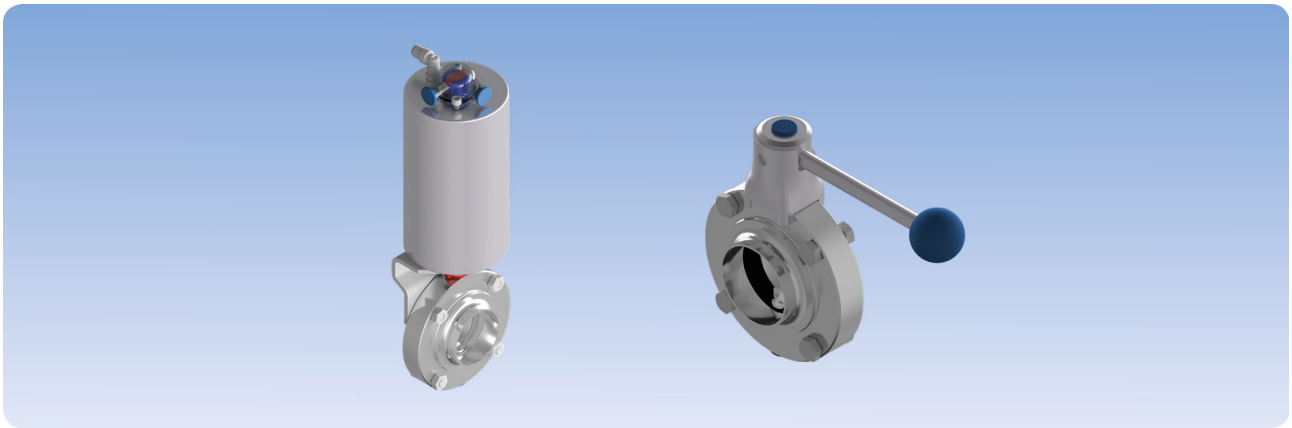
OPERATING/INSTALLATION INSTRUCTIONS

(Translation)



Butterfly Valve with handle
Butterfly Valve with Handle (ATEX)
Butterfly Valve with Pneumatic Actuator
Butterfly Valve with Pneumatic Actuator (ATEX)

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These operating/installation instructions (hereinafter referred to as the “manual”) provide you with all the information you need to operate the butterfly valve smoothly (hereinafter also referred to as the “fitting”).

The manual applies to the following variants:

– with handle (standard design):	Type: DN 10 – 150/PN10 DN 200/PN6 1” – 4”/PN10 1” – 4”, DN 100/PN10 (SMS FR)
– with handle (ATEX design):	Type: DN 10 – 100/PN10/ATEX DN 200/PN6/ATEX 1” – 4”/PN10/ATEX 1” – 4”, DN 100/PN10 (SMS FR)/ATEX
– with pneumatic actuator (standard design):	Type: DN 10 – 150/PN10 DN 200/PN6 1” – 4”/PN10 1” – 4”, DN 100/PN10 (SMS FR)
– with pneumatic actuator (ATEX design):	Type: DN 10 – 100/ATEX DN 125 – DN 200/ATEX 1” – 4”/PN10/ATEX 1” – 4”, DN 100/PN10 (SMS FR)/ATEX

NOTE

This manual is an essential part of the butterfly valve. It must be available to operating and maintenance personnel at all times, and must never be removed from the fitting's location of use. The safety instructions contained therein must be observed.

If the butterfly valve is sold on, the manual must be included in the delivery or downloaded from the following website: http://www.awh.eu.

The generally valid, statutory and other binding regulations with regard to accident prevention and environmental protection in the country of use must also be observed in addition to this manual.

Contents

List of Figures

1 Introduction

In principle, this manual applies to all designs. In the event of differences between the designs, this will be pointed out clearly.

1.1 Means of Presentation

As an instruction and direct warning against danger, statements for which special attention needs to be paid are identified as follows in this manual:

Section-related Warnings

The section-related warnings apply not only to one particular action, but rather to all actions within a section.

DANGER

This warning notice describes a hazard with a high level of risk that will result in death or serious injury if not avoided.

WARNING

This warning notice describes a hazard with a medium level of risk that could result in death or serious injury if not avoided.

CAUTION

This warning notice describes a hazard with a low level of risk that could result in minor or moderate injury if not avoided.

NOTE

This warning notice describes a hazard with a low level of risk that could result in damage to property if not avoided.

NOTE ON EXPLOSION PROTECTION

This note provides important information on explosion protection.

Non-compliance results in the explosion protection being removed, thus leading to hazards.

The “info” symbol provides useful information.

Embedded Warnings

The embedded warnings apply to specific actions and are integrated directly into the action before the specific action step.

– ⚠ DANGER/WARNING/CAUTION

– *NOTE*

The following means of presentation are also used:

– Texts which follow this mark are bulleted lists.

• Texts which follow this mark describe activities that need to be carried out in the specified order.

“ “ Texts in quotation marks are references to other chapters or sections.

Symbols Used

Crushing hazards are indicated by this symbol.

Burn hazards are indicated by this symbol.

Warnings about potentially explosive atmospheres are indicated by this symbol.

Operating materials for the explosive area are indicated by this symbol.

Instructions about necessary protective grounding connection are indicated by this symbol.

“Observe manual” is indicated by this symbol.

Environmental measures are indicated by this symbol.

The figures in these instructions are intended to provide basic understanding, and are primarily representations of the principles involved. They may differ from the actual design of the fitting.

1.2 Abbreviations

ATEX	“**At**mosphère **ex**plosible”; includes measures to be taken for explosive atmospheres/ explosion protection
AWH	Armaturenwerk Hötensleben GmbH
C/C	Clamp/clamp (connection variant)
D_O	Outer diameter
D_I	Inner diameter
DN	Nominal width
EPDM	Ethylene propylene diene monomer rubber (sealing material)
EC	European Community
EU	European Union
EEA	European Economic Area
S/A	Spring-opening, air-closing
FKM	Fluorinated rubber (sealing material)
T/F	Thread/flange (connection variant)
T/T	Thread/thread (connection variant)
T/W	Thread/weld-on end (connection variant)
L/L	Liner/liner (connection variant)
A/S	Air-opening, spring-closing
A/A	Air-opening, air-closing
HNBR	Hydrogenated acrylonitrile butadiene rubber (sealing material)
CIF	Compact intermediate flange
NC	Normally Closed (valve setting)
NO	Normally Open (valve setting)
PN	Nominal pressure
Ra	Average roughness value (dimension for surface roughness)
SIP	Sterilization in Place
SMS FR	Swedish Manufacturing Standard, SMS standard for France
W/W	Weld-on/weld-on (weld-on ends; connection variant)
BV	Butterfly valve
VMQ	Silicone rubber (sealing material)
IF	Intermediate flange (connection variant)

1.3 Guarantee, Warranty and Liability

Guarantee

If the fitting is used as intended, a guarantee is provided according to the statutory warranty obligation. This does not apply to wearing parts.

Increased wear due to abrasive media is not a product defect. Any claims resulting from this cannot be taken into account as part of the warranty.

Warranty and Liability

The commitments agreed in the contract of supply and delivery, the general terms and conditions and terms of delivery of Armaturenwerk Hötensleben GmbH (hereinafter referred to as AWH), and the statutory regulations valid at the time the contract was concluded shall apply.

Warranty and liability claims in case of personal injury and material damage shall be excluded, in particular if these can be attributed to one or more of the following causes:

- Improper or incorrect use of the fitting
- Incorrect assembly, commissioning, operation and maintenance of the fitting
- Failure to observe the instructions in the manual in terms of assembly, commissioning, operation and maintenance of the fitting
- Structural modifications to the fitting (conversions or other modifications to the fitting must not be carried out without previous written approval from Armaturenwerk Hötensleben GmbH. In case of infringement, the fitting will lose its conformity and the operating license)
- Use of spare parts that do not comply with the specified technical requirements
- Improperly performed repairs
- Disasters, the effects of foreign objects and force majeure

Disclaimer

AWH reserves the right to make alterations to this document at any time without prior notice. AWH provides no guarantee (neither expressed nor implied) with regard to all information in this document, including but not limited to the implied warranty of merchantability and suitability for a particular purpose. Furthermore, AWH does not guarantee the correctness or completeness of information, text, graphics or other parts in this document.

2 Safety

The fitting has been built in accordance with state-of-the-art technology and the recognized rules of safety. Nevertheless, use of the fitting may represent a danger to the life and limb of the user and third parties, or a risk of impairments to the device and other objects of material value as a result of its function.

The following basic safety instructions are intended to prevent injury to personnel and material damage. The operating company must ensure that the basic safety instructions are observed and adhered to.

Everyone involved in installation, assembly, operation, maintenance and servicing must have read and understood this manual. They must adhere to the safety systems and safety instructions described in this manual.

WARNING

Failure to comply with these instructions, incorrectly performed installation and repair work or incorrect operation could lead to malfunctions on the device and to dangerous situations!

There is a risk of death or severe physical injury.

- *Have all work on the fitting carried out only by an expert (see section "2.5 Qualification Requirements for Personnel").*
- *Never install damaged fittings or components.*

NOTE

- *Observe the following documents:*
  - *The corresponding detailed operating and installation instructions for the fitting and the higher-level plant*
  - *The warning and safety signs on the device*
  - *Regulations and requirements specific to the plant*
  - *The national/regional regulations for safety and the prevention of accidents*

2.1 Intended Use

The butterfly valve is designated for shutting off the flow of fluid in pipelines in commercial and industrial operations (food, chemical and pharmaceutical industries and low-germ processes).

Suitable flow media include water, steam, mineral oil, food, and liquids from the chemical and pharmaceutical industry, as well as pasty media, which are subject to a hygienic standard.

This fitting was designed exclusively for the purposes described above. Any other use that does not correspond to the purposes described above, or any alteration of the fitting without written approval from AWH, is considered contrary to the intended use. AWH accepts no liability for damage arising from such use. The operating company bears the sole risk.

WARNING

Danger in case of improper use!

Improper use presents a risk of serious injury.

Do not put the fitting into operation until care has been taken to ensure that:

- *All the safety systems are fully functional.*
- *The plant in which this fitting is installed complies with the safety requirements of all the relevant European directives.*

The butterfly valve is operated either manually (with a handle) or by a pneumatic actuator.
The butterfly valve with handle is operated manually on site.
The butterfly valve with pneumatic actuator is operated from the control room of the higher-level plant, or from the local control point.

The maximum volume flow rate of the medium in the butterfly valve is v = 2.5 m/s.

NOTE

*In the butterfly valve with a pneumatic actuator, the switching times **must not fall below one second**. Otherwise, the valve and actuator could be damaged by pressure hammers. The air flow can be restricted through the use of throttle check valves in the operating company's compressed air line.*

2.1.1 Special Conditions for Safe Use in Areas with Potentially Explosive Atmosphere

(only applies to Butterfly Valve in ATEX Design)

NOTE ON EXPLOSION PROTECTION

Do not use standard design fittings in potentially explosive atmospheres or with potentially explosive media. In such cases, always use the ATEX fitting design.

With butterfly valves in ATEX design, a distinction is made between the inner and outer areas.

When the product is inside the pipe, this is called the inner area.

Manual operation or the pneumatic actuator is assigned to the outer area.

Inner Area

According to the expert report, the butterfly valve in ATEX design can be used in the area coming into contact with the product (inside the pipe) for the following ATEX zones:

When **EPDM, FKM** and **HBNR** butterfly valve gaskets are used, there is no restriction in terms of **zone** or **explosion group**.

VMQ butterfly valve gasket:

Zone 0:	**IIA and IIB:**	**No restrictions**
	IIC:	**Up to DN150**
Zone 1:	**No restrictions**	
Zone 2:	**No restrictions**	

These specifications refer to the highest permissible surface for insulating objects in accordance with TRGS 727 (from the Technical Rules for Hazardous substances published by the German Federal Institute for Occupational Safety and Health (BAUA)), and are measured by testing the electrostatic properties specified in the report 14 EXAM 10275 BVS-FR.

The bushing (Fig. 6.1 item 6 /Fig. 6.3 item 9 /Fig. 6.4 item 9) consists of electrically conductive material (black in color).

Outer Area

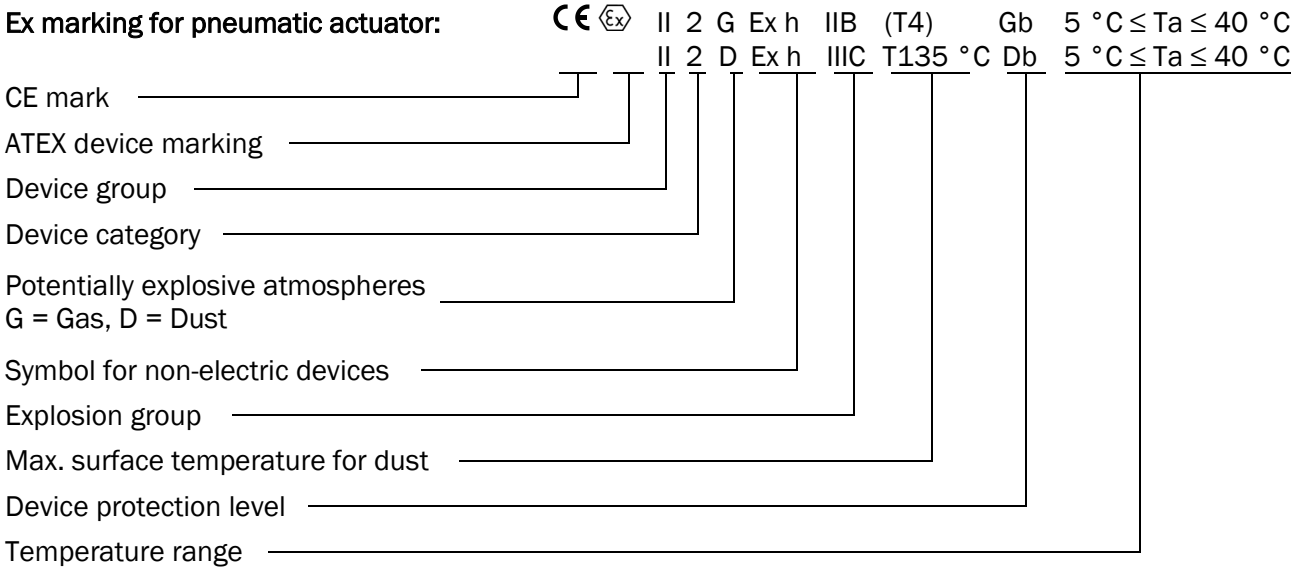
Butterfly valve with handle:

The fitting may be used outside the area coming into contact with the product in potentially explosive atmospheres classified as **Zone 1** and **Zone 21** with the explosion groups **IIA** and **IIB**.

