

BALL VALVE

C 16

Nominal size DN 50–150

Nominal size 2"–6"

Nominal pressure PN 6–10 bar

Features

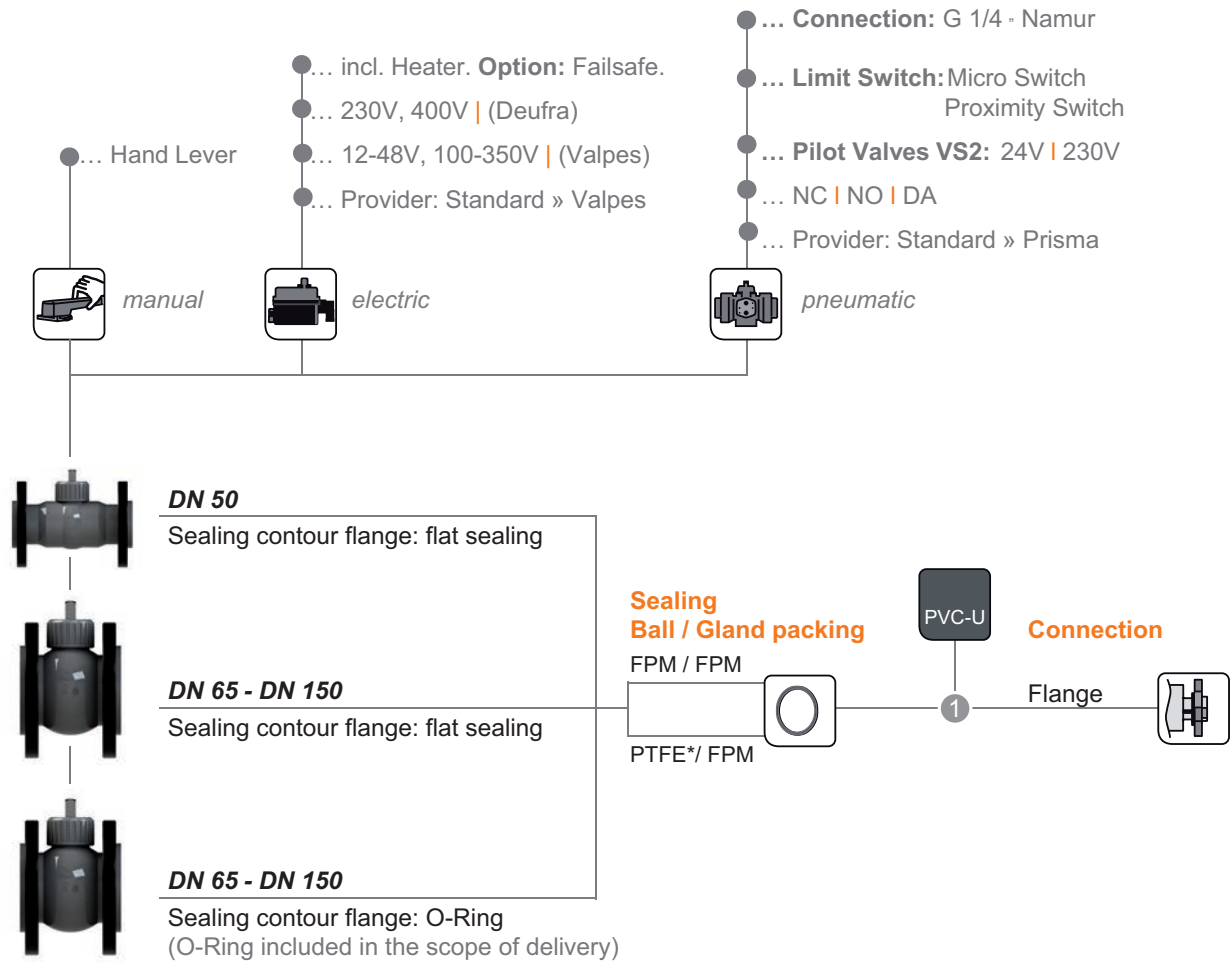
- Special ball valve with fully encapsulated valve ball
- extremely low clearance volume
- high actuation reliability - even at high torques
- ball valve made of stainless steel
- excellent flow characteristics

www.asv-stuebbe.com/produkte/armaturen

PVC-U



Pictogram Ball valve C 16



* DN150 only available with PTFE ball seal.

