



PIPES AND FITTINGS FOR USE IN HOT & COLD TAP WATER AND HEATING SYSTEMS

PRODUCT
CATALOGUE

Aquaterra

Polypropylene Pipes and Fittings





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Introductions

AQUAGAS Plastic Industries is a leading manufacturing of high quality construction materials and advanced engineering solutions founded in year 2010. AQUAGAS Plastic Industries manufacture pipes and fittings with an extensive range of market segments and applications covering Soil and waste drainage, Cold/hot water piping system, Cooling/heating systems, Cooling and chilled water piping for all residential, commercial and industrial developments.

With over years of experience, state of the art manufacturing facilities and large production capacity in the Middle East, AQUAGAS Plastic Industries manufacture products to international quality standards and caters to customers' demands by ensuring timely delivery and providing exceptional services.



Polypropylene Pipes and Fittings

AQUATerra polypropylene pipes and fittings are produced using the highest quality of 100% virgin type 3 polypropylene with 50 years estimated and guaranteed service life complying with the following standards:

- DIN8077, Germany.
- DIN8078, Germany.
- DIN16962, Germany.
- EN ISO 15874 Europe.

AQUATERRA PP-R Pipes are manufactured with an acceptable tolerances in the ID and wall thickness as per the DIN standards 8077 & 8078 and EN ISO 15874

Pipes types and options vary as per the application type.

AREAS OF APPLICATION:

- POTABLE WATER PIPELINE NETWORKS
- For cold, warm and hot water installations including boiler connections, riser lines, gravity lines, and floor level distribution and concealed lines.
- Underground heating system.
- Radiators connections.
- Compressed air and Industrial pipelines including aggressive media under consideration of chemical resistance.
- agricultural pipelines

Installer can choose one of the different types of pipes to suit the operating conditions:

PIPES TYPES:

- PN16 Plain PP-R Pipes.
- PN20 Plain PP-R Pipes.
- PN20 PP-R Faser Composite Pipes.
- PN25 PP-R Faser Composite Pipes.
- SDR 9 PP-RCT Faser Composite Pipes.
- SDR 7.4 PP-RCT Faser Composite Pipes.
- SDR 6 PP-RCT Faser Composite Pipes.
- SDR 6 UV protected Faser Composite pipes.
- SDR 7.4 UV protected Faser Composite pipes.
- PN25 PP-R / PP-RCT FITTINGS.

AQUATERRA FITTINGS:

As fittings are the most critical part of the system, AQUATerra fittings are produced in a PN-25 pressure class making the fittings the strongest part in the system.

All metal inserts fittings are BSPT type and made of CW617N/CW614N joined with the PP-RCT confirming no direct contact between the water and the brass parts to avoid any zincification or oxidation of the metals which can affect the quality of the potable water.

The threaded joints of adaptors comply with the requirements of the DIN 2999 resp Iso7; i.e. cylindrical female threads, and conical male threads.

Male threads for connecting backnut comply with the requirements of DIN ISO 228, part 1.

JOINTING METHOD:

Fusion type in accordance to the DVS (German welding ins.) specifications: 2207, part 11, Section 3.2 DIN 16962.

TOOLS AND DEVICES:

For socket welding by heating elements according to DVS leaflet 2208, Part 1, Section 5, Schedule 2, Type A.

RAW MATERIAL:

Borstar RA140E, Topilene R200P

Polypropylene Random Copolymer (PP-R Type 3) for Pressure Pipes Systems.

RA 7050-GN

Polypropylene random copolymer crystalline temperature (PP-RCT Type 4) for Pressure Pipes Systems.

DESCRIPTION

Borstar RA140E, Topilene R200P is a high molecular weight, low melt flow rate polypropylene random copolymer (PP-R).

RA7050-GN is a PP-RCT, a Polypropylene-Random-Copolymer with an enhanced crystalline structure brought about by a special β -nucleation and with an improved Temperature resistance. Proof of the excellent performance characteristics of Beta-PP-R™ RA7050-GN is, for example, a categorised required strength (CRS) of 5 MPa at 70°C and 50 years (according to ISO 12162) in comparison to a value of 3.21 MPa for standard PP-R.

The colour of Beta-PP-R™ RA7050-GN is green similar to RAL 6024.

APPLICATIONS

RA140E, R200P together with the appropriate additive package is recommended for the production of PP-R Pipes and fittings used in: Heating, Plumbing, Domestic water, Relining, and Industrial applications.

The product is suitable for plain, and Faser Composite Multilayer PP-R pipes.

SPECIFICATIONS

RA140E, R200P is intended to fulfill the following standards and regulations, providing the appropriate industrial manufacturing standard procedures are used and a continuous quality system is implemented: DIN 8077, DIN 8078 and EN ISO 15874.

SPECIAL FEATURES

RA140E, R200P is a natural grade used for production of pipes and fittings. The material is in pallet form and includes selected additive package which ensure:

Enhanced process ability
High temperature resistance
Economical pipe production

Low incidence on taste and odour
Excellent product consistency
Good impact strength

The pipe systems will show high durability, no corrosion, good weld ability, homogeneous joints, low tendency to incrustations and fast and easy installation.

DIMENSION OF PP-R AND PP-RCT PRESSURE SERIES PIPES

SDR 9				
O.D [mm]	Wall thickness [mm]	I.D [mm]	Unitary Capacity [ltr]	Weight [kg]
20	2.3	15.4	0.186	0.127
25	2.8	19.4	0.295	0.191
32	3.6	24.8	0.483	0.313
40	4.5	31	0.754	0.487
50	5.6	38.8	1.182	0.755
63	7.1	48.8	1.869	1.2
75	8.4	58.2	2.659	1.69
90	10.1	69.8	3.825	2.44
110	12.3	85.4	5.725	3.62
125	14	97	7.386	4.66
160	17.9	124.2	12.109	7.62
200	22.4	155.2	18.908	11.9
250	27.9	194.2	29.605	18.5

SDR 7.4				
O.D [mm]	Wall thickness [mm]	I.D [mm]	Unitary Capacity [ltr]	Weight [kg]
20	2.8	14.4	0.163	0.151
25	3.5	18	0.254	0.236
32	4.4	23.2	0.423	0.389
40	5.5	29	0.660	0.605
50	6.9	36.2	1.029	0.934
63	8.6	45.8	1.647	1.484
75	10.3	54.4	2.323	2.11
90	12.3	65.4	3.358	2.931
110	15.1	79.8	4.999	4.32
125	17.1	90.8	6.472	5.53
160	21.9	116.2	10.599	9.04
200	27.4	145.2	16.550	14.1
250	34.2	181.6	25.288	22.1

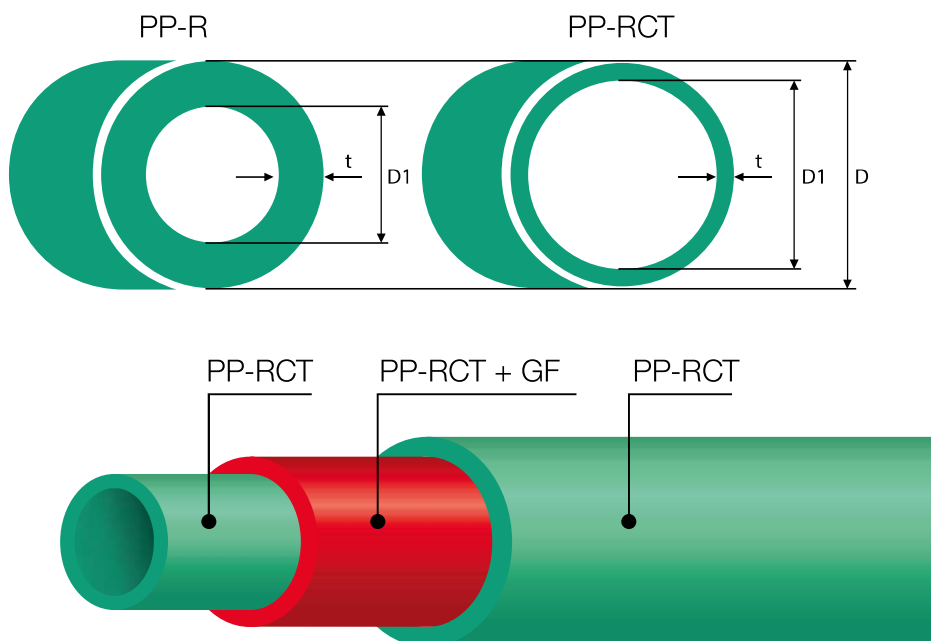
SDR 6				
O.D [mm]	Wall thickness [mm]	I.D [mm]	Unitary Capacity [ltr]	Weight [kg]
20	3.4	13.2	0.137	0.172
25	4.2	16.6	0.216	0.266
32	5.4	21.2	0.353	0.434
40	6.7	26.6	0.555	0.671
50	8.3	33.4	0.876	1.05
63	10.5	42	1.385	1.65
75	12.5	50	1.963	2.34
90	15	60	2.826	3.36
110	18.3	73.4	4.229	5.04
125	20.8	83.4	5.460	6.47
160	26.6	106.8	8.954	10.6
200	33.2	133.6	14.011	16.5

Relative PN for each pipe type

Pipe Type	SDR 9	SDR 7.4	SDR 6
Plain PPR Pipe	NA	PN 16	PN 20
Faser Multilayer PPR Pipes	NA	PN 20	PN 25
Faser Multilayer PP-RCT Pipes	PN 20	PN 25	PN 32

PP-RCT

Polypropylene random copolymer crystalline temperature (PP-RCT Type 4) is an enhanced crystalline structure is created through special nucleation process that makes PP-R operate at higher pressures at elevated temperatures offering at least 50% improved strength.



