

Ball Valve C 110

PVC-U · PP · PVDF - wafer flange · socket end · DIN-flange



Advantages

- removable ball seat and ball
- optimized inner ball diameter for high k_v -value

Application

- chemical plants
- industrial plants

Utilisation

- to shut off pipeline systems

Type of fluids

- Neutral and aggressive fluid or gaseous media, free of solids, provided that the valve components getting in contact with the media are resistant at the operating temperature in accordance with the ASV resistance list.

Examinations

- Requirements and examinations acc. to DIN 3441, 3442, 8063 and 16962. DIN EN 12266, leakrate A examined.

Approval acc. to DIBt

- PVC-U Z-40.23-193
- PVDF Z-40.23-195

Nominal pressure (H₂O, 20°C)

- DN 65 - DN 125 PN 10
- DN 150 PN 6

Media temperature

- see pressure/temperature diagram

Operating pressure

- see pressure/temperature diagram

Size

- DN 65 - DN 150

Body

- PVC-U, PP, PVDF

Ball

- PVC-U, PP, PVDF

Ball seat

- PTFE

Sealings

- EPDM or FPM

Actuation

- with hand lever, also as position indicator
- with electric actuator acc. to DIN EN ISO 5211
- with pneumatic actuator acc. to DIN EN ISO 5211

Connection

- wafer flange type for short face-to-face dimension
- flange socket ends for solvent welding DIN/ISO (PVC-U)
- flange socket ends or spigot ends DIN/ISO for fusion welding (PP, PVDF)
- PP/steel flange, DIN 2501, PN 10/16 with face-to-face dimension

Mounting

- variable, hand lever or actuator preferably in upright position

Fastening

- body with integrated mounting plate

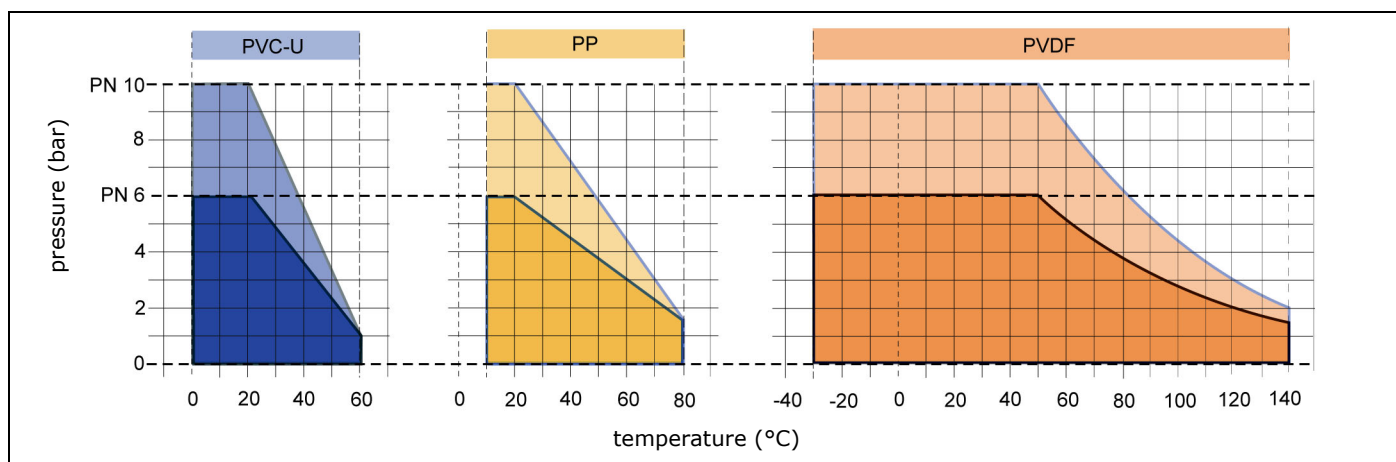
Option

- limit switch
- hand lever lockable

Colour

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

Pressure/temperature diagram



The pressure/temperature limits are applicable for the stated nominal pressures and a computed operating life factor of 25 years.

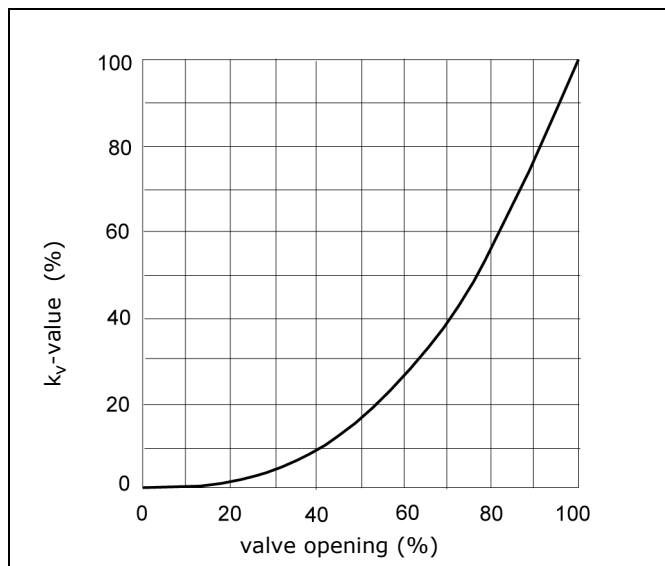
The values are a guide for harmless fluids (DIN 2403), to which the material of the valve is resistant.

For other media see the ASV resistance guide.

The durability of wear and tear 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.

Flow characteristic



Torque Nm (standard value)

d (mm)	75	90	110	140	160
Md	15	25	35	35	50

The stated torques are approximate values.

