

Ball Valve C 16

valve ball completely moulded in place, near-zero dead volume with modified, lockable hand lever



Advantages

Maximum safety due to

- valve ball completely moulded in place
 - ball and ball seal cannot be flushed out -
- high operating safety
 - no shearing of the stainless steel ball shaft as an insert of the ball even at a high torque -
- near-zero dead volume
 - the housing encloses the ball due to the special injection moulding process -
- lockable - manipulations are excluded due to the optionally available locking plate -

Optimised k_v value

- for all dimensions, the internal ball diameter is adapted to the internal pipe diameter

Application

- chemical plants and industrial plants

Utilisation

- to shut off pipeline systems

Type of fluids

- Neutral and aggressive fluids or gaseous media free of solids provided that the components getting in contact with the medium are resistant at operating temperature according to the ASV resistance guide.

Examinations

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

Nominal pressure (H₂O, 20°C)

- DN 50 PN 16
- DN 65 - DN 100 PN 10
- DN 125 - DN 150 PN 6

Media temperature

- see pressure/temperature diagram

Operating pressure

- see pressure/temperature diagram

Size

- PVC-U DN 50 - DN 150

Body

- PVC-U

Ball

- PE

Ball seat

- DN 50 - DN 125 CSM
- DN 50 - DN 150 PTFE

Sealings

- EPDM
- 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

- GFR- or PP/steel-flanges acc. DIN 2501 PN 10/16

Mounting

- variable, hand lever or actuator preferably in upright position

Option

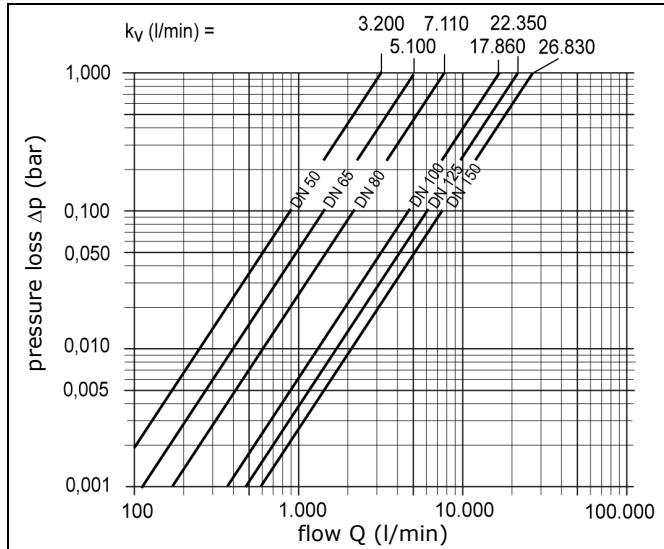
- limit switch

Colour

- body: PVC-U grey, RAL 7011
- hand lever: PVC-U orange, RAL 2004

Ball Valve C 16

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



For calculation:

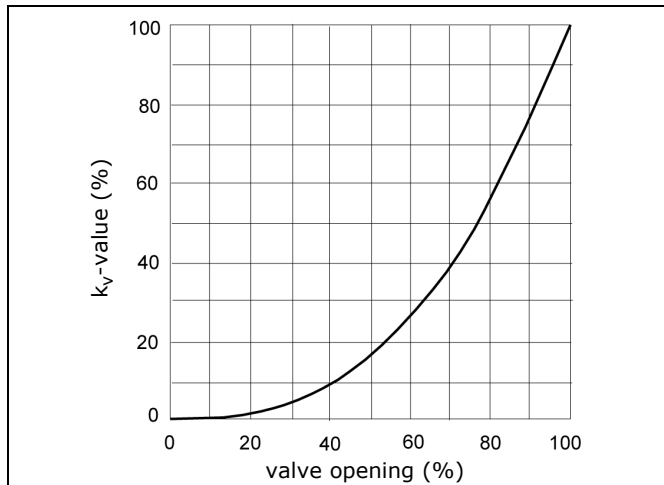
$$c_v = k_v \times 0,07$$

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

Units:

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

Flow characteristic



Torque Nm (standard value)

