

- Polipropilen Borular ve Ekleme Parçaları

- *Polypropylene Pipes and Joints Equipment*

- Sert PVC Pis su Boruları ve Ek Parçaları

- *PVC Sewage Pipes and Spare Fittings*



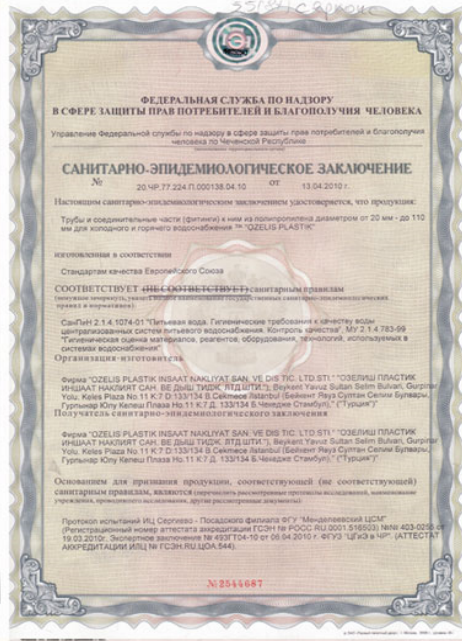
PRODUCT CATALOGUE

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TS 10762-2
EN ISO 15875-2



TS 9937



TS 11755



TS 275-1
EN ISO 1329-1



Borela PPRC Tubes and Fittings for Hot & Cold Water and Heating Installation Systems

Applied Norms

DIN 8077	Polypropylene (PP) pipes’ dimensions
DIN 8078	Polypropylene (PP) pipes’ general quality requirements and testing
DIN 16962 (6-9)	Pipe joints and elements for polypropylene (PP) pressure pipelines, types 1 and 2; injection moulded elbows for socket-welding, dimensions
DIN 16962	Pipe joints and components of polypropylene (PP) for pipes under pressure, - Part 5: General quality requirements, testing
DIN 1988	Drinking water line installation
DIN 4109	Sound insulation in building construction
DVS 2207 (11)	Welding regulations for plastic pipes
DVS 2208 (1)	Machines and devices for welding thermoplastic pipes
DIN 10266-1	Pipe threads where pressure tight joints are made on the thereads – Part 1: Taper external threads and parallel internal threads - Dimension, tolerances and designation
DIN 16928	Pipe connections and components - Pipes of thermoplastic materials; pipe joints, elements for pipes, laying; general directions
EN ISO 15874	Plastics piping systems for hot and cold water installations – polypropylene; Part 1: General, Part 2: Pipe, Part 3: Fittings, Part 5: Fitnes for purpose of the systems, Part 7: Guidance for the assessment of conformity

● Raw material:Polypropylene Random Copolimer (PPR - Type 3)

Polypropylene Random Copolimer (PPR - Type 3) is widely used in hot water, floor- and radiator heating systems as well as in industrial liquid distribution systems. Most commonly, this material can be found in drinking water installations.

Borela pipes are produced using solely PPR-Type 3. PPR-Type 3 has several advantages over other materials: long duration, better flexibility, high resistance to pressure and heat, high molecular weight, low MFR, high acoustic and thermal insulation.

PPR-Type 3 is suitable for DIN 8078 and EN ISO 15874-1 standard.

The metal inserts used in the polypropylene fittings increase the reliability of the products. Borela's experience in brass fittings for more than 25 years results in high quality pipes with very reliable metal inserts.

Physical Properties

Properties	Testing Methods	Unit	Values
Density, at 23 C°	ISO 1183	g/cm3	0,9
Melt flow index (MFI)			
MFI 190 C°/5 kg	ISO 1133	g/10 min	<0,8
MFI 230 C°/2, 16 kg	ISO 1133	g/10 min	<0,5
Thermal conductivity at 23C°	DIN 52612	W/m.K	0,23

Thermal Properties

Properties	Testing Methods	Unit	Values
Melting point	DSC	C°	146
Subjective heat	Calorimeter		1,73
Coefficent of linear expansion		Kj/kgK	0,15
Deflection temperature under load	ASTM D 696	mm/m(C°)	
1,8 N/mm2	ISO 75A-1, -2	C°	44
0,45 N/ mm2	ISO 75B-1, -2	C°	72
Brittleness temperature	ASTM D 746	C°	-13
VICAT softening point	ASTM D 1525		
(1 kg)	ISO 306	C°	130
(5 kg)	DIN 53460	C°	70

Mechanical Properties

Properties	Testing Methods	Unit	Values
Yield strength (23 °C) At 50 mm/min At 100 mm/min	ISO 527-1,-2 DIN 53455	N/mm2 N/mm2	25 27
Elongation at yield (23 °C) At 50 mm/min At 100 mm/min		% %	12 13
Strength (23°C) At 50 mm/min At 100 mm/min		N/mm2 N/mm2	34 33
Elongation at break 23 °C At 50mm/min At 100mm/min		% %	>500 >500
Flexural modulus at 23 °C	ASTM D 790	N/mm2	800
Stiffness modulus, torsion test at23°C	DIN 53447	N/mm2	185
Hardness (shore D)	ASTM D 2240 ISO 868 DIN 53505		60
Charpy impact strength (notched) at 23 °C at 0 °C	DIN 53453	kJ/ m2 kJ/ m2	15 5
Charpy impact strength (unnotched) at 23 °C (0 °C)	DIN 53453	kJ/ m2 kJ/ m2	No break

Pipe Dimension-PN 20 According to DIN 8077

Outer Diameter mm	Diameter Tolerance mm	Wall Thickness m.	Thickness Tolerance mm	Approx. Weight kg/m
20	+0,3	3,4	+0,5	0,170
25	+0,3	4,2	+0,6	0,258
32	+0,3	5,4	+0,7	0,415
40	+0,4	6,7	+0,8	0,642
50	+0,5	8,3	+1,0	0,992
63	+0,6	10,5	+1,2	1,580
75	+0,7	12,5	+1,4	2,245
90	+0,9	15,0	+1,7	3,227
110	+1,1	18,3	+2,0	4,812

Operating Conditions (S=2,5 SDR=6)
(PN 20)

Temperature (°C)	Life (years)	Pressure (bar)
20	50	25,7
40	50	18,3
60	50	12,9
70	50	8,5
80	25	6,5
95	5	5,2

Pipe Dimension-PN 16 According to DIN 8077

Outer Diameter mm	Diameter Tolerance	Wall Thickness (m.)	Thickness Tolerance	Approx. Weight kg/m
0,170	+0,3	3,4	+0,5	0,170
0,258	+0,3	4,2	+0,6	0,258
0,415	+0,3	5,4	+0,7	0,415
0,642	+0,4	6,7	+0,8	0,642
0,992	+0,5	8,3	+1,0	0,992
1,580	+0,6	10,5	+1,2	1,580
2,245	+0,7	12,5	+1,4	2,245
3,227	+0,9	15,0	+1,7	3,227
4,812	+1,1	18,3	+2,0	4,812

Operating Conditions (S=3,2 SDR=7,4) (PN 16)

Temperature (°C)	Life(years)	Pressure (bar)
20	50	20,4
40	50	14,5
60	50	10,2
70	50	6,7
80	25	5,1
95	5	4,1

Operating Conditions (S=3,2 SDR=7,4) (PN 16)

Outer Diameter mm	Diameter Tolerance mm	Wall Thickness m.	Thickness Tolerance m.	Approx. Weight kg/m
20	+0,3	1,9	+0,3	0,107
25	+0,3	2,3	+0,4	0,158
32	+0,3	2,9	+0,4	0,240
40	+0,4	3,7	+0,5	0,401
50	+0,5	4,6	+0,6	0,605
63	+0,6	5,8	+0,7	0,960
75	+0,7	6,8	+0,8	1,360
90	+0,9	8,2	+1,0	1,960
110	+1,1	10,0	+1,2	3,002

Operating Conditions (S=5 SDR=11) (PN 10)

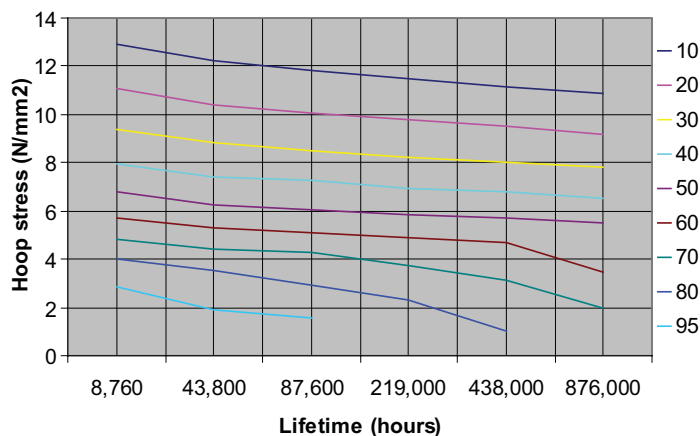
Temperature (C°)	Life(years)	Pressure (bar)
20	50	12,9
40	50	9,2
60	50	6,4
70	50	4,2
80	25	3,2
95	5	2,6

Fitting Dimension-PN25 According to DIN 8078 (S=2, SDR=5)

Nominal Diameter (Ød)	Wall Thickness (mm)	Thickness Tolerance (mm)
20	4,1	+0,6
25	5,1	+0,7
32	6,5	+0,8
40	8,1	+1,0
50	10,1	+1,2
63	12,7	+1,4
75	15,1	+1,7
90	18,1	+2,0
110	22,1	+2,3

Operating Life According to DIN 8077 (SF=1.5 PP-R 80)

Temperature C°	Operation Life	Series (S)							
		20	16	12,5	8,3	5	3,2	2,5	2
		Standard Dimension Rate (SDR)							
		41 PN2,5	33 PN3,2	26 PN4	17,6 PN6	11 PN10	7,4 PN16	6 PN20	5 PN25
pressure (bar)									
20	1	3,7	4,7	5,9	9,0	15,0	23,7	29,9	37,7
	5	3,5	4,4	5,6	8,4	14,1	22,3	28,1	35,4
	10	3,4	4,3	5,4	8,2	13,7	21,7	27,4	34,5
	25	3,3	4,1	5,2	7,9	13,2	21,0	26,4	33,3
	50	3,2	4,0	5,1	7,7	12,9	20,4	25,7	32,4
	100	3,1	3,9	5,0	7,5	12,5	19,9	25,0	31,5
30	1	3,2	4,0	5,0	7,6	12,7	20,2	25,4	32,0
	5	3,0	3,7	4,7	7,2	11,9	18,9	23,8	30,0
	10	2,9	3,6	4,6	7,0	11,6	18,4	23,2	29,2
	25	2,8	3,5	4,4	6,7	11,2	17,7	22,3	28,1
	50	2,7	3,4	4,3	6,5	10,9	17,2	21,7	27,4
	100	2,6	3,3	4,2	6,3	10,6	16,8	21,1	26,6
40	1	2,7	3,4	4,3	6,5	10,8	17,1	21,6	27,2
	5	2,5	3,2	4,0	6,0	10,1	16,0	20,2	25,4
	10	2,4	3,1	3,9	5,9	9,8	15,5	19,6	24,7
	25	2,3	2,9	3,7	5,6	9,4	15,0	18,8	23,7
	50	2,3	2,9	3,6	5,5	9,2	14,5	18,3	23,1
	100	2,2	2,8	3,5	5,3	8,9	14,1	17,8	22,4
50	1	2,3	2,8	3,6	5,5	9,1	14,5	18,2	23,0
	5	2,1	2,7	3,4	5,1	8,5	13,5	17,0	21,4
	10	2,0	2,6	3,3	4,9	8,2	13,1	16,5	20,8
	25	2,0	2,5	3,1	4,7	7,9	12,6	15,9	20,0
	50	1,9	2,4	3,0	4,6	7,7	12,2	15,4	19,4
	100	1,8	2,3	2,9	4,5	7,5	11,8	14,9	18,8
60	1	1,9	2,4	3,0	4,6	7,7	12,2	15,4	19,4
	5	1,8	2,2	2,8	4,3	7,1	11,3	14,3	18,0
	10	1,7	2,2	2,7	4,1	6,9	11,0	13,9	17,5
	25	1,6	2,1	2,6	4,0	6,6	10,5	13,3	16,7
	50	1,6	2,0	2,5	3,8	6,4	10,2	12,9	16,2
70	1	1,6	2,0	2,5	3,9	6,5	10,3	12,9	16,3
	5	1,5	1,9	2,4	3,6	6,0	9,5	12,0	15,1
	10	1,4	1,8	2,3	3,5	5,8	9,2	11,6	14,6
	25	1,2	1,5	2,0	3,0	5,0	8,0	10,0	12,7
	50	1,0	1,3	1,7	2,5	4,2	6,7	8,5	10,7
80	1	1,3	1,7	2,1	3,2	5,4	8,6	10,8	13,7
	5	1,2	1,5	1,9	2,9	4,8	7,6	9,6	12,1
	10	1,0	1,2	1,6	2,4	4,0	6,4	8,1	10,2
	25	0,8	1,0	1,2	1,9	3,2	5,1	6,5	8,1
95	1	0,9	1,2	1,5	2,3	3,8	6,1	7,6	9,6
	5	0,6	0,8	1,0	1,5	2,6	4,1	5,2	6,5
	(10) ¹⁾	(0,5)	(0,6)	(0,8)	(1,3)	(2,2)	(3,4)	(4,3)	(5,5)



Cassification of service conditions

Application class	Design temperature TD °C	Time at TD years	T _{max} °C	Time at T _{max} years	T _{max} °C	Time at T _{max} h	Typical field of application
1	60	49	80	1	95	100	Hot water supply (60°C)
2	70	49	80	1	95	100	Hot water supply (70°C)

Chemical Resistance

Polypropylene has a very high chemical resistance as a polymer.

