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**eurotherm**  
PP-R PIPES & FITTINGS  
PRODUCT CATALOGUE



Polypropylene Random Copolymer (PPR) Pipes and Fittings for Plumbing Installations

## Chairman's message

"Eurotherm" is an Omani brand for PPR pipes and fittings; started with the aim of providing quality plumbing solutions. Manufacturing plant is located in Raysut Industrial City, Salalah, Sultanate of Oman. Quality is engineered into Eurotherm products during the entire manufacturing process.

We use only the highest quality materials and the latest technology to manufacture Eurotherm pipes and fittings. We also ensure that our products are rigorously tested before they are made available to you, so you can rest assured that you are getting the best possible product.

Our commitment to excellence doesn't end with our products. We also provide exceptional customer service to ensure that your experience with us is as seamless and enjoyable as possible. Our team of experts is always on hand to answer any questions you may have.

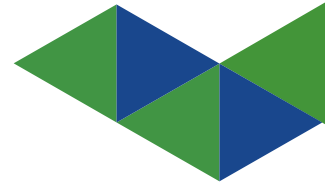
As we continue to grow and expand our product line, we remain committed to our core values of quality, reliability, and customer satisfaction. We look forward to continuing to serve you and providing you with the best possible products and services.



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Mohammed Ahmed Said Al Sanh Al Mashakhi





## About The Eurotherm System

The use of plastic materials is increasingly common in every field of our everyday life; the excellent mechanical, chemical and physical properties of the most advanced polymers have made them outstandingly successful in a wide range of applications.

Starting from the Eighties, the use of plastic materials in the pipe making industry has grown exponentially, and today, they are used for a huge variety of applications, including heating and air conditioning system inlet and outlet pipes – to the ever growing appreciation of installers and end users.

Eurotherm Pipe System is a Random Polypropylene Copolymer pipe and fitting system which stands out among other plumbing and sanitary piping systems thanks to its quality and reliability. The chemical and physical properties of the material used and the fact that the various elements are joined by hot melting ensure that the systems are perfectly watertight even in the most demanding conditions of use.

The polypropylene used for the Eurotherm System is a special type of Bodycote certified Random Copolymer with high molecular weight supplied by established Petrochemical Companies.

The special copolymer molecular structure and the special additives used to ensure high mechanical strength and prolonged life. Being very lightweight and easy to process, the material is efficiently used to make a complete Eurotherm system for installations built in 30 to 50% less time than it takes to build installations from metallic materials.

Eurotherm PP-R Pipe system is manufactured at their Factory located in Raysut Industrial Estate which is in Dhofar region, the Southern Part of Sultanate of Oman and is 4 km away from strategically placed Port of Salalah and 15 km away from Salalah International Airport

Factory is equipped with World's best Microprocessor controlled Injection molding machine for high quality fittings and Extruder plant for high quality pipe and also fully advanced Tool Room with team of highly qualified and experienced engineers.

The Company is with policy to serve its customer with quality; both in products and after sale services and with vision to reach far and wide of world market by developing dealers and distributors for the brand.



## Physical, Mechanical and Thermal Properties of Raw Material

Polypropylene random copolymers are thermoplastic resins produced through the polymerization of propylene, with ethylene links introduced in the polymer chain. In comparison with PP homopolymers, random copolymers exhibit improved optical properties (increased clarity and decreased haze), improved impact resistance, increased flexibility, and a decreased melting point, which also results in a lower heat-sealing temperature. At the same time they exhibit essentially the same chemical resistance, water vapour barrier properties, and organoleptic properties (low taste and odour contribution) as PP homopolymers. Wide range in physical properties, good clarity, relative ease of processing and low density make random copolymer polypropylene an extremely attractive material capable of competing with more expensive resins in a number of demanding applications.

PP-R is a byproduct that does not require additional extraction of natural resources. This resource is transformed into Eurotherm Pipe System by a rise in temperature, which plastizes the material, allowing the pipe to be produced by means of extrusion, and fittings by injection moulding.



Property	Test Method	Unit	Value	
Density at 23°C	ISO1183	g/cm <sup>3</sup>	0.905	
Viscosity Number J	ISO 1628 T3	cm <sup>3</sup> /g	430	
Melt Flow Rate MFR 190°C/5kg	ISO1133 Condition 18	g/10min	0.5	
MFR 230°C/2.16kg	ISO1133 Condition 12	g/10min	0.3	
MFR 230°C/5kg		g/10min	1.5	
Melting Range	DIN 53736 B2	°C	150-154	
Flexural Modulus	ASTM D790	Mpa	900	
Tensile Stress at Yield	ISO 37	Mpa	27	
Tensile Stress at Break		Mpa	32	
Elongation at Break		%	>50	
Impact Strength (Charpy) 23°C	ISO 179/1eu	KJ/m <sup>2</sup>	No break	
		0°C	KJ/m <sup>2</sup>	No break
		-10°C	KJ/m <sup>2</sup>	No break
Notched Impact Strength (Charpy) 23°C	ISO 179/1eu	KJ/m <sup>2</sup>	30	
		0°C	KJ/m <sup>2</sup>	4
		-10°C	KJ/m <sup>2</sup>	2.5
Ball Indentation Hardness	ISO 2039 T1(132N)	Mpa	43	
Coefficient of Linear Thermal Expansion	VDE 0304 Part 1&4	K-1	1.5x10 <sup>-4</sup>	
Thermal Conductivity at 20°C	DIN 52612	W/Mk	0.24	
Specific Heat at 20°C	Adiabatic Calorimeter	KJ/kg K	2.0	
Vicat Softening Temperature VST/A/50K/h(10N)	ISO 306/A	°C	130	
	ISO 306/B	°C	61	

# Outstanding features of the Eurotherm PP-R Pipe System



## Reduced installation time

Compared with traditional systems, Eurotherm Pipe System can grant a reduction in installation time of at least 30%.



## Resistance to electrolysis

The high resistivity of the piping system (10 Ohm cm.) guarantees a very low electrical conductivity. The risk of PP-R pipe or fittings piercing due to stray currents is practically nothing. Most chemical substances, which might be present in water or concrete, do not attack PP-R.



## Low pressure losses

The inner surfaces of pipes and fittings have a very low frictional resistance, in comparison to traditional systems, thus making it possible to reduce the distribution pressure losses.



## No Scaling

The reduction of the water flow normally occurs as a consequence of scaling (calcium carbonate) especially at high temperatures. PPR pipes of the Eurotherm system do not have scaling problems.



## Low Thermal Conductivity

The thermal conductivity of PP-R is very low (at 20°C is 0.24 W/MK), thus making it possible to reduce heat losses in the hot water supply and traditional heating systems. Also the condensation on the surface is much less than in metallic pipes. This does not remove the statutory requirements for insulation on pipe work, but can improve the effect of insulation.



## Long Life

The Eurotherm piping system for hot and cold water services under pressure is designed to guarantee over 50 years operation at pressure and temperature conditions listed in the following tables (regression curves).

It last longer with less maintenance than other system, adding greater value to every installation.



## Non-toxicity and Safety

All materials used in the Eurotherm supply system, which are in contact with water, are certified as non-toxic and suitable for contact with drinking water (L102)



## Resistance against abrasion

Compared with traditional systems, Eurotherm Pipe System assures a very high resistance against abrasion granting in this way a long life.



## Noise Reduction

The raw material used to manufacture Eurotherm PP-R Pipe System has a high sound reduction index for absorbing sound waves and limiting the spread through pipes



## Fire Classification

Eurotherm Pipe system complies and is classified under the requirement of the fire classification, B2 (Normally inflammable) according to DIN 4102. In case of a fire outbreak of temperature >800°C, under ideal conditions with sufficient oxygen, only carbon dioxide and water vapour are produced as PP-R is a hydrocarbon chain, Toxic fumes or dioxin will not be emitted

# Fields of Application

Eurotherm PP-R Pipe System is a pipe system with many applications due to its special characteristics and versatility.

- **Potable water pipe networks**

For cold and hot water installations e.g. in residential buildings, hospitals, hotels, office and school buildings, shipbuilding, sports facilities etc.

- House connection
- Boiler connection
- Water distribution
- Riser
- High rise
- Water point connection

- **Heating pipes for residential houses**

- Heat generator connections
- Heating manifolds
- Risers
- High rise
- Manifold connections
- Radiator connections

- **Pipe networks for rainwater application systems**

- **Pipe networks for compressed air plants**

- **Pipe networks for swimming pool technology**

- **Pipe networks for the connection of heat pumps**

- **Pipe networks in agriculture and horticulture**

- **Pipe networks for solar plants**

- **Pipe networks for industry,**

E.g. for the transport of aggressive fluids (Acids) considering the chemical resistance

- **Transport for liquid foods**

The Eurotherm pipe system is applied in all fields of

- **New Installation**

- **Repair**

- **Renovation.**



# Permissible Working Pressure

Eurotherm pipes and fittings are designed to withstand constant temperatures up to 70°C. The service life expectancy depends on the installed system pressure and pressure changes. Even though the service life expectancy of the pipes is more than 50 years, a permanent temperature rise from 70 to 90°C will accordingly reduce the operational life of the pipe. However, a temperature rise up to 100°C in short time frames are usually unproblematic.

The following table provides detailed information with regards to the permissible pressure of various pipe pressures rating at various temperatures. These values are derived from Hoop stress chart and formula.

Example :-

A PN 10, Cold water pipe transporting water at a temperature of 30°C can last more than 50 years under normal conditions with an operating pressure of 13.0 Bar.

A PN 20, Cold & Hot water pipe transporting water at a temperature of 70° C can last more than 50 years under normal conditions with an operating pressure of 10.2 Bar.

