



## TECHNICAL PASSPORT OF THE PRODUCT

### PPSU tension fittings

#### 1. Purpose and scope

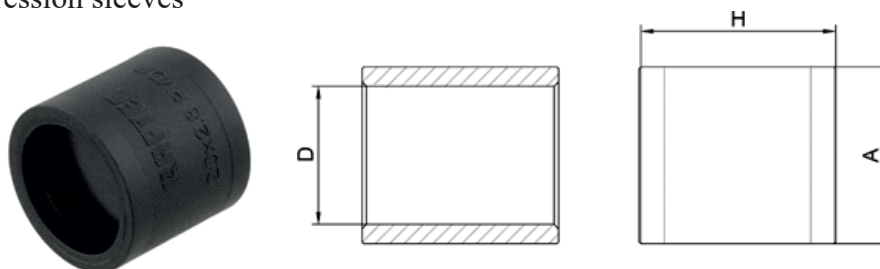
The fitting is made of high-quality engineering plastic (PPSU), which retains excellent mechanical, electrical and thermal characteristics under prolonged exposure to high temperatures and loads. The connectors have specially profiled fittings that are inserted into the expanded end of the pipe. Then a PVDF sleeve is pulled onto the connection using a manual or electric press. The pipe is hermetically fixed by the sleeve on the connector fitting. In the Raftec system, connectors are universal for all types of pipes with a wall thickness

#### 2. Technical specifications

Nº	Characteristic	Value		
	Dimensions (diameter), mm.	16	20	25
1	Fitting material	PPSU		
2	Maximum operating temperature of the coolant, ° C	90		
3	Working pressure, bar	10		
4	Average full service life, years	20		

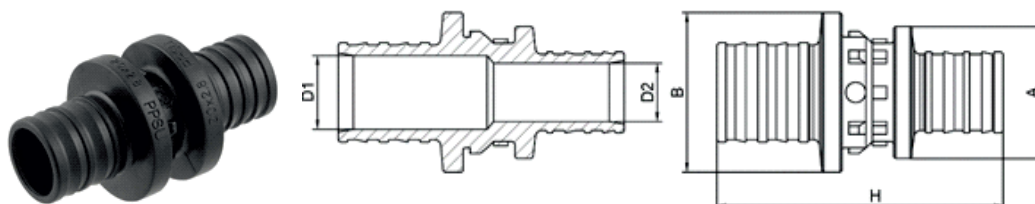
#### 2. Nomenclature and overall dimensions

##### 2.1 Compression sleeves



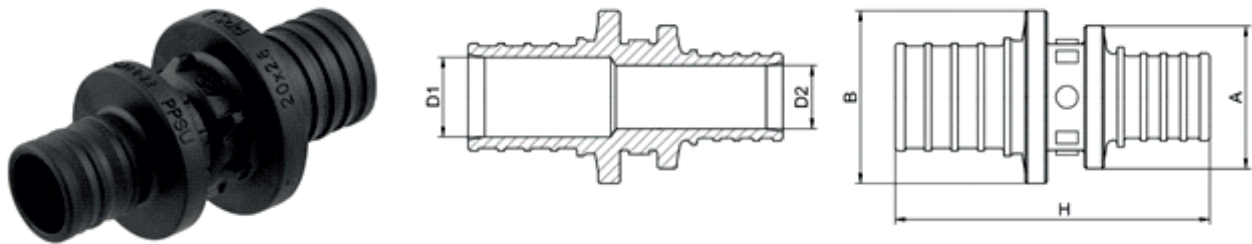
Nº	Code	Diameter, mm	H, mm	A, mm	Weight, g	Package, pcs.
1	PSUG16	16	24	23	8	10
2	PSUG20	20	25	27	11	10
3	PSUG25	25	26	31	14	10

