

# Direct operated solenoid valves Series 300

Miniature solenoid valves 10 mm

Microsolenoid valves 15 mm

Microsolenoid valves 22 mm

Microsolenoid valves 22 mm  
Series Mounting

Microsolenoid valves 22 mm  
Bistable

Electric pilot CNOMO 30 mm

Solenoid valves 32 mm

Solenoid valves   homologated




## General

The direct operated solenoid valve is the interface between pneumatic and electronic. In fact, it is actuated by an electrical signal and in turn gives a pneumatic signal directly available for small users or for actuating bigger pneumatic distributors.

A wide range of valves are needed for satisfying various applications. For this need we have available miniature components with very low volume and electrical impute as well as solenoid valves with large flow rate and power for heavy duty operations. These solenoid valves are usually 3/2, normally closed or normally open, but there are available the 2/2, closed or open, for vacuum and others.

Note that the direct operated valves can only be used with bases, individual or multiple with M5 or G 1/8" thread or with connections.

PNEUMAX solenoid valves are  homologated valid for USA and Canada (file n. E206325-VAIU2, VAIU8). As for ordering code please see page 1.26 and 1.27.

## Use and maintenance

Maintenance is normally not required for these components therefore the spare parts list is not provided.

Their construction complexity and low cost do not make repair economically viable. It's easier and more economic to replace the complete valve in case of malfunction.

For proper lubrication use only hydraulic oil class H such as Castrol type MAGNA GC 32.

## General

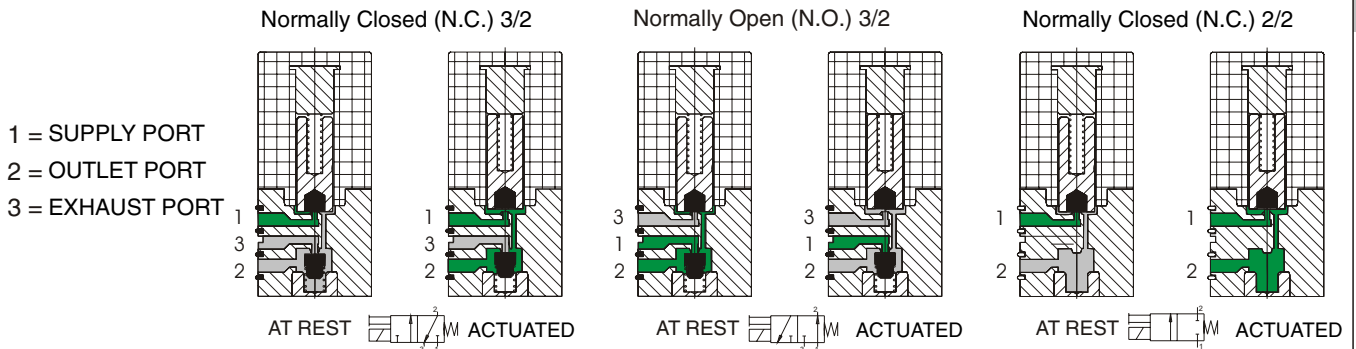
Direct operated solenoid valve differs from other types for its minimum overall dimensions. Its specific design allows single or gang mounting in narrow spaces.

Its high switching speed and flow rate make this small valve useful for different applications and suitable also with other fluids than compressed air compatible with constructive material.

All versions, equipped with override device, are 3/2 ways N.C. and N.O., 2/2 ways N.C. 12 or 24 Volt D.C. with cables or connector also with led.

Make sure that the fastening screws are tightened with maximum torque of 0,25 Nm.

## Functional schematics



## Construction

### Electrical part:

Miniature solenoid consisting of a coil made of copper wire of different sizes depending on the voltage. Insulated according to F class standards and injection-moulded nylon-glass application.

All parts forming the cladding, the electrical connections and the pole pieces are protected against corrosion.

Electrical connection is via connector or directly with flying leads.

### Mechanical part:

AISI 430F cores, AISI 302 return springs, VITON® seals, thermoplastic polyester body, plug and manual control made of nickel-plated brass.

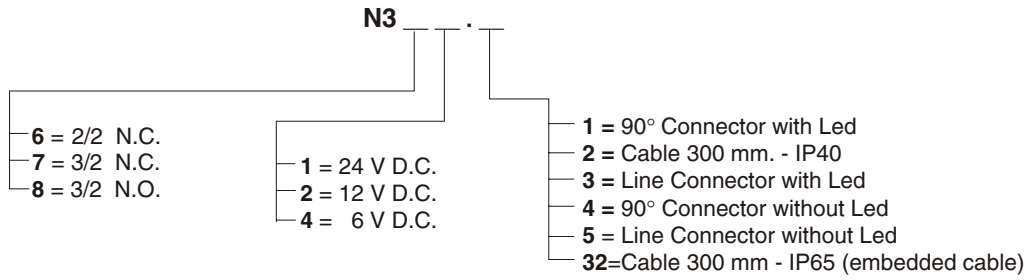
The miniature solenoid valves are mounted on a separate base, multiple base or distributors.

## Technical characteristics

<b>Pneumatic:</b>	Working pressure	0 ÷ 7 bar
	Orifice size	0,7 mm
	Fluid/ambient temperature	-5° +50°C
	Maximum flow rate at 6 bar with $\Delta p$ 1 bar	14 NI/min
	Exhaust flow	22 NI/min
	Max number of cycles per minute	2.700
	Life	50 Million cycles
<b>Electric:</b>	Voltages	12 ÷ 24 Volt D.C.
	Power	1,3 Watt
	Voltage tolerance	-5% +10%
	Response time when energized	8 ms
	Response time when de-energized	10 ms
	Copper wire isolation class	F (155°C)
	Protection degree	IP40 - IP65 (with cables, see orderings codes) IP 00 (with connectors)



