THERMO α

HOT shower Or COLD drink

WHAT EVER YOU DESIRE

ANTON
We lead where it matters

APPLICATIONS

HOT WATER FOR DRINKING

HOT BATH

DISHWASHING

CLEANING TOXIC WAX COAT OF FRUITS, APPLE, GRAPES, ORANGE ETC...

EASY PEELING

HAND SANITIZATION

WHO WE ARE

Anton is a 100% Sri Lankan House Hold Solutions manufacturer. For over 60 years our brand has helped both local and international customers find their ideal house hold solutions through our unique designs, consistent innovation, internationally recognized quality standards and well analyzed customer focus.

Made from durable Chlorinated Polyvinyl Chloride (CPVC), Thermo Alpha systems offer superior resistance to corrosive chemicals, high temperatures and harsh conditions.

So If you're going to get in to hot water, it's best you get in with the right people. Thermo Alpha is another quality product from the house of Anton. Here's why Thermo Alpha CPVC Pipes and Fittings is the right choice:

FEATURES & BENEFITS

* Operational life of more than 50 years
* Lowest bacterial growth
* Can transport hot and cold water up to 93 °C
* Fire retardant
* Energy saving, since heat loss is minimal
* All accessories available
* Most economical hot water pipes as it is manufactured in Sri Lanka
* Tough rigid material
* No scale, pit or leach formention

BASIC PHYSICAL PROPERTIES

PROPERTY	TEST	CONDITION	ENGLISH UNITS	SI UNITS
GENERAL				
• Specific Gravity	ASTM D792	73°F/23°C	1.55g/cm^3	1.55g/cm^3
• Specific Volume		73°F/23°C	0.645cm^3/g	0.645cm^3/g
• Water Absorption	ASTM D570	73°F/23°C	+0.03%	+0.03%
		212°F/100°C	+0.55%	+0.55%
• Rockwell Hardness	ASTM D785	73°F/23°C	199	
• Cell Classification	ASTM D1784		23447	
MECHANICAL				
• Izod Impact	ASTM D256	73°F/23°C	1.5 ft lbs/in o.n	80 J/m o.n.
• Tensile Strength	ASTM D638	73°F/23°C	8000 psi	55 N/mm^2
• Tensile Modulus	ASTM D638	73°F/23°C	360,00 psi	2500 N/mm^2
• Flexural Strength	ASTM D790	73°F/23°C	15,000 psi	104 N/mm^2
• Flexural Modulus	ASTM D790	73°F/23°C	415,000 psi	2860N/mm^2
• Compressive Strength	ASTM D695	73°F/23°C	10,100 psi	70 N/mm^2
• Compressive Modulus	ASTM D695	73°F/23°C	196,000 psi	1350 N/mm^2
THERMAL				
• Expansion	ASTM D696		3.4x10^{-5} in/in/ °F	6.1x10^{-5}m/m/K
• Thermal Conductivity	ASTM C177		0.95 BTU in/hr/ft^2/ °F	0.14Wm/K/m^2
• Heat Distortion Temperature	ASTM D638		217°F	103°C
• Heat Capacity	DSC	73°F/23°C	0.21BTU/lb°F	0.90 J/gK
		212°F/100°C	0.26 BTU/lb°F	1.10J/gK
FLAMMABILITY				
• Flammability Rating	UI 94	0.062in/0.157 cm	V-0, 5VB, 5VA	
• Flame Spread	ASTM E84		15	
• Smoke Developed	ASTM E84		70-125	
• Limiting Oxygen Index	ASTM D2863		60%	
ELECTRICAL				
• Dielectric Strength	ASTM D147		1250 V/mil	492,000 V/cm
• Dielectric Constant	ASTM D150	60Hz, 30°F/-1°C	3.70	3.70
• Power Factor	ASTM D150	1000 Hz	0.007%	0.007%
• Volume Resistivity	ASTM D257	73°F/23°C	3.4x10^{15} ohm/cm	3.4x10^{15} ohm/cm

CPVC PIPES & FITTINGS

CPVC pipes

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"
32 mm	1 1/4"
40 mm	1 1/2"
50 mm	2"