Pneumatic actuator:

The pneumatic actuator may be used for **Zone 1** and **Zone 21** with explosion groups **IIA** and **IIB**.
The pneumatic actuator (ATEX) has been examined in accordance with Directive 2014/34/EU (ATEX) and is identified as follows:

Ex marking for pneumatic actuator:



The pneumatic actuator may only be operated using dry or oiled compressed air (see section 4.3.2).

Explosive dust products that can come into contact with the pneumatic actuator must exhibit the following technical safety data:

Minimum ignition temperature of the dust cloud	> +203 °C/+398 °F in accordance with DIN EN 50281-2-1
Minimum ignition temperature of the dust layer	> +210 °C/+410 °F in accordance with DIN EN 50281-2-1

NOTE ON EXPLOSION PROTECTION

The pneumatic actuator must be cleaned regularly from the outside in order to prevent dust from collecting on the surface.

*In accordance with DIN EN 1127-1, the dust layer must **never be > 5 mm** in thickness.*

*The actuator must be cleaned without stirring up dust (**no compressed air**).*

Installing the Butterfly Valve

WARNING

Risk of serious injury due to fire/explosion as a result of static charging!

- *The fitting may be installed only by an expert.*
- *Make sure that the fitting is grounded accordingly.*
- *The pneumatic actuator must be incorporated in the equipotential bonding of the plant by means of grounding.*
  The leak resistance must be < 10^6 Ω.

Installing the Proximity Switches

WARNING

Risk of serious injury due to fire/explosion if non-approved proximity switches are installed!

- *When installing the proximity switches, please observe the corresponding ATEX certification.*

Use

NOTE ON EXPLOSION PROTECTION

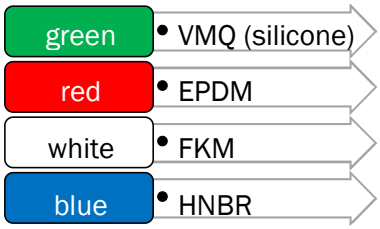
Use of the pneumatic actuator in potentially explosive areas is only permitted if the pneumatic actuator is operated using operating materials that are suitable for the application in question and have been brought onto the market in accordance with Directive 2014/34/EU. A separate risk assessment must be performed with regard to the assembly of the pneumatic actuator using operating materials (for example, proximity switches) not covered by this type examination. The provisions of DIN EN 60079-14 regarding the selection and setup of electrical operating materials must be observed.

2.2 Labeling

The following details can be found on the fitting:

- Manufacturer's stamp
- Material code number for the housing material
- Color marking for the sealing material (for the color key, see below)
- Where necessary, the “ex” marking (ATEX design only)

Color Key for Sealing Material



The sealing material is indicated by a spot in the respective color on the fitting.

2.3 Danger Warnings

Always adhere to the following warnings and the instructions contained therein without fail in order to prevent accidents and personal injury.

2.3.1 Dangers

WARNING

Risk due to valve disc switching!

When the valve disc is moving, there is a risk of fingers and hands being crushed.

- *Only operate the fitting when it is installed.*
- *Always adhere to the switch-off procedure before all assembly, maintenance and repair work (see chapter “6.1 Performing the Switch-off Procedure“).*

NOTE

Risk of damage to the fitting!

- *The fitting, length and quality of the lines must meet the requirements.*
- *Make sure that only the materials and flow media specified in the manual are used.*
- *Always adhere to the parameters specified in the manual, without fail. (see chapter “6.1 Performing the Switch-off Procedure“).*

2.3.2 Hazardous Area of the Fitting

The hazardous area during setup, maintenance and repair work extends to 1 m around the fitting. In addition to this, pay attention to the swing range of control cabinet doors when opened. The operating company must ensure that persons are prevented from entering the hazard area during motion sequences.

2.3.3 Installation of Replacement Parts and Wearing Parts

Replacement and accessory parts not supplied by AWH have not been checked or approved by AWH. Installing and/or using this type of product can therefore negatively alter the prescribed structural properties of your higher-level plant, under certain circumstances. AWH accepts no liability for any damage arising from the use of non-original parts or non-original accessory parts. Standard parts can be obtained from specialist dealers.

2.4 Duties of the Operating Company

The fitting is used in the commercial sector. The operating company is thus subject to the legal obligations regarding occupational safety.

NOTE

Due to deviating operating conditions at the operating company's site, additional safety measures may be required. In such cases, these measures must be added to the original safety measures by the operating company.

Within the EEA (European Economic Area), the latest versions of the national implementation of Framework Directive 89/391/EEC and the associated individual directives, in particular Directive 2009/104/EC, must be observed and adhered to. The aforementioned directives contain the following content:

- Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work
- Individual Directives relating to Directive 2009/104/EC concerning the minimum safety and health requirements for the use of work equipment by workers at work

Within Germany, the operating company must observe the German Industrial Safety Ordinance (BetrSichV).

In other countries, the respective national directives, statutes and country-specific regulations regarding occupational safety and accident prevention must be complied with.

2.5 Qualification Requirements for Personnel

The fitting must be operated, maintained and repaired only by persons who have the appropriate qualifications. These persons must be familiar with the instructions and act in accordance with them. The respective authorizations for personnel must be clearly defined.

The following qualifications are designated in the instructions for various fields of activity:

Expert/Specialist Personnel

A person with appropriate training, suitable apprenticeship and experience who is in a position to identify risks and avoid dangers.

An expert is a person whose professional training, knowledge and experience, and whose knowledge of the relevant standards and regulations, enables them to carry out work on the fitting, identify potential risks independently and avoid them.

Only personnel with the following specific knowledge may be employed for work on the fitting:

- **Assembly/disassembly:** Industrial mechanic or person with similar training and practical experience in the assembly/disassembly of fittings
- **Welding work:** Person with welder qualification in pipeline engineering or similar apprenticeship
- **Electrical work:** Electrician; person with appropriate specialized apprenticeship, knowledge and experience, enabling them to identify and prevent risks which may be caused by electricity

2.6 Personal Protective Equipment

WARNING

Risk due to incorrect clothing or jewelry!

There is a risk of death or severe physical injury.

- *Wear protective work clothing when working on the fitting.*
- *Wear the personal protective equipment when working on the fitting.*
- *Do not wear any rings, necklaces or other jewelry when working on the fitting.*

Personal protective equipment must be provided by the operating company in accordance with the valid requirements.
Furthermore, both the national regulations and, if necessary, the internal instructions from the operating company must be observed.

3 Function of the Pneumatic Actuator VMove

There are three types of pneumatic actuator:

1) Air-opening, spring-closing (A/S)
   The pneumatic actuator with integrated return spring closes the valve in the event of a pressure failure (control air). Also referred to as NC.

2) Spring-opening, air-closing (S/A)
   The pneumatic actuator with integrated return spring opens the valve in the event of a pressure failure (control air). Also referred to as NO.
   The VMove 1 and VMove 2 actuators can be set up as NC or NO. With the NO function, the actuator is only set up when the valve disc is open.

3) Air-opening, air-closing (L/L)
   The pneumatic actuator opens or closes the fitting, depending on which air connection is pressurized with compressed air. In the event of pressure failure, the actuator does **not** remain in the “Open” or “Closed” position.

The A/S pneumatic actuators are available with clockwise rotation.
Clockwise rotation means: When viewed from below, the actuator shaft turns clockwise (to the right) when supplied with compressed air.

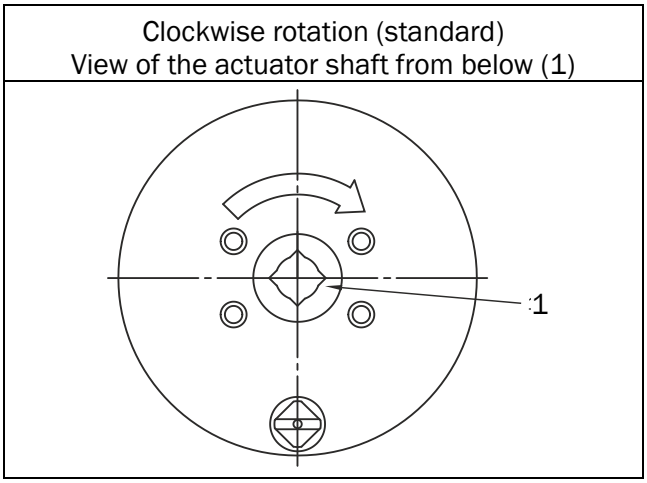


Fig. 3.1: Pneumatic Actuator Direction of Rotation

4 Technical Data

4.1 General Data

	Standard design	ATEX design
Size:	**DN 10 – DN 200/1" – 4"**	**DN 10 – DN 200/1" – 4"**
Temperature range:		
Ambient temperature:	+5 °C – +60 °C/+41 °F – +140 °F	+5 °C – +40 °C/+41 °F – +104 °F
Product temperature:	+5 °C – +95 °C/+41 °F – +203 °F	+5 °C – +95 °C/+41 °F – +203 °F
Sterilization:	see section "4.2 Materials in Contact with the Product"	
Max. permissible pressure:		
DN 10 – DN 150 and 1" – 4":	10 bar / 145 psi	10 bar / 145 psi
DN 200:	6 bar / 87 psi	6 bar / 87 psi
Actuator noise level:	< 70 dB (A)	< 70 dB (A)
Surfaces		
Exterior surface:	Bare metal / precision machined	
Inside surface:	Ra < 0.8 µm	

Fitting service life:
The service life of the fitting is approximately 10 years when chlorine-free drinking water is used.
If used with caustic media, the service life is correspondingly shorter.

Service life of the pneumatic actuator:
The service life of the pneumatic actuator is approx. 5 years or 300,000 switching operations when used with filtered (5 µm) lubricated or non-lubricated instrument air according. to ISO 8573 class 3.
If used with unfiltered compressed air, the service life will be correspondingly shorter.

4.2 Materials in Contact with the Product

Flange (Fig. 6.1, item 8, item 11 and item 14 / Fig. 6.3, item 5 / Fig. 6.4, item 5 and item 8):	1.4301 / 1.4307 / 1.4404 / 1.4435 / 1.4539 / 1.4529 / 2.4602
Valve disc (Fig. 6.1, item 4 / Fig. 6.3 and Fig. 6.4, item 6):	1.4301 / 1.4404 / 1.4539 / 1.4529 / 2.4602
Gasket (Fig. 6.1, item 5 / Fig. 6.3 and Fig. 6.4, item 7):	Selected according to operating conditions

Bushing (Fig. 6.1, item 6 / Fig. 6.3 and Fig. 6.4, item 9)	Standard	For use up to +130 °C/+266 °F
	ATEX	For use up to +130 °C/+266 °F

For ATEX version: The bushing consists of electrically conductive material (black in color).

NOTE

Avoid switching the fitting during sterilization and "dry switching" the valve disc. Both of these actions lead to increased wear in the gaskets and can result in leaks.

Sterilization may only be carried out when the fitting is open.

Sealing Material

EPDM:	Sterilization temperature: transient (short-term: 30 min) max. +140 °C/+284 °F
VMQ (silicone):	Sterilization temperature: short-term max. +130 °C / +266 °F
FKM:	Sterilization temperature: short-term max. +130 °C / +266 °F
HNBR:	Sterilization temperature: short-term max. +140 °C / +284 °F

The area of application for the fitting must always be adjusted to the corresponding operating conditions and the materials that come into contact with the product.

The maximum continuous temperature is dependent on the media.

4.3 Power Supply

4.3.1 Electrical Energy Supply

Refer to the external data sheets and manufacturer's instructions for the data on the energy supply for connection of proximity switches (< 50 V).

4.3.2 Compressed Air Connection

(Butterfly Valve with Pneumatic Actuator (Standard/ATEX Design))

The air/air (A/A) actuator requires compressed air for each switching procedure. It must be present at all times, otherwise the fitting will be able to be switched independently by the product flow. If the compressed air fails, it will not be possible to define the valve position precisely.

Compressed air requirement (dependent on air pressure):

VMove 0 DN 10 - 40	0.9 – 1.7 l
VMove 1 DN 25 – 100:	1.7 – 3.5 l
VMove 2 DN 125 – 200:	3.0 – 4.5 l

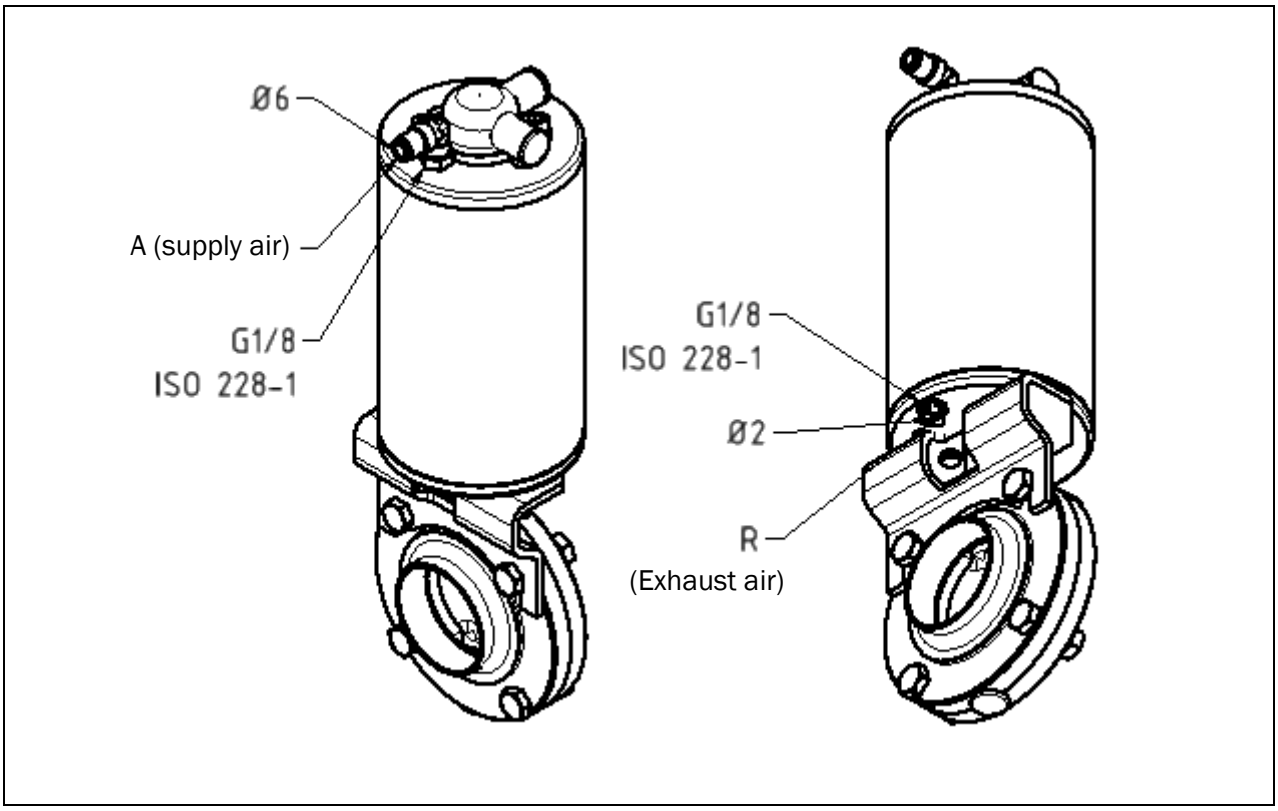


Fig. 4.1: Butterfly Valve with Pneum. Actuator: Control Air Connections

Compressed air connection (A):	A/A	min.:	3 bar / 44 psi
		max.:	7 bar / 101 psi
	A/S	min.:	5 bar / 73 psi
		max.:	10 bar / 145 psi
	Internal thread G 1/8 ISO 228-1, with coupling for hose Da = 6 mm and Di = 4 mm		
Exhaust air (R):	Internal thread G 1/8 ISO 228-1, throttle valve with hole D = 2 mm		
Medium:	Instrument air, filtered 5 (µm), lubricated or non-lubricated		

4.4 Connection Variants, Type Series, Dimensions

The various connection dimensions for the fitting are listed below. There are no restrictions on the choice of installation position. The dimensions can be found in the table (all details – except for nominal width (DN) and nominal diameter of the thread (E) – in millimeters).
The positional range with locking function is 90° for the "Open" and "Closed" positions.

