



*Qualität von Anfang an.*

# Mounting and Operating Manual

## Butterfly Valves



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## 1 Foreword

Dear customer,  
Dear assembler / user,

these operation and installation manuals are intended to give you the knowledge, which is necessary for you to be able to carry out the mounting and adjustment of the butterfly valves rapidly and correctly.



**Please read these instructions carefully and pay particular attention to the advice and warning notes.**

Only instructed and qualified mechanic should mount, adjust or maintain the butterfly valves.

If you have any questions in relation to the butterfly valves we shall be pleased to answer them. The telephone number will be found on the inside cover of these operation and installation manual.

Yours  
**END-Armaturen GmbH & Co. KG**

## 2 General Advice

### 2.1 Validity

This mounting and installation manual is valid for the standard versions of the butterfly valves and their variants.

### 2.2 Inward monitoring

Please check directly after delivery the butterfly valves for any transport damages and deficiencies and with reference to the accompanying delivery note the number of parts.

Do not leave any parts in the package.

### 2.3 Complaints

Claims for replacement or goods which relate to transport damage can only be considered valid if the delivery company is notified without delay.

In case of returns (because of transport damage / repairs), please make a damage protocol and send the parts back to the manufacturer, if possible in the original packaging.

In case of a return, please mention the following:

- Name and address of the consignee
- Stock-/ ordering-/ article-number
- Description of the defect

### 2.4 Warranty

For our butterfly valves we give a warranty period in accordance with the sales contract. The end of the normal duration of life of the wearing parts represents no defect.

The warranty and guarantee rules of **END-Armaturen GmbH & Co. KG** are applicable.

### 2.5 Symbols and their signification



Paragraphs which are identified with this symbol contain very important advices; this also includes advices for averting health risks. Observe these paragraphs without fail!



Paragraphs which are identified with this symbol contain very important advices, this also includes how to avoid damage to property. Observe these paragraphs without fail!



This symbol indicates paragraphs which contain comments / advices or tips.



This spanner identifies the description of actions which you should carry out.

## 3 Safety advice

Depending on the technical circumstances and the time under and at which the butterfly valves are mounted, adjusted and commissioned, you must take into account particular safety aspects in each case!

If, for example, a butterfly valve works a slide in an operational chemical plant, the potential hazards of commissioning have another dimension from that when this is only being carried out for test purposes in a „dry“ part of the plant in the assembly room!

Since we do not know the circumstances at the time of the mounting/adjustment/commissioning, you may find advices on hazards in the following descriptions which are not relevant to you.

Please observe (only) the advices which applies to your situation!

### 3.1 Personal safety

#### 3.1.1 Safety advices for mounting



**We wish to point out expressly that the mounting, adjusting and at accessories the pneumatical and electrical installation of the butterfly valves must be carried out by trained specialist personnel having mechanical, pneumatical and electrical knowledge!**



**Secure that the machine / plant come up to the Machinery Directive after the mounting and installing of the butterfly valves.**



**Switch off all the devices / machines / plant affected by mounting or repair.  
If appropriate, isolate the devices / machines / plant from the mains.**



**Check (for example in chemical plants) whether the switching off of devices / machines / plant will cause potential danger.**



**If appropriate, in the event of a fault in the butterfly valve (in a plant which is in operation) inform the shift forman / safety engineer or the works manager without delay about the fault, in order, for example, to avoid an outflow / overflow of chemicals or the discharge of gases in good time by means of suitable measures!**



**Before mounting or repairing, remove the pressure from pneumatic / hydraulic devices / machines / plant.**



**If necessary, set up warning signs in order to prevent the inadvertent starting up of the devices / machines / plant.**



**Observe the respective relevant professional safety and accident prevention regulations when carrying out the mounting / repair work.**



**Check the correct functioning of the safety equipment (for example the emergency push off buttons/ safety valves, etc)!**

#### 3.1.2 Safety advice for adjustment / starting



**As a result of the starting (pneumatic, electric or by hand) of the butterfly valves the flow of gases, steam, liquids, etc. may be enabled or interrupted! Satisfy yourself that, as a result of the starting or the test adjustment no potential hazards will be produced for the personnel or the environment!**

## Safety Advice

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If necessary, set up warning signs in order to prevent the inadvertent starting up or shutting down of the device / machine / plant.!



