

890 Series



High Performance compact solenoid multi-valve | 2/2 NC
PNEUMATIC DIVISION

MATRIX
mechatronics

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Developed to satisfy the increasing needs of size reduction and performances optimization for important and technologically evolved industrial sectors such as textile, sorting and packaging, the new 890 Series offers high level technical characteristics and performances.

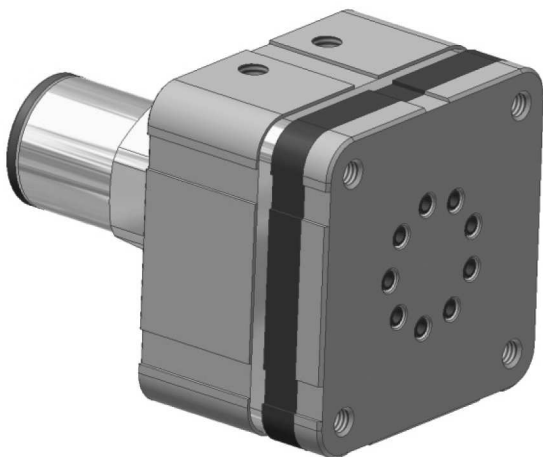
Matrix's technology applied in the 890 Series, in fact, grants extremely fast response times combined with minimum sizes, ideals for all the applications where the dimension and the actuation speed are critical factors.

Multi-shutters design modularity offers a high flexibility, both in terms of flow rate and of utilizations density, combined with the maintenance-free operating life of half a billion cycles typical of Matrix's products. These characteristics make the new 890 Series the ideal solutions even for the most demanding applications.

**Main Features**

- Compact dimensions and small footprint (46x46 mm)
- Light weight (160 - 250 g depending on models)
- Modular architecture design (1, 3, or 9 independent outlets)
- Multi-shutters proven technology (variable flowrate for improved flexibility)
- High performances (up to 800 Hz)
- Long operating life (half a billion cycles)
- Maintenance free





CONTROL:

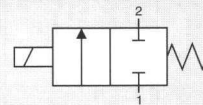
DIRECT

PFM

PNM

PWM

N. 9 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	160 g	
PRODUCT LIFE EXPECTANCY	≥ 500 M/s cycles	
IP RATING	IP 62	

IDENTIFICATION CODE

M X 8 9 0 9 0 0 C 2 24

OUTLETS

0 9 Outlets without interface

SINGLE OUTLET 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)

FUNCTION

C NC

TYPE

2 2/2

CONTROL TENSION

24	24 VDC ± 10 %	2.9 W ⁽¹⁾
XX	Speed-up in current (48 VDC)	1.3 W ⁽¹⁾
KK	Speed-up in tension (24 VDC)	0.8 W ⁽¹⁾

