Pfeiffer
Chemie-Armaturenbau GmbH

Centre interposed flange valve Series 17b - Type WZ

Application:

Shut-off valve with pneumatic sleeve for hard wearing media, especially bulky material:

- Nominal diameter DN 50 to DN 1000
- Differential pressure up to 10 bar
- Temperatures -40°C to 200°C

The series 17b - type WZ is a tight sealing interposed flange valve.
The body is in one part, and the sleeve is firmly galvanised in the valve.
The valve is suitable for hard, fluid and gasous media.
The control valve consists basically of centric shut-off valve disc and a pneumatic actuator.
The valve is designed according to the modular-assembly princible, and can be combined with various options, which have the following features:

- Solid design.
- Body with a high self loading capacity.
- Mountable between flanges acc. to DIN 2501.
- Exchangable actuator.
- Attachments are possible acc. to DIN ISO 5211.

Versions:

The shut-off valve, series 17b - type WZ obtainable in the following versions:

- Shut-off valve with free shaft ends.
- Shut-off valve with pneumatic actuator, series 31a.
- Butterfly valve preferably with pneumatic diaphragm actuator, series 30a.

Special designs:

- Design for high temperature.
- Alternative materials.

Fig 1 - Shut-off valve, series 17b - type WZ with free shaft ends

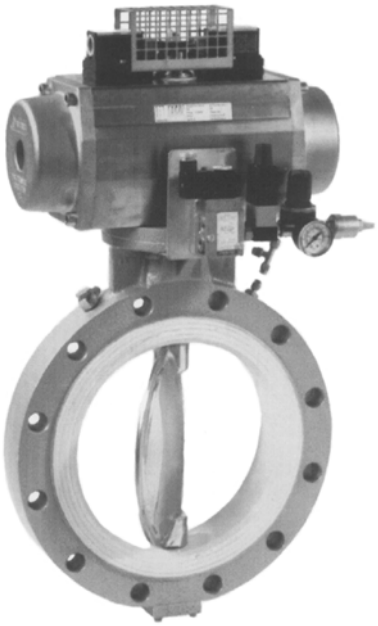

Fig 2 - Shut-off valve series 17b - type WZ with AT-Actuator series 31a

Additional accessories and attachment parts

The following accessories for the control valve are available, either single or in combination:

- pneumatic or electrical actuators
- Positioner
- Limit switch
- Solenoid valve
- Air supply station
- Pressure gauge mounting blocks

Further attachment parts are possible on request, according to specification.

