KIESELMANN
FLUID PROCESS GROUP

Translation of the original

Operating Instructions

Butterfly valve

Type 2020



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1 General informations

1.1 Informations for your safety

We are pleased that you have decided for a high-class KIESELMANN product. With correct application and adequate maintenance, our products provide long time and reliable operation.

Before installation and initiation, please carefully read this instruction manual and the security advices contained in it. This guarantees reliable and safe operation of this product and your plant respectively. Please note that an incorrect application of the process components may lead to great material damages and personal injury.

In case of damages caused by non observance of this instruction manual, incorrect initiation, handling or external interference, guarantee and warranty will lapse!

Our products are produced, mounted and tested with high diligence. However, if there is still a reason for complaint, we will naturally try to give you entire satisfaction within the scope of our warranty. We will be at your disposal also after expiration of the warranty. In addition, you will also find all necessary instructions and spare part data for maintenance in this instruction manual. If you don't want to carry out the maintenance by yourself, our KIESELMANN - service team will naturally be at your disposal.

1.2 Marking of security instructions

Hints are available in the chapter "safety instructions" or directly before the respective operation instruction. The hints are highlighted with a danger symbol and a signal word. Texts beside these symbols have to be read and adhered to by all means. Please continue with the text and with the handling at the valve only afterwards.

Symbol	Signal word	Meaning
	DANGER	Imminent danger which will result severe personal injury or death.
	WARNING	Imminent danger which may result severe personal injury or death.
	CAUTION	Dangerous situation which may cause slight personal injury or material damages.
	NOTICE	An harmful situation which may result in damages of the product itself or of adjacent vicinity.
	INFORMATION	Marks application hints and other information which is particularly useful.

1.3 General designated use

The fitting is designed exclusively for the purposes described below. Using the fitting for purposes other than those mentioned is considered contrary to its designated use. KIESELMANN cannot be held liable for any damage resulting from such use. The risk of such misuse lies entirely with the user. The prerequisite for the reliable and safe operation of the fitting is proper transportation and storage as well as competent installation and assembly. Operating the fitting within the limits of its designated use also involves observing the operating, inspection and maintenance instructions.

1.4 Personnel

Personnel entrusted with the operation and maintenance of the tank safety system must have the suitable qualification to carry out their tasks. They must be informed about possible dangers and must understand and observe the safety instructions given in the relevant manual. Only allow qualified personnel to make electrical connections.

1.5 Modifications, spare parts, accessories

Unauthorized modifications, additions or conversions which affect the safety of the fitting are not permitted. Safety devices must not be bypassed, removed or made inactive. Only use original spare parts and accessories recommended by the manufacturer.

1.6 General instructions

The user is obliged to operate the fitting only when it is in good working order. In addition to the instructions given in the operating manual, please observe the relevant accident prevention regulations, generally accepted safety regulations, regulations effective in the country of installation, working and safety instructions effective in the user's plant.

2 Safety instructions

2.1 Intended use

The butterfly valve is used as a shut-off valve in the food and beverage industry, in pharmaceutical and chemical engineering, as well as in bio-engineering.

2.2 General notes



NOTICE - observe the operating instructions

To avoid danger and damage, the fitting must be used in accordance with the safety instructions and technical data contained in the operating instructions.



NOTICE

All data are in line with the current state of development. Subject to change as a result of technical progress.

2.3 General safety instructions



⚠ WARNING

Risk of injury by moving parts

Do not grab into the valve when the actuator is pressurized. Limbs can be crushing or amputating.

- Remove the control air line before dismantling.
- Ensure that the actuator is unpressurized.



⚠ WARNING

Risk of injury by outflowing medium

Dismantling the valve or valve assemblies from the plant can cause injuries.

- Medias flowing through the leakage drain outlet are to be drained off without splashing into a discharge arrangement.
- Carry the disassembling only if when the plant has been rendered pressure-less and free of liquid and gas.



⚠ WARNING

Use in EX areas

If the valve or the plant is operated in a potentially explosive atmosphere, the valid directive and the installation instructions in this operating manual must be observed.



⚠ CAUTION

To avoid air leaking, only use pneumatic connection parts that have an O-ring seal facing the even surface.



⚠ CAUTION

Before starting the system, the entire pipeline system must be thoroughly cleaned.



⚠ CAUTION

Steps should be taken to ensure that no external forces are exerted on the fitting.

3 Delivery, transport and storage

3.1 Delivery

- Immediately after receipt check the delivery for completeness and transport damages.
- Remove the packaging from the product.
- Retain packaging material, or expose of according to local regulations.

3.2 Transport



⚠ CAUTION

Risk of injury and damage to the product

During the transport the generally acknowledged rules of technology, the national accident prevention regulations and company internal work and safety regulations must be observed.

3.3 Storage



NOTICE

Damage to the product due to improper storage!

Observe storage instructions

avoid a prolonged storage



INFORMATION

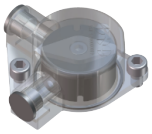
Recommendation for longer storage

We recommend regularly checking the product and the prevailing storage conditions during long storage times.

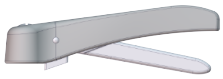
- To avoid damage to seals and bearings,
  - products up to DN 125 / OD 5 inch should be stored horizontally for maximum 6 months.
  - products larger than DN 125 / 5 inch, should be stored in the upright position with the actuator on top.
- Don't store any objects on the products.
- Protect the products for wetness, dust and dirt.
- The product should be stored in a dry and well ventilated room at a constant temperature (optimal indoor temperature: 25 C ±5 ; indoor humidity data 60% ±5%).
- Protect seals, bearings and plastic parts for UV light and ozone.

4 Specification

4.1 Modular system

Control - and feedback units		
Electronic control head KI-TOP	Electro-pneumatical positioner	Position indication with sensor mounting
 Transparent Stainless steel		

drive systems			
pneumatical			electrical
PDA 90/75 Ø 75	PDA 90/100 Ø 100	PDA 90/125 Ø 125	Type 4040
			

manually operated			
hand lever	hand lever with sensor mounting	hand lever stainless steel	hand lever continuously adjustable
			

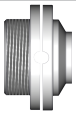
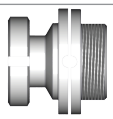
connection flanges					
S	G	K/M	Fl	Cl	Wafer-type S
					

seals			
Silicone	EPDM	FKM	HNBR
			

4.2 Valve types

S = Welded end
G = Male
K/M = Liner / nut
Fl = Flange
Cl = Clamp

lö = air open
ls = air close
fö = spring open
fs = spring close

Butterfly valve			manually operated	pneumatical	
				NC	DA
	S - S	DIN	4301	4501	4401
		Inch	4351	4551	4451
	G - S	DIN	4302	4502	4402
		Inch	4352	4552	4452
	G - G	DIN	4303	4503	4403
		Inch	4353	4553	4453
	K/M - G	DIN	4304	4504	4404
		Inch	4354	4554	4454
	K/M - S	DIN	4305	4505	4405
		Inch	4355	4555	4455
 	Fl (PN10) - G Fl - Fl (PN10)	DIN	4307	4507	4407
	Cl - Cl	DIN	4346	4546	4446
		Inch	4347	4547	4447

Wafer-type - butterfly valve			manually operated	pneumatical	
				NC	DA
	S - S	DIN	4310	4510	4410
		Inch	4358	4558	4458

5 Function and operation

5.1 Description of function

Open or close the valve by turning the pneum. controlled rotary drive by 90°.

Functional description for butterfly valves - manual operation

When actuating a fitting manually, the respective switching position will be locked in place in the final position. The manually operated lever is positioned at an angle of 90°in transverse direction to the conduit axis in closed position The lever is positioned in the direction of the conduit axis in open position.

Description of function for butterfly valves - pneum. operation

The valve opens and closes by way of a pneum. multiturn actuator with a rotary movement of 90°.

normal closed (NC)

- pneum. OPERATED — opens the valve
- not pneum. OPERATED — spring force closes the valve

normal open (NO)

- pneum. OPERATED — closes the valve
- not pneum. OPERATED — spring force opens the valve

double acting (DA)

- pneum. OPERATED — the valve opens or closes according to control

Functional description for leakage - butterfly valves

When closed, the butterfly valve with a tandem seal ensures that different media remain separated without leaking. The medium flows depressurized through the leakage drain ring-groove and out the leakage drain outlet. For hygienically demanding products, we recommend cleaning the leakage drain area (Cleaning connection R1/4“).

5.2 Dry running

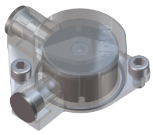
The butterfly valves should not be operated in dry-run mode for lengthy periods wherever this can be avoided, as this will lead to increased wear.

5.3 Control system and position indication



Feedback unit -optional-

Optionally, modular valve control head systems can be installed to the actuator for reading and actuating valve positions. The standard version is a closed system with SPS or ASI-bus switch-on electronics, and integrated 3/2-way solenoid valves. For tough operating conditions we recommend employing a high-grade steel cover.



Position indicator with sensor mounting for feedback signal.

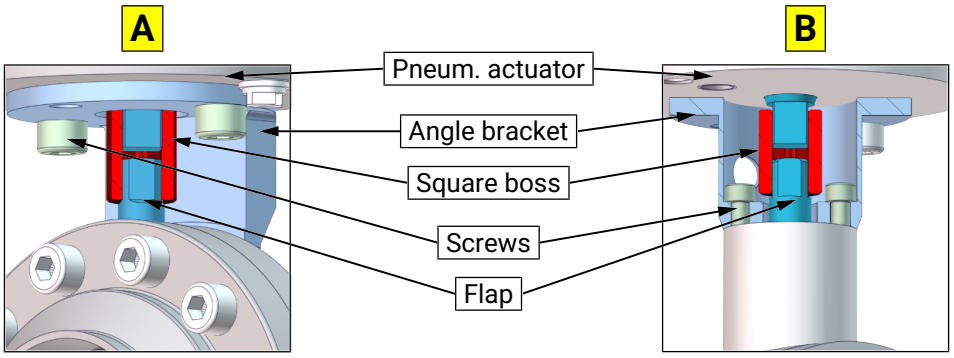
The actuator is equipped with a proximity switch mounting (sensor mounting) and a position indication. When inductive proximity initiators M 12x1 are installed, the current "Open" or "Shut" position can be interrogated. By screwing the proximity initiator to the limit position the required switching gap for the signal transmission is established.. When the valve is closed the position indication is oriented vertically to the direction of valve passage. When the valve is open it is oriented parallel to the valve passage.