⁽¹⁾ Single shutter

OPERATING PRESSURE

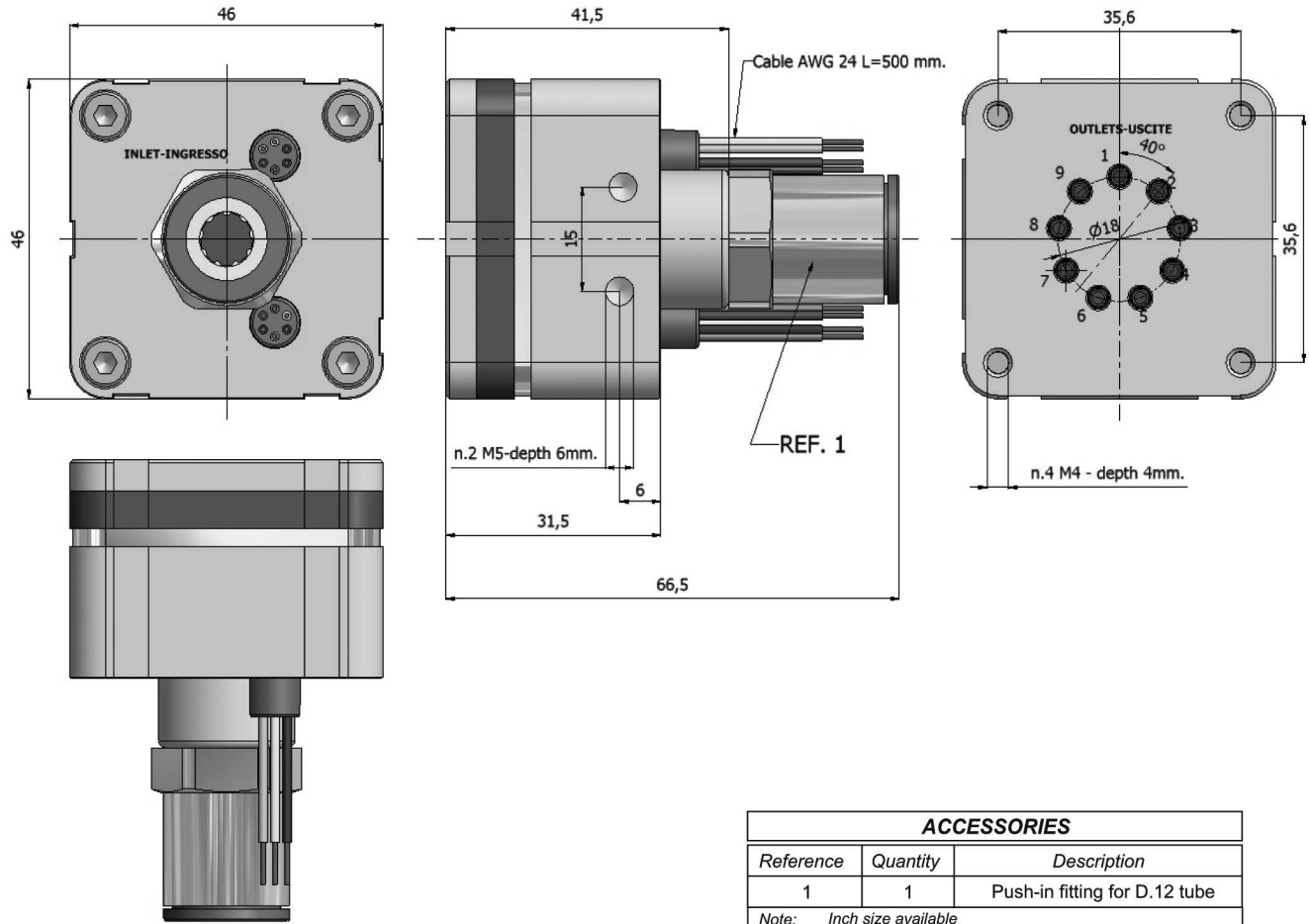
	RANGE	MODELS
0	2 - 8 bar	All

No. ELECTRICAL CONTROLS

1	1 Control (9 Outlets)
3	3 Controls (3 Outlets)
9	9 Controls (1 Outlet)

PORT CONNECTION

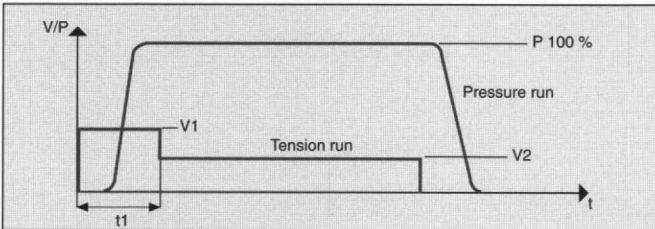
0 Integrated cables IP 62 L = 500 mm



ACCESSORIES		
Reference	Quantity	Description
1	1	Push-in fitting for D.12 tube

Note: Inch size available

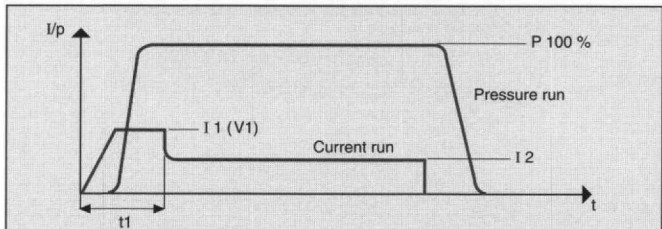
CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS KK



N.B. KK MODELS ARE CONTROLLED IN TENSION

M	V 1 = 24 VDC	t 1 = 2 ms	V 2 = 5 VDC
N	V 1 = 24 VDC	t 1 = 2 ms	V 2 = 5 VDC
O	V 1 = 24 VDC	t 1 = 3 ms	V 2 = 5 VDC

