

Sintex

CoolX

UPVC PLUS

Next-gen, Non-Potable COLD Water Systems: Sintex ReclaimX Potable Water Supplies

Technical Manual



**ANTI
MICROBIAL***





Next-gen, Non-Potable COLD Water Systems: Sintex ReclaimX Potable Water Supplies



the promise of life in every drop

01

INTRODUCTION
OF WELSPUN

02

INTRODUCTION
OF SINTEX

03

COMPANY
CERTIFICATIONS

04

SINTEX COOLX UPVC
PLUS POTABLE COLD
WATER SYSTEMS -
PIPES & FITTINGS

05

PRODUCT RANGE
INTRODUCTION

06

FEATURES &
BENEFITS

07

PRODUCT STANDARDS
COMPLIANCE

08

PRODUCT
CERTIFICATIONS

09

MIDDLE OF THE
WALL (SPECIAL FITTINGS)

10

PRODUCT
APPLICATIONS

11

DIFFERENCE
BETWEEN PVC & UPVC

12

PRODUCT
TECHNICAL DETAILS

12.1

PRESSURE
PIPES & FITTINGS

12.2

PVC SCHEDULE
FITTINGS

12.3

BASIC SOCKET
DIMENSIONS

13

BASIC PHYSICAL
PROPERTIES OF
UPVC RANGE

14	15	16	17
QUALITY ASSURANCE PROCEDURES AT SINTEX	INSTALLATION PROCEDURES	TESTING PRESSURE SYSTEM	INSTALLATION CONSIDERATIONS
17.1	17.2	17.3	17.4
THERMAL EXPANSION AND CONTRACTION	TEMPERATURE PRESSURE DERATING TABLE	HORIZONTAL & VERTICAL SUPPORTS	FLANGING OF SINTEX COOLX UPVC PLUS
18	19	20	21
HANDLING AND STORAGE	FAQS (FREQUENTLY ASKED QUESTIONS)	CONTACT INFORMATION	SINTEX RECLAIMX NON-POTABLE COLD WATER PIPES
22	22.1	22.2	22.3
GLOSSARY	SINTEX MANUFACTURING CAPABILITIES	SINTEX R&D CAPABILITIES	SINTEX TESTING LAB FACILITIES
22.4	22.5	22.6	22.7
FLUID HANDLING CHARACTERISTICS OF SINTEX COOLX UPVC PLUS	CHEMICAL RESISTANCE	UNDERGROUND INSTALLATION	PRODUCT RANGE DIMENSIONS



OUR LEGACY



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

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

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**



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



POTABLE
WATER SUPPLIES



SEWAGE, WASTE
RAIN WATER SYSTEM



DRAINAGE SYSTEM



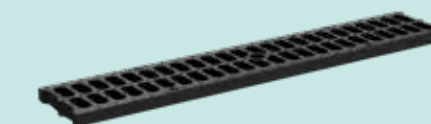
AGRICULTURAL
WATER PIPE



RECYCLE WATER
SUPPLIES



SURFACE DRAINAGE
WATER SYSTEM



PIPES



4P RANGE TANKS



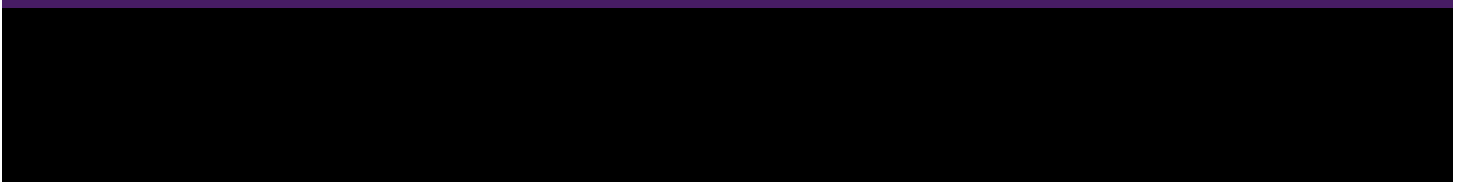
POPULAR RANGE TANKS



TANKS

A SOLUTION FOR EVERY NEED

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





Sintex Pipes

Agricultural
Water System

Drainage
Water System

Sewerage
Waste & Rain
Water System

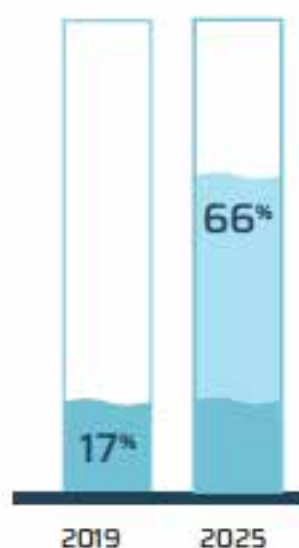
Potable
Water System

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.



ANTI RODENT



UV RESISTANT



ASSURED QUALITY



ANTI BACTERIAL



Sintex CoolX

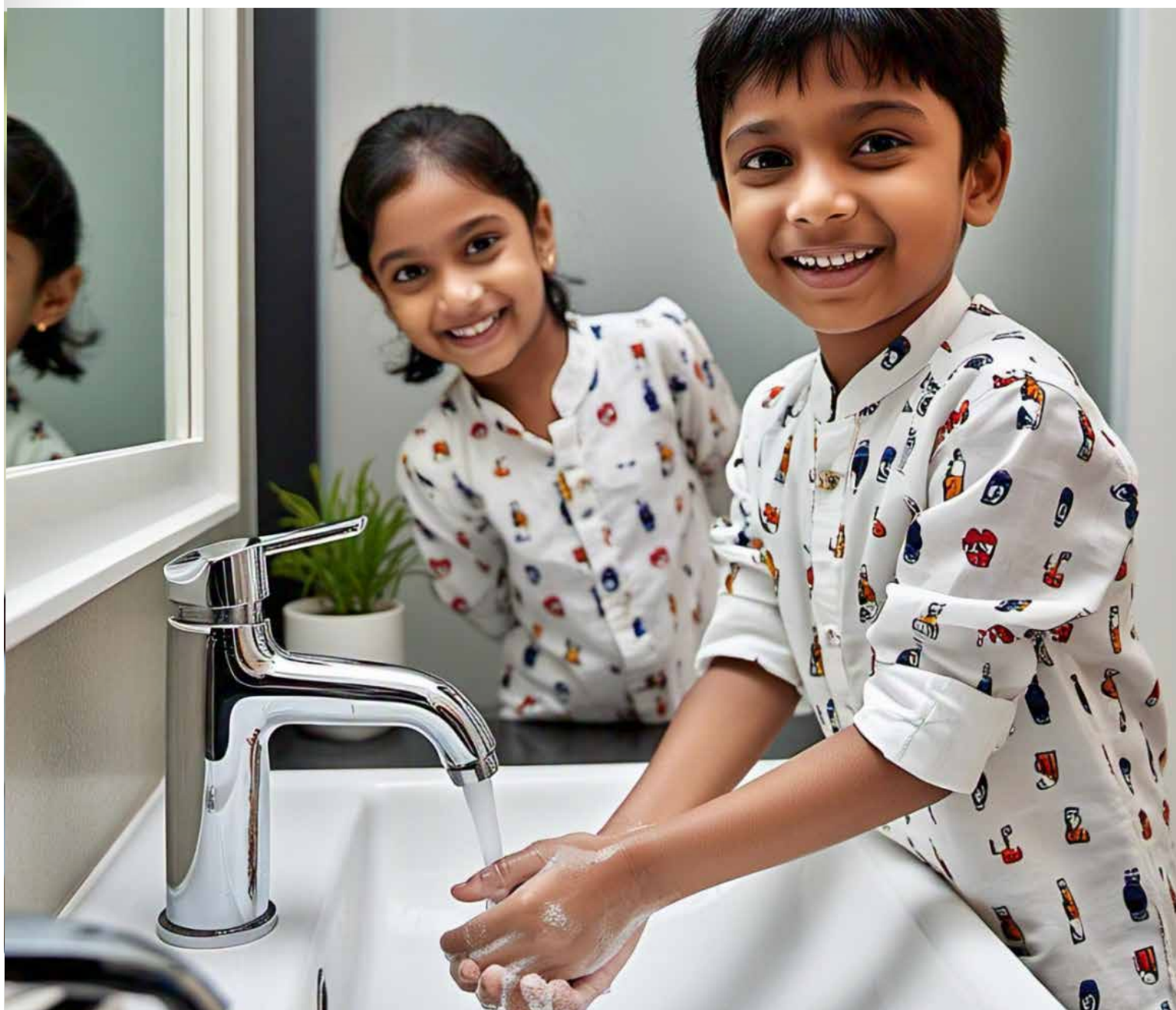
Portable water system

UPVC PLUS

Sintex proudly introduces CoolX UPVC Pipes & Fittings, a revolutionary product that takes plumbing systems to the next level with anti-microbial technology. Engineered to meet the highest standards of quality and safety, Sintex CoolX pipes and fittings are embedded with anti-microbial properties that actively inhibit the growth of harmful bacteria, fungi, and algae inside the pipes. This unique feature ensures cleaner water, reduces the risk of contamination, and prevents blockages caused by microbial growth.



**ANTI
MICROBIAL***



Areas of Use

**Industrial
Applications**



**Commercial
Plumbing Systems**



**Residential
Plumbing Systems**

uPVC (Unplasticized Polyvinyl Chloride) pipes are widely used in industrial, commercial, and residential applications due to their strength, chemical resistance, and durability. In industries, they are ideal for transporting chemicals, water, and other fluids. Commercial spaces use uPVC pipes for plumbing, drainage, and HVAC systems. In homes, they are used for water supply lines, plumbing, and borewell systems. uPVC pipes are non-corrosive, lightweight, and easy to install, making them a cost-effective and long-lasting solution across sectors.

Company Certifications



Sintex CoolX uPVC Pipes & Fittings

Sintex Cold Water Management System

refers to a modern solution developed by Sintex Industries Ltd., a leading provider of innovative plastic products and services. Sintex, known for its expertise in the manufacturing of water storage and management systems, has designed the Cold-Water Management System to address various challenges associated with the storage, distribution, and consumption of cold water in residential, commercial, and industrial spaces.

Sintex proudly introduces **CoolX UPVC Pipes & Fittings**, a revolutionary product that takes plumbing systems to the next level with **anti-microbial technology**. Engineered to meet the highest standards of quality and safety, Sintex CoolX pipes and fittings are embedded with **anti-microbial properties** that actively inhibit the growth of harmful bacteria, fungi, and algae inside the pipes. This unique feature ensures **cleaner water**, reduces the risk of contamination, and prevents blockages caused by microbial growth.

With Sintex CoolX, you not only get the durability and reliability of **UPVC** pipes but also the added benefit of **healthier, safer plumbing systems**. Designed for both residential and commercial applications, Sintex CoolX UPVC pipes offer a **long-lasting, maintenance-free solution** to your plumbing needs. Trust Sintex CoolX for plumbing that works smarter, safer, and longer.

Product Range: Offered in the Sintex CoolX Range

Type	Sub-Type	Product	Pipe Colour	Stripe Colour	Size	Length
IPS (Iron Pipe Size)	SCH 40	Pipes	White	Blue	½" - 6"	3 M, 6 M
		Pipes	White	Red	1" - 6"	3 M, 6 M
	SCH 80	Fittings	White	NA	½" - 6"	NA

Product Type	Packaging Type	SKUs	Photos
uPVC	Co-Ex Bottle	100 ML 250 ML	(Add Photos - Marketing)
	Tin	500 ML 1L	(Add Photos - Marketing)
	Tube	20 ML 50 ML	(Add Photos - Marketing)

Sintex Advantage's NXT Advantage Features & Benefits for Sintex CoolX UPVC Plus Pipes & Fittings

Feature	Technical Advantage	Benefit
Antimicrobial UPVC 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 (130Nm) & 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 for Sintex CoolX UPVC Plus Pipes & Fittings



LEAD-FREE

Sintex CoolX Pipes & Fittings are completely lead-free, ensuring safe and healthy water transportation without the risk of lead contamination, which is particularly important for drinking water. This feature makes them compliant with modern health and safety standards, offering peace of mind for residential, commercial, and industrial use. Lead-free pipes also contribute to a cleaner, more sustainable environment by preventing the release of toxic substances. Additionally, they meet global regulatory requirements and are recyclable, providing long-term health benefits and supporting a healthier community.



DURABILITY

Engineered for maximum longevity, Sintex CoolX uPVC is designed to endure even the harshest conditions. The pipes are highly resistant to corrosion, scaling, and pitting, ensuring long-term reliability. uPVC material surpasses traditional metal pipes in terms of wear resistance, extending the lifespan of your plumbing system.



ADVANCED UV RESISTANCE

Built-in UV protection makes Sintex CoolX uPVC 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 CoolX uPVC 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.



LEAK-PROOF TECHNOLOGY

The advanced joint technology used in Sintex CoolX uPVC 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.



