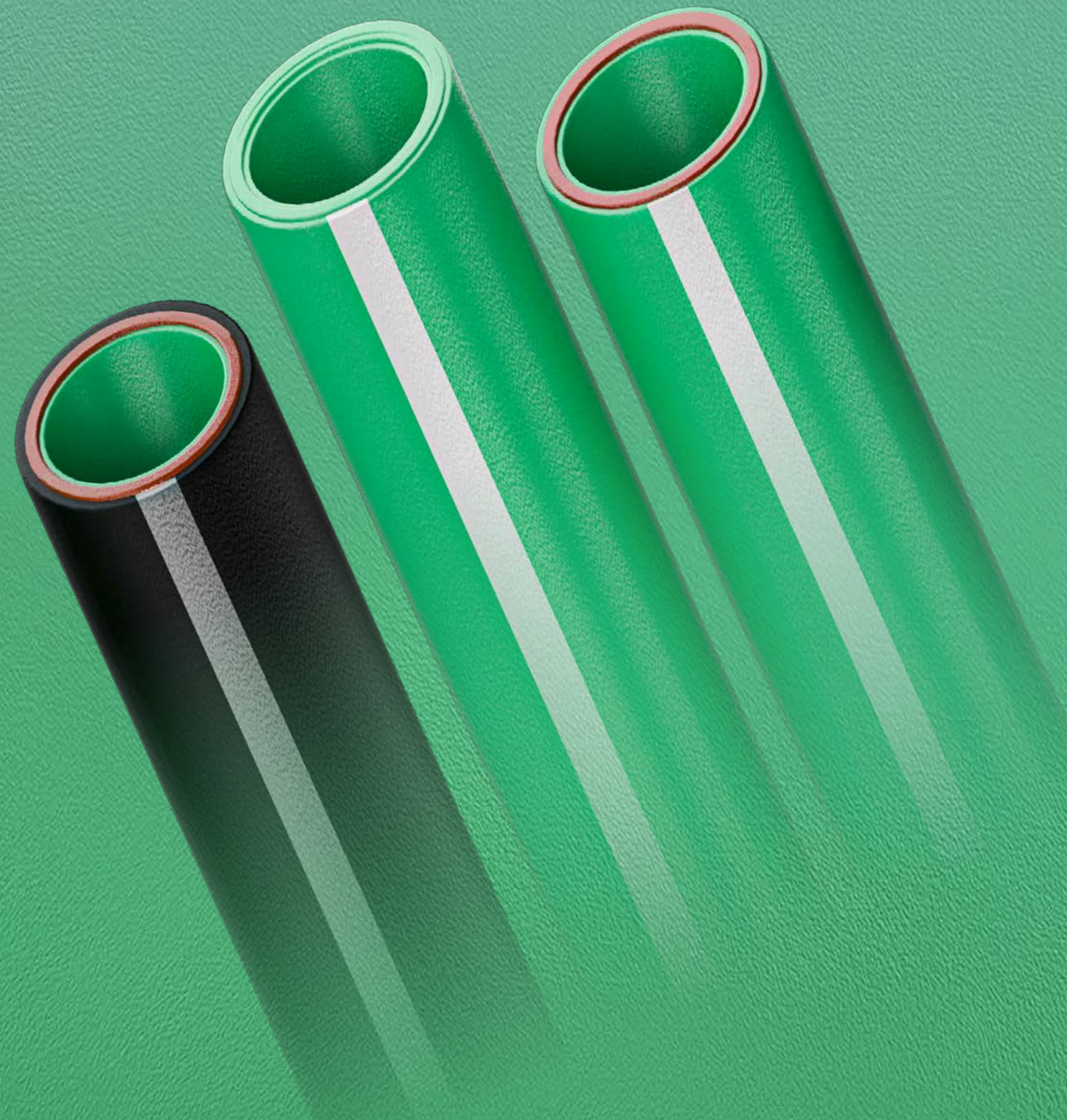
Therm
etaبیتا
ترم®

INNOVATIVE DESIGN AND SUPERIOR QUALITY



01

INTRODUCTION

Beta Therm journey began in 1980 with the trade and distribution of sanitary ware, which allowed us to gain deep insights into quality standards and the needs of the Egyptian market. With this expertise, we made the strategic decision to enter manufacturing, aiming to produce high-quality products (P.P.R & U-P.V.C) at competitive prices to thrive in the competitive landscape of Egypt's Piples & fittings industry.

INNOVATIVE DESIGN AND SUPERIOR QUALITY

IN 2010,

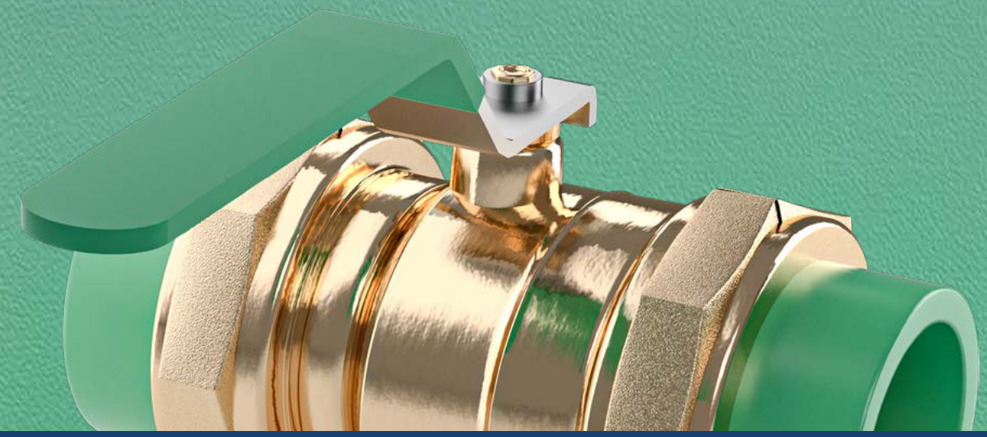
United Industrial and Trading Company was established, driven by determination and commitment to excellence. We successfully manufactured Beta Therm polypropylene pipes and fittings for drinking water, adhering to global quality standards. Thanks to the trust of our customers, our next step in 2013 was to begin manufacturing Beta White U-P.V.C pipes and drainage fittings.

We have put in tremendous effort to achieve this innovative design and superior quality, fully adhering to international standards and specifications.

In just a few years, our company has secured a strong position not only in the local market but also in Arab and African markets. Our products have surpassed all technical tests to ensure the safety of people and facilities.

We are committed to quality, continuous development, community growth, teamwork skills, and environmental preservation. We take pride in our product, which is made in Egypt with Egyptian ideas and Egyptian hands.

12 REASONS
To Choose Beta Therm



CORROSION RESISTANCE
BetaTherm pipes will withstand any level of water hardness and contact with chemicals having pH values between 1 and 14 i.e.They withstand acid and alkaline substances within a wide concentration and temperature spectrum. PP-R pipes will safely withstand contact with common building materials such as lime, cement and mortar without any special precautions.

EASY INSTALLATION
Polypropylene is light in weight, it also has a wide size range which allow trouble free,quick an a safe pipe laying. The advantages offered by this system are its high c rushing resistance, high mechanical flexibility, easy transportation and handling. It is easy to repair, whereby insertions are easily installed.

MINIMIZING NOISE EMERGING FROM THE NETWORK
Polypropylene is light in weight, it also has a wide size range which allow trouble free,quick an a safe pipe laying. The advantages offered by this system are its high c rushing resistance, high mechanical flexibility, easy transportation and handling. It is easy to repair, whereby insertions are easily installed.

KEEPING PRESSURE IN THE NETWORK
Due to smoothness of interior surface and lack of porosity, no accumulations are made in Interior surfaces thus ensuring the required pressure level thereof.

ENERGY SAVER
With the polypropylene pipes you could save energy by 15% compared to the applicable energy consumption rates.

STRAY CURRENT RESISTANCE
Polypropylene is a very poor electricity conductor, hence pipe puncturing due to stray currents will never occur.

ANTI-FREEZING
The polypropylene pipes are anti-freezing and thus, adaptable to the volume of items frozen within these pipes.

NOT HARMFUL TO HEALTH
This material is conforming to the requirements and standards of the World Health Organization (WHO)

LOW HEAT LOSS
Like all plastic materials, PP-R is a poor electricity conductor, which condensation on the outer surface.

LONGER LIFE SPAN
50+ YEARS

This duration may 50 years in case recommended temperatures and pressure are observed.

FLEXIBILITY
They are flexible enough to sustain vibration and expected fall of buildings.

NO INCRUSTATION
Thanks to the spectacular smooth inside of the pipes.

BETA THERM SYSTEMS

are particularly suitable to carry out the distribution of hot and cold water for hydro - sanitary applications.
Technical features of the material render the best solution for the execution of installations for potable water, Carefully package, giving maximum protection to the components against the aggressive elements, easy stocking and transportation ;
the lightness of the components, when compared to metallic (specific weight 1/9 compared to steel specific weight)allows easy installation in factories or in buildings;
The use of a welding machine or electrocution sockets allows easy connection for all BetaTherm components;
Potable water: Beta system is manufactured in accordance with International Specification concerning drinkable water.

EVEN WITH

HIGH PERCENTAGE OF LIMESTONE,

ALIMENTARY LIQUIDS

ASPIRATION SYSTEM OR VACUUM AND NAVAL USES

DISTRIBUTION INSTALLATIONS OF COMPRESSED AIR

IRRIGATIONS SYSTEMS FOR GARDENS

THE MAIN ADVENTAGE OF BETATHERM POLYPROPYLENE

1. Long duration (due to its optimal resistance to aggressive elements)
2. Impossibility of perforation caused by electric currents, due- to low conductivity)
3. No toxicity (phenomenon of restriction of sections (due to limestone, impurities and oxidation are completely absent);
4. The fittings with metallic inserts are highly reliable , Heating field for over 40 years enabling the production of hot forged inserts , machine tooled and then chrome plated to give high durability and perfect pressure sealing
5. High acoustic and thermal insulation features of the materials and thickness make the system capable of absorbing sound , with the thermal insulation reducing the loss of heat , and forming of condensation typical in installations where copper pipe is used);
6. Low loss of pressure (pipes and fittings have even surfaces and are manufactured with particular attention to the finish in order to avoid porosity or burrs producing turbulence when fluids are carried) . if this is obvious for pipes it will be not the same for fittings , because BetaTherm pay particular attention to them in order to avoid or reductive unnecessary friction ;

02

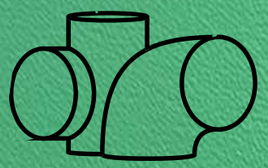
PHYSICAL BEHAVIOR

INNOVATIVE DESIGN AND SUPERIOR QUALITY

PHYSICAL BEHAVIOUR

BetaTherm products are in accordance with Din 8077/78 E.S 1,2 3703:2008

BETATHERM PRODUCTS ARE IN ACCORDANCE WITH KTW SPECIFICATIONS.