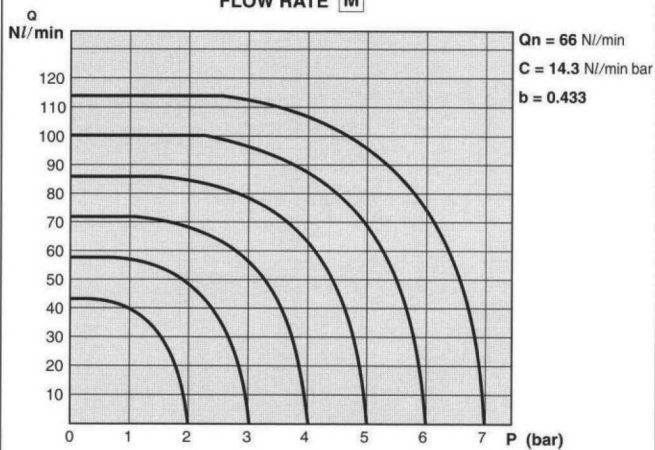
CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS XX



N.B. XX MODELS ARE CONTROLLED IN CURRENT

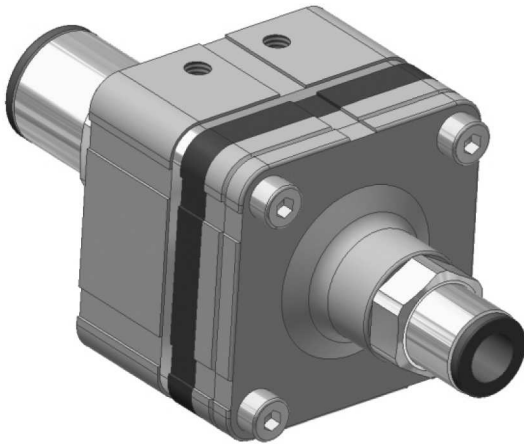
M	I 1 = 0.5 A	t 1 = 1.5 ms	I 2 = 0.2 A
N	I 1 = 0.8 A	t 1 = 1.5 ms	I 2 = 0.2 A
O	I 1 = 1.0 A	t 1 = 1.5 ms	I 2 = 0.3 A

FLOW RATE M



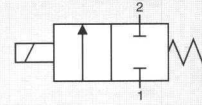
ELECTRICAL PORT CONNECTION

COLOUR	1 CONTROL	3 CONTROLS	9 CONTROLS
BLACK	COMMON	COMMON	COMMON
BROWN	—	1 - 2 - 9	1
RED	1 → 9	3 - 4 - 5	2
ORANGE	—	6 - 7 - 8	3
YELLOW	—	—	4
GREEN	—	—	5
BLUE	—	—	6
VIOLET	—	—	7
GREY	—	—	8
WHITE	—	—	9



CONTROL: DIRECT PFM PNM 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	260 g	
PRODUCT LIFE EXPECTANCY	≥ 500 M/s cycles	
IP RATING	IP 62	

IDENTIFICATION CODE

M

X

8

9

1

9

0

0

C

2

24

● **OUTLETS**

1 1 Outlet

● **MAXIMUM FLOW RATE** (at 6 bar)

M	900 NI / min
N	1260 NI / min (control tension XX KK)
O	1620 NI / min (control tension XX KK and Electrical control 3 9)

● **FUNCTION**

C NC

● **TYPE**

2 2/2

● **CONTROL TENSION**

24	24 VDC ± 10 %	2.9÷ 26.1W
XX	Speed-up in current (48 VDC)	1.3÷ 12.1W
KK	Speed-up in tension (24 VDC)	0.8÷ 7.6W