	Working Pressure (Bar)	Temperature (°C)	Working Times/Year (Hours/Year)
Cold Water	0 to 10 Transient	to 25	8760
Hot Water	0 to 10 Transient	to 60	8710
		to 80	50



## For Potable Water Installations

Maximum operational pressures for pipe consisting of PP-R, for water Safety Factor (SF) = 1.25 as per DIN 8077

Temperature	Service Life	PN 10	PN 16	PN 20	PN 25
		Diameter wall thickness SDR			
		11	7.4	6	5
Permissible operational pressure (bars)					
10°C	1	21.1	33.4	42.1	53.0
	5	19.8	31.5	39.7	49.9
	10	19.3	30.7	38.6	48.7
	25	18.7	29.7	37.4	47.0
	50	18.2	28.9	36.4	45.9
	100	17.8	28.2	35.5	44.7
20°C	1	18.0	28.5	35.9	45.2
	5	16.9	26.8	33.7	42.5
	10	16.4	26.1	32.8	41.4
	25	15.9	25.2	31.7	39.9
	50	15.4	24.5	30.9	38.9
	100	15.0	23.9	30.2	37.8
30°C	1	15.3	24.2	30.5	38.5
	5	14.3	22.7	28.6	36.0
	10	13.9	22.1	27.8	35.0
	25	13.4	21.3	26.8	33.8
	50	13.0	20.7	26.1	32.9
	100	12.7	20.1	25.4	31.9
40°C	1	13.0	20.6	25.9	32.6
	5	12.1	19.2	24.2	30.5
	10	11.8	18.7	23.5	29.6
	25	11.3	18.0	22.6	28.5
	50	11.0	17.4	22.0	27.7
	100	10.7	16.9	21.4	26.9
50°C	1	11.0	17.4	21.9	27.6
	5	10.2	16.2	20.4	25.7
	10	9.9	15.7	19.8	25.0
	25	9.5	15.1	19.0	24.0
	50	9.2	14.7	18.5	23.3
	100	9.0	14.2	17.9	22.6
60°C	1	9.2	14.7	18.5	23.3
	5	8.6	13.6	17.2	21.6
	10	8.3	13.2	16.6	21.0
	25	8.0	12.7	16.0	20.1
	50	7.7	12.3	15.5	19.5
	100	7.8	12.3	15.5	19.6
70°C	1	7.8	12.3	15.5	19.6
	5	7.2	11.4	14.4	18.1
	10	7.0	11.1	13.9	17.5
	25	6.0	9.6	12.1	15.2
	50	5.1	8.1	10.2	12.8
	100	5.1	8.1	10.2	12.8
80°C	1	6.5	10.3	13.0	16.4
	5	5.7	9.1	11.5	14.5
	10	4.8	7.7	9.7	12.2
	25	3.9	6.2	7.8	9.8
	50	3.1	4.9	6.2	7.8
	100	3.1	4.9	6.2	7.8
95°C	1	4.6	7.3	9.2	11.6
	5	3.1	4.9	6.2	7.8
	(10)	(2.6)	(4.1)	(5.2)	(6.6)

Data inside the bracket apply by verification at longer testing periods than 1 year at the 110°C test.

# Maximum operational pressure for hot water and central heating systems

Heating Period	Temperature	Service Life (Years)	Permissible operational pressure (bars)		
			PN-16 / SDR 7.4	PN-20 / SDR 6	PN-25 / SDR 5
Constant operating temperature 70°C including 60 days per year at >>	75°C	5	11.40	14.30	15.90
		10	10.90	13.70	14.50
		25	9.30	11.80	13.70
		45	8.10	10.40	12.80
	80°C	5	10.07	12.90	15.80
		10	9.70	12.20	15.40
		25	8.60	10.70	13.20
		40	7.80	9.80	11.60
	85°C	5	9.94	12.51	15.78
		10	9.50	11.90	15.30
		25	7.80	9.70	13.20
		35	7.10	8.90	11.20
	90°C	5	9.37	11.80	14.90
		10	8.40	10.30	12.90
		25	6.60	8.40	10.48
		30	6.30	7.63	8.45
Constant operating temperature 70°C including 90 days per year at >>	75°C	5	11.50	13.95	14.73
		10	10.80	13.40	13.80
		25	9.20	11.50	12.40
		45	7.00	8.90	11.20
	80°C	5	10.14	12.75	16.10
		10	9.81	12.33	15.50
		25	8.02	10.06	12.71
		37.5	7.27	9.15	11.52
	85°C	5	9.54	12.00	15.15
		10	9.00	11.29	14.20
		25	7.63	9.62	12.16
		32.5	7.20	9.07	11.40
	90°C	5	8.60	10.79	11.30
		10	7.41	9.30	10.45
		25	5.73	7.35	9.22

- SDR= Standard Dimension Ratio (Diameter/Wall Thickness Ratio)  
SDR=D/S (S=Pipe series index from ISO 4065)





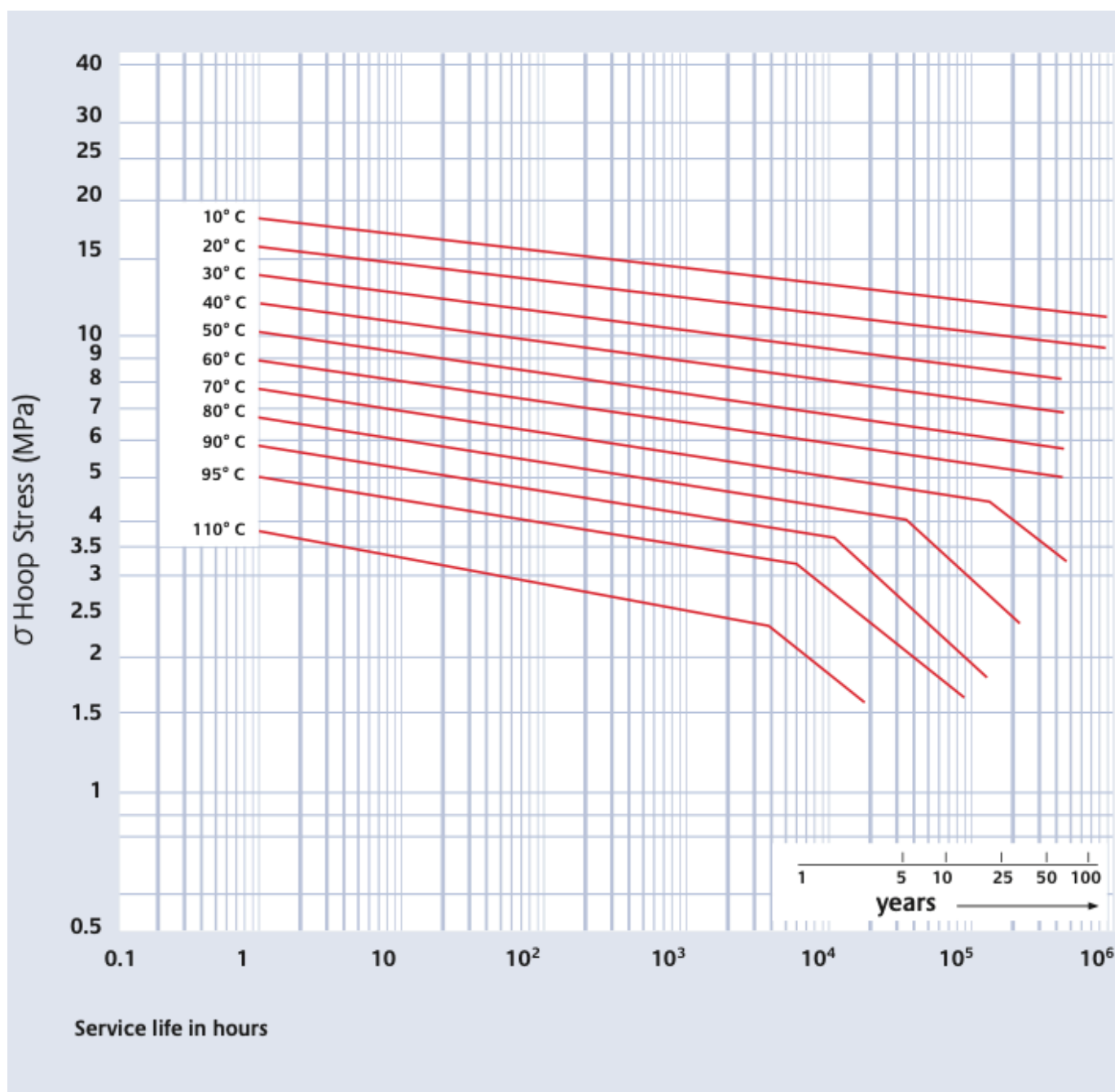
# Hydrostatic Pressure Performance

To plot the hydrostatic pressure performance graph independently of dimensions, the Hoop stress ( $\sigma$ ) is calculated according to the formula:

$$\sigma = \frac{p(de-e)}{2e}$$

For this calculation,  $p$ = internal pressure,  $de$ = the external pipe diameter and  $e$ = the wall thickness of the pipe. Predictions for long-term life expectancy are extrapolated according to Arrhenius law.

Eurotherm PP-R Pipe System has the feature of resisting cracking under stress as the following regression curves demonstrate:



# Chemical Resistance of Polypropylene Random Copolymer (PP-R)

PP-R has high resistance to a large number of aggressive substances, and therefore particularly suitable for many special applications. They are highly resistant to attack by such chemicals as acids, alkalis, alcohols, low-boiling hydrocarbon solvents, and many inorganic chemicals. At room temperature, PP copolymers are essentially insoluble in most organic solvents. Also, they are not susceptible to environmental stress cracking failures when exposed to soaps, soap solutions, wetting agents, and alcohols, as are many other polymers. Contact with some chemicals particularly liquid hydrocarbons, chlorinated organic compounds, and strong oxidizing acids can cause surface crazing or swelling.