● available
○ not available

Basic Nominal Sizes:

DN 8	DN 10	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300	DN 350	DN 400
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Connection Material (process connection)

1 PP/St. flange DIN 2501

Ball valve C 16

Advantage

- maximum safety due to fully encapsulated valve ball – ball and ball seal cannot be flushed out
- high actuation reliability - no shearing-off of the stainless steel ball journal molded-in into the ball even at high torques
- extremely low clearance volume – the housing encloses the switching ball due to the special die casting method
- optimized kv value - for all dimensions, the internal ball diameter is adapted to the internal pipe diameter
- DN 65–150 lockable – manipulations are excluded due to the optionally available locking plate

Use

- Chemical and industrial plant engineering
- water treatment

Application

- Valve for shutting off pipeline systems

Flow medium

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

ASV resistance guide

- www.asv-stuebbe.de/pdf_resistance/300051.pdf

Testing

- Requirements and testing according to DIN 3441 and 8063
- Leakage rate A tested according to DIN EN 12266 (minimum operating pressure for leakage rate A > 1 bar)

Nominal pressure (H₂O, 20 °C)

- PN 6–10 bar

Medium temperature

- See graphics „Pressure/temperature diagram“

Operating pressure

- See graphics „Pressure/temperature diagram“

Size

- DN 50–150

Device connection

- See graphics „pictograph ball valve C16“

Housing

- PVC-U

Ball

- PE

Ball pivot

- Stainless steel (1.4301)

Ball seal

- PTFE, FPM

Sealing

- FPM

Mounting position

- as required

Actuation

- manually: with hand lever, simultaneously serving as a position indicator
- electric: with electric actuator, DIN EN ISO 5211
- pneumatic: with pneumatic actuator, DIN EN ISO 5211

Basic valve color

- Housing: PVC-U, gray, RAL 7011
- Hand lever: PVC-U, orange, RAL 2004
- Hand lever: die casting, orange, RAL 2004
- GFK flange: black, RAL 9011
- PP/steel flange: black, RAL 9011

Accessories

- limit switch unit
- pilot solenoid valve
- lockable hand lever
- locking plate
- positioner

Electric actuator

Voltage:

- please refer to the technical data
- other drive versions and options on request

Mounting set:

- DN 50–125: Stainless steel (1.4301)
- DN 150: painted steel

Coupling:

- steel square, galvanized
- adapter made of aluminum

Screws:

- Stainless steel (1.4301)

Pneumatic actuator

Control pressure:

- 6 bar

Control function:

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

Standard:

- visual position indicator
- further options such as limit switch unit, positioner or pre-control valve on request

Mounting set:

- DN 50–125: Stainless steel (1.4301)
- DN 150: painted steel

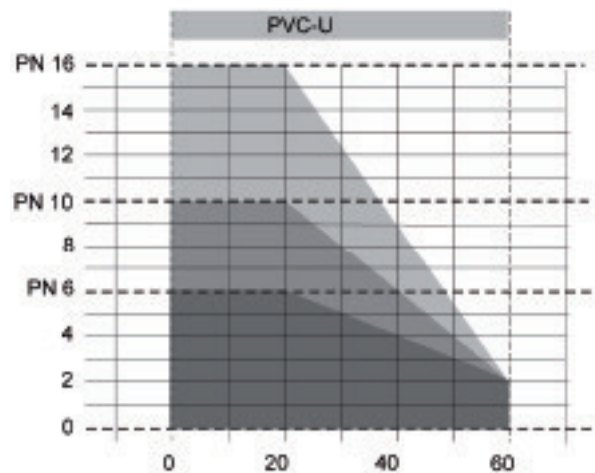
Coupling:

- steel square, galvanized
- adapter made of aluminum

Screws:

- Stainless steel (1.4301)

Pressure/temperature diagram

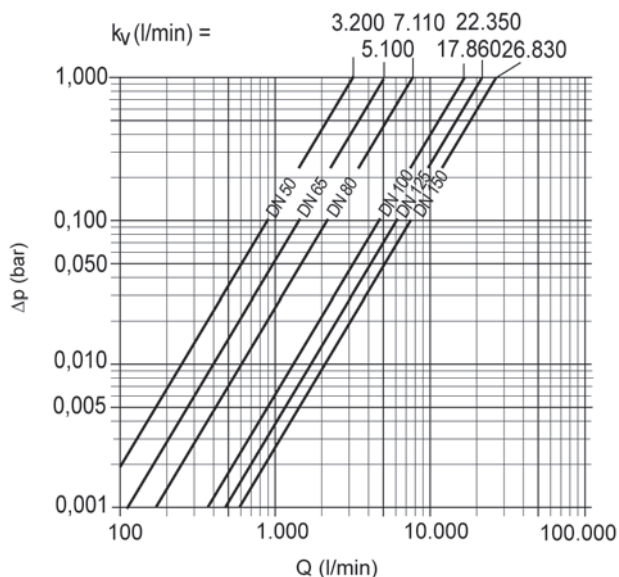


Description	
P	Operating pressure
T	Temperature

The pressure/temperature limits of the materials are valid for the stated nominal pressures and a service life of 25 years. These values are guide values for flow medium types which do not negatively impact the physical and chemical characteristics of the valve material. It may be necessary to take diminution factors into consideration. The durability of wear parts depends on the operating conditions of the application.

