Sintex HotX CPVC PLUS

NEXT-GEN HOT & COLD WATER SYSTEMS

Technical Manual

SINTEX ADVANTAGE NXT

ANTI MICROBIAL*

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OUR LEGACY

Welspun

Pioneering Growth, Inspiring Change

Welspun has established a strong presence across a diverse range of industries, excelling in sectors such as home textiles, advanced textiles, and flooring solutions. The company has also made significant strides in retail, infrastructure, and warehousing, while maintaining leadership in manufacturing line pipes, DI pipes, stainless steel & alloys, pig iron, and TMT rebars.

Our Vision

Enabling building & infrastructure to become water positive and energy efficient through focus on polymer innovation & customer empowerment.

Our Mission

Our goal is to enhance customer satisfaction through innovation and technology, while driving inclusive and sustainable growth to maintain excellence across all our businesses.

A dedicated workforce of over

30,000

employees across international locations

Serving more than

100,000

shareholders

Operating in over

50

countries

20+

state-of-the-art manufacturing facilities in India, the USA, KSA, and beyond

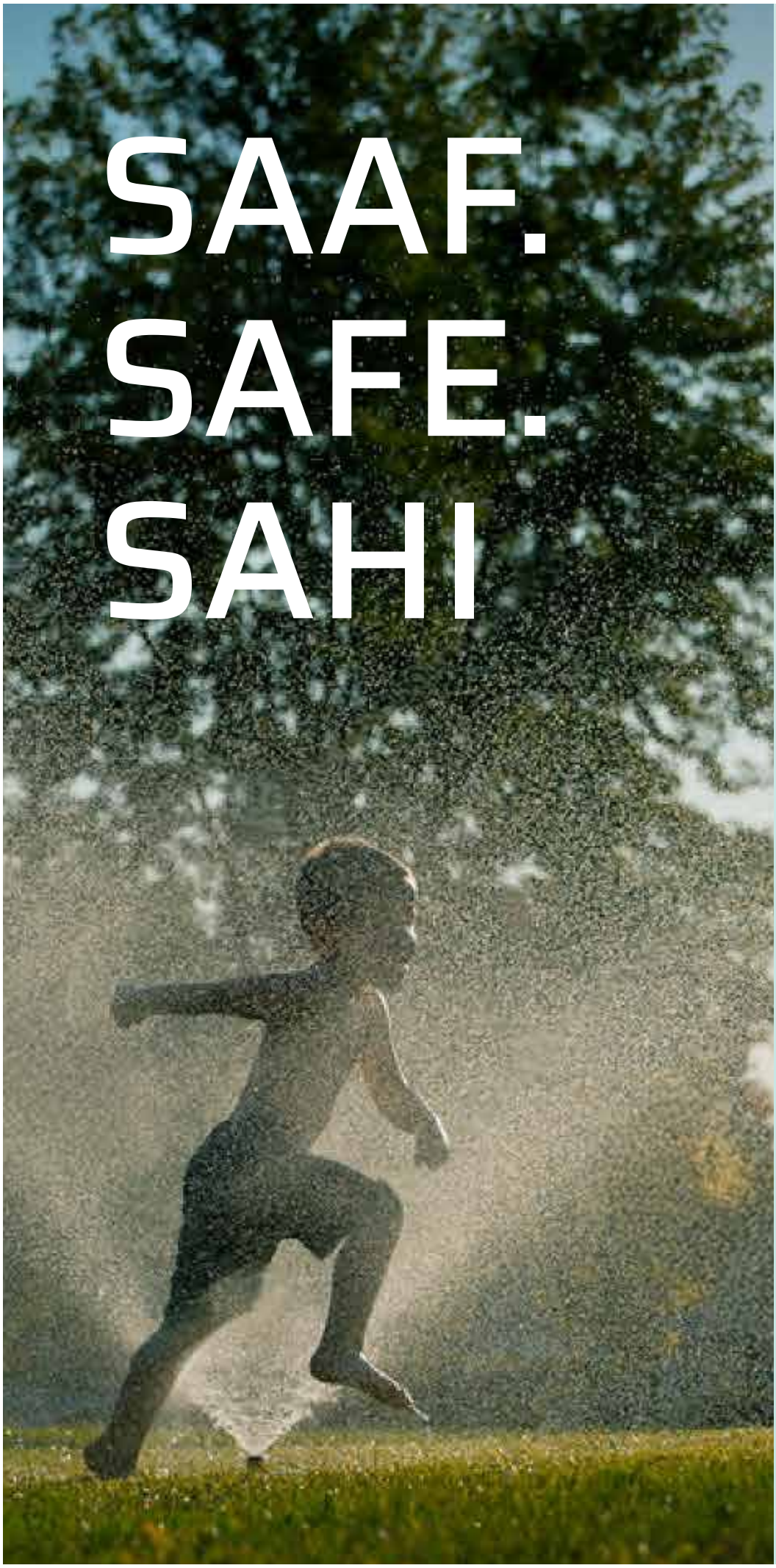
Achieving a turnover of

5 Billion

USD

2nd largest

producer of large diameter pipes globally


SAAF.
SAFE.
SAHI

Sintex

Built on trust, engineered for tomorrow

For over 50 years, Sintex has been a cherished name in water storage across India, trusted by generations to safeguard every precious drop. A legacy built on reliability and innovation, Sintex continues to lead with cutting-edge technology, ensuring homes and businesses have access to the highest standards of water safety—today and for years to come.

Our Promise

Saaf, Safe, Sahi.

Integrated into the Welspun Group, a

5 billion USD global conglomerate

Leading water storage brand in India for over

50 years

Industry Leaders

Recognised as category creators and pioneers with exceptional quality and motivation.

Offering tanks from

200 litres to

16 lakh litres

TRUST OF SINTEX, NOW IN PIPES

HOT & COLD WATER SYETEM

ANTI MICROBIAL*

POTABLE WATER SUPPLIES

ANTI MICROBIAL*

SEWARAGE, WASTE RAIN WATER SYSTEM

ANTI RODENT*

DRAINAGE SYSTEM

ANTI RODENT*

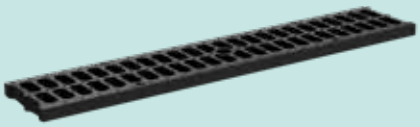
AGRICULTURAL WATER PIPE

LEAD FREE

RECYCLE WATER SUPPLIES

FIT FOR REUSE

SURFACE DRAINAGE WATER SYSTEM



HIGH FLOW

PIPES

4P RANGE TANKS

SINTEX PURE
THE HEALTHY TANK OF INDIA
4P ADVANTAGE | 15 YEARS WARRANTY

SINTEX PURE+
THE HEALTHY TANK OF INDIA WITH ADVANCED PROTECTION
4P ADVANTAGE | 15 YEARS WARRANTY

SINTEX TATVA
THE TANK FOR ALL WEATHER CONDITIONS
4P ADVANTAGE | 15 YEARS WARRANTY

SINTEX TRUPUF
THE TANK FOR THE MOST EXTREME WEATHER TEMPRATURES
4P ADVANTAGE | 15 YEARS WARRANTY

POPULAR RANGE TANKS

SINTEX NEO
THE SMART CHOICE
3 YEARS WARRANTY

SINTEX ACE
THE 1ST SIDE HATCH TANK OF INDIA
10 YEARS WARRANTY

SINTEX RENO
THE TANK BUILT TO LAST
5 YEARS WARRANTY

SINTEX CLASSIC
THE ICONIC TANK OF INDIA
10 YEARS WARRANTY

SINTEX TITUS
THE TANK THAT STANDS STRONG
10 YEARS WARRANTY

SINTEX ISI
THE TRUSTED CHOICE OF INDIA
5 YEARS WARRANTY

SINTEX HERO
THE HERO FOR EVERY HOME
10 YEARS WARRANTY

SINTEX LOFT
THE GREAT SPACE SAVER
5 YEARS WARRANTY

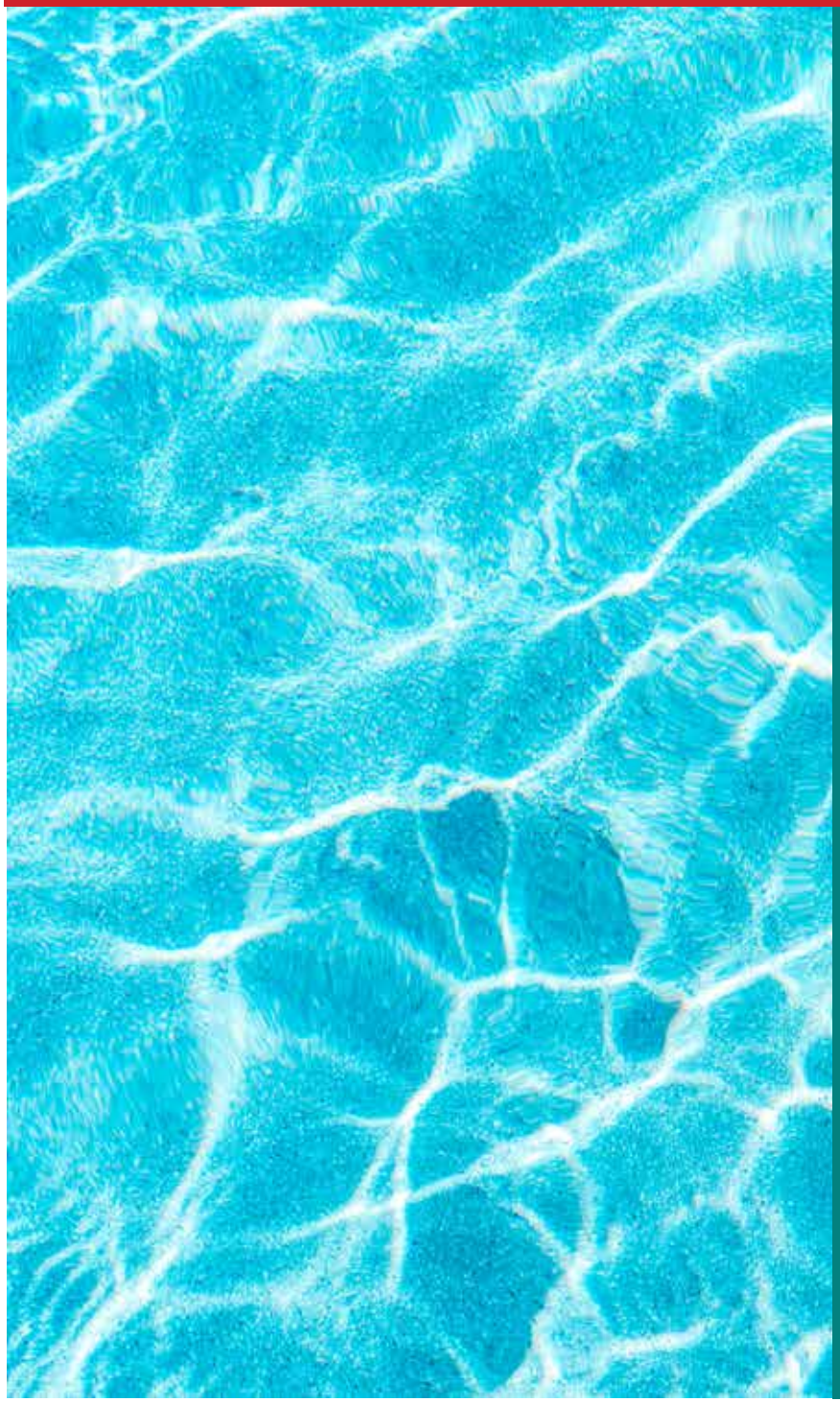
13 14

TANKS

A SOLUTION FOR EVERY NEED

A wide range of tanks and pipes growing to meet your needs

Sintex HotX



Sintex Pipes

Agricultural Water System

Drainage Water System

Sewerage Waste & Rain Water System

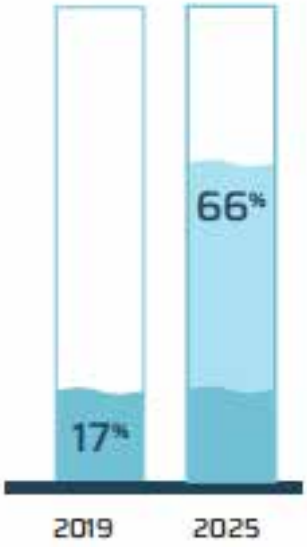
Potable Water System

Hot & Cold Water System

Recycle Water Supplies

Surface Drainage Water System

The State of **Water Access & Water Safety in India**



Piped water access in rural India has surged from 17% in 2019 to 66%*, marking a major improvement.

1.5 Million

Yet, waterborne diseases still claim the lives of approx 1.5 million children under five annually.

Our Commitment

As pioneers in water management, we strive to redefine industry standards, through continuous innovation and improvement, ensuring water that is

Saaf

Safe

Sahi

How we do it

Sintex NXT Advantage comprises of breakthrough innovations that redefine water management across our entire range of pipes and tanks. Designed to meet evolving consumer needs, it integrates technology to ensure superior durability, safety, and hygiene.

SINTEX ADVANTAGE NXT

ANTI RODENT

UV RESISTANT

ASSURED QUALITY

ANTI BACTERIAL

Sintex

HotX

Hot & Cold water system

CPVC PLUS

Sintex proudly introduces the NXT Advantage – the India's 1st CPVC pipes and fittings with integrated anti-microbial properties. This cutting-edge technology sets Sintex apart as a pioneer in the industry, providing a healthier, safer, and more efficient plumbing solution. The anti-microbial feature actively combats the growth of harmful bacteria, fungi, and algae inside the pipes, ensuring cleaner water and reducing the risk of blockages, contamination, and unpleasant odours.

NXT ADVANTAGE ANTI MICROBIAL

Areas of Use

Industrial Applications

Water distribution systems in industrial plants, including those for heating systems, cooling systems, and chemical transfer.

Commercial Plumbing Systems

Hot and cold water systems in commercial establishments like hotels, hospitals, schools, and offices.

Residential Plumbing Systems

Hot water supply lines in homes and apartments.

Company Certification

Sintex HotX CPVC Pipes & Fittings

Sintex Pipes & Fittings is a leading manufacturer known for offering a wide range of advanced piping solutions for various applications, including hot and cold water management systems. Hot and cold water management systems are critical in residential, commercial, and industrial applications, ensuring a reliable, efficient, and safe supply of hot water while maintaining optimal water pressure and quality.

Sintex proudly introduces the **NXT Advantage – the India's 1st CPVC pipes and fittings with integrated anti-microbial properties.** This cutting-edge technology sets Sintex apart as a pioneer in the industry, providing a **healthier, safer, and more efficient plumbing solution.** The **anti-microbial** feature actively combats the growth of harmful bacteria, fungi, and algae inside the pipes, ensuring cleaner water and reducing the risk of blockages, contamination, and unpleasant odours.

With the **NXT Advantage,** Sintex is not just redefining product quality, but also enhancing the **durability** and **reliability** of your plumbing systems. This innovation leads the industry, making Sintex CPVC pipes the ideal choice for both residential and commercial applications, where clean and safe water systems are essential. Sintex's **NXT Advantage** is a **game-changer** in plumbing, offering unmatched **protection, performance,** and **peace of mind.**

Product Range

Class 1 (SDR 11) & Class 2 (SDR 13.5): conforming to

IS: 15778:2007 & IS:17546, as per ASTM D2846.

Type	Sub-Type	Product	Pipe Colour	Stripe Colour	Size	Length
CTS(Copper Tube Size)	SDR11	Pipes	Off-White (Ivory)	Red	3/4" - 2"	3 M, 5 M
		Fittings	Off-White (Ivory)			
	SDR13.5	Pipes	Off-White (Ivory)	Brown	3/4" - 1/2"	3 M, 5 M

Solvent Cement SKUs		
Product Type	**Packaging Type**	**SKUs**
CPVC	Co-Ex Bottle	50ML
		100ML
		250ML
	Tin	500ML
		1L
	Tube	20 ML
		50 ML

Sintex
SAAF SAFE SAHI

SINTEX HOTX CPVC PLUS

INDIA'S 1ST CPVC PIPE WITH ANTIMICROBIAL* ADVANTAGE

STRONG BHI, SAFE BHI.

- ANTI ALGAE
- ANTI FUNGAL
- ANTI VIRAL
- ANTI BACTERIAL

*Tested under lab conditions. Refer to www.sintexonline.com/disclaimer

Why Choose Sintex HotX CPVC PLUS?