Permissible working. Pressure and temperature for PP-RCT

Temperature	Operating Time [years]	SDR 11 PP-RCT	SDR 9 PP-RCT	SDR 7.4 PP-RCT	SDR 6 PP-RCT
20°C	10	15.8	19.9	25.1	31.6
	25	15.5	19.6	24.6	31
	50	15.3	19.3	24.3	30.6
30°C	10	13.6	17.2	21.7	27.3
	25	13.4	16.9	21.2	26.8
	50	13.2	16.6	20.9	26.4
40°C	10	11.7	14.7	18.6	23.4
	25	11.5	14.4	18.2	22.9
	50	11.3	14.2	17.9	22.6
60°C	10	8.4	10.6	13.4	16.8
	25	8.2	10.4	13.1	16.5
	50	8.1	10.2	12.8	16.2
70°C	10	7.0	8.9	11.2	14.1
	25	6.9	8.7	10.9	13.8
	50	6.8	8.5	10.7	13.5
80°C	10	5.9	7.4	9.3	11.7
	25	5.7	7.2	9.1	11.4
95°C	5	4.4	5.6	7.1	8.9

Permissible operating pressures in bar (including a safety factor of 1.5)

Permissible working. Pressure and temperature for PP-RCT

Temperature	Operating Time [years]	SDR 11 PP-RCT	SDR 9 PP-RCT	SDR 7.4 PP-RCT	SDR 6 PP-RCT
20°C	10	19	23.9	30.1	37.9
	25	18.6	23.5	29.6	37.2
	50	18.4	23.1	29.2	36.7
30°C	10	16.4	20.6	26	32.7
	25	16.1	20.2	25.5	32.1
	50	15.8	19.9	25.1	31.6
40°C	10	14.1	17.7	22.3	28.1
	25	13.8	17.3	21.8	27.5
	50	13.6	17.1	21.5	27.1
60°C	10	10.1	12.7	16	20.2
	25	9.9	12.4	15.7	19.8
	50	9.7	12.2	15.4	19.4
70°C	10	8.5	10.7	13.5	16.9
	25	8.3	10.4	13.1	16.5
	50	8.1	10.2	12.9	16.2
80°C	10	7.0	8.9	11.2	14.1
	25	6.9	8.6	10.9	13.7
95°C	5	5.3	6.7	8.5	10.7

Permissible operating pressures in bar (including allowable a safety factor of 1.25)


OPERATING CONDITIONS

Temperature [°C]	Years of service	Pipe grade (according DIN 8077/8078)				
		Nominal pressure				
		PN 10	PN 16	PN 20	PN 25	
		Permissible working pressure [bar]				
10	1	26.5	33.4	42.1	53.0	
	5	25.0	31.5	39.7	49.9	
	10	24.4	30.7	38.6	48.7	
	25	23.6	29.7	37.4	47.0	
	50	23.4	28.9	36.4	45.9	
	100	22.4	28.2	35.5	44.7	
20	1	22.6	28.5	35.9	45.2	
	5	21.3	26.8	33.7	42.5	
	10	20.7	26.1	32.8	41.4	
	25	20.0	25.2	31.7	39.9	
	50	19.5	24.5	30.9	38.9	
	100	18.9	23.9	30.1	37.8	
30	1	19.2	24.2	30.5	38.5	
	5	18.0	22.7	28.6	36.0	
	10	17.5	22.1	27.8	35.0	
	25	16.9	21.3	26.8	33.8	
	50	16.4	20.7	26.1	32.9	
	40	1	16.3	20.6	25.9	32.6
5		15.3	19.2	24.2	30.5	
10		14.8	18.7	23.5	29.6	
25		14.3	18.0	22.6	28.5	
50		13.9	17.4	22.0	27.7	
50		1	13.8	17.4	21.9	27.6
	5	12.9	16.2	20.4	25.7	
	10	12.5	15.7	19.8	25.0	
	25	12.3	15.1	19.0	24.0	
	50	11.6	14.7	18.5	23.3	
	60	1	11.6	14.7	18.5	23.3
5		10.8	13.6	17.2	21.6	
10		10.5	13.2	16.6	21.0	
25		10.1	12.7	16.0	20.1	
50		9.7	12.3	15.5	19.5	
70		1	9.8	12.3	15.5	19.6
	5	9.1	11.4	14.4	18.1	
	10	8.8	11.1	13.9	17.5	
	25	7.6	9.6	12.1	15.2	
	50	6.4	8.1	10.2	12.8	
	80	1	8.2	10.3	13.0	16.4
5		7.2	9.1	11.5	14.5	
10		6.1	7.7	9.7	12.2	
25		4.9	6.2	7.8	9.8	
95		1	5.8	7.3	9.2	11.6
		5	3.9	4.9	6.2	7.8
	10	3.3	4.1	5.2	6.6	

Explanations:

* Permissible working pressure as given at safety factor 1.25

 – recommended application cold water installation

 – recommended application hot water installation


 – recommended application central heating installation


Permissible working pressures for pipes made of type 3 polypropylene.


Temperature [°C]	Years of service	Pipe grade (according DIN 8077/8078)				
		Nominal pressure				
		PN 10	PN 16	PN 20	PN 25	
		Permissible working pressure [bar]				
10	1	17.6	27.8	35.1	44.1	
	5	16.5	26.2	33.0	41.6	
	10	13.1	25.6	32.2	40.5	
	25	15.6	24.7	31.1	39.2	
	50	15.2	24.1	30.3	38.2	
	100	14.8	23.5	29.6	37.2	
20	1	14.9	23.7	29.9	37.7	
	5	14.1	22.3	28.1	35.4	
	10	13.7	21.7	27.4	34.5	
	25	13.3	21.0	26.4	33.3	
	50	12.9	20.4	25.7	32.4	
	100	12.5	19.9	25.0	31.5	
30	1	12.8	20.2	25.4	32.0	
	5	12.0	18.9	23.8	30.0	
	10	11.6	18.4	23.2	29.2	
	25	11.2	17.7	22.3	28.1	
	50	10.9	17.2	21.7	27.4	
	40	1	10.8	17.1	21.6	27.2
5		10.1	16.0	20.2	25.4	
10		9.9	15.5	19.6	24.7	
25		9.5	15.0	18.8	23.7	
50		9.2	14.5	18.3	23.1	
50		1	9.1	14.5	18.2	23.0
	5	8.5	13.5	17.0	21.4	
	10	8.3	13.1	16.5	20.8	
	25	8.0	12.6	15.9	20.0	
	50	7.7	12.2	15.4	19.4	
	60	1	7.7	12.2	15.4	19.4
5		7.2	11.3	14.3	18.0	
10		6.9	11.0	13.9	17.5	
25		6.7	10.5	13.3	16.7	
50		6.5	10.2	12.9	16.2	
70		1	6.5	10.3	12.9	16.3
	5	6.0	9.5	12.0	15.1	
	10	5.8	9.2	11.6	14.6	
	25	4.9	8.0	10.0	12.7	
	50	4.3	6.7	8.5	10.7	
	80	1	5.5	8.6	10.8	13.7
5		4.8	7.6	9.6	12.1	
10		4.0	6.4	8.1	10.2	
25		3.2	5.1	6.5	8.1	
95		1	3.9	6.1	7.6	9.6
		5	2.6	4.1	5.2	6.5
	10	2.2	3.4	4.3	5.5	

Explanations:

* Permissible working pressure as given at safety factor 1.5

 - recommended application cold water installation

 - recommended application hot water installation

 - recommended application central heating installation

UV Protection

PP-R & PP-RCT pipes and fittings are designed for indoor use. They are not stabilized for direct Ultraviolet (UV) exposure. Over Time, UV exposure causes degradation, resulting in decreases in the pipe's physical and chemical properties and long-term performance. If the pipes are to be used outdoors, they should be buried or encased in a protective wrap coating or treated described below.

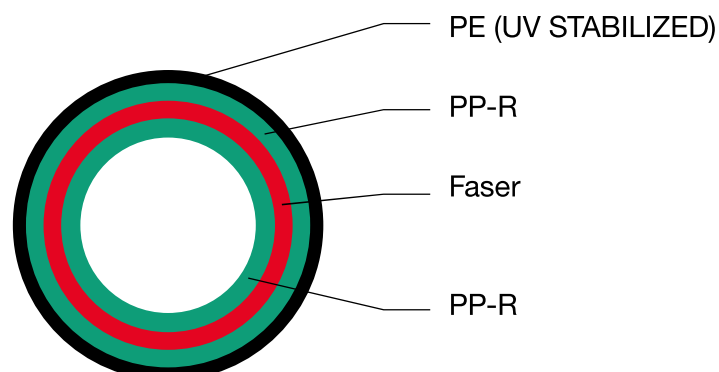
Ultraviolet radiation is an electromagnetic radiation presents in sunlight. So, when PP-R pipes are exposed to sunlight for a long period it would affect the pipes by changing its color and chalk its surface.

A UV stabilizer added into the resin as a shield to UV radiation to protect the product from a long term UV radiation exposure; these 4 multilayer pipes are developed with an external Polyethylene UV-stabilized layer to protect the pipes from damage.

This method is applicable for full range of pipes sizes and nominal pressures so it can be used for outdoor application.

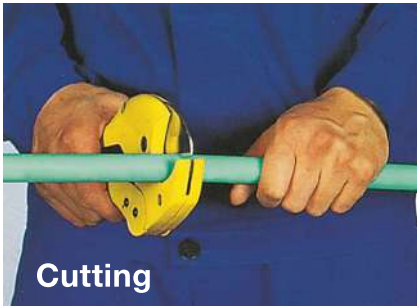
The resistance of the Aquaterra UV system against UV-radiation was tested by an accredited test laboratory. In planned intervals during the complete process, samples were taken in order to check possible mechanical changes based on a tensile test and it is aPP-Roved for the contact with potable water and is the best choice for boiler connection on the top to the tapping points – outdoor and indoor.

It can be used as an ideal distribution system for Hot & Cold Water in residential and commercial buildings as well as for irrigation systems.



ASSEMBLY

Installation guide



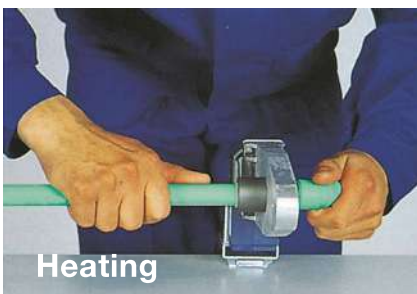
1. Pipes should be cut down to required length, at 90° to the axis, using appropriate tools (pipe shears or cutters).



2. Before welding, pipes and fittings must be cleaned (to remove dust, grease, etc.) and dried.



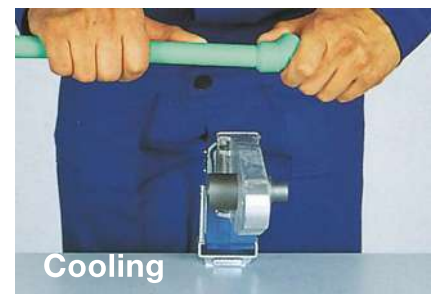
3. Mark the required depth of pipe insertion into the fitting (for a given outer pipe diameter - see the table).



4. Simultaneously insert the pipe end and slide the fitting over corresponding heating tips of the welder (heated up to 260 - 280 °C earlier) Keep the required heating time - see heating time values for different system dimensions.