● **OPERATING PRESSURE**

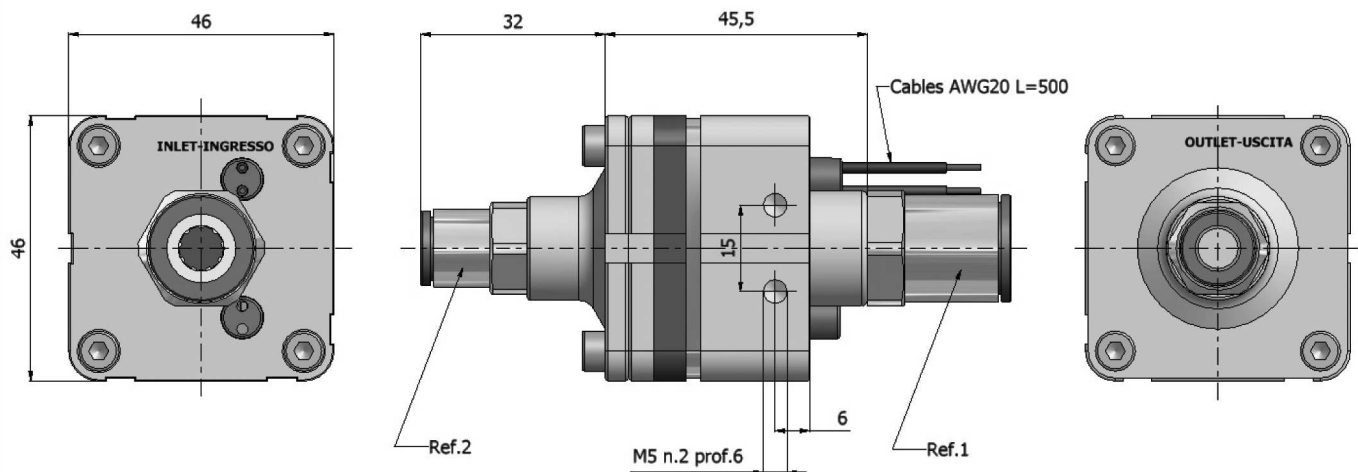
	RANGE	MODELS
0	2 - 8 bar	All

● **No. ELECTRICAL CONTROLS**

1	1 Control
3	3 Controls
9	9 Controls

● **PORT CONNECTION**

0 Integrated cables IP 62 L = 500 mm

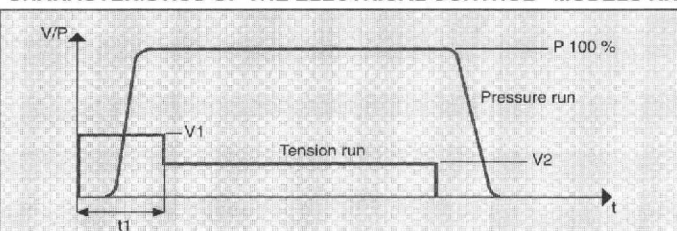


ACCESSORIES

Reference	Quantity	Description
1	1	Push-in fitting for D.12 tube
2	1	Push-in fitting for D.8 tube

Note: Inch size available

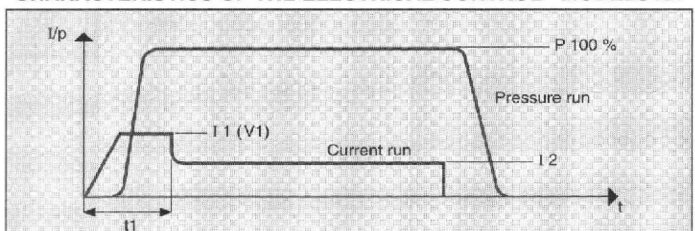
CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS KK



N.B. KK MODELS ARE CONTROLLED IN TENSION

M	V1 = 24 VDC	t1 = 3 ms	V2 = 5 VDC
N	V1 = 24 VDC	t1 = 4 ms	V2 = 5 VDC

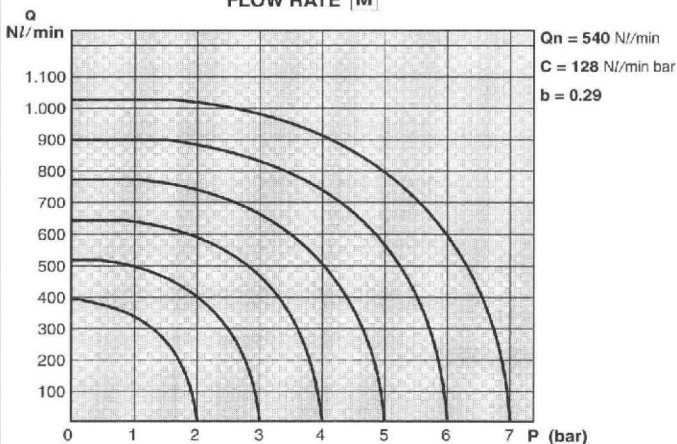
CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS XX



