



**General**

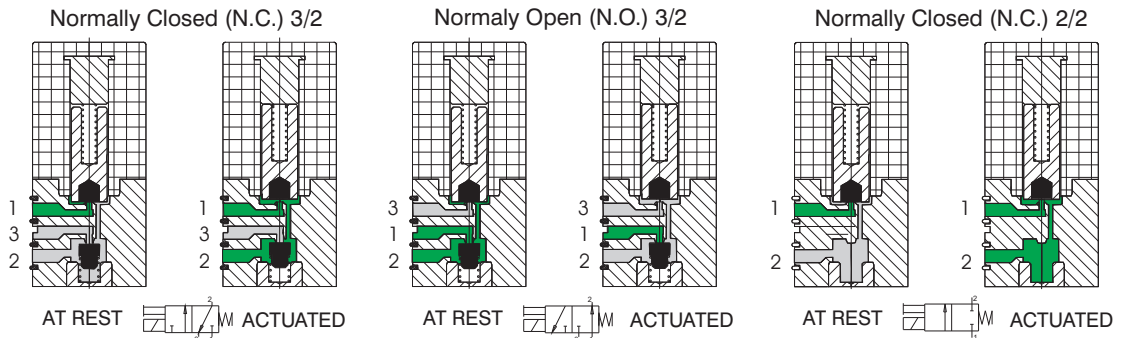
This series of directly operated valves is characterized by its reduced dimensions. They are designed to be mounted individually or on manifold. The high operating speed and high flow rate in consideration of the reduced dimensions, in combination with the high compatibility of the material used to manufacture them ensure a high variety of possible application fields.

All valves have manual override as standard and are available in 3/2 configuration N.O. and N.C. as well as 2/2 N.C. both 12 or 24 V DC or AC. Electrical connection can be via co moulded cables or via connector, in this configuration a LED indicates the coil status. Ensure that the fixing screws are tightened with 0.15Nm maximum.

The 10mm Speed-up version are built in accordance to the ISO 15218-2003 standard with a flow rate of 24NI/min. The coil integrates a dedicated circuit board which enables to contain the power consumption to 0.35W in case of the high flow rate version and to 0.1W in case of the standard flow rate version.

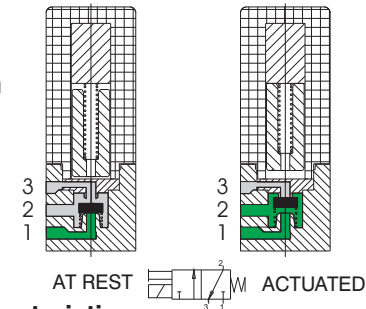
**Functional schematics for standard version**

- 1 = SUPPLY PORT
- 2 = OUTLET PORT
- 3 = EXHAUST PORT



**Functional schematics for Speed-up version**

- 1 = SUPPLY PORT
- 2 = OUTLET PORT
- 3 = EXHAUST PORT



**Construction characteristics:**

**Electrical part:**

Miniature solenoid consisting of a coil made of copper wire of different diameters depending on voltage, isolated according to "F" class standard, with injection-moulded nylon-glass application. All parts forming the cladding, the electrical connections and the pole pieces are protected against corrosion.

**Mechanical part:**

Stainless steel 430F armatures FPM poppets body in thermoplastic material and manual override and plug in nickel plated brass. Valves must be mounted on single or multiple manifold to be used.

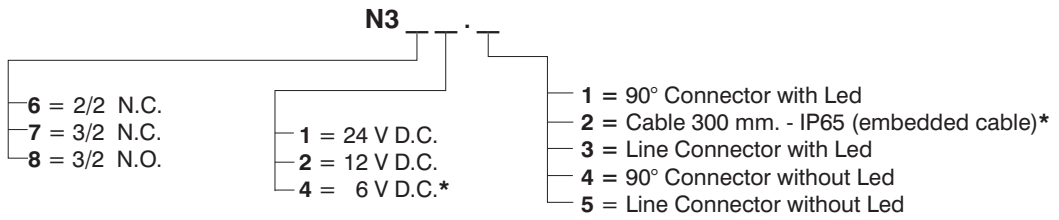
**Technical characteristics**

		Standard Version	Speed-Up Version
<b>Pneumatic:</b>	Working pressure	0 - 7 bar	
	Nominal diameter	0,7 mm	1,1 mm
	Temperature	-5° - +50°C	
	Maximun flow rate at 6 bar with Δp 1 bar	14 NI/min	24 NI/min
	Exhaust flow	22 NI/min	29 NI/min
	Max number of cycles per minute	2.700	
	Life	50 million	
<b>Electric:</b>	Voltages	12 - 24 Volt D.C.	
	Power	1,3 Watt	0,35 Watt <sup>(1)</sup>
	Voltage tollerance	-5% - +10%	
	Response time when energized *	8 ms	
	Response time when de-energized *	10 ms	
	Copper wire isolation class	F (155°C)	
Protection degree	IP65 (with cables) IP40 (with connectors) IP00 (with Faston)		

(\*) "Shifting time of pneumatic directional control valves or moving parts, logic devices were measured in accordance to ISO 12238:2001, Pneumatic fluid power - Directional control valves - Measurement of shifting time"

(1) = consumption wrapping in opening phase 3, 5W (10 ms), consumption wrapping in maintenance phase 0.35 W.

**10 mm Standard miniature solenoid ordering codes**

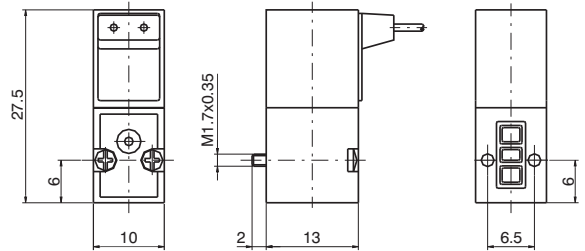


\* = The CE Directive does not apply to these versions

**Miniature solenoid valve with cable**



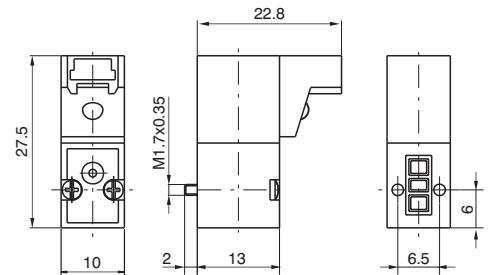
Weight gr. 12



**Miniature solenoid valve with 90° connector**



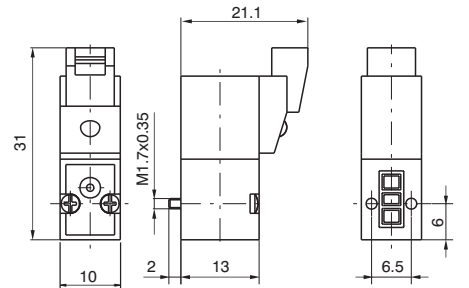
Weight gr. 12



**Miniature solenoid valve with line connector**



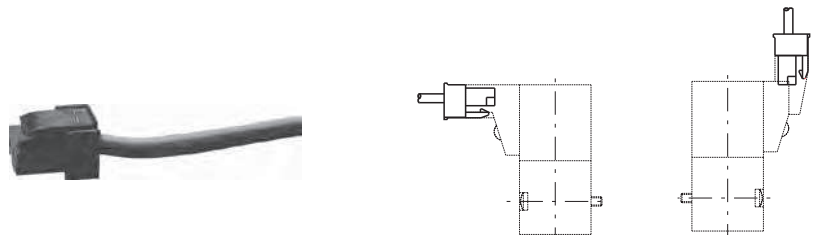
Weight gr. 12



**Connector**

Ordering codes

- 371 .
- 300 : Cable L = 300 mm
  - 600 : Cable L = 600 mm
  - 1000 : Cable L = 1000 mm

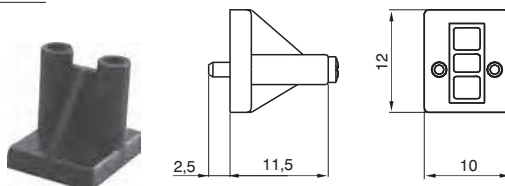


Weight gr. 3

**Closing plate**

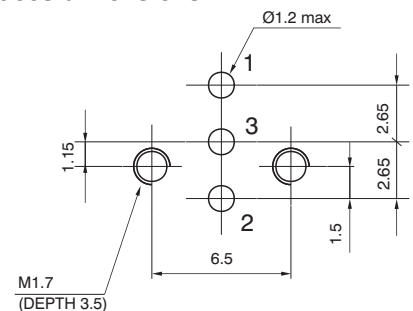
Ordering codes

395.00



Weight gr. 5

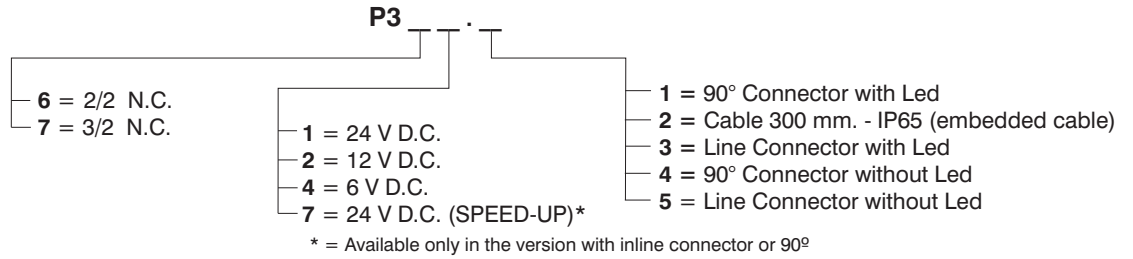
**Interfaces dimensions**





**10 mm - ISO 15218-2003 miniature solenoid ordering codes**

The versions are not contemplated by the CE Directive

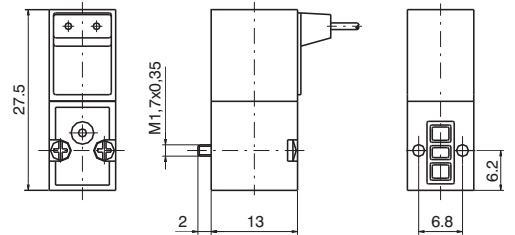


\* = Available only in the version with inline connector or 90°

**Miniature solenoid valve with cable**



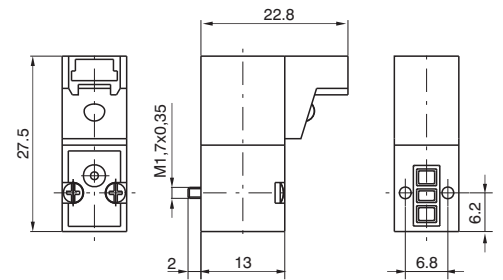
Weight gr. 12



**Miniature solenoid valve with 90° connector**



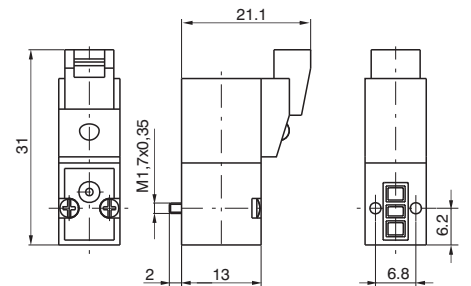
Weight gr. 12



**Miniature solenoid valve with line connector**



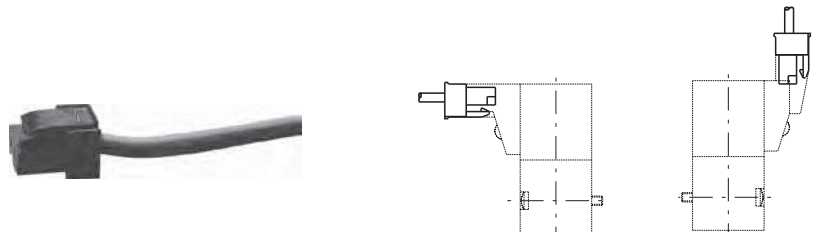
Weight gr. 12



**Connector**

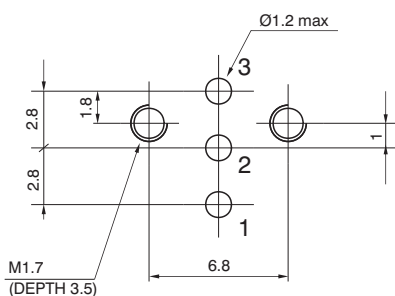
Ordering codes

- 371 .
- 300 : Cable L = 300 mm
- 600 : Cable L = 600 mm
- 1000 : Cable L = 1000 mm



