



TECHNICAL PASSPORT OF THE PRODUCT

PE-RT RAFTEC pipe with oxygen barrier blue

1. Purpose and scope

Raftec «PE-RT» pipes - can be used in internal cold and hot water supply systems, low-temperature heating systems. The main purpose of the pipes is the device of built-in heating systems (warm floors, warm walls, heating of open areas) and intra-apartment water supply pipelines. The pipes can be used as technological pipelines for transporting liquids that are not aggressive to the pipe material. The pipes are connected using **Raftec** press fittings.

PE-RT pipe with an oxygen barrier - outer diameter 16 with a wall thickness of 2.0 mm. The copolymer for PE-RT is octene, not butene, as for ordinary polyethylene. The spatial adhesion of PE-RT appears not due to additional interatomic bonds, but due to the interweaving of the branches of the copolymer. The pipe has a coating on the outside of a protective anti-diffusion layer of EVOH (ethylene vinyl alcohol), which prevents the diffusion of oxygen by the coolant. Resistant to ultraviolet radiation, a very smooth inner surface, not subject to deposits and high-temperature resistance.

They are used in the "warm floor" system.



2. Technical specifications

№	Characteristic	Value	
		1	Article
2	Outer diameter, mm	16	
3	Inner diameter, mm	12	
4	Wall thickness, mm	2.0	
5	Bay length, m	200	600
6	Weight of 1 m pipe, g	98	
7	Volume of liquid in 1 m.p., l	0.103	
8	Operating temperature at a pressure of 10 bar, °C	0-70	
9	Operating temperature at a pressure of 6 bar, °C	0-90	
10	Maximum operating temperature, °C	80	
11	Maximum short-term permissible temperature, °C	90	
12	Nominal pressure PN, bar	10	
13	Coefficient of equivalent uniform-grained roughness, mm	0.007	
14	Thermal conductivity coefficient of walls, W / (m · K)	0.38	
15	Minimum manual bending radius	8 x d	
16	Coefficient of linear expansion, mm/m (°C)	1,8 x 10 ⁻⁴	

3. Operating class

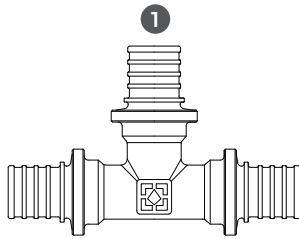
Type Operation class	Outer diameter dn(mm)	P (bar)	T (°C)	Protection Evon	Type of pipe
Cold water transportation	16	10	20	+	PEX-a grey
	20	10	20	+	PEX-a grey
	25	10	20	+	PEX-a grey
	32	10	20	+	PEX-a grey
Hot water distribution systems (Operation class 1)	16	10	60	+	PEX-a grey
	20	10	60	+	PEX-a grey
	25	10	60	+	PEX-a grey
	32	10	60	+	PEX-a grey
Hot water distribution systems (Operation class 2)	16	10	70	+	PEX-a grey
	20	10	70	+	PEX-a grey
	25	10	70	+	PEX-a grey
	32	10	70	+	PEX-a grey
Low-temperature heating – underfloor heating system (Operation class 4)	16	10	50	+	PEX-a red, PE-RT PEX-a grey
High-temperature heating –radiator heating (Operation class 5)	16	10	80	+	PEX-a grey
	20	10	80	+	PEX-a grey
	25	10	80	+	PEX-a grey
	32	10	80	+	PEX-a grey

4. Installation and operating instructions

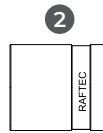
1. Installation must be performed by qualified and competent personnel.
2. Pipe installation must be carried out at an ambient temperature of at least 10 ° C using a tool specially designed for this purpose.
3. It is recommended to use Raftec press fittings and crimp fittings as pipe connectors. When working with these fittings, you should follow the instructions in the relevant technical data sheets.
4. Flattening and fractures of the pipeline during installation are not allowed. In case of a "knock", the damaged section of the pipe must be destroyed.
5. Pipe coils that have been stored or transported at temperatures below 0°C must be kept for 24 hours at a temperature not lower than 10°C before rolling.
6. The free ends of the pipes must be closed with plugs to prevent dirt and debris from entering the pipe.
7. To avoid straightening of the bent section of the pipe when heated (memory effect), the pipe should be secured with clamps or brackets at 10 cm intervals at the points of rotation.
8. The underfloor heating pipeline should be filled with concrete mortar or covered with a coating only after hydraulic tests for tightness have been carried out. The pipe should be under a pressure of 0.3 MPa when filled;
9. The minimum height of the solution above the surface of the pipe must be at least 3 cm.
10. Mechanical damage to the EVOH layer increases oxygen penetration into the pipeline.
11. The pipe should be protected from direct sunlight.
12. Do not allow ice to form inside the pipe to prevent damage.
13. For installation, we recommend using a specialized Raftec tool.
14. The pipe must be operated under the conditions specified in the tables in section No. 2 "Technical specifications".