Sintex's Advantage NXT Features & Benefits for Sintex HotX CPVC Plus Pipes & Fittings

Feature	Technical Advantage	Benefit
World's First Antimicrobial CPVC Pipes & Fittings	Antimicrobial Properties: Embedded with antimicrobial properties that prevent the growth of harmful bacteria, fungi, algae and virus.	Healthier plumbing: Safe and clean water systems.
		Reduced maintenance: Prevents microbial growth that can cause clogs, odors, and contamination.
		Longer-lasting system performance: Maintains the integrity of the system over time.
Brass Fittings: Highest Torque Resistance (130 Nm) & Enhanced Thread Design	Torque Resistance (130 Nm): Withstands 130 Nm of torque, the highest in the industry for CPVC systems.	Increased System Reliability: Reduced risk of leaks and fittings loosening over time.
		Better for High-Pressure Applications: Ideal for both residential and industrial systems.
	Superior Thread Design: More and wider threads for enhanced gripping power and secure connections.	Enhanced Installation Quality: Achieves tight seals with less effort.
		Longer Lifespan: Fewer maintenance needs, repairs, and replacements.
		Stronger, More Secure Fittings: Reduces the chances of loosening and leakage, ensuring a durable and reliable system.
Indelible Ink for Marking	Permanent Markings: Indelible ink ensures visibility even after prolonged exposure to sunlight, moisture, or handling.	Easier installation and maintenance: Permanent markings reduce installation errors.
		Increased efficiency: Reduces installation time and troubleshooting.
		Professional finish: Enhances plumbing system quality.

Other Features & Benefits of Sintex HotX CPVC Plus

With the increasing demand for smarter, more durable infrastructure, Sintex HotX CPVC Plus stands at the forefront of advanced plumbing systems. Here's why these pipes are the preferred choice for modern plumbing solutions:

DURABILITY

Engineered for maximum longevity, Sintex HotX CPVC Plus is designed to endure even the harshest conditions. CPVC material surpasses traditional metal pipes in terms of wear resistance, corrosion resistance, extending the lifespan of your plumbing system.

ADVANCED UV RESISTANCE

Built-in UV protection makes Sintex HotX CPVC Plus suitable for outdoor applications. These pipes remain intact even under prolonged exposure to sunlight, making them ideal for outdoor plumbing systems, such as irrigation lines and swimming pool installations.

SUSTAINABLE & ECO-FRIENDLY

In an era where environmental consciousness is paramount, Sintex HotX CPVC Plus pipes are non-toxic and 100% recyclable. By using these pipes, you're contributing to a greener planet, with sustainable solutions that don't harm the environment. Carbon footprint is much lower incase of Sintex HotX CPVC System.

LEAK-PROOF TECHNOLOGY

The advanced joint technology used in Sintex HotX CPVC Plus ensures a leak-free plumbing system. With precisely engineered brass fittings and a secure seal, these pipes provide 100% leak-proof performance, helping to reduce water wastage and mitigate the risk of property damage.

HIGH-TEMPERATURE & PRESSURE RESISTANCE:

Sintex HotX CPVC Plus pipes can withstand high temperatures (up to 93°C) and significant water pressure, making them ideal for both hot and cold water systems.
This makes them suitable for residential, commercial, and industrial applications where consistent performance under pressure is critical.

LOW THERMAL EXPANSION

These pipes exhibit minimal thermal expansion, even when exposed to extreme temperature fluctuations. This ensures the stability of your plumbing system and reduces the risk of damage or pipe bursts due to temperature changes.

MAINTENANCE-FREE PLUMBING:

Thanks to the corrosion-resistant properties of CPVC, Sintex HotX CPVC Plus requires virtually no maintenance. Unlike metal pipes, which deteriorate over time, CPVC pipes offer a hassle-free solution, saving you money on repairs and replacements.

IDEAL FOR HOT & COLD WATER SYSTEMS:

Whether your plumbing system needs to handle boiling water or chilled supply, Sintex HotX CPVC Plus pipes are perfect for both. Their durability and versatility make them the ideal choice for a wide variety of plumbing applications, delivering reliable performance across the board.

Product Standards Compliance

IS:15778: Standard for CPVC pipes used in potable hot and cold water distribution.

IS:17546: Standard for CPVC fittings for potable hot and cold water distribution.

ASTM D1784: Standard specification for rigid Poly (Vinyl Chloride) (PVC) compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) compounds.

ASTM D2846: Specification for CPVC plastic hot and cold water distribution systems.

ASTM F493: Standard specification for solvent cements for CPVC plastic pipes and fittings.

ASTM F441: Standard specification for CPVC plastic pipes, Schedule 40 & 80.

ASTM F438: Socket-type CPVC plastic pipe fittings, Schedule 40.

ASTM F439: Socket-type CPVC plastic pipe fittings, Schedule 80.

ASTM D2774: Standard for the underground installation of thermoplastic pipes.

Product Certification

IAPMO INDIA PRIVATE LIMITED

CERTIFICATE OF LISTING

SINTEX BAPL LIMITED

CPVC Pipes & Fittings

Tom Palkan
Executive Vice President and
Chief Technical Services Officer
The IAPMO Group

BUREAU OF INDIAN STANDARDS

CENTRAL INSTITUTE OF PETROCHEMICALS ENGINEERING & TECHNOLOGY

PLASTICS TESTING CENTRE

Anti-Microbial (Legal Disclaimer for now, Certificate to be put at the time of launch)

1. Antibacterial activity and efficacy tested under lab conditions on representative organisms (S. Aureus ATCC 6538 E. Coli ATCC 8739) as per ISO 22196:2011 standards.

2. Anti-Virus activity and efficacy tested under lab conditions on representative organisms (E. coli PHAGE MS2 (ATCC-15597-B1)) as per ISO 21702:2019 Standard.

3. Anti-fungal activity and efficacy tested under lab conditions on representative organisms as per ASTM G21:2015 Standard.

4. Anti-algae activity and efficacy tested under lab conditions on representative organisms (Chlorella pyrenoidosa and Scenedesmus abundans (1:1)) as per ASTM G29 Standard.

5. *Certified by Independent third party NABL accredited lab.

6. Actual performance may vary due to different environment and usage.

Please refer to
https://www.sintexonline.com/disclaimer/ for more details

Middle of the Wall (Special Fittings)

Sintex Middle of the Wall Products include a range of plumbing components designed for installation within walls, providing efficient, durable, and aesthetically seamless solutions. These products are used to ensure water flow control, connection reliability, and waste disposal in residential, commercial, and industrial plumbing systems. These are used because of its ease of installation and to make the system leakage free.

They are typically made from CPVC, uPVC, or SWR materials and offer high resistance to corrosion, temperature fluctuations, and wear. These products are ideal for applications where space-saving, hidden installations are required, providing both functionality and long-lasting performance.

Concealed Valves

Range

- CPVC Concealed Valve Round & Triangle Neck QT - ½" - ¾"

Wall Mixer Adaptor

Range

- Wall Mixer Adaptor 1" X ½" ¾" X ½"

Applications

Sintex HotX CPVC Plus is a versatile and high-performance piping solution designed to meet the demands of a wide range of hot and cold water applications across various sectors. Below is an overview of its key applications:

Residential Plumbing Systems

Hot Water Supply Lines:
Sintex HotX CPVC Plus is an excellent choice for residential plumbing systems, especially for hot water supply lines. It can effectively handle the high temperatures of hot water without risk of deformation, cracking, or corrosion. Whether in individual homes or multi-story apartments, the durability and strength of CPVC Plus ensure long-lasting performance.

Cold Water Distribution: In addition to its ability to manage hot water, it is also ideal for cold water lines, ensuring consistent water supply throughout the home without the risks associated with traditional metal piping systems such as rusting and scaling.

Commercial Plumbing Systems

Hot and Cold Water Systems: For commercial establishments like hotels, hospitals, schools, and office buildings, Sintex HotX CPVC Plus provides a reliable and efficient piping solution. It ensures safe and efficient distribution of both hot and cold water under high pressure conditions, which are typical in commercial spaces.

Cost-Efficient and Low Maintenance: Its resistance to corrosion, scaling, and chemical damage means that the overall maintenance costs are significantly reduced, which is critical for maintaining the smooth operation of large commercial buildings.

Industrial Applications

Water Distribution Systems in Industrial Plants: Sintex HotX CPVC Plus is ideal for use in various industrial environments, where water is frequently used in manufacturing and processing applications. It is capable of handling the high demands of industrial water distribution systems, including those used in heating and cooling systems, ensuring a reliable supply of water.

Chemical Transfer: HotX CPVC Plus's resistance to a wide range of chemicals makes it suitable for chemical transfer systems in industrial settings. This includes applications where water is mixed with certain chemicals, such as in chemical plants, food and beverage industries, and pharmaceutical factories.

High-Temperature Resistance: Its thermal stability allows it to withstand hot water, steam, and other high- temperature fluids commonly found in industrial processes, ensuring a safe and durable transfer medium.

Product Technical Details

Outside Diameters and Wall Thicknesses For CPVC 4120, SDR 11 Plastic Pipe As Per ASTM D-2846 & conforming to IS: 15778

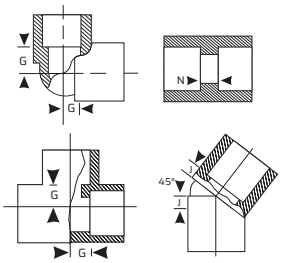
Nominal Size			Outside Diameter, Inch (mm)				Wall Thickness, Inch (mm)				Working Pressure MPa (kg/cm$_2$)			
cm	(mm)	in.	Average		Tolerance		Minimum		Tolerance		(23°C)		(82°C)	
1.5	(15)	½	0.625	(15.9)	± 0.003	(0.08)	0.068	(1.73)	+0.020	(0.51)	2.76	(28.14)	0.68	(7.0)
2.0	(20)	¾	0.875	(22.2)	± 0.003	(0.08)	0.080	(2.03)	+0.020	(0.51)	2.76	(28.14)	0.68	(7.0)
2.5	(25)	1	1.125	(28.6)	± 0.003	(0.08)	0.102	(2.59)	+0.020	(0.51)	2.76	(28.14)	0.68	(7.0)
3.2	(32)	1¼	1.375	(34.9)	± 0.003	(0.08)	0.125	(3.18)	+0.020	(0.51)	2.76	(28.14)	0.68	(7.0)
4.0	(40)	1½	1.625	(41.3)	± 0.004	(0.10)	0.148	(3.76)	+0.020	(0.51)	2.76	(28.14)	0.68	(7.0)
5.0	(50)	2	2.125	(54.0)	± 0.004	(0.10)	0.193	(4.90)	+0.023	(0.58)	2.76	(28.14)	0.68	(7.0)

* For½" wall thickness minimum is not a function of SDR. Pr. R. = Pressure Rating

Outside Diameters and Wall Thicknesses for CPVC 4120, SDR 13.5 Plastic Pipe conforming to IS: 15778

Nominal Size			Outside Diameter, Inch (mm)				Wall Thickness, Inch (mm)				Working Pressure MPa (kg/cm2)			
cm	(mm)	in.	Average		Tolerance		Minimum		Tolerance		(23°C)		(82°C)	
1.5	(15)	½	0.625	(15.9)	± 0.003	(0.08)	0.055	(1.40)	+0.020	(0.51)	2.18	(22.23)	0.55	(5.6)
2.0	(20)	¾	0.875	(22.2)	± 0.003	(0.08)	0.065	(1.65)	+0.020	(0.51)	2.18	(22.23)	0.55	(5.6)
2.5	(25)	1	1.125	(28.6)	± 0.003	(0.08)	0.083	(2.12)	+0.020	(0.51)	2.18	(22.23)	0.55	(5.6)
3.2	(32)	1¼	1.375	(34.9)	± 0.003	(0.08)	0.120	(2.59)	+0.020	(0.51)	2.18	(22.23)	0.55	(5.6)
4.0	(40)	1½	1.625	(41.3)	± 0.004	(0.10)	0.148	(3.06)	+0.020	(0.51)	2.18	(22.23)	0.55	(5.6)
5.0	(50)	2	2.125	(54.0)	± 0.004	(0.10)	0.157	(4.00)	+0.023	(0.58)	2.18	(22.23)	0.55	(5.6)

For½" wall thickness minimum is not a function of SDR. Pr. R. = Pressure Rating



BSP ISO 7/1 Parallel Threads - (used in Brass Fittings)

Nominal Size		Threads (Per inch)	Effective Thread Length (L) mm	Pitch of Thread (P) mm
(mm)	(in.)			
15	½	14	13.152	1.8143
20	¾	14	14.514	1.8143
25	1	11	16.714	2.3091
32	1¼	11	19.05	2.3091
40	1½	11	19.05	2.3091
50	2	11	23.378	2.3091
65	2½	11	26.698	2.3091
80	3	11	29.873	2.3091
100	4	11	35.791	2.3091

Basic Physical Properties

Property	Test Method	English Unit	SI Unit
General Properties			
Specific Gravity @ 23°C	ASTM D792	1.50-1.52	1.50-1.52
Specific volume @ 23°C	-	0.655 cm3/g	0.655 cm3/g
Water Absorption @ 23°C	ASTM D570	0.025%	0.025%
Water Absorption @ 100°C	ASTM D570	0.50%	0.50%
Cell Class	ASTM D1784	23447-B	D.P.110-2-3-2
Rockwell Hardness @ 23°C	ASTM D785	119	-
MECHANICAL PROPERTIES			
Izod Impact (Notched) @ 23°C	ASTM D256	4.5ft.lbs/in	267 J/m
Tensile Strength @ 23°C	ASTM D638	8000 psi	55 N/mm2
Tensile Modulus @ 23°C	ASTM D638	3,94,000 psi	2710 N/mm2
Flexural Strength @ 23°C	ASTM D790	15,100 psi	104N/mm2
Flexural Modulus @ 23°C	ASTM D790	4,15,100 psi	2860N/mm2
Compressive Strength @ 23°C	ASTM D695	10,100 psi	70 N/mm2
Compressive Modulus @ 23°C	ASTM D695	1,97,500 psi	1360 N/mm2
THERMAL PROPERTIES			
Coefficient of Thermal Expansion	ASTM D696	3.4X10-5 in/in/°f	6.3 X10-5 m/m/°K
Thermal Conductivity	ASTM C177	0.95 BTU/(hr.ft2.°F)	6.3 X10-5 m/m/°K
Heat Distortion Temperature	ASTM D648	221°F	105°C
HeatCapacity@23°C	DSC	0.21BTU/lb°F	0.90J/gK
HeatCapacity@100°C	-	0.26BTU/lb°F	1.10J/gK
FLAMMABILITY			
Flammability Rating	UL94	0.062inch/0.157cm	V0,5VA&5VB
Burning Rate	ASTM D635	SelfExtinguishing	SelfExtinguishing
Flame spread	ASTM E84	15	-
Smoke developed	ASTM E84	70-125	-
Limiting oxygen index	ASTM D2863	60%	-
ELECTRICAL			
Dielectric Strength	ASTM D147	1250V/mil	492,000V/cm
Dielectric Constant @ 60Hz, -1°C	ASTM D150	3.7	3.7
Power Factor @ 1000 Hz	ASTM D150	0.007%	0.007%
Volume Resistivity @ 23°C	ASTM D257	3.4x1015 ohm/cm	3.4x1015 ohm/cm

*Note- The properties listed in this table represent general material properties and should be usedas a guideline only. It is based upon information provided by raw material manufacturer; it should be usd only as a recommendation and not as a guaranty of performance.

Quality Assurance Procedures at SINTEX

SINTEX manufactures pipes and fittings through a rigorous quality assurance process to ensure that only defect-free products reach the market. These products are designed and tested according to the highest industry standards, including BIS (India), ASTM (USA), DIN, UIPC-I, and NSF/ANSI 61. The NSF/ANSI 61 and UIPC-I certifications are issued by IAPMO - India, guaranteeing the products meet stringent safety and performance requirements.

PIPES

1. Antimicrobial: Sintex HotX CPVC Pipes have got Anti-microbial properties. The Pipes have qualified all the anti-microbial tests as per the regulatory standards.

2. Effect on Water: Ensures that the water passing through the pipes remains safe and of high quality. The Pipe helps in reducing bacteria, Virus, Algae and fungi. This helps in maintaining the health of the consumer.

3. Heat Reversion Test: Measures how much the pipe changes in length when heated in an oven and then cooled. This test identifies any residual stresses left in the pipe during the manufacturing process & the heat reversion values are one of the best in the industry.

4. Hydrostatic Pressure Test: Short Term: (Acceptance Test) at 27°C: The pipe must withstand internal hydrostatic pressure for a minimum of 1 hour without bursting or cracking. The test pressure should be more than three times the pipe's normal pressure rating.

5. Long Term (Type Test) at 95°C: The pipe must endure the test pressure for 165 hours (or 1000 hours) without failure.

6. Thermal Stability: When exposed to 95°C for up to 8760 hours (1 year), the pipe should not fail at the prescribed test pressure.

7. Drop Impact Test: Weights are dropped on the pipe to check for cracks or other failures upon impact.

8. Flattening Test: The pipe is compressed to bring the opposite walls together without cracking. This test evaluates the quality of extrusion during production.