Generally, non-polar compounds are absorbed more easily by PP than are polar chemicals. The Table below provides resistance of PP-R to various chemicals. The table refers to the raw materials only and is not subject outside mechanical stresses and atmospheric pressures. For transportation of combustible fluids, please comply with any legal regulations in force

**R = Resistant**  
**LR = Limited Resistance**  
**NR = Not Recommended**  
**ND = No Data**

Chemicals	Resistance		
	20°C	60°C	100°C
Acetaldehyde	R	ND	NR
Acetic acid (10%)	R	R	ND
Acetic acid (glac./anh.)	R	R	ND
Acetic anhydride	R	R	NR
Aceto-acetic ester	R	R	R
Acetone	R	R	ND
Other ketones	R	NR	NR
Acetonitrile	R	R	ND
Acetylene	ND	ND	ND
Acetyl salicylic acid	LR	LR	LR
Acid fumes	R	R	NR
Alcohols	R	R	ND
Aliphatic esters	R	NR	NR
Alkyl chlorides	NR	NR	NR
Alum	R	R	R
Aluminium chloride	R	R	R
Aluminium sulphate	R	R	R
Ammonia, anhydrous	R	R	R
Ammonia, aqueous	R	R	R
Ammonium chloride	R	R	R
Amyl acetate	R	NR	NR
Aniline	R	R	R
Antimony trichloride	R	R	ND
Aqua regia	R	NR	NR
Aromatic solvents	R	NR	NR
Ascorbic acid	ND	ND	ND
Beer	R	R	ND
Benzaldehyde	R	R	NR
Benzene	NR	NR	NR
Benzoic acid	R	R	ND
Benzoyl peroxide	NR	NR	NR
Boric acid	R	R	R
Brines, saturated	R	R	ND
Bromide (K) solution	R	R	ND
Bromine	NR	NR	NR
Bromine liquid, tech.	ND	ND	ND

Bromine water, saturated aqueous	ND	ND	ND
Butyl acetate	P	NR	NR
Calcium chloride	R	R	R
Carbon disulphide	NR	NR	NR
Carbonic acid	R	R	ND
Carbon tetrachloride	NR	NR	NR
Caustic soda & potash	R	R	R
Cellulose paint	NR	NR	NR
Chlorates of Na, K, Ba	R	R	ND
Chlorine, dry	NR	NR	NR
Chlorine, wet	NR	NR	NR
Chlorides of Na, K, Ba	R	R	R
Chloroacetic acid	R	R	ND
Chlorobenzene	NR	NR	NR
Chloroform	NR	NR	NR
Chlorosulphonic acid	NR	NR	NR
Chromic acid (80%)	R	ND	ND
Citric acid	R	R	ND
Copper salts (most)	R	R	ND
Cresylic acids (50%)	ND	ND	ND
Cyclohexane	NR	NR	NR
Detergents, synthetic	R	R	R
Emulsifiers, concentrated	R	R	ND
Esters	R	NR	NR
Ether	NR	NR	NR
Fatty acids (>C6)	R	R	ND
Ferric chloride	R	R	R
Ferrous sulphate	R	R	R
Fluorinated refrigerants	NR	NR	NR
Fluorine, dry	NR	NR	NR
Fluorine, wet	NR	NR	NR
Fluorosilic acid	R	R	ND
Formaldehyde (40%)	R	R	ND
Formic acid	R	ND	ND
Fruit juices	R	R	ND
Gelatine	R	R	ND
Glycerin	R	R	R
Glycols	R	R	ND
Glycol, ethylene	R	R	R

Glycolic acid	R	R	R	Phosphorous pentoxide	R	R	ND
Hexamethylene diamine	NR	NR	NR	Phthalic acid	R	R	ND
Hexamine	ND	ND	ND	Picric acid	R	R	ND
Hydrazine	R	ND	ND	Pyridine	R	ND	ND
Hydrobromic acid (50%)	R	R	R	Salicyl aldehyde	ND	ND	ND
Hydrochloric acid (10%)	R	R	R	Sea water	R	R	R
Hydrochloric acid (conc.)	R	R	NR	Silicic acid	R	R	ND
Hydrocyanic acid R R ND	R	R	ND	Silicone fluids	R	R	ND
Hydrofluoric acid (40%)	R	ND	ND	Silver nitrate	R	R	ND
Hydrofluoric acid (75%)	R	ND	NR	Sodium carbonate	R	R	ND
Hydrogen peroxide (30%)	NR	NR	NR	Sodium peroxide	ND	ND	ND
Hydrogen peroxide (30 - 90%)	NR	NR	NR	Sodium silicate	R	R	R
Hydrogen sulphide	R	R	ND	Sodium sulphide	R	R	R
Hypochlorites	R	R	R	Stannic chloride	R	R	R
Hypochlorites (Na 12-14%)	R	R	R	Starch	R	R	R
Iso-butyl-acetate	R	NR	NR	Sugar, syrups & jams	R	R	ND
Lactic acid (90%)	R	R	ND	Sulphamic acid	R	R	ND
Lead acetate	R	R	ND	Sulphates (Na, K, Mg, Ca)	R	R	NR
Lead perchlorate	NR	NR	NR	Sulphites	R	R	ND
Lime (CaO)	R	R	R	Sulphonic acids	R	R	ND
Maleic acid	R	R	R	Sulphur	R	R	NR
Manganate, potassium (K)	R	R	ND	Sulphur dioxide, dry	R	R	NR
Meat juices	R	R	ND	Sulphur dioxide, wet	R	R	ND
Mercuric chloride	R	R	ND	Sulphur dioxide (96%)	R	R	ND
Mercury	R	R	R	Sulphur trioxide	ND	ND	ND
Methanol	R	R	R	Sulphuric acid (<50%)	R	R	NR
Methylene chloride	NR	NR	NR	Sulphuric acid (70%)	R	NR	NR
Milk products	R	R	R	Sulphuric acid (95%)	R	NR	NR
Moist air	R	R	R	Sulphuric acid, fuming	NR	NR	NR
Molasses	R	R	ND	Sulphur chlorides	ND	ND	ND
Monoethanolamine	LR	LR	LR	Tallow	R	R	ND
Naptha	R	ND	ND	Tannic acid (10%)	R	R	ND
Napthalene	R	R	R	Tartaric acid	R	R	ND
Nickel salts	R	R	R	Trichlorethylene	NR	NR	NR
Nitrates of Na, K and NH3	R	R	ND	Urea (30%)	R	R	NR
Nitric acid (<25%)	R	R	R	Vinegar	R	R	ND
Nitric acid (50%)	NR	NR	NR	Water, distilled.	R	R	R
Nitric acid (90%)	NR	NR	NR	Water, soft	R	R	R
Nitric acid (fuming)	NR	NR	NR	Water, hard	R	R	R
Nitrite (Na)	NR	NR	NR	Wetting agents (<5%)	R	R	R
Nitrobenzene	LR	LR	LR	Yeast	R	R	ND
Oils, diesel	R	NR	NR	Zinc chloride	R	R	ND
Oils, essential	R	R	R				
Oils, lubricating + aromatic additives	R	NR	NR				
Oils, mineral	R	NR	NR				
Oils, vegetable and animal	R	R	NR				
Oxalic acid	R	R	NR				
Ozone	ND	ND	ND				
Paraffin wax	R	R	ND				
Perchloric acid	NR	NR	NR				
Petroleum spirits	NR	NR	NR				
Phenol	R	R	ND				
Phosphoric acid (20%)	R	R	R				
Phosphoric acid (50%)	R	R	ND				
Phosphoric acid (95%)	R	R	ND				
Phosphorous chlorides	R	ND	ND				



## Eurotherm polypropylene random co polymer (PP-R) pressure piping systems are engineered for use in potable water, hydronic heating & Cooling and Industrial application

Eurotherm PP-R piping systems are:

- Durable (engineered for a service life of 50+ years)
- Leak-proof (heat-fused connections leave no leak path)
- Fast (can provide over 50% on labor times versus other materials)
- Safe (installation requires no glues, solder, or open flames)
- Environmentally friendly (fully recyclable with no BPAs, dioxins, or VOCs)



## Contrast of Property for Some Pipe System

Style Property	Pipe	G.I Pipe	Copper Pipe	UPVC Pipe	CPVC Pipe	Pex-Al-Pex Pipe	PB Pipe	Eurotherm PP-R Pipe
Service Life		5-10 Years	25 Years	25 Years	25 Years	50 Years	50 Years	50 Years
Resistance to High Temperature		Good	Very Good	Bad	Average	Very Good	Good	Very Good
Hygienic Property		Bad	Common	Bad	Common	Very Good	Very Good	Very Good
Recyclable and No Pollution		No	No	No	No	Yes	Yes	Yes
Pipe Furring		Yes	Yes	No	No	No	No	No
Corrosion Resistance		Bad	Bad	Average	Average	Very Good	Very Good	Very Good
Installation		Difficult	Difficult	Easy	Easy	Easy	Easy	Easy
Price		Average	High	Low	Average	High	High	Average
Reliability		Common	Good	Common	Common	Good	Common	Very Good
Self Insulation		Nil	Average	Poor	Poor	Good	Good	Very Good
Affects of UV Light		Affects	Does Not	Affects	Affects	Does Not	Does Not	Does Not

