

Алматы (7273)495-231
 Ангарск (3955)60-70-56
 Архангельск (8182)63-90-72
 Астрахань (8512)99-46-04
 Барнаул (3852)73-04-60
 Белгород (4722)40-23-64
 Благовещенск (4162)22-76-07
 Брянск (4832)59-03-52
 Владивосток (423)249-28-31
 Владикавказ (8672)28-90-48
 Владимир (4922)49-43-18
 Волгоград (844)278-03-48
 Вологда (8172)26-41-59
 Воронеж (473)204-51-73
 Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
 Ижевск (3412)26-03-58
 Иркутск (395)279-98-46
 Казань (843)206-01-48
 Калининград (4012)72-03-81
 Калуга (4842)92-23-67
 Кемерово (3842)65-04-62
 Киров (8332)68-02-04
 Коломна (4966)23-41-49
 Кострома (4942)77-07-48
 Краснодар (861)203-40-90
 Красноярск (391)204-63-61
 Курск (4712)77-13-04
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 Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
 Москва (495)268-04-70
 Мурманск (8152)59-64-93
 Набережные Челны (8552)20-53-41
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 Новокузнецк (3843)20-46-81
 Ноябрьск (3496)41-32-12
 Новосибирск (383)227-86-73
 Омск (3812)21-46-40
 Орел (4862)44-53-42
 Оренбург (3532)37-68-04
 Пенза (8412)22-31-16
 Петрозаводск (8142)55-98-37
 Псков (8112)59-10-37
 Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
 Рязань (4912)46-61-64
 Самара (846)206-03-16
 Санкт-Петербург (812)309-46-40
 Саратов (845)249-38-78
 Севастополь (8692)22-31-93
 Саранск (8342)22-96-24
 Симферополь (3652)67-13-56
 Смоленск (4812)29-41-54
 Сочи (862)225-72-31
 Ставрополь (8652)20-65-13
 Сургут (3462)77-98-35
 Сыктывкар (8212)25-95-17
 Тамбов (4752)50-40-97
 Тверь (4822)63-31-35

Тольятти (8482)63-91-07
 Томск (3822)98-41-53
 Тула (4872)33-79-87
 Тюмень (3452)66-21-18
 Ульяновск (8422)24-23-59
 Улан-Удэ (3012)59-97-51
 Уфа (347)229-48-12
 Хабаровск (4212)92-98-04
 Чебоксары (8352)28-53-07
 Челябинск (351)202-03-61
 Череповец (8202)49-02-64
 Чита (3022)38-34-83
 Якутск (4112)23-90-97
 Ярославль (4852)69-52-93

Россия +7(495)268-04-70

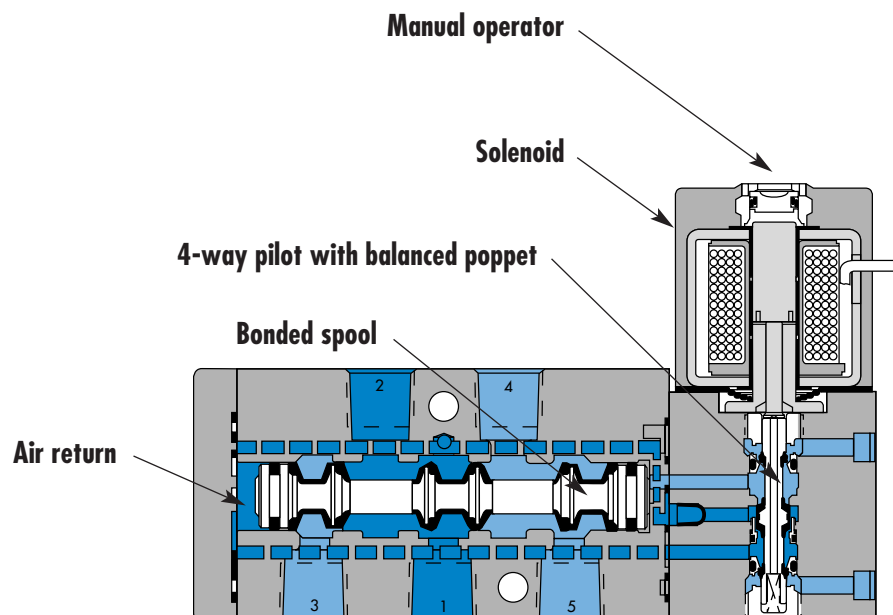
Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47