MAINTENANCE-FREE PLUMBING

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

Product Standards Compliance

- ASTM D 1784 - Rigid Poly Vinyl Chloride (PVC) Compounds
- ASTM D 1785 - Poly Vinyl Chloride (PVC) Plastic Pipes, SCH 40 & SCH 80
- ASTM D 2466 - Socket type Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, SCH 40 ASTM D 2467 - Socket type Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, SCH 80 ASTM D 2564 - Solvent Cements for Plastic Pipes & Fittings
- ASTM F 1498 - Taper Pipe threads 60° for Thermoplastics Pipe & Fittings ASTM D 2774 - Underground Installation of Thermoplastic Pipes
- ISO 7/1 - Pipe threads where pressure joints are made on threads - Part 1: Designation, Dimension & Tolerances

Product Certifications



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

- UPVC Concealed Valve Round & Triangle Neck QT - $\frac{3}{4}$ " - 1"
- UPVC Concealed Valve Round & Triangle Neck FT - $\frac{3}{4}$ "

Wall Mixer Adaptor



Range

- Wall Mixer Adaptor 1"X $\frac{1}{2}$ " $\frac{3}{4}$ "X $\frac{1}{2}$ "

Product Applications

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



Residential Plumbing Systems

Cold Water Distribution:

In addition to its ability to manage cold water, it is ideal for potable 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

Cold Water Systems:

For commercial establishments like hotels, hospitals, schools, and office buildings, Sintex CoolX uPVC 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 CoolX uPVC 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 cooling systems, ensuring a reliable supply of water.



Chemical Transfer:

Sintex CoolX uPVC 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.

The Difference Between uPVC and PVC

There has been considerable confusion in the thermoplastics industry regarding the use of the terms uPVC and PVC when specifying thermoplastic piping products. For many years, some regions have preferred using the term uPVC to refer to unplasticized Polyvinyl Chloride piping, while other regions, such as the United States, typically use the acronym PVC (without the "U") to describe the same unplasticized PVC piping. Therefore, uPVC and PVC both refer to the same material—unplasticized or rigid PVC.

The key factor in specifying PVC piping products is not the abbreviation but rather the cell classification of the thermoplastic material. For rigid, unplasticized Type I Grade I PVC, with a hydrostatic design stress of 2000 psi, the cell classification is 12454. These numbers define the minimum physical properties that the material must meet according to ASTM D1784 to be used in pressure piping manufacturing.

In conclusion, whether a thermoplastic vinyl piping product is labeled as uPVC or PVC is not critical. What truly matters is the cell classification and the material's physical properties.

Technical Details of Sintex CoolX UPVC Plus Pipes & Fittings

Pressure Pipes & Fittings

Pressure Pipe Rating @23°C uPVC SCHEDULE 80 Pipes & Fittings

Nominal Size			Average Outside Diameter		Minimum Wall Thickness		Maximum Working	Maximum Working
(cm)	(mm)	(in)	(in)	(mm)	(in)	(mm)	Pressure at 73°F (PSI)	Pressure at 23°C (kg/cm ²)
1.5	15	½	0.84	21.24	0.147	3.73	850	59.76
2	20	¾	1.05	26.67	0.154	3.91	690	48.51
2.5	25	1	1.325	33.4	0.179	4.55	630	44.29
3.2	32	1¼	1.66	42.16	0.191	4.85	520	36.56
4	40	1½	1.9	48.26	0.2	5.08	470	33.04
4	40	2	2.375	60.32	0.218	5.54	400	28.12
6.5	65	2½	2.875	73.02	0.276	7.01	420	29.53
8	80	3	3.5	88.0	0.3	7.62	370	26.01
10	100	4	4.5	114.3	0.337	8.56	320	22.5
15	150	6	6.625	168.28	0.432	10.97	280	19.69
20	200	8	8.625	219.08	0.5	12.7	250	17.57
25	250	10	10.75	273.05	0.593	15.06	230	16.17
30	300	12	12.75	323.85	0.687	17.45	230	16.17

box to be fixed
line weight

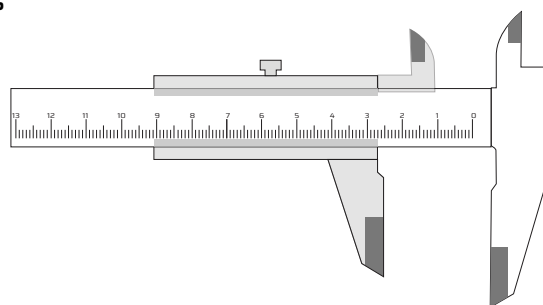
PVC Schedule 80 Fittings

The information provided below is intended as a general guide. The actual allowable working pressure may vary significantly depending on specific conditions. Additionally, pressure de-rating at higher temperatures should be considered. Some fitting types, such as Unions, Flanges, and Valves, may have different pressure limitations. For further details, please contact Sintex Technical Services.

Maximum Work Pressure at 23°C (kg/cm ²)			
Schedule 80			
Nominal Size (in.)	Pipe	Solvent Cemented Joint	Threaded Joint
½	59.76	35.85	29.88
¾	48.51	29.1	24.25
1	44.26	26.57	22.14
1¼	36.56	21.93	18.27
1½	33.04	19.82	16.52
2	28.12	16.87	14.06
2½	29.53	17.71	14.76
3	26.01	15.6	13
4	22.5	13.49	11.24
6	19.69	11.81	9.84
8	17.57	10.54	8.78
10	16.17	9.7	8.08
12	16.17	9.7	8.08

NOTES : Water pressure Ratings At 73°F (23°C) for Schedule 80 Plastic Pipe, ASTM D 1785 for PVC.
(Not For Use With Compressed Air , Gas or Vacuum)

BASIC SOCKET DIMENSIONS of Sintex CoolX Fittings



Normal Size		Diameter (in.)			Socket Length Minimum C (in.)
		Entrance	Bottom	Tolerance	SCH 80
(in.)	(mm)	A	B		
½	15	0.848	0.836	±0.004	0.875
¾	20	1.058	1.046	±0.004	1
1	25	1.325	1.31	±0.005	1.125
1¼	32	1.67	1.655	±0.005	1.25
1½	40	1.912	1.894	±0.006	1.375
2	50	2.387	2.369	±0.006	1.5
2½	65	2.889	2.868	±0.007	1.75
3	80	3.516	3.492	±0.008	1.875
4	100	4.518	4.491	±0.009	2.25
6	150	6.647	6.614	±0.011	3
8	200	8.655	8.61	±0.015	4
10	250	10.78	10.735	±0.015	5
12	300	12.78	12.735	±0.015	6

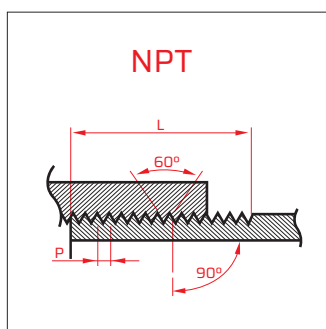
AMERICAN NATIONAL STANDARD TAPER PIPE
THREADS (NPT) ANSI STANDARD B1.20.1
ASTM STANDARD F 1498

BSP ISO 7/1 PARELLEL THREADS

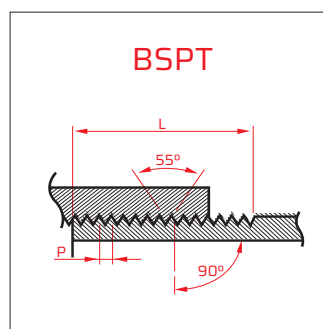
Normal Size		Threads per inch	Effective Thread	Pitch of Thread P (in.)
(in.)	(mm)			
½	15	14	0.5337	0.07143
¾	20	14	0.5457	0.07143
1	25	11½	0.6828	0.08696
1¼	32	11½	0.7068	0.08696
1½	40	11½	0.7235	0.08696
2	50	11½	0.7565	0.08696
2½	65	8	1.1375	0.12500
3	80	8	1.2000	0.12500
4	100	8	1.3000	0.12500

Normal Size		Threads per inch	Effective Thread	Pitch of Thread P (in.)
(in.)	(mm)			
½	15	14	13.152	1.8143
¾	20	14	14.514	1.8143
1	25	11	16.714	2.3091
1¼	32	11	19.050	2.3091
1½	40	11	19.050	2.3091
2	50	11	23.378	2.3091
2½	65	11	26.698	2.3091
3	80	11	29.873	2.3091
4	100	11	35.791	2.3091

NPT



BSPT



Basic Physical Properties of UPVC

PROPERTY	UNITS	PVC	ASTM NO.
Specific Gravity	g/cc	1.41 - 1.46	D 792
Tensile Strength (73°F)	PSI	7,200	D 638
Modulus of Elasticity in Tension (73°F)	PSI	4,60,000	D 638
Flexural Strength (73°F)	PSI	13,200	D 790
Izod Impact (notched at 73°F)	ft lb/in.	0.65	D 256
Hardness (Durometer D)	----	80 ± 3	D 2240
Hardness (Rockwell R)	----	110 - 120	D 785
Compressive Strength (73°F)	PSI	9,000	D 695
Hydrostatic Design Stress	PSI	2,000	D 1598
Coefficient of Linear Expansion	in./in./°F	3.1 x 10-5	D 696
Heat Deflection Temperature at 66 psi	°F	165	D 648
Coefficient of Thermal Conductivity	BTU/hr/sq. ft/°F/in.	1.2	C 177
Specific Heat	BTU/F/lb	0.25	D 2766
Limiting Oxygen Index	%	43	D 2863
Water Absorption (24 hrs at 73°F)	% weight gain	0.05	D 570
Cell Classification-Pipe	----	12454-B	D 1784
Cell Classification-Fittings	----	12454-B	D 1784

Above data is based upon information provided by the raw material manufacturers. It should be used only as a recommendation and not as a guarantee of performance.



Quality Assurance Procedures at SINTEX

At SINTEX, pipes and fittings undergo a comprehensive quality control process before being released into the market, ensuring that only flawless products reach the end users. The quality control procedures consistently follow the highest standards set by BIS (India) and ASTM (USA), as detailed below. These strict checks ensure that each product meets the necessary safety and performance requirements, offering users a dependable and long-lasting solution.

PIPES

1. Flattening Test: Samples are compressed until opposite walls come together without causing any pipe cracking. This test serves as a good indicator of the proper extrusion techniques used during production.

2. Drop Impact Test:

Weights are dropped onto the pipe at 0°C. No cracks or failures should appear after the test.

3. Heat Reversion Test:

This test measures the change in pipe length when heated in an oven and then cooled. It indicates the residual stresses remaining in the pipe from the production process.

4. Tensile Strength:

This is the maximum stress a pipe can endure while being stretched or pulled.

FITTINGS

1. Stress Relief Test:

The fitting is heated in an air-circulated oven at 150°C to assess internal stress levels. There should be no blisters, weld line splitting, or cracking.

PIPES AND FITTINGS

Visual Appearance:

This test ensures that all pipes and fittings are uniform in color and free from visible defects, such as black dots, scratches, or burn marks.

Dimensions:

This ensures that all pipes and fittings comply with the appropriate standards, particularly regarding wall thickness, socket diameters, and socket depth.

Anti-Microbial Testing (Legal Disclaimer)

- 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.
- 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.
- Anti-fungal activity and efficacy tested under lab conditions on representative organisms as per ASTM G21:2015 Standard.
- Anti-algae activity and efficacy tested under lab conditions on representative organisms (Chlorella pyrenoidosa and Scenedesmus abundans(1:1)) as per ASTM G29 Standard.
- Certified by Independent third party NABL accredited lab.
- Actual performance may vary due to different environment and usage.

Should you wish to know more, then click here [We propose a hyperlink - like SintexTanks - <https://www.sintexonline.com/disclaimer>]

Installation Procedures (with Solvent Cement)

IMPORTANT FOR INSTALLERS & USERS

WATER HAMMER

Sintex advises that all uPVC plastic piping systems should be designed and installed in a manner that prevents excessive water hammer. Water hammer can lead to damage and failure of pipes, valves, and fittings within the systems.

SEAL & GASKET LUBRICANTS

Certain lubricants, including vegetable oils, can cause stress cracking in thermoplastic materials. For installation or maintenance, particularly with flange joints, it is recommended to use a mild soap or a commercially available pipe gasket lubricant that is suitable for uPVC. The choice of lubricant is ultimately at the installer's discretion.

THREADED CONNECTIONS

Always use a high-quality thread sealant. Avoid materials that may cause stress cracking in plastic. Extra care should be taken when making plastic thread connections. Typically, one to two turns beyond finger-tight is sufficient to ensure a secure connection. Over-tightening can result in damage to both pipes and fittings. Additionally, when selecting threaded fittings, it is important to note that Sintex manufactures some fittings with NPT threads and others with BSP threads. These are not interchangeable, so proper selection is crucial.

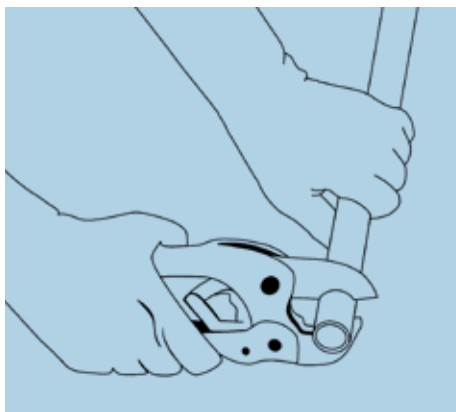
FLOW VELOCITIES

According to ASTM D 1784, ASTM D 1785, and other relevant standards, the system should not operate or be flushed at flow velocities exceeding 5 feet per second. The following standards provide guidelines for various components:

- ASTM D 1784 – Rigid Poly Vinyl Chloride (PVC) Compounds.
- ASTM D 1785 – Poly Vinyl Chloride (PVC) Plastic Pipes, SCH 40 & SCH 80.
- ASTM D 2466 – Socket Type PVC Pipe Fittings, SCH 40.
- ASTM D 2467 – Socket Type PVC Pipe Fittings, SCH 80.
- ASTM D 2564 – Solvent Cements for Plastic Pipes & Fittings.
- ASTM F 1498 – Taper Pipe Threads 60° for Thermoplastic Pipe & Fittings.
- ASTM D 2774 – Underground Installation of Thermoplastic Pipes.
- ISO 7/1 – Pipe Threads for Pressure Joints.