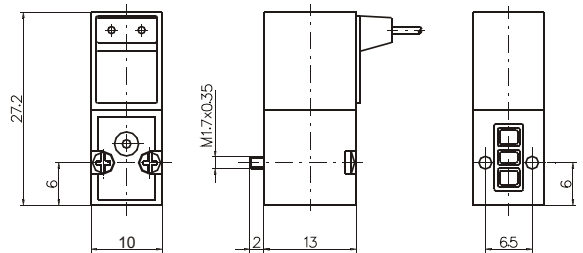
**Ordering codes**



**Miniature solenoid valve with cable**



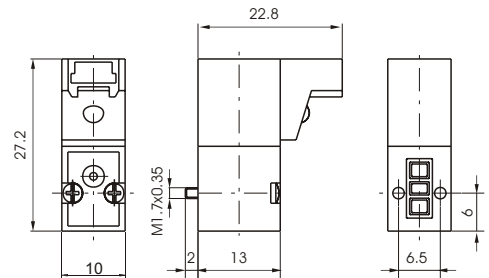
Weight gr. 12



**Miniature solenoid valve with 90° connector**



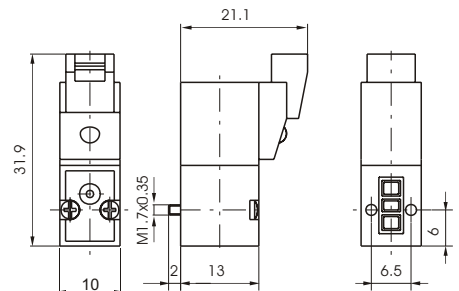
Weight gr. 12



**Miniature solenoid valve with line connector**

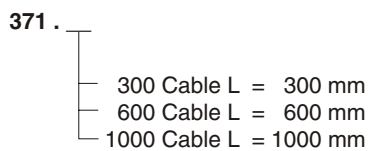


Weight gr. 12

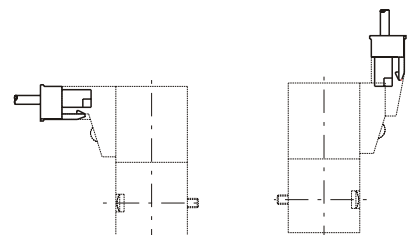


**Connector**

Ordering codes



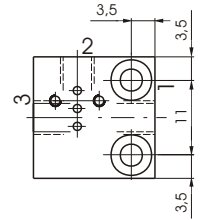
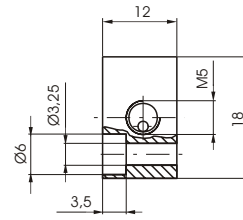
Weight gr. 3



**Individual base**

Ordering code

**395.01**



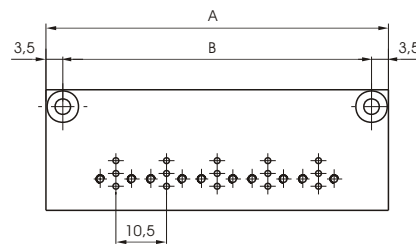
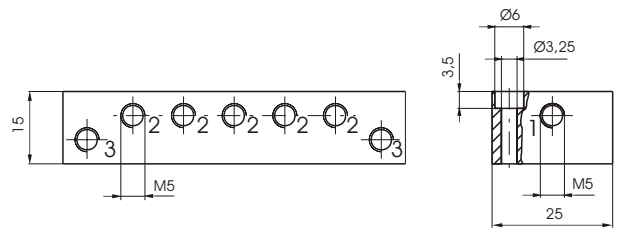
Weight gr. 10

**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

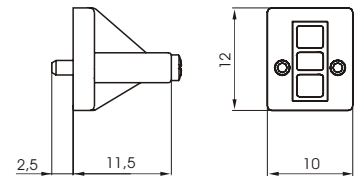
**Closing plate**

Ordering code

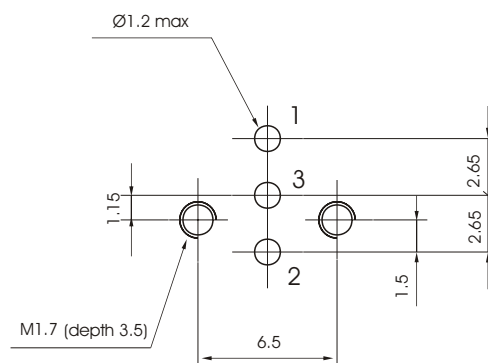
**395.00**



Weight gr. 5



**Interface dimensions**



### 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.

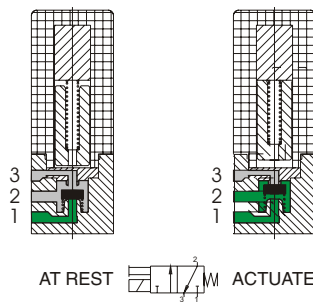
Coil can also be positioned at 180° to get the electrical connection located on the opposite side than override.

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

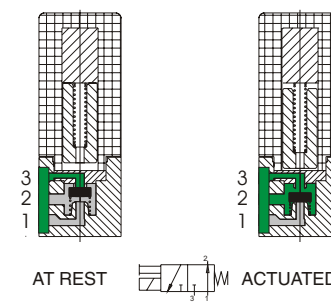
### Functional schematics

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

Normally Closed (N.C.) 3/2



Normally Open (N.O.) 3/2



### 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, VITON® seals, thermoplastic polyester body.

### Technical characteristics

#### Pneumatic

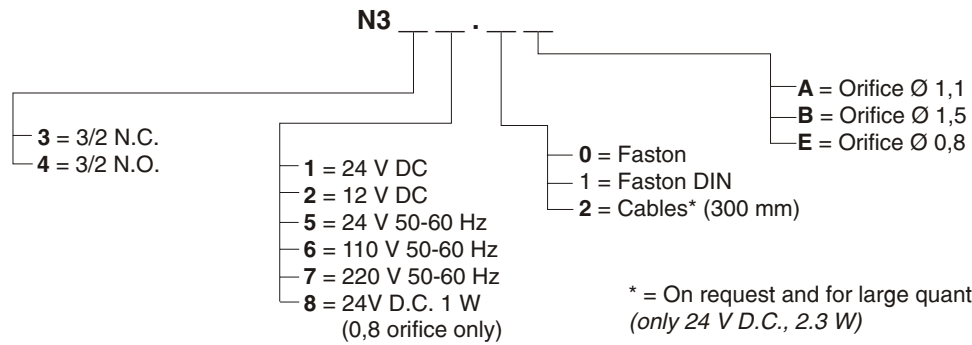
Nominal diameter	0,8 mm	1,1 mm	1,5 mm (only D.C.)
Maximum flow rate at 6 bar with $\Delta p$ 1 bar	20 NI/min	30 NI/min	50 NI/min
Working pressure for N.C.	0 to 10 bar		0 to 7 bar
Working pressure for N.O.	/	0 to 8 bar	0 to 5 bar
Temperature	-5° +50°C		

#### Electrical

Voltage D.C.	24 V DC	12-24 V DC	
Voltage A.C.	/	24-110-220 Volt 50/60 Hz	/
Power	1 Watt	2,3 Watt	
	/	2,8 VA (at starting)	2,5 VA (at speed)
Voltage tolerance	-5% +10%		
Response time	10÷12 ms		
Isolating class	F (155°C)		
Protection degree	IP65 (with cables) IP65 (with connectors) IP00 (with faston)		
Life expectancy	50 million cycles (with standard working conditions)		



