

Butterfly Valve K 220

for application in the harsh environment of the chemical industry



Advantage

- DN 250 to DN 400
- liner as a sealing element
- liner makes additional flange seals superfluous
- cost efficient and direct actuator mounting without mounting kit

Application

- chemical plants
- industrial plants
- electroplating plants

Intended Use

- for shutting off pipeline systems

Flow Media

- Neutral and aggressive fluid or gaseous media, provided that the valve components coming into contact with the media are resistant at the operating temperature in accordance with the ASV-resistance guide.

Nominal Pressure (H₂O, 20°C)

- PN 5 - PN 6

Fluid Temperature

- see pressure-/temperature diagram

Operating Pressure

- see pressure-/temperature diagram

Size

- DN 250 - DN 400

Body / Shut-Off Disc

- PVC-U/PVC-U
- PP/PP
- PP/PVDF
- PVDF/PVDF

Spindle

- stainless steel (1.4305)

Liner

- EPDM
- FPM

Sealing

- FPM
- EPDM

Actuation

- with hand lever, spring-loaded latch for locking plate with 7 notches, each 15°
- with gear box, 1:44
- with electric actuator, DIN EN ISO 5211
- with pneumatic actuator, DIN EN ISO 5211

Connection

- intermediate flange construction with hole pattern
- DN 250 - DN 400 acc. DIN EN 2501, ANSI and JIS on request

Mounting Position

- operating element preferably at the top

Accessories

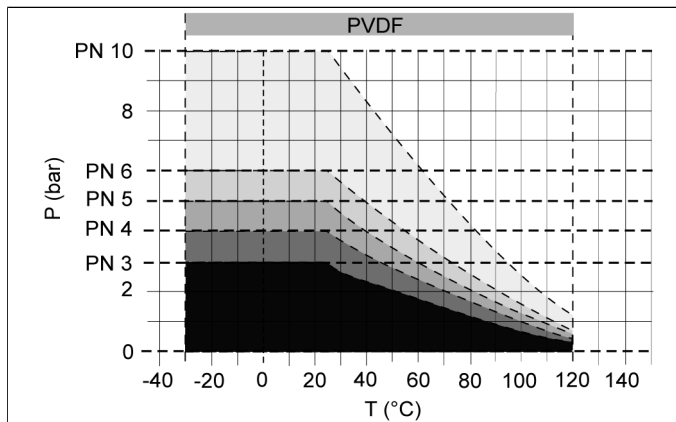
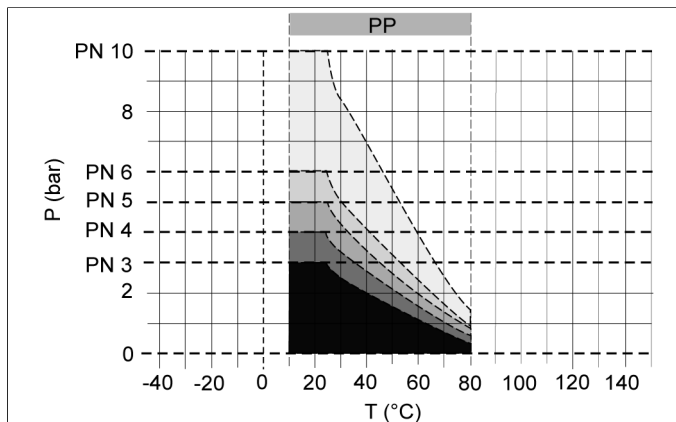
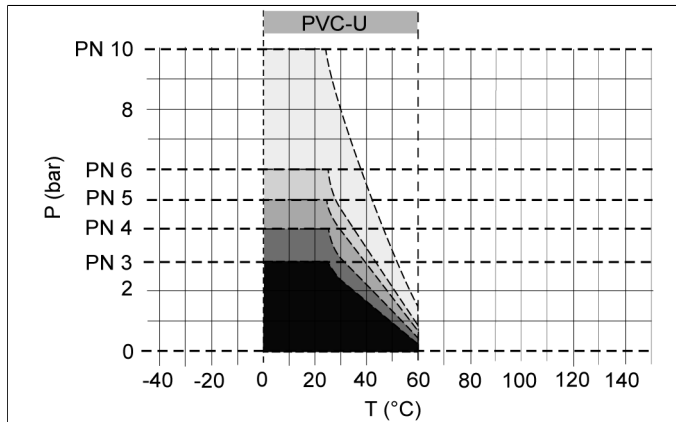
- limit switch unit

Colour

- body: PVC-U, grey, RAL 7011
- body: PP, grey, RAL 7032
- body: PVDF, opaque, yellowish-white
- hand lever: PVC-U, orange, RAL 2004

Butterfly Valve K 220

Pressure/temperature diagram



P = operating pressure

T = temperature

The pressure/temperature limits are applicable for the stated nominal pressures and a computed operating life factor of 25 years. These are standard values for harmless media (DIN 2403), to which the valve material is resistant.