N.B. XX MODELS ARE CONTROLLED IN CURRENT

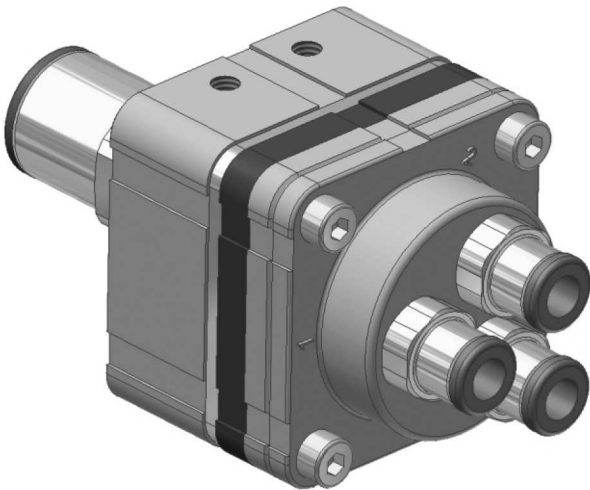
M	I1 = 3.5 A	t1 = 1.5 ms	I2 = 1 A
N	I1 = 4.0 A	t1 = 1.5 ms	I2 = 1 A

FLOW RATE [M]



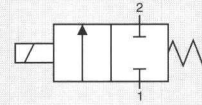
ELECTRICAL PORT CONNECTION

COLOUR	1 CONTROL	3 CONTROLS	9 CONTROLS
BLACK	COMMON	COMMON	COMMON
BROWN	—	1 - 2 - 9	1
RED	1 → 9	3 - 4 - 5	2
ORANGE	—	6 - 7 - 8	3
YELLOW	—	—	4
GREEN	—	—	5
BLUE	—	—	6
VIOLET	—	—	7
GREY	—	—	8
WHITE	—	—	9



CONTROL: DIRECT PFM PNM PWM

N. 3 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	250 g	
PRODUCT LIFE EXPECTANCY	≥ 500 M/s cycles	
IP RATING	IP 62	

IDENTIFICATION CODE

	M	X	8	9	3	3	0	0	C	2	24
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● **OUTLETS**

3	3 Outlets
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● **MAXIMUM FLOW RATE (at 6 bar)**

M	300 Nl / min
N	420 Nl / min (control tension XX KK)
O	520 Nl / min (control tension XX KK)

● **No. ELECTRICAL CONTROLS**

3	3 Controls
9	9 Controls

● **PORT CONNECTION**

0	Integrated cables IP 62 L = 500 mm
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● **FUNCTION**

C	NC
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● **TYPE**

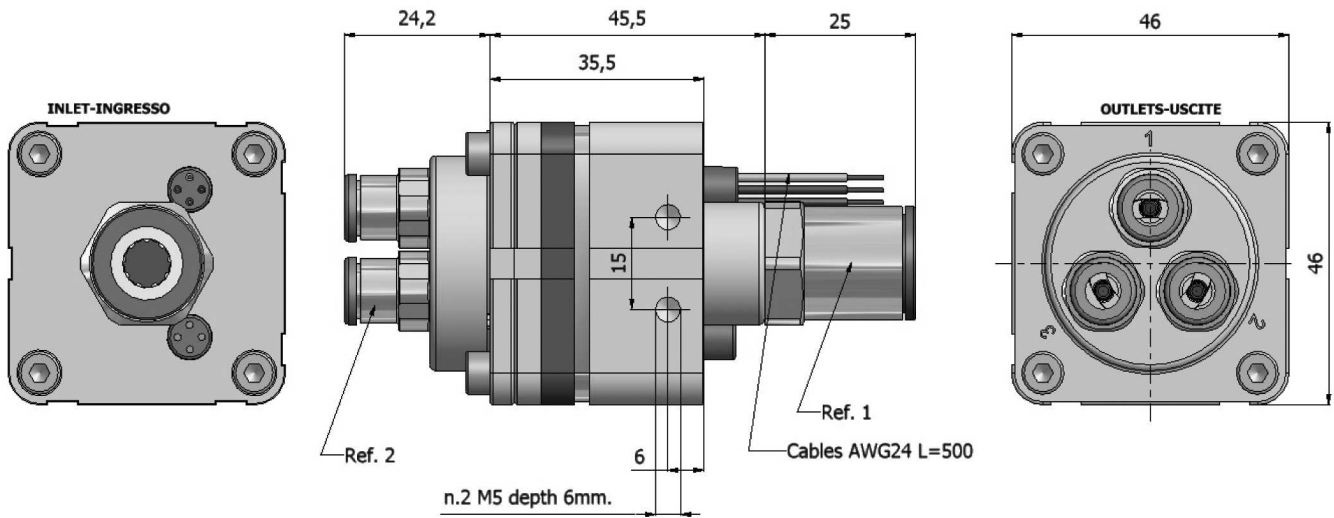
2	2/2
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● **CONTROL TENSION**

