



# KiTEC



## Multi-Layer Composite Pipes

Keep in Shape with **KiTEC**



*Rewriting the Standards*

# Rewriting the Standards

KiTEC pipes are manufactured by a joint venture outfit of KiTECHNOLOGY known as KiTEC Industries (India) Limited, an ISO 9001:2008 Company and has established state of art manufacturing facility and testing facilities at Silvassa in Union Territory of Dadra & Nagar Haveli. The company supports training of local technicians through its all India network. The local technicians can pick up the job in just 30 minutes. The company in India has developed various options of fittings for the Indian environment with its in-house research. The pipes are manufactured in accordance with IS 15450:2004, ASTM F1281 (UPC listing) as well as in accordance to its internal standards. KiTEC has also entered in the market of PVC SWR pipes as well as HDPE pipes.

## QUALITY POLICY

We are committed to meet the requirements of the customers, Internal & External, taking into account the Quality of our products & Services. Our philosophy is to concentrate on preventive methods and adopt an innovative approach to make Total Quality a way of life with an objective to **DO IT RIGHT THE FIRST TIME**. We will endeavour to create an environment in the organisation that will encourage employees and suppliers to eliminate the non-conformance, to generate an error free output and to achieve Quality improvement of our Products & Services. It is the duty of each employee & supplier to achieve excellence in the Quality.

## Concept of KiTEC Pipe



**KiTEC is an aluminium and polyethylene composite** that combines the best features of both materials to form a pipe that is light, strong and does not support corrosion. By combining the two materials along with adhesive layers, **KiTEC pipe avoids the unaccepted thermal expansion and deformation of plastic pipe**. At the same time it retains the flexibility, frost resistance and ease of use associated with plastic.

## PROPERTIES AND SALIENT FEATURES

### PHYSICAL PROPERTIES:

**Malleable** : The unique feature of KiTEC is its malleability. KiTEC is easily formed into curves, can be set by hand and may require only bending springs when forming tight bends down to radius equivalent to 5 times the diameter of pipe. Unlike plastic plumbing pipes, KiTEC permanently holds whatever shape it is formed into and does not need additional clips or brackets to retain the shape of bends or curves.

**Non-corrosive**: KiTEC piping systems don't corrode. Will never pit or develop pin holes from aggressive water leading to premature failure.

**Smooth surface**: That results in avoiding permanent scale build up avoiding reduction in flow. Soluble encrustants, such as calcium carbonate do not readily precipitate onto the smooth walls of KiTEC pipes. In addition there is no reduction in flow coefficients as the pipe ages.

**Hygiene**: KiTEC is hygienic, non-toxic, rust-free and eliminates growth of microorganisms. This avoids contamination of water. KiTEC pipes have passed all the tests of pipe for potable water in accordance with British Standard BS 6920 by the British Water Quality Center.

**Flame/Smoke Rating** :KiTEC pipe has a Flame Spread of 5 and a Smoke Development of 5 as per ULC-S102.2. The ratings meet most building code requirements allowing the use of KiTEC in high-rise construction as well as in return air plenums and vertical shafts.

**Permeation** : KiTEC's aluminum core acts as a permeation barrier against entry of contaminants and limits oxygen permeation to zero. Permeation is the molecular transport of gaseous chemicals, from the soil surrounding the pipe through the pipe wall and into the fluid being carried. Permeation may have adverse effects on the piping system, the conveyed fluid or both. KiTEC is widely used for the transmission and distribution of potable water providing a second line of defense for the plumbing system.

**UV Resistance and Opacity** : KiTEC pipes do not have any effect of UV radiation when laid exposed. There is no light transmission through the wall of KiTEC pipe.

### THERMAL PROPERTIES

**Thermal Expansion** : KiTEC has a low coefficient of linear expansion similar to copper tubing and is far superior to alternate plastic pipe (expansion// contraction rate about 10% of plastic pipe). This eliminates the need of installation "offsets" and the concern about abrading pipe due to constant movement as a result of temperature changes. Straight runs are always attainable with KiTEC pipe. Coefficient of Thermal Expansion is :  $25 \times 10^{-6} / ^\circ\text{K}$ . Low expansion coefficient is due to tie layer which eliminates the differential expansion of plastic and metal.