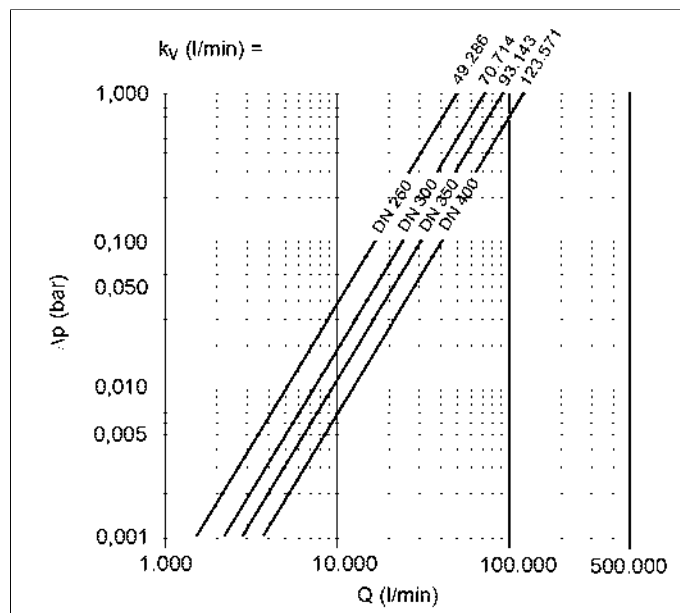
For other media please refer to the ASV resistance guide.

The durability of wear parts depends on the operating conditions of the application.

For temperatures below 0°C (PP < +10°C) please specify the precise operating conditions of the application.

The rated pressure depends on the valve size and material. For the corresponding rated pressure value of the valve, please refer to the »Order table«.

Pressure loss curve (standard values for H₂O, 20°C)



ΔP = pressure loss

Q = flow

pressure loss and *k_v* value

The diagram shows the pressure loss ΔP in relation to the flow *Q*.

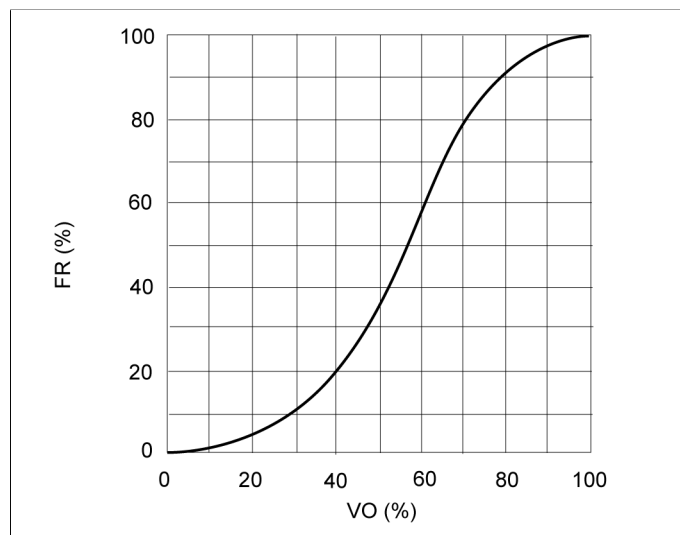
Conversion aid:

$$c_v = k_v \times 0.07; f_v = k_v \times 0.0585$$

Units:

k_v [l/min]; *c_v* [gal/min] US; *f_v* [gal/min] GB

Flow characteristic



VO = valve opening

FR = *K_v* value

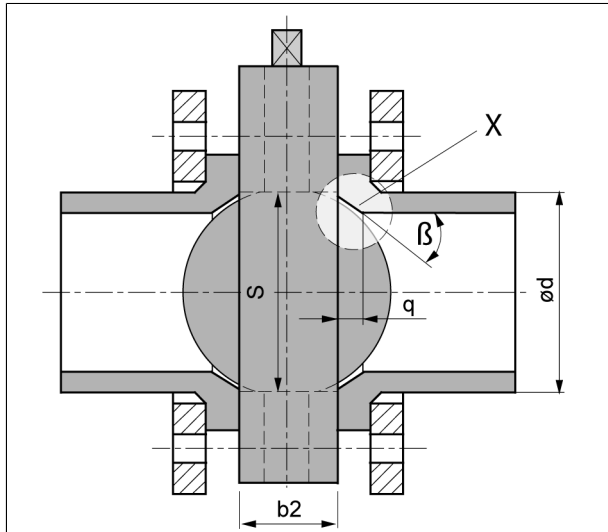
Torque (Nm)

d (mm)	280	315	355	400
PVC-U	392	588	850	981
PP	392	588	850	981
PVDF	392	588	850	981

The specified torques are standard values. They were determined at the specified nominal pressures with H₂O, 20°C. These values can be higher or lower, depending on the operating pressure.

Butterfly Valve K 220

Bevel dimension for welding stubs



Installation advice

d (mm)	280	315	355	400
q (mm)xβ (°)	20x30	35x30	55x30	50x30

Machine a bevel to welding necks according to the table, prior to installing the butterfly valve in the pipe. Otherwise damage to the shut-off disc could occur and leaks would result.

* on request

Maximum permissible flange tightening torque (Nm)

d (mm)	280	315	355	400
Md (Nm)	65	65	80	85

Operating note

Safe operation of the valve can only be ensured if it is properly installed, operated, serviced or repaired by qualified personnel according to its intended use while observing the accident prevention regulations, safety regulations, relevant standards, directives/technical regulations or codes of practice such as e.g. DIN, DIN EN, DIN ISO and DVS*. *DVS = German Welding Society. The intended use includes adhering to specified limit values for pressure and temperature, as well as checking the resistance. This requires all components coming into contact with the medium to be "resistant" in accordance with the ASV resistance guide.

Butterfly Valve K 220, gear box [d280 - d400]



body PVC-U		disc PVC-U				
size pressure range	d(mm)		280	315	355	400
	DN(mm)		250	300	350	400
	DN(inch)		10	12	14	16
	PN(bar)		6	6	6	5
Connection	sealing	ident No.				
PVC-U wafer type flange DIN EN 1092	EPDM		138729	138730	138731	138732
	FPM		138743	138744	138745	138746
	weight		16.40 kg	24.20 kg	35.40 kg	62.30 kg

body PP		disc PP				
size pressure range	d(mm)		280	315	355	400
	DN(mm)		250	300	350	400
	DN(inch)		10	12	14	16
	PN(bar)		6	6	6	5
Connection	sealing	ident No.				
PP wafer type flange DIN EN 1092	EPDM		138757	138758	138759	138760
	FPM		138771	138772	138773	138774
	weight		13.40 kg	19.50 kg	29.80 kg	51.60 kg

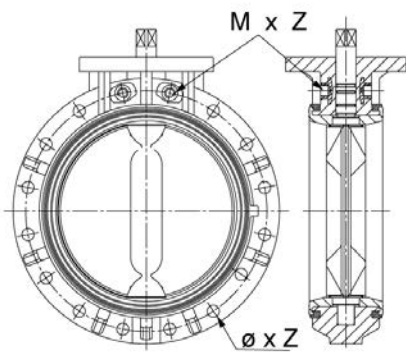
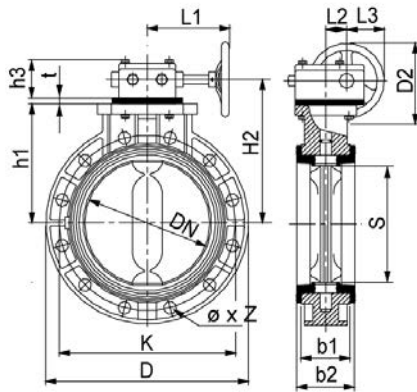
body PP		disc PVDF				
size pressure range	d(mm)		280	315	355	400
	DN(mm)		250	300	350	400
	DN(inch)		10	12	14	16
	PN(bar)		6	6	6	5
Connection	sealing	ident No.				
PP wafer type flange DIN EN 1092	EPDM		138785	138786	138787	138788
	FPM		138799	138800	138801	138802
	weight		15.00 kg	22.20 kg	54.90 kg	57.20 kg