9. Tensile Strength: This measures the maximum stress the pipe can withstand when being stretched or pulled.

FITTINGS

Stress Relief Test: The fitting is heated in an air-circulated oven at 150°C to determine internal stress levels. The fitting should not show blisters, weld line splitting, or cracking.

Antimicrobial: Sintex HotX CPVC Pipes have got Anti-microbial properties. The Pipes have qualified all the anti- microbial tests as per the regulatory standards.

PIPES AND FITTINGS

1. Antimicrobial: Sintex HotX CPVC Pipes have got Anti-microbial properties. The Pipes have qualified all the anti- microbial tests as per the regulatory standards.

2. Visual Appearance: Ensures that pipes and fittings are uniform in color and free from defects such as black dots, scratches, or burn marks.

3. Dimensions: Verifies that all pipes and fittings meet the appropriate industry standards for size and measurements.

4. Opacity: Measures the percentage of light passing through the pipe's wall. The opacity should be less than 0.2%.

5. Vicat Softening Temperature: The temperature at which a 1 mm^2 needle penetrates 1 mm into the pipe wall, indicating the pipe's softening point.

6. Density: Determines the density of the pipes and fittings to ensure they meet the required specifications.

SYSTEMS

Malfunction Temperature Test at 95°C: A system assembled with pipes and fittings should not leak or burst at an internal pressure of 10 kg/cm^2 when exposed to a temperature of 95°C for 1000 hours.

Installation Procedures

Before Installation

CHOOSING SOLVENT CEMENTS & PRIMERS

Solvent cements for Sintex CPVC systems must comply with ASTM F-493 or equivalent standards and should be marked with this identification on the label. A primer or cleaner must be used, and primers for PVC pipes can also be used for CPVC. Ensure that the product has the National Sanitation Foundation (NSF) mark or other potable water approval.

Certain regulatory bodies may require orange CPVC solvent cement and purple primer to facilitate inspection. However, clear CPVC solvent cement and primer are also available and accepted by several jurisdictions. Before using clear products, it is advisable to consult the local plumbing inspector to verify their acceptability.

Before Beginning Installation

1. Verify that the solvent cement matches the type of pipes and fittings being used.

2. Check the installation temperature.
• In cold weather, cement sets slower. Allow extra curing time and avoid speeding up the processcartificially, as this could cause porosity or blisters.
• In warm weather, solvents evaporate faster. Work quickly to prevent the cement from settingcbefore assembly. Keep the cement cool and avoid direct sunlight.

3. Keep cement, cleaner, and primer lids closed when not in use to prevent evaporation.

4. Stir or shake the cement before use.

5. Use the appropriate dauber size for the pipe: 20 mm (¾") for small pipes, 40 mm (1½") for pipes up to 80 mm (3&"), and a natural bristle brush or roller for pipes 100 mm (4") and larger.

6. Do not mix cleaner or primer with cement.

7. Ensure the cement is not thickened or lumpy. It should have a syrup-like consistency.

8. Do not handle joints immediately after assembly.

9. Avoid letting daubers dry out.

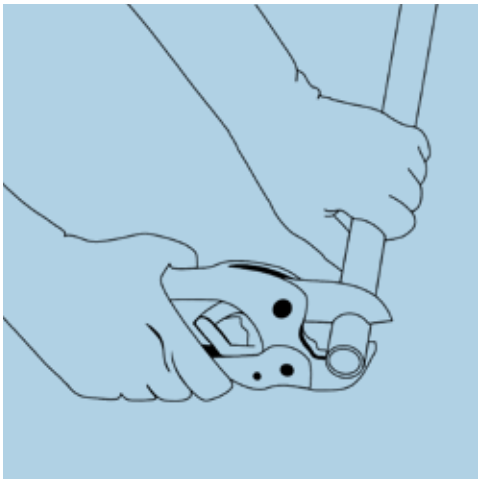
10. CPVC pipes have a maximum temperature limit of 180°F (82°C).

11. All colored cements, primers, and cleaners will leave permanent stains, which cannot be cleaned.

Proper installation of Sintex HotX CPVC Plus ensures a reliable and long-lasting performance.

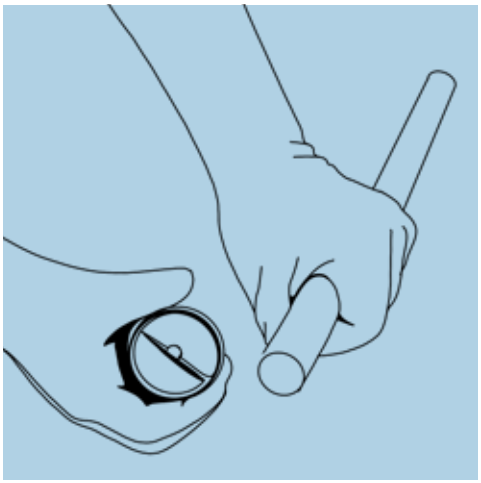
Installation Guidelines

Proper installation of Sintex HotX CPVC Plus ensures a reliable and long-lasting performance. Follow these steps for correct installation:



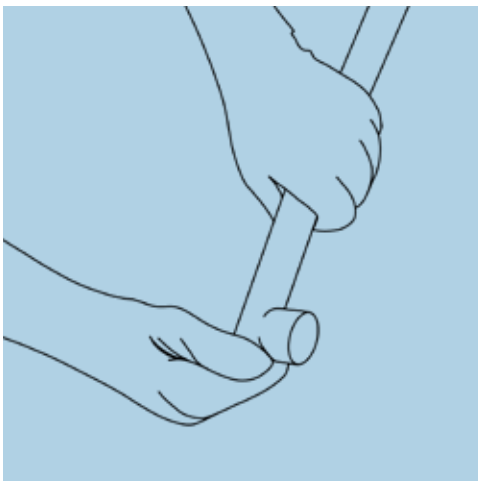
Cutting

To ensure a clean and precise joint, measure and mark the correct pipe length. Confirm that the pipe and fittings are compatible in size. For cutting, use a wheel-type plastic pipe cutter or a hacksaw blade. To achieve the best bonding surface, cut the pipe as squarely as possible.



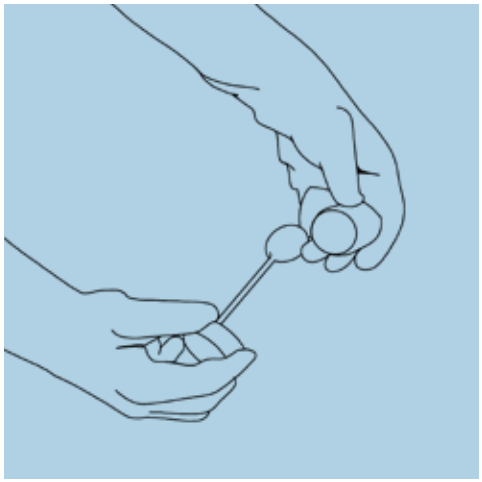
Deburring/Beveling

Burrs and filings on the pipe can interfere with the proper connection between the pipe and fitting. Remove any residual burrs from both the inside and outside of the pipe using a deburring tool, pocket knife, or file. Adding a slight bevel to the pipe's end will make it easier to insert into the fitting socket.



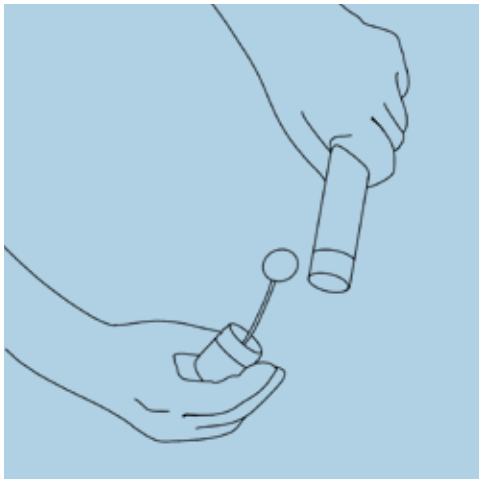
Fitting Preparation

Before assembling the pipe and fitting, clean both the pipe end and fitting socket with a dry, clean rag to remove any dirt, moisture, burr and dust. The pipe should fit snugly into the fitting socket, making contact between 1/3 to 2/3 of the way into the socket.



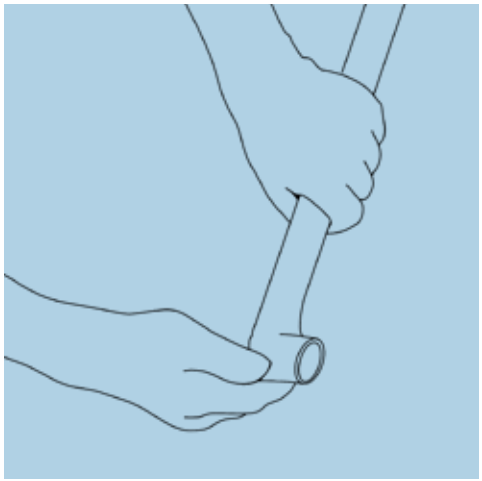
Solvent Cement Application

Use only CPVC cement or an all-purpose cement that complies with ASTM F-493 to avoid joint failure. Apply a generous, even layer of cement to the pipe end, and use the same applicator (without adding extra cement) to coat the inside of the fitting socket with a thin layer. Applying too much cement can cause weakening of pipesand blockages in the waterway.



Assembly

Quickly insert the pipe into the fitting socket and rotate the pipe slightly to ensure an even distribution of the cement within the joint.



Set and Cure

The setting and curing times for solvent cement depend on factors such as pipe size, temperature, and humidity. Curing time is generally shorter in warmer, drier environments, and for smaller pipes. A full cure typically takes 10 to 20 minutes.

*Underground installation procedure detailed in Glossary

How to Use Solvent Cement Primer & Cleaner

Joint Curing

Recommended initial set times based on temperature and pipe size:

Temperature Range	Pipe Size ½" to 1 ¼" (15 mm to 32 mm)	Pipe Size 1½" to 3" (40 mm to 80 mm)	Pipe Size 4" to 8" (100 mm to 200 mm)	Pipe Size 10" to 12" (250 mm to 300 mm)
15.5°C - 37.7°C	15 min	30 min	1 hr	2 hrs
4.4°C - 15.5°C	1 hr	2 hrs	4 hrs	8 hrs

Recommended Initial Cure Times

Please refer to the below table for initial curing times.

Temperature Range	Pipe Size ½" to 1 ¼" (15 mm to 32 mm)	Pipe Size 1½" to 3" (40 mm to 80 mm)	Pipe Size 4" to 8" (100 mm to 200 mm)	Pipe Size 10" to 12" (250 mm to 300 mm)
15.5°C - 37.7°C	6 min	12 min	24 hr	48 hrs
4.4°C - 15.5°C	12 hr	24 hrs	48 hrs	96 hrs

CPVC Solvent Cement Shelf Life

Sintex CPVC solvent cement is formulated to have a shelf life of two years. The can is typically marked with the manufacturing date. The cement should have the consistency of syrup or honey and should not contain undissolved particles. If the cement changes color, thickens, or becomes gelatinous, it must be discarded.

Solvent Cement Freezing

Protect CPVC solvent cement from freezing, as it cannot be recovered once it gels. If freezing occurs, dispose of the cement.

Pressuring Solvent Adhesive Joints

To develop full strength in solvent adhesive joints, ensure proper curing time before pressurizing:

1. **Factors impacting curing time:**

- Onsite temperature and humidity.
- Pipe diameter (larger diameter joints need more time to cure)
- Internal operating pressure and temperature

2. Cold-water lines can be pressurized once the required curing time is met. For hot-water lines, allow an additional 50% curing time before pressurizing.

3. In hot weather (above 86°F/30°C), store solvent adhesives, pipes, and fittings in a cool, shaded area and ensure the surfaces are dry before applying solvent adhesive.

Safe Handling of Solvent Cement

When handling solvent cements, primers, and cleaners, observe the following safety precautions:

* Avoid prolonged inhalation of solvent vapors. Use ventilation in enclosed areas.

* Keep all products away from ignition sources, heat, sparks, and open flames.

* Keep containers tightly closed when not in use.

* Dispose of rags used with solvents in outdoor waste receptacles.

* Avoid contact with eyes and skin. If contact occurs, flush with water for 15 minutes and consult a physician.

System Acceptance (Hydrostatic Pressure) Test

Once installation is complete and curing time has been observed, the system should undergo a hydrostatic pressure test at 1.5 times the design pressure for one hour. The system must be filled with water, and all air must be removed from the highest and farthest points. If a leak is detected, cut out the faulty joint and replace it.
Important: Never use compressed air for pressure testing, as it is hazardous.

Testing Installations

1. Perform a visual inspection of the system before pressure testing to ensure proper installation.

2. Pressure tests should not occur until at least 24 hours after the last solvent weld.

3. The testing pressure should be at least 1.5 times the expected operating pressure. However, it should not exceed the pressure rating of the system's lowest-rated component.

4. Slowly fill the system with water, avoiding water hammer. Open all air vents to remove air from the system.

Thread Sealants

Threaded CPVC fittings with tapered pipe threads (e.g., male thread adapters) should be sealed with a suitable thread sealant to ensure leak-proof joints. PTFE (Teflon®) tape remains the most widely accepted thread sealant for CPVC. Only use sealants approved for use with CPVC to avoid damaging the fittings.

General Guidelines or Installations

Do's

1. Follow Sintex's installation instructions and safe work practices.

2. Store pipes and fittings in covered areas until needed.

3. Use tools designed for plastic pipe installation.

4. Cut the pipe 25 mm beyond the crack if a defect is found.

5. Use appropriate daubers for solvent cement application.

6. Always perform hydraulic pressure testing after installation to check for leaks.

7. Rotate the pipe during cement application to ensure even distribution of cement.

8. Use Teflon tape on threaded fittings.

9. Provide both vertical and horizontal support for pipes using plastic straps.

10. Apply water-based paint on exposed pipes and fittings.

11. Inspect all joints visually during installation and pressure testing.

12. When connecting to a gas water heater, maintain a minimum distance of 50 cm from the duct.

Don'ts

1. Do not use metal hooks or nails to support pipes.

2. Never expose the pipe to open flames while bending.

3. Avoid dropping pipes or walking on them.

4. Do not dilute solvent cement with any other liquid.

5. Do not use air or gases for pressure testing.

6. Avoid using incompatible sealants, adhesives, or lubricants.

7. Do not use CPVC pipes for air, gas, or pneumatic applications.

Installation Considerations

Thermal Expansion and Contraction

Like all piping materials, Sintex HotX CPVC Plus expands when heated and contracts when cooled. CPVC piping (regardless of pipe diameter) will expand about 1 inch per 50 feet of length for every 50°F temperature increase, so allowances must be made for this movement. However, both laboratory tests and installation experience have shown that the practical issues are much smaller than the coefficient of thermal expansion might suggest.
The stresses in CPVC pipe are generally far lower than those in metal pipe for the same temperature changes due to the difference in elastic modulus. The required loops are smaller than those recommended by the Copper Development Association for copper systems. Expansion is primarily a concern in hot water lines, and thermal expansion is generally managed by changes in direction.

