guth ventile
FLUID PROCESS GROUP

Operating instructions

- Translation of the original -

Butterfly valves

English **GBR**

4.12.17

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1. General information

1.1 Information for your safety

We are pleased that you have decided for a high-class GUTH 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 GUTH service team will naturally be at your disposal.

1.2 Marking of security instructions in the operating manual

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.
	**ATTENTION**	An harmful situation which may result in damages of the product itself or of adjacent vicinity.
	**NOTICE**	Marks application hints and other information which is particularly useful.

1.3 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. GUTH 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.

ATTENTION

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

2.2 General safety instructions

WARNING

- Dismantling the valve or valve assemblies from the plant can cause injuries from fluids or gases flowing out. Dismantle the valve or valve assembly only when the plant has been rendered pressure-less and free of liquid and gas.
- Under pneumatic actuation of the valve, Limbs can get crushed or cut if they are inserted in the passageway of the valve.
  In general, before assembly activities, disconnect the compressed air pipe from the drive.
- For valves or plants/installations that are operated in a ATEX area, must be considered the valid ATEX Guidelines EG and the Installation instructions (page 4).

CAUTION

- To avoid air leaking, only use pneumatic connection parts that have an O-ring seal facing the even surface.
- Steps should be taken to ensure that no external forces are exerted on the fitting.

2.3 General notes

NOTICE

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

3. Function and operation

3.1 General functional description

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; this lever is positioned in the direction of the conduit axis in open position.

➤ Functional description for butterfly valves - pneum. operation

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

- air open - spring close (lö-fs)
  - ▶ pneum. ENGAGED ⇨ opens the valve
  - ▶ not pneum. ENGAGED ⇨ spring force closes the valve
- spring open - air close (fö-ls)
  - ▶ pneum. ENGAGED ⇨ closes the valve
  - ▶ not pneum. ENGAGED ⇨ spring force opens the valve
- air open - air close (lö-ls)
  - ▶ pneum. ENGAGED ⇨ the valve opens or closes according to control

3.2 Installation informations

➤ Installations instructions

Fitting position

The installation position is without importance.

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).

➤ 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 (EN287). Use the TIG (Tungsten Inert Gas) welding process.

NOTICE

- Impurities can cause damage to the seals and seals area.
  Clean inside areas prior to assembly.

➤ ATEX Guidelines

For valves or plants/installations that are operated in the ATEX area, sufficient bonding (grounding) must be ensured (see valid ATEX Guidelines EG).

3.3 Service and maintenance

➤ Service

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

NOTICE

		Lubricant recommendation
EPDM; Viton; k-flex; NBR; HNBR	⇨	Klüber Paraliq GTE703*
Silicone	⇨	Klüber Sintheso pro AA2*
Thread	⇨	Interflon Food Grease*

**) 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.*

➤ Cleaning

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

3.4 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.

3.5 Control system - and interrogation system

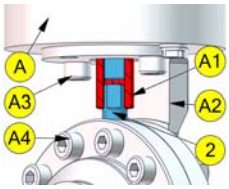
➤ Retrofitting for limit position feed-back

By replacing the hand lever (1) and the catch disc (3) the valve can be retrofitted for limit position feed-back (proximity switch).

➤ Conversion to pneumatic actuation

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:

Butterfly valve / Intermediate flange - butterfly valve



Conversion kit A

A = Actuator
A1 = Square boss
A2 = Angle bracket
A3 = Screw
A4 = Screw
2 = Flap

Nominal size DN							*Actuator*	*Conversion kit (A)*	*Function*
15-20 -	*25-40 1"-1½"*	*50 2"*	*65-100 2½"-4"*	*125 -*	*150 -*	*200 -*			
X	X	-	-	-	-	-	***PDA 90/75***	*4500.050.075-G022*	*- air open - spring close - air close - spring open*
								-----	*- air open - spring close*
-	X	X	-	-	-	-	***PDA 90/100***	*4500.050.100-G022*	*- air open - spring close - air close - spring open*
								4400.050.100-G022	*- air open - spring close*
-	-	-	X	-	-	-	***PDA 90/100***	*4500.100.100-G022*	*- air open - spring close - air close - spring open*
								4400.100.100-G022	*- air open - spring close*
-	-	-	-	X	-	-	***PDA 90/125***	*4500.125.125-G022*	*- air open - spring close - air close - spring open*
								4400.125.125-G022	*- air open - spring close*
-	-	-	-	-	X	-	***PDA 90/125***	*4500.150.125-G022*	*- air open - spring close - air close - spring open*
								4400.150.125-G022	*- air open - spring close*
-	-	-	-	-	X	X	***PDA 90/125***	*4500.200.125-G022*	*- air open - spring close - air close - spring open*
								4400.200.125-G022	*- air open - spring close*

➤ Control system and feedback unit

The actuator is equipped with a proximity switch 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.

➤ Control head

Optionally, modular valve control systems can be installed to the actuator for reading and actuating valve positions. The standard version is a closed system with twofold limit position messaging (standard), with SPS, Interbus or ASI bus switch-on electronics, and integrated 3/2-way solenoid valves. For tough operating conditions we recommend employing a stainless steel hood.

3.6 Pneumatic valve actuation

➤ **Actuator: air open - spring close (NC)**

Actuator: air close - spring open (NO)

Valve function	pneumatic control with solenoid valve (MV) in control unit	pneumatic control with external solenoid valve (MV)
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
Valve "CLOSED"	de-aeration LA2 ⟹ P2 ⟹ MV2 ⟹ ES Valve is closing by spring	de-aeration LA2 ⟹ ext. MV Valve is closing by spring

➤ **Actuator: air open - air close (DA)**

Valve function	pneumatic control with solenoid valve (MV) in control unit	pneumatic control with external solenoid valve (MV)
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
Valve "CLOSED"	de-aeration P ⟹ MV3 ⟹ P3 ⟹ LA1 Valve is closing by spring	de-aeration ext. MV ⟹ LA1 Valve is closing by spring

MV = solenoid valve
ES = de-aeration, sound absorber
P = compressed-air inlet (control unit)
LA = air connection
S = slide switch - manual control (solenoid valves)