## PPR Environmental Benefits at a Glance

	PPR	Stainless Steel	Copper	Steel	PEX	PVC
<b>Hygienic purity</b>						
Zero impact on taste	✓	○	○	-	○	○
Zero impact on smell	✓	○	○	-	-	○
Opaque, microorganism free	✓	✓	✓	✓	○	○
No leaching into water	✓	✓	○	-	✓	○
No leaching through pipe wall	○	✓	✓	✓	-	○
<b>Longevity and performance</b>						
Resistant to abrasion and corrosion	✓	✓	○	-	✓	✓
Resistant to chemical breakdown	✓	✓	○	-	✓	-
Resistant to fitting leaks and failures	✓	○	○	○	-	-
Strong structural integrity	✓	✓	✓	✓	-	-
Resistant to scaling and electrolysis	✓	○	-	-	✓	✓
Tolerant to freezing	✓	-	-	-	✓	-
Engineered for 50 year life cycle	✓	-	-	-	-	-
<b>Low production impact</b>						
Does not require extraction	✓	-	-	-	-	-
Does not require steel or copper mills	✓	-	-	-	○	✓
Does not require chlorine	✓	✓	✓	✓	✓	-
<b>Toxin-free material</b>						
No lead	✓	○	-	○	○	-
No copper	✓	✓	-	✓	○	✓
No iron	✓	-	✓	-	✓	✓
No PVC	✓	✓	✓	✓	✓	-
No dioxins	✓	✓	✓	✓	✓	-
No BPA	✓	✓	✓	✓	○	○
No VOCs	✓	○	○	○	✓	-
<b>Minimum foreign materials</b>						
No toxic glues or solders	✓	✓	○	✓	✓	-
No gaskets	✓	○	○	○	○	○
No corrosion inhibitors for pipe	✓	○	○	-	✓	✓
<b>Environmental responsibility</b>						
Recyclable	✓	✓	✓	✓	-	-
No hazardous waste	✓	✓	✓	✓	✓	-
Safe combustion by-products	✓	✓	✓	✓	✓	-

Excellent
  Sometimes
  Not Recommended

# Quality Assurance

The quality process is an integral part of everything we do. Our Quality action teams are continually working to improve products, process and procedure to better meet customer requirements.

We have learned and adapted many of the best practices of successful quality management systems to create our own quality systems. For us there is no end for quality.

Quality is engineered into Eurotherm products during the entire manufacturing process. The three phases of quality control involve the incoming raw material, the pipe & fittings production and the finished product. The combination of all three areas ensures that the final product will fulfill the requirements and meet the desired specifications. Eurotherm pipes and fittings are subjected to the following extensive test programs:-

1. Material Characterization Tests
2. Melt Flow Rate Testing
3. Dimensional Tests
4. Surface inspection
5. Impact Strength Testing
6. Long term Hydrostatic Pressure Testing
7. Ageing Resistance Testing
8. Thermal Circulation Testing
9. Longitudinal Reversion Testing
10. Hygienic Inspection

### Standard applied in production:

- DIN 8077 Polypropylene (PP) Pipes, Dimensions
- DIN 8078 Polypropylene (PP) Pipes, General Quality Requirements and Testing
- DIN 16962 Pipe Joint Assemblies and Fittings for Polypropylene Pressure Pipes
- EN ISO 15874 Plastic pipe systems for hot and cold water installation.



# Quality Certificates



## Certificate of Registration

### EUROTECH INTERNATIONAL LLC

PO BOX: 1401, RAYSUT INDUSTRIAL ESTATE, SALALAH, SULTANATE OF OMAN

has been assessed and Certified by Otabu Certification Pvt. Ltd. as meeting the requirements of:

### ISO 9001:2015 Quality Management System

For the following scope of activities:

#### MANUFACTURING OF POLYPROPYLENE PIPES AND FITTINGS

Date of Initial Registration: 31 January 2025  
Date of this Certificate: 31 January 2025  
Certificate Expiry: 30 January 2027

1st Surveillance Due: 30 January 2026  
2nd Surveillance Due: 30 January 2027  
Issue & Revision No: 01 & NA  
(Validity of the certificate is conditional upon the certificate holder's compliance with the requirements of the standard)

IAF Code: 14  
Certificate No.: 0131Q239725  
To Verify this Certificate please visit at [www.otabucert.com](http://www.otabucert.com)





**OTABU CERTIFICATION PRIVATE LIMITED**  
HQ: 92/29, Preet Nagar, Uttam Nagar, New Delhi-110059, India  
(Incorporated in India, Registered Office: Chandigarh, India)  
P.O. & E-Office: Delhi, India  
The Certificate is registered by Otabu Certification Private Limited, ISO 9001:2015, for the purpose of Quality Management System certification. This Certificate is not valid for any other purpose. For more information, please contact us at [info@otabucert.com](mailto:info@otabucert.com) or visit our website at [www.otabucert.com](http://www.otabucert.com).



## CERTIFICATE OF REGISTRATION

### EUROTECH INTERNATIONAL LLC

PO BOX: 1401, RAYSUT INDUSTRIAL ESTATE, SALALAH, SULTANATE OF OMAN

has been assessed and Certified by Otabu Certification Pvt. Ltd. as meeting the requirements of:

### ISO 14001:2015 Environmental Management System

For the following scope of activities:

#### MANUFACTURING OF POLYPROPYLENE PIPES AND FITTINGS

Date of Initial Certification: 15 April 2024  
Date of this Certificate: 15 April 2024  
Certificate Expiry: 14 April 2027

1st Surveillance Due: 14 April 2025  
2nd Surveillance Due: 14 April 2026  
Issue & Revision No: 01 & NA  
(Subject to the company maintaining its system to the required standard)

EA Code: 14  
Certificate No.: 0415E05124  
To Verify this Certificate please visit at [www.otabucert.com](http://www.otabucert.com)





**OTABU CERTIFICATION PRIVATE LIMITED**  
HQ: 92/29, Preet Nagar, Uttam Nagar, New Delhi-110059, India  
(Incorporated in India, Registered Office: Chandigarh, India)  
P.O. & E-Office: Delhi, India  
The Certificate is registered by Otabu Certification Private Limited, ISO 14001:2015, for the purpose of Environmental Management System certification. This Certificate is not valid for any other purpose. For more information, please contact us at [info@otabucert.com](mailto:info@otabucert.com) or visit our website at [www.otabucert.com](http://www.otabucert.com).



## CLIENT: Eurotherm Pvt Ltd

### PIPE PERFORMANCE CHARACTERISTICS

#### Evaluation of the PP-R pipe grade RA190E according to ISO 15874-2 and DIN 8078

**OBJECTIVE:** The aim of the project was to determine the long-term performance of the RA190E pipe grade according to ISO 15874-2 and DIN 8078. The test was carried out in accordance with the requirements of the standard.

**RESULT:** The results are summarized in the table below. The RA190E pipe grade meets the requirements of the standard. The test results are in accordance with the requirements of the standard.

Date of Completion: 2023-11-02

Parameter	Value	Standard	Unit	Remarks
Length (m)	100	ISO 15874-2	m	OK
Weight (kg)	10.5	ISO 15874-2	kg	OK
Modulus (N/mm²)	1000	ISO 15874-2	N/mm²	OK
Yield Strength (N/mm²)	20	ISO 15874-2	N/mm²	OK
Tensile Strength (N/mm²)	20	ISO 15874-2	N/mm²	OK
Elongation at Break (%)	100	ISO 15874-2	%	OK
Impact Strength (kJ/m²)	10	ISO 15874-2	kJ/m²	OK
Heat Deflection Temperature (°C)	100	ISO 15874-2	°C	OK
Volume Shrinkage (%)	0.5	ISO 15874-2	%	OK
Water Absorption (%)	0.5	ISO 15874-2	%	OK
Water Vapor Transmission Rate (g/m²/24h)	0.5	ISO 15874-2	g/m²/24h	OK
Flammability (UL94)	UL94 V-0	ISO 15874-2	UL94	OK
Chemical Resistance	Good	ISO 15874-2	Good	OK
UV Resistance	Good	ISO 15874-2	Good	OK



## TEST REPORT OF PP-R PIPES AND FITTINGS

Sample Submitted By: Eurotherm Pvt Ltd, P.O. Box 1401, Raysut Industrial Estate, Salalah, Sultanate of Oman

Sample Description: PP-R Pipe, Eurotherm Pvt Ltd, P.O. Box 1401, Raysut Industrial Estate, Salalah, Sultanate of Oman

Reference Standard: ISO 15874-2 and DIN 8078

Test Method: ISO 15874-2 and DIN 8078

Analysis: ISO 15874-2 and DIN 8078

Date: 15/04/2024

Remarks: The above test results are in accordance with the requirements of the standard. The test results are in accordance with the requirements of the standard.

No.	Name of the Test	Test Method	Result	Remarks
1	Visual Inspection	ISO 15874-2	OK	Complies
2	Dimensions and Tolerances	ISO 15874-2	OK	Complies
3	Weight	ISO 15874-2	OK	Complies
4	Modulus	ISO 15874-2	OK	Complies
5	Yield Strength	ISO 15874-2	OK	Complies
6	Tensile Strength	ISO 15874-2	OK	Complies
7	Elongation at Break	ISO 15874-2	OK	Complies
8	Impact Strength	ISO 15874-2	OK	Complies
9	Heat Deflection Temperature	ISO 15874-2	OK	Complies
10	Volume Shrinkage	ISO 15874-2	OK	Complies
11	Water Absorption	ISO 15874-2	OK	Complies
12	Water Vapor Transmission Rate	ISO 15874-2	OK	Complies
13	Flammability	ISO 15874-2	OK	Complies
14	Chemical Resistance	ISO 15874-2	OK	Complies
15	UV Resistance	ISO 15874-2	OK	Complies



## WATER REGULATIONS APPROVAL SCHEME LTD (WRAS)

### SUBMITTAL CERTIFICATE

Approved Number: 0605005  
Test Report: 04071744

Date: 27th April 2024

Customer: Eurotherm International LLC (Eurotherm PPL)  
PO Box 1401, Raysut Industrial Estate, Salalah, Sultanate of Oman

Product: PP-R Pipe, Eurotherm Pvt Ltd, P.O. Box 1401, Raysut Industrial Estate, Salalah, Sultanate of Oman

Test Method: ISO 15874-2 and DIN 8078

Remarks: The above test results are in accordance with the requirements of the standard. The test results are in accordance with the requirements of the standard.



