

indo green[®] PP-R

The latest, cost effective and reliable system for Hot and Cold water



Supreme industries have evolved to become an undisputed leader in India's plastics industry, with valuable experience in providing innovative and cost effective piping solution. Supreme a name synonymous with quality, innovation and service is trend setters in plastic piping system in India. Company's objective is to meet the growing needs of the customers in water management and housing sector through specially developed high performance piping range. The Supreme's comprehensive and exclusive range of plastic pipe systems are designed and manufactured to meet the highest standards set by the building and construction industry across the world. Supreme has, no doubt, brought about a revolution in the Indian plastic pipe industry.

Supreme is pioneer in introducing PP-R piping system in India with indigenously manufactured complete range of pipes and fittings with necessary heating tools and accessories. Supreme indo green PP-R is made from PP-R type-3 supplied by reputed European suppliers which have bodycote certification. Only indo green is approved and listed by reputed WRAS, UK in the country which ensures its suitability for drinking water application.

Now Supreme also provides uv-stabilized pipes in green colour.

THE SYSTEM

Supreme indo green PP-R is designed for hot and cold water application and it is the latest and most suitable system for all plumbing applications. Besides plumbing, this system can be used for varieties of applications like air distributions, radiator heating etc. The specific chemical structure of indo green PP-R provides the well balanced mechanical properties and superior long term heat resistance. The system is in use for more than 20 years in Europe, the Gulf, China and Russia, and gaining good acceptance across the world. Supreme indo green is the only system which comes with 10 years warranty. Indo green pipes are approved and listed by WRAS (Water Regulations Advisory Scheme), UK. Indo green PP-R is the most suitable and ideal solution for housing sector.

MATERIAL PROPERTIES

- Density at 23 °C : 0.909 g/cm³
- Softening temperature : 132 °C
- E - modulus : 808 Mpa
- Coefficient of thermal conductivity : 0.21W/m °C
- Impact strength : 23 °C - No break, 0 °C - 160 KJ/m²
- Coeff. of linear thermal expansion : 0.12 mm/m °C

FIELDS OF APPLICATION

Indo green PP-R is designed for hot and cold water supply and heating applications and it is suitable for different applications enlisted below.

- Hot and cold water supply in residential, industrial, commercial and public projects
- Solar heater applications
- Drinking water and liquid foods
- Watering systems for greenhouses and gardens
- Transportation of aggressive fluids
- Water purifying plants
- Radiator heating
- Traditional heating systems
- Air distribution and compressed air systems
- Chilled water and air conditioning

FEATURES AND BENEFITS

Light weight, easy and quick assembly - which results in extensive saving on time and labour.

Safest system for carrying drinking water - PP-R is absolutely free from corrosion and negative biological effects. It does not break down even under the harshest of water conditions, hence the quality of water never deteriorates. It is in full compliance with the International standards on the use of plastics materials for the transportation of potable water.

Excellent resistance to corrosion and chemical attacks - PP-R pipes and fittings are stable against the majority of known aggressive and toxic chemicals, aggressive soils and fluids in the external environment.

Reduced head loss - Mirror smooth inside surface ensures high flow rates and very low frictional losses.

Low thermal conductivity - which results in saving on insulation cost, thereby reducing overall operational costs.

Free from scaling - Due to the unique properties like extremely smooth surface, non-polar nature of the material, and low surface energy of the PP-R, limestone or other deposits cannot form and hence there is no scaling or blockage in the pipelines, throughout the life of the piping system.

High impact strength - Indo green PP-R has a very good impact strength.

Low on sound - The sound-dampening property is a major attraction in plumbing, flushing and pressurized flow applications.

Long operational durability - Indo green system ensures a minimum 50 years of trouble free performance.

Overall Economy - This system is most cost effective than any other plumbing system. Moreover, due to savings in installation and insulation costs, this system is even comparable with standard make G.I. B class piping system.

Besides above stated benefits, it has very good resistance to frost, abrasion and stray current, and is considered to be most suitable in seismic areas.