You can find the technical data (including weights) and other connection variants on the product pages of the current AWH catalog at http://www.awh.eu, or you can request this information directly from AWH. The product identification numbers in the catalog and in the manual must be identical.

Other customer requirements can be fulfilled after prior consultation, for example, with clamp connection, with flange and with aseptic connection according to DIN 11864.

4.4.1 Butterfly Valve with Handle (Standard/ATEX Design)

4.4.1.1 DIN Connection Variants

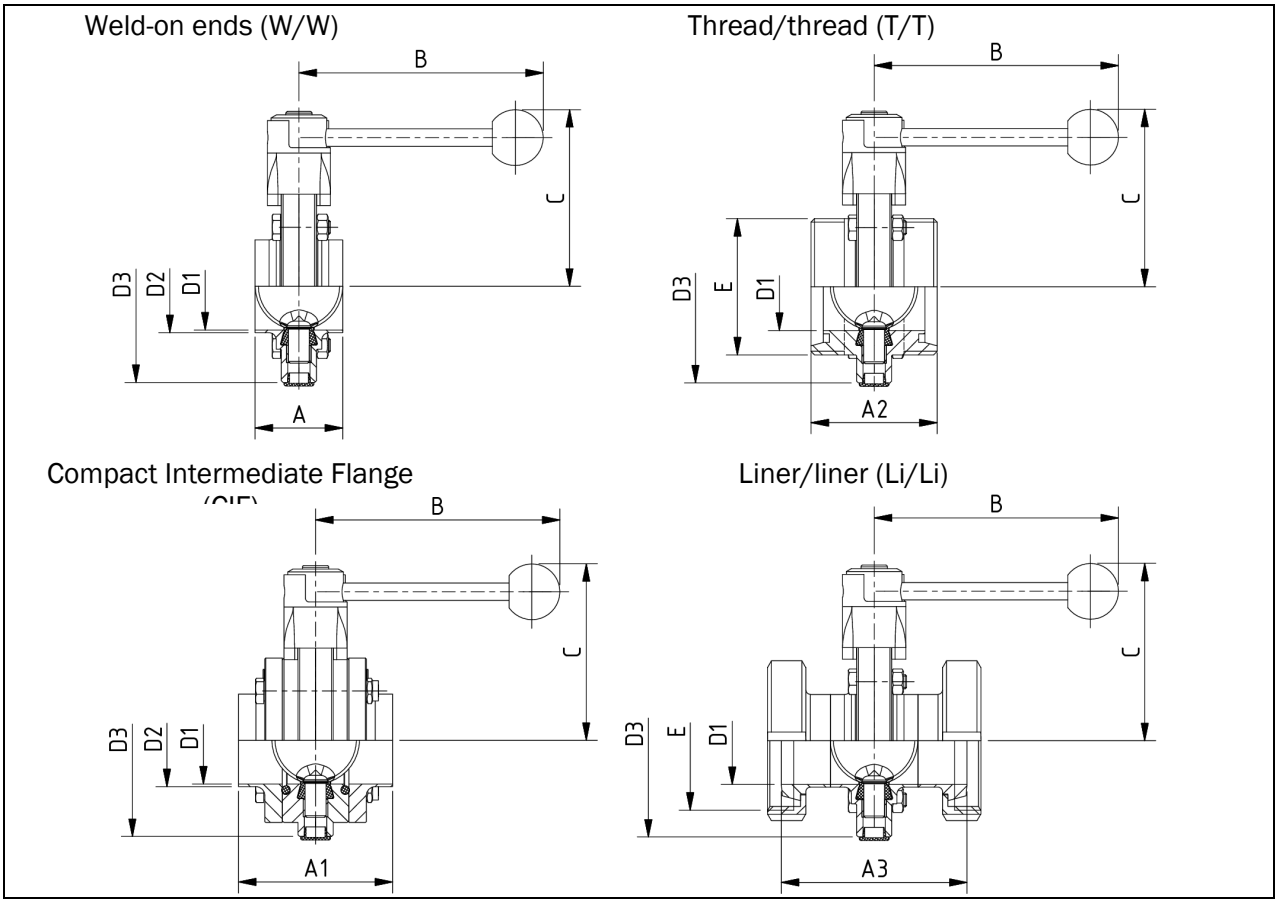


Fig. 4.2: Butterfly Valve with Handle: DIN Connection Variants

DN	A	A1	A2	A3	B	C	D1	D2	D3	E
10	40	80	74	74	105	79	10	13	58	Rd 28 x 1/8”
15	40	80	74	74	105	79	16	19	58	Rd 34 x 1/8”
20	40	80	78	76	105	79	20	23	58	Rd 44 x 1/6”
25	40	78	64	84	107	90	26	29	87	Rd 52 x 1/6”
32	42	78	64	92	107	92	32	35	92	Rd 58 x 1/6”
40	50	88	72	102	137	94	38	41	97	Rd 65 x 1/6”
50	50	88	72	106	137	101	50	53	110	Rd 78 x 1/6”
65	50	88	76	114	137	110	66	70	127	Rd 95 x 1/6”
80	60	105	100	134	171	124	81	85	142	Rd 110 x 1/4”
100	64	105	104	152	171	135	100	104	162	Rd 130 x 1/4”
125	112	168	112	180	217	161	125	129	200	Rd 160 x 1/4”
150	124	168	124	198	217	175	150	154	230	Rd 190 x 1/4”
200		112			277	220	200	204	306	

4.4.1.2 Connection Variants, Inch – Series ‘B’

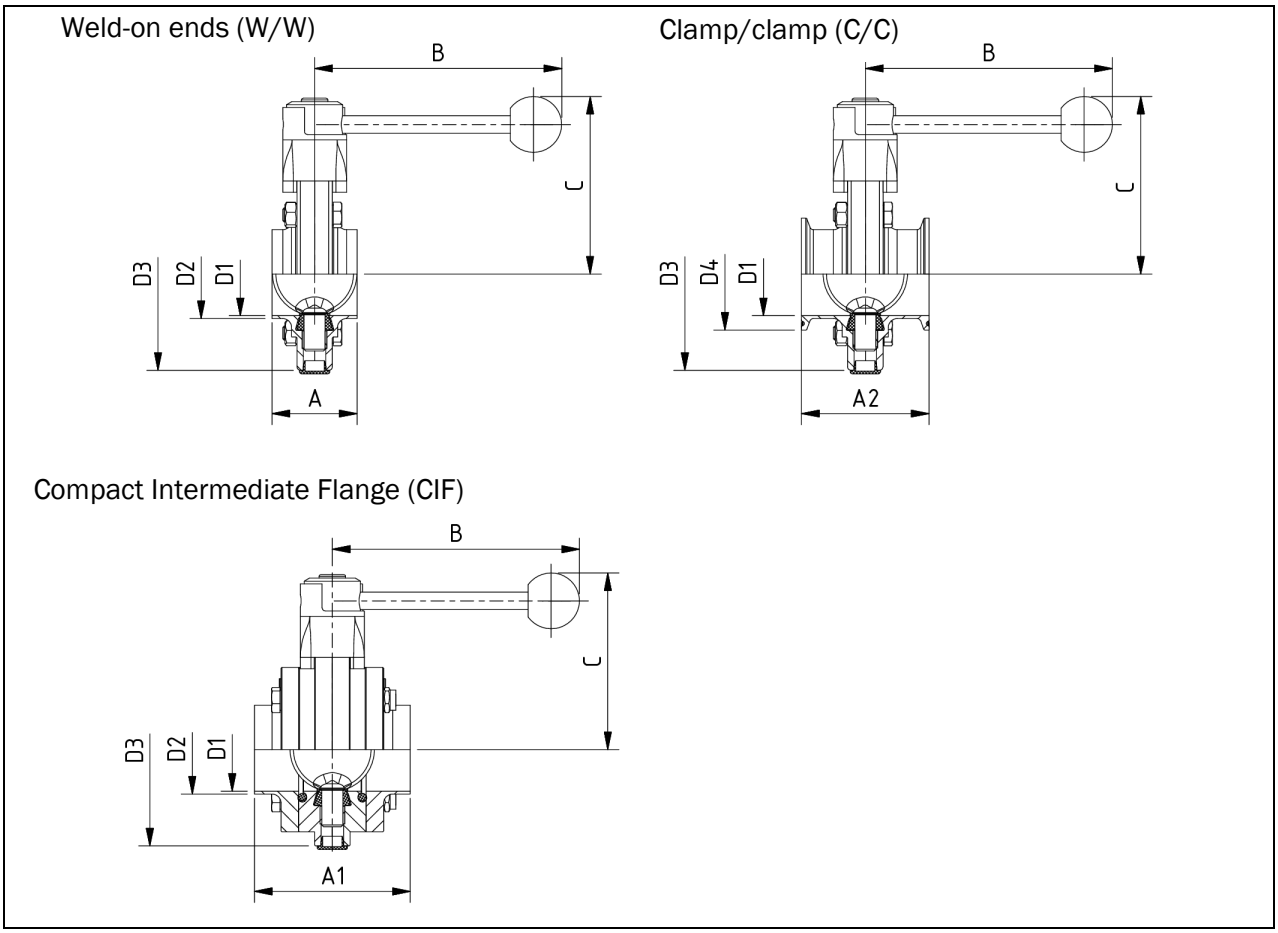


Fig. 4.3: Butterfly Valve with Handle: Inch Connection Variants

DN	A	A1	A2	B	C	D1	D2	D3	D4
1”	38	78	64	107.5	90	22.1	25.4	87	50.5
1 1/2”	48	88	72	137.5	94.5	34.8	38.1	97	50.5
2”	48	88	72	137.5	101	47.5	50.8	110	64
2 1/2”	47	88	76	137.5	110	60.2	63.5	127	77.5
3”	60	105	90	167	124.5	72.1	78	142	91
4”	64	105	104	167	136	97.38	101.6	162	119

4.4.2 Butterfly Valve with Pneumatic Actuator (Standard/ATEX Design)

NOTE

The preferred installation situation of the pneumatic actuator is vertical, pointing upwards.

Liquid can enter if the exhaust air opening of the actuator points upwards!

The plant manufacturer must take appropriate measures to prevent this from happening.

4.4.2.1 Dimensions of the Pneumatic Actuator

The A/A actuator is not shown. It is similar to the A/S, but with no spring and with an additional air connection for a 6x4, G1/8" hose.

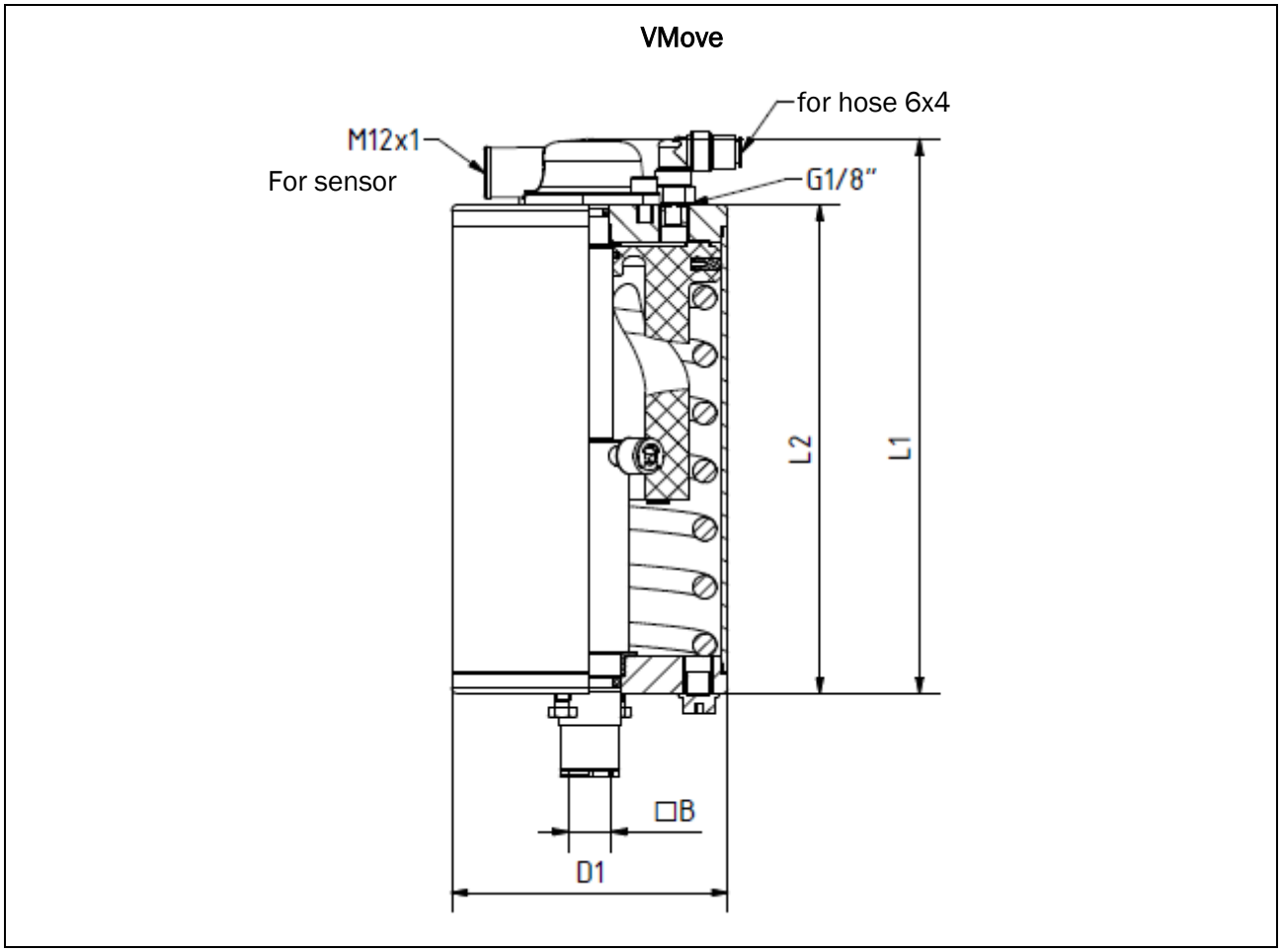


Fig. 4.4: Dimensions of the Pneumatic Actuator

Design	DN	D1	L1	L2	B
VMove 0	10 - 40	70	171.5	150	9.5
VMove 1	25 - 100	88.9	181	159.5	9.5
VMove 2	125 - 200	129	245.5	217	14

When using accessory parts, the installation space (D1 and L1) may vary.