Calculation of admitted working pressure for pipes depends on different parameters such as temperature and working period .

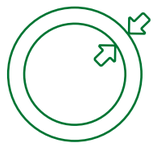
Thickness of BetaTherm pipes and fitting is designed in accordance with certain values, able to guarantee reliability and long life.

Duration of continuous working condition for BetaTherm components is based on regression curves, which strictly links duration in hours to pressure and temperature of the fluid.

Curves

Temperature

Pressure



Thickness

For example: a BetaTherm pipe of PN20, after 50 years of continuous working to a temperature of 20 C is still able to withstand a pressure of 20 bar.

Evaluation od admitted working pressure can be carried out by the following formula diagram.

$$P = \frac{20\text{-}sp\text{-}\sigma}{DN\text{-}sp} \qquad Pmax = \frac{P}{sf}$$

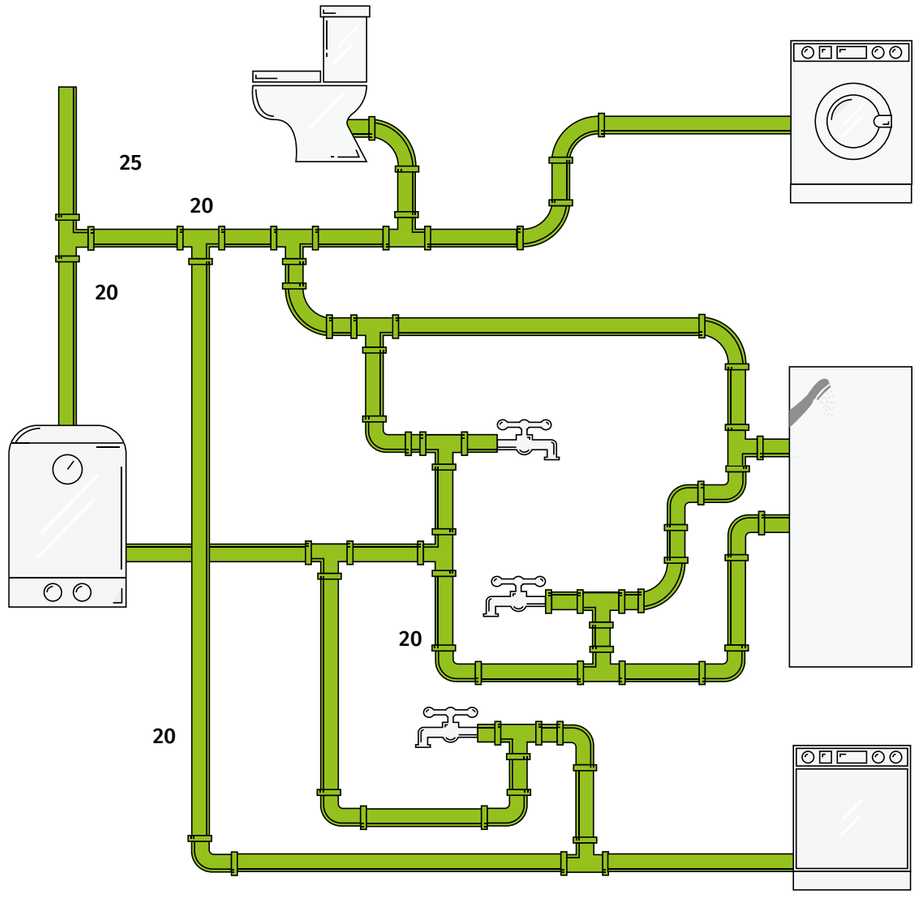
Where:
P = pressure in bar
Sp = thickness of pipes
Pmax = max.working pressure in bar

DN = outside diameter of the pipe in mm
σ = Hydrostatic stress by the Mpa diagram
Sf = security coefficient

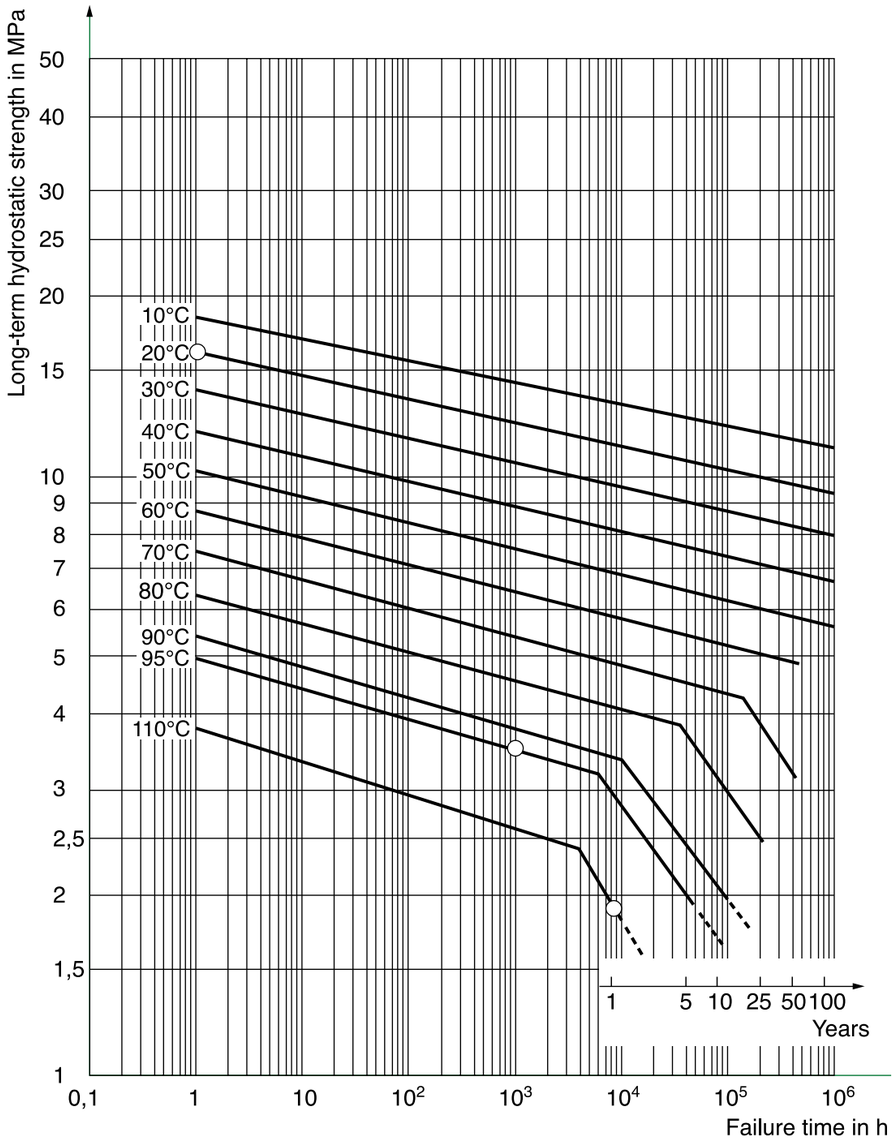
PHYSICAL BEHAVIOUR

PROPERTIES	TEST METHOD	UNITS	VALUE
Viscosity Average molecule -weight	ISO 1191 Solution viscosity C=0.001 g/cm3	cm3/g	420 500.00
Melt Flow index MFI 190/5 MFI 230/5	ISO 1133 Condition 18 Condition 20 Condition 12	g/10min g/10min g/10min	0.5 1.5 0.25
Density	ISO/R 1183	g/cm3	0.895
Melting zone	Polarizing microscope	C	140-150
Ultimate strength Resistance to tensile stress Ultimate elegation	ISO/R527 Forward speed D Test Specimen fig	N/mm2 N/mm2 %	21 40 800
Resistance under spheric pressure	ISO/2039 (H358/30)	N/mm2	40
Bending stress at 3,5% Elongation of edge fibers	ISO 178 Specimen	N/mm2	20
Modulus of elasticity	ISO/178	N/mm2	800
Shear modulus -10 °C 0 °C 10 °C 20 °C 30 °C 40 °C 50 °C 60 °C 80 °C	ISO 573 Method A	ISO/R 573 N/mm2 N/mm2 N/mm2 N/mm2 N/mm2 N/mm2 N/mm2 N/mm2 N/mm2	 1100 770 500 370 300 240 180 140 100
Mechanical resistance after the impact bending test	DIN 8078		No Failure
CHARPY impact resistance RT 0°C -10°C	ISO/R 179 Test Specimen fig.2	KJ/mm2 KJ/mm2 KJ/mm2	No Failure No Failure No Failure
CHARPY impact strength RT 0°C -20°C	ISO/R 179 Test Specimen	KJ/mm2 KJ/mm2 KJ/mm2	25 7 3
Linear expansion	VDE0304 part 1&4	K-1	1.5x10-4
Thermal conductivity at 20°C	DIN52612	W/mK	0.24
Specific heat at 20°C	Adiabatic Calorimeter	KJ/KgK	2.0

- The addition of the single necessities allows to determine a **UDC equal to 13**
- Graphically a corresponding flow **equal to 0,64 l/s** can be determined.
- This flow allows a **speed of 2.4 m/s** (see the diagram of distributed pressure losses).
- The main pipe in the flat will be done using a pipe of **25mm.**
- The following distribution, both for hot and cold water will be done using a pipes **20mm**, enough for the involved contemporary flows.



PHYSICAL BEHAVIOUR



(Therm & White)
Betatherm
بيتاثيرم - وايت®

If working conditions (such as timer and temperature) are determined by the diagram of regression curves, it is possible to determine the max . Working pressure and the safety factor.
This verification allows an evaluation of the admitted pressure (and of safety factor).
Time taken into consideration in a continuos working time of the system, which will be lower than effective duration of the system (except for system for hot water recycle).

