

Operation and maintenance
manual for

FLANGE
STRAINER
FOR WATER SUPPLY SYSTEMS

Cat. no.
7110

Approved for use by

President of Factory, JAFAR S.A.

User's failure to follow the instructions and guidelines included in this operation and maintenance manual exempts the manufacturer of all obligations and warranty.

Due to continuous business development, we reserve the right to introduce modifications and structural changes to the presented product.

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1 TECHNICAL DESCRIPTION

1.1 PRODUCT NAME AND FEATURES

The subject of this instruction manual are flange strainers for water systems. Their feature is the capability to capture all particles larger than 1.25-1.5 mm.

1.2 PURPOSE

Flange strainers are designed to remove contamination from the pipeline during its operation. They are used in drinking water or industrial systems. They may be used in above-ground systems, necessarily at easily accessible points in essentially horizontal pipelines. **Installation is possible in vertical systems and diagonally, but only when downward direction of medium flow is maintained.**

1.3 TECHNICAL SPECIFICATION

Flange strainers Type 7110 are designed to protect drinking and technological water and other liquid systems (consult the manufacturer):

| | |
|---|---|
| - temperature: | -10°C – +70°C (120°C). |
| - range of diameters (dimensions) used: | - DN 50-300 [mm]; |
| - max medium flow rate: | - liquid: 4[m/s]; |
| - nominal pressure: | - PN: - 1.6 MPa; |
| - operating pressure range: | - 0.02-1.6 MPa; |
| - filtering parameters: | |
| aperture size: | 1.25 mm (ca. 27 meshes/cm ²) for DN 50-80 1.5 mm (ca. 23 meshes/cm ²) for DN 100-300 |

- connection flanges are manufactured in accordance with PN-EN 1092-2: 1999
- face-to-face length and its tolerances are in accordance with PN-EN 558-1 series 48
- the selection of strainers Type 7110 depends on the levels of contamination present in the pipeline.

2 STRUCTURE

2.1 FITTING STRUCTURE DESCRIPTION

F.A. JAFAR S.A. manufactures cast iron flange strainers Type 7110 for drinking and technological water systems. They feature cast iron body with stainless steel mesh insert (perforated sheet) with the aperture size of 1.25-1.5 mm. The whole is equipped with a drain plug in the lower part, which allows easy disassembly during the removal of contamination in the pipeline. The position of the filter allows capturing contamination during unrestricted flow of the medium.

The strainer insert chamber is fitted with a cast iron cover sealed with a rubber sealing O-ring or graphite on a steel ring and bolted to the body using hex screws. All internal and internal cast iron surfaces of the strainer are covered with powder epoxy paint.

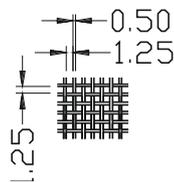
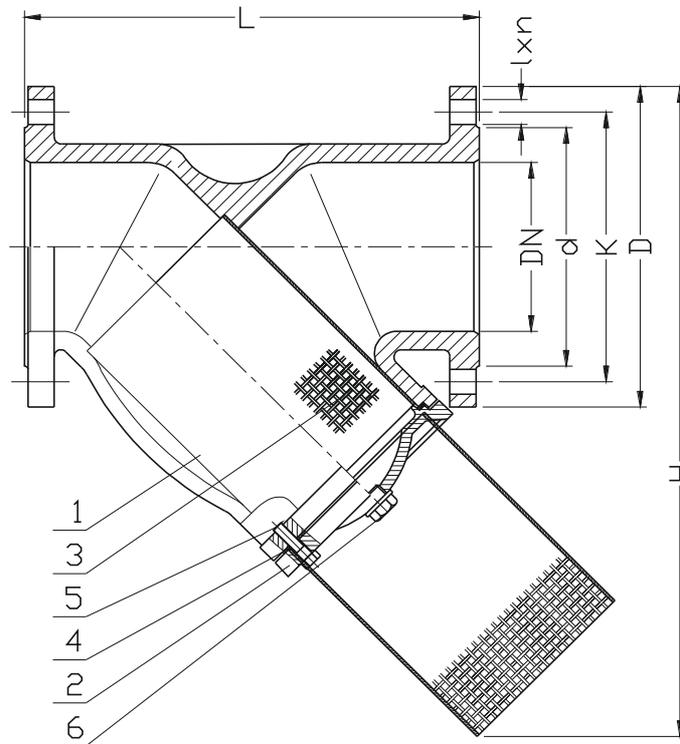
It is recommended to install the strainer horizontally at the lowest point of the pipeline or at bending points.