NC / NO

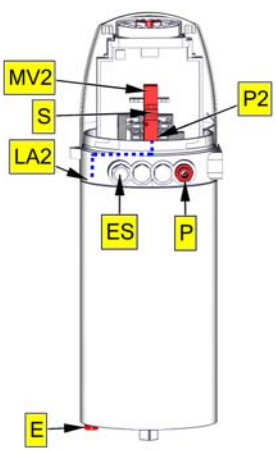


Fig. 1

DA

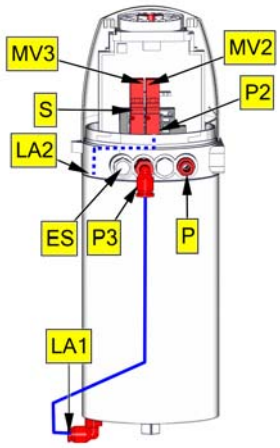
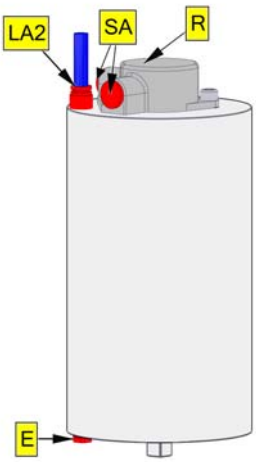
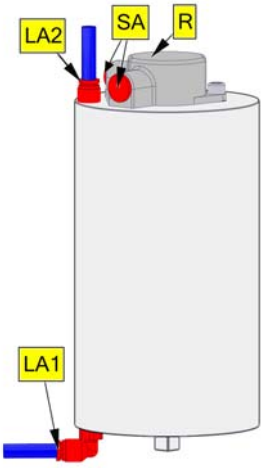


Fig. 2

SA= sensor mounting
R = proximity switch mounting
E = de-aeration
LA = air connection





3.7 Technical Data

➤ Butterfly valve / Intermediate flange - butterfly valve

Valve size:

ScheibenveButterfly valve: DIN: DN 15 - DN 150
INCH: DN 1“ - DN 4“

Intermediate flange - butterfly valve: DIN: DN 15 - DN 200
INCH: DN 1“ - DN 4“

Connections:

- Welding flange
- Flange PN10
- Male part DIN11851
- Liner/nut DIN11851
- Clamp coupling DIN32676

Temperature range:

- Ambient temperature: +4° to +45°C
- Product temperature: +0° to +95°C medium-dependent
- Sterilization temperature:

EPDM	+140°C (SIP 30 min)
HNBR	+130°C (SIP 30 min)
Silicone	+110°C (SIP 30 min)
FKM	+90°C (SIP 30 min)

Operating pressure:

Working pressure:

- DN 15 - DN 65 / DN 1“ - DN 2½“ = 16 bar *
- DN 80 - DN 100 / 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 (DIN EN 12268-1)

Control air:
(only pneum. operation valves)

Control air pressure:

- 5,5 - 8,0 bar

Quality of control air:

- ISO 8573-1 : 2001 quality class 3

Material:
in product contact

Stainless steel:	1.4301 / AISI304 1.4307 / AISI304L 1.4404 / AISI316L
Surfaces:	Ra < 0,8µm, e-polished
Material of seals:	EPDM (FDA) HNBR (FDA) Silicone (FDA) FKM (FDA)

4. Disassembly and assembly

4.1 Disassembly

NOTICE
- Unscrew and remove control air and electrical lines, complete proximity switch mounting or control head.

➤ Dismount the pneumatic actuator or hand lever

Hand lever:
- Unscrew the screw (H1) and remove the hand lever (H).

Pneumatic multiturn actuator PDA75, PDA100:
- Unscrew the screws (A4) and remove the actuator (A) with the square boss (A1).

Pneumatic multiturn actuator PDA125:
- Unscrew the screw joints (A4) - (A5) and remove the actuator (A) with the square boss (A1).

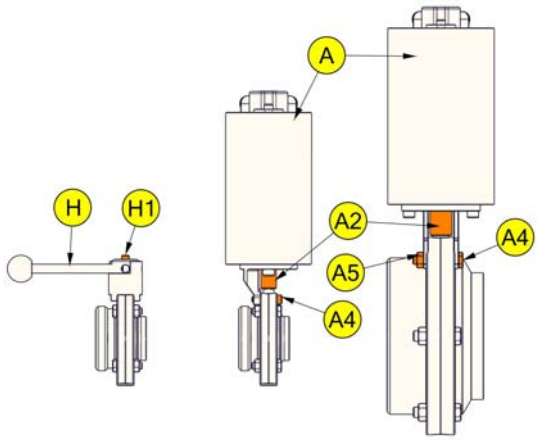


Fig. 3

➤ Butterfly valve DN10 - DN150
(see Fig. 5 /page 13)

- Unscrew the screw joints (4) - (5).
- Remove housing flange (1a) and (1b).
- Depending on the model, remove the plain bearing (6).

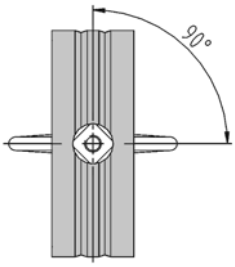
➤ Intermediate flange - butterfly valve DN15 - DN150
(see Fig. 7 /page 15)

- 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).

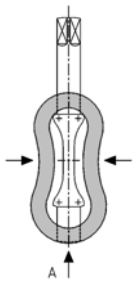
➤ Intermediate flange - butterfly valve DN200
(see Fig. 8 /page 16)

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

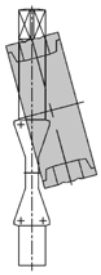
➤ **Remove seal (3)**



Position the flap (2) in open position to seal (3)



Deform seal (3) oval-shaped with manual force



Remove the flap (2) with the short shaft end from seal (3)

4.2 Assembly

- Thoroughly clean and slightly lubricate mounting areas and running surfaces.
- Assemble in reverse order.

NOTICE

- Grease the two shafts of the flap (2) before inserting it into the seal (3) using a grease that is suitable for foods.
- When mounting the hand lever (H), 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 (H) is ensured.
- Close flap (spring closing position) before assembling the actuator (A). Do not install the actuator when set to pneumatic actuation (spring closing condition). The position indicator is oriented vertically to valve passage direction - valve position "shut".