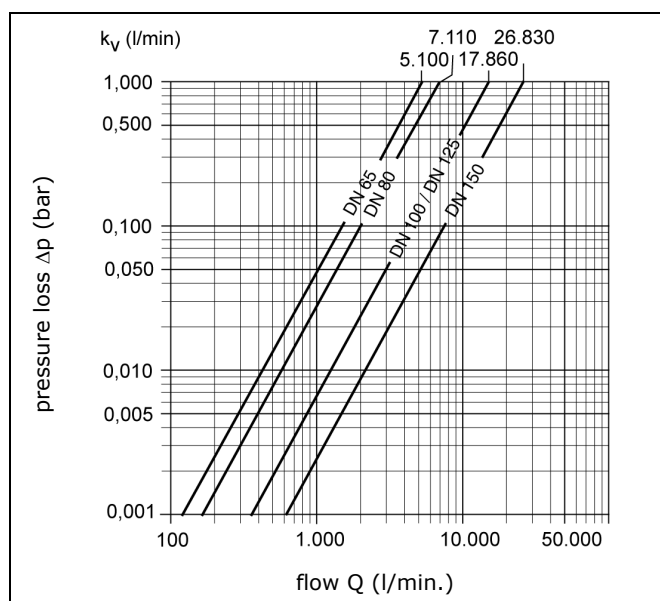
They have been determined as follows.

Operating pressure $p = 10,0$ bar (PP) and $p = 16$ bar with H_2O , 20 °C.

Depending on the fluid the respective value can be higher or lower.

Pressure loss curve

(standard values for H_2O , 20 °C)



The diagram shows the pressure loss Δp over the flow Q .

For calculation:

$$c_v = k_v \times 0,07$$

$$f_v = k_v \times 0,0585$$

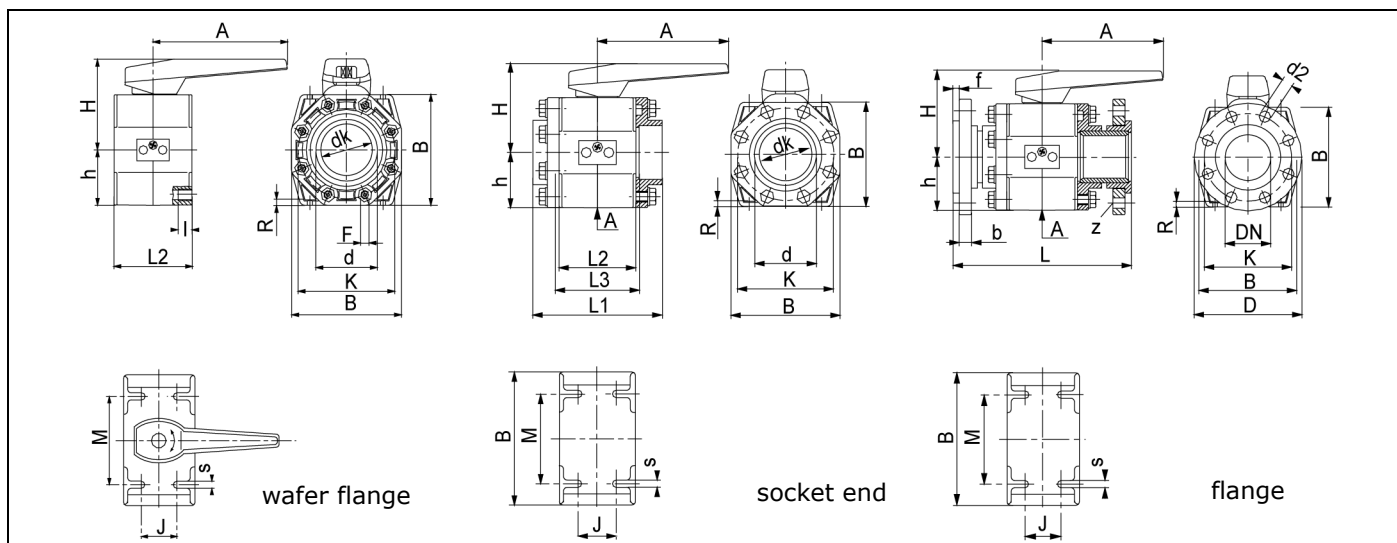
Units:

$$k_v \text{ [l/min]}$$

$$c_v \text{ [gal/min]}$$

$$f_v \text{ [gal/min]}$$

Ball Valve C 110 »manual«



Dimension

d (mm)	75	90	110	140	160
DN (mm)	65	80	100	125	150
DN (inch)	2 1/2	3	4	5	6
PN (bar)	10	10	10	10	6
dk	64,0	77,0	94,0	94,0	135,0
A	210,0	210,0	260,0	260,0	310,0
PVC-U/PP B	169,0	186,0	206,0	206,0	273,0
PVDF B	168,0	182,0	202,0	202,0	264,0
b	19,0	21,0	22,0	26,0	27,0
D	186,0	201,0	221,0	251,0	286,0
d2	18,0	18,0	18,0	18,0	22,0
F	M 16	M 16	M 16	M 16	M 20
f	10,0	11,0	12,0	14,0	16,0
PVC-U/PP H	142,0	150,0	165,0	165,0	210,0
PVDF H	140,0	148,0	163,0	163,0	206,0
PVC-U/PP h	84,5	93,0	103,0	103,0	136,5
PVDF h	84,0	91,0	101,0	101,0	132,0
PVC-U/PP J	60,0	60,0	80,0	80,0	130,0
PVDF J	57,0	57,0	76,0	76,0	124,0
K	145,0	160,0	180,0	210,0	240,0
PVC-U L1	206,0	236,0	276,0	-	386,0
PP/PVDF ¹⁾ L1	180,0	206,0	238,0	-	364,0
PVC-U/PP L2	112,0	124,0	145,0	-	205,0
PVDF L2	112,0	123,0	140,0	-	197,0
PVC-U L3	118,0	134,0	155,0	-	214,0
PP L3	118,0	134,0	155,0	-	-
PVDF L3	118,0	133,0	150,0	-	-
L	290,0	310,0	350,0	400,0	480,0
I	20,0	20,0	20,0	20,0	30,0
PVC-U/PP M	111,0	124,0	137,0	137,0	179,0
PVDF M	111,0	122,0	133,0	133,0	175,0
R	5,5	6,0	8,0	8,0	10,0
S	8,5	8,5	8,5	8,5	8,5
z	4,0	8,0	8,0	8,0	8,0

