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PEX

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DİZAYN PEX-B PLUS Pipes

PEX means cross-linked Polyethylene. “PE” refers to the Polyethylene raw material and “X” to the cross-link.

Cross-linked Polyethylene Chains

The basic principle of cross-link is to connect carbon atoms on independent chains through forming bonds with a specific frequency. One Hydrogen atom from each chain is removed and corresponding carbon atoms are bonded with covalent bonds that results in Polyethylene cross-link.

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Features of PEX-b Crosslink Pipes

- No calcification and corrosion/decaying.
- No smell when used in sanitary systems
- Conforms to the hygiene standards of sanitary networks
- Is light in weight, easily handled and installed
- Low friction coefficient
- Resistant to electrolyze
- Resistant to chemicals
- Resistant to +95°C and -40°C
- Has 50 years of usability guarantee

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Pipe-in-Pipe (Pex-b Plus Pipe)

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Pex pipes are cross-linked with different methods;

Pipe Type	Method	Min. Link Density
PEX-a	Peroxide	% 75
PEX-b	Silane	% 65
PEX-c	Irradiation	% 60
PEX-d	Azo Method	% 60

PEX pipes are specified by the very same standards regardless of which of the above methods are used. Therefore, any Pex pipe that is produced conforming to the standards is ready for functioning. However, depending on the cross-link method, some characteristic differences occur. High cross-link density increases the durability of the product on one side and brittleness on the other. This means that the PEX pipes whose cross-link density is high are more elastic but more brittle at low temperatures. PEX-b is the ideal type with the optimum level of cross-link density, resistance to high and low temperatures, flexible, not brittle and economical.

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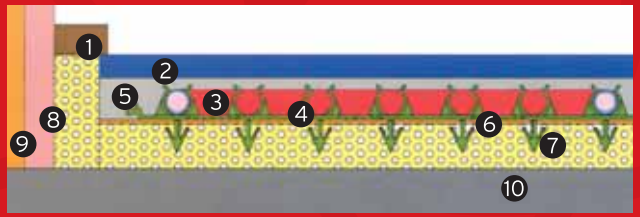
Standarts

Dizayn PEX-b Pipes are produced conforming to DIN 16893, DIN 4726 and TS 10762-2 EN ISO 15875-2 standarts and they have TSE certificate. When produced, PEX-b Pipes are taken into vapor cure pursuant to TS 10762-2 EN ISO 15875 and DIN 16892 in order to complete cross-linking. Our company applies the cross-link tests according to TS EN 579 standarts, pressure tests according to DIN 16892 and TS 10762-2 EN ISO 15875-2.

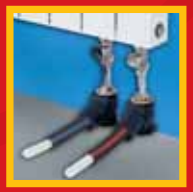
Fields of application for PEX-b Cross-link Pipes

1- Under-floor Heating Systems

1) Plinth
2) Carpet
3) 16*2 PEX heating pipe
4) Pipe holder
5) Floor screed (5-7 cm)
6) Polypropylene
7) Styrophor (16N18 density)
8) Plaster
9) Wall
10) Floor concrete



2- Central Heating Systems



3- Sanitary Systems

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Saving Time via Easy Installation

At the construction sites, for heating and sanitary system applications, placing Pex pipe inside the spiral pipe takes too much effort and labor. The coil of the spiral is unfolded hung down the building and Pex pipe is inserted in it. Results are loss of time-redundant labor and muscular tiredness. Dizayn's Pipe-in-Pipe Pex-b Plus Pipe eliminates the operation of placing the Pex pipe into the spiral pipe. It provides savings from costs, time and labor.

Advantages in Terms of Transportation and Stocking

Dizayn Pipe in Pipe Pex-b Plus Pipe eliminates the costs caused by stocking and transporting the Pex-b Pipe and the spiral pipe separately.

Long Life Installation with Oxygen Barrier

Dizayn Pex-b Pipe with Oxygen Barrier prevents oxygen from permeating in the heating systems, prolongs the life of high technology combi boiler and radiator, and minimizes the expenditure for heating.

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The Highest Impact Endurance

Dizayn Spiral Pipe doesn't deform under hard site conditions and protects the Pex-b Pipe inside by its high ring stiffness, and provides easy services when something wrong happens.

The Highest Pressure Endurance and Maximum Flexibility

Plastic materials get more breakable as their endurance against pressure increases. Dizayn's strong research and development team provided the highest endurance against pressure without losing from flexibility.

Maximum Resistance Against Sunlight

Carbon-black additive existent in the raw material of the spiral pipe, prevents the sunlight to affect and deform the material, which causes rigidity.

100 Years of Guarantee at 20°C
50 Years of Guarantee at 95°C

Dizayn promises 100 years of guarantee at 20°C, 50 years of guarantee at 95°C by means of the raw materials used, its excellent design and production capability.

