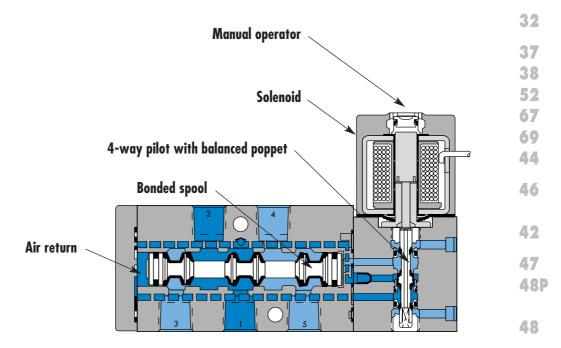


Individual mounting Sub-base non "plug-in" Sub-base non "plug-in"



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.

92

33 34

36

93

ISO 01

ISO 02

ISO 1

ISO 2

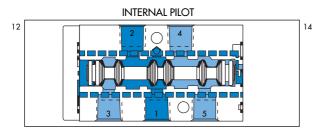
ISO 3







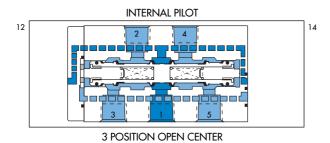
SPOOL CONFIGURATIONS



SINGLE OPERATOR - SINGLE INLET SHOWN WITH 12 OPERATOR ENERGIZED

INTERNAL PILOT (FROM #5 PORT) 12 14

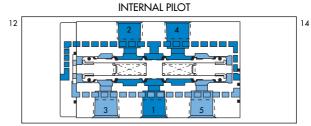
SINGLE OPERATOR - DUAL INLET SHOWN WITH 12 OPERATOR ENERGIZED



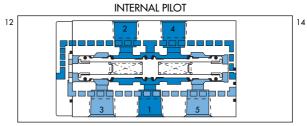
EXTERNAL PILOT EXT. PILOT PORT

12

SINGLE OPERATOR - SINGLE INLET SHOWN WITH 12 OPERATOR ENERGIZED



3 POSITION CLOSED CENTER



3 POSITION PRESSURE CENTER



Direct solenoid and solenoid pilot operated valves

unction		Port size	Flow (Max)		Individual mounting		Series
5/2, 5/3		1/8" - 1/4"	1.0 C _V		Inline		
PERATIONAL BEI	NEFITS						33
. The 4-way pilo		aximum shifting					34
forces both wo . Memory spring . Balanced spoo pressure, also	g available. ol, immune to v provides high				6	001	36
in a glass-like	with minimum finished bore.	friction, shifting			0		32
Wiping effect Long service li		king.			Ne.	0	37
					THE PARTY OF THE P	1	38
					30		52
HOW TO ORD	ER						67
NGIF PRESS	<u>-</u>	IS					69
Port size	Pilot air	5/2	5/2	5/3	5/3	5/3	44
		Single operator	Double operator	Closed center	Open center	Pressure center	4.7
		315	12 17 17 17 17 14 14 17 14 17 14 17 17 17 17	12 2 4 14 			46
1/8" NPTF	Internal	411A-A0A-XX-X xxx-xxx	421A-A0A-XX-X xxx-xxx	451A-A0A-XX-X xxx-xxx	461A-A0A-XX-X xxx-xxx	471A-A0A-XX-X xxx-xxx	40
1/4" NPTF	- <u> </u>	411A-BOA-XX-XXXX-XXX 411A-AOB-XX-XXXXXXXXXXXX	421A-B0A-XX-XXXX-XXX	451A-BOA-XX-XXXX-XXX 451A-AOB-XX-XXXXXXXXXXX	461A-B0A-XX-XXXX-XXX	471A-B0A-XX-XXXX-XXX 471A-A0B-XX-XXXX-XXX	42
- /0// NIDEE			421A-A0B-XX-X xxx-xxx		461A-A0B-XX-X XXX-XXX	4/ I A-AUB-XX-X XXX -XXX	
1/8" NPTF	External -						47
1/4" NPTF	- 	411A-B0B-XX-X xxx-xxx	421A-B0B-XX-X xxx-xxx	451A-B0B-XX-X xxx-xxx	461A-B0B-XX-X xxx-xxx	471A-B0B-XX-X xxx - xxx	47 48P
1/4" NPTF UAL PRESSUR	re models	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT — PI	421A-B0B-XX-X xxx-xxx	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT)	461A-BOB-XX-X <i>xxx-xxx</i>	471A-B0B-XX-X xxx-xxx	
1/4" NPTF	re models	411A-B0B-XX-X xxx-xxx	421A-B0B-XX-XXXX-XXX LOT PRESSURE SUPPL	451A-B0B-XX-X xxx-xxx	461A-BOB-XX-XXXX-XXX		
1/4" NPTF Jal Pressur	re models	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT — PI	421A-B0B-XX-XXXX-XXX LOT PRESSURE SUPPL	451A-B0B-XX-XXXX-XXX Y FROM #5 PORT) 5/2	461A-BOB-XX-XXXX-XXX	471A-B0B-XX-X xxx-xxx	48P
JAL PRESSUR Port size	RE MODELS	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air	421A-B0B-XX-XXXX-XXX LOT PRESSURE SUPPL	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2 4 14 115	461A-BOB-XX-XXXX-XXX Double	471A-B0B-XX-XXXX-XXX 5/2 e operator 14 15 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	48P
