

**Operation and maintenance**  
**manual for**

**FLANGED  
WATER SUPPLY  
GATE VALVES  
WITH SOFT SEALS  
AND PE ENDS  
P/N  
2120**

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.

## CONTENTS

1	TECHNICAL DESCRIPTION .....	3
1.1	PRODUCT DESIGNATION AND IDENTIFICATION .....	3
1.2	USE .....	3
1.3	TECHNICAL SPECIFICATION .....	3
2	DESIGN .....	3
2.1	DESCRIPTION OF THE VALVE DESIGN .....	3
2.2	MATERIALS .....	4
2.3	DIMENSIONS .....	5
2.4	REFERENCE STANDARDS .....	6
2.5	ORDERING INFORMATION .....	6
2.6	PRODUCTION AND ACCEPTANCE .....	6
2.7	MARKINGS .....	7
3	PROTECTION, STORAGE & TRANSPORT .....	7
3.1	PROTECTIVE COATINGS .....	7
3.2	PACKAGING .....	7
3.3	STORAGE .....	7
3.4	TRANSPORT .....	8
4	ASSEMBLY AND INSTALLATION .....	8
4.1	ASSEMBLY GUIDELINES .....	8
4.2	ASSEMBLY INSTRUCTIONS .....	8
4.3	OPERATION .....	9
4.4	OCCUPATIONAL HEALTH AND SAFETY .....	9
5	WARRANTY TERMS AND CONDITIONS .....	9

## 1 TECHNICAL DESCRIPTION

### 1.1 PRODUCT DESIGNATION AND IDENTIFICATION

The subject of this Operation and Maintenance Manual is:

TYPE 2120 cast iron wedge gate valve with soft seals and PE ends for water supply systems

- full smooth walled bore design
- wedge (closure) embedded in 100% pure elastomer
- non-rising spindle
- soft o-ring seals of the valve cover
- resistance welded PE ends

### 1.2 USE

The Type 2120 gate valves with soft seals are intended for isolation of water flow and flow of other neutral liquids. The valves are intended for underground installations as installed in horizontal PE pipelines.

### 1.3 TECHNICAL SPECIFICATION

The TYPE 2120 cast-iron gate valves with soft seals are intended for flow isolation in water supply systems with the medium temperature of up to +40°.

- Nominal diameter (dimension) range: DN25 to DN300 [mm]
- Maximum medium flow rate:
  - liquid: 4 [m/s]
  - gas: 30 [m/s]

- The driving torque at opening start and closing end is as listed below:

DN [mm]	25	32	40	50	65	80	100	125	150	200	250	300
M max [Nm]	25		55		80		100		100		200	

- Valve control mode: the standard version of gate valve has the clockwise closing sense of rotation.  
The closing sense of rotation can be opposite on special order.
- The installation length meets the general table of dimensions, as specified by the manufacturer
- Nominal pressure ratings (PN): - 1.6 MPa

## 2 DESIGN

### 2.1 DESCRIPTION OF THE VALVE DESIGN

The TYPE 2120 cast-iron gate valves with soft seals for water flow isolation manufactured by **F.A. „JAFAR”S.A.** feature a smooth walled bore, a non-ring spindle, and an o-ring spindle seal installed in a head-type valve cover. The stem is guided by a bushing in the valve cover neck and a sealing plug. The stem seal is provided by the plug sealing assembly, which is a system of O-rings. The gate valve closure is a cast iron wedge completely coated with rubber and featuring a stem nut located on the wedge lug. The stem is equipped with an interlocking collar installed by necking. From the bottom the stem collar rests on a seat in the head via a bushing which acts as a sealed bearing. The plug is secured against unscrewing using a wire spring ring installed above the flange. The valve cover to body joint is made with hexagon socket head cap screws mounted flush with the valve cover and secured with paraffin compound. The valve cover to body seal is a rubber gasket which also seals the bolts to prevent any leaks from their openings.

The valve body features bell socket ends with transverse grooves cut along the outer surface on which PE pipe ends are slid over. The pipes at the grooved bell socket length are press fit with pressed steel rings that provide a sure and tight joint. The metal to PE joints are preserved with the PROTEGOL anti-corrosive protective coat and heat-shrunk bands.

