2/2-way valves ND 15 to 100

for neutral steam and liquid fluids
Solenoid actuated, with forced lifting
Piston seat valves
Flange connection PN 25
Operating pressure 0 to 16 bar resp. 25 bar

Publication 750**0977**.06.12.94
Catalogue index
A 5
85 220/84 220 series

Description (standard valve)

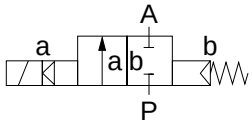
Solenoid valve for hot water and steam

Flow direction:		**determined**
Fluid temperature:		**max. +200 °C**
Ambient temperature:		**max. +60 °C**
Sum of fluid- and ambient temperature:		**max. +260 °C**
Mounting position:		**solenoid preferably to underneath** [1]
Material	**Body:**	**Gun metal at ND 15, cast steel at ND 20 to 100, with gun metal seat**
	Seat seal:	**PTFE**
	Internal parts:	**1.4104, 1.4301, gun metal**

For contaminated fluids insertion of a strainer is recommended (see accessories).

Features

- **Flat piston valve**
- **Valve operates without pressure differential (Δ p)**
- **High flow rate**
- **Damped operation**



Switching function:
Normally closed

Characteristic data

ND	Operating pressure with gaseous and liquid fluids up to 80 mm²/s (cSt) [bar]		k_V-value [4]	Weight	Section	Dimension table	Cat no	
							Valve / Solenoid DC	Valve / Solenoid AC
[mm]	min.	max.	(Base m³/h)	[kg]	no	no	XX XXX XX. XXXX	XX XXX XX. XXXX
15	0	16	5	4.0	01	01	**85 222 00. 8302**	**85 222 00. 8306**
20	0	16	8	5.8	01	02	**85 223 00. 8402**	**85 223 00. 8406**
25	0	16	10	6.2	01	03	**85 224 00. 8402**	**85 224 00. 8406**
32	0	16	27	11.0	01	04	**85 225 00. 8402**	**85 225 00. 8406**
40	0	16	30	11.8	01	05	**85 226 00. 8402**	**85 226 00. 8406**
50	0	16	41	14.0	01	06	**85 227 00. 8402**	**85 227 00. 8406**
65	0	25	67	51.0	02	07	**85 228 00. 8602**	[3]
65	0	16	67	36.5	03	08	**84 228 00. 9502** [2]	**84 228 00. 9506** [2]
80	0	25	94	61.0	02	09	**84 229 00. 8602**	[3]
80	0	16	94	46.5	03	10	**84 229 00. 9502** [2]	**84 229 00. 9506** [2]
100	0	25	144	84.0	02	11	**84 230 00. 8602**	[3]
100	0	16	144	70.0	03	12	**84 230 00. 9502** [2]	**84 230 00. 9506** [2]

State voltage [V] and frequency [Hz]

[1] Mounting position for ND 15 to 50 and fluid temperature up to max. +150 °C: solenoid vertical on top
[2] Fluid temperature max. +150 °C, mounting position: solenoid only on top
[3] For AC-voltage: DC solenoids can be used with a separate rectifier in the switchboard.
[4] C_V-value (US) ≈ k_V-value x 1.2

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Solenoids

Standard voltages	DC	AC 40 Hz to 60 Hz
	24 V – 205 V	24 V 110 V 230 V

Design acc. to VDE 0580
Voltage range ±10%
100 % duty cycle
Protection class acc. to EN 60529 IP 65
(previous DIN 40050)

For technical details see catalog register ”Solenoids”.

Power consumption [1)]

Solenoid	DC	AC Inrush and Holding
8302	14 W	–
8306	–	16 VA
8402	29 W	–
8406	–	33 VA
9502	55 W	–
9506	–	61 VA
8602	100 W	

Socket acc. to DIN 43650 at solenoid 8402/8406/9502/9506
AC solenoid with rectifier.
Terminal in solenoid housing 8602

[1)] **According to VDE 0580 at coil temperature +20 °C. In operating the solenoid coil decrease the power consumption appr. 30 %.**