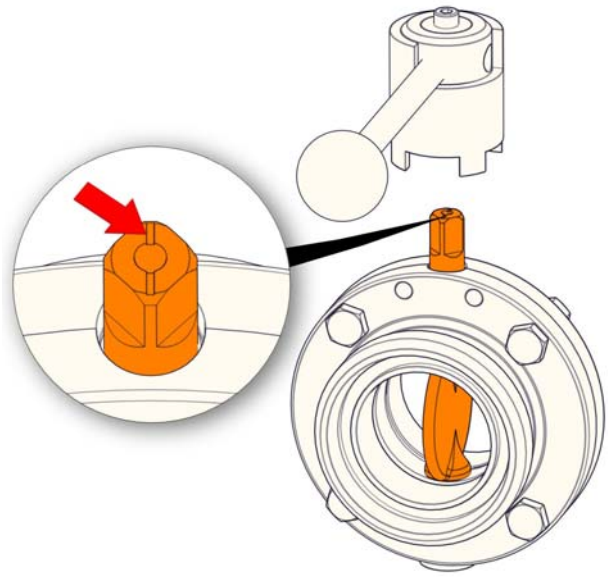


Fig. 4

5. Valve types

5.1 Modular system

Control - and feedback units		
electronic Control head KI-TOP	electro-pneumatical positioner	Feedback unit with sensor mounting
 transp. hood / stainless steel hood		

drive systems			
pneumatical			electrical
PDA 90/75 Ø 75	PDA 90/100 Ø 100	PDA 90/125 Ø 125	4040
			
manually operated			
hand lever	hand lever with sensor mounting	hand lever stainless steel	hand lever progressiv adjustable
			

flange					
S	G	K/M	Fl	Cl	intermediate flange S
					

Seals			
Silicone	EPDM	FKM	HNBR
			

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

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

➤ Butterfly valves

			manual	pneumatic	
				lö-fs	ls-lö
	**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*

➤ Intermediate flange - butterfly valve

			manual	pneumatic	
				lö-fs	ls-lö
	**S - S**	*DIN*	*4310*	*4510*	*4410*
		INCH	*4358*	*4558*	*4458*

6. Drawings and dimensions

6.1 Butterfly valve DN10 -DN150

(Illustration: G-S, without drive system)

1a) Housing flange with welding end (S)

1b) Housing flange with thread end (G)