By ending the adjustment check the correct function and should the occasion arise the position of the butterfly valve.



Check the function of the limit switches (option)!



Check, whether the butterfly valve will be closed totally, if the control signals the appropriate limit stop!



Through suitable measures, prevent links being trapped by moving actuating elements!



Check the right function of all safety devices (for example emergency push off buttons / safety valves)!



Carry out the starting and the adjustments only in accordance with the instructions described in this documentation!



Adjusting switches on butterfly valves with options (e.g. actuators, solenoid valves, limit switches) there is the risk that live parts (230 V AC~) can be touched!  
Therefore the adjustments must be carried out only by the electrician or a person having adequate training, who is aware of the potential hazard!

### 3.1.3 Safety advice for maintaining / repairing



**Do not carry out any maintenances / repairs if the butterfly valve will be under pressure.**

Before disassembling the butterfly valve some essential points should be clarified!

- Will the butterfly valve to be disassembled be replaced by another immediately?
- If appropriate, does the production process of the plant needed to be stopped?
- Is it necessary to inform specific personnel about the disassembly?



If necessary, inform the shift foreman/ safety engineer or the manager about the maintenance or repair without delay in order, for example, to avoid an outflow/ overflow of chemicals or a discharge of gases in good time by means of suitable measures!



**You have to relieve the pressure in the pipes in which the butterfly valve is mounted.**



**Switch off pilot pressure and the power supply and relieve the pressure in the pipes.**



If necessary set up warning signs in order to prevent

- the inadvertent starting up of the devices/machines/plants in which the butterfly valve is mounted
- the switching on of pilot medium supply, pilot power supply and/or the power supply of actuators and accessories.



In case of defect in the butterfly valve make contact to the supplier. The telephone number will be found on the back cover of these mounting and installation manual.



If you ascertain a damage of the butterfly valve, isolate the device from the mains. Please observe the safety advices.



**Do not mount, start or adjust the butterfly valve if itself, the pipes or a mounted actuator will be damaged.**



**After the maintenance or repair check the right function of the butterfly valve and the tightness of the pipe connections.**



**Also check the function of the accessories e.g. actuators, limit switches, etc.**

### 3.2 Device safety

The butterfly valves

- are quality products which are produced in accordance to the recognized industrial regulations.
- left the manufacturer`s work in a perfect safety condition.



**In order to maintain this condition, as installer / user you must carry out your task in accordance with the description in these instructions, technically correctly and with the greatest possible precision .**

We assume, as a trained specialist you are having mechanical and electrical knowledge!



**Satisfy yourself that the butterfly vales will only be used within their admissible limiting value (see the technical data) .**



**The butterfly valves must be used only for a purpose corresponding to their construction!**

**The butterfly valves must be used within the values specified in the technical data!**

**The operating of the butterfly valve outside the nominal temperature range could destroy the seals and the bearings.**



**The operating of the butterfly valves outside the nominal pressure range could destroy the inner parts and the body.**



**Do not mount, start or adjust the butterfly valve if itself, the pipes or a mounted actuator will be damaged.**



**After the maintenance or repair check the right function of the butterfly valve and the tightness of the pipe connections.**



**Also check the function of the accessories e.g. actuators, limit switches, etc.**

# Name-plate

## 4 Name-plate

The butterfly valves will be provided with a name-plate, which permits a definite identification of the butterfly valve and shows the most important technical data to you. The name-plate should not be displaced or changed.



Fig. 4.1 - Name-plate

<b>Type.</b>	type of the butterfly valve
<b>Nominal pressure (PS)</b>	max. pressure range of the butterfly valve [bar]
<b>Temperature range (TS)</b>	max. temperature range of the butterfly valve
<b>Body</b>	body material
<b>Disc</b>	disc material
<b>Seal</b>	seal material

## 5 Butterfly Valve

### 5.1 General

Before you are mount, adjust, start, operate or disassemble a butterfly valve you have to read the



→ Safety advices

**If you have not read the safety advices until now, read this important advices now and turn back to this point.**

### 5.2 Corresponding use



Butterfly valves will be used to control and to cut off media flow.