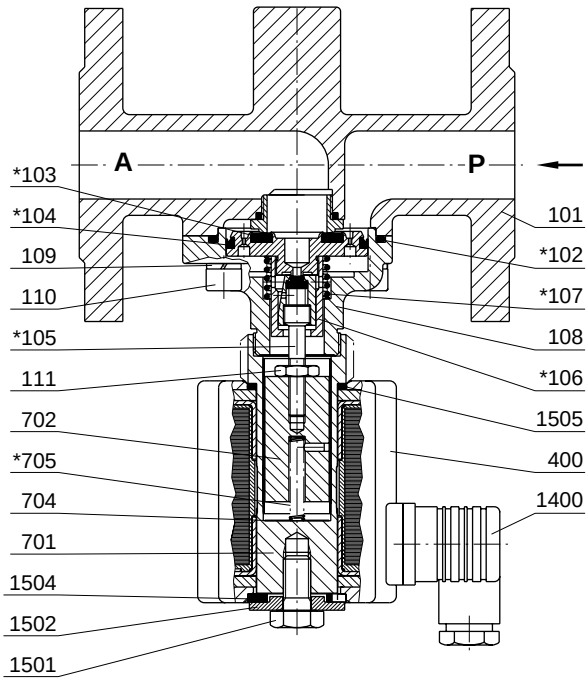
Further models

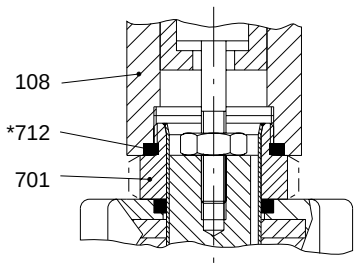
available at extra cost

- XX XXX **01.**XXXX Normally open. Mounting position at fluid temperature: max. +150 °C solenoid vertical on top, max +200 °C solenoid vertical underneath, ND 32 up to ND 50 only with solenoids 9502/9506
- XX XXX **02.**XXXX Manual override
- XX XXX **14.**XXXX Seat seal EPDM, up to ND 50, max. fluid temperature +130 °C
- XX XXX **23.**XXXX Position indicator with two solenoid switches
- XX XXX **34**.XXXX Enlarged closing force, advisable at low flow rate and low switching cycles
- **On request** Further versions; Inspection certificate DIN 50049–3.1.B