5. After heating, remove both elements from heating tips and push the pipe into the fitting flange up to the depth marked earlier. The welding time depends on the outer diameter of the pipe. Good welds should have a double, uniform fin of material pushed out to the surface, along the circumference connected elements.



6. It is recommended to keep the connection fixed for the next 10 - 20 seconds, allowing the weld to cool down partially and achieve the initial strength. It is now possible to make other connections of the system. Full load of the weld is allowed only when the connection has cooled down completely.

WELDING PROCESS PARAMETERS

Pipe diameter [mm]	Welding depth [mm]	Heating time* [s]	Welding time [s]	Cooling time [mm]
20	14	5	4	2
25	15	7	4	2
32	16	8	6	4
40	18	12	6	4
50	20	18	6	4
63	24	24	8	6
75	26	30	10	8
90	29	40	10	8
110	32.5	50	10	8
125	35	60	12	9
160	40	70	14	10
200	Butt Fusion welding (follow procedure as per machine manufacturer)			
250	Butt Fusion welding (follow procedure as per machine manufacturer)			

Note:

Values presented in the table refer to PN 16, PN 20 pipes and stabilized pipes.

With the outside temperature below +5 °C, the heating time should be increased by 50%.

DISTANCE BETWEEN SUPPORTS

Pipes can be installed on trays or saddles that provide support. Thus, when there are long sections on view, the expansion will enable the movement of the pipe on the tray but prevent the unsightly effect that expansion can cause.

The recommended distances are:

*polypropylene pipes (homogenous)						
Pipe Outside diameter	Temperature of flowing water [°C]					
[mm]	20	30	40	50	60	70
20	80	75	70	70	65	60
25	85	85	85	80	75	70
32	100	95	95	90	85	75
40	110	110	105	100	95	85
50	125	120	115	110	105	90
63	140	135	130	125	120	105
75	155	150	145	135	130	115
90	170	165	160	155	150	145
110	190	185	180	175	160	155
125	205	200	195	195	175	170
160	240	235	230	225	210	205
200	280	275	270	265	250	245
250	320	315	310	305	290	285

*polypropylene pipes (stabilized)						
Pipe Outside diameter	Temperature of flowing water [°C]					
[mm]	20	30	40	50	60	70
20	135	125	120	210	110	100
25	145	145	145	135	125	120
32	170	160	160	150	145	125
40	110	110	105	100	95	85
50	125	120	115	110	105	90
63	140	135	130	125	120	105
75	155	150	14	135	130	115
90	170	165	160	155	150	145
110	190	185	180	175	160	155
125	205	200	195	195	175	170
160	240	235	230	225	210	205
200	280	275	270	265	250	245
250	320	315	310	305	290	285

HANDLING AND STORAGE

Resistance to ultraviolet light (UV)

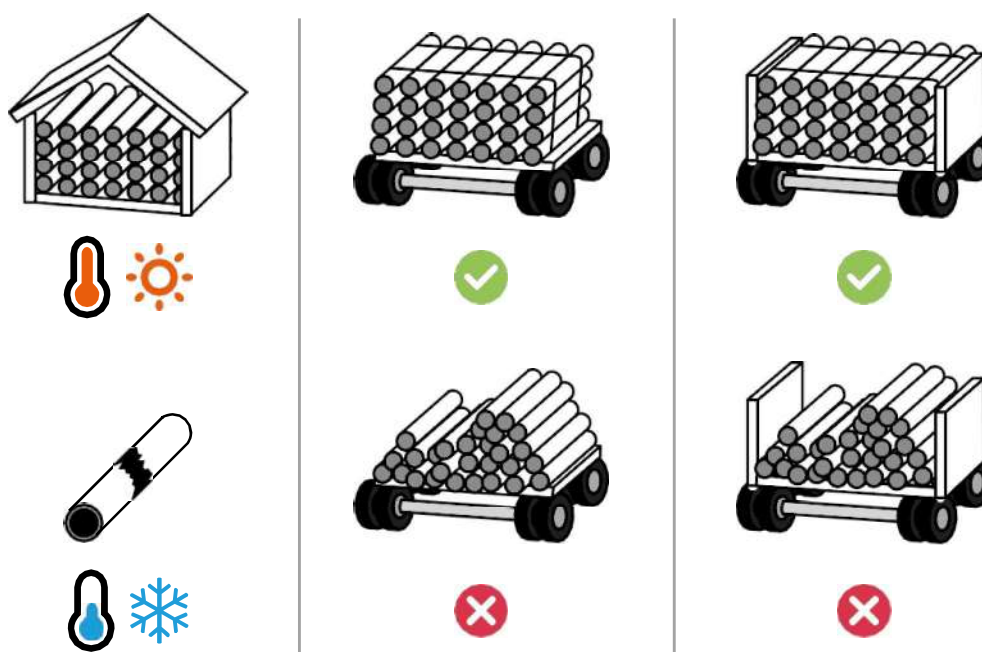
PP-R must not be exposed to solar radiation. Even though stabilised against this radiation, continuous exposure causes degradation of the material, accelerating its ageing.

Strength at low temperatures

At temperatures below 0°C, PP-R becomes fragile because it is a crystalline material. Therefore it is important to avoid any type of impact, especially during transport and handling. However, when installed, its plasticity is capable of absorbing changes in volume due to freezing of liquids flowing inside.

Arrangement of pipes

It is important to try to keep the pipes horizontal and to avoid their curvature as far as possible to prevent deformations that may make subsequent installation difficult



Bending

Because of the plasticity of the pipes, they allow a certain amount of bending. The maximum radius of curvature is 8 times the its diameter. If it is necessary to bend them, you can use hot air heaters, never direct heat, because this could destroy the molecular structure of the pipe.

Threaded components

In threaded female terminals, avoid conical caps because the threads can deteriorate. To ensure seal integrity, Teflon or similar can be used in suitable amounts.

POLYPROPYLENE PIPES PN16



PP-R PIPE PN16 (SDR7.4)

AT6602016	20 x 2.8
AT6602516	25 x 3.5
AT6603216	32 x 4.4
AT6604016	40 x 5.5
AT6605016	50 x 6.9
AT6606316	63 x 8.6
AT6607516	75 x 10.3
AT6609016	90 x 12.3
AT6601016	110 x 15.1
AT6601216	125 x 17.1
AT6601616	160 x 21.9

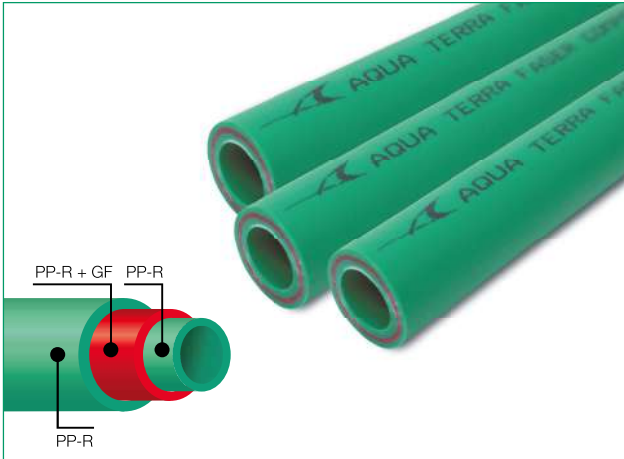
POLYPROPYLENE PIPES PN20



PP-R PIPE PN20 (SDR6)

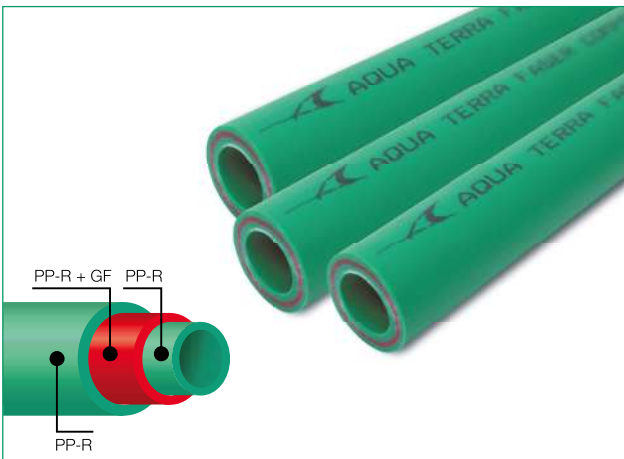
AT6602020	20 x 3.4
AT6602520	25 x 4.2
AT6603220	32 x 5.4
AT6604020	40 x 6.7
AT6605020	50 x 8.3
AT6606320	63 x 10.5
AT6607520	75 x 12.5
AT6609020	90 x 15.0
AT6601020	110 x 18.3
AT6601220	125 x 20.8
AT6601620	160 x 26.6

FASER COMPOSITE MULTILAYER PP-R PIPES PN20



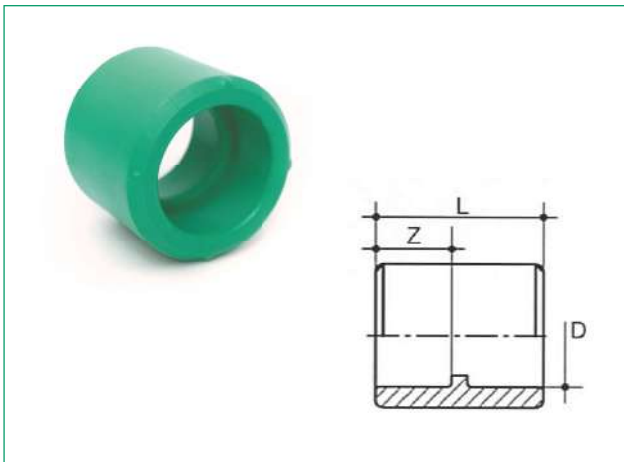
PP-R PN20 (SDR7.4)	
AT6612020	20 x 2.8
AT6612520	25 x 3.5
AT6613220	32 x 4.4
AT6614020	40 x 5.5
AT6615020	50 x 6.9
AT6616320	63 x 8.6
AT6617520	75 x 10.3
AT6619020	90 x 12.3
AT6611020	110 x 15.1
AT6611220	125 x 17.1
AT6611620	160 x 21.9
AT6622020	200 x 27.4
AT6622520	250 x 34.2