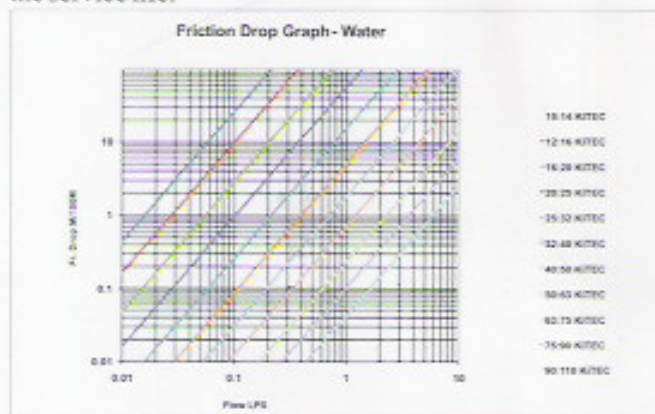
**Resistance to freezing**: In continuous flowing plumbing and water supply applications, KiTEC can withstand multiple cycles of freezing and thawing while under pressure without bursting up to  $-40^\circ\text{C}$  temperature. Thawing can be done using a hot air blowgun, hot water injection and electric blanket or heating cable method. An open flame, torch or electric current should not be used to thaw the pipe.

**Thermal Insulation**: KiTEC is having Thermal Conductivity of  $0.43 \text{ Watt/[m } ^\circ\text{K]}$ . KiTEC composite pipes provide an increased resistance to the onset of condensation or pipe sweating in a plumbing application. In case of hot water piping, the insulation requirement is only 50% of the same required for conventional metal pipes.

# Rewriting the Standards

## FLOW PROPERTIES

KiTEC pipe has smooth inside surface and hence is furr & scale free. It gives higher and consistent flow throughout the service life.



## CHEMICAL RESISTANCE

Resists at 20° as well as 60° C.: Acids, Alcohol, Aldehyde, Ethylene Glycol, Bleach, Corrosion inhibitors, Detergents, Foodstuff, Petrol, Diesel, Fuel Oils, Veg/Mineral Oils.

Resists at ambient temperature. Performance yet to be ascertained at elevated temperatures. Beverages, Insecticides, Ketones, Oxidation agents, Paints, Salts, Surfactants/Soaps

**Chlorine Resistance:** KiTEC pipe has much better resistance to chlorine attack than other non-composite pipes because of the aluminum middle layer. The outer layer is not exposed to chlorine. Therefore, there is no reason for chlorine attack on the outer layer. KiTEC pipe is an excellent choice for continuous re-circulation plumbing applications.

## KiTEC Composite PR Pipes As per IS 15450:2004



Description	Pipe Size						
	1014	1216	1620	2025	2532	3240	4050
Minimum Outside Diameter (mm)	14	16	20	25	32	40	50
Minimum Wall Thickness (mm)	1.70	1.75	2.00	2.45	2.80	3.40	4.00
Standard Coil Length (Meters)	200	200	200	100	100	100	100
Minimum Aluminium Thickness (mm)	0.20	0.20	0.25	0.25	0.30	0.30	0.30
Minimum Outside Layer Thickness (mm)	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Maximum Weight (Kgs/Meter)	0.10	0.12	0.16	0.23	0.35	0.52	0.68
Equivalent NB Size GI (Inch)	3/8	1/2	3/4	1	1 1/4	1 1/2	2

KiTEC Composite PR Pipes are having pressure rating of 13.8 Kg/Cm<sup>2</sup> at 23°C and 11.0 Kg/Cm<sup>2</sup> at 60 °C. Short term excursion to 95 °C will not affect the overall performance. Designed life span of KiTEC piping System is in excess of 50 years. The pipe are black in color and are UV resistant. Can be used for outdoor as well as concealed installations.