The following table lists the chemical resistance of PPR pipe and fittings according to DIN 8078. Since chemical resistance depends on factors such as chemical composition, its concentration and temperature, the table below gives chemical resistance for three different temperatures and different concentrations.

The below abbreviations are used in the table:

W.s.	water solution
S.s.	saturated solution
R	resistant
L	limited resistant
NR	nonresistant
-	insufficient information

Compatibilities reported on the table are valid for PP-R not submitted to mechanical stresses.

Products	Solution	Concentration %	Temperature		
			20°C	60°C	100°C
Accumulator acid			r	r	
Acetic glacial acid		100	r	rr	n
Acetic acid	w.s.	50	r		
Acetic acid	w.s.	10	r		
Acetic anhydride		100	r	rr	
Acetone		100	r	r	
Acrylonitrile		100	rr	r	
Alum	w.s.	All	r	r	
Ammonia	w.s.	High	r	r	
Ammonia	w.s.	10	r	r	
Ammonia	gas	100	r	r	
Ammonium acetate	w.s.	All	r	r	r
Ammonium carbonate	w.s.	All	r	r	
Ammonium chloride		All	r	r	r
Ammonium metaphosphate		s.s	rr	rr	rr
Ammonium nitrate	w.s.	All	r	r	r
Ammonium phosphate	w.s.	All	r	r	r
Ammonium sulphate		s.s	rr	rr	rr
Ammonium bicarbonate		s.s	rr	rr	
Animal cooking oil			r	rr	
Anti-freeze car			r	r	
Aqua regia			r	n	
Barrium chloride		All			

Products	Solution	Concentration %	Temperature		
			20°C	60°C	100°C
Beer			r		
Benzaldehyde			r	r	
Benzaldehyde	w.s.	s.s.	r	r	r
Benzene			rr	n	
Benzoic acid	w.s.	s.s.	r	r	v.rr
Benzoyl chloride		100	n		
Bitter almonds fragrance			r		
Bleach	w.s.	12.50%	rr	rr	
Borax	w.s.				
Boric acid		100	r	r	
Boric acid	w.s.	s.s.	r	r	
Brandy			r		
Bromine	liquids	100	n		
Bromine	vapour	High	n	n	
Bromine	vapour	Low	n	n	
Bromine water		s.s	n	n	
Butane	liquids	100	r		
Butane	gas	100	r	r	
Butter			r	r	
Butyl alcohol		100	r	r	
Calcium nitrate	w.s.	s.s.	r	r	
Camphor			r		
Carvon tetrachloride		100	rr	n	
Chlorine	liquids	100	n		
Chlorine(dry)	gas	100	n	n	
Chlorine(wet)	gas	10	rr	n	

Products	Solution	Concentration	Temperature		
		%	20°C	60°C	100°C
Cholorosulphonic		100	n	n	
Chloroform		1000	rr	n	
Chromic acid	w.s	s.s.	r		
Chroomium (3) salts					
Chroomium (6) salts					
Citric acid	w.s	ss	r	r	r
Cocoa			r	r	rr
Cod liver oil			r		
Cresol		100	r	rr	
Cresol	w.s	s.s	r	rr	
Cresol oil			r		
Cyclohexane		100	r		
Cycloexanol		100	r	v.rr	
Cycloexanon		100	r	n	
Decahydronaphtalene		100	rr	n	n
Dioxan		100	r	rr	n
Distilled watter		100	r	r	n
Engine oil			r	rr	
Ethers		100	r	rr	
Ethyl alchol	w.s.	100	r		
Ethyl alchol	w.s.	96	r	r	
Ethyl alchol	w.s.	50	r	r	
Ethyl alchol(denatured)	s.s	10	r	r	
Ethyl clorides		100	n		
Ethylene chlorides		100	rr	rr	
Ethylene tetraclorine		100	rr	n	
Products	Solution	Concentration %	Temperature		
			20°C	60°C	100°C
Formaldehede		40	r	r	
Formaldehede		30	r	r	
Formaldehede		10	r	r	
Formic acid		98	r	rr	
Formic acid		90	r		
Formic acid		50	r	r	
Formic acid		10	r	r	r
Fruit-juice			r	r	
Fumuc sulfurric aci			n	n	n
Galvanic solutions			r	r	
Gleycerol		100	r	r	
Gleycerol	w.s.	High	r	r	
Gleycerol	w.s.	Low	r	r	r
Glycol		100	r	r	
Glycol	w.s.	High	r	r	
Glycol	w.s.	Low	r	r	rf
Heptan		100	r	rr	
Hexan		100	r	rr	
Honey			r	r	
Hydrobromic acid		High	r	r	
Hydrobromic acid		10	r	r	
Hydrofluoric acid		40	r	r	
Hydrrogen peroxide water	w.s.	30	r	rr	
Hydrrogen peroxide water	w.s.	10	r	r	
Hydrrogen peroxide water	w.s.	3	r	r	r
ink				r	
Products	Solution	Concentration %	Temperature		
			20°C	60°C	100°C
Isooctane		100	r	rr	
Lactic acid	w.s.	90	r	r	
Lactic acid	w.s.	50	r	r	
Lactic acid	w.s.	10	r	r	r
Lacual water		100	r	r	r
Limestone			r	r	r
Linseed oil			r	r	
Mercury			r	r	
Mercury salts		100			
Methyl alchol		50	r	r	
Methyl alchol	w.s.	100	r	r	
Methyl chloride		100	rr		
Methym ethyl ketone		100	r	rr	
Methylene diformmammyde			r		
Milk			r	r	
Mineral water			r	r	
Naphta			r	rr	
Napthalene		100	r		
Nitric acid		50	rr	n	
Nitric acid		25	r	r	
Nitric acid		10	r	r	
Nitro benzene		100	rr	rr	
Normal gasoline			rr	n	
Oil			n	n	

Products	Solution	Concentration	Temperature		
		%	20°C	60°C	100°C
Oleic acid		100	r		
Olive oil			r	r	
Oxalic acid	w.s.	s.s.	r	r	r
Ozone		0.5ppm	rr	rr	
Paraffine		100	r	r	n
Petroleum		100	r	rr	
Phenylamine			r	rr	
Phenylmethyllketone		100	rr	rr	
Phosphoric acid	w.s.	s.s.	r	rr	
Phosphoric acid	w.s.	50	r	r	
Phosphoric acid	w.s.	10	r	r	r
Potassium carbonete	w.s.	s.s.	r	r	
Potassium chlorete	w.s.	s.s.	r	r	
Potassium dichromate	w.s.	s.s.	r	rr	r
Potassium hydroxide		50	r	r	r
Potassium hydroxide		25	r	r	
Potassium hydroxide		10	r	r	
Potassium hypochlorite	w.s.	5	r	r	
Potassium iodide	w.s.	s.s.	r		
Potassium nitrate	w.s.	s.s.	r	r	
Potassium sulphate	w.s.	s.s.	r	r	
Prropane	wgas	100	r	r	r
Propane	liquide	100	r	r	r
Pyridine		100	r	r	r
Pyridine			r	rr	
Products	Solution	Concentration %	Temperature		
			20°C	60°C	100°C
Sea water			r	r	r
Shampoo			r	r	
Silicone oil			r	rr	
Soap solution		s.s.	r	r	
Soap solution		10	r	r	r
Sodium bicarbonate	w.s.	s.s.	r	r	r
Sodium carbonete	w.s.	10	r	r	
Sodium carbonete	w.s.	5	r		r
Sodium chlorate	w.s.	25	r	r	
Sodium chlorite	w.s.	s.s.	r	r	r
Sodium chloride	w.s.	s.s.	r	r	r
Sodium disulphite	w.s	100	r	r	
Sodium hidroxide		50	r	r	
Sodium hidroxide		25	r	r	
Sodium hidroxide		10	r	r	
Sodium hidroxide		s.s.	r	r	
Sodium nitrate	w.s.	s.s.	r	r	
Sodium nitrite	w.s.	s.s.	r		
Sodium perborate	w.s.	s.s.	r	r	r
Sodium phosphate	w.s.	s.s.	r	r	r
Sodium sulphate	w.s.	s.s.	r	r	r
Sodium sulphite	w.s.	s.s.	r	r	
Sodium coffee			r	r	r
Say-bean oil			r	rr	
spirits			r		
Stannus chloride	w.s.	s.s.	r	r	
Starch		All	r	r	
Stearic acid		100	r		

Products	Solution	Concentration %	Temperature		
			20°C	60°C	100°C
Succinic acid	w.s.	s.s.	r	r	
Sulphocromic acid			n	n	
sulphur		100	r	r	r
Sulphur acid		96	r	rr	
Sulphur acid		50	r	r	
Sulphur acid		25	r	r	
Sulphur acid		10	r	r	r
Sulphurous annhydride		Low	r	r	
Supher gasoline			rr	n	
Syntetic deterfive			r	r	r
Tar			r	rr	
Tartanic acid	w.s.	s.s.	r	r	
Tartanic acid		10	rr	rr	
Tetrahydrrrofurane		100	rr	n	
tetrahydronaphtalane		100	rr	n	
Thea	.		r	r	rr
Thiophene		100	rr	n	
Toluen		100	rr	n	
Tomatoes-juice			r	r	
Tooth paste			r	r	
Trichlorcethylene		100	rr	n	
Turpentine			n	n	n
Turpentine oil			rr	n	
Two stroke engine oil		rr	rr		
typwriter oil		r	rr		
Urea	w.s.	s.s.	r	r	
Vaseline		r	rr		
Vegetable cooking oil		r	rr		
Water		r	r	r	
Whipped cream		r			
Whisky		r			
Xylene or xylol		rr	n		

Polypropylene Tubes with Aluminum Foil

This pipe consists of three layers: the pipe and the coat are made of PPR-Type 3 with an aluminum foil inbetween. The foil is attached with wrapping welding and by using a special PP film to establish the mechanical connection between the aluminum foil and the PP-layer.

- Characteristics
- hygenic
 - resistance to chemicals
 - high resistance to pressure and heat
 - low heat loss
 - low pressure loss due to the smoothness
 - low thermal expansion
 - oxygen impermeability
 - easy forming, installation and application

Technical Properties, Pipe Dimensions (S=2 SDR=5) (PN 25)

Inner Pipe		Aluminum	Outer Pipe	Outside layer
Outer Diameter mm	Wall Thickness mm	Thickness micron	Outer Diameter mm	Thickness mm
20	3,4	150	21,8	0,5
25	4,2	150	26,8	0,5
32	5,4	150	33,8	0,5
40	6,7	150	41,8	0,5
50	8,3	150	51,8	0,5
63	10,5	150	64,8	0,5
75	12,5	150	76,8	0,5
90	15,0	150	91,8	0,5
110	18,3	150	111,8	0,5

Technical Properties, Pipe Dimensions (S=2,5 SDR=6) (PN 20)

Inner Pipe		Aluminum	Outer Pipe	Outside layer
Outer Diameter mm	Wall Thickness mm	Thickness micron	Outer Diameter mm	Thickness mm
20	2,8	150	21,8	0,5
25	3,5	150	26,8	0,5
32	4,4	150	33,8	0,5
40	5,5	150	41,8	0,5
50	6,9	150	51,8	0,5
63	8,6	150	64,8	0,5
75	10,3	150	76,8	0,5
90	12,3	150	91,8	0,5
110	15,1	150	111,8	0,5

Operating Conditions (based on the first layer)
(S=2,5 SDR=6) (PN 20)

Temperature (C°)	Life(years)	Pressure (bar)
20	50	25,7
40	50	18,3
60	50	12,9
70	50	8,5
80	25	6,5
95	5	5,2

Operating Conditions (based on the first layer)
(S=2, SDR=5) (PN 25)

Temperature (C°)	Life(years)	Pressure (bar)
20	50	32,4
40	50	23,1
60	50	16,2
70	50	10,7
80	25	8,1
95	5	6,5

Polypropylene Tubes with Fiberglass

This pipe consists of three layers: the pipe and the coat are made of PPR-Type 3 with a fiberglass-mixed PPR in between.

Characteristics

- hygienic
- resistance to chemicals
- high resistance to pressure and heat
- low heat loss
- low pressure loss due to the smoothness
- low thermal expansion
- expansion:0,035 mm/mK
- lighter than standard PP-r pipes
- the heat conductivity is less than alu-foiled PP-r pipes and same as PP-r standard pipes
- higher discharge related to the bigger inner diameter

Technical Properties, Pipe Dimensions (S=3,2 SDR=7,4) PN 20

Outer Diameter mm	Diameter Tolerance mm	Wall thickness mm	Thickness Tolerance mm	Approx Weight Kg/m
20	+0,3	2,8	+0,4	0,155
25	+0,3	3,5	+0,5	0,230
32	+0,3	4,4	+0,6	0,380
40	+0,4	5.5	+0,7	0,607
50	+0,5	6.9	+0,8	0,910
63	+0,6	8.6	+1,0	1,440
75	+0,7	10.3	+1,2	2,040
90	+0,9	12.3	+1,4	2,905
110	+1,1	15.1	+1,7	4,380

Operating Conditions PN 20

Temperature (C°)	Life(years)	Pressure (bar)
20	50	25,7
40	50	18,3
60	50	12,9
70	50	8,5
80	25	6,5
95	5	5,2

Technical Properties, Pipe Dimensions (S=2,5 SDR=6) PN 25

Outer Diameter mm	Diameter Tolerance mm	Wall thickness mm	Thickness Tolerance mm	Approx Weight Kg/m
20	+0,3	3,4	+0,5	0,180
25	+0,3	4,2	+0,6	0.270
32	+0,3	5,4	+0,7	0.415
40	+0,4	6,7	+0,8	0,665
50	+0,5	8,3	+1,0	1,030
63	+0,6	10,5	+1,2	1,620
75	+0,7	12,5	+1,4	2,310
90	+0,9	15,0	+1,6	3,326
110	+1,1	18,3	+2,0	4,950

Operating Life According to DIN 8078 (PN 25)

Temperature (C°)	Life(years)	Pressure (bar)
20	50	32,4
40	50	23,1
60	50	16,2
70	50	10,7
80	25	8,1
95	5	6,5

Oxygen Impermeability

Oxygen penetration reduces the system life by corroding the radiator and the heater device. Oxygen diffusion from the air is one of the most common ways of oxygen penetrating into the system. Plastic pipes do not prevent this diffusion. The aluminum foil increases the life of the radiator and the heater by acting as a barrier.