FASER COMPOSITE MULTILAYER PP-R PIPES PN25

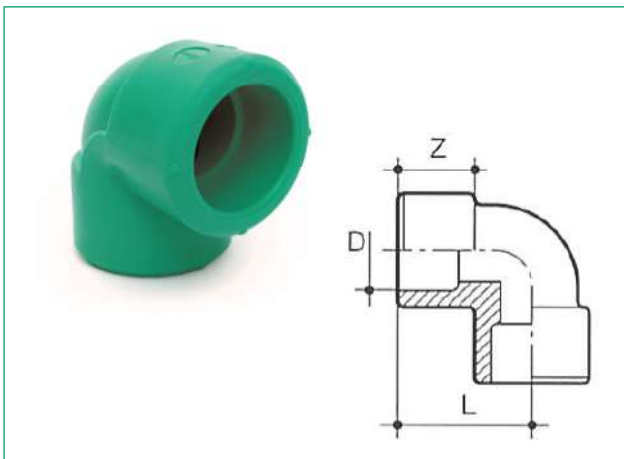


PP-R PN25 (SDR6)	
AT6612025	20 x 3.4
AT6612525	25 x 4.2
AT6613225	32 x 5.4
AT6614025	40 x 6.7
AT6615025	50 x 8.3
AT6616325	63 x 10.5
AT6617525	75 x 12.5
AT6619025	90 x 15.0
AT6611025	110 x 18.3
AT6611225	125 x 20.8
AT6611625	160 x 26.6

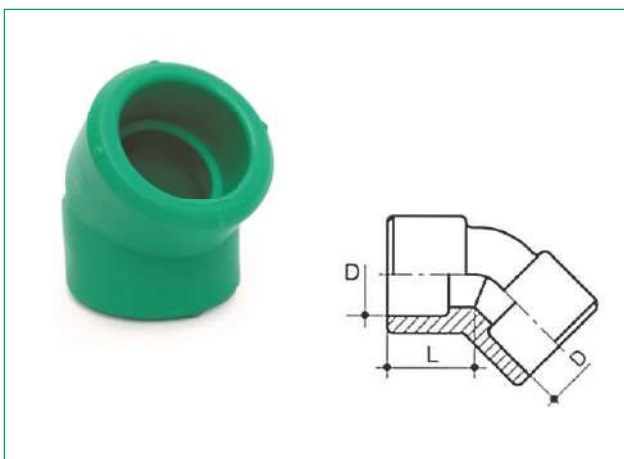
PP-R FITTINGS



COUPLER				
CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
AT6554020	20	15	32	mm
AT6554025	25	16	35	mm
AT6554032	32	18	39	mm
AT6554040	40	21	44	mm
AT6554050	50	24	50	mm
AT6554063	63	28	58	mm
AT6554075	75	31	66	mm
AT6554090	90	36	89	mm
AT6554110	110	42	101	mm
AT6554125	125	47	90	mm
AT6554160	160	51	109	mm

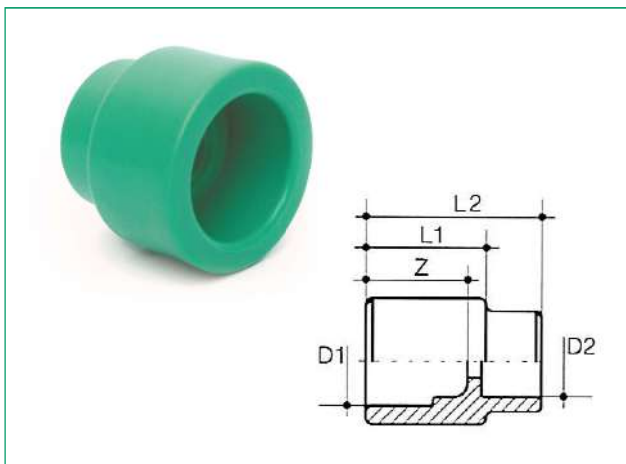


ELBOW 90°				
CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
AT6555020	20	19	26	mm
AT6555025	25	21	30	mm
AT6555032	32	24	35	mm
AT6555040	40	29	42	mm
AT6555050	50	34	50	mm
AT6555063	63	40	60	mm
AT6555075	75	46	70	mm
AT6555090	90	50	86	mm
AT6555110	110	56	105	mm
AT6555125	125	61	103	mm
AT6555160	160	61	111	mm
AT6622020	200	70	125	mm
AT6622520	250	81	140	mm



ELBOW 45°			
CODE	D [mm]	L [mm]	UNIT OF MEASURE
AT6556020	20	16	mm
AT6556025	25	18	mm
AT6556032	32	20	mm
AT6556040	40	23	mm
AT6556050	50	26	mm
AT6556063	63	31	mm
AT6556075	75	35	mm
AT6556090	90	35	mm
AT6556110	110	38	mm
AT6556125	125	40	mm
AT6556160	160	50	mm
AT6556200	200	80	mm
AT6556250	250	100	mm

PP-R FITTINGS

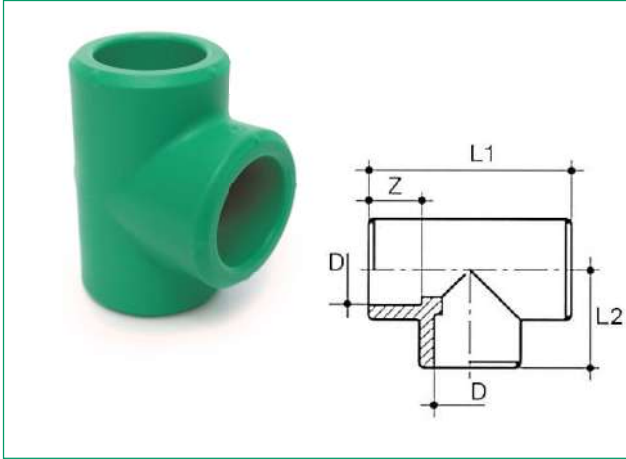


REDUCER						
CODE	D1 [mm]	D2 [mm]	Z [mm]	L1 [mm]	L2 [mm]	UNIT OF MEASURE
AT6562520	25	20	20	21	36	mm
AT6563220	32	20	22	25	40	mm
AT6563225	32	25	22	24	41	mm
AT6564020	40	20	26	31	43	mm
AT6564025	40	25	26	29	44	mm
AT6564032	40	32	26	27	45	mm
AT6565020	50	20	33	35	47	mm
AT6565025	50	25	32	35	48	mm
AT6565032	50	32	30	33	49	mm
AT6565040	50	40	30	32	51	mm
AT6566320	63	20	29	55	70	mm
AT6566325	63	25	34	41	54	mm
AT6566332	63	32	33	39	54	mm
AT6566340	63	40	33	38	55	mm
AT6566350	63	50	52	52	66	mm
AT6567532	75	32	34	54	76	mm
AT6567540	75	40	33	56	78	mm
AT6567550	75	50	36	45	67	mm
AT6567563	75	63	37	42	69	mm
AT6569050	90	50	37	60	87	mm
AT6569063	90	63	37	53	82	mm
AT6569075	90	75	37	45	78	mm
AT6561063	110	63	38	93	40	mm
AT6561075	110	75	43	59	90	mm
AT6561090	110	90	46	56	86	mm
AT6561210	125	110	52	60	93	mm
AT6561610	160	110	58	69	100	mm
AT6561612	160	125	56	68	101	mm
AT6562016	200	160	70	140	80	mm
AT6562516	250	160	200	81	90	mm
AT6562525	250	200	81	160	95	mm

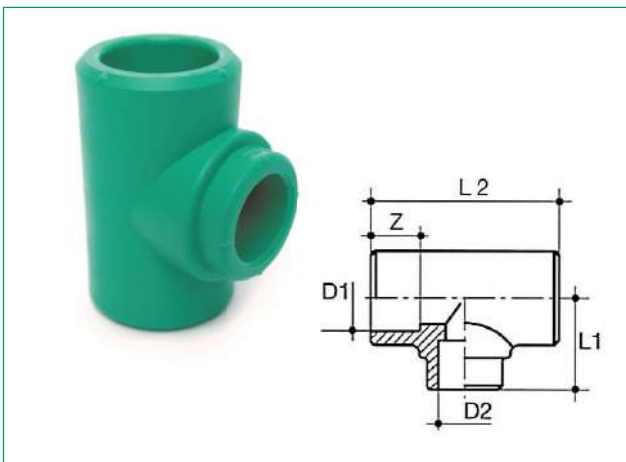


PLASTIC UNION		
CODE	D [mm]	UNIT OF MEASURE
AT16020	20	mm
AT16025	25	mm
AT16032	32	mm
AT16040	40	mm
AT16050	50	mm
AT16063	63	mm

PP-R FITTINGS

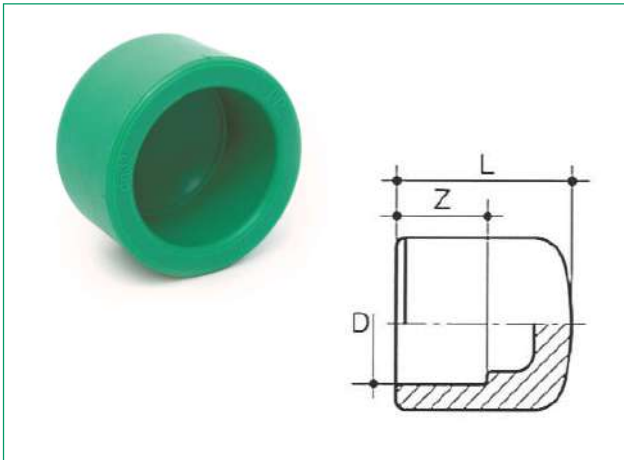


EQUAL TEE					
CODE	D [mm]	Z [mm]	L1 [mm]	L2 [mm]	UNIT OF MEASURE
AT6557020	20	15	54	27	mm
AT6557025	25	19	63	32	mm
AT6557032	32	25	76	38	mm
AT6557040	40	31	91	45	mm
AT6557050	50	39	109	55	mm
AT6557063	63	50	134	67	mm
AT6557075	75	59	156	78	mm
AT6557090	90	72	179	89	mm
AT6557110	110	98	210	105	mm
AT6557125	125	43	209	103	mm
AT6557160	160	109	218	113	mm
AT6556200	200	70	300	170	mm
AT6556250	250	87	350	290	mm