FOR BETATHERM PRODUCTS. THE SITUATION CAN BE SUMMED UP TO AS FOLLOWS:

Years	Temperature (C°)	Max. Pressure (bar)	Safety Coefficient
50	10	30.6	1.5
50	20	26.0	1.5
50	30	21.7	1.5
50	40	18.5	1.5
50	50	15.6	1.5
50	60	13.1	1.5
25	70	10.1	1.5
25	80	6.5	1.5
10	90	5.4	1.5

03

CHEMICAL BEHAVIOR

INNOVATIVE DESIGN AND SUPERIOR QUALITY

CHEMICAL BEHAVIOUR

products	solution	.conc %	temperature		
			c 20	c 60	c 100
Accumulator acid			v.r.	v.r.	
Actic glacial acid		100	v.r.	a.b.r	N
Actic acid	W.S.	50	v.r.	v.r.	
Actic acid	W.S.	10	v.r.	v.r	
Actic anlydride		100	v.r.		
Acetone		100	r	a.b.r	N
Alluminimum salts					
Allum	w.s.	All	v.r.	v.r.	
Ammonia	w.s.	high	v.r.	v.r.	
Amonia	W.S	10	v.r.	v.r.	
Ammonium acetate	w.s.	all	v.r.	v.r.	v.r.
Ammonium Carbonate	w.s.	all	v.r.	v.r.	v.r.
Ammonium chloride		all	v.r.	v.r.	v.r.
Ammounium metaphosphate		s.s.	r.	r	r
Ammounium nitrate	w.s.	all	v.r.	v.r.	v.r.
Ammounium phosphate	w.s	all	v.r.	v.r.	v.r.
Ammounium sulphate		s.s.	r	r	r
Ammounium bicarbonate		s.s.	r	r	
Animal cooking oil			v.r.	a.b.r	
Anti-fraze car			v.r.	v.r.	
Aqua regia			v.r.	n	
Barium chloride		all	v.r.	v.r.	v.r.
Barium salts					
Beer			v.r.		
Benzaldehyde			v.r.	v.r.	
Benzaldehyde	w.s	s.s.	v.r.	v.r.	v.r.
Benzen			a.b.r	n	
Benzoic acid	w.s.	s.s.	v.r.	v.r.	v.r.
Benzoyl chloride		100	n		
Bitter almonds fragrance			v.r.		
Bleanch		12.50%	a.b.r	a.b.r	
Borax	w.s.				
Boric acide		100	v.r.	v.r.	
Boric acide	w.s.	s.s.	v.r.	v.r.	
Brandy			v.r.		

products	solution	.conc %	temperature		
			c 20	c 60	c 100
Bromine	liquids	100	n		
Bromine	vapour	high	n	n	
Bromine	vapour	Low	n	n	
Bromine water		s.s.		n n	
Butane	liquids	100	v.r.		
Butane	gas	100	v.r.	v.r.	
Butter		v.r.	.v.r		
Butyol alchol		100	.v.r	.v.r	
Calcium nitrate	w.s.	s.s.	v.r.	v.r.	
Camphor			v.r.		
Carvon tetracloride		100	a.b.r.	n	
Chlorin	liquids	100	n		
Chlorine (dry)	gas	100	n	n	n
Chlorine (wet)	gas	10	a.b.r.	n	n
Chlorine lime		aq.sosp.	v.r.	v.r.	
Chlorine water		s.s.	a.b.r.	n	
Chlorosulphonic		100	n	n	
Chloroform		1000	a.b.r.	n	
Chromic acid	w.s.	s.s	v.r.	n	
Chroomium (3) salts					
Chroomium (6) salts					
Citric acid	w.s	s.s	v.r.	v.r.	v.r.
Cocoa			v.r.	v.r.	r
cod liver oil			v.r.		
Copper salts					
Cresol		100	v.r.	a.b.r.	
Cresol	w.s	s.s	v.r.	a.b.r.	
Cresol oil			v.r.		
Cyclohexane		100	v.r.		
Cyclohexanol		100	v.r.	v.r.	
Cyclohexanon		100	v.r.	n	
Decahydronaphtalene		100	a.b.r.	n	
Dioxan		100	v.r.	a.b.r.	n
Distilled water		100	v.r.	v.r.	n
Engine oil		v.r.	a.b.r.	v.r.	
Ethers		100	v.r.	a.b.r.	n
Ethyls alchol	w.s.	100	v.r.		
Ethyls alchol	w.s.	96	v.r.	v.r.	
Ethyl alchol	s.s.	10	v.r.	v.r.	

	Solution	.conc %	Temperature		
			c 20	c 60	c 100
Ethyl chlorides		100	n		
Ethylene chlorides		100	a.b.r	a.b.r	
Ethylene tetracloride		100	a.b.r	n	
Ethylene tetraclorine		100	a.b.r	n	
Floor wax			v.r.	a.b.r	
Formaldehyde		40	v.r.	v.r.	
Formaldehyde		30	v.r.	v.r.	
Formaldehyde		10	v.r.	v.r.	
Formic acid		98	v.r.	a.b.r	
Formic acid		90	v.r.		
Formic acid		50	v.r.	v.r.	
Formic acid		10	v.r	v.r	v.r.
Fruiy-Juice			v.r.	v.r.	
Fumic sulfuric acid			n	n	n
Galvanic solutions			v.r.	v.r.	
Glycerol		100	v.r.	v.r.	
Glycerol	w.s.	high	v.r.	v.r.	
Glycerol	w.s.	low	v.r.	v.r.	v.r.
Glycerol		100	v.r.	v.r.	
Glycerol	w.s.	high	v.r.	v.r.	
Glycerol	w.s.	low	v.r.	v.r.	v.r.
Heptan		100	v.r.	a.b.r	
Hexan		100	v.r.	a.b.r	
Honey			v.r.	v.r.	
Hydrobromic acid		high	v.r.	v.r.	
Hydrobromic acid		10	v.r.	v.r.	
Hydrofluric acid		40	v.r.	v.r.	
Hydrogen peroxide water	w.s.	30	v.r.	a.b.r	
Hydrogen peroxide water	w.s.	10	v.r.	v.r.	
Hydrogen peroxide water	w.s.	3	v.r.	v.r.	v.r.
Ink			v.r.	v.r.	
Iron salts					
Iso propanol		100	v.r.	v.r.	
Isooctane		100	v.r.	a.b.r	
Lactic acid	w.s	90	v.r.	v.r.	
lactic acid	w.s	50	v.r.	v.r.	
Lactic acid	w.s	10	v.r.	v.r.	v.r.
Lacual water		100	v.r.	v.r.	v.r.
Limestone			v.r.	v.r.	v.r.
linseed oil			v.r.	v.r.	

products	solution	.conc %	Temperature		
			c 20	c 60	c 100
Magnesium salts					
Mercury		100	v.r.	v.r.	
Mercury salts					
Methyl alcohol		100	v.r.	v.r.	
Methyl alcohol	w.s.	50	v.r.	v.r.	
Methyl chloride		100	a.b.r.		
Methym ethyl keton		100	v.r.	a.b.r	
Methylene diformammyde		100	v.r.		
Milk			v.r.	v.r.	r
Mineral water			v.r.	v.r.	v.r.
Naphtha			v.r.	a.b.r	
Naphthalene		100	v.r.		
Nikel salts					
Nitric acid		50	a.b.r.	n	
Nitric acid		25	v.r.	v.r.	
Nitric acid		10	v.r.	v.r.	
Nitro benzene		100	r	a.b.r.	
Normal gasoline			r	n	
Oil			n	n	
Oil of peanut			v.r.	v	a.b.r
Oleic acid		100	v.r.		
Olive oil			v.r.	v.r.	
Oxalic acid	w.s.	s.s.	v.r.	v.r.	v.r.
Ozone		<0.5 ppm	r	a.b.r	
Paraffine		100	v.r.	v.r.	n
Petroleum		100	v.r.	a.b.r	
Phenylamine			v.r.	r	
Phenylmethylketone		100	r	a.b.r	
Phosphoric acid	w.s.	s.s.	v.r.	a.b.r	
Phosphoric acid	w.s.	50	v.r.	v.r.	
Phosphoric acid	w.s.	10	v.r.	v.r.	v.r.
Potassium carbonate	w.s.	s.s.	v.r.	v.r.	
Potassium chlorate	w.s.	s.s.	v.r.	v.r.	
Potassium chloride	w.s.	s.s.	v.r.	v.r.	v.r.
Potassium dichromate	w.s.	s.s.	v.r.	v.r.	v.r.
Potassium hydroxide		50	v.r.	v.r.	
Potassium hydroxide		25	v.r.	v.r.	
Potassium hydroxide		10	v.r.	v.r.	
Potassium hypochloride	w.s.	5	v.r.		
Potassium (io.....)	w.s.	s.s.	v.r.	v.r.	