## TEST REPORT

Customer: C088156  
Eurotherm International LLC  
PO Box: 1401, Raysut Industrial Estate, Salalah, Oman

Product: Eurotherm PPR Pipe  
Test Undertaken: BS 6920:2014 - Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water  
Job Number: J04071744  
Work Order Number: W082740

Date: 11-APR-2024

Author: Eleanor Burger - Senior Project Manager Lias

Remarks: The above test results are in accordance with the requirements of the standard. The test results are in accordance with the requirements of the standard.



## Certificate of conformity for regulated products

Product Name: PP-R Pipe  
Product Description: PP-R Pipe

Manufacturer: Eurotherm International LLC  
Address: PO Box 1401, Raysut Industrial Estate, Salalah, Oman

Product No: 0415E05124

Remarks: The above test results are in accordance with the requirements of the standard. The test results are in accordance with the requirements of the standard.



## SUMMARY OF TESTS

Product Name: PP-R Pipe  
Product Description: PP-R Pipe

Manufacturer: Eurotherm International LLC  
Address: PO Box 1401, Raysut Industrial Estate, Salalah, Oman

Product No: 0415E05124

Remarks: The above test results are in accordance with the requirements of the standard. The test results are in accordance with the requirements of the standard.



## TEST REPORT

Customer: C088156  
Eurotherm International LLC  
PO Box: 1401, Raysut Industrial Estate, Salalah, Oman

Product: Eurotherm PPR Pipe  
Test Undertaken: BS 6920:2014 - Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water  
Job Number: J04071744  
Work Order Number: W082740

Date: 11-APR-2024

Author: Eleanor Burger - Senior Project Manager Lias

Remarks: The above test results are in accordance with the requirements of the standard. The test results are in accordance with the requirements of the standard.

# Fusion Welding Process

The process of jointing Eurotherm pipes and fittings is very simple and results in inseparable water tight joints. It is carried out using a simple welding machine that melts the internal surface of the fitting and the external surface of the pipe, so that the material of the pipe and the fitting will be welded together.

The following steps describe the steps of the welding process.

1. Prepare the welding machine by fitting it with the welding dies of the diameters to be welded. Connect the plug to the 220V power supply socket and wait until the green light on the machine goes out indicating the welding machine has reached the working temperature (260 °C).
2. Cut the pipe at right angles to the pipe axis using suitable pipe cutter.
3. Mark the welding depth on the pipe using suitable marker.
4. Insert the end of the pipe without turning into the heating sleeve up to the marked welding depth and at the same time slide the fitting without turning into the other side of the heating tool up to the stop. It is essential to observe the mentioned heating times (refer to the below table)

5. Leave the pipe and fitting into the heating tool until the heating time is elapsed.
6. At the end of the heating time, remove the pipe and fitting from the heating tool and push them immediately against each other up to the mark indicating the welding depth. At this stage the depth mark will be covered with the welding bead. During this process, do not rotate the pipe and fitting relative to each other.
7. Allow the joint to cool fully before using.



**PPR FUSION WELDING MACHINE**

## Welding Depth, Heating, Welding and Cooling Time



Pipe Diameter (mm)	Welding Depth (mm)	Heating Time (sec.)	Welding Time (sec.)	Cooling Time (min.)
20	14.0	5	4	2
25	15.0	7	4	2
32	16.5	8	6	4
40	18.0	12	6	4
50	20.0	24	8	6
63	24.0	24	8	6
75	26.0	30	8	8
90	29.0	40	8	8
110	32.5	50	10	8

Note: Heating time starts when both pipe and fitting are pushed in to correct depth. Welding time begins when joints are connected. Cooling time is the time taken for the joint to be completely cured. Never reduce cooling time by pouring water or by other means



## General Guidelines

1. Check the quality of pipes and fittings at the site before use by ascertaining that they confirm to the specifications given by us.
2. Check the outer and inner dia as per the catalogue to identify the class of pipes.
3. Defective pipes shall be rejected and intimated to us.
4. All fittings are categorized under PN-25 and hence no assortment is required.
5. Eurotherm PP-R pipes and fittings are having sufficient UV stability in order to protect them from UV rays. However it is not advisable to use this pipes & fittings under direct sunlight continuously. For outdoor installation of pipelines it is recommended to make a acrylic paint coating on pipes or protect it from direct sunlight by giving shelter covering or installing induct.
6. Possible Linear Thermal expansion/contraction needs to be taken care during designing and installing. Stressing of pipes can be avoided by providing flexible free length and proper supporting.
7. Provide insulation for centralized heating system and chilled water system.
8. Eurotherm pipes should never come into contact with sharp edges which may damage and cause fracture or cuts.
9. Eurotherm pipes should not be accessed near fire as PP-R pipes are self inflammable.
10. In case soil contains high content of sulphates and chlorides special precaution to be taken before laying to prevent any corrosion.
11. Care should be taken to lay Eurotherm pipes always above the sewage line, preferably by concrete encasing to separate both at least by 1 meter.
12. Installation of water meters is possible by using the welded part of male adaptor into the water meter junction.
13. Service pipe line can be connected to G.I or cast iron with help of male or female adaptors or flanges.

## Installation Guidelines

### • Thermal linear expansion:

The linear expansion of pipe depends on the difference between the installation temperature and the operating temperature:

$\Delta t = \text{operating temperature} - \text{installation temperature}$ , in °C

Hot water installations can expand visibly and may require expansion loops or sliding elbows to prevent bowing or curving.

Linear Expansion ( $\Delta L$ ) can be found out using below formula:

$$\Delta L = a \times L \times \Delta t$$

$a$  = Coefficient of linear thermal expansion of PPR pipe

( = 0.15 mm/m °C)

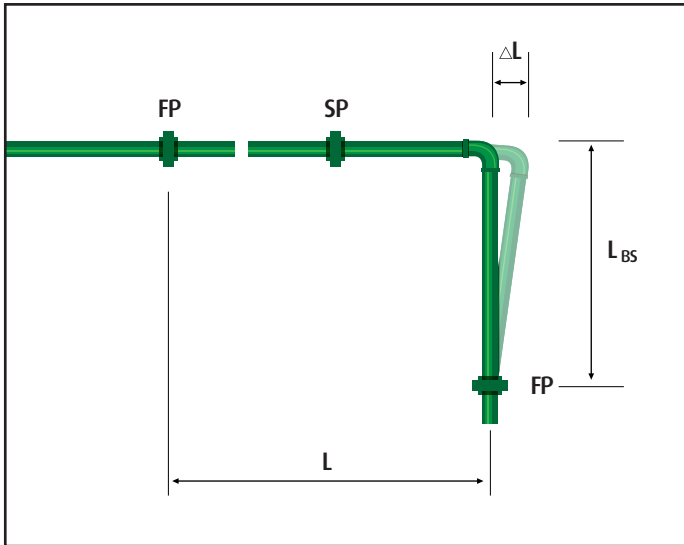
$L$  = length of the straight pipe in meter.

The thermal expansion problem can be solved by below 2 methods:

- 1) Providing a Bending side using 90° Elbow.
- 2) Providing Expansion loop.

## • Bending Side

In most cases, direction changes can be used to compensate for linear expansion in pipes.



Symbol	Explanation	Unit
$L_{BS}$	Length of the bending side	mm
$K$	Material Specific Constant (15.0 for PP)	
$d$	Outside Diameter	mm
$\Delta L$	Linear Expansion	mm
$L$	Pipe Length	m
<b>FP</b>	Fixed Point	
<b>SP</b>	Sliding Point	

Calculational determination of the bending side length

$$L_{BS} = K \times \sqrt{d \times \Delta L}$$

## • Expansion Loop

If the liner expansion cannot be compensated by a change in direction, it will be necessary to install an expansion loop with long and straight pipelines.

