

**3/2 Directional Control Valves**  
**Actuation: Electromagnetic**  
**Direct solenoid operated poppet valves**  
**Connections G 1/4 or 1/4 NPT**

- Working from 0 bar up
- Short switching times
- Suited for fine vacuum down to  $1,33 \cdot 10^{-3}$  mbar
- Assembled oil and grease-free
- Free of substances attacking lacquer wetted surface
- For AC solenoid systems with integrated rectifier (40 to 60 Hz)



### Technical data

**Fluid:**

For neutral gaseous and liquid fluids <sup>1)</sup>

**Actuation:**

Solenoid direct operated poppet valves

**Mounting position:**

Optional, preferably with solenoid on top

**Nominal size:**

2 to 5

**Connection:**

Internal thread G 1/4

**Operating pressure:**

0 to 18 bar

**Temperature:**

-25 °C to 80 °C

**Material:**

Housing: Brass

Seat seal: NBR (Perbunan)

Inner parts: Steel 1.4104, brass

<sup>1)</sup> With contaminated fluids, upstream installation of a dirt trap recommended.

### Ordering example

See information on next page.

### Further versions upon request

Solenoid with small power consumption

Solenoid for higher temperatures

Solenoid in protection class EEx m

Solenoid for outdoor application

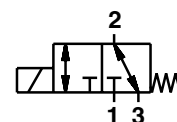
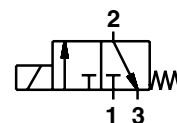
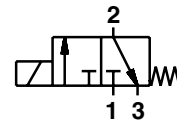
Solenoid with FM-/CSA-certification (NEMA 4, 4X, 7 und 9)

For fluid temperatures from -40 °C to +180 °C

Seat seals FKM, EPDM, FFKM, PTFE, Ruben

### Connectors

See data sheet 7503364





Type key

960X\*\*X\*.\*\*\*\*\*.\*\*\*\*\*

Nominal size	Number code
2; 3; 4; 5	2, 3, 4, 5
Material	Number code
NBR (Perbunan)	0
EPDM	1
FKM (Viton)	2
FFKM (Kalrez) / O-ring FKM	4
Solenoids	Number code
See solenoids	

Frequency (Hz)	Number code
at DC	00
at AC (40 to 60 Hz)	50
Voltage (V)	Number code
24	024
230	230

Ordering example

3/2 directional control valve, Nominal size 2, normally closed, port size G 1/4, solenoid group A IP 00, voltage 24 V DC  
**Part No.: 9600210.0246.024.00**

General information

Switching function: Normally closed

Symbol	Type * Valve	Solenoid group	Port size	Nominal size	Operating pressure (bar)		k <sub>v</sub> -value (C <sub>v</sub> (US) ≈ k <sub>v</sub> x 1,2)	Dimensional drawing	Weight (kg)
					Min.	Max.			
	9600210	A	G 1/4	2	0	10	0,12	M01	0,32
	9603210	A	1/4 NPT						
	9600240	D	G 1/4	2	0	18	0,12	M01	0,52
	9603240	D	1/4 NPT						
	9600320	B	G 1/4	3	0	6	0,20	M01	0,32
	9603320	B	1/4 NPT						
	9600330	C	G 1/4	3	0	8	0,20	M01	0,52
	9603330	C	1/4 NPT						
	9600340	D	G 1/4	3	0	14	0,20	M01	0,52
	9603340	D	1/4 NPT						
	9601430	E	G 1/4	4	0	8	0,35	M02	0,52
	9604430	E	1/4 NPT						
9601440	F	G 1/4	4	0	10	0,35	M01	0,52	
9604440	F	1/4 NPT							
9601540	F	G 1/4	5	0	7	0,45	M02	0,52	
9604540	F	1/4 NPT							

Switching function: Normally open

Symbol	Type * Valve	Solenoid group	Port size	Nominal size	Operating pressure (bar)		k <sub>v</sub> -value (C <sub>v</sub> (US) ≈ k <sub>v</sub> x 1,2)	Dimensional drawing	Weight (kg)
					Min.	Max.			
	9602210	A	G 1/4	2	0	9	0,10	M03	0,5
	9605210	A	1/4 NPT						
	9602340	D	G 1/4	3	0	9	0,16	M03	0,7
	9605340	D	1/4 NPT						
	9602440	F	G 1/4	4	0	6	0,30	M03	0,7
	9605440	F	1/4 NPT						

Switching function: Supply port 1, 2 or 3

Symbol	Type * Valve	Solenoid group	Port size	Nominal size	Operating pressure (bar)		k <sub>v</sub> -value (C <sub>v</sub> (US) ≈ k <sub>v</sub> x 1,2)	Dimensional drawing	Weight (kg)
					Min.	Max.			
	9600210	D	G 1/4	2	0	7	0,12	M01	0,32
	9603210	D	1/4 NPT						

\* When ordering please indicate solenoid, voltage and current type (frequency).