Retrofitting to end position feedback for manually operated valves

By replacing the hand lever and the catch disc the valve can be retrofitted for end position feedback (proximity switch).

Conversion from manual operation to pneumatic actuation Operation

By a simple retrofitting operation the valve can be converted to pneumatic actuation. The rotary actuator for this purpose is supplied complete with fitting device. The following actuators are available, depending on the desired actuating function.



DN OD	15 -	20 -	25 1“	40 1½“	50 2“	65 2½“	80 3“	100 4“	125 -	150 -	200 -	Pneum. actuator	Conversion kit	Function
Butterfly valve [A]	A	A	A	A	-	-	-	-	-	-	-	PDA 90/75	4500.050.075-022 4500.050.075-022 -----	NC NO DA
	-	-	A	A	A	-	-	-	-	-	-	PDA 90/100	4500.050.100-022 4500.050.100-022 4400.050.100-022	NC NO DA
	-	-	-	-	-	A	A	A	-	-	-	PDA 90/100	4500.100.100-022 4500.100.100-022 4400.100.100-022	NC NO DA
	-	-	-	-	-	-	-	-	A	-	-	PDA 90/125	4500.125.125-022 4500.125.125-022 4400.125.125-022	NC NO DA
	-	-	-	-	-	-	-	-	-	A	-	PDA 90/125	4500.150.125-022 4500.150.125-022 4400.150.125-022	NC NO DA
	-	-	-	-	-	-	-	-	-	-	A	PDA 90/125	4500.200.125-022 4500.200.125-022 4400.200.125-022	NC NO DA

DN OD	15 -	20 -	25 1“	40 1½“	50 2“	65 2½“	80 3“	100 4“	125 -	150 -	200 -	Pneum. actuator	Conversion kit	Function
Leakage butterfly valve [B]	-	-	-	-	B	B	B	-	-	-	-	PDA 90/100	4200.080.100-022 4200.080.100-022 4100.080.100-022	NC NO DA
	-	-	-	-	-	-	-	B	-	-	-	PDA 90/125	4800.100.125-022 4800.100.125-022 4700.100.125-022	NC NO DA
	-	-	-	-	-	-	-	-	B	-	-	PDA 90/125	4200.100.125-022 4200.100.125-022 4100.100.125-022	NC NO DA

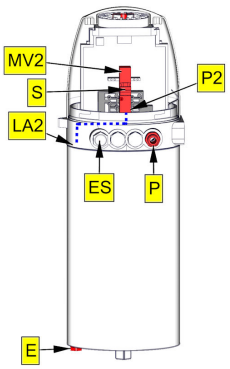
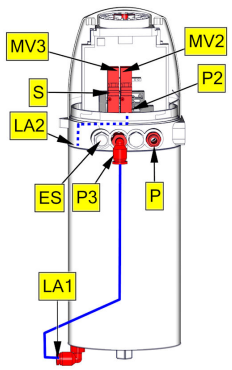
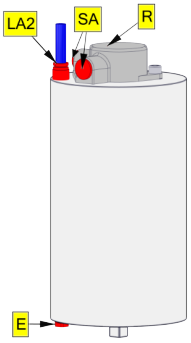
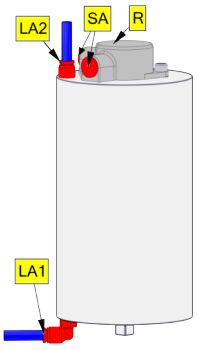
5.4 Pneumatic valve activation

Kind of actuator: air open - spring close (NC) / air close - spring open (NO)

Valve function	pneum. activation with solenoid valve in control head	pneum. activation with external solenoid valve
OPEN	control air feed P ➞ MV2 ➞ P2/LA2 Valve is opening by control air	control air feed ext. MV ➞ LA2 Valve is opening by control air
CLOSED	de-aeration LA2/P2 ➞ MV2 ➞ R valve is closing by spring	de-aeration LA2 ➞ ext. MV valve is closing by spring

Kind of actuator: air open - air close (DA)

Valve function	pneum. Activation via control head with solenoid valves	pneum. Activation via external solenoid valves
OPEN	control air feed P ➞ MV2 ➞ P2/LA2 Valve is opening by control air	control air feed ext. MV ➞ LA2 Valve is opening by control air
CLOSED	control air feed P ➞ MV1 ➞ P1/LA1 Valve is closing by control air	control air feed ext. MV ➞ LA1 Valve is closing by control air

	NC / NO	DA
MV = solenoid valve ES = de-aeration, sound absorber P = compressed-air inlet LA = air supply S = Slide switch for manual operation of the solenoid valve		
SA = sensor mounting R = Cap E = de-aeration LA = air supply		

6 Commissioning, service and maintenance

6.1 Commissioning

6.1.1 Installation instructions

Fitting position

For valves without leakage outlet, the installation position is without importance.

A vertical mounting position is recommended to ensure a free outflow of leakage or cleaning medium, so no residues will remain inside the drain area.

For valves which are to be welded in on both sides, a releasable connection has to be fitted into the pipework to allow dismounting (maintenance).

6.1.2 General welding guidelines

Sealing elements integrated in weld components must generally be removed prior to welding. To prevent damage, welding should be undertaken by certified personnel (EN ISO 9606-1). Use the TIG (Tungsten Inert Gas) welding process.



⚠ CAUTION

Damage and injuries due to high temperature supply

To avoid a distortion of the components, all welding parts must be welded to stress-relieved.

Allow all components to cool before assembling.



NOTICE

Damage due to impurities

Impurities can cause damage to the seals and seals area.

Clean inside areas prior to assembly.

6.1.3 Use in EX area

For valves or plants/installations that are operated in the ATEX area, sufficient bonding (grounding) must be ensured. (see e.g. ATEX Directives EC; UKSI 696:2019-Schedule 25)

6.2 Service

RECOMMENDATION

Replacement of seals

To achieve optimal maintenance cycles, the following points must be observed!

- When replacement of seals, all product-contacting seals should be replaced.
- Only original spare parts may be installed.

Maintenance interval

The maintenance intervals depend on the operating conditions "temperature, temperature-intervals, medium, cleaning medium, pressure and opening frequency". We recommend replacing the seals 1-year cycle. The user, however should establish appropriate maintenance intervals according to the condition of the seals.

Lubricant recommendation

	EPDM; HNBR; NBR; PTFE; FKM; k-flex	-	Klüber Paraliq GTE703*
	Silicone	-	Klüber Sintheso pro AA2*
	Thread	-	Interflon Food*

*) It is only permitted to use approved lubricants, if the respective fitting is used for the production of food or drink. Please observe the relevant safety data sheets of the manufacturers of lubricants.

6.3 Cleaning

Cleaning

For best cleaning results, keep the valve open during cleaning to completely rinse the gasket and the valve head.

7 Technical data

7.1 Butterfly valve / Wafer-type - butterfly valve

Size	Butterfly valves:	DIN: DN 10 - DN 150 Inch: DN 1“ - DN 4“
	Wafer-type butterfly valve:	DIN: DN 15 - DN 200 Inch: DN 1“ - DN 4“

Connection type	• Weld-on end DIN EN 10357 • Male part DIN11851 • Liner / nut DIN 11851 • Threaded connection (RJT) • Clamp coupling DIN 32676 • Welding flange Type 2069 (PN10)

Temperature range	Temperature		
	Operation (Recommendation)	Sterilization (SIP 30 min)	Ambient (air)
	-	-	+4 °C ... +45 °C
EPDM	0 °C ... +95 °C	+140 °C	
HNBR	0 °C ... +90 °C	+100 °C	
FKM	0 °C ... +90 °C	+90 °C	
VMQ	0 °C ... +40 °C	+90 °C	
	The maximum design temperature of the fitting is +140 °C		

Operating pressure	DN 10 - DN 65 = 16 bar * DN 1“ - DN 2½“ = 16 bar * DN 80 - DN 100 = 10 bar DN 3“ - DN 4“ = 10 bar DN 125 - DN 200 = 6 bar *) Valves with flange coupling PN10 may be used only with a working pressure up to 10 bar.

Leakage rate	A (EN 12266-1)

Control air (only pneum. operation valves)	Control air pressure: 5,5 - 8,0 bar	Control air quality: ISO 8573-1 : 2001 quality class 3

Material in product contact	Stainless steel:	1.4301 / AISI 304 1.4307 / AISI 304L 1.4404 / AISI 316L
	Surfaces:	Ra ≤ 0,8µm, e-polished
	Sealing material:	EPDM HNBR VMQ (Silicone) FKM

7.2 Leakage - butterfly valves

Size	DIN: DN 50 - DN 150 Inch: DN 2“ - DN 4“

Connection type	• Weld-on end DIN EN 10357 • Male part DIN11851 • Liner / nut DIN 11851 • Welding flange Type 2069 (PN10)

Temperature range	Temperature		
	Operation (Recommendation)	Sterilization (SIP 30 min)	Ambient (air)
	-	-	+4 °C ... +45 °C
EPDM	+5 °C ... +95 °C	+140 °C	
HNBR	+5 °C ... +90 °C	+100 °C	
VMQ	+5 °C ... +40 °C	+90 °C	
	The maximum design temperature of the fitting is +140 °C		

Operating pressure	DN 50 - DN 100 = 10 bar DN 2“ - DN 4“ = 10 bar DN 125 - DN 150 = 6 bar <u>Cleaning pressure (Medium water):</u> Cleaning of the leakage line with product-subjected valve: - max. 1 bar Cleaning of the leakage line with the pipe cleaning: - max. 3 bar

Leakage rate	A (EN 12266-1)

Control air (only pneum. operation valves)	Control air pressure: 5,5 - 8,0 bar	Control air quality: ISO 8573-1:2010 [3:(≤5 µm):4:4]

Material in product contact	Stainless steel:	1.4301 / AISI 304 1.4307 / AISI 304L 1.4404 / AISI 316L
	Surfaces:	Ra ≤ 0,8µm, e-polished
	Sealing material:	EPDM HNBR VMQ (Silicone)

8 Disassembly and assembly

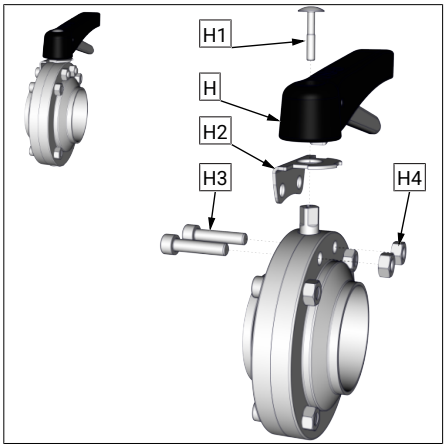
8.1 Disassembly

Dismount the drive system

Hand lever:

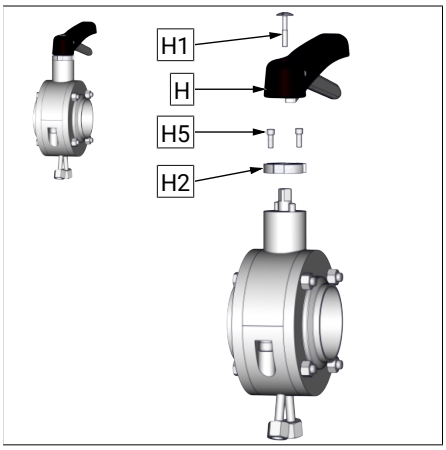
Butterfly valve - manual

- Unscrew the screw (H1) and remove the hand lever (H).
- Unscrew the screw joints (H3) - (H4).
- Remove the locking device (H2).