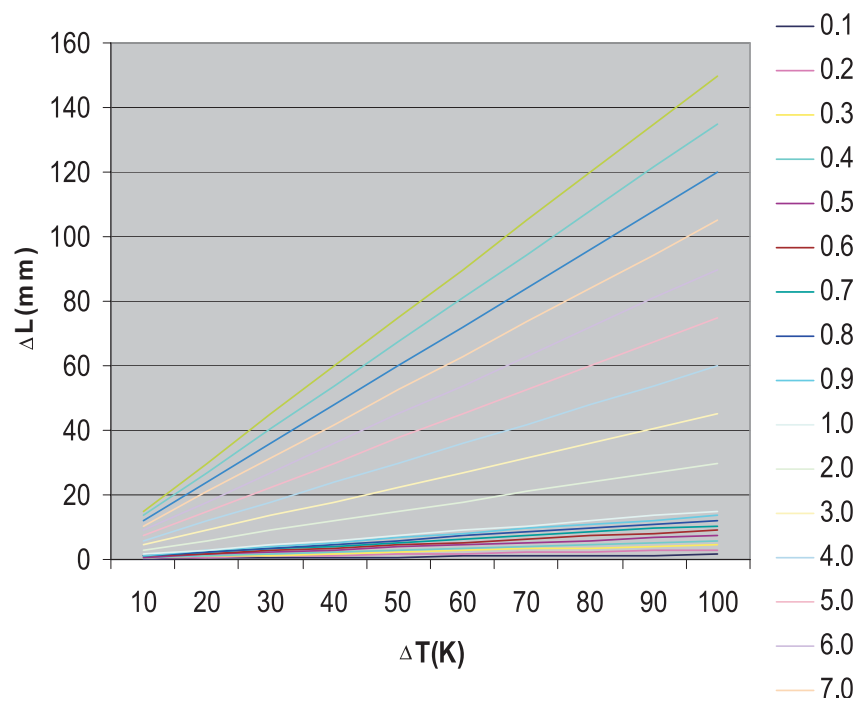
Thermal Expansion in PP-R Tubes

The polypropylene pipes have an expansion coefficient that is much higher than the metal pipes. It is critical to take this characteristic into consideration during installations.

Calculation of thermal expansion is as follows:

$\Delta L = L \cdot \Delta T \cdot \alpha$
where
 ΔT = variation of working temperature in Kelvin degrees (K) or Celsius (°C)
 ΔL = variation of length in mm
L = initial length of the pipe in m
 α = coefficient of linear thermal expansion. The value of α is 1,5 * 10-4 (K-1) for PPR tubes.

Pipe length (m)	Temperature variation ΔT in K									
	10	20	30	40	50	60	70	80	90	100
	Linear expansion ΔL (mm)									
0.1	0,15	0,30	0,45	0,60	0,75	0,90	0,90	1,20	1,35	1,50
0.2	0,30	0,60	0,90	1,20	1,50	1,80	1,80	2,40	2,70	3,00
0.3	0,45	0,90	1,35	1,80	2,25	2,70	2,70	3,60	4,05	4,50
0.4	0,60	1,20	1,80	2,40	3,00	3,60	3,60	4,80	5,40	6,00
0.5	0,75	1,50	2,25	3,00	3,75	4,50	4,50	6,00	6,75	7,50
0.6	0,90	1,80	2,70	3,60	4,50	5,40	5,40	7,20	8,10	9,00
0.7	1,05	2,10	3,15	4,20	5,25	6,30	6,30	8,40	9,45	10,50
0.8	1,20	2,40	3,60	4,80	6,00	7,20	7,20	9,60	10,80	12,00
0.9	1,35	2,70	4,05	5,40	6,75	8,10	8,10	10,80	12,15	13,50
1.0	1,50	3,00	4,50	6,00	7,50	9,00	10,50	12,00	13,50	15,00
2.0	3,00	6,00	9,00	12,00	15,00	18,00	21,00	24,00	27,00	30,00
3.0	4,50	9,00	13,50	18,00	22,50	27,00	31,50	36,00	40,50	45,00
4.0	6,00	12,00	18,00	24,00	30,00	36,00	42,00	48,00	54,00	60,00
5.0	7,50	15,00	22,50	30,00	37,50	45,00	52,50	60,00	67,50	75,00
6.0	9,00	18,00	27,00	36,00	45,00	54,00	63,00	72,00	81,00	90,00
7.0	10,50	21,00	31,50	42,00	52,50	63,00	73,50	84,00	94,50	105,00
8.0	12,00	24,00	36,00	48,00	60,00	72,00	84,00	96,00	108,00	120,00
9.0	13,50	27,00	40,50	54,00	67,50	81,00	94,50	108,00	121,50	135,00
10.0	15,00	30,00	45,00	60,00	75,00	90,00	105,00	120,00	135,00	150,00



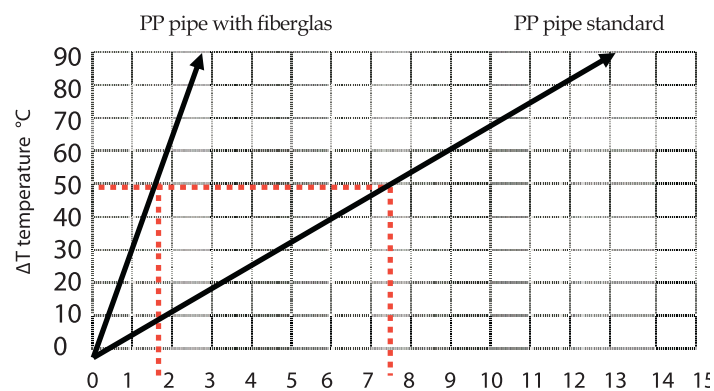
Thermal Expansion in PP-R Tubes with Aluminum Foil

Polypropylene pipes with an aluminum foil have lower expansion coefficients.

The expansion is calculated as follows: $\Delta L = L \cdot \Delta T \cdot \alpha$

The approximate value for α in PP-R tubes with alu foil is $0,3 \cdot 10^{-4} \text{ (K}^{-1}\text{)}$.

Pipe length (m)	Temperature variation ΔT in K									
	10	20	30	40	50	60	70	80	90	100
	Linear expansion ΔL (mm)									
0.1	0,03	0,06	0,09	0,12	0,15	0,18	0,21	0,24	0,27	0,30
0.2	0,06	0,12	0,18	0,24	0,30	0,36	0,42	0,48	0,54	0,60
0.3	0,09	0,18	0,27	0,36	0,45	0,54	0,63	0,72	0,81	0,90
0.4	0,12	0,24	0,36	0,48	0,60	0,72	0,84	0,96	1,08	1,20
0.5	0,15	0,30	0,45	0,60	0,75	0,90	1,05	1,20	1,35	1,50
0.6	0,18	0,36	0,54	0,72	0,90	1,08	1,28	1,44	1,62	1,80
0.7	0,21	0,42	0,63	0,84	1,05	1,26	1,47	1,68	1,89	2,10
0.8	0,24	0,48	0,72	0,96	1,20	1,44	1,68	1,92	2,16	2,40
0.9	0,27	0,54	0,81	1,08	1,35	1,62	1,89	2,16	2,43	2,70
1.0	0,30	0,60	0,90	1,20	1,50	1,80	2,10	2,40	2,70	3,00
2.0	0,60	1,20	1,80	2,40	3,00	3,60	4,20	4,80	5,40	6,00
3.0	0,90	1,80	2,70	3,60	4,50	5,40	6,30	7,20	8,10	9,00
4.0	1,20	2,40	3,60	4,80	6,00	7,20	8,40	9,60	10,80	12,00
5.0	1,50	3,00	4,50	6,00	7,50	9,00	10,50	12,00	16,50	15,00
6.0	1,80	3,60	5,40	7,20	9,00	10,80	12,80	14,40	16,20	18,00
7.0	2,10	4,20	6,43	8,40	10,50	12,60	14,70	16,80	18,90	21,00
8.0	2,00	4,80	7,20	9,60	12,00	14,40	16,80	19,20	21,60	24,00
9.0	2,70	5,40	8,10	10,80	13,50	16,20	18,90	21,60	24,30	27,00
10.0	3,00	6,00	9,00	12,00	15,00	18,00	21,00	24,00	27,00	30,00



Thermal Expansion in Polypropylene Pipes with Fiberglass

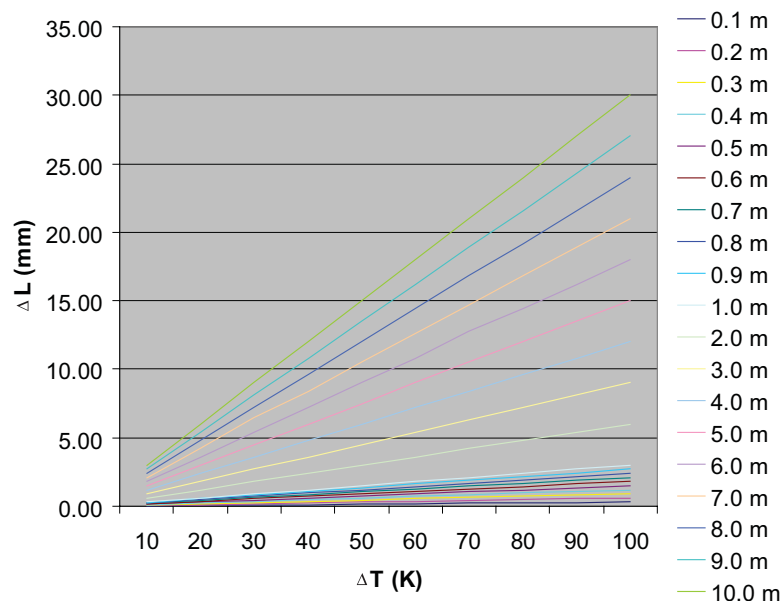
The polypropylene pipes with fiberglass have an expansion coefficient that is much higher than the metal pipes.

Calculation of thermal expansion is as follows:

$$\Delta L = L * \Delta T * \alpha$$

The value of α is $0,35 * 10^{-4} (K^{-1})$ for fiber pipes.

Pipe length (m)	Temperature variation ΔT in K									
	10	20	30	40	50	60	70	80	90	100
	Linear expansion ΔL (mm)									
0.1	0,03	0,07	0,10	0,14	0,17	0,21	0,24	0,28	0,31	0,35
0.2	0,07	0,14	0,21	0,28	0,35	0,42	0,49	0,56	0,63	0,70
0.3	0,10	0,21	0,31	0,42	0,52	0,63	0,73	0,84	0,94	1,05
0.4	0,14	0,28	0,42	0,56	0,70	0,84	0,98	1,12	1,26	1,40
0.5	0,17	0,35	0,52	0,70	0,87	1,05	1,22	1,40	1,57	1,75
0.6	0,21	0,42	0,63	0,84	1,05	1,28	1,47	1,68	1,89	2,10
0.7	0,24	0,49	0,73	0,98	1,22	1,47	1,71	1,96	2,20	2,45
0.8	0,28	0,56	0,84	1,12	1,40	1,68	1,96	2,24	2,52	2,80
0.9	0,31	0,63	0,94	1,26	1,57	1,89	2,20	2,52	2,83	3,15
1.0	0,35	0,70	1,05	1,40	1,75	2,10	2,45	2,80	3,15	3,50
2.0	0,70	1,40	2,10	2,80	3,50	4,20	4,90	5,60	6,30	7,00
3.0	1,05	2,10	3,15	4,20	5,25	6,30	7,35	8,40	9,45	10,50
4.0	1,40	2,80	4,20	5,60	7,00	8,40	9,80	11,20	12,60	14,00
5.0	1,75	3,50	5,25	7,00	8,75	10,50	12,25	14,00	15,75	17,50
6.0	2,10	4,20	6,30	8,40	10,50	12,80	14,70	16,80	18,90	21,00
7.0	2,45	4,90	7,35	9,80	12,25	14,70	17,15	19,60	22,05	24,50
8.0	2,80	5,60	8,40	11,20	14,00	16,80	19,60	22,40	25,20	28,00
9.0	3,15	6,30	9,45	12,60	15,75	18,90	22,05	25,20	28,35	31,50
10.0	3,50	7,00	10,50	14,00	17,50	21,00	24,50	28,00	31,50	35,00



Support Intervals

PP-R pipe SDR:6 – SDR:7.4 (PN20 – PN16)

Temperature $\Delta T(K)$	Pipe Diameter ϕd (mm.)								
	20	25	32	40	50	63	75	90	110
	Support Intervals in (cm.)								
20	60	70	90	100	120	140	150	160	180
30	60	70	90	100	120	140	150	160	180
40	60	70	80	90	110	130	140	150	170
50	60	70	80	90	110	130	140	150	170
60	50	60	70	80	100	110	120	140	160
70	50	60	70	80	90	100	110	120	140

PP-r Pipe with Aluminium Foil SDR:6 – SDR:7.4 (PN25 – PN20)