Sections

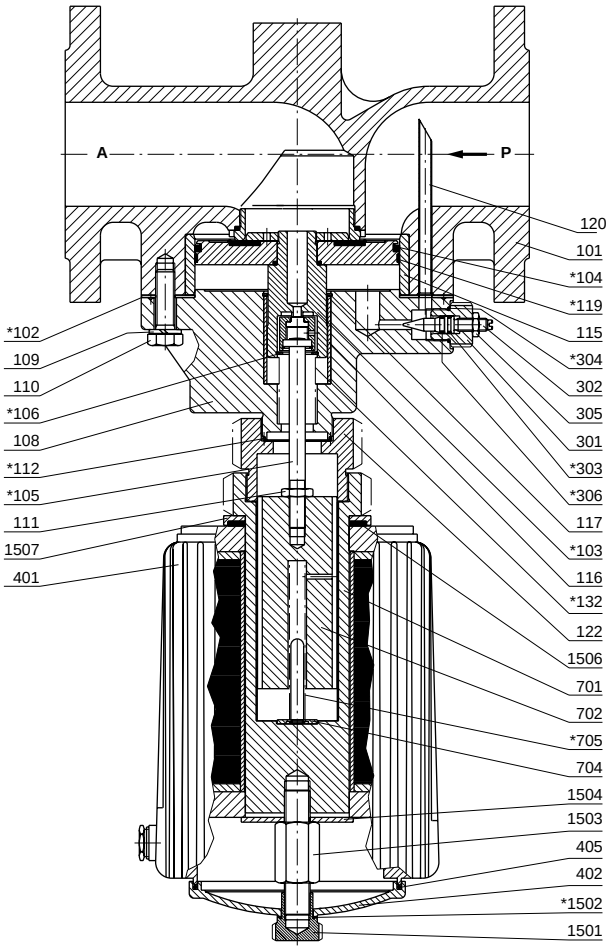
01





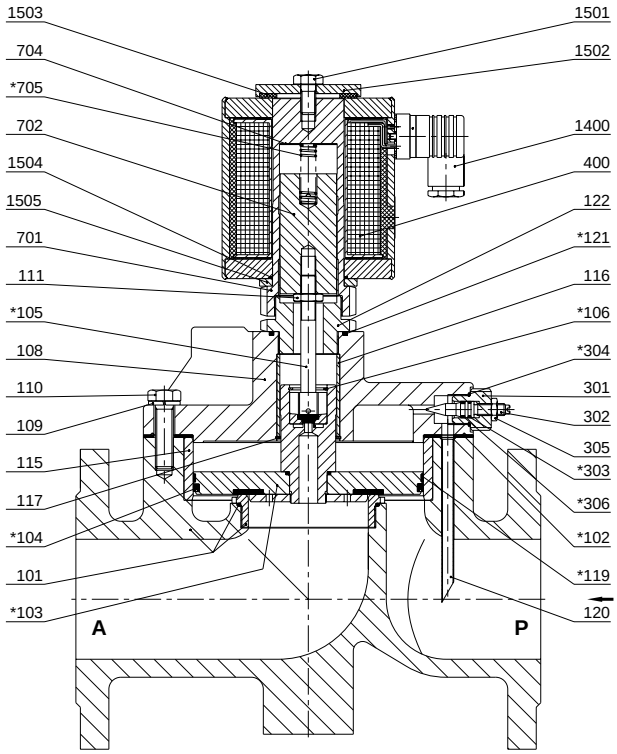
101	Valve body	701	Core tube
*102	O-ring	702	Core
*103	Valve plate	704	Anti magnetic spacer
*104	Grooved ring	*705	Pressure spring
*105	Valve spindle	*712	Gasket – for ND 15 only
*106	Screw piece	1400	Socket
*107	Pressure spring	1501	Hexagon screw
108	Body cover	1502	Round plate
109	Spring washer	1504	Gasket
110	Cheese head cap screw	1505	O-ring
111	Hexagon nut		
400	Solenoid		

02



101	Valve Body	305	Hexagon nut
*102	Gasket	*306	Grooved ring
*103	Valve piston	401	Solenoid
*104	Grooved ring	402	Solenoid cover
*105	Valve spindle	403	Terminal
*106	Locking ring	404	Cheese head cap screw
108	Body cover	405	O-ring
109	Spring washer	406	Earthing plate
110	Hexagon screw	407	Washer
111	Hexagon nut	408	Chesse head cap screw
115	Bushing	701	Core tube
116	Bushing	702	Core
117	Circlip	704	Guide pin
*119	Guide foil	*705	Pressure spring
120	Tube	1501	Screw piece
*121	Seal ring	1502	O-ring
122	Screw piece	1503	Screw piece
*132	Pressure spring	1504	Round plate
301	Screw piece	1506	Gasket
302	Valve spindle	1507	Round plate
*303	O-ring		
*304	O-ring		

03



101	Valve body	302	Valve spindle
*102	Gasket	*303	O-ring
*103	Valve piston	*304	O-ring
*104	Grooved ring	305	Hexagon nut
*105	Valve spindle	306	Grooved ring
*106	Locking ring	400	Solenoid
108	Body cover	701	Core tube
109	Spring washer	702	Core
110	Hexagon screw	704	Anti magnetic spacer
111	Hexagon nut	*705	Pressure spring
115	Bushing	1400	Socket
116	Bushing	1501	Hexagon screw
117	Circlip	1502	Round plate
*119	Guide foil	1503	Gasket
120	Tube	1504	O-ring
*121	Seal ring	1505	Round plate
122	Screw piece		
301	Screw piece		