4.4.2.2 DIN Connection Variants

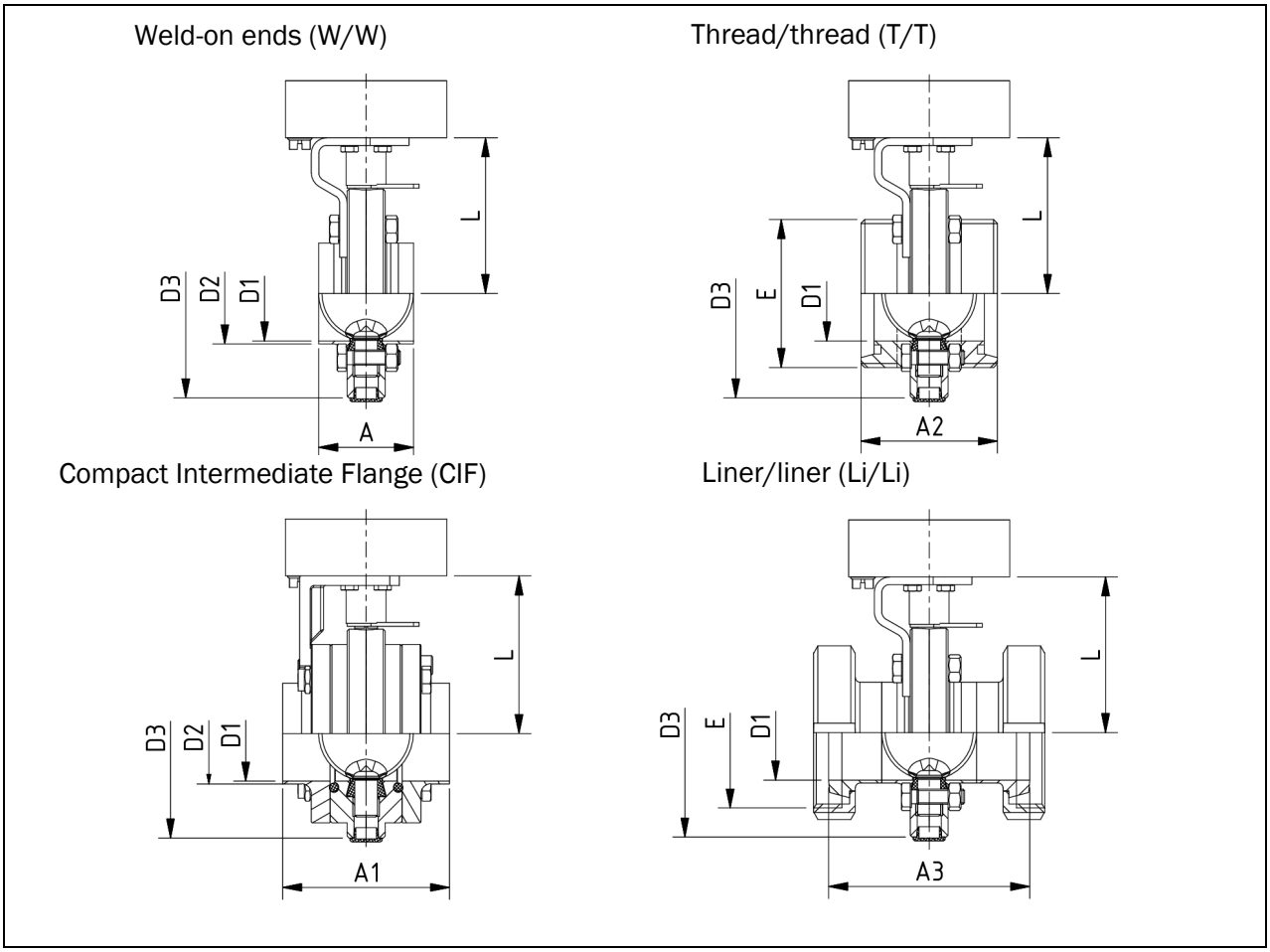


Fig. 4.5: Butterfly Valve with Pneumatic Actuator: DIN Connection Variants

DN	A	A1	A2	A3	D1	D2	D3	L	E
10	40	80	74	74	10	13	58	56.5	Rd 28 x 1/8”
15	40	80	74	74	16	19	58	56.5	Rd 34 x 1/8”
20	40	80	78	76	20	23	58	56.5	Rd 44 x 1/6”
25	40	78	64	84	26	29	87	71	Rd 52 x 1/6”
32	42	78	64	92	32	35	92	74	Rd 58 x 1/6”
40	50	88	72	102	38	41	97	76	Rd 65 x 1/6”
50	50	88	72	106	50	53	110	82.5	Rd 78 x 1/6”
65	50	88	76	114	66	70	127	91.5	Rd 95 x 1/6”
80	60	105	100	134	81	85	142	99	Rd 110 x 1/4”
100	64	105	104	152	100	104	162	109.5	Rd 130 x 1/4”
125	112	168	112	180	125	129	200	137	Rd 160 x 1/4”
150	124	168	124	198	150	154	230	153.5	Rd 190 x 1/4”
200		112			200	204	316	197	

4.4.2.3 Connection Variants, Inch – Series 'B'

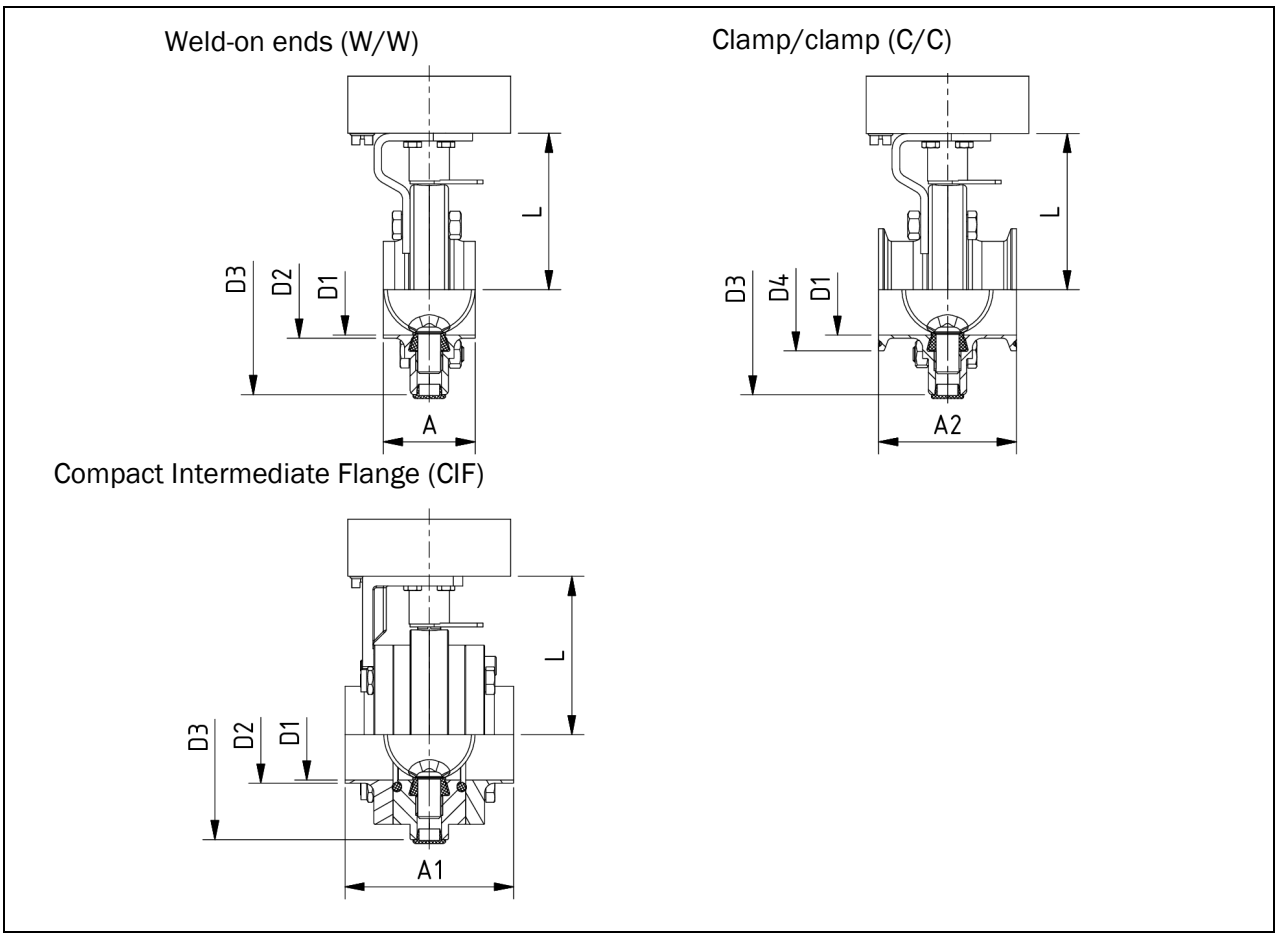


Fig. 4.6: Butterfly Valve with Pneumatic Actuator: Inch Connection Variants

DN	A	A1	A2	L	D1	D2	D3	D4
1"	38	78	64	71	22.1	25.4	87	50.5
1 1/2"	48	88	72	76	34.8	38.1	97	50.5
2"	48	88	72	82.5	47.5	50.8	110	64
2 1/2"	47	88	79	91.5	60.2	63.5	127	77.5
3"	60	105	90	99	72.1	78	142	91
4"	64	105	104	109.5	97.38	101.6	162	119

5 Installation

5.1 Scope of Delivery

The detailed scope of delivery can also be found in the order confirmation.

5.2 Transport and Packaging

AWH products are carefully checked and packed before shipping. However, it is still possible for the product to become damaged during transport.

CAUTION

When setting down the packaging, there is a danger of minor crushing injuries.

– *Proceed with particular care when transporting the packaging.*

– *Wear safety shoes and protective gloves (see section "2.6 Personal Protective Equipment").*

5.2.1 Delivery (Including Spare and Replacement Parts)

Incoming Goods Inspection

- Check the product against the delivery note to ensure that it has been delivered in complete form.
- Check the packaging for visible damage.

Unpacking

- Remove the protective caps from the pipe connections (where applicable).
- Remove the remaining packaging.

Damage

- Check the delivery for damage (visual inspection).

Complaints

If the delivery has been damaged during transport:
- Contact the last shipping agent immediately.
- Retain the packaging (for possible inspection by the shipping agent or for return delivery).

Packaging for Return Delivery

If possible, use the original packaging and the original packaging material. If neither is available any more, request a packaging company with specialist personnel. Consult AWH if you have any questions regarding packaging and transport safety.

5.2.2 Temporary Storage

Storage in a closed room

Storage conditions:

- Temperature: +10 °C – +40 °C / +50 °F – +113 °F
- Humidity: < 60%

5.3 Installation

WARNING

Danger of serious injuries due to leaking flange and pipe connections!

- *The fitting may be installed only by an expert.*
- *Make sure that the flange connections and pipe connections do not have any leaks.*
- *After installation, any tensile and compressive stress must be ruled out.*

Butterfly Valve in ATEX Design

WARNING

Risk of serious injury due to fire/explosion as a result of static charging!

- *The fitting may be installed only by an expert.*
- *Make sure that the fitting is grounded accordingly.*
- *The pneumatic actuator must be incorporated in the equipotential bonding of the plant by means of grounding.*
  The leak resistance must be < 10^6 Ω.

The fitting is installed in accordance with the structural layout of the pipe system and the technical data for the connection variants (see section 4.4). There are no restrictions on the choice of installation position.

See the dimensional drawings for the installation dimensions. Make sure sufficient space is available for operation and maintenance (1 m around the fitting).

5.3.1 Installing the Butterfly Valve (Connection Thread/Thread, Liner/Liner)

NOTE

The thread must not be damaged during assembly!
The fitting is fastened using the slotted nut and a nut wrench.

When installing the fitting, ensure that the connection fittings and slotted nut conform to the same standard (for example, DIN 11851 or DIN 11864).

Before assembly, check the seal ring on the male for damage and ensure that it is installed in the correct position. Replace if necessary.

5.3.2 Installing the Butterfly Valve (Connection Weld-on/Weld-on, Intermediate Flange)

Welding Guidelines

Welding into pipe systems is carried out according to DIN EN 10357.

Welding method: TIG or orbital welding

Seam type: Butt weld joint according to DIN EN ISO 9692

Installed Condition

The fitting must be removed before welding (see chapter “6 Disassembly/Assembly”).

Welded Seam Preparation

- Cut the ends of the pipes level and at a right angle.
- Align the housing weld-on ends with the pipeline so they are level radially and axially. The weld-on ends must fit flush and be welded without a gap.

Filler Materials

Base material	Suitable filler material
1.4301, 1.4307	1.4302, 1.4316, 1.4551
1.4404	1.4430, 1.4455, 1.4576
1.4435	1.4430, 1.4440
1.4539	1.4519
1.4529	2.4607
2.4602	2.4607

Welding

- Connect forming gas before welding.
- Affix 3 to 4 tack weld-ons before welding.

Welding Post-Treatment

No treatment is necessary on the interior after welding. The surface of accessible points can be improved by grinding.
The exterior can be treated afterwards by staining, brushing, grinding and polishing.

Cleaning

- Clean all welded parts before assembly.

6 Disassembly/Assembly

WARNING

Risk of serious injury due to incorrect disassembly/assembly!