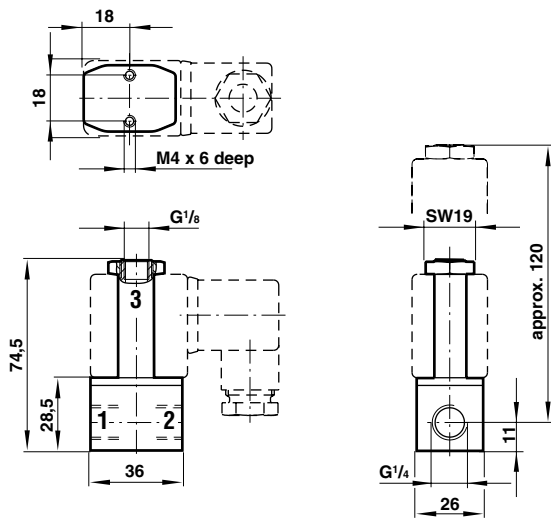
Solenoid actuators

Protection class	Solenoid type / Solenoid power											
	Group A		Group B		Group C		Group D		Group E		Group F	
	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC
IP 00 without connector DIN 43650 form A	0246	3206	0200	3204	0712	3705	0700	3703	0827	3805	0800	3803
IP 65 with connector DIN 43650 form A	0247	3207	0201	3205	0716	3706	0701	3704	0813	3806	0801	3804
EEx m II T5 with 3 m cable	0272	0273	0270	0271								
EEx me II T4/T5/T6 with terminal box	3910	3911	3920	3921	3920	3921	3930	3931	3970	3971	3980	3981

