

## DC or AC valve solenoids

In high performance and low power designs

# 3

Product group

## X BK

- According to DIN VDE 0580
  - Armature space pressure tight up to 30 bar static pressure  
Nominal operating pressure 10 bar
  - Armature with spring-supported sealing nipples at both ends,  
armature guided in plastic tube, suitable for dry operation
  - Armature guided in metal tube type X BK R on request
  - Encapsulated design
  - Actuation of 2/2 and 3/2-way-seat valves
  - Insulation materials of the excitation winding correspond  
to thermal class F
  - Electrical connection and protection class when properly  
installed:
    - Plug connection by spade connectors according to  
DIN 46247  
Protection class according to DIN VDE /  
DIN EN 60529 – IP 00 (P00)
- For size 022:
- Plug connection via plug connector type Z KC  
Cable gland (180-degree rotatable)  
Protection class according to DIN VDE 0470 /  
DIN EN 60529 – IP 65 (P54)
- For size 032:
- Plug connection via plug connector type Z KB  
according to DIN EN 175 301-803  
Protection class according to DIN VDE 0470/  
DIN EN 60529 - IP 65 (P54)
- Fastening with 4 screws
  - Sealing between solenoid and valve by o-ring
  - Please contact us for application related solutions
  - Please take into consideration that the physically generated noise caused by AC solenoids may be disturbing in quiet rooms, particularly if mounted on a resonant base!
  - Application examples:  
Actuation of 2/2 and 3/2-way-seat-valves, especially for pneumatics and other gasiform and fluid neutral media



Fig. 1: X BK K 022 K54 A01



Fig. 2: X BK K 032 K54 A01

## Technical data

<b>X BK K ... K 54 A01 bis A03</b>	<b>022</b>		<b>032</b>
High performance designs			
<b>X BK K ... K 54 A04 bis A06</b>	<b>022</b>	<b>022</b>	
Low power design			
Operating mode	S1	S1	S1
Rated power $P_{20}$	DC (W)	5,5	2
	AC (VA)	10/7	5,7/3,6
Stroke s	(mm)	0,6	0,5
Reference temperature	(°C)	50	50
Magnetic force $F_M$ (N) without Spring	DC	Stroke 0 mm	30
		Stroke s mm	4,5
	AC	Stroke 0 mm	10
		Stroke s mm	4
Solenoid weight $m_M$	(kg)	0,085	0,085
Armature weight $m_A$	(kg)	0,008	0,008

### Size 032 in low power design on request.

Rated voltage  $\equiv$  24 V, resp. 220 V / 50 Hz, the exciter coil can be adjusted to a rated voltage of maximum

$\equiv$  250 V (A01 to A03) resp. 250 V / 50 and 60 Hz (A01 to A03)

$\equiv$  110 V (A04 to A06) resp. 250 V / 50 and 60 Hz (A04 to A06) on request.

Standard values for voltage and operating mode: 24 V DC, 24 V / 50 Hz, S1 (100%).

The force values indicated in the tables refer to 90% of the rated voltage without spring ( $U_N \equiv$  24 V, for other voltages deviations of the magnetic force may occur) and to the normal operating temperature.

Due to natural dispersion the force values may deviate by 10% from the values indicated in the tables.

The normal operation temperature is based on:

- Mounting on a heat-insulating base
- Rated voltage:  $\equiv$  24 V, AC 230 V / 50 Hz
- Operating mode S1 (100%)
- Reference temperature 50 °C

The response times and the maximum operating frequency are not indicated, because they depend on the respective application case and pressure. According to the application the maximum operating frequency may be up to 36.000 S/h.

These data apply to media compressed air for application as 3/2-way-valve de-energized closed. The nominal width of deaeration has to be adapted accordingly to the nominal width of the valve.

We recommend using compressed air corresponding to DIN ISO 8573/1, class 3. Elastomer neutral oils should be used for lubricating the compressed air, otherwise we ask you to please contact the manufacturer.

**Information and remarks concerning European directives** can be taken from the correspondent information sheet which is available under [Produktinfo.Magnet-Schultz.com](http://Produktinfo.Magnet-Schultz.com).

