

# 2/2-way valves ND 15 to 100



for neutral gaseous and liquid fluids  
 Solenoid actuated, with forced lifting  
 Piston seat valves  
 Flange connection PN 40  
 Operating pressure 0 to 25 bar

Publication 7502711.06.05.97  
 Catalogue index  
**A 5**  
 85 200/84 200 series

## Description (standard valve)

Solenoid valve for air, water and oil

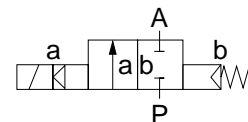
**Flow direction:** determined  
**Fluid temperature:** max. +90 °C  
**Ambient temperature:** max. +50 °C  
**Sum of fluid- and ambient temperature:** max. +130 °C  
**Mounting position:** optional, preferably solenoid vertical on top, DN 65 and larger only vertical on top  
**Material Body:** Cast steel (1.0619)  
**Seat seal:** NBR  
**Internal parts:** 1.4104, 1.4301, Brass, gun metal



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

## Features

- Flat piston valve
- Valve operates without pressure differential ( $\Delta p$ )
- High flow rate
- Damped operation



**Switching function:**  
 Normally closed

## Characteristic data

ND	Operating pressure with gaseous and liquid fluids up to 40 mm <sup>2</sup> /s (cSt) [bar]		k <sub>v</sub> -value <sup>1)</sup> (Base m <sup>3</sup> /h)	Weight [kg]	Section no	Dimension table no	Cat no			
	min.	max.					Valve XX XXX	Solenoid D.C. XX.XXXX	Valve XX XXX	Solenoid A.C. XX.XXXX
15	0	25	5.5	5.5	01	01	<b>85 202 00.8301</b>		<b>85 202 00.8304</b>	
20	0	25	10.0	5.8	01	02	<b>85 203 00.8401</b>		<b>85 203 00.8404</b>	
25	0	25	12.5	6.2	01	03	<b>85 204 00.8401</b>		<b>85 204 00.8404</b>	
32	0	25	27.0	11.0	01	04	<b>85 205 00.8401</b>		<b>85 205 00.8404</b>	
40	0	25	31.0	11.8	01	05	<b>85 206 00.8401</b>		<b>85 206 00.8404</b>	
50	0	25	43.0	14.0	01	06	<b>85 207 00.8401</b>		<b>85 207 00.8404</b>	
65	0	25	67.0	36.5	02	07	<b>84 208 00.9501</b>		<b>84 208 00.9504</b>	
80	0	25	94.0	46.5	02	08	<b>84 209 00.9501</b>		<b>84 209 00.9504</b>	
100	0	25	144.0	70.0	02	09	<b>84 210 00.9501</b>		<b>84 210 00.9504</b>	

State voltage [V] and frequency [Hz]

<sup>1)</sup> C<sub>v</sub>-value (US) ≈ k<sub>v</sub>-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  $\pm 10\%$

100 % duty cycle

Protection class acc. to EN 60529 IP 65  
(previous DIN 40050)

**Attention! Restricted temperature range for explosion proof solenoids.**

For technical details see catalog register "Solenoids".

### Further models

available at extra cost

- XX XXX **01.XXXX** Normally open, mounting position solenoid vertical on top <sup>4)</sup>
- XX XXX **02.XXXX** Manual override
- XX XXX **03.XXXX** Seat seal FPM, max. fluid temperature  $+110\text{ °C}$  <sup>2)</sup>
- XX XXX **06.XXXX** Seat seal PTFE, max. fluid temperature  $+110\text{ °C}$  <sup>2)</sup>, operating pressure max. 16 bar up to ND 50
- XX XXX **14.XXXX** Seat seal EPDM up to max. fluid temperature  $+110\text{ °C}$
- XX XXX **17.XXXX** Normally open, seat seal FPM, max. fluid temperature  $+110\text{ °C}$ , mounting position: solenoid vertical on top
- XX XXX **22.XXXX** Operating pressure max. 40 bar up to ND 50 <sup>2)</sup>
- XX XXX **23.XXXX** Position indicator with two solenoid switches
- XX XXX **25.XXXX** Seat seal FPM with larger bleed orifices in the piston (up to ND 50), for eg. fuel and oil, max. viscosity  $80\text{ mm}^2/\text{s(cSt)}$ , max. fluid temperature  $+110\text{ °C}$  <sup>2)</sup>
- XX XXX **28.XXXX** All materials suitable for temperatures below  $-10\text{ °C}$
- XX XXX **34.XXXX** Enlarged closing force, advisable at low flow rate and low switching cycles
- **On request** Further versions

### Power consumption <sup>1)</sup>

Solenoid	DC	AC Inrush and Holding
8301	22 W	–
8304	–	25 VA
8401	40 W	–
8404	–	45 VA
9501	80 W	–
9504	–	89 VA

Socket acc. to DIN 43650

AC solenoid with rectifier.

<sup>1)</sup> According to VDE 0580 at coil temperature  $+20\text{ °C}$ .  
In operating the solenoid coil decrease the power consumption appr. 30 %.

