

Operation
and Maintenance Manual

**CAST IRON THREADED AND FLANGED
PIPE CLAMPS**

Cat. no.
3150, 3160, 3151

Approved for use by

President of Factory, JAFAR S.A.

Failure to comply with the guidelines and instructions in this Operation and Maintenance Manual releases the manufacturer from all obligations, liability and guarantee.

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 O&MM is:

Cast iron threaded pipe clamp type 3150, with soft lining (elastomer) of the internal clamping surface for the line pipe of the water system.

Cast iron threaded pipe clamp type 3160, with soft lining (elastomer) of the internal clamping surface for the line pipe of the water system.

Cast iron flanged pipe clamp type 3151, with soft lining (elastomer) of the internal clamping surface for the line pipe of the water system.

1.2 PURPOSE

The cast iron threaded pipe clamps type 3150 and 3160 as well as cast iron flanged pipe clamps type 3151 are intended for water supply systems, especially for potable water, industrial systems and gas systems made of polyethylene (PE) and polyvinyl chloride (PVC). They may be used both in underground and surface installations, in vertical or horizontal pipelines.

1.3 TECHNICAL SPECIFICATION

The cast iron pipe clamps with soft lining are intended for transporting potable or industrial water and other liquids (if approved by the manufacturer).

- temperature range: -10°C to $+70^{\circ}\text{C}$
- line pipe diameter range: see the size table, accordingly for each type
- maximum medium flow rate:
 - liquid: max. 4 [m/s]
 - gas: max. 30 [m/s]
- the connection thread design is acc. to PN-EN 10226-1: 2006 normal product grade [A].
- connection flanges are manufactured in accordance with PN-EN 1092-2: 1999 with the sizes compliant with the nominal pressure values.
- installation length: in accordance with plant documentation
- nominal pressure PN:
 - 0.6 MPa
 - 1.0 MPa
 - 1.6 MPa

2 DESIGN

2.1 FITTING DESIGN DESCRIPTION

The factory “JAFAR” S.A supplies cast iron clamps with threaded and flange connections. The body of the clamp is a semi-annular cast iron casting with an element allowing for connection of a discharge pipe with a threaded or flanged connection. The second semi-annular element is the bottom section of the clamp. Both parts are connected with bolts that allow for clamping it on the pipe to seal it. Between the body of the clamp and the line pipe there is rubber lining which acts as the mount.

After clamping the unit with bolts connecting both halves of the clamp it is possible to drill an opening in the pipeline and make an offtake connection.

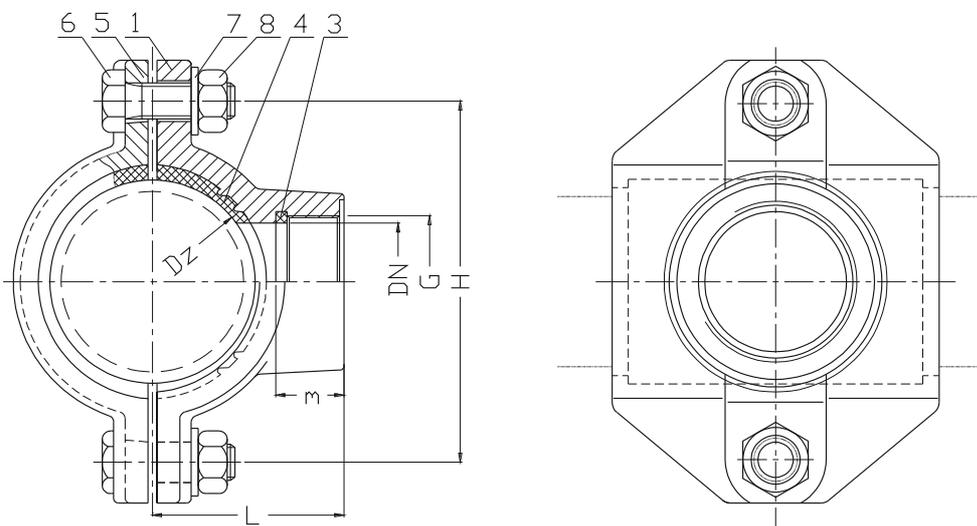
2.2 MATERIALS

This table lists the materials used in the construction of pipe clamps with soft seals.