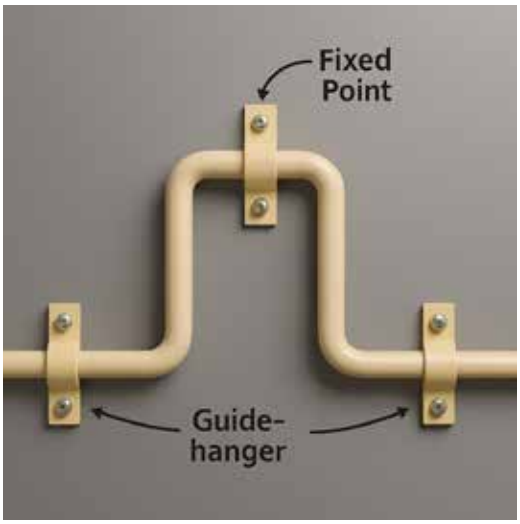
However, a long straight run may require an offset or loop. Only one properly sized expansion loop is needed for any single straight run, regardless of its total length. Alternatively, two or more properly sized smaller expansion loops can be used in a single pipe run to accommodate thermal movement. Be sure to hang the pipe with smooth straps that won't restrict movement. For convenience, loop (or offset) lengths have been calculated for different pipe sizes and run lengths with a temperature increase (ΔT) of about 80°F. The results, shown in Tables A and B, serve as a handy guide for quick and easy determination of acceptable loop lengths for these approximate conditions. Loop lengths for other temperatures and run lengths can be calculated using the following equations:

Expansion Loop Formula:

$$L = \sqrt{\frac{3\,E\,D\,(\Delta L)}{2S}}$$

Where:

L = Loop Length (inches)
E = Modulus of elasticity at maximum temperature (psi)
S = Working stress at maximum temperature (psi)
D = Outside diameter of pipe (inches)
ΔL = Change in length due to temperature change (inches)



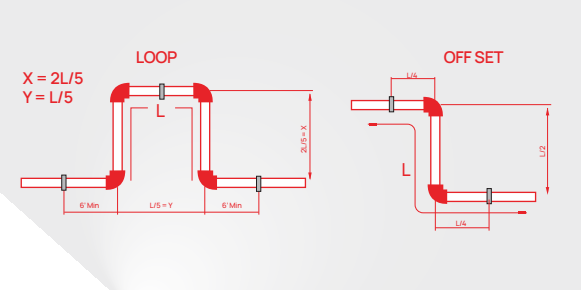
Thermal Expansion Formula

$$\Delta L = L_p C \Delta T$$

Where:

ΔL = Change in length due to temperature change (inches)
Lp = Length of pipe (inches)
C = Coefficient of thermal expansion (in./in./°F) (For CPVC, C = 3.4 x 10^{-5} in./in./°F)
ΔT = Change in Temperature (in °F)

Thermal Expansion and Contraction



Modulus of Elasticity and Working Stress For CPVC

Temperature (°C)	Modulus, E (psi)	Stress S (psi)
27	4,23,000	2,000
32	4,23,000	1,800
43	3,71,000	1,500
49	3,55,000	1,300
60	3,23,000	1,000
71	2,92,000	750
82	2,69,000	500

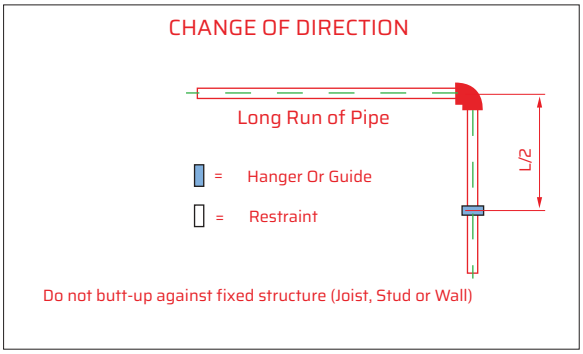
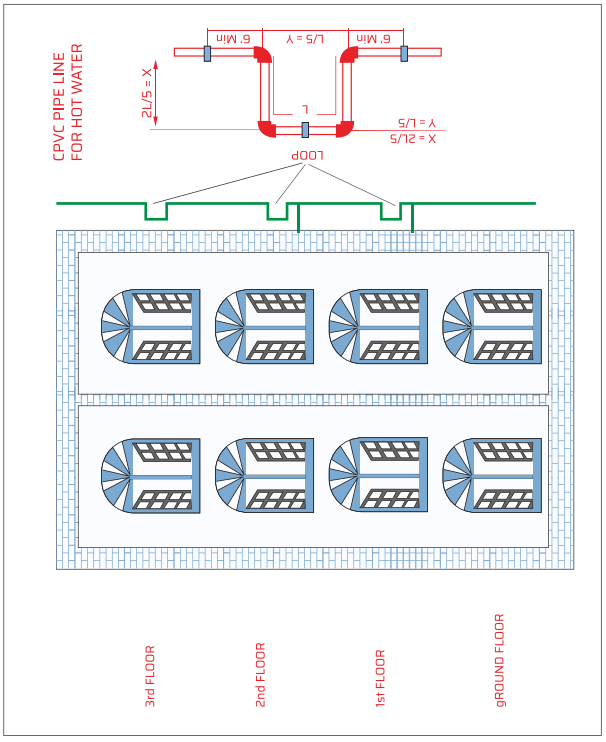


TABLE A Sintex HotX CPVC Plus pipe CTS PIPES (ASTM D 2846) Calculated Loop (Offset) Length with ΔT of approx. 80°F in inches

Nominal Size		Length of Run Feet			
(mm)	(in)	40	60	80	100
15	½	22	27	31	34
20	¾	26	32	36	41
25	1	29	36	41	46
32	1¼	32	40	46	51
40	1½	35	43	50	56
50	2	40	49	57	64



Temperature Pressure Derating Factors

Working Temperature		
°F	°C	Sintex hoteX CPVC
73 -80	23. 27	1
90	32	0.91
100	38	0.83
120	49	0.7
140	60	0.57
160	71	0.44
180	82	0.31

Horizontal & Vertical Supports

Horizontal & vertical runs of Sintex HotX Plus Pipe should be supported by pipe clamps or hangers positioned near the horizontal connection, close to the riser. The hangers should not have rough or sharp edges that come into contact with the pipe.

SPACING									
Nominal Pipe Size		21°C (70°F)		49°C (120°F)		71°C (160°F)		82°C (180°F)	
mm	in.	ft.	(cm)	ft.	(cm)	ft.	(cm)	ft.	(cm)
15	½	5.5	-167.7	4.5	-135.16	3	-91.44	2.5	-.76.2
20	¾	5.5	-167.7	5	-152.4	3	-91.44	2.5	-76.2
25	1	6	-182.88	5.5	-167.7	3.5	-106.68	3.5	-91.44
32	1¼	6.5	-198.12	6	-182.88	3.5	-106.68	3.5	-106.68
40	1½	7	-213.36	6	-182.88	3.5	-106.68	3.5	-106.68
50	2	7	-213.36	6.5	-198.12	4	-121.92	3.5	-106.68
65	2½	8	-244	7.5	-228.6	4.5	-137.16	4	-121.92
80	3	8	-244	7.5	-228.6	4.5	-137.16	4	-121.92
100	4	9	-274.32	8.5	-259.08	5	-152.4	4.5	-137.16
150	6	10	-304.8	9	-274.32	5.5	-167.07	5	-152.4
200	8	11	-335.28	10	-304.8	6	-182.88	5.5	-167.07
250	10	11.5	-350.52	10.5	-320.04	6.5	-198.12	6	-182.88
300	12	12.5	-381	11	-335.28	7.5	-228.6	6.5	-198.12

Maintenance and Care

Sintex HotX CPVC Plus requires minimal maintenance due to its robust construction and resistance to corrosion. However, following these guidelines can help ensure its continued performance:

1. Regular Inspection

Check for Wear and Damage: Periodically inspect the pipes and fittings for any visible signs of damage, such as cracks, leaks, or bulges. Pay special attention to the joints, as these are common points of failure.

Pressure Testing: Regularly test the system for pressure drops, which could indicate hidden leaks or weakened joints. This can help identify potential issues before they become major problems.

Examine for Blockages: Check for any signs of blockages, especially in areas where debris may collect. Blockages can affect the flow of water and create undue pressure on the system.

2. Cleaning

Exterior Cleaning: Use a soft, non-abrasive cloth to clean the exterior of the pipes. This prevents scratches or damage to the pipe surface. Avoid using harsh chemicals that could cause degradation.

Internal Cleaning: If necessary, flush the system periodically with clean water to remove any buildup of dirt, debris, or mineral deposits that could hinder water flow. For stubborn blockages, consider using a mild, non-corrosive cleaning agent suitable for CPVC systems.

Avoid Harsh Cleaning Agents: Never use abrasive materials or harsh solvents to clean the CPVC pipes, as this could damage the surface and affect the integrity of the pipe.

3. Avoid Excessive Heat

Temperature Limits: Sintex HotX CPVC pipes are designed to withstand temperatures up to 93°C (200°F). Exposing pipes to temperatures above this limit can weaken the material and lead to failure.

Use Insulation: In areas where high temperatures are common, or in close proximity to hot water sources, consider using heat traps and pipe insulation to reduce heat exposure and maintain the integrity of the CPVC pipes.

Monitor Hot Water Systems: Ensure that hot water systems are functioning properly and not exceeding the recommended temperature range, as this can cause the pipes to expand, warp, or crack over time.

4. Protect from UV Exposure

Limit Direct Sunlight Exposure: While HotX CPVC Plus is resistant to UV degradation, prolonged exposure to direct sunlight can still affect the material over time, leading to a loss of strength and flexibility.

Use Protective Covering: For pipes installed outdoors or in areas with high sun exposure, use protective coverings such as UV-resistant tape, foam insulation, or conduit sleeves to shield the pipes from harmful UV rays.

Regular Inspections for UV Damage: For pipes that are exposed to the sun, regularly check for signs of discoloration or brittleness. If any signs of UV damage appear, take appropriate steps to protect or replace the affected sections.

5. Avoid Physical Damage

Prevent Impact Damage: CPVC pipes, while durable, can still be vulnerable to impact. Avoid dropping heavy objects or placing unnecessary pressure on pipes during installation, maintenance, or general usage.

Protect During Construction or Renovation: If pipes are being installed in areas undergoing construction or renovation, ensure that they are adequately protected from being hit, scratched, or crushed by tools or equipment.

6. Expansion and Contraction

Accommodate Thermal Expansion: CPVC pipes expand and contract with temperature fluctuations. Ensure that your system has adequate space and expansion joints to allow for this natural movement. Installing anchors or supports at appropriate intervals can prevent undue stress on the pipes.

Monitor for Discomfort in System Pressure: In cases where temperature changes are frequent, monitor the system for any unusual pressure buildup or leakage that might indicate expansion or contraction issues.

7. Handling and Storage

Proper Storage Before Installation: Store CPVC pipes and fittings in a cool, dry place, away from direct sunlight, to prevent UV degradation before installation. Do not stack pipes in a way that could cause bending or warping.

Avoid Exposure to Chemicals: When storing CPVC pipes, ensure they are kept away from harsh chemicals, oils, or solvents, as these can degrade the material and affect its strength.

Stacking: Larger Dia SDR 11 should be put below and small dia should be put above to minimize the damage of Pipes because of storage and one should stacking to 5 levels only.

FAQs (Frequently Asked Questions)

1. How to repair punctures in concealed installations?

Repairs for punctured or damaged pipes due to drilling or chiseling can be done by removing the solvent cement plaster and using the pipe repair piece supplied by the company. Thoroughly clean and dry the damaged area. Apply solvent cement around the damaged portion of the pipe on its entire circumference. Also, apply solvent cement on the inner surface of the pipe repair piece and snap it onto the damaged area. Tie a small piece of string or binding wire around the repair piece and pipe for some time to allow it to set. This unique system for CPVC pipes ensures that the damaged pipe doesn't need to be cut or moved around for repair. Perform a pressure test before replastering.

2. Do we need to insulate the CPVC pipes?

The thermal conductivity of Sintex HotX CPVC Plus pipes and fittings is 0.14 W/MK, whereas copper has a thermal conductivity of 400 W/MK. Since CPVC is a poor conductor of heat, light insulation is only recommended for installations with continuous hot water flow, such as solar or centralized heaters. In bathrooms with independent heaters within 3 meters of location, insulation may not be necessary. Ensure the insulation material or glue used does not contain any phthalate plasticizers, as they are incompatible with CPVC and can cause system failure over time. A list of all materials incompatible with CPVC is provided at the end of this section for reference.

3. How to prevent damage due to drilling or hammering?

After concealing, like other plastic or copper pipes, Sintex HotX CPVC Plus pipes and fittings can be prone to damage and punctures from drilling, hammering, or chiseling. To avoid such accidents, provide the customer with piping route/layout diagrams and instructions for tiling, carpentry, and electrical teams. You may also add contrasting color to the solvent cement mortar used to fill the chasings.

4. Why should we use expansion loops in solar heater hot water lines?

For CPVC pipes carrying hot water from a boiler or solar water heater that are not embedded inside the wall, it is essential to use pre-made expansion loops supplied by Sintex Pipes. Use one expansion loop for every 9-12 feet of pipe between two fixed joints. These loops are designed for a maximum and minimum differential temperature of 70°C. For longer runs and greater distances between fixed joints, expansion loops can be made on-site with calculations based on the **Sintex HotX CPVC Plus** manual or existing available loops can be used after every 12 feet of pipe.

5. Can we use a combination of CPVC and uPVC piping systems?

It is strongly advised to use CPVC pipes for all internal plumbing, for both hot and cold water lines. There have been instances where non-return valve failure or pressure differences between the hot and cold water lines caused hot water to enter the cold line. If the cold water line pipe is not temperature-resistant, this can lead to leaks or bursting, causing significant damage and inconvenience.

6. At what distance should we clamp the pipes?

Please refer to the previous section for this information.

7. Is the water passing through the solvent cement joints safe for drinking?

Sintex CPVC **HotX CPVC Plus** solvent cements are NSF/ANSI 61 certified by IAPMO - India. Therefore, they are safe for drinking water applications.

8. How to support the pipeline during wall chase installations?

Install the pipeline with the help of pre-drilled 15 mm thick plywood pieces, 6" long by 2" wide. After placing the pipe in the wall chasing, support it by fixing the plywood piece over the pipe and the chasing. Only 3 to 4 supports may be needed in one toilet or bathroom installation. During installation, avoid contact between the pipe and nails. Properly align and securely grout all threaded fittings inside the chasing with a strong mix of solvent cement and sand. The pipe ends or elbows should be laid at least 2.5 cm inside the wall surface.

9. Protection against household hot water storage geyser temperature and safety mechanism malfunction

Some plumbing codes contain specific requirements for connections to gas or electric storage-type water heaters. Check if your code requires such connections and adhere to them. CPVC can be piped to electric water heaters with special metal-to-CPVC transition fittings. For wall-mounted electric geyser connections, always keep the inlet valve open and use a flexible plastic hose to connect the geyser inlet to the CPVC piping system. In gas water heaters, there should be at least 6 inches of clearance between the exhaust flue and any CPVC piping. A twelve-inch long metal nipple or appliance connector should be installed directly to the heater to protect the CPVC pipe from excessive radiant heat. Install an approved temperature/pressure (T/P) relief valve with the sensing element in the water at the top of the heater. CPVC is approved for use as a relief valve drain line piping. Use a metal-to-CPVC transition fitting to connect the relief valve and continue the pipe to the outlet. Slope horizontal pipes toward the outlet and support them at three-foot centers or closer. The pipe should discharge to the atmosphere at an approved location. Do not use CPVC pipe and fittings with commercial-type non-storage water heaters.

10. What are the frictional losses in CPVC systems?

Please refer to the previous section for a table of frictional losses in CPVC systems.

11. Are any materials incompatible with CPVC systems?

Please refer to the next section for a list of materials that are incompatible with CPVC.

12. Suggestions for Pump Room Application?

Pumps, when switched on, generate high pressure that may damage initial fittings in the system. To avoid this, follow these precautions:

1. Increase the ramp-up time so the pump gradually builds pressure, preventing damage to initial fittings.

2. Use metal fittings for the first and second fittings immediately after the pump.

3. For pipes and fittings after the metal bends, use Schedule 80 and joint them with 2-step solvent cement.

4. Ensure proper supports are provided to prevent sagging.

Water Hammer Arrestor (WHA)

Water hammer is the destructive force, pounding noise, and vibration that occur when a column of non- compressible liquid flowing through a pipe is stopped abruptly. Fast-closing positive shutoff valves contribute to water shock, which can be damaging to pipes and appliances.

Sintex Water Hammer Arrestors are designed to eliminate this effect. They feature construction that complies with requirements and incorporate a precharged, permanently sealed air chamber to absorb shock. The sealed chamber prevents the loss of air, ensuring long-lasting, trouble-free performance.

Features:

1. BSP solid hex brass adapter or solder end connection for easy installation.

2. Approved for installation with no access panel required.

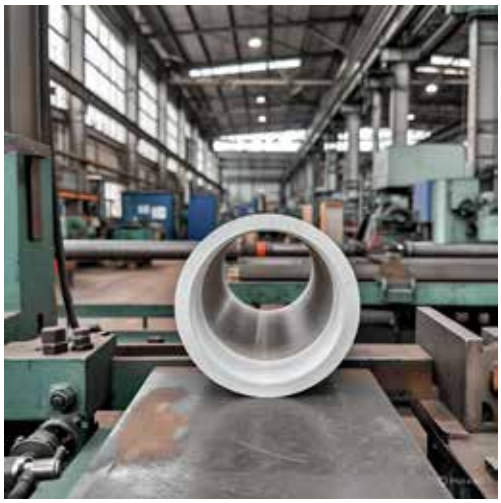
3. Can be installed in new or existing plumbing systems with a standard pipe tee, vertically or horizontally.