2.2 MATERIALS

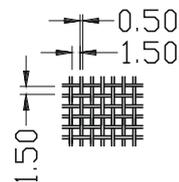
The list of materials used for strainer Type 7110 manufacturing is given in the following tables.

| No. | Part | Material |
|------------|-------------|--|
| 1 | Body | Grey cast iron EN-GJL-250 PN-EN 1561:2012 |
| 2 | Cover | Grey cast iron EN-GJL-250 PN-EN 1561:2012 |
| 3 | Mesh insert | Stainless steel PN-EN 10088- 1:2014 |
| 4 | Seal | Graphite CrNiSt |
| 5 | Screw | PN-EN ISO 4016:2011 |
| 6 | Drain plug | Malleable cast irons EN-GJMB-300-6 PN-EN 1562:2012 |

2.3 DIMENSIONS



1,25 [mm] dla DN50-DN80



1,5 [mm] dla DN100-DN300

| DN | PN | L | H | D | d | K | l x n | Drain | Weight |
|------|----------|------|-----|-----|-----|---------|-----------|-------|--------|
| [mm] | [MPa] | [mm] | | | | | | [cal] | [kg] |
| 50 | 1,0 -1,6 | 230 | 270 | 165 | 102 | 125 | 19x4 | 1/2" | 10,0 |
| 65 | 1,0 -1,6 | 290 | 310 | 185 | 122 | 145 | | 1" | 14,0 |
| 80 | 1,0 -1,6 | 310 | 370 | 200 | 138 | 160 | 19x4/(8) | 1" | 19,0 |
| 100 | 1,0 -1,6 | 350 | 440 | 220 | 158 | 180 | 19x8 | 1" | 28,7 |
| 125 | 1,0 -1,6 | 400 | 540 | 250 | 188 | 210 | | 5/4" | 45,0 |
| 150 | 1,0 -1,6 | 480 | 560 | 285 | 212 | 240 | 23x8 | 6/4" | 59,3 |
| 200 | 1,0 -1,6 | 600 | 600 | 340 | 268 | 295 | 23x8(12) | 6/4" | 105,0 |
| 250 | 1,0 -1,6 | 730 | 700 | 395 | 320 | 350/355 | 23(28)x12 | 2" | 191,8 |
| 300 | 1,0 -1,6 | 850 | 750 | 445 | 370 | 400/410 | 23(28)x12 | 2" | 240,2 |

2.4 STANDARDS

| | |
|-------------------------|--|
| PN-EN 1074-1: 2002 | Water supply system fittings. Functional requirements and verification tests. General requirements. |
| PN-EN 1074-2: 2002 | Water supply system fittings. Functional requirements and verification tests. Stop fittings. |
| PN-89/H-02650 | Fittings and pipelines. Pressures and temperatures. |
| PN-EN 1092-2: 1999 | Flanges and their connections. Circular flanges for pipes, fittings, connectors and equipment with PN markings. Cast iron flanges. |
| PN-EN19: 2005 | Industrial fittings. Metal fitting marking. |
| PN-EN 12266-1: 2012 | Industrial fittings. Fitting testing. Pressure testing, testing procedures and acceptance criteria. Mandatory requirements. |
| PN-EN 558: 2012 | Industrial fittings. Face-to-face length in metal straight and angle fittings for flange pipelines. Fittings with PN and class markings. |
| PN-EN ISO 6708: 1998 | Definition and selection of the DN /nominal dimension/ |
| PN-EN 1559-1: 2011 | Foundry. Technical conditions for delivery. Delivery specifications. |
| PN-EN 1561: 2012 | Foundry. Grey cast iron. |
| PN-EN 1563: 2012 | Foundry. Nodular cast iron. |
| PN-EN 1370: 2012 | Foundry. Surface roughness testing using visual and tactile reference. |
| PN-EN 10088-1: 2014 | Stainless steels. Grades of stainless steel. |
| PN-74/H-84032 | Spring steel. Grades. |
| PN-EN 1982: 2010 | Copper and copper alloys. Ingots and castings. |
| PN-EN 12420: 2002 | Copper and copper alloys. Forgings. |
| PN-ISO 965-1: 2001 | General purpose ISO metric threads. Tolerances. Principles and basic data. |
| PN-ISO 2903: 1996 | Trapezoid ISO metric threads. Tolerances. |
| PN-EN ISO 4762: 2006 | Screws with cylinder head with hex socket. |
| PN-EN 10204: 2006 | Metal products. Types of control documents. |
| PN-ISO 1629: 2005 | Rubbers and latices. Nomenclature. |
| PN-EN ISO 1872-1: 2000 | Plastic materials. Polyethylene (PE) injection and extrusion moulding materials. Marking system and basis for classification. |
| PN-EN ISO 1873-1: 2000 | Plastic materials. Polypropylene (PP) injection and extrusion moulding materials. Marking system and basis for classification. |
| PN-EN ISO 1874-1: 2010 | Plastic materials. Polyamide (PA) forming and extrusion moulding materials. Marking and basis for classification. |
| PN-EN ISO 12944-5: 2009 | Paints and varnishes. Anti-corrosion protection of steel structures using protective painting systems. Protective painting systems. |