24	24 VDC ± 10 %	2.9 ÷ 8.7W
XX	Speed-up in current (48 VDC)	1.3 ÷ 4.0W
KK	Speed-up in tension (24 VDC)	0.8 ÷ 2.5W

● **OPERATING PRESSURE**

	RANGE	MODELS
0	2 - 8 bar	All

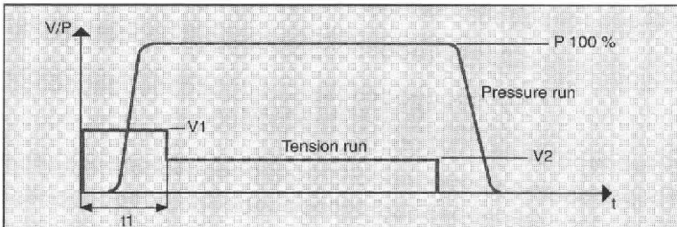


ACCESSORIES

Reference	Quantity	Description
1	1	Push-in fitting for D.12 tube
2	1	Push-in fitting for D.6 tube

Note: Inch size available

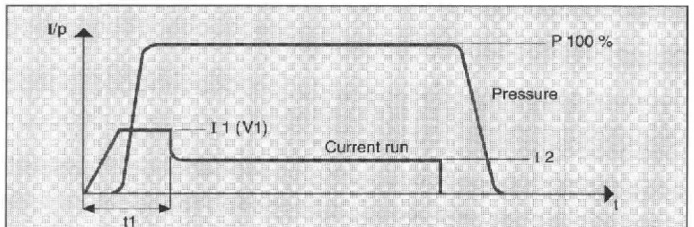
CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS KK



N.B. KK MODELS ARE CONTROLLED IN TENSION

M	V1 = 24 VDC	t1 = 2 ms	V2 = 5 VDC
N	V1 = 24 VDC	t1 = 2.5 ms	V2 = 5 VDC
O	V1 = 24 VDC	t1 = 3.5 ms	V2 = 5 VDC

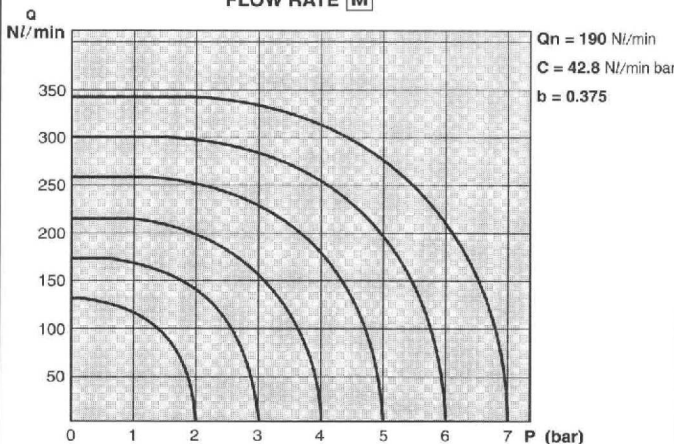
CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS XX