Note: The actual allowable working pressure may vary based on specific conditions, and pressure de-rating must be considered at elevated temperatures. Certain fitting configurations, such as wyes, unions, flanges, and valves, may have different pressure limitations. For more detailed information, please contact Sintex Technical Services.

Step- by- Step INSTALLATION PROCEDURE with Solvent Cement



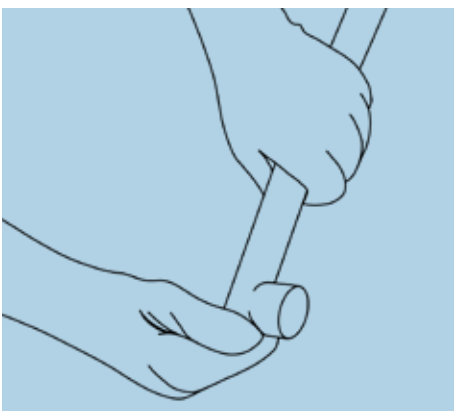
CUT PIPE

- Cut the pipe squarely, as joints are sealed at the base of the fitting socket. Angled cuts may lead to joint failure.
- Acceptable tools include a miter saw, mechanical cut-off saw, or wheel cutter. When using a wheel cutter, ensure the blade is designed for plastics.



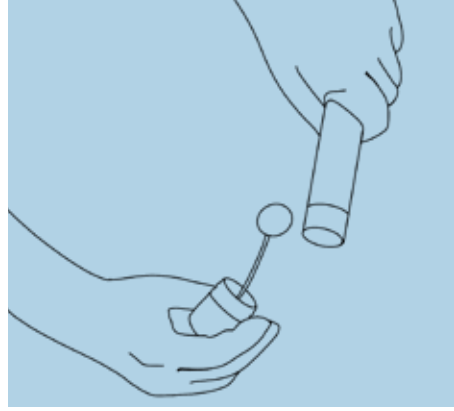
REMOVE BURR & BEVEL

- Remove any burrs from the inside and outside of the pipe using a knife-edge, file, or deburring tool. Chamfer (bevel) the pipe end at a 10°-15° angle.
- Clean the pipe surface, removing dirt, grease, or moisture with a clean, dry cloth.



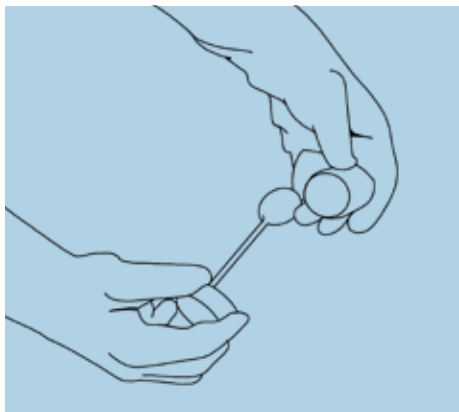
DRY FIT

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



APPLICATOR

- Use an applicator that is half the diameter of the pipe.
- A too-large applicator will force excessive cement into small diameter fittings, while a too-small applicator won't apply enough cement to large diameter systems.



CEMENT

- Apply a full, even layer of cement to the outside of the pipe and a medium layer to the inside of the fitting.

Joint Curing

RECOMMENDED INITIAL SET TIMES

Temperature Range	Pipe Size ½" to 1 ½" (15 mm to 32 mm)	Pipe Size 1 ½" 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

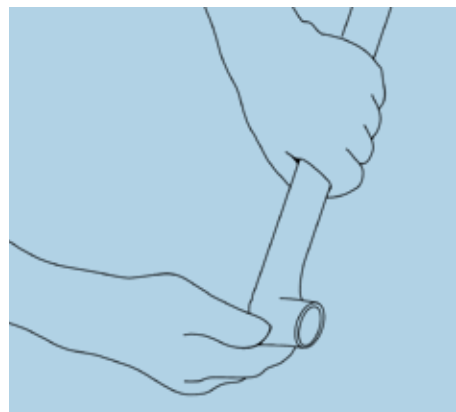
RECOMMENDED INITIAL CURE TIMES

Temperature Range	Pipe Size ½" to 1 ½" (15 mm to 32 mm)	Pipe Size 1 ½" 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 hrs.	12 hrs.	24 hrs.	48 hrs.
4.4°C - 15.5°C	12 hrs.	24 hrs.	48 hrs.	96 hrs.

uPVC CEMENT FOR SCH 80 AND INTERFERENCE FIT

Pipe Size (in.) (mm)	Cement Type	Min. Vis. (cP)	IPS
(½-2) (15-50)	Medium Bodied	500	
(2½-12) (65-300)	Heavy Bodied	2000	

Note: This procedure applies to Sintex COOLX systems.



JOIN PIPE & FITTING

- Insert the pipe into the fitting socket until it contacts the bottom. Twist the pipe a quarter turn, then hold the pipe and fitting together until the pipe does not back out.

- Remove any excess cement from the exterior. A properly made joint will show a continuous bead of cement around the perimeter.

- Follow all safety precautions during installation.

- The system should be installed professionally, in line with industry standards, and in compliance with all local plumbing, fire, and building codes. Failure to follow proper installation practices, procedures, or techniques may lead to system failure, property damage, or personal injury.

- Pipes and fittings should be used for their intended purpose as specified by local plumbing and building codes, as well as applicable ASTM standards.

- Follow the manufacturer's instructions for all related products.

TESTING PRESSURE SYSTEM for Sintex CoolX

- Before testing, appropriate safety precautions should be implemented to protect personnel and property in the event of a test failure.
- Conduct pressure testing with water only. DO NOT USE AIR OR OTHER GASES for pressure testing.
- The piping system should be securely anchored to prevent movement. Water under pressure generates thrust forces in piping systems, so thrust blocking should be provided at changes in direction, changes in size, and at dead ends.
- Refer to the provided tables for initial set and cure times before conducting pressure testing.
- The piping system should be filled with water gradually, taking care to avoid surges and air entrapment. The flow velocity should not exceed 5 feet per second.
- All trapped air must be slowly released. Vents should be installed at all high points of the system. Open all valves and air relief mechanisms to ensure the air is vented. It is extremely important that all air is slowly and completely vented before testing. For pipes sized 4" and above, Sintex recommends installing automatic air relief valves every 300-400 meters, and at the highest and furthest points of the pipeline to prevent damage to the system.
- The piping system can be pressurized up to 125% of its designed working pressure. However, care should be taken to ensure the pressure does not exceed the working pressure of the lowest-rated component in the system (such as valves, unions, flanges, threaded parts, etc.).
- The pressure test should not exceed one hour. Any leaking joints or pipes must be replaced, and the system should be recharged and retested using the same procedure.



Installation Considerations

EXPANSION AND CONTRACTION OF uPVC PIPE

CARRYING CAPACITY AND FRICTION LOSS FOR SCHEDULE 80 THERMOPLASTIC PIPE

uPVC pipes, like other piping materials, experience changes in length due to temperature variations above and below the installation temperature. They expand and contract 4.5 to 5 times more than steel or iron pipes. The degree of expansion and contraction is influenced by the coefficient of linear expansion of the material, the length of pipe between directional changes, and the temperature difference.

The coefficient of thermal expansion (Y) for uPVC is 3.1×10^{-5} in./in./°F.

The amount of expansion or contraction can be calculated using the following formula:

$$\Delta L = Y (T_1 - T_2) \times L_1$$

Where:

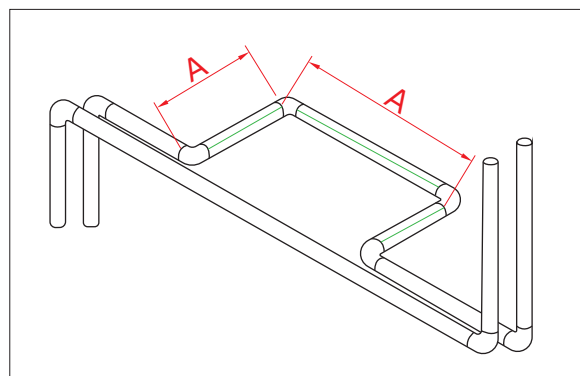
- ΔL = Dimensional change due to thermal expansion or contraction (inches)
- Y = Expansion coefficient (in./in./°F)
- $(T_1 - T_2)$ = Temperature differential between installation temperature and the maximum or minimum system temperature (whichever provides the greatest differential) (°F)
- L = Length of pipe run between directional changes (inches)

There are several methods to accommodate expansion and contraction, with the most common being:

1. Expansion loops (consisting of pipe and 90° elbows)
2. Piston-type expansion joints
3. Flexible bends
4. Bellows and rubber expansion joints

Note: Manufacturers of these devices should be consulted to determine the suitability of their products for the specific application typical expansion loop design is shown below:

Expansion loops are a simple and convenient solution for compensating for expansion and contraction when there is sufficient space in the piping system. A typical expansion loop design is shown below:



The length of leg "R" can be determined using the following formula to ensure it is long enough to absorb the expansion and contraction without damage. The length of leg "A" should be half the length of leg "R"

$$R = 1.44 D \Delta L$$

The length of leg "R" can be determined using the following formula to ensure it is long enough to absorb the expansion and contraction without damage. The length of leg "A" should be half the length of leg "R"

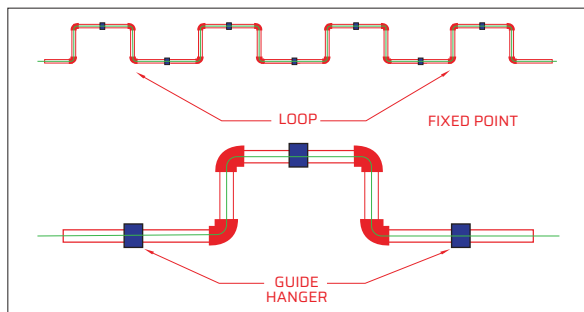
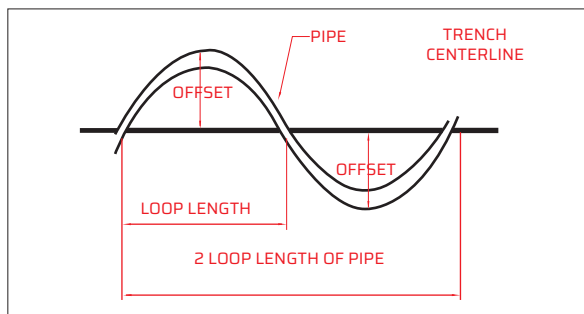
Where:

- R = Expansion loop leg length (ft)
- D = Nominal outside diameter of pipe (in.) (see table below)
- ΔL = Dimensional change due to thermal expansion or contraction (in.)

When installing an expansion loop, avoid placing any rigid or restraining supports within the loop's leg lengths. The loop should be installed as close as possible to the midpoint between anchors. Piping support guides should restrict lateral movement and direct axial movement into the loop. Additionally, the pipe and fittings should be solvent-cemented together rather than using threaded connections. In underground applications, expansion and contraction compensation is typically achieved by snaking the pipe in the trench. Proper trenching and burial procedures should be followed to protect the piping system.

The table below shows recommended offsets and loop lengths for piping up to 2½ inches nominal size.

	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
Loop Offset in Inches	Loop Length in Feet									
20	3.0	3.5	4.5	5.0	6.0	6.5	7.0	7.0	8.0	8.0
50	7.0	9.0	11.0	13.0	14.0	15.5	17.0	18.0	19.0	20.0
100	13.0	18.0	22.0	26.0	29.0	31.5	35.0	37.0	40.0	42.0



TEMPERATURE AND PRESSURE DE-RATING FACTOR

As the operating temperature of uPVC pipe exceeds 23°C (73°F), the operating pressure will decrease. To determine the pressure reduction, multiply the operating pressure by the corresponding correction factors listed below for the system's operating temperature.

Operating Temp. °C (°F)	23 (73)	27 (80)	32 (90)	38 (100)	43 (110)	49 (120)	54 (130)	60 (140)
UPVC	100%	90%	75%	62%	50%	40%	30%	22%

SUPPORT SPACING FOR uPVC PIPE

Proper support for any piping system is crucial for its effective operation. In practice, the spacing of supports depends on factors such as pipe size, operating temperature, the location of heavy valves or fittings, and the mechanical properties of the pipe material. To ensure the reliable performance of a Sintex CoolX uPVC piping system, careful consideration should be given to the placement and type of hangers. Hangers must not compress, distort, cut, or abrade the pipe.

All piping should be supported with an approved hanger at intervals close enough to maintain proper alignment and prevent sagging or misalignment. Pipes should also be supported at all branch ends and changes in direction. Trap arms should be supported as close as possible to the trap. In accordance with good plumbing practices, all closet bends should be supported, braced, and closet flanges fastened securely.