##### 2.2 Coupling



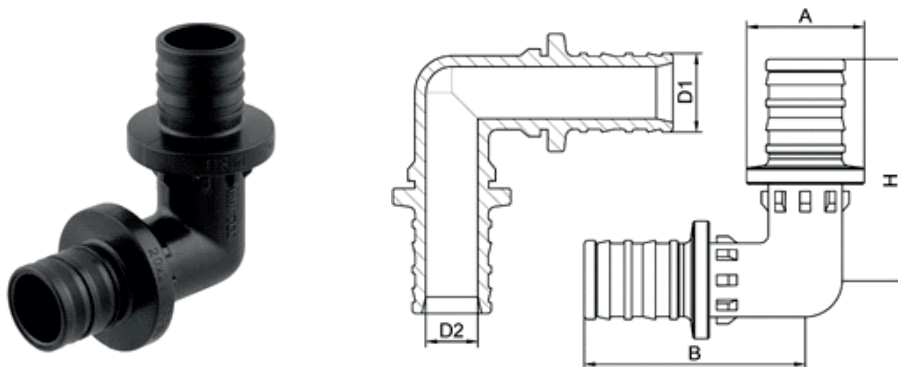
Nº	Code	Diameter, mm	D1, mm	D2, mm	H, mm	A, mm	Weight, g	Package, pcs.
1	PSUM1616	16x16	14	9	44.5	24	8	10
2	PSUM2020	20x20	16.5	11	51.5	28	13	10

## 2.3 Reducer



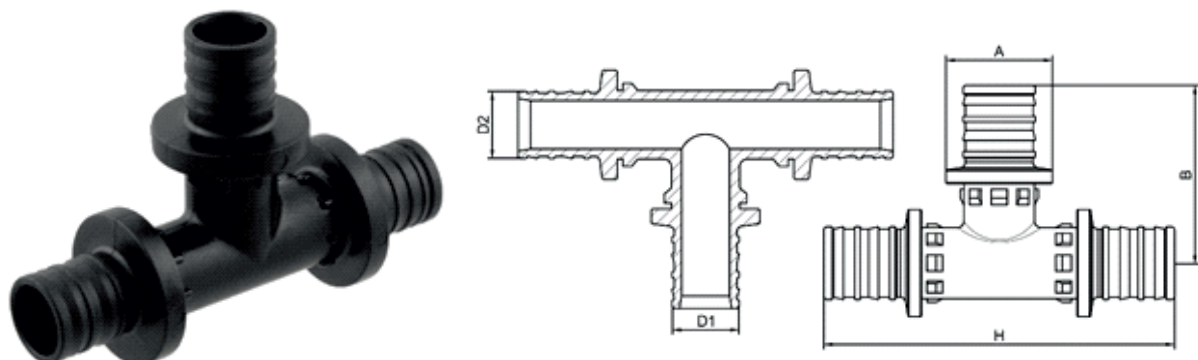
Nº	Code	Diameter, mm	D1, mm	D2, mm	H, mm	A, mm	B, mm	Weight, g	Package, pcs.
1	PSUS1620	16x20	11	9	51.5	24	28	11	10

## 2.4 Elbow



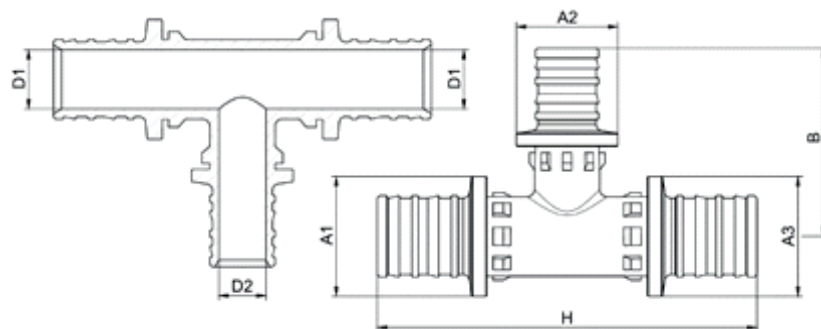
Nº	Code	Diameter, mm	D1, mm	D2, mm	H, mm	A, mm	B, mm	Weight, g	Package, pcs.
1	PSUK1616	16x16	14	9	36.5	24	36.5	12	10
2	PSUK2020	20x20	16.5	11	42	28	42	18	10