CUPLING

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"
32 mm	1 1/4"
40 mm	1 1/2"
50 mm	2"

ELBOW 45°

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"
32 mm	1 1/4"
40 mm	1 1/2"
50 mm	2"

ELBOW 90°

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"
32 mm	1 1/4"
40 mm	1 1/2"
50 mm	2"

TEE

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"
32 mm	1 1/4"
40 mm	1 1/2"
50 mm	2"

END CAP

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"
32 mm	1 1/4"
40 mm	1 1/2"
50 mm	2"

CPVC PIPES & FITTINGS

THREAD MALE ADAPTER

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"
32 mm	1 1/4"
40 mm	1 1/2"
50 mm	2"

THREAD FEMALE ADAPTER

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"
32 mm	1 1/4"
40 mm	1 1/2"
50 mm	2"

TANK ADAPTER

SIZE (mm)	SIZE (inch)
15 mm	1/2"
20 mm	3/4"
25 mm	1"

REDUCING COUPLING

SIZE (mm)	SIZE (inch)
20 X 15mm	3/4" X 1/2"
25 X 15mm	1" X 1/2"
25 X 20mm	1" X 3/4"
32 X 15mm	1 1/4" X 1/2"
32 X 20mm	1 1/4" X 3/4"
32 X 25mm	1 1/4" X 1"
40 X 15mm	1 1/2" X 1/2"
40 X 20mm	1 1/2" X 3/4"
40 X 25mm	1 1/2" X 1"
40 X 32mm	1 1/2" X 1 1/4"
50 X 15mm	2" X 1/2"
50 X 20mm	2" X 3/4"
50 X 25mm	2" X 1"
50 X 32mm	2" X 1 1/4"
50 X 40mm	2" X 1 1/2"

CPVC PIPES & FITTINGS

REDUCING BUSH

SIZE (mm)	SIZE (inch)
20 X 15mm	3/4" X 1/2"
25 X 15mm	1" X 1/2"
25 X 20mm	1" X 3/4"
32 X 15mm	1 1/4" X 1/2"
32 X 20mm	1 1/4" X 3/4"
32 X 25mm	1 1/4" X 1"
40 X 15mm	1 1/2" X 1/2"
40 X 20mm	1 1/2" X 3/4"
40 X 25mm	1 1/2" X 1"
40 X 32mm	1 1/2" X 1 1/4"
50 X 15mm	2" X 1/2"
50 X 20mm	2" X 3/4"
50 X 25mm	2" X 1"
50 X 32mm	2" X 1 1/4"
50 X 40mm	2" X 1 1/2"

REDUCING TEE

SIZE (mm)	SIZE (inch)
20 X 15mm	3/4" X 1/2"
25 X 15mm	1" X 1/2"
25 X 20mm	1" X 3/4"
32 X 15mm	1 1/4" X 1/2"
32 X 20mm	1 1/4" X 3/4"
32 X 25mm	1 1/4" X 1"
40 X 15mm	1 1/2" X 1/2"
40 X 20mm	1 1/2" X 3/4"
40 X 25mm	1 1/2" X 1"
40 X 32mm	1 1/2" X 1 1/4"
50 X 15mm	2" X 1/2"
50 X 20mm	2" X 3/4"
50 X 25mm	2" X 1"
50 X 32mm	2" X 1 1/4"
50 X 40mm	2" X 1 1/2"

CPVC PIPES & FITTINGS

BRASS THREAD MALE ADAPTER

SIZE (mm)	SIZE (inch)
15mm	1/2"
20 X 15mm	3/4" x 1/2"
20mm	3/4"
25mm	1"
32mm	1 1/4"
40mm	1 1/2"
50mm	2"

BRASS THREAD FEMALE ADAPTER

SIZE (mm)	SIZE (inch)
15mm	1/2"
20mm	3/4"
25mm	1"
32mm	1 1/4"
40mm	1 1/2"
50mm	2"

BRASS FPT 90° ELBOW

SIZE (mm)	SIZE (inch)
15 X 15mm	1/2"
20 X 15mm	3/4" X 1/2"
20 X 20mm	3/4"
25 X 15mm	1" X 1/2"
25 X 25mm	1"
32 X 32mm	1 1/4"

