

# & Fittings Plumbing - Heating

## CONNECTION FITTINGS

Interplast is one of the few companies in Europe with vertically integrated productions and the sole company in Greece that manufactures all the components of the system while offering a guarantee on the entire heating-plumbing installation. The company's subsidiary ELVIOM S.A. manufactures brass fittings for the Como-Pex system.

### Regulating bar manifolds (with PTFE sealing)

The manifolds are manufactured of brass bars compliant with the European norm EN 12167 and DIN 50930/6, which refer to the suitability of brass fittings for drinking water installations.

The mechanisms in the manifold are vertically placed therefore increasing the circuits and improving the flows.

Manifolds have a bar type mechanism. As the wheel turns only the valve moves, without the axis moving up and down and at the same time salt build-up is prevented. This prevents wear and tear of the O-ring of the axis.

The flow tests and the drawings of the pressure drop diagrams in the manifolds and the valves have been approved by the German Institute BAUMER.



### 105° Wall plate elbow

The 105° wall plate elbow facilitates the intervention by the installer in the event of replacement of the brass part or the entire pipe line.

By using the reducing sleeve in the lower part of the wall plate elbow, we prevent any "water dripping out" from the corrugated pipe in case of leakage.



### Brass bar manifold

The manifolds are manufactured of CW614N alloy copper profiles compliant with European standard EN 12167 and DIN 50930/6. They are manufactured in 3/4", 1" and 1 1/4" dimensions, from 2 to 12, 1/2" outlets.

The manifold's threading is constructed according to EN ISO 228. The product has low hardness so that it may be more resilient to mechanical stresses and stands out for its extra thick walls.



### Brass fittings

They are produced by high quality brass alloy and exceed German standards. Especially for fittings the final product is subject now for a second time to thermal processing, eliminating the stresses that have been developed during processing, thus nullifying the possibilities of season cracking and restoring the desirable hardness.



## CERTIFICATIONS

The Como-Pex pipes and fittings exceed the requirements come by European norms, worldwide accepted US ASTM, German standards DIN, Spanish UNE and British BS. As a result, the pipes do not fail to meet the regular half-yearly audits carried out by official institutes that deal with random samples of production and storage.

Because of the above the pipes are certified or tested as end products by the following organizations:

ISO 9001:2015 from TÜV Germany.

(Company QA Certificate)

ISO 14001:2015, ISO 50001:2015.

MIRTEC Greece, ICC USA, SKZ Germany, CSA Canada, KIWA Netherlands, MPA-NRW Germany for the permeability of oxygen.

State General Laboratory, US NSF, WRAS United Kingdom, ZIK Croatia, PCT Russia, for the suitability of pipes in contact with drinking water.

30 years guarantee for pipe and 10 years for brass fittings for tightness the connections, covered by insurance company Generali for an amount of money up to €5.000.000.

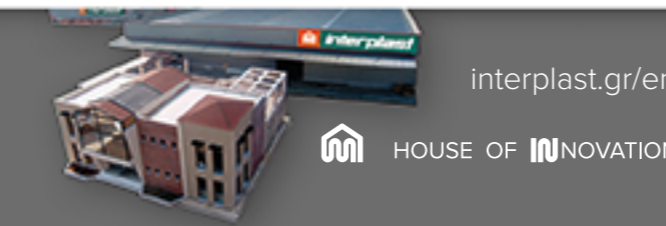


ComoPex



ComoPex

Pipes and Fittings for Plumbing – Heating



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# Pipes

## CHARACTERISTICS

Pex pipes have been used safely and reliably for over 50 years worldwide. They are designed for a life span of more than 50 years, temperatures up to 95°C and operating pressures of 6 to 10 bar.

**Temperature peaks of 110°C at an operating pressure of 4 bar do not affect the pipes Como-Pex.**

- ▶ Due to their cross-linking structure, the pipes have a **thermal memory** that allows them to return to their original form after thermal stress. Essentially, the internal structure of the material is affected by the form given during production.