N.B. XX MODELS ARE CONTROLLED IN CURRENT

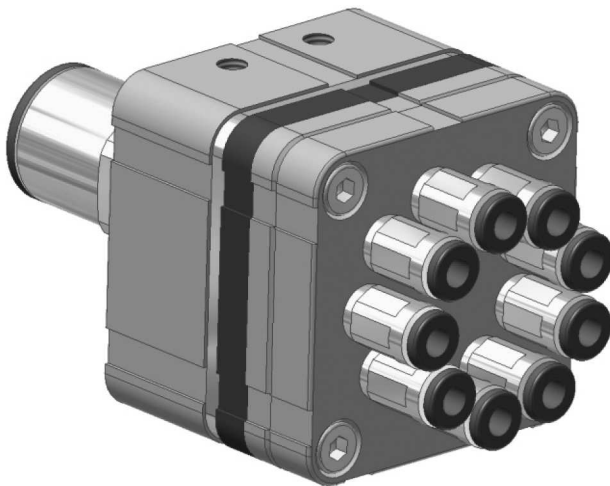
M	I1 = 1 A	t1 = 1.5 ms	I2 = 0.3 A
N	I1 = 1.5 A	t1 = 1.5 ms	I2 = 0.3 A
O	I1 = 2.8 A	t1 = 1.5 ms	I2 = 0.3 A

FLOW RATE [M]



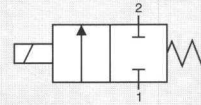
ELECTRICAL PORT CONNECTION

COLOUR	3 CONTROLS	9 CONTROLS (OUTLET)
BLACK	COMMON	COMMON
BROWN	1	1 (1)
RED	2	2 (1)
ORANGE	3	3 (2)
YELLOW	—	4 (2)
GREEN	—	5 (2)
BLUE	—	6 (3)
VIOLET	—	7 (3)
GREY	—	8 (3)
WHITE	—	9 (1)



CONTROL: DIRECT PFM PWM

N. 9 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	210 g	
PRODUCT LIFE EXPECTANCY	≥ 500 M/s cycles	
IP RATING	IP 62	

IDENTIFICATION CODE

M **X** **8** **9** **9** **9** **0** **0** **C** **2** **24**

• FLOW RATE (at 6 bar)

M	100 N/ / min
N	140 N/ / min (control tension <input type="checkbox"/> XX <input type="checkbox"/> KK)
O	180 N/ / min (control tension <input type="checkbox"/> XX <input type="checkbox"/> KK)

• OUTLETS

9 9 Outlets

• FUNCTION

C NC

• TYPE

2 2/2

• CONTROL TENSION

24	24 VDC ± 10%	2.9 W
XX	Speed-up in current (48 VDC)	1.3 W
KK	Speed-up in tension (24 VDC)	0.8 W