It should only be used clean liquids and gases, on which the material of the butterfly valve will be resistant. It should also be used for pulverised and past-like media and pouring goods if it suited to the butterfly valve. Pollution or using outside the nominal pressure range and/or the nominal temperature range should causes damages on the butterfly valve especially on the seals.

### 5.3 Operation

The butterfly valve will be opened or closed by using a handle or actuator (option). The snap-in handle of a hand actuated butterfly valve have to been snapped out during the operation. The disc has 9 resp. 10 snap-in positions in which the lever could click in, to prevent an inadvertent misplace.



**During the closing operation take care that there won't be insert any objects or limbs into the armature. Heavy injuries or damages will be the consequence. If it's necessary you have to install a protective device.**

### 5.4 Mounting/Disassemble

The mechanical installation of the butterfly valves differs by the variants of the body. The wafer type butterfly valve will be squeezed between to flanges and the lug type is able to be mounted directly on flanges.

# Butterfly Valves

## 5.4.1 Mounting of the snap-in disc and the handle



At butterfly valves which will be actuated by hand the snap-in disc and the handle will be enclosed the package. Before installing the butterfly valve you have to mount the handle and the snap-in disc.



Observe the flow direction: the handle should point at the flow direction.



Remove the package and the protective devices (eg. caps and plugs). Take care that there will be no parts of the package or other parts in the armature.



Clean up the pipes in which the butterfly valve will be mounted. Pollution could affect the safety in operation and the duration of life of the butterfly valve.



Avoid stress in case of non align pipes.



The flanges have to be align parallel and centircally and must have carefully worked surfaces.