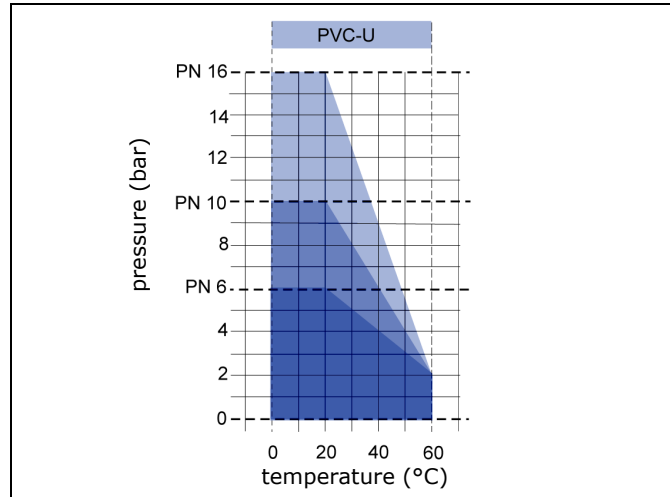
d (mm)	63	75	90	110	140	160
MD (Nm)	17	30	40	50	100	80

The stated torques are approximate values. They have been determined as follows.

Operating pressure $p = 6$ bar (DN 125 - DN 150),
 $p = 10$ bar (DN 65 - DN 100) and $p = 16$ bar (DN 50)
 with H₂O, 20°C.

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

Pressure/temperature diagram



The pressure/temperature limits are applicable for 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 please specify the precise operating conditions of the application.

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.

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.

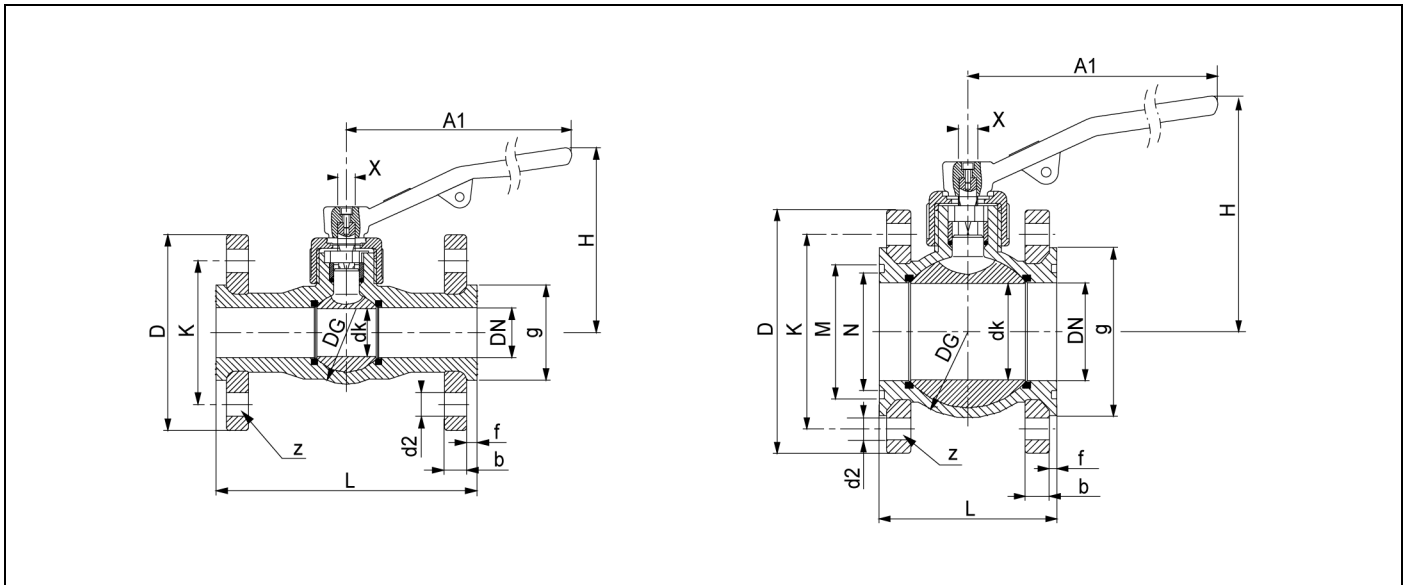
Non-observance of the specified instructions and safety regulations may cause damage to health and/or damage to assets.

*DVS = German Welding Society

ATTENTION

For operation in potentially explosive areas adhere to the data sheet 330550 «Ball valves for Explosion Endangered Areas.»