Pipes

Pipe Dimensions as per EN ISO 15874 specifications

Size (D)	PN 8		PN 10		PN 12.5		PN 16		PN 20	
	Wall Thickness (t)	Internal Diameter (d)	Wall Thickness (t)	Internal Diameter (d)	Wall Thickness (t)	Internal Diameter (d)	Wall Thickness (t)	Internal Diameter (d)	Wall Thickness (t)	Internal Diameter (d)
16	---	---	---	---	---	---	2.3	11.4	2.7	10.6
20	---	---	1.9	16.2	2.3	15.4	2.8	14.4	3.4	13.2
25	---	---	2.8	19.4	2.8	19.4	3.5	18.0	4.2	16.6
32	---	---	3.0	26.0	3.6	24.8	4.5	23.0	5.4	21.2
40	---	---	3.7	32.6	4.5	31.0	5.6	28.8	6.7	26.6
50	3.7	42.6	4.6	40.8	5.6	38.8	6.9	36.2	8.4	33.2
63	4.7	53.6	5.8	51.4	---	---	8.7	45.6	10.5	42.0
75	5.5	64.0	6.9	61.2	---	---	10.4	54.2	12.5	50.0
90	6.70	76.6	8.2	73.6	---	---	12.5	65.0	15.0	60.0
110	8.20	93.6	10.0	90.0	---	---	15.2	79.6	18.4	73.2
160	11.90	136.2	14.6	130.8	---	---	21.9	116.2	---	---

Note : UV-stabilized pipes are offered in all the sizes except 20, 25, 32 mm in PN10 pressure class.

INDO GREEN PP-R FITTING RANGE

Coupler (S)	Elbow 90° (S)	*Reducing Elbow (S)	Elbow 45° (S)	Equal Tee (S)
				
*Reducing Tee (S)	*Reducer Male/Female (S)	Cross Tee (S)	Reducer Female/Female (S)	End Cap (S)
				
Female Threaded Elbow 90° (S)	Female Threaded Elbow 90° (S) with supporting device	Male Threaded Elbow 90° (S)	Female Threaded Tee (S)	Male Threaded Tee (S)
				
Female Threaded Joint (FTA) (S)	Male Threaded Joint (MTA) (S)	M.T.A. (Plastic)	Union (NS)	Union - Female Threaded (NS)
				

Union - Male Threaded (NS)	All Plastic Weld in Saddle (S)	Weld in Saddle - Female Threaded (S)	Weld in Saddle - Male Threaded (S)	Adapter with Integral Flange (S)
				
Flange Adapter (S)	Flange	Metal Flange (NS)	Pipe Clip (Plastic) (S)	Metal Clamp with Rubber Seal (NS)
				
Ball Valve (S)	Screw Tap with Handwheel (S)	Concealed Valve	Circuit Testing Plug (Moulded) (NS)	Circuit Testing Plug (F) (NS)
				
Threaded Plug (NS)	Tank Connector (F) (NS)	Hole Repairing Plug (S)	Expansion Loop (F) (NS)	Bend 90°
				
Short Bend (BW)	Bypass Bend (F) (NS)	Short Bypass Bend (F) (NS)	Offset Bend	Polyfusion Device SPD 2600 (NS)
				
Polyfusion Device SPD 3800 (NS)	Polyfusion Device SPD 41200 (NS)	Polyfusion Device 90° (Rod type) SPD 5600 (NS)	Heating Plate for Butt Welding SPD 61800 (NS)	Matrices-Paired (NS)
				
Matrices-Non-Paired (NS)	Matrices for Weld in Saddle	Hole Repairing Matrices (NS)	Drill Bit for Weld in Saddle (NS)	Mounting Stand (for PFD)
				
Pipe Scraper	Pipe Cutter (NS) (European make)	Rotating Cutter (NS)	Assembly Jig	Butt Welding Machine
				

S - Fittings covered under warranty, NS - Fittings not covered under warranty, F - Fabricated, BW - Butt welding type

THERMAL EXPANSION OF THE SYSTEM

In PP-R, deformation due to expansion are absorbed due to "low elastic modulus" of the pipe material. Therefore no real problems are envisaged due to expansion in concealed installations.

In case of external applications on ceiling or walls, where long lengths are installed, the effects of expansion contractions shall be considered while assembly of indo green system. This problem can be solved either by using suitable expansion loops or clamps. (for more detail please refer to our assembly regulation manual)

HEAT LOSS AND INSULATION REQUIREMENTS

Due to the low thermal conductivity of indo green PP-R (0.21 W/mK) normally it may not be necessary to insulate, when used for hot water concealed application. However, for application where central boiler is used for distribution of hot water, and the circulation of hot water being continuous, it is necessary to insulate distribution lines to prevent excessive loss of heat and energy wastage.

POLYFUSION WELDING

Joints of the indo green pipes and fittings are usually jointed together by poly-fusion welding, which is a fundamental property of this system. This process consists of mixing of melted material of external surface of the pipe and internal surface of the fitting, after heating them up to 260 °C to 280 °C on the small welding machine called poly-fusion device. Properly made welded joint, when cut through, shows no traces of contact surface between two elements i.e. pipe and fitting in the entire volume of joint. Thus fusion process gives homogeneous, integral, long lasting, leak proof joints.

JOINING PROCEDURE



Cutting - Cut the pipe square to the required length by cutter. Deburr the cut end if necessary. Pipe ends must be clean cut at right angles.