4. Maintenance-free, with the piston being the only moving part.

5. Air pre-load is 60 psi (4.20 bar) in the chamber.

6. Factory air-charged and permanently sealed.

7. Long-lasting product.



Contact Information

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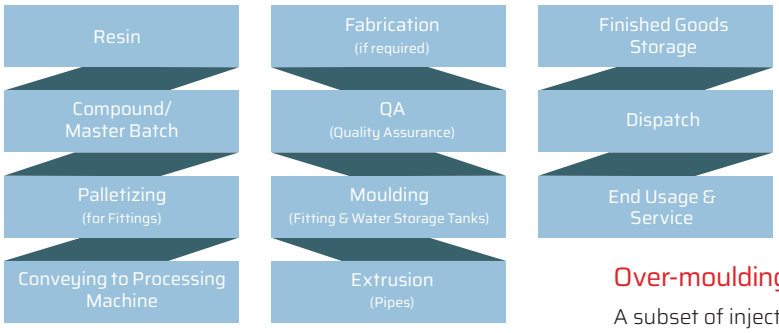
Glossary

Manufacturing Technologies Capabilities at Sintex

Plastic processing involves transforming resin into finished products through a series of precise steps. Below is an overview of the process followed at Sintex-Welspun:



Resin Procurement and Processing

Sintex sources resins from renowned global brands and enhances them with high-quality additives to create compounds of exceptional consistency. These compounds are efficiently transported via advanced conveying systems to the processing machinery. The use of state-of-the-art extruders and precision moulding machines ensures the conversion of raw resin into high-quality finished products for end-use applications.

Advanced Manufacturing Facilities

Sintex operates cutting-edge facilities equipped to manufacture pipes, fittings, and water tanks to international standards. The company's plants can process a wide range of materials, including PVC, CPVC, O-PVC, PP, HDPE, and LLDPE. The following technologies and equipment are consistently available at Sintex facilities:

Extrusion

Sintex employs high-precision extrusion processes to produce monolayer pipes with exceptional roundness. The company uses extruders from leading manufacturers, including Thyssen Extrusion Technik, Rollepaal, Krauss Maffei, and Kabra. With a wide array of die heads, Sintex can produce pipes ranging from 15 mm to 315 mm in diameter.

Co-Extrusion

Sintex utilizes advanced co-extrusion technology to manufacture multi-layer pipes, ranging from 110 mm to 315 mm, including foam-core and multi-layer variations. These pipes are produced on Kabra machines to ensure high quality and performance.

Injection moulding

Injection moulding is employed to produce consistent, high-quality fittings. Sintex maintains an extensive inventory of nearly 600 moulds from top-tier mould makers. The company utilizes Milacron injection moulding machines with capacities ranging from 150 MT to 660 MT to manufacture fittings ranging from ½ inch to 10 inches in size.

Over-moulding

A subset of injection moulding, over-moulding enables the integration of metal parts or the combination of two distinct materials within a single fitting. Brass insert fittings in PVC and CPVC, ranging from ½ inch to 3 inches, are produced using this technique at Sintex.

Fabrication

For custom shapes and large diameter fittings, Sintex employs in-house fabrication, ensuring tight tolerances and precise manufacturing. Fittings ranging from 110 mm to 315 mm in PVC are fabricated with high accuracy at Sintex's facilities.

Roto-moulding

Sintex uses roto-moulding to produce high-integrity water tanks and round-shaped products. The company's facilities can manufacture multi-layer tanks and chambers with capacities ranging from 500 liters to 25,000 liters. Roto-moulding equipment from NARoto, Rheinhardt, and in-house development enable the production of tanks in monolayer to four-layer configurations.

Blow-moulding

Blow moulding is employed at Sintex to produce loft tanks and non-round tanks at high speeds. Sintex uses Yankang machinery to produce blow-moulded water tanks ranging from 200 liters to 2,000 liters, with up to three layers.

Special moulding compound tank panels

Sintex has mastered a unique technique for producing modular water tanks ranging from 10,000 liters to over 200,000 liters. This process allows for large-scale tank production through modular construction using special moulding compounds.

Fibre reinforced composite panels

Sintex employs a specialized process to manufacture large-diameter products reinforced with glass fiber. This process enhances pressure and corrosion resistance. Sintex facilities can produce up to 6- meter diameter process tanks using this advanced technique.

Pultrusion

Pultrusion is used to co-extrude fibers and resin to create linear, special components. Sintex's facilities can produce products up to 6 meters in length using this method, offering robust performance in a variety of applications.

R&D Capabilities

Sintex operates a dedicated R&D center focused on new product development (NPD), addressing customer inquiries, and providing efficient technical assistance. The R&D team continuously enhances existing products while introducing new innovations.

Our R&D center houses specialists with extensive expertise in chemistry and polymer science, collaborating closely with application and design engineers, as well as the production team. This multidisciplinary approach drives product development and optimization.

In addition, a highly skilled design team works on both new product designs and the enhancement of existing products, ensuring resolution of any issues while boosting product strength and performance.

The R&D team also plays a vital role in supporting the Quality Assurance (QA) department with quality improvements and works in tandem with the Marketing team to resolve any existing product concerns. Furthermore, the team collaborates with the Production department on ongoing product refinement initiatives.

We conduct rigorous trials to address process challenges and continuously enhance product quality.

All products—pipes, fittings, and tanks—manufactured at Sintex facilities are assured for material integrity and design, backed by an unbiased approach. Regular updates and formulations of new additives, such as anti-microbial and anti-rodent agents, ensure the ongoing enhancement of our materials.

Testing Lab Facilities at Sintex

S#	Equipment	Range	Application	Pipes/Fittings/ System	Product Category
1	Long Tounge Micrometer(Round)	0-25 mm	Wall Thickness Measurement	System	UPVC/CPVC Fittings
2	Ultrasonic Thickness Gauge	0.75-600 mm	Wall Thickness Measurement	System	Water Storage Tanks
3	Degree Protractor (D-Head)(Angle	0-180°C	Angle Measurement	System	SWR Pipes
4	Hot Air Circulating Oven m/c(2)	0-200°C	Reversion Test	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
5	Dichloromethane Test Apparatus	0-600°C	Material geletion test	Pipe	SWR Pipes
6	Axial Shrinkage Tester	0-400°C	Reversion Test	Pipe	SWR Pipes
7	Glass Thermometer	- 10 to 150°C	Temperature Measurement	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
8	Shore A Hardness Tester	0-100 A	Rubber Property	System	SWR Pipes & Fittings
9	Density Digital Weighing Balance	0 to 200 g	Density	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
10	Sp. Gr. Hydrometer	0.800 to 1.000 g/ml		System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
11	Bulk Density Tester	As Per Result	Material Properties	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
12	Hydro Static Pressure Testing M/c.(2)	0-140 kg/cm^2	Pressure testing of pipes & Fittings	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
13	Hydrostatic Pressure Bursting Tester m/c		Burst Strength for upvc pipes & fittings	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
14	Hydrostatic Pressure Tester	0-200 kg/cm^2	Pressure testing of pipes & Fittings	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
15	Analouge Gauge Dunky Tester Pressure Gauge	0-10.6 kg/cm^2	Leakge Test	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
16	Malfunctioning test bath		CPVC Pipes Test	Pipe	CPVC Pipes
17	Hot Water Bath Tester Pressure Controller(30*20*18) for Malfunctioning test	0-250°C	Pressure testing of pipes & Fittings	Pipe	AGRI/SWR/UPVC/ CPVC Pipes & Fittings
18	Cold Water Bath		Pressure testing of pipes & Fittings	System	AGRI/SWR/UPVC/ CPVC Pipes & Fittings
19	End Plugs & Cap as per IS 4985	20mm to 200 mm	Pressure testing of pipes & Fittings	Pipe	Agri /SWR Pipes & Fittings
20	Locking External Clamps for SWR as per IS 13592	63 mm to 110mm	Pressure testing of pipes & Fittings	Pipe	SWR Pipes
21	Falling Weight Testing Machine		Drop Impact Test	Pipe	AGRI/SWR/UPVC/CPVC Pipes
22	0 Deg. C. Chamber (Deep Freezing Chamber)	(-10)°C to 15°C	Drop Impact Test	System	AGRI/SWR/UPVC/ CPVC Pipes & Fittings

S#	Equipment	Range	Application	Pipes/Fittings/ System	Product Category
23	load Weight(25kg)*4	25 kg	Deflection of WST	WST	Water Storage Tanks
24	Tensile Testing Machine	0.1000 kgf	Tensile Strength / CompressionTest	Pipes	SWR /CPVC Pipes
25	Humidity Chamber m/c	0- 100°C/ 20 to 95 %	Curing	Pipes	SWR /CPVC Pipes
26	Muffle Furnace Sulphated Ash Content Tester m/c	0-950°C	Ash Content Test	System	Agri /SWR Pipes & Fittings
27	Vicat Softening Point Test		Material Properties	System	Agri/SWR/CPVC Pipes & Fittings
28	Opacity Tester machine	0 to 100%	Opacity Test	System	Agri/CPVC Pipes & Fittings
29	Melt Flow Index Tester m/c	5 kg & 2.16 Kg	Material Flow Properties	WST	Water Storage Tanks
30	Carbon Black Content m/c		Carbon Black content Test	WST	Water Storage Tanks
31	Carbon Black Dispersion	0-200°C	Carbon Black Dispersion Test	WST	Water Storage Tanks
32	CBD Lense of Microscope	100 X,200 X	Carbon Black Dispersion Test	WST	Water Storage Tanks

Fluid Handling Characteristics

Linear Fluid Flow Velocity

The linear velocity of a fluid flowing through a pipe is calculated using the following formula:

$V = 0.4085g/d^2$

Where:
V = Linear fluid flow velocity (feet per second)
g = Flow rate (gallons per minute)
d = Inside diameter of the pipe (inches)

The values provided in the following tables are based on this formula and are applicable for all types of fluids.

To minimize the risk of hydraulic shock damage caused by water hammer surge pressures, the linear fluid flow velocity in a system should generally be limited to 5 ft/s, especially for pipes 6" and larger.

Friction Loss in Pipes

One of the key advantages of the Sintex HOTX CPVC Plus piping system over metallic piping systems is its smooth inner surface, which resists scaling and fouling. This ensures that frictional pressure losses in the fluid flow are minimized from the start and remain consistently low over time, unlike metal pipes, which can experience increased friction losses as they age due to scaling and fouling.

The Hazen-Williams Formula

The Hazen-Williams formula is the standard method for calculating friction-head losses in piping systems. It takes into account the smoothness of the pipe material; the higher the value, the smoother the material surface. For instance, CPVC piping has a C-Factor of 150 at installation, which typically remains constant throughout the pipe's life.

The fluid flow table below uses this formula with a surface roughness constant of C=150 for Corzan CPVC piping.

Formula:

$$f = 0.2083 \times \left(\frac{100}{C}\right)^{1.852} \frac{g^{1.852}}{d^{4.8655}}$$

where
f = Friction head in feet of water per 100 feet of pipe
d = Inside diameter of the pipe in inches
g = Flow rate in gallons per minute
C = Pipe surface roughness constant

Surface Roughness Constants for Other Piping Materials:
(Additional data would follow here for different materials.)

Constant (C)	Type of Pipe
150	CPVC Pipe, new - 40 Years old
130- 140	Steel/cast iron pipe, new
125	Steel Pipe, old
129	Cast Iron, 4-12 years old
110	Galvanize steel; Cast Iron, 13 - 20 years old
60-80	Cast Iron, worn/ pitted

Friction Loss in Pipe Fittings

Friction loss in pipe will also occur in system fittings. This loss through fittings is calculated according to the equivalent length of straight pipe that would produce the same friction loss in the fluid. The equivalent lengths of Corzan CPVC pipe for common fittings follow:

Nominal Size (in.)	90° Standard Elbow	45° Standard Elbow	Standard Tee Run Flow	Standard Tee Branch Flow
½	1.55	0.83	1.04	3.11
¾	2.06	1.1	1.37	4.12
1	2.62	1.4	1.75	5.25
1¼	3.45	1.84	2.3	6.9
1½	4.03	2.15	2.68	8.05
2	5.17	2.76	3.45	10.3
2½	6.1	3.3	4.1	12.2
3	7.6	4.1	5.1	15.2
4	10	5.3	6.7	20
6	15.1	8	10.1	30.2
8	19.9	10.6	13.2	39.7
10	24.9	13.3	16.6	49.9
12	29.7	15.9	19.8	59.4

Water hammer surge pressure occurs when there is a change in the fluid flow rate within a pipe, leading to a sudden surge in pressure. The longer the pipe and the faster the fluid flows, the more intense the hydraulic shock. Water hammer can be triggered by actions such as opening or closing a valve, starting or stopping a pump, or the movement of trapped air within the pipe. The maximum surge pressure caused by water hammer can be calculated using the following formula:

Formula:

$$P_{wh} = \frac{p\,\Delta V}{g_c}\left[\frac{p}{g_c\left(\frac{1}{K}+\frac{d}{bE}\right)}\right]^{\frac{1}{2}}$$

gc = Gravitational constant
K= Bulk modulus of elasticity of fluid
b= Pipe wall thickness
E= Pipe material bulk modulus of elasticity
d= Pipe inside diameter

The values in the tables below are based on this formula at 73°F, assuming that water flowing at a specific rate (in gallons per minute) is suddenly and completely stopped. At 180°F, the surge pressure is roughly 15% lower. For fluids other than water, the value can be adjusted by multiplying by the square root of the fluid's specific gravity.

THE COMBINED WATER HAMMER SURGE PRESSURE AND SYSTEM OPERATING PRESSURE SHOULD NOT EXCEED THE SYSTEM'S RECOMMENDED WORKING PRESSURE RATING.

To reduce hydraulic shock from water hammer, the fluid flow velocity should generally be kept below 5 ft/s. During system startup, the velocity should not exceed 1 ft/s while filling the system, ensuring that all air has been purged and the pressure reaches operating levels. Pumps must be prevented from drawing in air.

In some cases, additional protective equipment may be necessary to safeguard against water hammer damage. This equipment may include pressure relief valves, shock absorbers, surge arrestors, and vacuum air relief valves.

Chemical Resistance of Sintex HotX CPVC Plus

Chemical Resistance Overview

This section outlines the chemical compatibility of CPVC thermoplastic piping materials, primarily for pressure systems. CPVC is categorized into two main applications: pressure systems and corrosive waste drainage systems. CPVC is highly resistant to corrosion, unlike metal systems, and are non-conductive, preventing galvanic and electrochemical corrosion.

Types of Chemical Attack

Chemicals impact plastics in two main ways:

Solvation/Permeation: Chemicals pass through the polymer without changing its structure. Physical properties may be affected, but the material can often be restored.

Direct Chemical Attack: Exposure causes permanent chemical changes in the polymer, leading to irreversible damage.

Key Considerations

- CPVC is generally resistant to most mineral acids, bases, salts, and paraffinic hydrocarbons.
- Resistance to specific chemicals decreases with higher concentration, temperature, and applied stress.
- Combinations of chemicals may have a stronger effect than individual chemicals.

Caution Areas

Not Recommended: Chlorinated and aromatic hydrocarbons, esters, ketones, and certain oils, surfactants, and greases, which may cause environmental stress cracking.

Compatibility: Ensure all system components, including elastomers and lubricants, are compatible with the piping material.

Gaseous Substances: Certain chemicals in gaseous form should not be used in pressure systems.

Special Considerations

- CPVC may be suitable for short-term exposure to liquid hydrocarbons like gasoline and jet fuels, but not for long-term use.

- These materials have been used in low-pressure systems for contaminated water recovery, especially for low levels of incompatible substances.

Disclaimer

The chemical resistance data provided is based on testing and field experience.
However, conditions may vary, and the user is responsible for compliance with all relevant laws and regulations.

R = Recommended NR = Not Recommended

C = Caution, actual testing suggested; suspect @ certain stress levels ? = Incomplete Data; actual testing required

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Acetaldehyde	NR	NR	NR
Acetamide	NR	NR	NR
Acetic Acid, 10%	R	R	R
Acetic Acid, 20%	NR	NR	NR
Acetic Acid, Glacial	NR	NR	NR
Acetic Acid, pure	NR	NR	NR
Acetic Anhydride	NR	NR	NR
Acetone, < 5%	R	R	R
Acetone, > 5%	NR	NR	NR
Acetyl Nitrile	NR	NR	NR
Acetylene	C	C	C
Acrylic Acid	NR	NR	NR
Adipic Acid; sat. in water	R	R	R
Allyl Alcohol, 96%	C	C	C
Allyl Chloride	NR	NR	NR
Alum, all varieties	R	R	R
Aluminum Acetate	R	R	R
Aluminum Alum	R	R	R
Aluminum Chloride	R	R	R
Aluminum Fluoride	R	R	R
Aluminum HydroxideR	R	R	R

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Aniline Chlorohydrate	NR	NR	NR
Aniline Hydrochloride	NR	NR	NR
Anthraquinone	?	?	?
Anthraquinone Sulfonic Acid	?	?	?
Antimony Trichloride	R	R	R
Aqua Regia	R	NR	NR
Aromatic Hydrocarbons	NR	NR	NR
Arsenic Acid 80%	R	R	R
Arsenic Trioxide (powder)	R	NR	NR
Arylsulfonic Acid	?	?	?
Barium Carbonate	R	R	R
Barium Chloride	R	R	R
Barium Hydroxide 10%	R	R	R
Barium Nitrate	R	R	R
Barium Sulfate	R	R	R
Barium Sulfide	R	R	R
Beer	R	R	R
Beet Sugar Liquors	R	R	R
Benzaldehyde; 10%	NR	NR	NR
Benzaldehyde; > 10%	NR	NR	NR
Benzalkonium Chloride	NR	NR	NR
Benzene	NR	NR	NR
Benzoic Acid	R	C	NR
Benzyl Alcohol	NR	NR	NR
Benzyl Chloride	NR	NR	NR
Bismuth Carbonate	R	R	R
Black Liquor	R	R	R
Bleach (15% CL)	R	R	R
Borax	R	R	R
Boric Acid	R	R	R
Brine (acid)	R	R	R
Bromic Acid	R	R	R
Bromine Liquid	NR	NR	NR
Bromine Vapor 25%	NR	NR	NR
Bromine Water	?	?	?
Bromobenzene	NR	NR	NR
Bromotoluene	NR	NR	NR
Butadiene	C	C	C
Butane	C	C	C
Butanol: primary	C	C	C
Butanol: secondary	C	C	C
Butyl Acetate	NR	NR	NR
Butyl Carbitol	NR	NR	NR
Butyl Mercaptan	NR	NR	NR
Butyl Phenol	NR	NR	NR
Butyl Stearate	NR	NR	NR
ButylCellosolve	NR	NR	NR
Butyne Diol	?	?	?

