



# ComoPex

Pipes and Fittings for Water Supply and Heating

## FEATURES

PEX pipes are safely and reliably used for 40 years all over the world. They are designed for a lifetime of more than 50 years, for temperatures up to 95°C and working pressure from 6 to 10 bars.

**Temperature peaks of 110°C in 4 bars of working pressure do not affect Como-PEX pipes.**

Due to their cross linked structure, **ComoPEX pipes have thermal memory** which allows them to recover in their first structure after a thermal stress. In other words, the internal structure of the material “remembers” the initial form that has been given during its production.

**Como-PEX** pipes are featuring great durability to aging in connection to high temperature and pressure conditions. The lifetime diagram confirms the excellent performance of the pipes, in the case they are used according to manufacturer's specifications and suggestions.

**Como-PEX** pipes are durable, flexible and totally reliable for water supply and heating installations.

Como-PEX pipes are produced with or without Oxygen barrier and are exceeding the **European standard EN ISO 15875 and the German ones DIN 16892/16893.**

The pipes with oxygen barrier coating are responding to DIN 4726 and are specially designed for applications in heating installations. The **external layer EVOH** does not allow oxygen to penetrate the pipe and start corrosion in the metallic parts of the system.

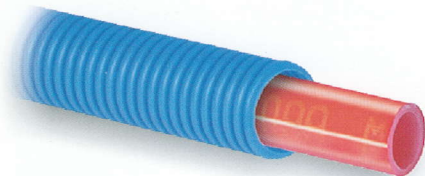
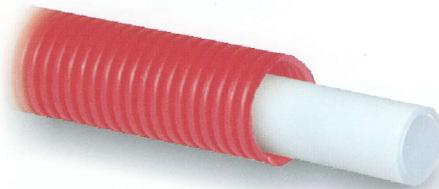
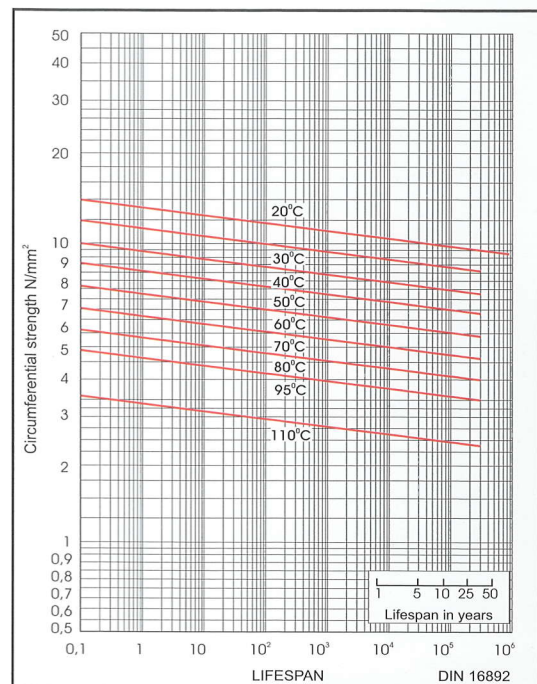


TABLE SHOWING COMO-PEX LIFESPAN AT SAFETY FACTOR 1,5

TEMPERATURE (°C)	LIFESPAN (YEARS)	PRESSURE	SAFETY COEFFICIENT
20	50	19,5	1,5
60	50	13	1,5
90	50	9,6	1,5
95	50	8,2	1,5



## COMO-PEX - SUPERIOR GREEK QUALITY

Research is one of the areas our company is investing. Major role in that has the **Thermal Cycling Tester which is the confirmation of the high quality of our products.**

There takes place the testing of our systems in the most demanding conditions. Pipes and fittings are in operation in a steady pressure of 6bars and in temperatures of 20 and 95°C, which are changing every 15 minutes. This is repeated for 5.000 15min circles (52days). **There is no other equipment of this caliber in any other company in the Balkans.**

DIMENSIONS	TEMPERATURE (°C)	TEST DURATION (h)	TEST PRESSURE IN ACCORDANCE WITH REGULATIONS (bar)	COMO-PEX TEST PRESSURE (bar)
16*2,0	20	1	34,29	60
	95	1000	12,57	15,71
18*2,5	20	1	38,71	67,74
	95	1000	14,19	17,74

With the support of the modern laboratory equipment and research, **Interplast** uses special additives which give significantly improved properties in the pipes which are seen in the table in the left.

### Certifications:

EVETAM Greece, SKZ Germany, CSA Canada, MPA-NRW Germany, WRAS Great Britain, AENOR Spain, ZIK Croatia, PCT Russia, ISS Serbia.