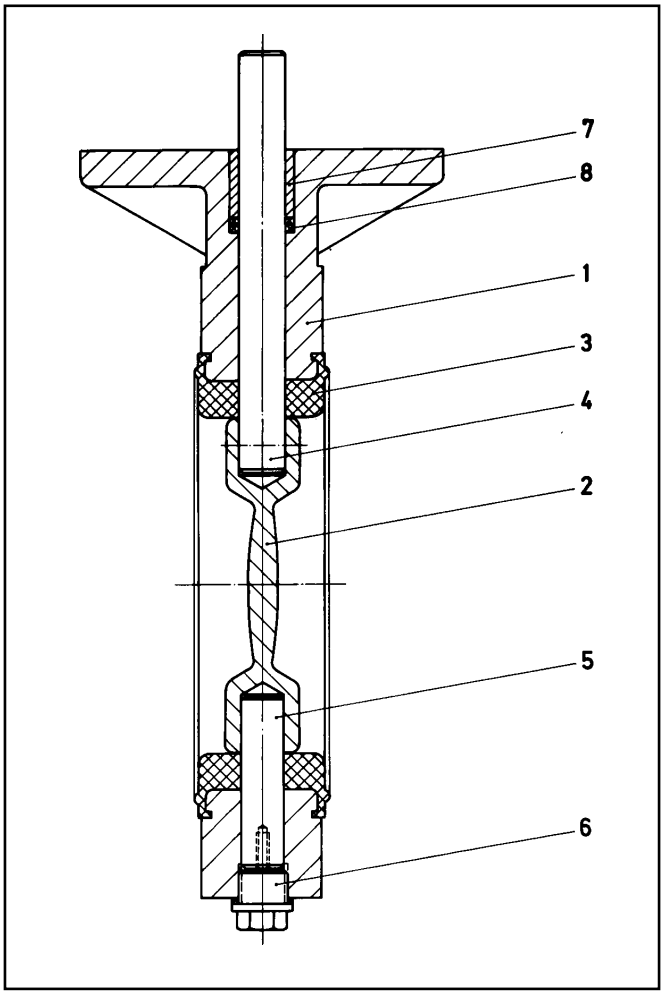

Fig 3 - Sectional drawing of a shut-off valve

Pos.	Description	Pos.	Description
1	Valve body	5	Bearing pin
2	Valve disc	6	Locking screw
3	Sleeve	7	Bearing bush
4	Shaft	8	Sealing ring

Table 1 - Parts list

Function- and operation:

Flow through in the control valve is possible in both directions
The position of the valve disc (2) determines the flow through between valve disc (2) and valve body (1) area.

With this model, the sleeve (3) is pressed onto the valve disc (2) (static sealing).
This particular process has a very good advantage for bulky material:
In the inactive state, there is hardly any contact between the sleeve and the valve disc. Therefore there less abrasion and less actuating power required.
A further advantage of this system is the self-adjustment of the sleeve. As a rule the disc is tight, if the surface is in contact with the media, which causes abrasion of several millimeters.
To ensure perfect funktioning of the valve and a longer life, firstly, it is important not to keep the pressure of the sleeve higher than is absolutely necessary, and secondly to allow for a so-called time delay, i.e. the sleeve is only pneumatically pressed into place approx. 1-5 seconds after the valve has closed. In order to ensure this parameter, you must have a control mechanism, as shown in (fig. 2).

Note: The sleeve must under no circumstances be connected directly without pressure reducer to the air supply for the pneumatic actuator.

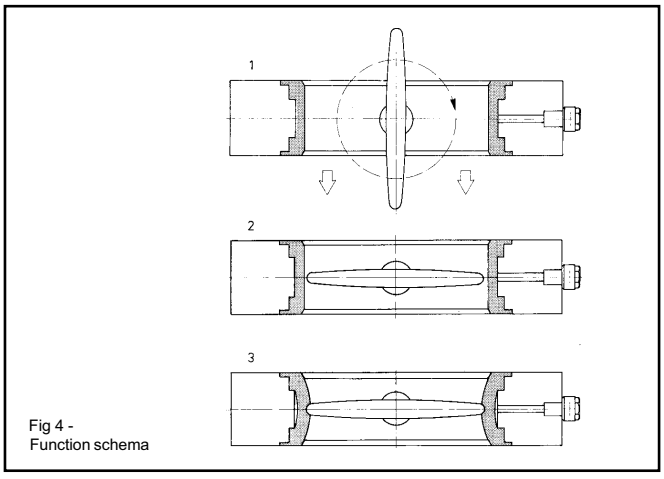

Fig 4 -
Function schema

1. **Shut-off disc open:**
   Free flow through for product stream

2. **Disc closed:**
   However, no contact between sealing element and disc, therefore no mechanical abrasion.

3. **Pressed sealing element:**
   The pressure control of the sealing element against the valve disc is a careful constant sealing. Depending on the nominal diameter, the pressure densitiy is up to 10 bar on the whole periphery.

Safety position:
Depending on the pneumatic actuator, the shut-off valve has two safety positions, which become effective when pressure is relieved, or when the air supply fails:

- Shut-off valve with actuator " Spring closes ":
  If the air supply fails, the shut-off valve closes. The valve opens when the air pressure increases acting against the force of the springs.

- Shut-off valve with actuator " Spring opens ":
  If the air supply fails, the shut-off valve opens. The valve closes when the air control pressure increases against the force of the springs.