products	solution	.conc %	temperature		
			c 20	c 60	c 100
Potassium nitrate	w.s.	s.s.	v.r.	v.r.	
Potassium permanganate	w.s.	s.s.			
Potassium sulphat	w.s.	s.s.	v.r.	v.r.	v.r.
Propane	gas	100	v.r.	v.r.	v.r.
Propane	liquids	100	v.r.	v.r.	v.r.
pyridine		100	v.r.	a.b.r.	
Quinine			v.r.		
Sea water			v.r.	v.r.	v.r.
Shampoo			v.r.	v.r.	
Silicone oil			v.r.	r	
Silver salts					
Soap solution		s.s.	v.r.	v.r.	
Soap solution		10	v.r.	v.r.	v.r.
Sodium bicarbonate	w.s.	s.s.	v.r.	v.r.	v.r.
Sodium carbonate	w.s.	s.s.	v.r.	v.r.	
Sodium carbonate	w.s.	10	v.r.	v.r.	v.r.
Sodium chlorate	w.s.	5	v.r.		
Sodium chlorate	w.s.	25	v.r.	v.r.	
Sodium chloride	w.s.	s.s.	v.r.	v.r.	v.r.
Sodium disulphite	w.s.	s.s.	v.r.	v.r.	v.r.
Sodium hydroxide		100	v.r.	v.r.	
Sodium hydroxide		50	v.r.	v.r.	
Sodium hydroxide		25	v.r.	v.r.	
Sodium hydroxide		10	v.r.	v.r.	
Sodium nitrate	w.s.	s.s.	v.r.	v.r.	
Sodium nitrate	w.s.	s.s.	v.r.		
Sodium perborate	w.s.	s.s.	v.r.	v.r.	v.r.
Sodium phosphate	w.s.	s.s.	v.r.	v.r.	v.r.
Sodium sulphate	w.s.	s.s.	v.r.	v.r.	v.r.
Sodium sulphite	w.s.	s.s.	v.r.		
Slouble coffee			v.r.	v.r.	v.r.
Soy-bean oil			v.r.	a.b.r.	
Spirits			v.r.		
Stannus chloride	w.s.	s.s.	v.r.	v.r.	
Sstarch		all	v.r.	v.r.	
Stearic acid		100	v.r.		
Succinic	w.s.	s.s.	v.r.	v.r.	
Sulphochromic acid			n	n	
Sulphur		100	v.r.	v.r.	v.r.
sulphuric acid		96	v.r.	a.b.r	

products	solution	.conc %	temperature		
			c 20	c 60	c 100
Sulphiric acid		50	v.r.	v.r.	
Sulphiric acid		25	v.r.	v.r.	
Sulphiric acid		10	v.r.	v.r.	v.r.
Sulphuros anhydride		low	v.r.	v.r.	
Super gasoline			v.r.	n	
Syntetic detersive			v.r.	v.r.	v.r.
Tar			v.r.	a.b.r	
Tartaric acid	w.s.	s.s.	v.r.	v.r.	
Tartaric acid		10	r	r	
Tetrahydrofurane		100	a.b.r	n	
Tetrahydronaphtalene		100	a.b.r	n	
Thea			v.r.	v.r.	r
Thiophene		100	a.b.r	n	
Toluen		100	a.b.r	n	
Tomatoes-juice			v.r.	v.r.	
Tooth poste			v.r.	v.r.	
Trichlorcethylene		100			
Turpentine			n	n	n
Turpentine oil			a.b.r.	n	
Two stroke engine oil			a.b.r	a.b.r.	
Type writer oil			v.r.	r	
Urea	w.s.	s.s.	v.r.	v.r.	
Vasline			v.r.	a.b.r.	
Vegetable cooking oil			v.r.	a.b.r.	
Vine			v.r.	v.r.	
Water		100	v.r.	v.r.	v.r.
Whipper cream			v.r.		
Whisky		40	v.r.		
Zylene or xylol		100	a.b.r.	n	
Zinc salts					

STANDARDS

DIN 8076 Standard for testing metal threaded joints

DIN 8077 Polypropylene (PP) Pipe Dimensions

DIN 8078 Polypropylene (PP) Pipes, general quality requirements testing & chemical resistance of pipes and fittings.

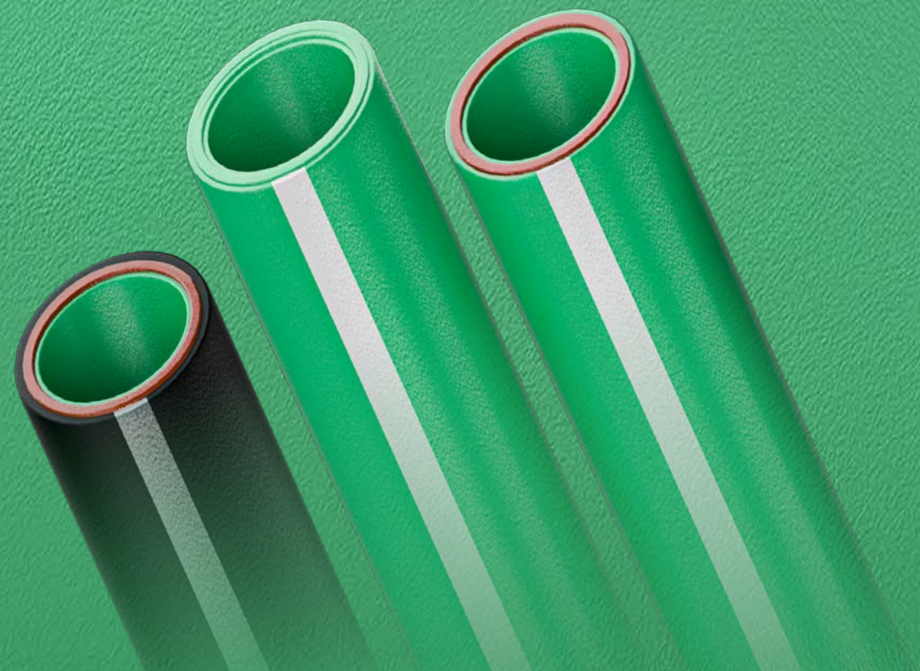
DIN 16962 Pipe fittings and joint assemblies for polypropylene (PP) pressure pipes

ISO 15874 Plastics piping systems for hot and cold water installations — Polypropylene (PP)

ES 3703 Egyptian standard for PPR Pipe & Fittings. General quality requirements and testing

DIN 4109 is a German standard that outlines the requirments for sound insulation in buildings.

DIN 16928 is a German standard that provides guidlines for the design, dimensions, and testing of thermoplastic fitting used in piping systems



FIELDS OF APPLICATION

The BetaTherm System is commonly used in **houses and large condominiums, hotels, hospitals, shopping malls, gyms, cruise and cargo ships** for several different types of installation including:

- Plumbing system
- Risers Branching to sanity
- Heating system
- (max temperature 70°)
- Air conditioning systems
- Spa water system
- Water supply system to pools

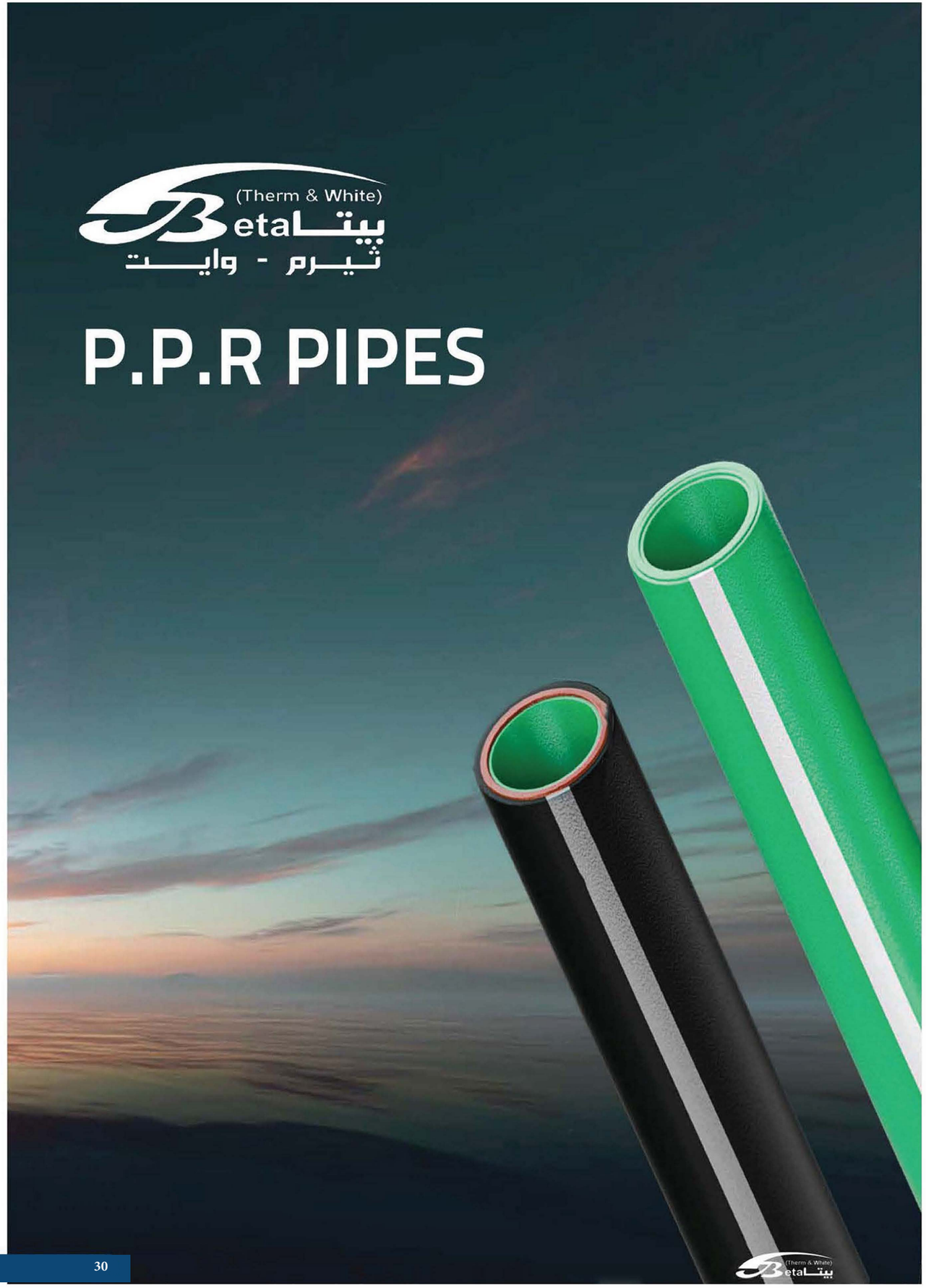
THE SYSTEM IS ALSO USED IN

INDUSTRIAL INSTALLATIONS:

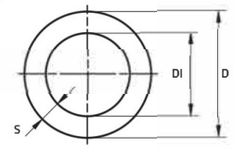
04

BETATHERM PRODUCTS

INNOVATIVE DESIGN AND SUPERIOR QUALITY



P.P.R PIPES



Material: PP-R
Standards: DIN 8077/8078
Colour: Green

BETATHERM GREEN PIPE - SDR 11- PN 10

SDR	Dimension D (mm)	Wall Thickness S (mm)	Internal Diameter ID (mm)	Water Content (L/M)	PU in Meter
11	32	2.9	26.2	0.539	40
	40	3.7	32.6	0,834	40
	50	4.6	40.8	1.307	20
	63	5.8	51.4	2.074	12
	75	6.8	61.4	2.959	12
	90	8.2	73.6	4.252	8
	110	10.0	90.0	6.359	8