- *The work may be performed only by an expert.*
- *Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section "2.6 Personal Protective Equipment").*
- *If in doubt, contact a specialist company or AWH.*

6.1 Performing the Switch-off Procedure

Before any disassembly, assembly, cleaning, maintenance or repair work can begin, the specialist personnel must adhere without fail to the following switch-off procedure in order to prevent accidents.

WARNING

Risk due to moving parts and escaping compressed air or flow media at high pressure!
Danger due to media that are hot, toxic or represent a health hazard!

When using harmful or toxic media or media that are hazardous in any other way, there is a danger of intoxication or chemical burns.

When the valve disc is moving, there is a risk of fingers and hands being crushed.

Compressed air or flow media that escape at high pressure pose a risk of serious eye or skin injuries.

Hot flow media can cause severe burns.

- *Wear protective work clothing, protective gloves and protective goggles when carrying out the work on the fitting.*
- *Observe the following switch-off procedure:*

- Disconnect the higher-level plant/machine from the power supply.
- Shut off the pneumatic system.
- Close the shut-off valve.
- Check that the plant is depressurized.
- Secure the shut-off valve to prevent it from being reopened.
- Shut off the media supply.
- Relieve the pressure in the pipelines
- Once this is done, drain the pipelines (take particular care with hazardous materials).
- Check that there is no risk of media being supplied (insert dummy discs if necessary).
- Observe a cooling-down phase for media temperatures over +60 °C/+140°F.

6.2 Butterfly Valve with Handle

6.2.1 Construction

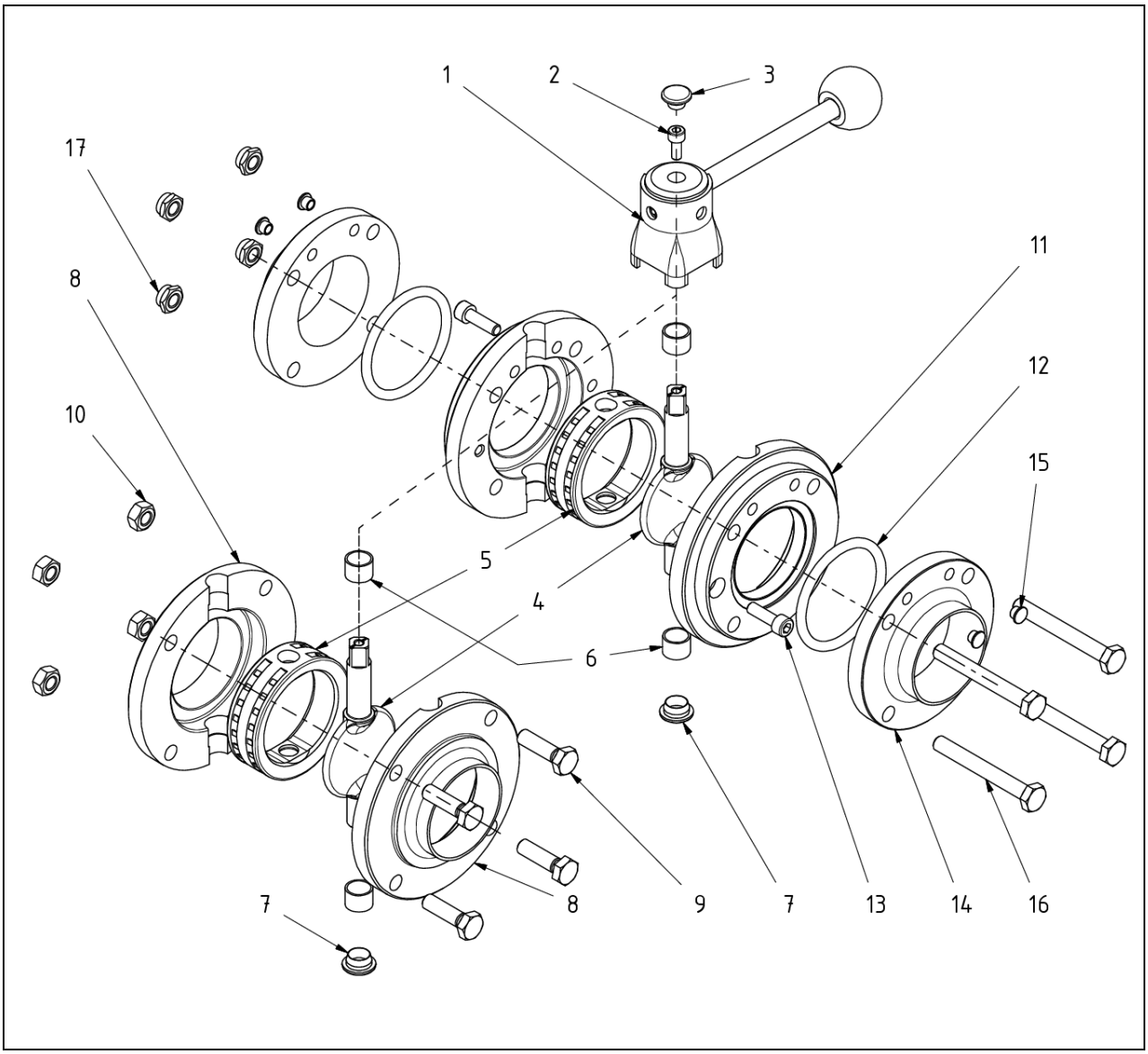


Fig. 6.1: Structure: Butterfly Valve with Handle

		Standard Butterfly Valve		Compact Butterfly Valve	
1	Handle	8	Flange (2x)	11	Inner flange
2	Socket-head screw	9	Screw group	12	O-ring
3	Blanking plug	10	Hexagonal nuts	13	Socket-head screws
4	Valve disc			14	Outer flange
5	Gasket			15	Blanking plug
6	Bushing (2x) (electrically conductive*)			16	Hexagonal bolts
7	Blanking plug			17	Hexagonal nuts

* ATEX version only

6.2.2 Removal from the Plant

- Always adhere to the switch-off procedure (see section 6.1 Performing the Switch-off Procedure).
- Remove the blanking plugs (Fig. 6.1, item 3 and item 7).
- Remove the socket-head screw (Fig. 6.1, item 2).
- Pull out the entire “handle” assembly group (Fig. 6.1, item 1) in the direction of the axis.
- Remove the bolt group (Fig. 6.1, item 9 and item 10).
- Separate the flanges (Fig. 6.1, item 8).
- Remove the valve disc (Fig. 6.1, item 4) together with the gasket (Fig. 6.1, item 5) and bushings (Fig. 6.1, item 6) from the flange.
- Slide the bushings (Fig. 6.1, item 6) off the shafts of the valve disc and pull the short shaft of the valve disc (Fig. 6.1, item 4) out of the hole in the gasket (Fig. 6.1, item 5), and then pull the long shaft.

6.2.3 Assembly with Gasket Replacement

NOTE

> *Proceed carefully and meticulously to avoid damage. When installing the gasket, the valve disc must not be pivoted into the sealing seat.*
>
> *Install the components of the fitting in such a way that they are not subjected to tension.*

- Check the gasket (Fig. 6.1, item 5) for damage.
- Clean the installation space and check for any damage.
- Clean the valve disc (Fig. 6.1, item 4) including the shafts, and lubricate the gasket (Fig. 6.1, item 5) in the bearing shaft hole using approved grease (Unisilikon 641, for example, from Klüber).
- Insert the long shaft of the valve disc (Fig. 6.1, item 4) into the hole in the gasket (Fig. 6.1, item 5).
- Press the gasket (Fig. 6.1, item 5) together and pull it over the short shaft.
- Slide the bushings (Fig. 6.1, item 6) over the shafts of the valve disc (Fig. 6.1, item 4).
- Insert the valve disc (Fig. 6.1, item 4) with the gasket attached to it into the bearing shaft hole of the flange (Fig. 6.1, item 8).
- Carefully place the counter flange on the flange without damaging the gasket (Fig. 6.1, item 5). ***NOTE**: Make sure that the holes for the bearing shaft and for the screw connections are exactly on top of each other.* Screw together the flange and counter flange.
- When screwing them together, check the position of the valve disc shaft in the cross-hole and align it as necessary.
- Set the valve disc (Fig. 6.1, item 4) to the “Closed” position.
- Place the handle (Fig. 6.1, item 1) on the square of the valve disc.
- Turn the hand lever so that the through hole is facing the valve disc plate. To secure the “handle” assembly group in place, insert the socket-head screw (Fig. 6.1, item 2) and tighten it firmly.

- Seal up the hole in the handle using the blanking plug (Fig. 6.1, item 3) and in the housing using the blanking plug (Fig. 6.1, item 7).
- Perform a function test by repeatedly switching to the open/closed position (90°). ***NOTE:*** *If you notice any noises/vibrations during the switching procedure (for example, as a result of metal parts rubbing against each other), you will need to disassemble the fitting and assemble it again carefully. If in doubt, contact AWH.*
- Make sure the handle is fully engaged at the respective position.
- Perform a leak test under operating conditions.

6.2.3.1 Additional Working Steps for Replacement of the Gasket on a CIF Butterfly Valve

- When installing the valve disc (Fig. 6.1, item 4) with gasket (Fig. 6.1, item 5) in the inner flange (Fig. 6.1, item 11), make sure that the long valve disc shaft with square profile is positioned in the direction of the two mounting holes for the holding bracket.
- Carefully place the counter flange on the flange without damaging the gasket (Fig. 6.1, item 5) and screw them both in place using the socket-head screws (Fig. 6.1, item 13). Make sure that all the holes for fastening the holding bracket in place are aligned.
- Turn the valve disc to the “Closed” position.

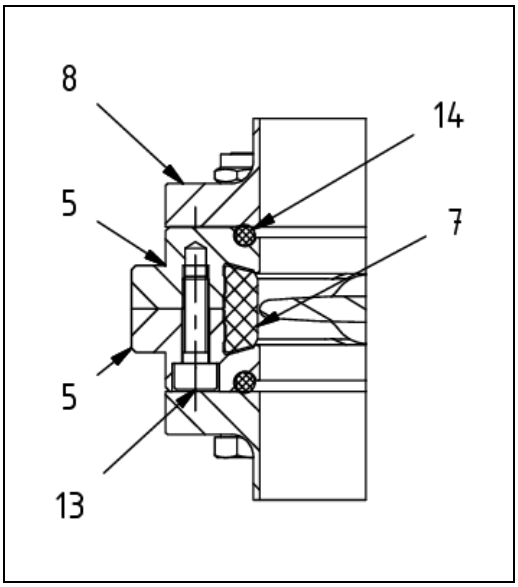


Fig. 6.2: Screw Fitting of the Inner Flange (1)

- Insert the O-rings (Fig. 6.2Fig. 6-2, item 14) into the groove in the inner flange (Fig. 6.2, item 5).
- Position the valve between the outer flanges (Fig. 6-2, item 8). When doing so, make sure that the holes in the outer flange are aligned with those in the pre-installed valve.
- Bolt the valve and the outer flanges together using the hexagonal bolts (Fig. 6.1, item 16) and hexagonal nuts (Fig. 6.1, item 17).
- Place the handle (Fig. 6.1, item 1) on the square section of the valve disc and fix it in place using the socket-head screw (Fig. 6.1, item 2).
- Seal up the hole in the handle using the blanking plug (Fig. 6.1, item 3) and in the housing (Fig. 6.1, item 7).

6.3 Butterfly Valve with Pneumatic Actuator/VMove (Standard/ATEX Design)

6.3.1 Structure Butterfly Valve with Pneumatic Actuator

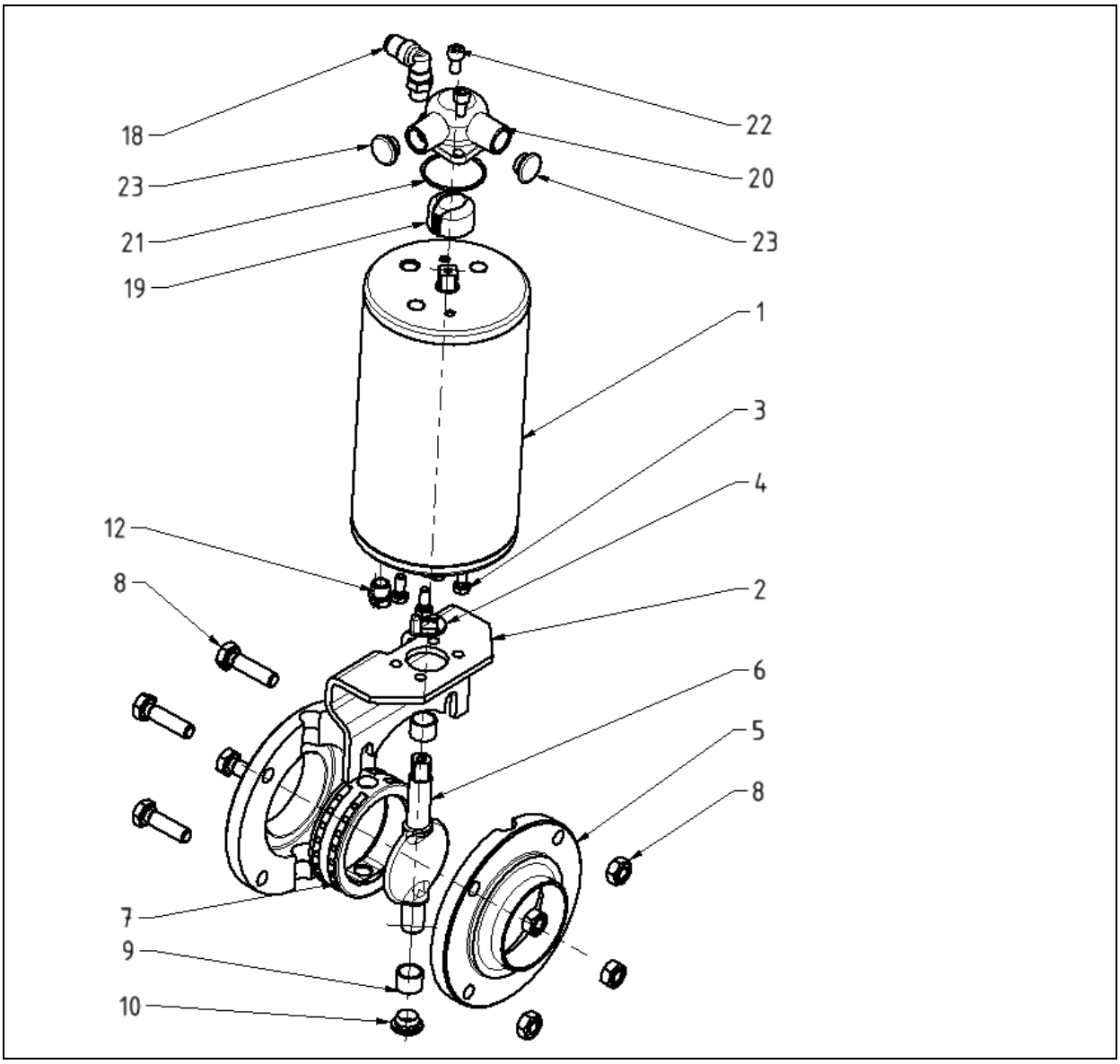


Fig. 6.3: Structure of Butterfly Valve with Pneum. Actuator

1	Pneumatic actuator	10	Blanking plug
2	Holding bracket	12	Exhaust throttle
3	Hexagonal bolt M5 (actuator)	18	Angled air connection
4	Position indicator	19	Switching puck
5	Flange (2x)	20	Safety hood
6	Valve disc	21	O-ring
7	Gasket	22	Socket-head screw
8	Outer flange	23	Blind plug
9	Socket (2x) (electrically conductive for ATEX)		