Butterfly Valve K 220, gear box [d280 - d400]



body PVDF		disc PVDF				
<i>size</i>	d(mm)		280	315	355	400
<i>pressure range</i>	DN(mm)		250	300	350	400
	DN(inch)		10	12	14	16
	PN(bar)		6	6	6	5
<i>Connection</i>	<i>sealing</i>	<i>ident No.</i>				
PVDF wafer type flange DIN EN 1092	EPDM		138813	138814	138815	138816
	FPM		138827	138828	138829	138830
	<i>weight</i>		18.90 kg	27.80 kg	40.70 kg	71.70 kg

Butterfly Valve K 220, gear box [d280 - d400]



dimensions

d(mm)		280	315	355	400
DN(mm)		250	300	350	400
DN(inch)		10	12	14	16
dimensions(mm)					
	b1	104	127	119.5	160
	b2	109	131.5	127	166
	h3	73	73	86	86
	ØxZ	23/12	23/12	23/16	27/14
	MxZ	-	-	-	M24/2
PP	D	406	488	526	588
PVC-U	D	411	490	530	596
PVDF	D	402	480	518	583
	D2	200	200	300	300
PP	h1	238	297	297	342
PVC-U	h1	239.5	298	300	345
PVDF	h1	233	291	293	340
PP	H2	270	329	334.7	379.7
PVC-U	H2	271.5	330	337.7	382.7
PVDF	H2	265	323	330.7	377.7
	K	350	400	460	515
	L1	177	177	217	217
	L2	52	52	67	67
	L3	100	100	150	150
	S	247.5	302.5	348	386.5
	t	-	-	-	25

Butterfly Valve K 220, electric [d280 - d400]


Voltage

- please refer to the technical data

Screws

- stainless steel (1.4301)

Actuator variant 230 V		body PVC-U		disc PVC-U			
<i>size</i> <i>pressure range</i>	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
<i>Connection</i>	<i>sealing</i>	<i>ident No.</i>					
PVC-U wafer type flange DIN EN 1092	EPDM			1387299230	1387309230	1387319230	1387329230
	FPM			1387439230	1387449230	1387459230	1387469230
	<i>weight</i>			30.70 kg	38.50 kg	46.00 kg	65.50 kg

Actuator variant 230 V		body PP		disc PP			
<i>size</i> <i>pressure range</i>	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
<i>Connection</i>	<i>sealing</i>	<i>ident No.</i>					
PP wafer type flange DIN EN 1092	EPDM			1387579230	1387589230	1387599230	1387609230
	FPM			1387719230	1387729230	1387739230	1387749230
	<i>weight</i>			27.70 kg	33.80 kg	40.60 kg	54.90 kg

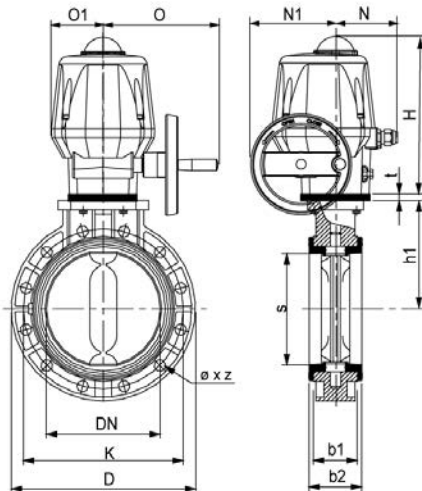
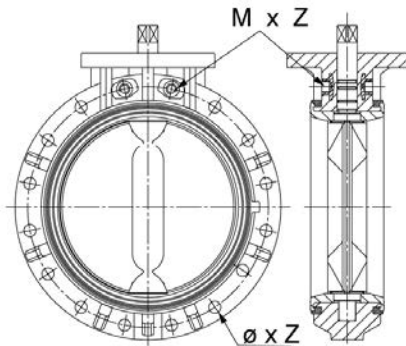
Actuator variant 230 V		body PP		disc PVDF			
<i>size</i> <i>pressure range</i>	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
<i>Connection</i>	<i>sealing</i>	<i>ident No.</i>					
PP wafer type flange DIN EN 1092	EPDM			1387859230	1387869230	1387879230	1387889230
	FPM			1387999230	1388009230	1388019230	1388029230
	<i>weight</i>			29.30 kg	36.50 kg	65.50 kg	60.40 kg

