

Water valve 2/2 directional valve

RE 50235/05.08
Replaces: AB 21-23

1/10

Type ABZAW

Nominal width 8 to 50
Component series 1X
Operating pressure 10/16 bar [145/232 psi]



H7557_d

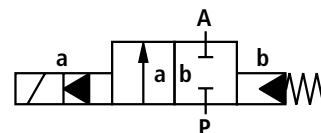
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Features

- Water valves are suitable for cooling circuits of liquid fluids
- Electromagnetically indirectly operated
- Diaphragm valve with closing damping
- Simple, compact design
- Solenoid can be replaced without any tools
- Ideal for use as water valve to DIN EN 60730-2.8

Symbol



Blocked in rest position

Ordering code

Water valve		ABZ	A	W	—	—	K4	*
Power unit accessories		= ABZ						Further details in clear text
Valve			= A					Electrical connection ²⁾
Water valve				= W				K4 = Individual connection by means of component plug 03 pd (2+PE) K4 to DIN EN 175301-803
Nominal width								Voltage
DN 8		= G1/4		¹⁾ [N1/4]				G24 = DC voltage 24 V
DN 10		= G3/8		[N3/8]				W220-50 = AC voltage 220 V/50 Hz
DN 12		= G1/2		[N1/2]				W110-50 = AC voltage 110 V/50 Hz
DN 20		= G3/4		[N3/4]				
DN 25		= G1		[N1]				
DN 32		= G1 1/4		[N1 1/4]				
DN 40		= G1 1/2		[N1 1/2]				
DN 50		= G2		[N2]				

¹⁾ N1/4 = 1/4" NPT

²⁾ Mating connectors, separate order, see page 7

Order examples:

WASSERVENTIL ABZAW-G1/4-G24K4 Material no. R901191664

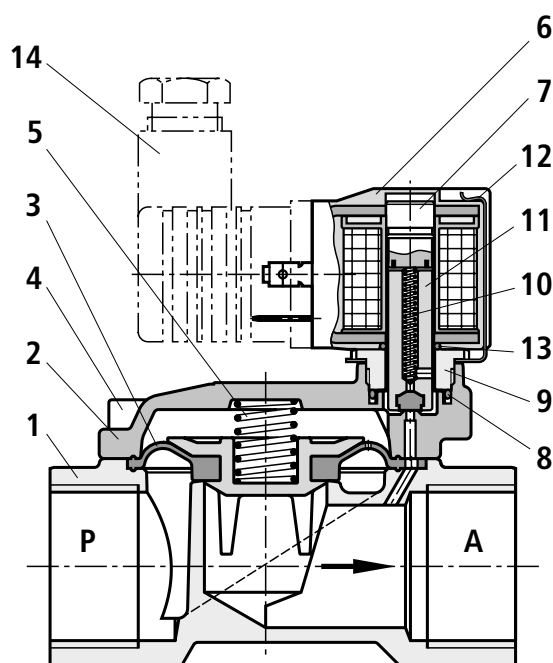
WASSERVENTIL ABZAW-N1/4-G24K4 Material no. R901203111

Function, section

Electromagnetically operated 2/2 directional water valves according to this standard are poppet valves with hydraulic positive stop damping, in which a diaphragm blocks the flow.