¹⁾ d 160: connection: spigot ends for fusion welding



Ball Valve C 110 »manual«

Weight (kg)

d (mm)	75	90	110	140	160
PVC-U					
wafer type	4,1	4,9	6,5	-	13,5
socket	6,7	7,7	10,0	-	18,0
PP/steel flange	8,2	9,5	12,2	13,9	20,8
PP					
wafer type	3,7	4,3	5,7	-	11,4
socket	5,7	6,5	8,1	-	14,6
PP/steel flange	7,6	8,7	10,8	12,5	16,5
PVDF					
wafer type	4,7	5,6	7,6	-	15,8
socket	8,4	9,7	11,2	-	22,5
PP/steel flange	10,2	11,8	14,7	16,4	24,5

Ident number

body PVC-U	d (mm)	75	90	110	140	160
connection	sealing					
wafer type	PTFE-EPDM	45590	45591	45592	-	45594
wafer type	PTFE-FPM	45595	45596	45597	-	45599
PVC-U socket	PTFE-EPDM	45560	45561	45562	-	45564
PVC-U socket	PTFE-FPM	45565	45566	45567	-	45569
PP/steel flange	PTFE-EPDM	45808	45809	45810	45811	45812
PP/steel flange	PTFE-FPM	45813	45814	45815	45816	45817

body PP	d (mm)	75	90	110	140	160
connection	sealing					
wafer type	PTFE-EPDM	45600	45601	45602	-	45604
wafer type	PTFE-FPM	45605	45606	45607	-	45609
PP socket ¹⁾	PTFE-EPDM	45570	45571	45572	-	45574
PP socket ¹⁾	PTFE-FPM	45575	45576	45577	-	45579
PP/steel flange	PTFE-EPDM	45818	45819	45820	45821	45822
PP/steel flange	PTFE-FPM	45823	45824	45825	45826	45827

¹⁾ d 160: connection: spigot ends for fusion welding

body PVDF	d (mm)	75	90	110	140	160
connection	sealing					
wafer type	PTFE-FPM	45615	45616	45617	-	45619
PVDF socket ¹⁾	PTFE-FPM	45585	45586	45587	-	45589
PP/steel flange	PTFE-FPM	45833	45834	45835	45836	45837