### Tests:

• State's General Chemistry.

### Guarantee:

30 years for the pipe and 10 years for the metal fittings, regarding its connections sealing, from ALLIANZ for the total amount 3.000.000 €.

## POLYETHYLENE BEHAVIOUR TO POTABLE WATER

**PE** is a material that is **not reacting with water or its components** (totally dormant), is not polluting with any chemical product which can harm the water quality, microbial and bacterial factors are not developed in its surface, it shows **no corrosion by chemical factors, cement, calcium or acidic water**, features very low roughness (surface irregularities average rate in mm), having as result pipes and fittings to be protected from the water abrasion to the internal surface of pipe, while the rate of pressure drop is very low. For all these reasons, **Greenpeace**,

as it can be seen in the table below, but also other **corresponding environmental non-state organizations, are proposing this type of plastic pipes for urban and residential water supply networks**, because they have low energy burden, provide clean potable water without detrimental components and same time don't have corrosion problems as the metal ones. They even propose as first choice the use of plastic pipes Polypropylene (**PP**), Polyethylene (**PE**) and Polybutylene (**PB**) for the water supply installations.

### SPECIFIC EXAMPLES OF ALTERNATIVE CHOICES IN CONSTRUCTION PRODUCTS

	1st CHOICE	2nd CHOICE	3rd CHOICE	NOT RECOMMENDED
Water pipes	Polypropylene (PP) Polyethylene (PE) Polybutylene	Stainless steel	Copper	PVC

**GREENPEACE**

Source: Greenpeace, [www.greenpeace.org/greece/el](http://www.greenpeace.org/greece/el)

## CROSS-LINKING METHODS - ADVANTAGES OF PEX-b

The most well-known methods of cross-linking used in industrial production are method **-a** (hyper oxide), method **-b** (silane) and method **-c** (radiation). All the above methods output the same result in PEX pipes and are responding to **DIN 16892/16893** and the recent European specifications **EN ISO 15875-1/2**.

The **Como-PEX** pipes of **Interplast** are produced with method **-b**. It is a method that managed to improve the PEX pipe features. The production method of PEX-b pipes was invented in Sioplast laboratories in 1970.

It has a first cross-linking rate of 65% which is increased as time runs and reaches the level of **80%** in comparison with the other two methods (PEX-a, PEX-c) which stops at **60%** and **70%** accordingly.

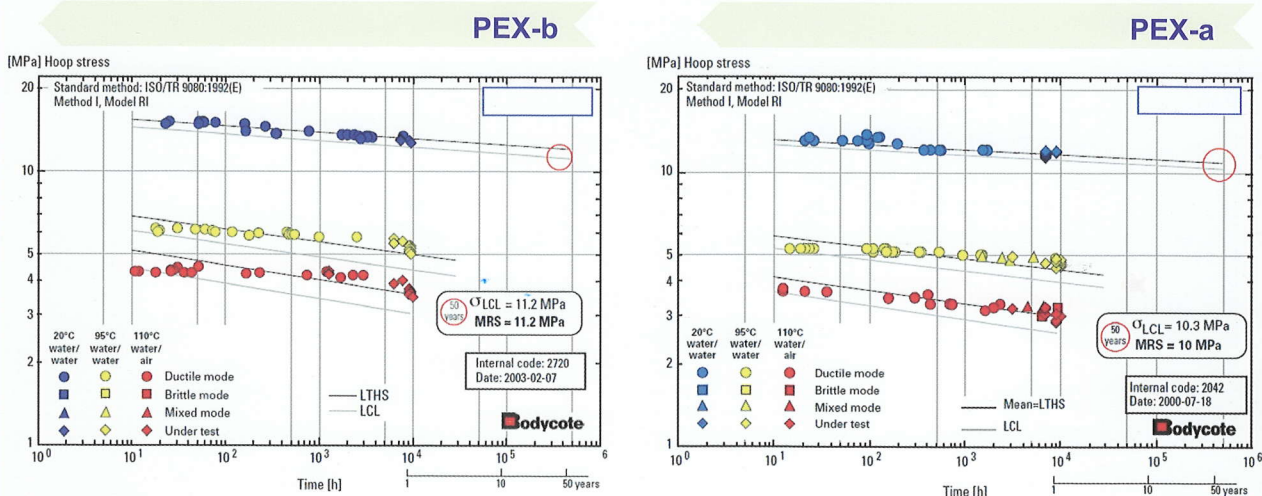
**It is considered the best method for many reasons, but mainly for the absolutely three-dimensional, dense structure and the high chemical resistance in chlorinated water, due to the adequate quantity of antioxidant additives in their material.**

For the above reasons it is used by most of PEX pipe manufacturers around the world.