Ball valve C 16

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



Description	
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 formulas

$$c_v = k_v \times 0.07$$

$$f_v = k_v \times 0.0585$$

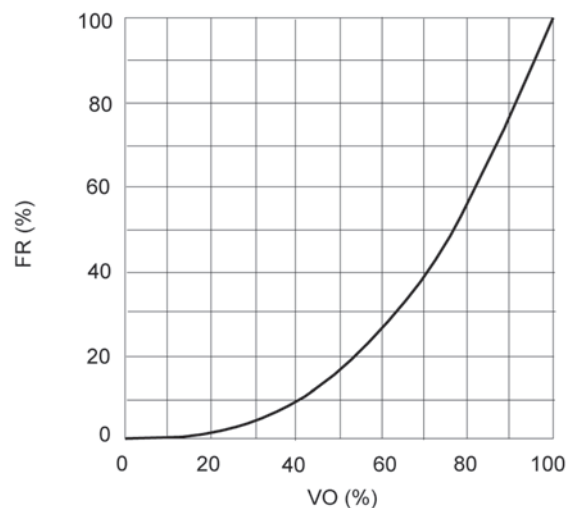
Units

k_v [l/min]

c_v [gal/min] US

f_v [gal/min] GB

Flow characteristic



Description	
FR	k_v value (flow rate)
VO	Valve opening

Torque (Nm)

d (mm)	63	75	90	110	140	160
PVC-U	17	30	40	50	100	80

The specified torques are valid for manually operated fittings and are reference values.

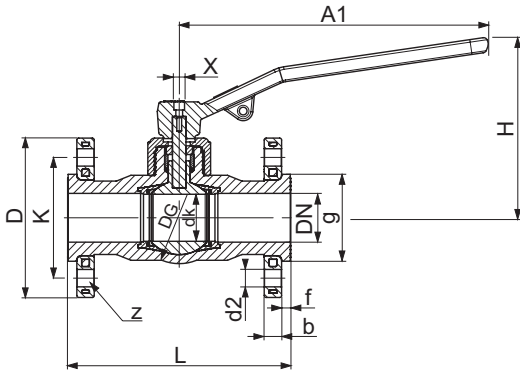
They were determined at the specified nominal pressures with H₂O, 20°C.

These values can be higher or lower, depending on the operating pressure and the medium.

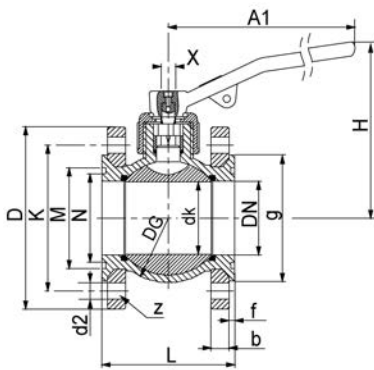
Ball valve C 16

Basic valve with hand lever

DN 50



DN 65–150



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
A1	320	320	320	320	320	480
b	GFR 18 PP/steel 19	18	20	20	26	28
d2	18	18	18	18	18	23
dk	48.6	64.5	79.3	93.3	125	150
D	165	185	200	220	250	285
DG	95	122	142	168	224	260
f	GFR 9 PP/steel 6	6	7	7	16	9
g	90	122	138	158	188	200
H	186	190	190	220	250	285
K	125	145	160	180	210	240
L	O-ring - Flat Seal 230	138	146	167	268	268
M*	-	92	111	133	164	190
N*	-	78	97	115	146	172
X	12 x 14	12 x 14	14 x 16	16 x 18	16 x 18	22 x 22
z	4	4	8	8	8	8