## 2.4 Tee equal



Nº	Code	Diameter, mm	D1, mm	D2, mm	H, mm	A, mm	B, mm	Weight, g	Package, pcs.
1	PSUT16	16x16x16	14	9	73.5	24	37	15	10
2	PSUT20	20x20x20	16.5	11	83.5	28	41	25	5

## 2.5 Tee, outlet expanded



Nº	Code	Diameter, mm	D1, mm	D2, mm	D3, mm	H, mm	A1, mm	A2, mm	A3, mm	B, mm	Weight, g	Package, pcs.
1	PSUT201616	20x16x16	11	9	9	77,5	28	24	24	38	19	5
2	PSUT201620	20x16x20	11	9	11	79,5	28	24	28	39	22	5
3	PSUT202016	20x20x16	11	11	9	77,5	28	28	24	39	23	5

### 3. Installation and operation instructions

The temperature during installation of the Raftec system should be above -15°C, the recommended temperature range during installation is from 5°C to 25°C. For installation, we recommend using a specialized Raftec tool

Installation of the fitting:

1. Cut the pipe perpendicular to its axis.
2. Put the Raftec sleeve on the pipe with the chamfer facing the fitting connection side.
3. Insert the expander with the Raftec expansion nozzle of the required diameter into the pipe until it stops. Expand in three cycles (the pipe is rotated around its axis by 10° - 45° degrees).
4. Insert the fitting nipple into the pipe to the penultimate flange.
5. Press the sleeve onto the fitting using the Raftec press with press nozzles corresponding to the pipe diameter.
6. After completing the system installation, press the system with test pressure.

The connection with the tension sleeve is non-separable, therefore, in accordance with DBN V.2.5-67-2013, it can be concreted into the floor or plastered into the wall without installing hatches or other inspection methods.

**Attention!** Requirements for concealed installation:

1. When installing fittings and pipes in a concealed manner, protective covers must be used, fittings must be isolated from contact with mortar to prevent corrosion, and the location of concealed fittings must be indicated in the design documentation.
2. When crossing two pipelines, it is prohibited to overlap fittings on fittings; only pipe-to-pipe and pipe-to-fitting intersections are permitted.
3. Connecting the pipe to the central branch of the tee and connecting the pipe to the square must occur at an angle of 90 degrees.
4. In order to prevent overloading of fittings caused by the action of forces during pipe bending, bending shall not be performed at a distance of less than ten outer pipe diameters from the fitting.
5. When concealed laying of pipelines with a diameter of 16–25 mm, the pipes should be laid with smooth arcuate bends with a length margin of at least 10% relative to the straight route. This method of installation ensures self-compensation of temperature expansion of the pipelines.

6. Do not allow ice to form inside the pipe to prevent damage.
7. Installation must be performed by qualified and competent personnel.
8. Fittings must be operated under the conditions specified in the tables in section No. 2 "technical characteristics".

#### **4. Storage and transportation**

1. Fittings must be stored in the manufacturer's packaging according to storage conditions 3 according to GOST 15150-69.
2. Fittings must be transported in accordance with requirements 5 according to GOST 15150-69.

#### **5. 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.

#### **6. 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 applies to all defects that have arisen due to the fault of the manufacturer.
3. The warranty does not apply to defects that have arisen in cases of:
  - violation of the passport regimes of transportation, storage, installation, operation and maintenance of the product;
  - improper transportation and loading and unloading operations;
  - presence of traces of exposure to substances aggressive to the materials of the product;
  - presence of damage caused by fire, natural disasters, force majeure circumstances;
  - presence of damage caused by incorrect actions of the consumer;
  - 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.

#### **7. 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.

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](http://raftec.eu)».

Return or exchange mark: \_\_\_\_\_

Date \_\_\_\_\_ y. Signature: \_\_\_\_\_