JAL PRESSUR Port size	RE MODELS	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT — PI	421A-B0B-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 12 13 431A-A	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2 4 14 151.5 100A-XX-XXXX-XXX	461A-BOB-XX-XXXX-XXX Double 12 2 17 7 31 441A-AOA	471A-B0B-XX-Xxxx-xxx 5/2 coperator 4	48P 48 400
JAL PRESSUR Port size	RE MODELS	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 12 431A-A 431A-A	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2 4 14 115	461A-BOB-XX-XXXX-XXXX Double 12 2 17/25 31 441A-AOA 441A-BOA	471A-B0B-XX-XXXX-XXX 5/2 e operator 14 15 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	48P 48
1/4" NPTF JAL PRESSUR Port size 1/8" NP1 1/4" NP1	RE MODELS	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal	421A-B0B-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 12 431A-A 431A-A 431A-B	451A-BOB-XX-XXXX-XXX Y FROM #5 PORT) 5/2 gle operator 2 4 11 5 11 5 10A-XX-XXXX-XXX	461A-BOB-XX-XXXX-XXX Double 12 2 12 13 441A-AOA 441A-BOA 441A-AOB	471 A-BOB-XX-XXXX-XXX 5/2 coperator 4 14 371 5-XX-XXXX-XXX -XX-XXXX-XXX	48P 48 400
1/4" NPTF JAL PRESSUR Port size 1/8" NP1 1/4" NP1 1/4" NP1	RE MODELS IF IF IF IF	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External	421A-B0B-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 12 431A-A 431A-A 431A-B	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2/4 14 151.5 10A-XX-XXXX-XXX 10A-XX-XXXX-XXX 10B-XX-XXXX-XXX 10B-XX-XXXX-XXX 10B-XX-XXXX-XXX	461A-BOB-XX-XXXX-XXX Double 12 2 12 13 441A-AOA 441A-BOA 441A-AOB	471 A-B0B-XX-Xxxx-xxx 5/2 coperator 4 14 37/1 5-XX-Xxxx-xxx -XX-Xxxx-xxx -XX-Xxxx-xxx	48P 48 400
1/4" NPTF UAL PRESSUR Port size 1/8" NP1 1/4" NP1 1/4" NP1	RE MODELS IF IF IF IF	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External	421A-B0B-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 431A-A 431A-B 431A-B 431A-B	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2/4 14 151.5 10A-XX-XXXX-XXX 10A-XX-XXXX-XXX 10B-XX-XXXX-XXX 10B-XX-XXXX-XXX 10B-XX-XXXX-XXX	461A-BOB-XX-XXXX-XXX Double 12 2 12 13 441A-AOA 441A-BOA 441A-AOB	471 A-B0B-XX-Xxxx-xxx 5/2 coperator 4 14 37/1 5-XX-Xxxx-xxx -XX-Xxxx-xxx -XX-Xxxx-xxx	48P 48 400 92 93
1/4" NPTF JAL PRESSUR Port size 1/8" NP1 1/4" NP1 1/4" NP1	RE MODELS IF IF FF PERATOR >	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External	421A-B0B-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 431A-A 431A-B 431A-B 431A-B	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2/4 14 151.5 10A-XX-XXXX-XXX 10A-XX-XXXX-XXX 10B-XX-XXXX-XXX 10B-XX-XXXX-XXX 10B-XX-XXXX-XXX	461A-BOB-XX-XXXX-XXX Double 12 2 441A-AOA 441A-BOA 441A-AOB 441A-BOB	471 A-B0B-XX-Xxxx-xxx 5/2 coperator 4 14 37/1 5-XX-Xxxx-xxx -XX-Xxxx-xxx -XX-Xxxx-xxx	48P 48 400 92 93 ISO
1/4" NPTF JAL PRESSUR Port size 1/8" NP1 1/4" NP1 1/4" NP1 1/4" NP1 OLENOID OF	RE MODELS IF IF PERATOR >	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External X Wire PW) A 18" (F	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 431A-A 431A-A 431A-B DM-D XXX- Plength Elying leads)	451A-BOB-XX-XXXX-XXX Y FROM #5 PORT) 5/2 gle operator 2/4 11/2 11/2 11/2 11/2 11/2 11/2 11/2	461A-BOB-XX-XXXX-XXX Double 12 2 441A-AOA 441A-BOA 441A-BOB 441A-BOB 441A-BOB	471 A-BOB-XX-XXXX-XXX 5/2 coperator 4 14 371 S-XX-XXXX-XXX -XX-XXXX-XXX -XX-XXXX-XX	48P 48 400 92 93 ISO (150)