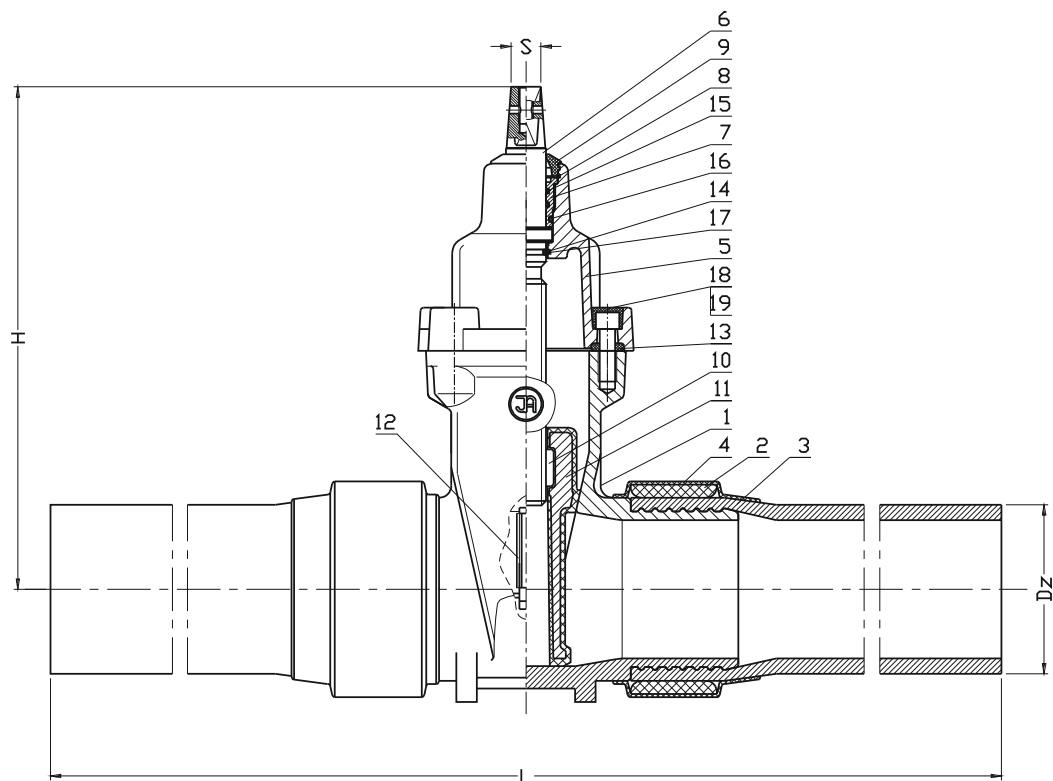
All inner and outer cast-iron surfaces of the valve are epoxy powder coated. The stem may be operated manually using a hand wheel or, in case of gate valves located underground, through a hood and gate valve casing, using a T socket.

## 2.2 MATERIALS

The table below lists the structural materials of the type 2120 gate valves with soft seals.

Item	Part designation	Material	Reference standard
1	Body	Cast-iron, EN-GJS-400-15	EN 1563
2	Clamping ring	Steel grade 1.0037	EN 10025-2
3	PE ends	PE100	EN 1555-2
4	Heat-shrunk band	Plastic	
5	Cover	Cast-iron, EN-GJS-400-15	EN 1563
6	Spindle	Steel grade 1.4021	EN 10088-1
7	Sealing plug	Brass	EN 1982
8	Safety ring	Steel grade 1.1260	74/H-84032
9	Cleaning seal	Rubber: EPDM/NBR	ISO 1629
10	Spindle nut	Brass	EN 1982
11	Wedge	Brass (DN25-DN32) Cast iron (DN40-DN300) EN-GJS-400-15 Rubber: EPDM/NBR	EN 1982 EN 1563 ISO 1629
12	Skid	Polyamide	EN ISO 1874-1
13	Valve cover gasket	Rubber: EPDM/NBR	ISO 1629
14 17	O-ring	Rubber: EPDM/NBR	ISO 1629
18	Bolt	Steel, Fe/Zn5, stainless steel	EN ISO 4762
19	Bolt plug	Paraffin	acc. to manufacturer's Technical Guidelines

### 3 DIMENSIONS



DN	H	Dz	L	S	No. of turns for opening	Mass
[mm]						[kg]
25	130	32	800	12	7,5	4
32	145	40	800	12	9	5
40	220	50	850	14	11	6
50	230	63	850	14	13,5	11
65	265	75	860	17	14	13
80	290	90	860	17	17	21
100	325	110	900	19	21	24
125	365	125	1100	19	26	33
150	457	160	1100	19	26	49
150	457	180	1100	19	26	52
200	534	200	1100	24	34,5	76
200	534	225	1100	24	34,5	80
250	633	250	1200	27	42,5	102
250	633	280	1200	27	42,5	110
300	708	315	1300	27	51	150