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C = Caution, actual testing suggested; suspect @ certain stress levels ? = Incomplete Data; actual testing required

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Chlorine Gas (dry)	NR	NR	NR
Chlorine Gas (wet)	NR	NR	NR
Chlorine Water (sat'd 0.3%)	R	R	R
Chlorine(trace in air)	R	R	R
Chloroacetic Acid	NR	NR	NR
Chloroacety Chloride	NR	NR	NR
Chlorobenzene	NR	NR	NR
Chloroform	NR	NR	NR
Chloropicrin	NR	NR	NR
Chlorosulfonic Acid	NR	NR	NR
Chlorox Bleach Solution	C	C	C
Chrome Alum	R	R	R
Chromic Acid 10%	R	R	R
Chromic Acid 40%	R	R	R
Chromic Acid 50%	?	?	?
Chromic Acid/Sulfuric Acid/ water-50%/15%/35%	?	?	?
Chromic/Nitric Acid (15%/35%)	R	C	NR
ChromiumNitrate	R	R	R
Citric Acid	R	R	R
Citrus Oils	NR	NR	NR
Coconut Oil	NR	NR	NR
Copper Acetate	R	R	R
Copper Carbonate	R	R	R
Copper Chloride	R	R	R
Copper Cyanide	R	R	R
Copper Fluoride	R	R	R
Copper Nitrate	R	R	R
Copper Sulfate	R	R	R
Corn Oil	NR	NR	NR
Corn Syrup	R	R	R
Cottonseed Oil	NR	NR	NR
Creosote	NR	NR	NR
Cresylic Acid,50%	NR	NR	NR
Crotonaldehyde	NR	NR	NR
Crude Oil	NR	NR	NR
Cumene	NR	NR	NR
Cupric Fluoride	R	R	R
Cupric Sulfate	R	R	R
Cuprous Chloride	R	R	R
Cyclanones	?	?	?
Cyclohexane	NR	NR	NR
Cyclohexanol	NR	NR	NR
Cyclohexanone	NR	NR	NR
D.D.T. (Xylene Base)	NR	NR	NR
Desocyephedrine Hydrochloride	?	?	?
Detergents	C	C	C
Dextrin	R	R	R

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Butyric Acid < 1%	R	R	R
Butyric Acid > 1%	NR	NR	NR
Cadmium Acetate	R	R	R
Cadmium Chloride	R	R	R
Cadmium Cyanide	R	R	R
Cadmium Sulfate	R	R	R
Caffeine Citrate	R	R	R
Calcium Acetate	R	R	R
Calcium Bisulfide	R	R	R
Calcium Bisulfite	R	R	R
Calcium Bisulfite Bleach Liquor	R	R	R
Calcium Carbonate	R	R	R
Calcium Chlorate	R	R	R
Calcium Chloride	R	R	R
Calcium Hydroxide	R	R	R
Calcium Hypochlorite	R	R	R
Calcium Nitrate	R	R	R
Calcium Oxide	R	R	R
Calcium Sulfate	R	R	R
Camphor (crystals)	NR	NR	NR
Cane Sugar Liquors	R	R	R
Caprolactam	NR	NR	NR
Caprolactone	NR	NR	NR
Carbitol	NR	NR	NR
Carbon Dioxide	R	R	R
Carbon Dioxide (aqueous solution)	R	R	R
Carbon Disulfide	NR	NR	NR
Carbon Monoxide	R	R	R
Carbon Tetrachloride	NR	NR	NR
Carbonic Acid	R	R	R
Carene 500	?	?	?
Castor oil	C	C	C
Caustic Potash	R	R	R
Caustic Soda	R	R	R
Cellosolve	NR	NR	NR
Cellosolve Acetate	NR	NR	NR
Chloral Hydrate	NR	NR	NR
Chloramine	R	R	R
Chloric Acid up to 20%	R	R	R
Chloride Water	R	R	R
Chlorinated Solvents	NR	NR	NR
Chlorinated Water (Hypochlorite)	R	R	R
Chlorine (dry liquid)	NR	NR	NR
Chlorine (liquid under pressure)	NR	NR	NR
Chlorine Dioxide aqueous (sat'd 0.1%)	R	?	?

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CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Dextrose	R	R	R
Diacetone Alcohol	C	?	?
Diazo Salts	?	?	?
Dibutoxy Ethyl Phthalate	NR	NR	NR
Dibutyl Phthalate	NR	NR	NR
Dibutyl Sebacate	NR	NR	NR
Dichlorobenzene	NR	NR	NR
Dichloroethylene	NR	NR	NR
Diesel Fuels	NR	NR	NR
Diethyl Ether	NR	NR	NR
Diethylamine	NR	NR	NR
Diglycolic Acid	NR	NR	NR
Dill Oil	NR	NR	NR
Dimethyl Hydrazine	NR	NR	NR
Dimethylamine	NR	NR	NR
Dimethylformamide	NR	NR	NR
Dioctylphthalate	NR	NR	NR
Dioxane (1, 4)	NR	NR	NR
Disodium Phosphate	R	R	R
Distilled Water	R	R	R
EDTA Tetrasodium	R	R	R
Ethyl Ester (ethyl acrylate)	NR	NR	NR
Epsom Salt	R	R	R
Esters	NR	NR	NR
Ethanol > 5%	C	C	C
Ethanol up to 5%	R	R	R
Ethers	NR	NR	NR
Ethyl Acetate	NR	NR	NR
Ethyl Acrylate	NR	NR	NR
Ethyl Alcohol	C	C	C
Ethyl Chloride	NR	NR	NR
Ethyl Chloroacetate	NR	NR	NR
Ethyl Ether	NR	NR	NR
Ethylene Bromide	NR	NR	NR
Ethylene Chlorohydrin	NR	NR	NR
Ethylene Diamine	NR	NR	NR
Ethylene Dichloride	NR	NR	NR
Ethylene Glycol	C	C	C
Ethylene Oxide	NR	NR	NR
Fatty Acids	C	C	C
Ferric Acetate	R	R	R
Ferric Chloride	R	R	R
Ferric Hydroxide	R	R	R
Ferric Nitrate	R	R	R
Ferric Sulfate	R	R	R
Ferrous Chloride	R	R	R
Ferrous Hydroxide	R	R	R
Ferrous Nitrate	R	R	R

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Ferrous Sulfate	R	R	R
Fish Solubles	?	?	?
Fluorine Gas	NR	NR	NR
Fluorine Gas (wet)	NR	NR	NR
Fluoroboric Acid	?	?	?
Fluorosilisic Acid 25%	R	C	C
Formaldehyde	NR	NR	NR
Formic Acid < 25%	R	R	R
Formic Acid > 25%	C	?	NR
Freon 11	NR	NR	NR
Freon 113	NR	NR	NR
Freon 114	NR	NR	NR
Freon 12	NR	NR	NR
Freon 21	NR	NR	NR
Freon 22	NR	NR	NR
Fructcose	R	R	R
Fruit juices & pulp	R	R	R
Furfural	NR	NR	NR
Gallic Acid	?	?	?
Gas (Coke Oven)	?	?	?
Gasoline	NR	NR	NR
Gasoline, HighOctane	NR	NR	NR
Gasoline Jet Fuel	NR	NR	NR
Glucose	R	R	R
Glycerine	R	R	R
Glycol	C	C	C
Glycol Ethers	NR	NR	NR
Glycolic Acid	?	?	?
Grape Sugar	R	R	R
Green Liquor	R	R	R
Halocarbon Oils	NR	NR	NR
Heptane	C	?	?
Hercolyn	?	?	?
Hexane	C	C	C
Hexanol,Tertiary	C	C	C
Hydrazine	NR	NR	NR
Hydrobromic Acid 20%	?	?	?
Hydrochloric Acid 10%	R	R	R
Hydrochloric Acid 30%	R	R	R
Hydrochloric Acid 36%	R	R	C
Hydrochloric Acid Concentrated	?	?	?
Hydrochloric Acid pickling	R	R	R
Hydrocyanic Acid	?	?	?
Hydrofluoric Acid 3%	R	?	?
Hydrofluoric Acid 48%	NR	NR	NR
Hydrofluoric Acid 50%	NR	NR	NR
Hydrofluoric Acid 70%	NR	NR	NR
Hydrofluorsilicic Acid 30%	R	?	C

R = Recommended NR = Not Recommended

C = Caution, actual testing suggested; suspect @ certain stress levels ? = Incomplete Data; actual testing required

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Manganese Sulfate	R	R	R
Mercural Ointment Blue 5%	?	?	?
Mercuric Chloride	R	R	R
Mercuric Cyanide	R	R	R
Mercuric Sulfate	R	R	R
Mercurous Nitrate	R	R	R
Mercury	R	R	R
Mercury Ointment Ammoniated	?	?	?
Methanol <10%	R	R	R
Methanol >10%	NR	NR	NR
Methoxyethyl Oleate	NR	NR	NR
Methyl Cellosolve	NR	NR	NR
Methyl Chloride	NR	NR	NR
Methyl Ethyl Ketone	NR	NR	NR
Methyl Formate	NR	NR	NR
Methyl Iso-Butyl Ketone	NR	NR	NR
Methyl Methacrylate	NR	NR	NR
Methyl Salicylate	NR	NR	NR
Methyl Sulfate	?	?	?
Methyl Sulfuric Acid	?	?	?
Methylamine	NR	NR	NR
Methylene Bromide	NR	NR	NR
Petroleum Liquifier	?	?	?
Petroleum Oils (Sour)	C	C	C
Phenol	R	R	R
Phenylhydrazine	NR	NR	NR
Phenylhydrazine Hydrochloride	NR	NR	NR
Phosgene, Gas	NR	NR	NR
Phosgene, Liquid	NR	NR	NR
Phosphoric Acid, up to 85%	R	R	R
Phosphorous Pentoxide	R	R	R
Phosphorous Trichloride	NR	NR	NR
Phosphorous, (Yellow)	R	R	R
Photographic Solutions: Dektal Developer	?	?	?
Photographic Solutions: DK #3	?	?	?
Photographic Solutions: Kodak Fixer	?	?	?
Photographic Solutions: Kodak Short Stop	?	?	?
Picric Acid	NR	NR	NR
Plating Solutions: Brass	R	R	R
Plating Solutions: Cadmium	R	R	R
Plating Solutions: Copper	R	R	R
Plating Solutions: Gold	R	R	R
Plating Solutions: Indium	R	R	R
Plating Solutions: Lead	R	R	R
Plating Solutions: Nickel	R	R	R

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Hydrogen	C	C	C
Hydrogen Peroxide 30%	R	?	?
Hydrogen Peroxide 90%	?	?	?
Hydrogen Phosphide	?	?	?
Hydrogen Sulfide	R	R	R
Hydroquinone	R	R	R
Hydroxylamine Sulfate	?	?	?
Hypochlorite (Potassium & Sodium)	R	R	R
Hypochlorous Acid	R	R	R
Iodine	R	R	R
Iodine Solution 10%	?	?	?
Isopropanol	C	C	C
Kerosene	C	C	C
Ketones	NR	NR	NR
Kraft Liquors	R	R	R
Lactic Acid 25%	R	R	R
Lactic Acid 80%	R	C	C
Lard Oil	C	C	C
Lauric Acid	C	C	C
Lauryl Chloride	NR	NR	NR
Lead Acetate	R	R	R
Lead Chloride	R	R	R
Lead Nitrate	R	R	R
Lead Sulfate	R	R	R
Lemon Oil	NR	NR	NR
Limonene	NR	NR	NR
Linoleic Acid	C	C	C
Linoleic Oil	C	C	C
Linseed Oil	NR	NR	NR
Liquors	?	?	?
Lithium Bromide	R	R	R
Lithium Sulfate	R	R	R
Lubricating Oils, ASTM#1	?	?	?
Lubricating Oils, ASTM#2	?	?	?
Lubricating Oils, ASTM#3	?	?	?
Lux Liquid	?	?	?
Machine Oil	C	C	C
Magnesium Carbonate	R	R	R
Magnesium Chloride	R	R	R
Magnesium Citrate	R	R	R
Magnesium Fluoride R	R	R	
Magnesium Hydroxide	R	R	R
Magnesium Nitrate	R	R	R
Magnesium Oxide	R	R	R
Magnesium Salts	R	R	R
Magnesium Sulfate	R	R	R
Maleic Acid 50%	R	R	R
Manganese Chloride	R	R	R

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CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Propylene Glycol > 25%	NR	NR	NR
Propylene Oxide	NR	NR	NR
Pyridine	NR	NR	NR
Pyrogallic Acid	?	?	?
Rayon Coagulating Bath	?	?	?
Refinery Crudes	C	C	C
Rochelle Salts	R	R	R
Salicylic Acid	R	R	R
Santicizer	?	?	?
Sea Water	R	R	R
Selenic Acid	?	?	?
Sewage	R	R	R
Silicic Acid	R	?	?
Silicone Oil	R	?	?
Silver Chloride	R	R	R
Silver Cyanide	R	R	R
Silver Nitrate	R	R	R
Silver Sulfate	R	R	R
Soaps	R	R	R
Sodium Acetate	R	R	R
Sodium Alum	R	R	R
Sodium Arsenate	R	?	?
Sodium Benzoate	R	R	R
Sodium Bicarbonate	R	R	R
Sodium Bichromate	R	R	R
Sodium Bisulfate	R	R	R
Sodium Bisulfite	R	R	R
Sodium Borate	R	R	R
Sodium Bromide	R	R	R
Sodium Carbonate	R	R	R
Sodium Chlorate	R	R	R
Sodium Chloride	R	R	R
Sodium Chlorite	R	R	R
Sodium Chromate	R	R	R
Sodium Cyanide	R	R	R
Sodium Dichromate	R	R	R
Sodium Ferricyanide	R	R	R
Sodium Ferrocyanide	R	R	R
Sodium Fluoride	R	R	R
Sodium Formate	R	R	R
Sodium Hydroxide 50%	R	R	R
Sodium Hypobromite	R	R	R
Sodium Hypochlorite	R	R	R
Sodium Iodide	R	R	R
Sodium Metaphosphate	R	R	R
Sodium Nitrate	R	R	R
Sodium Nitrite	R	R	R
Sodium Perchlorate	R	R	R
Sodium Peroxide	R	R	R

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Plating Solutions: Rhodium	R	R	R
Plating Solutions: Silver	R	R	R
Plating Solutions: Tin	R	R	R
Plating Solutions: Zinc	R	R	R
Polyethylene Glycol	NR	NR	NR
Potash (Sat.Aq.)	R	R	R
Potassium Acetate	R	R	R
Potassium Alum	R	R	R
Potassium Amyl Xanthate	?	?	?
Potassium Bicarbonate	R	R	R
Potassium Bichromate	R	R	R
Potassium Bisulfate	R	R	R
Potassium Borate	R	R	R
Potassium Bromate	R	R	R
Potassium Bromide	R	R	R
Potassium Carbonate	R	R	R
Potassium Chlorate	R	R	R
Potassium Chloride	R	R	R
Potassium Chromate	R	R	R
Potassium Cyanate	R	R	R
Potassium Cyanide	R	R	R
Potassium Dichromate	R	R	R
Potassium Ethyl Xanthate	?	?	?
Potassium Ferricyanide	R	R	R
Potassium Ferrocyanide	R	R	R
Potassium Fluoride	R	R	R
Potassium Hydroxide	R	R	R
Potassium Hypochlorite	R	R	R
Potassium Iodide	R	R	R
Potassium Nitrate	R	R	R
Potassium Perborate	R	R	R
Potassium Perchlorate	R	R	R
Potassium Permanganate 10%	R	R	R
Potassium Permanganate 25%	R	R	C
Potassium Persulfate	R	?	?
Potassium Phosphate	R	R	R
Potassium Sulfate	R	R	R
Potassium Sulfide	R	R	R
Potassium Sulfite	R	R	R
Potassium Tripolyphosphate	R	R	R
Propane	C	C	C
Propane Gas	C	C	C
Propanol 0.5%	R	?	R
Propanol > 0.5%	C	C	C
Propargyl Alcohol	C	C	C
Propionic Acid 2%	R	R	R
Propionic Acid > 2%	NR	NR	NR
Propylene Dichloride	NR	NR	NR
Propylene Glycol 25%	C	C	C

