TASSALINI
PRECISION MADE GREAT, SINCE 1922

INSTALLATION, USE, AND MAINTENANCE MANUAL

BUTTERFLY VALVE
(MANUAL OP.)

Summary

GENERAL SAFETY RULES AND WARNINGS

The following manual provides the main precautions, in terms of usage, installation, and maintenance, to ensure the maximum lifespan of the **MANUALLY OPERATED** butterfly valve. For valves operated by actuators, please refer to the specific document.

All these actions must be undertaken while observing the current safety regulations in order to protect the operator and ensure the proper functioning of the component.

It is advisable to keep this manual in a predetermined location close to the installation area of the product.

SAFETY: SYMBOLS AND WARNING

Below are the symbols used throughout this manual, indicating the types of hazards and obligations.

Generic danger

Danger: Moving Parts

Danger: Suspended loads

Danger: Electrical voltage

Corrosive substances

General safety obligation

Requirement to wear Protective goggles

Requirement to wear Protective gloves

GENERAL SAFETY RULES AND WARNINGS

The following symbols and warnings pertain to operations to be performed directly on the valve. These should be implemented according to the safety regulations in force in the places and contexts where it is installed.

All acceptance, unpacking, inspection, assembly, testing, and maintenance operations must be carried out by appropriately qualified and trained personnel.

It is necessary to carefully read the instructions before installing and operating the component.

Throughout the entire operating period, working **CONDITIONS** must never exceed the maximum values specified in the technical specifications outlined in the appropriate section.

Please note that it is prohibited to touch and/or handle the valve while it is in operation, as there is always pressurized liquid inside, which may also be at high temperature.

Furthermore, there are moving parts present, thus exposing individuals to the risk of injury: never insert hands or fingers into the valve's closing area.

If the valve's mass necessitates handling with a crane or overhead crane, attention must be paid to the suspended load being maneuvered.

All electrical operations must be carried out by appropriately qualified, trained, and authorized personnel. All interventions must be conducted safely according to the prevailing standards.

GENERAL SAFETY RULES AND WARNINGS

Finally, during the maintenance phase, it is necessary to ensure the absence of pressurized liquid and high temperature. If the valves are equipped with actuator operation, it is necessary to verify that there are no pressurized components and that the electrical power supply is disconnected.

It is also good practice to ensure that no screws or other hardware are left in the work area.

GENERAL SAFETY RULES AND WARNINGS

NON-COMPLIANCE

Failure to comply with the instructions contained in this document may result in damage to the component, operators, and the environment.

Furthermore, it may result in the loss of the right to claim for any damages.

Non-compliance with the explicit instructions may cause:

Various hazards (mechanical, chemical)

- Component breakdown and malfunction
- Difficulty in maintenance and/or repair procedure
- Hazards for operators

WARRANTY

The warranty period will cease to be valid if one or more of the following conditions occur:

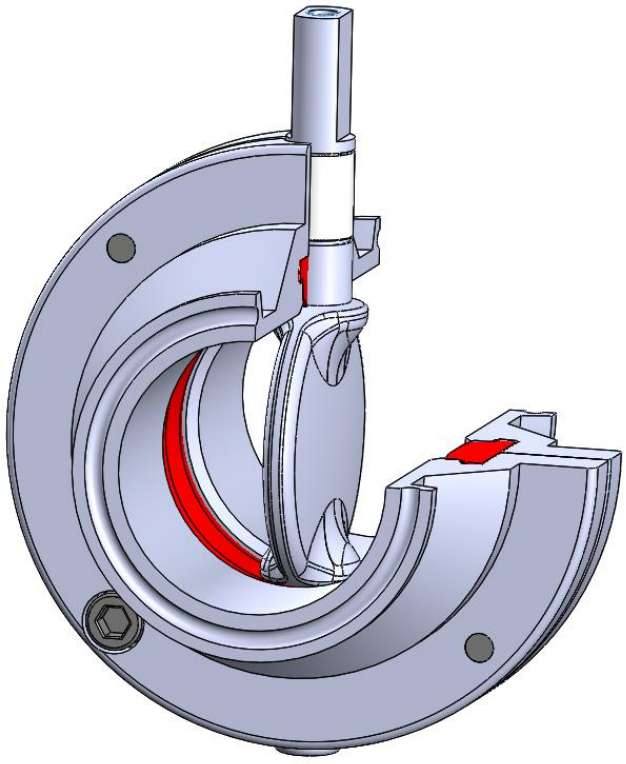
- Installation and maintenance work carried out not following the instructions in this manual and/or if performed by unqualified personnel
- Repairs have not been carried out according to **TASSALINI S.p.a.**
- Modifications are made to all or part of the purchased
- The component, or parts thereof, have been used improperly and not following the specific instructions of this manual

DESCRIPTION OF THE COMPONENT AND ITS APPLICATION

Butterfly valves are low-cost on/off valves used for isolation and control functions in systems.