BETATHERM GREEN PIPE - SDR 7,4 - PN 16

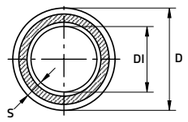
SDR	Dimension D (mm)	Wall Thickness S (mm)	Internal Diameter ID (mm)	Water Content (L/M)	PU in Meter
7,4	20	2.8	14.4	0.163	80
	25	3.5	18.0	0.254	80
	32	4.4	23.0	0.415	40
	40	5.5	28.8	0.651	40
	50	6.9	36.2	1.029	20
	63	7.10	45.6	1.632	12
	75	8.4	54.4	2.306	12
	90	10.10	65.4	3.317	8
	110	15.10	79.8	4.974	8

BETATHERM GREEN PIPE - SDR 6 - PN 20

SDR	Dimension D (mm)	Wall Thickness S (mm)	Internal Diameter ID (mm)	Water Content (L/M)	PU in Meter
6	20	3.4	13.2	0.137	80
	25	4.2	16.6	0.216	80
	32	5.4	21.2	0.353	40
	40	6.7	26.6	0.555	40
	50	8.3	33.4	0.876	20
	63	10.5	42.0	1.385	12
	75	12.5	50.0	1.963	12
	90	15.0	60.0	2.826	8
	110	18.3	73.4	4.229	8

P.P.R PIPES

Material: PP-R
Standards: DIN 8077 /8078
Colour: Green



BETATHERM FIBER PIPE - SDR 7.4- PN 16

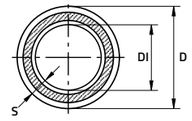
SDR	Dimension d [mm]	Wall Thickness s [mm]	Internal diameter di [mm]	Water content [l/m]	PU in Meter
7.4	20	2.8	14.4	0.163	80
	25	3.5	18.0	0.254	80
	32	4.4	23.0	0.415	40
	40	5.5	28.8	0.651	40
	50	6.9	36.2	1.029	20
	63	7.10	45.6	1.632	12
	75	8.4	54.4	2.306	12
	90	10.10	65.4	3.317	8
	110	15.10	79.8	4.974	8

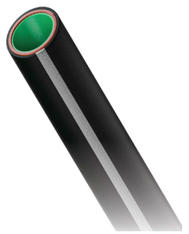
BETATHERM FIBER PIPE - SDR 6 PN 20

SDR	Dimension d [mm]	Wall thickness s [mm]	Internal diameter di [mm]	Water content [l/m]	PU in Meter
6	20	3.4	13.2	0.137	80
	25	4.2	16.6	0.216	80
	32	5.4	21.2	0.353	40
	40	6.7	26.6	0.555	40
	50	8.3	33.4	0.876	20
	63	10.5	42.0	1.385	12
	75	12.5	50.0	1.963	12
	90	1 5.0	60.0	2.826	8
	110	1 8.3	73.4	4.229	8

P.P.R PIPES

Material: PP-R
Standards: DIN 8077 /8078
Colour: Black





BETATHERM FIBER UV PIPE - SDR 7.4- PN 16

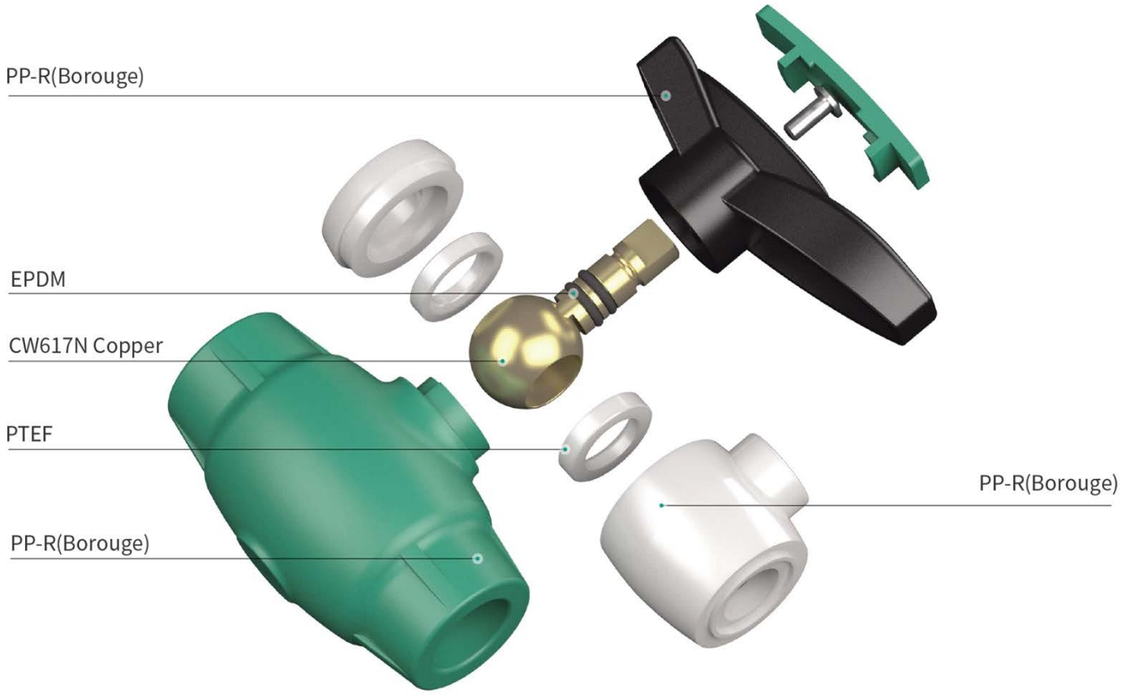
SDR	Dimension d [mm]	Wall Thickness s [mm]	Internal diameter di [mm]	Water content [l/m]	PU in Meter
7.4	20	2.8	14.4	0.163	80
	25	3.5	18.0	0.254	80
	32	4.4	23.0	0.415	40
	40	5.5	28.8	0.651	40
	50	6.9	36.2	1.029	20
	63	7.10	45.6	1.632	12
	75	8.4	54.4	2.306	12
	90	10.10	65.4	3.317	8
	110	15.10	79.8	4.974	8

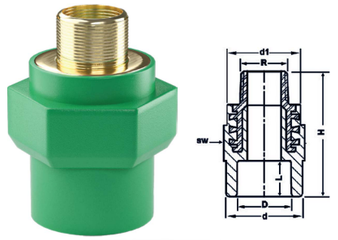
BETATHERM FIBER UV PIPE - SDR 6 - PN 20

SDR	Dimension d [mm]	Wall thickness s [mm]	Internal diameter di [mm]	Water content [l/m]	PU in Meter
6	20	3.4	13.2	0.137	80
	25	4.2	16.6	0.216	80
	32	5.4	21.2	0.353	40
	40	6.7	26.6	0.555	40
	50	8.3	33.4	0.876	20
	63	10.5	42.0	1.385	12
	75	12.5	50.0	1.963	12
	90	1 5.0	60.0	2.826	8
	110	1 8.3	73.4	4.229	8

P.P.R FITTINGS

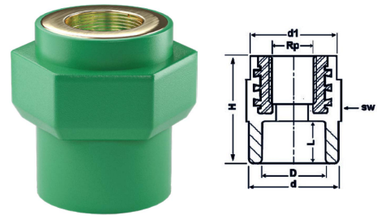
Propylene Random Copolymer Fittings





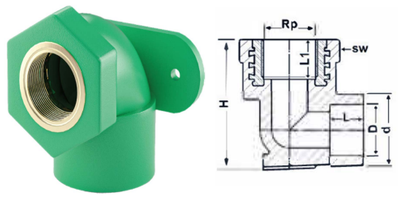
MALE ADAPTER BRASS THREADED

D	R	d	SW	H	L	d1	pcs/box
20	1/2	29	36.5	54.5	15	36	160
25	1/2	34.5	38.5	56	16	36	160
25	3/4	33.5	43	56	16	42.5	140
32	3/4	41.6	56	61.3	17	51	80
32	1"	42	51.5	63.5	17.5	51	80
40	1 1/4"	53.5	57	70	22	56.5	40
50	1 1/2"	64.5	76.5	78.5	24.5	76	36
63	2"	82.5	85.5	94	28	86	24
75	2 1/2 "	100	91.5	102	33	96	14
90	3"	124	97	111	39	106	8
110	4"	151	105	122	47	112	4



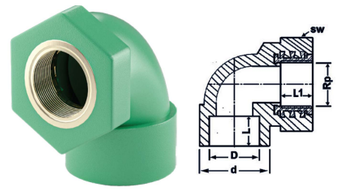
FEMALE ADAPTER BRASS TREADED

D	R	d	SW	H	L	d1	pcs/box
20	1/2"	29	36.5	40	15	36	200
25	1/2"	34.5	38.5	41	16	36	200
25	3/4"	33.5	43	41.5	16	42	160
32	3/4"	42	51.5	46	17.5	51	100
32	1"	42	51.5	46	17.5	51	100
40	1 1/4"	53.5	57	51	22	56.5	60
50	1 1/2"	64.5	76.5	58	24.5	76	50
63	2"	82.5	85.5	68	29	86	30
75	2 1/2"	99	114	82	45	113	14
90	3"	124	121	92	65	129	8
110	4"	160	135	105	85	145	4



ELBOW 90 ˚FEMALE (Brackets) THREADED PN25

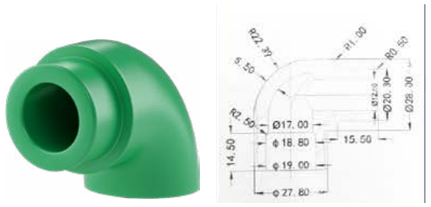
D	RP	d	L	L1	H	SW	PCS/box
20	1/2"	30	14.5	19	49	38	120
25	1/2"	34	18	19.5	56.5	38	120
25	3/4"	34	18	20	62	45.5	80



ELBOW 90 ˚FEMALE THREADED

D	RP	d	L	L1	SW	PCS/box
25	1/2"	34	18	19.5	38	160
25	3/4"	34	18	20	45.5	80
32	1/2"	43	18.5	22	52	70
32	3/4	43	18.5	22	52	70
32	1"	43	18.5	22	52	30