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CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Triethanolamine	NR	NR	NR
Trilones	?	?	?
Trimethyl Propane	?	?	?
Trimethylamine	?	?	?
Trisodium Phosphate	R	R	R
Turpentine	NR	NR	NR
Urea	R	R	R
Urine	R	R	R
Vaseline	?	?	?
Vegetable Oils	NR	NR	NR
Vinegar	R	R	R
Vinyl Acetate	NR	NR	NR
Water: Acid Mine	R	R	R
Water: Deionized	R	R	R
Water: Demineralized	R	R	R
Water: Distilled	R	R	R
Water: Fresh & Salt	R	R	R
Water: Swimming Pool	R	R	R
WD-40	C	C	C
Whiskey	R	R	R
White Liquor	R	R	R
Wines	R	R	R
Xylene or Xylol	NR	NR	NR
Zinc Acetate	R	R	R
Zinc Carbonate	R	R	R
Zinc Chloride	R	R	R
Zinc Nitrate	R	R	R
Zinc Sulfate	R	R	R

CHEMICAL REAGENT	CPVC Type IV, Grade 1 4120 (23447)		
	73°F	140°	180°
Sodium Silicate	R	R	R
Sodium Sulfate	R	R	R
Sodium Sulfide	R	R	R
Sodium Sulfite	R	R	R
Sodium Thiosulfate	R	R	R
Sodium Tripolyphosphate	R	R	R
Sour Crude Oil	C	C	C
Soybean Oil	NR	NR	NR
Stannic Chloride	R	R	R
Stannous Chloride	R	R	R
Stannous Sulfate	R	R	R
Starch	R	R	R
Stearic Acid	R	?	?
Stoddards Solvent	C	C	C
Styrene	NR	NR	NR
Succinic Acid	R	R	R
Sugar	R	R	R
Sulfamic Acid	R	R	R
Sulfite Liquor	?	?	?
Sulfur	R	?	?
Sulfur Dioxide dry	R	R	R
Sulfur Dioxide wet	R	R	R
Sulfur Trioxide	R	R	R
Sulfuric Acid 70%	R	R	R
Sulfuric Acid 70%	R	R	R
Sulfuric Acid 80%	R	R	R
Sulfuric Acid 85%	R	C	NR
Sulfuric Acid 90%	R	C	NR
Sulfuric Acid 98%	R	NR	NR
Sulfuric Acid Fuming	NR	NR	NR
Sulfuric Acid Pickling	R	R	R
Sulfurous Acid	?	?	?
Tall Oil	C	C	C
Tan Oil	?	?	?
Tannic Acid 30%	R	?	?
Tanning Liquors	?	?	?
Tartaric Acid	R	?	?
Terpenes	NR	NR	NR
Terpineol	NR	NR	NR
Tetraethyl Lead	?	?	?
Texanol	NR	NR	NR
Thionyl Chloride	NR	NR	NR
Thread Cutting Oil	C	C	C
Titanium Tetrachloride	?	?	?
Toluol or Toluene	NR	NR	NR
Transformer Oil	C	C	C
Tributyl Citrate	NR	NR	NR
Tributyl Phosphate	NR	NR	NR
Trichloroacetic Acid	NR	NR	NR
Trichloroethylene	NR	NR	NR

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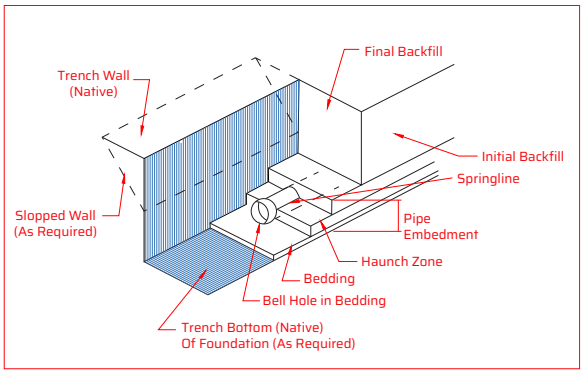
C = Caution, actual testing suggested; suspect @ certain stress levels ? = Incomplete Data; actual testing required

Underground Installation

TRENCHING

The following trenching and burial guidelines should be followed to ensure proper protection of the piping system:

1. The trench should be dug in a way that guarantees stable sides under all working conditions.



2. The trench must be wide enough to allow for the following:

A. Joining the pipe within the trench.

B. Moving the pipe from side to side to accommodate expansion and contraction.

C. Filling and compacting the side fills. The gap between the pipe and trench wall should be wider than the compaction equipment used for backfilling. The minimum trench width should be at least the larger of either the pipe's outside diameter plus 16 inches or the pipe's outside diameter times 1.25 plus 12 inches. A different trench width may be approved by the design engineer.

3. The trench floor must be smooth, clear of rocks and debris, and provide uniform support. If ledge rock, hardpan, or large boulders are encountered, the trench bottom should be padded with at least 4 inches of compacted granular material. Bedding material should be installed as required by the engineer.

4. The trench depth is based on the pipe&# 39;s service requirements. Plastic pipes should always be installed at least below the frost line. The minimum cover for pipes exposed to heavy overhead traffic should be 24 inches.

5. A smooth trench floor is required to support the pipe across its entire length on firm, stable material. Do not use blocks to change pipe grade or intermittently support the pipe over low points in the trench.

CPVC pipes and fittings can be installed underground. Due to the flexibility of these systems, care should be taken regarding burial conditions. The stiffness of the piping system depends on sidewall support, soil compaction, and trench conditions. The trench floor must be smooth and even, either in undisturbed soil or with a layer of compacted backfill. The pipe must sit evenly on this surface throughout its length. Excavation, bedding, and backfilling should be done according to the local Plumbing Code.

BEDDING AND BACKFILLING

1. The backfill material should be stable and provide adequate protection for the pipe, although sub- soil conditions may vary.

2. The pipe should be surrounded with granular material that is easy to work around. Backfilling should be done in 6-inch layers, with each layer compacted to 85% to 95% compaction.

3. If possible, use a mechanical tamper to compact sand and gravel backfill, especially when it contains a significant amount of fine materials like silt and clay. If a tamper is unavailable, compaction should be done manually.

4. The trench should be filled entirely. Backfill should be spread evenly to prevent unfilled spaces or voids.

THERMAL INSULATION FOR CPVC PIPES

CPVC pipes have significantly lower thermal conductivity compared to metals commonly used in piping systems (0.14 W/m·K for CPVC versus 400 W/m·K for copper). As such, thermal insulation is typically unnecessary for CPVC pipes. However, the following equation can be used to estimate heat loss from CPVC pipes (1-meter length):

HANDLING

CPVC pipes are lighter than metal pipes, but should still be handled with care to avoid damage. Do not drag or push pipes from a truck bed; use a forklift to remove pipes from pallets. Loose pipes can be rolled down timber, but ensure they don&# 39;t fall on one another or onto hard surfaces. Avoid sharp contact with objects like rocks or angle irons.

STORAGE

Store pipes indoors whenever possible. If not, place them on level, dry ground free from sharp objects. When stacking pipes of different schedules, place pipes with the thickest walls at the bottom. Protect the pipes from direct sunlight and ensure proper ventilation to minimize the effects of ultraviolet rays and prevent heat buildup. If pipes are stored on racks, support them along their length. If this isn&'t feasible, support spacing should not exceed 3 feet.

When temperatures drop below 0°C (32°F), handle pipes carefully, as their impact strength decreases in freezing conditions.

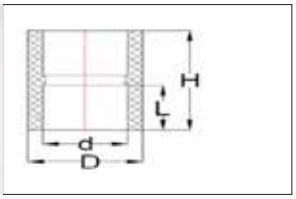
PRODUCT RANGE

Product Range

PIPE SDR-11 (3 METRE LENGTH)		
Size (inch)	Size (cm)	Product Code
¾"	2	CPP11003020
1"	2.5	CPP11003025
1¼"	3.2	CPP11003032
1½"	4	CPP11003040
2"	5	CPP11003050

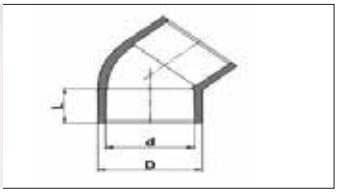
PIPE SDR-13.5 (3 METRE LENGTH)		
Size (inch)	Size (cm)	Product Code
¾"	2	CPP11003020
1"	2.5	CPP11003025
1¼"	3.2	CPP11003032
1½"	4	CPP11003040

COUPLER



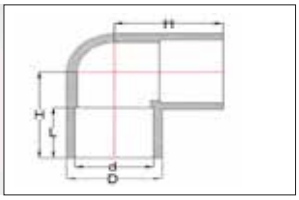
OD Size (cm)	OD Size (inch)	Product Code	H (mm)	L (mm)	D (mm)	D (mm)	D (mm)
2	¾"	CPF11CU00000020	38.15	17.78	22.45	27.35	27.35
2.5	1"	CPF11CU00000025	48.31	22.86	28.83	34.23	34.23
3.2	1¼"	CPF11CU00000032	58.5	27.95	35.2	41.6	41.6
4	1½"	CPF11CU00000040	68.7	33.05	41.7	49.3	49.3
5	2"	CPF11CU00000050	89	43.2	54.4	64.2	64.2

ELBOW 45°



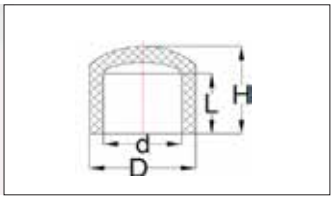
OD Size (cm)	OD Size (inch)	Product Code	D (mm)	D (mm)	D (mm)
2	¾"	CPF11EL45000020	17.78	22.45	27.35
2.5	1"	CPF11EL45000025	24.46	28.83	34.23
3.2	1¼"	CPF11EL45000032	27.94	35.2	42
4	1½"	CPF11EL45000040	33.05	41.7	49.3

ELBOW 90°



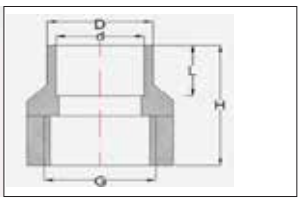
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)	D (mm)
2	¾"	CPF11EL90000020	44.4	17.78	22.45	27.35
2.5	1"	CPF11EL90000025	56.53	22.86	28.83	34.23
3.2	1¼"	CPF11EL90000032	68.5	27.94	35.2	41.8
4	1½"	CPF11EL90000040	80.58	33.02	41.66	49.26
5	2"	CPF11EL90000050	104.44	43.18	54.4	64.2

END CAP



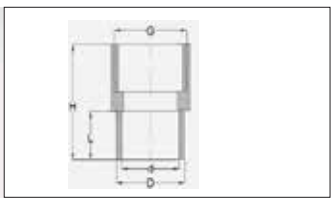
OD Size (cm)	OD Size (inch)	Product Code	H (mm)	L (mm)	D (mm)
2	¾"	CPF11EC00000020	45.58	45.58	22.45
2.5	1"	CPF11EC00000025	57.4	57.4	28.83
3.2	1¼"	CPF11EC00000032	58.59	58.59	35.2
4	1½"	CPF11EC00000040	80.77	80.77	41.66

FABT HEX



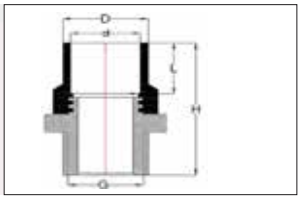
OD Size (cm)	OD Size (inch)	Product Code	H (mm)	L (mm)	D (mm)	D (mm)	G (mm)
2	¾"	CPF11FABH000020	51.8	18.28	22.45	28.25	3/4"
2.5	1"	CPF11FABH000025	66.80	26.10	30.93	41.40	1"
3.2	1¼"	CPF11FABH000032	78.00	31.50	38.20	56.00	1-1/4"
4	1½"	CPF11FABH000040	83.40	31.80	43.20	63.40	1-1/2"
5	2"	CPF11FABH000050	93.9	43.4	54.38	64.38	2"

FAPT



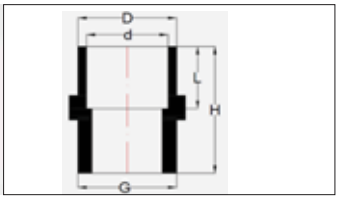
OD Size (cm)	OD Size (inch)	Product Code	H (mm)	L (mm)	D (mm)	D (mm)	D (inch)
2	¾"	CPF11FAPT000020	41.70	17.78	22.45	27.35	3/4"
2.5	1"	CPF11FAPT000025	46.04	22.90	28.94	34.34	1"
3.2	1¼"	CPF11FAPT000032	53.75	27.95	35.20	41.60	1-1/4"
4	1½"	CPF11FAPT000040	60.16	33.05	41.70	49.30	1-1/2"

MABT HEX



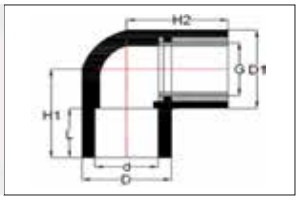
OD Size (cm)	OD Size (inch)	Product Code	H (mm)	L (mm)	D (mm)	D (mm)	G (mm)
2	¾"	CPF11MABH000020	55.9	18.28	22.45	28.25	¾
2.5	1"	CPF11MABH000025	73.65	22.86	31.71	33.30	1"
3.2	1¼"	CPF11MABH000032	80.40	23.00	37.26	40.19	1¼"
4	1½"	CPF11MABH000040	87.70	23.50	44.20	47.13	1½"
5	2"	CPF11MABH000050	102.0	43.18	54.38	64.38	2"

MAPT



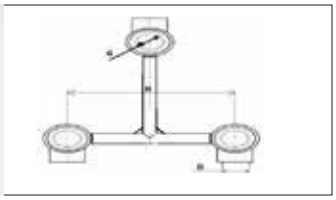
OD Size (cm)	OD Size (inch)	Product Code	H (mm)	L (mm)	D (mm)	D (mm)	D (inch)
2	¾"	CPF11MAPT000020	37.90	17.80	22.45	27.35	¾"
2.5	1"	CPF11MAPT000025	46.80	22.90	28.85	34.25	1"
3.2	1¼"	CPF11MAPT000032	54.50	27.95	35.20	41.80	1¼"
4	1½"	CPF11MAPT000040	61.75	33.05	41.70	49.30	1½"

BRASS ELBOW 90°



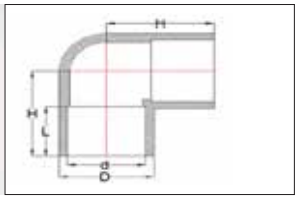
OD Size (cm)	OD Size (inch)	Product Code	L (mm)	d (mm)	D (mm)	D1 (mm)	H1 (mm)	H2 (mm)	G
1.5x1.5	½"x½"	CPF11BEL9001515	12.80	16.08	20.48	33.00	29.00	26.40	1/2"
2x2	¾"x¾"	CPF11BEL9002020	18.28	22.45	27.31	39.10	35.25	28.60	3/4"

MIXER ADAPTER TOP & BOTTOM



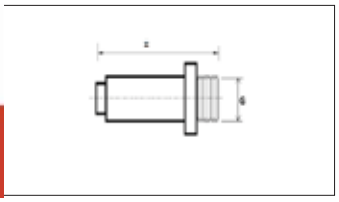
OD Size (cm)	OD Size (inch)	Product Code	L (mm)	d (mm)	D (mm)
1.5x1.5	½"x½"	CPF11BEL9001515	12.80	16.08	20.48
2x2	¾"x¾"	CPF11BEL9002020	18.28	22.45	27.31

REDUCER BRASS ELBOW 90°



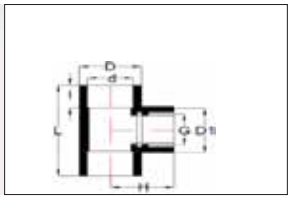
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)	D (mm)
2	¾"	CPF11EL90000020	44.4	17.78	22.45	27.35
2.5	1"	CPF11EL90000025	56.53	22.86	28.83	34.23
3.2	1¼"	CPF11EL90000032	68.5	27.94	35.2	41.8
4	1½"	CPF11EL90000040	80.58	33.02	41.66	49.26
5	2"	CPF11EL90000050	104.44	43.18	54.4	64.2