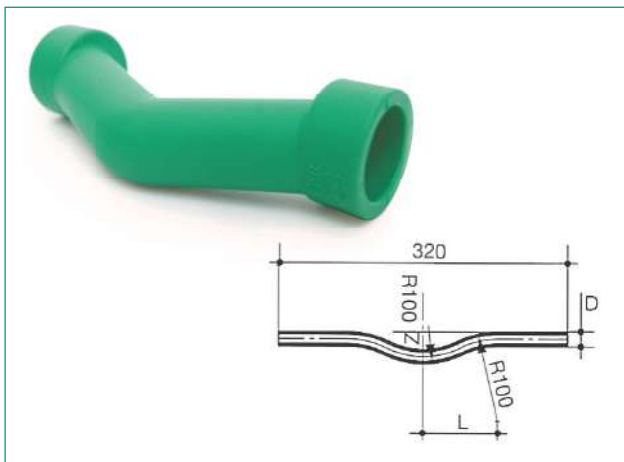


REDUCTION TEE						
CODE	D1 [mm]	D2 [mm]	Z [mm]	L1 [mm]	L2 [mm]	UNIT OF MEASURE
AT6572520	25	20	16	29	56	mm
AT6573220	32	20	18	33	60	mm
AT6573225	32	25	18	36	76	mm
AT6574020	40	20	20.5	38	66	mm
AT6574025	40	25	20.5	41	81	mm
AT6574032	40	32	20.5	43	91	mm
AT6575020	50	20	23.5	44	73	mm
AT6575025	50	25	23.5	45	76	mm
AT6575032	50	32	23.5	46	83.5	mm
AT6575040	50	40	23.5	48	91	mm
AT6576325	63	25	27.5	49	86	mm
AT6576332	63	32	27.5	51	90.4	mm
AT6576340	63	40	27.5	53	99	mm
AT6576350	63	50	27.5	57	109	mm
AT6577532	75	32	30	65	100.5	mm
AT6577540	75	40	30	66	109	mm
AT6577550	75	50	30	62	116	mm
AT6577563	75	63	30	66	128	mm
AT6579050	90	50	33	75	127	mm
AT6579063	90	63	33	74	136	mm
AT6579075	90	75	33	78	146	mm
AT6571075	110	75	37	87	155	mm
AT6571090	110	90	37	91	170	mm
AT6571610	160	110	46	123	207	mm

PP-R FITTINGS



END CAPS				
CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
AT6665020	20	15	28	mm
AT6665025	25	16	32	mm
AT6665032	32	18	36	mm
AT6665040	40	21	42	mm
AT6665050	50	24	50	mm
AT6665063	63	28	58	mm
AT6665075	75	31	65	mm
AT6665090	90	37	72	mm
AT6665110	110	41	79	mm
AT6665125	125	43	82	mm
AT6665160	160	45	85	mm
AT6656020	200	120	180	mm



CROSSOVER BEND				
CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
AT150020	20	22	86	mm
AT150025	25	27	93	mm
AT150032	32	34	101	mm



PRESSURE TEST PLUG	
AT15520	1/2"
AT15525	3/4"



PLASTIC CLAMP	
AT10020	20 mm
AT10025	25 mm
AT10032	32 mm

PP-R FITTINGS



FEMALE ADAPTOR		
NICKEL PLATED BRASS	DZR/BRASS	
AT7052012	DZR7052012	20 x 1/2"F
AT7052034	DZR7052034	20 x 3/4"F
AT7052512	DZR7052512	25 x 1/2"F
AT7052534	DZR7052534	25 x 3/4"F
AT7053201	DZR7053201	32 x 1"F
AT7053234	DZR7053234	32 x 3/4"F
AT7054014	DZR7054014	40 x 1 1/4"F
AT7055012	DZR7055012	50 x 1 1/2"F
AT7056302	DZR7056302	63 x 2"F
AT7057512	DZR7057512	75 x 2 1/2"F
AT7059003	DZR7059003	90 x 3"F



MALE ADAPTOR		
NICKEL PLATED BRASS	DZR/BRASS	
AT7062012	DZR7062012	20 x 1/2"M
AT7062034	DZR7062034	20 x 3/4"M
AT7062512	DZR7062512	25 x 1/2"M
AT7062534	DZR7062534	25 x 3/4"M
AT7063201	DZR7063201	32 x 1"M
AT7063234	DZR7063234	32 x 3/4"M
AT7064014	DZR7064014	40 x 1 1/4"M
AT7065012	DZR7065012	50 x 1 1/2"M
AT7066302	DZR7066302	63 x 2"M
AT7067512	DZR7067512	75 x 2 1/2"M
AT7069003	DZR7069003	90 x 3"M



FEMALE ELBOW 90°		
NICKEL PLATED BRASS	DZR/BRASS	
AT7082012	DZR7082012	20 x 1/2"F
AT7082512	DZR7082512	25 x 1/2"F
AT7082534	DZR7082534	25 x 3/4"F
AT7083212	DZR7083202	32 x 1/2"F
AT7083234	DZR7083234	32 x 3/4"F
AT7083201	DZR7083201	32 x 1"F

PP-R FITTINGS



MALE ELBOW 90°

NICKEL PLATED BRASS	DZR/BRASS	
AT7092012	DZR7092012	20 x 1/2"M
AT7092512	DZR7092512	25 x 1/2"M
AT7092534	DZR7092534	25 x 3/4"M
AT7093201	DZR7093201	32 x 1"M



FEMALE ELBOW 90° WITH WALL BRACKET

NICKEL PLATED BRASS	DZR/BRASS	
AT722012	DZR722012	20 x 1/2"F
AT722512	DZR722512	25 x 1/2"F



MALE ELBOW 90° WITH WALL BRACKET

NICKEL PLATED BRASS	DZR/BRASS	
AT732012	DZR732012	20 x 1/2"M
AT732512	DZR732512	25 x 1/2"M



FEMALE TEE

NICKEL PLATED BRASS	DZR/BRASS	
AT7102012	DZR7102012	20 x 1/2"F
AT7102034	DZR7102034	20 x 3/4"F
AT7102512	DZR7102512	25 x 1/2"F
AT7102534	DZR7102534	25 x 3/4"F
AT7103235	DZR7103235	32 x 3/4"F
AT7103201	DZR7103201	32 x 1"F
AT7103212	DZR7103212	32 x 1/2"F

PP-R FITTINGS



MALE TEE		
NICKEL PLATED BRASS	DZR/BRASS	
AT7122012	DZR7122012	20 x 1/2"M
AT7122034	DZR7122034	20 x 3/4"M
AT7122512	DZR7122512	25 x 1/2"M
AT7122534	DZR7122534	25 x 3/4"M
AT7123212	DZR7123212	32 x 1/2"M
AT7123234	DZR7123234	32 x 3/4"M
AT7103201	DZR7103201	32 x 1"M



FEMALE ADAPTOR UNION		
NICKEL PLATED BRASS	DZR/BRASS	
AT7132012	DZR7132012	20 x 1/2"F
AT7132534	DZR7132534	25 x 3/4"F
AT7133201	DZR7133201	32 x 1"F
AT7134014	DZR7134014	40 x 1 1/4"F
AT7135012	DZR7135012	50 x 1 1/2"F
AT7136302	DZR7136302	63 x 2"F



MALE ADAPTOR UNION		
NICKEL PLATED BRASS	DZR/BRASS	
AT7112012	DZR7112012	20 x 1/2"M
AT7112534	DZR7112534	25 x 3/4"M
AT7113201	DZR7113201	32 x 1"M
AT7114014	DZR7114014	40 x 1 1/4"M
AT7115012	DZR7115012	50 x 1 1/2"M
AT7116302	DZR7116302	63 x 2"M



DOUBLE UNION BALL VALVE	
AT81120	20MM
AT81125	25MM
AT81132	32MM
AT81140	40MM
AT81150	50MM
AT81163	63MM

PP-R FITTINGS



FLANGE	
AT90063	63 mm
AT90075	75 mm
AT90090	90 mm
AT90110	110 mm
AT90125	125 mm
AT90160	160 mm
AT90200	200 mm
AT90250	250 mm



CONCEALED STOP VALVE	
AT77820	20 mm
AT77825	25 mm
AT77832	32 mm

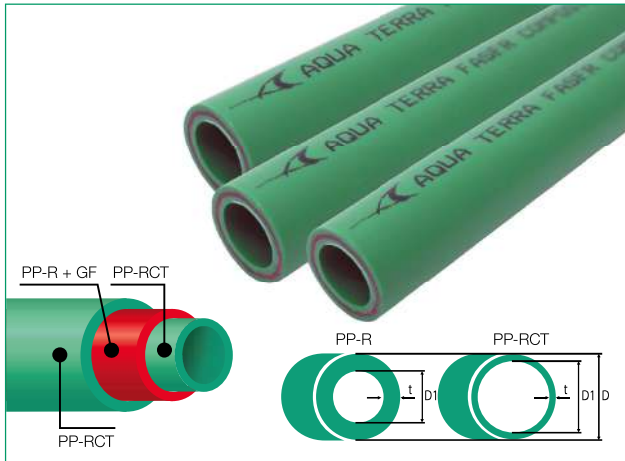


STOP VALVE	
AT80020	20 mm
AT80025	25 mm
AT80032	32 mm
AT80040	40 mm
AT80050	50 mm
AT80063	63 mm



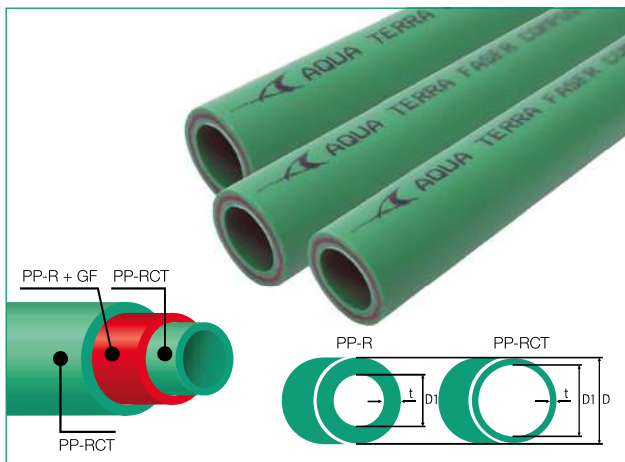
BALL VALVE	
AT81020	20 mm
AT81025	25 mm
AT81032	32 mm
AT81040	40 mm
AT81050	50 mm
AT81063	63 mm