BRASS FPT TEE

SIZE (mm)	SIZE (inch)
20 X 15mm	3/4" X 1/2"
25 X 15mm	1" X 1/2"
25 X 20mm	1" X 3/4"

REDUCING ELBOW

SIZE (mm)	SIZE (inch)
20 X 15mm	3/4" X 1/2"
25 X 20mm	1" X 3/4"

UNION

SIZE (mm)	SIZE (inch)
15mm	1/2"
20mm	3/4"
25mm	1"
32mm	1 1/4"
40mm	1 1/2"
50mm	2"

CPVC PIPES & FITTINGS

STEP OVER BEND

SIZE (mm)	SIZE (inch)
15mm	1/2"
20mm	3/4"
25mm	1"

BALL VALVE

SIZE (mm)	SIZE (inch)
15mm	1/2"
20mm	3/4"
25mm	1"
32mm	1 1/4"
40mm	1 1/2"
50mm	2"

STRAP

SIZE (mm)	SIZE (inch)
15mm	1/2"
20mm	3/4"
25mm	1"
32mm	1 1/4"
40mm	1 1/2"
50mm	2"

ELBOW HOLDER

SIZE (mm)	SIZE (inch)
15mm	1/2"
25mm	1"

CPVC SOLVENT CEMENT

SIZE (ml)
59 ml
118 ml

CPVC SOLVENT CEMENT TUBE

SIZE (ml)
29 ml

TECHNICAL DETAILS

CPVC pipes SDR 11 dimensions

Nominal Diameter		Out Side Diameter (mm)		Thickness (mm)		Out of Roundness (mm)	Length (mm)	Length Tolerance (mm)
mm	inch	min	max	min	max			
10	3/8	12.62	12.78	1.52	2.03	± 0.08	3000	+12.5/-0
15	1/2	15.82	15.98	1.52	2.03	± 0.10	3000	+12.5/-0
20	3/4	22.12	22.28	2.03	2.54	± 0.13	3000	+12.5/-0
25	1	28.52	28.68	2.59	3.10	± 0.15	3000	+12.5/-0
32	1 1/4	34.82	34.98	3.18	3.69	± 0.18	3000	+12.5/-0
40	1 1/2	41.20	41.40	3.76	4.27	± 0.20	3000	+12.5/-0
50	2	53.90	54.10	4.90	5.48	± 0.25	3000	+12.5/-0

CPVC fittings SDR 11 dimensions

Nominal Size		Socket Inside Diameter Mouth (mm)		Socket Inside Diameter Bottom (mm)		Socket Length Min (mm)	Wall Thickness Min (mm)	
inch	mm	Min	Max	Min	Max		Socket Entrance	Socket Bottom
3/8	10	12.82	12.98	12.47	12.63	12.70	1.73	2.59
1/2	15	16.00	16.16	15.64	15.80	12.70	1.73	2.59
3/4	20	22.37	22.53	22.02	22.18	17.78	2.03	2.59
1	25	28.75	28.91	28.39	28.55	22.86	2.59	2.59
1 1/4	32	35.12	35.28	34.77	34.93	27.94	3.18	3.18
1 1/2	40	41.56	41.76	41.10	41.30	33.02	3.76	3.76
2	50	54.28	54.48	53.82	54.02	43.18	4.90	4.90

TECHNICAL DETAILS

American National Standard Taper Pipe Threads (NPT) ANSI Standard B1.20.1 as per ASTM F1498

Nominal Size (in.)	(mm)	Threads Per in.	Effective Thread Length L	Pitch of Thread P
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

BSP ISO 7/1 Parallel Threads

Nominal Size (in.)	(mm)	Threads per in.	Pitch of Thread (mm) P	Effective Thread Length (mm) L	Thread Diameter (mm) min	max
½	15	14	1.8143	13.152	18.489	18.773
¼	20	14	1.8143	14.514	23.975	24.259
1	25	11	2.3091	16.714	30.111	30.471
1¼	32	11	2.3091	19.050	38.772	39.132
1½	40	11	2.3091	19.050	44.665	45.025
2	50	11	2.3091	23.378	56.476	56.836