<https://mac.nt-rt.ru> || mcp@nt-rt.ru

Individual mounting

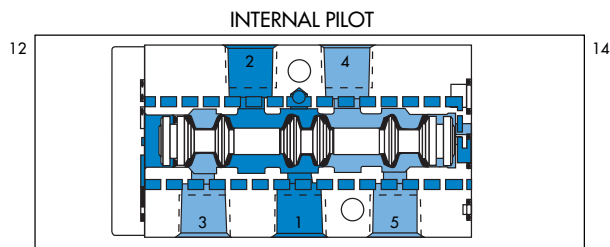
Inline	Sub-base non "plug-in"
--------	---------------------------



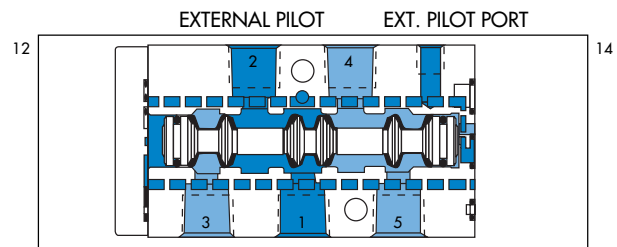
SERIES FEATURES

- Patented MACSOLENOID® for fastest possible response times and virtually burn-out proof AC solenoid operation.
- Optional low watt DC solenoids.
- Various manual operators.
- Optional memory spring.
- 2 position or 3 position valve configurations.
- Internal or external pilot.

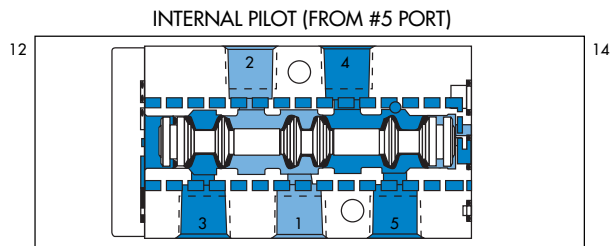
SPOOL CONFIGURATIONS



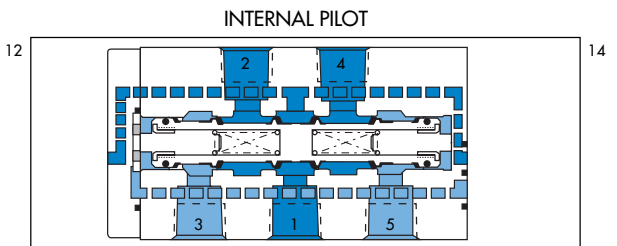
SINGLE OPERATOR - SINGLE INLET
SHOWN WITH 12 OPERATOR ENERGIZED



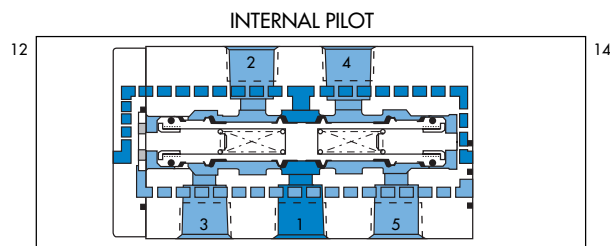
SINGLE OPERATOR - SINGLE INLET
SHOWN WITH 12 OPERATOR ENERGIZED



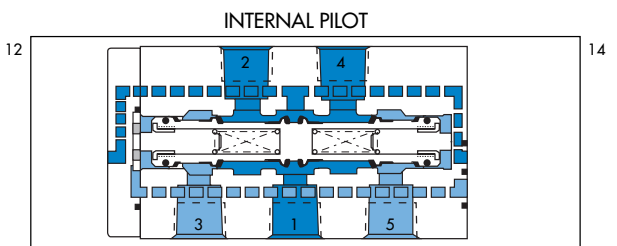
SINGLE OPERATOR - DUAL INLET
SHOWN WITH 12 OPERATOR ENERGIZED



3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER



3 POSITION PRESSURE CENTER

Function	Port size	Flow [Max]	Individual mounting	Series
5/2, 5/3	1/8" - 1/4"	1.0 C_v	Inline	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6. Wiping effect eliminates sticking.
7. Long service life.