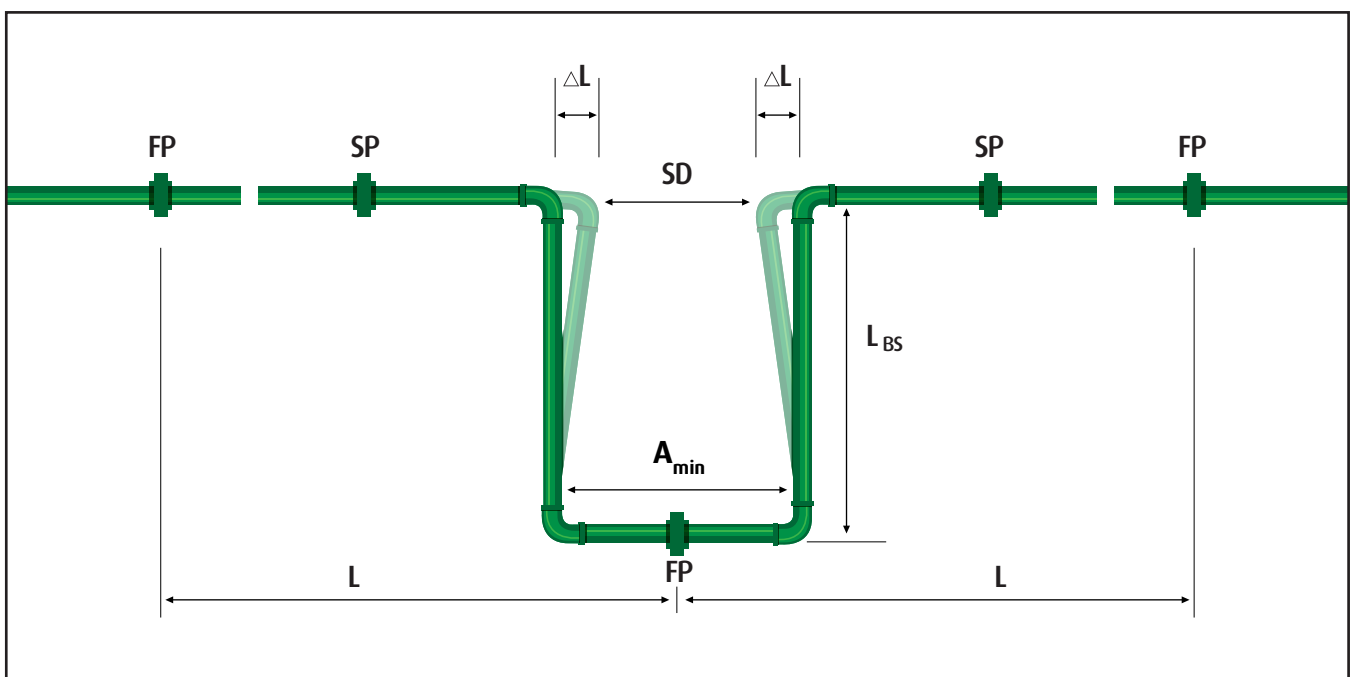
In addition to the length of the bending side  $L_{BS}$  the width of the pipe bend  $A_{min}$  must be considered.

Symbol	Explanation	Unit
$A_{min}$	Width of the expansion loop	mm
$\Delta L$	Linear Expansion	mm
<b>SD</b>	Safety Distance = 150	mm

The pipe bend  $A_{min}$  is calculated according to the following formula

$$A_{min} = SD + (2 \times \Delta L)$$

The width of the expansion loop  $A_{min}$  should be at least 210 mm.



### • **Concealed Installation**

In concealed installation, for both cold and hot water pipe lines, it is not necessary to take into account linear expansion. Pipes can be encased or embedded in walls, concrete and plaster as with other metal pipes. The expansion of pipe due to temperature with not damage the wall plastering as the linear expansion is prevented by the compressive strain and tensile stress of concrete and plaster, it will be absorbed through the material itself.

### • **Insulation for Hot Water System**

Normally for hot water systems, it may not be necessary to insulate Eurotherm PPR pipes in for interior or concealed installation. This is due to the low thermal conductivity property of Eurotherm PPR pipes (0.24 W/mK). Heat loss will be minimum. 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 insulated distribution lines to prevent excessive loss heat and energy wastage. Because of the low thermal conductivity of Eurotherm PPR pipes, insulation thickness is greatly reduced, as compared to Copper pipe.

### • **Insulation for Chilled Water System**

For chilled water of temperature less than 10°C, due to condensation that might take place, insulation is necessary but reduced considerably in thickness as compared to metal pipes. Heat loss for hot water pipe is reduced to a minimum.

### • **Pipe Support Intervals**

Temperature Difference	Eurotherm PPR Pipe Diameter (mm)								
	20	25	32	40	50	63	75	90	110
	Support Intervals in metre								
0° C	1.20	1.35	1.50	1.75	2.00	2.25	2.40	2.55	2.85
20° C	1.20	1.20	1.20	1.30	1.50	1.71	1.83	1.92	2.13
30° C	1.20	1.20	1.20	1.30	1.50	1.71	1.83	1.92	1.07
40° C	1.20	1.20	1.20	1.23	1.45	1.62	1.71	1.83	1.98
50° C	1.20	1.20	1.20	1.23	1.45	1.62	1.71	1.83	1.86
60° C	1.20	1.20	1.20	1.20	1.30	1.53	1.62	1.71	1.77
70° C	1.20	1.20	1.20	1.20	1.29	1.44	1.53	1.62	1.68

### • **Hydrostatic Pressure Testing**

According to the Technical Rules for Portable Water Installations DIN1988, the test pressure has to be 1.5 times of the working pressure for piping systems.

Upon completion of installation, the open-ended pipes will suitably be plugged or blanked-off. All the joints will be left uncovered until satisfactory completion of test. Check and ensure all drain valves are plugged off and in-line valves are open. Provide ball valves at high points for releasing air trap during the test. Fill the section of pipe work under test with water. The hydrostatic pressure test requires a Preliminary, Principal and Final test.

For the preliminary test, a test pressure of 1.5 times of the highest probable working pressure has to be produced. This test pressure has to be re-established twice within 30 minutes within an interval of 10 minutes. After a test time of further 30 minutes, the test pressure must not drop more than 0.6 bar and no leakage will appear.

The preliminary test is to be followed directly by the principal test. The test time is 2 hours. On doing so, the test pressure may not fall more than 0.2 bar.

When the preliminary and principal tests are completed, the final test follows, which has to be effected with a test pressure of alternate 10 bar and 1 bar in a rhythm of at least 5 minutes. Between each test, the pressure has to be released. No leakage may appear at any point. Inspect all joints, valves, fittings etc. for leaks.

## **Eurotherm PPR Pipes**

- Manufactured in PN16 (SDR 7.4), PN20 (SDR 6) and PN25 (SDR 5) pressure ratings.
- Standard followed: DIN8077, DIN8078 & ISO 15874.
- Made from virgin PPR raw material produced by leading petrochemical companies such as Borouge, Sabic and Hyosung.
- Pipes are manufactured using German extrusion machines which gives accurate tolerance levels.
- Double line on pipe for plumbing installation accuracy.



### *Eurotherm Pipe PP-R PN-16 / SDR 7.4 / Pipe Series (S) 3.2 According To DIN 8077/8078*

Dimension	Outer Diameter (OD)mm	Wall Thickness mm	Internal Diameter (ID)mm	Water Content l/mtr	Kg/mtr
20 mm	20	2.8	14.4	0.163	0.148
25 mm	25	3.5	18.0	0.254	0.230
32 mm	32	4.4	23.2	0.415	0.370
40 mm	40	5.5	29.0	0.651	0.575
50 mm	50	6.9	36.2	1.029	0.896
63 mm	63	8.6	45.8	1.633	1.410
75 mm	75	10.3	54.4	2.307	2.010
90 mm	90	12.3	65.4	3.318	2.870
110 mm	110	15.1	79.8	5.674	4.300

### *Eurotherm Pipe PP-R PN-20 / SDR 6 / Pipe Series (S) 2.5 According To DIN 8077/8078*

Dimension	Outer Diameter (OD)mm	Wall Thickness mm	Internal Diameter (ID)mm	Water Content l/mtr	Kg/mtr
20 mm	20	3.4	13.2	0.137	0.172
25 mm	25	4.2	16.6	0.216	0.266
32 mm	32	5.4	21.2	0.353	0.434
40 mm	40	6.7	26.6	0.556	0.671
50 mm	50	8.3	33.4	0.866	1.040
63 mm	63	10.5	42.0	1.385	1.650
75 mm	75	12.5	50.0	1.963	2.340
90 mm	90	15.0	60.0	2.827	3.360
110 mm	110	18.3	73.4	4.208	5.010

### *Eurotherm Pipe PP-R PN-25 / SDR 5 / Pipe Series (S) 2 According To DIN 8077/8078*

Dimension	Outer Diameter (OD)mm	Wall Thickness mm	Internal Diameter (ID)mm	Water Content l/mtr	Kg/mtr
20 mm	20	4.1	11.8	0.111	0.198
25 mm	25	5.1	14.8	0.178	0.307
32 mm	32	6.5	19.0	0.291	0.498
40 mm	40	8.1	23.8	0.461	0.775
50 mm	50	10.1	29.8	0.703	1.210
63 mm	63	12.7	37.6	1.137	1.910
75 mm	75	15.1	44.8	1.619	2.700
90 mm	90	18.1	53.8	2.336	3.880
110 mm	110	22.1	65.8	3.186	5.780

## Eurotherm - Full Black UV PPR Pipes

- Manufactured in PN20 (SDR6) pressure rating.
- Ultra Violet resistant Special black PPR composition which provides protection against direct exposure of sunlight.
- Standard followed: DIN8077, DIN8078 & ISO 15874.
- Made from virgin PPR raw material produced by leading petro chemical companies such as Borouge, Sabic and Hyosung.
- Pipes are manufactured using German extrusion machines which gives accurate tolerance levels.
- Double line on pipe for plumbing installation accuracy.

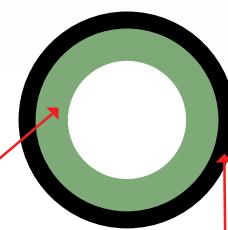


### Eurotherm Pipe PP-R PN-20 / SDR 6 / Pipe Series (S) 3.2 According To DIN 8077/8078

Diameter	Outer Diameter (OD)mm	Wall Thickness mm	Internal Diameter(ID)mm	Water Content l/mtr	Kg/mtr
20 mm	20	3.4	13.2	0.137	0.172
25 mm	25	4.2	16.6	0.216	0.266
32 mm	32	5.4	21.2	0.353	0.434
40 mm	40	6.7	26.6	0.556	0.671
50 mm	50	8.3	33.4	0.866	1.040
63 mm	63	10.5	42.0	1.385	1.650
75 mm	75	12.5	50.0	1.963	2.340
90 mm	90	15.0	60.0	2.827	3.360
110 mm	110	18.3	73.4	4.208	5.010

## Eurotherm - PPR UV Coated Pipes (2 Layer)

- Manufactured in PN20 (SDR6) pressure rating.
- 2 Layer Pipe: Inner layer normal PPR and outer layer with ultra violet resistant Special black PPR composition layer which provides protection against direct exposure of sunlight.
- Standard followed: DIN8077, DIN8078 & ISO 15874.
- Made from virgin PPR raw material produced by leading petro chemical companies such as Borouge, Sabic and Hyosung.
- Pipes are manufactured using German extrusion machines which gives accurate tolerance levels.
- Double line on pipe for plumbing installation accuracy.