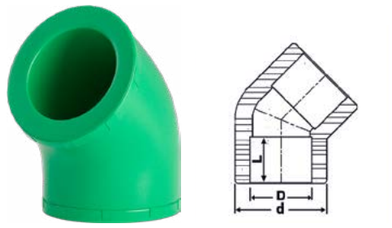
P.P.R FITTINGS



EPME2023

MALE ELBOW

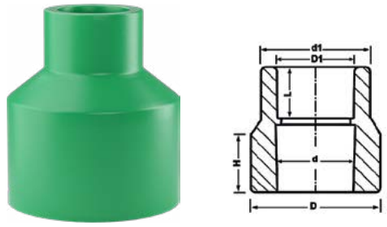
D	D1	D2	L	pcs/box
20	20	20	14.5	300
25	25	25	16	200



BE3145

ELBOW 45°

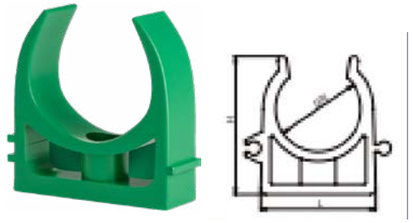
D	d	L	pcs/box
20	28.5	14.5	300
25	34.5	16	200
32	42.2	18	150
40	52	20.5	100
50	62.8	23.5	20
63	82	27.5	16
75	99	50	12
90	120	58	8
110	148	69	4



BS3200R

REDUCER

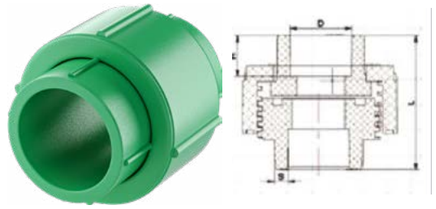
D	D1	d	d1	L	H	PCS/ box
25	20	15	29	14	15	400
32	20	19.3	28	14	17	400
32	25	19.3	33.5	15	17	300
40	20	25.5	29	14	21	240
40	25	25.5	33.5	15	21	240
40	32	25.5	43.5	16.5	21	160
50	20	29.3	33	14	23.5	120
50	25	29.3	42.5	16.5	24.5	120
50	32	29.5	42.5	16.5	24.5	120
50	40	29.3	53.5	19.5	24.5	60
63	20	38.3	34	15	27.5	60
63	25	38.3	34	16.5	27.5	60
63	32	38.3	43	18.5	27.5	60
63	40	38.3	53.5	19.5	27.5	60
63	50	38.3	65	23.5	27.5	60
75	50	49.4	80	33.5	44	40
75	63	65	80	35.5	44	30
90	63	65	99	38.5	51	20
110	90	109.7	89.7	44	61	15



BPC2023

CLAMPS

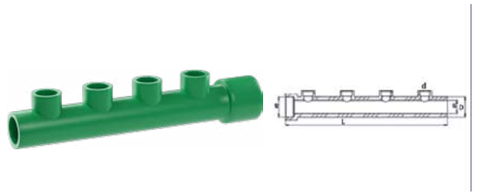
DN	D	L	pcs/box
20	20	33.4	900
25	25	25	700
32	32	44.9	600



BPU2023

UNION

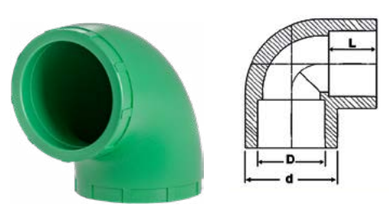
D	H	L	S	pcs/box
20	20	45	4.3	100
25	23	51	4.8	80
32	27	61	5.5	60
50	24	79	7.6	40
63	27.6	87	9	20



BPMW2023

MANIFOLD WELDING END SOCKET

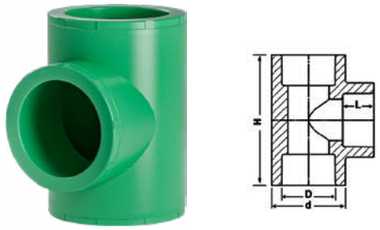
DN- DN1	D1	d1	D2	D3	L	PCS/box
50-20	50.2	33.1	19.3	65.5	330	20
50-25	50.2	33.1	24.2	65.5	330	20
50-32	50.2	33.1	31.1	65.5	330	20
63-20	63.2	42	19.3	82.2	330	15
63-25	63.2	42	24.2	82.2	330	15
63-32	63.2	42	31.1	82.2	330	15



BE300

ELBOW 90°

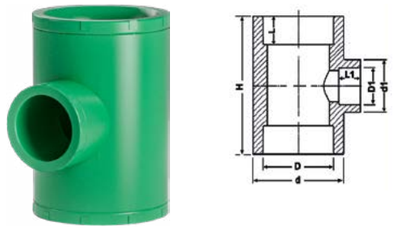
D	d	L	pcs/box
20	28.5	14.5	300
25	34.5	16	200
32	43	18	100
40	53.5	22	60
50	65.5	23.5	30
63	83	28	20
75	101	41	12
90	120	50	8
110	148	62	6



BE3300

TEE 90°

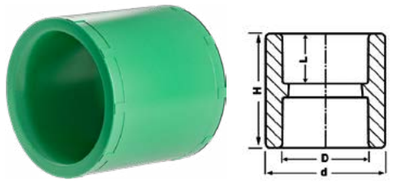
D	d	L	H	pcs/box
20	28.5	14.5	57	200
25	34.5	16	64	120
32	43	18	75.5	80
40	53.4	22	90	56
50	63.5	25	104.5	30
63	84.5	28	122.5	16
75	100	35	141	12
90	120	41.5	150	8
110	148	49.5	181	4



BS3300R

TEE REDUCER 90°

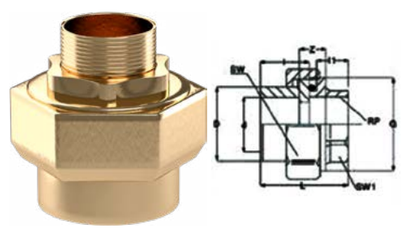
D	D1	d	d1	L	L1	H	PCS/ box
25	20	34	29	16	14.5	63	120
32	20	43	29	18	14.5	75	80
32	25	42.5	34	18	16	75.5	80
40	20	53.5	29	22	14.5	90	28
40	25	53.5	34	22	16	90	28
40	32	53.5	43	22	18.5	90	28
50	20	63	33.5	25	14.5	104	30
50	25	63	33.5	25	16	104	30
50	32	63	42.5	25	18	104	30
50	40	63	53.5	25	22	104	30
63	20	85	30	28	14	122	15
63	25	85	34.5	28	16.5	122	15
63	32	85	43.5	28	18	122	15
63	40	85	53.5	28	22	122	15
63	50	85	65.5	28	23.5	122	15
75	20	100	43	31	14.5	142	12
75	25	100	34.5	35	16	142	12
75	32	100	43.5	36	18.5	142	12
75	40	100	53.5	25	22	142	12
75	50	100	63.5	30	28	142	12
90	63	120	82	58	44	166	8
90	75	120	100	58	50	166	8
110	63	148	82	69	44	198	4
110	75	148	100	69	50	198	4



BS3200

SOCKET

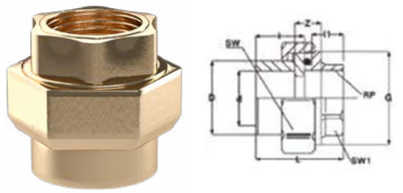
D	d	L	H	PCS/box
20	29	14.5	34	400
25	34	16	37	300
32	42.5	17.5	41	160
40	53.5	22	46	80
50	64.5	23.5	53	60
63	84.5	27.5	59	40
75	99	32.5	65	25
90	120	38	76	15
110	148	44.5	80	10



BPCCMU2023

MALE UNION

D	RP	d	L	I	I1	Z	SW	PCS/box
25	3/4	24.5	37.7	28.94	26.86	19.7	15.43	120
32	1"	32.5	49.6	26	27.88	19.9	16.4	60
50	1 1/2"	49.4	73.57	32	34	24	25	30
63	2"	62.5	88.75	63.9	39.44	26.7	28.36	18

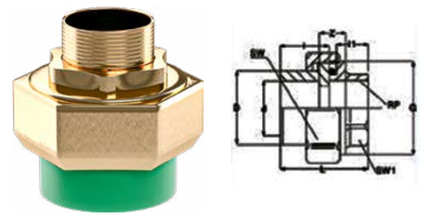


BPCCFU2023

FEMALE ELBOW

D	RP	d	L	I	I1
25	3/4	24.5	47	33.1	18.87
32	1"	32.5	51.20	36.1	22.13
50	1 1/2"	49.4	65.70	46.7	29.75
63	2"	62.5	76.00	54.6	34.36

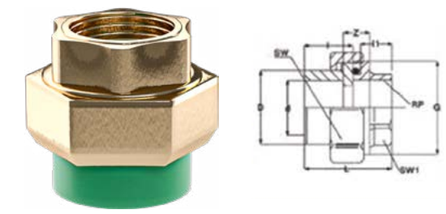
Z	SW	SW1	Q	PCS/box
7.33	13.7	11.33	37.83	120
8.28	16.67	13.8	49.75	60
10.88	24.98	18.56	73.7	30
12.35	28.4	21.33	88.8	18



BPCMU2023

MALE UNION

D	RP	d	L	I	I1	Z	SW	PCS/box
25	3/4	24.5	37.7	28.94	26.86	19.7	15.43	120
32	1"	32.5	49.6	26	27.88	19.9	16.4	60
50	1 1/2"	49.4	73.5	32	34	24	25	30
63	2"	62.5	88.75	63.9	39.44	26.7	28.3	18

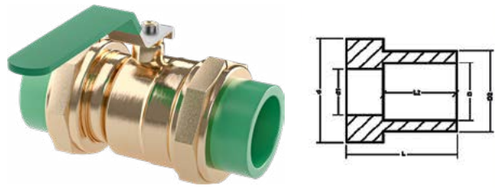


BPCFU2023

FEMALE UNION

D	RP	d	L	I	I1
25	3/4	24.5	47	33.1	18.87
32	1"	32.5	51.20	36.1	22.13
50	1 1/2"	49.4	65.70	46.7	29.75
63	2"	62.5	76.00	54.6	34.36