## PEX PIPE DURABILITY

In the diagrams below, it can be seen the durability in pressure of a **PEX-b** and a **PEX-a** pipe in long term tests which held in the famous Swedish Institute **Bodycote Polymer**. The durability prediction for the **PEX-b** pipe in 20°C for 50 years is 11,20 MPa, while for the **PEX-a** pipe is 10,30 MPa. In 95°C the durability is 4,20 MPa and 3,81 MPa accordingly. While in 110°C are 3,06 MPa and 2,60 MPa accordingly.

**The results show clearly the supremacy of PEX-b pipe by 9% in 20°C, by 10,3% in 95°C and by 17,7% in 110°C, versus PEX-a pipe.**



## ComoPEX Fittings

**Inerplast is one of the few companies in Europe which has a vertically integrated production and the only one in Greece which is producing all the parts of its system while guarantees for the total of Thermohydraulic installations.** Through its affiliate EVLIOM SA is producing the fittings which cooperate to the ComoPEX system.

### Regulative manifold (with stuffing)

The manifolds are produced from brass profile, according to the requirements of the European Norm EN 12167 and DIN 50930/6 which refers to the suitability of brass fittings for potable water installations.

**The position of mechanism in the manifold body is vertical, which results in increased water supply and improved water flow.**

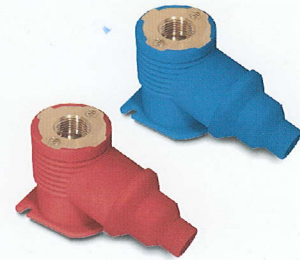
The manifold have **battery type mechanism**, so by the rotation of the ruffle, the axle does not rise and fall, but only the valve, while mineral salt deposit on the O-ring is avoided. This deters the O-ring and axle wear.



### Wall plate Elbow 105°

It is a wall plate elbow with 105° leaning, which facilitate the installer's intervention, in case of replacement of the brass part or the pipe line entirely.

By using the suspension in the lower part of the elbow, it is managed not to have a water flow out of the protection corrugated pipe in case of leakage.



### Brass bar manifold

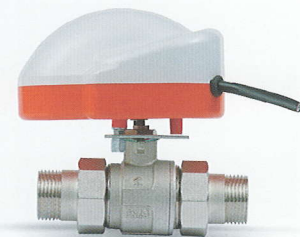
The manifolds are produced from brass profile alloy CW614N, according the requirements of the European Norm EN 12167 and DIN 50930/6. They are produced in dimensions of 3/4", 1" and 1 1/4", from 2-12 outlets of 1/2". The brass threads are made according to EN ISO 228. The product has low hardness for being more durable to mechanical stress and is distinguished for its big wall thickness.



### Electro-valve

The Flash Valve electro-valve is produced with strict European criteria following the EU specifications (instruction application EU73/23) labeled CE, certified from Labor SA laboratory. The engine is Cruzet and wears an embodied ratchet type mechanical break.

The Flash Valve electro-valve has a torque of 17,9Nm, certified according to "Pony Brake", which gyrates the ball valve even in very tough conditions resulting not having any engine problem.