Item	Part name	Material	Reference standard
1	Body	Cast iron: EN-GJS-400-15	PN-EN 1563: 2012
2	Pipe gasket	Rubber: EPDM (or NBR)	PN-ISO 1629: 2005
3	Pipe gasket	Rubber: EPDM (or NBR)	PN-ISO 1629: 2005
4	Pipe gasket	Rubber: EPDM (or NBR)	PN-ISO 1629: 2005
5	Clamp	Cast iron: EN-GJS-400-15	PN-EN 1563: 2012
6	Bolt	Stainless steel, A2	PN-EN ISO 4014: 2011
7	Washer	Stainless steel, A2	PN-EN ISO 7091: 2003
8	Nut	Stainless steel, A4	PN-EN ISO 4032: 2013

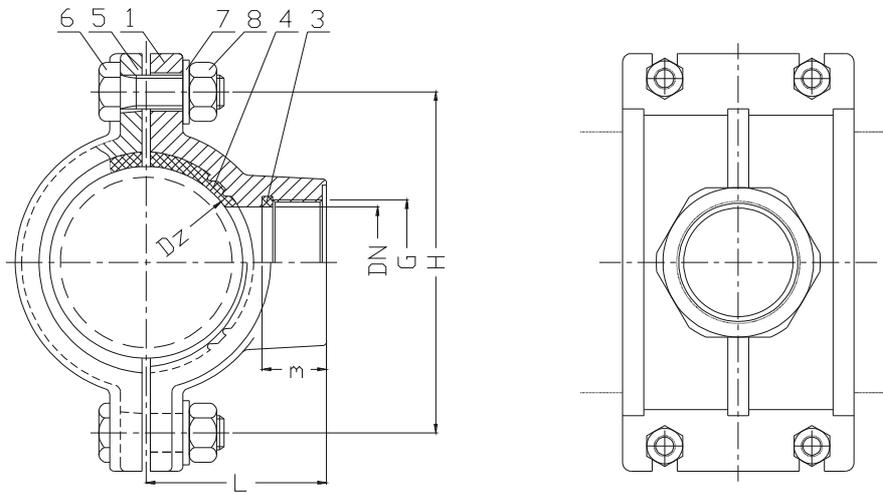
2.3 DIMENSIONS

Threaded cast iron clamp type 3150



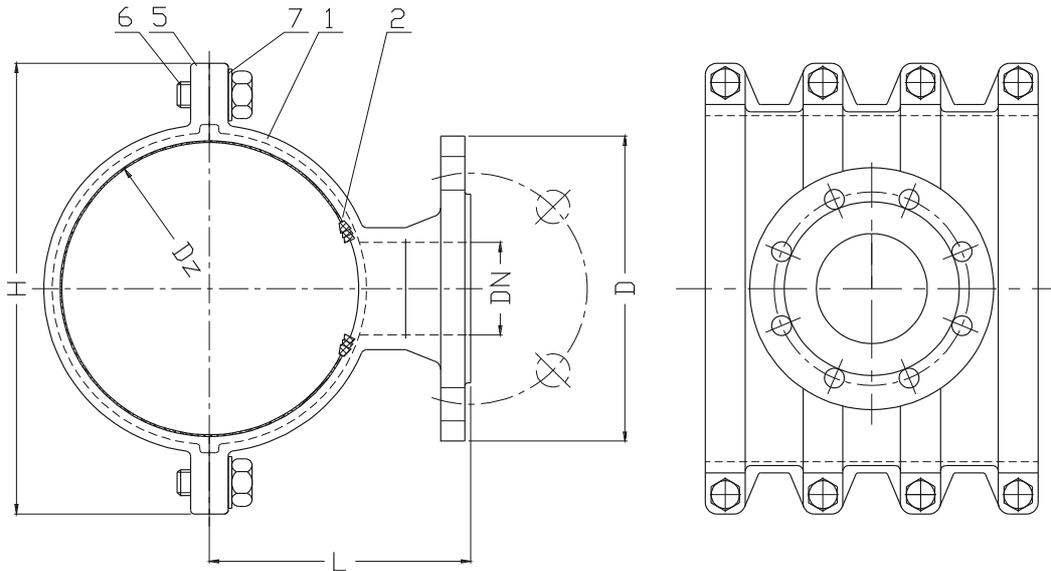
DN	G	Dz	m	L	H	weigh	number of bolts
[mm]	[inch]	[mm]				[kg]	[pcs.]
50	2"	63	40	70	132	3,5	2
		90		84	160	4,4	2
		110		94	180	5,0	2
		125		102	200	5,8	2
		160		122	225	6,8	2
		200		145	270	9,3	2
		225		154	300	10,4	2
		250		163	320	13,5	2
		280		176	340	14,2	2
		315		196	370	16,7	2

Threaded cast iron clamp type 3160



DN	G	Dz	m	L	H	Weight	Number of bolts
[mm]	[inch]	[mm]				[kg]	[pcs.]
3160							
50	2"	90	40	87	135	2,6	4
		110		95	162	3,3	4
		125		112	178	4,1	4
		160		121	202	4,7	4
		180		141	230	5,2	4

Flanged cast iron clamp type 3151



DN	Dz	H	L	D
[mm]				
50	63	129	140	165
50	75	141	140	165
50	90	161	145	165
50	110	189	140	165
80			170	200
50	125	204	160	165
80			170	200
50	140	219	160,0	165
80			170	200
100			180	220
50	160	239	170	165
80			200	200
100			205	220
50	180	259	195	165
80			225	200
100			230	220
50	200	279	195	165
80			225	200
100			230	220
50	219,1	298	195	165
80			225	200
100			230	220
50	225	304	205	165
80			225	200
100			230	220
50	250	345	250	165
80			250	200
100			255	220
150	280	376	265	185
50			260	165
80			265	200
100	315	411	270	220
150			280	285
50			290	165
80	400	496	295	200
100			300	220
150			310	285
50	400	496	340	165
80			350	200
100			360	220
150			370	285