2) Flap

3) Seal

4) Screws

5) Nuts

6) Plain bearing

K1) Cap

K2) Cap

K3) Cap

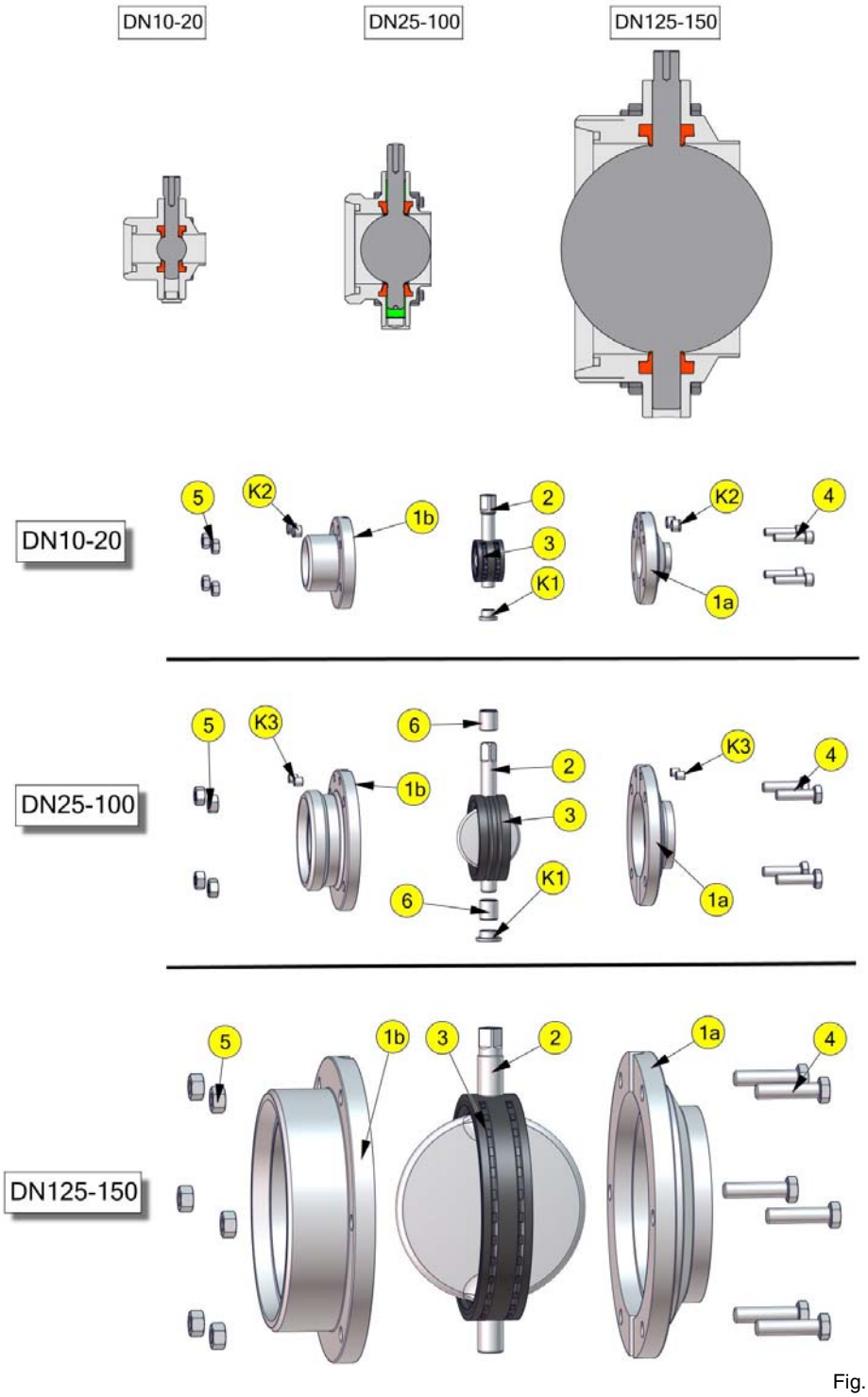


Fig. 5

➤ Dimensions

Butterfly valve DN10 -DN150

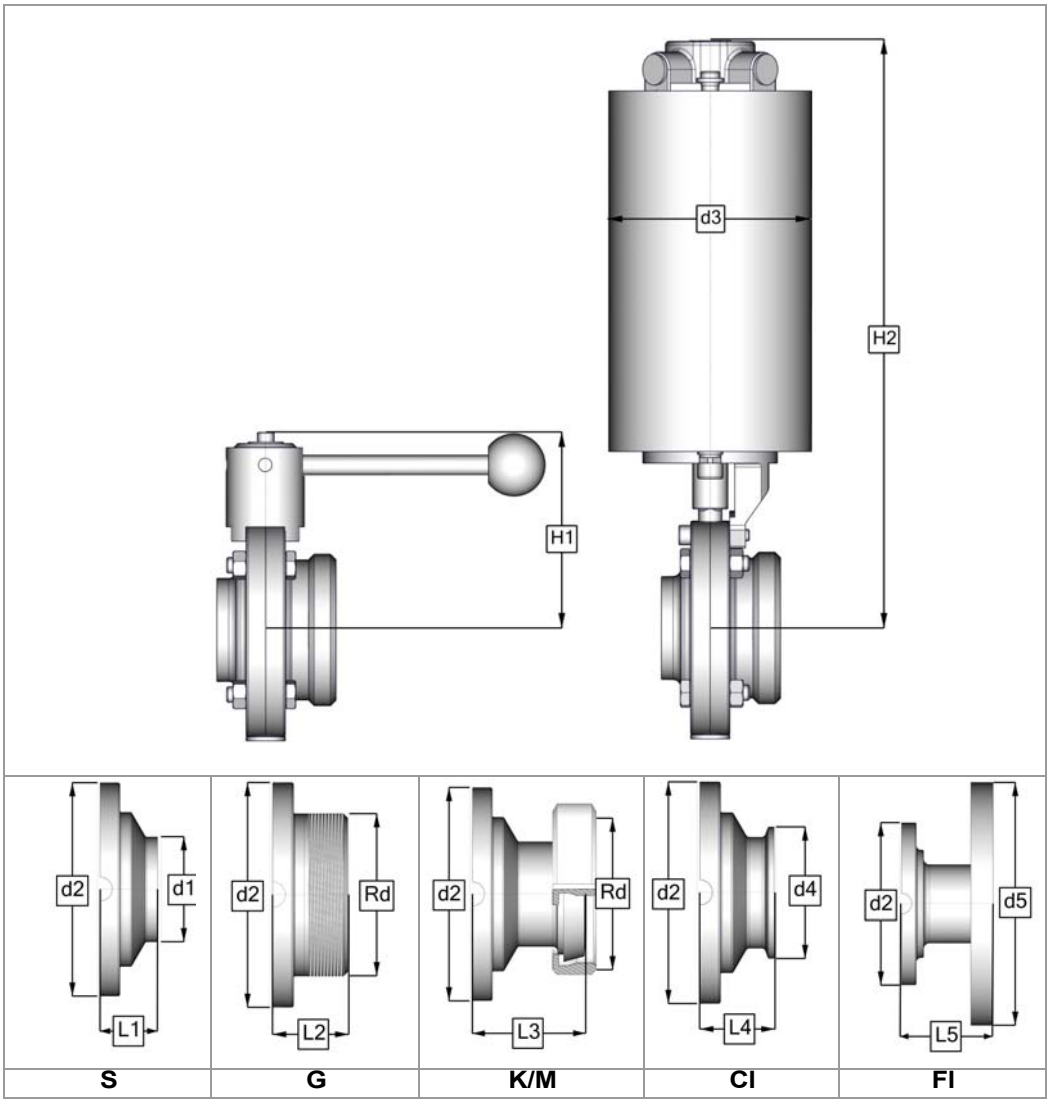


Fig. 6

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	20	32	42	32	59	88	288	Rd52x1/6
32 (ø32)	ø35x1,5	ø86	ø104	ø50,5	ø140	21	32	46	32	66	91	291	Rd58x1/6
40 (ø38)	ø41x1,5	ø92	ø104	ø50,5	ø150	25	36	51	36	58	94	294	Rd65x1/6
50 (ø50)	ø53x1,5	ø108	ø104	ø64	ø165	25	36	53	36	62	101	301	Rd78x1/6
65 (ø66)	ø70x2	ø130	ø104	ø91	ø185	25	38	57	38	68	110	310	Rd95x1/6
80 (ø81)	ø85x2	ø146	ø104	ø106	ø200	30	50	67	50	65	122	318	Rd110x1/4
100 (ø100)	ø104x2	ø166	ø104	ø119	ø220	32	32	76	52	75	134	328	Rd130x1/4
125 (ø125)	ø129x2	ø205	ø129	-	ø250	43	57	77	-	82	181	388	Rd160x1/4
150 (ø150)	ø154x2	ø240	ø129	-	ø285	52	65	89	-	91	199	407	Rd190x1/4

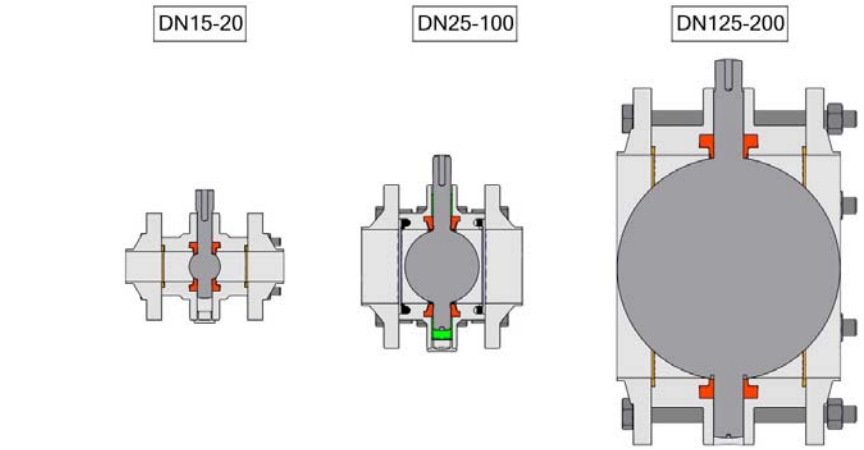
1“ (ø22,9)	ø25,4x1,25	ø80	ø104	ø50,5	-	27	34	49	32	-	88	288	Rd52x1/6
1½“ (ø35,1)	ø38,1x1,50	ø92	ø104	ø50,5	-	27	34	53	36	-	94	294	Rd65x1/6
2“ (ø47,8)	ø50,8x1,50	ø108	ø104	ø64	-	29	36	57	36	-	101	301	Rd78x1/6
2½“ (ø60,5)	ø63,5x1,50	ø130	ø104	ø77,5	-	30	38	62	38	-	110	310	Rd95x1/6
3“ (ø72,1)	ø76,1x2	ø146	ø104	ø91	-	36	44	73	50	-	118	318	Rd104x1/6
4“ (ø97,6)	ø101,6x2	ø166	ø104	ø119	-	34	44	78	52	-	130	328	Rd130x1/4

6.2 Intermediate flange - butterfly valve DN 15 - DN150

(Illustration without drive system)

