

## PROJECTS

Our steady growth puts Interplast in the first place in sales of plastic pipes for plumbing and heating for building establishments in the Greek market. At the same time, Interplast exports to more than 60 countries and our products have been installed in many highlighted projects throughout Europe, the Middle East, Africa and America. For us, our lead is shown by our participation in numerous constructions of hotels, hospitals, industrial applications, commercial shops and residential units.



Kuda Villingili Resort, Maldives



Skyline Tower, Beograd



The St. Regis Doha, Qatar



Grande Bretagne, Athens



Domains Biblia Chora, Kavala



Mayia Exclusive Resort & Spa, Rhodes



Sani Dunes, Chalkidiki



Atlantica Dreams Resort & Spa, Rhodes



Domes of Elounda, Crete



Radisson Blu Hotel, Larnaca, Cyprus



Installed Manifold, Aqua-Plus Prins in 5\* Hotel



Pre-Insulated Manifolds and Pipes, Aqua-Plus Prins in 5\* Hotel compound



Aqua-Plus Pipes & Aqua-Plus Prins in 5\* Hotel compound



## CERTIFICATIONS

Aqua-Plus pipes and fittings meet and exceed the specifications set by European & US Standards, the internationally accepted German DIN and the British BS standards. As a result Aqua-Plus does not present so much as a single failure in the regular biannual tests carried out by official institutes on random samples from production and the warehouse. The outcome of all the above is that Aqua-Plus has been certified as a final product by the following organizations:

TUV-EN ISO 9001:2015, ISO 14001:2015, ISO 50001:2015, EPD Sweden, MIRTEC Greece, WRAS/NSF Great Britain, ICC/ASTM USA, ICC/NSF USA, ICC/ANSI USA, NSF 372, SKZ Germany, FFI Germany, AENOR Spain, KIWA Netherlands, EMI Hungary, NNK Hungary, OKF Hungary, National research center Egypt, Housing & building national research center of Egypt and HZJZ Croatia,

**Fittings Certifications PN30:** ICC USA, NSF 372, MIRTEC Greece, WRAS Great Britain and HZJZ Croatia.



**Warranty:** 10 years warranty with insurance covered by Generali, for an amount up to €5.000.000.

**Triple Certification for the Environment and Energy Saving:** EN ISO 14001: 2015, EN ISO 50001: 2018, EPD (Environmental Product Declaration)



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HOUSE OF INNOVATION

# futureproof

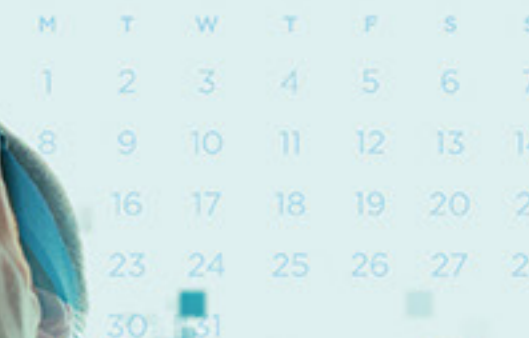


## Aquaplus

PPR Pipes and fittings—Random



OCTOBER 2078



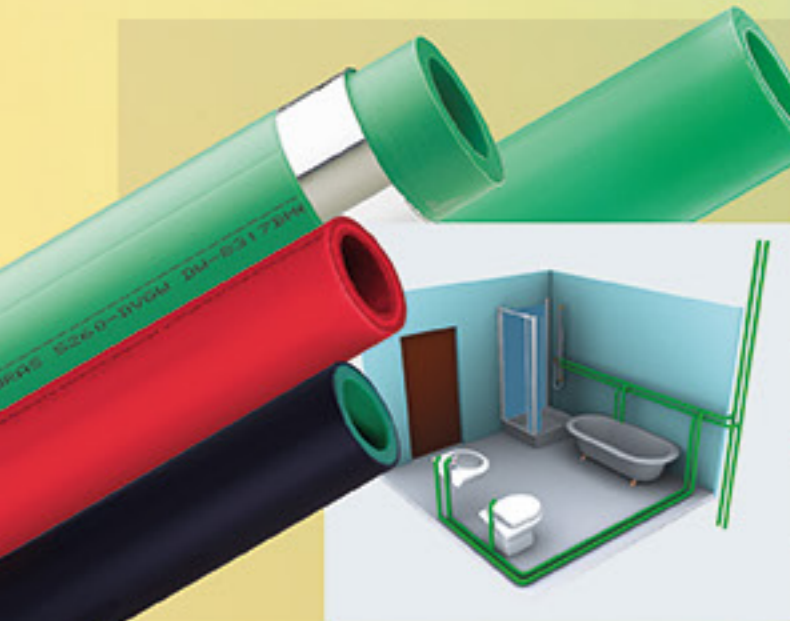
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HOUSE OF INNOVATION

