

Fundamentals of PEX Plumbing Wirsbo



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Concern Uponor one of the world's leading manufacturers of polymer piping systems for construction and public utilities. Our
tselproizvodstvo high quality environmentally friendly systems to improve human well-being and quality of life.

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ZAO Uponor Rus subsidiary Uponor Group in Russia by the wholesale supply of plastic piping systems for construction and utilities, as
well as for suburban housing construction and repair. All products are certified in Russia and has the necessary hygienic.

Introduction

This guide explains the basics of designing the installation, and improved the systems of internal plumbing Wirsbo, in which pipes will be
used poperechnogosshitogo polyethylene PEXa. Primarily it is intended for the design of domestic water supply in apartments and
houses.

Wirsbo Installation of simple principles of calculation are the same as for other similar systems that differ only in the cost of materials and
installation works.

Nevertheless, we recommend that the design and installation performed by qualified personnel. In any case, the provisions of local laws
specify which individuals have the right to perform such work, and in most cases - it is certified slesarisantehniki. Moreover, although the
recommendations contained in the guide are based in the general case of the requirements of the Nordic Standard (NKB), should take
into account the requirements for similar work in our country.

If the Wirsbo system is supposed to establish a multi-storey buildings (hotels or office buildings), POs tional information can be found in
the company Uponor Rus.

System Description

The system of internal plumbing Wirsbo

Pipe Wirsbo PEX Plumbing

Figure 1: The molecular lattice of polyethylene with cross-connections in the pipe Wirsbo PEX Plumbing

Select a device's system of internal plumbing in buildings is usually always done in the same long-nal in an excited manner. Previously,
range of materials was limited, and attention was paid to the design of the compliance with basic standards. To date, range of issues that
should be taken into account when selecting a system DNAs friction plumbing, expanded.

The development and advancement in our industry is a continuous process, as in other areas of modern life. Water systems Wirsbo -
certainly not new to the market. They are developed and improved continuously since 1972.

Company Wirsbo offers the user a comprehensive system of internal plumbing of hot and cold water. The system included speakers boasts a wide range of pipes, fittings and accessories. All its elements are eco-friendly, easy to install and have the sufficient flexibility to run over long stretches of pipe without any extra connections, sokraschaeya installation work. Wirsbo Water systems include components for installation in new construction and in older buildings during repairs, the system is suitable for concealed installation in building structures of wood, concrete and brick, as well as for open installation in basements and under the ceiling.

Wirsbo PEX Plumbing - a tube designed for operation in systems with hot and cold water. Pipes Wirsbo PEX Plumbing made of poly ethylene (PE), high density cross-linked (PEX), applying the method of Engel. Crosslinking - a process that alters the chemical structure of plastics so that the polymer chains are connected with each other, forming a solid three-dimensional lattice.

Formed in this process the chemical structure makes it impossible to melt or dissolve the polymer, until fracture Schoen its structure. Therefore, pipes Wirsbo PEX Plumbing can be applied in such working pressures and temperatures at which previously only metal pipes.

Added to this unique elasticity Wirsbo PEX pipes. If you expand the pipe, it will seek to recover its initial size (up to the moment of exceeding the tensile strength, and that lengthening of more than 300%). The concluding Use this property consists in that the pipes can be connected to each other by Q & E («fast and easy" methods, see links below).

Pipes Wirsbo PEX Plumbing have excellent qualities for long term work and resistant to corrosion. Their inner diameter is not reduced over time due to corrosion or encrustation, as is the case with metal pipes. Material tubes were not subjected to the harmful effects of female high speeds or low pH of water passing through pipes (aggressive water) does not lose its properties when in contact with construction materials (concrete, mortar, plaster, etc.). Pipes Wirsbo PEX Plumbing have very high resistance to chemicals present in water additives. Pipes Wirsbo PEX Plumbing not give any water tastes and smells, and do not emit in drinking water no harmful substances.

The material used in pipes Wirsbo PEX Plumbing - elastic, it absorbs water hammer (for example, when abruptly shut off the mixer). Compared with conventional crystalline metal tube hydraulic shock decreases threefold.

Figure 2: Pipe Wirsbo PEX Plumbing

Assembly

Protection against accidents in the water

Note: Avoid touching the tube with adhesive tape, paint and sealing ditional mixtures containing plasticizers, as well as materials having in their composition, solvents, since the substances and mixtures of these materials relatively negative effect on the properties of pipes Wirsbo PEX Plumbing.

Since UFizluchenie affects the tubes should be stored or mount pipe Wirsbo PEX Plumbing such a way that they are not exposed to sunlight.

Pipes Wirsbo PEX Plumbing possess properties that simplify their installation. They are light and flexible, and do not want to brazing or welding. The compound tube Wirsbo PEX Plumbing involves a patented process Wirsbo Quick & Easy (Quick and Simple), Leko pipe bends and cut by hand. Pipes are supplied coiled in the bay, which facilitates transportation and work with them.

Wirsbo plumbing systems can be safely placed in an under ground within feet of building structures, because they guarantee reliable protection against water accidents. This is due etsya that the pipes are laid in the casing, ie protective outer tube containing a tube through which water comes out, this case sets the single piece of seamless all the way from the count of the lecturer to the point of water pumping (the system "pipe in pipe"). Thus, any water leakage, for example, because of damage to pipes clogged in the wrong place with a nail, the water will flow from the casing, no ka sayas building structures, and leakage will be detected even in the wounds of its time. The casing has a corrugated wall, which gives it great flexibility and ability to withstand heavy loads.

In addition, various cabinets from the range of products Wirsbo (cabinets for collectors) can be fitted with a leakage indicator for additional guarantees trouble free operation.