Temperature $\Delta T(K)$	Pipe Diameter ϕd (mm.)								
	20	25	32	40	50	63	75	90	110
	Support Intervals in (cm.)								
20	110	120	140	160	180	200	210	220	240
30	110	120	140	160	180	200	210	220	230
40	110	120	130	150	170	190	200	210	220
50	110	120	130	150	170	190	200	210	210
60	100	110	120	140	160	180	190	200	200
70	90	100	110	130	150	170	180	190	200

PP-r Pipe (SDR:11) PN10 Temperature of medium 20 C

Temperature $\Delta T(K)$	Pipe Diameter ϕd (mm.)								
	20	25	32	40	50	63	75	90	110
	Support Intervals in (cm.)								
20	60	70	90	100	120	140	150	160	180

PP-r Pipe with Fiberglass SDR:6 – SDR:7.4 (PN25 – PN20)

Temperature $\Delta T(K)$	Pipe Diameter ϕd (mm.)								
	20	25	32	40	50	63	75	90	110
	Support Intervals in (cm.)								
20	90	100	110	120	140	160	170	180	200
30	90	100	110	120	140	160	170	180	200
40	80	90	100	110	130	150	160	170	180
50	80	90	100	110	130	150	160	170	180
60	70	80	90	100	120	140	150	160	170
70	70	80	90	100	120	120	140	150	160

Welding Technique

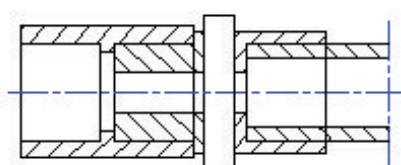
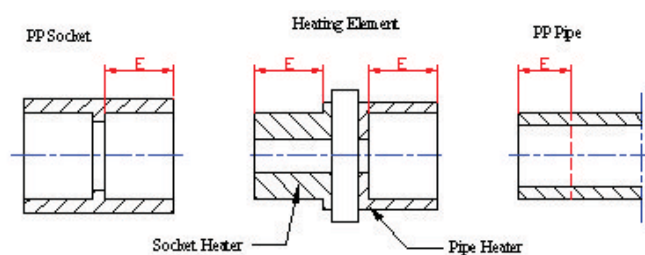
Welding takes only a few seconds. The quality of an installation depends on the tightness, stability and lifetime of its connections. When the welded joint cools down, it can be fully loaded.

PPRC tubes are joined using mainly two methods:

- threaded fitting and pipe connections
- fusion-welded joints. Fusion-welded joints can also be categorized into two methods. Electrofusion welding, which uses electrofusion fittings, is less practical and more expensive.
- Socket welding where electrical heating elements are used to heat the sockets and the pipe ends is the preferred method in Europe. The resulting joints are very reliable, and they are as strong as the pipe itself. The pipe may even break before the socket welded joint under tension.

After cutting the pipe perpendicularly, both the pipes and the fittings (these must be clean) are heated with the welding machine (generally up to $260\text{ C } \pm 10\text{ C}$) and they are joined without twisting. Since parts made of polypropylene create a homogenous connection, this process is safe.

Pipe Diameter mm	Heating Secs.	Joining Secs.	Cooling Time (minutes)	Welding Length (T)
20	7	4	2	16
25	7	4	3	18
32	8	6	4	20
40	12	6	4	22
50	18	6	5	26
63	24	8	6	29
75	30	10	8	32
90	40	11	8	38
110	50	12	8	42



Heating the socket and pipe-end

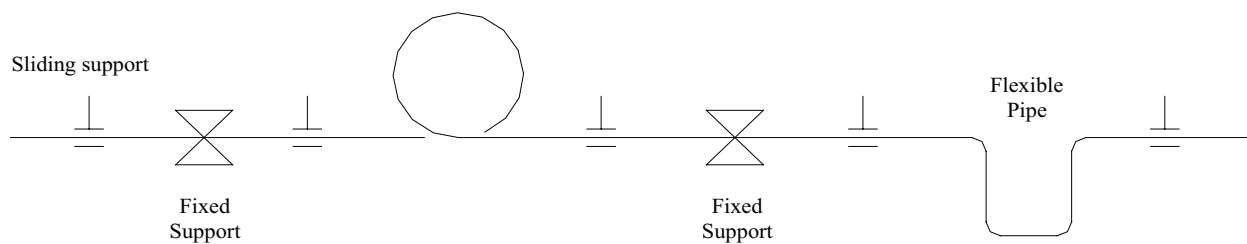
Diameter (mm.)	E (mm.)
20	15
25	17
32	19
40	22
50	24
63	28
75	32
90	38
110	42



Installation

Pipes can be installed under or above the floor and the plaster. The installation is very easy. However, one has to pay attention to the following simple points when installing polypropylene pipes:

Pipes have to discharge the radial and axial expansions: compensations shall be done using fixed points, supporting bracket sleeve (allowing pipe to slide).



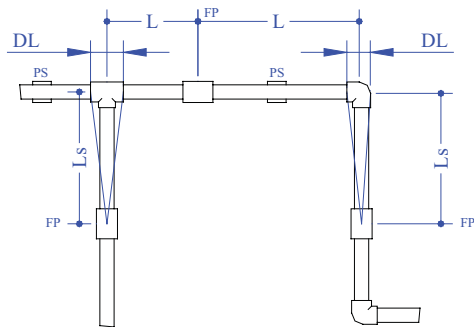
Accessories used to fix the pipes shall have a surface able to allow correct operation without causing damage to the pipe (scratches, cuts, etc. must be avoided.)

The pipes must be installed so that they can move freely in their axial direction. Fixed supports must not be installed at bending parts and the direction changes must be done in the pipe itself.

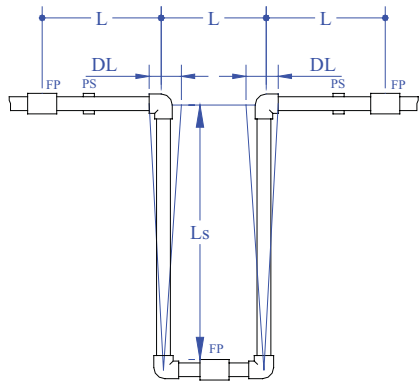
The flexibility of the installation is obtained by the free flexible pipe segment whose minimum length is calculated by the following formula:

$$L_s = C * \sqrt{d} * \Delta L$$

Some useful schemes:



Variation of direction and Tee branching



U compensation to be made when there is no other method to compensate for expansion in other ways

where;

- FP Fixed point
- PS Supporting bracket sleeve
- Ls Length of the flexible pipe segment (mm)
- ΔL Length of the pipe (mm)
- DL Expansion/contraction (mm)
- C Constant depending on the pipe material (15,0)

For every approximately 5 m section, one free flexible pipe unit is needed to protect against thermal expansion.
At pipe junctions, a bridge is used to crossover the pipes.

The bridges are available in sizes of Ø20, Ø25 Ø32 and Ø40.



Insulation

According DIN 1988 (2), PPRC tubes require less insulation compared to other types of pipes under the same conditions. Due to their thickness PN 20 pipes need less insulation. Nevertheless, in cold and hot climates some insulation is required against freezing and heat loss overheating. These are caused by factors such as sun light, rain, snow when the pipes are laid outside. Another advantage of the insulation layer is the protection

Pipe Outer Diameter	Available Thickness Acc. to HAVO $\lambda = 0.35 \text{ W / mK}$	Insulation Thickness in Ozelis Pipes	
		$\lambda = 0.35 \text{ W / mK}$	$\lambda = 0.4 \text{ W / mK}$
20	20 mm	18,2 mm	22,7 mm
25	30 mm	27,5 mm	34,7 mm
32	30 mm	27,3 mm	34,5 mm
40	40 mm	36,5 mm	46,1 mm
50	50 mm	45,7 mm	57,7 mm
63	63 mm	57,6 mm	71,9 mm
75	75 mm	66,5 mm	85,1 mm

● PP-r Ürünler / PP-r Products / ПП труба / منتجات ب پ ار



● Polipropilen Borular

- Polypropylene Tubes
- ПП труба
- أنابيب بولي بربيلن



PP BORU PN-20

PP TUBE PN-20 : ТРУБА PN 20 : 20- انابيب ب پ - 20

Code / Koli	Size / размер	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1601	20	100/4,00	0,168	0,728
1602	25	80/4,00	0,258	1,040
1603	32	40/4,00	0,417	1,922
1604	40	32/4,00	0,666	3,122
1605	50	20/4,00	1,005	4,788
1606	63	16/4,00	1,634	7,766
1307	75	12/4,00	2,266	11,536
1308	90	8/4,00	3,581	16,858
1309	110	4/4,00	5,272	27,308
1310	125	4/4,00	5,800	33

PP BORU PN-16

PP TUBE PN-16 : ТРУБА PN 16 : 16- انابيب ب پ - 16

Code / Koli	Size / размер	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1592	20	100/4,00	0,148	0,686
1593	25	80/4,00	0,219	0,988
1594	32	40/4,00	0,340	1,638
1595	40	32/4,00	0,548	2,600
1596	50	20/4,00	0,844	4,222
1597	63	16/4,00	1,340	6,474
1598	75	12/4,00	2,085	9,468
1599	90	8/4,00	2,750	14,328
1600	110	4/4,00	4,116	0,000

PP BORU PN-10

PP TUBE PN-10 : ТРУБА PN 10 : 10- انابيب ب پ - 10

Code / Koli	Size / размер	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1582	20	100/4,00	0,116	0,538
1583	25	80/4,00	0,152	0,738
1584	32	40/4,00	0,258	1,334
1585	40	32/4,00	0,414	2,156
1586	50	20/4,00	0,592	3,220
1587	63	16/4,00	0,985	5,418
1588	75	12/4,00	1,410	7,456
1589	90	8/4,00	2,015	13,262
1590	110	4/4,00	3,000	21,536



PP FOLYOLU BORU PN-25

PP TUBE ALU-FOL PN-25 : ТРУБА с фольгой Stabi PN 25 : 25- انابيب الفولي ب پ - 25

Code / Koli	Size / размер	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1770	20	100/4,00	0,234	1,478
1771	25	80/4,00	0,338	2,310
1772	32	40/4,00	0,509	3,468
1773	40	32/4,00	0,762	4,226
1774	50	20/4,00	1,293	7,150
1775	63	16/4,00	1,795	10,944
1776	75	12/4,00	2,536	20,636
1777	90	8/4,00	3,411	33,012
1778	110	4/4,00	5,168	45,392

PP FOLYOLU BORU PN-20

PP TUBE ALU-FOL PN-20 : ТРУБА с фольгой Stabi PN 20 : 20- انابيب الفولي ب پ - 20

Code / Koli	Size / размер	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1801	20	100/4,00	0,210	1,402
1802	25	80/4,00	0,308	1,852
1803	32	40/4,00	0,478	3,122
1804	40	32/4,00	0,687	3,802
1805	50	20/4,00	1,070	6,436
1806	63	16/4,00	1,574	9,846
1807	75	12/4,00	2,245	18,568
1808	90	8/4,00	3,059	29,712
1809	110	4/4,00	4,589	40,854

PP KAVİSLİ BORU

PP BRIDGE (CURVED) : Обвод PP : الانابيب المنحنية ب پ

Code / Koli	Size / диаметр	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1670	20	100/4,00	0,041	0,400
1671	25	50/4,00	0,065	0,594
1672	32	20/4,00	0,142	1,314
1316	40	25/4,00	0,246	2,164



PP FİBERGLASS BORU PN-25

ORANGEPIPE PN-25 : ТРУБА Fiber PN 25 (стекловолокно) : 25- انابيب ذات الالياف الزجاجية ب پ - 25

Code / Koli	Size / размер	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1782	20	100/4,00	0,178	1,534
1783	25	80/4,00	0,268	2,136
1784	32	40/4,00	0,449	3,602
1785	40	32/4,00	0,673	4,388
1786	50	20/4,00	1,070	7,428
1787	63	16/4,00	1,593	11,370
1788	75	12/4,00	2,334	21,438
1789	90	8/4,00	2,975	34,292
1790	110	4/4,00	5,090	47,154

PP FİBERGLASS BORU PN-20

ORANGEPIPE PN-20 : ТРУБА Fiber PN 20 (стекловолокно) : 20- انابيب ذات الالياف الزجاجية ب پ - 20

Code / Koli	Size / размер	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1791	20	100/4,00	0,164	1,444
1792	25	80/4,00	0,245	1,906
1793	32	40/4,00	0,396	3,212
1794	40	32/4,00	0,600	3,912
1795	50	20/4,00	0,908	6,624
1796	63	16/4,00	1,477	10,136
1797	75	12/4,00	2,006	19,110
1798	90	8/4,00	2,915	30,576
1799	110	4/4,00	4,380	42,042
1800	125	1/4,00	5,825	50,452

C KAVİSLİ BORU

PP BRIDGE (CURVED) : Обвод PP : الانابيب المنحنية ب پ

Code / Koli	Size / диаметр	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد	Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1311	20	200	0,025	0,242
1312	25	100	0,046	0,444
1313	32	60	0,0916	0,916

● Polipropilen Ekparçaları

● Polypropylene Fittings

● ПП часть

● القطع الإضافية للبولي بروبيلين



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DİRSEK 45°

ELBOW 45 : Угльник 45° BB : 45 النوع

Code / Kolu	Size / размер	ad1	E	L	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	السعر
1638	20	19	15	20	400	0,013	0,142
1639	25	24	17	23	200	0,022	0,252
1640	32	31	19	27	100	0,039	0,470
1371	40	39	22	31	60	0,075	0,790
1372	50	48,5	24	36	40	0,144	1,170
1373	63	61,5	28	42	20	0,262	2,450
1374	75	73,5	32	50	12	0,383	5,856
1375	90	88,5	38	60	10	0,489	6,586
1376	110	108,5	42	72	4	0,873	11,100