**Ordering code**

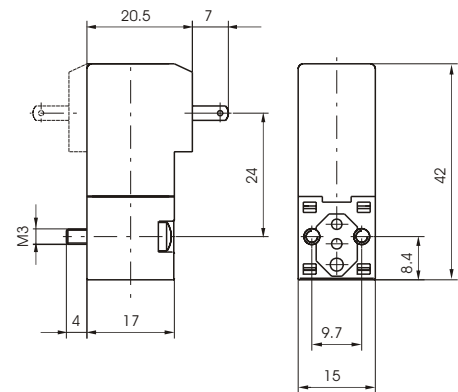


See previous page for available versions

**With Faston**



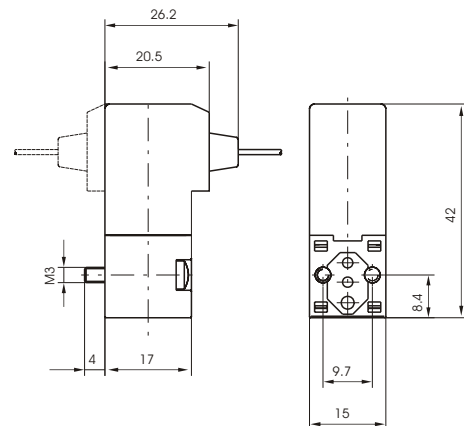
Weight gr. 36



**With cables**



Weight gr. 38



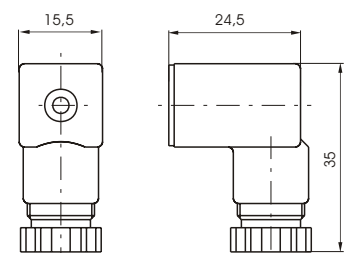
**Connector**

Ordering code

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



Weight gr. 13

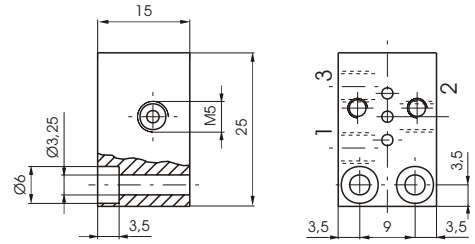




**Single use base**

Ordering code

**355.01**



Weight gr. 18

**Multiple bases**

Ordering code

A = Orifice M5

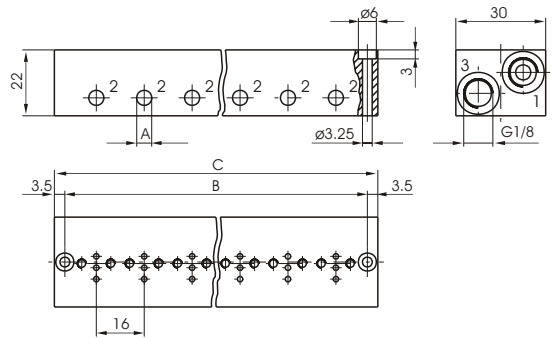
A = Pipe fitting Ø 4

**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

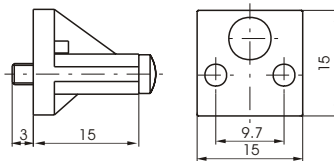
**Closing plate**

Ordering code

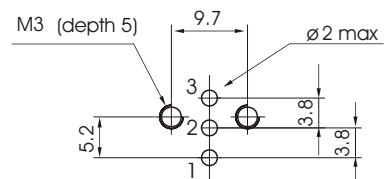
**355.00**



Weight 6 gr.



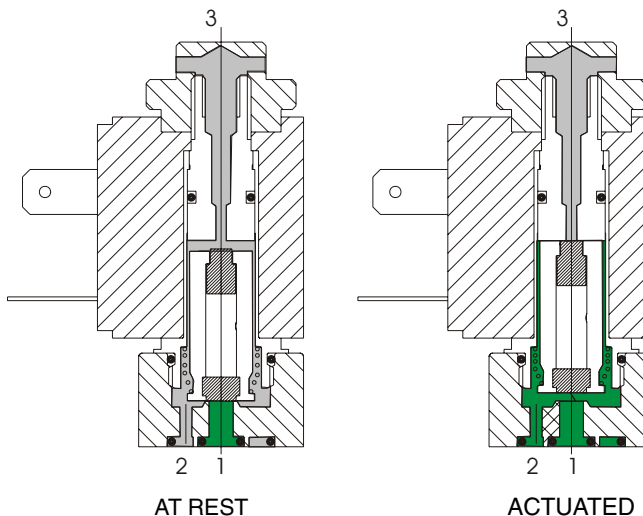
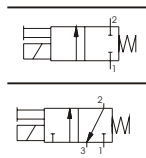
**Interface dimensions**





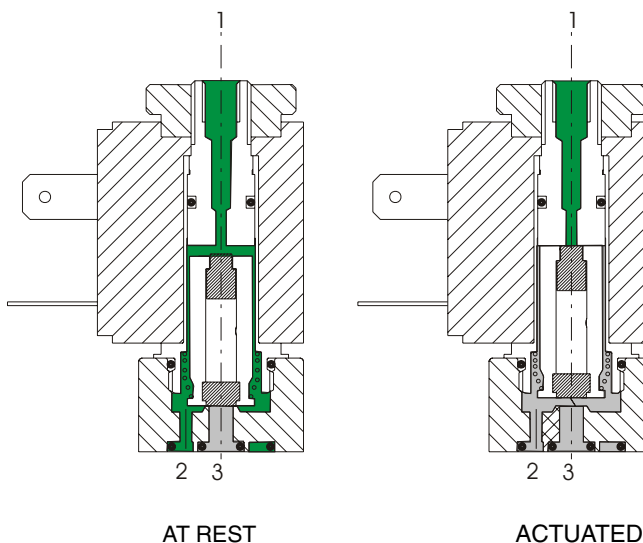
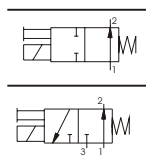
### Functional schematics

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



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

Normally Open (N.O.) 3/2 o 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 inrush - D.C.	-	
	Power consumption inrush - A.C	9 VA	
	Power consumption holding - D.C	5 W	(2 W)
	Power consumption holding - A.C	6 VA	
	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	

The response time were determined using standard procedure ISO 12238.

### 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.

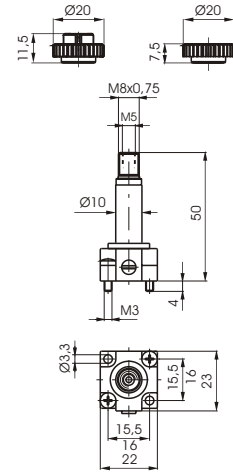
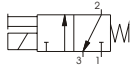
The electrical connections have to be perfect, especially where low currents are used (12-24 V).