INNER LAYER NORMAL GREEN PPR

OUTER LAYER WITH ULTRA VIOLET RESISTANT BLACK LAYER

Out Side Diameter	Internal Diameter (mm)	Total Wall Thickness (mm)	Outer Layer (Black) Thickness (mm)	Inner Layer (Green) Thickness (mm)	Weight Kg/Metre	Water Content Ltr/Metre
20 mm	13.2	3.4	0.95	2.45	0.181	0.137
25 mm	16.6	4.2	1.00	3.20	0.279	0.216
32 mm	21.2	5.4	1.05	4.35	0.456	0.353
40 mm	26.6	6.7	1.50	5.20	0.705	0.556
50 mm	33.4	8.3	1.95	6.35	1.092	0.866
63 mm	42.0	10.5	2.50	8.00	1.733	1.385

# PPR PIPE PACKING DETAILS



## PPR PIPE - PN16

Size	Length (Metre)	Pcs/ Bag
20mm	4m/5.8m	30
25mm	4m/5.8m	25
32mm	4m/5.8m	15
40mm	4m/5.8m	10
50mm	4m/5.8m	5
63mm	4m/5.8m	3
75mm	4m/5.8m	3
90mm	4m/5.8m	2
110mm	4m/5.8m	1



## PPR PIPE - PN20

Size	Length (Metre)	Pcs/ Bag
20mm	4m/5.8m	30
25mm	4m/5.8m	25
32mm	4m/5.8m	15
40mm	4m/5.8m	10
50mm	4m/5.8m	5
63mm	4m/5.8m	3
75mm	4m/5.8m	3
90mm	4m/5.8m	2
110mm	4m/5.8m	1



## PPR PIPE - PN25

Size	Length (Metre)	Pcs/ Bag
20mm	4m/5.8m	30
25mm	4m/5.8m	25
32mm	4m/5.8m	15
40mm	4m/5.8m	10
50mm	4m/5.8m	5
63mm	4m/5.8m	3
75mm	4m/5.8m	3



## UV COATED PPR PIPE - PN20

Size	Length (Metre)	Pcs/ Bag
20mm	4m/5.8m	30
25mm	4m/5.8m	25
32mm	4m/5.8m	15
40mm	4m/5.8m	10
50mm	4m/5.8m	5
63mm	4m/5.8m	3



## FULL BLACK UV PPR PIPES - PN20

Size	Length (Metre)	Pcs/ Bag
20mm	4m/5.8m	30
25mm	4m/5.8m	25
32mm	4m/5.8m	15
40mm	4m/5.8m	10
50mm	4m/5.8m	5
63mm	4m/5.8m	3
75mm	4m/5.8m	3
90mm	4m/5.8m	2
110mm	4m/5.8m	1

## PN 25 - PPR Fittings



### SOCKET

Size	PCS/ BOX
20mm	400
25mm	200
32mm	120
40mm	60
50mm	40
63mm	24
75mm	16
90mm	12
110mm	4



### 90° ELBOW

Size	PCS/ BOX
20mm	240
25mm	120
32mm	80
40mm	40
50mm	20
63mm	12
75mm	8
90mm	4
110mm	2



### 45° ELBOW

Size	PCS/ BOX
20mm	200
25mm	160
32mm	80
40mm	40
50mm	28
63mm	12
75mm	12
90mm	4
110mm	3

# PN 25 - PPR Fittings



## EQUAL TEE

Size	PCS/BOX
20mm	200
25mm	120
32mm	60
40mm	28
50mm	16
63mm	8
75mm	8
90mm	3
110mm	2



## END CAP

Size	PCS/BOX
20mm	500
25mm	240
32mm	160
40mm	80
50mm	64
63mm	40
75mm	28
90mm	12
110mm	6



## BRASS UNION

Size	PCS/BOX
20mm	80
25mm	60
32mm	40
40mm	24
50mm	12
63mm	12



## PLASTIC UNION

Size	PCS/BOX
20mm	120
25mm	80
32mm	48
40mm	40
50mm	16
63mm	16



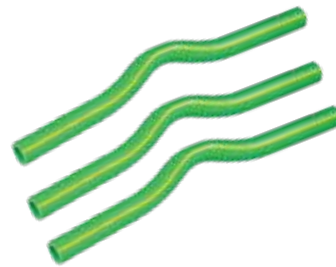
## MALE THREAD UNION

Size	PCS/BOX
20mm x 1/2"	80
25mm x 1/2"	80
25mm x 3/4"	60
32mm x 1"	24
40mm x 1-1/4"	24
50mm x 1-1/2"	16
63mm x 2"	8



## FEMALE THREAD UNION

Size	PCS/BOX
20mm x 1/2"	80
25mm x 1/2"	80
25mm x 3/4"	60
32mm x 1"	24
40mm x 1-1/4"	24
50mm x 1-1/2"	16
63mm x 2"	12



## BYPASS BEND

Size	PCS/BOX
20mm	100
25mm	60
32mm	40



## PIPE THREAD PLUG - LONG

Size	PCS/BOX
1/2"	600
3/4"	500
1"	240



## BRIDGE WITH SOCKET

Size	PCS/BOX
20mm	100
25mm	60
32mm	32



## PIPE THREAD PLUG - XL

Size	PCS/BOX
1/2"	240

## PN 25 - PPR Fittings



**REDUCING SOCKET**

Size	PCS/BOX	Size	PCS/BOX
25x20mm	240	63x40mm	32
32x20mm	120	63x50mm	24
32x25mm	120	75x32mm	32
40x20mm	80	75x40mm	32
40x25mm	80	75x50mm	32
40x32mm	60	75x63mm	16
50x20mm	60	90x50mm	18
50x25mm	60	90x63mm	18
50x32mm	60	90x75mm	12
50x40mm	40	110x63mm	6
63x20mm	40	110x75mm	6
63x25mm	32	110x90mm	6
63x32mm	32		



**REDUCING TEE**

Size	PCS/BOX	Size	PCS/BOX
25x20mm	120	63x50mm	12
32x20mm	60	75x32mm	12
32x25mm	80	75x50mm	8
40x20mm	36	75x63mm	8
40x25mm	32	90x32mm	8
40x32mm	32	90x40mm	6
50x20mm	20	90x50mm	4
50x25mm	20	90x63mm	4
50x32mm	20	90x75mm	4
50x40mm	16	110x40mm	3
63x20mm	12	110x50mm	3
63x25mm	12	110x63mm	3
63x32mm	12	110x75mm	2
63x40mm	12	110x90mm	2



**PIPE CLIP**

Size	PCS/BOX
20mm	1000
25mm	600
32mm	600
40mm	280
50mm	240
63mm	180



**LONG ELBOW**

Size	PCS/BOX
20 mm	120
25 mm	80
32 mm	40



**REDUCING 90° ELBOW**

Size	PCS/BOX
25x20mm	120
32x20mm	100
32x25mm	80



**CROSS**

Size	PCS/BOX
20mm	120
25mm	80
32mm	48



# PN 25 - PPR Fittings



## MALE THREAD ADAPTER

Size	PCS/BOX
20mm x 1/2"	160
25mm x 1/2"	100
25mm x 3/4"	80
32mm x 1/2"	120
32mm x 3/4"	100
32mm x 1"	60
40mm x 1-1/4"	36
50mm x 1-1/2"	24
63mm x 2"	16
75mm x 2-1/2"	8
90mm x 3"	6
110mm x 4"	2



## MALE THREAD ELBOW

Size	PCS/BOX
20mm x 1/2"	120
25mm x 1/2"	120
25mm x 3/4"	80
32mm x 1/2"	80
32mm x 3/4"	60
32mm x 1"	40



## FEMALE THREAD ADAPTER

Size	PCS/BOX
20mm x 1/2"	200
25mm x 1/2"	160
25mm x 3/4"	80
32mm x 1/2"	120
32mm x 3/4"	100
32mm x 1"	60
40mm x 1-1/4"	36
50mm x 1-1/2"	28
63mm x 2"	16
75mm x 2-1/2"	12
90mm x 3"	8
110mm x 4"	4



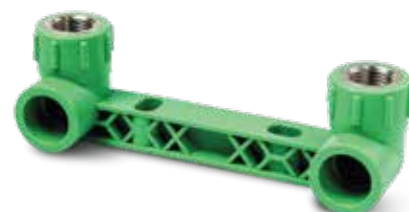
## FEMALE THREAD ELBOW

Size	PCS/BOX
20mm x 1/2"	160
25mm x 1/2"	120
25mm x 3/4"	100
32mm x 1/2"	80
32mm x 3/4"	60
32mm x 1"	40



## FLANGE ADAPTER SET

Size	PCS/BOX
40mm	8
50mm	8
63mm	5
75mm	4
90mm	4
110mm	3



## FEMALE DOUBLE ELBOW

Size	PCS/BOX
25mm x 1/2"	24



## EXCHANGE HOT & COLD WATER- FEMALE

Size	PCS/BOX
25mm x 1/2"	24



**MALE THREAD TEE**

Size	PCS/ BOX
20mm x 1/2"	120
25mm x 1/2"	100
25mm x 3/4"	80
32mm x 1/2"	80
32mm x 3/4"	60
32mm x 1"	48