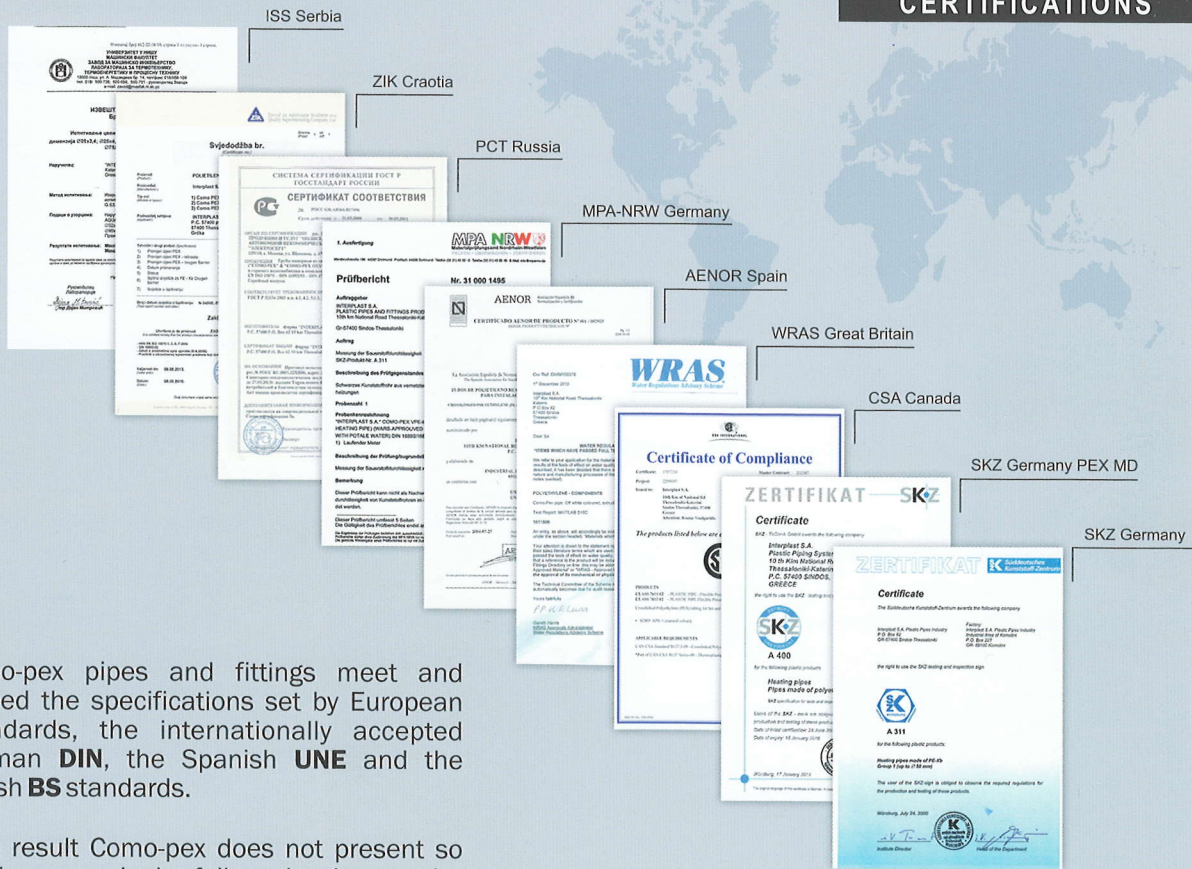


### Brass Fittings

They are produced from high quality alloy and are covering all requirements of European and German specifications. Specifically for the extensions, the raw material has been thermally processed twice in order to reach the appropriate hardness and to minimize the possibility of season cracking.



# CERTIFICATIONS



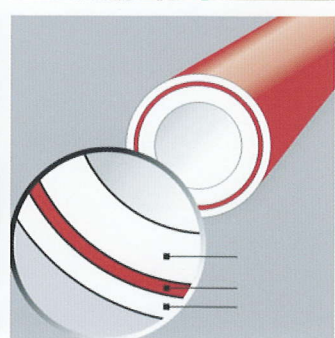
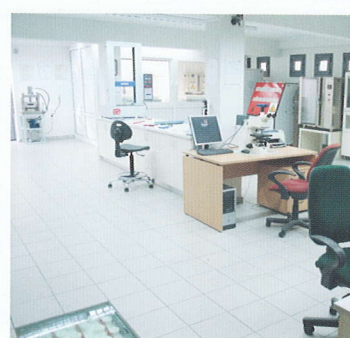
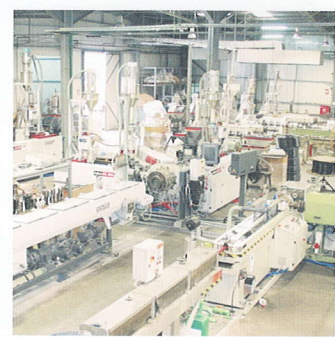
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Como-pex pipes and fittings meet and exceed the specifications set by European Standards, the internationally accepted German **DIN**, the Spanish **UNE** and the British **BS** standards.

As a result Como-pex 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:

- **ISO 9001** by **TÜV** Germany.
- **EVETAM** Greece, **SKZ** Germany, **AENOR** Spain, **CSA** Canada, **ZIK** Croatia, **PCT** Russia, **ISS** Serbia for the mechanical strengths of the pipe.
- **MPA-NRW** Germany for oxygen permeability.
- **WRAS** Great Britain, **ZIK** Croatia, **PCT** Russia, for the suitability of Como-Pex pipes for drinking water.



Furthermore, the pipes are also checked by the State General Laboratory for their suitability for drinking water.



[www.interplast.gr](http://www.interplast.gr)