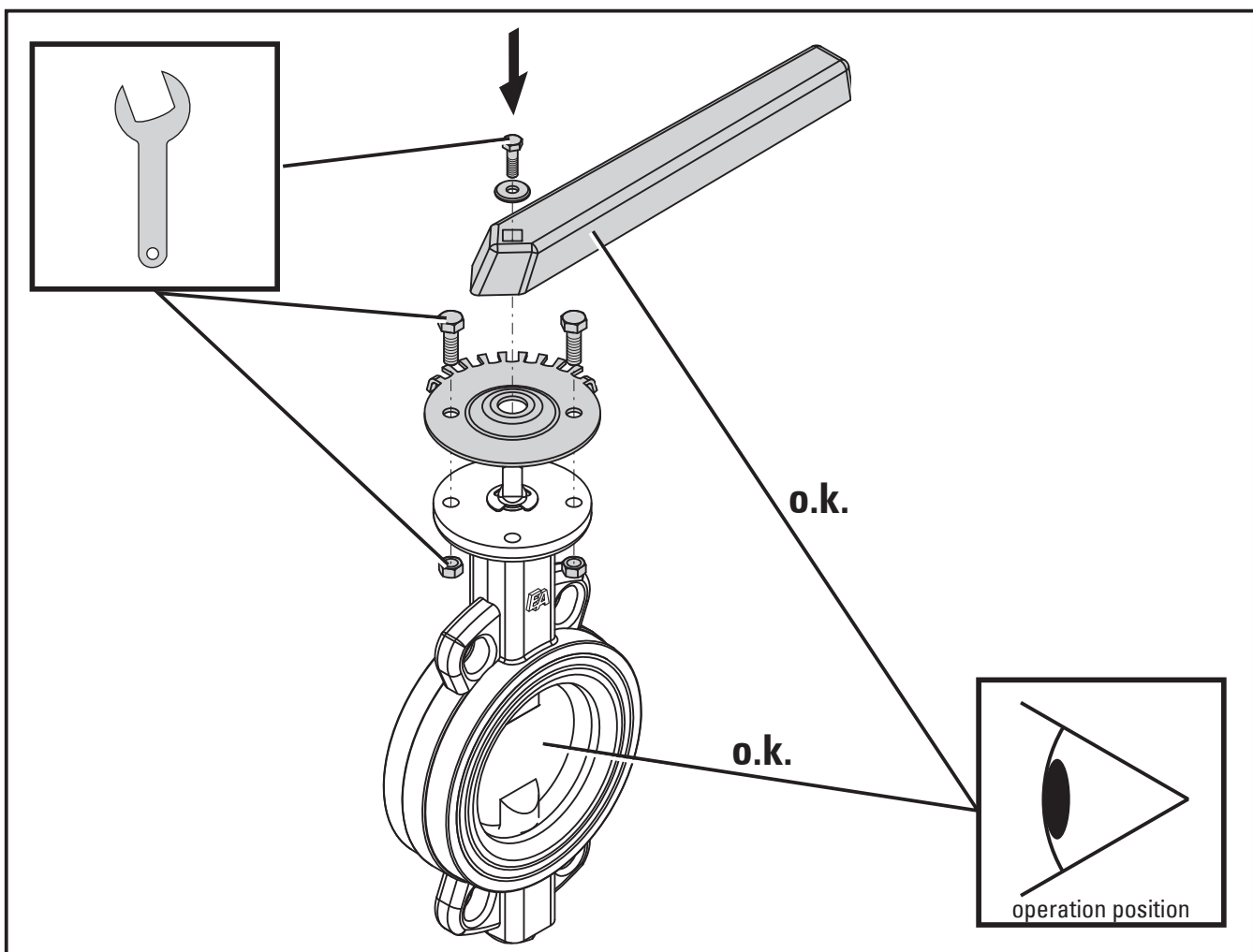


Fig. 5.1 - Butterfly valves, mounting of the snap-in disc and the handle (Fig.: Art. TA534010)



The butterfly valve will be squeezed between two flanges. The sealing takes place by the sleeve of the butterfly valve other sealing compounds are not allowed. Take care that there won't be insert any rests of sealing compounds or other pollution into the armature.



The flanges would not been welded into the pipes if the armature is mounted. The increasing temperatures will destroy the sleeve of the butterfly valve.



At polluted media we recommend to install the butterfly valve horizontally. In this case the lower disc half have to close in the flow direction.