Ball Valve C 16 »manual«



Dimension

d (mm)	63	75	90	110	140	160
DN (mm)	50	65	80	100	125	150
DN (inch)	2	2 1/2	3	4	5	6
PN (bar) PVC-U	16	10	10	10	6	6
dk	48,6	64,5	79,3	93,3	125,0	150,0
A1	320,0	320,0	320,0	320,0	320,0	480,0
GFR flange b	18,0	18,0	20,0	20,0	26,0	28,0
PP/steel flange b	19,0	19,0	21,0	22,0	26,0	27,0
D	165,0	185,0	200,0	220,0	250,0	285,0
DG	95,0	122,0	142,0	168,0	224,0	260,0
d2	18,0	18,0	18,0	18,0	18,0	23,0
PVC-U f	9,0	6,0	7,0	7,0	16,0	9,0
g	90,0	122,0	138,0	158,0	188,0	200,0
H	186,0	190,0	190,0	220,0	250,0	285,0
h	110,0	-	-	-	-	-
K	125,0	145,0	160,0	180,0	210,0	240,0
PVC-U L	230,0	138,0	146,0	167,0	267,0	267,0
M	-	92,0	111,0	133,0	164,0	190,0
N	-	78,0	97,0	115,0	146,0	172,0
X	12 x 14	12 x 14	14 x 16	16 x 18	16 x 18	22 x 22
z	4,0	4,0	8,0	8,0	8,0	8,0

Weight (kg)

d (mm)	63	75	90	110	140	160
GFR flange	3,20	3,60	4,20	5,50	8,10	11,60
PP/steel flange	3,90	4,86	5,80	7,16	9,94	14,26

Ident number

Body: PVC-U

d (mm)	63	75	90	110	140	160
connection						
sealings						
GFR flange CSM-EPDM	51623	51624	51625	51626	51627	-
GFR flange PTFE-FPM	51457	51458	51459	51460	51461	51854
PP/steel flange CSM-EPDM	51643	51644	51645	51646	51647	-
PP/steel flange PTFE-FPM	64044	62299	61349	61157	67964	57675

Ball Valve C 16 »electric«

Voltage

- see technical data

Running time

- see technical data

Mounting set

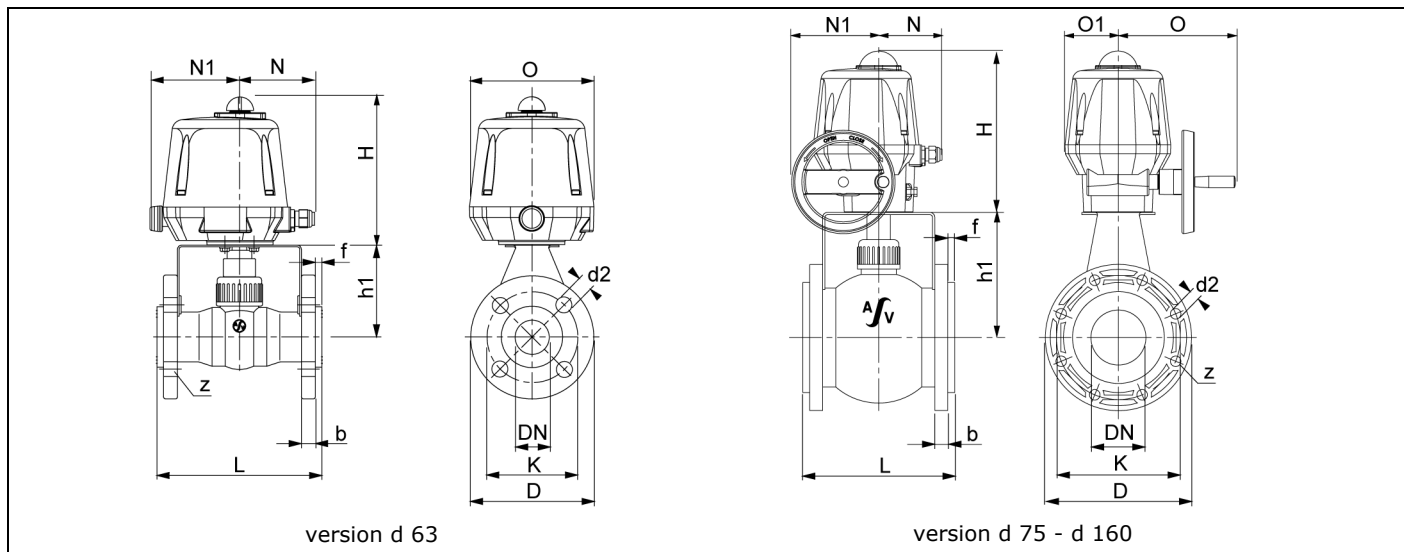
- stainless steel, V4A (1.4375)