They are mainly composed of a disc mounted on a pivot inside a tubular body. The disc rotates around the pivot to open or close the fluid passage. When the valve is fully open, the disc is parallel to the fluid flow, allowing unrestricted passage. When fully closed, the disc aligns perpendicular to the flow, completely interrupting fluid passage.

BUTTERFLY VALVE



- Manual operation:
    1. from DN 10 to DN 250
    2. from ½" to 10"
- If pneumatically operated:
    1. from DN 10 to DN 200
    2. from 1/2" to 8"
- Different type of connection
- Valve body in stainless steel
- Valves compliant with the ATEX directive
- **Upon request, we can provide valves with a declaration of suitability for contact with food, in accordance with MOCA CE Regulation 1935/2004.**

DESCRIPTION OF THE COMPONENT AND ITS APPLICATION

FEATURES

TASSALINI butterfly valves are designed to offer minimal resistance to flow, allowing for reversible direction and gentle handling of the product.

They require minimal maintenance and have a long service life.

Flanges with the same diameter are interchangeable, allowing for any combination of outlets as well as different combinations between standards.

They can be actuated **MANUALLY** or **PNEUMATICALLY**.

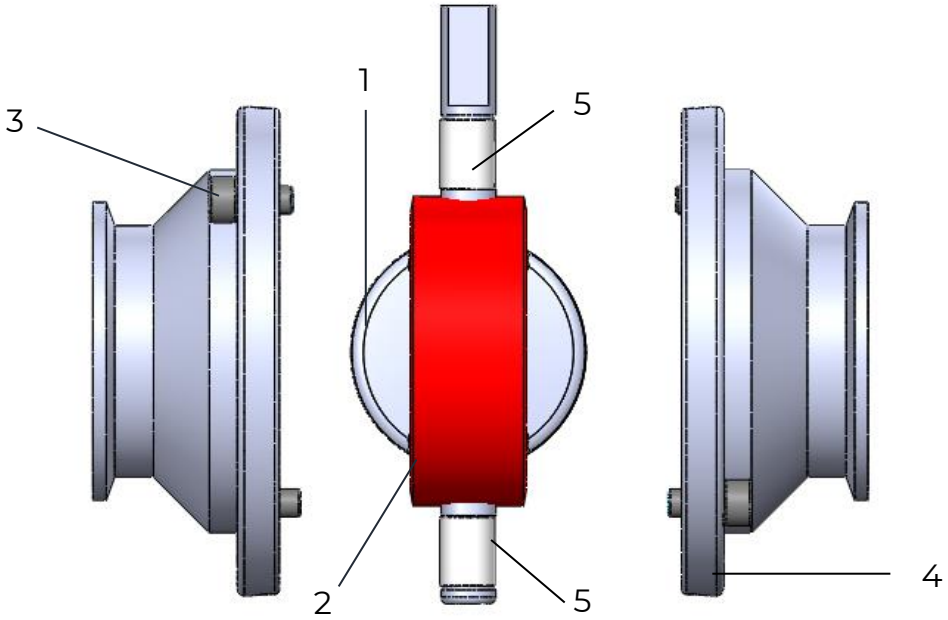
In the first case, they can be equipped with a wide range of multi-position handles, allowing for product flow adjustment.

If operated by air, however, they can be equipped with a complete range of accessories such as: **HORIZONTAL OR VERTICAL ACTUATORS, SINGLE OR DOUBLE ACTING, WITH CONTROL UNITS AND ELECTRICAL COMPONENTS**.

All handles and actuators are installed on valves with a universal connection, allowing for great flexibility and quick replacement during modifications and expansions to the systems.

For clarifications regarding the application of the valves and the types of fluids they are compatible with, please contact our technical office.