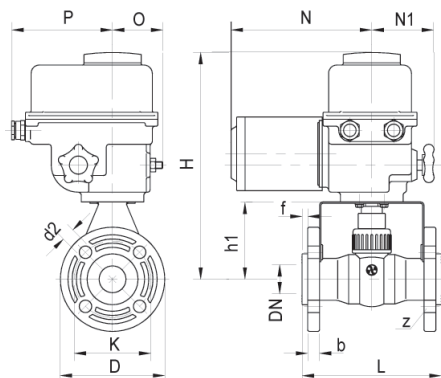
all dimensions in mm

* Only for version with O-ring seal

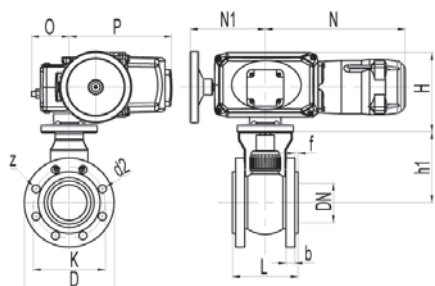
Additional options for ball valve C 16

Electric actuator with basic valve

Drive type SQ6, SQ10



Drive type SQ20



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	SQ6	SQ6	SQ10	SQ10	SQ20	SQ20	
b	GFR	18	18	20	20	26	28
	PP/steel	19	19	21	22	26	27
dz	18	18	18	18	18	23	
D	165	185	200	220	250	285	
f	GFR	9	6	7	7	16	9
	PP/steel	6	6	7	7	16	9
h1	127	146	159	186	211	230	
H	206	206	206	206	177	177	
K	125	145	160	180	210	240	
L	O-ring	-	138	146	167	268	268
	Flat Seal	230	130	140	160	260	260
N	205	205	205	205	395	395	
N1	90	90	90	90	168	168	
O	75	75	75	75	80	80	
O1	-	-	85	85	85	85	
P	145	145	145	145	230	230	
z	4	4	8	8	8	8	

all dimensions in mm

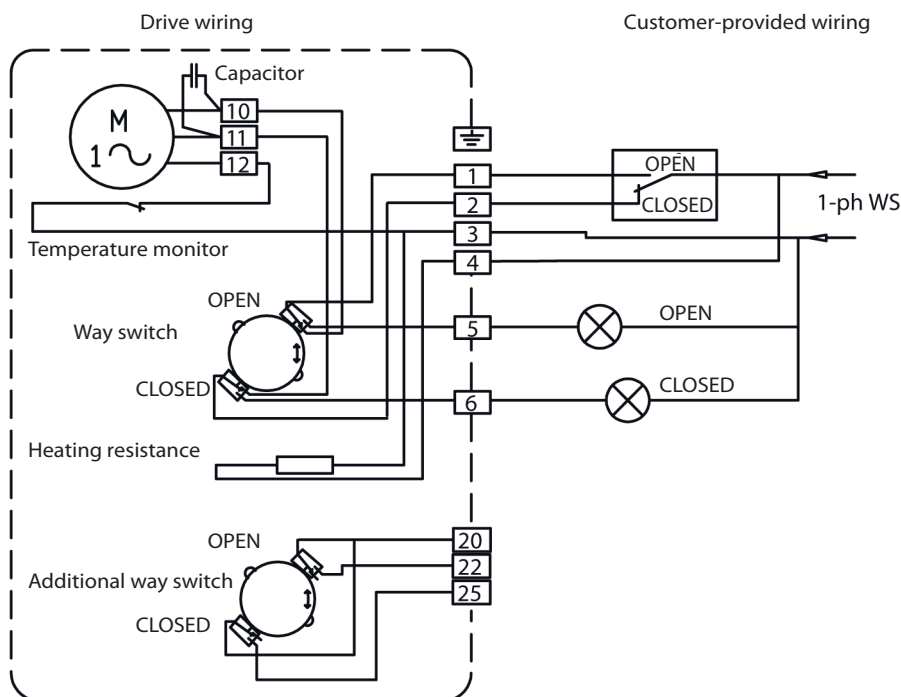
Additional options for ball valve C 16

Electrical drive, type SQ4-15

Technical specifications

Actuator type	SQ6	SQ10	SQ6 *	SQ10 *
Torque (Nm)	60	100	60	100
Voltage AC (V)	230	230	400	400
Manipulating time (s)	6	6	6	6
Power consumption (W)	30	60	40	100
Setting angle (°)	90	90	90	90
Weight (kg)	6	7	6	7
Duty cycle (%)	30	30	30	30
Protection type (IP)	67	67 </td <td>67</td> <td>67</td>	67	67
Temperature (°C)	-20-70	-20-70	-20-70	-20-70

* version. Order additionally as required



Wiring to be installed by the customer is only shown for information purposes. It is not included in the scope of delivery of the drive.

The switching contacts of the drive wiring are shown in the center position.