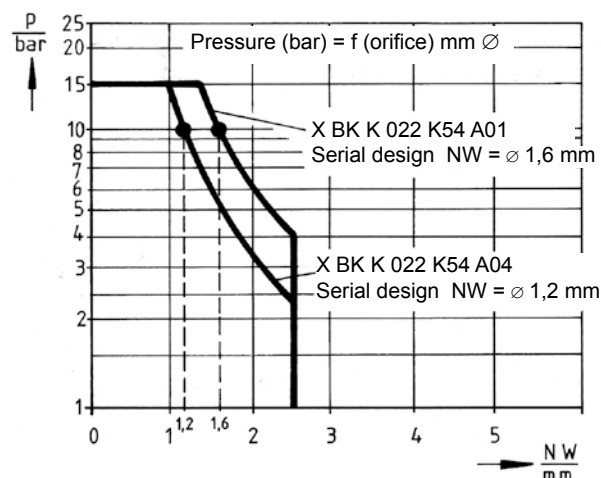


Fig. 3: Switchable pressure as function of the nominal width of the valve seat for type X BK K 022

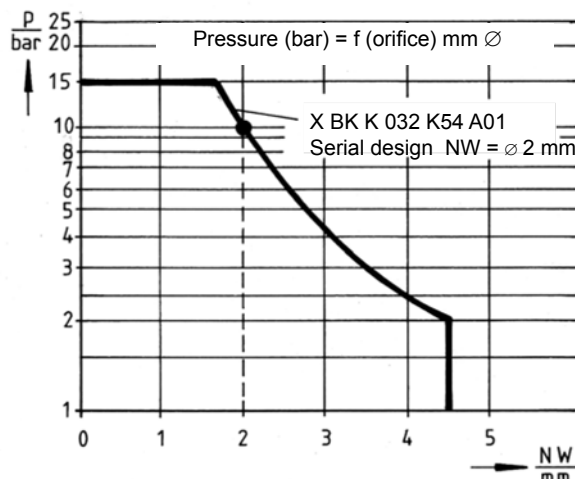



Fig. 4: Switchable pressure as function of the nominal width of the valve seat for type X BK K 032

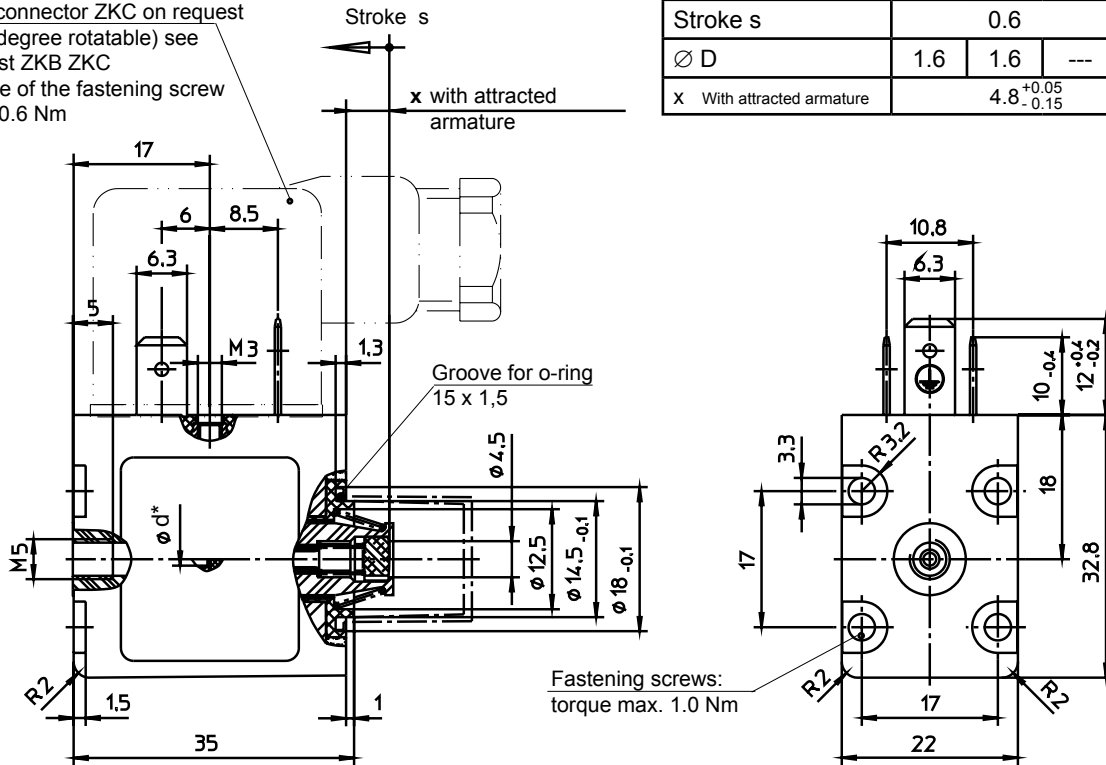
**Please make sure that the described devices are suitable for your application. Our offers for these devices are based on the assumption of maximal 8 in an FMEA severity table, i. e. in case of malfunction of the device model as offered, there is, amongst others, no jeopardy of life or limb. Supplementary information concerning its proper installation can be taken also from the  -Technical Explanation, the effective DIN VDE0580 as well as the relevant specifications.**