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**

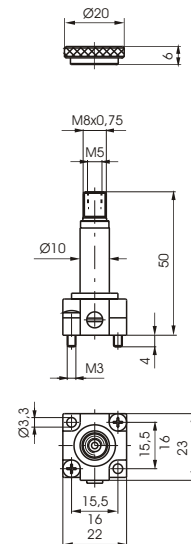
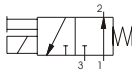
Ordering code

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



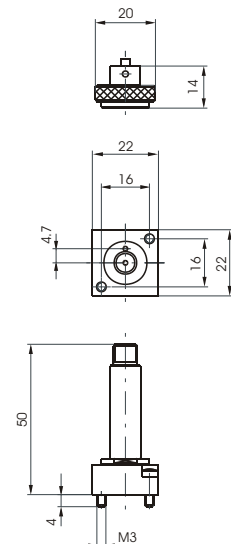
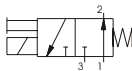
Weight gr. 51

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



Weight gr. 48

- MM 7** Normally Open (N.O.) air feeding through base

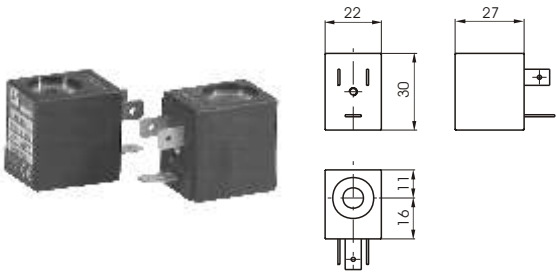


Weight gr. 46

Coil suitable for MM7 are listed on page 1.18



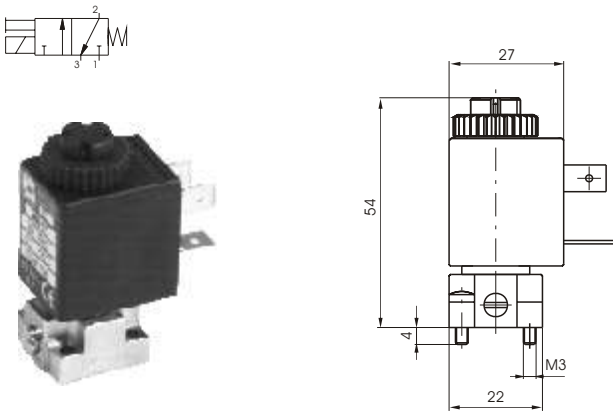
**Coil**



\* Use only with M2/9

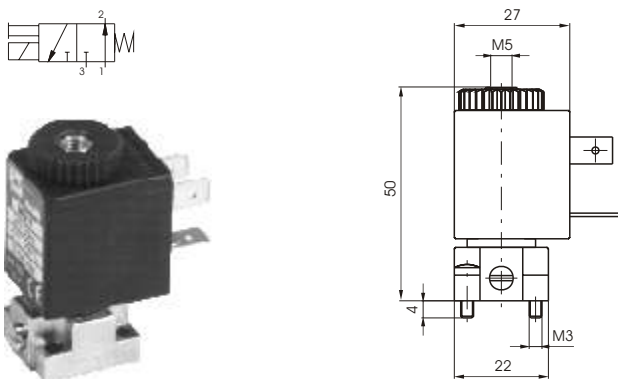
Ordering code	Available voltages	
<b>MB 4</b> <b>MB 5</b> <b>MB 6</b> <b>MB 9*</b>	12 D.C. 24 D.C. 48 D.C. 24 D.C. (2 Watt)	Direct current
<b>MB 17</b> <b>MB 21</b> <b>MB 22</b> <b>MB 24</b>	24/50 48/50 110/50 220/50	Alternating current 50 Hz
<b>MB 37</b> <b>MB 39</b> <b>MB 41</b>	24/60 110/60 220/60	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

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



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 DC 24 DC 48 DC 24 DC (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

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

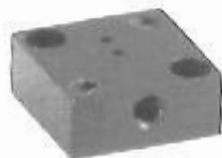


Ordering code	Available voltages Miniature solenoid valve N.O.	
<b>M 2/1.4</b> <b>M 2/1.5</b> <b>M 2/1.6</b> <b>M 2/1.9</b>	12 DC 24 DC 48 DC 24 DC (2 Watt)	Direct current
<b>M 2/1.17</b> <b>M 2/1.21</b> <b>M 2/1.22</b> <b>M 2/1.24</b>	24/50 48/50 110/50 220/50	Alternating current 50 Hz
<b>M 2/1.37</b> <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

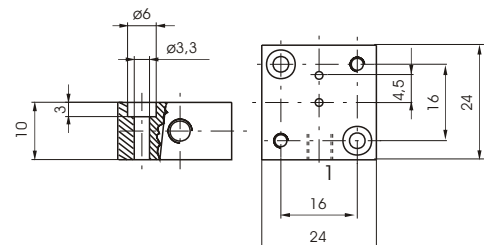
**External feeding base**

Ordering code

**305.10.05**



Weight gr.18



Direct operated solenoid valves  
22 mm. Miniature solenoid valve

Series 300



1

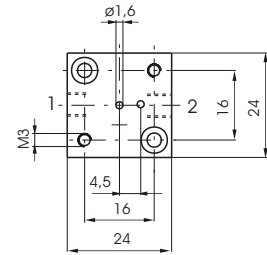
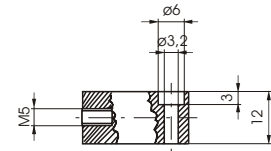
**Individual base**



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**

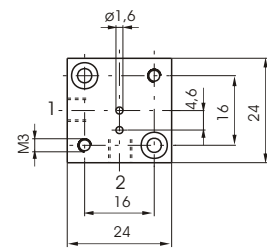
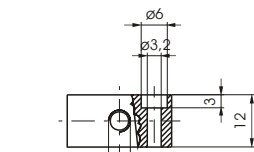
Weight gr. 56

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**

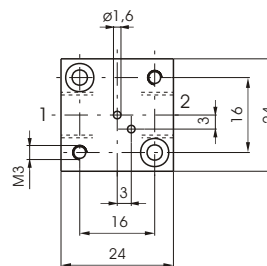
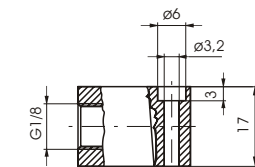
Weight gr. 56

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**

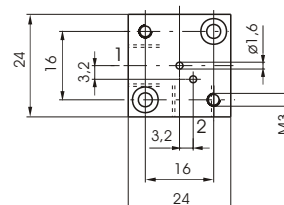
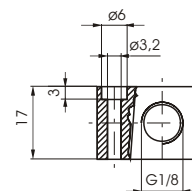
Weight gr. 75