6.3.2 Structure – Compact Butterfly Valve with Pneumatic Actuator VMove

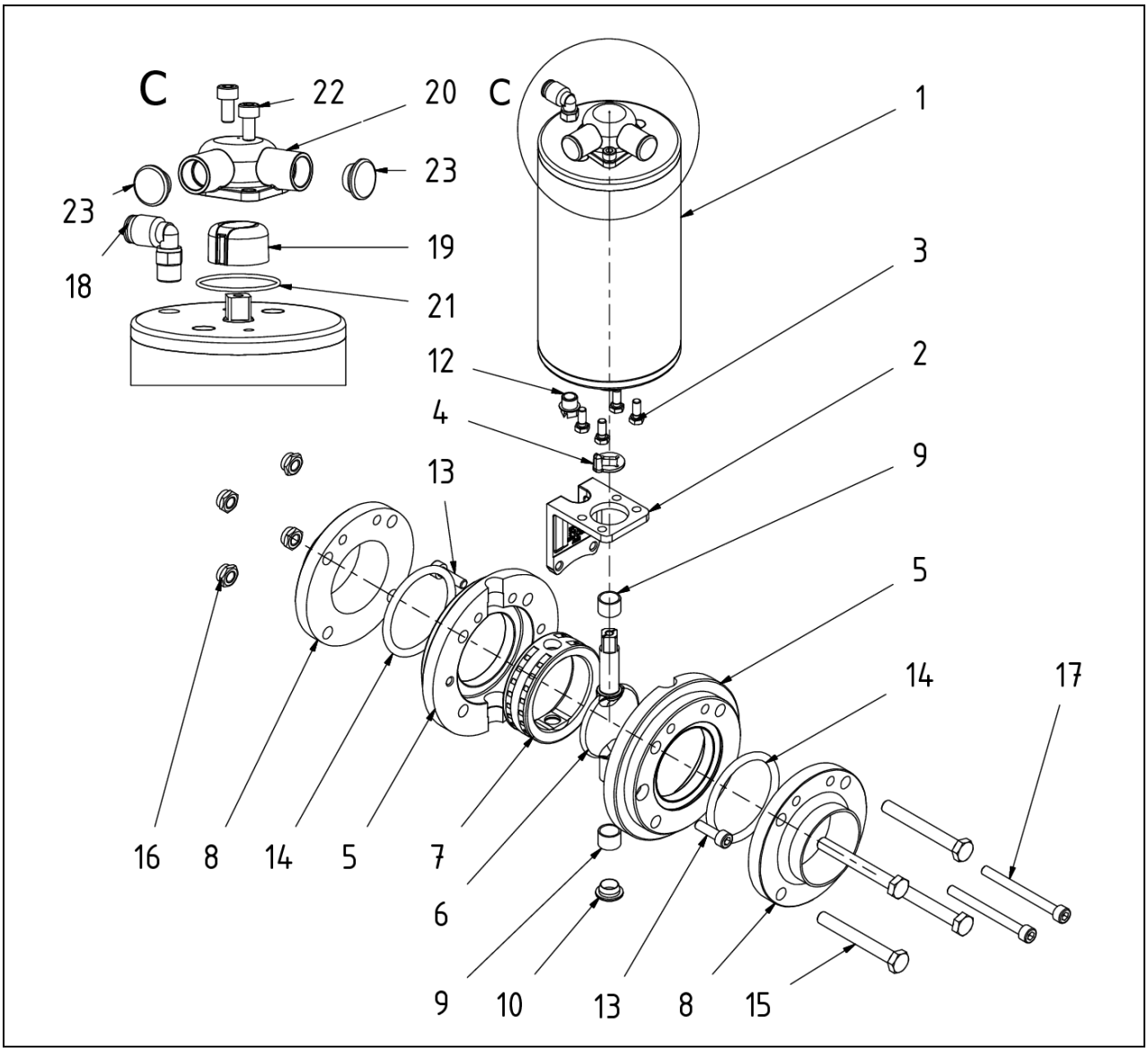


Fig. 6.4: Structure of Compact Butterfly Valve with Pneum. Actuator VMove

1	Pneumatic actuator	13	Socket-head screws
2	Holding bracket	14	O-ring
3	Actuator bolt set	15	Hexagonal bolts
4	Position indicator, bottom	16	Hexagonal nuts
5	Inner flange	17	Socket-head screws
6	Valve disc	18	Compressed air connection
7	Gasket	19	Switching puck
8	Outer flange	20	Safety hood
9	Bushing (2x) (electrically conductive*)	21	O-ring
10	Blanking plug	22	Socket-head screws
12	Exhaust throttle	23	Blind plug
			* ATEX version only

6.3.3 Removal from the Plant

- Always adhere to the switch-off procedure (see section 6.1 Performing the Switch-off Procedure Performing the Switch-off Procedure).
- Disconnect the compressed air connection (Fig. 6.3, item 18) from the pneumatic actuator.
- Remove the bolt group (Fig. 6.3, item 8) and the blanking plug (Fig. 6.3, item 10).
- Pull out the entire “pneumatic actuator with holding bracket” assembly group (Fig. 6.3, items 1, 2 and 3) in the direction of the axis.
- Pull out the position indicator (Fig. 6.3, item 4) in the direction of the axis.
- Separate the flanges (Fig. 6.3, item 5).
- Remove the valve disc (Fig. 6.3, item 6) together with the gasket (Fig. 6.3, item 7) and bushings (Fig. 6.3, item 9) from the flange.
- Pull the bushings (Fig. 6.3, item 9) off the shafts of the valve disc and pull the short shaft of the valve disc (Fig. 6.3, item 6) out of the hole in the gasket (Fig. 6.3, item 7), and then pull out the long shaft.

6.3.4 Assembly with Gasket Replacement

NOTE

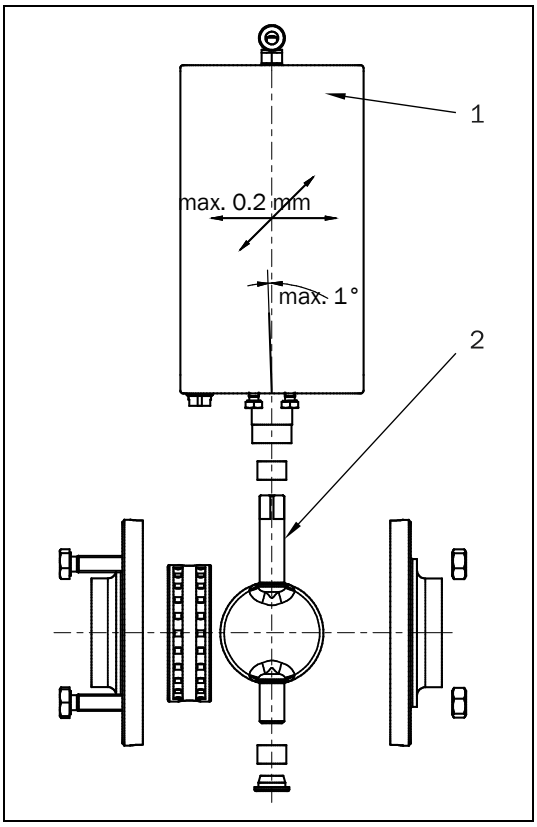
Proceed carefully and meticulously to avoid damage. When installing the gasket, the valve disc must not be pivoted into the sealing seat.

Install the components of the fitting in such a way that they are not subjected to tension.

For assembly with gasket replacement, proceed as follows:

- Check the gasket (Fig. 6.3, item 7) for damage.
- Clean the installation space and check for any damage.
- Clean the valve disc (Fig. 6.3, item 6) including the shafts, and lubricate the gasket (Fig. 6.3, item 7) in the bearing shaft hole using approved grease (Unisilikon 641, for example, from Klüber).
- Insert the long shaft of the valve disc (Fig. 6.3, item 6) into the hole in the gasket (Fig. 6.3, item 7).
- Press the gasket (Fig. 6.3, item 7) together and pull it over the short shaft.
- Slide the bushings (Fig. 6.3, item 9) over the shafts of the valve disc (Fig. 6.3, item 6).
- Insert the valve disc (Fig. 6.3, item 6) with the gasket (Fig. 6.3, item 7) on it and the bushing (Fig. 6.3, item 9) the bearing shaft hole on the flange (Fig. 6.3, item 5).
- Carefully place the counter flange on the flange without damaging the gasket (Fig. 6.3, item 7). ***NOTE:*** *Make sure that the holes for the bearing shaft and for the screw connections are exactly on top of each other.* Screw together the flange and counter flange. Make sure that the long screws are for the holding bracket of the pneumatic actuator!
- When screwing them together, check the position of the valve disc shaft in the cross-hole and align it as necessary.
- Set the valve disc (Fig. 6.3, item 6) to the “Closed” position.

- Place the position indicator (Fig. 6.3, item 4) on the square section of the valve disc (Fig. 6.3, item 6). When doing this, the position indicator must point in the same direction as the valve disc (Fig. 6.3, item 6). Note the direction of rotation of the actuator when installing the position indicator. On “air opening” (standard, clockwise rotation), it rotates to the right as viewed when looking at the square part.



When installing, also observe the following points:

- *The pneumatic actuator (1) must be exactly aligned with the valve disc (2) (see Fig. 6.5).*
- *Before installation in the pipe system, conduct a test switching procedure to check that the valve disc in the butterfly valve moves to the desired “Closed” and “Open” position.*
  If this is not the case, the valve disc will need to be installed offset by 90°.
- *If an “air-opening” and “spring-closing” pneumatic actuator (Fig. 6.5, item 1) is in use, the valve disc will always be rotated to its “Closed” position if the compressed air fails!*

- ***For ATEX version:***
  Ground the assembly group.

Fig. 6.5: Installation of Pneum. Actuator on Valve Disc

- Place the inner square of the “pneumatic actuator with holding bracket” assembly group (Fig. 6.3, items 1, 2 and 3) on the square section of the valve disc (Fig. 6.3, item 6), assuring it is aligned properly.
- Place the milled slot in the holding bracket (Fig. 6.3, item 2) onto the upper pair of bolts.
- Tighten the bolt group (Fig. 6.3, item 8) in a crisscross pattern with the correct torque (see table below) and connect the air supply (Fig. 6.3, item 11) to the pneumatic actuator.

DN	Screw Size	Tightening Torque
10 - 20	M6	6 Nm
25 - 100	M8	13 Nm
125 - 200	M10	30 Nm

- Perform a function test by repeatedly switching to the open/closed position (90°). ***NOTE:*** *If you notice any noises/vibrations during the switching procedure (for example, as a result of metal parts rubbing against each other), you will need to disassemble the fitting and assemble it again carefully. If in doubt, contact AWH*
- Make sure that the position indicator performs a full 90° movement when doing this.
- Perform a leak test under operating conditions.

Calibrating the Pneumatic Actuator

If the pneumatic actuator moves outside its rotary axis during the switching procedure (“wobbling”), then the alignment of the pneumatic actuator and valve disc is not as described in Fig. 6.5.

- Undo the bolt group (Fig. 6-3, item 8) and realign the holding bracket (Fig. 6-3, item 2). Once this is done, tighten the screws again.
- Undo the M5 hexagon bolts (Fig. 6-3, item 3) and realign the holding bracket (Fig. 6-3, item 2). Once this is done, tighten the screws again.
- If in doubt, contact AWH.

6.3.4.1 Additional Working Steps for Replacement of the Gasket on a CIF Butterfly Valve

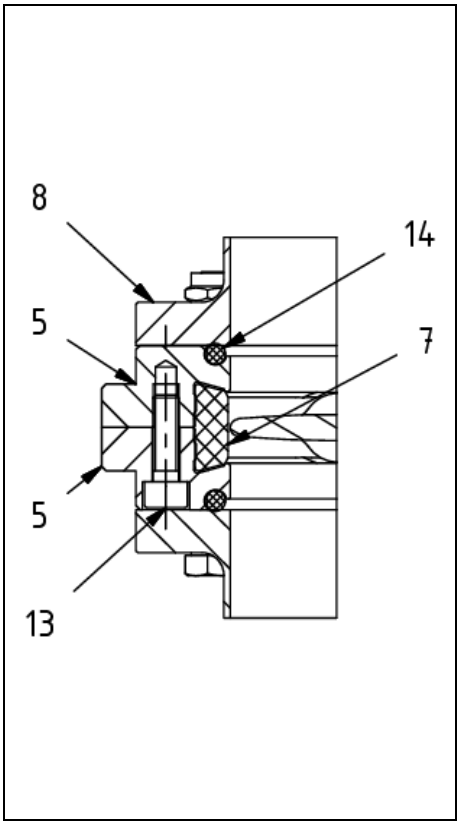


Fig. 6.6: Screw Fitting of the Inner Flange (2)

- When installing the valve disc (Fig. 6.1, item 6) with gasket (Fig. 6.1, item 7) in the inner flange (Fig. 6.1, item 5), make sure that the long valve disc shaft with square profile is positioned in the direction of the two mounting holes for the holding bracket.
- Carefully place the counter flange on the flange without damaging the gasket (Fig. 6.1, item 7) and screw them both in place using the socket-head screws (Fig. 6.1, item 13). Make sure that all the holes for fastening the holding bracket in place are aligned.
- Insert the O-rings (Fig. 6.6, item 14) into the groove in the inner flange (Fig. 6.6, item 5).
- Position the valve between the outer flanges (Fig. 6.6, item 8). When doing so, make sure that the holes in the outer flange are aligned with those in the pre-installed valve.
- Bolt the valve and the outer flanges together using the hexagonal bolts (Fig. 6.4, item 15) and hexagonal nuts (Fig. 6.4, item 16).
- Place the actuator with the pre-installed holding bracket on the square of the valve disc.