DİRSEK 90°

ELBOW 90 : Углон 90° BB : 90 النوع

Code / Kolu	Size / размер	ad1	E	L	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	السعر
1632	20	19	15	26	400	0,016	0,116
1633	25	24	17	30	200	0,024	0,140
1634	32	31	19	36	100	0,050	0,366
1635	40	39	22	43	60	0,090	0,606
1636	50	48,5	24	50,5	30	0,166	1,172
1637	63	61,5	28	62	16	0,296	2,196
1352	75	73,5	32	70	16	0,384	4,704
1353	90	88,5	38	80	4	0,647	7,316
1354	110	108,5	42	94	2	1,175	12,334



KUYRUKLU DİRSEK 45°

TAIL ELBOW 45 : Углон 45° HB : 45 النوع ذات الذنب أو

Code / Kolu	Size / размер	ad1	ad2	E	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	السعر
1381	20	19	20,5	15	300	0,021	0,158
1382	25	24	25,5	17	200	0,030	0,278
1383	32	31	32,5	19	100	0,007	0,250



KUYRUKLU DİRSEK 90°

TAIL ELBOW 90 : Углон 90° HB : 90 النوع ذات الذنب أو

Code / Kolu	Size / размер	ad1	ad2	E	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	السعر
1360	20	19	20,5	15	300	0,022	0,158
1361	25	24	25,5	17	200	0,033	0,200
1362	32	31	32,5	19	100	0,007	0,250



REDÜKSİYON MANŞON

REDUCING FEMALE COUPLING : Муфта редукционная BP : لحد ماصون

Code / Kolu	Size / размер	ad1	E	L	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	السعر
1421	25/20	24	17	33	300	0,016	0,168
1422	32/20	31	19	37	200	0,027	0,194
1423	32/25	31	19	42	200	0,027	0,194
1424	40/20	39	22	46	150	0,041	0,358
1425	40/25	39	22	53	150	0,038	0,358



MANŞON

COUPLING : Муфта : منشون

Code / Kolu	Size / размер	ad1	E	L	Unit Pack / пакет номер	Unit Weight / удельный вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	السعر
1608	20	19	15	33	500	0,011	0,092
1609	25	24	17	37	300	0,018	0,132
1610	32	31	19	42	150	0,030	0,274
1611	40	39	22	46	100	0,048	0,390
1612	50	48,5	24	53	50	0,085	0,802
1613	63	61,5	28	62	25	0,163	1,402
1391	75	73,5	32	69	24	0,207	2,076
1392	90	88,5	38	79	16	0,382	3,506
1393	110	108,5	42	86	6	0,572	6,774



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**REDÜKSİYON**

REDUCING COUPLING:		Муфта редукционная НВ		الحد			
Code / Kılıf	Size / размер	ad1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
Kod No	الحد	Ebat	الحد	الحد	Koli Adedi	وزن القطعة	السعر
1615	25/20	19	15	40	500	0,011	0,128
1616	32/20	19	15	40	400	0,015	0,152
1617	32/25	24	17	45	300	0,017	0,152
1618	40/20	19	15	45	200	0,025	0,278
1619	40/25	24	17	49	200	0,026	0,278
1620	40/32	31	19	52	150	0,035	0,294
1621	50/20	19	15	56	100	0,044	0,458
1622	50/25	24	17	56	100	0,041	0,524
1623	50/32	31	19	56	100	0,052	0,458
1624	50/40	39	22	60	80	0,064	0,524
1625	63/20	19	15	95	80	0,074	0,826
1626	63/25	24	17	95	80	0,072	0,826
1627	63/32	31	19	95	60	0,103	1,076
1628	63/40	39	22	63	60	0,092	0,826
1401	63/50	48,5	24	67	50	0,119	1,076
1402	75/20	19	15	95	60	0,108	1,424
1403	75/25	24	17	95	50	0,104	1,948
1404	75/32	31	19	95	50	0,124	1,424
1405	75/40	39	22	95	50	0,120	1,948
1406	75/50	48,5	24	75	40	0,140	1,424
1407	75/63	61,5	28	75	30	0,193	1,948
1408	90/50	61,5	28	75	20	0,287	2,10
1409	90/63	61,5	28	85	20	0,258	2,886
1410	90/75	73,5	32	85	16	0,325	3,102
1411	110/63	61,5	28	95	12	0,469	4,482
1412	110/75	73,5	32	95	16	0,419	4,030
1413	110/90	88,5	38	95	12	0,522	5,188

**INEGAL TE**

INEGAL TEE :		Тройник Редукционный		إنجبال تي نه			
Code / Kılıf	Size / размер	ad1	ad2	ad3	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
Kod No	الحد	Ebat	الحد	الحد	Koli Adedi	وزن القطعة	السعر
1441	20/25/20	19	24	19	150	0,031	0,282
1648	25/20/20	24	19	19	200	0,031	0,282
1649	25/20/25	24	19	24	200	0,027	0,272
1650	25/25/20	24	24	19	150	0,035	0,324
1442	32/20/20	31	19	19	100	0,033	0,482
1651	32/20/25	31	19	24	100	0,038	0,394
1652	32/20/32	31	19	31	80	0,056	0,474
1653	32/25/20	31	24	19	100	0,051	0,520
1443	32/25/25	31	24	24	100	0,055	0,394
1654	32/25/32	31	24	31	80	0,053	0,442
1444	40/20/40	39	19	39	60	0,086	0,722
1445	40/25/32	39	24	31	50	0,086	0,862
1655	40/25/40	39	24	39	50	0,106	0,862
1446	40/32/40	39	31	39	50	0,102	0,862
1447	50/20/50	48,5	19	48,5	40	0,137	1,496
1448	50/25/50	48,5	24	48,5	40	0,129	1,496
1449	50/32/50	48,5	31	48,5	30	0,188	1,496
1450	50/40/50	48,5	39	48,5	30	0,174	1,496
1451	63/20/63	61,5	19	61,5	20	0,261	2,932
1452	63/25/63	61,5	24	61,5	20	0,258	2,932
1453	63/32/63	61,5	31	61,5	20	0,149	2,932
1454	63/40/63	61,5	39	61,5	16	0,343	2,932
1455	63/50/63	61,5	48,5	61,5	16	0,310	2,932
1456	75/20/75	73,5	19	73,5	10	0,615	7,266
1457	75/25/75	73,5	24	73,5	10	0,556	7,266
1458	75/32/75	73,5	31	73,5	10	0,559	7,266
1459	75/40/75	73,5	39	73,5	10	0,602	7,266
1460	75/50/75	73,5	48,5	73,5	10	0,595	7,266
1461	75/63/75	73,5	61,5	73,5	10	0,601	7,266
1462	90/50/90	88,5	48,5	88,5	4	0,677	14,820
1463	110/50/110	88,5	61,5	88,5	3	1,050	23,500
1464	110/63/110	108,5	61,5	108,5	2	1,022	24,076

**TE**

TEE		Тройник		تي نه			
Code / Kılıf	Size / размер	ad1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
Kod No	الحد	Ebat	الحد	الحد	Koli Adedi	وزن القطعة	السعر
1642	20	19	15	52	250	0,020	0,172
1643	25	24	17	60	150	0,032	0,200
1644	32	31	19	72	80	0,061	0,492
1645	40	39	22	86	40	0,105	0,728
1646	50	48,5	24	101	20	0,192	1,194
1647	63	61,5	28	124	14	0,291	2,726
1431	75	73,5	32	140	10	0,478	5,940
1432	90	88,5	38	160	4	0,826	10,092
1433	110	108,5	42	188	2	1,467	17,584

İSTAVROZ

CROSS		Крестовина		العلامة			
Code / Kılıf	Size / размер	ad1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
Kod No	الحد	Ebat	الحد	الحد	Koli Adedi	وزن القطعة	السعر
1330	20	19	15	53	200	0,026	0,282
1331	25	24	17	64	100	0,040	0,422
1332	32	31	19	74	60	0,071	0,810



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KÖŞE İSTAVROZ

Code / Kiv./L	Size / размер	ød1	ød2	L	Unit Pack / пакет / номер	Unit Weight / вес / единица	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد				Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1340	32/20	19	31	61	80	0,055	0,810
1341	32/25	24	31	61	80	0,053	0,810
1342	40/20	19	39	68	60	0,087	1,180
1343	40/25	24	39	68	60	0,084	0,000



REDÜKSİYON DİRSEK

Code / Kiv./L	Size / размер	ød1	ød2	L	Unit Pack / пакет / номер	Unit Weight / вес / единица	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد				Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1386	25/20	24	19	37	200	0,027	0,338



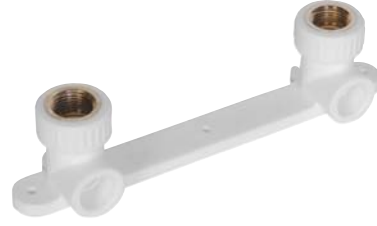
FLANŞ TE

Code / Kiv./L	Size / размер	ød1	E	L	Unit Pack / пакет / номер	Unit Weight / вес / единица	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد				Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1320	20/20	19	15	53	100	0,045	0,932
1321	25/20	24	17	63	60	0,063	1,300
1324	25/25	24	17	63	60	0,067	1,472



ÇİFTLİ BATARYA İÇDEN DİŞLİ

Code / Kiv./L	Size / размер	ød1	E	L	Unit Pack / пакет / номер	Unit Weight / вес / единица	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد				Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1471	20x1/2"	19	15	91	60	0,053	1,100
1472	25x1/2"	24	17	91	40	0,075	1,270
1473	25x3/4"	24	17	47	30	0,078	1,474
1475	20x1/2"	Erkek / Male			60	0,075	1,100



ÖZEL ÇİFTLİ BATARYA

Code / Kiv./L	Size / размер	ød1	E	L	Unit Pack / пакет / номер	Unit Weight / вес / единица	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد				Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1477	20x1/2"	19	15	150	40	0,130	3,540
1478	25x1/2"	24	17	150	20	0,187	3,822



İÇTEN DİŞLİ BATARYA BAĞLANTISI

Code / Kiv./L	Size / размер	ød1	E	L	Unit Pack / пакет / номер	Unit Weight / вес / единица	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد				Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1673	20x1/2"	19	15	34	20	0,120	2,886
1479	25x1/2"	24	17	37	20	0,132	3,316



BATARYA BAĞLANTISI

Code / Kiv./L	Size / размер	ød1	E	L	Unit Pack / пакет / номер	Unit Weight / вес / единица	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد				Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1474	20x1/2"	19	15	78	45	0,063	1,394



DİŞİ DİRSEK

Code / Kiv./L	Size / размер	ød1	E	L	Unit Pack / пакет / номер	Unit Weight / вес / единица	Price / цена
Kod No / رقم الشيفرة	Ebat / الأبعاد				Koli Adedi / عدد العلب	Birim Ağırlığı / وزن القطعة	Fiyat / السعر
1692	20x1/2"	19	15	35	100	0,044	0,952
1693	20x3/4"	19	15	37	60	0,057	1,398
1694	25x1/2"	24	17	37	60	0,059	0,900
1695	25x3/4"	24	17	37	60	0,066	1,318
1481	32x1/2"	31	19	49	40	0,092	1,980
1482	32x3/4"	31	19	49	30	0,095	1,980
1483	32x1"	31	19	49	30	0,114	2,748
1485	40x1 1/4"	39	22	49	16	0,281	7,946



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**ERKEK DİRSEK**

MALE ELBOW : Колено HP		Avc Mđar							
Code / Kd.	Size / размер	ød1	E	L	Unit Pack / пакет	Unit Weight / вес	Price / цена		
Kod No	Ebat	الابعاد			Koli Adedi	Birim Ağırlığı	Fiyat		
1697	20x1/2"	19	15	50	80	0,057	1,244		
1698	20x3/4"	19	15	50	50	0,078	2,048		
1699	25x1/2"	24	17	50	50	0,069	1,574		
1700	25x3/4"	24	17	53	50	0,086	1,832		
1491	32x1/2"	31	19	64	40	0,103	2,600		
1492	32x3/4"	31	19	64	30	0,117	2,638		
1493	32x1"	31	19	64	30	0,138	3,460		
1494	40x1/4"	39	22	64	14	0,333	10,738		

ERKEK NİPEL ALTİKÖŞE

MALE NIPPLE HEXAGONAL : MHP под ключ		Nipel الزاوية السفلية المذارة							
Code / Kd.	Size / размер	ød1	E	L	Unit Pack / пакет	Unit Weight / вес	Price / цена		
Kod No	Ebat	الابعاد			Koli Adedi	Birim Ağırlığı	Fiyat		
1688	32x1"	31	19	76	30	0,154	4,990		
1689	40x1 1/4"	39	22	86	16	0,280	8,588		
1690	50x1 1/2"	48,5	24	91	12	0,362	10,572		
1691	63x2"	61,5	28	101	8	0,628	20,056		
1510	75x2 1/2"	73,5	32	103	6	1,053	27,730		
1511	90x3"	88,5	38	132,7	8	1,310	41,034		
1512	110x4"	108,5	42	146,5	3	2,204	77,580		

**DIŞI NİPEL**

FEMALE NIPPLE : Муфта BP		Nipel مؤنث							
Code / Kd.	Size / размер	ød1	E	L	Unit Pack / пакет	Unit Weight / вес	Price / цена		
Kod No	Ebat	الابعاد			Koli Adedi	Birim Ağırlığı	Fiyat		
1674	20x1/2"	19	15	45	100	0,043	0,896		
1675	20x3/4"	19	15	45	100	0,048	1,318		
1676	25x1/2"	24	17	49	100	0,044	1,048		
1677	25x3/4"	24	17	49	100	0,053	1,242		
1678	32x3/4"	31	19	55	60	0,064	1,976		
1496	32x1"	31	19	55	40	0,092	2,748		
1497	40x1/4"	39	22	55	20	0,213	7,946		