Leakage butterfly valve - pneumatic

- Unscrew the screw (H1) and remove the hand lever (H).
- Unscrew the screws (H5).
- Remove the locking disc (H2).

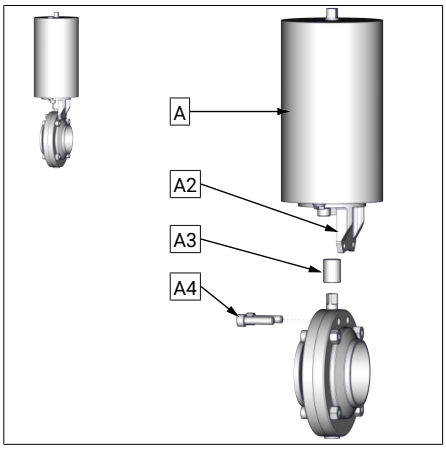


Pneum. multurn actuator

PDA75, PDA100

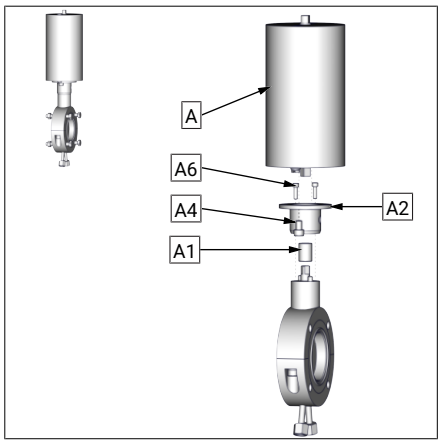
Butterfly valve - pneumatic

- Unscrew screws (A4).
- Remove actuator (A) and square boss (A3).



Leakage butterfly valve - pneumatic

- Unscrew the screws (A4) and remove the actuator (A) with the square boss (A1).
- Unscrew screws (A6).
- Remove holding flange (A2).

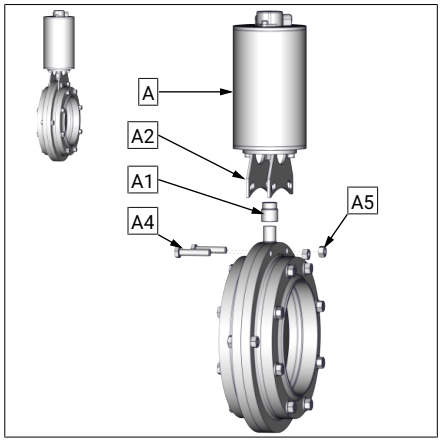


Pneum. multurn actuator

PDA125

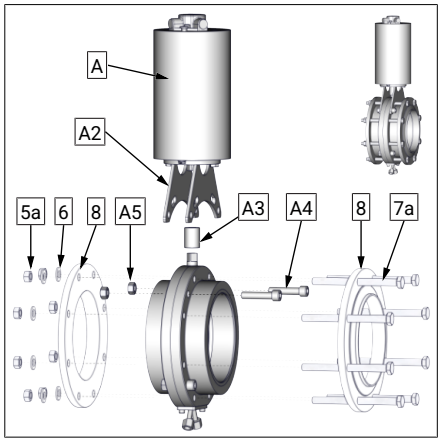
Butterfly valve - pneumatic

- Unscrew the screw joints (A4) - (A5) and remove the actuator (A) with the square boss (A1).



Leakage butterfly valve - pneumatic

- Unscrew the screw joints (7a) - (5a).
- Unscrew the screw joints (A4) - (A5).
- Remove actuator (A) and square boss (A1).



Dismount wear parts

- Butterfly valve DN10 - DN150

Unscrew the screw joints (4) - (5). Remove housing flange (1a) and (1b).

Unscrew the screw joints (5a) - (7). Remove the flange (8) and dismantle seals (9).

Unscrew the screw joints (4) - (5b) and remove the housing flange (1).

- Wafer-type-butterfly valve DN200

Unscrew the screw joints (5a) - (7).

Remove the flange (8) and dismantle seals (9).

Unscrew the screw joints (4) - (5b) and remove the housing flange (1).

Remove scraper ring (11) and plain bearing (6). Remove the back-up rings (3a) and (3b) from the seal (3).

- Leakage-butterfly valve DN50 - DN125

Dismount the leakage drain. Unscrew the screw joints (4) - (5). Radially remove the valve from the flange connection. Unscrew screws (A4) and remove mounting bracket (A3). Unscrew the screws (7) together with the lock washers (6).

Remove the lower housing part (1b).

Remove the seal (3) with the butterfly valve (2) from the upper housing part (1a).

- Leakage-butterfly valve DN150

Unscrew the screws (14). Remove the cap (13) and seal (12). Unscrew the screw joints (5 a,b,d) / (7) and remove the screws (7). Remove the bracket (A3), flange (8) and seals (10). Unscrew the screw joints (5c) / (4) and remove screws (4).

Remove flanges (1). Remove the plain bearing (9),(11) and disc (15).

Dismount seal (3) from the flap (2).

Remove flap with seal and bearing bush from housing.	Remove bearing bush.	Position the flap in open position to seal	Deform seal oval-shaped with manual force	Remove the flap with the short shaft end from seal

8.2 Assembly

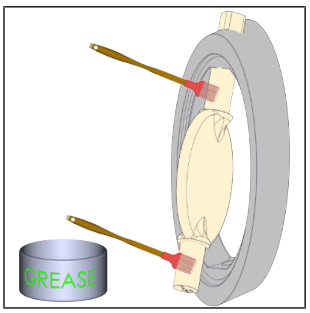
Thoroughly clean and slightly lubricate mounting areas and running surfaces.

Assemble in reverse order.

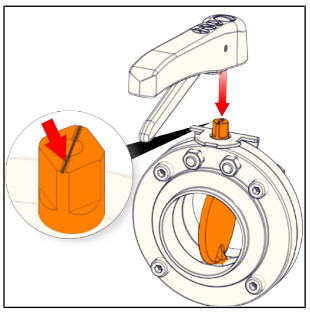
NOTICE

During assembly, the following points must be observed!

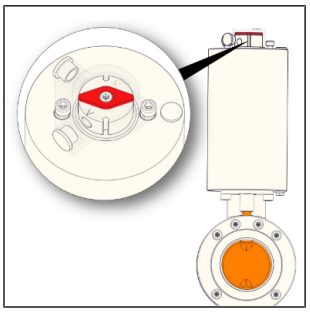
- Grease the two shafts of the flap before inserting it into the seal using a grease that is suitable for foods.



- When mounting the hand lever, be sure the lever orientation is matched up with the position slot at the square shaft.
  - In this way the correct indication of the valve position by the hand lever is ensured.



- The actuator must be mounted in the non-pneumatically controlled state.
- The position indicator on the actuator is at 90° to the valve passage and thus documents the valve position "CLOSED".