1/4" NPTF JAL PRESSUR Port size 1/8" NPT 1/4" NPT 1/4" NPT 1/4" NPT DLENOID OF	RE MODELS FIF FIF PERATOR >	411A-BOB-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External X Wire PW) A 18" (F	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 431A-A 431A-A 431A-B DM-D XXX- Plength Hying leads) Hying leads)	451A-BOB-XX-XXXX-XXX Y FROM #5 PORT) 5/2 gle operator 2 4 14 15 15 15 10A-XX-XXXX-XXX 10A-XX-XXXX 10A-XXXX	461A-BOB-XX-XXXX-XXX Double 12 2 31 441A-AOA 441A-BOA 441A-BOB 441A-BOB 441A-BOB 664 675 676 676 676 676 676 676 676 676 676	471A-B0B-XX-Xxxx-xxx 5/2 coperator	48P 48 400 92 93 ISO (150)
1/4" NPTF UAL PRESSUR Port size 1/8" NP1 1/4" NP1 1/4" NP1 1/4" NP1 OLENOID OF XX Voit JA 110/3 JB 220/3 JC 24/66 FB 24 VD	RE MODELS RE MODELS RE FOR SERVICE AND ADDRESS OF SERVICE AND ADDR	A11A-B0B-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External X Wire PW) A 18" (F PW) B 24" (F	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 431A-A 431A-A 431A-B DM-D XXX- Plength Hying leads) Hying leads)	451A-BOB-XX-XXXX-XXX Y FROM #5 PORT) 5/2 gle operator 2/4 11/2 11/2 11/2 11/2 11/2 11/2 11/2	461A-BOB-XX-XXXX-XXX Double 12 2 31 441A-AOA 441A-BOA 441A-BOB 441A-BOB 441A-BOB 441A-BOB 441A-BOB 441A-BOB 441A-BOB 441A-BOB	471 A-B0B-XX-Xxxx-xxx 5/2 poperator	48P 48 400 92 93 ISO (150 (150 (150 (150 (150 (150 (150 (150
1/4" NPTF UAL PRESSUR Port size 1/8" NP1 1/4" NP1 1/4" NP1 1/4" NP1 OLENOID OF XX Voit JA 110/3 JB 220/3 JC 24/5 DA 24 VD	RE MODELS IF IF IF PERATOR > Rage 50, 120/60 (2.9 50, 240/60 (2.9 0) (2.9W)	A11A-B0B-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External X Wire PW) A 18" (F PW) B 24" (F	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 431A-A 431A-A 431A-B DM-D XXX- Plength Hying leads) Hying leads)	451A-BOB-XX-XXXX-XXX Y FROM #5 PORT) 5/2 gle operator 2/4 11/2 11/2 11/2 11/2 11/2 11/2 11/2	461A-BOB-XX-XXXX-XXX Double 12 2 441A-BOA 441A-BOA 441A-BOB 441A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB	471 A-BOB-XX-Xxxx-xxx 5/2 coperator	48P 48 400 92 93 ISO (150 (150 (150 (150 (150 (150 (150 (150
1/4" NPTF UAL PRESSUR Port size 1/8" NPT 1/4" NPT 1/4" NPT 1/4" NPT 1/4" NPT JA 110/3 JB 220/3 JC 24/60 FB 24 VD DA 24 VD DF 24 VD	RE MODELS RE MODELS REFERENCE	A11A-B0B-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External X Wire PW) A 18" (F B 24" (F	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 431A-A 431A-A 431A-B DM-D XXX- Plength Hying leads) Hying leads)	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2 4 14 115 10A-XX-XXXX-XXX 10A-XX-XXXX-XXX 10B-XX-XXXX-XXX XXX XXX XXX Manual oper 1 Non-locking recessed	461A-BOB-XX-XXXX-XXX Double 12 2 441A-BOA 441A-BOA 441A-BOB 441A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB	471 A-BOB-XX-Xxxx-xxx 5/2 coperator 4 14 5-XX-XxxX-xxx -XX-XxxX-xxx ectrical connection quare connector quare quare	48P 48 400 92 93 ISO (150 (150 (150 (150 (150 (150 (150 (150