1. Concentrated loads should be supported directly to prevent high-stress concentrations. If direct support is not feasible, the pipe should be supported immediately adjacent to the load.
2. In systems subject to large temperature fluctuations, provisions must be made for expansion and contraction. Since directional changes in the system typically allow for expansion and contraction, hangers must be positioned to not impede this movement.
3. As plastic pipes expand and contract about five times more than steel, hangers should allow for this movement without restriction.
4. Hangers should provide maximum bearing surface. To prevent damage to the pipe, ensure that any sharp edges or burrs on the hangers or supports are filed smooth.
5. Support spacing for horizontal piping systems is based on the maximum operating temperature the system will experience. The pipe should be supported at regular intervals, with supports that do not restrict axial movement.
6. For vertical lines, it is recommended that an engineer design the vertical supports to accommodate the vertical load involved.

SCHEDULE - 80 RECOMMENDED SUPPORT SPACING (IN FEET)

Normal Pipe Size		Temperature °C				
(in.)	(mm)					
-	-	15.5	26.6	37.7	48.8	60
½	15	5	4½	4½	3	2½
¾	20	5½	5	4½	3	2½
1	25	6	5½	5	3½	3
1¼	32	6	6	5½	3½	3
1½	40	6½	6	5½	3½	3½
2	50	7	6½	6	4	3½
2½	65	7½	7½	6½	4½	4
3	80	8	7½	7	4½	4
4	100	9	8½	7½	5	4½
6	150	10	9½	8½	6½	5½
8	200	11	10	9½	7½	6
10	250	12½	11	10½	7½	6½
12	300	13	12	10½	7½	6½

FLANGING OF Sintex CoolX uPVC Plus Pipes & Fittings

Flanging is a method used to allow temporary disassembly of a piping system or when it is not possible to use solvent cemented joints at the assembly site. Flanges are connected to the pipe using either solvent cement or threaded joints. For the correct techniques, refer to the sections on solvent cementing or threading of Sintex CoolX uPVC pipe. Flanged joints use an elastomeric gasket between the mating faces to create a seal. The selected gasket must be full-faced and have a hardness of 55-80 durometer A, with a typical thickness of 1/8". The gasket material must be resistant to the chemical environment, and manufacturers of gasket materials often provide this information. If the piping system is for potable water service, the gasket must also be approved for potable water use.

The flanges should be carefully aligned, and bolts should be inserted through matching holes. A flat washer should be placed beneath each nut and bolt head. Tighten each bolt partially using an alternating sequence. A torque wrench should be used for the final tightening of the bolts. Bolts should be tightened to the recommended torque according to the table, using the same alternating sequence. Flange joints are typically rated to 150 psi at 23°C. For systems operating at higher temperatures, the flange pressure rating should be reduced with the same derating factors applied to the piping system's pressure rating.

HANDLING AND STORAGE of uPVC Pipes

HANDLING:

The pipe should be handled with reasonable care. While thermoplastic pipes are lighter than metal pipes, which may lead to the temptation to mishandle them, this should be avoided.

The pipe should never be dragged or pushed from a truck bed. Pallets of pipe should be removed with a forklift. Loose pipe can be rolled down, but care should be taken to avoid pieces falling on each other or onto hard, uneven surfaces. In all cases, the pipe should not come into severe contact with sharp objects (e.g., rocks, angle irons, or forklift forks).

STORAGE:

Whenever possible, pipes should be stored indoors. If indoor storage isn't possible, the pipes should be stored on level, dry ground free of sharp objects. When stacking pipes of different schedules together, the pipe with the thickest wall should be placed at the bottom.

The pipe should be shielded from the sun and stored in an area with proper ventilation. This helps reduce the impact of ultraviolet rays and prevent heat buildup. If the pipe is stored on racks, it should be supported continuously along its length. If this isn't possible, supports should be placed no more than three feet apart.

When the storage temperature is below 0°C (32°F), extra care must be taken during handling to prevent damage, as uPVC pipe has slightly lower impact strength at freezing temperatures.

NOT FOR USE WITH COMPRESSED AIR OR GASES:

Sintex CoolX does not recommend using thermoplastic piping products for systems designed to transport or store compressed air or gases, nor for pressure testing thermoplastic systems with compressed air or gases, whether above or below ground. Using Sintex CoolX products in compressed air or gas systems voids any warranty for these products, and the responsibility and liability for such use rests entirely with the installer.

WARNING: Do not use compressed air or gas to test any PVC thermoplastic piping product or system. Do not use compressed air or gas-powered devices to clear systems. These practices can result in explosive fragmentation of the system, leading to serious or fatal injuries.

FREQUENTLY ASKED QUESTIONS (FAQs)

Why Lead-free?

Lead has no known biological benefits and can damage several body systems, including the nervous, reproductive, and kidney systems. Lead can also cause high blood pressure, anemia, and is especially harmful to developing children and fetuses. Lead accumulates in bones, and poisoning can be diagnosed by a blue line around the gums. It disrupts calcium and Vitamin D metabolism, causing irreversible damage such as learning disabilities, behavioral issues, and mental retardation. For this reason, lead-free plumbing systems are favored for transporting potable water.

Do I need to use plastic insulators when passing through a stud?

While no special provisions are required when passing through wood studs, protection must be used when passing through metal studs to prevent abrasion and reduce noise. This protection can come in the form of plastic-insulated rubber grommets, pipe insulation, or similar materials.

Should I use specific primers and solvent cement with uPVC systems?

Sintex CoolX recommends using solvent cement specifically manufactured to meet ASTM D 2564 standards. All-purpose solvent cement should not be used. Primers formulated for uPVC pipe are acceptable. For more details, refer to the installation procedures in this manual.

What is the expected life of Sintex CoolX System?

The Sintex CoolX uPVC system is designed with significant safety factors, ensuring a long service life. The system is expected to have a design service life of 50 years. It is resistant to corrosion, scale build-up, and electrolysis in areas with aggressive water, soil, or atmospheric conditions. Sintex CoolX systems provide a lifespan comparable to or longer than alternative materials.

Why do uPVC pipe ends sometimes split during installation? How can this be prevented?

Most cracks result from rough handling during transportation, storage, or installation. Fine cracks can also occur from using dull or damaged ratchet cutters. uPVC becomes more brittle in cold weather, especially below 10°C. To avoid cracks, the following steps should be taken:

- Educate installers on proper handling.
- Use a saw or circular tubing cutter with a plastic tubing blade.
- Inspect pipe ends before joining, and cut off any split portions.
- Warm the pipe by gripping the area to be cut for about 10 seconds during cold weather.

Is it possible to connect IPS system with CTS system?

Yes, Sintex CoolX offers special transition fittings that connect IPS (Iron Pipe Size) and CTS (Copper Tube Size)

Will Sintex CoolX System save me Money?

Yes, you will find that uPVC systems can be installed at least 25% faster than metal systems. This offers financial savings due to lower tool costs and insurance advantages. Even with fluctuating metal prices, uPVC continues to offer substantial material savings, up to 50-60% less than metal alternatives.

What about health safety and fire toxicity?

Tests confirm that uPVC systems are superior to metal systems regarding water quality and fire safety. The Sintex CoolX uPVC system is lead-free, making it a safer option for health and safety. The Limiting Oxygen Index (LOI) of uPVC is 45, meaning it is not easily combustible. It has a self-extinguishing nature and stops burning once the heat source is removed.

Is Sintex CoolX system resistant to U.V. exposure?

While UV light can catalyze oxidation in some polymers, uPVC primarily undergoes dehydrochlorination, which does not significantly break down polymer chains. This results in only surface discoloration and a slight loss of impact resistance. To protect uPVC from UV exposure, exterior latex paint (water-based) can be applied to exposed sections.

Will Sintex CoolX provide a financial advantage in terms of utilities expenses?

Yes, uPVC systems have significantly better insulating properties compared to metal systems. With a thermal conductivity 2500 times lower than metal, uPVC helps maintain water temperature for longer periods, leading to long-term savings for energy-conscious owners.

Can Sintex CoolX system be used at temperatures around 10-15°C?

Yes, Sintex CoolX systems can be used at temperatures between 10-15°C. While uPVC becomes more brittle below 23°C, there is no reduction in hydrostatic strength at lower temperatures. However, sound engineering design considerations are necessary to mitigate water hammer and impact issues at these temperatures.

What about noise emissions compared to metallic system?

In metal systems, sound travels faster due to the higher velocity of sound in metal, which creates noise emissions. In uPVC systems, the sound travels through water, which has a higher velocity than in uPVC, making uPVC systems significantly quieter.

Contact Information:

Mail to:
sintex_support@welspun.com

Toll Free No.
18001212764



Sintex

ReclaimX

Non – Potable Cold Water Systems

PVCU PLUS



Sintex ReclaimX uPVC lead-free plumbing pipes are designed for transferring cold and non-potable pressurized treated water, which is reclaimed from various usage sources like wastewater from sinks, shower drains, washing machines, bathtubs, dishwashers, etc. Sintex ReclaimX pipes are easily identifiable by their 'Purple Colour,' a universal symbol for recycled water. This color makes them distinguishable from other pipes. Reclaiming wastewater helps conserve water resources and contributes to maintaining ecological balance.

Range

Pipes: SCH 40: ½" - 2".

Fittings: Sintex CoolX UPVC Fittings are used along with ReclaimX Pipes

Features & Benefits:

- **Sustainable Water Management:** Reclaim wastewater from various sources like household drains to conserve valuable water resources.
- **Distinctive Purple Color:** Easily identifiable for recycled water, promoting awareness and preventing cross-contamination with potable water systems.
- **Durable & Leak-Proof:** Built to withstand pressurized systems, ensuring long-lasting, reliable performance without leaks or degradation.
- **Lead-Free Composition:** Made with non-toxic, lead-free uPVC material, ensuring safe and secure use in any environment.
- **Eco-Friendly Solution:** By using reclaimed water for non-potable purposes, you actively reduce the demand on fresh water resources, contributing to environmental sustainability.
- **Corrosion-Resistant:** Resistant to harsh chemicals and high water pressure, making them ideal for reclaimed water systems in residential, commercial, and industrial applications.
- **Easy Installation:** Lightweight and easy to handle, reducing installation time and labor costs.

Applications

Sintex ReclaimX pipes are ideal for sustainable applications and Green Building systems:

- Irrigation and landscaping
- Watering and dust control for under-construction buildings
- Public utilities for non-potable applications
- Industrial use
- Residential and commercial building flush lines

Applicable Standards

- ASTM D1784 Standard Classification Systems and Basis for Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds
- ASTM D1785 Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120

Specifications

Nominal Size		Average Outside Diameter (mm)		Wall Thickness (mm)		Pressure Rating @23°C (kg/cm2)
				Sch 40		Sch 40
(cm)	(inch)	Min	Max	Min	Max	Max
1.5	½	21.24	21.44	2.77	3.28	42.19
2	¾	26.57	26.77	2.87	3.38	33.75
2.5	1	33.27	33.53	3.38	3.89	31.64
3.2	1¼	42.03	42.29	3.56	4.07	26.01
4	1½	48.11	48.41	3.68	4.19	23.2
5	2	60.17	60.47	3.91	4.42	19.69

Type of fittings & accessories for installation

Sintex CoolX uPVC Plus Sch 40 & Sch 80 regular fittings can be used with Sintex ReclaimX Pipes.

- Raw Material Test
- Dimensional & Visual Test
- Drop Impact Test
- Flattening Test
- Reversion Test
- Burst Pressure Test

Contact Information

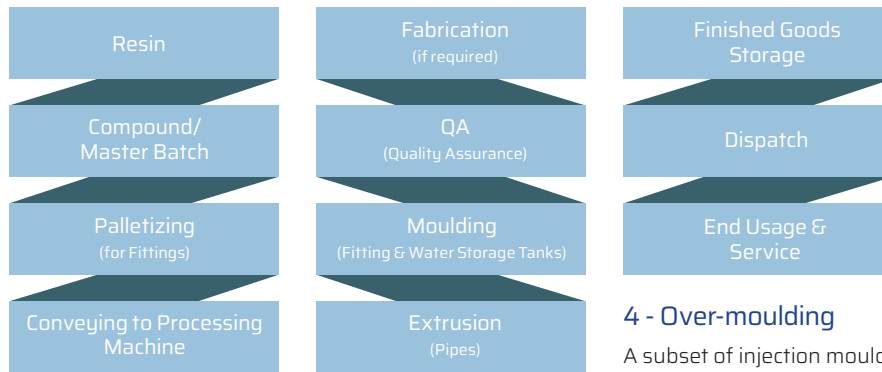
Mail to: sintex_support@welspun.com

Toll Free No. 18001212764

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:

1 - 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.

2 - 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.

3 - 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.

4 - 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.

5 - 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.

6 - 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.

7 - 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.

8 - 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.

9 - Fibre reinforced composite 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.

10 - Pultrusion

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.

