

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

**FLANGE-TO-FLANGE**  
**CHECK**  
**FLAP**  
**VALVES**

**P/N**  
**6534**

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 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 DESIGNATION AND IDENTIFICATION**

The subject of this Operation and Maintenance Manual is:

TYPE 6534 flange-to-flange check flap valve.

- with flap (closure)
- with o-ring seals
- with body and flap wafer made of steel grade 1.4301 or 1.0038/Zn.

### **1.2 USE**

The Type 6534 flange-to-flange check flap valves are intended for industrial installations, e.g. sewage discharge, or water supply systems, e.g. for potable water. The valves are intended for overground installations as installed in vertical or horizontal pipelines.

### **1.3 TECHNICAL SPECIFICATION**

The Type 6534 flange-to-flange check flap valves are designed to transport potable water, process water (sewage) and other liquids as approved by the manufacturer.

- Operating temperature: -10°C to +70°C
- Available diameters (dimensions): - DN40 – DN300[mm]
- Maximum medium flow rate: - liquid: max. 4 [m/s]
- nominal pressure ratings (PN): - 1.0 MPa  
- 1.6 MPa

## **2 DESIGN**

### **2.1 DESCRIPTION OF THE VALVE DESIGN**

F.A. JAFAR S.A manufactures the Type 6534 flange-to-flange check flap valves for industrial and water supply systems. The valve body is made of stainless steel or zinc-plated carbon steel and houses a wafer flap as the valve closure. In the operating conditions, the flap is held at the top position (under the inner pipe wall) by the dynamic force of the liquid stream, or in the closed position, where it seals off the valve seat under the back pressure.

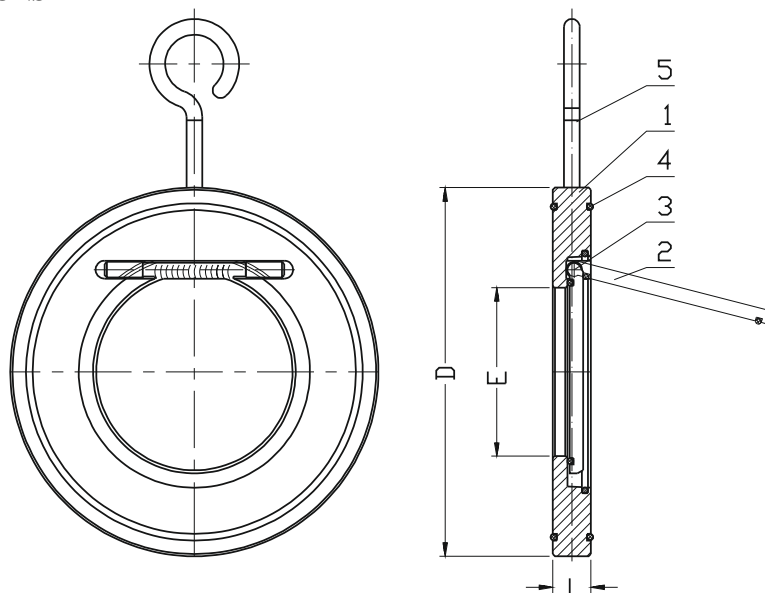
## 2.2 MATERIALS

The table below lists the structural materials of the check flap valves.

Item	Part designation	Material	Reference standard
1	Body	Steel grade 1.0037 Steel grade 1.4310	PN-EN 10025-2:2007 PN-EN 10088-1:2014
2	Cover	Steel grade 1.0037 Steel grade 1.4310	PN-EN 10025-2:2007 PN-EN 10088-1:2014
3	Spring*	50S2JR/Zn Steel grade 1.4310	PN-74/H-84032 PN-EN 10088-1:2014
4	Seal	Rubber: EPDM	PN-ISO 1629: 2005
5	Eye bolt	Steel grade 1.0037 Steel grade 1.4310	PN-EN 10025-2:2007 PN-EN 10088-1:2014

\*not in standard version

## 2.3 DIMENSIONS



DN	D	E	L	Weight
[mm]				[kg]
40	94	21	15	0,5
50	109	30	15	0,8
65	129	41	15	1,3
80	144	50	17	1,5
100	164	75	17	2,3
125	195	96	18	3,0
150	221	96	18	4,5
200	276	155	28,5	9,3
250	330	200	33,5	15,0
300	384	240	38	24,0