¹⁾ d 160: connection: spigot ends for fusion welding

Ball Valve C 110 »electric«

Voltage

- see technical data

Running time

- see technical data

Mounting set

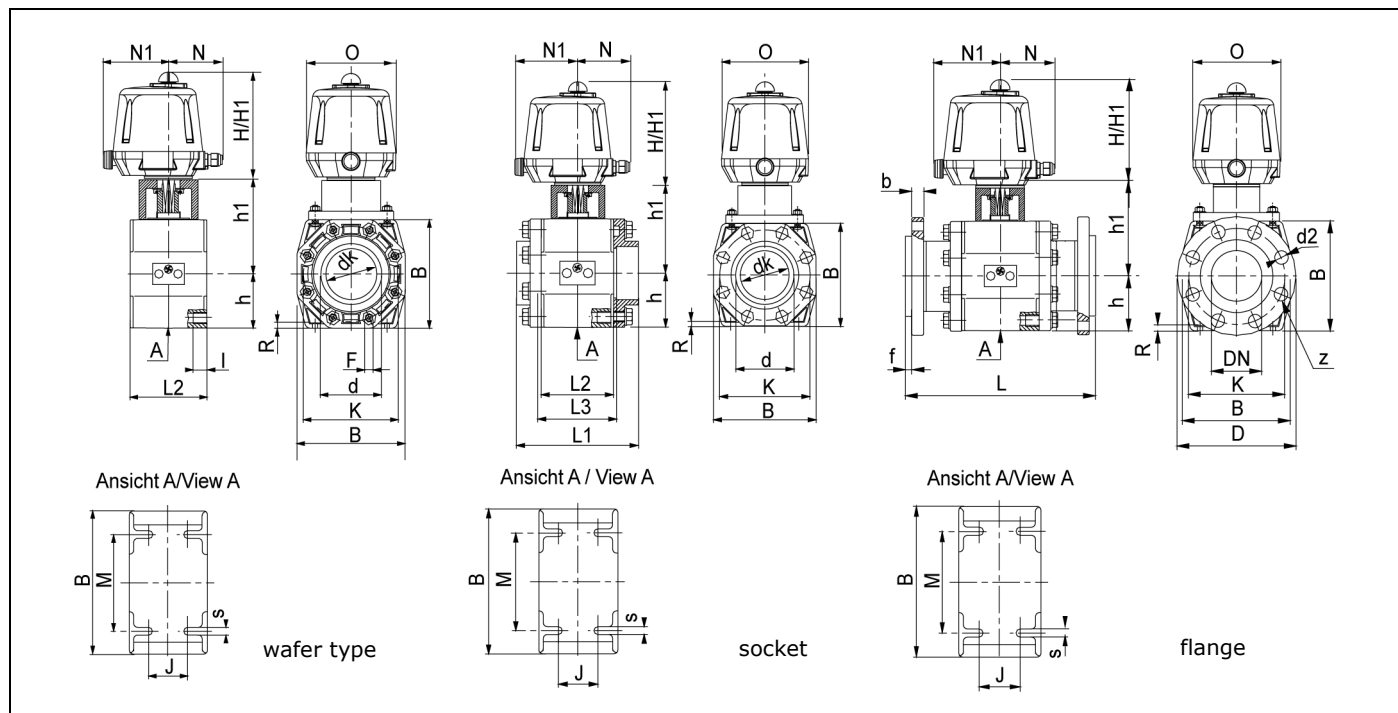
- PP

Coupling

- square steel, zinc coated

Screws

- SS 1.4301



dimension	d (mm)	75	90	110	140	160
DN (mm)		65	80	100	125	150
DN (inch)		2 1/2	3	4	5	6
PN		10	10	10	10	6
actuator type		VR75	VR75	VR75	VS100	VS100
PVC, PP, PVDF	dk	64,0	77,0	94,0	94,0	135,0
PVC, PP	B	169,0	186,0	206,0	206,0	273,0
PVDF	B	168,0	182,0	202,0	202,0	264,0
PVC, PP, PVDF	b	19,0	21,0	22,0	26,0	27,0
PVC, PP, PE, PVDF	D	186,0	201,0	221,0	251,0	286,0
PVC, PP, PVDF	d2	18,0	18,0	18,0	18,0	22,0
PVC, PP, PVDF	F	M 16	M 16	M 16	M 16	M 20
PVC, PP, PVDF	f	10,0	11,0	12,0	14,0	16,0
PVC, PP, PVDF	H	198,0	198,0	198,0	259,0	259,0
PVC, PP	h	84,5	93,0	103,0	103,0	136,5
PVDF	h	84,0	91,0	101,0	101,0	132,0
PVC, PP	h1	194,5	203,0	213,0	213,0	246,5
PVDF	h1	194,0	201,0	211,0	211,0	242,0
PVC, PP	J	60,0	60,0	80,0	80,0	130,0
PVDF	J	57,0	57,0	76,0	76,0	124,0
PVC, PP, PVDF	K	145,0	160,0	180,0	210,0	240,0
PVC	L1	206,0	236,0	276,0	-	386,0



Ball Valve C 110 »electric«

dimension	d (mm)	75	90	110	140	160
actuator type		VR75	VR75	VR75	VS100	VS100
PP, PVDF ¹⁾	L1	180,0	206,0	238,0	-	364,0
PVC, PP	L2	112,0	124,0	145,0	-	205,0
PVDF	L2	112,0	123,0	140,0	-	197,0
PVC	L3	118,0	134,0	155,0	-	214,0
PP	L3	118,0	134,0	155,0	-	-
PVDF	L3	118,0	133,0	150,0	-	-
PVC, PP, PVDF	L	290,0	310,0	350,0	400,0	480,0
PVC, PP, PVDF	I	20,0	20,0	20,0	20,0	30,0
PVC, PP	M	111,0	124,0	137,0	137,0	179,0
PVDF	M	111,0	122,0	133,0	133,0	175,0
PVC, PP, PVDF	N	120,0	120,0	120,0	110,0	110,0
PVC, PP, PVDF	N1	103,0	103,0	103,0	190,0	190,0
PVC, PP, PVDF	O	170,0	170,0	170,0	170,0	170,0
PVC, PP, PE, PVDF	R	5,5	6,0	8,0	8,0	10,0
PVC, PP, PE, PVDF	S	8,5	8,5	8,5	8,5	8,5
PVC, PP, PVDF	Z	4,0	8,0	8,0	8,0	8,0

¹⁾ d 160: connection: spigot ends for fusion welding

Weight (kg)

body PVC-U	d (mm)	75	90	110	140	160
wafer type		10,2	11	12,6	-	19,6
socket		12,8	13,8	16,1	-	24,1
PP/steel flange		14,3	15,6	18,3	20,0	26,9

body PP	d (mm)	75	90	110	140	160
wafer type		9,8	10,4	11,8	-	17,5
socket		11,8	12,6	14,2	-	20,7
PP/steel flange		13,7	14,8	16,9	18,6	22,6

body PVDF	d (mm)	75	90	110	140	160
wafer type		10,8	11,7	13,7	-	21,9
socket		14,5	15,8	17,3	-	28,6
PP/steel flange		16,3	17,9	20,8	22,5	30,6