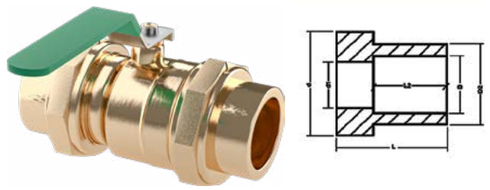
Z	SW	SW1	Q	PCS/box
7.33	13.7	11.33	37.83	120
8.28	16.67	13.8	49.75	60
10.88	24.98	18.56	73.7	30
12.35	28.4	21.33	88.8	18



BPCBV2023

BALL VALVE

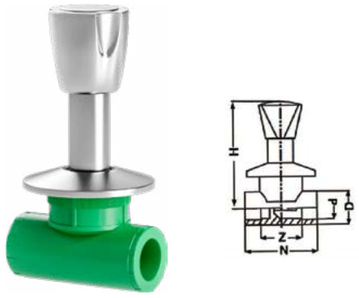
D	D2	d	d1	L	L2	PCS/box
20	26.5	29.7	15	20.5	15.5	24
25	30.5	32.7	20	22	17	24
32	40	45	26	26.5	21.5	24
50	62.5	68	43	27	20.5	6
63	78	84	50	30	25	6



BPCCBV2023

BALL VALVE

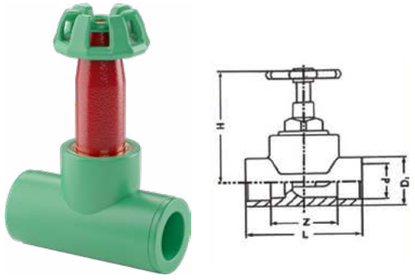
D	D2	d	d1	L	L2	PCS/box
20	26.5	29.7	15	20.5	15.5	24
25	30.5	32.7	20	22	17	24
32	40	45	26	26.5	21.5	24
50	62.5	68	43	27	20.5	6
63	78	84	50	30	25	6



BV4000B

BOTTOM VALVE

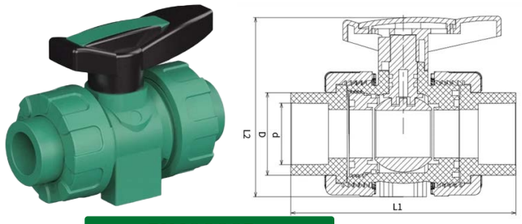
D	G	d	d1	L	V	H	PCS/box
20	3/4"	32	47.5	15.5	28.5	82.5	24
25	3/4"	37	47.5	16	28.5	84	24
32	3/4"	43	47.5	22	28.5	86	24



BPSS2023

STRAIGHT SEATED VALVE

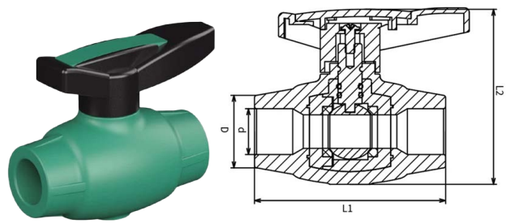
DR-RP	d	D	D1	Z	L	H	PCS/box
20-3/4	19.5	34	45	46	75	69	24
25-3/4	24.5	34	45	46	75	69	24
32-3/4	31.5	43	45	39	75	69	24



BV40028B

Ball Valve - Plastic Ball

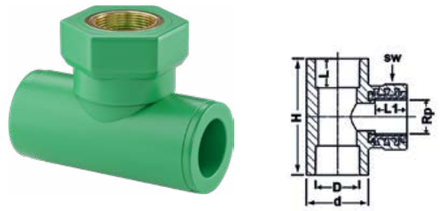
d	D	L1	L2	Weight(g)	PCS/box
20	28.4	138	81	140	24
25	34.3	140	105	230	24
32	42	160	108	398	24
40	52.5	186	132	430	24
50	65.5	188	140	610	6
63	82.7	210	170	1325	6



BV40021B

Ball Valve - Copper Ball

d	D	L1	L2	Weight(g)	PCS/box
20	30.1	80	74	129	24
25	36	87	83	192	24
32	44.1	100	94	318	24
40	55	125	122	470	24
50	70	136	140	704	6
63	86	159	162	1171	6



BT3300F

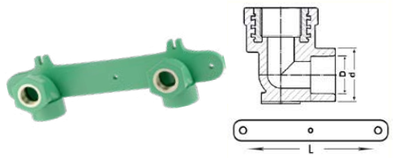
FEMALE TEE

D	RP	d	SW	L1	L	H	pcs/box
20	1/2"	29.5	38	19	16	62	120
25	1/2"	33.5	37.5	19	16	64.5	100
25	3/4"	35.5	46	20.5	16	75.5	80
32	3/4"	43	52	22	18	75.5	50
32	1"	43	52	22	18	75.5	50

BDE3160F

ADJUST WATER BATTERY

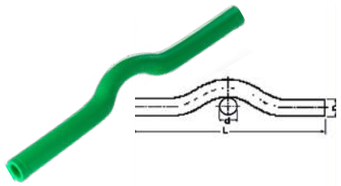
DN	RP	D	SW	L1	S	PCS/ box
20	1/2"	20	21.57	230	4.4	30
25	1/2"	25	21.57	230	4.6	30



BDE3150F

DOUBL ELBOW

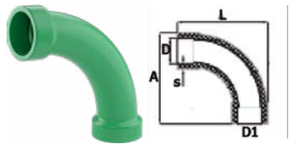
D	d	L	PCS/box
20	1/2"	28.5	50
25	1/2"	28.5	50



BC2250S

CROSSOVER

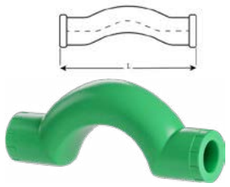
D	d	L	PCS/box
20	20	285	140
25	25	285	100
32	32	285	70



BPLE2023

LONG ELBOW

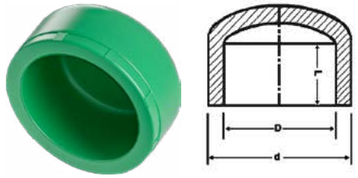
D	D1	A	L	S	PCS/box
25	25	90	84	5.3	120



BC2250S

SHORT GROSSOVER

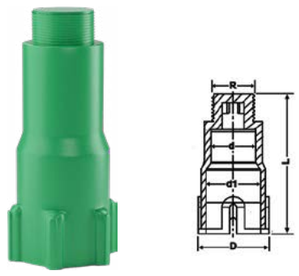
D	L	PCS/box
20	82	225
25	97	150
32	112	100



BC3500

END CAP

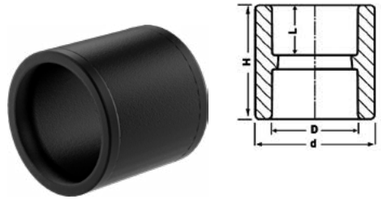
D	d	L	PCS/box
20	30	16.5	600
25	34	18.5	400
32	43	19.5	240
40	52	21.5	200
50	65	23.5	120
63	79	28	60
75	99	54	35
90	120	66	24
110	148	79	16



BC3500T

TEST CAP

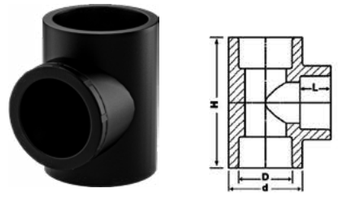
R	D	d	d1	L	PCS/box
1/2	33	20.7	25.5	68.5	200



BS3200

SOCKET

D	d	L	H	PCS/box
20	29	14.5	34	400
25	34	16	37	300
32	42.5	17.5	41	160
40	53.5	22	46	80
50	64.5	23.5	53	60
63	84.5	27.5	59	40
75	99	32.5	65	25
90	120	38	76	15
110	148	44.5	80	10



BE3300

TEE 90°

D	d	L	H	pcs/box
20	28.5	14.5	57	200
25	34.5	16	64	120
32	43	18	75.5	80
40	53.4	22	90	56
50	63.5	25	104.5	30
63	84.5	28	122.5	16
75	100	35	141	12
90	120	41.5	150	8
110	148	49.5	181	4

BS3200F

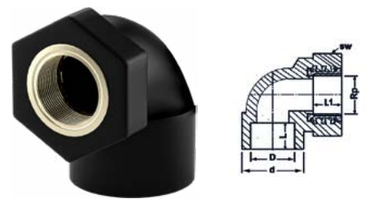
FEMALE ADAPTOR

D	R	d	SW	H	L	d1	pcs/box
20	1/2"	29	36.5	40	15	36	200
25	1/2"	34.5	38.5	41	16	36	200
25	3/4"	33.5	43	41.5	16	42	160
32	3/4"	42	51.5	46	17.5	51	100
32	1"	42	51.5	46	17.5	51	100
40	1 1/4"	53.5	57	51	22	56.5	60
50	1 1/2"	64.5	76.5	58	24.5	76	50
63	2"	82.5	85.5	68	29	86	30
75	2 1/2"	99	114	82	45	113	14
90	3"	124	121	92	65	129	8
110	4"	160	135	105	85	145	4

BV4000B

TEE FEMALE

D	RP	d	SW	L1	L	H	pcs/box
20	1/2"	29.5	38	19	16	62	120
25	1/2"	33.5	37.5	19	16	64.5	100
25	3/4"	35.5	46	20.5	16	75.5	80
32	3/4"	43	52	22	18	75.5	50
32	1"	43	52	22	18	75.5	50



BE3100F

FEMALE ELBOW (BRACKET)

D	RP	d	L	L1	H	SW	PCS/box
20	1/2"	30	14.5	19	49	38	120
25	1/2"	34	18	19.5	56.5	38	120
25	3/4"	34	18	20	62	45.5	80

05

WELDING & JOINTING

INNOVATIVE DESIGN AND SUPERIOR QUALITY

WELDING JOINTS

- PP-R products jointed by heating elements. This welding process is easy for workers and give high jointing properties and preventing any leakage

THREADED JOINTS

- The threaded joints af adaptor pipe-fittings correspond to the requirements of DIN 2999 resp. ISO 7, cylindrical female threads, for connecting back nuts correspond to the requirements of DIN-ISO 228, part 1
- The shape and external threaded joints design gives greater cohesion with polypropylene bringing durability link (torque) between polypropylene and threaded joints in within 200 Newton see fig(2b)

DIMENSIONS

- Pipes dimension According to DIN 8077 (Pipes of polypropylene PP).
- Fittings dimension According to DIN 16962, part 6 to 9 (Pipe connections ang fittings for polypropylene PP) injection moulded fittings, The dimensions tolerance up to ±3mm and we reserve the right to modify dimensions without previous notice.