9 Drawings and dimensions

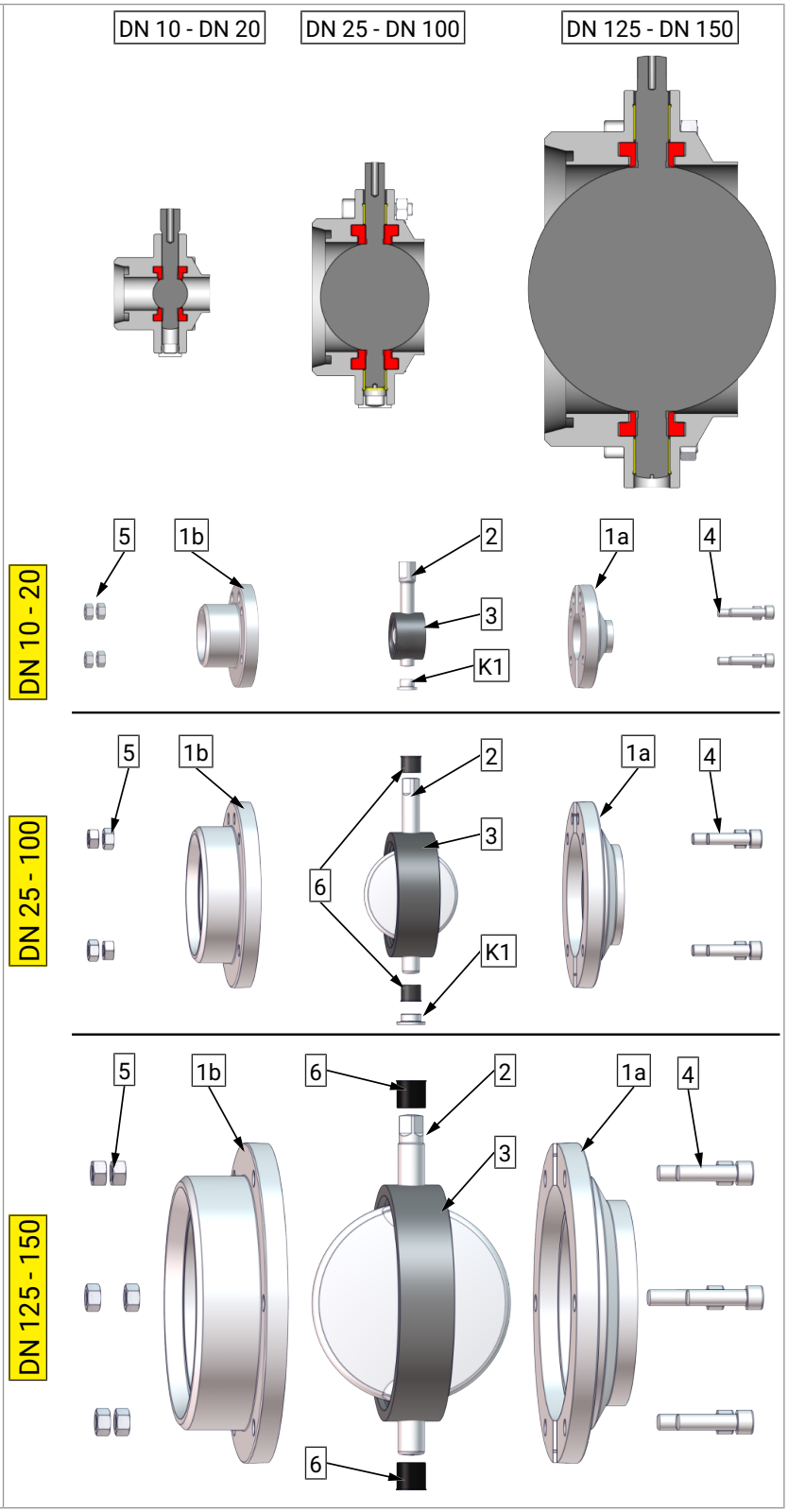
9.1 Butterfly valve

Drawings

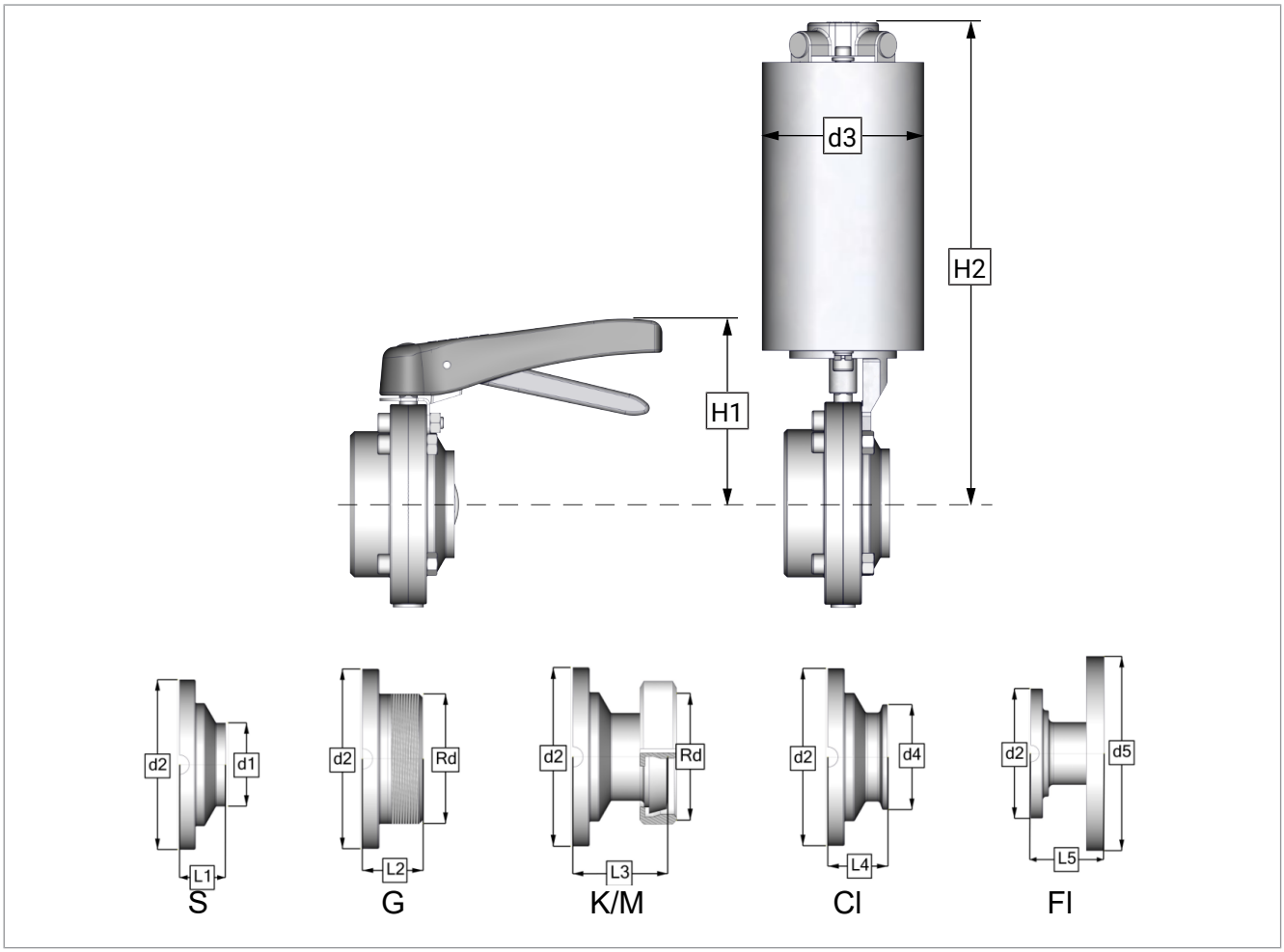
(Illustration: G-S, without drive system)

1a = Housing flange with welding end
1b =Housing flange with thread end
2 = Flap
3 = Seal
4 = Screws
5 = Nut
6 = Plain bearing

K1 = Cap



Dimensions



DN / OD	d1	d2	d3	d4	d5	L1	L2	L3	L4	L5	H1	H2	Rd
10 (ø10)	ø13x1,5	ø62	ø76	-	-	24	41	-	-	-	78	232	Rd28x1/8
15 (ø16)	ø19x1,5	ø62	ø76	ø34	-	24	34	41	34	-	78	232	Rd34x1/8
20 (ø20)	ø23x1,5	ø72	ø76	ø34	-	24	34	42	34	-	83	237	Rd44x1/6
25 (ø26)	ø29x1,5	ø80	ø104	ø50,5	ø115	27	34	49	34	66	95	285	Rd52x1/6
32 (ø32)	ø35x1,5	ø86	ø104	ø50,5	ø140	27	34	52	34	66	98	288	Rd58x1/6
40 (ø38)	ø41x1,5	ø92	ø104	ø50,5	ø150	27	34	53	34	60	101	291	Rd65x1/6
50 (ø50)	ø53x1,5	ø108	ø104	ø64	ø165	29	36	57	36	65	109	300	Rd78x1/6
65 (ø66)	ø70x2	ø130	ø104	ø91	ø185	30	38	62	38	73	121	311	Rd95x1/6
80 (ø81)	ø85x2	ø146	ø104	ø106	ø200	36	44	73	44	70	129	319	Rd110x1/4
100 (ø100)	ø104x2	ø166	ø104	ø119	ø220	34	44	78	44	77	139	329	Rd130x1/4
125 (ø125)	ø129x2	ø205	ø129	-	ø250	43	55	77	-	82	181	388	Rd160x1/4
150 (ø150)	ø154x2	ø240	ø129	-	ø285	52	65	89	-	91	200	407	Rd190x1/4
1“ (ø22,1)	ø25,4x1,65	ø80	ø104	ø50,5	-	27	34	49	34	-	95	285	Rd52x1/6
1½“ (ø34,8)	ø38,1x1,65	ø92	ø104	ø50,5	-	27	34	53	34	-	101	291	Rd65x1/6
2“ (ø47,5)	ø50,8x1,65	ø108	ø104	ø64	-	29	36	57	29	-	109	300	Rd78x1/6
2½“ (ø60,2)	ø63,5x1,65	ø130	ø104	ø77,5	-	30	38	62	38	-	121	311	Rd95x1/6
3“ (ø72,9)	ø76.2x1.65	ø146	ø104	ø91	-	36	44	73	44	-	129	319	Rd104x1/6
4“ (ø97,4)	ø101.6x2.11	ø166	ø104	ø119	-	34	44	78	44	-	139	329	Rd130x1/4