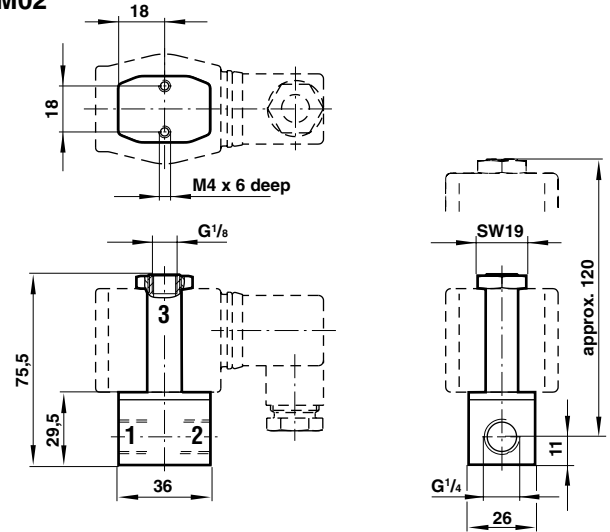


**Dimensional drawings: Valves**

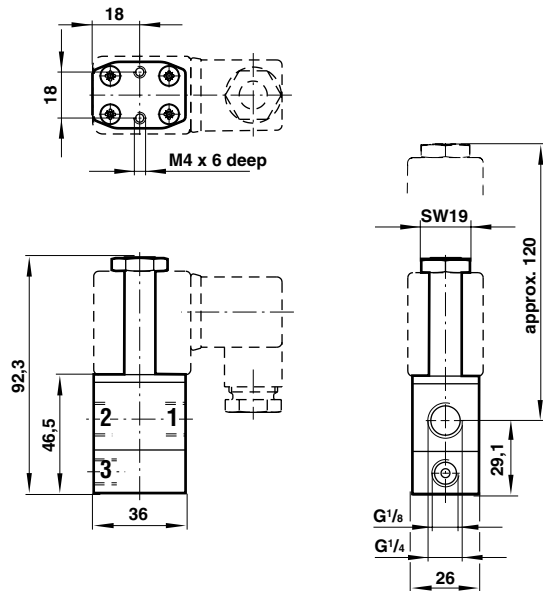
**M01**



**M02**

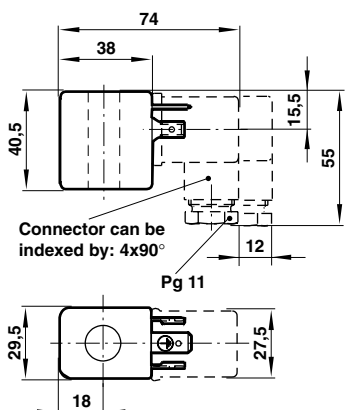


**M03**

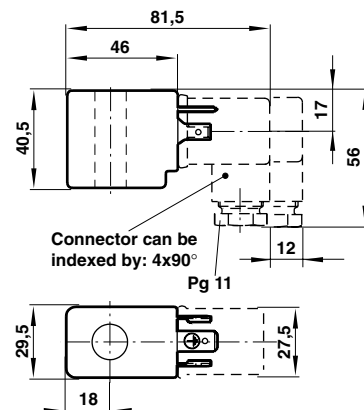


**Dimensional drawings: Solenoids**

**Type: 020X, 024X**

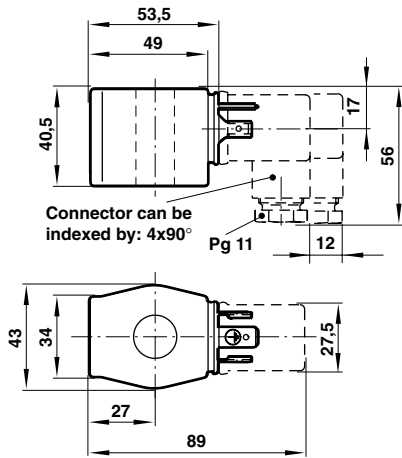


**Type: 320X**

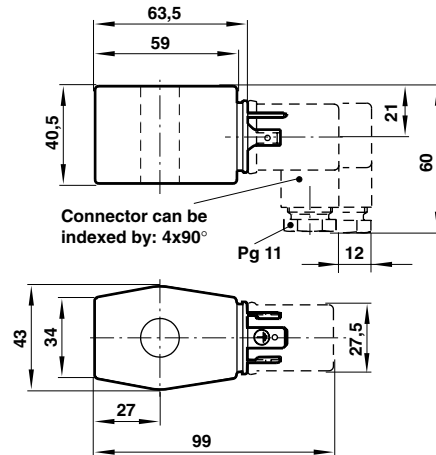


**Dimensional drawings: Solenoids**

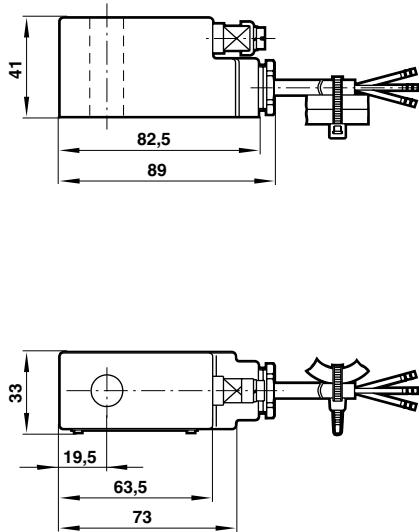
Type: 07XX, 08XX



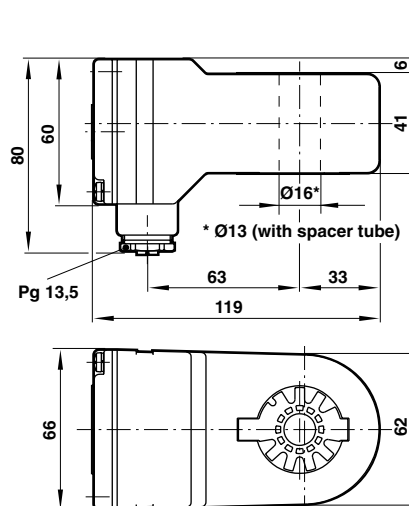
Type: 37XX, 38XX

**Protection class EEx m**

Type: 027X

**Protection class EEx me**

Type: 39XX

**Warning**

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under 'Technical Data'.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult NORGREN.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all

component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

**System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.**

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products where applicable.