1/4" NPTF UAL PRESSUR Port size 1/8" NPT 1/4" NPT 1/4" NPT 1/4" NPT 1/4" NPT JA 110/3 JB 220/3 JC 24/60 FB 24 VD DA 24 VD DF 24 VD	RE MODELS RE MODELS REFERENCE	A11A-B0B-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External X Wire PW) A 18" (F B 24" (F	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 12 431A-A 431A-B 431A-B DM-D XXX Plying leads) Hying leads) Hying leads) Sing 12 13 14 15 17 18 18 18 18 18 18 18 18 18	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2 4 14 115 10A-XX-XXXX-XXX 10A-XX-XXXX-XXX 10B-XX-XXXX-XXX XXX XXX XXX Manual oper 1 Non-locking recessed	461A-BOB-XX-XXXX-XXX Double 12 2 441A-BOA 441A-BOA 441A-BOB 441A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB A41A-BOB	471 A-BOB-XX-Xxxx-xxx 5/2 coperator 4 14 5-XX-XxxX-xxx -XX-XxxX-xxx ectrical connection quare connector quare quare	48P 48 400 92 93 ISO (150 (150 (150 (150 (150 (150 (150 (150
1/4" NPTF UAL PRESSUR Port size 1/8" NPT 1/4" NPT 1/4" NPT 1/4" NPT 1/4" NPT 1/4" NPT 1/4" NPT 220/3 JC 24/60 JG 24 VC DA 24 VC DF 24 VC OLENOID OF	RE MODELS RE MODELS RE MODELS REFERENCE	A11A-B0B-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External X Wire PW) A 18" (F DW) B 24" (F J Conne	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 12 431A-A 431A-B 431A-B DM-D XXX Plying leads) Hying leads) Hying leads) Sing 12 13 14 15 17 18 18 18 18 18 18 18 18 18	451A-BOB-XX-XXXX-XXX LY FROM #5 PORT) 5/2 gle operator 2 4 14 115 10A-XX-XXXX-XXX 10A-XX-XXXX-XXX 10B-XX-XXXX-XXX XXX XXX XXX Manual oper 1 Non-locking recessed	461A-BOB-XX-XXXX-XXX Double 12 2 441A-BOA 441A-BOA 441A-BOB 441A-BOB 441A-BOB 441A-BOB ABA ABA ABA ABA ABA ABA ABA	471 A-BOB-XX-Xxxx-xxx 5/2 coperator 4 14 5-XX-XxxX-xxx -XX-XxxX-xxx ectrical connection quare connector quare quare	48P 48 400 92 93 ISO (150 (150 (150 (150 (150 (150 (150 (150
1/4" NPTF UAL PRESSUR Port size 1/8" NPT 1/4" NPT 1/4" NPT 1/4" NPT 1/4" NPT 1/4" NPT 20/5 JA 110/5 JB 220/5 JC 24/66 FB 24 VD DA 24 VD DF 24 VD OLENOID OF	RE MODELS RE MODELS RE MODELS REFERENCE	A11A-B0B-XX-XXXX-XXX (INTERNAL PILOT – PI Pilot air Internal External X Wire PW) A 18" (F DW) B 24" (F J Conne	421A-BOB-XX-XXXX-XXX LOT PRESSURE SUPPL Sing 431A-A 431A-A 431A-B DM-D XXX- Plength Elying leads) Elying leads) Elying leads) Elying leads) Elying leads) Elying leads)	451A-BOB-XX-XXXX-XXX Y FROM #5 PORT) 5/2 gle operator 2/4 11/2 11/3 10A-XX-XXXX-XXX 10A-XX-XXXX-XXX 10B-XX-XXXX-XXX 10B-XX-XXX-XXX 10B-XX-XXXX-XXX 10B-XX-XXX-XXX 10B-XX-XXX 10B-XX-XXX-XXX 10B-XX-XXX-XXX 10B-XX-XXX-XXX 10B-XX-XXX-XXX 10B-XX-XXX 10B	### ### ##############################	471 A-BOB-XX-Xxxx-xxx 5/2 coperator 4 14 ST S-XX-Xxx-xxxXX-Xxx-xxxXX-Xxxx-xxxXX-Xxxx-xxxXX-Xxxx-xxxXX-Xxxx-xxxXX-Xxxx-xxxXX-Xxxx-xxxXX-Xxxx-xxxXX-Xxxx-xxxXX-Xx-xxxXX-Xxx-xxxXX-Xxx-xxxXX-Xx-xx-xxXX-Xx-xx-xxXX-Xx-xx-xxXX-Xx-xx-xxXX-Xx-xx-xxXX-xx-xx-x-x-xXX-xx-xx-x-x-xXX-xx-xx-x-x-xXX-xx-x-xxXX-xx-xx-x-x-xXX-xx-x-x-x-	48P 48 400 92