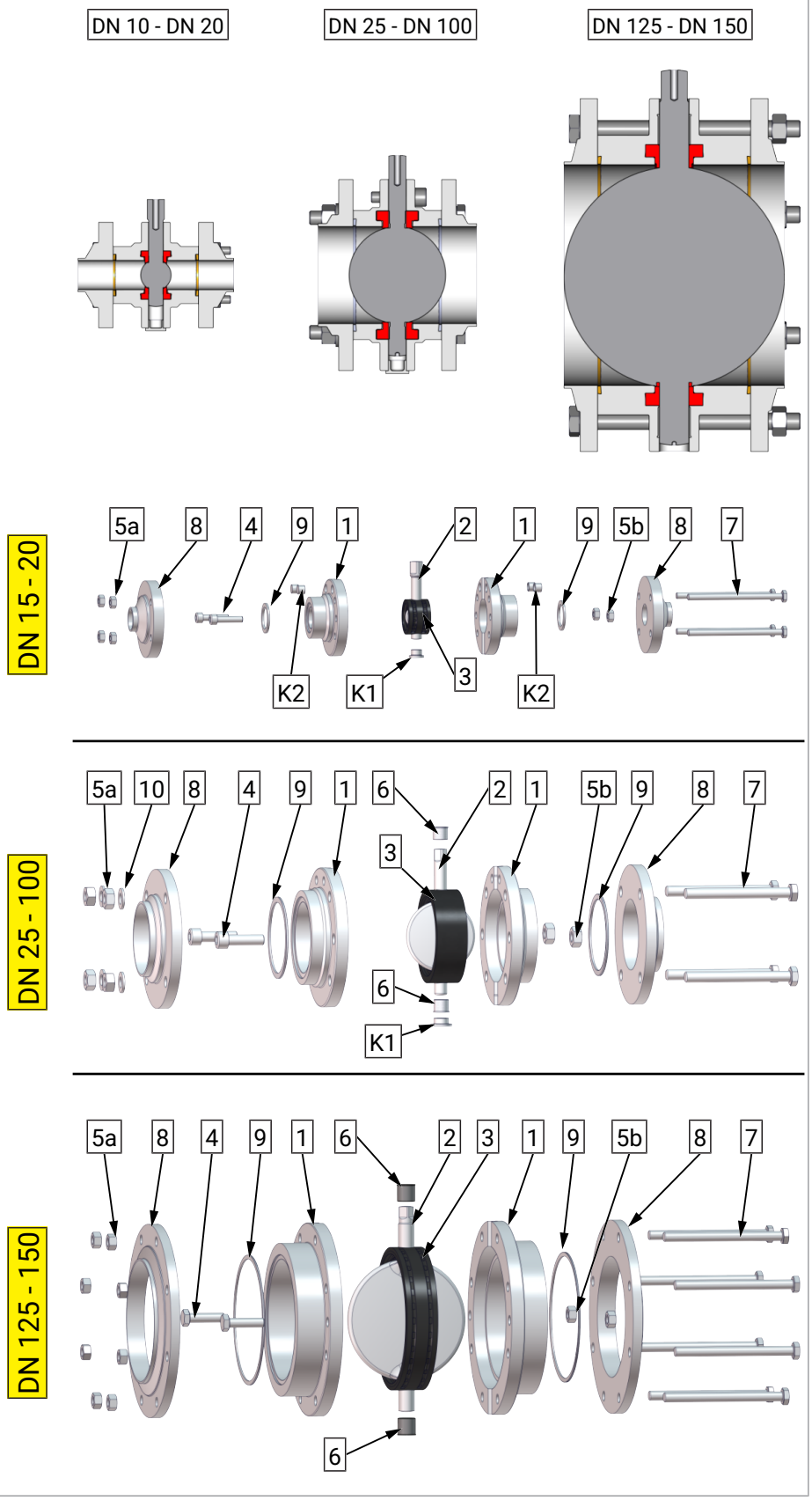
9.2 Wafer-type-butterfly valves

Drawings

Wafer-type-butterfly valve DN15 - DN150 / 1Inch - 4Inch

1= Housing flange
2= Flap
3= Seal
4= Screws
5= Nut
6= Plain bearing
7= Screws
8= Flanges
9= Seals
10= Discs

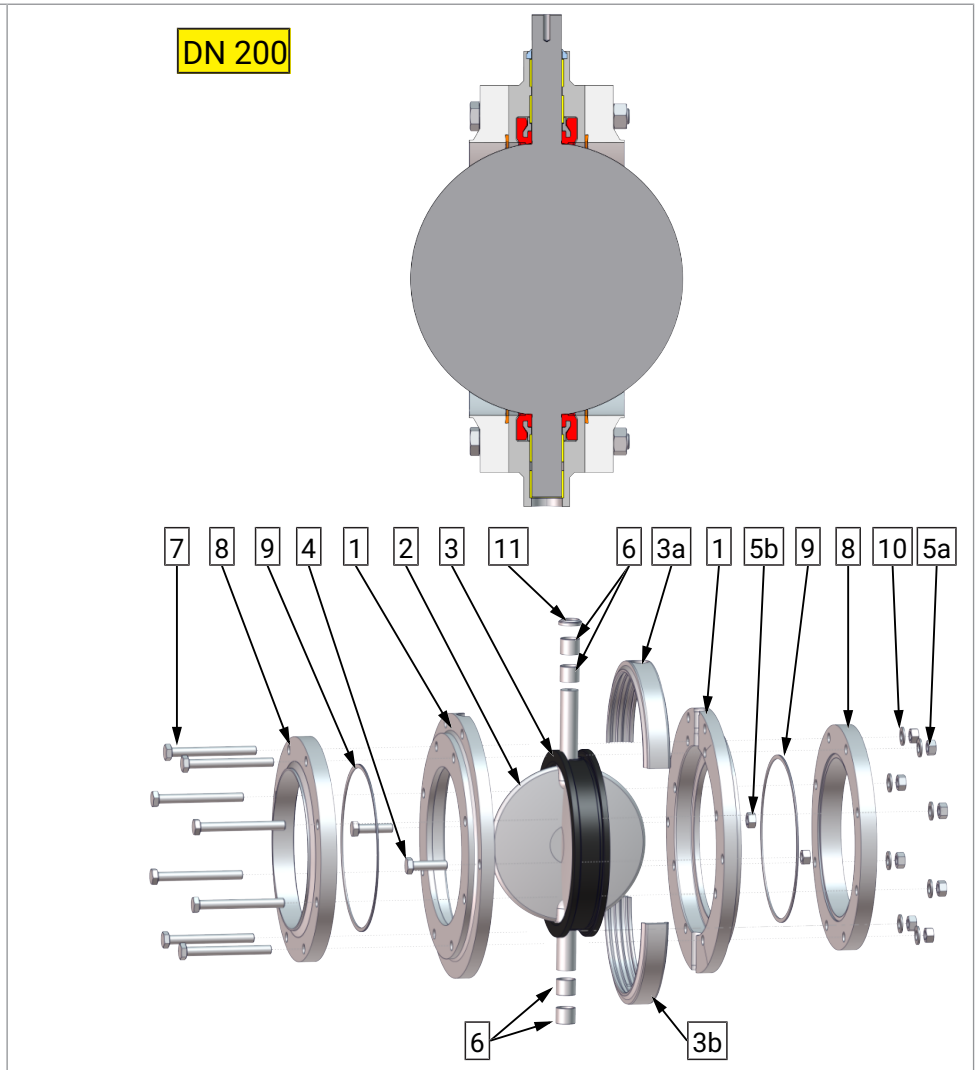
K1) Cap
K2) cap



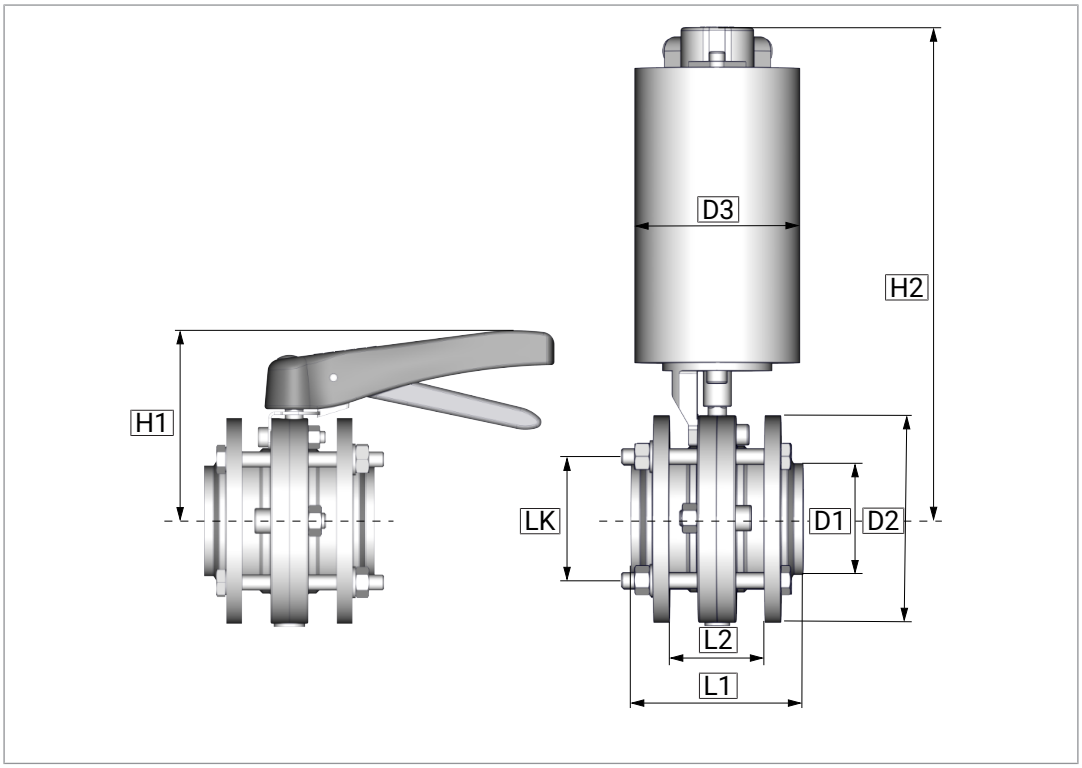
Drawing

Wafer-type-butterfly valve DN200

1 = Housing flanges
2 = Flap
3 = Seal
3a) = Support ring upper
3b) = Support ring lower
4 = Screws
5 = Nuts
6 = Plain bearing
7 = Screws
8 = Flange
9 = Seals
10 = Discs
11 = Scraper ring



Dimensions



DN/OD	D1	D2	D3	L1	L2	H1	H2	LK
15 (ø16)	ø 19x1,5	ø 62	ø 76	106	58	78	232	ø 48
20 (ø20)	ø 23x1,5	ø 72	ø 76	106	58	83	237	ø 58
25 (ø26)	ø 29x1,5	ø 84	ø 104	102	54	95	285	ø 65
32 (ø32)	ø 35x1,5	ø 90	ø 104	102	54	98	288	ø 71
40 (ø38)	ø 41x1,5	ø 96	ø 104	102	54	101	291	ø 77
50 (ø50)	ø 53x1,5	ø 110	ø 104	106	58	109	300	ø 92
65 (ø66)	ø 70x2	ø 130	ø 104	108	30	121	311	ø 110
80 (ø81)	ø 85x2	ø 146	ø 104	120	72	129	319	ø 126
100 (ø100)	ø 104x2	ø 166	ø 104	116	68	139	329	ø 146
125 (ø125)	ø 129x2	ø 205	ø129	132	86	181	388	ø 180
150 (ø150)	ø 154x2	ø 240	ø129	150	104	200	407	ø 215
200 (ø200)	ø 204x2	ø 284	ø129	114	56	250	456	ø 258
1“ (ø22,1)	ø 25,4x1,65	ø 80	ø 104	102	54	95	285	ø 65
1½“ (ø34,8)	ø 38,1x1,65	ø 82	ø 104	102	54	101	291	ø 77
2“ (ø47,5)	ø 50,8x1,65	ø 108	ø 104	106	58	109	300	ø 92
2½“ (ø60,2)	ø 63,5x1,65	ø 130	ø 104	108	60	121	311	ø 110
3“ (ø72,9)	ø 76,2x1,65	ø 146	ø 104	120	72	129	319	ø 126
4“ (ø97,4)	ø 101,6x2,11	ø 166	ø 104	116	68	139	329	ø 146