Butterfly Valve K 220, electric [d280 - d400]



Actuator variant 230 V		body PVDF		disc PVDF			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PVDF wafer type flange DIN EN 1092	EPDM			1388139230	1388149230	1388159230	1388169230
	FPM			1388279230	1388289230	1388299230	1388309230
	weight			41.00 kg	51.10 kg	91.70 kg	84.60 kg

Butterfly Valve K 220, electric [d280 - d400]



dimensions

d(mm)	280	315	355	400
DN(mm)	250	300	350	400
DN(inch)	10	12	14	16
actuator type	VT600	VT600	VT1000	VT1000

dimensions(mm)

b1	104	127	119.5	160
b2	109	131.5	127	166
ØxZ	23/12	23/12	23/16	27/14
MxZ	-	-	-	M24/2
PP D	406	488	526	588
PVC-U D	411	490	530	596
PVDF D	402	480	518	583
PP h1	238	297	297	342
PVC-U h1	239.5	298	300	345
PVDF h1	233	291	293	340
H	349	349	349	349
K	350	400	460	515
N	102	102	102	102
N1	140	140	140	140
O	228	228	228	228
O1	240	240	240	240
S	247.5	302.5	348	386.5
t	-	-	-	25

Butterfly Valve K 220, electric [d280 - d400]

Technical data

VT-Line

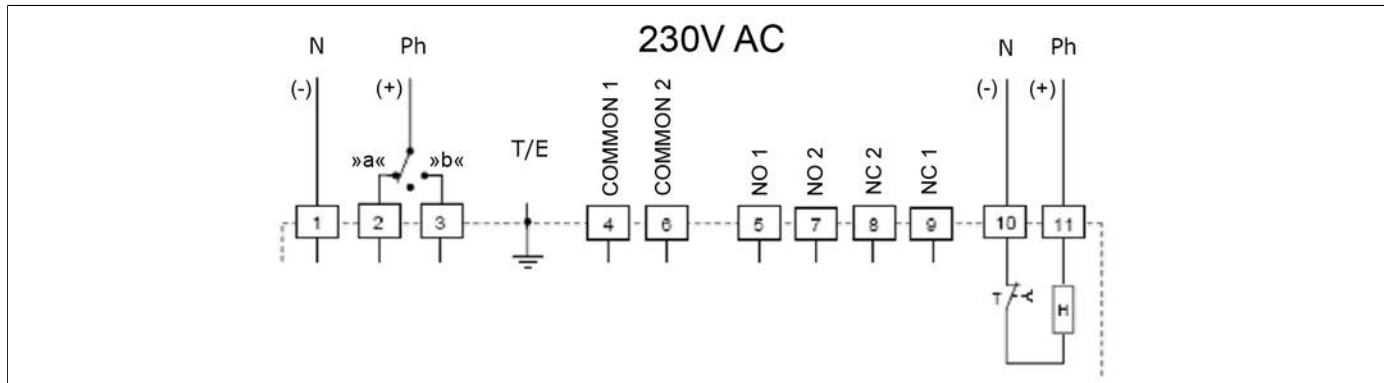
Option (to be ordered additionally if required)

2 additional limit switches; long hand lever; fail-safe rechargeable battery pack (internal/external); positioner; Feedback: potentiometer; feedback: 4 ... 20mA; positioner: 4 ... 20mA / 0 ... 10V; AS Interface connection; ATEX version; Duty cycle: 80%

actuator type	VT600	VT1000
Torque	600	1000
Voltage	230 VAC	230 VAC
Manipulating time(s)	38	38
Power consumption(W)	250	250
Setting angle(°)	90	90
Weight(kg)	17.1	17.1
Duty cycle(%)	50	50
Type of protection	IP 67	IP 67
Temperature(°C)	-20 ... 70	-20 ... 70