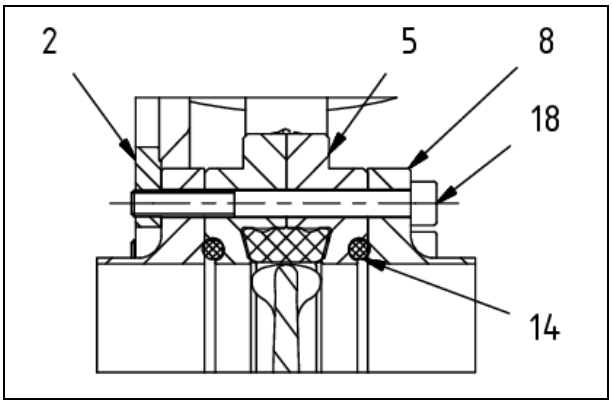


Fig. 6.7: Screwing the Holding Bracket and Valve together

- Align the holes in the holding bracket with those in the valve, then screw the holding bracket and valve together using the socket-head screws (Fig. 6.7, item 18).

Item 18 does not apply for nominal widths DN 10, 15 or 20. In these cases, the holding bracket is also held in place by the hexagon bolts (Fig. 6.4, item 15).

6.3.5 Installation with Feedback

Butterfly Valve with pneumatic actuator/VMove (ATEX design) with proximity switches only:

WARNING

Risk of serious injury due to fire/explosion if non-approved proximity switches are installed!

– *When installing the proximity switches, please observe the corresponding ATEX certification.*

CAUTION

When assembling, there is a crushing hazard between the signal contact arm and holding plate.

– *Assemble the components carefully in order to avoid your fingers getting crushed.*

Feedback can differ according to customer requirements. It can occur, for example, using:

- One or two proximity switches
- One double proximity switch

For technical data, see valve technology catalog (available online at http://www.awh.eu).

6.3.5.1 Installing with Feedback System on the VMove Pneumatic Actuator

Before installation in the pipe system, check to ensure that the red switch cam on the switching puck on the position display (Fig. 6.4, Fig. 6.3 and 6.4 item 19) points exactly to the desired proximity switch when in the “Open” or “Closed” position.

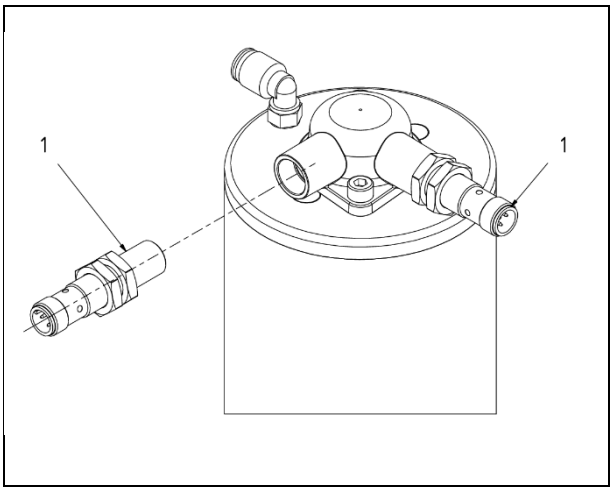


Fig. 6.8: Feedback Unit with M12 Plug Connection

Before screwing in, remove the blue blanking plugs (Fig. 6.4 Fig. 6-3, and Fig. 6-4, item 23).

Screw the proximity switches as far as they will go into the corresponding threaded holes on top of the actuator. (see Fig. 6-9, item 1)

NOTE: To avoid damage to the thread when screwing in the proximity switches, the proximity switches must be placed straight on the fine thread.

Establish the connection to the electrical power supply.

No calibration is required.

6.3.5.2 Installing the Feedback under the Actuator on the VMove Pneumatic Actuator

If you intend on using a feedback device, attach it below the holding bracket (Fig 6-9, item 2) before combining the pneumatic actuator (Fig 6-9, item 1) and the butterfly valve.

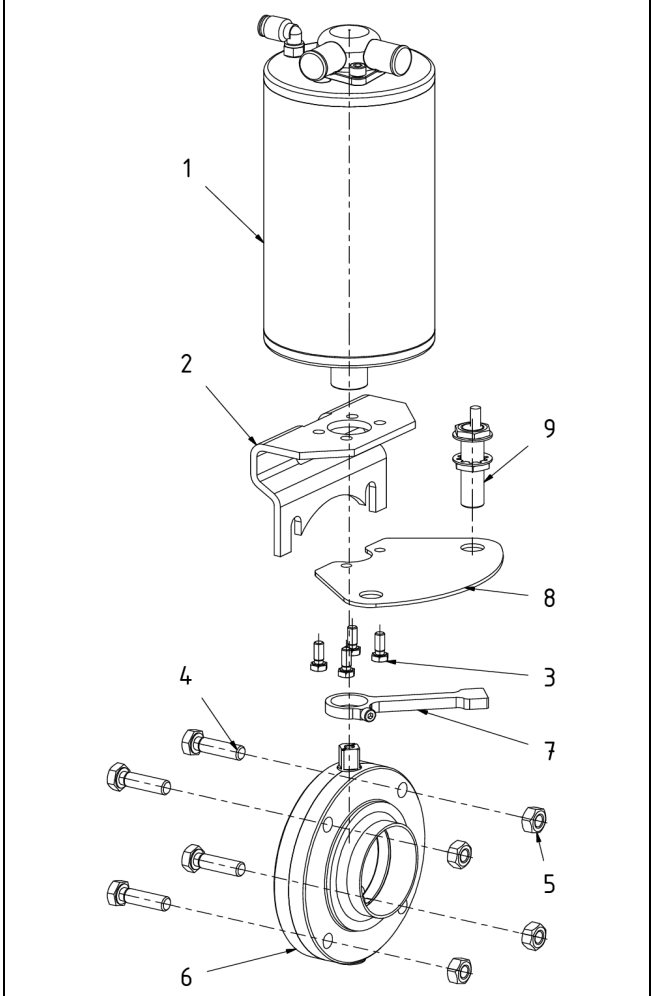
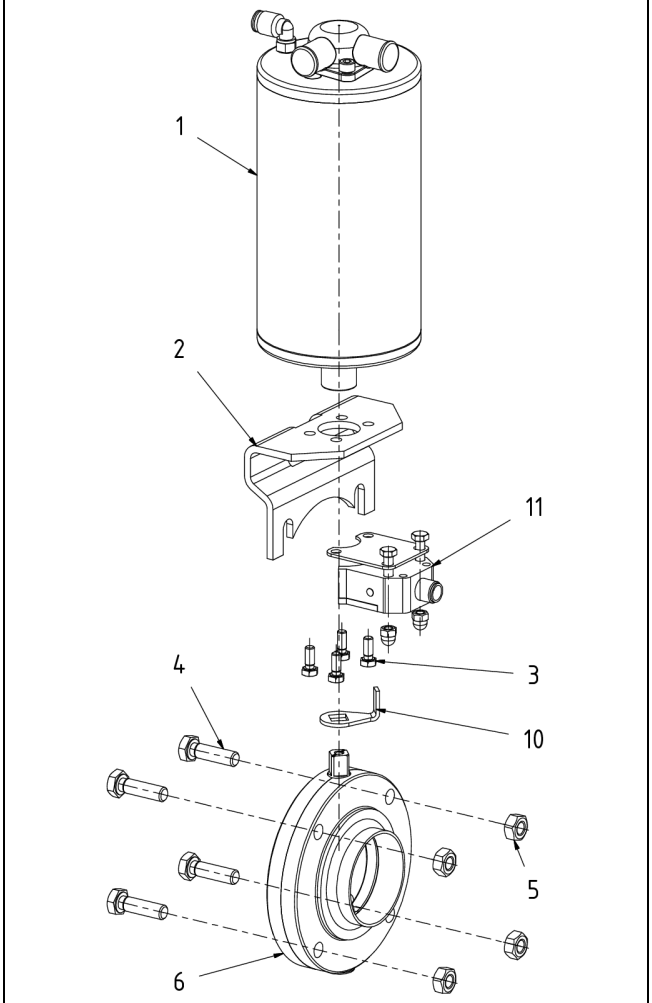
DN 25 – 100 Proximity Switch	DN 10 – 100 Double Proximity Switch
	

Fig. 6.9: Component Layout of the Pneumatic Actuator with Feedback

	Proximity switch	Double proximity switch
1 Pneumatic actuator	7 Signal contact arm	10 Switch cam
2 Holding bracket	8 Support for proximity switch	11 Double proximity switch with holding plate
3 Hexagonal bolts M5x12	9 Proximity switch	
4 Hexagonal bolts		
5 Hexagonal nuts		
6 Butterfly valve		

- Secure the sensor support (Fig. 6-9, item 8) together with the holding bracket (Fig. 6-9, item 2) to the pneumatic actuator (www.awh.eu**Fehler! Verweisquelle konnte nicht gefunden werden.**, item 1) by using the hexagonal bolts
  (Fig. 6-9, item 3).

- Clamp the control cam (www.awh.eu, Fig. 6-9, item 7) to the actuator shaft of the actuator.
  ***NOTE**: When doing this, make sure that the end of the signal contact arm is located just below the proximity switch in the "Open" or "Closed" position, and that the proximity switch has been installed in the hole of the support (Fig. 6-9, item 8), perpendicular to the cylinder of the pneumatic actuator (Fig. 6-98, item 1).*

7 Cleaning/maintenance

NOTE ON EXPLOSION PROTECTION

During maintenance work, care must be taken to ensure that no explosive atmosphere is formed.

The national regulations with respect to occupational safety must be observed.

WARNING

Risk of serious injury due to incorrect maintenance!

When using harmful or toxic media, or media which are hazardous in any other way, there is a risk of intoxication or chemical burns!

- *The work may be performed only by an expert.*
- *Adhere to the switch-off procedure without fail before all cleaning, maintenance and repair work (see section 6.1 Performing the Switch-off Procedure).*
- *Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section "2.6 Personal Protective Equipment").*
- *If in doubt, contact AWH.*

WARNING

Danger of burns due to hot media!

There is a risk of burning if flow media has temperatures over +60 °C / +140 °F.

- *Drain the pipelines prior to disassembly work.*

CAUTION

Risk of minor injury due to crushing.

There is a risk of crushing between individual components during cleaning, maintenance or repair work.

7.1 Cleaning/Maintenance Intervals

Refer to the relevant manufacturer's instructions for details on cleaning and maintenance work for supplier components.

To ensure proper operation of the fitting, it must be cleaned and maintained at regular intervals.

- Define the cleaning interval depending on the operating environment and the type of flow medium used.
- Define the inspection intervals for gaskets depending on the operating environment and the type of flow medium used.

The fitting is subject to vibrations during operation, which can loosen the screwed and clamp connections

- To prevent damage, check the fitting for loose connections at regular intervals (recommended interval for single-shift operation: 3 months).

7.2 Notes on Cleaning

WARNING

Risk of injury due to incorrect handling of cleaning agents!

– *Store the cleaning agents in accordance with the relevant safety guidelines.*

– *When handling cleaning agents, follow the safety instructions on the cleaning agent manufacturer's data sheet.*

To clean the product when installed, simply wash the surfaces that come into contact with the media (CIP cleaning).

- Use only clean and chlorine-free water.
- Measure the quantities carefully to avoid overly strong concentrations of cleaning agent.
- Rinse with plenty of clean water after cleaning.

Cleaning media:	3% nitric acid	Max. +60 °C /+140 °F
	3% caustic soda	max. +80 °C /+176 °F

7.3 Spare Parts Stock

When requesting spare parts, always specify the type of fitting.

The following details are important for all spare part requests or queries:

– Nominal width
– Sealing material
– Housing material
– Connection type (DIN 11851, DIN 11864, welding, etc.)
– Handle/pneumatic actuator
– Accessories (feedback, etc.)
– Where applicable, the ATEX marking (ATEX design only)

NOTE

Use only genuine spare parts, since only these will guarantee perfect functioning.

Replacement and accessory parts not supplied by AWH have not been checked or approved by AWH. Under certain circumstances, the installation and/or use of such products could therefore result in changes with negative results to the properties of the fitting specified by its design and the higher-level plant. AWH accepts no liability for any damage arising from the use of non-original parts or non-original accessory parts. Standard parts can be obtained from specialist dealers.

Spare parts and the associated spare part numbers can be found in the Valve technology catalog (available on Internet page http://www.awh.eu).

8 Faults

8.1 Safety Instructions

WARNING

Risk of serious injury due to incorrectly performed repair work!

When using harmful or toxic media, or media which are hazardous in any other way, there is a risk of intoxication or chemical burns!

- *Troubleshooting work should be carried out only by specialist personnel.*
- *Always adhere to the switch-off procedure prior to repair work (see section 6.1 Performing the Switch-off Procedure).*
- *Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section "2.6 Personal Protective Equipment").*
- *If in doubt, contact AWH.*

WARNING

Danger of burns due to hot media!

There is a risk of burning if flow media has temperatures over +60 °C / +140 °F.

- *Let the flow medium cool down prior to work.*
- *Drain the pipelines prior to disassembly work.*
- *Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section "2.6 Personal Protective Equipment").*

8.2 Faults and Remedial Action

Fault	Cause	Remedy
Valve not moving	Lack of compressed air	Switch on the compressed air supply
	Lack of electrical actuation	Check electrical signals
	Actuator defective	Check the actuator and replace it if necessary
	Valve disc bent by pressure hammer	Replace valve disc and bearing bushes
	Bearing shaft pitted	Replace valve disc and bearing bushes
	Gasket faulty	Replace gasket
No signals present	Loose cable connection at the switch	Tighten the cable
	Cable broken	Replace the cable
	Signal contact arm loosened	Secure the signal contact arm
	Proximity switch defective	Replace the proximity switch
	Power supply missing or defective	Check electrical power supply and rectify any damage
Valve moving too slowly	Insufficient compressed air supply pressure	Increase air flow or air pressure
	Actuator exhaust port blocked	Unblock opening
Valve moves unevenly	Compressed air supply too low, media pressure too high	Increase air flow or air pressure
	Electric signals erratic	Check media pressure and adjust if necessary; remedy signal flow disruption
Valve generating excessive mechanical noise	Valve or actuator defective	Replace valve or actuator
Valve leaking	Gasket faulty or worn	Replace gasket

8.3 What to do in Case of an Emergency

- Activate the emergency stop function on the higher-level plant (for example by pressing the emergency stop switch).
- Shut off the media supply.

9 Decommissioning/Disposal

Once the fitting has reached the end of its service life, it must be removed and disposed of in an environmentally friendly manner. Disposal must be performed in accordance with the respective valid local, national and international regulations.

WARNING

Risk of serious injury due to incorrect decommissioning/disposal!

When using harmful or toxic media, or media which are hazardous in any other way, there is a risk of intoxication or chemical burns!