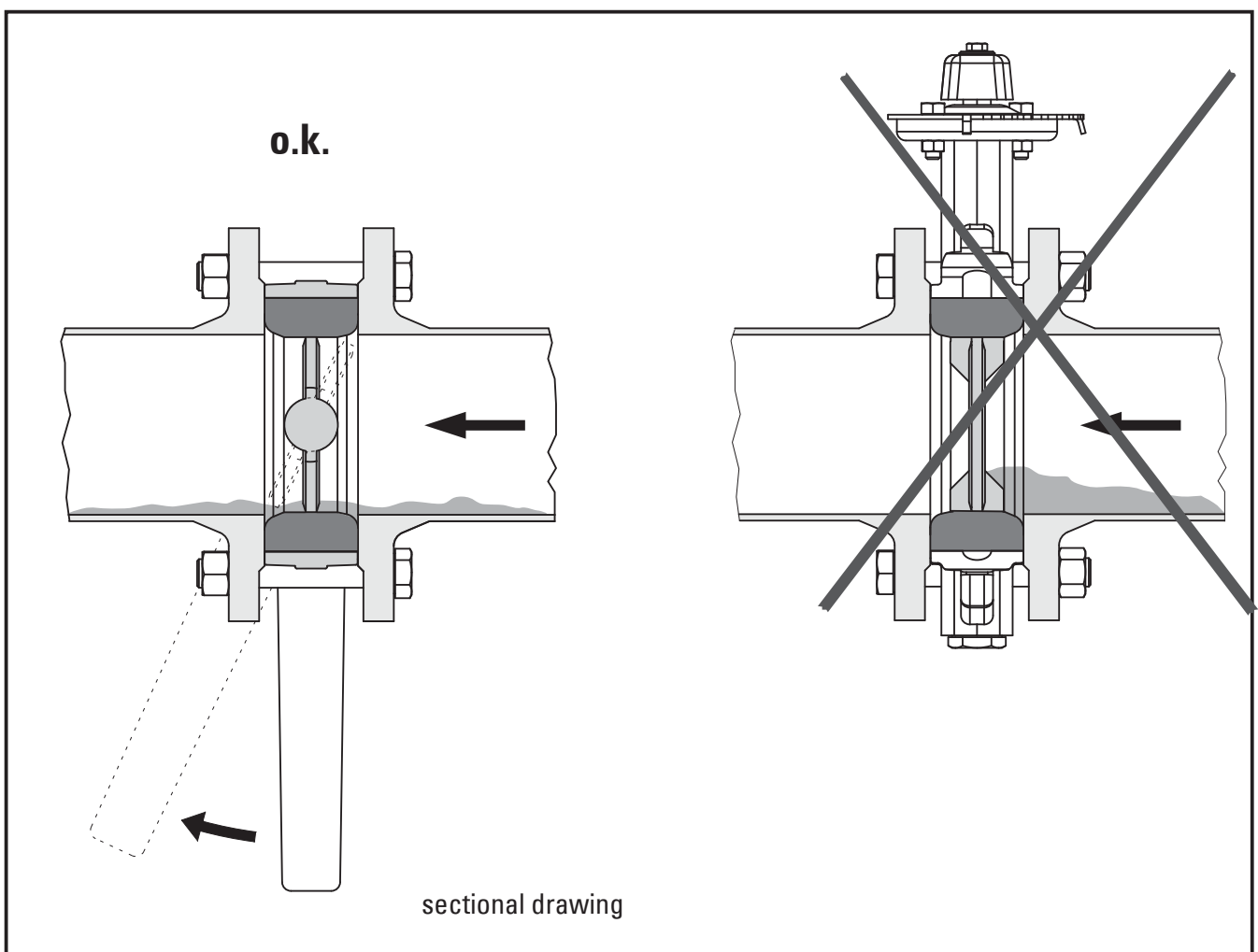









Fig. 5.2 - Butterfly valves, mounting at pollute media (Fig.: Art. TA534010)

# Butterfly Valves

## 5.4.2 Mounting of a wafer type butterfly valve



In the following description we assume that you have welded the flanges at the end of the pipes and they are cooled down.

-  Adjust the disc in a not totally closed position so that the disc won't be stand out off the body.
-  Put the butterfly valve between the flanges. The butterfly have to been insert between the flanges easily so that the sleeve won't be destroyed.
-  Align the butterfly valve and put fit screws through the borings of the flanges.
-  Screw nuts onto the screws and tighten them equally slightly and crosswise.
-  Check whether the disc of the butterfly valve will be open and close easily. Let the disc a little bit open.
-  Tighten all the screws crosswise and check the function of the butterfly valve again. Observe the max. torque of the screws.
-  Check the tightness of all the connections.