- XX XXX XX.**8402** Solenoid for higher temperature max. fluid temperature  $+200\text{ °C}$ , from ND 20 operating pressure max. 16 bar, mounting position: vertical, with solenoid underneath, for DC only
- XX XXX XX.**8406** Same as 8402, for AC only
- XX XXX XX.**8436** Solenoid in protection class EEx me II T4
- XX XXX XX.**8900** Solenoid in protection class EEx de IIC T4 and T5, up to ND 50 only <sup>3)</sup>
- XX XXX XX.**8920** Solenoid in protection class EEx d IIC T4 and T5, up to ND 50 only <sup>3)</sup>
- XX XXX XX.**9502** Solenoid for higher temperature max. fluid temperature  $+150\text{ °C}$ , from ND 65, operating pressure max. 16 bar, for D.C. only
- XX XXX XX.**9540** Solenoid in protection class EEx me II T3 and T4, from ND 65
- **On request** Overexcitation, Solenoid in protection class EEx d I, EEx de I, special connections

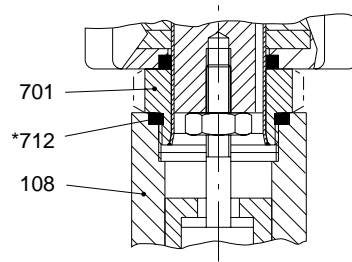
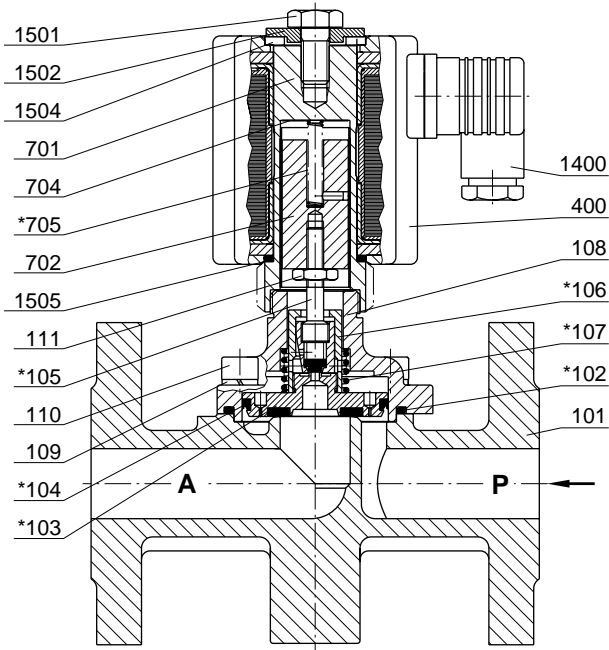
<sup>2)</sup> up to max.  $+200\text{ °C}$  fluid temperature with solenoid for higher temperatures

<sup>3)</sup> belongs to series 84XX.

<sup>4)</sup> ND 15 with solenoid 8401/8404

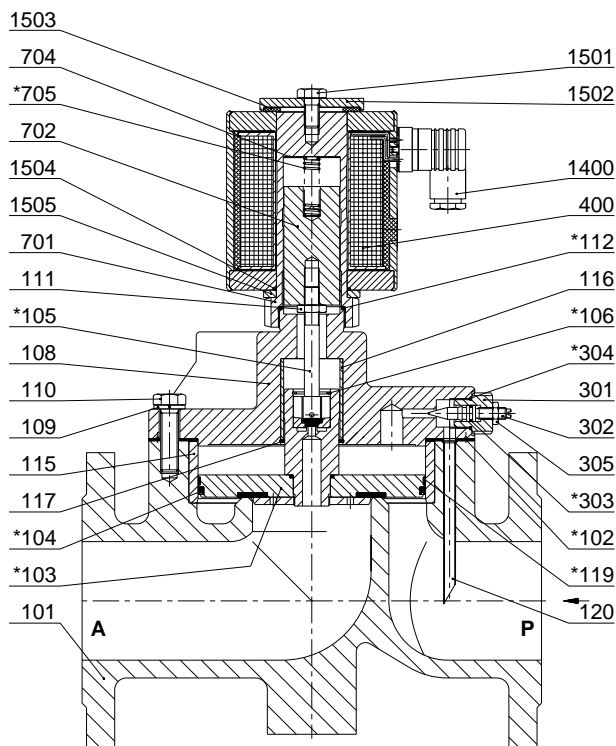
## Sections

### 01



- |                                      |                              |
|--------------------------------------|------------------------------|
| 101 Valve body                       | 400 Solenoid                 |
| *102 O-ring                          | 701 Core tube                |
| *103 Valve plate                     | 702 Core                     |
| *104 Grooved ring                    | 704 Round plate              |
| *105 Valve spindle                   | *705 Pressure spring         |
| *106 Screw piece                     | *712 O-ring – only for ND 15 |
| *107 Pressure spring – not for ND 15 | 1400 Socket                  |
| 108 Body cover                       | 1501 Hexagon screw           |
| 109 Spring washer                    | 1502 Round plate             |
| 110 Cheese head cap screw            | 1504 Gasket                  |
| 111 Hexagon nut                      | 1505 O-ring                  |