ERKEK NİPEL

MALE NIPPLE : Муфта HP		Nipel مذکر							
Code / Kd.	Size / размер	ød1	E	L	Unit Pack / пакет	Unit Weight / вес	Price / цена		
Kod No	Ebat	الابعاد			Koli Adedi	Birim Ağırlığı	Fiyat		
1683	20x1/2"	19	15	41	100	0,044	1,176		
1684	20x3/4"	19	15	41	100	0,069	1,940		
1685	25x1/2"	24	17	47	100	0,053	1,400		
1686	25x3/4"	24	17	47	100	0,070	1,832		
1687	32x1/2"	31	19	47	60	0,072	2,636		
1502	32x3/4"	31	19	47	50	0,085	2,636		
1503	32x1"	31	19	47	40	0,100	3,254		

**DIŞI NİPEL ALTİKÖŞE**

FEMALE NIPPLE HEXAGONAL : MBP под ключ		Nipel الزاوية السفلية المؤنثة							
Code / Kd.	Size / размер	ød1	E	L	Unit Pack / пакет	Unit Weight / вес	Price / цена		
Kod No	Ebat	الابعاد			Koli Adedi	Birim Ağırlığı	Fiyat		
1679	32x1"	31	19	55	40	0,140	3,798		
1680	40x1 1/4"	39	22	65	20	0,213	6,110		
1681	50x1 1/2"	48,5	24	71	12	0,294	9,746		
1682	63x2"	61,5	28	78	8	0,459	14,158		
1499	75x2 1/2"	73,5	32	85	6	0,799	24,364		
1500	90x3"	88,5	38	110,5	4	1,163	33,980		
1501	110x4"	108,5	42	112,5	2	1,720	67,324		

ERKEK NİPEL KUYRUKLU

MALE TAIL NIPPLE : MHP под ключ		Nipel مذکر مذب							
Code / Kd.	Size / размер	ød1	E	L	Unit Pack / пакет	Unit Weight / вес	Price / цена		
Kod No	Ebat	الابعاد			Koli Adedi	Birim Ağırlığı	Fiyat		
1504	20x1/2"	20,5	15	65	100	0,063	1,302		
1505	20x3/4"	25,5	17	68	80	0,090	1,896		



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ERKEK NİPEL PEX BAĞLANTI

MALE NIPPLE FOR PEX : МНР под ключ : نیپل ذات روابط البکس المذارة

Code / Kılıf	Size / размер	ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена	
Kod No	Ød1	Ebat	Ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
1506	20x1/2"	19	15	60	200	0,101	2,310	



ERKEK NİPEL KUYRUKLU PEX BAĞLANTI

MALE TAIL NIPPLE FOR PEX : МНР под ключ : نیپل مذنب ذات روابط البکس المذارة

Code / Код	Size / размер	ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена	
Kod No	Ød1	Ebat	Ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
1507	20x1/2"	20,5	15	68	75	0,101	2,350	



HAREKETLİ DİRSEK

ELBOW WITH LOOSE NUT : Коплено с НГ : الكوع المتحرك

Code / Kılıf	Size / размер	ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена	
Kod No	Ød1	Ebat	Ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
1525	20x1/2"	19	15	35	120	0,060	2,704	
1526	20x3/4"	19	15	37	70	0,091	3,060	
1527	25x3/4"	24	17	37	70	0,087	3,060	
1528	25x1"	24	17	37	50	0,187	4,942	
1529	32x1 1/4"	31	19	49	30	0,262	8,138	



HAREKETLİ NİPEL

NIPPLE WITH LOOSE NUT : Муфта с НГ : النيبل المتحرك

Code / Kılıf	Size / размер	ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена	
Kod No	Ød1	Ebat	Ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
1531	20x1/2"	19	15	45	150	0,051	2,388	
1532	20x3/4"	19	15	45	150	0,096	3,060	
1533	25x3/4"	24	17	49	100	0,071	3,060	
1534	25x1"	24	17	49	60	0,149	4,942	
1535	32x1 1/4"	31	19	55	40	0,233	8,140	



Dişi TE

FEMALE TEE : Тройник BP : تي به المونلة

Code / Kılıf	Size / размер	ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена	
Kod No	Ød1	Ebat	Ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
1702	20x1/2"x20	19	15	36	75	0,054	1,116	
1703	20x3/4"x20	19	15	36	40	0,064	1,770	
1704	25x1/2"x25	24	17	38	60	0,064	1,286	
1705	25x3/4"x25	24	17	38	40	0,072	1,638	
1513	32x1/2"x32	31	19	49	30	0,104	2,726	
1514	32x3/4"x32	31	19	49	30	0,105	2,726	
1515	32x1"x32	31	19	49	20	0,128	3,220	
1516	40x1 1/4"x40	39	22	49	14	0,303	7,656	



HAREKETLİ TE

TEE WITH LOOSE NUT : Тройник с НГ : تي به المتحرك

Code / Kılıf	Size / размер	ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена	
Kod No	Ød1	Ebat	Ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
1537	20x1/2"	19	15	36	100	0,063	2,388	
1538	20x3/4"	19	15	36	50	0,115	3,060	
1539	25x3/4"	24	17	38	50	0,093	3,060	
1540	25x1"	24	17	38	40	0,191	4,942	
1541	32x1 1/4"	31	19	49	20	0,304	8,140	



ERKEK TE

MALE TEE : Тройник HP : تي به الذارة

Code / Код	Size / размер	ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена	
Kod No	Ød1	Ebat	Ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
1707	20x1/2"x20	19	15	50	60	0,063	1,466	
1708	20x3/4"x20	19	15	55	40	0,084	2,462	
1517	25x1/2"x25	24	17	57	40	0,075	1,840	
1518	25x3/4"x25	24	17	57	40	0,092	2,272	
1519	32x3/4"x32	31	19	65	20	0,128	3,480	
1520	32x1"x32	31	19	65	20	0,151	4,286	
1521	40x1 1/4"x40	39	22	65	12	0,358	9,044	

ERKEK FİLTRE

FILTER-MALE/FEMALE : Фильтр НВ : فلتير مذار

Code / Kılıf	Size / размер	ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена	
Kod No	Ød1	Ebat	Ød1	E	L	Unit Pack / пакет номер	Unit Weight / вес	Price / цена
1545	20	19	15	80,3	60	0,083	2,108	
1546	25	24	17	100,3	40	0,117	3,082	
1547	32	31	19	107,8	25	0,216	4,570	



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**DIŞI FİLTRE**

FİLTRE-FEMALE/FEMALE : Фильтр ВВ : فیلتر مونث

Code / Код	Kv.1	Size / размер	wd1	E	L	Unit Pack / пакет	Unit Weight / удельный вес	Price / цена
Kod No	رقم الشيفرة	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1548		20	19	15	80.3	60	0,065	2,220
1549		25	24	17	100.3	40	0,121	3,244
1550		32	31	19	107.8	25	0,212	4,808

**SALMASTRA RADYATÖR**

BALL VALVE FOR RADIATOR-STRAIGHT : Кран радиаторный ø 20 : طوقا المشعاع

Code / Код	Kv.1	Size / размер	wd1	E	L	Unit Pack / пакет	Unit Weight / удельный вес	Price / цена
Kod No	رقم الشيفرة	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1570		20x1/2"	19	15	33	50	0,142	4,406
1571		20x1/2"	19	15	89	50	0,148	4,406

**SALMASTRA RADYATÖR DİRSEK**

BALL VALVE FOR RADIATOR-ELBOW : Кран радиаторный ø 20 : اوع طوقا المشعاع

Code / Код	Kv.1	Size / размер	wd1	E	L	Unit Pack / пакет	Unit Weight / удельный вес	Price / цена
Kod No	رقم الشيفرة	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1568		20x1/2"	19	15	52	50	0,142	3,972

**VANA**

VALVE : Вентиль : الصمام

Code / Код	Kv.1	Size / размер	wd1	E	L	Unit Pack / пакет	Unit Weight / удельный вес	Price / цена
Kod No	رقم الشيفرة	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1710		20	19	15	81	35	0,151	4,590
1711		25	24	17	86	25	0,182	4,590
1714		32	31	19	104	15	0,264	9,512

OYNAR BAŞLI RADYATÖR DİRSEK

ELBOW WITH TRANSITION UNION FOR RADIATOR:

Тройник НР

اوع المشعاع ذات الرأس المتحركة

Code / Код	Kv.1	Size / размер	wd1	E	L	Unit Pack / пакет	Unit Weight / удельный вес	Price / цена
Kod No	رقم الشيفرة	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1543		20x1/2"	19	15	67.5	80	0,104	2,712
1544		25x3/4"	24	17	71.5	50	0,136	3,542

KÜRESEL VANA UZUN SAPLI

BALL VALVE - LONG : Кран шаровый металл : الصمام الكروي ذات المقبض الطويل

Code / Код	Kv.1	Size / размер	wd1	E	L	Unit Pack / пакет	Unit Weight / удельный вес	Price / цена
Kod No	رقم الشيفرة	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1557		20	19	15		35	0,150	4,406
1558		25	24	17		30	0,205	6,056

**KÜRESEL VANA**

BALL VALVE : Кран шаровый металл : الصمامة الكروية

Code / Код	Kv.1	Size / размер	wd1	E	L	Unit Pack / пакет	Unit Weight / удельный вес	Price / цена
Kod No	رقم الشيفرة	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1559		20	19	15		40	0,109	3,610
1560		25	24	17		35	0,146	4,980
1561		32	31	19		20	0,264	8,012
1562		40	39	22		15	0,524	16,850
1563		50	48.5	24		6	0,793	19,172
1564		63	61.5	28		5	1,323	29,052
1565		75	73.5	32		5	1,338	34,868



DİŞİ KÜRESEL VANA

Code / Kılıf	Size / размер	ad1	E	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد		Koli Adedi	وزن القطعة	Fiyat
1566	20x1/2"	19	15	40	0,138	3,972
1567	25x3/4"	24	17	35	0,187	5,478



OYNAR BAŞLI KÜRESEL VANA ÇİFT YÖNLÜ

Code / Kılıf	Size / размер	R	ad1	ad2	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1572	1/2"x1/2"	1/2"	19	19	30	0,283	7,072
1573	3/4"x3/4"	3/4"	24	24	25	0,412	10,262
1574	1"x1"	1"	31	31	15	0,592	14,346
1575	1 1/4"x1 1/4"	1 1/4"	39	39	10	0,962	24,170



OYNAR BAŞLI KÜRESEL VANA TEK YÖNLÜ

Code / Kılıf	Size / размер	R	ad1	ad2	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1576	20x1/2"	1/2"	19	19	35	0,203	5,068
1577	25x3/4"	3/4"	24	24	25	0,285	7,064
1578	32x1"	1"	31	31	15	0,418	10,306



SALMASTRA RADYATÖR DİRSEK

Code / Kılıf	Size / размер	ad1	E	L	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1579	20x1/2"	19	15	52	50	0,174	4,792

SALMASTRA RADYATÖR

Code / Kılıf	Size / размер	ad1	E	L	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1580	20x1/2"	19	15	50,5	50	0,165	4,792



KROM KAPLI VANA ANKASTRE

Code / Kılıf	Size / размер	R	L	ad2	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1214	20	1/2"	97,5	19	30	0,246	10,700
1215	25	3/4"	102	24	25	0,275	11,514
1216	32	1"	111,5	31	20	0,377	15,354



KROM KAPLI VANA

Code / Kılıf	Size / размер	R	L	ad2	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1712	20	1/2"	113	19	20	0,335	11,622
1713	25	3/4"	113	24	20	0,367	12,912
1718	32	1"	113	31	15	0,459	18,764



KROM GÖRÜNÜMLÜ VANA

Code / Kılıf	Size / размер	ad1	E	L	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	Fiyat
1217	20	19	15	113	20	0,246	7,552
1218	25	24	17	113	20	0,250	8,984



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**OYNAR BAŞLI RAKOR DIŞI**

TRANSITION UNION-FEMALE: Пластиковая Американка BP : الراور الموئث القابل للحركة

Code / Kolu	Size / размер	ad1	E	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد		Koli Adedi	وزن القطعة	السعر
1230	50x 1 1/2"	48,5	24	25	0,420	14,920
1231	63x 2"	61,5	28	12	0,733	32,572
1232	75x 2 1/2"	73,5	32	6	1,150	42,910
1233	90x3"	88,5	36	3	2,320	55,976
1234	110x4"	108,5	40	2	2,747	66,280

**OYNAR BAŞLI RAKOR DIŞI (ECO)**

TRANSITION UNION-FEMALE: Разъёмное соединение BP : الراور الموئث القابل للحركة (اقتصادي)

Code / Kolu	Size / размер	ad1	E	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد		Koli Adedi	وزن القطعة	السعر
1240	20x 1/2"	19	15	150	0,069	1,874
1241	25x 3/4"	24	17	100	0,105	2,900
1242	32x1"	31	19	60	0,150	4,082
1243	40x1 1/4"	39	22	40	0,245	7,784

**OYNAR BAŞLI RAKOR ERKEK**

TRANSITION UNION-MALE: Пластиковая Американка HP : الراور المذار القابل للحركة

Code / Kolu	Size / размер	ad1	E	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد		Koli Adedi	وزن القطعة	السعر
1235	50x1 1/2"	48,5	24	20	0,510	18,044
1236	63x2"	61,5	28	12	0,882	36,914
1237	75x2 1/2"	73,5	32	6	1,404	50,638
1238	90x3"	85,5	36	3	2,50	61,932
1239	110x4"	98,5	40	2	3,110	71,370