2.4 STANDARDS

PN-EN 1074-1: 2002	Valves for water supply. Fitness for purpose requirements and appropriate verification tests. General requirements.
PN-EN 1074-2: 2002	Valves for water supply. Fitness for purpose requirements and appropriate verification tests. Isolating valves.
PN-89/H-02650	Fittings and pipelines. Pressures and temperatures for fittings, connectors and equipment with PN markings. Cast iron flanges.
PN-EN19: 2005	Industrial fittings. Metal fitting marking.
PN-EN 12266-1: 2012	Industrial valves. Testing of metallic valves. Pressure tests, test procedures and acceptance criteria. Mandatory requirements.
PN-EN ISO 6708: 1998	Definition and selection of the DN /nominal dimension/
PN-EN 10226-1: 2006	Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads. Dimensions, tolerances and designation
PN-ISO 965-1: 2001	ISO general purpose metric screw threads. Tolerances. Principles and basic data.
PN-ISO 2903: 1996	Trapezoid ISO metric threads. Tolerances.
PN-EN 1092-2: 1999	Flanges and their connections. Circular flanges for pipes, fittings, connectors and equipment with PN markings. Cast iron flanges.
PN-EN ISO 4032: 2013	Hexagon regular nuts (style 1). Product grades A and B.
PN-EN 1559-1: 2011	Founding. Technical conditions of delivery. General.
PN-EN 1563: 2012	Founding. Spheroidal graphite cast irons.
PN-EN 1370: 2012	Founding. Examination of surface condition by visual-tactile comparators.
PN-EN ISO 7091: 2003	Plain washers. Normal series. Product grade C
PN-EN 10088-1: 2014	Stainless steels. Grades of stainless steel.
PN-74/H-84032	Spring steel. Grades.
PN-EN ISO 4762: 2006	Hexagon socket head cap screws.
PN-EN ISO 4017: 2004	Hexagon head screws. Product grades A and B.
PN-EN 10204: 2006	Metallic products. Types of inspection documents.
PN-ISO 1629: 2005	Rubbers and latices. Nomenclature.
PN-EN ISO 1872-1: 2000	Plastic materials. Polyethylene (PE) moulding and extrusion materials. Designation system and basis for specifications.
PN-EN ISO 1873-1: 2000	Plastic materials. Polypropylene (PP) moulding and extrusion materials. Designation system and basis for specifications.
PN-EN ISO 1874-1: 2010	Plastic materials. Polyamide (PA) forming and extrusion moulding materials. Designation system and basis for specification.
PN-EN ISO 12944-5: 2009	Paints and varnishes. Anti-corrosion protection of steel structures by means of protective painting systems. Protective painting systems.

2.5 ORDERING REGULATIONS

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

- catalogue number,
- intended use, e.g. for water supply 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 pipe clamps with catalogue numbers 3150, 3151, 3160 are accepted and manufactured in accordance with: PN-EN 1074-1:2002 (Valves for water supply. Fitness for purpose requirements and appropriate verification tests. General requirements) and PN-EN 12266-1:2012 (Industrial valves. Testing of metallic valves). All clamps are leak tested (100%). The tests include external body tightness.

2.7 MARKING

The clamp marking meets the following standards: PN-EN-19: 2005, PN-EN-1074-1: 2002.

The bodies of cast iron clamps have a marking on the front side, containing:

- clamp type (specified as number of standard applicable to product),
- manufacturer trade mark.

the rear side of the body neck contains:

- nominal diameter
- nominal pressure
- body material type

The location specified in the documentation features the nameplate which contains 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 & TRANSPORT

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.

The casting surface is pre-treated for epoxy coating in accordance with the relevant technical documentation and standard PN-EN ISO 12944-5: 2009.

The screws connecting the body and the clamp are manufactured as stainless, grade 1.4301 or Fe/Zn5 (galvanised steel).

3.2 PACKAGING

Pipe clamps are packaged on EURO pallets (1200x800) and protected with shrink film.

3.3 STORAGE

Store the cast iron pipe clamps in sheltered rooms.

3.4 TRANSPORT

Transport the cast iron pipe clamps using sheltered vehicles.

4 ASSEMBLY AND INSTALLATION

4.1 INSTALLATION GUIDELINES

The cast iron pipe clamps TYPE 3150, 3160 and 3151 are appropriate for installation on the line pipe without the necessity of using additional sealing. Before installing the pipe clamp, it is recommended to lubricate the sealing assembly surfaces with industrial grade petroleum jelly to prevent adhesion and possible damage during the removal of rubber components. After joining both sides of the clamp, it should be centred and then tightened evenly with installation screws. Following assembly check if the unit is installed correctly. It is now possible to make an opening in the line pipe. The pipe clamp installed in the pipeline is its integral part and does not require using additional supports (bearing plates) below it.