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

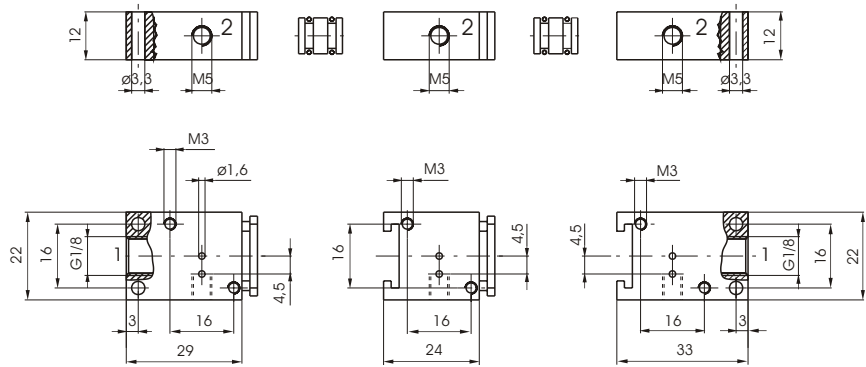


Ordering code

**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

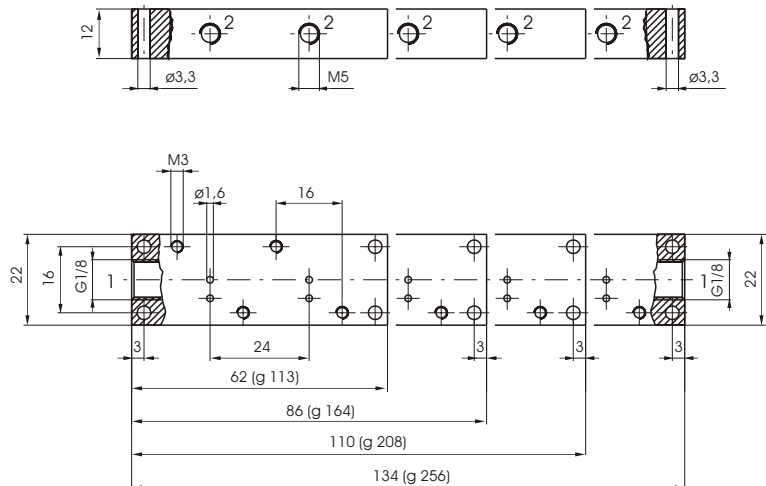
*Initial base*

*Intermediate base*

*Last base*



**Multiple integral bases for series mounting**

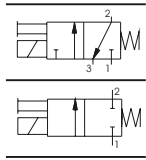


Ordering code

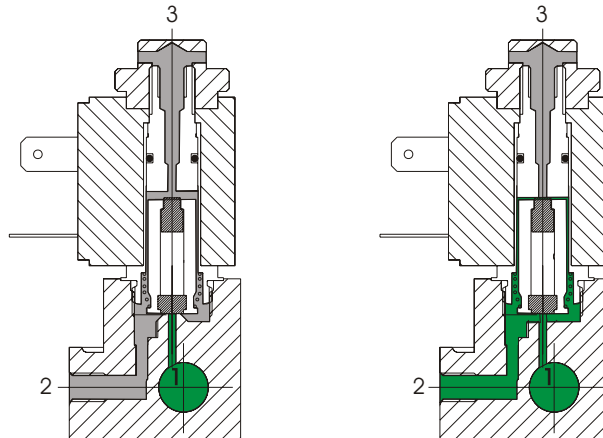
**305.08.02** 2 positions  
**305.08.03** 3 positions  
**305.08.04** 4 positions  
**305.08.05** 5 positions



**Functional schematic**



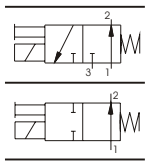
Normally Closed (N.C.) 3/2 or 2/2



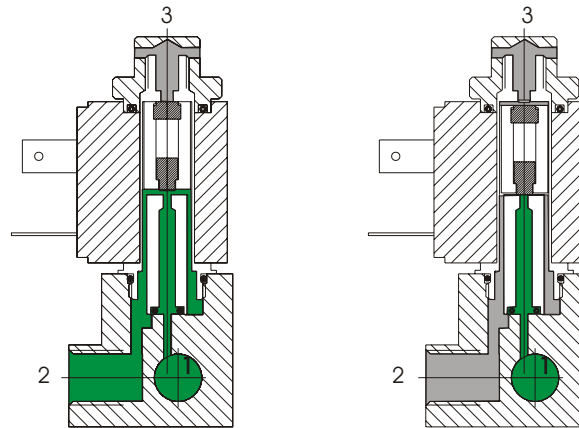
AT REST

ACTUATED

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



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



AT REST

ACTUATED

**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, nicked 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 $\Delta p = 1$	53 NI/min	(35 NI/min. for 2 W)
	Cycles/minute	700	
	Fluids	Air-Vacuum-Inert gases	
	Lubrication	Non needed	
	Life	40 ÷ 50 million cycles	
<b>Electrical</b>	Power consumption inrush - D.C	-	
	Power consumption inrush - A.C	9 VA	
	Power consumption holding - D.C	5 W	(2 W)
	Power consumption holding - A.C	6 VA	
	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		

The response times were determined using standard procedure ISO 12238.

### 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 (12-24 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.





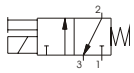
**Mechanical actuator for Normally Closed (N.C.)  
Miniature solenoid valve**

Normally Closed (N.C.)

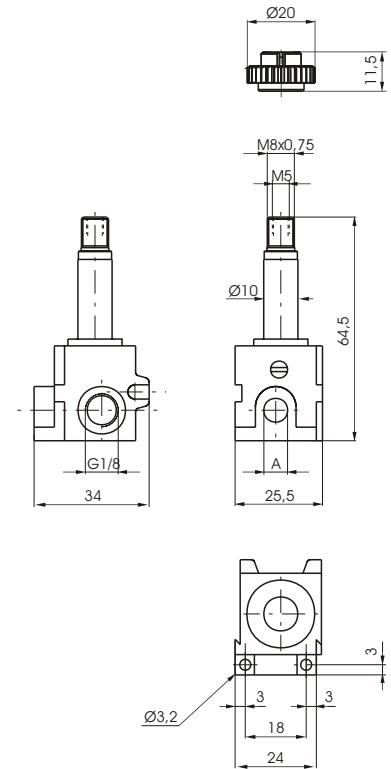
Ordering code

- 305.M1 A = G 1/8"
- 355.M1 A = M 5
- 345.M1 A = Push in fitting for 4 mm tube

- 305.M1/9 A = G 1/8"
- 355.M1/9 A = M 5
- 345.M1/9 A = Push in fitting for 4 mm tube



2 W  
24 DC

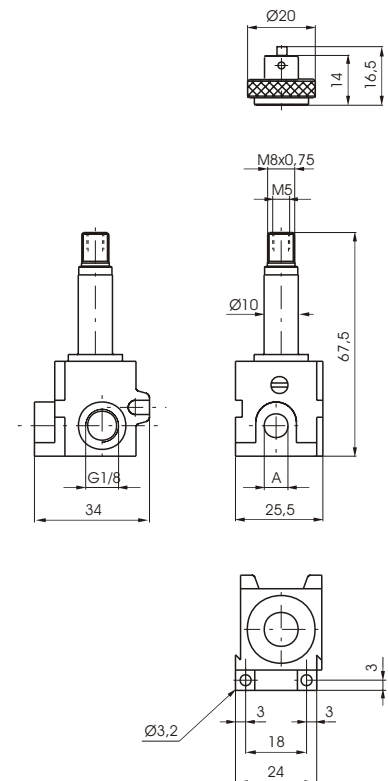
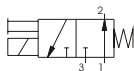


Weight gr. 95

Normally Open (N.O.)