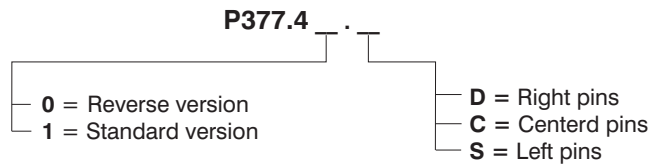
Weight gr. 3

**Interfaces dimensions 10 mm - ISO 15218**

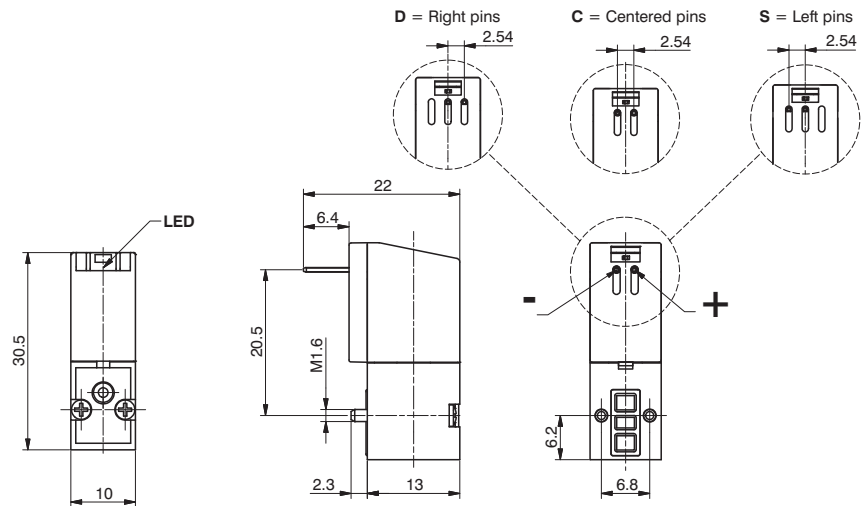


**10 mm - ISO SPEED-UP miniature solenoid ordering codes**

(The versions are not contemplated by the CE Directive)



Weight gr. 14



**Technical characteristics**

Working pressure	0 - 7 bar
Nominal diameter	1,1 mm
Temperature	-5° - +50°C
Maximun flow rate at 6 bar with Δp 1 bar	24 NI/min
Exhaust flow	40 NI/min
Voltages	24 Volt D.C. -5% - +10%
Power	0,35 Watt (1)
Response time when energized *	4 ms
Response time when de-energized *	5 ms

(\*) "Shifting time of pneumatic directional control valves or moving parts, logic devices were measured in accordance to ISO 12238:2001, Pneumatic fluid power - Directional control valves - Measurement of shifting time"

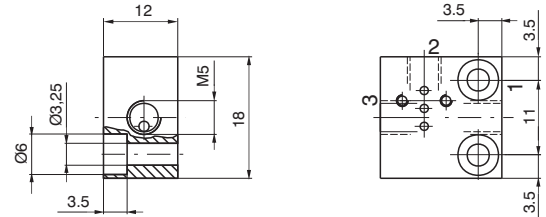
(1) = consumption wrapping in opening phase 3, 5W (10 ms), consumption wrapping in maintenance phase 0.35 W.



**Standard version  
Individual base**

Ordering code

**395.01**



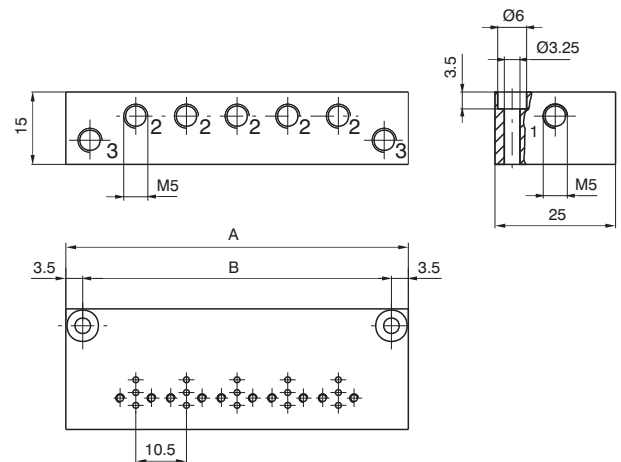
Weight gr. 10

**Standard version  
multiple bases**

Ordering code

**395 .**

N° Places

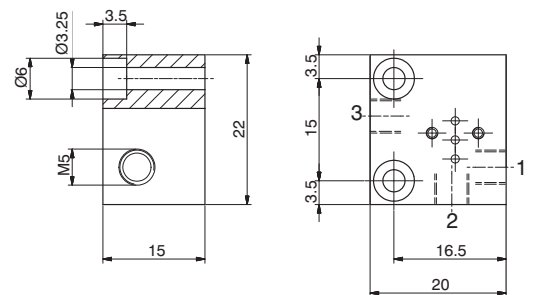
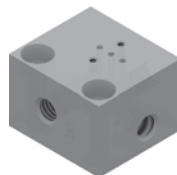


N° Places	02	03	04	05	06	07	08	09	10
A	39.5	50	60.5	71	81.5	92	102.5	113	123.5
B	32.5	43	53.5	64	74.5	85	95.5	106	116.5
Weight (gr.)	43	54	65	76	87	98	109	120	131

**Individual base for  
ISO 15218-2003 version**

Ordering code

**P395.01**



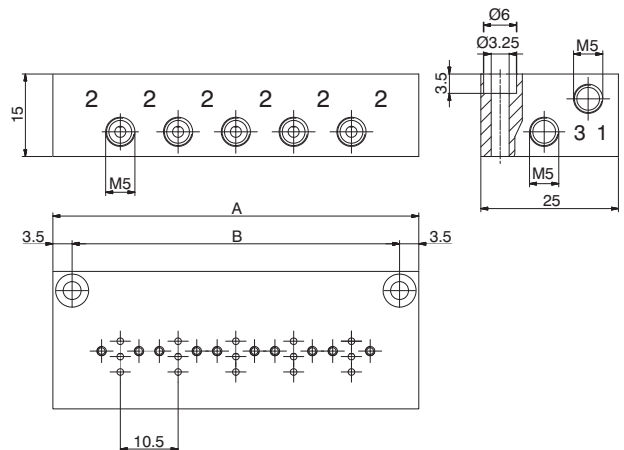
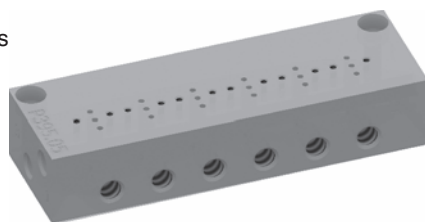
Weight gr. 10

**Multiple base for  
ISO 15218-2003 version**

Ordering code

**P395 .**

N° Places



N° Places	02	03	04	05	06	07	08	09	10
A	35	45.5	56	66.5	77	87.5	98	108.5	119
B	28	38.5	49	59.5	70	80.5	91	101.5	112
Weight (gr.)	43	54	65	76	87	98	109	120	131



**General**

This direct operated solenoid valve has minimum overall dimensions (15 mm wide). Its construction method is same as 10 mm valve, of course.

It is suitable to be single or gang mounted or as electro-operator for larger air flow distributors.

Can be utilized with compressed air and other fluids compatible with material used to build the solenoid valve.

The available versions, all equipped with manual override, are 3 ways, normally closed and normally open with DC and AC 50/60 Hz.

It's possible to install the N.O. valve on N.C. interface by using the registered reverse system included in the valve body.

The electrical connection is made with cables (300 mm.), FASTON or with connector.

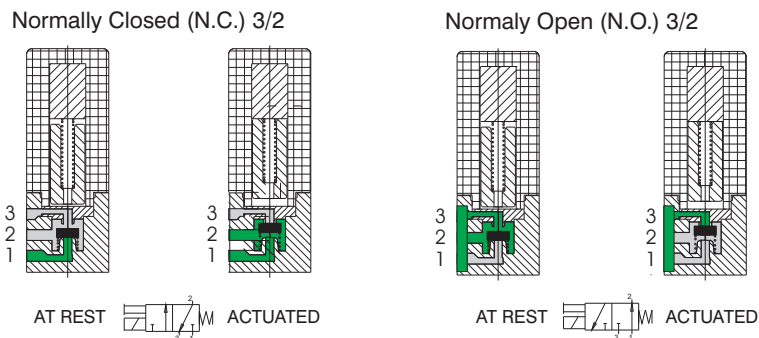
This type of miniature solenoid valve is interchangeable with most of the same products available on the market.

Coil be can also positioned at 180° to get the electrical connection located on the opposite side than override.

Make sure that the fastening screws are tightened with maximum torque of 0,75 Nm.

**Functional schematics**

- 1 = SUPPLY PORT
- 2 = OUTLET PORT
- 3 = EXHAUST PORT



**Construction characteristics**

**Electrical part**

Miniature solenoid consisting of a coil made of copper wire of different diameters depending on voltage, isolated according to "F" class standard, with injection-moulded nylon-glass application. All parts forming the cladding, the electrical connections and the pole pieces are protected against corrosion.

**Mechanical part**

AISI 430F cores, AISI 302 return springs, FPM poppets, thermoplastic polyester body.

**Technical characteristics**

**Pneumatics**

Nominal diameter	0.8	1,1 mm	1,5 mm (only D.C.)
Maximun flow rate at 6 bar with Δp 1 bar	20 NI/min	30 NI/min	50 NI/min
Working pressure for N.C.	0 - 10 bar		0 - 7 bar
Working pressure for N.O.	/	0 - 8 bar	0 - 5 bar
Temperature	-5° +50°C		
Life expectancy	50 million cycles (with standard working conditions)		

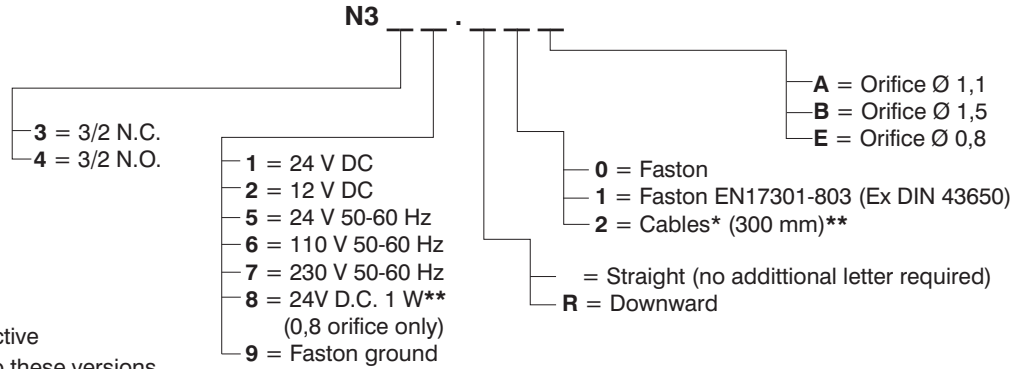
**Electrical**

Voltage D.C.	24 V DC	12-24 V DC	
Voltage A.C.	/	24-110-220 Volt 50/60 Hz	/
Power consumption D.C.	1 Watt	2,3 Watt	
Power consumption A.C.	/	2,8 VA (at starting) 2,5 VA (at speed)	/
Voltage tollerance	-5% - +10%		
Response time *	10-12 ms		
Isolating class	F (155°C)		
Protection degree	IP65 (with cables) IP40 (with connectors) IP00 (with faston)		

(\*) \*Shifting time of pneumatic directional control valves or moving parts, logic devices were measured in accordance to ISO 12238:2001, Pneumatic fluid power - Directional control valves - Measurement of shifting time\*