33

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48P

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400

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93

ISO 01

ISO 02

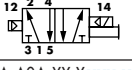
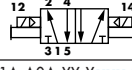
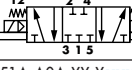
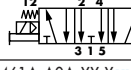
ISO 1

ISO 2

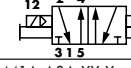
ISO 3

HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
						
1/8" NPTF	Internal	411A-A0A-XX-XXX-XXX	421A-A0A-XX-XXX-XXX	451A-A0A-XX-XXX-XXX	461A-A0A-XX-XXX-XXX	471A-A0A-XX-XXX-XXX
1/4" NPTF	Internal	411A-B0A-XX-XXX-XXX	421A-B0A-XX-XXX-XXX	451A-B0A-XX-XXX-XXX	461A-B0A-XX-XXX-XXX	471A-B0A-XX-XXX-XXX
1/8" NPTF	External	411A-A0B-XX-XXX-XXX	421A-A0B-XX-XXX-XXX	451A-A0B-XX-XXX-XXX	461A-A0B-XX-XXX-XXX	471A-A0B-XX-XXX-XXX
1/4" NPTF	External	411A-B0B-XX-XXX-XXX	421A-B0B-XX-XXX-XXX	451A-B0B-XX-XXX-XXX	461A-B0B-XX-XXX-XXX	471A-B0B-XX-XXX-XXX

DUAL PRESSURE MODELS (INTERNAL PILOT – PILOT PRESSURE SUPPLY FROM #5 PORT)

Port size	Pilot air	5/2 Single operator	5/2 Double operator
			
1/8" NPTF	Internal	431A-A0A-XX-XXX-XXX	441A-A0A-XX-XXX-XXX
1/4" NPTF	Internal	431A-B0A-XX-XXX-XXX	441A-B0A-XX-XXX-XXX
1/8" NPTF	External	431A-A0B-XX-XXX-XXX	441A-A0B-XX-XXX-XXX
1/4" NPTF	External	431A-B0B-XX-XXX-XXX	441A-B0B-XX-XXX-XXX

SOLENOID OPERATOR ➤

DM-D XXX-XXX*

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
JA 110/50, 120/60 (2.9W)	A 18" (Flying leads)	1 Non-locking recessed	KA Square connector
JB 220/50, 240/60 (2.9W)	B 24" (Flying leads)	2 Locking recessed	KD Square connector with light
JC 24/60 (2.9W)	J Connector		JB Rectangular connector
FB 24 VDC (1.8W)			JD Rectangular connector with light
DA 24 VDC (5.4W)			BA Flying leads
DF 24 VDC (12.7W)			

SOLENOID OPERATOR ➤

GM-G XXX-XXX**

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
DC 24VDC (1.8W)	A 18"	1 Non-locking recessed	BA Flying leads
DD 24VDC (2.5W)	B 24"	2 Locking recessed	BT Flying leads with light
DF 24VDC (4.0W)	C 36"		KA Plug-in wire Assy.
			KT Plug-in wire Assy. with light

* Other options available, see page 309.

** Other options available, see page 313.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot – 2 pos. : 20 to 120 PSI (with memory spring: 30 to 120 PSI) 3 pos.: 35 to 120 PSI External pilot : vacuum to 120 PSI
Pilot pressure :	2 position: 20 to 120 PSI (with memory spring: 30 to 120 PSI) 3 position: 35 to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to +50°C)
Flow :	1.0 C _v
Coil :	Class A continuous duty, #22 AWG x 12 leads wires
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V= / 5.4W Energize : 7.3 ms De-energize : 5.3 ms 120/60 Energize : 8-12 ms De-energize : 7-11 ms

Options :

- BSPP threads • Namur interface (specify mod. 1080 after model)