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

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-A0**A**-XX-X**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

3. 25 DIA. MTG.

125.0 DOUBLE PILOT (DM)

96.0 SIMPLE

96.0 PILOT DM)

125.0 PILOT W/ DM SOLENOID

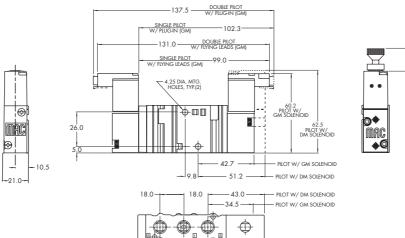
15.5 9.3 18.7

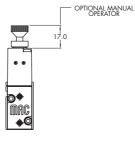
7.8 18.7

- 30.5

PILOT W/ GM SOLENOID

Dimensions shown are metric (mm)







24VDC (4.0W)

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

Direct solenoid and solenoid pilot operated valves

Function		Port size	Flow (Max	K]	Individual mounting		Series
5/2, 5/3		1/8" - 1/	4" 1.0 C _v		Sub-base non "plug-in"		
OPERATIONAL BE	NEFITS						33
. The 4-way pilo		aximum shifting					34
. Memory spring . Balanced spoo pressure, also	g available. ol, immune to provides high						36
in a glass-like	with minimum finished bore.					A	32
Wiping effect Long service li		cking.				II Committee	37
Ü						000	38
					A		52
HOW TO ORD	ER						67
NGLE PRESS	URE MODE	LS					69
Port size	Pilot air	5/2 Single opera	tor 5/2 Double operat	or 5/3 Closed center	5/3 Open center	5/3 Pressure center	44
		12 2 4 14 JZ 3 1 5	12 2 4 14 175 T V V T	12 2 4 14 MM	12 2 4 14 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	12 2 4 14 MM 3 1 5	46
Valve only	Internal External	413A-00A-XX-X XXX-X 413A-00D-XX-X XXXX-X		_			
1/8" NPTF	Internal	413A-AAA-XX-X XXX-X					42
1/4" NPTF 1/8" NPTF	External	413A-BAA-XX-XXXX-X 413A-AAD-XX-XXXX-X					47
1/4" NPTF	- 	413A-BAD-XX-X xxx-x	423A-BAD-XX-XXXX-XX	453A-BAD-XX-XXXX-XXX	463A-BAD-XX-XXXX-XX	473A-BAD-XX-X xxx-xxx	48P
JAL PRESSUF	re models	(INTERNAL PILOT	– PILOT PRESSURE SUI	PPLY FROM #5 PORT)			701
Port size	•	Pilot air		2 Single operator	5/2 Do	ouble operator	48
			1: 0	315	12 [75	315 T	70
Valve on	ly	Internal External		A-00A-XX-X xxx-xxx A-00D-XX-X xxx-xxx		DA-XX-Xxxx-xxx	400
1/8" NP	rf	Internal		A-AAA-XX-XXXX		AA-XX-XXXX	0.0
1/4" NP1 1/8" NP1		E. 4l		A-BAA-XX-XXXX		AA-XX-XXXX-XXX	92
1/4" NP		External		A-AAD-XX-XXXX-XXX A-BAD-XX-XXXXX-XXX		AD-XX-Xxxx-xxx AD-XX-Xxxx-xxx	
OLENOID OI	PFRATOR ➤		DM-D XX	Y- Y Y Y *			93
							ISO 0
XX Volt	iaao	X	Vire length	X Manual ope	erator XX	Electrical connection	ISO 0
	50, 120/60 (2.9		8" (Flying leads)	1 Non-locking rece		Square connector	ISO 1
JB 220/	50, 240/60 (2.9 0 (2.9W)	9W) B 2	4" (Flying leads)	2 Locking recessed	KD JB	Square connector with light Rectangular connector	ISO 2
FB 24 VD	DC (1.8W)		Confector		JD JD	Rectangular connector with	
	DC (5.4W) DC (12.7W)				ВА	light Flying leads	ISO 3
OLENOID OF	PERATOR >		GM-G XX	(- <u>XXX</u> **			
VV 37 ==		Y 31	M2 I	L		Plantini "	
DC 24VD	age C (1.8W)		Vire length 8"	X Manual ope Non-locking rece		Electrical connection Flying leads	
DD 24VD	C (2.5W)	B 2	4"	2 Locking recessed	BT	Flying leads with light	
DF 24VD	C (4.0W)	c 3	6"		KA	Plug-in wire assy.	