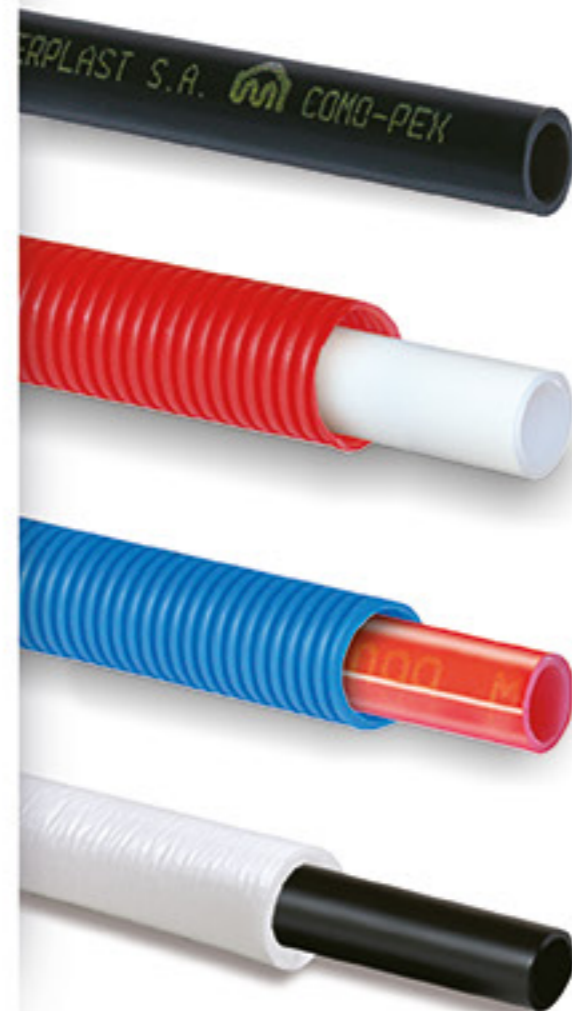
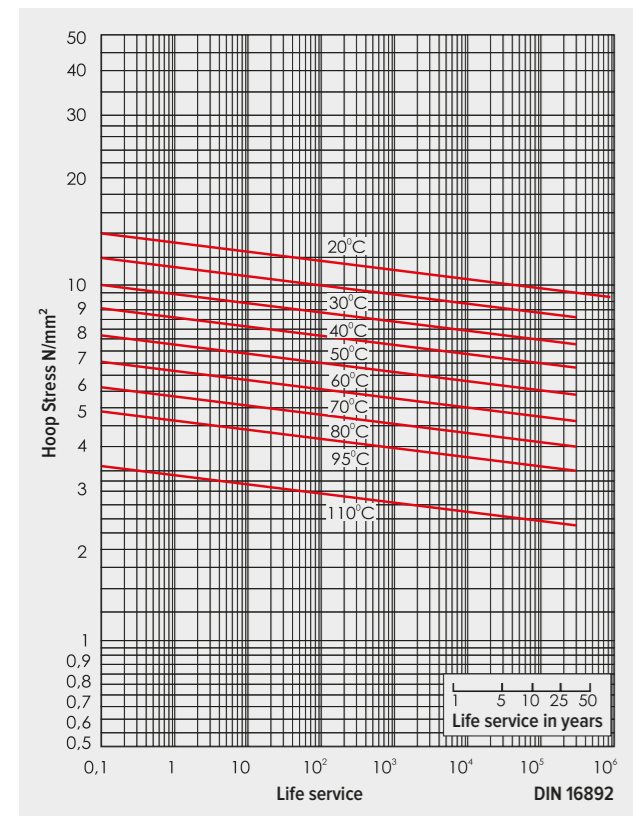
- ▶ Como-Pex pipes exhibit excellent aging resistance combined with high pressure and temperature conditions. The service life diagram confirms the excellent performance when used in accordance with the manufacturer's specifications and instructions.

- ▶ Como-Pex pipes are durable, flexible and completely reliable for plumbing and heating applications.
- ▶ Como-Pex pipes produced with or without oxygen barrier meet and exceed **European norm EN ISO 15875, the US standards ASTM F876, NSF 14/61 and German DIN 16892/16893.**
- ▶ Pipes with oxygen barrier layer meet the requirements of DIN 4726. The EVOH outer layer does not allow oxygen to enter the pipe and corrode the metal parts of the system.

They are well designed for applications in heating, especially underfloor heating installations, where the length of the circuits of the pipes requires their use. In case the pipe does not have oxygen barrier, the heat exchanger is required in order to avoid oxygen corrosion.