411A-A0A-XX-XXX-XXX

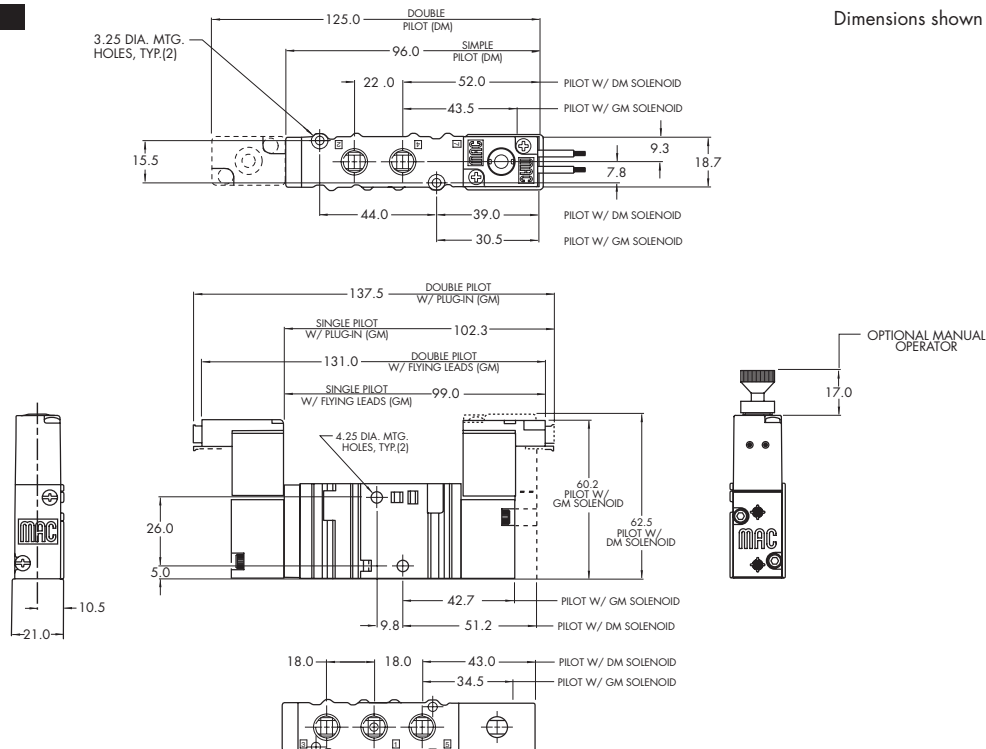
- Dual pressure models, replace by **C** for pilot supply from #3 port
- For memory spring, replace by **4** (single operator models only)
- Replace by **8** for 3 position dual pressure, pressure center

Spare parts :

- DM pilot body pressure seal: 16542 • DM pilot spacer plate: 24168-01.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Individual mounting	Series
5/2, 5/3	1/8" - 1/4"	1.0 C_v	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

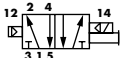
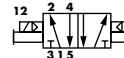
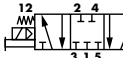
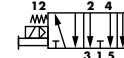
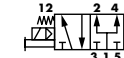
1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6. Wiping effect eliminates sticking.
7. Long service life.



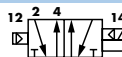
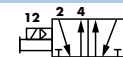
33
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48P

HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
						
Valve only	Internal	413A-00A-XX-XXX-XXX	423A-00A-XX-XXX-XXX	453A-00A-XX-XXX-XXX	463A-00A-XX-XXX-XXX	473A-00A-XX-XXX-XXX
	External	413A-00D-XX-XXX-XXX	423A-00D-XX-XXX-XXX	453A-00D-XX-XXX-XXX	463A-00D-XX-XXX-XXX	473A-00D-XX-XXX-XXX
1/8" NPTF	Internal	413A-AAA-XX-XXX-XXX	423A-AAA-XX-XXX-XXX	453A-AAA-XX-XXX-XXX	463A-AAA-XX-XXX-XXX	473A-AAA-XX-XXX-XXX
1/4" NPTF		413A-BAA-XX-XXX-XXX	423A-BAA-XX-XXX-XXX	453A-BAA-XX-XXX-XXX	463A-BAA-XX-XXX-XXX	473A-BAA-XX-XXX-XXX
1/8" NPTF	External	413A-AAD-XX-XXX-XXX	423A-AAD-XX-XXX-XXX	453A-AAD-XX-XXX-XXX	463A-AAD-XX-XXX-XXX	473A-AAD-XX-XXX-XXX
1/4" NPTF		413A-BAD-XX-XXX-XXX	423A-BAD-XX-XXX-XXX	453A-BAD-XX-XXX-XXX	463A-BAD-XX-XXX-XXX	473A-BAD-XX-XXX-XXX