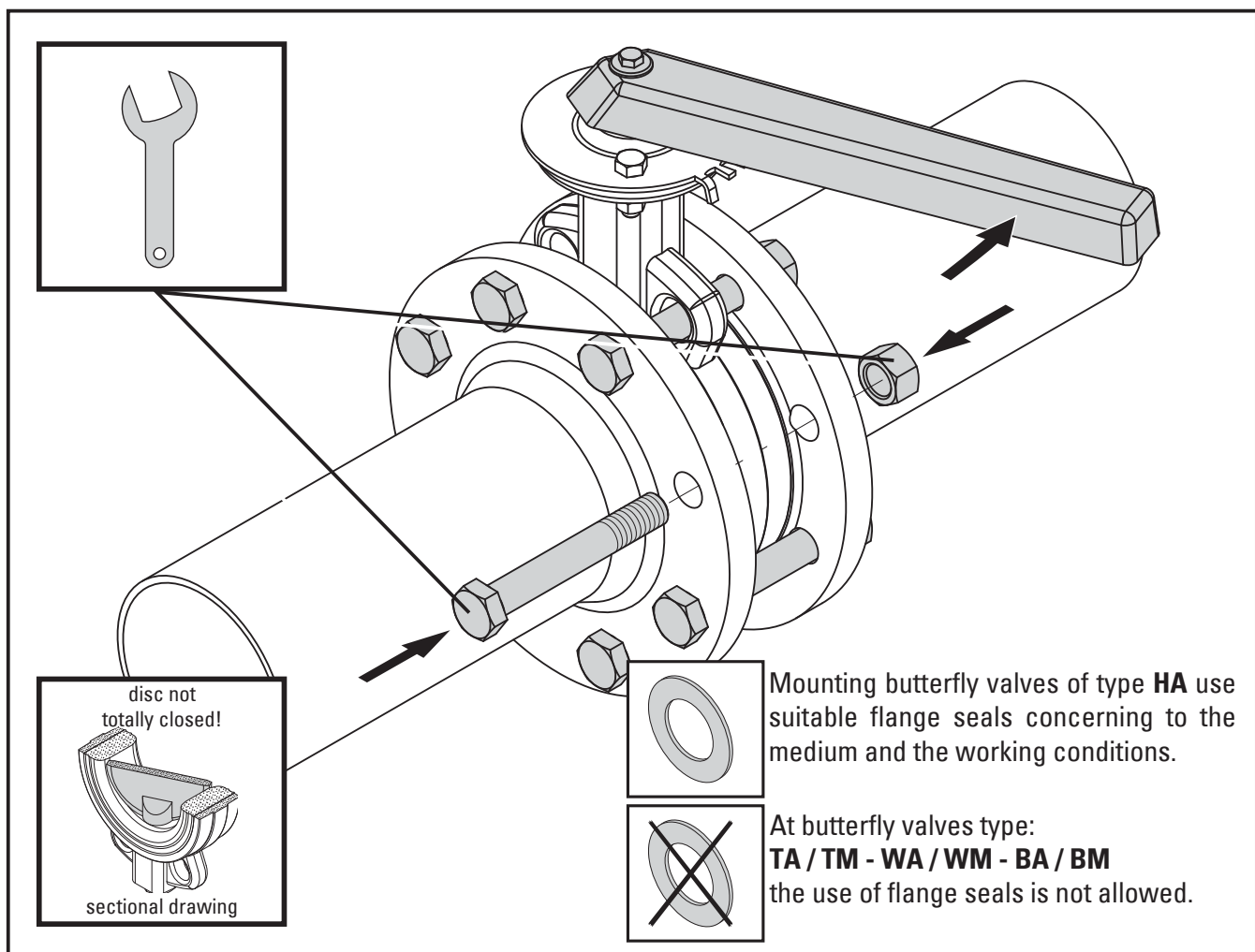


Fig. 5.3 - Butterfly valves, mounting of a wafer type butterfly valve (Fig.: Art. TA534010)

## 5.4.3 Mounting of a LUG type butterfly valve



In the following description we assume that you have welded the flanges at the end of the pipes and they are cooled down.



Adjust the disc in a not totally closed position so that the disc won't be stand out off the body.



Put the butterfly valve in front of the flange and tighten the screws slightly and crosswise.



Check whether the disc of the butterfly valve will be open and close easily. Let the disc a little bit open.



Tighten all the screws crosswise and and check the function of the butterfly valve again. Observe the max. torque moment of the screws.



Check the tightness of all the connections.



You have to install a protective device, to prevent the insertion of any objects or limbs into the butterfly valve.

Install protective devices, to prevent a uncontrolled outflow of the media.



Attention: When using the butterfly valve as end piping the nominal working pressure will be decreased.