**OYNAR BAŞLI RAKOR ERKEK (ECO)**

TRANSITION UNION-MALE: Разъёмное соединение HP : الراور المذار القابل للحركة (اقتصادي)

Code / Kolu	Size / размер	ad1	E	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد		Koli Adedi	وزن القطعة	السعر
1244	20x1/2"	19	15	150	0,079	2,122
1245	25x3/4"	24	17	100	0,122	3,394
1246	32x1"	31	19	60	0,162	4,246
1247	40x1 1/4"	39	22	40	0,255	9,196

**TRANSİT NİPEL DIŞI**

TRANSITION NIPPLE-FEMALE: Горно с НГ HP : ترنسيت نipel المذار

Code / Kolu	Size / размер	ad1	E	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена	
Kod No	Еbat	الأبعاد		Koli Adedi	وزن القطعة	السعر	
1248	20x3/4"	20.2	15	52.5	150	0,054	1,534
1249	25x1"	25.2	17	58	150	0,085	2,000
1250	32x1 3/4"	32.2	19	70	100	0,126	3,446

TRANSİT NİPEL ERKEK

TRANSITION NIPPLE-MALE: Горно с НГ HP : ترنسيت نipel المذار

Code / Kolu	Size / размер	ad1	E	L	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	السعر
1251	20x3/4"	20,2	15	38,5	200	0,035	1,398
1252	25x1"	25,2	17	43	150	0,064	1,816
1253	32x1 3/4"	32,2	19	70	100	0,090	4,100

**KAPAMA BAŞLIĞI**

STOPEND : Заглушка : رأس الغطاء

Code / Kolu	Size / размер	ad1	E	L	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد			Koli Adedi	وزن القطعة	السعر
1660	20	19	15	27	500	0,009	0,160
1661	25	24	17	30	500	0,012	0,196
1662	32	31	19	34	250	0,022	0,326
1663	40	39	22	37	150	0,051	0,358
1664	50	48,5	24	47	80	0,079	0,684
1665	63	61,5	28	54	50	0,134	1,494
1255	75	73,5	32	60	25	0,224	2,102
1256	90	88,5	38	65	18	0,401	3,950
1257	110	108,5	42	70	9	0,615	5,910

**KÖRTAPA**

STOPEND : Заглушка с резьбой : القلبن

Code / Kolu	Size / размер	AA	L	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد		Koli Adedi	وزن القطعة	السعر
1715	20x1/2"	22	27	500	0,008	0,072
1716	25x3/4"	30	73	500	0,008	0,160
1717	32x1"	38	110	300	0,014	0,092

**UZUN KÖRTAPA**

STOPEND : Заглушка удлиненная : القلبن الطويل

Code / Kolu	Size / размер	AA	L	Unit Pack / ПАКЕТ НОМЕР	Unit Weight / вес	Price / цена
Kod No	Ebat	الأبعاد		Koli Adedi	وزن القطعة	السعر
1260	20x1/2	30	73	200	0,022	0,206



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BORU KELEPÇESİ

Code / Ko.d	Size / размер	Unit Pack / пакет	Unit Weight / вес	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Fiyat
1719	16	250/5000	0,004	0,064
1720	20	250/5000	0,006	0,064
1721	25	100/5000	0,008	0,064
1722	32	100/2000	0,011	0,080
1723	40	100/2000	0,015	0,162
1724	50	50/1500	0,019	0,226



BORU KELEPÇESİ ÇİFTLİ

Code / Ko.d	Size / размер	Unit Pack / пакет	Unit Weight / вес	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Fiyat
1730	16	250/3000	0,009	0,096
1731	20-22	100/2500	0,013	0,104
1732	25-27	50/2000	0,016	0,134
1733	32-34	50/1000	0,023	0,184



KAYNAK MAKİNESİ

Code / Ko.d	Size / размер	Unit Pack / пакет	Unit Weight / вес	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Fiyat
3014	2 x 700 W	6	4,950	75,966
3015	2 x 700 W	5	5,000	78,978
3016	110-1600 W	5	5,685	83,716
3017	Özelis Öz.			



MAKAS

Code / Ko.d	Size / размер	Unit Pack / пакет	Unit Weight / вес	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Fiyat
3018	16-32	100	0,450	8,052



BİLEYİCİ

Code / Ko.d	Size / размер	Unit Pack / пакет	Unit Weight / вес	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Fiyat
3010	20-25	1	0,425	12,030
3011	32-40	1	0,560	18,770
3012	50-63	1	1,135	31,022
3013	75-90	1	1,880	56,092



KAYNAK APARATI

Code / Ko.d	Size / размер	Unit Pack / пакет	Unit Weight / вес	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Fiyat
3001	20	1	0,090	3,418
3002	25	1	0,100	3,764
3003	32	1	0,140	4,482
3004	40	1	0,300	5,878
3005	50	1	0,375	10,468
3006	63	1	0,472	12,674
3007	75	1	0,895	15,612
3008	90	1	0,675	24,998
3009	110	1	0,825	39,912



MANİFOLD

Code / Ko.d	Size / размер	Unit Pack / пакет
Kod No	Ebat	Koli Adedi
3262	2 ways	25
3263	2 ways	25
3264	3 ways	20
3265	3 ways	20
3266	4 ways	15
3267	4 ways	15
3268	5 ways	10
3269	5 ways	10
3270	6 ways	10
3271	6 ways	10



TS 275-1
EN ISO 1329-1



PVC PİSSU BORULARI TS 275 B-BD (TİP-1)

PVC SEWAGE PIPES TS 275 B-D (TYPE-I)			ТРПБ/ PVC		النايلين لـ ب سي	
Code / Kd. /	Size / Ø3MMP	Unit Pack/ Paket / HOMOP	Unit Weight/ Birim Ağırlığı (mm)	Wall Thickness (mm)	Price / UMR	UOM
Kod No /	Ebat	الأكباد Koli Adedi	عدد الكلب Et Kalmığı (mm)	Et Kalınlığı (mm)	السعر Fiyat	الوحدة/ملاع
403	50X150	100	0,1007	2,2	0,424	
404	50X250	80	0,1487	2,2	0,585	
405	50X500	50	0,2687	2,2	0,858	
406	50X1000	10	0,503	2,2	1,130	
407	50X2000	10	0,966	2,2	2,834	
408	50X3000	10	1,421	2,2	4,199	
409	50X6000	1	2,763	2,2	8,225	
413	75X150	40	0,1567	2,2	0,923	
414	75X250	35	0,2287	2,2	1,027	
415	75X500	30	0,4087	2,2	1,378	
416	75X1000	5	0,774	2,2	2,418	
417	75X2000	5	1,488	2,2	4,550	
418	75X3000	5	2,214	2,2	6,838	
419	75X6000	1	4,432	2,2	13,728	
423	110X150	25	0,2367	2,2	1,157	
424	110X250	15	0,350	2,2	1,586	
425	110X500	14	0,640	2,2	2,106	
426	110X1000	5	1,172	2,2	3,640	
427	110X2000	5	2,27	2,2	7,072	
428	110X3000	5	3,368	2,2	10,400	
429	110X6000	1	6,572	2,2	20,397	
433	125X150	15	0,300	2,2	1,417	
434	125X250	12	0,430	2,2	1,937	
435	125X500	10	0,7307	2,2	3,221	
436	125X1000	5	1,388	2,2	5,694	
437	125X2000	5	2,724	2,2	10,920	
438	125X3000	5	4,008	2,2	15,860	
439	125X6000	1	7,578	2,2	30,940	
443	160X150	10	0,4687	2,2	2,392	
444	160X250	8	0,6587	2,2	3,432	
445	160X500	6	1,190	2,2	5,603	
446	160X1000	2	2,143	2,2	9,880	
447	160X2000	2	4,023	2,2	18,551	
448	160X3000	2	5,998	2,2	26,663	
449	160X6000	1	12,367	2,2	54,652	
453	200X150	6	0,6787	2,2	3,523	
454	200X250	4	0,9477	2,2	5,148	
455	200X500	4	1,6177	2,2	9,477	
456	200X1000	2	3,033	2,2	15,743	
457	200X2000	2	5,948	2,2	30,134	
458	200X3000	2	8,543	2,2	43,186	
459	200X6000	1	17,243	2,2	86,671	
460	250X150	4	1,054	2,2	8,528	
461	250X250	3	1,459	2,2	10,920	
462	250X500	3	2,473	2,2	16,003	
463	250X1000	1	4,500	2,2	27,469	
464	250X2000	1	8,554	2,2	48,009	
465	250X3000	1	12,608	2,2	66,667	
466	250X6000	1	24,770	2,2	132,600	

PVC PİSSU BORULARI TS 275 (TİP-2)

VPC SEWAGE PIPES TS 275 (Type-2)			TPVSA PVC	انابيب ال بي سي		
Code / Kd.	Size / Ø3MMP	Unit Pack/ Paket / HOMOP	Unit Weight/ Birim Ağırlığı (mm)	Wall Thickness (mm)	Price / UMR	
Kod No /	Ebat	الاجزاء	وزن القطعة	Ø Kallınlığı (mm)	Fiyat	السعر
503	50X150	100	0,1507	3,2	0,559	
504	50X250	80	0,2227	3,2	0,806	
505	50X500	50	0,3957	3,2	1,170	
506	50X1000	10	0,732	3,2	2,132	
507	50X2000	10	1,42	3,2	4,225	
508	50X3000	10	2,118	3,2	6,084	
509	50X6000	5	4,17	3,2	12,844	
513	75X150	40	0,2407	3,2	0,949	
514	75X250	35	0,34	3,2	1,365	
515	75X500	30	0,6177	3,2	1,976	
516	75X1000	5	1,132	3,2	3,366	
517	75X2000	5	2,234	3,2	6,942	
518	75X3000	5	3,312	3,2	10,270	
519	75X6000	1	6,571	3,2	20,228	
523	110X150	25	0,3615	3,2	1,430	
524	110X250	15	0,52	3,2	1,950	
525	110X500	14	0,9437	3,2	2,795	
526	110X1000	5	0,708	3,2	5,200	
527	110X2000	5	3,394	3,2	10,036	
528	110X3000	2	5,023	3,2	14,989	
529	110X6000	1	10,061	3,2	29,328	
533	125X150	15	0,4587	3,2	1,989	
534	125X250	12	0,6587	3,2	2,704	
535	125X500	10	1,1157	3,2	3,900	
536	125X1000	2	2,093	3,2	7,150	
537	125X2000	2	4,028	3,2	13,741	
538	125X3000	2	6,013	3,2	20,293	
539	125X6000	1	11,661	3,2	39,481	
543	160X150	10	0,4687	3,2	3,185	
544	160X250	8	0,8737	3,2	4,160	
545	160X500	6	1,425	3,2	6,240	
546	160X1000	2	2,653	3,2	11,050	
547	160X2000	2	5,018	3,2	21,177	
548	160X3000	2	7,413	3,2	31,187	
549	160X6000	1	14,642	3,2	61,217	
553	200X150	6	0,6687	3,2	5,200	
554	200X250	4	0,9462	3,2	7,670	
555	200X500	4	2,2037	3,2	11,700	
556	200X1000	2	4,143	3,2	19,500	
557	200X2000	2	7,833	3,2	37,735	
558	200X3000	2	11,623	3,2	55,068	
559	200X6000	1	22,654	3,2	108,147	
560	250X150	4	1,807	3,2	8,970	
561	250X250	3	2,530	3,2	11,700	
562	250X500	3	4,336	3,2	19,500	
563	250X1000	1	7,950	3,2	31,200	
564	250X2000	1	15,177	3,2	60,307	
565	250X3000	1	22,405	3,2	88,634	
566	250X6000	1	44,086	3,2	173,615	



TS 275-1
EN ISO 1329-1



45° AÇIK DİRSEK

45° ELBOW : Угловой 45° : شواة مفردة ذات ال 45 درجة

Code / Koli	Size / размер	Unit Pack/ пакет номер	Unit Weight/ вес/масса	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
0600	50	200	0,0937	3,2	0,540
0601	75	75	0,1507	3,2	0,871
0602	110	30	0,2927	3,2	1,495
0603	125	20	0,3687	3,2	2,535
0604	160	10	0,6987	3,2	4,225
0605	200	5	1,0387	3,2	19,000
0606	250	2	2,240	3,2	80,500

87° KAPALI DİRSEK

87° ELBOW : Yon 87° : أوع مغلق ذات ال 87 درجة

Code / Koli	Size / размер	Unit Pack/ пакет номер	Unit Weight/ вес/масса	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
0610	50	150	0,1067	3,2	0,637
0611	75	75	0,1817	3,2	1,014
0612	110	25	0,3707	3,2	1,781
0613	125	15	0,4347	3,2	2,535
0614	160	10	0,8687	3,2	4,940
0615	200	4	1,3187	3,2	22,000
0616	250	2	2,250	3,2	80,500



TEK ÇATAL 45°

TEE PART 45° : Тройник 45° : شواة مفردة ذات ال 45 درجة

Code / Koli	Size / размер	Unit Pack/ пакет номер	Unit Weight/ вес/масса	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
620	50/50	80	165	3,2	0,975
621	75/50	50	220	3,2	1,43
622	75/75	20	328	3,2	1,846
623	110/50	15	362	3,2	2,145
624	110/75	15	466	3,2	2,925
625	110/110	10	632	3,2	3,51
626	125/50	10	380	3,2	9,45
627	125/75	8	480	3,2	10,50
628	125/110	6	695	3,2	11,00
629	125/125	4	780	3,2	12,00
630	160/50	10	900	3,2	19,25
631	160/75	10	1,080	3,2	23,80
632	160/110	5	1,070	3,2	24,00
633	160/125	5	1,130	3,2	24,50
634	160/160	5	1,520	3,2	25,35
635	200/50	5	1,350	3,2	26,50
636	200/75	5	1,500	3,2	30,00
637	200/110	5	1,770	3,2	40,075
638	200/125	5	1,970	3,2	45,500
639	200/160	4	2,030	3,2	48,300
640	200/200	4	2,380	3,2	58,800
641	250/110	1	2,530	3,2	84,000
642	250/125	1	2,810	3,2	98,000
643	250/160	3	3,600	3,2	101,500
644	250/200	1	4,250	3,2	129,500
645	250/250	1	4,000	3,2	147,000