Recommended wiring

VT-Line



NO1 = limit switch 1 open

NO2 = limit switch 2 open

NC1 = limit switch 1 closed

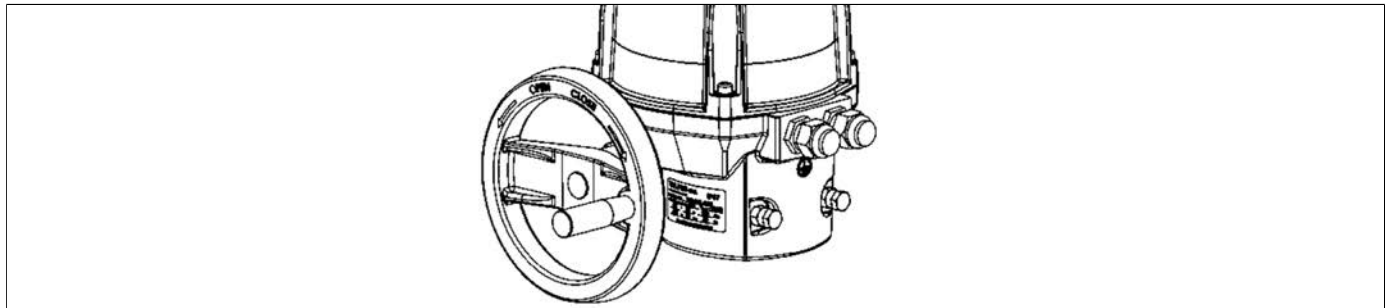
NC2 = limit switch 2 closed

»a« = open

»b« = closed

manual emergency control

VT-Line



Prior to manual commissioning ensure that the electricity supply is interrupted. It is not necessary to disengage the coupling; it is sufficient to turn the handwheel.

Butterfly Valve K 220, pneumatic [d280 - d400]



Control Pressure

- 6 bar

Control Function

- NC (normally closed)
- NO (normally open)
- DA (double acting)

Screws

- stainless steel (1.4301)

Actuator variant NC		body PVC-U		disc PVC-U			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PVC-U wafer type flange DIN EN 1092	EPDM			1387299660	1387309660	1387319660	1387329660
	FPM			1387439660	1387449660	1387459660	1387469660
	weight			50.00 kg	79.80 kg	87.30 kg	106.80 kg

Actuator variant NO		body PVC-U		disc PVC-U			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PVC-U wafer type flange DIN EN 1092	EPDM			1387299670	1387309670	1387319670	1387329670
	FPM			1387439670	1387449670	1387459670	1387469670
	weight			50.00 kg	79.80 kg	87.30 kg	106.80 kg

Actuator variant DA		body PVC-U		disc PVC-U			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PVC-U wafer type flange DIN EN 1092	EPDM			1387299680	1387309680	1387319680	1387329680
	FPM			1387439680	1387449680	1387459680	1387469680
	weight			22.70 kg	40.80 kg	48.30 kg	67.80 kg

Butterfly Valve K 220, pneumatic [d280 - d400]



Actuator variant NC		body PP		disc PP			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PP wafer type flange DIN EN 1092	EPDM			1387579660	1387589660	1387599660	1387609660
	FPM			1387719660	1387729660	1387739660	1387749660
	weight			47.00 kg	75.10 kg	81.70 kg	96.10 kg

Actuator variant NO		body PP		disc PP			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PP wafer type flange DIN EN 1092	EPDM			1387579670	1387589670	1387599670	1387609670
	FPM			1387719670	1387729670	1387739670	1387749670
	weight			47.00 kg	75.10 kg	81.70 kg	96.10 kg

Actuator variant DA		body PP		disc PP			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PP wafer type flange DIN EN 1092	EPDM			1387579680	1387589680	1387599680	1387609680
	FPM			1387719680	1387729680	1387739680	1387749680
	weight			19.70 kg	36.10 kg	42.70 kg	57.10 kg

Butterfly Valve K 220, pneumatic [d280 - d400]



Actuator variant NC		body PP		disc PVDF			
<i>size</i>	d(mm)			280	315	355	400
	<i>pressure range</i>	DN(mm)		250	300	350	400
		DN(inch)		10	12	14	16
		PN(bar)		6	6	6	5
<i>Connection</i>	<i>sealing</i>	<i>ident No.</i>					
	<i>weight</i>						
PP wafer type flange DIN EN 1092	EPDM			1387859660	1387869660	1387879660	1387889660
	FPM			1387999660	1388009660	1388019660	1388029660
	<i>weight</i>			48.60 kg	77.80 kg	106.80 kg	101.70 kg

Actuator variant NO		body PP		disc PVDF			
<i>size</i>	d(mm)			280	315	355	400
	<i>pressure range</i>	DN(mm)		250	300	350	400
		DN(inch)		10	12	14	16
		PN(bar)		6	6	6	5
<i>Connection</i>	<i>sealing</i>	<i>ident No.</i>					
	<i>weight</i>						
PP wafer type flange DIN EN 1092	EPDM			1387859670	1387869670	1387879670	1387889670
	FPM			1387999670	1388009670	1388019670	1388029670
	<i>weight</i>			48.60 kg	77.80 kg	106.80 kg	101.70 kg