1) = Housing flange
2) = Flap
3) = Seal
4) = Screws
5) = Nuts
6) = plain bearing
7) = Screws
8) = Flange
9) = Seals

K1) Cap
K2) Cap
K3) Cap



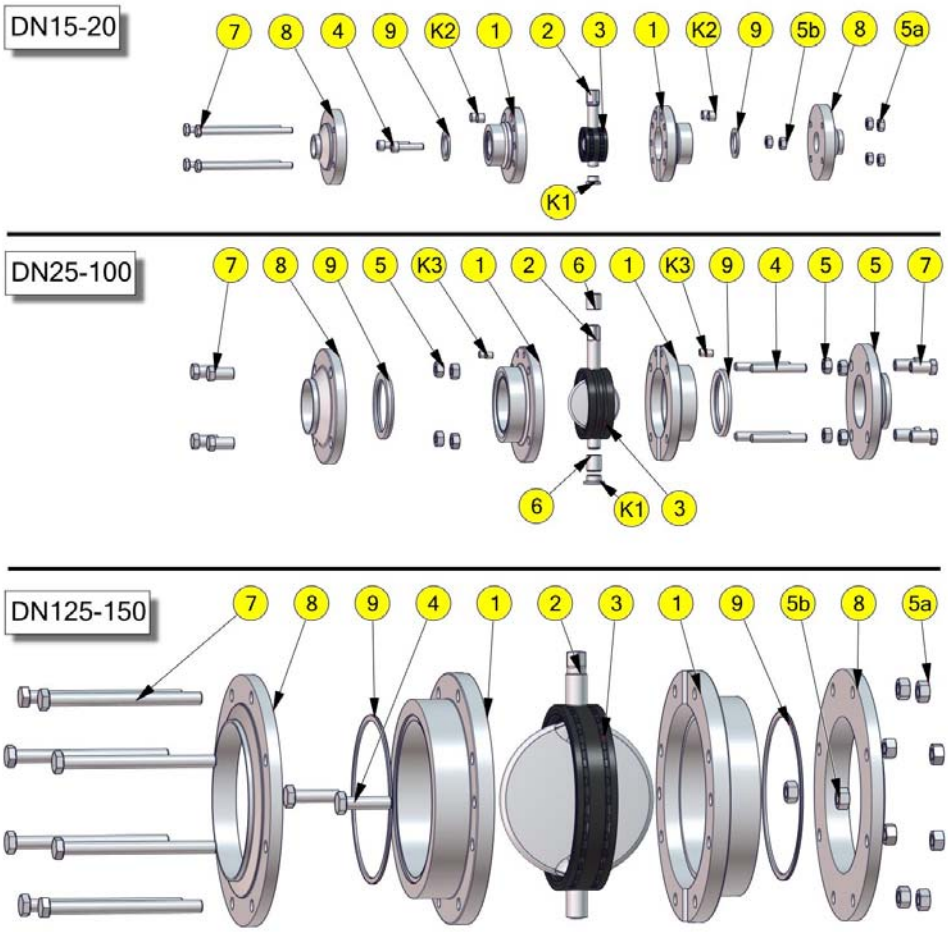


Fig. 7

➤ Intermediate flange - butterfly valve - DN 200
(Illustration without drive system)

1) = Housing flange
2) = Flap
3) = Seal
3a) Back-up ring upper
3b) Back-up ring lower
4) = Screws
5) = Nuts
6) = Plain bearing
7) = Screws
8) = Flange
9) = Seals
10) = Disk
11) = Scraper ring

H) Hand lever
H1) Screw
H2) Locking disc

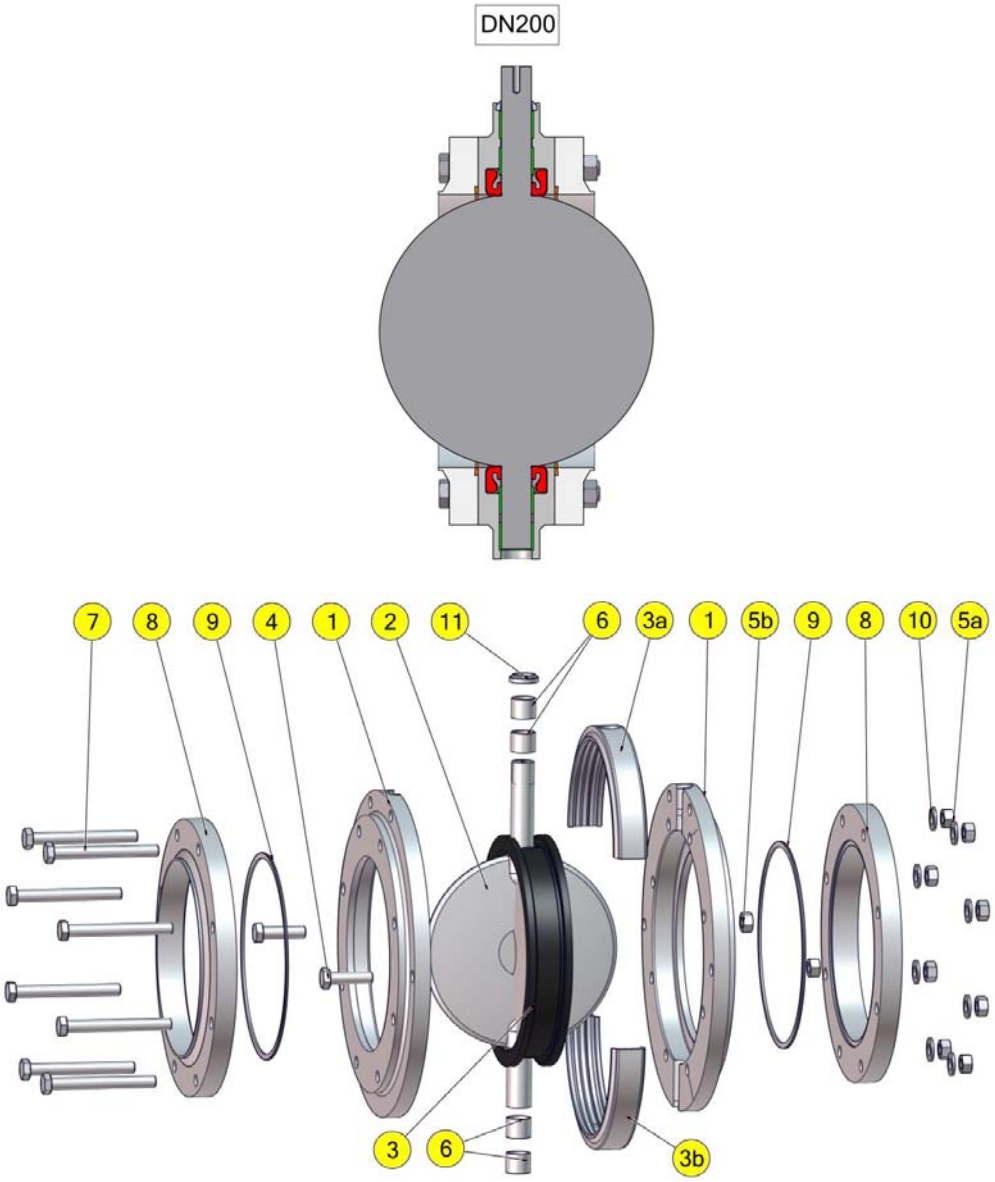
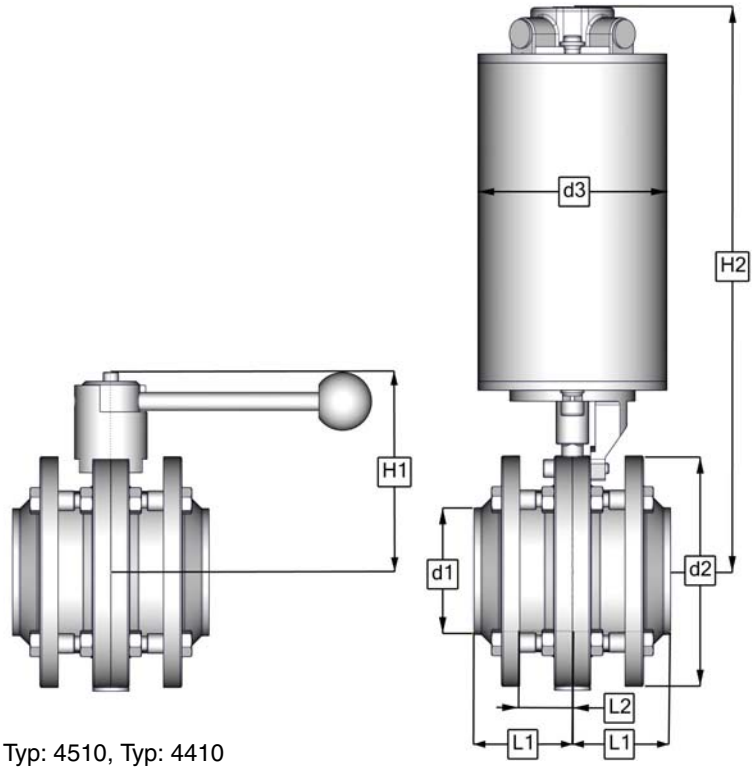