Coupling

- square steel, zinc coated
- adaptor, aluminium

Screws

- stainless steel, V2A (1.4301)


Dimensions

d (mm)	63	75	90	110	140	160
DN (mm)	50	65	80	100	125	150
DN (inch)	2	2 1/2	3	4	5	6
PN	16	10	10	10	6	6
actuator type	VR45	VR75	VS100	VS300	VS300	VS300
dk	48,6	64,5	79,3	93,3	125,0	150,0
b	18,0	18,0	20,0	20,0	26,0	28,0
D	165,0	185,0	200,0	220,0	250,0	285,0
d2	18,0	18,0	18,0	18,0	18,0	23,0
f	9,0	6,0	7,0	7,0	16,0	9,0
H	198,0	198,0	259,0	259,0	259,0	259,0
h1	127,0	146,0	159,0	186,0	211,0	230,0
K	125,0	145,0	160,0	180,0	210,0	240,0
L	230,0	138,0	146,0	167,0	267,0	267,0
N	120,0	120,0	102,0	102,0	102,0	102,0
N1	103,0	103,0	140,0	140,0	140,0	140,0
O	170,0	170,0	190,0	190,0	190,0	190,0
O1	-	-	85,0	85,0	85,0	85,0
z	4	4	8	8	8	8

Weights (kg)

d (mm)	63	75	90	110	140	160
GFR flange	5,8	6,2	9,3	10,6	13,2	15,7
PP/steel flange	6,5	7,5	10,9	12,3	15,0	18,4