FASER COMPOSITE MULTILAYER PP-RCT SDR9



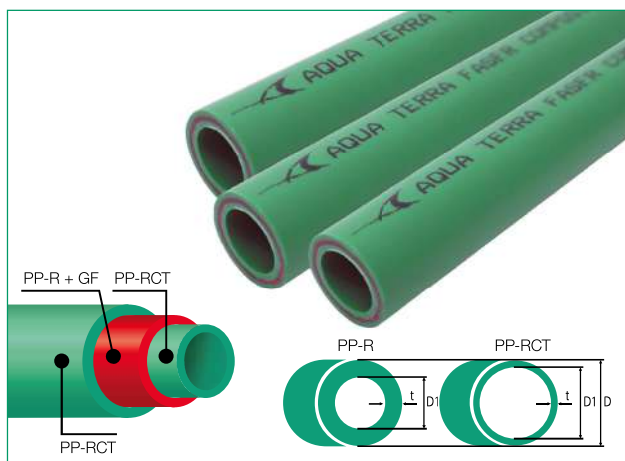
PP-RCT (SDR9)	
ATPPRCT6622022	20 x 2.3
ATPPRCT6622522	25 x 2.8
ATPPRCT6623222	32 x 3.6
ATPPRCT6624022	40 x 4.5
ATPPRCT6625022	50 x 5.6
ATPPRCT6626322	63 x 7.1
ATPPRCT6627522	75 x 8.4
ATPPRCT6629022	90 x 10.1
ATPPRCT6621022	110 x 12.3
ATPPRCT6621222	125 x 14.0
ATPPRCT6621622	160 x 17.9
ATPPRCT6632022	200 x 22.4
ATPPRCT6632522	250 x 27.9

FASER COMPOSITE MULTILAYER PP-RCT PIPES SDR7.4



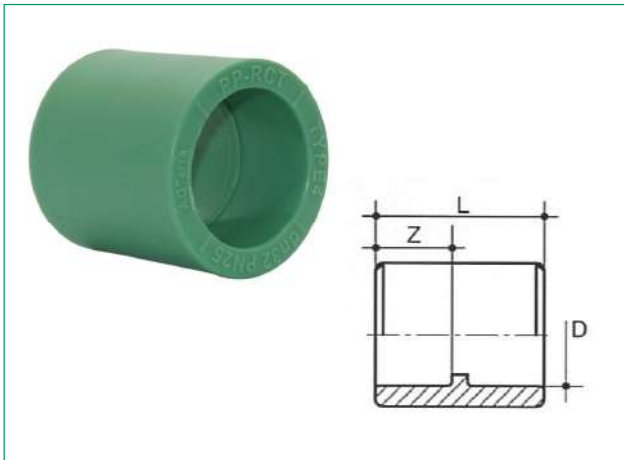
PP-RCT (SDR7.4)	
ATPPRCT6622020	20 x 2.8
ATPPRCT6622520	25 x 3.5
ATPPRCT6623220	32 x 4.4
ATPPRCT6624020	40 x 5.5
ATPPRCT6625020	50 x 6.9
ATPPRCT6626320	63 x 8.6
ATPPRCT6627520	75 x 10.3
ATPPRCT6629020	90 x 12.3
ATPPRCT6621020	110 x 15.1
ATPPRCT6621220	125 x 17.1
ATPPRCT6621620	160 x 21.9
ATPPRCT6632020	200 x 27.4
ATPPRCT6632520	250 x 34.2

FASER COMPOSITE MULTILAYER PP-RCT PIPES SDR6

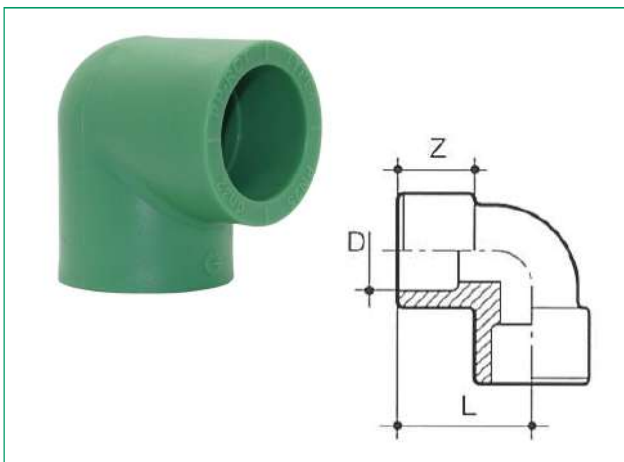


PP-RCT (SDR6)	
ATPPRCT6622025	20 x 3.4
ATPPRCT6622525	25 x 4.2
ATPPRCT6623225	32 x 5.4
ATPPRCT6624025	40 x 6.7
ATPPRCT6625025	50 x 8.3
ATPPRCT6626325	63 x 10.5
ATPPRCT6627525	75 x 12.5
ATPPRCT6629025	90 x 15.0
ATPPRCT6621025	110 x 18.3
ATPPRCT6621225	125 x 20.8
ATPPRCT6621625	160 x 26.6

PP-RCT FITTINGS

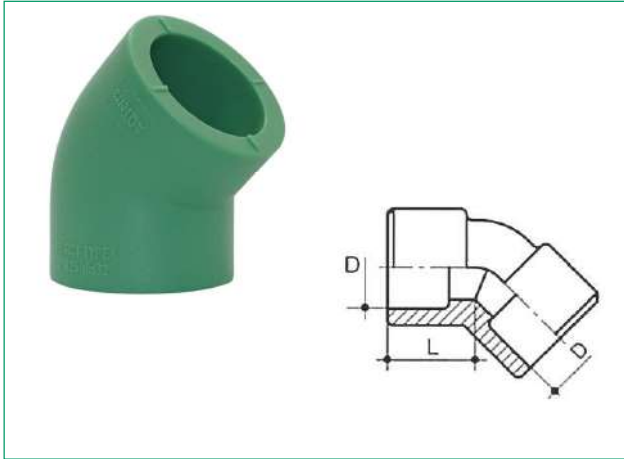


PP-RCT COUPLER				
CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
ATPPRCT6554020	20	15	32	mm
ATPPRCT6554025	25	16	35	mm
ATPPRCT6554032	32	18	39	mm
ATPPRCT6554040	40	21	44	mm
ATPPRCT6554050	50	24	50	mm
ATPPRCT6554063	63	28	58	mm
ATPPRCT6554075	75	31	66	mm
ATPPRCT6554090	90	36	89	mm
ATPPRCT6554110	110	42	101	mm
ATPPRCT6554125	125	47	90	mm
ATPPRCT6554160	160	51	109	mm



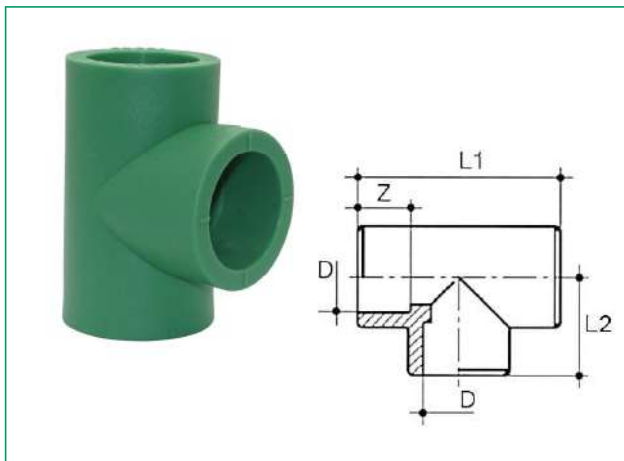
PP-RCT ELBOW 90°				
CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
ATPPRCT6555020	20	19	26	mm
ATPPRCT6555025	25	21	30	mm
ATPPRCT6555032	32	24	35	mm
ATPPRCT6555040	40	29	42	mm
ATPPRCT6555050	50	34	50	mm
ATPPRCT6555063	63	40	60	mm
ATPPRCT6555075	75	46	70	mm
ATPPRCT6555090	90	50	86	mm
ATPPRCT6555110	110	56	105	mm
ATPPRCT6555125	125	61	103	mm
ATPPRCT6555160	160	61	111	mm
ATPPRCT6555200	200	70	125	mm
ATPPRCT6555250	250	80	140	mm

PP-RCT FITTINGS



PP-RCT ELBOW 45°

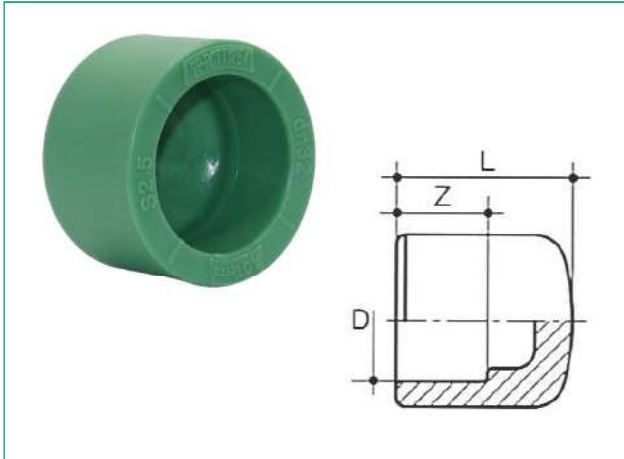
CODE	D [mm]	L [mm]	UNIT OF MEASURE
ATPPRCT6556020	20	16	mm
ATPPRCT6556025	25	18	mm
ATPPRCT6556032	32	20	mm
ATPPRCT6556040	40	23	mm
ATPPRCT6556050	50	26	mm
ATPPRCT6556063	63	31	mm
ATPPRCT6556075	75	35	mm
ATPPRCT6556090	90	35	mm
ATPPRCT6556110	110	38	mm
ATPPRCT6556125	125	40	mm
ATPPRCT6556160	160	50	mm
ATPPRCT6556200	200	80	mm
ARPPRCT6556250	250	100	mm



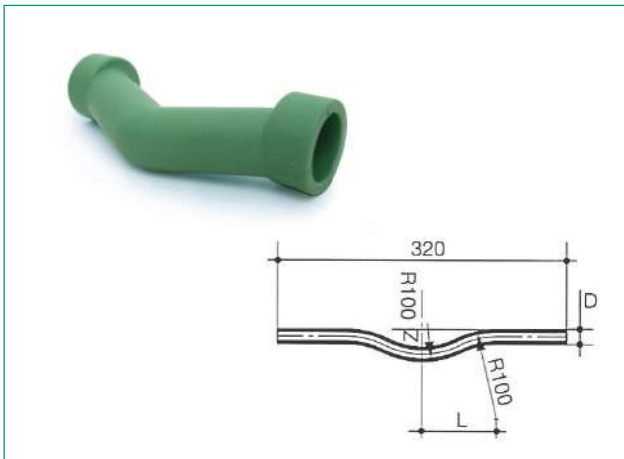
PP-RCT EQUAL TEE

CODE	D [mm]	Z [mm]	L1 [mm]	L2 [mm]	UNIT OF MEASURE
ATPPRCT6557020	20	15	54	27	mm
ATPPRCT6557025	25	19	63	32	mm
ATPPRCT6557032	32	25	76	38	mm
ATPPRCT6557040	40	31	91	45	mm
ATPPRCT6557050	50	39	109	55	mm
ATPPRCT6557063	63	50	134	67	mm
ATPPRCT6557075	75	59	156	78	mm
ATPPRCT6557090	90	72	179	89	mm
ATPPRCT6557110	110	98	210	105	mm
ATPPRCT6557125	125	43	209	103	mm
ATPPRCT6557160	160	109	218	113	mm
ATPPRCT6551200	200	70	300	170	mm
ATPPRCT6557250	250	87	350	210	mm