This part list is a document for technically qualified personnel.

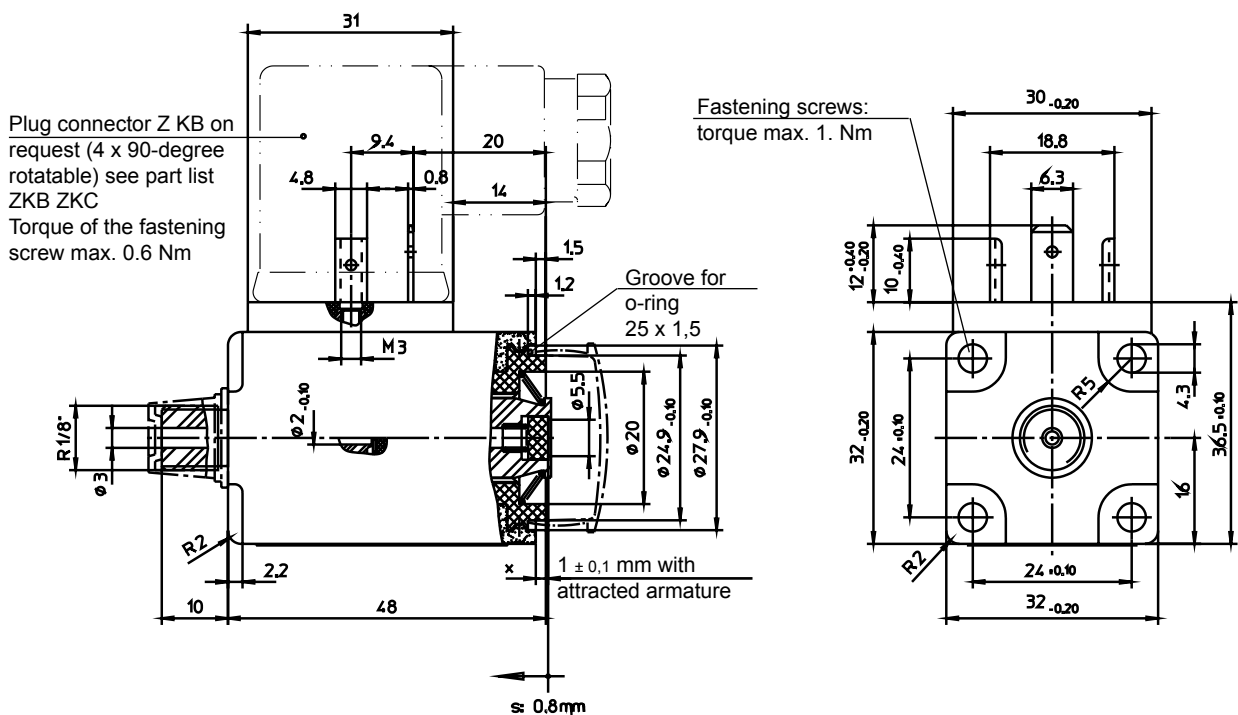
The present publication is for informational purposes only and shall not be construed as mandatory illustration of the products unless otherwise confirmed expressly.