Ball Valve C 16 »electric«

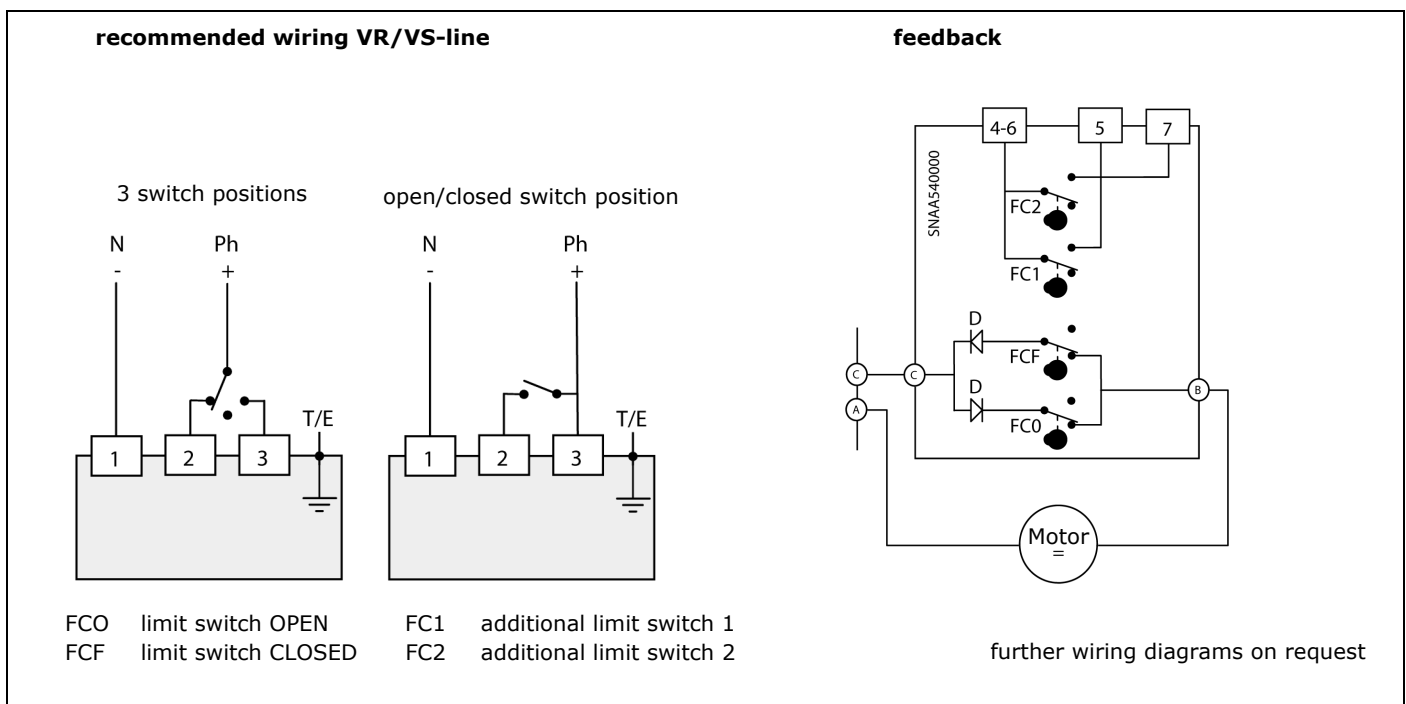
Technical data

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 3 W	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	

Technical data V-line

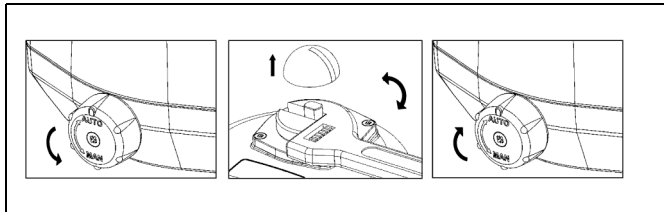
type VS actuator	VR45			VR75			VS100			VS300		
torque (Nm)	45			75			100			300		
voltage (V)	24	100-240	400	24	100-240	400	24	100-240	400	24	100-240	400
running time 90° (sec)	15	15	10	20	20	15	15	15	10	50	50	35
rating (W)	45	45	52	45	45	52	45	45	135	85	85	135
weight (kg)	3,1			3,1			5,6			5,6		
duty cycle (%)	50			50			50			50		
type of protection	IP67			IP67			IP67			IP67		
temperature (°C)	-20 to +70			-20 to +70			-20 to +70			-20 to +70		

Electrical connection type VR/VS-line

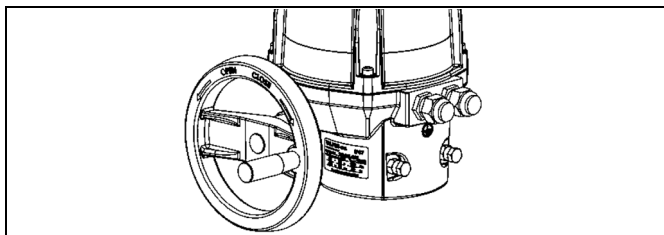


Ball Valve C 16 »electric«

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

Ball Valve C 16 »pneumatic«

Control pressure

- 6 bar

Standard

- visual position indicator

Control functions

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

Mounting set

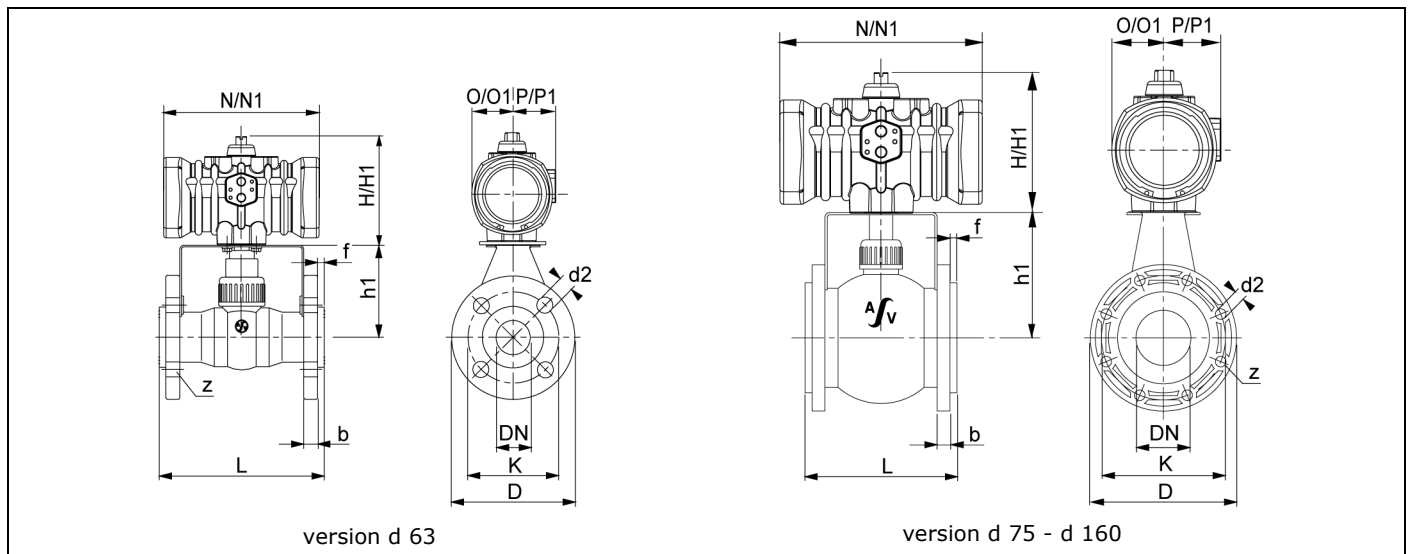
- stainless steel, V4A (1.4375)