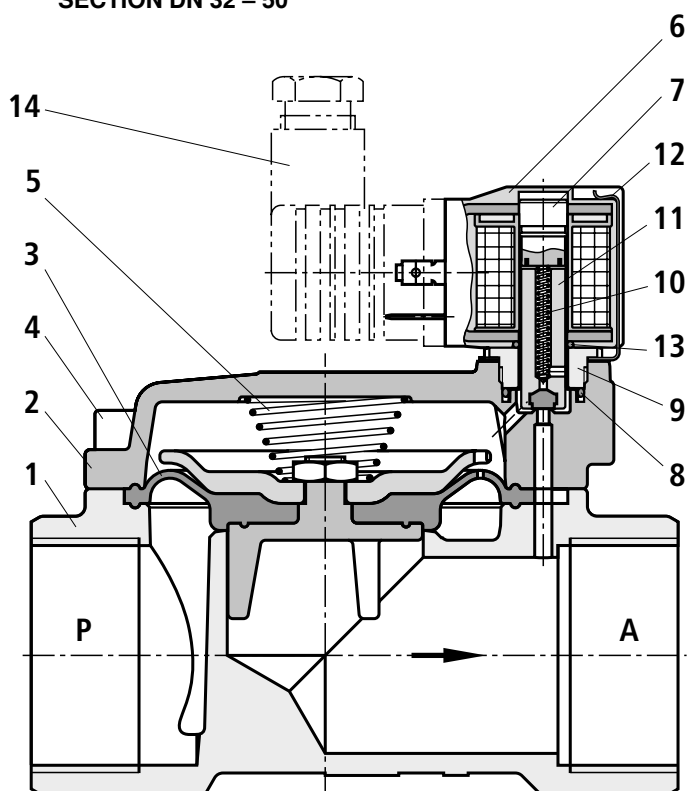
The valves are actuated by a solenoid, the force of which is supported by the differential pressure between the valve inlet and the valve outlet ($\Delta p_{\min} = 0.1 \text{ bar [1.45 psi]}$).

SECTION DN 8 – 25



- | | |
|---------------------------------|-------------------|
| 1 Valve housing | 6 Solenoid body |
| 2 Valve housing cover | 7 Solenoid sleeve |
| 3 Diaphragm | 8 Seal ring |
| 4 Hexagon socket head cap screw | 9 Threaded piece |
| 5 Compression spring | |

SECTION DN 32 – 50



- | | |
|-----------------------|---------------------------------------|
| 10 Compression spring | 13 Seal ring |
| 11 Armature | 14 Mating connector |
| 12 Spring bracket | (not included in the scope of supply) |

Technical data (for applications outside these parameters, please consult us!)**General**

Installation orientation		Optional, preferably with solenoid pointing upwards
Ambient temperature range °C [°F]		0 to 50 [32 to 122]
Direction of flow		Fixed
Permissible temperature of operating medium (water) °C [°F]		0 to 90 [32 to 194]
Permissible viscosity of operating medium mm ² /s (cSt) [in ² /s] (cSt)		1 [0.00155]
Water quality	Supply/location	Resistance
Potable water	Municipal waterworks, sources	Resistant
Industrial water	Cooling tower circuit Company-owned wells	
Rivulet water River water	Rivulets Rivers	
Seawater, brackish water	Sea Vicinity to coasts	Not resistant
Density/specific weight at 20 °C [68 °F] Operating medium (water) g/cm ³		0.9982
Materials	– Housing	Brass
	– Internal parts	Stainless steel, PVDF or brass
	– Seal	NBR

DN	Port size	Minimum pressure differential min. ¹⁾	Operating pressure max.	Q ²⁾ m ³ /h [US gal/h]	Q ³⁾ m ³ /h [US gal/h]
8	G1/4 [N1/4] ⁴⁾	0.1 bar [1.45 psi]	16 bar [232 psi]	1.9 [501.93]	3.3 [871.77]
10	G3/8 [N3/8]			3.0 [792.52]	5.2 [1373.70]
12	G1/2 [N1/2]			3.8 [1003.85]	6.6 [1743.50]
20	G3/4 [N3/4]			6.1 [1611.45]	10.6 [2800.20]
25	G1 [N1]			9.5 [2509.63]	16.5 [4358.80]
32	G1 1/4 [N1 1/4]		10 bar [145 psi]	23.0 [6075.96]	39.8 [10514.00]
40	G1 1/2 [N1 1/2]			25.0 [6604.30]	43.3 [11439.00]
50	G1 [N1]			41.0 [10831.05]	71.0 [18756.00]