## KiTEC Composite PL & PE-AL-PEX Pipes As per Internal Standard

Description	Pipe Size									
	1216	1620	2025	2532	3240	4050	5063	6375	7590	90110
Minimum Outside Diameter (mm)	16	20	25	32	40	50	63	75	90	110
Minimum Wall Thickness (mm)	1.70	1.90	2.30	2.90	3.40	3.90	4.80	5.80	6.80	7.00
Standard Coil/Pipe Length (Meters)	200	200	100	100	100	100	50	50	6	6
Minimum Aluminium Thickness (mm)	0.17	0.17	0.19	0.23	0.23	0.23	0.50	0.60	0.70	0.80
Minimum Outside Layer Thickness (mm)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.50	0.50	0.50
Maximum Weight (Kgs/Meter)	0.13	0.17	0.24	0.35	0.52	0.70	1.27	1.70	2.00	2.65
Equivalent NB Size GI (Inch)	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4

KiTEC Composite PL Pipes are having inner layer in natural colour and outer layer in black colour with continuous blue line on outer layer and are UV resistant. KiTEC Composite PL pipes are having pressure rating of 12.0 Kg/Cm<sup>2</sup> at 23° C and 6.0 Kg/Cm<sup>2</sup> at 65° C and being used for outdoor as well as concealed installations. These pipes offer the cost benefit of traditional plumbing systems, without compromising the basic features of composite pipes.

KiTEC Composite PL-AL-PEX Pipes are manufactured having inner layer from PEX a new class of Polyethylene materials designated as PEX (Cross Linked Polyethylene). With the improved property at elevated temperature, KiTEC Composite PE-AL-PEX pipes are suitable for applications having continuous operating temperature of 95 °C at 5.0 Kg/Cm<sup>2</sup>. Rated pressure at 80 °C temperature is 8.0 Kg/Cm<sup>2</sup>. Short term excursions to 110 °C will not affect the overall performance of these pipes. The pipes are having inner layer in Orange color and outer layer in black colour with continuous red line. These pipes are also UV resistant., can be used for outdoor as well as concealed installations.

KiTEC Composite PE-AL-PEX pipes are manufactured as per internal standards and meets the requirements for industrial/domestic purposes and heating installations.

# Rewriting the Standards

## Manufacturing Facility and Quality Control Laboratory



### JOINTING METHODS

KiTEC pipes are joined by using compression/crimp fittings with internal sealing arrangement.

Fittings up to 4050 Size



Composite Compression



Composite - Crimp



Brass Compression

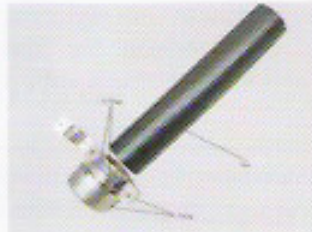


Brass - Crimp

Fittings above 4050 Size



Composite Compression



Brass Compression

### APPLICATIONS

- Hot and Cold Water System
- Compressed Air Systems
- Gas Distribution
- Solar Heating
- Food/Chemical Processing
- Refrigerant Systems
- Vacuum Systems
- Air Conditioning
- Fuel Oil Lines
- Electrical / Telecommunication Conduits
- Insecticides Spraying
- Jet Pump Piping
- Radiator
- Central Heating
- Under Floor Heating



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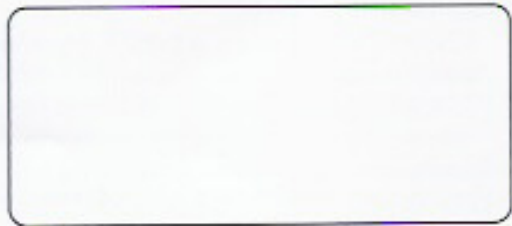
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To the best of our belief, the technical data set out in this publication is accurate. However it is purely for guidance purpose.