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	Pipes	SWR Pipes
2	Ultrasonic Thickness Gauge	0.75-600 mm	Wall Thickness Measurement	Pipes	SWR Pipes
3	Degree Protractor (D-Head)(Angle	0-180°C	Angle Measurement	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
4	Hot Air Circulating Oven m/c(2)	0-200°C	Reversion Test	System	SWR Pipes & Fittings
5	Dichloromethane Test Apparatus	0-600°C	Material geletion test	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
6	Axial Shrinkage Tester	0-400°C	Reversion Test	System	AGRI/SWR/UPVC/CPVC Pipes & Fittings
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	UPVC/CPVC Fittings
9	Density Digital Weighing Balance	0 to 200 g	Density	System	UPVC/CPVC Fittings
10	Sp. Gr. Hydrometer	0.800 to 1.000 g/ml		System	Water Storage Tanks
11	Bulk Density Tester	As Per Result	Material Properties	System	SWR Pipes
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	SWR Pipes
14	Hydrostatic Pressure Tester	0-200 kg/cm ²	Pressure testing of pipes & Fittings	System	SWR Pipes

S#	Equipment	Range	Application	Pipes/Fittings/System	Product Category
15	Analogue 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	Pipes	CPVC Pipes
17	Hot Water Bath Tester Pressure Controller (30*20*18) for Malfunctioning test	0-250°C	Pressure testing of pipes & Fittings	Pipes	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	Pipes	Agri /SWR Pipes & Fittings
20	Locking External Clamps for SWR as per IS 13592	63 mm to 110mm	Pressure testing of pipes & Fittings	Pipes	SWR Pipes
21	Falling Weight Testing Machine	-	Drop Impact Test	Pipes	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
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 CoolX UPVC 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, UPVC 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 UPVC piping.

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

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:

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

- g_c = 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 CoolX UPVC Plus

Chemical Resistance Overview

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

Chemicals impact plastics in two main ways:

1. **Solvation/Permeation:** Chemicals pass through the polymer without changing its structure. Physical properties may be affected, but the material can often be restored.
2. **Direct Chemical Attack:** Exposure causes permanent chemical changes in the polymer, leading to irreversible damage.

Key Considerations

- UPVC 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 C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Acetaldehyde	NR	NR
Acetamide	NR	NR
Acetic Acid, 10%	R	R
Acetic Acid, 20%	R	R
Acetic Acid, Glacial	R	NR
Acetic Acid, pure	NR	NR
Acetic Anhydride	NR	NR
Acetone, < 5%	?	?
Acetone, > 5%	NR	NR
Acetyl Nitrile	NR	NR
Acetylene	R	R
Acrylic Acid	NR	NR
Adipic Acid; sat. in water	R	R
Allyl Alcohol, 96%	R	NR
Allyl Chloride	NR	NR
Alum, all varieties	R	R
Aluminum Acetate	R	R
Aluminum Alum	R	R
Aluminum Chloride	R	R
Aluminum Fluoride	R	R
Aluminum Hydroxide	R	R
Aluminum Oxylchloride	R	R
Aluminum Sulfate	R	R
Amines	NR	NR
Ammonia (gas;dry)	R	R
Ammonia (liquid)	NR	NR
Ammonium Acetate	R	R
Ammonium Alum	R	R
Ammonium Bisulfate	R	R
Ammonium Carbonate	R	R
Ammonium Chloride	R	R
Ammonium Dichromate	R	?
Ammonium Fluoride, < 25%	R	NR
Ammonium Fluoride, > 25%	?	NR
Ammonium Hydroxide	R	R
Ammonium Metaphosphate	R	R
Ammonium Nitrate	R	R

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Ammonium Persulfate	R	R
Ammonium Phosphate	R	R
Ammonium Sulfate	R	R
Ammonium Sulfide	R	R
Ammonium Tartrate	R	R
Ammonium Thiocyanate	R	R
Amyl Acetate	NR	NR
Amyl Alcohol	R	NR
Amyl Chloride	NR	NR
Aniline	NR	NR

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Aniline Chlorohydrate	NR	NR
Aniline Hydrochloride	NR	NR
Anthraquinone	?	?
Anthraquinone Sulfonic Acid	R	R
Antimony Trichloride	R	R
Aqua Regia	NR	NR
Aromatic Hydrocarbons	NR	NR
Arsenic Acid 80%	R	R
Arsenic Trioxide (powder)	R	?
Arylsulfonic Acid	R	R
Barium Carbonate	R	R
Barium Chloride	R	R
Barium Hydroxide 10%	R	R
Barium Nitrate	R	?
Barium Sulfate	R	R
Barium Sulfide	R	R
Beer	R	R
Beet Sugar Liquors	R	R
Benzaldehyde; 10%	R	NR
Benzaldehyde; > 10%	NR	NR
Benzalkonium Chloride	R	?
Benzene	NR	NR
Benzoic Acid	R	R
Benzyl Alcohol	NR	NR
Benzyl Chloride	NR	NR
Bismuth Carbonate	R	R
Black Liquor	R	R
Bleach (15% CL)	R	R
Borax	R	R
Boric Acid	R	R
Brine (acid)	R	?
Bromic Acid	R	R
Bromine Liquid	NR	NR
Bromine Vapor 25%	R	R
Bromine Water	R	R
Bromobenzene	NR	NR
Bromotoluene	NR	NR

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Butadiene	R	R
Butane	R	R
Butanol: primary	R	R
Butanol: secondary	R	NR
Butyl Acetate	R	NR
Butyl Carbitol	?	?
Butyl Mercaptan	NR	NR
Butyl Phenol	R	NR
Butyl Stearate	R	?
Butyl Cellosolve	R	?
Butyne Diol	R	?

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Chlorine Gas (dry)	NR	NR
Chlorine Gas (wet)	NR	NR
Chlorine Water (sat'd 0.3%)	R	R
Chlorine(trace in air)	R	?
Chloroacetic Acid	R	R
Chloroacety Chloride	R	?
Chlorobenzene	NR	NR
Chloroform	NR	NR
Chloropicrin	NR	NR
Chlorosulfonic Acid	R	NR
Chlorox Bleach Solution	R	?
Chrome Alum	R	R
Chromic Acid 10%	R	R
Chromic Acid 40%	?	?
Chromic Acid 50%	NR	NR
Chromic Acid/Sulfuric Acid/ water-50%/15%/35%	R	NR
Chromic/Nitric Acid (15%/35%)	R	R
ChromiumNitrate	R	?
Citric Acid	R	R
Citrus Oils	?	?
Coconut Oil	R	R
Copper Acetate	R	R
Copper Carbonate	R	R
Copper Chloride	R	R
Copper Cyanide	R	R
Copper Fluoride	R	R
Copper Nitrate	R	R
Copper Sulfate	R	R
Corn Oil	R	?
Corn Syrup	R	R
Cottonseed Oil	R	R
Creosote	NR	NR
Cresylic Acid,50%	R	R
Crotonaldehyde	NR	NR
Crude Oil	R	R
Cumene	?	?

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Cupric Fluoride	R	R
Cupric Sulfate	R	R
Cuprous Chloride	R	R
Cyclanones	R	R
Cyclohexane	NR	NR
Cyclohexanol	NR	NR
Cyclohexanone	NR	NR
D.D.T. (Xylene Base)	NR	NR
Desocyphedrine Hydrochloride	R	?
Detergents	R	R
Dextrin	R	R

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Butyric Acid < 1%	R	NR
Butyric Acid > 1%	R	NR
Cadmium Acetate	R	R
Cadmium Chloride	R	R
Cadmium Cyanide	R	R
Cadmium Sulfate	?	?
Caffeine Citrate	R	?
Calcium Acetate	R	R
Calcium Bisulfide	R	R
Calcium Bisulfite	R	R
Calcium Bisulfite Bleach Liquor	R	?
Calcium Carbonate	R	R
Calcium Chlorate	R	R
Calcium Chloride	R	R
Calcium Hydroxide	R	R
Calcium Hypochlorite	R	R
Calcium Nitrate	R	R
Calcium Oxide	R	R
Calcium Sulfate	R	R
Camphor (crystals)	R	?
Cane Sugar Liquors	R	R
Caprolactam	?	?
Caprolactone	?	?
Carbitol	R	?
Carbon Dioxide	R	R
Carbon Dioxide (aqueous solution)	R	R
Carbon Disulfide	NR	NR
Carbon Monoxide	R	R
Carbon Tetrachloride	R	NR
Carbonic Acid	R	R
Carene 500	R	?
Castor oil	R	R
Caustic Potash	R	R
Caustic Soda	R	R
Cellosolve	R	NR
Cellosolve Acetate	R	?
Chloral Hydrate	R	R

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Chloramine	R	?
Chloric Acid up to 20%	R	R
Chloride Water	R	R
Chlorinated Solvents	NR	NR
Chlorinated Water (Hypochlorite)	R	R
Chlorine (dry liquid)	NR	NR
Chlorine (liquid under pressure)	NR	NR
Chlorine Dioxide aqueous (sat'd 0.1%)	?	?

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Dextrose	R	R
Diacetone Alcohol	R	?
Diazo Salts	R	R
Dibutoxy Ethyl Phthalate	NR	NR
Dibutyl Phthalate	NR	NR
Dibutyl Sebacate	R	NR
Dichlorobenzene	NR	NR
Dichloroethylene	NR	NR
Diesel Fuels	R	R
Diethyl Ether	R	?
Diethylamine	NR	NR
Diglycolic Acid	R	R
Dill Oil	?	?
Dimethyl Hydrazine	NR	NR
Dimethylamine	R	R
Dimethylformamide	NR	NR
Dioctylphthalate	NR	NR
Dioxane (1, 4)	NR	NR
Disodium Phosphate	R	R
Distilled Water	R	R
EDTA Tetrasodium	?	?
Ethyl Ester (ethyl acrylate)	NR	NR
Epsom Salt	R	?
Esters	NR	NR
Ethanol > 5%	R	R
Ethanol up to 5%	R	R
Ethers	NR	NR
Ethyl Acetate	NR	NR
Ethyl Acrylate	NR	NR
Ethyl Alcohol	R	R
Ethyl Chloride	NR	NR
Ethyl Chloroacetate	NR	NR
Ethyl Ether	NR	NR
Ethylene Bromide	NR	NR
Ethylene Chlorohydrin	NR	NR
Ethylene Diamine	NR	NR
Ethylene Dichloride	NR	NR

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Ethylene Glycol	R	R
Ethylene Oxide	NR	NR
Fatty Acids	R	R
Ferric Acetate	R	NR
Ferric Chloride	R	R
Ferric Hydroxide	R	R
Ferric Nitrate	R	R
Ferric Sulfate	R	R
Ferrous Chloride	R	R
Ferrous Hydroxide	R	?
Ferrous Nitrate	R	?

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Ferrous Sulfate	R	R
Fish Solubles	R	R
Fluorine Gas	R	NR
Fluorine Gas (wet)	R	NR
Fluoroboric Acid	R	R
Fluorosilicic Acid 25%	R	R
Formaldehyde	R	R
Formic Acid < 25%	R	NR
Formic Acid > 25%	?	?
Freon 11	R	R
Freon 113	R	?
Freon 114	R	?
Freon 12	R	R
Freon 21	NR	NR
Freon 22	NR	NR
Fructose	R	R
Fruit juices & pulp	R	R
Furfural	NR	NR
Gallic Acid	R	R
Gas (Coke Oven)	NR	NR
Gasoline	NR	NR
Gasoline, HighOctane	NR	NR
Gasoline Jet Fuel	NR	NR
Glucose	R	R
Glycerine	R	R
Glycol	R	R
Glycol Ethers	?	?
Glycolic Acid	R	R
Grape Sugar	R	R
Green Liquor	R	R
Halocarbon Oils	?	?
Heptane	R	R
Hercolyn	R	?
Hexane	R	NR
Hexanol,Tertiary	R	R
Hydrazine	NR	NR
Hydrobromic Acid 20%	R	R

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Hydrochloric Acid 10%	R	R
Hydrochloric Acid 30%	R	R
Hydrochloric Acid 36%	R	R
Hydrochloric Acid Concentrated	R	R
Hydrochloric Acid pickling	R	R
Hydrocyanic Acid	R	R
Hydrofluoric Acid 3%	R	R
Hydrofluoric Acid 48%	R	NR
Hydrofluoric Acid 50%	R	NR
Hydrofluoric Acid 70%	NR	NR
Hydrofluorsilicic Acid 30%	R	R

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Manganese Sulfate	R	R
Mercural Ointment Blue 5%	R	?
Mercuric Chloride	R	R
Mercuric Cyanide	R	R
Mercuric Sulfate	R	R
Mercurous Nitrate	R	R
Mercury	R	R
Mercury Ointment Ammoniated	R	?
Methanol <10%	R	R
Methanol >10%	R	R
Methoxyethyl Oleate	R	?
Methyl Cellosolve	NR	NR
Methyl Chloride	NR	NR
Methyl Ethyl Ketone	NR	NR
Methyl Formate	?	?
Methyl Iso-Butyl Ketone	NR	NR
Methyl Methacrylate	R	?
Methyl Salicylate	R	?
Methyl Sulfate	R	NR
Methyl Sulfuric Acid	R	R
Methylamine	NR	NR
Methylene Bromide	NR	NR
Petroleum Liquifier	R	R
Petroleum Oils (Sour)	R	NR
Phenol	NR	NR
Phenylhydrazine	NR	NR
Phenylhydrazine Hydrochloride	NR	NR
Phosgene, Gas	R	?
Phosgene, Liquid	NR	NR
Phosphoric Acid, up to 85%	R	R
Phosphorous Pentoxide	R	NR
Phosphorous Trichloride	NR	NR
Phosphorous, (Yellow)	R	NR
Photographic Solutions: Dektal Developer	R	R
Photographic Solutions: DK #3	R	R
Photographic Solutions: Kodak Fixer	R	R