¹⁾ Minimum pressure differential of $\Delta p_{\min} = 0.1 \text{ bar [1.45 psi]}$

²⁾ Water flow at +20 °C [+68 °F] at $\Delta p 1 \text{ bar [14.7 psi]}$

³⁾ Water flow at +20 °C [+68 °F] at $\Delta p 3 \text{ bar [44 psi]}$

⁴⁾ N1/4 = 1/4" NPT

Contamination note:

In the case of contaminated fluids, we recommend the use of a strainer according to AB 42-25.
Strainer PN 16, filtration rating 0.250 mm [0.0098 in]

Technical data (for applications outside these parameters, please consult us!)**Electrical**

Type of protection to DIN EN 60529		IP 65
Duty cycle		100 %
DC voltage	VDC	6-220
AC voltage	VAC/Hz	6-250/50 or 60
Power consumption		
– Operation with AC current	Start-up	VA 15
	Holding	VA 12
– Operation with DC current	Start-up	W 8
	Holding	W 8

Note on the EMC Directive:

A suitable electrical circuitry of the valves must ensure that the limit values of the harmonized standards EN 50081-1 and EN 50082-1 are adhered to and that Directive 89/336/EEC (electromagnetic compatibility) is complied with.

Note on the acceptance classification:

Solenoid according to UL and CSA standard.

Characteristic curves (measured with water = 20 °C [68 °F])

Medium:

Water

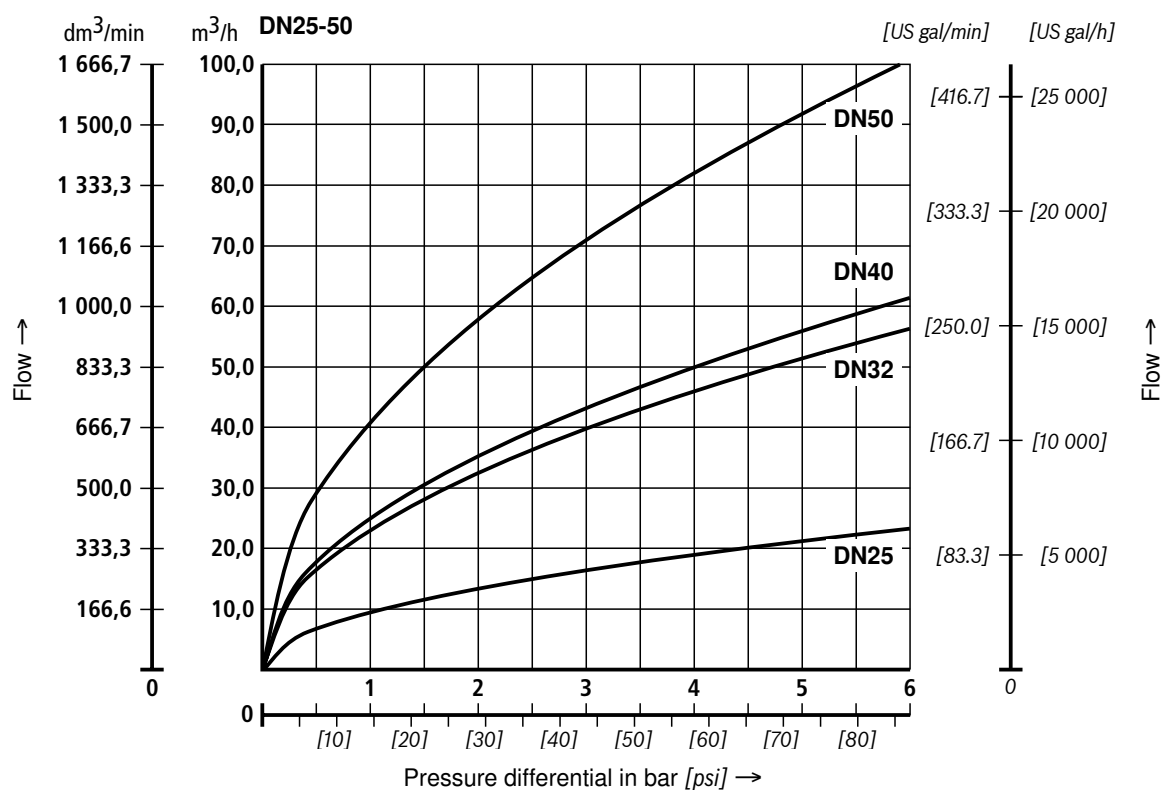
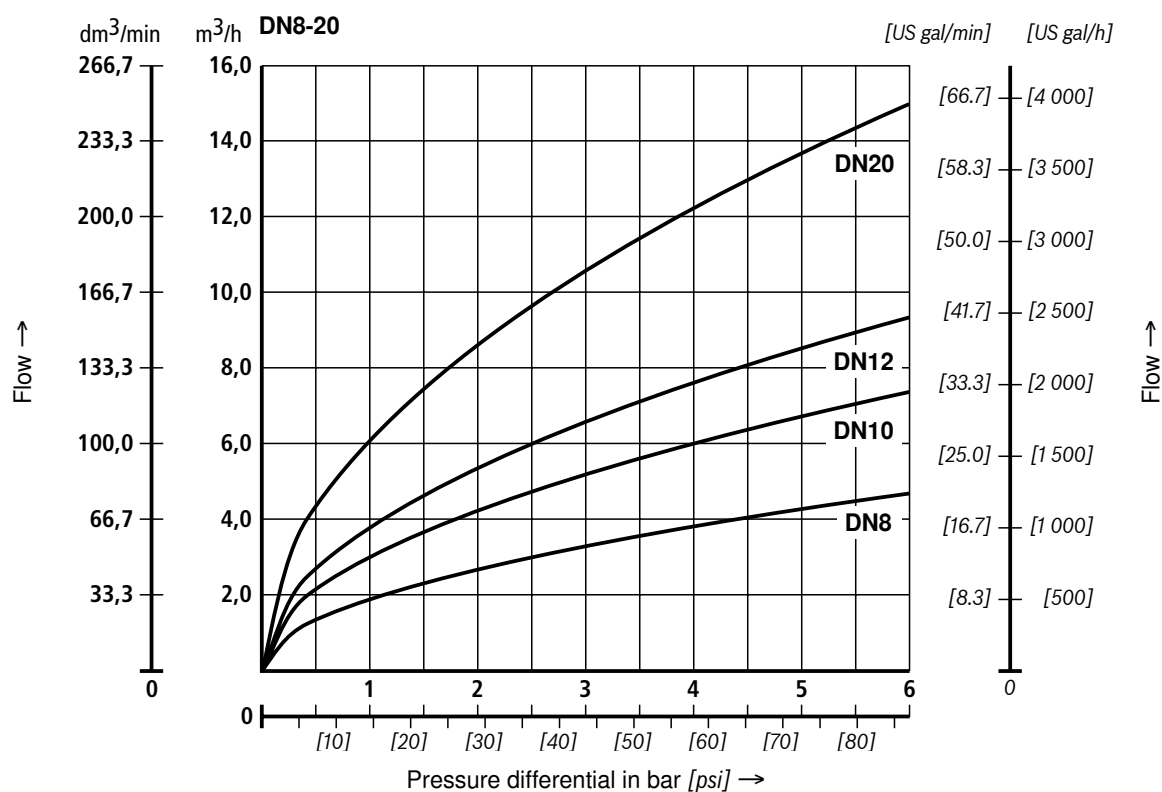
Temperature:

20 °C [68 °F]

Density:

 $\rho = 0.998 \text{ kg/dm}^3$

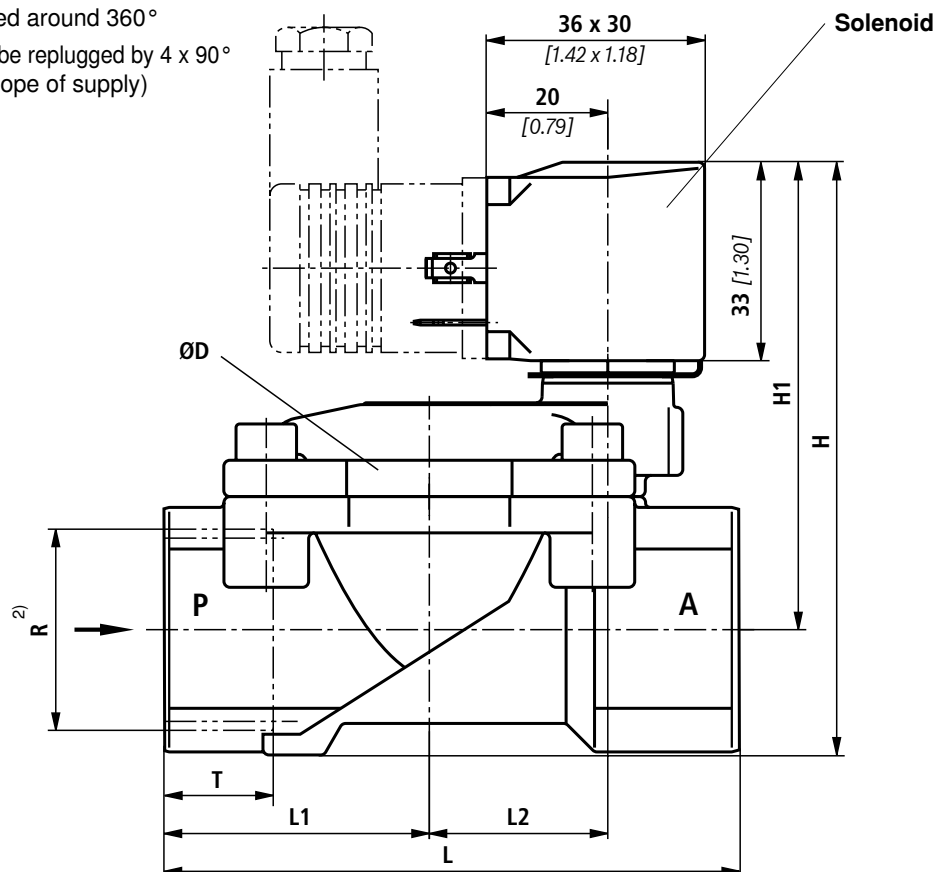
Kinematic viscosity:

1 mm²/s [0.00155 in²/s]

Unit dimensions (dimensions in mm [inch])

Solenoid can be rotated around 360°

Mating connectors can be replugged by 4 x 90°
(not included in the scope of supply)