### Shelf life of tube by a factor of 1.5

| Temperature (°C) | Life span (years) | Pressure (bar) | Safety factor |
|------------------|-------------------|----------------|---------------|
| 20               | 50                | 19,5           | 1,5           |
| 60               | 50                | 13             | 1,5           |
| 90               | 50                | 9,6            | 1,5           |
| 95               | 50                | 8,2            | 1,5           |



## TOP EUROPEAN QUALITY

Research is a sector which Interplast company invests. An important part of this is the **Thermal Cycling Tester apparatus, which confirms the high quality of our products.**

Where all systems are certified in the most demanding conditions. In the thermal cycling tester apparatus, pipes and fittings stress at constant pressure 6 bar, at temperatures of 20°C & 95°C, which change every 15 minutes.

This is repeated 5.000 times in a 15 minute duration, which means 52 days.

**There is no equivalent equipment in any other company in the Balkans.**

Due to modern laboratory equipment and research and development, Interplast uses special additives that give significant properties to Como-Pex pipes as shown in the table below.

| Dimensions | Temperature (°C) | Test duration (h) | Test pressure according to regulations (bar) | Test pressure Como-Pex (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                        |



## PERFORMANCE OF POLYTHELYNE MATERIAL IN DRINKING WATER

PE is a material that **does not react with water or its components** (completely inert), does not extract any chemical that can harm the quality of the water, does not develop on its surface any microbiological or bacterial substances, **does not corrode from any chemical agents, cement, lime or acid waters** and has very low roughness (mean surface anomalies in mm), resulting in that the pipes and fittings are protected against damages caused by the friction of water with the inner walls of the pipes, while the pressure drop coefficients remain very low.

For all the aforementioned reasons, Greenpeace, as shown in the following table, and other relevant environmental non-governmental organizations, propose specific types of plastic pipe for water systems in buildings because they have low energy charges, provide clean drinking water without harmful substances, while not having the problems of

metal corrosion. They ideally propose as the first alternatives for plumbing, the use of plastic polypropylene pipes (PP), polyethylene pipes (PE) and polybutylene pipes (PB).

Indicative examples of choices in building products.



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

## CROSS-LINKING METHODS – ADVANTAGES OF PEX-B PIPES

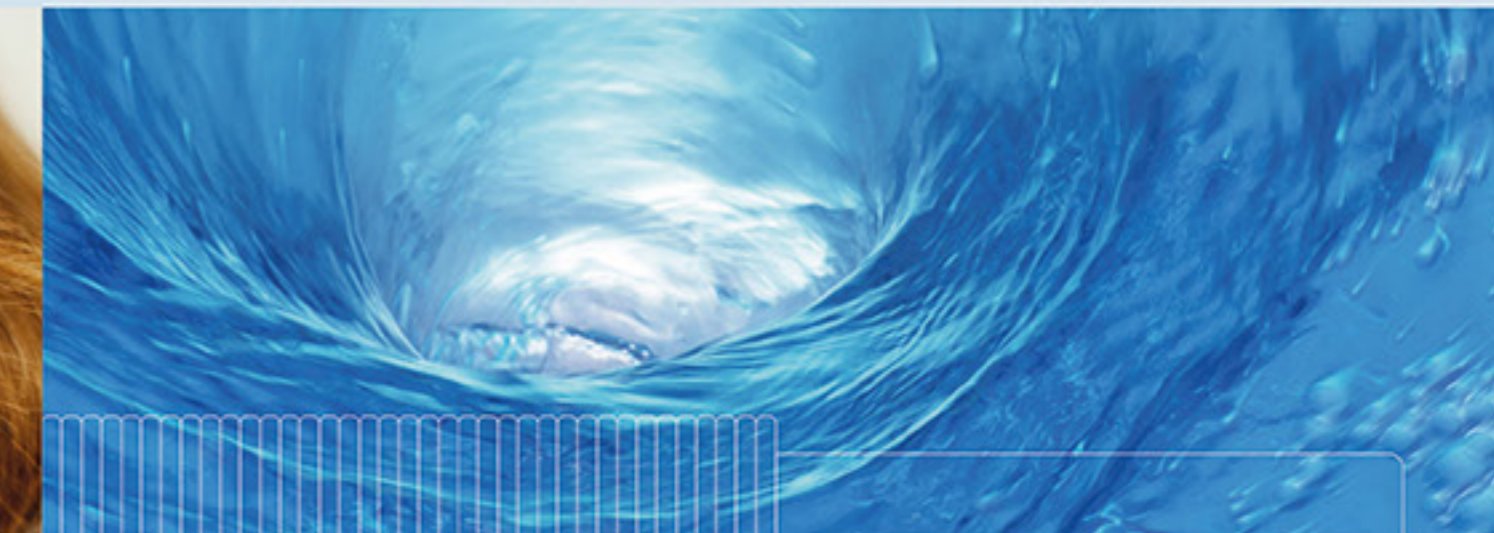
The most common cross-linking methods used in industrial production are **Pex-a** method (peroxides), **Pex-b** (silanes) and **Pex-c** (radiation). All the aforementioned methods achieve the same results in PE-X pipes and meet the **DIN 16892/16893** and the recent European **EN ISO 15875-1/2** standards.