15 mm miniature solenoid ordering codes

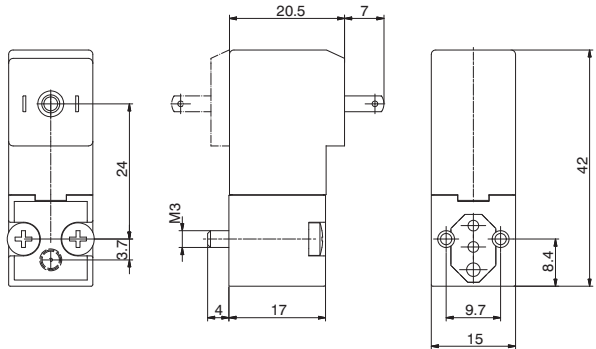


\*\* = The CE Directive does not apply to these versions

See previous page for available versions

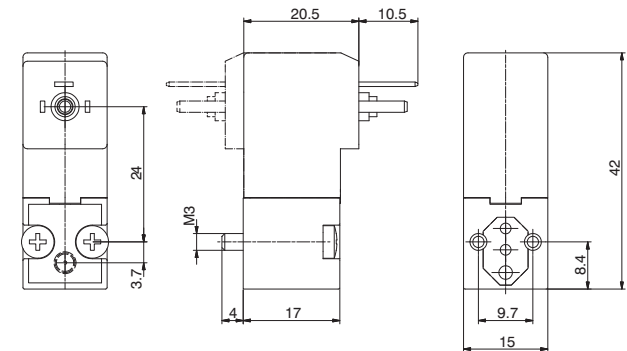
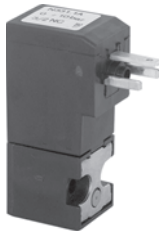
\* = On request and for large quantity only (only 24 V D.C., 2.3 W)

With Faston



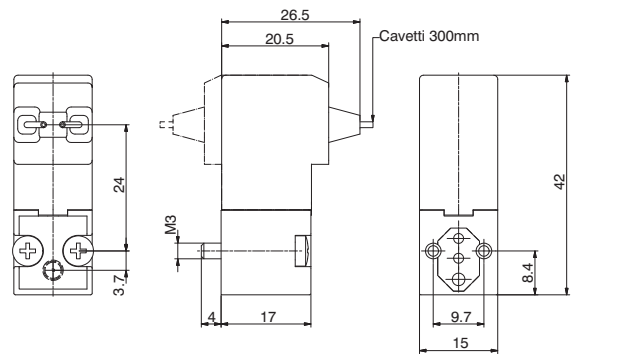
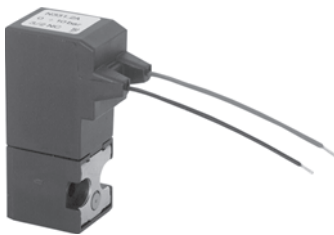
Weight gr. 36

With Faston EN17301-803 (Ex DIN 43650)



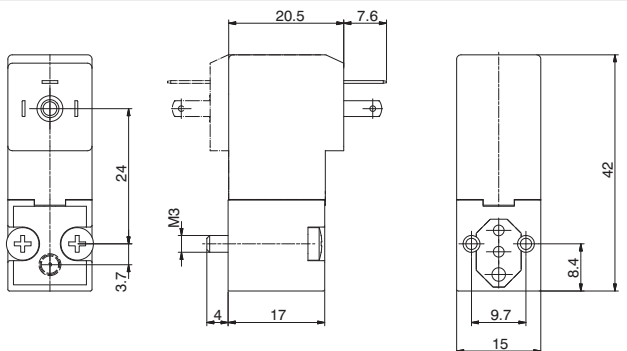
Weight gr. 36

With Cables (300 mm)



Weight gr. 38

With Faston ground

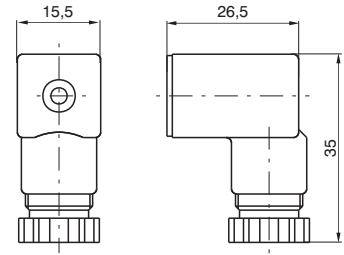


Weight gr.38

### Connector

Ordering code

- 315.11.00** Standard  
**315.12.00** for faston EN17301-803 (Ex DIN 43650)  
**315.11.0 L** Led  
 1 = 24 V D.C. / A.C.  
 2 = 110 V 50/60 Hz  
 3 = 220 V 50/60 Hz  
**315.12.0 L** for faston EN17301-803 (Ex DIN 43650) with Led  
 1 = 24 V D.C. / A.C.  
 2 = 110 V 50/60 Hz  
 3 = 220 V 50/60 Hz

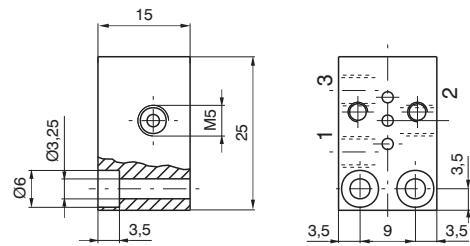


Weight gr. 13

### Single use base

Ordering code

**355.01**



Weight gr. 18

### Multiple bases

Ordering code

A = Orifice M5

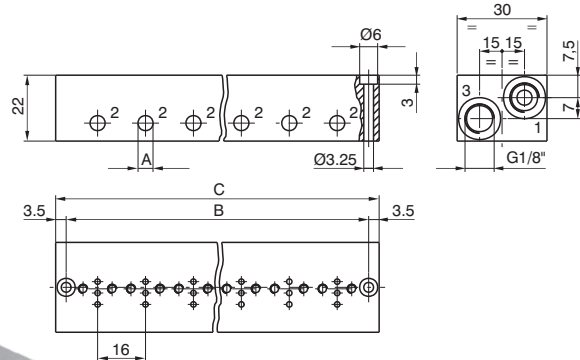
A = Pipe fitting Ø4

**355 .**

**354 .**

N° PLACES

N° PLACES

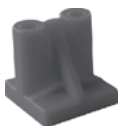


N° places	02	03	04	05	06	07	08	09	10
B	37	53	69	85	101	117	133	149	165
C	44	60	76	92	108	124	140	156	172
Weight (gr.)	66	92	116	141	165	190	216	242	266

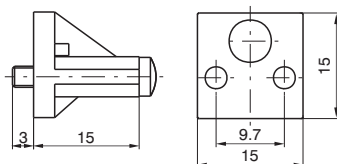
### Closing plate

Ordering code

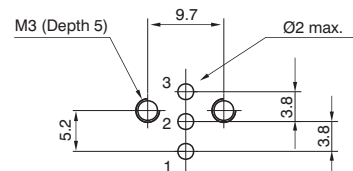
**355.00**



Weight 6 gr.



### Interface dimensions







### 15mm Solenoid valves Manifold with electric multipoint connection

#### General

Also for this 15mm solenoid valves series we have realized the possibility of the assembling on the base with multipoint connection, this for making faster the connection and the harness of them.

Realized from a shaped outline, it results compact because it uses a relevant multipoint connection available only with a 37 poles connector from 10 to 32 solenoid valves (with steps of 2), available in line or at 90° and IP40 protection. On the base it is possible to put some threaded cartridges with push-in fittings for Ø3 – Ø3,17 Ø4 tube or M5 threaded.

The application field of these new configurations is the standard of 3/2 valves, where it is needed to realize groups or Manifolds provided with integrated electric connection to make easier and faster the connection and the harness of them (control of single acting cylinders with small dimensions, pilot system of valves with bigger dimensions etc..).

#### Constructive characteristics:

##### Constructive principle:

From 10 up to 32 solenoid valves (with steps of 2)

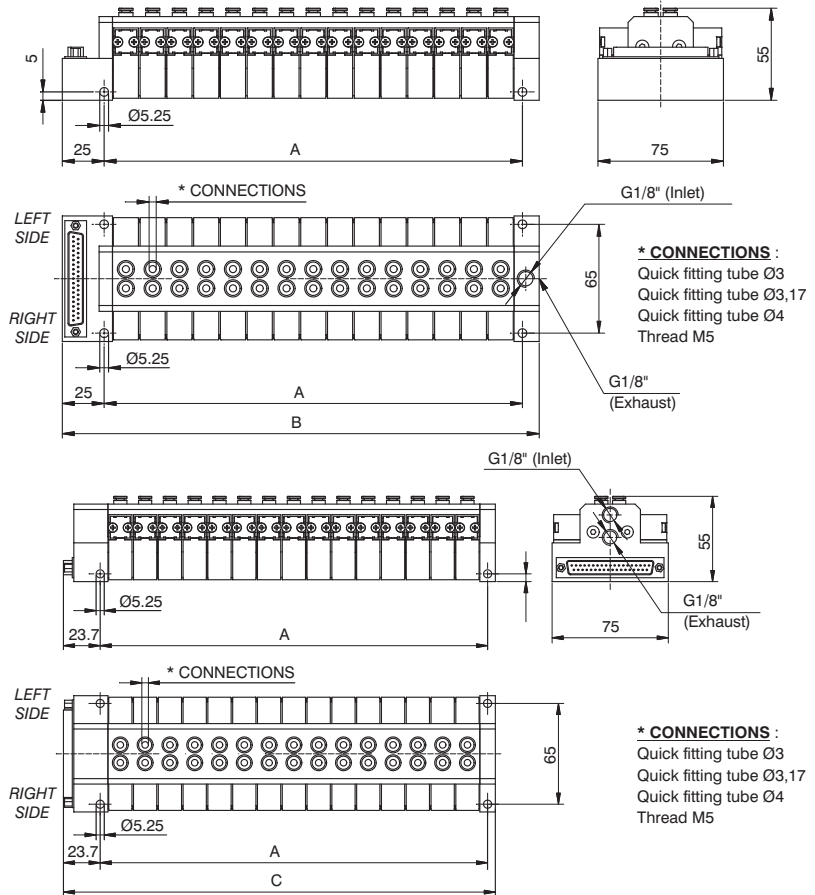
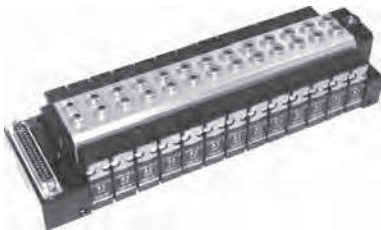
Extremely compact solution

IP40 protection (without visualisation led)

Possibility of having different working connections (Ø3, Ø3,17, Ø4 tubes, M5)

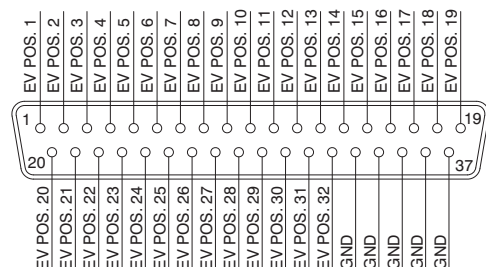
The new coding key requires the use of the same type of solenoid valves (there aren't codes for groups with a mixed configuration).