## Aquaplus PIPES & FITTINGS

The structure of the material and the smooth texture of the surface ensure low friction losses resulting in low resistance and low pressure drop in the piping. Furthermore, the material used presents a greatly reduced noise factor and restricted transmission of noise through the pipes.

Thus, plastic pipes of smaller cross-section can be used for the same quantity of water. Aqua-Plus pipes are manufactured in diameters ranging from 20mm up to 125mm, in 4-meter straight lengths, and from 160mm up to 450mm in 5,8-meter straight lengths. There is also production capability 11,6-meter straight lengths.



### PP-R & PP-RCT PIPES

Interplast produces the below types of pipes which are responding to plumbing, heating, cooling for cold water up to -15°C and District heating up to +100°C.

Aqua-Plus SDR 6 (PN 20) single layer pipes, PP-R 100.

Aqua-Plus UV SDR 7,4 (PN 20) pipes, two layers, PP-R 125 with a special black covering for higher UV protection. \*Upon request with glass fiber.

Aqua-Plus multilayer pipes with aluminum, SDR 7,4 (PN 20), PP-R 125. This type of pipe performs lower or equal linear expansions of 0,025mm/m/°C.

Aqua-Plus multilayer pipes with glass fiber, SDR 7,4 (PN 20), PP-R 125.

Aqua-Plus Clima multilayer pipes with glass fiber, SDR 11 (PN 16), PP-R 125.

Aqua-Plus PP-RCT multilayer pipes with glass fiber, SDR 9 (PN 20). It is recommended for networks with very high water temperatures. Also PP-RCT offers high resistance to chlorinated water. Pipes are certified according to ASTM F2389 and NSF.

Aqua-Plus PP-RCT multilayer pipes with glass fiber, SDR 17 (PN 12,5).

Aqua-Plus Firefighter multilayer pipes with glass fiber, SDR 7,4 multilayer PP-R 125 for firefighting networks.

Aqua-Plus OT five layer pipes with glass fiber, SDR 7,4 & 11 PP-R 125 with oxygen barrier layer.

Multilayer pipes with glass fiber perform lower or equal linear expansions of 0,030mm/m/°C.

For the above pipes raw material with special additives are used, giving worth to the whole system like UV Protection, Metal Deactivator etc.

The reduction of the pipe's wall thickness (SDR) must be followed by different raw material (PP-R or PP-RCT) or from different MRS (e.g  $\sigma = 8\text{Mpa}$  or  $\sigma = 12,5\text{Mpa}$ ).

Interplast has obtained certifications for every type of pipe as required by the European and American Regulations.

PP-R pipes are recommended as the first choice for their drinking water suitability by Greenpeace Organization.

#### Lifespan Table

Temperature (°C)	Lifespan (years)	PP-R 100-SDR 6	PP-R 125-SDR 7,4	PP-RCT SDR 9	PP-R 125-SDR 11	PP-RCT SDR 17
		Operating pressure (bar)				
20	50	25,9	29,2	29	20,4	14,6
40	50	18,4	21,5	21,6	14,6	10,7
60	50	12,9	15,4	16,1	10,3	7,8
70	50	8,5	12,9	14	6,8	-
80	25	6,4	10,9	12,4	5,2	-

### ADVANTAGES

- ▶ Pipes and fittings display high resistance to hydraulic shock (at pressures greater than 130 bar at ambient temperature).
- ▶ The lifespan of more than 50 years for temperatures of 20°C to 90°C and operating pressure of 6-26 bar, depending on the type of the material and the SDR of the pipes. Peak temperatures of 110°C at 4 bar operating pressure do not affect the Aqua-Plus system.
- ▶ Exceptional resistance to corrosion. Very good performance even in areas with very hard water.
- ▶ Low thermal conductivity makes it possible to reduce heat loss in the hot water networks.
- ▶ Reduction of thermal linear expansion in three-layer pipes that include aluminum or fiberglass.