DN	Dimensions in mm [inch]								Designation: Water valve ABZAW-...G24K4	Material no.	Weight in kg [lbs]
	ØD	L	L1	L2	H	H1	R	T			
8	44 [1.73]	60 [2.36]	27.5 [1.08]	19.5 [0.77]	78.5 [3.09]	67.0 [2.64]	G1/4	12 [0.47]	G1/4	R901191664	0.470
							[N1/4] ¹⁾	10 [0.39]	[N1/4] ¹⁾	[R901203111]	[1.04]
10	44 [1.73]	60 [2.36]	27.5 [1.08]	19.5 [0.77]	78.5 [3.09]	67.0 [2.64]	G3/8	12 [0.47]	G3/8	R901191665	0.450
							[N3/8]	10.5 [0.41]	[N3/8]	[R901203112]	[0.99]
12	44 [1.73]	67 [2.64]	31.0 [1.22]	19.5 [0.77]	81.0 [3.19]	67.0 [2.64]	G1/2	14 [0.55]	G1/2	R901191666	0.500
							[N1/2]	13.5 [0.53]	[N1/2]	[R901203113]	[1.10]
20	50 [1.97]	80 [3.15]	36.5 [1.44]	24.0 [0.94]	88.0 [3.46]	71.5 [2.81]	G3/4	16 [0.63]	G3/4	R901191667	0.650
							[N3/4]	14 [0.55]	[N3/4]	[R901203114]	[1.43]
25	62 [2.44]	95 [3.74]	44.0 [1.73]	29.5 [1.16]	97.5 [3.84]	77.0 [3.03]	G1	18 [0.71]	G1	R901191668	0.950
							[N1]	17 [0.67]	[N1]	[R901203115]	[2.09]
32	92 [3.62]	132 [5.20]	60.0 [2.36]	44.5 [1.75]	124.5 [4.90]	95.5 [3.76]	G1 1/4	20 [0.79]	G1 1/4	R901191669	2.730
							[N1 1/4]	17 [0.67]	[N1 1/4]	[R901203116]	[6.02]
40	92 [3.62]	132 [5.20]	60.0 [2.36]	44.5 [1.75]	124.5 [4.90]	95.5 [3.76]	G1 1/2	22 [0.87]	G1 1/2	R901191670	2.530
							[N1 1/2]	17 [0.67]	[N1 1/2]	[R901203117]	[5.58]
50	109 [4.29]	160 [6.30]	74.0 [2.91]	54.5 [2.15]	142.5 [5.61]	108.0 [4.25]	G2	24 [0.94]	G2	R901191671	3.850
							[N2]	17.5 [0.69]	[N2]	[R901203118]	[8.49]

¹⁾ N1/4 = 1/4" NPT

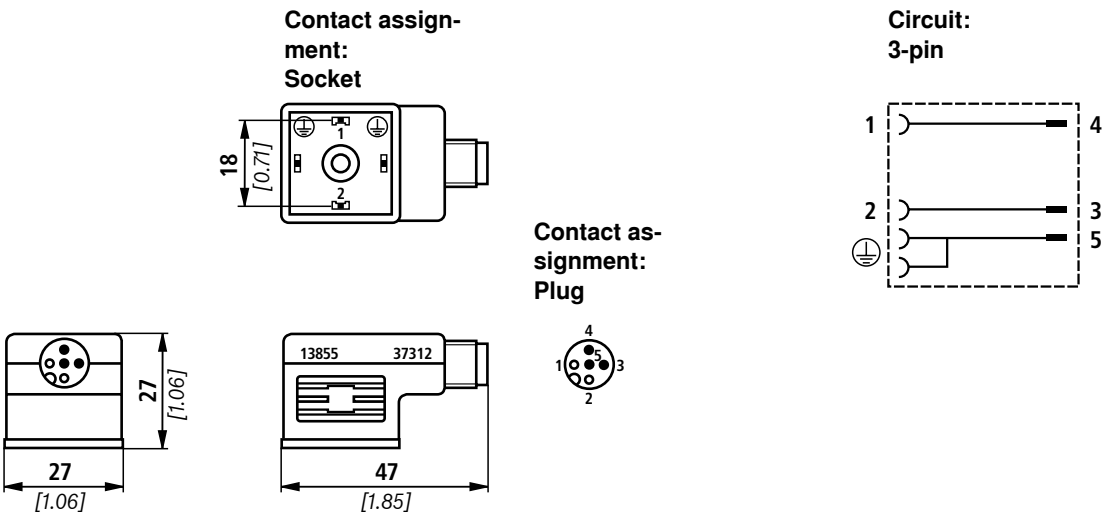
²⁾ Female connection thread

Mating connectors to DIN EN 175301-803 (separate order)

For details and further mating connectors, see RE 08006					
Connection	Color	Material no.			
		Without circuitry	With indicator lamp 12 ... 240 V	With rectifier 12 ... 240 V	With indicator lamp and Zener diode suppressor circuit 24 V
M16 x 1.5	schwarz	R901017011	R901017022	R901017025	R901017026

Adapter from cable connector to K4 component plug M12 x 1 (separate order, dimensions in mm [inch])