#### Overall dimensions

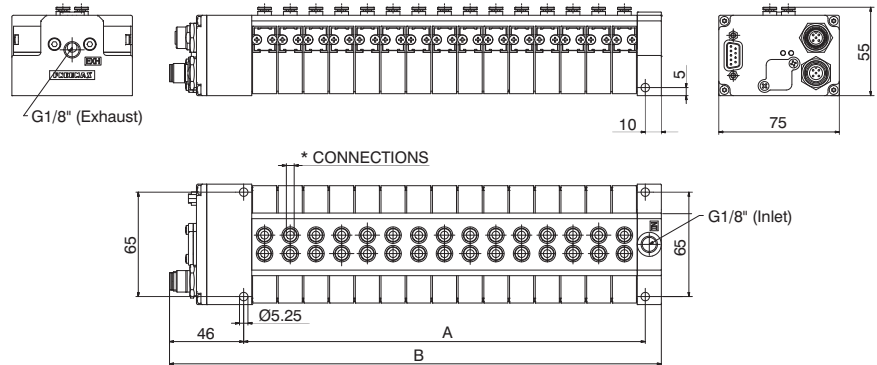


N° places	A	B	C
10	90	125	118,7
12	106	141	134,7
14	122	157	150,7
16	138	173	166,7
18	154	189	182,7
20	170	205	198,7
22	186	221	214,7
24	202	237	230,7
26	218	253	246,7
28	234	269	262,7
30	250	285	278,7
32	266	301	294,7

#### SUB-D 37 POLES CONNECTORS



**Overall dimensions  
Manifold with CANopen® node**



N° positions	A	B
10	90	146
12	106	162
14	122	178
16	138	194
18	154	210
20	170	226
22	186	242
24	202	258
26	218	274
28	234	290
30	250	306
32	266	322

**Manifold layout configuration**

Connector type  
**0** = in line connector  
**9** = 90° connector  
**C** = with CANopen® node

Connections size and type  
**3** = quick fitting tube Ø3  
**C** = quick fitting tube Ø3.17  
**4** = quick fitting tube Ø4  
**A** = M5 thread



N° positions  
**A** = 10 positions  
**B** = 12 positions  
**C** = 14 positions  
**D** = 16 positions  
**E** = 18 positions  
**F** = 20 positions  
**G** = 22 positions  
**H** = 24 positions  
**L** = 26 positions  
**M** = 28 positions  
**N** = 30 positions  
**P** = 32 positions

N° positions  
 plugged side left  
**0** = 00 positions  
**1** = 01 positions  
**2** = 02 positions  
**3** = 03 positions  
**4** = 04 positions  
**5** = 05 positions  
**6** = 06 positions  
**7** = 07 positions  
**8** = 08 positions  
**9** = 09 positions  
**A** = 10 positions  
**B** = 11 positions  
**C** = 12 positions  
**D** = 13 positions  
**E** = 14 positions  
**F** = 15 positions  
**G** = 16 positions

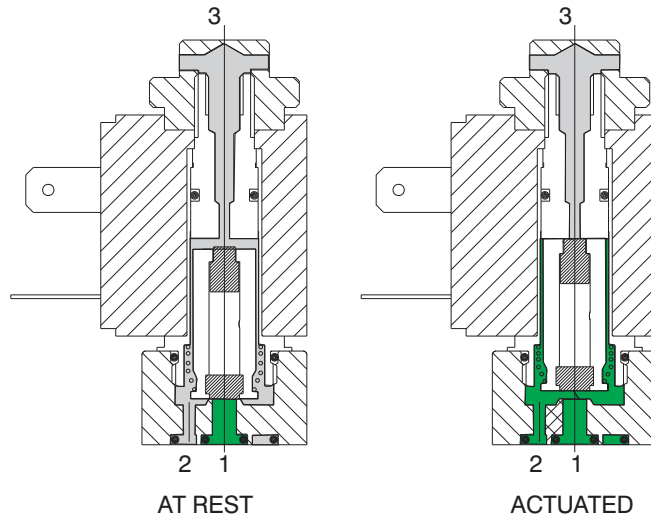
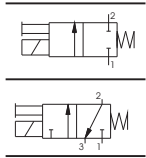
N° positions  
 plugged side right  
**0** = 00 positions  
**1** = 01 positions  
**2** = 02 positions  
**3** = 03 positions  
**4** = 04 positions  
**5** = 05 positions  
**6** = 06 positions  
**7** = 07 positions  
**8** = 08 positions  
**9** = 09 positions  
**A** = 10 positions  
**B** = 11 positions  
**C** = 12 positions  
**D** = 13 positions  
**E** = 14 positions  
**F** = 15 positions  
**G** = 16 positions

Valve type  
**A** = N331.R0A (EV. 3/2 NC 24VDC d.1,1)  
**B** = N331.R0B (EV. 3/2 NC 24VDC d.1,5)  
**C** = N338.R0E (EV. 3/2 NC 24VDC 1W d.0,8)  
**D** = N341.R0A (EV. 3/2 NO 24VDC d.1,1)  
**E** = N341.R0B (EV. 3/2 NO 24VDC d.1,5)  
**F** = N335.R0A (EV. 3/2 NC 24VAC d.1,1)

**NOTE:**  
 The letter "R" indicates that the coil is mounted upside-down (faces down). For prices and technical features of this valves please refer to the correspondent standard version (not R) included in the price list and catalogue.

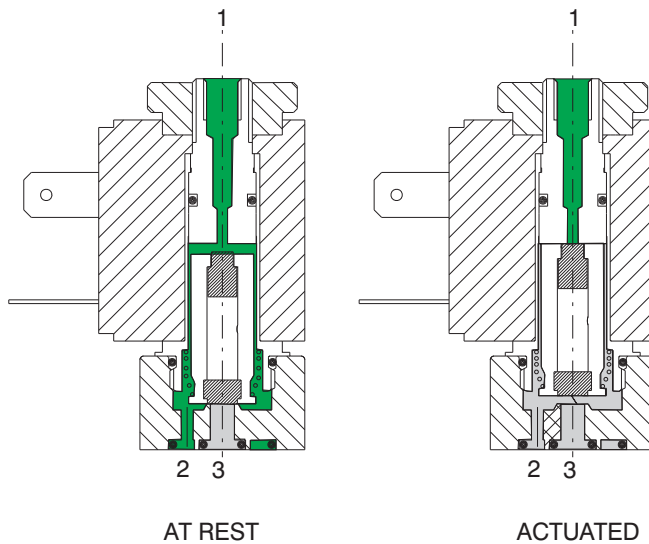
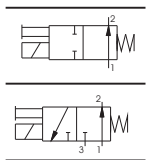
**Functional schematics**

Normally Closed (N.C.) 3/2 or 2/2



- 1 = INLET PORT
- 2 = OUTLET PORT
- 3 = EXHAUST PORT  
(Plugged if 2/2)

Normally Open (N.O.) 3/2 or 2/2



**Construction characteristics**

**Electrical parts:** Solenoids: the solenoid consist of coils having different diameter copper wire windings insulated according standards "H"; they are encased in a nylon-glass compound. All parts are corrosion resistant.

**Mechanical parts:** Nickel plated brass tube nitrile viton seals stainless steel plunger (AISI 430F), stainless steel adjusted springs, viton poppet seals, tropicalized zinc alloy interface plate, nickeled brass manual override, nickel steel coil lock nut, zinc steel mounting screw. To be usable, the solenoids and microsolenoids have to be attached either to a base or directly to the distributor's operators by means of connectors M5 or G 1/8". These solenoids are available in all voltages and frequencies used in the world. The following are the technical characteristics of the solenoid.

### Technical characteristics

<b>Pneumatic</b>	Working pressure	0 - 10 bar	
	Orifice size	1,3 mm	(0,9 mm for 2 W)
	Maximum fluid temperature	50°C	
	Maximum ambient temperature	50°C	
	Maximum flow rate at 6 bar with $\Delta p$ 1 bar	53 NI/min	(20NI/min. for 2 W)
	Cycles/minute	700	
	Fluids	Air-vacuum-inert gases	
	Lubrication	non required	
	Life	45 to 50 million cycles	
<b>Electrical</b>	Power consumption holding - D.C	5 W	(2.5 W) low consumption
	Power consumption holding - A.C	9 VA	(6 VA) low consumption
	Operating voltage tolerance	$\pm 10\%$	
	Response time opening *	8 ms	
	Response time closing *	6 ms	
	Insulation of the copper wire	H	
	Insulation of the coil	F	
	Connector protection	IP 65	
	Cable protection	DIN 43650 INDUSTRIAL FORM	

(\*) "Shifting time of pneumatic directional control valves or moving parts, logic devices were measured in accordance to ISO 12238:2001, Pneumatic fluid power - Directional control valves - Measurement of shifting time"

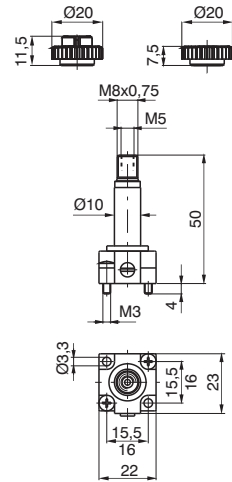
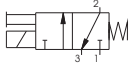
### Maintenance and replacement parts

Maintenance practices for these valves are similar to those already detailed for other products- replacement of the plunger or poppet is not advisable since the new replacement would not provide the best fit with the rest of the already used valve. Special care should be taken that no dirt is accumulated between the working surface of fixed core and the plunger which would result in vibrations and overheating of the solenoid. In the case of microsolenoid it must be assured that the alternate current coil is not charged when the mechanical part is not mounted to avoid destruction of the coil. The electrical connections have to be perfect, especially where low currents are used (12-24V). Oxidation of contacts between the connector and the coil can lead to intermittent malfunctions which are difficult to trace. Oxidation of contacts due to humidity or corrosive atmosphere are one of the most common causes of false alarms. Clean the contacts with appropriate spray.

**Mechanical actuator for Normally Closed (N.C.) miniature solenoid valve**

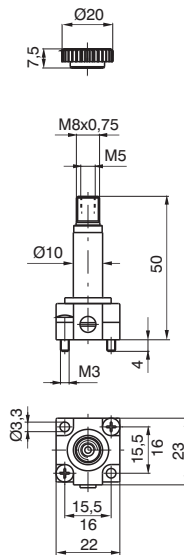
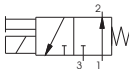
Ordering code

- M 2** Normally Closed (N.C.)
- M 2P** Normally Closed (N.C.) threaded lock nut
- M 2/9** Normally Closed (N.C.) 2 W 24 VDC



Weight gr. 51

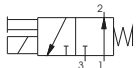
**M 2/1** Normally Open (N.O.) air feeding through fix flunger



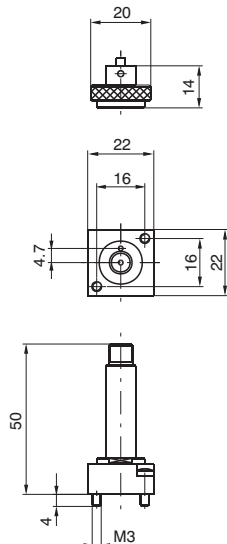
Weight gr. 48

Normally Open (N.O.) air feeding through base

**MM 7**

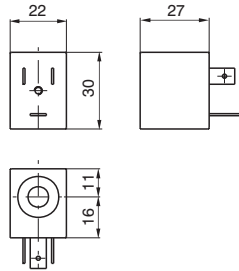


Weight gr. 46



Ordering code	Available voltages Coil	
N.O.		
<b>MB10/1</b>	24 D.C. (8 Watt)	Direct current
<b>MB17/1</b>	24/50	Alternating current 50 Hz
<b>MB21/1</b>	48/50	
<b>MB22/1</b>	110/50	
<b>MB24/1</b>	220/50	
<b>MB37/1</b>	24/60	Alternating current 60 Hz
<b>MB39/1</b>	110/60	
<b>MB41/1</b>	220/60	
<b>MB56/1</b>	24/50-60	Alternating current 50/60 Hz
<b>MB57/1</b>	110/50-60	
<b>MB58/1</b>	220/50-60	

**Coil**

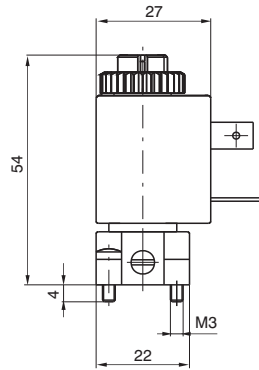
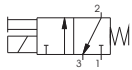


Weight gr. 54

\* Use only with M2/9

Ordering code	Available voltages Coils
<b>MB 4</b> <b>MB 5</b> <b>MB 6</b>	12 D.C. 24 D.C. 48 D.C. Direct current
<b>MB 9*</b>	24 D.C. (2 Watt) (Direct current, low consumption)
<b>MB 17</b> <b>MB 21</b> <b>MB 22</b> <b>MB 24</b>	24/50 48/50 110/50 220/50 Alternating current 50 Hz
<b>MB 37</b> <b>MB 39</b> <b>MB 41</b>	24/60 110/60 220/60 Alternating current 60 Hz
<b>MB 56</b> <b>MB 57</b> <b>MB 58</b>	24/50-60 110/50-60 220/50-60 Alternating current 50/60 Hz
<b>MB 66</b> <b>MB 67</b> <b>MB 68</b>	24/50-60 110/50-60 220/50-60 Alternating current (low consumption) 50/60 Hz