ÇİFT ÇATAL 45°

TWIN TEE PART 45° : Тройник 45° : شواة مزدوجة ذات ال 45 درجة

Code / Koli	Size / размер	Unit Pack/ пакет номер	Unit Weight/ вес/масса	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
690	50/50	50	0,200	3,2	1,599
691	75/50	50	0,280	3,2	2,184
692	75/75	10	0,370	3,2	4,03
693	110/50	25	0,400	3,2	3,51
694	110/75	10	0,565	3,2	5,85
695	110/110	10	0,740	3,2	6,37
696	125/50	10	0,680	3,2	9,00
697	125/75	10	0,830	3,2	22,75
698	125/110	10	0,810	3,2	21,00
699	125/125	10	0,930	3,2	23,80
700	160/50	5	0,990	3,2	28,00
701	160/75	5	1,400	3,2	32,20
702	160/110	4	1,910	3,2	36,75
703	160/125	4	2,100	3,2	50,75
704	160/160	3	3,300	3,2	65,45
705	200/50	3	1,400	3,2	70,00
706	200/75	3	1,550	3,2	72,50
707	200/110	3	2,900	3,2	70,00
708	200/125	3	3,600	3,2	80,50
709	200/160	3	3,800	3,2	96,25
710	200/200	3	5,200	3,2	115,50
711	250/110	3	2,500	3,2	143,50
712	250/125	3	2,900	3,2	168,00
713	250/160	3	4,000	3,2	185,50
714	250/200	3	5,000	3,2	210,00
715	250/250	3	4,500	3,2	231,00



TS 275-1
EN ISO 1329-1



TEK ÇATAL 87°

TEE PART 87° : Тройник 87° : شواة مفردة ذات ال 87 درجة

Code / Ko.İ	Size / размер	Unit Pack/ пакет/ HOMEP	Unit Weight/ вес/ Birim Ağırlığı	Wall Thickness (mm) / толщина/ Et Kalınlığı (mm)	Price / цена / Fiyat
Kod No	Boyut	Koli Adedi	Ün	Et Kalınlığı (mm)	Fiyat
650	50/50	100	0,135	3,2	0,975
651	75/50	75	0,210	3,2	1,43
652	75/75	50	0,245	3,2	1,846
653	110/50	35	0,350	3,2	2,145
654	110/75	10	0,410	3,2	2,925
655	110/110	10	0,470	3,2	3,051
656	125/50	10	0,570	3,2	9,450
657	125/75	10	0,600	3,2	10,500
658	125/110	10	0,520	3,2	10,850
659	125/125	10	0,480	3,2	15,575
660	160/50	10	0,870	3,2	19,250
661	160/75	10	0,980	3,2	21,800
662	160/110	5	0,890	3,2	23,000
663	160/125	5	1,285	3,2	24,500
664	160/160	5	1,170	3,2	28,000
665	200/50	3	1,200	3,2	32,000
666	200/75	3	1,210	3,2	34,000
667	200/110	5	1,410	3,2	40,075
668	200/125	3	1,380	3,2	45,500
669	200/160	5	1,285	3,2	48,300
670	200/200	4	2,140	3,2	58,800
671	250/110	3	1,830	3,2	84,000
672	250/125	3	1,900	3,2	98,000
673	250/160	3	2,270	3,2	101,500
674	250/200	3	2,740	3,2	129,500
675	250/250	3	3,750	3,2	147,000

ÇİFT ÇATAL 87°(İSTAVROZ)

TWIN TEE PART 87° : Крестовина 87° (ИСТАВРОЗ) : شواة مزدوجة ذات ال 87 درجة

Code / Ko.İ	Size / размер	Unit Pack/ пакет/ HOMEP	Unit Weight/ вес/ Birim Ağırlığı	Wall Thickness (mm) / толщина/ Et Kalınlığı (mm)	Price / цена / Fiyat
Kod No	Boyut	Koli Adedi	Ün	Et Kalınlığı (mm)	Fiyat
0680	50/50	75	0,160	3,2	3,850
0681	75/50	10	0,250	3,2	5,250
0682	75/75	10	0,300	3,2	9,100
0683	110/50	10	0,400	3,2	10,700
0684	110/75	10	0,465	3,2	17,000
0685	110/110	10	0,580	3,2	18,026
0686	125/75	10	0,650	3,2	22,750
0687	125/110	10	0,700	3,2	23,000
0688	125/125	10	0,640	3,2	23,800
0689	160/50	10	0,600	3,2	28,000
0690	160/75	5	1,200	3,2	32,200
0691	160/110	5	2,100	3,2	36,750
0692	160/125	5	2,100	3,2	50,750
0693	160/160	4	1,400	3,2	65,450
0694	200/110	3	3,800	3,2	70,000
0695	200/125	3	2,900	3,2	80,500
0696	200/160	3	3,800	3,2	96,250
0697	200/200	3	1,450	3,2	115,500
0698	250/110	3	1,950	3,2	143,500
0699	250/125	3	3,400	3,2	168,000
0700	250/160	3	2,900	3,2	185,500
0701	250/200	3	5,000	3,2	210,000
0702	250/250	3	4,500	3,2	231,000



SÜRME MUF

MOVABLE SOCKET : розетка : قطعة ربط الانابيب

Code / Ko.İ	Size / размер	Unit Pack/ пакет/ HOMEP	Unit Weight/ вес/ Birim Ağırlığı	Wall Thickness (mm) / толщина/ Et Kalınlığı (mm)	Price / цена / Fiyat
Kod No	Boyut	Koli Adedi	Ün	Et Kalınlığı (mm)	Fiyat
0840	50	200	0,080	3,2	1,014
0841	75	100	0,125	3,2	1,144
0842	110	40	0,230	3,2	2,340
0843	125	30	0,280	3,2	6,125
0844	160	20	0,490	3,2	10,675
0845	200	8	0,835	3,2	20,300
0846	250	4	0,915	3,2	35,000

TEMİZLEME

CLEAN OUT COVERED : РУСКАСИ : المنظفات

Code / Ko.İ	Size / размер	Unit Pack/ пакет/ HOMEP	Unit Weight/ вес/ Birim Ağırlığı	Wall Thickness (mm) / толщина/ Et Kalınlığı (mm)	Price / цена / Fiyat
Kod No	Boyut	Koli Adedi	Ün	Et Kalınlığı (mm)	Fiyat
0820	50x50	100	0,175	3,2	1,580
0821	75x75	50	0,290	3,2	2,405
0822	110x110	10	0,560	3,2	4,030
0823	125x125	10	0,610	3,2	16,625
0824	160x160	5	1,305	3,2	31,500
0825	200x200	4	2,450	3,2	51,450
0826	250x250	2	2,240	3,2	126,000



TS 275-1
EN ISO 1329-1



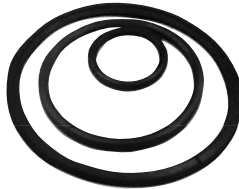
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Code / Код	Size / размер	Unit Pack/ пакет	Unit Weight/ вес	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
0849	75x45	25	438	3,2	4.570
0850	110x45	10	908	3,2	5.460
0851	110x87	10	910	3,2	5.720



MUF TAPASI

Code / Код	Size / размер	Unit Pack/ пакет	Unit Weight/ вес	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
0830	50	500	0,012	3,2	0.330
0831	75	400	0,020	3,2	0.650
0832	110	150	0,050	3,2	0.858
0833	125	100	0,065	3,2	2.275
0834	160	80	0,085	3,2	5.425
0835	200	1	0,215	3,2	14.700
0836	250	1	1,340	3,2	29.750



CONTA

Code / Код	Size / размер	Unit Pack/ пакет	Unit Weight/ вес	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
9320	50	7000	50	0,40	0,081
9321	75	5000	75	0,50	0,119
9322	100	2500	100	0,90	0,200
9323	125	2000	125	1,10	0,322
9324	160	1000	160	1,50	0,483
9325	200	700	200	1,85	0,805
9326	250	500	250	1,90	2,625

REDÜKSİYON

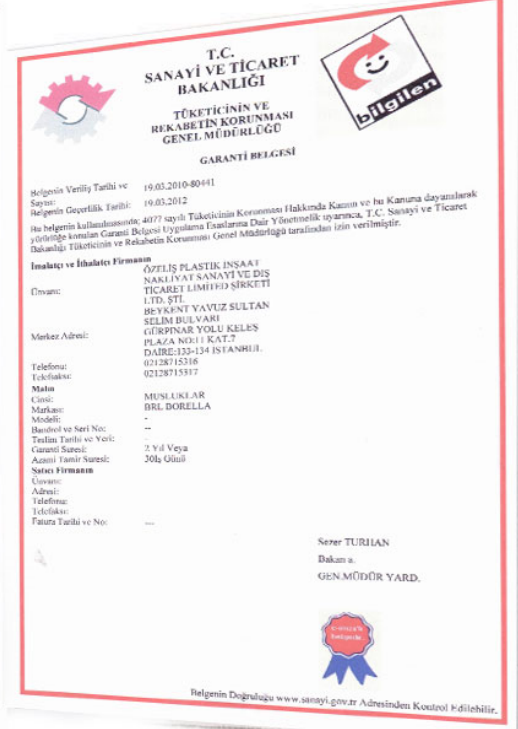
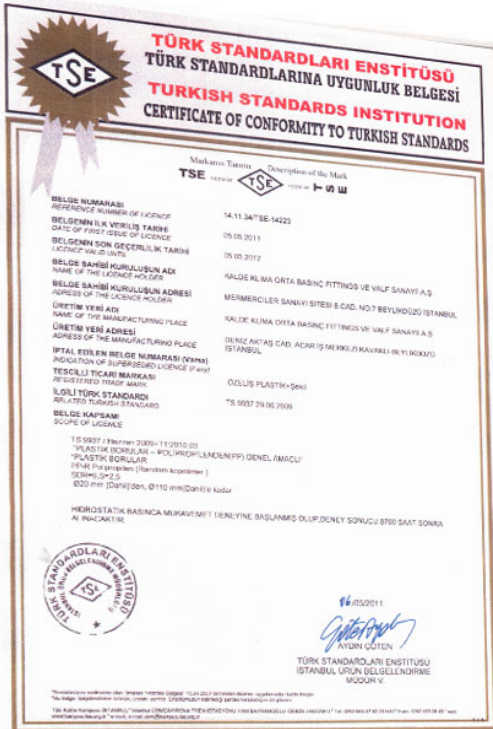
Code / Код	Size / размер	Unit Pack/ пакет	Unit Weight/ вес	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
0800	75x50	150	0,100	3,2	0.676
0801	110x50	50	0,185	3,2	1.027
0802	110x75	50	0,180	3,2	1.495
0803	125x75	40	0,260	3,2	1.940
0804	125x110	25	0,270	3,2	2.470
0805	160x75	10	0,720	3,2	17.500
0806	160x110	10	0,470	3,2	18.050
0807	160x125	10	0,440	3,2	19.325
0808	200x100	15	0,860	3,2	20.125
0809	200x125	15	0,820	3,2	22.400
0810	200x160	10	1,000	3,2	25.900
0811	250x110	5	0,970	3,2	77.000
0812	250x160	5	2,000	3,2	84.000
0813	250x200	5	1,600	3,2	94.500



KELEPÇE

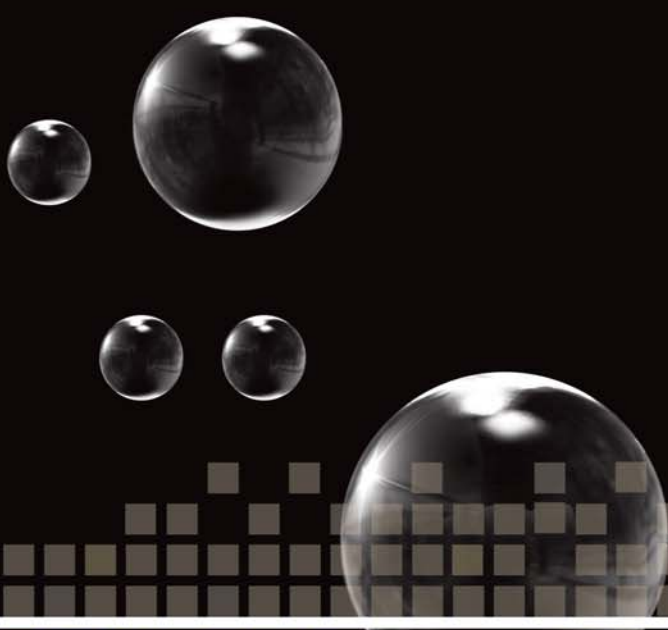
Code / Код	Size / размер	Unit Pack/ пакет	Unit Weight/ вес	Wall Thickness (mm)	Price / цена
Kod No	Ebat	Koli Adedi	Birim Ağırlığı	Et Kalınlığı (mm)	Fiyat
0901	50	200	0,025	3,2	0.420
0902	75	100	0,050	3,2	0.756
0903	100	100	0,070	3,2	1.176
0904	125	100	0,080	3,2	2.016
0905	160	100	0,105	3,2	3.696
0906	200	50	0,130	3,2	5.208
0907	250	50	0,155	3,2	7.000

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