUCER TEE 1.1/2X1X1
2912241	CPVC Wavin SuperTemp CLAMP 1/2
2912242	CPVC Wavin SuperTemp CLAMP 3/4
2912335	CPVC Wavin SuperTemp COUPLING 2
2912278	CPVC Wavin SuperTemp ELBOW 45 2
2912284	CPVC Wavin SuperTemp ELBOW 90 2
2912298	CPVC Wavin SuperTemp CAP 2
2912304	CPVC Wavin SuperTemp TEE 2
2912263	CPVC Wavin SuperTemp RED. BUSHING 2x1/2
2912264	CPVC Wavin SuperTemp RED. BUSHING 2x3/4
2912265	CPVC Wavin SuperTemp RED. BUSHING 2x1
2912266	CPVC Wavin SuperTemp RED. BUSHING 2x1.1/4
2912267	CPVC Wavin SuperTemp RED. BUSHING 2x1.1/2
2912272	CPVC Wavin SuperTemp TRANSITION BUSHING 2
2912259	CPVC Wavin SuperTemp RED. BUSHING 1.1/2x1/2

Code / Part no.	Description
2912256	CPVC Wavin SuperTemp RED. BUSHING 1.1/4x1/2
2912260	CPVC Wavin SuperTemp RED. BUSHING 1.1/2x3/4
2912257	CPVC Wavin SuperTemp RED. BUSHING 1.1/4x3/4
2912268	CPVC Wavin SuperTemp TRANSITION BUSHING 3/4 IPS X CTS
2912269	CPVC Wavin SuperTemp RED. BUSHING 1 IPS X CTS
2912271	CPVC Wavin SuperTemp RED BUSHING 1.1/2 IPSxCTS
2912270	CPVC Wavin SuperTemp RED BUSHING 1.1/4 IPSxCTS
2912314	CPVC Wavin SuperTemp REDUCER TEE 1.1/4X1/2
2912315	CPVC Wavin SuperTemp REDUCER TEE 1.1/4X3/4
2912316	CPVC Wavin SuperTemp REDUCER TEE 1.1/4X1
2912305	CPVC Wavin SuperTemp REDUCER TEE 1/2 X3/4
2912306	CPVC Wavin SuperTemp REDUCER TEE 3/4 X1/2
2912307	CPVC Wavin SuperTemp REDUCER TEE 3/4 X1/2X1/2
2912308	CPVC Wavin SuperTemp REDUCER TEE 3/4 X1/2X3/4
2912287	CPVC Wavin SuperTemp STREET ELBOW 45 1
2912285	CPVC Wavin SuperTemp STREET ELBOW 45 1/2
2912286	CPVC Wavin SuperTemp STREET ELBOW 45 3/4

Notes

[illegible]

Notes

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Limited Warranty and Limitations of Liability

WAVIN SuperTemp CTS Pipes and fittings (the “Products”) are manufactured by MEXICHEM COLOMBIA S.A.S. (“Seller”) from CPVC4120 (Type IV, Grade 1) compound having a cell classification of 23448 per ASTM D1784. The Products conform to ASTM D2846 Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot – and Cold-Water Distribution Centers. The Products are certified by NSF International Standard 14 and 61 for use in potable water applications and meet the requirement for lead-free plumbing.

LIMITED WARRANTY

The Products are warranted to be free from defects in materials and workmanship under normal use in hot and cold potable water installations only, for a period of ten years from the date of purchase (the “Warranty”). In order for this Warranty to apply, the Products must be handled, stored, and installed in accordance with the instructions provided in this product booklet. As set forth more fully in Section 7.5 of our Terms and Conditions of Sale (which is incorporated by reference), this Warranty does not cover any damage caused by improper handling, storage, shipping, or installation of the Products (including installation in any applications other than hot and cold potable water).

Claims under this Warranty must be made in writing and submitted to Seller promptly after the defect is discovered and, in any event, within ten years of the date of purchase. In order to make a claim under this Warranty, any Product alleged to be defective must be made available to Seller for inspection, verification, and testing.

If Seller confirms that the Product is defective, the exclusive remedy for breach of this Warranty is limited to (1) replacement of the defective product, or (2) refund of the purchase price. Seller shall have no liability for the cost of removal or reinstallation with respect to any replaced Product. The election of said remedies will be determined by Seller in its sole discretion and shall be considered final disposition.

To the extent that this Warranty conflicts with our Terms and Conditions of Sale, the terms of this Warranty shall prevail. This Warranty may only be modified or altered in a writing signed by the President of Seller.

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Any disputes related to the Products or this Warranty will be resolved exclusively in the state or federal courts of Fulton County, Georgia, USA, and you and Seller consent to personal jurisdiction in those courts.

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