5. Push connection installation

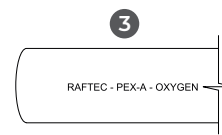
RAFTEC PEX
system fittings



Tension sleeve of the
RAFTEC PEX system



RAFTEC PEX



1. Cut the required length of PEX-A pipe using scissors. The cut should be perpendicular to the axis of the pipe. The blades of the scissors should be sharp and without burrs.



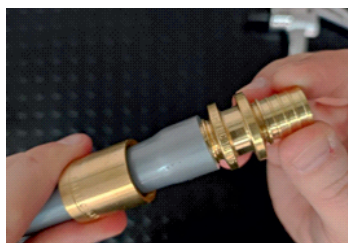
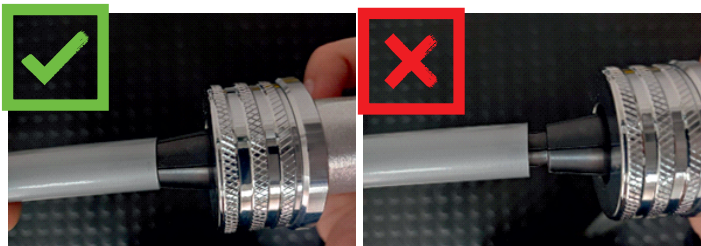
2. Put the ring on the pipe with the inner chamfer towards the fitting. It is necessary to carefully select the ring to the pipe.



3. Perform pipe recalibration using a manual or battery-powered expander:
a) For older reamer head designs, pipe recalibration should be performed in three cycles. The first two are incomplete, with the reamer rotated approximately 20° relative to the pipe; the third cycle is complete.
b) For the new design of heads "ONCE ONCE" (only for diameter 16-32 mm), the pipe calibration is done in one cycle, completely expanding the pipe.

WARNING!

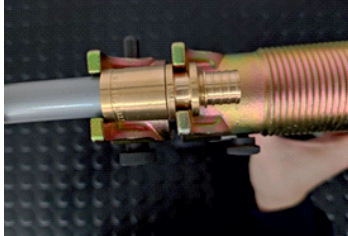
The expander head should be inserted into the end of the pipe up to the stop.



4. Insert the fitting into the pipe up to the last recess on it. To protect the connection from excessive forces arising from pipe bending, it is recommended to bend the pipe at a distance from the connector of at least 10 external pipe diameters. To compensate for thermal expansion of the pipes, it is necessary to ensure that all fittings are mounted as fixed support points (for example, carefully cemented with mortar). Pipe installation should be carried out at an ambient temperature of at least 10°C using a specially designed tool.



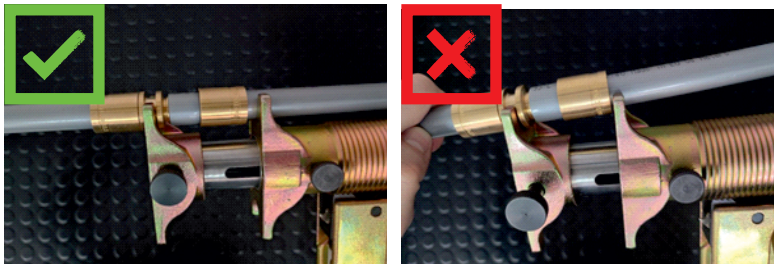
5. Tighten the ring onto the pipe using a pressing tool (hydraulic, battery-powered or manual press). The fittings must be secured by the flange directly adjacent to the fitting onto which the ring is being tightened. Two rings cannot be tightened at the same time.