Note: The shut-off valve is suitable for use in hazadous areas according to ATEX 94/9/EG:
See EC- Examination certificate.
BVS 03 ATEX H 024 X

General technical data:

Nominal size and pressure range	DN 50 - DN 100 DN 125 - DN 250 DN 300 - DN 400 DN 450 - DN 600 DN 700 - DN 900 DN 1000	= 16 bar = 10 bar = 6 bar = 4 bar = 2 bar = 1 bar
Connection	connection between flanges DIN 2501	
Temperature range	-40°C up to 200°C	
Leakage rate	Leakage rate A acc. DIN EN 12266-1, test P12 (leakage rate 1 BO acc. DIN 3230 partl 3)	

Material:

Valve body	Silumin; GG 25; GGG 40; Stainless steel
Valve disc	Stainless steel; GGG; PVDF; coated; ground and polished
Sleeve	Perbunan; NBR; Hypalon; EPDM; Viton; Silikon e.g.
Shaft	Stainless steel; 9S20K
Bearing bush	Brass; PTFE
O-rings	Perbunan; Viton

Torque and breakaway torques:

Difference pressure Δp in bar	0	2	4	6	8	10	12	14	16
DN	Tightening torque in Nm								
50	3	4	5	6	8	10	12	13	14
65	5	7	8	10	11	13	15	18	21
80	7	9	11	12	14	16	18	20	22
100	8	10	15	20	25	30	40	45	50
125	13	15	25	30	40	50	60	70	75
150	17	25	40	50	70	80	95	105	120
200	38	60	90	110	150	190	235	260	275
250	75	125	200	240	320	375	450	510	570
300	115	180	280	350	480	590			
350	190	250	450	550	720	900			
400	245	350	600	740	1000	1200			
450	350	480	750	1000					
500	480	700	1100	1350					
600	800	1050	1700	2050					
700	1200	1450	2300						
800	1650	2000	3300						
900	2000	2500	4700						
1000	3200	4300	8200						

Table 4 - Torques and breakaway torques

The torques specified here are values, which were measured and determined with lubricanting media. These values can be higher with bulky materials (dry, hard wearing).
The oversize dimension of the valve disc to the rubber sealing is decisive in determining the tightening torque. Only by selecting the necessary oversize for the required sealing pressure, is it possible to achieve maximum easy movement.

k_V - Values:

DN	Control angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	1.9	5.8	14.7	27	44	73	101	144	190
65	4.5	14	21	42	74	120	170	198	235
80	5.1	18	33	56	99	150	256	375	430
100	8	25	56	99	168	240	410	563	695
125	9	36	85	164	231	378	609	944	1090
150	15	56	131	224	339	541	983	1300	1620
200	22	75	190	350	660	1140	1720	2093	2760
250	34	144	210	368	860	1480	2360	3860	4610
300	73	240	510	884	1530	2310	3470	4740	5990
350	93	361	653	1268	2040	2990	4840	6650	8150
400	124	467	975	1410	2400	3940	6290	9100	11100
450	162	624	1180	1890	3050	4910	8180	11900	15700
500	200	756	1580	2470	4000	6230	10200	14900	18650
600	244	990	1675	3180	5330	8610	13990	22000	27000
700	293	1210	2440	4300	7350	11800	19350	29900	37100
800	364	1490	3180	5990	9300	15610	26000	41500	49000
900	410	1530	3600	6580	11700	19880	29400	44000	57600
1000	505	1990	5300	8440	15100	22600	35000	49600	64000

Table 5 - kv-Values

Dimensions:

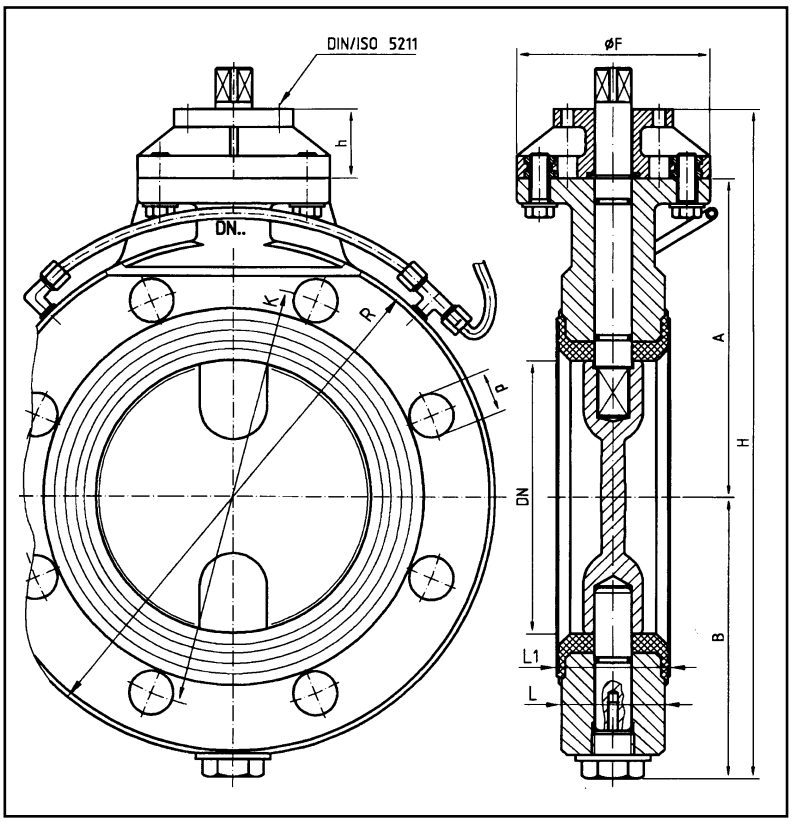

Fig 5 - Dimensional drawing

Selection and sizing of the control valve:

1. Calculation of the appropriate kvs-value in accordance to DIN E 60535
2. Selection of DN kvs-value according to table 5.
3. Selection of appropriate actuator.

Order text:

Stainless steal valve disc, series 17b - type WZ,
DN . . . . / PN . . . . ,
eventual.. Special design
Actuator, manufacturer: . . . .
Pressure: . . . . bar,
Safety position: . . . .
Limit switch, manufacturer: . . . .
Soleniod valve, manufacturer: . . . .
Positioner: . . . .
Others: . . . .

Note: All relevant details regarding the version ordered, which deviate from the specified version in this technical description data, can be taken if required, from the corresponding order confirm.

DN		50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
A		110	117	125	135	163	175	200	249	273	304	330	434	493	554	610	656	694
B		85	88	95	105	146	159	185	207	237	270	302	365	420	486	535	590	644
h		38	38	38	38	55	55	55	15	15	15	15	15	15	15	15	15	15
H		233	243	258	278	364	389	440	471	525	589	647	814	928	1055	1160	1261	1366
ØF		105	105	105	105	105	105	105	160	160	160	160	200	200	200	200	200	300
ØR		165	185	200	220	250	285	340	395	445	505	565	670	780	895	1015	1110	1230
L		43	46	46	52	56	56	60	68	78	78	102	110	110	130	130	130	140
L1		46	49	49	55	59	59	63	71	81	81	105	113	115	135	135	138	148
ØK	PN 6	110	130	150	170	200	225	280	335	395	445	495	600	705	810	920	1020	1120
	PN 10	125	145	160	180	210	240	295	350	400	460	515	620	725	840	950	1050	1160
	PN 16	125	145	160	180	210	240	295	355	410	470	525	650	770	840	950	1050	1170
nxØd	PN 6	4x14	4x14	4x18	4x18	8x18	8x18	8x18	12x18	12x22	12x22	16x22	20x22	20x26	24x26	24x30	24x30	28x30
	PN 10	4x18	4x18	8x18	8x18	8x18	8x22	8x22	12x22	12x22	16x22	16x26	20x26	20x30	24x30	24x33	28x33	28x36
	PN 16	4x18	4x18	8x18	8x18	8x18	8x22	12x22	12x26	12x26	16x26	16x30	20x33	20x36	24x36	24x39	28x39	28x42
DIN ISO connection		F05	F05	F05	F05	F07	F07	F07	F10	F10	F12	F12	F12	F14	F14	F16	F16	F16

Table 6 - Dimensions in mm and weight in kg

For your special requirements, please contact our technical sales team.

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Specifications and design are subject to change with notice

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