

820 Series



High Performance solenoid valve | 2/2 - 3/3
PNEUMATIC DIVISION

MATRIX
mechatronics

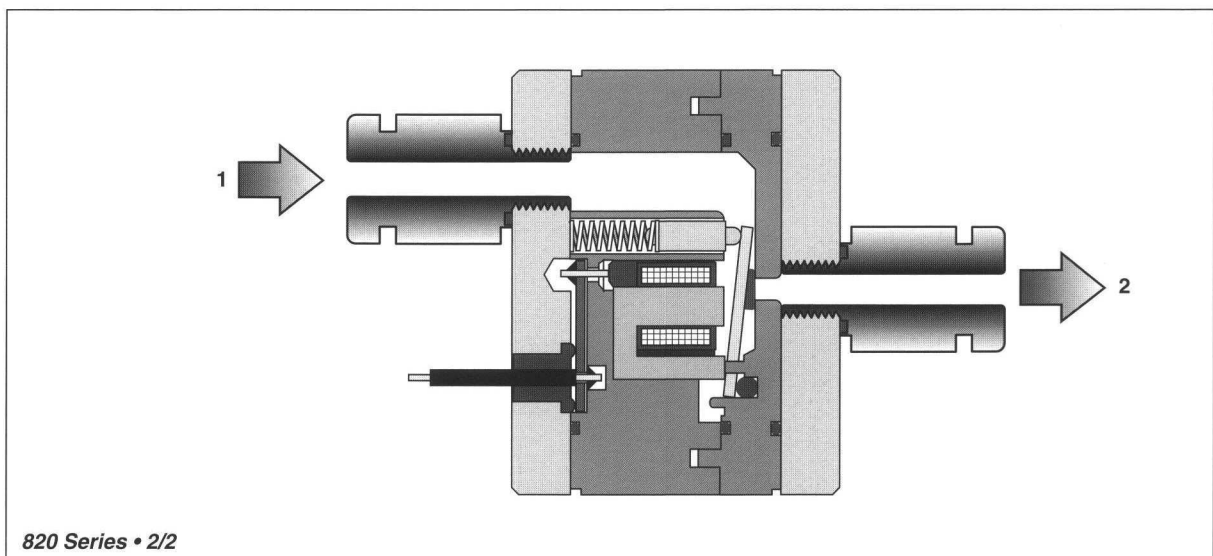
The Pneumatic Solenoid Valves 820 Series are NC 2/2 type.

The research about materials and new technological solutions allowed the realization of a shutter solenoid valve with an extremely simple operation principle and with avant-garde dynamic characteristics. The mass of the moving elements has been reduced to the minimum and every inner friction has been eliminated: in this way, we obtained response times of milliseconds and an operation life over 500 million cycles. Due to the possibility of controls of speed-up type, their dynamic characteristics are even more improved. Standard solenoid valves with 24 VDC control have a response time lower than 5 ms in opening and 2 ms in closing, with a maximum operation frequency of 200 Hz. On the contrary, solenoid valves with speed-up control have a response time lower than 1 ms, both in opening and in closing, with a maximum operation frequency of 500 Hz.

Besides high-speed characteristics, solenoid valves 820 Series offer flow rate values up to 180ℓ/minute (ANR), with feeding pressure from 0 to 8 bar.

Controlling the valve through either PWM (Pulse Width Modulation) or PFM (Pulse Frequency Modulation) technique, it is possible to vary the passing flow rate and to obtain, in this way, a solenoid valve, having a proportional flow rate.

820 Series is available both in-line assembly and sub-plate version, equipped with such accessories as multi-position manifolds or speed-up driver boards.



Advantages

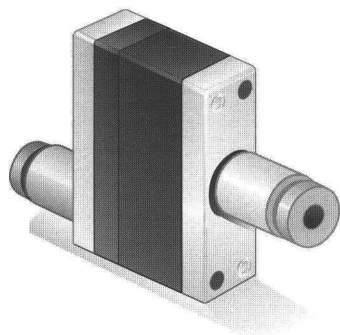
- Compact dimension.
- High duct diameter and flow rate.
- Short response times.
- Insensitivity to frequency work and to vibrations.
- Low absorbed power.
- Precision, repetitiveness and flexibility.
- Long operating life.

Applications

- Process and precision instrumentation.
- Pressure and flow rate control devices.
- Positioning systems.
- Selection systems.
- Metering systems.
- Biomedical and measure sector.

Materials

- Body in PPS.
- Flanges in Al.
- Seals in NBR.