Fig. 8

➤ Dimensions

Intermediate flange - butterfly valve



S - S
Type: 4310, Typ: 4510, Typ: 4410
Type: 4358, Typ: 4558, Typ: 4458

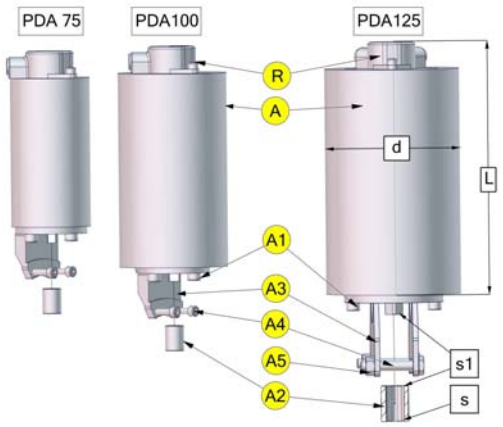
Fig. 9

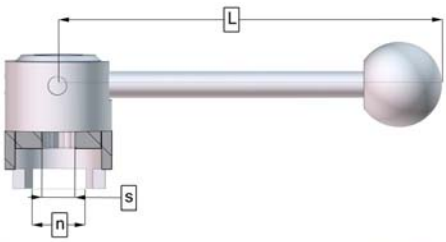
DN / OD	d1	d2	d3	L1	L2	H1	H2
15 (ø16)	ø19x1,5	ø62	ø76	53	29	78	232
20 (ø20)	ø23x1,5	ø72	ø76	53	29	83	237
25 (ø26)	ø29x1,5	ø84	ø104	51	32	88	288
32 (ø32)	ø35x1,5	ø90	ø104	53	32	88	291
40 (ø38)	ø41x1,5	ø96	ø104	54	29	94	294
50 (ø50)	ø53x1,5	ø110	ø104	54	29	101	301
65 (ø66)	ø70x2	ø127	ø104	54	29	110	310
80 (ø81)	ø85x2	ø142	ø104	72	42	122	318
100 (ø100)	ø104x2	ø162	ø104	74	42	134	328
125 (ø125)	ø129x2	ø205	ø129	66	43	181	388
150 (ø150)	ø154x2	ø240	ø129	75	52	200	407
200 (ø200)	ø204x2	ø320	ø129	57	28	250	456

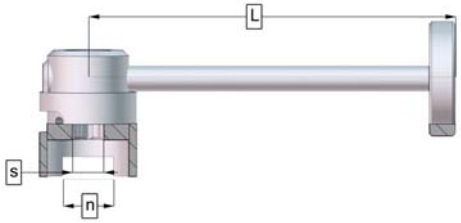
1“ (ø22,9)	ø25,4x1,25	ø80	ø104	64	27	88	288
1½“ (ø35,1)	ø38,1x1,50	ø82	ø104	65	27	94	294
2“ (ø47,8)	ø50,8x1,50	ø108	ø104	65	29	101	301
2½“ (ø60,5)	ø63,5x1,50	ø130	ø104	67	30	110	310
3“ (ø72,1)	ø76,1x2	ø146	ø104	92	36	118	318
4“ (ø97,6)	ø101,6x2	ø166	ø104	70	34	132	328

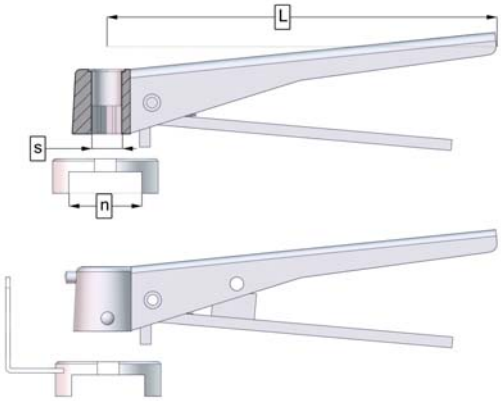
ISO DN 25	ø33,7x2	ø84	ø104	51	32	88	288
ISO DN 32	ø42,4x2	ø90	ø104	53	32	88	291
ISO DN 40	ø48,3x2	ø96	ø104	54	29	94	294
ISO DN 50	ø60,3x2	ø110	ø104	54	29	101	301
ISO DN 65	ø76,1x2	ø127	ø104	54	29	110	310
ISO DN 80	ø88,9x2	ø142	ø104	72	42	122	318
ISO DN 100	ø114,3x2	ø162	ø104	94	42	134	328