PP-RCT FITTINGS

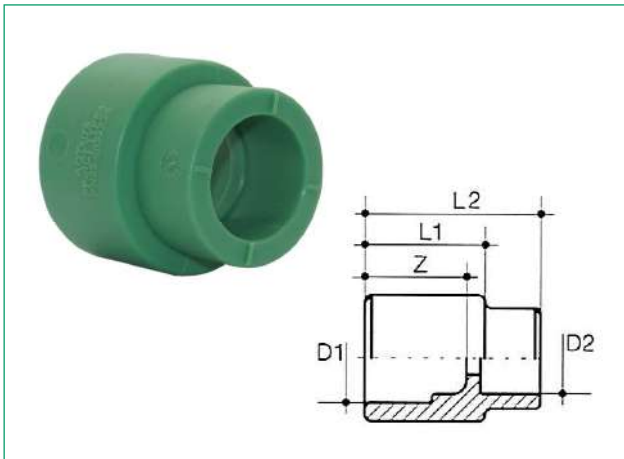


PP-RCT END CAPS				
CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
ATPPRCT6665020	20	15	28	mm
ATPPRCT6665025	25	16	32	mm
ATPPRCT6665032	32	18	36	mm
ATPPRCT6665040	40	21	42	mm
ATPPRCT6665050	50	24	50	mm
ATPPRCT6665063	63	28	58	mm
ATPPRCT6665075	75	31	65	mm
ATPPRCT6665090	90	37	72	mm
ATPPRCT6665110	110	41	79	mm
ATPPRCT6665125	125	43	82	mm
ATPPRCT6665160	160	45	85	mm
ATPPRCT655200	200	120	180	mm



PP-RCT CROSSOVER BEND				
CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
ATPPRCT150020	20	22	86	mm
ATPPRCT150025	25	27	93	mm
ATPPRCT150032	32	34	101	mm

PP-RCT FITTINGS

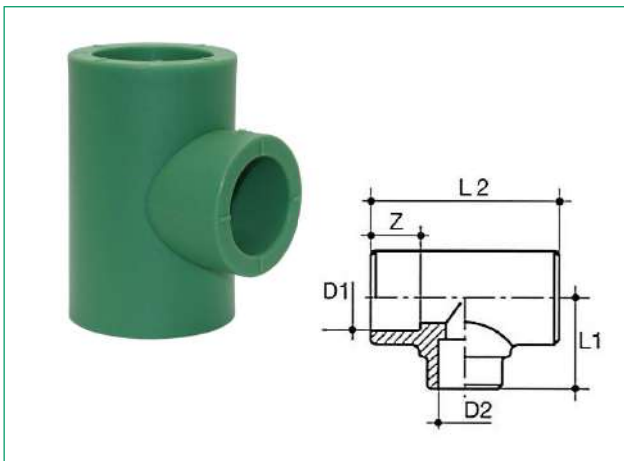


PP-RCT REDUCER						
CODE	D1 [mm]	D2 [mm]	Z [mm]	L1 [mm]	L2 [mm]	UNIT OF MEASURE
ATPPRCT6562520	25	20	20	21	36	mm
ATPPRCT6563220	32	20	22	25	40	mm
ATPPRCT6563225	32	25	22	24	41	mm
ATPPRCT6564020	40	20	26	31	43	mm
ATPPRCT6564025	40	25	26	29	44	mm
ATPPRCT6564032	40	32	26	27	45	mm
ATPPRCT6565020	50	20	33	35	47	mm
ATPPRCT6565025	50	25	32	35	48	mm
ATPPRCT6565032	50	32	30	33	49	mm
ATPPRCT6565040	50	40	30	32	51	mm
ATPPRCT6566320	63	20	29	55	70	mm
ATPPRCT6566325	63	25	34	41	54	mm
ATPPRCT6566332	63	32	33	39	54	mm
ATPPRCT6566340	63	40	33	38	55	mm
ATPPRCT6566350	63	50	52	52	66	mm
ATPPRCT6567532	75	32	34	54	76	mm
ATPPRCT6567540	75	40	33	56	78	mm
ATPPRCT6567550	75	50	36	45	67	mm
ATPPRCT6567563	75	63	37	42	69	mm
ATPPRCT6569050	90	50	37	60	87	mm
ATPPRCT6569063	90	63	37	53	82	mm
ATPPRCT6569075	90	75	37	45	78	mm
ATPPRCT6561050	110	50	41	93	54	mm
ATPPRCT6561063	110	63	38	93	40	mm
ATPPRCT6561075	110	75	43	59	90	mm
ATPPRCT6561090	110	90	46	56	86	mm
ATPPRCT6561210	125	110	52	60	93	mm
ATPPRCT6561610	160	110	58	69	100	mm
ATPPRCT6561612	160	125	56	68	101	mm
ATPPRCT6562016	200	160	70	140	80	mm
ATPPRCT6562516	250	160	200	81	90	mm
ATPPRCT6562525	250	200	81	160	95	mm



PP-RCT PRESSURE TEST PLUG	
ATPPRCT15520	1/2"
ATPPRCT15525	3/4"

PP-RCT FITTINGS



PP-RCT REDUCTION TEE

CODE	D1 [mm]	D2 [mm]	Z [mm]	L1 [mm]	L2 [mm]	UNIT OF MEASURE
ATPPRCT6572520	25	20	16	29	56	mm
ATPPRCT6573220	32	20	18	33	60	mm
ATPPRCT6573225	32	25	18	36	76	mm
ATPPRCT6574020	40	20	20.5	38	66	mm
ATPPRCT6574025	40	25	20.5	41	81	mm
ATPPRCT6574032	40	32	20.5	43	91	mm
ATPPRCT6575020	50	20	23.5	44	73	mm
ATPPRCT6575025	50	25	23.5	45	76	mm
ATPPRCT6575032	50	32	23.5	46	83.5	mm
ATPPRCT6575040	50	40	23.5	48	91	mm
ATPPRCT6576325	63	25	27.5	49	86	mm
ATPPRCT6576332	63	32	27.5	51	90.4	mm
ATPPRCT6576340	63	40	27.5	53	99	mm
ATPPRCT6576350	63	50	27.5	57	109	mm
ATPPRCT6577532	75	32	30	65	100.5	mm
ATPPRCT6577540	75	40	30	66	109	mm
ATPPRCT6577550	75	50	30	62	116	mm
ATPPRCT6577563	75	63	30	66	128	mm
ATPPRCT6579050	90	50	33	75	127	mm
ATPPRCT6579063	90	63	33	74	136	mm
ATPPRCT6579075	90	75	33	78	146	mm
ATPPRCT6571075	110	75	37	87	155	mm
ATPPRCT6571090	110	90	37	91	170	mm
ATPPRCT6571610	160	110	46	123	207	mm

PP-RCT PLASTIC UNION

CODE	D [mm]	UNIT OF MEASURE
ATPPRCT16020	20	mm
ATPPRCT16025	25	mm
ATPPRCT16032	32	mm
ATPPRCT16040	40	mm
ATPPRCT16050	50	mm
ATPPRCT16063	63	mm

PP-RCT FITTINGS



PP-RCT FEMALE ADAPTOR

ATPPRCT7052012	20 x 1/2"F
ATPPRCT7052034	20 x 3/4"F
ATPPRCT7052512	25 x 1/2"F
ATPPRCT7052534	25 x 3/4"F
ATPPRCT7053201	32 x 1"F
ATPPRCT7054014	40 x 1 1/4"F
ATPPRCT7055012	50 x 1 1/2"F
ATPPRCT7056302	63 x 2"F
ATPPRCT7057512	75 x 2 1/2"F
ATPPRCT7059003	90 x 3"F



PP-RCT MALE ADAPTOR

ATPPRCT7062012	20 x 1/2"M
ATPPRCT7062034	20 x 3/4"M
ATPPRCT7062512	25 x 1/2"M
ATPPRCT7062534	25 x 3/4"M
ATPPRCT7063201	32 x 1"M
ATPPRCT7064014	40 x 1 1/4"M
ATPPRCT7065012	50 x 1 1/2"M
ATPPRCT7066302	63 x 2"M
ATPPRCT7067512	75 x 2 1/2"M
ATPPRCT7069003	90 x 3"M



FLANGE + FLANGE ADAPTOR

ATPPRCT90063	63 mm
ATPPRCT90075	75 mm
ATPPRCT90090	90 mm
ATPPRCT90110	110 mm
ATPPRCT90125	125 mm
ATPPRCT90160	160 mm
ATPPRCT90200	200 mm
ATPPRCT90250	250 mm

PP-RCT FITTINGS



PP-RCT FEMALE ELBOW 90°

ATPPRCT7082012	20 x 1/2"F
ATPPRCT7082512	25 x 1/2"F
ATPPRCT7082534	25 x 3/4"F
ATPPRCT7083212	32 x 1/2"F
ATPPRCT7083234	32 x 3/4"F
ATPPRCT7083201	32 x 1"F



PP-RCT MALE ELBOW 90°

ATPPRCT7092012	20 x 1/2"M
ATPPRCT7092512	25 x 1/2"M
ATPPRCT7092534	25 x 3/4"M
ATPPRCT7093201	32 x 1"M



ELECTRO FUSION SOCKET

CODE	D [mm]	Z [mm]	L [mm]	UNIT OF MEASURE
ATPPRCT6554	200	210	260	mm
ATPPRCT6554	250	240	320	mm

PP-RCT FITTINGS



PP-RCT FEMALE TEE

ATPPRCT7102012	20 x 1/2"F
ATPPRCT7102034	20 x 3/4"F
ATPPRCT7102512	25 x 1/2"F
ATPPRCT7102534	25 x 3/4"F
ATPPRCT7103212	32 x 1/2"F
ATPPRCT7103234	32 x 3/4"F
ATPPRCT7103201	32 x 1"F



PP-RCT MALE TEE

ATPPRCT7122012	20 x 1/2"M
ATPPRCT7122034	20 x 3/4"M
ATPPRCT7122512	25 x 1/2"M
ATPPRCT7122534	25 x 3/4"M
ATPPRCT7103201	32 x 1"M
ATPPRCT7123212	32 x 1/2"M
ATPPRCT7123234	32 x 3/4"M