### 02



- |                    |                      |
|--------------------|----------------------|
| 101 Valve body     | 301 Screw piece      |
| *102 Gasket        | 302 Valve spindle    |
| *103 Valve plate   | *303 O-ring          |
| *104 Grooved ring  | *304 O-ring          |
| *105 Valve spindle | 305 Hexagon nut      |
| *106 Locking ring  | 400 Solenoid         |
| 108 Body cover     | 701 Core tube        |
| 109 Spring washer  | 702 Core             |
| 110 Hexagon screw  | 704 Round plate      |
| 111 Hexagon nut    | *705 Pressure spring |
| *112 Gasket        | 1400 Socket          |
| 115 Bushing        | 1501 Hexagon screw   |
| 116 Bushing        | 1502 Round plate     |
| 117 Snap ring      | 1503 Gasket          |
| *119 Guide foil    | 1504 O-ring          |
| 120 Tube           | 1505 Round plate     |

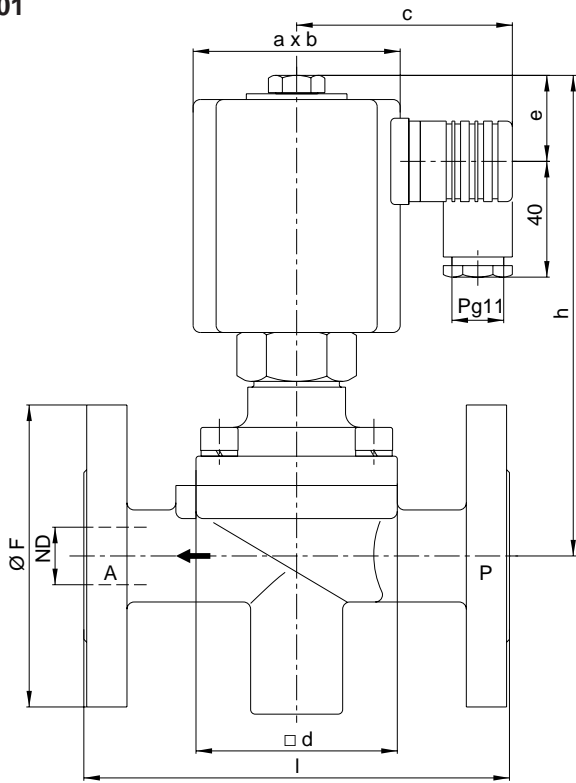
To avoid high shock pressure, you can control the closing time with the adjusting stem pos. 302. Turning clockwise pos. 302 increases restriction and slows down the speed. A totally closed restriction would result in a malfunction.

\* These individual parts form a complete wearing unit.

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

# Dimensions

01



Solenoid may be rotated 360°

Socket turnable 4 x 90°

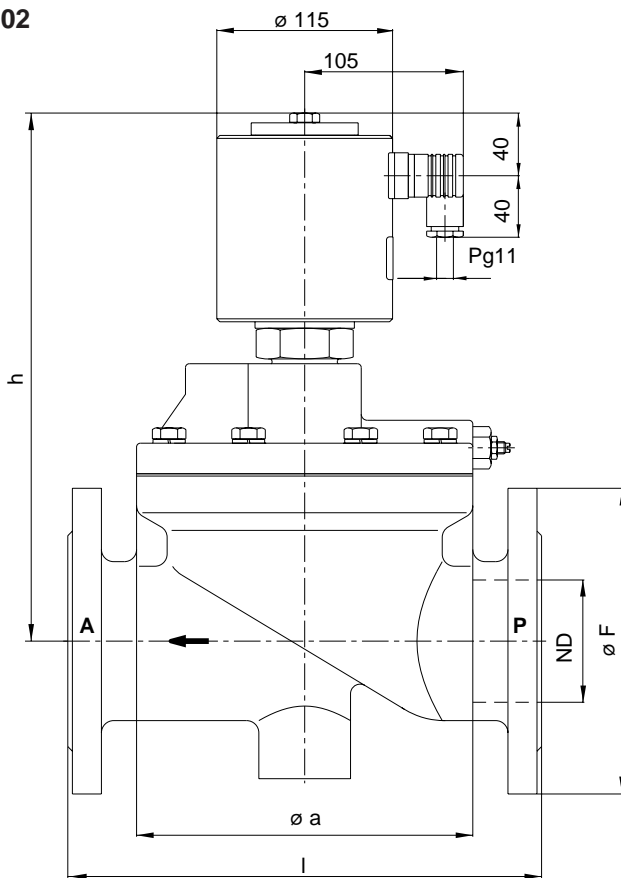
Flange connection PN 40 acc. to DIN 2545  
Contact face DIN 2526 type C

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

02



Solenoid may be rotated 360°

Socket turnable 4 x 90°

Flange connection PN 40 acc. to DIN 2545  
Contact face DIN 2526 type C

Dimension table No.	Ø a	h	l
07	195	327	290
08	220	347	310
09	265	376	350

Dimension table No.	ND	Ø F
07	65	185
08	80	200
09	100	235