**FEMALE THREAD TEE**

Size	PCS/ BOX
20mm x 1/2"	160
25mm x 1/2"	100
25mm x 3/4"	80
32mm x 1/2"	60
32mm x 3/4"	48
32mm x 1"	40



**DV1 DOUBLE UNION BALL VALVE**

Size	PCS/ BOX
20mm	24
25mm	20
32mm	12
40mm	8
50mm	4
63mm	3
75mm	3



**MALE ELBOW WITH WALL DISK**

Size	PCS/ BOX
20mm x 1/2"	120
25mm x 1/2"	100
25mm x 3/4"	80



**FEMALE ELBOW WITH WALL DISK**

Size	PCS/ BOX
20mm x 1/2"	120
25mm x 1/2"	100
25mm x 3/4"	100



**CV1 CONCEALED VALVE**

Size	PCS/ BOX
20mm	20
25mm	20
32mm	20

# PN 25 - PPR Fittings



**BV1 PLASTIC BALL VALVE**

Size	PCS/BOX
20 mm	100
25 mm	60
32 mm	36
40mm	24
50mm	12
63mm	8



**SV2 STOP VALVE**

Size	PCS/BOX
20mm	40
25mm	28
32mm	16



**DV2 - DOUBLE UNION BALL VALVE**

Size	PCS/BOX
25 mm	32
32 mm	20



**SV1 STOP VALVE**

Size	PCS/BOX
20mm	40
25mm	28
32mm	16
40mm	12
50mm	6
63mm	4
75mm	4
90mm	3
110mm	2



**CV4 CONCEALED VALVE**

Size	PCS/BOX
20mm	20
25mm	20
32mm	20



**CV3 CONCEALED VALVE**

Size	PCS/BOX
25 mm	24



**BV3 BRASS BALL VALVE**

Size	PCS/BOX
20mm	80
25mm	60
32mm	40
40mm	20
50mm	12
63mm	8



**CV5 CONCEALED VALVE**

Size	PCS/BOX
25mm - Short	32
25mm - Long	32



**MANIFOLD 4WAY**

Size	PCS/BOX
50-25mm	9
50-32mm	9

# PN 25 - PPR Black UV Fittings



**SOCKET - UV**

Size	PCS/BOX
20mm	400
25mm	200
32mm	120
40mm	60
50mm	40
63mm	24
75mm	16
90mm	12
110mm	4



**90° ELBOW - UV**

Size	PCS/BOX
20mm	240
25mm	120
32mm	80
40mm	40
50mm	20
63mm	12
75mm	8
90mm	4
110mm	2



**EQUAL TEE - UV**

Size	PCS/BOX
20mm	200
25mm	120
32mm	60
40mm	28
50mm	16
63mm	8
75mm	8
90mm	3
110mm	2



**45° ELBOW - UV**

Size	PCS/BOX
20mm	200
25mm	160
32mm	80
40mm	40
50mm	28
63mm	12
75mm	12
90mm	4
110mm	3



**MALE THREAD ADAPTER - UV**

Size	PCS/BOX
20mm x 1/2"	160
25mm x 1/2"	100
25mm x 3/4"	80
32mm x 1/2"	120
32mm x 3/4"	100
32mm x 1"	60
40mm x 1-1/4"	36
50mm x 1-1/2"	24
63mm x 2"	16
75mm x 2-1/2"	8
90mm x 3"	6
110mm x 4"	2



**FEMALE THREAD ADAPTER - UV**

Size	PCS/BOX
20mm x 1/2"	200
25mm x 1/2"	160
25mm x 3/4"	80
32mm x 1/2"	120
32mm x 3/4"	100
32mm x 1"	60
40mm x 1-1/4"	36
50mm x 1-1/2"	28
63mm x 2"	16
75mm x 2-1/2"	12
90mm x 3"	8
110mm x 4"	4



**FEMALE THREAD TEE - UV**

Size	PCS/BOX
20mm x 1/2"	160
25mm x 1/2"	100
25mm x 3/4"	80
32mm x 1/2"	60
32mm x 3/4"	48
32mm x 1"	40



**BRIDGE WITH SOCKET - UV**

Size	PCS/BOX
25mm	60



**PIPE THREAD PLUG LONG - UV**

Size	PCS/BOX
1/2"	600

# PN 25 - PPR Black UV Fittings



**MALE THREAD ELBOW - UV**

Size	PCS/BOX
20mm x 1/2"	120
25mm x 1/2"	120
25mm x 3/4"	80
32mm x 1"	40



**FEMALE THREAD ELBOW - UV**

Size	PCS/BOX
20mm x 1/2"	160
25mm x 1/2"	120
25mm x 3/4"	100
32mm x 1/2"	80
32mm x 3/4"	60
32mm x 1"	40



**END CAP - UV**

Size	PCS/BOX
20mm	500
25mm	240
32mm	160
40mm	80
50mm	64
63mm	40



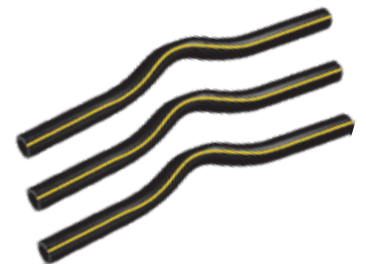
**PLASTIC UNION - UV**

Size	PCS/BOX
20mm	120
25mm	80
32mm	48
40mm	40
50mm	16
63mm	16



**BRASS UNION - UV**

Size	PCS/BOX
20mm	80
25mm	60
32mm	40
40mm	24
50mm	12
63mm	12



**BYPASS BEND - UV**

Size	PCS/BOX
20mm	100
25mm	60
32mm	40



**FEMALE DOUBLE ELBOW - UV**

Size	PCS/BOX
25mm x 1/2"	24



**REDUCING 90° ELBOW - UV**

Size	PCS/BOX
32x25mm	80



**FEMALE ELBOW WITH WALL DISK - UV**

Size	PCS/BOX
25mm x 1/2"	100

# PN 25 - PPR Black UV Fittings



**REDUCING SOCKET - UV**

Size	PCS/BOX	Size	PCS/BOX
25x20mm	240	63x50mm	24
32x20mm	120	75x32mm	32
32x25mm	120	75x40mm	32
40x20mm	80	75x50mm	32
40x25mm	80	75x63mm	16
40x32mm	60	90x50mm	18
50x20mm	60	90x63mm	18
50x25mm	60	90x75mm	12
50x32mm	60	110x63mm	6
50x40mm	40	110x75mm	6
63x25mm	32	110x90mm	6
63x32mm	32		
63x40mm	32		



**REDUCING TEE - UV**

Size	PCS/BOX	Size	PCS/BOX
25x20mm	120	63x50mm	12
32x20mm	60	75x32mm	12
32x25mm	80	75x50mm	8
40x20mm	36	75x63mm	8
40x25mm	32	90x32mm	8
40x32mm	32	90x40mm	6
50x20mm	20	90x50mm	4
50x25mm	20	90x63mm	4
50x32mm	20	90x75mm	4
50x40mm	16	110x40mm	3
63x20mm	12	110x50mm	3
63x25mm	12	110x63mm	3
63x32mm	12	110x75mm	2
63x40mm	12	110x90mm	2



**FEMALE THREAD UNION - UV**

Size	PCS/BOX
20mm x 1/2"	80
25mm x 3/4"	60
32mm x 1"	24
40mm x 1-1/4"	24
50mm x 1-1/2"	16
63mm x 2"	12



**MALE THREAD UNION - UV**

Size	PCS/BOX
20mm x 1/2"	80
25mm x 3/4"	60
32mm x 1"	24
40mm x 1-1/4"	24
50mm x 1-1/2"	16
63mm x 2"	8



**DV1 DOUBLE UNION BALL VALVE - UV**

Size	PCS/BOX
20mm	24
25mm	20
32mm	12
40mm	8
50mm	4
63mm	3

# PN 25 - PPR Black UV Fittings & Accessories



**BV3 BRASS BALL VALVE - UV**

Size	PCS/BOX
20mm	80
25mm	60
32mm	40
40mm	20
50mm	12
63mm	8



**SV1 STOP VALVE - UV**

Size	PCS/BOX
20mm	40
25mm	28
32mm	16
40mm	12
50mm	6
63mm	4
75mm	4



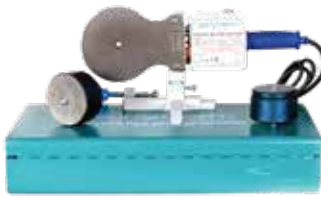
**SV2 STOP VALVE - UV**

Size	PCS/BOX
20mm	40
25mm	28
32mm	16



**CV1 CONCEALED VALVE - UV**

Size	PCS/BOX
20mm	20
25mm	20
32mm	20



**WELDING MACHINE SET**

Size	PCS/BOX
20-32mm	1
40 - 75 mm	1



**PIPE CUTTER**

Size	PCS/BOX
20 - 40 mm	1
40 - 63 mm	1



**FLANGE ADAPTER SET - UV**

Size	PCS/BOX
63mm	5
75mm	4
90mm	4
110mm	3



**PRESSURE TEST PUMP**

0 - 60 bar



**ROTATING PIPE CUTTER**

Size	PCS/BOX
50 - 110 mm	1



**HOLE REPAIR KIT**

## Stamp of Warranty

Eurotherm hereby warrants that all its pipes and fittings are free from any manufacturing defects and it adheres to International quality standards. In the event of any defect, the company shall stand to replace such materials if the complaint is brought to the notice. This warranty does not apply to the damage caused during transportation, rough handling, abnormal use or poor workmanship.



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Made in OMAN

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Polypropylene Random Copolymer (PPR) Pipes and Fittings for Plumbing Installations