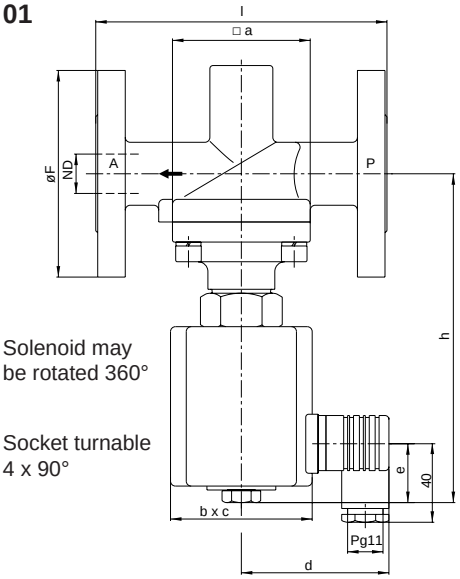
To avoid high shock pressure, you can control the closing time with the adjusting stem pos. 302. Turning clockwise pos. 302 increases restriction and slows down the speed. A totally closed restriction would result in a malfunction.

* These individual parts form a complete wearing unit.

When ordering spare parts please state Cat no and series no.

Dimensions

01



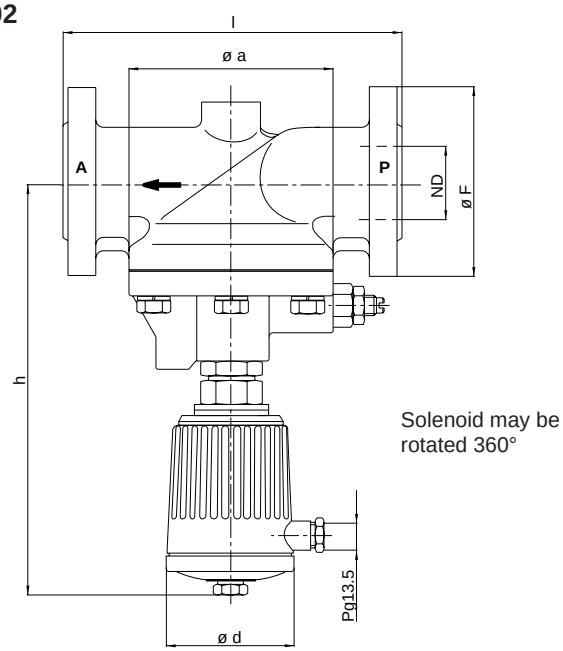
Flange connection PN 25 acc. to DIN 2544/2545
Contact face DIN 2526 type C

Dimension table no	□ a	b x c	d	e
01	70	52 x 65	65	26
02	70	72 x 92	75	31
03	70	72 x 92	75	31
04	96	72 x 92	75	31
05	96	72 x 92	75	31
06	112	72 x 92	75	31

Dimension table no	h	l	ND	Ø F
01	145	130	15	95
02	172	150	20	105
03	172	160	25	115
04	187	180	32	140
05	191	200	40	150
06	200	230	50	165

Mounting position up to fluid temperature max. +150 °C: preferably solenoid vertical on top

02



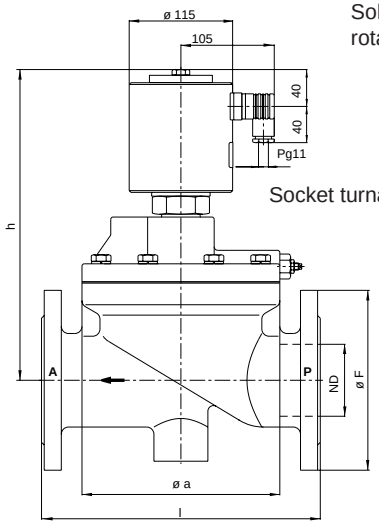
Flange connection PN 25 acc. to DIN 2544/2545
Contact face DIN 2526 type C

Dimension table no	Ø a	Ø d	h
07	195	180	485
08	220	180	505
09	265	180	535

Dimension table no	l	ND	Ø F
07	290	65	185
08	310	80	200
09	350	100	235

Mounting position up to fluid temperature max. +200 °C: solenoid vertical underneath.

03



Flange connection PN 25 acc. to DIN 2544/2545
Contact face DIN 2526 type C

Dimension table no	Ø a	h	l
08	195	327	290
10	220	347	310
12	265	376	350

Dimension table no	ND	Ø F
08	65	185
10	80	200
12	100	235

Mounting position up to fluid temperature max. +150 °C: solenoid only vertical to top.