Actuator variant DA		body PP		disc PVDF			
<i>size</i>	d(mm)			280	315	355	400
	<i>pressure range</i>	DN(mm)		250	300	350	400
		DN(inch)		10	12	14	16
		PN(bar)		6	6	6	5
<i>Connection</i>	<i>sealing</i>	<i>ident No.</i>					
	<i>weight</i>						
PP wafer type flange DIN EN 1092	EPDM			1387859680	1387869680	1387879680	1387889680
	FPM			1387999680	1388009680	1388019680	1388029680
	<i>weight</i>			21.30 kg	38.80 kg	67.80 kg	62.70 kg

Butterfly Valve K 220, pneumatic [d280 - d400]



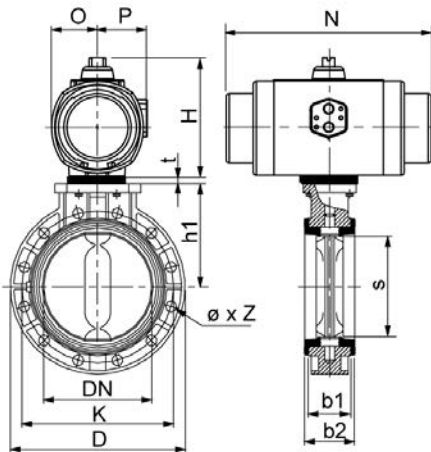
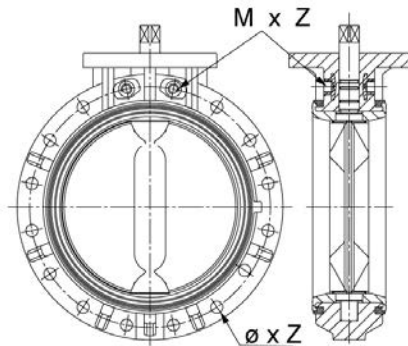
Actuator variant NC		body PVDF		disc PVDF			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PVDF wafer type flange DIN EN 1092	EPDM			1388139660	1388149660	1388159660	1388169660
	FPM			1388279660	1388289660	1388299660	1388309660
	weight			50.00 kg	79.80 kg	87.30 kg	106.80 kg

Actuator variant NO		body PVDF		disc PVDF			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PVDF wafer type flange DIN EN 1092	EPDM			1388139670	1388149670	1388159670	1388169670
	FPM			1388279670	1388289670	1388299670	1388309670
	weight			50.00 kg	79.80 kg	87.30 kg	106.80 kg

Actuator variant DA		body PVDF		disc PVDF			
size pressure range	d(mm)			280	315	355	400
	DN(mm)			250	300	350	400
	DN(inch)			10	12	14	16
	PN(bar)			6	6	6	5
Connection	sealing	ident No.					
PVDF wafer type flange DIN EN 1092	EPDM			1388139680	1388149680	1388159680	1388169680
	FPM			1388279680	1388289680	1388299680	1388309680
	weight			22.70 kg	40.80 kg	48.30 kg	67.80 kg

Butterfly Valve K 220, pneumatic [d280 - d400]

dimensions



d(mm)	280	315	355	400
DN(mm)	250	300	350	400
DN(inch)	10	12	14	16
actuator type	P30T DA P40ST NC/NO	P40T DA P50ST NC/NO	P40T DA P50ST NC/NO	P40T DA PA70S NC/NO
dimensions(mm)				
b1	104	127	119.5	160
b2	109	131.5	127	166
ØxZ	23/12	23/12	23/16	27/14
MxZ	-	-	-	M24/2
PP	D	406	488	526
PVC-U	D	411	490	530
PVDF	D	402	480	518
PP	h1	238	297	297
PVC-U	h1	239.5	298	300
PVDF	h1	233	291	293
DA	H	211	272	272
NC/NO	H	272	313	313
DA	K	350	400	460
NC/NO	N	349	444	444
DA	N	598	694	694
DA	O	83	106	106
NC/NO	O	106	122.5	122.5
DA	P	94	120	120
NC/NO	P	120	135	135
DA	S	247.5	302.5	348
NC/NO	S	247.5	302.5	348
t	-	-	-	25