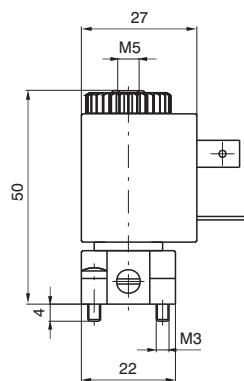
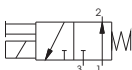
**Miniature solenoid valve Normally Closed (N.C.)**



Weight gr. 103

Ordering code	Available voltages Miniature solenoid valve N.C.
<b>M 2.4</b> <b>M 2.5</b> <b>M 2.6</b> <b>M 2.9</b>	12 D.C. 24 D.C. 48 D.C. 24 D.C. (2 Watt) Direct current
<b>M 2.17</b> <b>M 2.21</b> <b>M 2.22</b> <b>M 2.24</b>	24/50 48/50 110/50 220/50 Alternating current 50 Hz
<b>M 2.37</b> <b>M 2.39</b> <b>M 2.41</b>	24/60 110/60 220/60 Alternating current 60 Hz
<b>M 2.56</b> <b>M 2.57</b> <b>M 2.58</b>	24/50-60 110/50-60 220/50-60 Alternating current 50/60 Hz
<b>M 2.66</b> <b>M 2.67</b> <b>M 2.68</b>	24/50-60 110/50-60 220/50-60 Alternating current (low consumption) 50/60 Hz

**Miniature solenoid valve Normally Open (N.O.)**



Weight gr. 103

Ordering code	Available voltages Miniature solenoid valve N.O.
<b>M 2/1.4</b> <b>M 2/1.5</b> <b>M 2/1.6</b> <b>M 2/1.9</b>	12 D.C. 24 D.C. 48 D.C. 24 D.C. (2 Watt) Direct current
<b>M 2/1.17</b> <b>M 2/1.21</b> <b>M 2/1.22</b> <b>M 2/1.24</b>	24/50 48/50 110/50 220/50 Alternating current 50 Hz
<b>M 2/1.37</b> <b>M 2/1.39</b> <b>M 2/1.41</b>	24/60 110/60 220/60 Alternating current 60 Hz
<b>M 2/1.56</b> <b>M 2/1.57</b> <b>M 2/1.58</b>	24/50-60 110/50-60 220/50-60 Alternating current 50/60 Hz

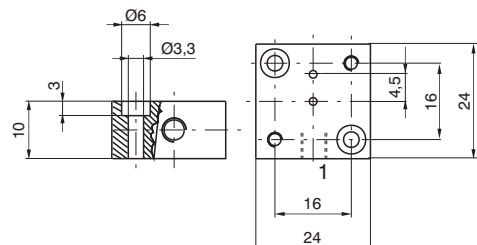
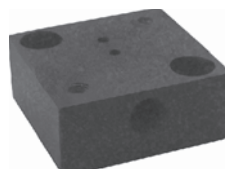
**External feeding base**

Use with solenoid valves for piloting pressure different from the using pressure

Ordering code

**305.10.05**

Weight gr.18





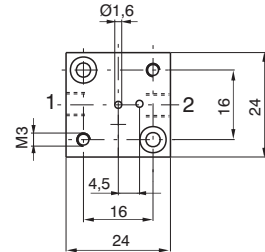
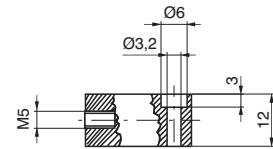
**Individual base**



In line ports - thread M5

1 = INLET PORT (N.C.)  
2 = OUTLET PORT

With a N.O. miniature solenoid valve  
1 = EXHAUST  
2 = OUTLET PORT

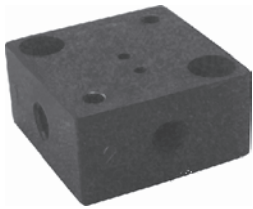


Ordering code

**305.00.00**

Weight gr. 56

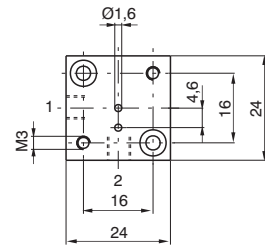
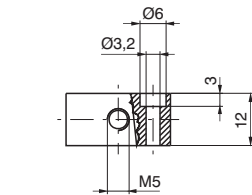
2



90° Port - thread M5

1 = INLET PORT (N.C.)  
2 = OUTLET PORT (N.C.)

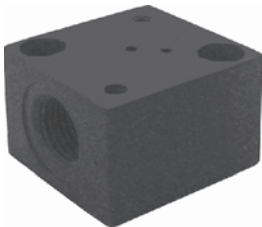
With a N.O. miniature solenoid valve  
1 = EXHAUST  
2 = OUTLET PORT



Ordering code

**305.90.00**

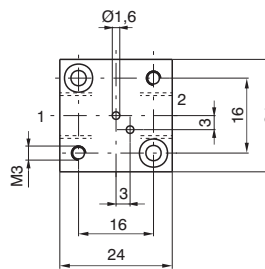
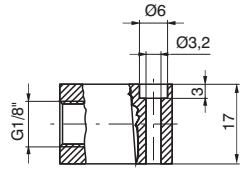
Weight gr. 56



In line ports - thread G 1/8"

1 = INLET PORT (N.C.)  
2 = OUTLET PORT (N.C.)

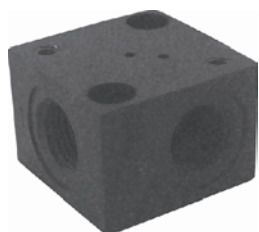
With a N.O. miniature solenoid valve  
1 = EXHAUST  
2 = OUTLET PORT



Ordering code

**305.00.18**

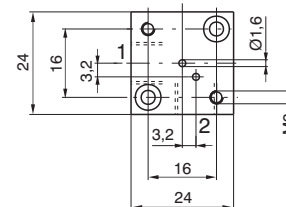
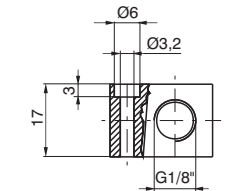
Weight gr. 75



90° Port - thread G 1/8"

1 = INLET PORT (N.C.)  
2 = OUTLET PORT (N.C.)

With a N.O. miniature solenoid valve  
1 = EXHAUST  
2 = OUTLET PORT



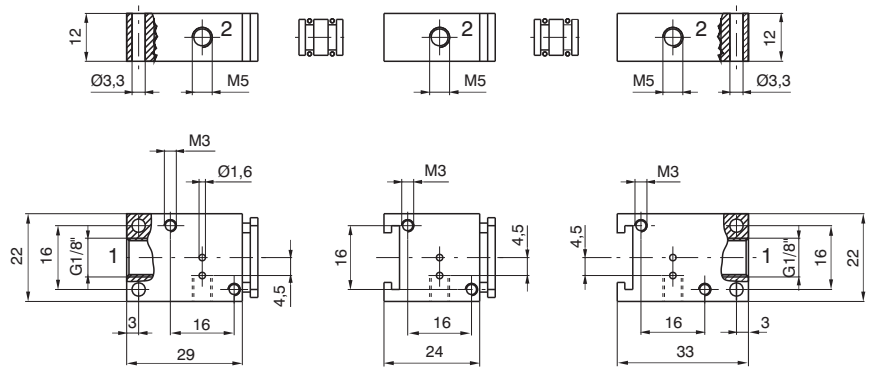
Ordering code

**305.90.18**

Weight gr. 75



**Modular bases for series mounting**



Ordering code

*Initial base*  
**305.05.00**  
 Weight gr. 57

*Intermediate base*  
**305.06.00**  
 Weight gr. 44

*Last base*  
**305.07.00**  
 Weight gr. 53

*Bored spacer*  
**305.05.01**  
 Weight gr. 3

*Solid spacer*  
**305.05.02**  
 Weight gr. 4

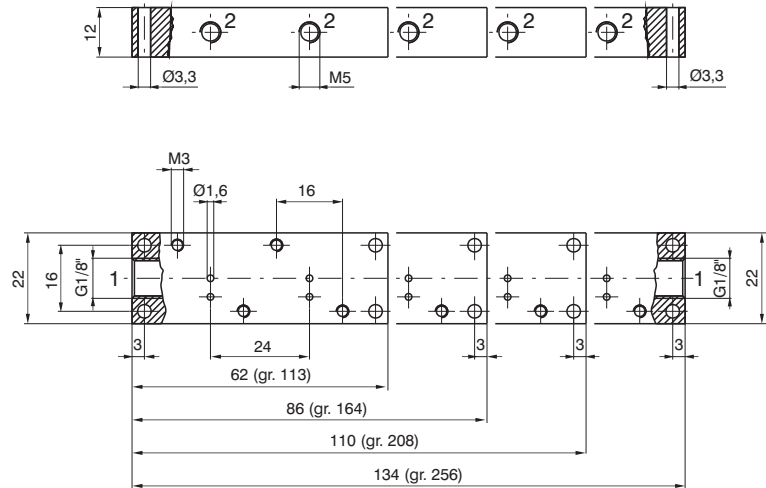
*Initial base*

*Intermediate base*

*Last base*

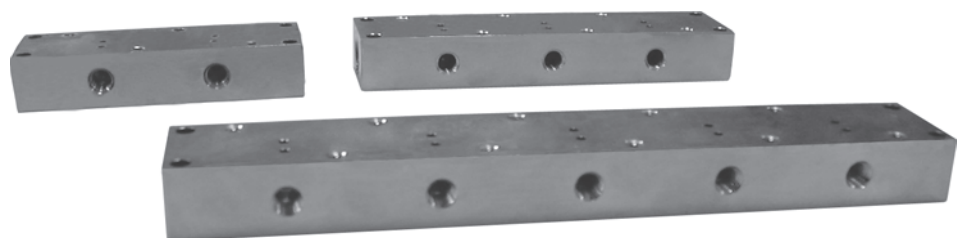


**Multiple integral bases for series mounting**



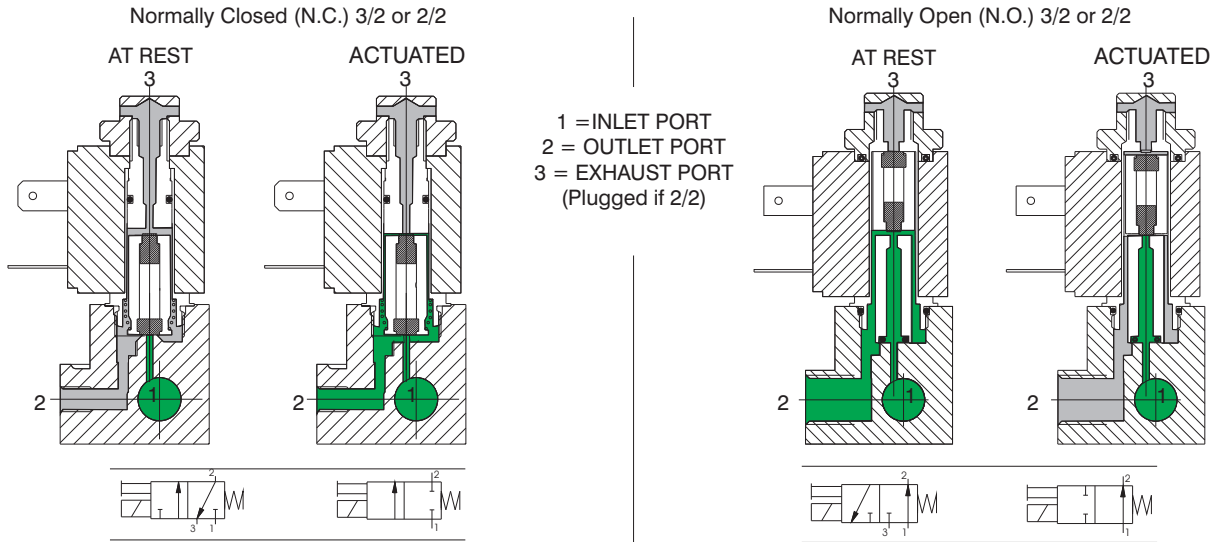
Ordering code

- 305.08.02** 2 positions
- 305.08.03** 3 positions
- 305.08.04** 4 positions
- 305.08.05** 5 positions





**Functional schematic**



**Construction characteristics**

**Electrical parts:** Solenoids: the solenoid consist of coils having different diameter copper wire windings insulated according standards "H"; they are encased in a nylon-glass compount. All parts are corrosion resistant.