The drive moves to its OPEN position, once voltage is applied to terminals 1 and 3.

The drive moves to its CLOSED position, once voltage is applied to terminals 2 and 3.

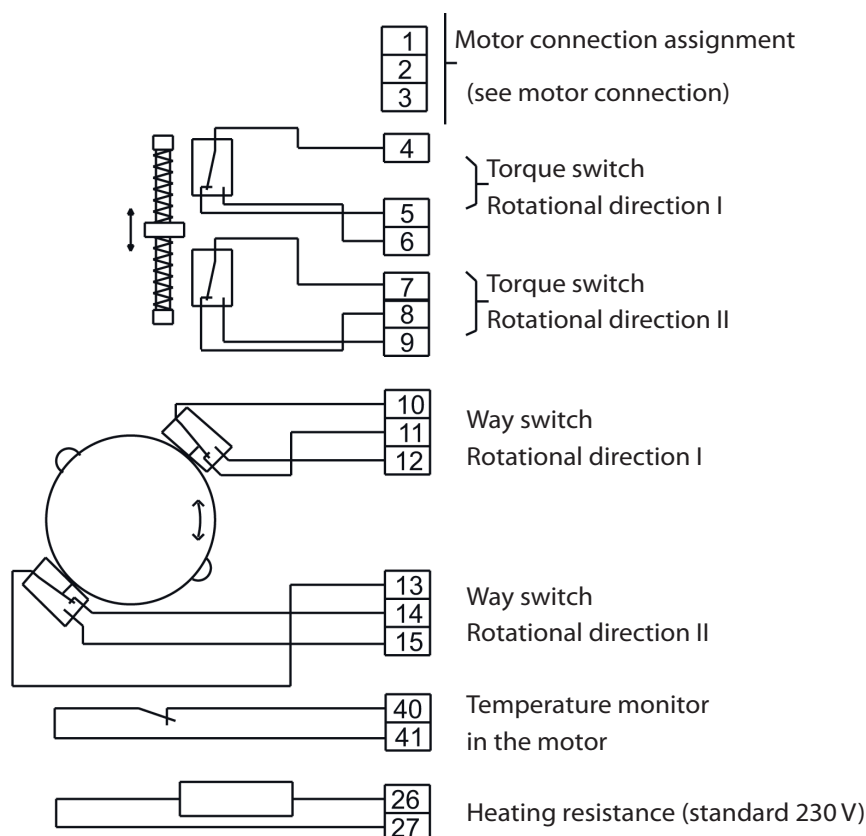
Additional options for ball valve C 16

Electrical drive, type SQ20–25

Technical specifications

Actuator type	SQ20	SQ20 *
Torque (Nm)	200	200
Voltage AC (V)	230	400
Manipulating time (s)	5	5
Power consumption (W)	20	100
Setting angle (°)	90	90
Weight (kg)	20	20
Duty cycle (%)	30	30
Protection type (IP)	67	67
Temperature (°C)	-20–70	-20–70

* version. Order additionally as required



Function of switches

Rotational direction (view from above through the drive onto the valve shaft)

I = CCW run (NO)

II = CW run (NC)

Note

The torque switches make brief contact.

Exception: Drive type SRA6.2

The path switches make permanent contact.

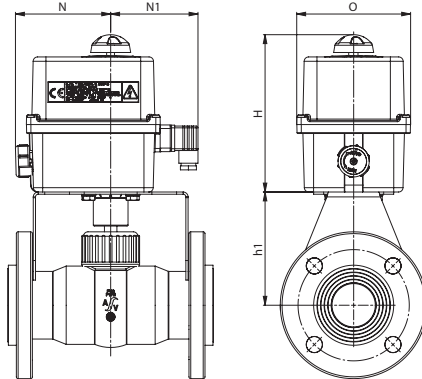
Ball valve C 16

Valves drives

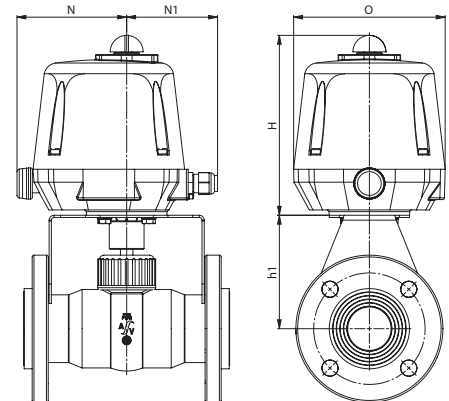
d (mm)	63	63
DN (mm)	50	50
DN (inch)	2	2
Type	ER60	VR75
h1	127	127
H	176	201
N	107	123
N1	98	102
O	128	170