DUAL PRESSURE MODELS (INTERNAL PILOT – PILOT PRESSURE SUPPLY FROM #5 PORT)

Port size	Pilot air	5/2 Single operator	5/2 Double operator
			
Valve only	Internal	433A-00A-XX-XXX-XXX	443A-00A-XX-XXX-XXX
	External	433A-00D-XX-XXX-XXX	443A-00D-XX-XXX-XXX
1/8" NPTF	Internal	433A-AAA-XX-XXX-XXX	443A-AAA-XX-XXX-XXX
1/4" NPTF		433A-BAA-XX-XXX-XXX	443A-BAA-XX-XXX-XXX
1/8" NPTF	External	433A-AAD-XX-XXX-XXX	443A-AAD-XX-XXX-XXX
1/4" NPTF		433A-BAD-XX-XXX-XXX	443A-BAD-XX-XXX-XXX

48
400
92
93

SOLENOID OPERATOR ➤

DM-D XXX-XXX*

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
JA 110/50, 120/60 (2.9W)	A 18" (Flying leads)	1 Non-locking recessed	KA Square connector
JB 220/50, 240/60 (2.9W)	B 24" (Flying leads)	2 Locking recessed	KD Square connector with light
JC 24/60 (2.9W)	J Connector		JB Rectangular connector
FB 24 VDC (1.8W)			JD Rectangular connector with light
DA 24 VDC (5.4W)			BA Flying leads
DF 24 VDC (12.7W)			

ISO 01
ISO 02
ISO 1
ISO 2
ISO 3

SOLENOID OPERATOR ➤

GM-G XXX-XXX**

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
DC 24VDC (1.8W)	A 18"	1 Non-locking recessed	BA Flying leads
DD 24VDC (2.5W)	B 24"	2 Locking recessed	BT Flying leads with light
DF 24VDC (4.0W)	C 36"		KA Plug-in wire assy.
			KT Plug-in wire assy. with light

* Other options available, see page 309.
** Other options available, see page 313.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot – 2 pos. : 20 to 120 PSI (with memory spring: 30 to 120 PSI) 3 pos.: 35 to 120 PSI External pilot : vacuum to 120 PSI
Pilot pressure :	2 position: 20 to 120 PSI (with memory spring: 30 to 120 PSI) 3 position: 35 to 120 PSI
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)
Filtration :	40 µ
Temperature range :	0°F to 120°F (-18°C to +50°C)
Flow :	1.0 C _v
Coil :	Class A continuous duty, #22 AWG x 12 leads wires
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V=/5.4W Energize : 7.3 ms De-energize : 5.3 ms 120/60 Energize : 8-12 ms De-energize : 7-11 ms

Options :

- BSPP threads

413A-AAA-XX-XXXX-XXX

- Dual pressure models, replace by **C** for pilot supply from #3 port
- For flow control, replace by **B**
- For memory spring, replace by **6**

Base only :