- *The work may be performed only by an expert.*
- *Always adhere to the switch-off procedure prior to disassembly work (see section 6.1 Performing the Switch-off Procedure).*
- *Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section "2.6 Personal Protective Equipment").*
- *If in doubt, contact AWH.*

9.1 Decommissioning

- Perform the switch-off procedure for the higher-level plant (see section 6.1 Performing the Switch-off Procedure).

9.2 Disassembly

WARNING

Danger of burns due to hot media!

There is a risk of burning if flow media has temperatures over +60 °C / +140 °F.

- *Let the flow medium cool down prior to work.*
- *Drain the pipelines prior to disassembly work.*
- *Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section "2.6 Personal Protective Equipment").*

Only experts are permitted to perform the removal and disassembly of the fitting for disposal. Information regarding disassembly is listed in the chapter "6 Disassembly/Assembly".

9.3 Disposal

CAUTION

Danger of injuries from harmful fluids that are a health hazard

During disposal, there is a risk of injury from contact with harmful fluids.

– *Wear appropriate personal protective equipment (for example, protective goggles, protective gloves) (see section "2.6 Personal Protective Equipment").*

NOTE

The fitting is mainly made of stainless steel, and should be disposed of in accordance with the applicable local environmental regulations.

Oils and cleaning agents must be disposed of in accordance with local regulations and the information in the cleaning agent manufacturer's safety data sheets.

Contaminated cleaning tools (such as brushes, cloths etc.) must be disposed of in accordance with the manufacturer's specifications.

Packaging material must be disposed of in accordance with the environmental regulations and recycled.

Unless other arrangements have been made for return or disposal, disassembled components should be recycled:

- Scrap any metal parts.
- Recycle any plastic parts.
- If necessary, contact a specialist company to arrange for disposal.

10 Declarations

On the following pages, declarations can be found for the following variants:

- Butterfly valve with handle (standard design),
- Butterfly valve with handle (ATEX design),
- Butterfly valve with pneumatic actuator (standard design)
- Butterfly valve with pneumatic actuator (ATEX design).

Declarations for Fittings pursuant to the Pressure Equipment Directive 2014/68/EU

Fittings that fall within the scope of Directive 2014/68/EC receive an EU Declaration of Conformity and a CE mark pursuant to said Directive.

Fittings that fall under Article 4, Paragraph 3 do not receive an EU Declaration of Conformity or a CE mark pursuant to said Directive.

Declarations for Fittings pursuant to the Directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres 2014/34/EC (ATEX)

Fittings that fall within the scope of Directive 2014/34/EC receive an EU Declaration of Conformity, a CE mark pursuant and an additional EX mark pursuant to said Directive.

Fittings for which an evaluation of the sources of ignition according to DIN EN 80079-36 has stated that there are no hazards do not receive an EU declaration of conformity or a CE mark pursuant to said Directive. Such fittings receive an EX mark.

Declarations for Fittings pursuant to the Machinery Directive 2006/42/EC

Fittings that fall within the scope of Directive 2006/42/EC are items of incomplete machinery, and receive a declaration for incorporation but no CE mark, as per said Directive.

10.1 Butterfly Valve with Handle DN 10 – 100, DN 1" – 4"; DN 1" – 4", DN 100 (SMS FR)

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

Declaration (Translation)

pursuant to the EU Pressure Equipment Directive 2014/68/EU

We hereby declare that the design of

Designation: **Butterfly Valve with Handle**

Type: **DN 10 – DN 100 / PN10**
DN 1" – 4" / PN10
DN 1" – 4", DN 100 / PN10 (SMS FR)

is consistent with the following directives and standards in its delivered version:

Directive/standard	Title	Version	Remarks
2014/68/EU	EU Pressure Equipment Directive	05/2014	
DIN EN 12516-2	Industrial valves – Shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	01/2015	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 10 – 100 and DN 1" – 4" are categorized in accordance with Article 4, paragraph 3.			

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.2 Butterfly Valve with Handle DN 125 – 150, DN 200

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

Declaration (Translation)

EU Declaration of Conformity pursuant to the EU Pressure Equipment Directive 2014/68/EU

We hereby declare that the design of

Designation: **Butterfly Valve with Handle**

Type: **DN 125 – DN 150/PN10, DN 200/PN6**

is consistent with the following directives and standards in its delivered version:

Directive/standard	Title	Version	Remarks
2014/68/EU	EU Pressure Equipment Directive	05/2014	Module A
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	01/2015	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 125 – 200 are categorized in accordance with Category I.			

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.3 Butterfly Valve with Handle (ATEX) DN 10 – 100, DN 1" – 4"; DN 1" – 4", DN 100 (SMS FR)

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

Declaration (Translation)

pursuant to the EU Pressure Equipment Directive 2014/68/EU
EU Directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres 2014/34/EC (ATEX)

We hereby declare that the design of

Designation: **Butterfly Valve with Handle**
Type: **DN 10 – DN 100 / PN10 / ATEX**
1" – 4" / PN10 / ATEX
DN 1" – 4", DN 100 / PN10 (SMS FR) ATEX
Marking: **"ex"**

is consistent with the following directives and standards in its delivered version:

Directive/standard	Title	Version	Remarks
2014/68/EU	EU Pressure Equipment Directive	05/2014	
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	01/2015	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 10 – 100 and DN 1" – 4" are categorized in accordance with Article 4, paragraph 3.			
2014/34/EU	EU Directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres	02/2014	
Ignition sources have been tested according to DIN EN ISO 80079-36 (see Supplement to declaration). There are no hazards.			

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.4 Butterfly Valve with Handle (ATEX) DN 125 – 150; DN 200

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

Declaration (Translation)

- EU Declaration of Conformity pursuant to the EU Pressure Equipment Directive 2014/68/EU
- Declaration pursuant to the EU Directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres 2014/34/EU (ATEX)

We hereby declare that the design of

Designation: **Butterfly Valve with Handle**
Type: **DN 125 – DN 150 / PN10 / ATEX; DN 200 / PN6 / ATEX**
Marking: **"ex"**

is consistent with the following directives and standards in its delivered version:

Directive/standard	Title	Version	Remarks
2014/68/EU	EU Pressure Equipment Directive	05/2014	Module A
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	01/2015	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 125 – 200 are categorized in accordance with Category I.			
2014/34/EU	EU Directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres	02/2014	
Ignition sources have been tested according to DIN EN ISO 80079-36 (see Supplement to declaration). There are no hazards.			

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.5 Butterfly Valve with Pneumatic Actuator 10 – 100, DN 1" – 4"; DN 1" – 4", DN 100 (SMS FR)

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

Declaration (Translation)

- Declaration for incorporation pursuant to the EC Machinery Directive 2006/42/EC, Annex II B
- Declaration pursuant to the EU Pressure Equipment Directive 2014/68/EU

We hereby declare that the design of

Designation: **Butterfly valve with pneumatic air/spring actuator**
Type: **DN 10 – DN 100 / PN10**
DN 1" – 4" / PN10
DN 1" – 4", DN 100 / PN10 (SMS FR)

complies with the following basic health and safety requirements of Directive 2006/42/EC, Annex I: 1.1.2 – 1.1.7, 1.3, 1.4.1, 1.5.1 – 1.5.9, 1.5.15, 1., 5.16, 1.6, 1.7.1 – 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2., 1.7.4.3

The specific documents were compiled in accordance with Directive 2006/42/EC, Annex VII B.
The fitting is consistent with the following guidelines and standards in its delivered version:

Directive/standard	Title	Version	Remarks
2014/68/EU	EU Pressure Equipment Directive	05/2014	
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	01/2015	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 10 – 100 and DN 1" and 4" are categorized in accordance with Article 4, paragraph 3.			
2006/42/EC	EC Machinery Directive	05/2006	
DIN EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction	2010	

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.6 Butterfly Valve with Pneumatic Actuator DN 125 – 150, DN 200

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

Declaration (Translation)

- EU Declaration of Conformity pursuant to the EU Pressure Equipment Directive 2014/68/EU
- Declaration for incorporation pursuant to the EC Machinery Directive 2006/42/EC, Annex II B

We hereby declare that the design of

Designation: **Butterfly valve with pneumatic air/spring actuator**
Type: **DN 125 – DN 150 / PN10**
DN 200/PN6

is consistent with the following essential health and safety requirements of Directive 2006/42/EC: 1.1.2 – 1.1.7, 1.3, 1.4.1, 1.5.1 – 1.5.9, 1.5.15, 1., 5.16, 1.6, 1.7.1 – 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2., 1.7.4.3

The specific documents were compiled in accordance with Directive 2006/42/EC, Annex VII B.
The fitting is consistent with the following guidelines and standards in its delivered version:

Directive/standard	Title	Version	Remarks
2014/68/EU	EU Pressure Equipment Directive	05/2014	Module A
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	01/2015	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 125 – 200 are categorized in accordance with Category I.			
2006/42/EC	EC Machinery Directive	05/2006	
DIN EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction	2010	

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.7 Butterfly Valve with Pneumatic Actuator (ATEX) DN 10 – 100, DN 1" – 4"; DN 1" – 4", DN 100 (SMS FR)

Declaration (original)

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

- EU declaration of conformity pursuant to the EC directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres 2014/34/EC (ATEX)
- Declaration pursuant to the EU Pressure Equipment Directive 2014/68/EU
- Declaration for incorporation pursuant to the EC Machinery Directive 2006/42/EC, Annex II B

We hereby declare that the design of

Designation: **Butterfly valve with pneumatic air/spring and air/air actuator**

Type: **DN 10 – DN 100 / ATEX**
DN 1" – 4" / PN10 / ATEX
DN" – 4", DN 100 / PN10 (SMS FR) ATEX

Actuator marking: **CE Ex II 2 G h IIB (T4) Gb 5 °C ≤ Ta ≤ 40 °C**
CE Ex II 2 D h IIIC T135°C Db 5 °C ≤ Ta ≤ 40 °C

Butterfly valve marking: **"ex"**

is consistent with the following essential health and safety requirements of Directive 2006/42/EC: 1.1.2 – 1.1.7, 1.3, 1.4.1, 1.5.1 – 1.5.9, 1.5.15, 1., 5.16, 1.6, 1.7.1 – 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2., 1.7.4.3
The specific documents were compiled in accordance with Directive 2006/42/EC, Annex VII B.
The fitting is consistent with the following guidelines and standards in its delivered version:

Directive/standard	Title	Version	Remarks
2014/68/EU	EU Pressure Equipment Directive	05/2014	
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	01/2015	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 10 – 100 and DN 1" – 4" are categorized in accordance with Article 4, paragraph 3.			
2014/34/EU	EU Directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres	02/2014	
An evaluation of ignition sources according to DIN EN ISO 80079-36 has been carried out (see section "10.9 Butterfly Valve (ATEX) – Supplement to Declarations Butterfly Valve (ATEX) – Supplement to Declarations").			
2006/42/EC	EC Machinery Directive	05/2006	
DIN EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction	2010	

If any modifications are made to the fitting without our agreement, this declaration shall become void.
Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.8 Butterfly Valve with Pneumatic Actuator (ATEX) DN 125 – 150, DN 200

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

Declaration (original)

- EU Declaration of Conformity pursuant to the EU Pressure Equipment Directive 2014/68/EU
- EU declaration of conformity pursuant to the EC directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres 2014/34/EC (ATEX)
- Declaration for incorporation pursuant to the EC Machinery Directive 2006/42/EC, Annex II B

We hereby declare that the design of

Designation: **Butterfly valve with pneumatic air/spring and air/air actuator**
Type: **DN 125 – DN 150 / PN10 / ATEX**
DN 200 / PN6 / ATEX
Actuator marking: **CE Ex II 2 G h IIB (T4) Gb 5 °C ≤ Ta ≤ 40 °C**
CE Ex II 2 D h IIIC T135°C Db 5 °C ≤ Ta ≤ 40 °C
Butterfly valve marking: **"ex"**

is consistent with the following essential health and safety requirements of Directive 2006/42/EC: 1.1.2 – 1.1.7, 1.3, 1.4.1, 1.5.1 – 1.5.9, 1.5.15, 1., 5.16, 1.6, 1.7.1 – 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2., 1.7.4.3.
The specific documents were compiled in accordance with Directive 2006/42/EC, Annex VII B.
The fitting is consistent with the following guidelines and standards in its delivered version:

Directive/standard	Title	Version	Remarks
2014/68/EU	EU Pressure Equipment Directive	05/2014	Module A
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	01/2015	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 125 – 200 are categorized in accordance with Category I.			
2014/34/EU	EU Directive relating to Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres	02/2014	
Ignition sources have been tested according to DIN EN ISO 80079-36 (see section 10.9 Butterfly Valve (ATEX) – Supplement to Declarations).			
2006/42/EC	EC Machinery Directive	05/2006	
DIN EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction	2010	

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.9 Butterfly Valve (ATEX) – Supplement to Declarations

(Applies to Sections 10.3, 10.4, 10.7 and 10.8)

According to the expert report, the butterfly valve in ATEX design can be used in the area coming into contact with the product (inside the pipe) for the following ATEX zones:

When an **EPDM, FKM** and **HBNR** butterfly valve gasket are used, there is no restriction in terms of **zone** or **hazard class.**

VMQ butterfly valve gasket

Zone 0:	**IIA and IIB:**	**No restrictions**
	IIC:	**Up to DN150**
Zone 1:	**No restrictions**	
Zone 2:	**No restrictions**	

These specifications refer to the highest permissible surface for insulating objects in accordance with TRGS 727 (from the Technical Rules for Hazardous substances published by the German Federal Institute for Occupational Safety and Health (BAUA)), and are measured by testing the electrostatic properties specified in the report 14 EXAM 10275 BVS-FR.

Outer Area

Butterfly valve with handle:
The fitting may be used outside the area coming into contact with the product in potentially explosive atmospheres classified as **Zone 1** and **Zone 21** with the explosion groups **IIA** and **IIB.**

Pneumatic actuator:
The pneumatic actuator (ATEX) has been examined in accordance with directive 2014/34/EU (ATEX) and is identified as follows:

CE Ex II 2 G h IIB (T4) Gb 5 °C ≤ Ta ≤ 40 °C
CE Ex II 2 D h IIIC T = 135 °C Db 5 °C ≤ Ta ≤ 40 °C

The pneumatic actuator may be used for **Zone 1** and **Zone 21** with explosion groups **IIA** and **IIB.**

The pneumatic actuator may only be operated using dry or oiled compressed air (see section 4.3.2).

Explosive dust products that can come into contact with the pneumatic actuator must exhibit the following technical safety data:

- Minimum ignition temperature of the dust cloud: > +203 °C/+397.4 °F in accordance with DIN EN 50281-2-1
- Minimum ignition temperature of the dust layer: > +210 °C/+410 °F in accordance with DIN EN 50281-2-1

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, March 14, 2022

Thomas Erhorn (CEO)

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