COMPONENTS AND MATERIALS



N° Description	Q.ty	Material	EN	ASTM
1 Disc	1	Stainless Steel	X2CrNi 17-12-2/ X2CrNi 18-9	Aisi 316L Aisi 304L
2 Gasket	1	VMQ. EPDM, FPM, NBR, FPM coating PTFE, EPDM coating PTFE, PTFE + silicone	RIF. EN 13000-1:2021	-
3 Bolt	1	Stainless Steel	X2CrNi 18-9	Aisi 304L
4 Flange	1	Stainless Steel	X2CrNi 18-9 X2CrNi 17-12-2	Aisi 304L Aisi 316L
5 Bushings	1	PTFE	RIF. EN 13000-1:2021	-

TECHNICAL DATA

The **TASSALINI** butterfly valves are available in various types. As explained in the introduction of the following technical document, the valves presented here are divided into two main categories:

- **MANUAL** operation
- **PNEUMATIC** operation

USAGE CONDITION:

Description	T min / max Operating [°C]	T min / max Operating [°F]	Operating P. Recommended [bar]
Valve	-10 +95	+15 +205	6
PTFE	-10 +150	+15 +300	2
EPDM	-30 +140	-20 +280	6
SILICONE	-50 +200	-60 +390	6
NBR	-10+100	+15+210	6
FPM	-15 +220	+5 +430	6
FPM coat. PTFE	-10 +150	+15 +300	6
EPDM coat. PTFE	-10 +150	+15 +300	6

FINISH: Max Ra ≤ 0,8 µm; Other finishes available upon request

MAX OPERATING PRESSURE: 7 bar

VALVE WITH PTFE GASKET: 2 bar

BODY TEST: 15 bar

TECHNICAL DATA

OPENING TORQUE VALUES DEPENDING ON GASKET MATERIAL

Below are the torque values, in Nm, required to actuate the valve shutter. In particular, two cases are distinguished:

- **VALVE OPEN**
- **VALVE CLOSED**

TORQUE VALUE WITH VMQ GASKET (SILICONE)

Measurement		Valve Open	Valve Closed
Imperial	Metric	[Nm]	[Nm]
1/2”	DN 10	4	9
3/4”	DN 15	4	9
-	DN 20	4	9
1”	DN 25	4	9
1.5”	DN 32	4	15
-	DN 40	5	20
2”	DN 50	5	24
2.5”	DN 60	5	30
3”	DN 65	6	32
-	DN 80	6	32
4”	DN 100	6	38
5”	DN 125	-	30
6”	DN 150	-	30
8”	DN 200	-	40

TORQUE VALUE WITH NBR GASKET (NITRILE RUBBER)

Measurement		Valve Open	Valve Closed
Imperial	Metric	[Nm]	[Nm]
1/2”	DN 10	5	16
3/4”	DN 15	5	16
-	DN 20	5	16
1”	DN 25	5	16
1.5”	DN 32	6	30
-	DN 40	5	24
2”	DN 50	5	32
2.5”	DN 60	6	40
3”	DN 65	6	50
-	DN 80	6	34
4”	DN 100	8	46

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TECHNICAL DATA

OPENING TORQUE VALUES DEPENDING ON GASKET MATERIAL

Below are the torque values, in Nm, required to actuate the valve shutter. In particular, two cases are distinguished:

- **VALVE OPEN**
- **VALVE CLOSED**

TORQUE VALUE WITH EPDM GASKET (ETHYLENE PROPYLENE DIENE MONOMER)			
Measurement		Valve Open [Nm]	Valve Closed [Nm]
Imperial	Metric		
1/2”	DN 10	5	12
3/4”	DN 15	5	12
-	DN20	5	12
1”	DN 25	5	12
1.5”	DN 32	5	16
-	DN 40	5	14
2”	DN 50	5	22
2.5”	DN 60	5	25
3”	DN 65	6	31
-	DN 80	6	34
4”	DN 100	6	42
5”	DN 125	-	52
6”	DN 150	-	58
8”	DN 200	-	40

TORQUE VALUE WTIH PTFE GASKET			
Measurement		Valve Open [Nm]	Valve Closed [Nm]
Imperial	Metric		
1/2”	DN 10	4	8
3/4"	DN 15	4	8
-	DN 20	4	8
1”	DN25	4	8
1.5”	DN 32	4	10
-	DN 40	4	14
2”	DN 50	6	22
2.5”	DN 60	6	24
3”	DN 65	6	38
-	DN 80	8	46
4”	DN 100	8	53

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TECHNICAL DATA

OPENING TORQUE VALUES DEPENDING ON GASKET MATERIAL

Below are the torque values, in Nm, required to actuate the valve shutter. In particular, two cases are distinguished:

- **VALVE OPEN**
- **VALVE CLOSED**

TORQUE VALUE WITH FPM/PTFE GASKET			
Measurement		Valve Open [Nm]	Valve Closed [Nm]
Imperial	Metric		
1/2”	DN 10	5	10
3/4”	DN 15	5	10
-	DN 20	5	10
1”	DN 25	5	10
1.5”	DN 32	5	12
-	DN 40	5	18
2”	DN 50	6	34
2.5”	DN 60	6	34
3”	DN 65	6	38
-	DN 80	8	38
4”	DN 100	8	55

TORQUE VALUE WITH EPDM/PTFE GASKET			
Measurement		Valve Open [Nm]	Valve Closed [Nm]
Imperial	Metric		
1/2”	DN 10	5	10
3/4”	DN 15	5	10
-	DN 20	5	10
1”	DN 25	5	10
1.5”	DN 32	5	13
-	DN 40	5	22
2”	DN 50	6	32
2.5”	DN 60	6	32
3”	DN 65	6	36
-	DN 80	8	38
4”	DN 100	8	48

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TECHNICAL DATA

OPENING TORQUE VALUES DEPENDING ON GASKET MATERIAL

Below are the torque values, in Nm, required to actuate the valve shutter. In particular, two cases are distinguished:

- **VALVE OPEN**
- **VALVE CLOSED**

TORQUE VALUE WITH FPM GASKET			
Measurement		Valve Open [Nm]	Valve Closed [Nm]
Imperial	Metric		
1/2”	DN 10	6	18
3/4”	DN 15	6	18
-	DN 20	6	18
1”	DN 25	6	18
1.5”	DN 32	5	22
-	DN 40	5	24
2”	DN 50	5	22
2.5”	DN 60	5	26
3”	DN 65	5	28
-	DN 80	6	32
4”	DN 100	6	44
5”	DN 125	-	35
6”	DN 150	-	62
8”	DN 200	-	40

ACCEPTANCE OF THE PRODUCT

ACCEPTANCE

Once the product has been delivered, it is necessary to verify that the valve is in accordance with the delivery note.

TASSALINI verify that all parts are intact but cannot guarantee that the merchandise will arrive intact to the customer.

For these reasons, for the purpose of product acceptance, the end customer will need to identify the appropriate qualified personnel to perform the following checks:

- Visual inspection to verify the integrity of the valve
- Dimensional inspection to ensure that the dimensions are in accordance with what is specified
- Inspection of markings and identification plates to verify that the delivered model matches the one ordered

TRANSPORT, HANDLING, AND STORAGE

TRANSPORT

The valves are supplied with the shutter in the closed position.

To protect the parts susceptible to damage during transportation and storage on-site, the valves are equipped with special safety packaging such as sturdy cardboard boxes with added safety padding.

HANDLING

All handling operations must be carried out by experienced, qualified, and properly trained personnel.

Handling must take place with the original packaging, and the valve should not be removed from it.

During the lifting operation of the valve, in order to ensure the integrity of the product, it is necessary to avoid sudden jerks and impacts, and in general, all maneuvers that may cause damage to the product.

Durante questa fase gli operatori devono stare a distanza di sicurezza.

STORAGE

Storage must always occur with the original packaging, and the areas designated for it must be properly delimited and outside the transit areas of vehicles. Ideally, this operation should be carried out indoors in dry environments sheltered from direct sunlight, as it could damage the gaskets. Additionally, the component should also be protected from dust..

In case of outdoor storage, it is advisable to protect the valve from the elements using waterproof tarpaulins or similar covers.

It is recommended to place the valves on wooden pallets or raised platforms.

INSTALLATION AND ASSEMBLY

INSTALLATION

Before proceeding with the installation and assembly phases of the valve, it is good practice to open and close it several times to ensure that it functions correctly. This operation must be carried out by qualified and properly trained personnel.

To protect the parts susceptible to damage during transportation and storage on-site, the valves are equipped with special safety packaging such as sturdy cardboard boxes with added safety padding.

It is recommended to place the valves on wooden pallets or raised platforms, clean them on the junction surfaces and inside, and thoroughly clean the pipeline to prevent foreign solid bodies from damaging their internal seats.

The valve should be positioned to facilitate inspections, revisions, and maintenance.

Once the valve's position is determined, it can be mounted by welding the ends to the pipes or by coupling the ends together. The type of connection depends on the type of end chosen by the customer at the time of purchase.

In the case of a valve to be welded, additional procedures will need to be followed, which are described in the **ASSEMBLY** section.