**Mechanical parts:** Nickel plated brass tube nitrile (NBR) stainless steel plunger (AISI 430F), stainless steel adjusted springs, viton poppet seals, tropicalized zinc alloy interface plate, nickeled brass manual override, nickel steel coil lock nut, zinc steel mounting screws. Electrical connectors are standard.

**Technical characteristics**

<b>Pneumatic</b>	Working pressure	0 - 10 bar	
	Orifice size	1,3 mm	(1,1 mm for 2 W)
	Maximum fluid temperature	50°C	
	Maximum ambient temperature	50°C	
	Maximum flow rate at 6 bar with $\rho = 1$	53 NI/min	(35 NI/min. for 2 W)
	Cycles/minute	700	
	Fluids	Air-Vacuum-Inert gases	
	Lubrication	Non needed	
	Life	40 to 50 million cycles	
	<b>Electrical</b>	Power consumption holding - D.C	5 W
Power consumption holding - A.C		8 VA	(6 VA) low consumption
Operating voltage tolerance		$\pm 10\%$	
Response time opening *		8 ms	
Response time closing *		6 ms	
Insulation of the copper wire		H	
Insulation of the coil		F	
Connector protection		IP 65	
Cable protection	DIN 43650 INDUSTRIAL FORM		

(\*) "Shifting time of pneumatic directional control valves or moving parts, logic devices were measured in accordance to ISO 12238:2001, Pneumatic fluid power - Directional control valves - Measurement of shifting time"

**Maintenance and replacement parts**

Maintenace practices for these valves are similar to those already detailed for other products - replacement of the plunger or poppet is not advisable since the new replacement would not provide the best fit with the rest of the already used valve.

Special care should be taken that no dirt is accumulated between the working surface of fixed core and the plunger which would result in vibrations and overheating of the solenoid. In the case of microsolenoid it must be assured that the alternate current coil is not charged when the machanical part is not mounted to avoid destruction of the coil.

The electrical connections have to be perfect, especially where low currents are used (12-24 V). Oxidation of contacts between the connector and the coil can lead to intermittent malfunctions which are difficult to trace. Oxidation of contacts due to humidity or corrosive atmosphere are one of the most common causes of false alarms. Clean the contacts with appropriate spray.

**Mechanical actuator for Normally Closed (N.C.)  
Miniature solenoid valve**

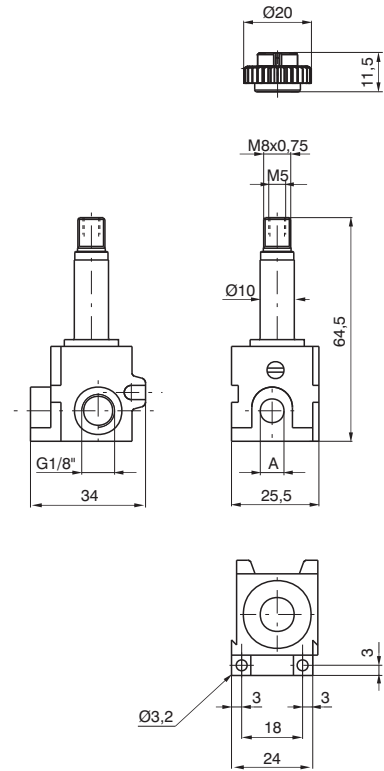
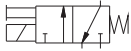
Normally Closed (N.C.)

Ordering code

- 305.M1 A = G 1/8"
- 355.M1 A = M5
- 345.M1 A = Push in fitting for 4 mm tube

- 305.M1/9 A = G 1/8"
- 355.M1/9 A = M5
- 345.M1/9 A = Push in fitting for 4 mm tube

2 W  
24 DC

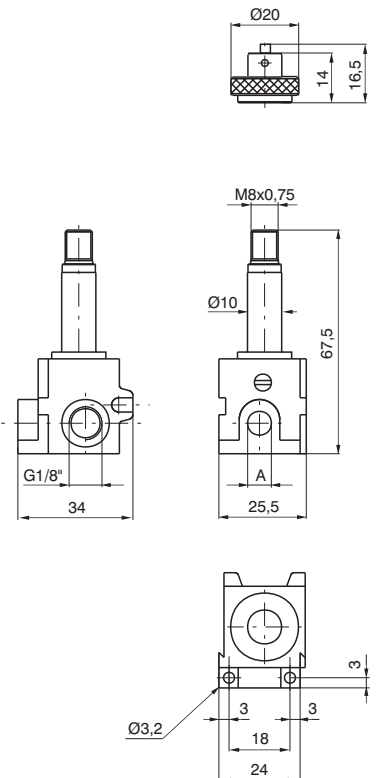


Weight gr. 95

Normally Open (N.O.)

Ordering code

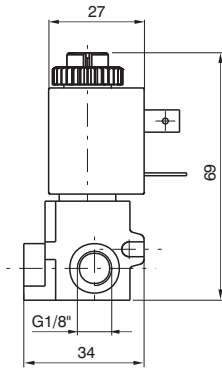
- 305.M1/1 A = G 1/8"
- 355.M1/1 A = M5
- 345.M1/1 A = Push in fitting for 4 mm tube



Weight gr. 106

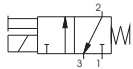


**Miniature solenoid valve**

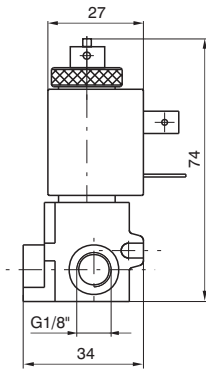


Normally Closed (N.C.)

Weight gr. 149

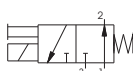


Ordering code			Available voltage miniature solenoid
G 1/8"	M5	TUBE Ø4 mm	
<b>305.M4</b>	<b>355.M4</b>	<b>345.M4</b>	12 D.C. 24 D.C. 48 D.C. 24 D.C. (2 Watt)  Direct current
<b>305.M5</b>	<b>355.M5</b>	<b>345.M5</b>	
<b>305.M6</b>	<b>355.M6</b>	<b>345.M6</b>	
<b>305.M9</b>	<b>355.M9</b>	<b>345.M9</b>	
<b>305.M17</b>	<b>355.M17</b>	<b>345.M17</b>	24/50 48/50 110/50 220/50  Alternating current 50 Hz
<b>305.M21</b>	<b>355.M21</b>	<b>345.M21</b>	
<b>305.M22</b>	<b>355.M22</b>	<b>345.M22</b>	
<b>305.M24</b>	<b>355.M24</b>	<b>345.M24</b>	
<b>305.M37</b>	<b>355.M37</b>	<b>345.M37</b>	24/60 110/60 220/60  Alternating current 60 Hz
<b>305.M39</b>	<b>355.M39</b>	<b>345.M39</b>	
<b>305.M41</b>	<b>355.M41</b>	<b>345.M41</b>	
<b>305.M56</b>	<b>355.M56</b>	<b>345.M56</b>	24/50-60 110/50-60 220/50-60  Alternating current 50/60 Hz
<b>305.M57</b>	<b>355.M57</b>	<b>345.M57</b>	
<b>305.M58</b>	<b>355.M58</b>	<b>345.M58</b>	
<b>305.M66</b>	<b>355.M66</b>	<b>345.M66</b>	24/50-60 110/50-60 220/50-60  Alternating current low consumption 50/60 Hz
<b>305.M67</b>	<b>355.M67</b>	<b>345.M67</b>	
<b>305.M68</b>	<b>355.M68</b>	<b>345.M68</b>	



Normally Open (N.O.)

Weight gr. 165

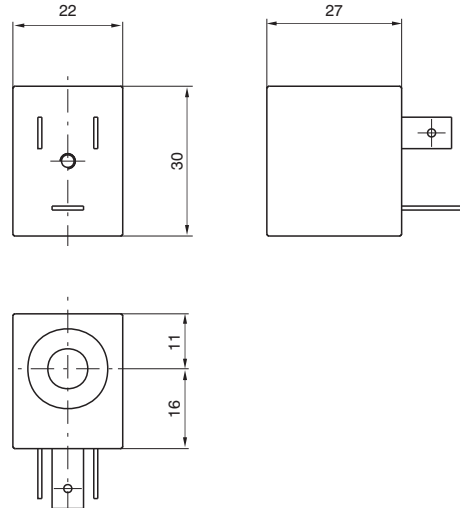


Ordering code			Available voltages miniature solenoid
G 1/8"	M5	TUBE Ø4 mm	
<b>305.M10/1</b>	<b>355.M10/1</b>	<b>345.M10/1</b>	24 D.C. (8 Watt)  Direct current
<b>305.M17/1</b>	<b>355.M17/1</b>	<b>345.M17/1</b>	24/50 48/50 110/50 220/50  Alternating current 50 Hz
<b>305.M21/1</b>	<b>355.M21/1</b>	<b>345.M21/1</b>	
<b>305.M22/1</b>	<b>355.M22/1</b>	<b>345.M22/1</b>	
<b>305.M24/1</b>	<b>355.M24/1</b>	<b>345.M24/1</b>	
<b>305.M37/1</b>	<b>355.M37/1</b>	<b>345.M37/1</b>	24/60 110/60 220/60  Alternating current 60 Hz
<b>305.M39/1</b>	<b>355.M39/1</b>	<b>345.M39/1</b>	
<b>305.M41/1</b>	<b>355.M41/1</b>	<b>345.M41/1</b>	
<b>305.M56/1</b>	<b>355.M56/1</b>	<b>345.M56/1</b>	24/50-60 110/50-60 220/50-60  Alternating current 50/60 Hz
<b>305.M57/1</b>	<b>355.M57/1</b>	<b>345.M57/1</b>	
<b>305.M58/1</b>	<b>355.M58/1</b>	<b>345.M58/1</b>	

**Coil**



Weight gr. 54



Ordering code		Available voltages Coil
N.C.	N.O.	
<b>MB4</b> <b>MB5</b> <b>MB6</b> <b>MB9</b>	<b>MB10/1</b>	12 D.C. 24 D.C. 48 D.C. 24 D.C. (2 Watt) 24 D.C. (8 Watt)  Direct current
<b>MB17</b> <b>MB21</b> <b>MB22</b> <b>MB24</b>	<b>MB17/1</b> <b>MB21/1</b> <b>MB22/1</b> <b>MB24/1</b>	24/50 48/50 110/50 220/50  Alternating current 50 Hz
<b>MB37</b> <b>MB39</b> <b>MB41</b>	<b>MB37/1</b> <b>MB39/1</b> <b>MB41/1</b>	24/60 110/60 220/60  Alternating current 60 Hz
<b>MB56</b> <b>MB57</b> <b>MB58</b>	<b>MB56/1</b> <b>MB57/1</b> <b>MB58/1</b>	24/50-60 110/50-60 220/50-60  Alternating current 50/60 Hz
<b>MB66</b> <b>MB67</b> <b>MB68</b>	/	24/50-60 110/50-60 220/50-60  Alternating current (low consumption) 50/60 Hz

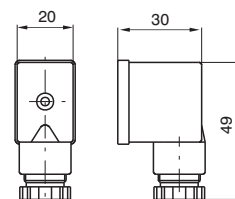
**Electrical connector**

Ordering code

- 305.11.00** Normal
- 305.11.0\_L** with Led
  - 1 = 24 V D.C. / A.C.
  - 2 = 110 V 50/60 Hz
  - 3 = 220 V 50/60 Hz



Weight gr. 19



**BISTABLE**

**General**

The most interesting aspects of this bi-stable miniature solenoid valve operating with D.C. only, is that it can be commuted with a simple electric impulse and stay commuted till an inverted polarity impulse deactivates it. It means that the valve is not automatically deactivated if current fail as happens with normal solenoid valves.

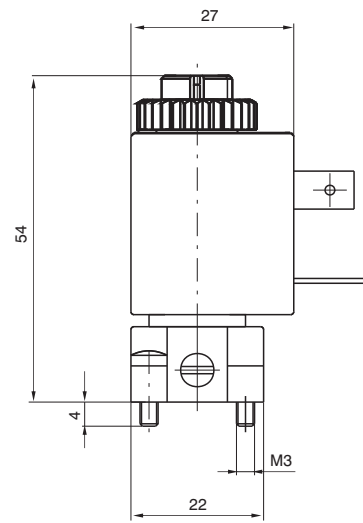
The applications differ but are all based on above mentioned feature.