Technical Data

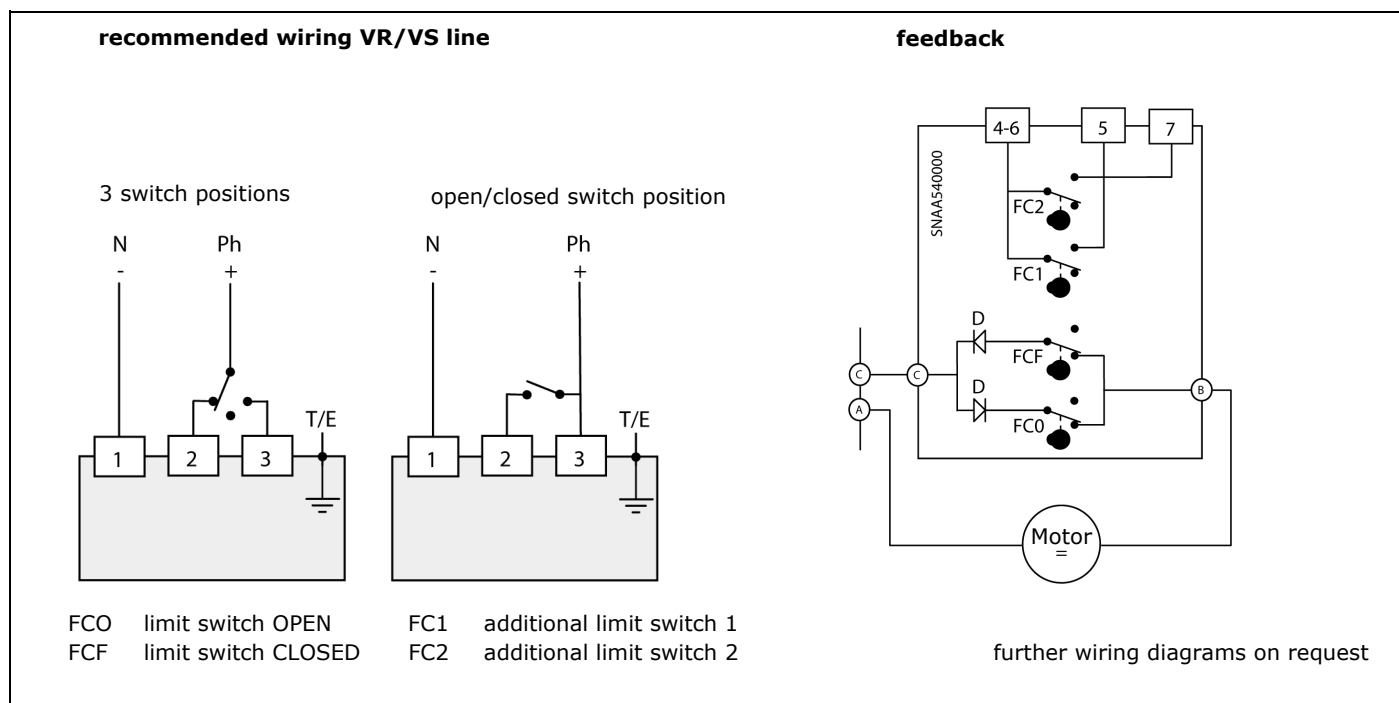
actuator type V-line:	options:
manual emergency control	2 additional limit switches
visual position indicator	long hand lever
protection type: IP 67	fail-safe rechargeable battery pack (internal/external)
PG union	positioner
2 additional limit switches	feedback: Potentiometer
torque limiter	feedback: 4...20mA
duty cycle: 50%	positioner: 4...20mA/0...10V
heating resistance 3W	ASI BUS connection
voltage: 400V AC 50/60Hz or	ATEX version
voltage: 100 - 240V AC 50/60Hz	duty cycle: 80%
or 120 - 350V DC or	
voltage: 24V AC/DC	
running time: 7 - 20s	

Ball valve C 110 »electric«

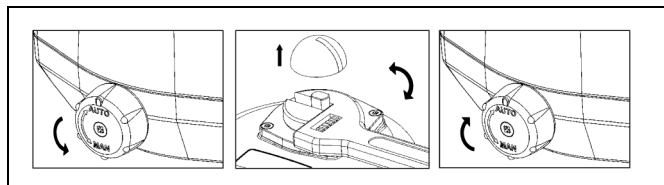
Technical data V-line

Type VS actuator	VR75			VS100		
Torque (Nm)	75			100		
Voltage (V)	24	100-240	400	24	100-240	400
Running time 90° (sec)	20	20	15	15	15	10
Rating (W)	45,0	45,0	52,0	45,0	45,0	135,0
Weight (kg)	3,1			17,1		
Duty cycle (%)	50			50		
Type of protection	IP67			IP67		
Temperature (°C)	-20 to +70			-20 to +70		

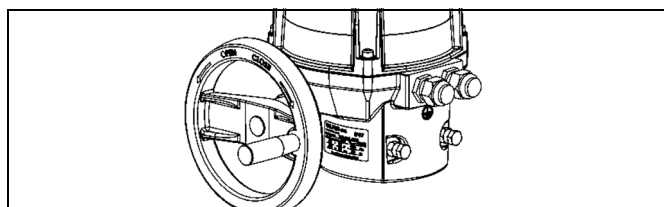
Electrical connection type VR/VS



Emergency manual control VR series



Emergency manual control VS series



Manual emergency control VR series

The valve can be manually operated in the event of an interruption of the power supply.

To allow manual emergency control, turn the coupling switch from »AUTO« to »MANU« and hold in the »MANU« position.

Turn the actuator shaft with the aid of an adjustable spanner. Release the coupling switch to re-engage the gearing.

Manual emergency control VS series

Before to manual operation ensure the interruption of the power supply. Disengagement is not necessary, turning the handwheel is sufficient.