9.3 Leakage butterfly valve

Drawings

Leakage butterfly valves DN 50 - DN 125 / OD 2inch - OD 4inch

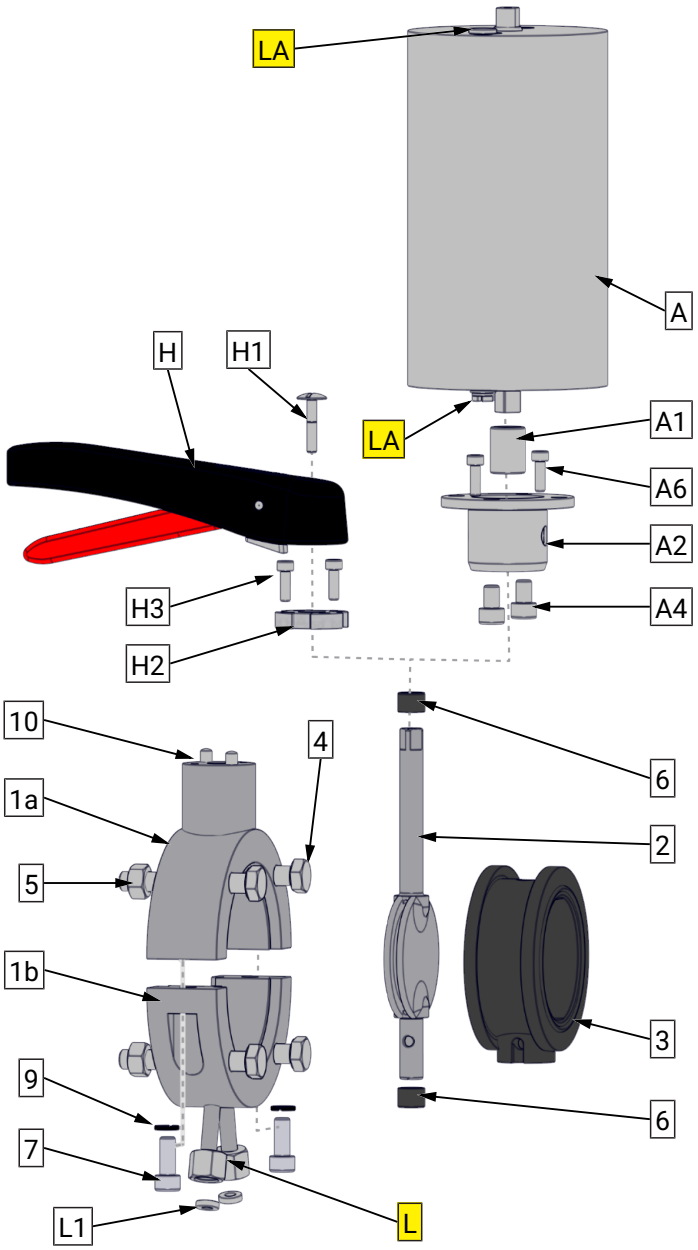
(Illustration basic valve Type: LSV 4365 DN65)

1a = upper housing part
1b =lower housing part
2 = Flap
3 = Seal
4 = Screws
5 = Nut
6 = Plain bearing
7 = Screws
8 = Flange with
) a) Welding connection (2069)
) b) Welding connection (2041)
) c) Male connection
) d) Liner / nut - connection
9 = Discs
10 = Straight pins

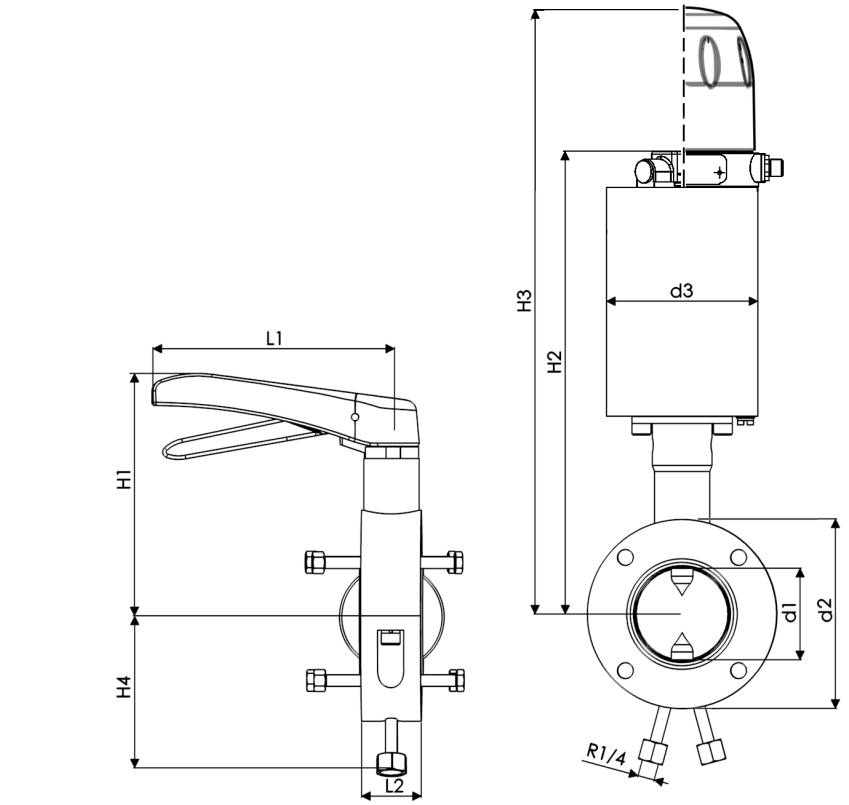
A = Actuator
A1 = Square boss
A2 = Angle bracket
A4 = Screws
A6 = Screws

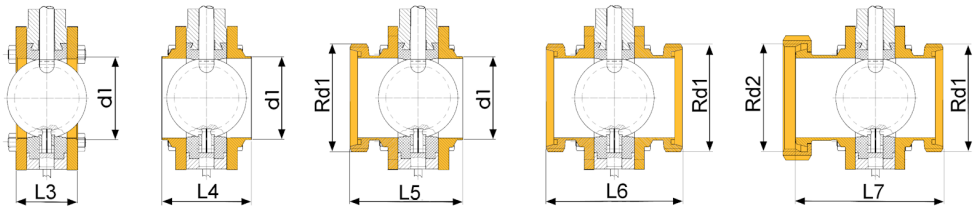
H = Hand lever
H1 = Saucer-head screw
H2 = Locking disc
H3 = Screws

L = Leakage drain
LA = air supply



Dimensions





Basic
Type: 4366
Type: 4766
Type: 4866

S - S
Type: 4367
Type: 4767
Type: 4867

G - S
Type: 4368
Type: 4768
Type: 4868

G - G
Type: 4369
Type: 4769
Type: 4869

K/M - G
Type: 4370
Type: 4770
Type: 4870

DN / OD	d1	d2	d3	L1	L2	L3	L4	L5	L6	L7	H1	H2	H3	H4	Rd1/Rd2
50 (ø50)	ø53x1,5	ø110	ø104	165	38	68	86	109	156	149	148	338	440	84	Rd78x1/6
65 (ø66)	ø70x2	ø130	ø104	165	38	68	86	111	166	158	158	349	451	94	Rd95x1/6
80 (ø81)	ø85x2	ø145	ø104	165	41	71	89	114	179	158	167	358	460	102	Rd110x1/4
100 (ø100)	ø104x2	ø165	ø129	180	41	71	89	118	197	187	178	407	509	112	Rd130x1/4
125 (ø125)	ø129x2	ø195	ø129	285	53	87	101	145	193	181	214	421	523	127	Rd160x1/4
2“ (ø47,5)	ø50,8x1,65	ø110	ø104	165	38	68	86	-	-	-	148	338	440	84	Rd78x1/6
2½“ (ø60,2)	ø63,5x1,65	ø130	ø104	165	38	68	86	-	-	-	158	349	451	94	Rd95x1/6
3“ (ø72,9)	ø76.2x1.65	ø145	ø104	165	41	71	89	129	169	-	167	358	460	102	Rd104x1/6
4“ (ø97,4)	ø101.6x2.11	ø165	ø104	180	41	87	101	-	-	-	178	407	509	112	Rd130x1/4

Drawing

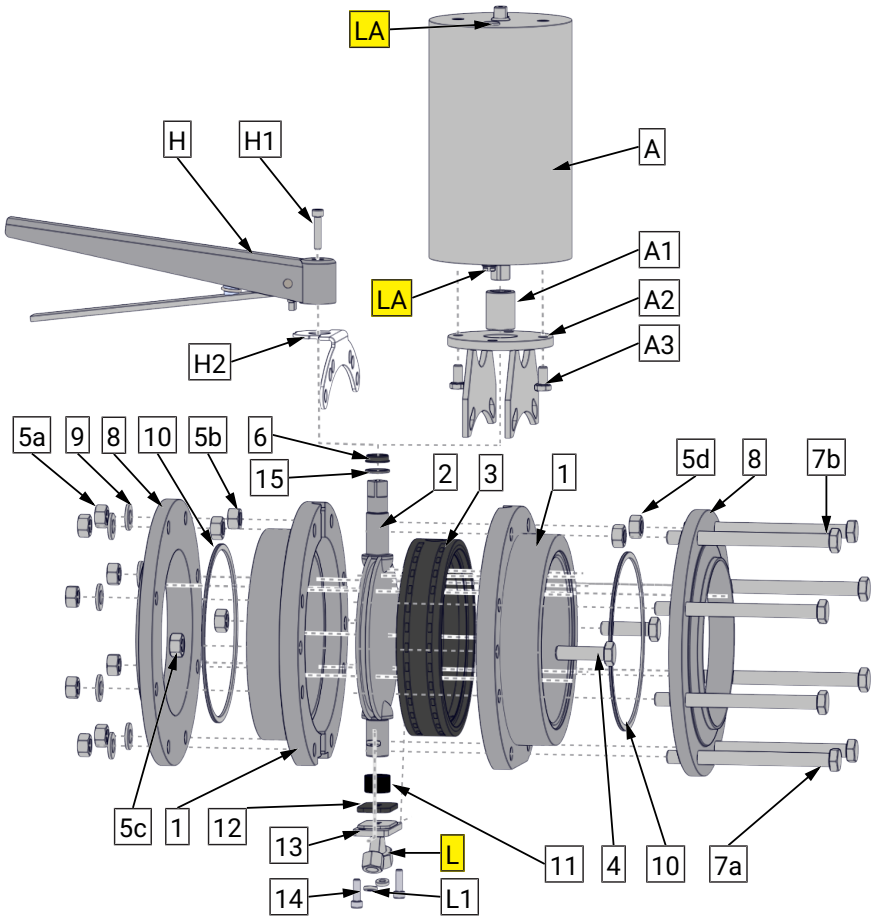
Leakage - butterfly valves DN150

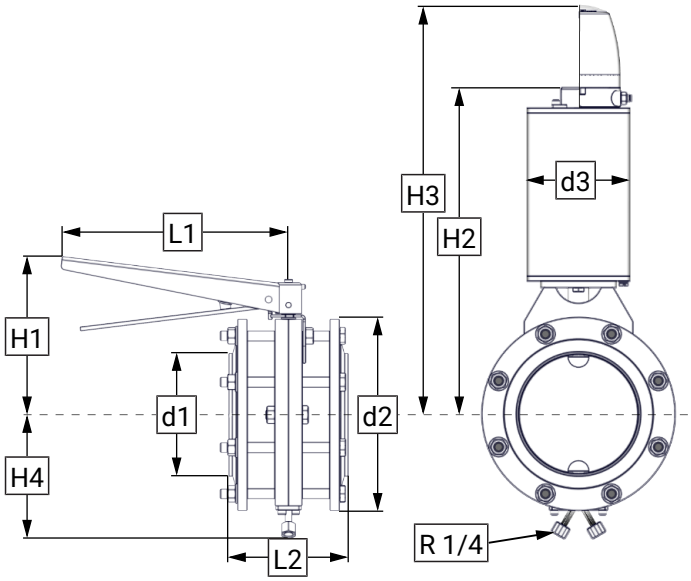
1 = Housing flange
2 = Flap
3 = Seal
4 = Screws
5 = Nut
6 = Plain bearing
7 = Screws
8 = Welding flange
9 = Discs
10 = O-rings
11 = Plain bearing
12 = Seal
13 = Cap
14 = Screw
15 = Seal
16 = Disc