6. Special attention must be paid to the process of tightening the ring. As soon as the ring is tightened to the fitting flange, the press must be stopped. The connection is ready for pressure testing.

WARNING!

When making a Push connection, special attention should be paid to the correct position of the tool heads. The checks of the heads together with the inserts should always be installed to their full depth and at right angles to the connection being made. Do not move the press to the side while making the connection.



Pay attention to the correct position of the connectors in the tool head checks. Failure to comply with this rule cause skewing of the connector and the components of the connection.

6. Storage and transportation

1. During rail and road transportation, coils (packages) of pipes are allowed to be transported only in covered rolling stock.
2. To avoid damage to the pipes, they should be laid on a flat surface, without sharp protrusions and irregularities. Dropping pipes from vehicles is not allowed.
3. Pipes must be stored in accordance with conditions 5 (OZH4), section 10 of GOST 15150 in ventilated sheds or rooms.
4. Pipe coils may be stored in stacks no higher than 3 m. When stored, pipes must be protected from direct sunlight.
5. The pipe must be stored in the manufacturer's packaging under storage conditions 3 according to GOST 15150-69.
6. Pipe transportation must be carried out in accordance with requirements 5 of GOST 15150-69.

7. Utilization

Disposal of the product (melting, burial, resale) in accordance with the procedure established by the Law of Ukraine of 1992 No. 50, Art. 678, (as amended by No. 2556 - III (2556-14) of 21.06.2001, No. 48, Art. 252 "On Atmospheric Air Protection" (as amended by 14.07.2016), of 1998 No. 36-37, 242 "On Waste" (as amended by 09.04.2015), of 1991 No. 41, Art. 546 "On Environmental Protection" (as amended by 04.10.2016), as well as other norms, acts, rules, orders, etc.

8. Warranty obligations

1. The manufacturer guarantees that the products comply with safety requirements, provided that the consumer complies with the rules of use, transportation, storage, installation and operation.
2. The warranty covers all defects caused by the manufacturer's fault.
3. The warranty does not cover defects that occur in the following cases:
 - violation of passport regimes for transportation, storage, installation, operation and maintenance of the product;
 - improper transportation and loading and unloading operations;
 - the presence of traces of exposure to substances that are aggressive to the product materials;
 - the presence of damage caused by fire, natural disasters, force majeure circumstances;
 - the presence of damage caused by incorrect actions of the consumer;
 - the presence of traces of third-party interference in the design of the product.
4. The manufacturer reserves the right to make changes to the product design that do not affect the declared technical characteristics.

9. Warranty terms and conditions

1. Claims for the quality of the goods may be made during the warranty period.
 2. Defective products during the warranty period are repaired or exchanged for new ones free of charge. The decision to replace or repair the product is made by the service center. The replaced product or its part obtained as a result of the repair becomes the property of the service center.
 3. The costs associated with dismantling, installation and transportation of the defective product during the warranty period are not reimbursed to the Buyer.
 4. In cases where the claim is unfounded, the costs of diagnostics and examination are paid by the Buyer.
 5. Products are accepted for warranty repair (as well as when returned) fully equipped.
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WARRANTY CARD № _____

Product name _____
Brand, article, size _____
Quantity _____
Name and address of the trading organization _____
Date of sale _____ Seller's signature _____

Stamp or seal
of the trading organization

I AGREE with the conditions:
BUYER _____
(signature)

The warranty period is seven years (eighty-four months) from the date of sale to the end consumer.

For warranty repair, complaints and claims regarding the quality of products, please contact the service center at the address: 08132, Kyiv region, Vyshneve, Kyivska st., building 6b.
Tel.: + 38(050)-315-16-33

When making claims regarding the quality of the goods, the buyer shall provide the following documents:

1. A statement in any form, indicating:
 - name of the organization, full name of the buyer, actual address and contact phone number;
 - name and address of the organization that performed the installation;
 - main system parameters;
 - short description of the defect;
2. Document proving the purchase of the product;
3. Hydraulic test certificate of the system in which the product was installed;
4. A completed warranty card issued on the manufacturer's website «raftec.eu».

Return or exchange mark: _____

Date _____ y. Signature: _____