UTILIZATION

- The system of Piping of PP-R, as described in this catalogue,. Has primarily been developped for application in the sanitary field for cold and hot water.
- This system can be applied as will in the industrial section.
- The pipe and fittings are dimensioned in a way to assure, according to actual results of long-term tests a utilisation of at least 50 years, based om max. 10 bar and a constant temperature of 70 degrees Celsius.
- Pipe are available in lenghts of 4 m.
- Plastic pipes and fittings of PP-R generally have all advantages which have been registered in all sections of industry and of installation technics. Most of all the excellent resistance of corrosion gives proof of an extensively long utilization of installation tubing in the building technic, without risk of damages known from metallic materials.
- Therefore PP-R as installation-material represents an excellent choice for piping of cold and hot water.

WELDING PROCEDURE

- The PP-R pipe work is coupled by socket fusion welding. The pipes and fittings are connected longitudinally overlapping.
- The heating of pipe ends and fitting faucets is done by a heating element with fitted bushes. After the necessary welding temperature is reached, the joining process is done.
- The pipe and fitting faucet diameters as well as the respective heated bush diameters are matched to build up the necessary pressure during the joining process.
- The heating element is electrically heated. It complies with DIN-DVS-2208 part 1 in construction and accuracy.

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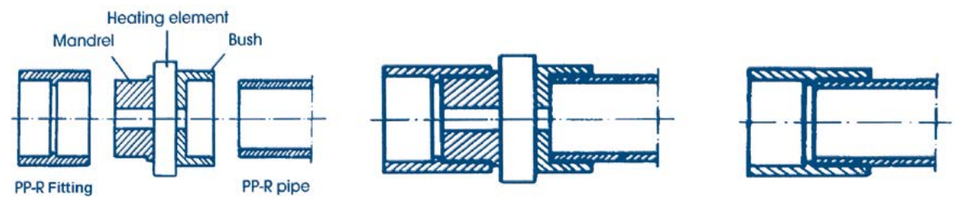
Figures (4a), (4b) and (4c) Schematically show the three welding process stages.



PREPARATIONS

Cut pipes square into sections. Thoroughly clean joint faces, the pipe end and fitting faucet with spirit and absorbent paper. Mark bush depth on the pipe.
Bring the heating element to 260ºC. Check the set temperature before the welding process.
Temperature tolerance ± 10ºC.
The heating element should have an integrated thermometer; otherwise the temperature of the heating element must be controlled by an appropriate measuring device.
Note: Do not start heating the joint parts before the heating temperature is a 260ºC.
The mandrel and bush must be clean and have to be purified before each following welding process.

WELDING

Push the pipe first and fitting quickly and axially up to the stop of the mandrel and the marked insertion depth respectively and keep them fast without torsion. The heating of the joint faces is done according to the (Table 5a) after the end of the heating period pull the pipe and fitting abruptly from the heating element and joint them immediately axially aligned and without torsion.
In doing so, mind the correct insertion depth see (Table 5a).
The pipe must be pushed in up to marked insertion depth of the push bottom. We recommend fixing the tow joint parts again for a certain time (approximately the heating period) see (Table 5a).
Note:Do not expose the welded joint to mechanical stress but after expiration of the cooling period.
Standard values for socket fusion welding at a room temperature of 20 ºC. With a room temperature below + 5º C the heating phases should be increased by up to 100%

06

INSTALLATION TRANSPORT & STORAGE

INNOVATIVE DESIGN AND SUPERIOR QUALITY

INSTALLATION

Reliability of BetaTherm pipe installation depend on pipe or fitting joints as well as the material used in their production. In the polypropylene random copolymer sanitary system, pipe and fittings are manufactured from the same material and results in homogeneous joints.

1 Fusion welded joints

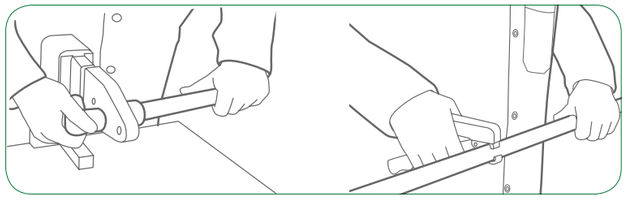
2 Electro fusion welding realised by the use of electro fusion of fittings.

3 Threaded fitting and pipe connections are similar to the conventional galvanized steel pipe system.

4 Butt welding and socket welding made by heating the socket and pipe ends by electrical heating elements.

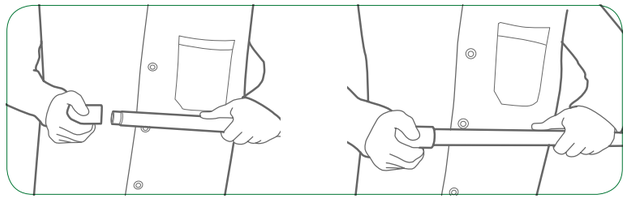
electro fusion technique is more expensive and socket welding being the most practical and economical method has been widely accepted and applied. With the above mentioned welding techniques very releasable joints are obtained. The welded joints are strong as the pipe it self. In the tensile test of a joint, the pipe may break before the socket welded joint.

MAKING SOCKET WELDED JOINTS



1-PREPARING FOR WELDING

Pipes are measured and cut to the required length.
Cutting should be perpendicular to the pipes axis (900).
Outer corner of pipes are rounded - off by a file and inner edges are rounded – off by using a knife.
The surfaces to be welded should be cleaned by alcohol.
The socket depth of the welding distance should be marked to the end of pipe. (Previous image)
Welding machine is connected to power and temperature is set to 260 0C .
The red light is on during warming up and when the light is off, the welding machine is ready for welding.
The socket heater and pipe heater also must be clean and free of dirt and oil.



2-WELDING

The pipe end and the socket of fitting are pushed to heaters in axial direction.
Pipe and fitting should be heated simultaneously.
At the end of heating period fitting and pipe end are separated from the heating elements and quickly joined together in axial direction. During joining, the pipe end should not be

Pipe Diameter Ø	Heating Sec.nn	Jointing Sec.j	Cooling Min
16	7	4	2
20	7	4	2
25	7	4	2
32	8	6	4
40	12	6	4
50	18	6	4
63	24	8	6
75	30	8	6
90	40	8	6

-INSTALLATION TEST

Each network to be used must be tested in accordance with the existing standards before being installed finally.
The BetaTherem Thermo pipe system must correspond to the standard DIN 1988 which specifies the pressure test up to 20 bars.
After the final test, the liquid may be carried through after a minimum of 60 minutes.

Duration - 30 Minutes

PRELIMINARY TEST

Includes filling and air release in the high point of the network, the pressure of 20 bars is to be reset every 15 minutes during the wh BetaTherm ole preliminary test.
The control of the eventual losses (Especially for the threaded joints) and the final pressure which is acceptable with the decrease of 0,3bar.

Duration - 2 Hours

FINAL TEST

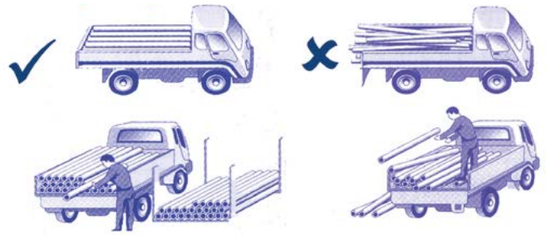
Include refilling the network with hydrostatic pressure of 20 bar which is not to change during the whole period of the final test by more than 0,3 bar.

APPROVAL TEST

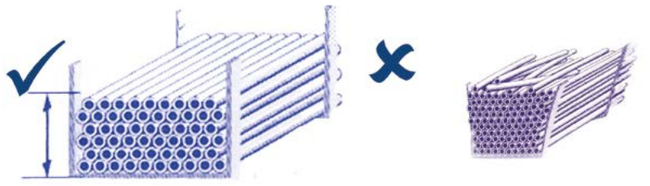
It is advisable that each tested network is to be certified and approved that the network has passed the hydrostatic test.
N.B. :

The variation of the external temperature may cause a decrease or increase of the pressure during the test : the variation of the 100 C can coincide to the variation of the pressure of 0,5/ 1 bar.
The pump of the test must be placed in the lowest point of the network, the manometer of measurement of the pressure must allow the variation control of 0,1 bar.
It is possible to carry out the network supervision also with the pressed air.

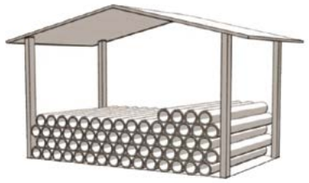
TRANSPORTING



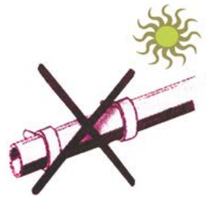
AVOIDING EXCESSIVE LOADS



AVOIDING IMPACTS



AVOIDING UV RADIATION

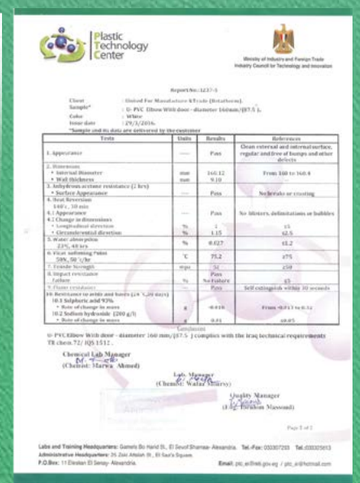


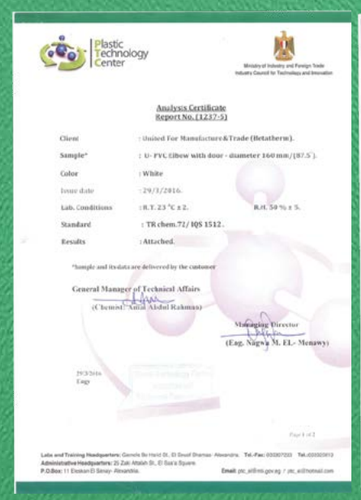
07

CERTIFICATES

INNOVATIVE DESIGN AND SUPERIOR QUALITY

CERTIFICATES



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