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Plug-in wire assy. Plug-in wire assy. with light

Consult "Precautions" page 327 before use, installation or service of MAC Valves...







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

For memory spring, replace by 6

Dual pressure models, replace by **C** for pilot supply from #3 port

For flow control, replace by **B**

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

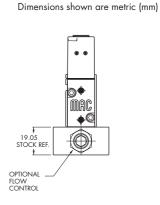
Base only:

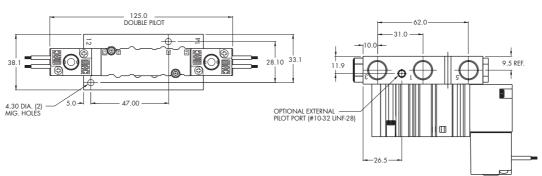
Spare parts:
• Body to base seal: 16525 • Flow control assembly: N-04001 • Body mounting screws (x2): 35043.

DIMENSIONS

86.2 JOCKNING
OPERATOR
OPERATOR

31.0 20.0 1/8" - 27 N.P.I.F.
1/4" - 18 N.P.I.E.
TYPICAL







Codification table for voltages / Manual operator / Electrical connection

VALVE CODE > -DM- D $\frac{XX}{1}$ $\frac{X-X}{2}$ $\frac{XX}{3}$

OPTIONS AVAILABLE FOR

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



	1. VOLTAGE		4. ELECTRICAL CONNECTION
D-XX X-X XX	VOLTAGE	D-XX X-X XX	ELECTRICAL CONNECTION
DA	24 VDC (5.4W)	BA*	Flying leads (grommet)
DB	12 VDC (5.4W)	BK*	BA with protection diode
DC	12 VDC (7.5W)	BL*	BA with protection varistor
DD	24 VDC (7.3W)	BM**	Flying leads (solenoid plug-in)
DE	12 VDC (12.7W)	BN**	BM with protection diode
DF	24 VDC (12.7W)	BP**	BM with protection varistor
DK	110 VDC (4.7W)	BG**	BM with ground
DJ	28 VDC (5.2W)	BH**	BM with protection diode & ground
DL	64 VDC (6.0W)	BJ**	BM with protection varistor & ground
DM	36 VDC (5.3W)	CA*	1/2" NPS conduit with flying leads
DN	6 VDC (6.0W)	CM*	1/2" NPS metal conduit with flying leads
DR	90 VDC (6.6W)	CN*	1/2" NPS metal conduit with flying leads & ground
DS	110 VDC (7.3W)	JB	Rectangular connector
DT	75 VDC (5.6W)	JD	JB with light
DP	48 VDC (5.8W)		Rectangular connector (male only)
FA	12 VDC (1.8W)	KA	Mini square connector
FB	24 VDC (1.8W)	КВ	KA with protection diode
FE	12 VDC (2.4W)	KC	KA with protection varistor
FF	24 VDC (2.4W)	KD	KA with light
JA	120/60, 110/50 (2.9W)	KE	KA with light and protection diode
JB	240/60, 220/50 (2.9W)	KF	KA with light and protection varistor
JC	24/60, 24/50 (3.7W)	KG	KA with light & diode
JD	100/60, 100/50, 110/60 (3.9W)	KJ	Mini square connector (male only)
JE	220/60 (3.4W)	KK	KJ with protection diode (male only)
JF	240/50 (2.8W)	KL	KJ with protection varistor (male only)
JG	200/60, 200/50 (3.9W)	TA	Dual tabs with receptacles
		ТВ	TA with protection diode
	2. WIRE LENGTH	TD	TA with light
		TE	TA with light and protection diode
D-XX X-X XX	WIRE LENGTH	TJ	Dual tabs (male only)
0	No wires	TK	TJ with protection diode
A	18"	TM	TJ with light
В	24"	TN	TJ with light and protection diode
С	36"	* From Lead wire len	gth options choose A through F
D	48"	** From Lead wire leng	gth options choose 0 through F
E	72"	Note: When coil is ab	ove 30 volts, a ground wire is required. Applies to opti
F	96"	with flying leads.	