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Photographic Solutions: Kodak Short Stop	R	R
Picric Acid	NR	NR
Plating Solutions: Brass	R	R
Plating Solutions: Cadmium	R	R
Plating Solutions: Copper	R	R
Plating Solutions: Gold	R	R
Plating Solutions: Indium	R	R
Plating Solutions: Lead	R	R
Plating Solutions: Nickel	R	R

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Hydrogen	R	R
Hydrogen Peroxide 30%	R	R
Hydrogen Peroxide 90%	R	R
Hydrogen Phosphide	R	R
Hydrogen Sulfide	R	R
Hydroquinone	R	R
Hydroxylamine Sulfate	R	R
Hypochlorite (Potassium & Sodium)	R	?
Hypochlorous Acid	R	R
Iodine	NR	NR
Iodine Solution 10%	NR	NR
Isopropanol	?	?
Kerosene	R	R
Ketones	NR	NR
Kraft Liquors	R	R
Lactic Acid 25%	R	R
Lactic Acid 80%	R	?
Lard Oil	R	R
Lauric Acid	R	R
Lauryl Chloride	R	?
Lead Acetate	R	R
Lead Chloride	R	R
Lead Nitrate	R	R
Lead Sulfate	R	R
Lemon Oil	?	?
Limonene	?	?
Linoleic Acid	R	R
Linoleic Oil	R	R
Linseed Oil	R	R
Liquors	R	R
Lithium Bromide	R	R
Lithium Sulfate	R	R
Lubricating Oils, ASTM#1	R	R
Lubricating Oils, ASTM#2	R	R
Lubricating Oils, ASTM#3	R	R
Lux Liquid	R	NR
Machine Oil	R	R

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Magnesium Carbonate	R	R
Magnesium Chloride	R	R
Magnesium Citrate	R	R
Magnesium Fluoride R	R	R
Magnesium Hydroxide	R	R
Magnesium Nitrate	R	R
Magnesium Oxide	R	R
Magnesium Salts	R	R
Magnesium Sulfate	R	R
Maleic Acid 50%	R	R
Manganese Chloride	R	R

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Propylene Glycol > 25%	?	?
Propylene Oxide	NR	NR
Pyridine	NR	NR
Pyrogalllic Acid	R	NR
Rayon Coagulating Bath	R	R
Refinery Crudes	R	R
Rochelle Salts	R	R
Salicylic Acid	R	R
Santicizer	NR	NR
Sea Water	R	R
Selenic Acid	R	R
Sewage	R	R
Silicic Acid	R	R
Silicone Oil	?	?
Silver Chloride	R	R
Silver Cyanide	R	R
Silver Nitrate	R	R
Silver Sulfate	R	R
Soaps	R	R
Sodium Acetate	R	R
Sodium Alum	R	R
Sodium Arsenate	R	R
Sodium Benzoate	R	R
Sodium Bicarbonate	R	R
Sodium Bichromate	R	R
Sodium Bisulfate	R	R
Sodium Bisulfite	R	R
Sodium Borate	R	R
Sodium Bromide	R	R
Sodium Carbonate	R	R
Sodium Chlorate	R	NR
Sodium Chloride	R	R
Sodium Chlorite	NR	NR
Sodium Chromate	R	R
Sodium Cyanide	R	R
Sodium Dichromate	R	R
Sodium Ferricyanide	R	R

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Sodium Ferrocyanide	R	R
Sodium Fluoride	R	R
Sodium Formate	?	?
Sodium Hydroxide 50%	R	R
Sodium Hypobromite	R	R
Sodium Hypochlorite	R	R
Sodium Iodide	R	R
Sodium Metaphosphate	R	R
Sodium Nitrate	R	R
Sodium Nitrite	R	R
Sodium Perchlorate	R	R
Sodium Peroxide	R	R

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Plating Solutions: Rhodium	R	R
Plating Solutions: Silver	R	R
Plating Solutions: Tin	R	R
Plating Solutions: Zinc	R	R
Polyethylene Glycol	?	?
Potash (Sat.Aq.)	R	R
Potassium Acetate	R	R
Potassium Alum	R	R
Potassium Amyl Xanthate	R	NR
Potassium Bicarbonate	R	R
Potassium Bichromate	R	R
Potassium Bisulfate	R	R
Potassium Borate	R	R
Potassium Bromate	R	R
Potassium Bromide	R	R
Potassium Carbonate	R	R
Potassium Chlorate	R	R
Potassium Chloride	R	R
Potassium Chromate	R	R
Potassium Cyanate	R	R
Potassium Cyanide	R	R
Potassium Dichromate	R	R
Potassium Ethyl Xanthate	R	NR
Potassium Ferricyanide	R	R
Potassium Ferrocyanide	R	R
Potassium Fluoride	R	R
Potassium Hydroxide	R	R
Potassium Hypochlorite	R	R
Potassium Iodide	R	R
Potassium Nitrate	R	R
Potassium Perborate	R	R
Potassium Perchlorate	R	R
Potassium Permanganate 10%	R	R
Potassium Permanganate 25%	R	NR
Potassium Persulfate	R	R
Potassium Phosphate	R	R
Potassium Sulfate	R	R

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Potassium Sulfide	R	R
Potassium Sulfite	R	R
Potassium Tripolyphosphate	R	R
Propane	R	R
Propane Gas	R	R
Propanol 0.5%	R	R
Propanol > 0.5%	R	R
Propargyl Alcohol	R	R
Propionic Acid 2%	?	?
Propionic Acid > 2%	?	?
Propylene Dichloride	NR	NR
Propylene Glycol 25%	?	?

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Triethanolamine	R	NR
Trilones	NR	NR
Trimethyl Propane	R	R
Trimethylamine	R	NR
Trisodium Phosphate	R	R
Turpentine	R	R
Urea	R	R
Urine	R	R
Vaseline	NR	NR
Vegetable Oils	R	?
Vinegar	R	R
Vinyl Acetate	NR	NR
Water: Acid Mine	R	R
Water: Deionized	R	R
Water: Demineralized	R	R
Water: Distilled	R	R
Water: Fresh & Salt	R	R
Water: Swimming Pool	R	R
WD-40	?	?
Whiskey	R	R
White Liquor	R	R
Wines	R	R
Xylene or Xylol	NR	NR
Zinc Acetate	R	R
Zinc Carbonate	R	R
Zinc Chloride	R	R
Zinc Nitrate	R	R
Zinc Sulfate	R	R

R = Recommended C = Caution, NR = Not Recommended

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

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Sodium Silicate	R	NR
Sodium Sulfate	R	R
Sodium Sulfide	R	R
Sodium Sulfite	R	R
Sodium Thiosulfate	R	R
Sodium Tripolyphosphate	?	?
Sour Crude Oil	R	R
Soybean Oil	R	R
Stannic Chloride	R	R
Stannous Chloride	R	R
Stannous Sulfate	R	R
Starch	R	R
Stearic Acid	R	R
Stoddards Solvent	NR	NR
Styrene	NR	NR
Succinic Acid	R	R
Sugar	R	R
Sulfamic Acid	NR	NR
Sulfite Liquor	R	R
Sulfur	R	R
Sulfur Dioxide dry	R	R
Sulfur Dioxide wet	R	NR
Sulfur Trioxide	R	R
Sulfuric Acid 70%	R	R
Sulfuric Acid 80%	R	R
Sulfuric Acid 85%	R	R
Sulfuric Acid 90%	R	NR
Sulfuric Acid 98%	?	NR
Sulfuric Acid Fuming	NR	NR
Sulfuric Acid Pickling	R	R
Sulfurous Acid	R	R
Tall Oil	R	R
Tan Oil	R	R
Tannic Acid 30%	R	R
Tanning Liquors	R	R
Tartaric Acid	R	R
Terpenes	?	?

CHEMICAL REAGENT	PVC Type 1 1120 (12454)	
	73°F	140°
Terpineol	R	?
Tetraethyl Lead	R	?
Texanol	?	?
Thionyl Chloride	NR	NR
Thread Cutting Oil	R	?
Titanium Tetrachloride	R	NR
Toluol or Toluene	NR	NR
Transformer Oil	R	R
Tributyl Citrate	R	?
Tributyl Phosphate	NR	NR
Trichloroacetic Acid	R	?
Trichloroethylene	NR	NR

R = Recommended C = Caution, NR = Not Recommended

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

UNDERGROUND INSTALLATION

uPVC pipes and fittings can be installed underground, but since these piping systems are flexible, proper attention must be given to burial conditions. The stiffness of the piping system is influenced by sidewall support, soil compaction, and trench conditions. The trench bottom should be smooth and consistent, either in undisturbed soil or a layer of compacted backfill. The pipe must lie evenly on this surface throughout its entire length. Excavation, bedding, and backfill should adhere to the local Plumbing Code requirements.

TRENCHING

The following trenching and burial procedures should be followed to protect the piping system:

1. The trench should be excavated to ensure the sides remain stable under all working conditions. It should be wide enough to allow for:
 - A. Jointing the pipe in the trench.
 - B. Snaking the pipe from side to side to accommodate expansion and contraction.
 - C. Filling and compacting the side fills.

The space between the pipe and trench wall should be wider than the compaction equipment used for backfilling. The minimum width should not be less than the greater of the following: the pipe's outside diameter plus 16 inches, or the pipe's outside diameter multiplied by 1.25, plus 12 inches. The trench width may vary if approved by the design engineer.

2. The trench bottom should be smooth, free of rocks and debris, continuous, 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. Foundation bedding should be installed as required by the engineer.

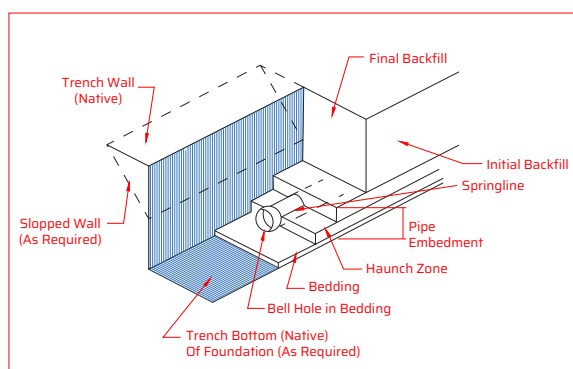
3. Trench depth depends on the pipe's service requirements. Plastic pipe should always be installed below the frost line. The minimum cover for lines exposed to heavy overhead traffic is 24 inches.

4. A smooth trench bottom is essential for supporting the pipe over its entire length on firm, stable material. Blocking should be used to adjust the pipe grade or to intermittently support the pipe over low sections in the trench.



BEDDING AND BACKFILLING

1. Although sub-soil conditions may vary, the pipe backfill should be stable and protective of the pipe.
2. The pipe should be surrounded by granular material that can be easily worked around the pipe. Backfilling should be done in 6-inch layers, with each layer compacted to 85-95% compaction.
3. A mechanical tamper is recommended for compacting sand and gravel backfill, especially if the material contains a significant amount of fine-grained material, such as silt or clay. If a tamper is unavailable, hand compaction should be performed.
4. The trench should be completely filled with backfill. The material should be spread in fairly uniform layers to prevent voids or unfilled spaces. Large rocks, stones, frozen clods, and other large debris should be removed. Heavy tampers or rolling equipment should only be used to consolidate the final backfill.



PRODUCT RANGE



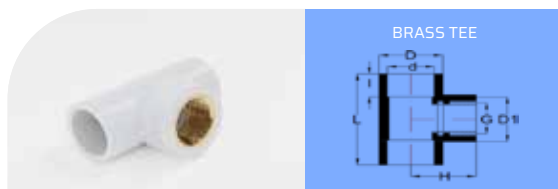
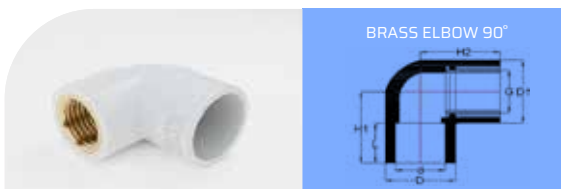
Product Range

PIPE SCH 40 (3 METRE LENGTH)		
Size (inch)	Size (cm)	Product Code
½"	1.5	UPP40003015
¾"	2	UPP40003020
1"	2.5	UPP40003025
1¼"	3.2	UPP40003032
1½"	4	UPP40003040
2"	5	UPP40003050

PIPE SCH 40 (6 METRE LENGTH)		
Size (inch)	Size (cm)	Product Code
½"	1.5	UPP40006015
¾"	2	UPP40006020
1"	2.5	UPP40006025
1¼"	3.2	UPP40006032
1½"	4	UPP40006040
2"	5	UPP40006050

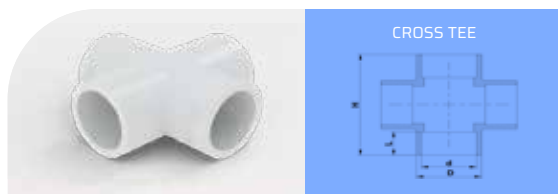
PIPE SCH 80 (3 METRE LENGTH)		
Size (inch)	Size (cm)	Product Code
1"	2.5	UPP80003025
1¼"	3.2	UPP80003032
1½"	4	UPP80003040
2"	5	UPP80003050

PIPE SCH 80 (6 METRE LENGTH)		
Size (inch)	Size (cm)	Product Code
1"	2.5	UPP80006025
1¼"	3.2	UPP80006032
1½"	4	UPP80006040
2"	5	UPP80006050