Butterfly Valve K 220, pneumatic [d280 - d400]

Technical data

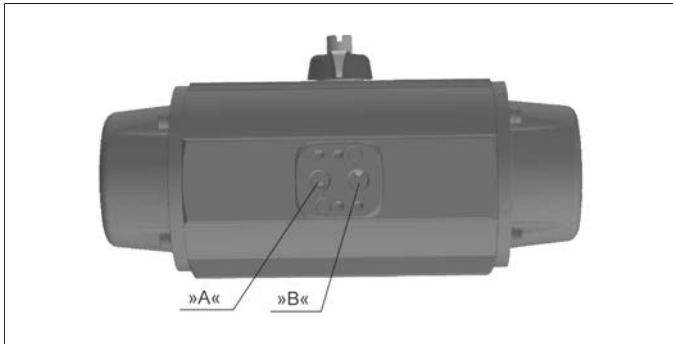
PA-Line

Option (to be ordered additionally if required)

limit switch unit; positioner; handwheel; pilot solenoid valve; AS Interface connection

actuator type	PA7oS
Function	NC/NO
Torque (start) at 6 bar(Nm)	3273
Torque (end) at 6 bar(Nm)	1504
Control volume (Opening)(Liter)	31
Manipulating time (Opening)(s)	0.8
Manipulating time (Closing)(s)	0.8
Control pressure connection(inch)	1/4
Weight(kg)	118.2

Control pressure connection



Normally closed NC: control pressure to connection »B«,valve opens

Normally open NO: control pressure to connection »B«,valve closes

Double acting DA: control pressure to connection »A«,valve closes control pressure to connection »B«,valve opens

Control:

3/2-way solenoid valves for NC/NO actuators

5/2-way solenoid valves for DA actuators

Note:

The drives require a control pressure of 6 bar for optimum function. Malfunctions may occur, if the control pressure deviates. In this case, a new drive configuration is necessary.

Technical data

P-Line

Option (to be ordered additionally if required)

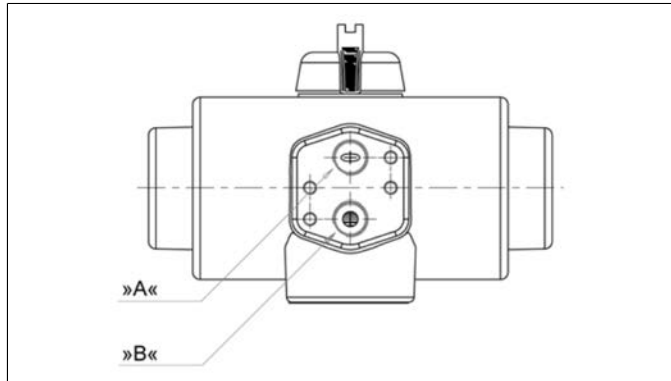
limit switch unit; positioner; handwheel; pilot solenoid valve; AS Interface connection

actuator type	P4oST	P5oST
Function	NC/NO	NC/NO
Torque (start) at 6 bar(Nm)	688	1343.8
Torque (end) at 6 bar(Nm)	413	861.4
Control volume (Opening)(Liter)	5.3	10.5
Manipulating time (Opening)(s)	2	6
Manipulating time (Closing)(s)	2	6
Control pressure connection(inch)	1/4	1/4
Weight(kg)	36.4	58.4

actuator type	P3oT	P4oT
Function	DA	DA
Torque (start) at 6 bar(Nm)	469	1180
Control volume (Opening)(Liter)	2.05	5.3
Control volume (Closing)(Liter)	1.9	5.3
Manipulating time (Opening)(s)	0.6	1.2
Manipulating time (Closing)(s)	0.6	1.2
Control pressure connection(inch)	1/4	1/4
Weight(kg)	9.1	19.4

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Control pressure connection



Normally closed NC: control pressure to connection »B«, valve opens

Normally open NO: control pressure to connection »B«, valve closes

Double acting DA: control pressure to connection »A«, valve closes control pressure to connection »B«, valve opens

Control:

3/2-way solenoid valves for NC/NO actuators

5/2-way solenoid valves for DA actuators

Note:

The drives require a control pressure of 6 bar for optimum function. Malfunctions may occur, if the control pressure deviates. In this case, a new drive configuration is necessary.

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