Cleaning - Prior to welding, the pipe and fitting should be dried and properly cleaned.

Marking - Mark the required insertion depth (welding depth) on the pipe with the help of suitable marker.

Heating - Ensure that the indicator light on the welding device signals that the device is hot enough (260-270 °C) for welding. First weld can be made after 5 minutes when heating light gets off. Heat the pipe and fitting on the polyfusion device as per the recommended heating times. (The heating time starts, when pipe and fitting have been pushed to the correct welding depth on the matrices.) While heating the pipe and fitting in the matrices, apply slight pressure from both sides.

Welding - After specified heating time, remove the pipe and fitting out of the matrices. Heated end of pipe should be pushed in to the flared end of the hot fitting down to the previously marked depth. Do not turn or twist the pipe or fitting while pushing in to the matrices and pulling out of the matrices.

Cooling - After the specified cooling time, the joint gets a first stiffness, after this phase next joint can be made.

CONCEALED WORK

While doing concealed bathroom work, it is easier to make the required network on floor by proper measurement of different pipe lengths. To avoid misalignment, guiding marks on pipes and fittings should be referred.

Polyfusion welding times according to DVS 2207 norms

Pipe Size (mm)	16	20	25	32	40	50	63	75	90	110
Heating time (min) seconds	5	5(3)*	7(4)	8(4)	12(6)	12(9)	24(12)	30(15)	40(20)	50(25)
Working time (max) time of removal, seconds	4	4	4	6	6	6	8	8	8	10
Cooling time (min) minutes	2	2	2	4	4	4	6	6	6	8
Depth of welding (mm)	13	14	15	16	18	20	24	26	29	32.5

*Bracketed values are for PN 10 pipes

Operating parameters of PP-R piping for water supply systems

TEMPER- ATURE (°C)	TIME IN OPERATION (YEARS)	PRESSURE LINE				
		MAXIMUM ALLOWABLE OVER PRESSURE				
		PN 8	PN 10	PN 12.5	PN 16	PN 20
10	1	14.1	17.6	22.0	27.8	35.0
	5	13.3	16.6	20.9	26.4	33.2
	10	12.9	16.1	20.2	25.5	32.1
	25	12.5	15.6	19.6	24.7	31.1
	50	12.2	15.2	19.0	24.0	30.3
20	1	12.0	15.0	18.8	23.8	30.0
	5	11.3	14.1	17.7	22.3	28.1
	10	11.0	13.7	17.2	21.7	27.3
	25	10.6	13.3	16.7	21.1	26.5
	50	10.3	12.9	16.2	20.4	25.7
30	1	10.2	12.8	16.0	20.2	25.5
	5	9.6	12.0	15.0	19.0	23.9
	10	9.3	11.6	14.5	18.3	23.1
	25	9.0	11.2	14.0	17.7	22.3
	50	8.7	10.9	13.7	17.3	21.8
40	1	8.6	10.8	13.5	17.1	21.5
	5	8.1	10.1	12.7	16.0	20.2
	10	7.8	9.8	12.3	15.6	19.6
	25	7.5	9.4	11.8	15.0	18.8
	50	7.4	9.2	11.5	14.5	18.3
50	1	7.4	9.2	11.5	14.5	18.3
	5	6.8	8.5	10.7	13.5	17.0
	10	6.6	8.2	10.3	13.1	16.5
	25	6.4	8.0	10.0	12.6	15.9
	50	6.2	7.7	9.7	12.2	15.4
60	1	6.2	7.7	9.7	12.2	15.4
	5	5.8	7.2	9.0	11.4	14.3
	10	5.5	6.9	8.7	11.0	13.8
	25	5.4	6.7	8.4	10.5	13.3
	50	5.1	6.4	8.0	10.1	12.7
70	1	5.2	6.5	8.2	10.3	13.0
	5	4.8	6.0	7.5	9.5	11.9
	10	4.7	5.9	7.4	9.3	11.7
	25	4.1	5.1	6.4	8.0	10.1
	50	3.4	4.3	5.3	6.7	8.5
80	1	4.4	5.5	6.9	8.6	10.9
	5	3.8	4.8	6.0	7.6	9.6
	10	3.2	4.0	5.0	6.3	8.0
	25	2.6	3.2	4.0	5.1	6.4
	50	2.0	2.5	3.2	4.0	5.0
		COLD WATER			HOT WATER	

◀ Standard condition
of use for
indo green PP-R

• Any specifications can change without prior notice.

• All information contained in this literature is given in good faith and believed to be accurate and reliable. But because of many factors which may be outside our knowledge and control and affect the use of the product, no warranty is given or is to be implied with respect to such information, nor do we offer any warranty of immunity against patent infringement. No responsibility can be accepted for any error, omissions or incorrect assumptions.

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