Figure 3: Casing

Marking and identification

Figure 4: Marking of pipes Wirsbo PEX Plumbing

Pipe Wirsbo always marked with meter marks decree tion product names, outside diameter, wall thickness and the date of manufacture.

The marking also put a note on compliance standard for this type of pipes. In addition, the dependence upon the type of pipe, indicate organization exercising control over their production.

Water pipes Wirsbo PEX Plumbing approved in accordance with international standards on the properties of materials, installation methods and requirements for health protection for drinking water.

Size Approval Designation: material,

Standard DIN, installs Name Authority controls Technological opment rated product manufacturing product process (Engel) pressure and temperature

When compared to metal pipes, tubes Wirsbo PEX Plumbing have a significant linear elongation (but not great power from the extension).

When installing the system type "pipe in pipe" Longitudinal expansion is absorbed in the space between the water pipe and casing.

When laying pipe extending force transmitted to the mouth nal compensation or to the building construction through the rigid support.

Once the pipe is worked kakoeto time, pressure and temperature of water in it may fall and the pipe will have relative to the longitudinal shortening of up to 1,5%. If the pipe is not so vat capabilities shorten, tensile force will increase ity. Nevertheless, because the retention force connections on the pipe more than the force of contraction, and because the pipes are often packed with some sagging, longitudinal reproach chenie usually does not create problems.

Connection Methods

There is a wide range of couplings and fittings to easily and securely connect the plastic pipes, mostly tightening connections and pressfitting different manufacturers.

In Wirsbo has developed its own method of connecting pipes Wirsbo Quick & Easy (Quick and Simple), uses the unique properties of pipes Wirsbo PEX Plumbing.

Connection Wirsbo Quick & Easy is produced by the gradual expansion of the pipe with put on her ring of PEX material, and then inserted into the pipe fitting, pipe, and then put on her ring can compress the nipple fitting.

On the one hand, it demonstrates the flexibility of PEX, always seeking to restore its original form, as described above. On the other hand it provides links Wirsbo Quick & Easy reputation as perhaps the most efficient and secure way to connect PEX pipes from all available today. The other main type of fittings in the range Wirsbo - Clamping fittings WIREH, specifically for joining large diameter pipes Wirsbo PEX Plumbing in potable water and heating systems.

The range of available fittings WIREH for pipes with external diameter from 32 mm to 110 mm. Connections is sealed.

Note: For reliable connections Wirsbo PEX Plumbing pipe should be connected only with fittings that have received the appropriate approval and recommended by Wirsbo or her representative.

Principles of calculation

Water consumption orderly governmental apparatus

Table 1: Water

Example 1: Bathroom (all examples are made on the Northern standard. Relevant Russian values of SNIP norms, see 2.04.0185 * Internal water supply and sewerage of buildings ")

In the bathroom, where there is a bathroom, sink, toilet and bidet, the total consumption, according to Nordic standard, is:

Typically, a bathroom takes only one person, with the highest consumption of water required to fill nenie bath. Thus, consumption of 0,3 l / s is adopted as the estimated water consumption.

Example 2: Apartment

The apartment has a bathroom, toilet and kitchen: a) Bathroom - similar to Example 1 b) The toilet has one toilet and one sink (single time using only one unit) c) In the kitchen, installed washer and washing machine

The total consumption of water is taken for cold water, l / s:

Current water consumption

Table 2: Estimated consumption

Water flow

According to the requirements of the Northern Standard, in cases where the total consumption of water in the apartment more than 0,7 l / s, enough to take for one apartment in an estimated cost of 0,7 l / s aggregate for hot and cold water. If the heater is located in the apartment, as estimated cost of the apartment pv adopted 1,6 l / sec.

In practice, most of sanitary appliances in the household water supply systems are mainly used for a short time (less than 15 minutes for 24 hours), and not all of these devices are used simultaneously. Therefore, to obtain the estimated cost for the base is taken the total consumption of water (the total costs required), which is multiplied by a coefficient coefficients which take into account the number of sanitary appliances and the probability of their simultaneous inclusion.

The table below shows the estimated consumption of water (according to the North standard), corresponding to different total costs.

Total Estimate

Note: The above data are not suitable for the calculation of water supply systems of hotels, offices and other public buildings. In such cases, consult the appropriate experts.

Table 3: Correction factors

When using metal pipe recommended limited Approximate currency rate flow rate of water flow the maximum value of 1,5 m / sec. This restriction does not apply to pipes Wirsbo PEX Plumbing. Domestic water supply systems using Wirsbo PEX pipes can be designed with a maximum design speed of water flow 2,5 m / sec.

When designing a system of hot water should take into account the need for circulation, which will reduce to a minimum time, passing from the faucet before it goes out of hot water. This not only saves time but also reduce water consumption, because it does not need to drain the accumulated water cooled.

The following example shows the method of calculating the amount of time, when the hot water circulates relatively close to the collector.

Example:

It is required that the waiting time does not exceed 10 seconds. Distance between the sanitary appliance (sink, 0,1 m / s) and the collector is 10 m from the collector to the instrument is trumpet Wirsbo PEX Plumbing 16x2, 2 mm.

The internal volume of pipe Wirsbo PEX Plumbing 16x2, 2 mm of 0,099 l / m For a distance of 10 meters the volume inside the tube between the points of connection will be 0.99 liters. Water consumption is 0.1 l / sec.

Thus, the waiting time does not exceed 10 seconds and is acceptable.

Once calculated the total consumption in each stock dyaschey tube and identify all the estimated costs necessary to consider the requirements for the pressure to choose the diameter of the pipe.

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