all dimensions in mm

Valpes ER60-100 DN 50



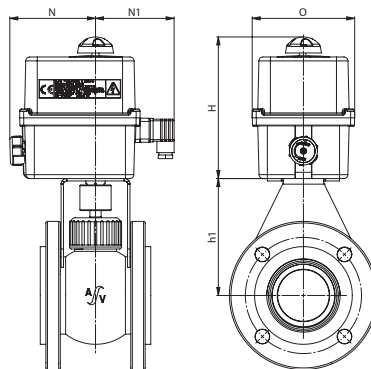
Valpes VR75 DN 50



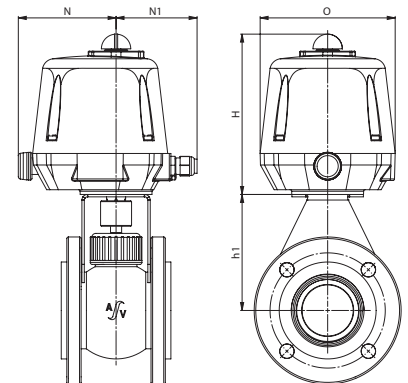
d (mm)	75	90	75
DN (mm)	65	80	65
DN (inch)	2 1/2	3	2 1/2
Type	ER60	ER100	VR75
h1	146	159	146
H	176	176	201
N	107	107	123
N1	98	98	102
O	128	128	170

all dimensions in mm

Valpes ER60-100 DN 65-80



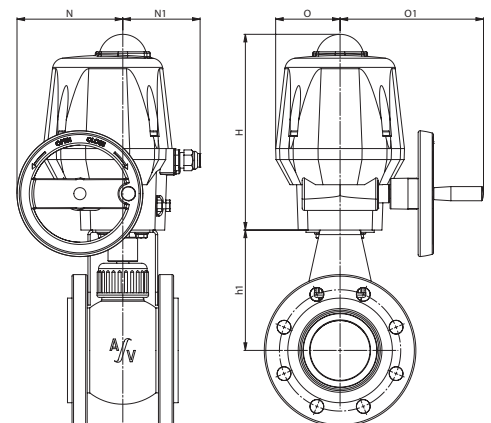
Valpes VR75 DN 65



d (mm)	90	110	140	160
DN (mm)	80	100	125	150
DN (inch)	3	4	5	6
Type	VS100	VS100	VS300	VS300
h1	159	188	210	219
H	258	258	258	258
N	140	140	140	140
N1	102	102	102	102
O	85	85	85	85
O1	190	190	190	190

all dimensions in mm

Valpes VS100-150-300 DN 80-150



Additional options for ball valve C 16

Valves drives

Actuator type	ER Plus 60 Low voltage	ER Plus 60 Mains voltage	ER Plus 100 Low voltage	ER Plus 100 Mains voltage
Torque (Nm)	60	60	100	100
Voltage AC (V)	15–30	100–240	15–30	100–240
Voltage DC (V)	12–48	100–350	12–48	100–350
Manipulating time (s)	12	12	15	15
Setting angle (°)	90	90	90	90
Power consumption (W)	45	45	45	45
Weight (kg)	1.3	1.3	1.4	1.4
Duty cycle (%)	50	50	50	50
Protection type (IP)	66	66	66	66
Temperature (°C)	-10–55	-10–55	-10–55	-10–55
Heating	Included	Included	Included	Included
Options	Fail-Safe/ rechargeable battery pack	Fail-Safe/ rechargeable battery pack	Fail-Safe/ rechargeable battery pack	Fail-Safe/ rechargeable battery pack
Nominal Diameters	DN50–65	DN50–65	DN80	DN80

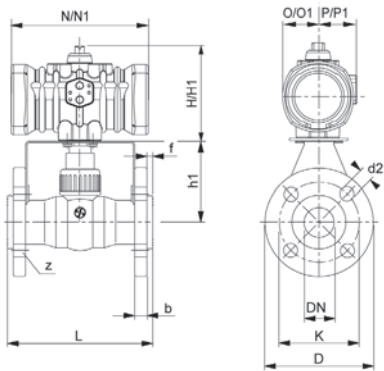
Actuator type	VR 75 Low voltage	VR75 Mains voltage
Torque (Nm)	75	75
Voltage AC (V)	15–30	100–240
Voltage DC (V)	12–48	100–350
Manipulating time (s)	20	20
Setting angle (°)	90	90
Power consumption (W)	45	45
Weight (kg)	3.5	3.5
Duty cycle (%)	50	50
Protection type (IP)	68	68
Temperature (°C)	-20–70	-20–70
Heating	Included	Included
Options	Fail-Safe/rechargeable battery pack	Fail-Safe/rechargeable battery pack
Nominal Diameters	DN50–65	DN50–65