The internal construction is relatively special. The fix plunger is equipped with a permanent magnet that hold or release the mobile plunger according to the magnetic field generated by the coil.

A specific coil is used for this application and it cannot be replaced by the standard ones.

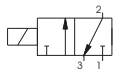
Ordering code is **MBB5**.

**Miniature solenoid valve for distributors and bases**



Ordering code

**M5/B**



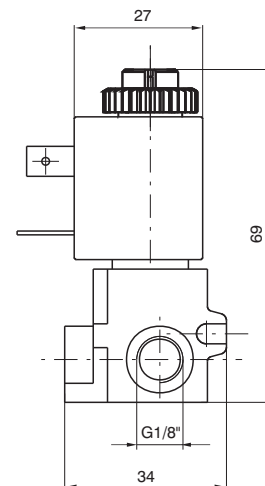
**Miniature solenoid valve with inseries mounting base**

Ordering code

**305.M5/B = G 1/8"**

**355.M5/B = M5**

**345.M5/B = Fitting for 4 mm tube**



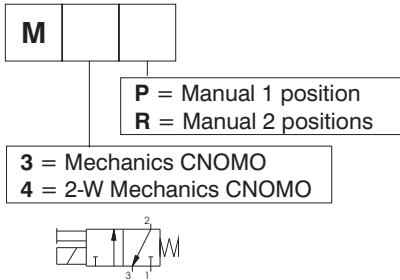
### Electric pilot CNOMO (coil not included)

Mechanics with base for solenoid to be used where an electric pilot system is required.

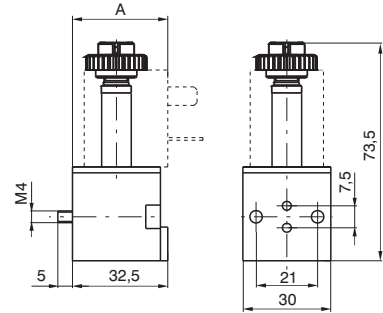
May be used on all sizes and is standardized as an interface on the distributor.

The base is fitted with a manual control which is pulse actuated, without check, or with two stable positions, actuated by means of a screwdriver (pressing down and turning clockwise by 90°). Two different types of solenoids can be mounted on the stem, one in conformity with ISO standard size 30x38 and ISO 4400 (DIN 43650) electrical connection, and a compact one size 22x27, having the same performance but at lower price. The technical characteristics of the latter are described in the catalogue, series 300, and refer to MB solenoids. The base is fitted with screws (M4x30) for fastening to the distributor.

Ordering code



Weight gr. 49



**A = 33** (with MB solenoid)

**A = 38** (with MC solenoid)

### General characteristics

<b>Structural</b>	Body	Thermoplastic polyester	
	Stem	Nickel-plated brass	
	Cores	AISI 430F stainless steel	
	Springs	AISI 302 stainless steel	
	Shutters	FPM	
	Other seals	NBR	
	Manual control	Nickel-plated brass	
	<b>Pneumatic</b>	Fluid	Air, Neutral gases
Working pressure		0-10 bar	
Fluid ambient temperature		-5°C - +50°C	
Flow rate at 6 bar with Δp 1 bar		53 NI/min	(20 NI/min for 2 W)
Nominal flow cross section		1,3 mm	(0,9 mm for 2 W)
<b>Electric</b>		Power consumption (inrush) - A.C.	13 VA
	Power consumption holding - D.C.	4 W	(2 W)
	Power consumption holding - A.C.	8,5 VA	
	Operating voltage tolerance	±10%	
	Response time opening *	13 ms	
	Response time closing *	5 ms	
	Insulation of the copper wire	H	
	Insulation of the coil	F	
	Connector protection	IP 65	
	Cable protection	DIN 43650 "A" FORM	

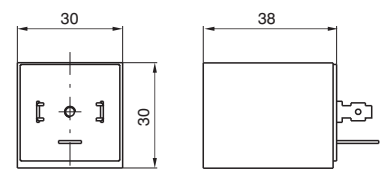
(\*) "Shifting time of pneumatic directional control valves or moving parts, logic devices were measured in accordance to ISO 12238:2001, Pneumatic fluid power - Directional control valves - Measurement of shifting time"

### Coil

Ordering code	Available voltages
	Coil
<b>MC5</b>	24 D.C.
<b>MC9</b>	24 D.C. (2 Watt)
<b>MC56</b>	24/50-60 Hz
<b>MC57</b>	110/50-60 Hz
<b>MC58</b>	230/50-60 Hz

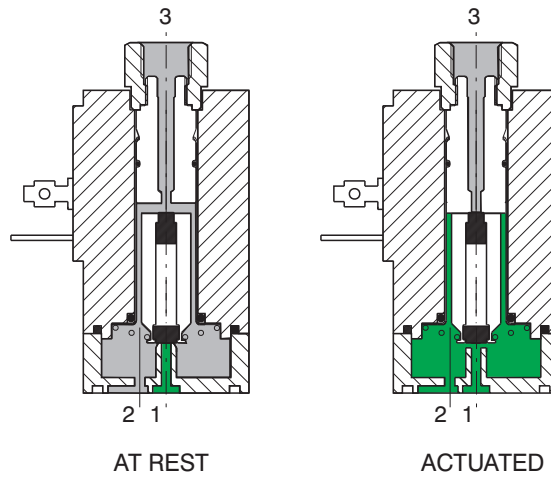
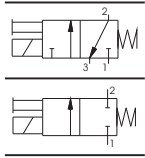


Weight gr. 110



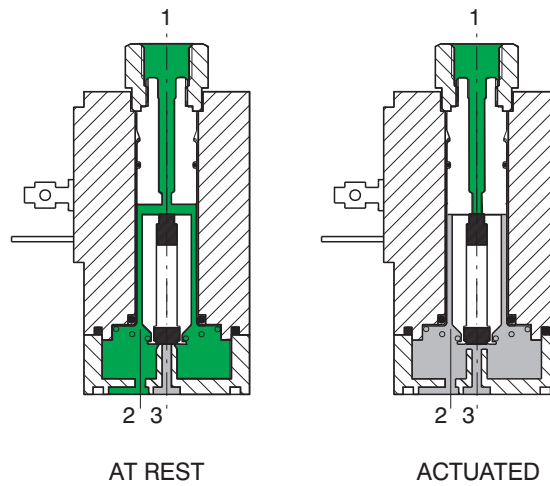
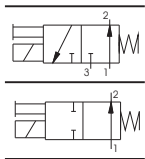
**Functional schematic**

Normally Closed (N.C.) 3/2 or 2/2



- 1 = INLET PORT
- 2 = OUTLET PORT
- 3 = EXHAUST PORT  
(Plugged if 2/2)

Normally Open (N.O.) 3/2 or 2/2



**Construction characteristics**

*Electrical parts:*

Solenoids: the solenoid consists of coils having different diameter copper wire windings insulated according standards "H"; they are encased in a nylon-glass compound. All parts are corrosion resistant.

*Mechanical parts:*

Stainless steel tube and plunger (AISI 430F), stainless steel adjusted springs, viton poppet seals, tropicalized zinc alloy interface plate, nitrile (NBR) seal nicked brass manual override, nickel steel coil lock nut, zinc steel mounting screws. To be usable, the solenoids have to be attached either to a base or directly to the distributor's operators by means of connectors G 1/8". Electrical connectors are standard. These solenoid are available in all voltages and frequencies used in the world. The following are the technical characteristics of the solenoid.

### Technical characteristics

<b>Pneumatic</b>	Working pressure	0 - 10 bar
	Orifice size	1,8 mm
	Maximum fluid temperature	50°C
	Maximum ambient temperature	50°C
	Maximum flow rate at 6 bar with $\Delta p = 1$	80 NI/min
	Cycles/minute	700
	Fluids	Air-Vacuum-Inert gases
	Lubrication	Not required
	Life	40 to 50 millions
<b>Electric</b>	Power consumption (inrush) - D.C.	-
	Power consumption (inrush) - A.C.	19,5 VA
	Power consumption holding - D.C.	8,2 W
	Power consumption holding - A.C.	9 VA
	Operating voltage tolerance	$\pm 10\%$
	Response time opening *	15 ms
	Response time closing *	30 ms
	Insulation of the copper wire	H
	Insulation of the coil	F
	Connector protection	IP 65
	Cable protection	DIN 43650 "A" FORM

(\*) "Shifting time of pneumatic directional control valves or moving parts, logic devices were measured in accordance to ISO 12238:2001, Pneumatic fluid power - Directional control valves - Measurement of shifting time"

### Maintenance and replacement parts

Maintenance practices for these valves are similar to those already detailed for other products - replacement of the plunger or poppet is not advisable since the new replacement would not provide the best fit with the rest of the already used valve.

Special care should be taken that no dirt is accumulated between the working surface of fixed cores 3 and the plunger 2 which would result in vibrations and overheating of the solenoid. In the case of microsolenoid it must be assured that the alternate current coil is not charged when the mechanical part is not mounted to avoid destruction of the coil.

The electrical connections have to be perfect, especially where low currents are used (12-24 V). Oxidation of contacts between the connector and the coil can lead to intermittent malfunctions which are difficult to trace. Oxidation of contacts due to humidity or corrosive atmosphere are one of the most common causes of false alarms. Clean the contacts with appropriate spray.



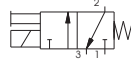


**Solenoid valve S and S/1**

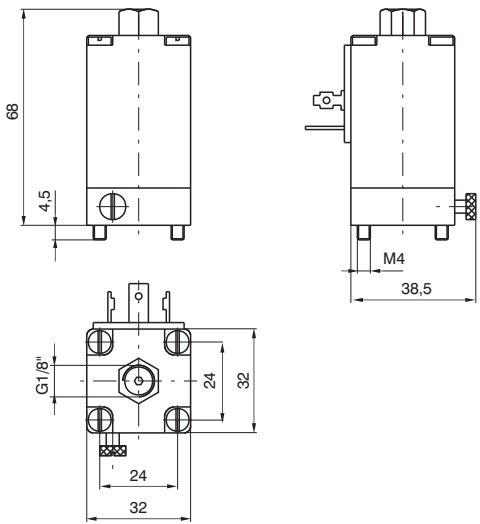
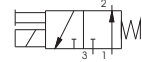


Weight gr. 220

Normally Closed  
(N.C.) - **S**



Normally Open  
(N.O.) - **S/1**



Ordering code		Available voltages Coil
<b>S 2</b> <b>S 4</b> <b>S 5</b> <b>S 6</b>	<b>S 2/1</b> <b>S 4/1</b> <b>S 5/1</b> <b>S 6/1</b>	6 D.C. 12 D.C. 24 D.C. 48 D.C. Direct current
<b>S 16</b> <b>S 17</b> <b>S 19</b> <b>S 20</b> <b>S 21</b> <b>S 22</b> <b>S 23</b> <b>S 24</b> <b>S 25</b>	<b>S 16/1</b> <b>S 17/1</b> <b>S 19/1</b> <b>S 20/1</b> <b>S 21/1</b> <b>S 22/1</b> <b>S 23/1</b> <b>S 24/1</b> <b>S 25/1</b>	12/50 24/50 32/50 42/50 48/50 110/50 115/50 220/50 240/50 Alternating current 50 Hz
<b>S 36</b> <b>S 37</b> <b>S 38</b> <b>S 39</b> <b>S 40</b> <b>S 41</b> <b>S 42</b>	<b>S 36/1</b> <b>S 37/1</b> <b>S 38/1</b> <b>S 39/1</b> <b>S 40/1</b> <b>S 41/1</b> <b>S 42/1</b>	12/60 24/60 48/60 110/60 115/60 220/60 240/60 Alternating current 60 Hz
<b>S 56</b> <b>S 57</b> <b>S 58</b>	<b>S 56/1</b> <b>S 57/1</b> <b>S 58/1</b>	24/50-60 110/50-60 220/50-60 Alternating current 50/60 Hz

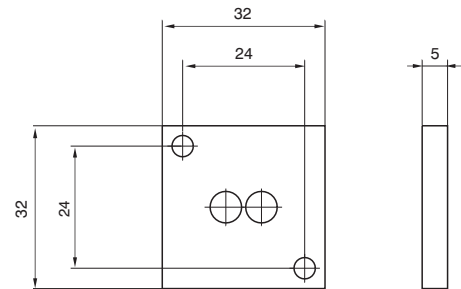
**Closing plate**

Ordering code

**300.12.00**



Weight gr. 14



**External feeding base**

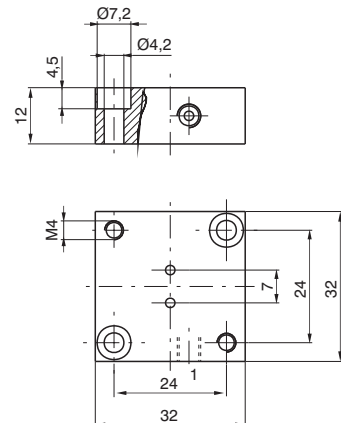
To be used with electrodistributeurs to get a different piloting pressure from the line one.