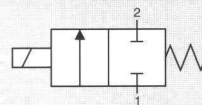
CONTROL:

DIRECT

PFM

PWM

N. 1 NC



GENERAL CHARACTERISTICS

FLUID	Non-lubricated dry air, neutral gases(-10 + 50°C)	
FILTRATION RATING	Min 40 micron	
TEMPERATURE	- 10 + 50°C (Standard version)	
RESPONSE TIME IN OPENING	24 < 5 ms	XX / KK < 1 ms
RESPONSE TIME IN CLOSING	24 < 2 ms	XX / KK < 1 ms
MAXIMUM FREQUENCY	200 Hz	500 Hz
WEIGHT	25 g	
PRODUCT LIFE EXPECTANCY	≥ 500 M/s cycles	
IP RATING	IP 62	

IDENTIFICATION CODE

	M	X	8	2	1	1	0	0	C	2	24
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● **OUTLETS**

1	1 Outlet
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● **FLOW RATE** (at 6 bar)

M	100 Nl/min
N	140 Nl/min (control tension XX / KK)
O	180 Nl/min (control tension XX / KK)

● **VERSION**

	Body ported
D	Manifold

● **No. ELECTRICAL CONTROLS**

1	1 Control
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● **PORT CONNECTION**

0	Integrated cables IP 62 L = 500 mm
1	Integrated cables IP 62 L = 100 mm

● **FUNCTION**

C	NC
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● **TYPE**

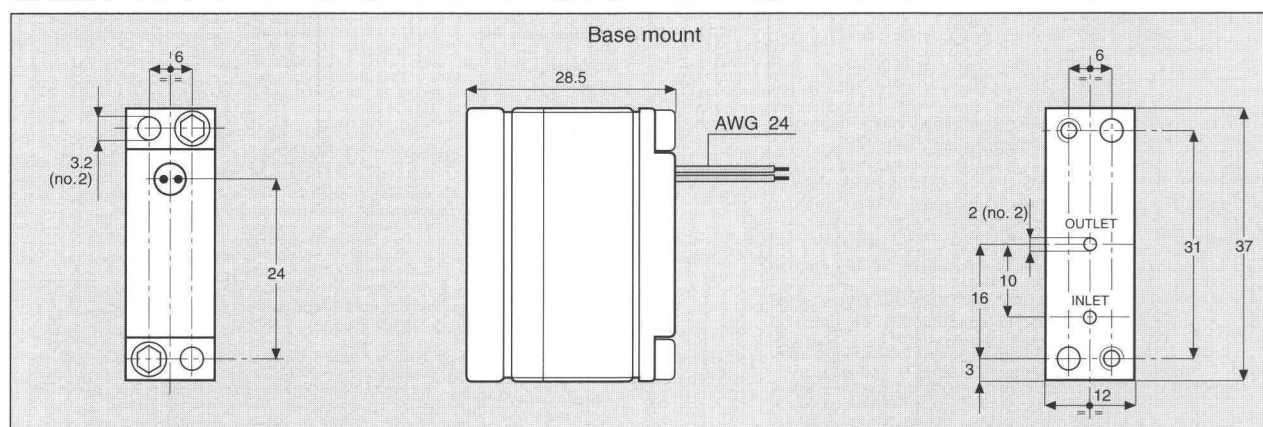
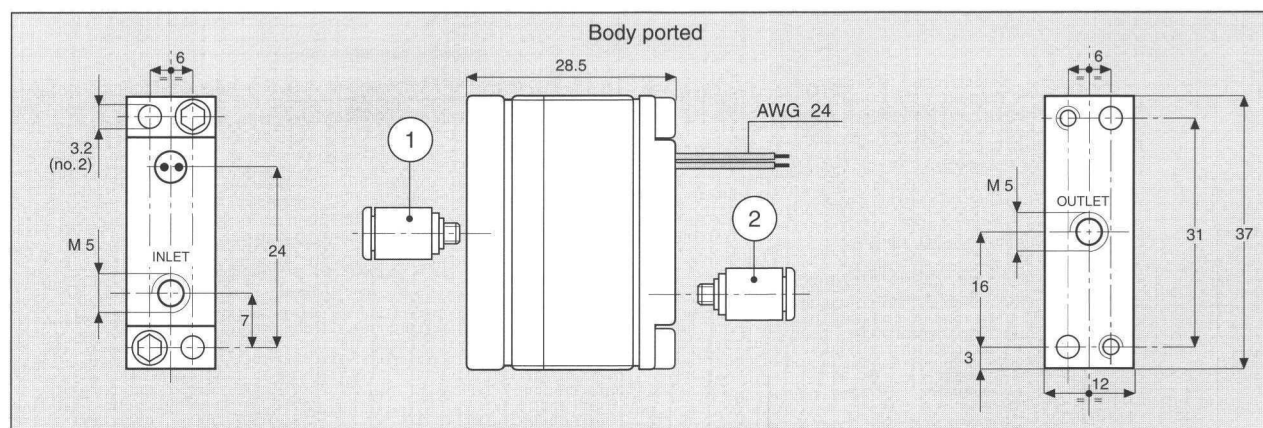
2	2/2
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● **CONTROL TENSION**