Ball Valve C 110 »pneumatic«

Control pressure

- 6 bar

Control functions

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

Mounting set

- PP

Coupling

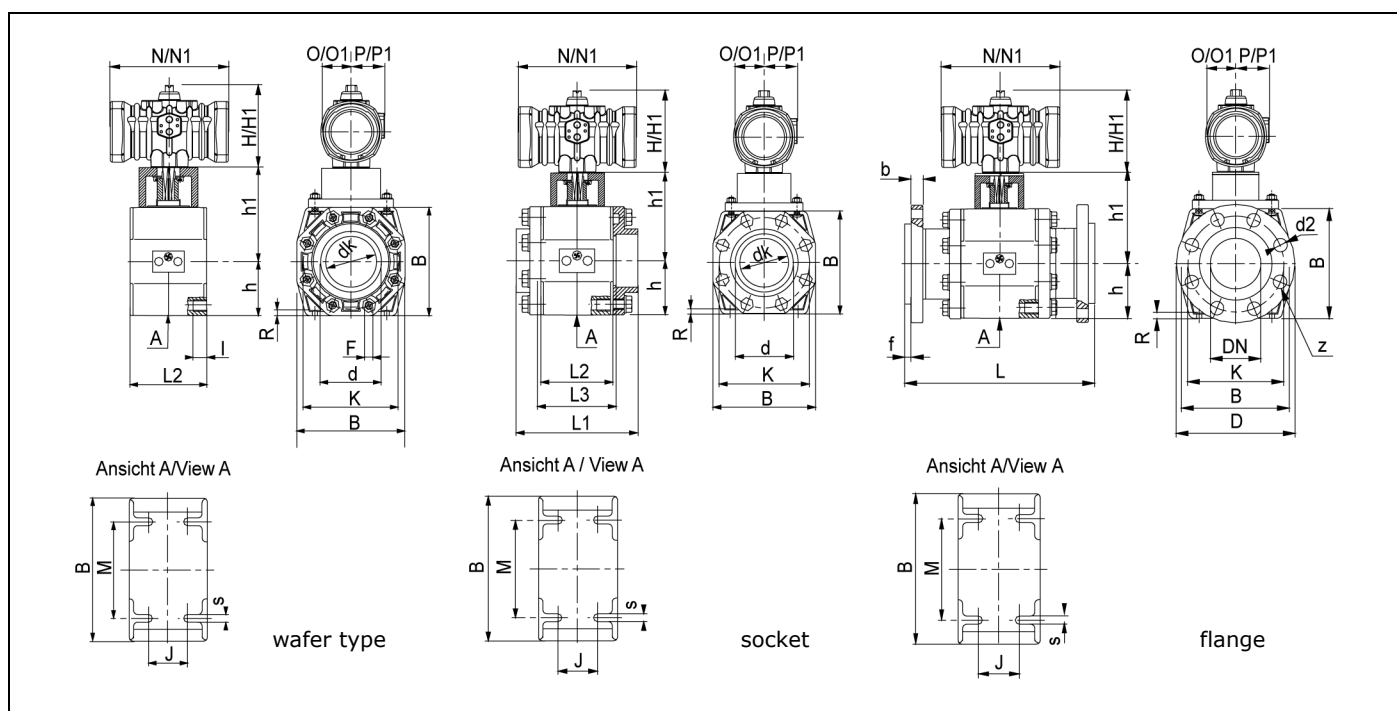
- square steel, zinc coated

Screws

- SS 1.4301

Standard

- visual position indicator



dimension	d (mm)		75	90	110	140	160
	DN (mm)		65	80	100	125	150
	DN (inch)		2 1/2	3	4	5	6
	PN		10	10	10	10	6
actuator type	NC-NO	NC-NO	PP20S	PP20S	PP20S	PP20S	P25S
actuator type	DA	DA	PP10	PP10	PP10	PP10	PP20
PVC, PP		B	169,0	186,0	206,0	206,0	273,0
PVDF		B	168,0	182,0	202,0	202,0	264,0
PVC, PP, PVDF		b	19,0	21,0	22,0	26,0	27,0
PVC, PP, PE, PVDF		D	186,0	201,0	221,0	251,0	286,0
PVC, PP, PVDF		d2	18,0	18,0	18,0	18,0	22,0
PVC, PP, PVDF		F	M 16	M 16	M 16	M 16	M 20
PVC, PP, PVDF		f	10,0	11,0	12,0	14,0	16,0
PVC, PP, PVDF		NC-NO	162,0	162,0	162,0	162,0	191,0
		DA	128,0	128,0	128,0	128,0	162,0
PVC, PP		h	84,5	93,0	103,0	103,0	136,5
PVDF		h	84,0	91,0	101,0	101,0	132,0
PVC, PP		h1	194,5	203,0	213,0	213,0	246,5
PVDF		h1	194,0	201,0	211,0	211,0	242,0
PVC, PP		J	60,0	60,0	80,0	80,0	130,0

Ball Valve C 110 »pneumatic«

dimension		d (mm)	75	90	110	140	160
actuator type	NC-NO	NC-NO	PP20S	PP20S	PP20S	PP20S	P25S
actuator type	DA	DA	PP10	PP10	PP10	PP10	PP20
PVDF		J	57,0	57,0	76,0	76,0	124,0
PVC, PP, PVDF		K	145,0	160,0	180,0	210,0	240,0
PVC		L1	206,0	236,0	276,0	-	386,0
PP, PVDF ¹⁾		L1	180,0	206,0	238,0	-	364,0
PVC, PP		L2	112,0	124,0	145,0	-	205,0
PVDF		L2	112,0	123,0	140,0	-	197,0
PVC		L3	118,0	134,0	155,0	-	214,0
PP		L3	118,0	134,0	155,0	-	-
PVDF		L3	118,0	133,0	150,0	-	-
PVC, PP, PVDF		L	290,0	310,0	350,0	400,0	480,0
PVC, PP, PVDF		I	20,0	20,0	20,0	20,0	30,0
PVC, PP		M	111,0	124,0	137,0	137,0	179,0
PVDF		M	111,0	122,0	133,0	133,0	175,0
PVC, PP, PVDF	NC-NO	N	304,0	304,0	304,0	304,0	362,0
PVC, PP, PVDF	DA	N1	182,0	182,0	182,0	182,0	233,0
PVC, PP, PVDF	NC-NO	O	60,0	60,0	60,0	60,0	74,0
PVC, PP, PVDF	DA	O1	49,0	49,0	49,0	49,0	60,0
PVC, PP, PVDF	NC-NO	P	65,0	65,0	65,0	65,0	78,0
PVC, PP, PVDF	DA	P1	53,0	53,0	53,0	53,0	65,0
PVC, PP, PE, PVDF		R	5,5	6,0	8,0	8,0	10,0
PVC, PP, PE, PVDF		S	8,5	8,5	8,5	8,5	8,5
PVC, PP, PVDF		z	4,0	8,0	8,0	8,0	8,0
air connection 2		NC-NO	1/4	1/4	1/4	1/4	1/4
air connection 4		DA	1/4	1/4	1/4	1/4	1/4