6.3 Drive systems

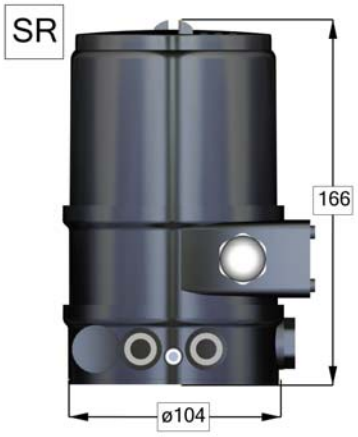
		DN	L	s	s1
A) Actuator *A1) Screws* *A2) Square boss* *A3) Angle bracket* *A4) Screws* *A5) Nuts* *R) Feedback unit with sensor mounting*		10 - 20 20 - 40 25 - 80 100 125 150	168 168 210 210 240 240	10 9,5 9,5 12 12 14	10 10 10 10 16 16

		DN	L	s	n
Hand lever		10 - 20 25 - 65 80 100 125 150	143,5 145 185 185 265 265	10 9,5 9,5 12 12 14	20 20 20 20 32 32
Hand lever with sensor mounting		25 - 65 80 100	145 185 185	9,5 9,5 12	20 20 20

		DN	L	s	n
Hand lever with progressiv adjustable		25 - 65 80 100	125 172 172	9,5 9,5 12	20 20 20

		DN	L	s	n
Hand lever stainless steel *Hand lever stainless steel with sensor mounting*		25 - 80 100	180 180	9,5 12	20 20

6.4 Control - and feedback unit

KI-TOP Control head		Positioner	Feedback unit
1) with stainless steel hood	2) with tranparent hood		with sensor mounting
			

Feedback unit
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) Compressed-air supply

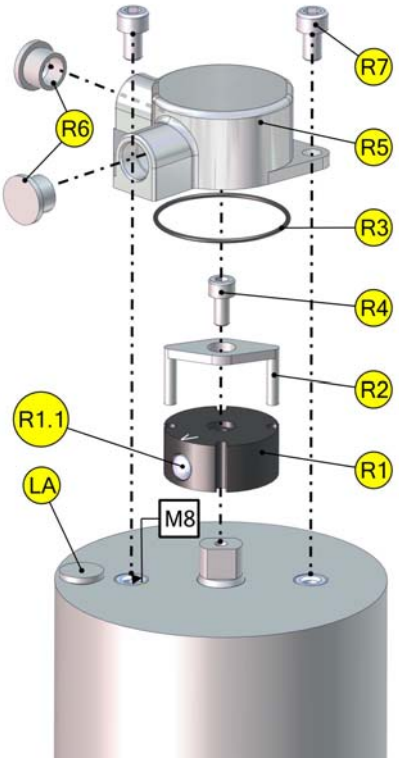


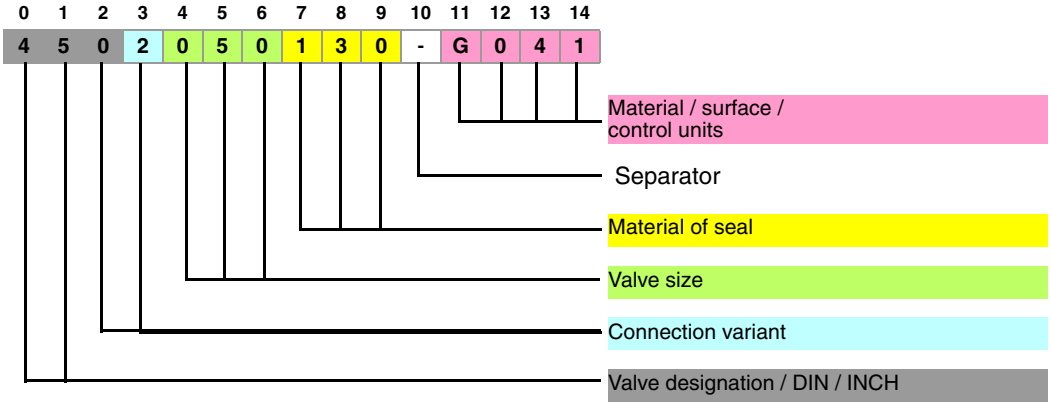
Fig. 10

7. Malfunctions

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

8. Classification

8.1 Structure of order number



➤ 0 - 2 Valve designation

XXxx xxx xxx - xxx

➤ Valve designation

Type e.g. 45xx - butterfly valve pneumatic operating (lö-fs) NC
(see “Modular system” page 11.)

43xx =	Butterfly valve manual operating	4310 =	Intermediate flange - butterfly valve manual operating
45xx =	Butterfly valve pneumatic operating air open- spring close	4510 =	Intermediate flange - butterfly valve pneumatic operating air open- spring close
44xx =	Butterfly valve pneumatic operating air open - air close	4410 =	Intermediate flange - butterfly valve pneumatic operating air open - air close

➤ 3 - 4 Connection variant

xx**XX** xxx xxx - xxx

➤ Connection variant

e.g. 45**02** = threaded flange / welding flange (see “Modular system” page 11.)