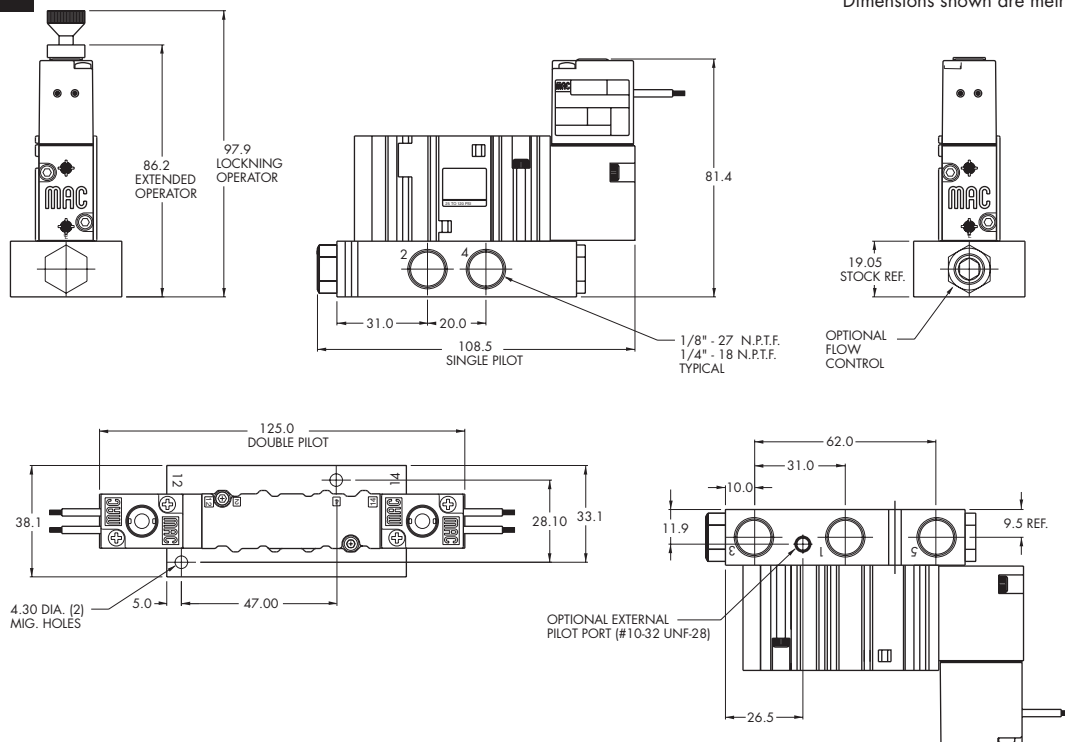
400A-XXX
(i.e. 400A-AAA)

Spare parts :

- Body to base seal: 16525 • Flow control assembly: N-04001 • Body mounting screws (x2): 35043.

DIMENSIONS

Dimensions shown are metric (mm)





Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ➤ **-DM- D XX X-X XX**
1 2 3 4

OPTIONS AVAILABLE FOR

- Pilot operated valves 52, 67, 92, 93, 400, ISO1, ISO2, ISO3 Series

1. VOLTAGE

D-XX X-X XX	VOLTAGE
DA	24 VDC (5.4W)
DB	12 VDC (5.4W)
DC	12 VDC (7.5W)
DD	24 VDC (7.3W)
DE	12 VDC (12.7W)
DF	24 VDC (12.7W)
DK	110 VDC (4.7W)
DJ	28 VDC (5.2W)
DL	64 VDC (6.0W)
DM	36 VDC (5.3W)
DN	6 VDC (6.0W)
DR	90 VDC (6.6W)
DS	110 VDC (7.3W)
DT	75 VDC (5.6W)
DP	48 VDC (5.8W)
FA	12 VDC (1.8W)
FB	24 VDC (1.8W)
FE	12 VDC (2.4W)
FF	24 VDC (2.4W)
JA	120/60, 110/50 (2.9W)
JB	240/60, 220/50 (2.9W)
JC	24/60, 24/50 (3.7W)
JD	100/60, 100/50, 110/60 (3.9W)
JE	220/60 (3.4W)
JF	240/50 (2.8W)
JG	200/60, 200/50 (3.9W)

2. WIRE LENGTH

D-XX X-X XX	WIRE LENGTH
O	No wires
A	18"
B	24"
C	36"
D	48"
E	72"
F	96"

3. MANUAL OPERATOR

D-XX X-X XX	MANUAL OPERATOR
0	No operator
1	Non-locking recessed
2	Locking recessed
3	Non-locking extended
4	Locking extended