¹⁾ d 160: connection: spigot ends for fusion welding

Weight (kg)

body PVC-U	d (mm)	75	90	110	140	160
wafer type	NC-NO	9,55	10,35	11,95	-	23,2
socket	NC-NO	12,15	13,15	15,45	-	27,7
PP/steel flange	NC-NO	13,65	14,95	17,65	19,35	30,5
wafer type	DA	6,01	6,81	8,41	-	16,94
socket	DA	8,61	9,61	11,91	-	21,44
PP/steel flange	DA	10,11	11,41	14,11	15,81	24,24

body PP	d (mm)	75	90	110	140	160
wafer type	NC-NO	9,15	9,75	11,15	-	21,1
socket	NC-NO	11,15	11,95	13,55	-	24,3
PP/steel flange	NC-NO	13,05	14,15	16,25	17,95	26,2
wafer type	DA	5,61	6,21	7,61	-	14,84
socket	DA	7,61	8,41	10,01	-	18,04
PP/steel flange	DA	9,51	10,61	12,71	14,41	19,94

body PVDF	d (mm)	75	90	110	140	160
wafer type	NC-NO	15,25	16,15	18,15	-	30,6
socket	NC-NO	13,85	15,15	16,65	-	32,2
PP/steel flange	NC-NO	15,65	17,25	20,15	21,85	34,2
wafer type	DA	11,06	11,96	13,96	-	27,94
socket	DA	10,31	11,61	13,11	-	25,94
PP/steel flange	DA	12,11	13,71	16,61	18,31	27,94

Ball Valve C 110 »pneumatic«

Technical data

Actuator: single acting NC/NO

type	torque		air volume (L)		running time (sec.)		air connection	weight kg
	Nm at 6 bar		opening	closing	opening	closing		
	start	end						
PP20S	103,3	62,20	0,80	-	0,5	0,5	1/4	4,95
P25S	171,6	112,4	1,50	-	0,8	0,8	1/4	9,20

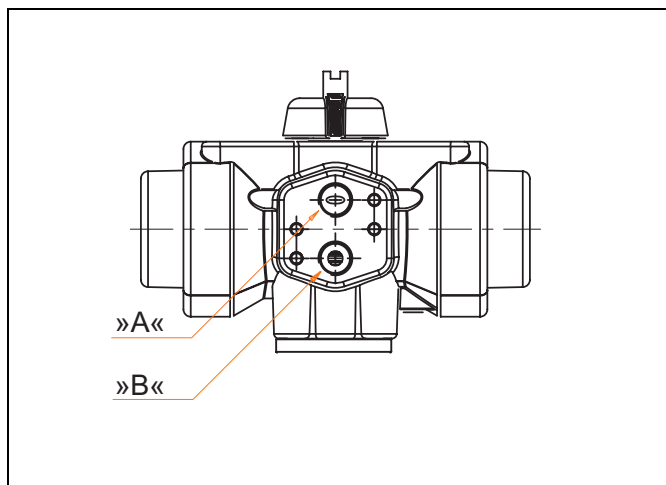
Actuator: double acting DA

type	torque		air volume (L)		running time (sec.)		air connection	weight kg
	Nm at 6 bar		opening	closing	opening	closing		
	start	end						
PP10	71,00	-	0,35	0,32	0,25	0,25	1/4	1,41
PP20	165,5	-	0,80	0,70	0,40	0,40	1/4	2,94

Application conditions

control medium	temperature range	max. pressure	housing/body
filtered, dry compressed air, non-corrosive medium	-32°C to +90°C	8 bar	PA, glass fibre reinforced

Compressed air connection



Single acting actuators:

- compressed air to connection »B«

Double acting actuators:

- compressed air to connection »A« (closes)
- compressed air to connection »B« (opens)