A = Actuator
A1 = Square boss
A2 = Angle bracket
A3 = Screws

H = Hand lever
H1 = Screw
H2 = Locking disc

L = Leakage drain
LA = air supply

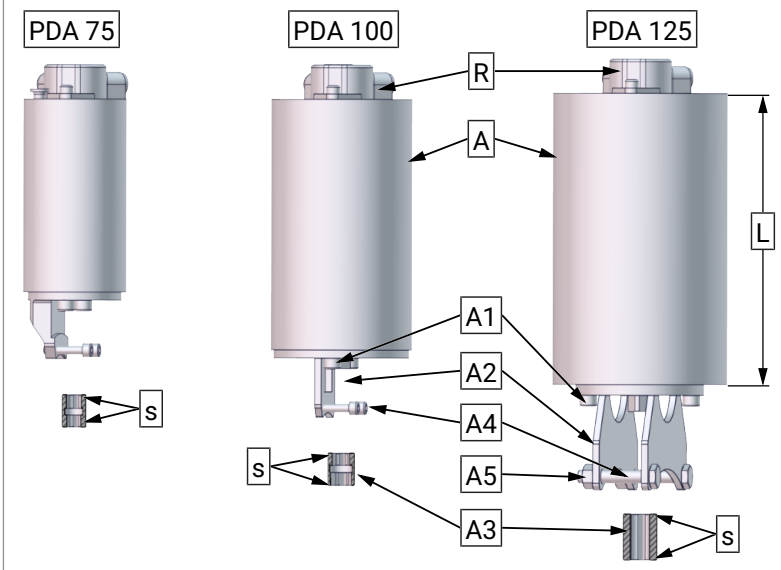




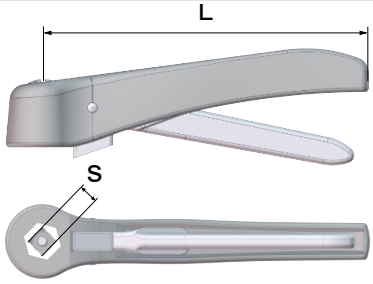
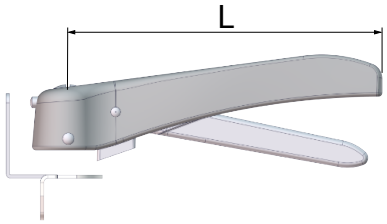
DN / OD	d1	d2	d3	L1	L2	H1	H2	H3	H4
150 (ø150)	ø154x2	ø240	ø129	285	150	199	407	510	155

9.4 drive systems

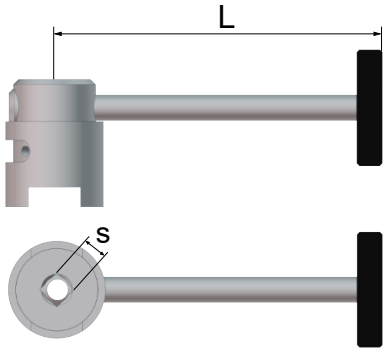
Multiturn actuator (PDA)

		DN	L	⬚
• A) Actuator – PDA 75 – PDA 100 – PDA 125 • A1) Screws • A2) Square boss • A3) Angle bracket • A4) Screws • A5) Nuts • R) Position indication with sensor mounting		10 - 20 20 - 40 25 - 80 100 125 150	168 168 210 210 240 240	10 10 10 10 16 16

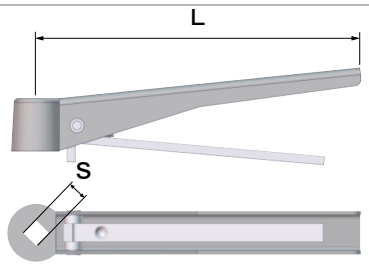
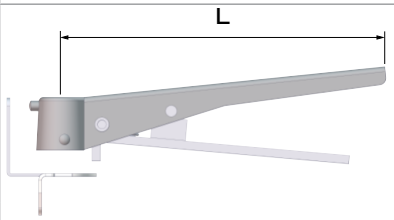
Hand lever - Standard

Model		DN	L	⬚
Hand lever - Standard Type 4335		10 - 50 25 -100	100 165	10 10
Hand lever - Standard with sensor mounting Type 4321		10 - 50 25 -100	100 165	10 10

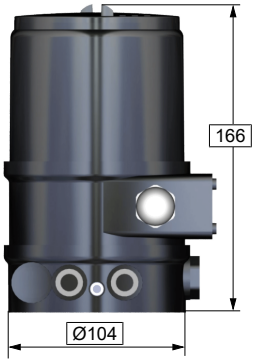
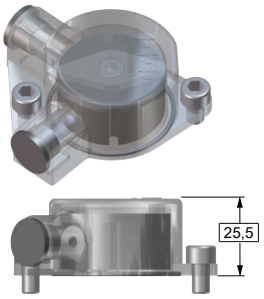
Hand lever with continuously adjustable

Model		DN	L	□S
Hand lever with continuously adjustable Type 4600		10 - 20 25 - 50 65 - 100 125 150	165 165 230 320 320	10 10 10 10 14

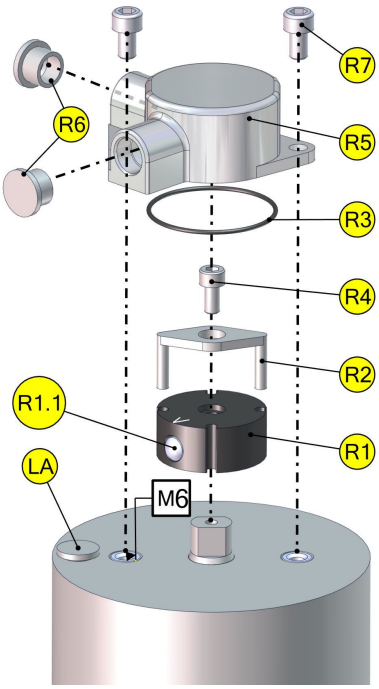
Hand lever - stainless steel

Model		DN	L	□S
Hand lever - stainless steel Type 4318		10 - 50 25 - 50 65 - 100 125 - 150 200	101 146 180 285 285	10 10 10 14 17
Leakage - butterfly valves		100	180	12
Hand lever - stainless steel with sensor mounting Type 4321		10 - 50 25 - 50 65 - 100 125 - 150 200	101 146 180 285 285	10 10 10 14 17
Leakage - butterfly valves		100	180	12

9.5 Control units

<table>
<tr><th colspan="2">Control head KI-TOP</th><th>Positioner</th><th>Position indication with sensor mounting</th></tr>
<tr><th>Plastic hood transparent</th><th>Stainless steel hood</th><th></th><th></th></tr>
<tr>
<td colspan="2">
</td>
<td>
</td>
<td>
</td>
</tr>
<tr>
<td colspan="2">Position indication with sensor mounting (R)

• R1 = Dog
• R1.1 = Straight pin
• R2 = Position indication
• R3 = O-ring
• R4 = Screw
• R5 = Sensor mounting
• R6 = Cap
• R7 = Screw

• LA = Air supply</td>
<td colspan="2">
</td>
</tr>
</table>

10 Wearing parts

10.1 Butterfly valve

	Seal (3)				Plain bearing(6)
DN	**SILICONE**	**EPDM**	**HNBR**	**FKM**	**PA**
10	-	4328 015 000-054	4326 015 000-050	-	-
15	-	4328 015 000-054	4326 015 000-050	-	-
20	-	4328 020 000-054	4326 020 000-050	-	-
25	4326 025 000-052	4328 025 000-054	4326 025 000-050	4327 025 000-051	8050 012 011-060
32	4326 032 000-052	4328 032 000-054	4326 032 000-050	4327 032 000-051	8050 012 011-060
40	4326 040 000-052	4328 040 000-054	4326 040 000-050	4327 040 000-051	8050 012 011-060
50	4326 050 000-052	4328 050 000-054	4326 050 000-050	4327 050 000-051	8050 012 012-060
65	4326 065 000-052	4328 065 000-054	4326 065 000-050	4327 065 000-051	8050 012 012-060
80	4326 080 000-052	4328 080 000-054	4326 080 000-050	4327 080 000-051	8050 015 012-060
100	4326 100 000-052	4328 100 000-054	4326 100 000-050	4327 100 000-051	8050 015 012-060
125	4326 125 000-052	4328 125 000-054	4326 125 000-050	4327 125 000-051	8050 020 021-060
150	4326 150 000-052	4328 150 000-054	4326 150 000-050	4327 150 000-051	8050 020 021-060
1	4326 026 000-052	4328 026 000-054	4326 026 000-050	4327 026 000-051	8050 012 011-060
1½	4326 038 000-052	4328 038 000-054	4326 038 000-050	4327 038 000-051	8050 012 011-060
2	4326 051 000-052	4328 051 000-054	4326 051 000-050	4327 051 000-051	8050 012 012-060
2½	4326 064 000-052	4328 064 000-054	4326 064 000-050	4327 064 000-051	8050 012 012-060
3	4326 076 076-052	4328 076 076-054	4326 076 076-050	4327 076 076-051	8050 014 013-060
4	4326 101 000-052	4328 101 000-054	4326 101 000-050	4327 101 000-051	8050 014 013-060