Actuator type	VS100 Low voltage	VS100 Mains voltage	VS150 Low voltage	VS150 Mains voltage	VS150 Three-phase voltage	VS300 Extra-low voltage	VS300 Mains voltage	VS300 Three-phase voltage
Torque (Nm)	100	100	150	150	150	300	300	300
Voltage AC (V)	15–30	100–240	15–30	100–240	400	15–30	100–240	400
Voltage DC (V)	12–48	100–350	12–48	100–350	–	12–48	100–350	–
Manipulating time (s)	15	15	30	30	20	60	60	35
Setting angle (°)	90	90	90	90	90	90	90	90
Power consumption (W)	45	45	45	45	135	45	45	135
Weight (kg)	5.1	5.1	5.3	5.3	5.3	5.5	5.5	5.5
Duty cycle (%)	50	50	50	50	50	50	50	50
Protection type (IP)	68	68	68	68	68	68	68	68
Temperature (°C)	-20–70	-20–70	-20–70	-20–70	-20–70	-20–70	-20–70	-20–70
Heating	Included	Included	Included	Included	Included	Included	Included	Included
Options	Fail-Safe/ rechargeable battery pack	Fail-Safe/ rechargeable battery pack	Fail-Safe/ rechargeable battery pack	Fail-Safe/ rechargeable battery pack	not available	Fail-Safe/ rechargeable battery pack	Fail-Safe/ rechargeable battery pack	not available
Nominal Diameters	DN80	DN80	DN100	DN100	DN100	DN125–150	DN125–150	DN125–150

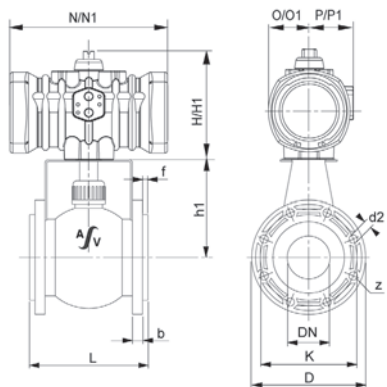
Additional options for ball valve C 16

Pneumatic actuator with basic valve

DN 50



DN 65–150



N/O/P/H = NC / NO

N1/O1/P1/H1 = DA

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	DA	PP10	PP10	PP20	PP20	PA25	PA25
	NC/NO	PP20S	PP20S	PA25S	PA25S	P40S	P40S
b	GFK/PP/steel	18	18	20	20	26	28
	PP/steel/GFK	19	19	21	22	26	27
d2		18	18	18	18	18	23
dk		486	645	793	933	125	150
D		165	185	200	220	250	285
f	GFK/PP/steel	9	6	7	7	16	9
	PP/steel/GFK	6	6	7	7	16	9
h1		127	146	159	186	211	230
H		147	147	175	175	272	272
H1		123	123	147	147	175	175
K		125	145	160	180	210	240
L	O-ring	–	138	146	167	268	268
	Flat Seal	230	130	140	160	260	260
N		313	313	358	358	598.4	598.4
N1		230	230	313	313	358	358
O		54	54	64	64	106	106
O1		41	41	54	54	64	64
P		68	68	89	89	120	120
P1		56	56	68	68	89	89.2
z		4	4	8	8	8	8

all dimensions in mm

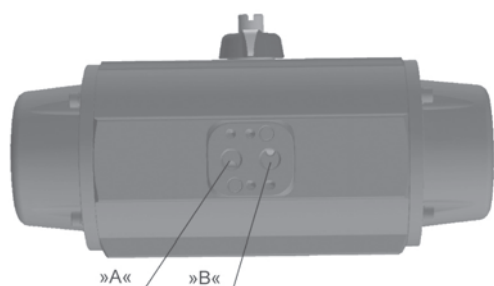
Additional options for ball valve C 16

Pneumatic drive, type PA line

Technical specifications

Actuator type	PA25S	PA25
Function	NC/NO	DA
Torque start at 6 bar (Nm)	170.6	290
Torque end at 6 bar (Nm)	108.2	–
Control volume, opening (liters)	1.5	1.5
Manipulating time, opening (s)	0.8	0.5
Manipulating time, closing (s)	0.8	0.5
Control pressure connection (inch)	G 1/4	G 1/4
Weight (kg)	11.3	9.3

Control pressure connection



Function	Control pressure open	
	Connection »A«	Connection »B«
Normally closed (NC)		»OPEN«
Normally open (NO)		»CLOSED«
Double-acting (DA)	»CLOSED«	»OPEN«

Control

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

5/2-way solenoid valves for DA actuators

Note

The actuators require a control pressure of 6 bar for optimum function.