Coupling

- square steel, zinc coated
- adaptor, aluminium

Screws

- stainless steel, V2A (1.4301)



Dimension

d (mm)		63	75	90	110	140	160
DN (mm)		50	65	80	100	125	150
DN (inch)		2	2 1/2	3	4	5	6
actuator type	NC-NO	PP20S	PP20S	P25S	P30S	P40S	P40S
actuator type	DA	PP10	PP10	PP20	PP20	P25	P25
	dk	48,6	64,5	79,3	93,3	125,0	150,0
	b	18,0	18,0	20,0	20,0	26,0	28,0
	D	165,0	185,0	200,0	220,0	250,0	285,0
	d2	18,0	18,0	18,0	18,0	18,0	23,0
	f	9,0	6,0	7,0	7,0	16,0	9,0
NC / NO	H	162,0	162,0	191,0	211,0	272,0	272,0
DA	H1	128,0	128,0	162,0	162,0	191,0	191,0
	h1	127,0	146,0	159,0	186,0	211,0	230,0
	K	125,0	145,0	160,0	180,0	210,0	240,0
	L	230,0	138,0	146,0	167,0	267,0	267,0
NC / NO	N	304,0	304,0	362,0	479,0	598,0	598,0
DA	N1	182,0	182,0	233,0	233,0	276,0	276,0
NC / NO	O	60,0	60,0	74,0	83,0	106,0	106,0
DA	O1	49,0	49,0	60,0	60,0	74,0	74,0
NC / NO	P	65,0	65,0	78,0	94,0	120,0	120,0
DA	P1	53,0	53,0	65,0	65,0	78,0	78,0
	z	4,0	4,0	8,0	8,0	8,0	8,0
air connection	A	1/4	1/4	1/4	1/4	1/4	1/4
air connection	B	1/4	1/4	1/4	1/4	1/4	1/4

Ball Valve C 16 »pneumatic«

Weight (kg)

d (mm)		63	75	90	110	140	160
GFR flange	NC-NO	7,7	8,1	12,9	20,9	44,0	46,5
PP/steel flange	NC-NO	8,3	9,3	14,5	22,6	45,8	49,2
GFR flange	DA	4,1	4,5	6,6	7,9	13,5	16,0
PP/steel flange	DA	4,8	5,8	8,2	9,6	15,3	18,7

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	103,30	64,20	0,800	-	0,5	0,5	1/4	4,95
P25S	177,60	118,4	1,500	-	0,8	0,8	1/4	9,20
P30S	273,70	179,9	2,050	-	1,2	1,2	1/4	15,9
P40S	766,90	491,6	5,300	-	2,0	2,0	1/4	36,4

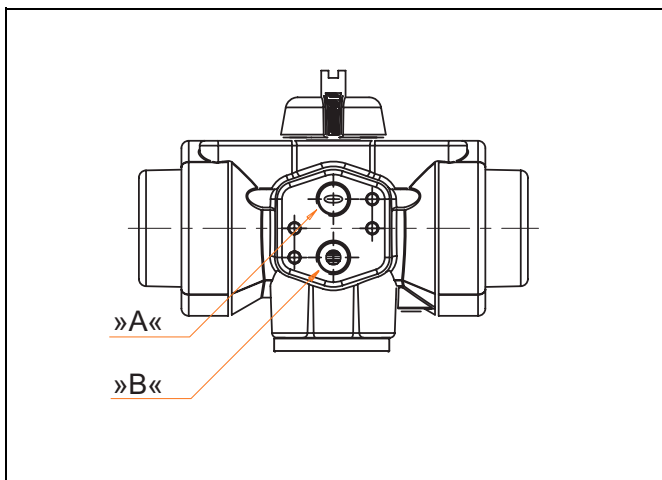
Actuator: double acting DA

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	1,410
PP20	165,50	-	0,80	0,70	0,40	0,40	1/4	2,940
P25	290,00	-	1,50	1,20	0,50	0,50	1/4	5,900