4. ELECTRICAL CONNECTION

D-XX X-X XX	ELECTRICAL CONNECTION
BA*	Flying leads (grommet)
BK*	BA with protection diode
BL*	BA with protection varistor
BM**	Flying leads (solenoid plug-in)
BN**	BM with protection diode
BP**	BM with protection varistor
BG**	BM with ground
BH**	BM with protection diode & ground
BJ**	BM with protection varistor & ground
CA*	1/2" NPS conduit with flying leads
CM*	1/2" NPS metal conduit with flying leads
CN*	1/2" NPS metal conduit with flying leads & ground
JB	Rectangular connector
JD	JB with light
JM	Rectangular connector (male only)
KA	Mini square connector
KB	KA with protection diode
KC	KA with protection varistor
KD	KA with light
KE	KA with light and protection diode
KF	KA with light and protection varistor
KG	KA with light & diode
KJ	Mini square connector (male only)
KK	KJ with protection diode (male only)
KL	KJ with protection varistor (male only)
TA	Dual tabs with receptacles
TB	TA with protection diode
TD	TA with light
TE	TA with light and protection diode
TJ	Dual tabs (male only)
TK	TJ with protection diode
TM	TJ with light
TN	TJ with light and protection diode

* From Lead wire length options choose A through F

** From Lead wire length options choose O through F

Note: When coil is above 30 volts, a ground wire is required. Applies to options with flying leads.



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ➤ **-GM- G XX X-X XX**
1 2 3 4

OPTIONS AVAILABLE FOR

- Solenoid valves 52 & 400 Series

1. VOLTAGE		4. ELECTRICAL CONNECTION	
G-XX X-X XX	VOLTAGE	G-XX X-X XX	ELECTRICAL CONNECTION
DC	24 VDC (1.8 W)	BA	Flying leads
DD	24 VDC (2.5 W)	BB	BA with ground wire
DE	24 VDC (3.0 W)	BC	BA with light parallel to leads
DF	24 VDC (4.0 W)	BD	BA with light parallel to leads & ground wire
DJ	12 VDC (1.8 W)	BE	BA with suppression diode
DK	12 VDC (2.5 W)	BF	BA with suppression diode & ground wire
DM	12 VDC (3.0 W)	BG	BA with suppression diode plus light parallel to leads
DN	12 VDC (4.0 W)	BH	BA with suppression diode plus light parallel to leads & ground wire
2. WIRE LENGTH		*BN	BA with suppression diode plus blocking diode
G-XX X-X XX	WIRE LENGTH	*BP	BA with suppression diode plus blocking diode & ground wire
O	No lead wire (use only with "KJ" & "KM" electrical connectors)	*BR	BA with suppression diode plus blocking diode & light parallel to leads
A	18"	*BS	BA with suppression diode plus blocking diode & light parallel to leads & ground wire
B	24"	BT	BA with light on top
C	36"	BU	BA with light on top & ground wire
D	48"	BV	BA with suppression diode plus light on top
E	72"	BW	BA with suppression diode plus light on top & ground wire
F	96"	*BX	BA with suppression diode plus blocking diode & light on top
G	120"	*BY	BA with suppression diode plus blocking diode & light on top & ground wire
H	144"		
3. MANUAL OPERATOR		G-XX X-X XX	SOLENOID PLUG-IN CONNECTOR WITH LEADS
G-XX X-X XX	MANUAL OPERATOR	GA	MAC JAC Solenoid plug-in
1	Non-locking recessed	GB	MAC JAC Solenoid plug-in w/Diode
2	Locking recessed	GC	MAC JAC Solenoid plug-in w/MOV
3	Non-locking extended	GD	MAC JAC Solenoid plug-in w/LED
4	Locking extended	GE	MAC JAC Solenoid plug-in w/Diode & LED
		GF	MAC JAC Solenoid plug-in w/MOV & LED
		GG	MAC JAC Solenoid plug-in w/Rectifier
		GH	MAC JAC Solenoid plug-in w/Rectifier & LED
		KA	Plug-in wire assembly
		KB	KA with ground wire
		KE	KA with suppression diode
		KF	KA with suppression diode & ground wire
		KJ	Plug-in housing without wire assembly ('KA' without wire assembly)
		KM	Plug-in housing without wire assembly ('KB' without wire assembly)
		*KN	KA with suppression diode plus blocking diode
		*KP	KA with suppression diode plus blocking diode & ground wire
		KT	KA with light on top
		KU	KA with light on top & ground wire
		KV	KA with suppression diode plus light on top
		KW	KA with suppression diode plus light & ground wire
		*KX	KA with suppression diode plus blocking diode & light on top
		*KY	KA with suppression diode plus blocking diode & light on top & ground wire

Note: Blocking diode is located in the lead wire

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