➤ 4 - 6 Valve size DN/OD

xxxx **XXX** xxx-xxxx

DN	4	5	6
DN 25	0	2	5
DN 40	0	4	0
DN 50	0	5	0
DN 65	0	6	5
DN 80	0	8	0
DN 100	1	0	0
DN 125	1	2	5
DN 150	1	5	0
DN 200	2	0	0

OD	4	5	6
OD 1"	0	2	6
OD 1 1/2"	0	3	8
OD 2 "	0	5	1
OD 2 1/2"	0	6	4
OD 3 "	0	7	6

➤ 7 - 9 Material of seals

xxxx xxx **XXX** - xxxx

Seals	7	8	9
EPDM	1	3	0
HNBR	4	2	0
Silikon	0	0	0
FKM	1	4	0

➤ 10 Separator

xxxx xxx xxx-xxxx

➤ 11 - 14 Material / surface / control units

xxxx xxx xxx-**XXXX**

	11	12	13	14
Valve with feedback unit, external surface = AISI304, blanc	0	2	0	
Valve with feedback unit, external surface = AISI304, E-polished	0	2	1	
Valve with feedback unit, external surface = AISI304, mat finish	0	2	2	
Valve with feedback unit, external surface = AISI316L, blanc	0	4	0	
Valve with feedback unit, external surface = AISI316L, E-polished	0	4	1	
Valve with feedback unit, external surface = AISI316L, mat finish	0	4	2	
Valve with control head KI-Top SPS	G	5	x	x
Valve with control head KI-Top ASi-Bus	G	6	x	x

9. Wearing parts list

9.1 Butterfly valve

		Seal (3)			
	DN	SILICONE	EPDM	HNBR	FKM
DIN	**15**	-	4328 015 000-G054	4326 015 000-G050	-
	20	-	4328 020 000-G054	4326 020 000-G050	-
	25	4326 025 000-G052	4328 025 000-G054	4326 025 000-G050	4327 025 000-G051
	32	4326 032 000-G052	4328 032 000-G054	4326 032 000-G050	4327 032 000-G051
	40	4326 040 000-G052	4328 040 000-G054	4326 040 000-G050	4327 040 000-G051
	50	4326 050 000-G052	4328 050 000-G054	4326 050 000-G050	4327 050 000-G051
	65	4326 065 000-G052	4328 065 000-G054	4326 065 000-G050	4327 065 000-G051
	80	4326 080 000-G052	4328 080 000-G054	4326 080 000-G050	4327 080 000-G051
	100	4326 100 000-G052	4328 100 000-G054	4326 100 000-G050	4327 100 000-G051
	125	4326 125 000-G052	4328 125 000-G054	4326 125 000-G050	4327 125 000-G051
	150	4326 150 000-G052	4328 150 000-G054	4326 150 000-G050	4327 150 000-G051
INCH	**1**	4326 026 000-G052	4328 026 000-G054	4326 026 000-G050	4327 026 000-G051
	1½	4326 038 000-G052	4328 038 000-G054	4326 038 000-G050	4327 038 000-G051
	2	4326 051 000-G052	4328 051 000-G054	4326 051 000-G050	4327 051 000-G051
	2½	4326 064 000-G052	4328 064 000-G054	4326 064 000-G050	4327 064 000-G051
	3	4326 076 076-G052	4328 076 076-G054	4326 076 076-G050	4327 076 076-G051
	4	4326 101 000-G052	4328 101 000-G054	4326 101 000-G050	4327 101 000-G051

9.2 Intermediate flange-butterfly valve

		Seal (3)				Seal (9)
	DN	SILICONE	EPDM	HNBR	FKM	
DIN	**15**	-	4328 015 000-G054	4326 015 000-G050	-	2353 021 016-114
	20	-	4328 020 000-G054	4326 020 000-G050	-	2353 028 020-114
	25	4326 025 000-G052	4328 025 000-G054	4326 025 000-G050	4327 025 000-G051	2020 025 000-xxx
	32	4326 032 000-G052	4328 032 000-G054	4326 032 000-G050	4327 032 000-G051	2020 032 000-xxx
	40	4326 040 000-G052	4328 040 000-G054	4326 040 000-G050	4327 040 000-G051	2020 040 000-xxx
	50	4326 050 000-G052	4328 050 000-G054	4326 050 000-G050	4327 050 000-G051	2020 050 000-xxx
	65	4326 065 000-G052	4328 065 000-G054	4326 065 000-G050	4327 065 000-G051	2020 065 000-xxx
	80	4326 080 000-G052	4328 080 000-G054	4326 080 000-G050	4327 080 000-G051	2020 080 000-xxx
	100	4326 100 000-G052	4328 100 000-G054	4326 100 000-G050	4327 100 000-G051	2020 100 000-xxx
	125	4326 125 000-G052	4328 125 000-G054	4326 125 000-G050	4327 125 000-G051	2353 136 125-114
	150	4326 150 000-G052	4328 150 000-G054	4326 150 000-G050	4327 150 000-G051	2353 161 150-114
	200	-	4328 200 000-G054	-	-	2353 211 200-114
INCH	**1**	-	4328 026 000-G054	-	-	2020 025 000-054
	1½	-	4328 038 000-G054	-	-	2020 040 000-054
	2	-	4328 051 000-G054	-	-	2020 050 000-054
	2½	-	4328 064 000-G054	-	-	2020 065 000-054
	3	-	4328 076 076-G054	-	-	2020 080 000-054
	4	-	4328 101 000-G054	-	-	2020 100 000-054

Material code: 2020 __ 000 - **xxx**

- G050	= HNBR
- G051	= FKM
- G052	= SILICONE
- G054	= EPDM
- 114	= kflex

Declaration of incorporation

Translation of the original

Manufacturer / authorised representative:

Guth Ventiltechnik GmbH
Horstring 16
76829 Landau
Germany

Authorised representative,
for compiling technical documents:

Achim Kauselmann
Documentation / Development
KIESELMANN GmbH

Product	**Function**
pneum. Lift actuators	Stroke movement
pneum. Rotary actuators	Rotary movement
Ball valves	Media cutoff
Butterfly valves	Media cutoff
Single seat valves	Media cutoff
Flow control valves	Control of liquefied media
Throttle valve	Control of liquefied media
Overflow valve	Definition of fluid pressure
Double seat valve	Media separation
Bellow valves	Sampling of liquids
Sampling valves	Sampling of liquids
Two way valves	Media cutoff
Tankdome fitting	Prevention of overpressure and vacuum, Tank cleaning
Safety valve	Prevention of overpressure

The manufacturer hereby states that the above product is considered as an incomplete machine in the sense defined in the Directive 2006/42/EC on Machinery. The above product is exclusively intended to be installed into a machine or an incomplete machine. The said product does not yet conform to all the relevant requirements defined in the Directive on Machinery referred to above for this reason.

The specific technical documents listed in Appendix VII, Part B, have been prepared. The Authorized Agent empowered to compile technical documents may submit the relevant documents if such a request has been properly justified.

Commissioning of an incomplete machine must not only carried out if it has been determined that the respective machine into which the incomplete machine is to be installed conforms to the regulations set out in the Directive on Machinery referred to above.

The above product conforms to the requirements of the directives and harmonized standards specified below:

- Directive 2014/68/EU
- DIN EN ISO 12100 Safety of machinery

Landau, 01.07.2016

Oliver Hecker
General Manager