Plug connector ZKC on request  
(180-degree rotatable) see  
part list ZKB ZKC  
Torque of the fastening screw  
max. 0.6 Nm

X BK K 022 K54	A01	A02	A03	A04	A05	A06
Stroke s	0.6			0.5		
∅ D	1.6	1.6	---	1.2	1.2	---
x With attracted armature	4.8 <sup>+0.05</sup> <sub>-0.15</sub>			4.8 <sup>+0.05</sup> <sub>-0.15</sub>		



**Fig. 5:** Type X BK K 022 K54 A01 to A06  
\*design A03 and A06 without thread  
M5 and diam. d (see fig. 10)



**Fig. 6:** type X BK K 032 K54 A01 to A03  
\* design A03 without thread R 1/8" (see fig. 10)

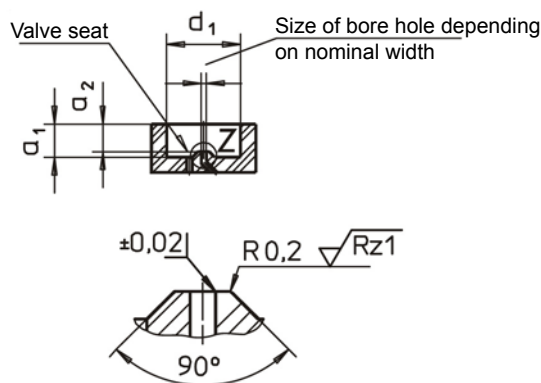


Fig. 7: Valve construction type X BK K

X BK K	Sizes	022	022	032
	Designs	A01 bis A03	A04 bis A06	A01 bis A03
dimensions in mm				
$\varnothing d_1$		14,6	14,6	25
admissible deviations		$\pm 0,05$	$\pm 0,05$	$\pm 0,05$
$a_1$		6,5	6,5	3
admissible deviations		-0,1	-0,1	---
$a_2$		5,4	5,3	1,8
admissible deviations		-0,1	-0,1	-0,1

Standard values for the valve construction corresponding to the indicated list values (stroke and nominal width). The valve construction should be made according to fig. 5. Valve seat with largest possible rectangularity to the armature axis of the solenoid and a conical profile with a smooth surface ensure a maximum performance and service life of the solenoid valve.

## Application example and switching function

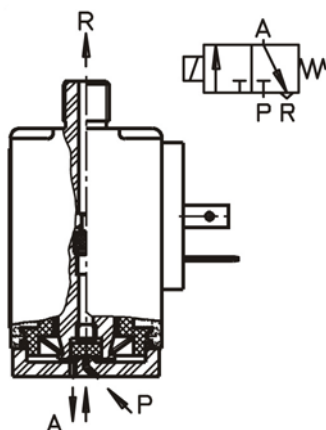


Fig. 8: Types X BK K 022 K54 A01  
X BK K 022 K54 A04  
X BK K 032 K54 A01  
For 3/2-way-valves, de-energized closed

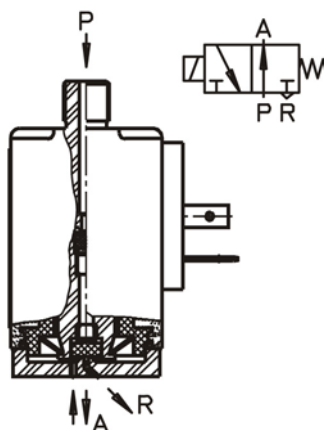


Fig. 9: Types X BK K 022 K54 A02  
X BK K 022 K54 A05  
X BK K 032 K54 A02  
For 3/2-way-valves, de-energized open

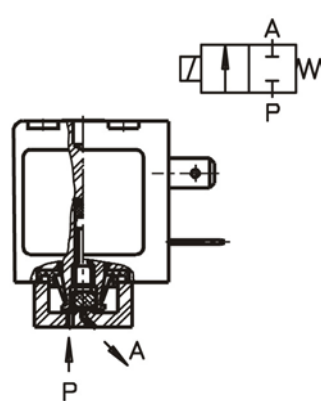


Fig. 10: Types X BK K 022 K54 A03  
X BK K 022 K54 A06  
X BK K 032 K54 A03  
For 2/2-way-valves


## Type code

	X	BK	K	022	K	54	A01
Device group							
Series							
Modifications							
Size in the series							
Execution in the series							
Protection code							
Design number							

## Order example

DC	Type	X BK K 022 K54 A01
	Voltage	= 24 V DC
	Operating mode	S1 (100 %)
AC	Type	X BK K 022 K54 A01
	Voltage	220 V / 50 Hz
	Operating mode	S1 (100 %)

## Specials designs

Please do not hesitate to ask for our assistance with the solution of your application-oriented task. In order to find rapidly a reliable solution we need complete details about your application conditions. The details should be specified as precisely as possible in accordance with the relevant  -Technical Explanations.

If necessary, please request the support of our corresponding technical office.