Ordering code

**300.10.05**



Weight gr. 35



**Individual base**

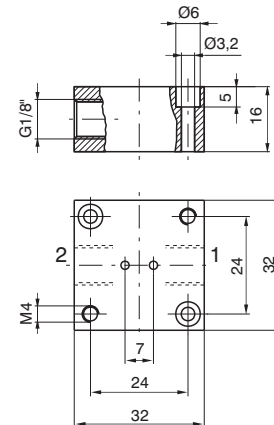


In line port - thread G 1/8"

- 1 = INLET PORT (N.C.)
- 2 = OUTLET PORT (N.C.)

With solenoid valve N.O.

- 1 = EXHAUST PORT
- 2 = OUTLET PORT



Ordering code

**300.04.00**

Weight gr. 40

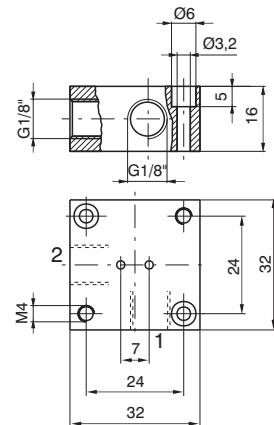


90° Port - thread G 1/8"

- 1 = INLET PORT (N.C.)
- 2 = OUTLET PORT (N.C.)

With solenoid valve N.O.

- 1 = EXHAUST PORT
- 2 = OUTLET PORT



Ordering code

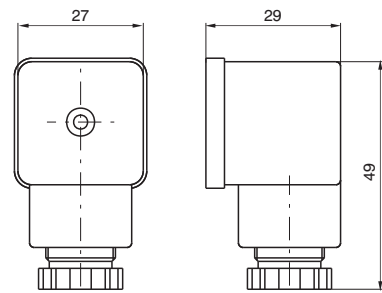
**300.04.90**

Weight gr. 40

**Electrical connector**

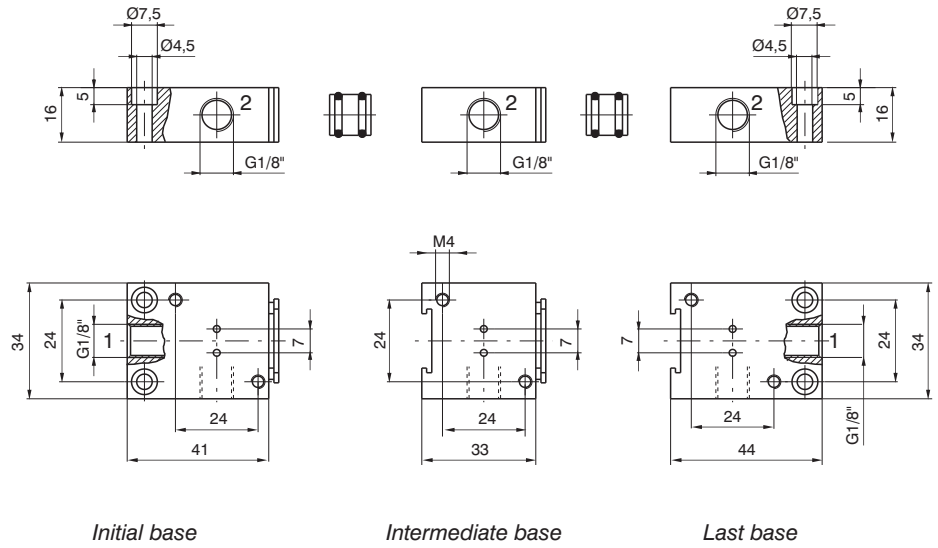
Ordering code

- 300.11.00** Normal
- 300.11.0 L** Led
- 1 = 24 V D.C. / A.C.
- 2 = 110 V 50/60 Hz
- 3 = 220 V 50/60 Hz



Weight gr. 25

**Modular bases for series mounting**



Ordering code

*Initial base*  
**300.05.00**

*Intermediate base*  
**300.06.00**

*Last base*  
**300.07.00**

*Bored spacer*  
**300.05.01**  
Weight gr. 5

*Solid spacer*  
**300.05.02**  
Weight gr. 6

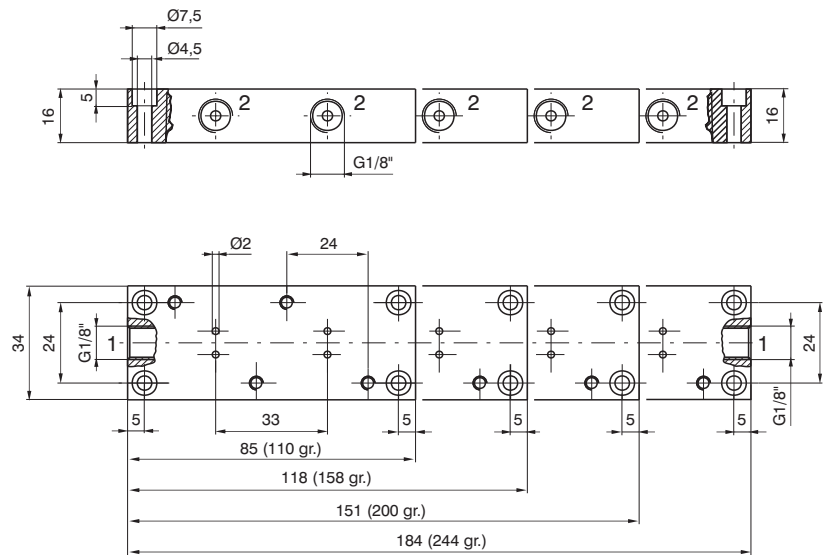


Weight gr. 52

Weight gr. 40

Weight gr. 52

**Multiple integral bases for series mounting**



Ordering code

- 300.08.02** 2 positions
- 300.08.03** 3 positions
- 300.08.04** 4 positions
- 300.08.05** 5 positions



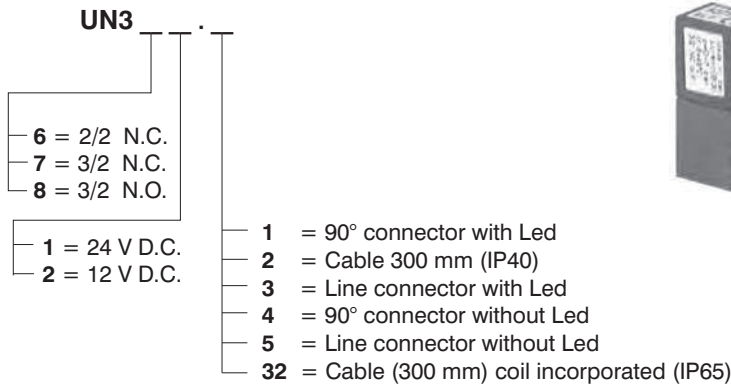
**General**

The series **300** homologated solenoid valves (valid for USA and Canada file n. E206325-VAIU2, VAIU8) are different from the standard ones for microsolenoid made with an injected RYNITE embedded copper wire (they are included in class "F" insulation).

Refer to standard versions as for as other details and accessories to be used with solenoid valves.

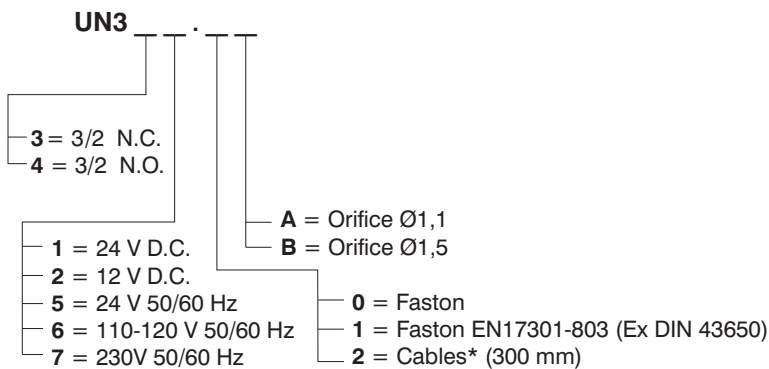
**Miniature solenoid valve 10mm**

Ordering code



**Miniature solenoid valve 15mm**

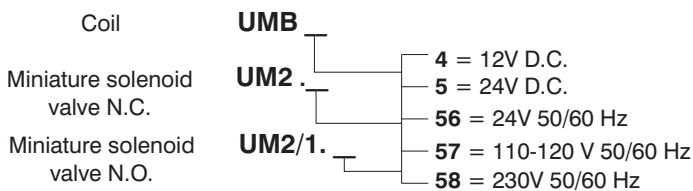
Ordering code



\* On request and for large quantity only (only 24 V D.C. 2,3 W)

**Miniature solenoid valve 22mm**

Ordering code





**Miniature solenoid valve 22mm for series mounting**

Ordering code

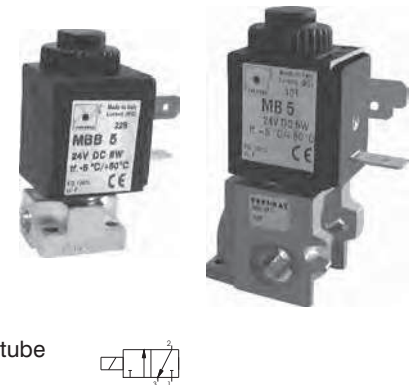
- Coil N.C. **UMB**
  - 4 = 12 V D.C.
  - 5 = 24 V D.C.
  - 56 = 24 V 50/60 Hz
  - 57 = 110-120 V 50/60 Hz
  - 58 = 230 V 50/60 Hz
- Coil N.O. **UMB** /1
  - 10 = 24 V D.C. 8W
  - 56 = 24 V 50/60 Hz
  - 57 = 110-120 V 50/60 Hz
  - 58 = 230 V 50/60 Hz
- Solenoid valve N.C. **U3** **5.M**
  - 0 = G1/8"
  - 5 = M5
  - 4 = fitting for 4mm tube
  - 4 = 12 V D.C.
  - 5 = 24 V D.C.
  - 56 = 24 V 50/60 Hz
  - 57 = 110-120 V 50/60 Hz
  - 58 = 230 V 50/60 Hz
- Solenoid valve N.O. **U3** **5.M** /1
  - 0 = G1/8"
  - 5 = M5
  - 4 = fitting for 4mm tube
  - 10 = 24 V D.C. 8W
  - 56 = 24 V 50/60 Hz
  - 57 = 110-120 V 50/60 Hz
  - 58 = 230 V 50/60 Hz



**Bi-stable miniature solenoid valve 22mm**

Ordering code

- Coil **UMBB5**
- Miniature solenoid valve for distributors and bases (N.C.) **UM5/B**
- Miniature solenoid valve with inseries mounting base (N.C.) **U3** **5.M5/B**
  - 0 = G1/8"
  - 5 = M5
  - 4 = fitting for 4mm tube



**Solenoid valve 30 mm (for mechanics M3 and M4)**

Ordering code



**Solenoid valve 32 mm**

Ordering code

- Solenoid valve N.C. **US**
- Solenoid valve N.O. **US** /1
  - 4 = 12 V D.C.
  - 5 = 24 V D.C.
  - 56 = 24 V 50/60 Hz
  - 57 = 110-120 V 50/60 Hz
  - 58 = 230 V 50/60 Hz