Control

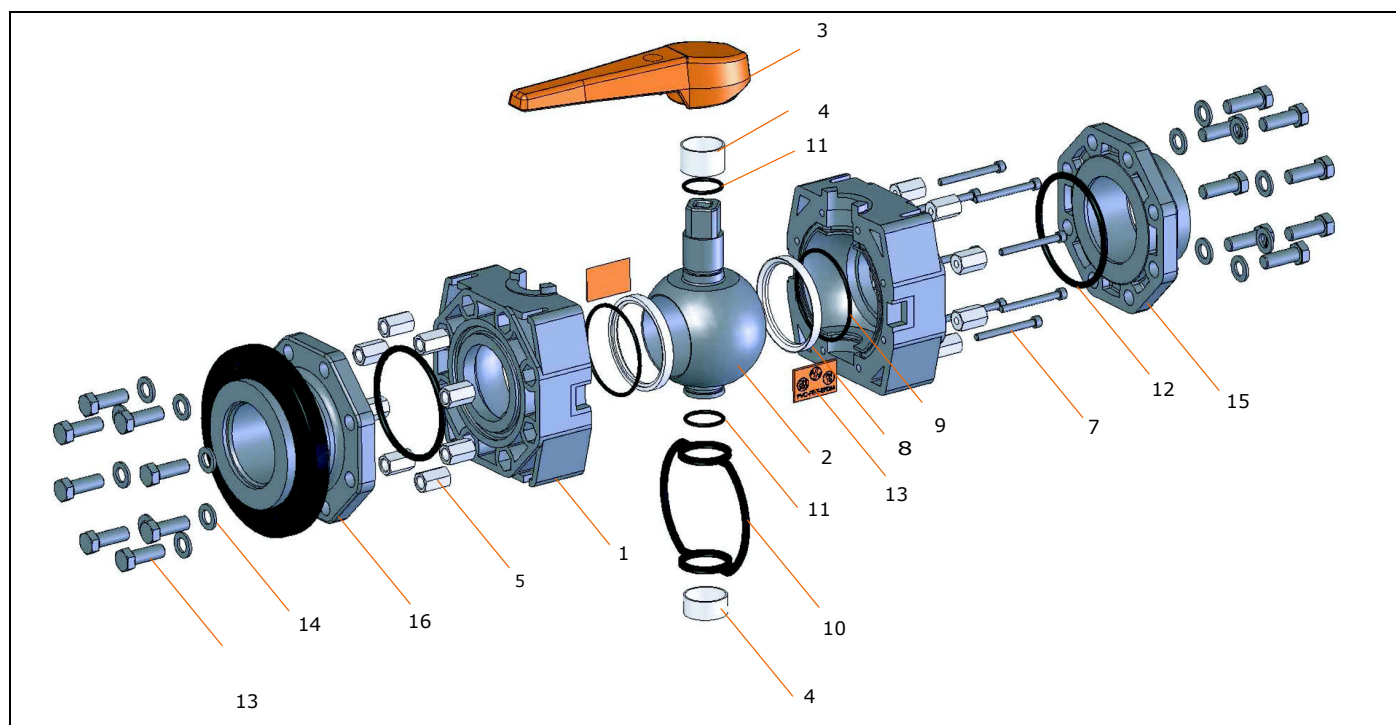
- 3/2 way solenoid valves for NC/NO actuators
- 5/2 way solenoid valves for DA actuators

Options

- micro switches or proximity switches as directly mounted variant or as variant in limit switch box
- positioner
- handwheel
- ASI Bus
- pilot solenoid valve

Ball Valve C 110 »manual«

Parts lists and designation



item	qty.	designation
1	1	housing/body (wafer type)
2	1	ball
3	1	hand lever
4	2	bearing bush
5	16	insert
6	-	-
7	8	hexagonal socket screw
8	2	ball seal

item	qty.	designation
9	2	O-ring
10	1	sealing element
11	2	O-ring
12	2	O-ring
13	16	hexagonal socket screw
14	16	plain washer
15	2	socket flange
16	2	PP/steel flange

Operating instructions

ATTENTION

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 and technical regulations or data sheets such as e.g. DIN, DIN EN, DIN ISO and DVS* for example.

*DVS = German Welding Society

The intended use includes adhering to the specified limit values for pressure and temperature as well as checking the chemical resistance with regard to the operating conditions.

For this purpose, ensure that all components getting in contact with the media are **"resistant"** in accordance with the ASV resistance guide.

The owner/user must inform the authorized qualified personnel instructed to perform the assembly, inspection and/or maintenance work of any potential danger emanating from the machine line/medium, and ensure that suitable safety measures are observed. This also includes the consideration of local regulations and laws of the territories of use. ✓

The connection of electric or pneumatic actuators and/or accessories to the power/compressed air supply requires special knowledge. Ensure that this work is performed only by authorized qualified personnel according to the operating instruction of the manufacturer.

If no operating and maintenance manual is available to the authorized qualified personnel, please request a manual prior to installation, maintenance or repair.

Non-observance of the specified instructions and safety regulations may cause damage to health and/or damage to assets.

ATTENTION



For operation in potentially explosive areas adhere to the data sheet 330550 »Ball valves for explosion endangered areas«. ✓



Ident numer for automated valve

						9			
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Ident No. manual valve

Actuated valve

Line

	0
	1
V-line (electric)	2
	3
	4
PA (pneumatic)	5
Alu (pneumatic)	6
Steel (pneumatic)	7
	8
	9

Version

24V AC/DC	1
230V AC	3
400V AC	4
100-240V AC/120-350V DC	5
NC	6
NO	7
DA	8

Option (electric)

Standard version	0
Additional limit switch	2
Rechargeable battery pack	3
Positioner	5
Feedback: Potentiometer	6
Feedback: 4...20 mA	7
ASI BUS	8
	9

Option (pneumatic)

Standard version	0
Handwheel (for DA)	1
Micro switch	2
Proximity switches	3
Limit switch box with micro switches	4
Limit switch box with proximity switches	5
Safety spring	6
Pilot valve	7
ASI BUS	8
Positioner	9

Example:

Type: C 110, DN 100

Body/housing: PVC-U

Sealing: PTFE-EPDM

Connection: PVC-U socket

Actuator: VR75-line, 230V AC

	4	5	5	6	2	9	2	3	0
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Subject to technical modifications