24	24 VDC ± 10 %	2.9 W
XX	Speed-up in current (24 VDC)	1.3 W
KK	Speed-up in tension (24 VDC)	0.8 W

● **OPERATING PRESSURE**

	RANGE	MODELS
0	2 - 8 bar	All
3	0 - 8 bar	M XX / KK
4	0 - 6 bar	All

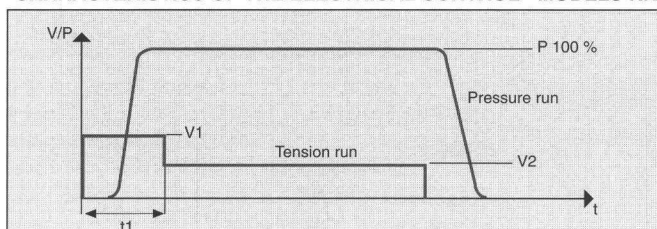


ACCESSORIES

Reference	Quantity	Description
1	1	PUSH-IN FITTING Ø 4/6
2	1	PUSH-IN FITTING Ø 4/6

NOTE: Inch size available

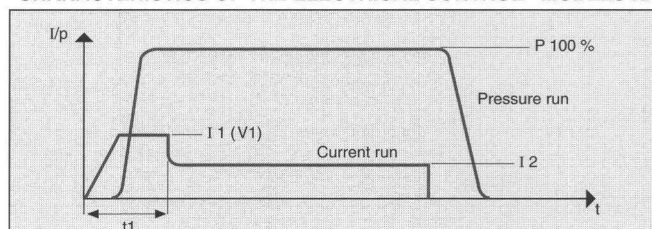
CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS KK



N.B. KK MODELS ARE CONTROLLED IN TENSION

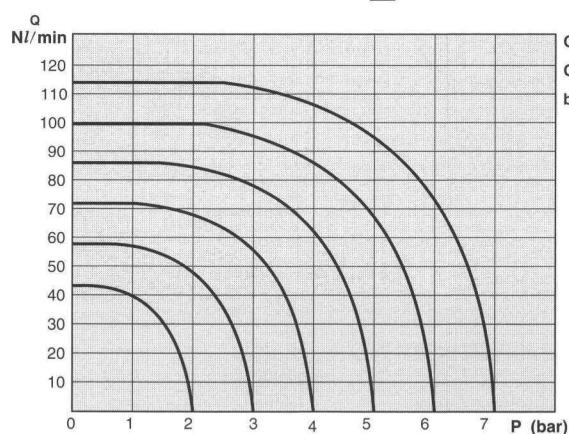
M	V 1 = 24 VDC	t 1 = 2.0 ms	V 2 = 5 VDC
N	V 1 = 24 VDC	t 1 = 2.0 ms	V 2 = 5 VDC
O	V 1 = 24 VDC	t 1 = 2.5 ms	V 2 = 5 VDC

CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS XX



N.B. XX MODELS ARE CONTROLLED IN CURRENT

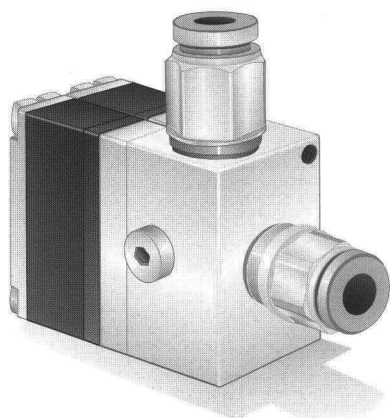
M	I 1 = 0.7 A	t 1 = 2 ms	I 2 = 0.3 A
N	I 1 = 0.8 A	t 1 = 2 ms	I 2 = 0.3 A
O	I 1 = 0.9 A	t 1 = 2 ms	I 2 = 0.3 A

FLOW RATE **M**

Qn = 73 NI/min

C = 15.7 NI/min bar

b = 0.433



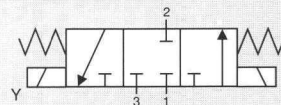
CONTROL:

DIRECT

PFM

PWM

N. 1 NC



GENERAL CHARACTERISTICS

FLUID	Non-lubricated dry air, neutral gases (-10 + 50°C)	
FILTRATION RATING	Min 40 micron	
TEMPERATURE	- 10 + 50°C (Standard version)	
RESPONSE TIME IN OPENING	24 < 6 ms	XX / KK < 3 ms
RESPONSE TIME IN CLOSING	24 < 2 ms	XX / KK < 1 ms
MAXIMUM FREQUENCY	100 Hz	200 Hz
WEIGHT	130 g	
PRODUCT LIFE EXPECTANCY	≥ 500 M/s cycle	
IP RATING	IP 62	

IDENTIFICATION CODE

G	M	K	8	2	1	2	0	1	C	3	24
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• OUTLETS	1 1 Outlet
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• FLOW RATE (at 6 bar)	<table border="1"> <tr> <td>M</td> <td>60 NI/min</td> </tr> <tr> <td>N</td> <td>90 NI/min (control tension XX KK)</td> </tr> <tr> <td>O</td> <td>120 NI/min (control tension XX KK)</td> </tr> </table>	M	60 NI/min	N	90 NI/min (control tension XX KK)	O	120 NI/min (control tension XX KK)
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N	90 NI/min (control tension XX KK)						
O	120 NI/min (control tension XX KK)						

• VERSION	G Body ported
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• No. ELECTRICAL CONTROLS	2 2 Controls
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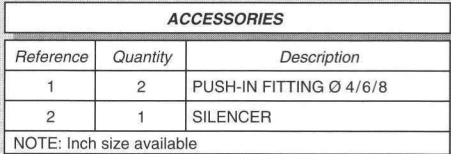
• PORT CONNECTION	<table border="1"> <tr> <td>0</td> <td>Integrated cables IP 62 L = 500 mm</td> </tr> <tr> <td>1</td> <td>Integrated cables IP 62 L = 100 mm</td> </tr> </table>	0	Integrated cables IP 62 L = 500 mm	1	Integrated cables IP 62 L = 100 mm
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1	Integrated cables IP 62 L = 100 mm				

• FUNCTION	C NC
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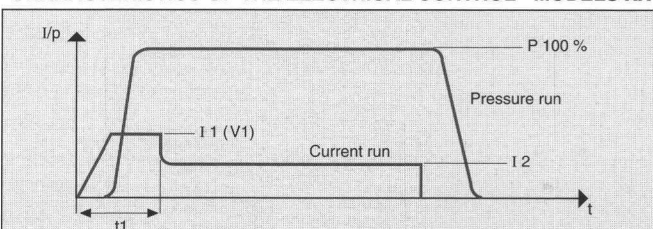
• TYPE	3 3/3
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• CONTROL TENSION	<table border="1"> <tr> <td>24</td> <td>24 VDC ± 10 %</td> <td>1.9 W</td> </tr> <tr> <td>XX</td> <td>Speed-up in current (24 VDC)</td> <td>1.3 W</td> </tr> <tr> <td>KK</td> <td>Speed-up in tension (24 VDC)</td> <td>0.8 W</td> </tr> </table>	24	24 VDC ± 10 %	1.9 W	XX	Speed-up in current (24 VDC)	1.3 W	KK	Speed-up in tension (24 VDC)	0.8 W
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• OPERATING PRESSURE	<table border="1"> <tr> <th></th> <th>RANGE</th> <th>MODELS</th> </tr> <tr> <td>1</td> <td>0 - 4 bar</td> <td>All</td> </tr> <tr> <td>3</td> <td>0 - 8 bar</td> <td>M XX / KK</td> </tr> </table>		RANGE	MODELS	1	0 - 4 bar	All	3	0 - 8 bar	M XX / KK
	RANGE	MODELS								
1	0 - 4 bar	All								
3	0 - 8 bar	M XX / KK								



CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS XX



N.B. XX MODELS ARE CONTROLLED IN CURRENT			
M	I 1 = 0.7 A	t 1 = 2 ms	I 2 = 0.3 A
N	I 1 = 0.8 A	t 1 = 2 ms	I 2 = 0.3 A
Q	I 1 = 0.9 A	t 1 = 2 ms	I 2 = 0.3 A

ACCESSORIES

Manifold - 820 Series

Manifolds for multiple installing represent a fast and safe system of connection for all 820 Series models. Manifolds are available in patterns for 4 and 8 solenoid valves. They come in a kit with fastening screws, inlet push-in fittings, closure plug and sealing O-Rings.

How to order manifolds - Available patterns

Pattern	Kit code	Y (mm)	Z (mm)
no. 4 Solenoid valves	820.041 B	70	60
no. 8 Solenoid valves	820.042 C	120	110

4 position manifold - Assembly scheme