The Como-Pex pipes of Interplast are produced using the **-b method**. It is a method that has managed to improve the characteristics of Pex pipes. The production method of Pex-b pipes was discovered in the laboratories of Sioplast in 1970. It had an

initial cross-linking degree of 65%, which increased over time and reached about 80%, in contrast to the degrees of the other two methods (Pex-c & Pex-a) that stop at 60% and 70% respectively.

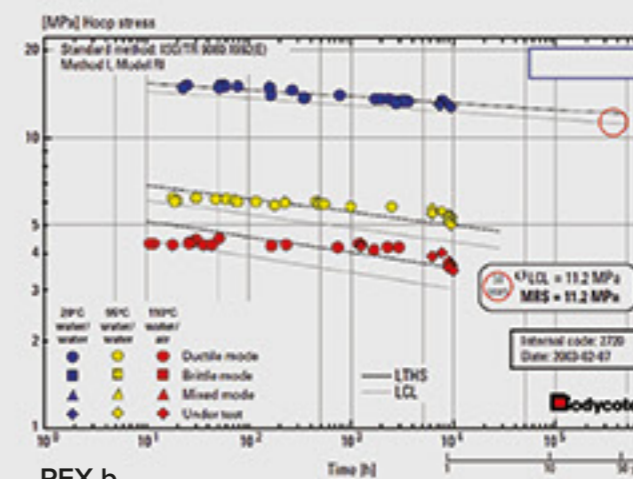
**It is considered to be the best cross-linking method for many reasons, but mainly due to its fully three-dimensional dense networking structure and its high chemical resistance to chlorinated water because of its sufficient amounts of antioxidant additives in its material.**

For these reasons, it is used by most manufacturers of PEX pipes worldwide.

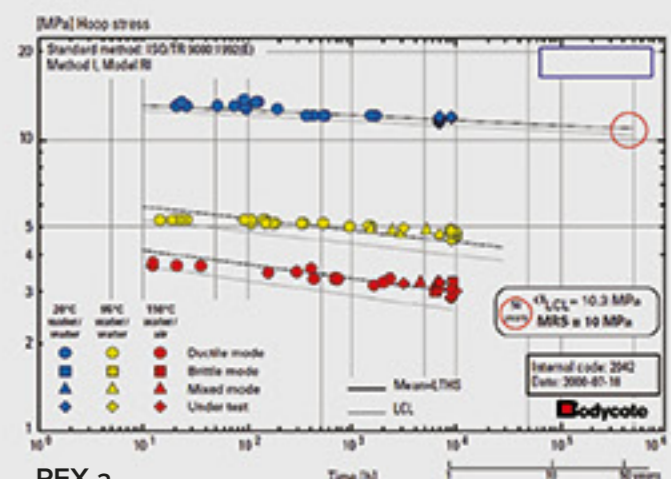


## PEX TUBES RESISTANCE

The following charts show the resistance to pressure of a **PEX-b** pipe and a **PEX-a** pipe in long term hydrostatic pressure tests conducted at the renowned Swedish Institute Bodycote Polymer. The prediction for the strength of the PEX-b pipe at 20°C for 50 years is 11.20MPa, while for the PEX-a pipe is 10.30 MPa.



PEX-b



PEX-a

Source: Bodycote Polymers, [www.bodycote.com](http://www.bodycote.com)