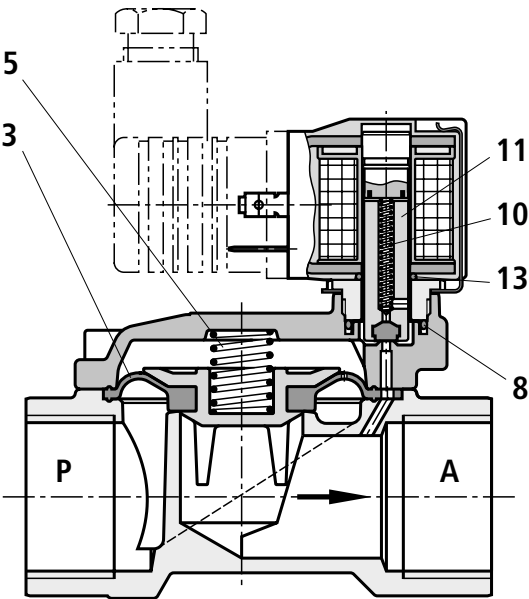
Cable connector 3P 7000-41421-0000000 Material no. R900993715



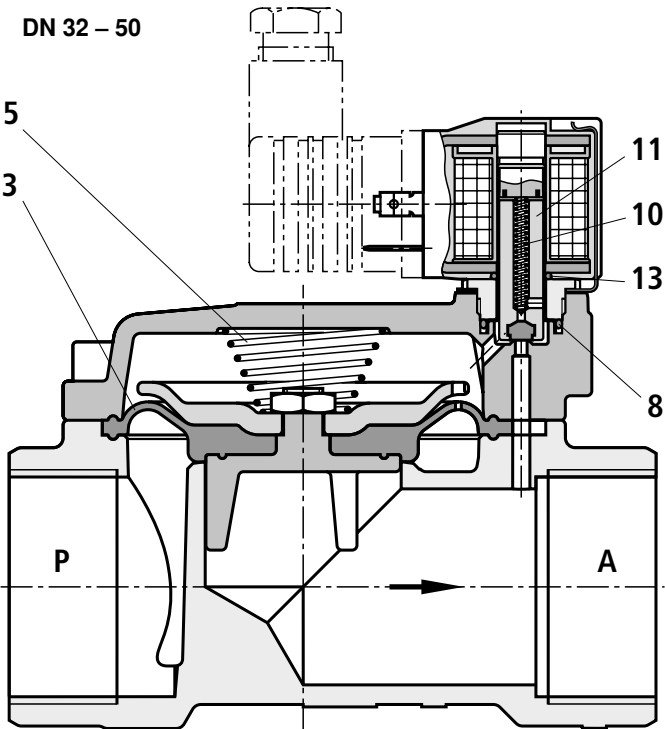
Spare parts

Repair kit

DN 8 – 25



DN 32 – 50



²⁾ N1 = 1“ NPT

²⁾ N1 1/4 = 1 1/4“ NPT

- 3 Diaphragm
- 5 Compression spring
- 8 Seal ring
- 10 Compression spring
- 11 Armature
- 13 Seal ring

Nominal widths			Designation: REPAIR KIT ...	Material number
DN 8, DN 10, DN 12	G1/4, G3/8, G1/2	[N1/4 ³⁾ , N3/8, N1/2]	ABZAW-08-12	R901204182
DN 20	G3/4	[N3/4]	ABZAW-20	R901204178
DN 25	G1	[N1]	ABZAW-25	R901204179
DN 32, DN 40	G1 1/4, G1 1/2	[N1 1/4, N1 1/2]	ABZAW-32-40	R901204180
DN 50	G2	[N2]	ABZAW-50	R901204181

The repair kit consists of items 3, 5, 8, 10, 11, 13

³⁾ N1/4 = 1/4“ NPT

Spare solenoid for all nominal widths
MAGNET ABZAW-G24 Material no. **R901204184**