## 2.4 REFERENCE STANDARDS

EN 1074-1	Valves for water supply. Fitness for purpose requirements and appropriate verification tests. General requirements
EN 1074-2	Valves for water supply. Fitness for purpose requirements and appropriate verification tests. Isolating valves.
89/H-02650	Valves and pipelines. Pressure and temperature ratings.
EN19: 2005	Industrial valves. Marking of metallic valves
EN 12266-1	Industrial valves. Testing of metallic valves. Pressure tests, test procedures and acceptance criteria. Mandatory requirements.
EN 558	Industrial valves. Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems. PN-designated valves.
EN ISO 6708	Pipework components. Definition and selection of DN (nominal size).
EN 1559-1	Founding. Technical conditions of delivery. General.
EN 1563	Founding. Spheroidal graphite cast irons.
EN 1370	Founding. Surface roughness inspection by visual tactile comparators.
EN 10088-1	Stainless steels. List of stainless steels.
74/H-84032	Spring steel. Grades.
EN 10025-2	Hot-rolled products of structural steel grades – Part 2: Technical conditions for supply of non-alloy structural steel.
EN 1982	Copper and copper alloys. Ingots and castings.
EN 12420	Copper and copper alloys. Forgings.
ISO 965-1	General purpose ISO metric threads. Tolerances. Principles and basic data.
ISO 2903	Trapezoid ISO metric threads. Tolerances.
EN ISO 4762	Hexagon socket head cap screws.
EN 10204	Metallic products. Types of inspection documents.
ISO 1629	Rubbers and latices. Nomenclature.
EN ISO 1872-1	Plastics. Polyethylene (PE) moulding and extrusion materials. Designation system and basis for specifications.
EN ISO 1873-1	Plastics. Polypropylene (PP) moulding and extrusion materials. Designation system and basis for specifications.
EN ISO 1874-1	Plastics. Polyamide (PA) moulding and extrusion materials. Designation system and basis for specification.
EN ISO 12944-5	Paints and varnishes. Corrosion protection of steel structures by protective paint systems. Protective painting systems.

## 2.5 ORDERING INFORMATION

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

- part number (P/N, equal to the product type);
- intended use, e.g. for water supply systems;
- and:
- nominal diameter, acc. to EN ISO 6708
- nominal pressure, acc. to 89/H-02650;
- body material type, acc. to EN 1563
- maximum operating temperature, acc. to 89/H-02650.

## 2.6 PRODUCTION AND ACCEPTANCE

Type 2120 gate valves are accepted and produced

in accordance with EN 1074-2 (Valves for water supply. Fitness for purpose requirements and appropriate verification tests. Isolating valves) and EN 12266-1 (Industrial valves. Testing of valves). All valves (100%) are subject to tightness testing. The tests include external body tightness and closing tightness.

## **2.7 MARKINGS**

The valve marking is regulated by the following standards: EN-19, EN-1074-1.

The valve bodies feature markings on the front and back walls of the body chamber. The marking contains the following data:

- valve type (defined by the product reference standard number)
- nominal diameter
- nominal pressure
- body material type
- manufacturer trademark

The location on the valve specified in the documentation features the nameplate which contains the following data:

- manufacturer's company name and logo
- 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 inner and outer cast-iron surfaces are protected with electro-deposited epoxy coat. The coat has been approved for contact with foodstuffs. The steel clamping ring on the PE pipe is preserved with the PROTEGOL anti-corrosive protective coat, and the entire metal to PE joint is protected with a heat-shrunk band.

The anti-corrosion coating layer minimum thickness is 250µm.

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

The cover-to-body fastening bolts are grade OH18N9 (stainless steel) or Fe/Zn5 (galvanized steel).

### **3.2 PACKAGING**

The gate valves are packed on EURO pallets (1200x800) and protected with heat-shrunk film.