PP-RCT FEMALE ADAPTOR UNION

ATPPRCT7132012	20 x 1/2"F
ATPPRCT7132534	25 x 3/4"F
ATPPRCT7133201	32 x 1"F
ATPPRCT7134014	40 x 1 1/4"F
ATPPRCT7135012	50 x 1 1/2"F
ATPPRCT7136302	63 x 2"F



PP-RCT MALE ADAPTOR UNION

ATPPRCT7112012	20 x 1/2"M
ATPPRCT7112534	25 x 3/4"M
ATPPRCT7113201	32 x 1"M
ATPPRCT7114014	40 x 1 1/4"M
ATPPRCT7115012	50 x 1 1/2"M
ATPPRCT7116302	63 x 2"M

TOOLS



PIPE CUTTER	
982040	20 - 40 mm
985110	50 - 110 mm



WELDING MACHINE	
9002063	20 - 63 mm
9075110	75 - 110 mm
9125160	125 - 160 mm

Das Kunststoff-Zentrum **SKZ**

Test report no.: 11380/14
 DVGW-File no.: 14-0599-W (2014-11-14)

Customer/production site: Aquagas Plastic Industries
 Dubai Investment Park 2
 P.O. Box 56790
 DUBAI
 UNITED ARAB EMIRATES

Order: Initial type test on green coloured pipes made of PP-R, SDR 6 (S 2.3), groups 1 and 2, according to DVGW-work sheet W 544 (May 2007) "Plastic pipes in the drinking water installation – requirements and testing"

Model name: AQUATERRA

Summary of test results: see paragraph 6

Letter of: 2015-03-23 Ref: Tawo Ghannad

Receipt of samples: 2015-04-29 Sampling: —

Test period: from 2015-05-06 to 2016-09-26

This test report comprises 8 pages.

Würzburg, 2016-07-05
 Dr. Anton Zahn

Martin Schütz

DAKKS
 0100202-10000000

TZW
 Prüfzettel Wasser

Technische Spezifikation Wasser: W 544 (05/07) Ausgabe
 AquaGas Plastic Industries L.L.C
 At: Ahmed Faraj
 Street No. Community 567, Dubai Investment
 Park-2
 P.O. Box 56790
 DUBAI
 UAE

Your reference: e-mail of 27.03.2016
 For reference: No. certificate: see below
 Determination: Test Centre
 Control: MR. DAKKS
 Inspection: +49(0)21-42152-19
 Fax: +49(0)21-42152-29
 E-mail: info@tzw.de
 11.10.2016

Testing according to the „Guidelines for the Hygienic Assessment of Organic Materials in Contact with Drinking Water (PlW-Guidelines)“ of Umweltbundesamt (UBA) (Bundgesundheitsblatt current version)

Dear Mr. Faraj,
 the samples of your PP-R quality "AQUA TERRA PPR-CT FITTINGS (ø 25 mm) produced with Borstle RA7050-GH" announced in your letter mentioned above, your order of 12.06.2016, Po no 224, Insoxa No. RD217, arrived here the 14.09.2016. Tests were performed as ordered according to KTW guideline of Umweltbundesamt (UBA) (Bundgesundheitsblatt) current version).

The results are given in the adjacent test certificate.

Additionally, please find attached our invoice.

Best regards
 TECHNOLOGIEZENTRUM WASSER
 PRÜFZETTEL WASSER

Dr. J. Klinger / V. Dr.-Ing. R. Turković
 Head of the Test Centre

WRAS
 APPROVED MATERIAL

Water Regulation Advisory Scheme Ltd. Unit 13, Millway Road, Park View Estate, Essex, SPM 1 4ED.

Approved Number: 100010
 Test Report: 18W6525

17 June 2016
 Aquagas Plastic Industries L.L.C
 P.O. Box 56790
 DUBAI
 UAE

WATER REGULATORY ADVISORY SCHEME (WRAS) NATIONAL APPROVAL

The material referred to in the letter is suitable for contact with wholesome water for domestic purposes having met the requirements of BS2030 1:2000 and/or 2014 "Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water".

The relevant criteria apply to the effect on the quality of the water with which they come into contact and does not signify the approval of the manufacturer or the product for any use.

FOR USE IN DRINKING WATER SUPPLY

Aqua Terra PP-R Pipe: Green coloured, extruded PP-R pipe for use with water up to 85°C.

APPROVAL NUMBER: 100010
APPROVAL HOLDER: AQUAGAS PLASTIC INDUSTRIES L.L.C

The full view version of the report is available upon request.
 Approved 10/02/16 to valid until 10/02/18, 2016 and 10/02/2017

An ethics protocol will accompany the product for the Water Filtrage Division only under the product heading. "Materials which have passed full tests of effect on water quality".

The Directory may be found at www.wras.gov.uk/

Yours faithfully
 Jason Purcell
 Approved & Exports Manager
 Water Regulatory Advisory Scheme

IMS Certification Certification made simple™

Certificate of Registration
 Presented to
AQUAGAS Plastic Industries L.L.C.
 P.O. Box 56790, Dubai Investment Park - 2, Dubai, United Arab Emirates
 (ISO Certified Company)

IMS Certification certifies that the Environmental Management System of the above organization has been audited and found in compliance with the requirements of the standard detailed below:

Management Standard Certifications:
 ISO 14001:2015 Environmental Management System

Legal Status: Limited Liability Company
 Certificate ID: AD-19-1003296
 Registration Term: 10 years (subject to annual audits to confirm the continued satisfactory operation of the organization's Management System)

Initial Registration: 28th June 2016
 This Certificate issued: 28th June 2016
 Certificates valid to: 27th June 2026
 Main SIC Code: 223040
 Scope of Certification: Manufacturer of "AQUATERRA" PPR Pipes and Fittings and "PPETERRA" Pipes and Fittings

Signature of the Registrar
 IMS Certification Body

DAKKS
 0100202-10000000

ATTESTATION OF CONFORMITY

ISSUED TO: AQUA GAS PLASTIC INDUSTRIES L.L.C
 P.O. Box 56790, Dubai Investment Park 2, Dubai, UAE

PRODUCT(S) DESCRIPTION: PPR Pipe SDR 6 PN 20 "AQUA TERRA" 10 mm to 160 mm

MANUFACTURED BY: AQUA GAS PLASTIC INDUSTRIES L.L.C
 P.O. Box 56790, Dubai Investment Park 2, Dubai, UAE

APPLICABLE STANDARD SPECIFICATIONS / REQUIREMENTS: DVGW Type Examination as per DVGW W 544 (01.02.2007), UBA-KTW (01.02.2006), DVGW W 370 (01.11.2007)

CONFORMITY CERTIFICATE DETAILS:
 DW-8317CR0300 / DW-8317CR0301
 CERTIFICATE TITLE: DVGW TYPE EXAMINATION CERTIFICATE
 ISSUED BY: DVGW CERT GMBH
 ISSUED TO: AQUA GAS PLASTIC INDUSTRIES
 EVALUATION REPORT NO: RA3066000A

ATTESTATION

Dubai Central Laboratory Department hereby attests that the product(s) described above conforms to the requirements of the applicable standard specifications / requirements.

This attestation is based solely on the review and verification of the validity and authenticity of the Product Conformity Certificate and as per Evaluation Report as mentioned above. **This attestation shall not be used when the Product Conformity Certificate becomes invalid at any time.**

AMF MUSA AL MARZOOGI
 Products Conformity Assessment Section Manager
 Dubai Central Laboratory Department

Attestation No: YA18090015
 Original Issue Date: 06 March 2018
 Current Issue Date: 06 March 2019
 Valid Up To: 05 March 2021

DVGW
 CERT

DVGW-Baumusterprüfzertifikat
 DVGW type examination certificate

DW-8317CR0300
 Registration number

Anwendungsbereich / Field of application: Produkte der Wasserversorgung / products of water supply

Zertifizierhaber / owner of certificate: Aquagas Plastic Industries
 Dubai Investment Park 2, UAE - Dubai

Hersteller / manufacturer: Aquagas Plastic Industries
 Dubai Investment Park 2, UAE - Dubai

Produkt / product category: Kunststoffrohre für die Trinkwasserinstallation: PP-R, SDR 6 (8317)

Produktbeschreibung / product description: Kunststoffrohr aus PP-R für die Trinkwasserinstallation

Modell / model: AQUATERRA

Prüfberichte und -protokolle / test reports: Baumusterprüfung: 11380/14 vom 05.07.2016 (SKH)
 KTW-Prüfung: KR 200/19 vom 10.06.2016 (TZV)
 Mikrobiologische Prüfung: MO 028/19 vom 23.09.2015 (TZW)

Prüfgrundlagen / test basis: DVGW W 544 (01.05.2007)
 UBA KTW (01.11.2007)
 DVGW W 270 (01.11.2007)

Ablaufdatum / AZ / date of expiry / file no.: 05.07.2021 / 14-0599-WNE

26.09.2016 G A 1/2
 Exam. Report No. 14-0599-WNE
 Date of issue: 05.07.2016

DAKKS
 0100202-10000000

UNITED ARAB EMIRATES
 MINISTRY OF INFRASTRUCTURE DEVELOPMENT
 الإمارات العربية المتحدة
 وزارة التطوير والبنية التحتية

Supplier Certificate

Registration No / رقم التسجيل: EQ_25817
 Commercial Name / الاسم التجاري: AQUAGAS PLASTIC INDUSTRIES L.L.C
 Address / العنوان: (04) 882-9588
 Phone / الهاتف: 56790
 Fax / فاكس: 042674383
 Registration Fields / مجال التسجيل: —

Recommendation / التوصية:
 Issue Date / تاريخ الإصدار: 11/11/2018
 Expiry Date / تاريخ الانتهاء: 10/11/2019
 Receipt No. & Date / رقم الإصدار والتاريخ: 18008357466 23/10/2018

1 Product Name: PP-R Pipes & Fittings - Brand: Aquagas Plastic Industries - Aquaterra - Country: United Arab Emirates

NSF International
 789 N. Dixboro Road, Ann Arbor, MI 48106 USA

RECOGNIZES
Aqua Gas Plastic Industries- AQUATERRA
 United Arab Emirates

AS COMPLYING WITH NSF/ANSI 14, 61 AND ALL APPLICABLE REQUIREMENTS.
 PRODUCTS APPEARING IN THE NSF OFFICIAL LISTING ARE AUTHORIZED TO BEAR THE NSF MARK.

NSF
 NSF/ANSI 14, 61
 NSF/ANSI 14, 61
 NSF/ANSI 14, 61

David Purcell
 Vice President, Water Systems



AQUAGAS PLASTIC INDUSTRIES

Dubai Investment Park 2

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www.aquagasplastics.com