10.2 Leakage - butterfly valves

	Seal (3)			Plain bearing (6)	Plain bearing (11)	Seal (L1)
DN	**SILICONE**	**EPDM**	**HNBR**	**iglidur®**		**EPDM**
50	4378 050 000-052	4377 050 000-054	4378 050 000-050	8050 012 010-060	8050 012 010-060	2354 012 006-054
65	4378 065 000-052	4377 065 000-054	4378 065 000-050	8050 012 010-060	8050 012 010-060	||
80	4378 080 000-052	4377 080 000-054	4378 080 000-050	8050 015 010-060	8050 015 010-060	||
100	4378 100 000-052	4377 100 000-054	4378 100 000-050	8050 015 010-060	8050 015 010-060	||
125	-	4377 125 000-054	4378 125 000-050	8050 020 015-156	8050 020 015-156	||
150	-	4328 150 000-054	4328 150 000-050	8050 018 006-060	8050 020 015-156	||
2	4378 050 000-052	4377 050 000-054	4378 050 000-050	8050 012 010-060	8050 012 010-060	2354 012 006-054
2½	4378 065 000-052	4377 065 000-054	4378 065 000-050	8050 012 010-060	8050 012 010-060	||
3	4378 076 000-052	4377 076 000-054	4378 076 000-050	8050 015 010-060	8050 015 010-060	||
4	4378 100 000-052	4377 100 000-054	4378 100 000-050	8050 015 010-060	8050 015 010-060	||

10.3 Intermediate - butterfly valve

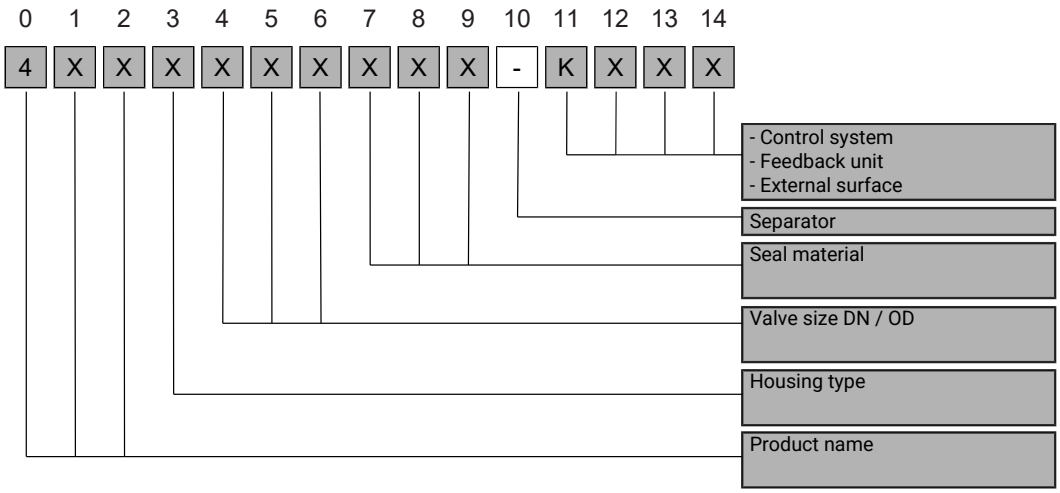
	Seal (3)				Seal (9)	Plain bearing (6)
DN	**SILICONE**	**EPDM**	**HNBR**	**FKM**	**k -flex**	**PA**
15	-	4328 015 000-054	4326 015 000-050	-	2353 021 016-114	-
20	-	4328 020 000-054	4326 020 000-050	-	2353 028 020-114	-
25	4326 025 000-052	4328 025 000-054	4326 025 000-050	4327 025 000-051	2353 035 026-114	8050 012 011-060
32	4326 032 000-052	4328 032 000-054	4326 032 000-050	4327 032 000-051	2353 041 032-114	8050 012 011-060
40	4326 040 000-052	4328 040 000-054	4326 040 000-050	4327 040 000-051	2353 047 038-114	8050 012 011-060
50	4326 050 000-052	4328 050 000-054	4326 050 000-050	4327 050 000-051	2353 059 050-114	8050 012 012-060
65	4326 065 000-052	4328 065 000-054	4326 065 000-050	4327 065 000-051	2353 076 066-114	8050 012 012-060
80	4326 080 000-052	4328 080 000-054	4326 080 000-050	4327 080 000-051	2353 090 081-114	8050 015 012-060
100	4326 100 000-052	4328 100 000-054	4326 100 000-050	4327 100 000-051	2353 109 100-114	8050 015 012-060
125	4326 125 000-052	4328 125 000-054	4326 125 000-050	4327 125 000-051	2353 136 125-114	8050 020 021-060
150	4326 150 000-052	4328 150 000-054	4326 150 000-050	4327 150 000-051	2353 161 150-114	8050 020 021-060
200	-	4328 200 000-054	-	-	2353 211 200-114	8050 022 020-156
1	4326 026 000-052	4328 026 000-054	4326 026 000-050	4327 026 000-051	2353 032 024-114	8050 012 011-060
1½	4326 038 000-052	4328 038 000-054	4326 038 000-050	4327 038 000-051	2353 044 036-114	8050 012 011-060
2	4326 051 000-052	4328 051 000-054	4326 051 000-050	4327 051 000-051	2353 057 049-114	8050 012 012-060
2½	4326 064 000-052	4328 064 000-054	4326 064 000-050	4327 064 000-051	2353 071 061-114	8050 012 012-060
3	4326 076 076-052	4328 076 076-054	4326 076 076-050	4327 076 076-051	2353 083 073-114	8050 014 013-060
4	4326 101 000-052	4328 101 000-054	4326 101 000-050	4327 101 000-051	2353 107 099-114	8050 014 013-060

11 Malfunctions

Malfunction	Cause	Remedy
Valve does not move	- Compressed air missing	- Switch on compressed air
	- Electrical controller missing	- Check and ensure electrical signals
	- Actuator defective	- Check and ensure electrical signals
Signals do not come on	- Loose cable on pilot valve or initiator	- Tighten cable
	- Cable broken	- Replace cable
	- Initiators defective	- Replace initiators
	- Pilot valve defective	- Replace pilot valve
	- Electrical supply missing or damaged	- Check or remedy
Valve moves too slowly	- Compressed air too low	- Increase compressed air
	- Exhaust hole actuator plugged up	- Clear opening
Valve moves unevenly	- Compressed air supply too weak	- Increase compressed air
	- Media pressure too high	- Check media pressure and adjust if necessary
	- Electric signals uneven	- Remedy signal flow malfunction
Valve causes excessive mechanical noises	- Lubrication missing	- Lubricate seal and guide elements

12 Classification

12.1 Structure of order number



0 - 2 Product name XXxx xxx xxx-xxxx

0	1	2	3	Designation
4	3	x	x	Butterfly valve/Leakage butterfly valve manual operating
4	5	x	x	Butterfly valve/Leakage butterfly valve pneumatic operating air open- spring close (NC)
4	4	x	x	Butterfly valve/Leakage butterfly valve pneumatic operating air open - air close (DA)

2 - 3 Connection variants xxXX xxx xxx-xxxx

e.g. Type 4502 = Threaded flange / Weld end flange

or Type 4510 = Wafer-type

(see Valve types [▶ 9])

4 - 6 Valve size DN/OD xxxx XXX xxx-xxxx

DN	4	5	6		OD	4	5	6
DN 25	0	2	5		OD 1"	0	2	6
DN 40	0	4	0		OD 1 1/2"	0	3	8
DN 50	0	5	0		OD 2 "	0	5	1
DN 65	0	6	5		OD 2 1/2"	0	6	4
DN 80	0	8	0		OD 3 "	0	7	6
DN 100	1	0	0		OD 4 "	1	0	1
DN 125	1	2	5		-			
DN 150	1	5	0		-			
DN 200	2	0	0		-			

7 - 9 Material of seals xxxx xxx XXX-xxxx

Sealing material - in product contact	7	8	9
EPDM	1	3	0
HNBR	4	2	0
Silicone	0	0	0
FKM	1	4	0

10 Separator xxxx xxx xxx - xxxx

11 - 14 Control system and position indication , External surface xxxx xxx xxx - xxxx

Control system and position indicator	11	12	13	14
Control head SPS (old version)	5	x	x	
Control head ASi-Bus (old version)	6	x	x	
Control head KI-Top SPS	K	5	x	x
Control head KI-Top ASi-Bus	K	6	x	x

Position indicator , External surface	11	12	13	14
Position indication, external surface AISI304 blanc	0	2	0	
Position indication, external surface AISI304 e-polished	0	2	1	
Position indication, external surface AISI304 mat finish	0	2	2	
Position indication, external surface AISI316L blanc	0	4	0	
Position indication, external surface AISI316L e-polished	0	4	1	
Position indication, external surface AISI316L mat finish	0	4	2	

13 Appendix

13.1 Declaration of incorporation

Declaration of Incorporation

according to Directive 2006/42/EC of the European Parliament and the Council of 17 May 2006

Manufacturer:
KIESELMANN GmbH
Paul-Kieselmann-Str. 4-10
D-75438 Knittlingen

We declare that the following pressure equipment

Designation	Function
Pneumatic Linear actuator	pneumatically operation of valves
Pneumatic Quarter-turn actuator	pneumatically operation of valves
Butterfly Valve (pneumatically operated)	Separation of medium flow
Ball Valve (pneumatically operated)	Separation of medium flow
Single seat Valve (pneumatically operated)	Separation of medium flow
Changeover Valve (pneumatically operated)	Separation of medium flow
Double-Seat mixproof Valve (pneumatically operated)	Separation of medium flow
Control Valve (pneumatically operated)	Regulation of medium flow
Throttling Valve (pneumatically operated)	Regulation of medium flow
Tank Outlet Valve (pneumatically operated)	Separation of medium flow
Sampling Valve (pneumatically operated)	Separation of medium flow

complies with the definition of an „incomplete machine“ according to Article 2 of the European Machinery Directive 2006/42/EG, when fitted in or merged with other machines or incomplete machines which also comply with the provision of the Directive.

Applied harmonized standards:

Directive 2014/68/EU
EN ISO 12100

Person responsible for documentation:

Achim Kauselmann
Documentation / Development
KIESELMANN GmbH

Knittlingen, 10.10.2020

i.V. Uwe Heisswolf
Head of Development

KIESELMANN
FLUID PROCESS GROUP

Notes

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