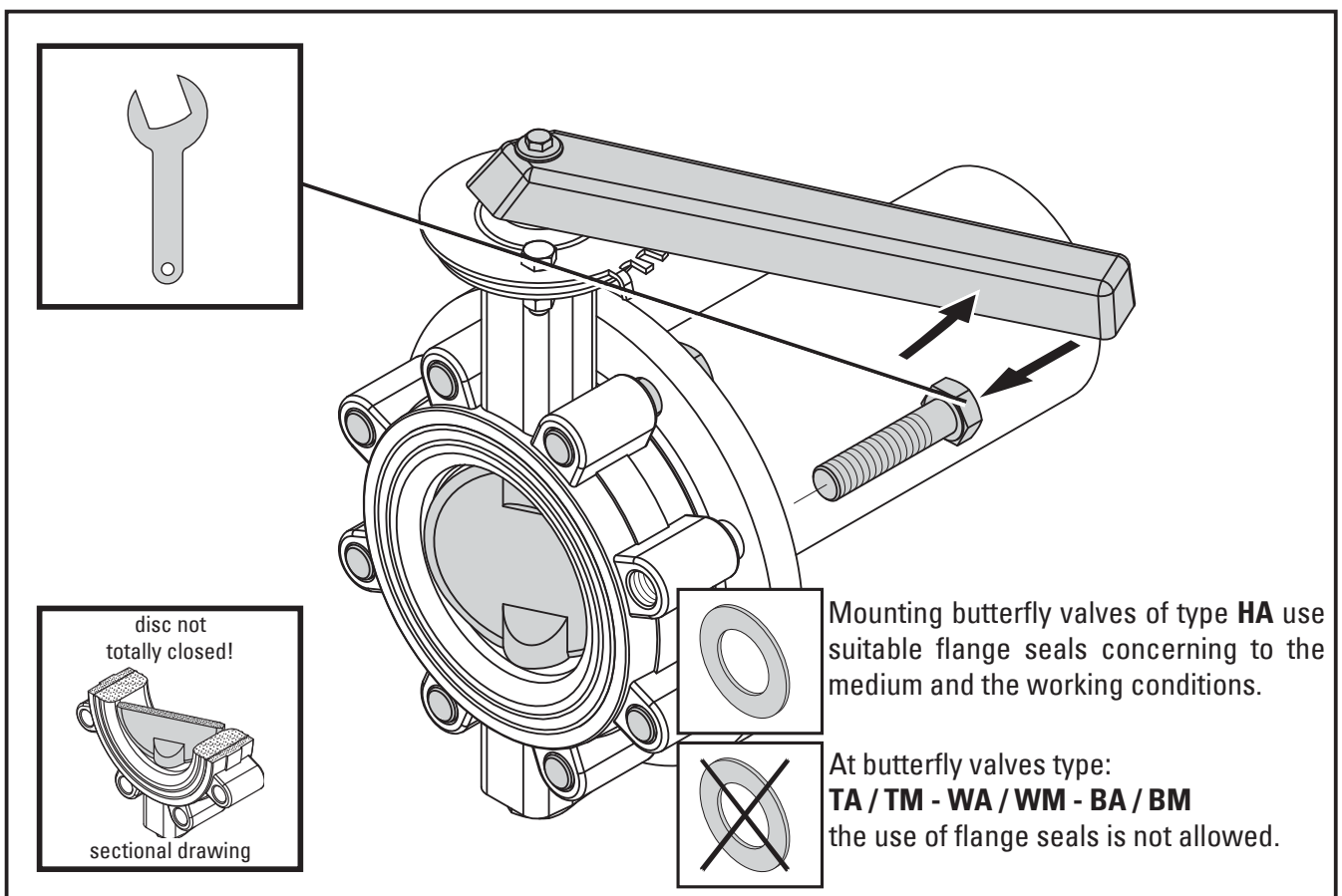


Fig. 5.4 - Butterfly valves, mounting of a LUG - type butterfly valve (Fig.: Art. TA534010/M)

## 6 Maintenance

Before you maintain or shut down the butterfly valve you have to read the



→ Safety advice

**If you have not read the safety advices until now, read this important advices now and turn back to this point.**

On normal accounts the butterfly valve is maintenance free. In periodical turns the controlling of the function and the tightness should happen:



- Check the tightness of stem seals
- Check the tightness of the sleeve
- Check the wear of the sleeve



At a leaky stem seal or sleeve you have to disassemble the butterfly valve and sent it back to the manufacturer.



**Don't try to disassemble the sleeve of the butterfly valve by yourself.** Heavy injuries or damages could be the consequence.



**In case of a defect of the valve make a contact to the supplier. The telephone number will be found on the back of these operation and installation manual.**

**If you determine that there is a damage to the valve switch off the device/ machine/ plant! However before doing this, it is essential to refer to the**

→ Safety advice.