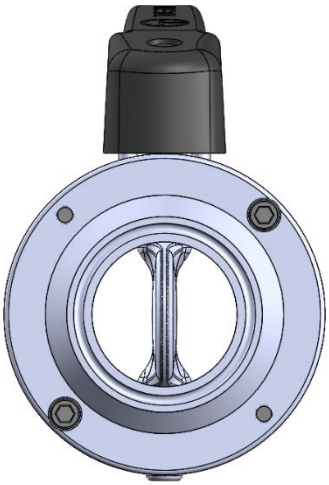
In general, during the installation phase, it is good practice to monitor:

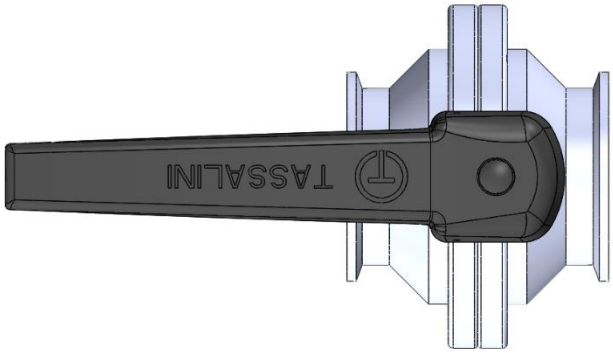
- Excessive vibrations
- Maximum weight applicable to the pipelines
- In the case of valves to be welded, the maximum tension resulting from the welding process

Test the valve at least three times, verifying that the opening and closing phases occur without difficulty.

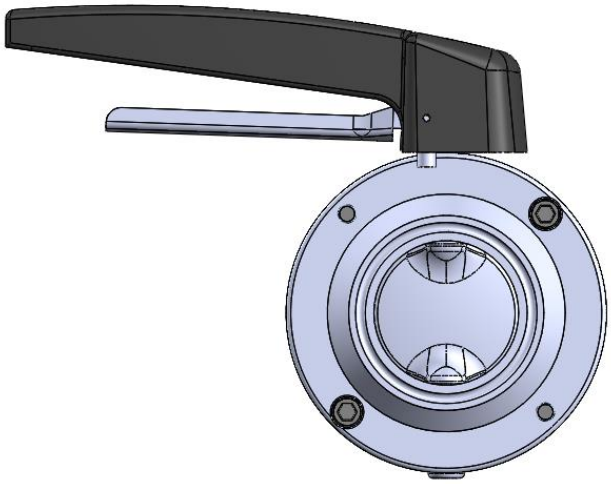
INSTALLATION AND ASSEMBLY

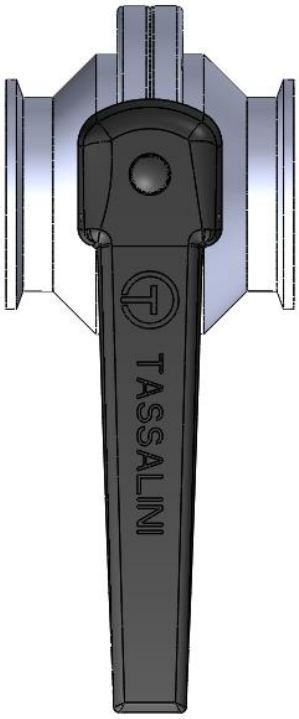
Finally, in the case of manually operated valves, it is advisable to verify that the opening and closing, using the appropriate handle, occur correctly. If pneumatic actuation is chosen, apply compressed air at least three times, verifying that the opening and closing phases occur without difficulty.





VALVE OPEN





VALVE CLOSED

INSTALLATION AND ASSEMBLY

ASSEMBLY AND DISASSEMBLY

The assembly and disassembly of the valve must be carried out by qualified and properly trained personnel.

CAUTION: Risk of personal injury

In the case of valves with **WELD ENDS**, it is necessary, before welding the appropriate ends of the valve to the pipelines, to **DISMANTLE THE COMPONENT**.

The welding works must be carried out by qualified, trained individuals who are put in the condition to perform all operations safely.

The disassembly procedure is shown in the image below.

DISASSEMBLY OF VALVES EQUIPPED WITH HANDLE:

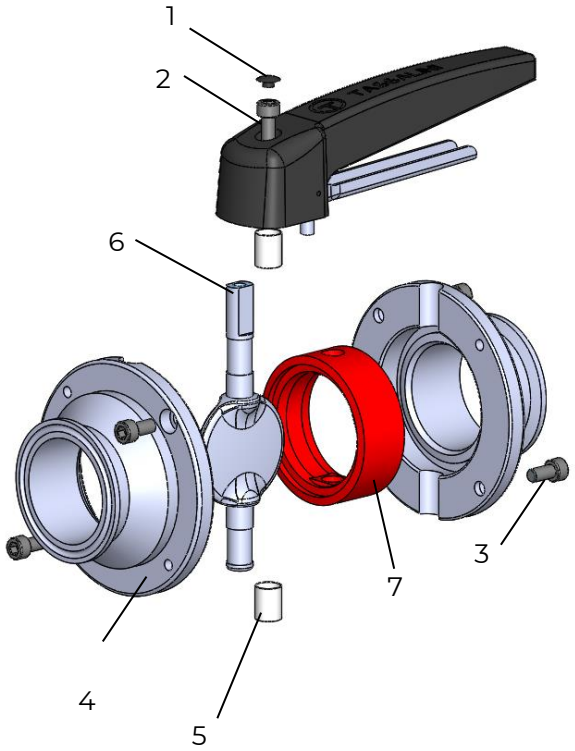
1) Loosen the cap on the handle (1) and the fixing screw (2).

2) Remove the screws that hold togheter the two halves (3) of the valve body

3) Separate the two halves (4) and remove the bushings (5).

4) Remove the butterfly valve equipped with gasket (6)

5) Dissasemble the gasket from the butterfly valve (7)



INSTALLATION AND ASSEMBLY

ASSEMBLY AND DISASSEMBLY

At this point, it is possible to solder the ends of the pipes to the respective outlets of the valve.

It is of fundamental importance, to preserve the good condition of the **VALVE**, that the welding operations be carried out by qualified personnel, equipped with the necessary tools and properly trained.

During the welding operation, it is necessary to ensure that the valve can be separated axially to guarantee maintenance operations.

At this point, it is possible to reassemble the valve following the sequence outlined here:

VALVE ASSEMBLY

1) Lubricate the butterfly shaft (6) and the gasket (7) with suitable products.

2) Install the gasket (7) onto the butterfly (6) and leave it in the **OPEN** position to facilitate assembly.

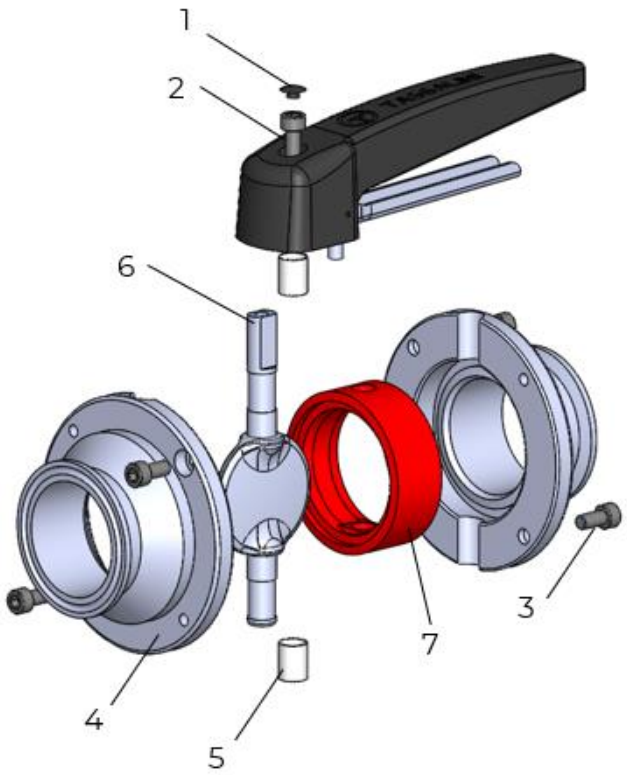
3) Assemble the gasket/butterfly assembly between the two halves (4).

4) Insert the gasket (7) into the appropriate housing of the body.

5) Insert the two bushings (5) onto the butterfly

6) Position and tighten the screws (3). It is recommended to tighten them in a cross pattern to achieve the correct positions of the bushings and gasket.

7) Install the handle in the **OPEN** position and secure it with the appropriate screws (2) and caps (1).



INSTALLATION AND ASSEMBLY

COMMISSIONNG

Before putting the valve into operation, it is necessary to ensure that it is properly fixed/coupled to the rest of the system.

The commissioning of the valve must be strictly followed as outlined in this manual.

To avoid risks to individuals, it is mandatory not to operate on the valve without first reading the instructions provided here.

During this phase, it is necessary to operate very slowly to avoid water hammer. After each maneuver, wait for the necessary time for the valve and the system to stabilize.

The valve start-up can only occur after performing the instructions described above.

The individuals responsible for the assembly and commissioning phase must be informed about the operation of the component and the safety maneuvers to be followed.