Ordering code

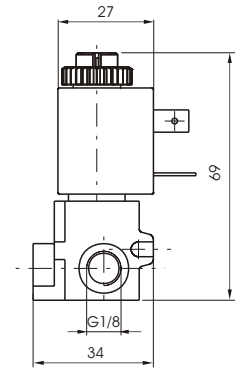
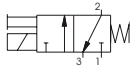
- 305.M1/1 A = G 1/8"
- 355.M1/1 A = M 5
- 345.M1/1 A = Push in fitting for 4 mm tube



Weight gr. 106



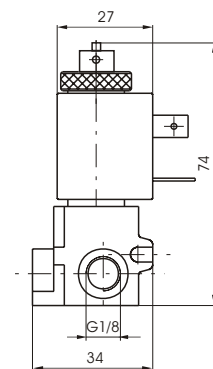
**Miniature solenoid valve**



Weight gr. 149

Normally Closed (N.C.)

Ordering code			Available voltage	
G 1/8"	M 5	TUBE Ø 4	Miniature solenoid	
305.M4	355.M4	345.M4	12 D.C.	Direct current
305.M5	355.M5	345.M5	24 D.C.	
305.M6	355.M6	345.M6	48 D.C.	
305.M9	355.M9	345.M9	24 D.C. (2 Watt)	
305.M17	355.M17	345.M17	24/50	Alternating current 50 Hz
305.M21	355.M21	345.M21	48/50	
305.M22	355.M22	345.M22	110/50	
305.M24	355.M24	345.M24	220/50	
305.M37	355.M37	345.M37	24/60	Alternating current 60 Hz
305.M39	355.M39	345.M39	110/60	
305.M41	355.M41	345.M41	220/60	
305.M56	355.M56	345.M56	24/50-60	Alternating current 50/60 Hz
305.M57	355.M57	345.M57	110/50-60	
305.M58	355.M58	345.M58	220/50-60	



Weight gr. 165

Normally Open (N.O.)

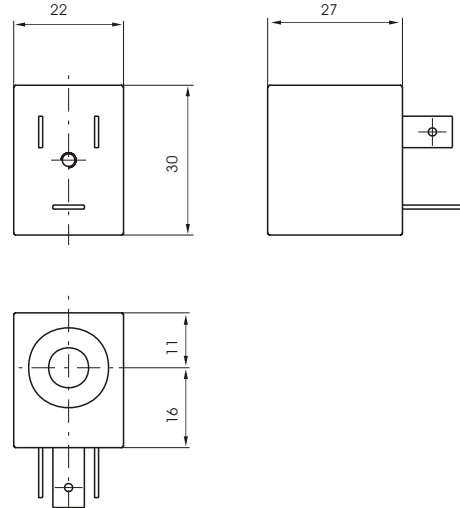
Ordering code			Available voltages	
G 1/8"	M 5	TUBE Ø 4 mm	Miniature solenoid	
305.M10/1	355.M10/1	345.M10/1	24 D.C. (8 Watt)	Direct current
305.M17/1	355.M17/1	345.M17/1	24/50	Alternating current 50 Hz
305.M21/1	355.M21/1	345.M21/1	48/50	
305.M22/1	355.M22/1	345.M22/1	110/50	
305.M24/1	355.M24/1	345.M24/1	220/50	
305.M37/1	355.M37/1	345.M37/1	24/60	Alternating current 60 Hz
305.M39/1	355.M39/1	345.M39/1	110/60	
305.M41/1	355.M41/1	345.M41/1	220/60	
305.M56/1	355.M56/1	345.M56/1	24/50-60	Alternating current 50/60 Hz
305.M57/1	355.M57/1	345.M57/1	110/50-60	
305.M58/1	355.M58/1	345.M58/1	220/50-60	



**Coil**



Weight gr. 54



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

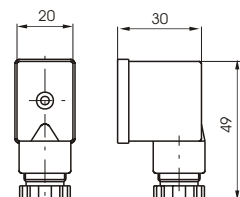
**Electrical connector**

Ordering code

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



Weight gr. 19





**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.

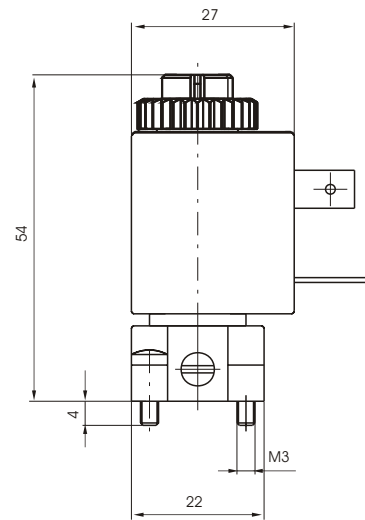
The applications differ but are all based on above mentioned feature.

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.

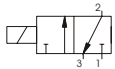
Ordering code is **MBB5**.

**Miniature solenoid valve for distributors and bases**



Ordering code

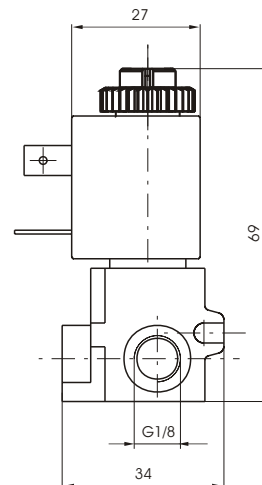
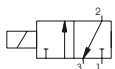
**M5/B**



**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)**

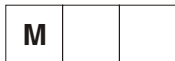
Mechanics with base for solenoid to be used where an electric pilot system is required. May be used on all sizes and is standardized as an interface on the distributor.

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.

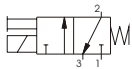
The base is fitted with screws (M4x30) for fastening to the distributor.

Ordering code

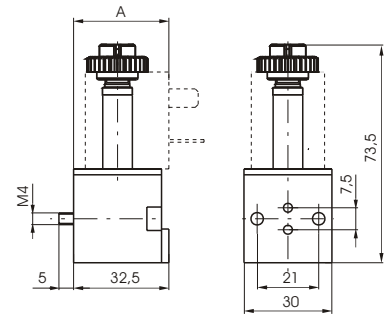


**P** = Manual 1 position  
**R** = Manual 2 positions

**3** = Mechanics CNOMO  
**4** = 2-W Mechanics CNOMO



Weight gr. 49



**A = 33** (with MB solenoid)  
**A = 38** (with MC solenoid)

**General characteristics**

<b>Structural</b>	Body	Thermoplastic polyester	
	Stem	Nickel-platted brass	
	Cores	AISI 430F stainless steel	
	Springs	AISI 302 stainless steel	
	Shutters	Viton	
	Other seals	NBR	
	Manual control	Nickel-platted 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	

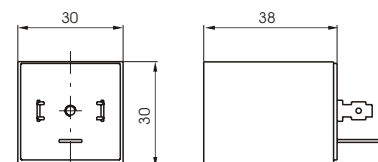
The response times were determined using standard procedure ISO 12238.