2.5 ORDERING PRINCIPLES

Water supply system fittings are specific purpose industrial fittings, therefore orders must include:

- catalogue number (equivalent to face-to-face length),
- purpose, e.g. for water supply (or sewage) systems,
- furthermore:
 - nominal diameter — acc. to PN-EN ISO 6708: 1998
 - nominal pressure — acc. to PN-89/H — 02650
 - type of body material — acc. to PN-EN 1561: 2012 or PN-EN 1563: 2012
 - max. operating temperature — acc. to PN-89/H — 02650.

2.6 MANUFACTURE AND ACCEPTANCE

Cast iron flange strainers Type 7110 are manufactured and accepted in accordance with: PN-EN 1074-1: 2002 (Water supply system fittings. Functional requirements and verification tests. General requirements); PN-EN 12266-1: 2012 (Industrial fittings. fitting testing). All filters are tested for tightness (100%).

2.7 MARKING

Fitting marking is defined in the following standards: PN-EN-19: 2005, PN-EN-1074-1: 2002.

Strainer bodies have markings placed on the front and rear chamber walls, which includes the following data:

- nominal diameter
- nominal pressure
- body material type
- manufacturer trademark

Furthermore, an identification plate is placed as specified in the documentation with the following data:

- company name and mark
- product serial number
- sealing temperature rating
- construction mark "B" and/or mark "CE" (as applicable)
- product type.

3 PROTECTION — STORAGE — TRANSPORTATION

3.1 PROTECTIVE COATINGS

All internal and external cast iron surfaces are protected with epoxy paint, applied electrostatically. The paint is approved for contact with food products.

The thickness of the anti-corrosion coating layer is min. 250 µm.

Mould surface is prepared for the application of the epoxy coating in accordance with the technical documentation and PN-EN ISO 12944-5: 2009.

The screws connecting the body and the cover are manufactured as stainless, grade OH18N9 or Fe/Zn5 (galvanised steel).

3.2 PACKAGING

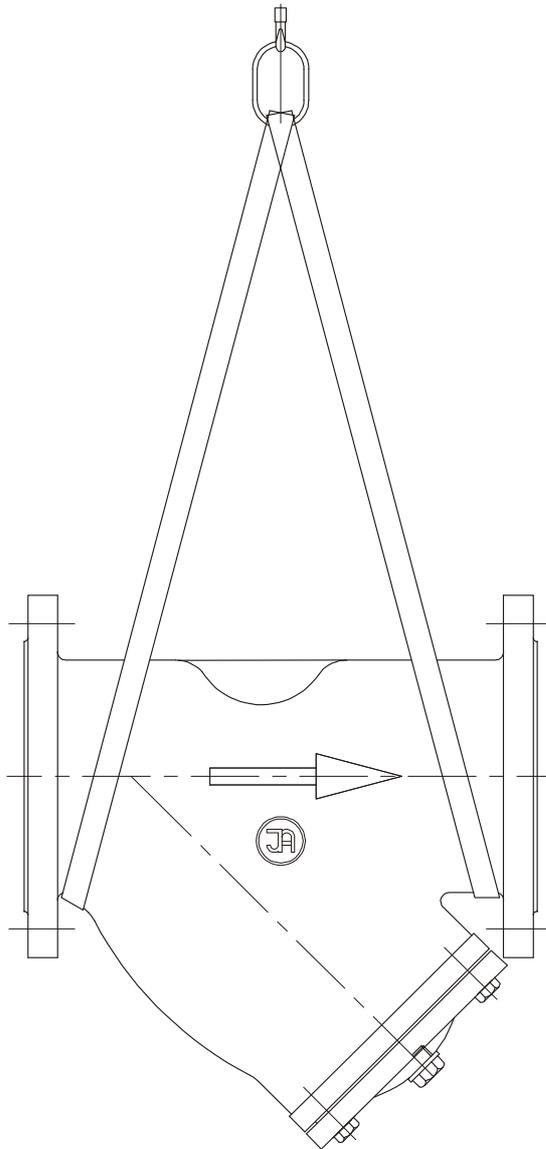
Cast iron flange strainers Type 7110 are packaged on EURO pallets (1200x800) and protected with shrink film.

3.3 STORAGE

Cast iron flange strainers Type 7110 should be stored in covered areas.