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The Advantages of Using Dizayn Pex-b Pipe

- Better low and high temperature resistance
- Higher impact resistance in low temperatures
- Higher resistance to acid and various chemicals
- Provides fast and easy installation
- Does not calcify
- Does not stink
- Does not corrode
- Does not decay
- Protects environmental health
- Complies with hygiene requirements
- Is light, is very easy to carry and install
- Has low friction coefficient
- Is resistant to electrolysis
- Is flexible
- Provides long term system

Mechanical and Thermal Properties

	Value	Temperature
Density	0,95 g/cm^3	20°C
Tensile Strength	2.9 kg/mm^2	20°C
Tensile Strength	2 kg/mm^2	100°C
Breaking Elongation	300%	20°C
Breaking Elongation	500%	100°C
Elastic Module	19000kg/cm^2	-40°C
Elastic Module	15000kg/cm^2	0°C
Elastic Module	12000kg/cm^2	20°C
Elastic Module	5000kg/ cm^2	80°C
Shore Hardness	71kg/cm^2	20°C
VICAT Softening Temperature	140°C	
Coefficient of Linear Expansion	1.4x10^{-4}	20°C
Coefficient of Linear Expansion	2.5x10^{-4}	100°C
Heat Transmission Coefficient	0.41 kcal/mh°C	20°C
Coefficient of Thermal Expansion	2.1 x 10^{-4} K^{-1}	20°C
Operating Range	+95°C/-40°C	

PEX PIPES WITH OXYGEN BARRIER

The primary factor that shortens the lifespan of heating installations is corrosion. But oxygen is the substance that causes actual corrosion on metals. A feature of plastic pipe used in installations is oxygen permeability. The oxygen absorbed into pipes diffuses in liquid, reaches the metal parts of radiators or boilers and causes corrosion. The corrosion shortens the service life of steel radiators and boilers and causes big amounts of repair costs.

Specially produced pipes with oxygen barrier have an upper layer that prevents oxygen passage. As a result, it is possible to decrease the damages in the system caused by oxygen to 2%.

Dizayn Group prevents oxygen from entering the installations by oxygen barrier pipes and makes more economical heating possible with more long-lasting and reliable installations.

INTRODUCTION AND INSTALLATION GUIDE
DİZAYN PEX-B PLUS PIPES AND FITTINGS

1. Pex-b pipes should be installed by using a casing in mobile heating and sanitary pipe works. Casing pipe has been designed to absorb the changes that may happen in the length of the pipe as the system operates in addition to providing isolation, being changed easily and having a protective quality.
2. The collectors should be installed into the most central point possible to ensure that extensions and shrinks in casing pipelines are minimized or else a number of collectors should be employed.
3. Casing pipelines should be installed horizontally to the inner and outer walls as much as possible. That is essential to protect the lines as well as for a potential change.
4. The lines should not be installed linearly between the collector and the radiator; instead, a deviation radius should be ensured.
5. The aforementioned radius should be in a right angle. Thus, there shall be enough space for expansion and shrinking movements and those movements shall be absorbed by the pipe. The deviation radius should not be less than 5 multiples of the pipe diameter.
6. While installing the casing pipes an “S” should be made 50 cm before the radiator connection is reached.
7. As for collector connections, the pipes should not come out of the ground vertically. In order to ensure the necessary radius, the collector should be hung at least 50 cm above the ground.
8. The pipes on the lines should consist of a single piece. Pipes cannot be used by making joints.
9. As for cutting the pipes, it is essential not to damage the main carrier pex pipe while cutting the casing pipe. Pex pipe should be cut vertically. With respect to pipes not cut vertically, leakages may occur as the ring system does not fit well.

10. After the installation is completed, other teams working in the construction should be duly informed so that the pipes are not damaged.
11. After the casing pipes are installed and tested with the installation pressure test, cement finish should be used as soon as possible. That shall help to prevent the pipe from being damaged in building site or else the casing pipe from being crushed etc.
12. Pex pipes are not resistant to sunlight. That is why it is of great importance to prevent pex pipes from being exposed to sunlight during storage, building etc.
13. Edgers should be employed appropriately in radiator and collector connections. The edger should be fixed to the ground and the ankles supporting the pex pipes in turning points should certainly be mounted. The expansion and shrinking movements which occur in turning points when edgers are not used properly may cause the pipes to crack in turning points and result in leakages.
14. If the installation process is carried out when the weather is 5° and even below, the pex pipe should be heated in a bathroom for twisting process before it is twisted at all.
15. Pex pipes can be used in floor heating, defrosting systems for pavements and roads, cooling
16. systems for ice rinks, turf football fields, tribune heating systems etc.
17. In case Pex pipes are used in heating or cooling facilities, pex pipes with oxygen barriers should be preferred for oxygen isolation (preventing oxidation and corrosion in the system).
18. For floor heating applications, it is recommended that maximum pipe length be not more than 80 meters.
19. Fittings with rings used in Pex pipe installation should be in conformity with TS EN 1254-3. The fact that the rings inside the fittings do not have memory shall cause the links not leaking at first to begin to leak later on.

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