**Coil**

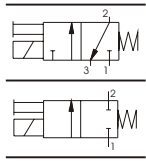
Ordering code	Available voltages
	coil
<b>MC5</b>	24 D.C.
<b>MC9</b>	24 D.C. (2 Watt)
<b>MC56</b>	24/50-60 Hz
<b>MC57</b>	110/50-60 Hz
<b>MC58</b>	230/50-60 Hz



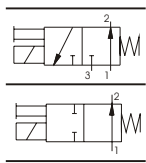
Weight gr. 110



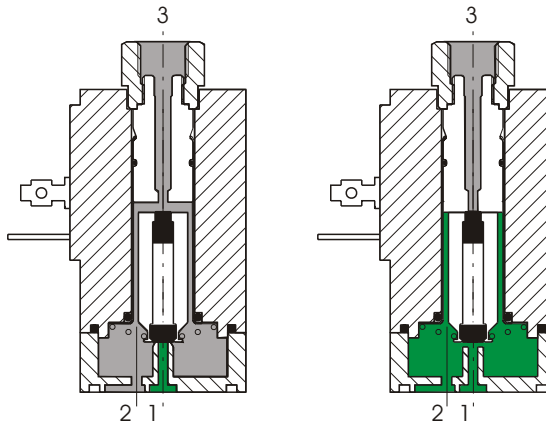
### Functional schematic



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



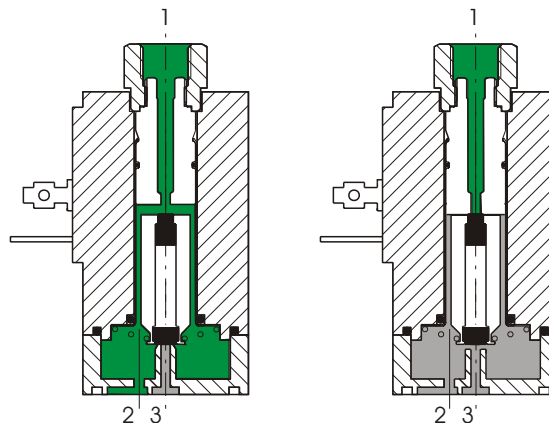
#### Normally Closed (N.C.) 3/2 or 2/2



AT REST

ACTUATED

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



AT REST

ACTUATED

### 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
<b>Electric</b>	Life	40 to 50 millions
	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

The response times were determined using standard procedure ISO 12238.

**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.

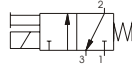


**Solenoid valve S and S/1**

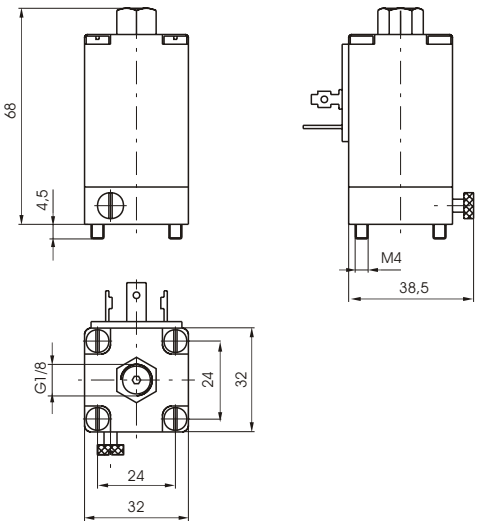
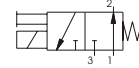


Weight gr. 220

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



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



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

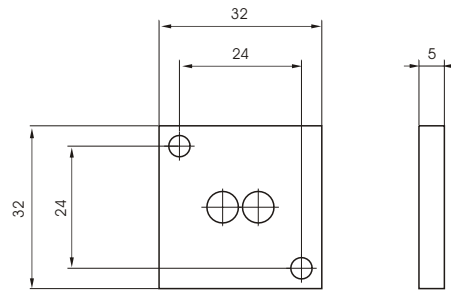
**Closing plate**

Ordering code

**300.12.00**



Weight gr. 14



**External feeding base**

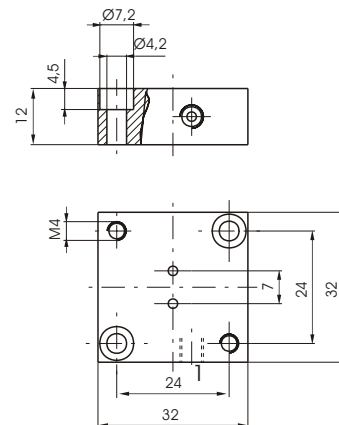
To be used with electrodistributeurs to get a different piloting pressure from the line one.