3.4 TRANSPORTATION

Cast iron flange strainers Type 7110 should be transported using covered means of transportation. Use slings from passage DN 80-300.



4 ASSEMBLY AND INSTALLATION

4.1 INSTALLATION GUIDELINES

Cast iron flange strainers Type 7110 may be installed in above-ground pipelines, in horizontal systems. Flange strainers are appropriate for installation with pipeline flanges, of which the dimensions correspond to valve flanges. During the installation, one should ensure that the system does not expose the fittings (strainer) to bending or tension stress caused by encumbrance with the mass of an unsupported pipeline. It is recommended to perform installation works considering pipeline compensation due to temperature and pressure. Strainers should be installed at easily accessible points, which enable regular inspection at specific frequency. System design should provide sufficient room to enable uninterrupted operation.

A strainer assembled and delivered by the manufacturer is ready for installation in the system. The works related to the removal of valve components performed without due diligence may cause the loss of tightness.

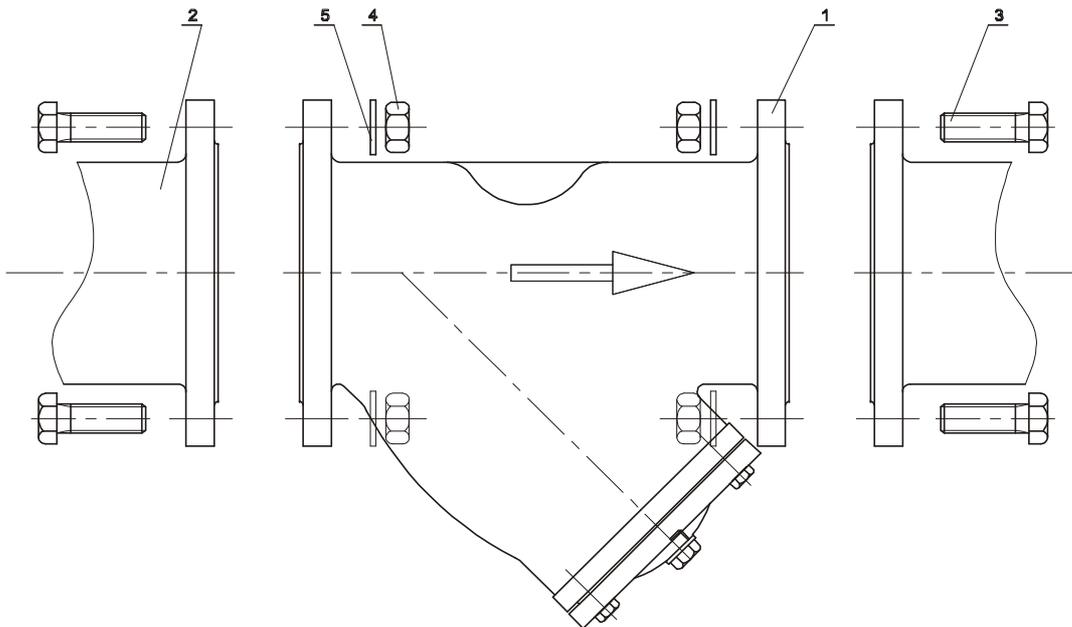
4.2 INSTALLATION INSTRUCTION

Before installing the fittings, one should check the technical and commercial documentation, i.e. the accordance of the filter to be installed with the order and application for media and operation parameters of the pipeline, in which they are to be installed. Any change in operation conditions requires agreement with the manufacturer.

Before the installation, one should remove the main passage caps, check the condition of valve internal surfaces and thoroughly wash them with water, if required.

Caution! If the product is damaged mechanically, do not install it in the pipeline.

The installation of strainer DN 100 according to the medium flow is shown in the following figure:



1. strainer, 2. pipeline flanges, 3. installations screw (16x), 4. nut (16x), 5. washer (16x)

4.3 OPERATION

The cast iron strainer Type 7110 should be operated according to the requirements for fittings, positioned as recommended by the manufacturer. In order to ensure full operational functionality, it is recommended to rinse the strainers with clean water periodically (twice per year) or more frequently, depending on the medium contamination level.

4.4 H&S REGULATIONS

The strainers are subject to guidelines and recommendations included in H&S regulations applicable to the installation of pipelines and equipment in: water supply stations, thermal power stations, sewage treatment plants, intermediate pumping stations and other structures, as well as general health and safety regulations (use of upper limb protection equipment, lower limb protection equipment, head protection equipment and protective clothing), in particular during works with low and high temperature exposure.

Misuse of the products is prohibited.

5 WARRANTY CONDITIONS

The manufacturer grants warranty for the product being installed and operated according to this OMM. The conditions and period of the warranty is specified in the warranty sheet.