## 2.4 REFERENCE STANDARDS

PN-EN 1074-1: 2002	Valves for water supply. Fitness for purpose requirements and appropriate verification tests. General requirements
PN-EN 1074-3: 2002	Valves for water supply. Fitness for purpose requirements and appropriate verification tests. Check valves.
PN-89/H-02650	Valves and pipelines. Pressure and temperature ratings.
PN-EN 1092-2: 1999	Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN designated. Cast iron flanges.
PN-EN 19: 2005	Industrial valves. Marking of metallic valves
PN-EN 12266-1: 2012	Industrial valves. Testing of metallic valves. Pressure tests, test procedures and acceptance criteria. Mandatory requirements.
PN-EN 558: 2012	Industrial valves. Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems. PN-designated valves.
PN-EN ISO 6708: 1998	Pipework components. Definition and selection of DN (nominal size).
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. Surface roughness inspection by visual tactile comparators.
PN-ISO 965-1: 2001	General purpose ISO metric threads. Tolerances. Principles and basic data.
PN-EN ISO 4762: 2006	Hexagon socket head cap screws.
DIN 6912: 2006	Hexagon socket low head cap screws.
PN-EN 10204: 2006	Metallic products. Types of inspection documents.
PN-ISO 1629: 2005	Rubbers and latices. Nomenclature.
PN-EN ISO 1872-1: 2000	Plastics. Polyethylene (PE) moulding and extrusion materials. Designation system and basis for specifications.
PN-EN ISO 1873-1: 2000	Plastics. Polypropylene (PP) moulding and extrusion materials. Designation system and basis for specifications.
PN-EN ISO 1874-1: 2010	Plastics. Polyamide (PA) moulding and extrusion materials. Designation system and basis for specification.
PN-EN ISO 12944-5: 2009	Paints and varnishes. Corrosion protection of steel structures by protective paint systems. Protective paint 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 sewage;
- and:
- 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 1563: 2012
- maximum operating temperature, acc. to PN-89/H-02650

## 2.6 PRODUCTION AND ACCEPTANCE

The flange-to-flange check flap valves are manufactured and accepted in accordance with PN-EN 1074-3: 2002 (Valves for water supply. Fitness for purpose requirements and appropriate verification tests. Check valves) and PN-EN 12266-1: 2007 (Industrial valves. Testing of valves). All valves are leak tested (100%). The tests include external body tightness and closing tightness at high and low pressure values.

## 2.7 MARKINGS

The valve marking is regulated by the following standards: PN-EN 19: 2005, PN-EN-1074-1: 2002.

The valve bodies bear markings which read the following data:

- nominal diameter
- nominal pressure
- body material type
- manufacturer trademark
- flow direction arrow

### **3 PROTECTION, STORAGE & TRANSPORT**

#### **3.1 PACKAGING**

The flange-to-flange check flap valves are packed on EURO pallets (1200x800) and protected with heat-shrunk film.

#### **3.3 STORAGE**

Store the flange-to-flange check flap valves in sheltered rooms.

#### **3.4 TRANSPORT**

Transport the flange-to-flange check flap valves on sheltered vehicles.

The check flap valves from DN250 to DN300 shall be installed and handled with slings.



### **4 ASSEMBLY AND INSTALLATION**

#### **4.1 ASSEMBLY GUIDELINES**

The Type 6534 flange-to-flange check flap valves can be installed in underground or overground pipelines both in horizontal or vertical orientation. The valves are suitable for joining with the flanged ends of

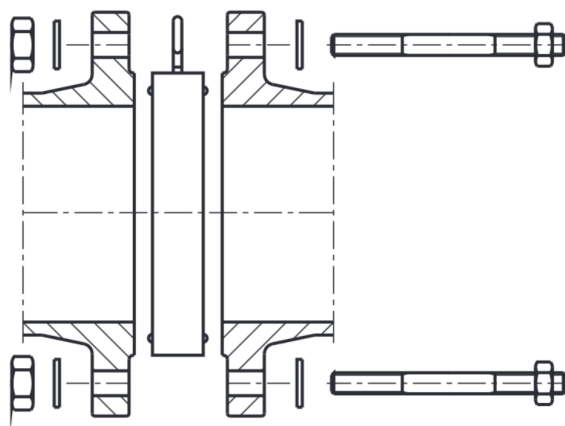
pipelines with the size equal to the installation length. Note that the system must not expose the valve to bending or tensile stress from loading with the unsupported pipeline sections. The valve assembled and delivered by the manufacturer is ready for installation. Disassembly of the valve components without proper care may result in loss of integrity.

#### 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, check the inner surfaces of the valve and thoroughly flush with water, if necessary.

Install the flange-to-flange check flap valve between the adjacent flanges of the pipeline ends and bolt down by alternately tightening the opposite pin bolts. The assembly method is shown in the following figure:



#### CAUTION!

**Install the valve downstream of a straight pipeline the length of which is at least 5 times the pipeline nominal diameter.**

#### 4.3 OPERATION

The flange-to-flange check flap valves shall be operated according to the requirements for check valves. The check flap valve has a self-cleaning action. However, it is recommended to periodically purge the valve with fresh water (once a year) to assure full performance. Hard solids with the size above 5 mm should be filtered out of the transmitted medium to prevent seizure of the flap inside the body and damage to the closure seal rubber surface. If the flap is stuck, start the installation pump for a few seconds. If the problem persists, stop all installation pumps, isolate the medium flow, and free the flap.

#### 4.4 OCCUPATIONAL HEALTH AND SAFETY

The valves are eligible for the OHS guidelines and recommendation 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 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 warranty terms, conditions and period are specified in the relevant Warranty Sheet.