• OPERATING PRESSURE

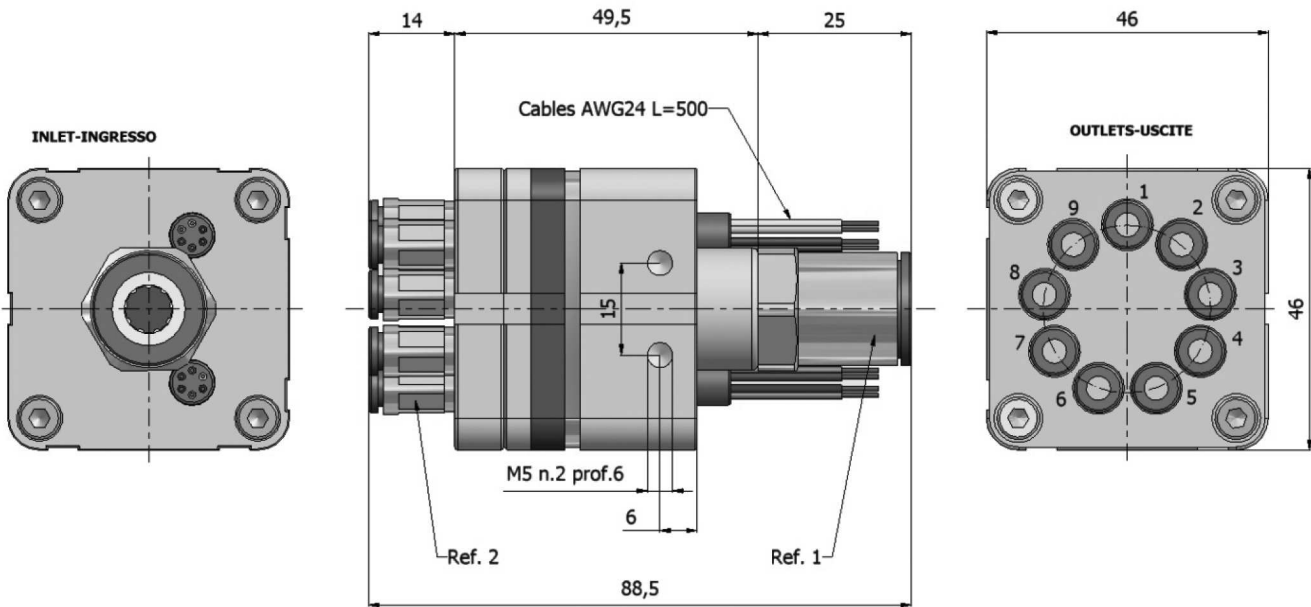
	RANGE	MODELS
0	2 - 8 bar	All

• No. ELECTRICAL CONTROLS

9 9 Controls

• PORT CONNECTION

0 Integrated cables IP 62 L = 500 mm

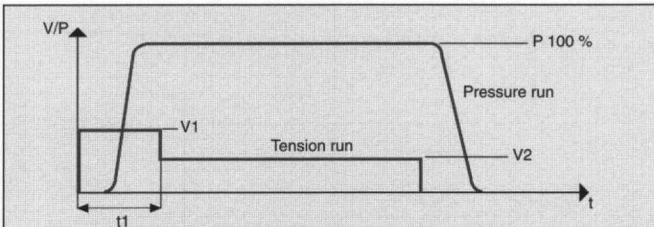


ACCESSORIES

Reference	Quantity	Description
1	1	Push-in fitting for D.12 tube
2	1	Push-in fitting for D.4 tube

Note: Inch size available

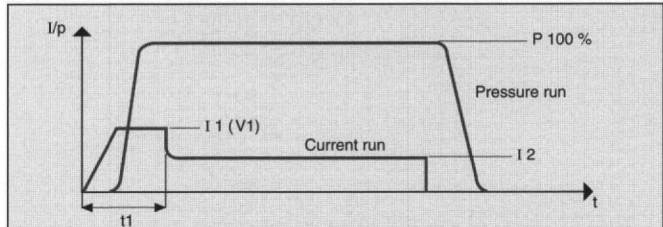
CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS KK



N.B. KK MODELS ARE CONTROLLED IN TENSION

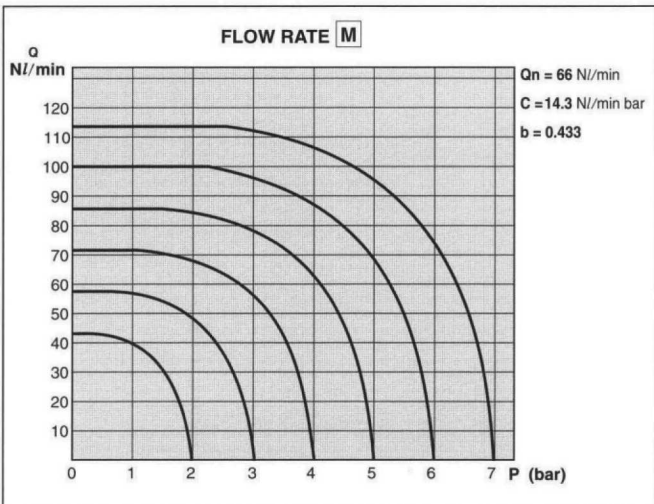
M	V 1 = 24 VDC	t 1 = 2 ms	V 2 = 5 VDC
N	V 1 = 24 VDC	t 1 = 2 ms	V 2 = 5 VDC
O	V 1 = 24 VDC	t 1 = 3 ms	V 2 = 5 VDC

CHARACTERISTICS OF THE ELECTRICAL CONTROL - MODELS XX



N.B. XX MODELS ARE CONTROLLED IN CURRENT

M	I 1 = 0.5 A	t 1 = 1.5 ms	I 2 = 0.2 A
N	I 1 = 0.8 A	t 1 = 1.5 ms	I 2 = 0.2 A
O	I 1 = 1.0 A	t 1 = 1.5 ms	I 2 = 0.3 A



ELECTRICAL PORT CONNECTION

COLOUR	9 CONTROLS
BLACK	COMMON
BROWN	1
RED	2
ORANGE	3
YELLOW	4
GREEN	5
BLUE	6
VIOLET	7
GREY	8
WHITE	9