THREADED END PLUG



OD Size (cm)	OD Size (inch)	Product Code	G (mm)	H (mm)
1.5	½"	CPF11TEP0000015	60.00	½"
2x2	¾"	CPF11TEP0000020	65.00	¾"

REDUCER BRASS TEE FEMALE

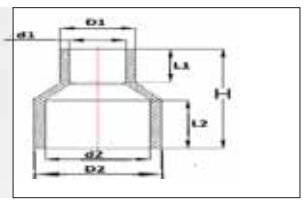


OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	I (mm)	d (mm)	D (mm)	D1 (mm)	G (mm)
2.5x2.5x1.5	1"X1"X½"	CPF11RBTF252515	36.02	77.88	22.86	28.83	34.23	34.80	1/2"
2x2x1.5	¾"X¾"X½"	CPF11RBTF202015	-	68.32	17.78	22.45	27.35	32.87	1/2"

STEP OVER BEND

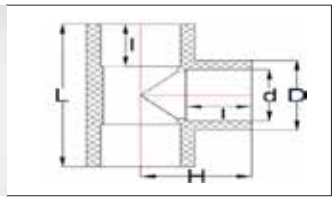
OD Size (cm)	OD Size (inch)	Product Code	H (mm)	L (mm)	d (mm)	D (mm)	d1 (mm)
2	¾"	CPF11SOB0000020	50	189.5		22.45	
2.5	1"	CPF11SOB0000025	368	28.19	35.2	45.2	25.85
3.2	1¼"	CPF11SOB0000032					

REDUCER COUPLER



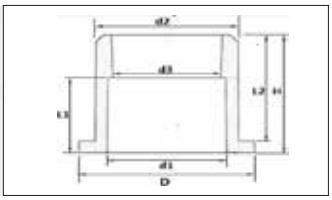
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	D1 (mm)	D2 (mm)	L1 (mm)	L2 (mm)	d1 (mm)	d2 (mm)
2.5x1.5	1"X½"	CPF11RCU0002515	38.00	20.10	26.90	12.80	18.01	16.08	22.45
2.5x2	1"X¾"	CPF11RCU0002520	45.82	22.45	28.83	17.78	22.86	27.51	32.11
2x1.5	¾"X½"	CPF11RCU0002015	33.60	20.10	26.90	12.80	18.01	16.08	22.45
3.2x1.5	1¼"X½"	CPF11RCU0003215	43.80	20.10	41.60	12.80	28.00	16.08	35.20
3.2x2.5	1¼"X1"	CPF11RCU0003225	56.01	28.83	35.20	22.86	27.95	34.09	41.60
4x2.5	1½"X1"	CPF11RCU0004025	61.11	21.83	41.70	22.86	33.05	34.09	49.30
4x3.2	1½"X1¼"	CPF11RCU0004032	66.20	35.20	41.70	27.95	33.05	41.60	49.30

TEE



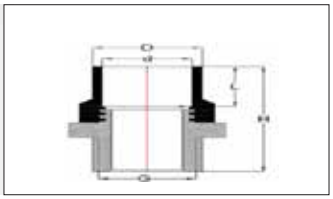
OD Size (cm)	OD Size (inch)	Product Code	H (mm)	L (mm)	I (mm)	d (mm)	D (mm)
2	¾"	CPF11T0000000020	61.32	17.78	17.78	22.45	27.35
2.5	1"	CPF11T0000000025	77.88	22.86	22.86	28.83	34.23
3.2	1¼"	CPF11T0000000032	94.38	27.94	27.94	35.2	42
4	1½"	CPF11T0000000040	110.94	33.02	33.02	41.66	49.26
5	2"	CPF11T0000000050	144.02	43.18	43.18	54.38	64.18

REDUCER BUSHING



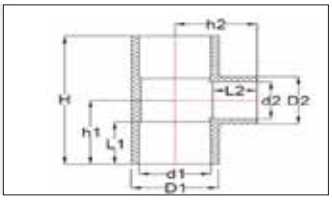
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)	D1 (mm)	L1 (mm)	L2 (mm)	d1 (mm)	d2 (mm)	d3 (mm)
2.5x2	1"X¾"	CPF11RBU0002520	26.90	-	34.05	-	17.82	22.90	22.45	28.60	22.10
3.2x2	1¼"X¾"	CPF11RBU0003220	32.45	-	41.60	-	17.80	27.95	22.45	34.90	22.12
3.2x2.5	1¼"X1"	CPF11RBU0003225	32.45	-	41.60	-	23.60	27.95	28.85	34.90	26.47
4x2	1½"X¾"	CPF11RBU0004020	36.40	49.50	22.45	41.30					
4x2.5	1½"X1"	CPF11RBU0004025	33.75	-	49.30	-	22.90	33.05	28.85	41.30	28.52
4x3.2	1½"X1¼"	CPF11RBU0004032	37.55	-	49.30	-	27.95	33.05	35.20	41.30	34.82
5x2.5	2"X1"	CPF11RBU0005025	46.80	64.60	28.83	54.00					
5x3.2	2"X1¼"	CPF11RBU0005032	46.80	-	35.20	54.00					
5x4	2"X1½"	CPF11RBU0005040	47.70	64.60	64.20	-	33.05	43.20	41.70	54.00	41.2

REDUCER MABT HEX



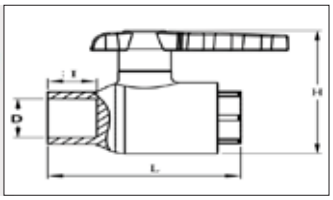
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	G (inch)
2.5x1.5	1"X½"	CPF11RMABH02515	60.23	16.70	15.20	20.10	1/2"
2.5X2.0	1"X¾"	CPF11RMABH02520	62.10	23.01	28.83	34.63	3/4"
2x1.5	¾"X½"	CPF11RMABH02015	55.00	16.70	15.20	20.10	1/2"

REDUCER TEE



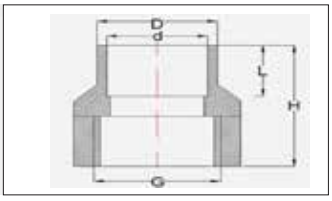
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	D1 (mm)	D2 (mm)	L1 (mm)	L2 (mm)	h1 (mm)	h2 (mm)	d1 (mm)	d2 (mm)
2.5x2.5x2	1"X1"X¾"	CPF11RT00252520	71.88	34.23	27.35	22.86	17.78	35.94	36.98	28.83	22.45
2x2x5	¾"X¾"X½"	CPF11RT00202050	61.3	26.85	20.08	17.8	12.8	30.7	25.7	22.45	16.08
3.2x3.2x2.5	1¼"X1¼"X1"	CPF11RT00323225	88.1	41.79	34.25	27.95	22.90	44.05	45.30	35.19	28.85
4x4x2	1½"X1½"X¾"	CPF11RT00404020	110.94	49.25	27.35	33.02	17.80	55.47	44.05	41.65	22.45
4x4x2.5	1½"X1½"X1"	CPF11RT00404025	110.94	49.25	34.04	22.02	20.72	55.47	49.15	41.65	28.84
4x4x3.2	1½"X1½"X1¼"	CPF11RT00404032	110.94	49.25	41.47	33.02	27.95	55.47	54.2	41.65	35.02
5x5x2	2"X2"X¾"	CPF11RT00505020	133.02	64.19	27.35	43.18	17.8	66.51	51.54	54.39	22.45
5x5x2.5	2"X2"X1"	CPF11RT00505025	133.02	64.2	34.25	43.18	22.90	66.51	56.63	54.40	28.85
5x5x3.2	2"X2"X1¼"	CPF11RT00505032	133.02	64.20	41.48	43.18	27.95	66.51	61.68	54.40	35.08

BALL VALVE



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)	I (mm)
1.5	½"	CPF11BV00000015	68.1	62.5	16.08	12.8
2	¾"	CPF11BV00000020	81.5	79.7	22.45	17.78
2.5	1"	CPF11BV00000025	96.2	91.5	28.83	22.86
3.2	1¼"	CPF11BV00000032	111.71	106.4	35.2	28.00
4	1½"	CPF11BV00000040	135.5	128.5	41.66	33.19
5	2"	CPF11BV00000050	159.8	162.8	54.38	43.20

REDUCER FABT HEX

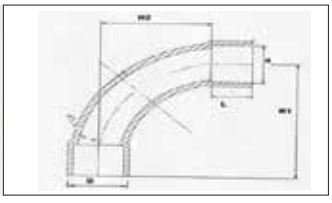


OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	G (mm)
2.5x1.5	1"X½"	CPF11RFAB002515	56.90	15.70	18.73	26.90	1/2"
2.5x2	1"X¾"	CPF11RFAB002520	58.6	23.8	28.83	34.43	3/4"
2x1.5	¾"X½"	CPF11RFAB002015	50.20	15.70	18.73	26.90	1/2"

BRASS EXTENSION NIPPLE (CP)

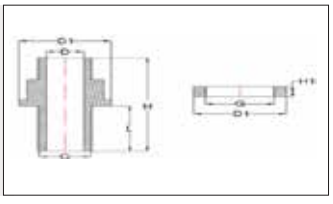
OD Size (cm)	OD Size (inch)	Material Code
1.5x2.5	½"X1"	CPF00BENCP01525

SWEEP BEND BOTH SIDE SOC



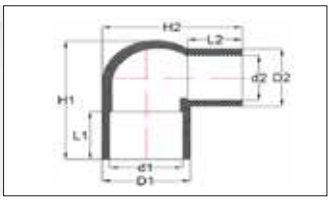
OD Size (cm)	OD Size (inch)	Material Code	L (mm)	d (mm)	D (mm)	H1 (mm)	H2 (mm)
2	¾"	CPF11SBBSS00020	18.00	22.45	26.85	77.47	49.40
2.5	1"	CPF11SBBSS00025	22.85	28.83	34.04	88.43	65.40
3.2	1¼"	CPF11SBBSS00032	28.00	35.2	41.6	103.10	75.10
4	1½"	CPF11SBBSS00040	33.10	41.66	49.26	122.37	89.20
5	2"	CPF11SBBSS00050	43.20	54.28	64.18	157.51	114.30

TANK NIPPLE (THREADED)



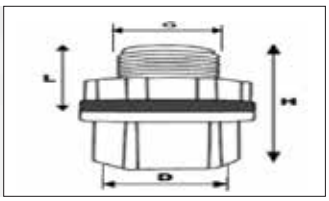
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)	D1 (mm)	L1 (mm)
2	¾"	CPF11TNT0000020	52.1	53	22.45	3/4	3/4"
2.5	1"	CPF11TNT0000025	56.8	65	28.83	1	1"
3.2	1¼"	CPF11TNT0000032	63.44	66.2	35.2	1-1/4	1-1/4"
4	1½"	CPF11TNT0000040	76.4	75	41.66	1-1/2	1-1/2"

REDUCER ELBOW 90°



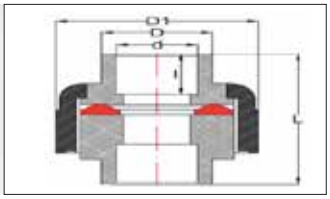
OD Size (cm)	OD Size (inch)	Material Code	D1 (mm)	D2 (mm)	H2 (mm)	L1 (mm)	L2 (mm)	D1 (mm)	D2 (mm)
2.5x2	1"X¾"	CPF11REL9002520	34.23	27.33	52.16	22.90	17.80	28.83	22.43

TANK NIPPLE (SOCKET)



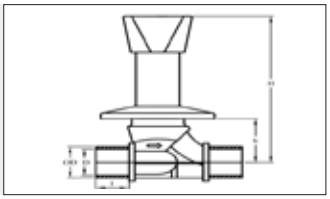
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)	D1 (mm)	G (mm)
2	¾"	CPF11TNS0000020	64.5	54.5	26.87	20	3/4"
2.5	1"	CPF11TNS0000025	72	50.7	33.66	25	1"
4	1½"	CPF11TNS0000040	87.7	70.52	48.56	40	1-1/2"

UNION



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	I (mm)	d (mm)	D (mm)	D1 (mm)
2	¾"	CPF11UN0000020	17.78	17.78	22.44	28	1.1
2.5	1"	CPF11UN0000025	22.86	22.86	28.82	34.34	1.35
3.2	1¼"	CPF11UN0000032	28	28	35.2	41.6	1.63
4	1½"	CPF11UN0000040	33.19	33.19	41.65	49.25	1.93
5	2"	CPF11UN0000050	43.2	43.2	54.39	64.19	2.52

CONCEALED VALVE TRIANGLE LONG NECK QT

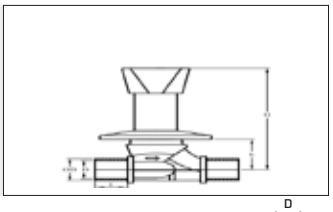


OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
1.5	½"	CPF00QCVRTN0015	117.5	93.6
2	¾"	CPF00QCVRTN0020	124	115

CPVC SOLVENT CEMENT

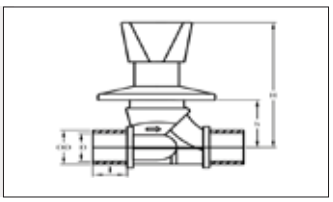
OD Size (cm)	OD Size (inch)	Material Code
Med. Bodied Plastic Coex Bottles	50	CPSBTMED0000050
Med. Bodied Plastic Coex Bottles	100	CPSBTMED0000100
Med. Bodied Plastic Coex Bottles	250	CPSBTMED0000250

CONCEALED VALVE ROUND LONG NECK QT



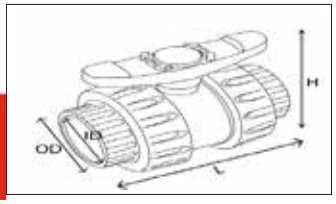
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)
1.5	½"	CPF00QCVRLN0015	117.5	93.6	16.08 / 22.45
2	¾"	CPF00QCVRLN0020	125	115	

CONCEALED VALVE ROUND SHORT NECK QT



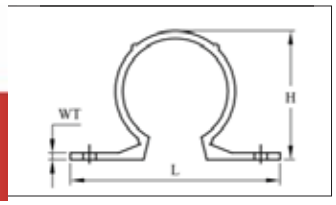
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
1.5	½"	CPF00QCVRSN0015	117.5	93.6
2	¾"	CPF00QCVRSN0020	125	115

NRV W/ UNION



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)
2	¾"	CPF00NRVU000020	90	103	61
2.5	1"	CPF00NRVU000025	105	115	70
3.2	1¼"	CPF00NRVU000032	122	130	84

PLASTIC CLAMP



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
1.5	½"	CPF00PCL0000015	45	22
2	¾"	CPF00PCL0000020	46	28
2.5	1"	CPF00PCL0000025	56	34.7
3.2	1¼"	CPF00PCL0000032	79.5	42
4	1½"	CPF00PCL0000040	89	50.5
5	2"	CPF00PCL0000050	101	64

CPVC SOLVENT CEMENT

OD Size (cm)	OD Size (inch)	Material Code
Med. Bodied Tins	500	CPSTNMED0000500
Med. Bodied Tins	1000	CPSTNMED0001000

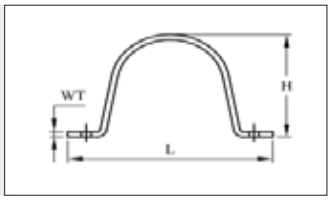
NAIL CLAMP

OD Size (cm)	OD Size (inch)	Material Code
1.5	½"	CPF00PCMCL00015
2	¾"	CPF00PCMCL00020
2.5	1"	CPF00PCMCL00025
3.2	1¼"	CPF00PCMCL00032
4	1½"	CPF00PCMCL00040
5	2"	CPF00PCMCL00050

CPVC SOLVENT CEMENT

OD Size (cm)	OD Size (inch)	Material Code
Tube in Blister Packing	20	CPSTU0000000020
Tube in Blister Packing	50	CPSTU0000000050

POWDER COATED METAL CLAMPS



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
1.5	½"	CPF00PCMCL00015	17.8	59.5
2	¾"	CPF00PCMCL00020	23.5	66.5
2.5	1"	CPF00PCMCL00025	30	72
3.2	1¼"	CPF00PCMCL00032	36.5	78.5
4	1½"	CPF00PCMCL00040	43	86.5
5	2"	CPF00PCMCL00050	55.3	103.5

LEAK PROOF BATHROOMS

Ideal for use in hot and cold water applications
in villas and individual homes, residential apartments,
office complexes, commercial buildings,
hotels and hospitals.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