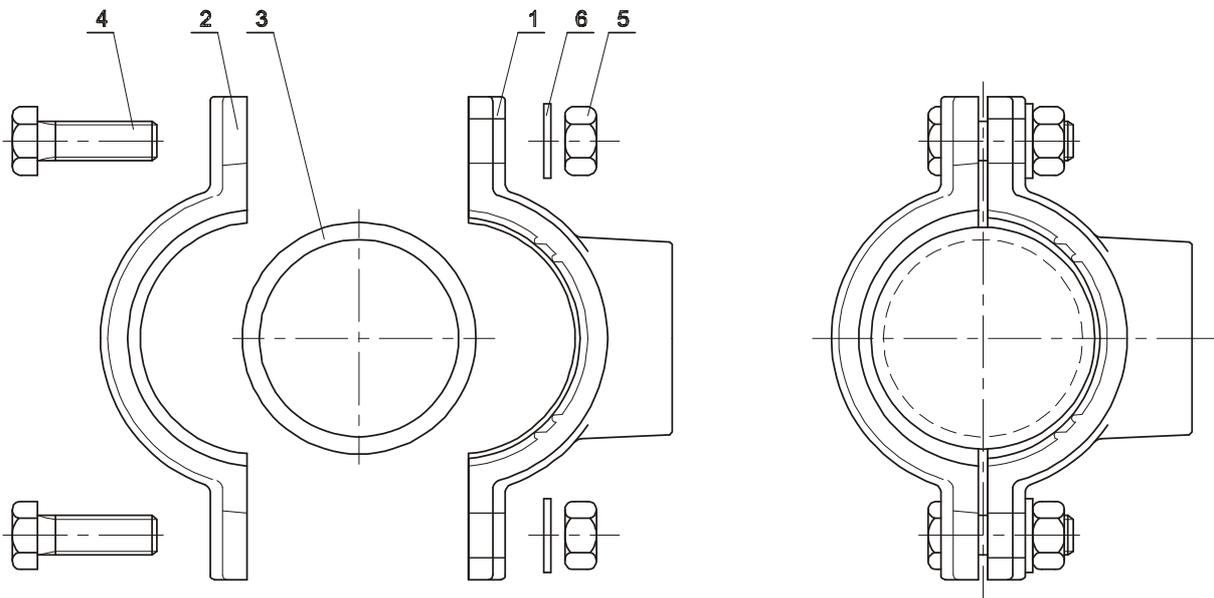
The pipe clamp assembled and adjusted by the manufacturer is ready for installation. Any dismantling of the sealing components may result in loss of tightness.

4.2 INSTALLATION INSTRUCTIONS

Before installing the fittings, check the technical and commercial documentation, i.e. application for media and operation parameters of the pipeline, in which they are to be installed. Any change in the operating conditions must be consulted with the fitting manufacturer beforehand.

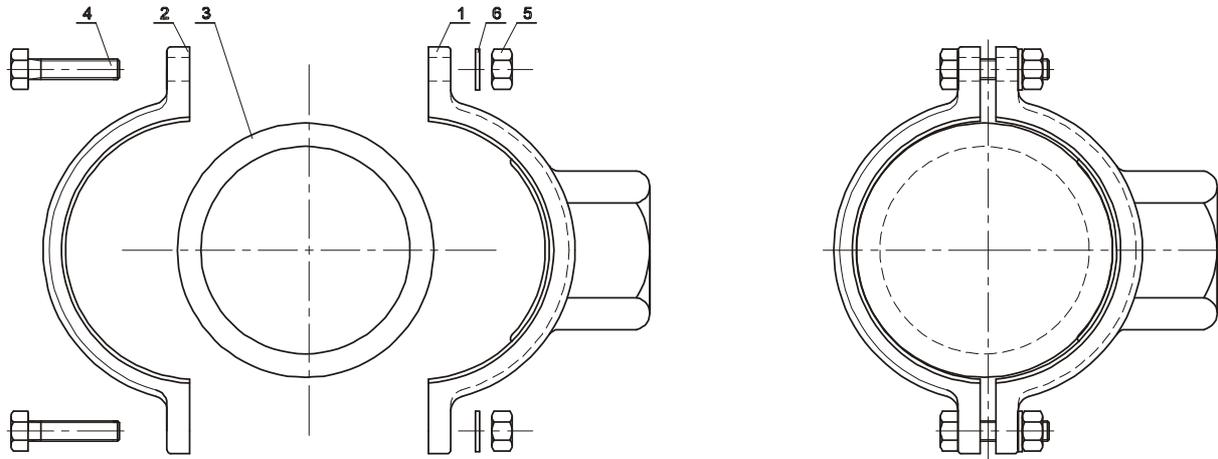
Before attempting to assemble the fitting, remove the main bore plugs, check the inner surfaces of the clamp and thoroughly flush with water, if necessary.