THERMAL EXPANSION

Like all piping material, Anton Thermo pipes expand when heated and contract when cooled. Thermo piping (regardless of pipe diameter) will expand about 1 inch per 50 feet of length when subjected to a 50°F temperature increase, therefore, allowances must be made for this resulting movement. However, laboratory testing and installation experience have demonstrated that the practical issues are much smaller than the coefficient of thermal expansion would suggest. The stresses developed in Thermo pipes are generally much smaller than those developed in metal pipes for equal temperature changes because of the difference in elastic modulus. Required loops are smaller than those recommended by the Copper Development Association for copper systems.

Expansion is mainly a concern in hot water lines, Generally, thermal expansion can be accommodated with changes in direction. However, a long straight run may require an offset or loop. Only one expansion loop, properly sized is required in any single straight run, regardless of its total length. If more convenient, two or more smaller expansion loops, properly sized, can be utilized in a single run of pipe to accommodate the thermal movement. Be sure to hang pipes with smooth straps that will not restrict movement. For convenience, loop (or offset) length has been calculated for different pipe sizes and different run lengths with a temperature increase (ΔT) of about 80°F. The results, shown in Tables A and B, are presented simply as a handy guide for quick and easy determinations of acceptable loop length for the approximate conditions. Loop length for other temperatures and run length can be calculated utilizing the following equations:

Expansion Loop Formula

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

Where : L = Loop length (in.)
E = Modulus of elasticity at maximum temperature (psi)
S = Working Stress at maximum temperature (psi)
D = Outside diameter of pipe (in.)
ΔL = Change in length due to change in temperature (in.) (see formula below)

Thermal Expansion Formula

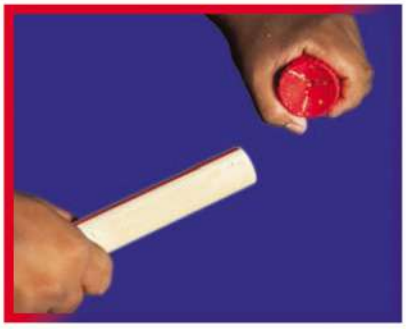
$$\Delta L = LP\ C\ \Delta T$$

Where : ΔL = Change in length due to change in temperature (in.)
LP = Length of pipe (in.)
C = Coefficient of thermal expansion (in. / in. / °F)
= 3.4×10^{-5} in. / in. / °F for CPVC
ΔT = Change in temperature (°F)

JOINING ANTON THERMO PIPES & FITTINGS

CUTTINGS:

In order to make a proper and near joint, measure the pipe length accurately and make a small mark. Ensure that the pipe and fittings are size compatible. You can easily cut with a wheel type plastic pipe cutter or hacksaw blade. Cutting tubing as squarely as possible provides optimal bounding area within a joint.



DEBURRING/BEVELING:

Burrs and filings can prevent proper contact between tube and fitting during assembly and should be removed from the outside and inside of the pipe. Debarking tool, pocket knife or files are suitable for this. A slight bevel on the end of the tubing will ease entry of the tubing onto fitting socket

FITTING PREPARATION:

Using a clean, dry rag, wipe dirt and moisture from the fitting sockets and tubing end. The tubing should make contact with the socket wall 1/3 to 2/3 of the way into the fitting socket.

SOLVENT CEMENT APPLICATION:

Use only CPVC cement or an all -purpose cement conforming to ASTM F493 or joint failure may result. When making a joint, apply a heavy, even coat of cement to the pipe end. Use the same applicator without additional cement to apply a thin coat inside the fitting socket. Too much cement can cause clogged waterways.

ASSEMBLY:

Immediately insert the tubing into the fitting socket, rotate the tube 1/4 to 1/2 turn while inserting. This motion ensures even distribution of cement within the joint. Properly align the fittings. Hold the assembly for approximately 10 seconds, allowing the joint to setup.

SET AND CURE TIMES:

Solvent cement set and cure times are a function of pipe size, temperature and relative humidity. Curing time is shorter for drier environments, smaller sizes and higher temperatures. It requires 10 to 20 minutes for the perfect joint.

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