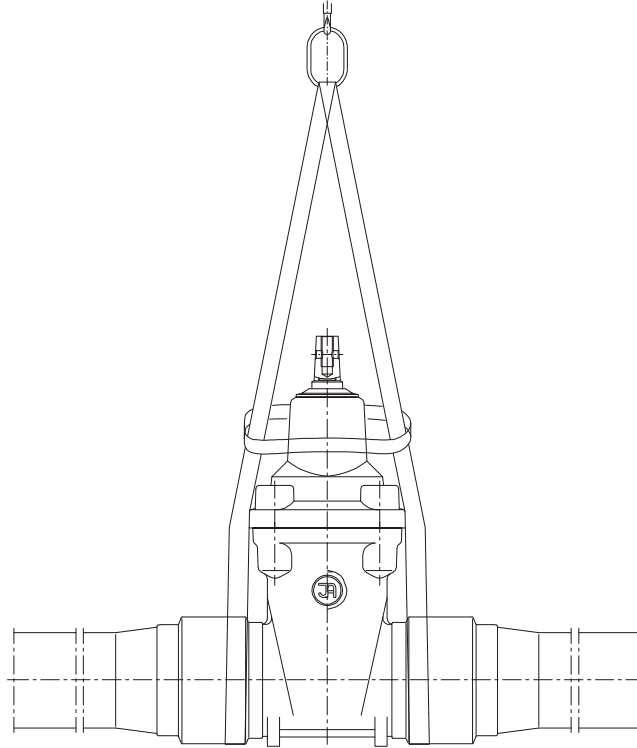
### **3.3 STORAGE**

Store the gate valves in sheltered rooms.

### 3.4 TRANSPORT

Transport the gate valves on sheltered vehicles.

The gate valves shall be handled on slings (see the example diagram below) and secured from turning.



## 4 ASSEMBLY AND INSTALLATION

### 4.1 ASSEMBLY GUIDELINES

The Type 2120 water supply gate valves with soft seals can be installed in underground pipelines both in horizontal or vertical orientation. The products are intended for installation between resistance-welded pipeline ends. Note that the system must not expose the (gate) valve to bending or tensile stress from loading with the weight of unsupported pipeline sections. Assemble with consideration to pressure and temperature compensation of the pipeline. The valve assembled and adjusted by the manufacturer is ready for installation. Any dismantling of the valve components may result in loss of seal.

### 4.2 ASSEMBLY INSTRUCTIONS

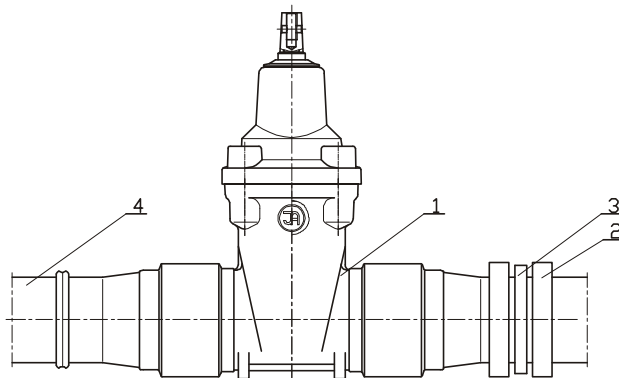
Before attempting to install the valve, check the technical and commercial documents delivered with the product to verify that the media and pipeline operating parameters comply with the manufacturer's declaration. Any change in the operating conditions must be consulted with the valve manufacturer beforehand.

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

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

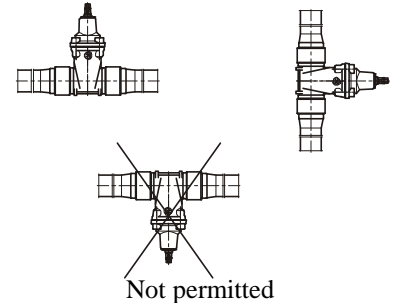


The figure below shows the assembly method of the gate valve and the valve orientation diagrams:



Recommend

Permitted



1. - Gate valve; 2. - Clamping parts; 3. - Heating element; 4. - PE 100 pipeline

### 4.3 OPERATION

The gate valve shall be operated according to all relevant requirements for cut-off valves, i.e. either in fully open or fully closed positions. Leaving the gate valve partially opened (or closed) may result in seal failure. To ensure full performance, switch the knife gate valve periodically (once a year, from fully open to fully closed). Exceeding the operating limits of the valve may result in damage that will not be covered by the suretyship granted by the manufacturer.

### 4.4 OCCUPATIONAL HEALTH AND SAFETY

The Type 2120 gate valves with soft seals are eligible for the OHS guidelines and recommendation concerning installation of pipelines and devices for NG systems and eligible for the Polish Regulation concerning general OHS laws (use of personal protective equipment for hands, legs and head, and safety garment), especially at work with low or high temperature hazard.

**Misuse of this product is prohibited.**

### 5 WARRANTY TERMS AND CONDITIONS

The product assembled, installed and operated in compliance with this Manual is covered by a commercial warranty from the manufacturer. The conditions and period of the warranty is specified in the warranty sheet.