The installation of a threaded pipe clamp type 3150 is presented in the drawing below:



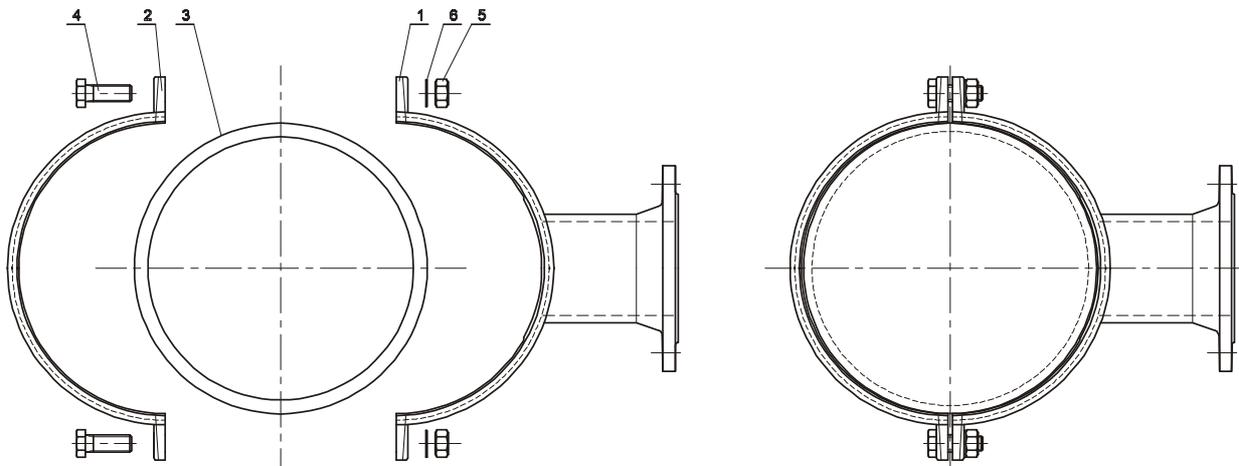
1.-clamp body, 2.-clamp, 3.-pipeline, 4.- screw 2 pcs., 5.-nut 2 pcs., 6.-washer 2 pcs.,

The installation of a threaded pipe clamp type 3160 is presented in the drawing below:



1.-clamp body, 2.-clamp, 3.-pipeline, 4.- screw 4 pcs., 5.-nut 4 pcs., 6.-washer 4 pcs.,

The installation of a flanged pipe clamp type 3151 is presented in the drawing below:



1.-clamp body, 2.-clamp, 3.-pipeline, 4.- screw 8 pcs., 5.-nut 8 pcs., 6.-washer 8 pcs.,

4.3 OH&S REGULATIONS

The OH&S guidelines and recommendations concerning installation of pipelines and devices for water supply stations, heat power plants, water treatment plants, sewage treatment plants, pumping stations and other facilities, and the Polish Regulation concerning general OH&S regulations (use of personal protective equipment for hands, legs and head, and safety garments), especially at work with low or high temperature hazard apply to the pipe clamps.

Misuse of this product is prohibited.

5 GUARANTEE CONDITIONS

The manufacturer grants guarantee for the product being installed and operated according to this O&MM. The conditions and period of the guarantee is specified in the guarantee sheet.