Application conditions

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

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

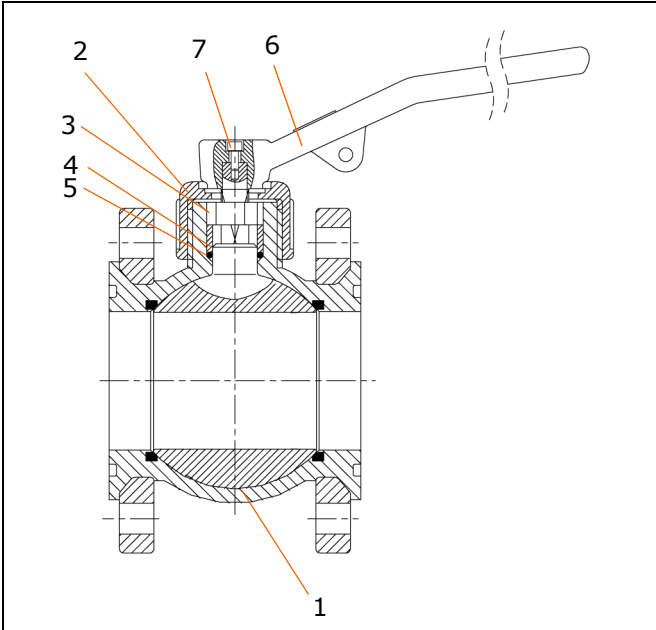
- 3/2-way solenoid valves for NC/NO actuators
- 5/2-way solenoid valves for DA actuators

Options

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

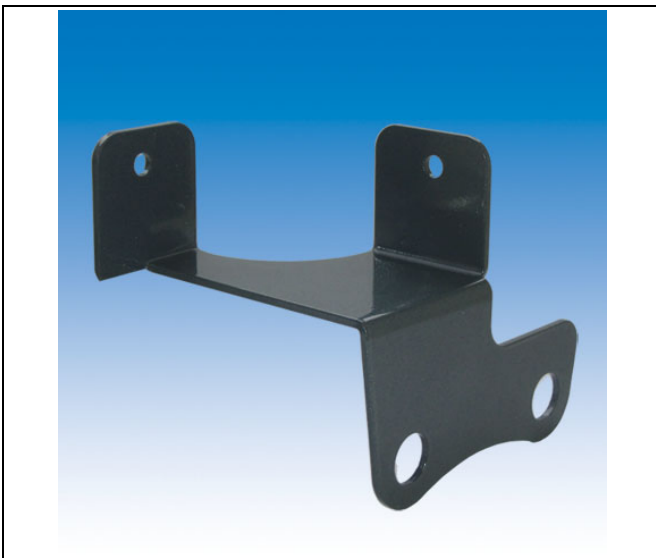
Ball Valve C 16 »manual«

Part list and designation



item	qty.	designation
1	1	body with ball
2	1	cap
3	1	end of travel limiter
4	1	back-up ring
5	1	o-ring
6	1	hand lever
7	1	hexagonal head screw

Locking plate



d (mm)	63	75	90	110	140	160
DN (mm)	50	65	80	100	125	150
DN (inch)	2	2 1/2	3	4	5	6
ident number	137944	137945	137946	137947	137948	137949



Ident number for automated valves

9

ident number manual valve

actuated valve

line

- 0
- ER-line (electric) 1
- V-line (electric) 2
- 3
- 4
- PA (pneumatic) 5
- alu (pneumatic) 6
- steel (pneumatic) 7
- 8
- 9

version

- 12V DC 0
- 24V AC/DC 1
- 115V AC 2
- 230V AC 3
- 400V AC 4
- 100-240V AC/120-350V DC 5
- NC 6
- NO 7
- DA 8

option (electric)

- standard version 0
- DIN connector 1
- additional limit switch 2
- rechargeable battery pack 3
- heating resistor 4
- 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 16, DN 100
 body/housing: PVC-U
 seal: CSM-EPDM
 connection: GFR flange

5 1 6 2 6 9 2 3 0

actuator: V-line, 230V AC

Subject to technical modifications