OD Size (cm)	OD Size (inch)	Material Code	L (mm)	d (mm)	D (mm)	h1 (mm)	h2 (mm)	D1 (mm)	G (inch)
1.5x1.5	½"x½"	UPP808EL9001515	22.40	21.54	29.00	51.59	30.30	33.16	1/2"

OD Size (cm)	OD Size (inch)	Material Code	H	L	d	D	l (mm)	D1 (mm)	G (inch)
1.5x1.5x1.5	½"x½"x½"	UPP808T00151515	35.63	69.84	21.54	29.00	22.40	33.66	1/2"
2.5x2.5x2.5	1"x1"x1"	UPP808T00252525	48.17	92.5	33.65	42.75	28.8	48.40	1"
2x2x2	¾"x¾"x¾"	UPP808T00202020	35.06	79.80	26.87	34.69	25.60	40.30	3/4"



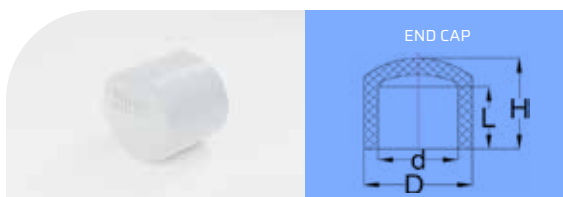
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)
1.5	½"	UPP80CU00000015	47.20	222.40	21.54	29.00
2	¾"	UPP80CU00000020	53.60	25.60	26.87	34.10
2.5	1"	UPP80CU00000025	60.00	28.80	33.65	42.75
3.2	1¼"	UPP80CU00000032	66.30	31.95	42.42	52.12
4	1½"	UPP80CU00000040	72.68	35.14	48.56	58.72
5	2"	UPP80CU00000050	79.20	38.30	60.63	71.71

OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)
1.5	½"	UPP80CT000000015	70.20	22.40	21.54	29.00
2	¾"	UPP80CT000000020	80.16	25.60	26.87	35.07
2.5	1"	UPP80CT000000025	92.60	28.80	33.65	43.05



OD Size (cm)	OD Size (inch)	Material Code	L (mm)	d (mm)	D (mm)
1.5	½"	UPP80EL45000015	22.4	21.54	29.04
2	¾"	UPP80EL45000020	25.60	26.87	34.69
2.5	1"	UPP80EL45000025	28.80	33.65	42.75
3.2	1¼"	UPP80EL45000032	31.95	42.42	52.22
4	1½"	UPP80EL45000040	35.14	48.56	58.76
5	2"	UPP80EL45000050	38.30	60.63	71.83

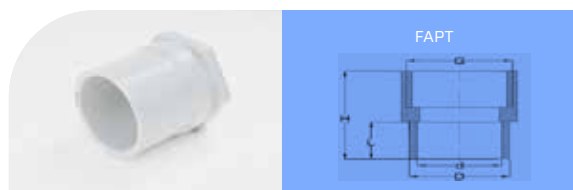
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)
1.5	½"	UPP80CU00000015	35.46	22.4	21.54	29
2	¾"	UPP80CU00000020	40.90	25.6	26.87	34.69
2.5	1"	UPP80CU00000025	47.20	28.8	33.65	42.70
3.2	1¼"	UPP80CU00000032	54.17	31.95	42.42	52.12
4	1½"	UPP80CU00000040	61.40	35.15	48.56	58.72
5	2"	UPP80CU00000050	70.05	38.3	60.63	71.71



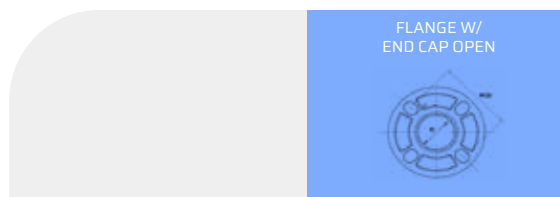
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)
1.5	1/2"	UPFB0EL450000015	29.7	22.4	21.54	29
2	3/4"	UPFB0EL450000020	33.00	25.60	26.87	34.69
2.5	1"	UPFB0EL450000025	38.50	28.80	33.65	42.75
3.2	1 1/4"	UPFB0EL450000032	42.90	31.95	42.42	52.12
4	1 1/2"	UPFB0EL450000040	47.00	35.14	48.56	58.72
5	2"	UPFB0EL450000050	51.40	38.30	60.63	71.71



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	G (inch)
1.5	1/2"	UPFB0CU000000015	41.40	22.40	21.54	29.00	1/2"
2	3/4"	UPFB0CU000000020	47.90	25.60	26.87	34.69	3/4"
2.5	1"	UPFB0CU000000025	55.60	28.80	33.65	42.75	1"
3.2	1 1/4"	UPFB0CU000000032	57.75	31.95	42.42	52.12	1-1/4"
4	1 1/2"	UPFB0CU000000040	67.93	35.1	48.56	58.96	1-1/2"



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)
1.5	1/2"	UPFB0CU000000015	41.4	20.9	18.7	29.1
2	3/4"	UPFB0CU000000020	47.90	24.00	24.20	34.5
2.5	1"	UPFB0CU000000025	55.60	26.50	30.50	42.1
3.2	1 1/4"	UPFB0CU000000032	57.75	29.35	39.11	51.5
4	1 1/2"	UPFB0CU000000040	67.60	32.80	45.26	57.5



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
4	1 1/2"	UPFB0FL0P0000040	48.56	98.00
5	2"	UPFB0FL0P0000050	60.63	115.20



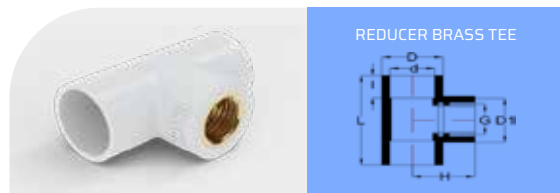
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	G (inch)
1.5	1/2"	UPFB0CU000000015	40.20	22.40	21.54	29.00	1/2"
2	3/4"	UPFB0CU000000020	46.20	25.60	26.87	34.69	3/4"
2.5	1"	UPFB0CU000000025	55.80	28.80	33.65	42.75	1"
3.2	1 1/4"	UPFB0CU000000032	58.50	31.95	42.42	52.06	1-1/4"
4	1 1/2"	UPFB0CU000000040	64.43	35.1	48.56	58.96	1-1/2"
5	2"	UPFB0CU000000050	93.23	38.2	60.63	71.83	2"



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)
1.5	1/2"	UPFB0EL450000015	40.2	17.8	13	20.3
2	3/4"	UPFB0EL450000020	46.2	20.6	17.9	25.82
2.5	1"	UPFB0EL450000025	55.80	27.00	23.00	32.46
3.2	1 1/4"	UPFB0EL450000032	58.50	26.55	31.0	40.9
4	1 1/2"	UPFB0EL450000040	67.00	31.85	38.00	47.05
5	2"	UPFB0EL450000050	71.40	33.10	49.90	58.96



OD Size (cm)	OD Size (inch)	Material Code	L (mm)	d (mm)	D (mm)	h1 (mm)	h2 (mm)	D1 (mm)
2.5x1.5	1"x3/4"	UPFB0R0EL902515	28.80	33.65	42.75	40.02	38.15	34.16
2x1.5	3/4"x1 1/4"	UPFB0R0EL902015	25.60	26.87	34.69	39.89	33.67	34.39



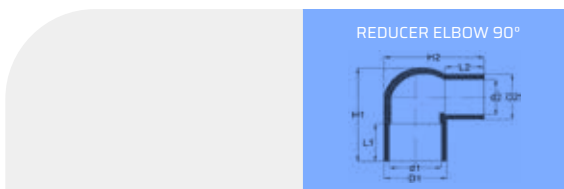
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	I (mm)	D1 (mm)	G (inch)
2.5x2.5x1.5	1"x1"x3/4"	UPFB0R0T0252515	42.67	92.50	33.66	42.75	28.80	33.66	1/2"
2x2x1.5	3/4"x3/4"x1 1/4"	UPFB0R0T0202015	38.01	79.78	33.96	34.69	25.69	33.96	1/2"
3.2x3.2x1.5	1 1/4"x1 1/4"x1 1/4"	UPFB0R0T0323215	41.67	94.3	34.36	52.12	31.95	34.36	1/2"
4x4x1.5	1 1/2"x1 1/2"x1 1/2"	UPFB0R0T0404015	44.54	101.1	34.36	58.72	35.14	34.36	1/2"



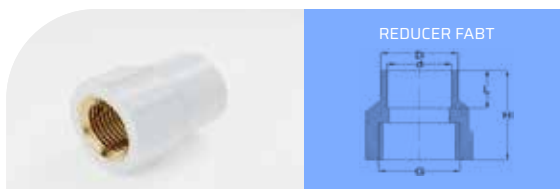
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	D (mm)	L1 (mm)	L2 (mm)	d1 (mm)	d2 (mm)	d3 (mm)
2.5x1.5	1"X3/4"	UPFBORBU0002515	31.30	41.00	22.40	28.80	21.54	33.20	21.23
2.5x2	1"X1/2"	UPFBORBU0002520	31.30	41.00	25.60	28.80	26.80	33.20	26.57
3.2x2	1 1/4"X1/2"	UPFBORBU0003220	34.25	50.70	25.60	31.75	26.87	41.94	26.57
3.2x2.5	1 1/4"X1"	UPFBORBU0003225	34.25	50.70	28.80	31.75	33.65	41.94	33.37
4x3.2	1 1/2"X1"	UPFBORBU0004032	37.50	57.20	28.80	35.00	33.65	48.00	33.75
4x3.2	1 1/2"X1/2"	UPFBORBU0004032	37.50	57.20	31.95	35.00	42.42	48.00	42.04
5x3.2	2"X1 1/4"	UPFBORBU0005032	41.60	70.00	31.95	38.10	42.42	60.12	42.04
5x4	2"X1 1/2"	UPFBORBU0005040	41.60	70.00	31.14	38.10	48.56	60.12	48.11



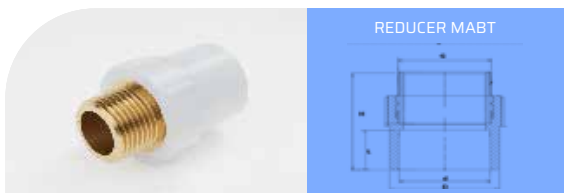
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L1 (mm)	L2 (mm)	d1 (mm)	d2 (mm)	D1 (mm)	D2 (mm)
2.0x1.5	3/4"X1/2"	UPFBORCU0002015	54.00	22.40	26.80	21.54	26.87	29.00	34.69
2.5x2.0	1"X3/4"	UPFBORCU0002520	61.20	25.60	30.00	26.87	33.65	34.69	42.75
2.5x2.5	1"X1"	UPFBORCU0002525	60.30	22.40	30.00	21.54	33.65	29.00	42.75
3.2x1.5	1 1/4"X3/4"	UPFBORCU0003215	67.92	22.40	33.15	21.54	42.42	29.00	52.12
3.2x2	1 1/4"X1"	UPFBORCU0003220	68.5	25.60	33.15	26.87	42.42	34.69	52.12
3.2x2.5	1 1/4"X1 1/4"	UPFBORCU0003225	68.26	28.80	33.15	33.65	42.42	42.75	52.12
4.0x2.5	1 1/2"X1"	UPFBORCU0004025	74.40	28.80	36.34	33.65	48.56	42.75	58.72
4.0x3.2	1 1/2"X1 1/4"	UPFBORCU0004032	73.98	31.95	36.34	42.42	48.56	52.12	58.72
5x3.2	2"X1 1/4"	UPFBORCU0005032	83.00	31.75	38.10	42.55	60.78	52.25	71.86
5.0x4.0	2"X1 1/2"	UPFBORCU0005040	83.00	34.93	38.10	49.72	60.78	58.88	71.86



OD Size (cm)	OD Size (inch)	Material Code	h1 (mm)	h2 (mm)	L1 (mm)	L2 (mm)	d1 (mm)	d2 (mm)	D1 (mm)
2.0x1.5	3/4"X1/2"	UPFBORREL9002015	57.25	54.91	25.6	22.4	26.87	21.54	34.69
2.5x1.5	1"X3/4"	UPFBORREL9002515	64	28.8	22.4	33.65	21.54	42.75	
2.5x2.0	1"X1"	UPFBORREL9002520	67.19	65.59	28.8	25.6	33.65	26.87	42.75



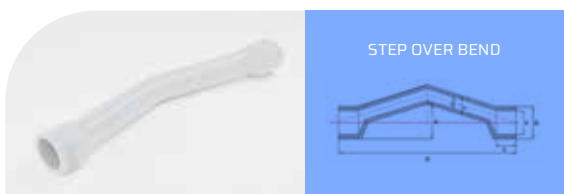
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	G (inch)
2.5x1.5	1"X3/4"	UPFBORFAPT02515	45.40	25.50	26.87	35.09	1/2"
2x1.5	3/4"X3/4"	UPFBORFAPT02015	51.10	28.70	33.66	43.06	1/2"



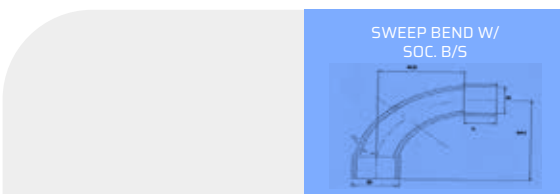
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	G (inch)
2x1.5	3/4"X3/4"	UPFBORMABT02015	57.95	25.50	26.87	35.09	1/2"