Before operating the valve, it is necessary to:

- Verify that the ducts and the valve are completely clean from welding residues, if present, or other foreign bodies.
- Ensure the correct movement of the valve.
- Check for leaks.

Finally, operate the valve.

INSTALLATION AND ASSEMBLY

FUNCTIONING

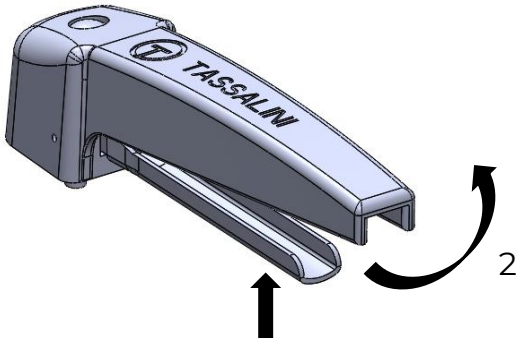
The valve must never be subjected to operating conditions different from those maximum indicated.

If high-temperature liquids are present, do not touch the valve or the pipes. Danger of burn.

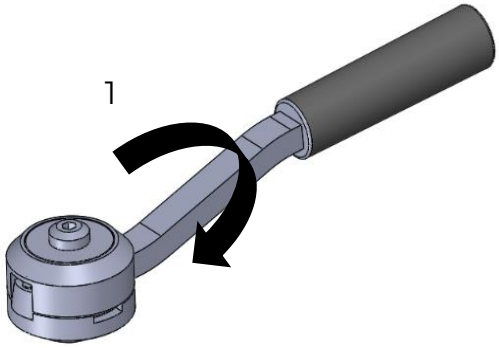
It is always recommended to try operating the handle to verify that it functions correctly.

As an example, the sequence of operations to follow for checking two types of handles is provided. For any clarifications, please contact our technical office.

7M1 HANDLE WITH LEVER: Press 1) and rotate 2). Rotate the handle in the 2 position configurations. During rotation, there should be no difficulties or opposition from the component



7M3 2-POSITION ADJUSTMENT HANDLE: Rotate 1). Try rotating the handle in the 2 position configurations. During rotation, there should be no difficulties or opposition from the component.



MAINTENANCE

TASSALINI BUTTERFLY VALVES, like all components and systems, require careful maintenance which contributes to ensuring the maximum service life of the component.

The following manual contains the most common maintenance operations, both ordinary and extraordinary, carried out on **BUTTERFLY VALVES**.

Before proceeding with any maintenance operation not listed here, we suggest contacting our technical office.

All maintenance operations must be carried out by qualified technical personnel who have received appropriate training..

Operators must wear all necessary PPE (Personal Protective Equipment) according to current regulations.

The valves are moving parts. Danger of crushing.

The valves and pipes may be at high temperature. Danger of burns.

Before starting work, ensure that the pipelines and valves are not under pressure.

CAUTION: Be careful with the products used for cleaning the component. Acidic or aggressive agents may cause premature wear of the seals. To find out which products can be used during cleaning, please contact our technical office.

MAINTENANCE

ORDINARY, EXTRAORDINARY, AND PREVENTIVE MAINTENANCE

As preliminary procedures, before performing maintenance, it is good practice to:

- Secure the area
- Inspect the valve and pipes
- Monitor the type of maintenance and its frequency
- Check the availability of necessary spare components in the warehouse

The procedures for **PREVENTIVE** and **EXTRAORDINARY MAINTENANCE**, to be carried out on **TASSALINI** butterfly valves, are indicated in the following table and are related to the gasket.

GASKET REPLACEMENT	
PREVENTIVE MAINTENANCE	REPLACE EVERY 12 MONTHS
IN CASE OF LEAKAGE	REPLACE AT THE END OF THE PROCESS
PLANNED/PERIODIC	CHECK THE PROPER OPERATION OF THE VALVE
	RECORD ALL PERFORMED OPERATIONS AND RELY ON STATISTICS TO SCHEDULE INTERVENTIONS

MAINTENANCE

ORDINARY, EXTRAORDINARY, AND PREVENTIVE MAINTENANCE

It is emphasized that the frequency of each **PREVENTIVE MAINTENANCE** should not be considered categorical. In fact, it depends on the **OPERATING CONDITIONS** of the valve: temperature, pressures, number of operations per day, cleanliness, etc

Below are listed the procedures, valid for all types of **TASSALINI** butterfly valves, to perform **MAINTENANCE OPERATIONS**.