AquaplusPrins AquaplusClima  
 AquaplusAL AquaplusPP-RCT  
 FIREFIGHTER PLUS  
 AquaplusOT AquaplusUV



### Aqua-Plus Prins PRE-INSULATED SYSTEM

- ▶ The Aqua-Plus Prins system is insulated externally with uniform insulation of closed cell polyurethane.
- ▶ The foam of Polyurethane is fulfilled and actually over-exceeds the characteristics which are defined by the standards of EN 253.
- ▶ Casing pipe is made of ecological PVC which has better insulation properties and lower thermal expansions than PE.
- ▶ The system (ecological PVC, Polyurethane and PPR) is classified as B,s2,d0 according to EN 13501 (SBI) concerning the reaction on fire.

There is also production capability with HDPE case in 4m, 5,8m and 11,6 straight length.

The advantages of Aqua-Plus Prins compared to conventional insulation systems are:

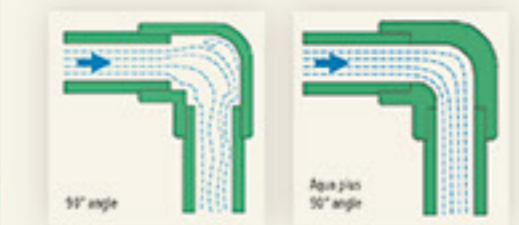
- Reducing energy consumption up to 70%
- Zero maintenance for 50 years
- Lower thermal linear expansion than cooper
- UV protection
- Sparse and simple types of supports due to minimum thermal expansions and the minimum bend arrow of Pre-Insulated pipes
- Perfect system for underground and visible networks of hot and cold water
- Higher mechanical strengths
- Zero condensation

Aquaplus Prins



### TOTAL FLOW INDEX CERTIFIED FITTINGS Aqua-Plus PN 30

The Aqua-Plus fittings are amongst the few in the world that have ICC, MIRTEC and WRAS Certifications.



The fittings are manufactured in accordance with DIN 16962 from Polypropylene Random (Type 3) and available in diameters from 20mm up to 450 mm. For the production of the fittings the company uses raw material with a low melt flow index, identical to that of its pipes, so that the mechanical strength of the pipe does not differ from that of the fittings. They are produced with a wall thickness equivalent to 30 bars.

The considerable thickness of the walls of the PN 30 fittings allows us to design a better internal geometry of the fittings so as to considerably reduce the value of hydraulic losses and to improve the flow through the system.

For example, the local resistance coefficient ( $\zeta$ ) of the 90° elbow for the usual PN 20 fittings is 1.2 whereas for the PN 30 fittings is 0.9, i.e. 25% less. The fittings with high wall thickness are characterised as total flow while the fittings with small wall thickness as partial flow.

The brass parts (metal inserts) are reinforced, heavy-duty type and of low hardness (105 Brinell) thus eliminating the possibility of cracking, which is particularly common in fittings with female threading. They have cross-shaped grooves at the base of the brass insert so as to prevent torsion and consequent detachment of the metal from the plastic part.

Perimetric fitting retaining grooves, in which one side of the groove has negative declination, from the outside in, so as to retain the PP-R material and prevent detachment of the metal part from the plastic part in the presence of tensile forces.

The PP-R overlaps the male brass inserts on the inside. In this way the metal parts are isolated from the installation, and solid deposits and consequently reduced flow are prevented. Moreover, the system is protected against electrochemical corrosion.

For the heating-plumbing technician's convenience Interplast produces an intake with predefined connection distances for the bath battery allowing connection of the hot or cold water lines either from the floor or from the wall.