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(1) **Declaration in conformity**  
(2) **as defined by Pressure-Equipment-Directive 97/23/EC**

(3) This declaration apply to the article groups with the nominal sizes:

Articles	Nominal size	Articles	Nominal size	Articles	Nominal size	Articles	Nominal size
<b>Butterfly valves</b>		NG	DN32 ... DN100	VO	DN32 ... DN200	<b>Non-return valves</b>	
HA	DN50 ... DN300	<b>Ball valves</b>		VS	DN32 ... DN200	AR	1 1/4" ... 2"
TA	DN40 ... DN300	AG	1 1/4" ... 2"	VT	DN32 ... DN100	CK3003	DN65 ... DN200
WA	DN50 ... DN300	BK	DN32 ... DN100	VU	4"	CK5003	DN32 ... DN200
WM	DN50 ... DN300	IK	1 1/4" ... 2"	ZA	1 1/4" ... 4"	CK5100	DN65 ... DN250
<b>Gate valves</b>		IL	1 1/4" ... 4"	ZA	DN32 ... DN100	CK5200	DN65 ... DN250
AB	1 1/4" ... 2"	IW	1 1/4" ... 2"	ZB	1 1/4" ... 2"	CW5400	DN65 ... DN250
AE	1 1/4" ... 3"	KA	1 1/4" ... 3"	ZB	DN32 ... DN50	EB	1 1/4" ... 3"
AE	DN32 ... DN80	PD	1 1/4" ... 2"	ZD	1 1/4" ... 4"	EB	DN32 ... DN80
CA5014	DN100 ... DN300	TB	1 1/4" ... 4"	ZD	DN32 ... DN100	RG1300	DN32 ... DN100
CA5015	DN65 ... DN300	TF	DN32 ... DN200	ZE	1 1/4" ... 4"	RG33xx	DN32 ... DN200
CA5214	DN40 ... DN200	TH	1 1/4"	ZE	DN32 ... DN100	RK	DN32 ... DN400
CD5010	DN32 ... DN200	VD	1 1/4" ... 4"	ZF	1 1/4" ... 4"	TD	4"
CV3010	DN32 ... DN150	VD	DN32 ... DN100	ZG	1 1/4" ... 2"	<b>Strainer</b>	
CV5010	DN32 ... DN200	VH	1 1/4" ... 2"	ZH	1 1/4" ... 2"	AS	1 1/4" ... 3"
CV5020	DN32 ... DN200	VH3100	1 1/4" ... 2"	ZK	DN32 ... DN100	AS	DN32 ... DN200
<b>Pressure reducer</b>		VK	DN32 ... DN200	ZL	1 1/4" ... 3"	EA	1 1/4" ... 3"
SD	3/8" ... 2"	VK/PN40	DN32 ... DN200	ZM	1 1/4" ... 2"	EA	DN32 ... DN80
<b>Pressure relief valves</b>		VL	1 1/4" ... 2", 3"	ZP	DN32 ... DN200		
NG	1 1/4" ... 1 1/2"	VN	1 1/4" ... 2"	ZU	1 1/4" ... 3"		

and all variations of these articles

(4) of the company **END-Armaturen GmbH & Co. KG**  
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Germany

(5) Herewith we declare that the above-mentioned articles in the conditions of our delivery are in conformity with the regulations of the Pressure Equipment Directive 97/23/EG.

(6) Applied conformity assessment procedure: Modul H.

(7) Notified body for conformity assessment PED an Quality-Management-System:



**Bureau Veritas S.A.**  
Paris / Frankreich  
Kennzeichen 0062

(8) Certificate numbers: Quality Management System: INT110198DE  
Certificate of System approval PED: 2011/70.10.1777/P

(9) Applied harmonized standards, in particular:

**DIN EN 12516:2005 Industriearmaturen - Gehäusefestigkeit**

(10) On behalf **END-Armaturen GmbH & Co. KG** Bad Oeynhausen, 07. July 2011

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Quality Manager

Declaration without signature or company stamp shall not be valid. The declaration may be circulated only without alternation. Extracts or alternations are subject to approval by END-Armaturen GmbH & Co. KG.





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