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	h1 (mm)	h2 (mm)	L1 (mm)	L2 (mm)	d1 (mm)	d2 (mm)	D1 (mm)	D2 (mm)
1.5x2.5x1.5	3/4"X1 1/4"X3/4"	UPFBORTT02515	88.00	44.00	26.80	22.32	33.65	29	42.25	29.00	26.57
2.5x2.5x2	1"X1 1/4"X1"	UPFBORTT02520	91.7	45.85	26.80	22.32	33.65	26.87	42.75	34.69	26.57
2x2x1.5	3/4"X3/4"X3/4"	UPFBORTT02015	80.20	40.10	36.80	25.60	22.40	26.87	21.54	34.69	26.57
1.5x2.5x1.5	3/4"X1 1/4"X3/4"	UPFBORTT02515	101.5	50.75	41.40	31.75	22.32	42.42	21.54	53.50	29.00
1.5x2.5x2	3/4"X1 1/4"X1"	UPFBORTT02520	108.34	54.17	48.50	31.95	25.60	42.42	26.87	52.92	34.69
1.5x2.5x2.5	3/4"X1 1/4"X1 1/4"	UPFBORTT02525	106.34	54.17	51.50	31.95	28.8	42.42	33.65	52.92	42.75
2x2x2.5	3/4"X3/4"X1 1/4"	UPFBORTT02525	121.86	60.93	49.42	34.80	22.32	48.56	21.54	58.72	29.00
2x2x2.0	3/4"X3/4"X1"	UPFBORTT02020	121.08	60.54	51.50	35.14	25.6	48.56	26.87	58.72	34.69
4x4x2.5	1 1/2"X1 1/2"X1 1/4"	UPFBORTT04025	121.08	60.54	54.50	35.14	28.80	48.56	33.65	58.72	42.75
4x4x3.2	1 1/2"X1 1/2"X1 1/2"	UPFBORTT04032	121.08	60.54	57.50	35.14	31.95	48.56	42.42	58.72	52.12
5x5x4	2"X2"X1 1/2"	UPFBORTT05040	156.66	78.33	57.50	38.30	25.60	60.63	26.87	71.75	34.69
5x5x2.5	2"X2"X1"	UPFBORTT05025	113.54	56.77	62.50	38.30	28.80	60.63	33.65	71.75	42.75
5x5x3.2	2"X2"X1 1/4"	UPFBORTT05032	102.34	51.25	63.50	38.30	31.95	60.63	42.04	71.75	52.12
5x5x4	2"X2"X1 1/2"	UPFBORTT05040	129.2	64.60	66.70	38.30	35.14	60.63	48.56	71.75	58.72



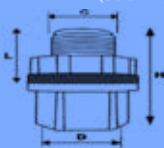
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	D1 (mm)
1.5	3/4"	UPFBOSB0000015	193.00	22.32	21.54	29.14	22.41
2	1"	UPFBOSB0000020	250.00	26.96	26.88	34.80	27.80
2.5	1"	UPFBOSB0000025	302.30	31.84	33.65	42.74	35.08
3.2	1 1/4"	UPFBOSB0000032	399.00	32.25	42.42	52.42	43.90



OD Size (cm)	OD Size (inch)	Material Code	L (mm)	d (mm)	D (mm)	H1 (mm)	h2 (mm)
2	1"	UPFBOSB85500020	25.50	26.87	34.89	91.00	65.10
2.5	1"	UPFBOSB85500025	28.80	33.65	43.05	103.00	74.00



TANK NIPPLE (SOCKET)



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)
1.5	1/2"	UPFB07N00000015	51.20	27.70	20.09	1/2"
2	3/4"	UPFB07N00000020	61.75	34.00	26.87	3/4"
2.5	1"	UPFB07N00000025	72.30	40.30	33.65	1"
3.2	1 1/4"	UPFB07N00000032	79.10	44.00	42.42	1 1/4"
4	1 1/2"	UPFB07N00000040	85.51	47.00	48.56	1 1/2"



TANK NIPPLE (THREADED)



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	D (mm)	D1 (mm)	H1 (mm)
2	3/4"	UPFB07NT00000020	48.00	25.40	34.79	26.97	10.8
2.5	1"	UPFB07NT00000025	56.00	28.58	42.88	33.78	12.5
3.2	1 1/4"	UPFB07NT00000032	58.00	31.75	52.25	42.55	12.5
4	1 1/2"	UPFB07NT00000040	66.00	34.93	58.88	48.72	15



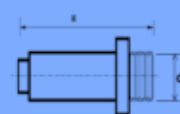
TEE



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	G (inch)
1.5	1/2"	UPFB0CU000000015	35.1	70.2	21.54	29	22.4
2	3/4"	UPFB0CU000000020	40.08	80.15	26.87	34.69	25.6
2.5	1"	UPFB0CU000000025	46.30	92.30	33.65	42.70	28.8
3.2	1 1/4"	UPFB0CU000000032	54.17	108.34	42.42	52.12	31.95
4	1 1/2"	UPFB0CU000000040	60.54	121.08	48.56	58.72	35.14
5	2"	UPFB0CU000000050	70.05	140.10	60.63	71.71	38.3



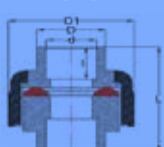
THREADED END PLUG



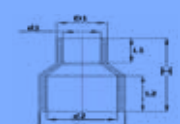
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	G (inch)
1.5	1/2"	UPFB0TEPG000015	60	1/2"



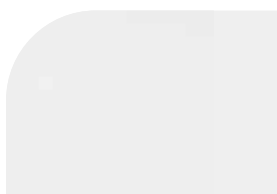
UNION



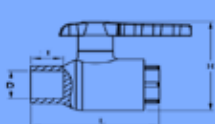
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	I (mm)
1.5	1/2"	UPFB0CU000000015	46.00	62.00	21.64	29.10	22.23
2	3/4"	UPFB0CU000000020	53.00	65.00	26.97	34.79	25.40
2.5	1"	UPFB0CU000000025	69.00	68.00	33.78	42.88	28.58
3.2	1 1/4"	UPFB0CU000000032	71.00	85.00	42.55	52.25	31.75
4	1 1/2"	UPFB0CU000000040	95.00	85.00	48.72	58.88	34.93
5	2"	UPFB0CU000000050	115.00	94.00	60.76	71.86	38.10


UPVC TO CPVC
CONVERTER COUPLER


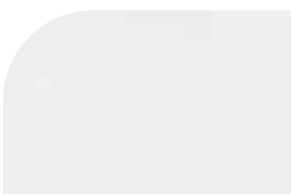
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L1 (mm)	L2 (mm)	d1 (mm)	d2 (mm)	D1 (mm)	D2 (mm)
2	3/4"	UPFBOUTCC00000020	49.03	18.00	26.5	22.45	26.87	26.85	35.07
2.5	1"	UPFBOUTCC00000025	56.39	23.00	28.7	28.83	33.66	34.23	42.96
3.2	1 1/4"	UPFBOUTCC00000032	64.85	28.10	31.85	35.20	42.42	41.8	52.42



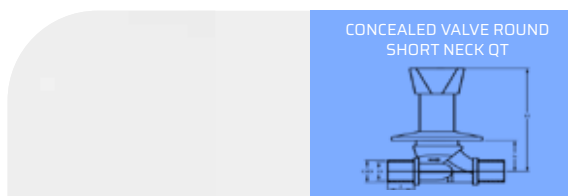
BALL VALVE



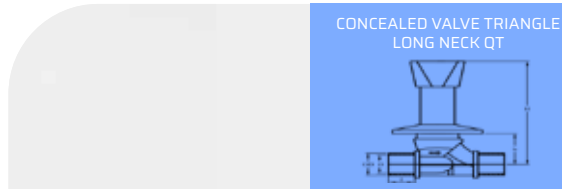
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)	d (mm)	D (mm)	I (mm)
1.5	1/2"	UPFB0CU000000015	47	76	14.5	32	20.5
2	3/4"	UPFB0CU000000020	53.5	85.5	19	36.8	22
2.5	1"	UPFB0CU000000025	65	100.5	24	43.5	27
3.2	1 1/4"	UPFB0CU000000032	71	117.3	28	53.5	32.2
4	1 1/2"	UPFB0CU000000040	80.5	131	34	60.5	35.50
5	2"	UPFB0CU000000050	97	146.5	46	74	38.5


CONCEALED VALVE ROUND
LONG NECK QT

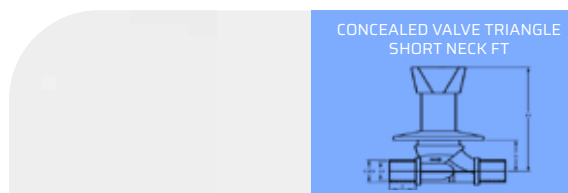

OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
2	3/4"	UPFD00CVRLNQT020	144.5	89
2.5	1"	UPFD00CVRLNQT025	148	99.5



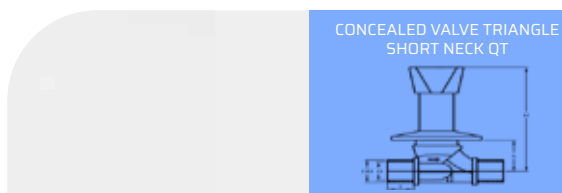
OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
2	3/4"	UPF00CVRSNQT020	144.5	89
2.5	1"	UPF00CVRSNQT025	148	99.5



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
2	3/4"	UPF00CVTLNQT020	144.5	89
2.5	1"	UPF00CVTLNQT025	148	99.5



OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
2	3/4"	UPF00CVTSNFT020	144.5	89

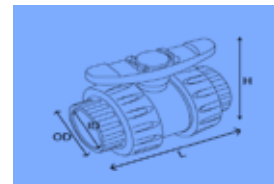


OD Size (cm)	OD Size (inch)	Material Code	H (mm)	L (mm)
2	3/4"	UPF00CVTSNQT020	144.5	89

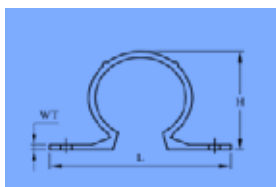
NAIL CLAMP		
OD Size (cm)	OD Size (inch)	Material Code
1.5	1/2"	UPF00NCRV0000015
2	3/4"	UPF00NCRV0000020
2.5	1"	UPF00NCRV0000025
3.2	1 1/4"	UPF00NCRV0000032
4	1 1/2"	UPF00NCRV0000040
5	2"	UPF00NCRV0000050



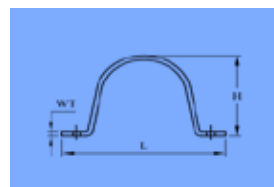
NON RETURNABLE VALVE		
OD Size (cm)	OD Size (inch)	Material Code
2	3/4"	UPF00NRV0000020
3.2	1 1/4"	UPF00NRV0000032
4	1 1/2"	UPF00NRV0000040
5	2"	UPF00NRV0000050



PLASTIC CLAMP		
OD Size (cm)	OD Size (inch)	Material Code
1.5	1/2"	UPF00PC0000015
2	3/4"	UPF00PC0000020
2.5	1"	UPF00PC0000025
3.2	1 1/4"	UPF00PC0000032
4	1 1/2"	UPF00PC0000040
5	2"	UPF00PC0000050



POWDER COATED METAL CLAMPS		
OD Size (cm)	OD Size (inch)	Material Code
1.5	1/2"	UPF00PCM000015
2	3/4"	UPF00PCM000020
2.5	1"	UPF00PCM000025
3.2	1 1/4"	UPF00PCM000032
4	1 1/2"	UPF00PCM000040
5	2"	UPF00PCM000050



UPVC SOLVENT CEMENT		
TYPE	Quantity (ML)	Material Code
Med. Bodied Plastic Coex Bottles	100	UP5BTMED0000100
Med. Bodied Plastic Coex Bottles	250	UP5BTMED0000250

UPVC SOLVENT CEMENT		
TYPE	Quantity (ML)	Material Code
Med. Bodied Tins	500	UP5TNMED0000500
Med. Bodied Tins	1000	UP5TNMED0001000

UPVC SOLVENT CEMENT		
TYPE	Quantity (ML)	Material Code
Tube in Blister Packing	20	UP5TU000000020
Tube in Blister Packing	50	UP5TU000000050

RECLAIM PIPES

PIPE SCH 40 (3 METRE LENGTH)		
Size (inch)	Size (cm)	Product Code
3/4"	2	RCP40003020
1"	2.5	RCP40003025
1 1/2"	4	RCP40003040
1 1/4"	3.5	RCP40003032
2"	5	RCP40003050

PIPE SCH 40 (6 METRE LENGTH)		
Size (inch)	Size (cm)	Product Code
3/4"	2	RCP40006020
1"	2.5	RCP40006025
1 1/2"	4	RCP40006040
1 1/4"	3.2	RCP40006032
2"	5	RCP40006050



SCAN QR CODE
TO KNOW MORE

SINTEX-BAPL LIMITED

Toll Free No.: 1800-121-2764

www.sintexonline.com

Email: sintex_support@welspun.com

 [sintex_bapl_limited](https://www.instagram.com/sintex_bapl_limited)

 [sintexBAPLLimited](https://www.youtube.com/sintexBAPLLimited)

 [Sintex BAPL Limited](https://www.facebook.com/SintexBAPLLimited)