1) Loosen the cap on the handle (1) and the fixing screw (2)

2) Remove the screws holding together the two halves (3) of the valve body

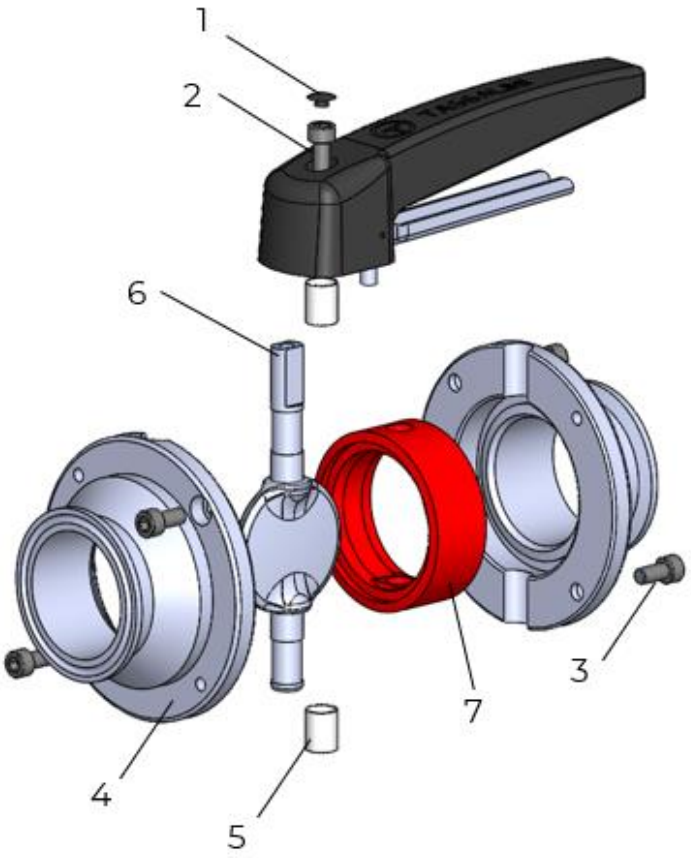
3) Separate the two halves (4) and remove the bushes (5).

4) Remove the butterfly equipped with the GASKET (6).

5) Disassemble the gasket from the butterfly (7).

6) Perform the scheduled **MAINTENANCE OPERATIONS**.

7) Reassemble and reinstall the valve onto the system and tighten the connection between the two parts..



MAINTENANCE

ORDINARY, EXTRAORDINARY, AND PREVENTIVE MAINTENANCE

Below are the most common operational malfunctions associated with this type of valve, along with their respective solutions. It should be emphasized that these should not be understood as the only possible ones.

GUASTO	CAUSA	SOLUZIONE
FLUID LEAKAGE EXTERNAL	DAMAGED OR WORN GASKET	SOSTITUZIONE
FLUID LEAKAGE WITH VALVE CLOSED	DAMAGED OR WORN GASKET EXCESSIVE PRESSURE AND/OR TEMPERATURE ON THE LINE LOSS OF SEALING OF THE GASKET (DUE TO VIBRATIONS)	REPLACE THE GASKET TIGHTEN LOOSE COMPONENTS INCREASE CLEANING OPERATIONS REDUCE THE NUMBER OF OPENING/CLOSING CYCLES
MALFUNCTIONING VALVE (STALLS)	GUARNIZIONE DANNEGGIATA O USURATA REGOLAZIONE DELLA PRESSIONE DI LAVORO ERRATA SPORCO O RESIDUI	REPLACE IF DAMAGED ADJUST THE LINE PRESSURE INCREASE CLEANING OPERATIONS AND LUBRICATE WITH SUITABLE DETERGENTS

MAINTENANCE

ORDINARY, EXTRAORDINARY, AND PREVENTIVE MAINTENANCE

Finally, the importance of the cleaning phase is emphasized: This must be carried out with suitable detergents that do not damage the gasket material or the valve body itself.

For any clarification regarding the detergents to be used, please contact our technical office, and in general, never exceed the concentrations recommended by detergent suppliers.

Always wear protective goggles and gloves.

The use of aggressive cleaning products can cause burns or corrode the skin.

DISPOSAL

DISPOSAL

If the valve operates in contact with toxic or hazardous fluids, take necessary precautions and clean any trapped residues. Personnel handling it must be adequately trained and equipped with necessary protective devices.

Each valve component must be properly disposed of according to the material it is made of. For information on materials, consult the technical data sheets or contact our technical office.

At this point, it will be possible to start recycling or disposing of the parts. All these operations must be carried out in accordance with local legislation and in respect of the environment.

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