Ordering code

**300.10.5**



Weight gr. 35







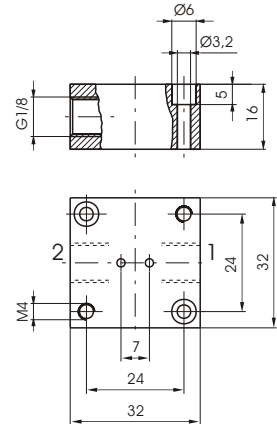
**Individual base**

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**

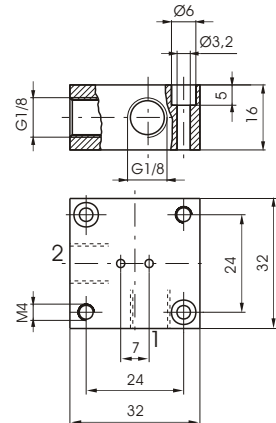
Weight gr. 40

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

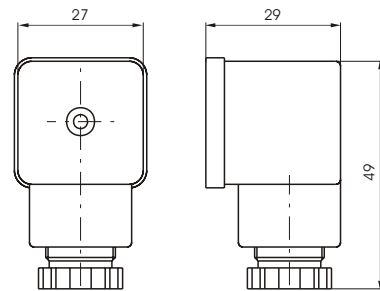
**300.04.90**

Weight gr. 40

**Electrical connector**

Ordering code

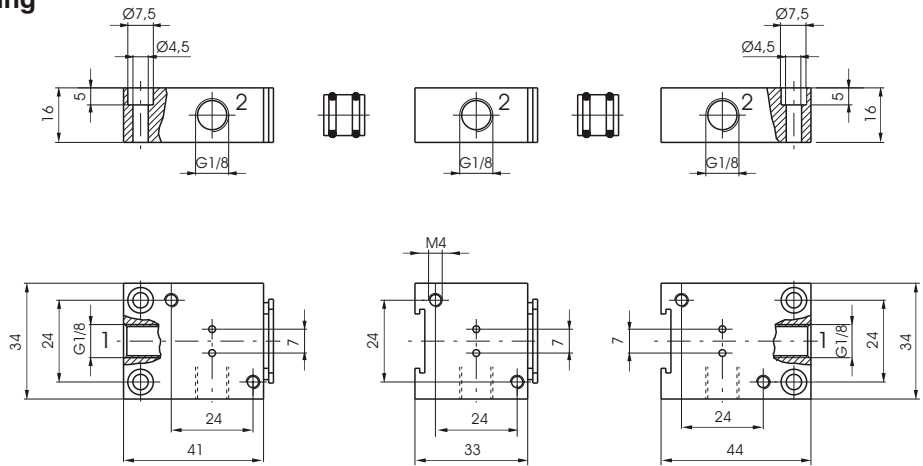
- 300.11.00** Normal
- 300.11.0 L** Led
- 1 = 24V D.C./A.C.
- 2 = 110V 50/60Hz
- 3 = 220V 50/60Hz



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

*Initial base*

*Intermediate base*

*Last base*

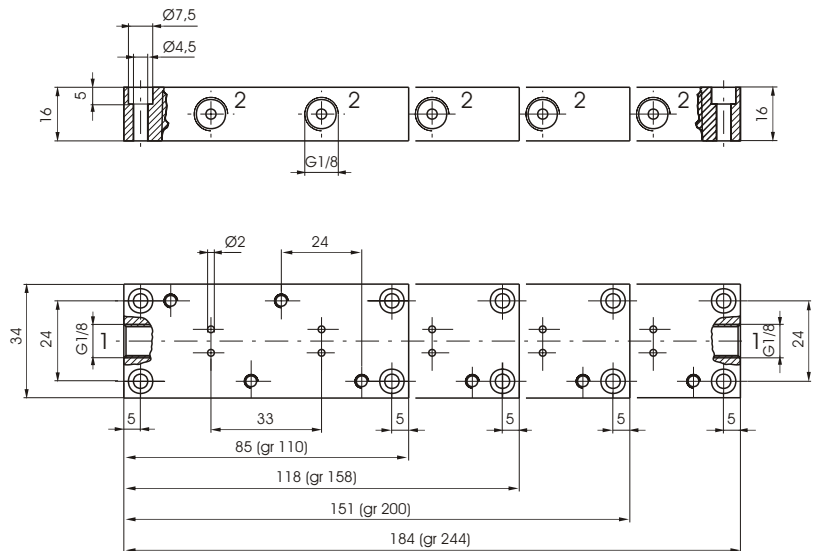


Weight gr. 52

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



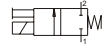
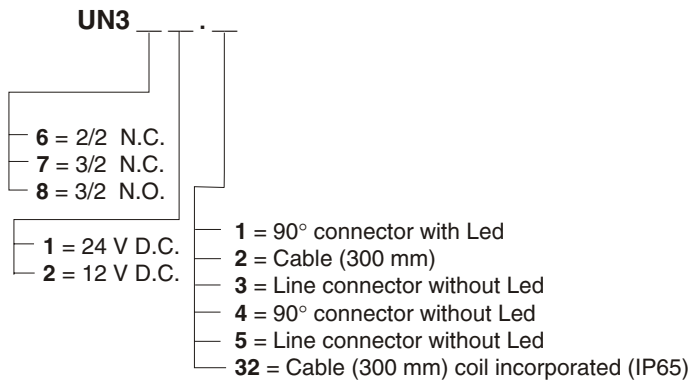
**General**

The series Curs 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<sup>®</sup> 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.

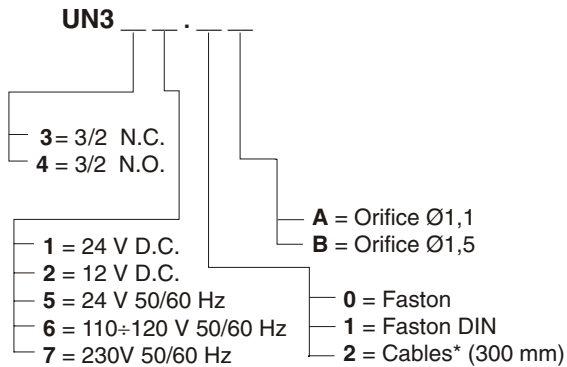
**Miniature solenoid valve 10mm**

Ordering code



**Miniature solenoid valve 15mm**

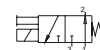
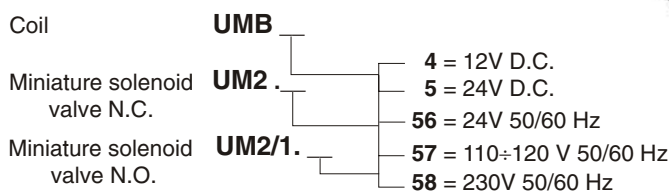
Ordering code



\* 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

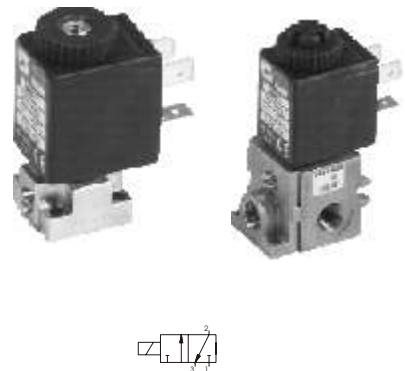
- Coil N.C. **UMB**
  - 4 = 12V D.C.
  - 5 = 24V D.C.
  - 56 = 24V 50/60 Hz
  - 57 = 110÷120 V 50/60 Hz
  - 58 = 230V 50/60 Hz
- Coil N.O. **UMB** /1
  - 10 = 24V D.C. 8W
  - 56 = 24V 50/60 Hz
  - 57 = 110÷120 V 50/60 Hz
  - 58 = 230V 50/60 Hz
- Solenoid valve N.C. **U3** **5.M**
  - 0 = G1/8"
  - 5 = M5
  - 4 = fitting for 4mm tube
  - 4 = 12V D.C.
  - 5 = 24V D.C.
  - 56 = 24V 50/60 Hz
  - 57 = 110÷120 V 50/60 Hz
  - 58 = 230V 50/60 Hz
- Solenoid valve N.O. **U3** **5.M** /1
  - 0 = G1/8"
  - 5 = M5
  - 4 = fitting for 4mm tube
  - 10 = 24V D.C. 8W
  - 56 = 24V 50/60 Hz
  - 57 = 110÷120 V 50/60 Hz
  - 58 = 230V 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 - pag. 1.20)**

Ordering code

- UMC5** = 24V D.C.
- UMC56** = 24V 50/60 Hz
- UMC57** = 110÷120V 50/60 Hz
- UMC58** = 230V 50/60 Hz



**Solenoid valve 32 mm**

Ordering code

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