Malfunctions may occur, if the control pressure deviates.

In this case, a new actuator configuration is necessary.

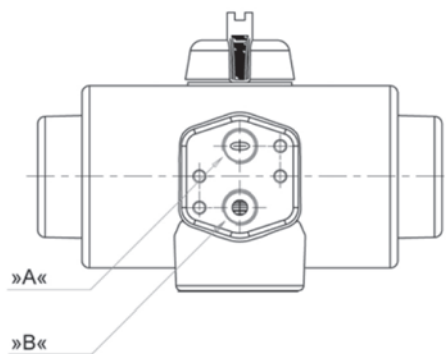
Additional options for ball valve C 16

Pneumatic drive, type PP line

Technical specifications

Actuator type	PP20S	PP10	PP20
Function	NC/NO	DA	DA
Torque start at 6 bar (Nm)	99.7	71	165.4
Torque end at 6 bar (Nm)	60.8	–	–
Control volume, opening (liters)	0.8	0.35	0.8
Manipulating time, opening (s)	0.5	0.25	0.4
Manipulating time, closing (s)	0.5	0.25	0.4
Control pressure connection (inch)	G 1/4	G 1/4	G 1/4
Weight (kg)	4.22	1.65	3.22

Control pressure connection



Function	Control pressure open	
	Connection »A«	Connection »B«
Normally closed (NC)		»OPEN«
Normally open (NO)		»CLOSED«
Double-acting (DA)	»CLOSED«	»OPEN«

Control

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

5/2-way solenoid valves for DA actuators

Note

The actuators require a control pressure of 6 bar for optimum function.

Malfunctions may occur, if the control pressure deviates.

In this case, a new actuator configuration is necessary.

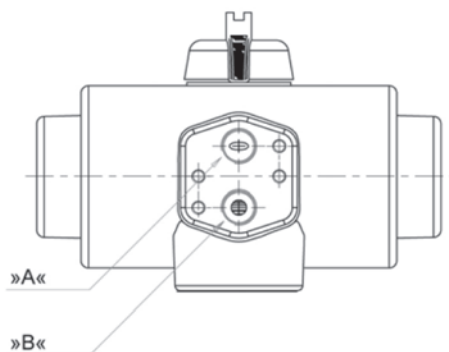
Additional options for ball valve C 16

Pneumatic drive, type P line

Technical data

Actuator type	P4oS
Function	NC/NO
Torque start at 6 bar (Nm)	688
Torque end at 6 bar (Nm)	413
Control volume, opening (liters)	5-3
Manipulating time, opening (s)	2
Manipulating time, closing (s)	2
Control pressure connection (inch)	G 1/4
Weight (kg)	36.4

Control pressure connection



Function	Control pressure open	
	Connection »A«	Connection »B«
Normally closed (NC)		»OPEN«
Normally open (NO)		»CLOSED«
Double-acting (DA)	»CLOSED«	»OPEN«

Control

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

5/2-way solenoid valves for DA actuators

Note

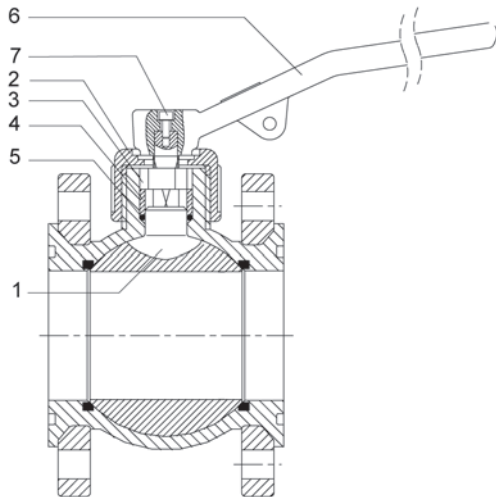
The actuators require a control pressure of 6 bar for optimum function.

Malfunctions may occur, if the control pressure deviates.

In this case, a new actuator configuration is necessary.

Ball valve C 16

Basic valve with hand lever



Position	Quantity	Designation
1	1	body with ball
2	1	Cap
3	1	End position limiter
4	1	Pressure piece
5	1	O-ring
6	1	Hand lever
7	1	Hexagon screw