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



Codification table for voltages / Manual operators / Electrical connections

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)	ВВ	BA with ground wire
DE	24 VDC (3.0 W)	ВС	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)	ВН	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
0	No lead wire (use only with "KJ" & "KM" elecrical connectors)	*BR	BA with suppression diode plus blocking diode & light parallel to leads
A B	18" 24"	*BS	BA with suppression diode plus blocking diode & light parallel to leads & ground wire
С	36"	ВТ	BA with light on top
D	48"	BU	BA with light on top & ground wire
E	72"	BV	BA with suppression diode plus light on top
F	96"	BW	BA with suppression diode plus light on top & ground wi
G	120"	*BX	BA with suppression diode plus blocking diode & light on to
Н	144"	*BY	BA with suppression diode plus blocking diode & light or top & ground wire
G-XX X-X XX	MANUAL OPERATOR	G-XX X-X XX	SOLENOID PLUG-IN CONNECTOR WITH LEADS
1	Non-locking recessed	G-XX X-X XX GA	MAC JAC Solenoid plug-in
1 2	Non-locking recessed Locking recessed	GA GB	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode
1	Non-locking recessed	GA	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV
1 2	Non-locking recessed Locking recessed	GA GB	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD GE	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/MOV & LED
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD GE GF	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD GE GF GG	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/MOV & LED
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD GE GF GG GH	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD GE GF GG GH KA	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD GE GF GG GH KA KB	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire
2	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD GE GF GG GH KA KB	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GD GE GF GG GH KA KB	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode KA with suppression diode & ground wire Plug-in housing without wire assembly
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GC GD GE GF GG GH KA KB KE KF KJ	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode KA with suppression diode & ground wire Plug-in housing without wire assembly ('KA' without wire assembly) Plug-in housing without wire assembly ('KB' without wire assembly) KA with suppression diode plus blocking diode
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GC GD GE GF GG GH KA KB KE KF	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode KA with suppression diode & ground wire Plug-in housing without wire assembly ('KA' without wire assembly) Plug-in housing without wire assembly ('KB' without wire assembly) KA with suppression diode plus blocking diode
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GC GD GE GF GG GH KA KB KE KF KJ	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode KA with suppression diode & ground wire Plug-in housing without wire assembly ('KA' without wire assembly) Plug-in housing without wire assembly ('KB' without wire assembly) KA with suppression diode plus blocking diode KA with suppression diode plus blocking diode KA with light on top
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GC GD GE GF GG GH KA KB KE KF KJ	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode KA with suppression diode & ground wire Plug-in housing without wire assembly ('KA' without wire assembly) Plug-in housing without wire assembly ('KB' without wire assembly) KA with suppression diode plus blocking diode KA with suppression diode plus blocking diode KA with light on top KA with light on top & ground wire
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GC GD GE GF GG GH KA KB KE KF KJ KM	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode KA with suppression diode & ground wire Plug-in housing without wire assembly ('KA' without wire assembly) Plug-in housing without wire assembly ('KB' without wire assembly) KA with suppression diode plus blocking diode KA with suppression diode plus blocking diode KA with light on top
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GC GD GE GF GG GH KA KB KE KF KJ KM	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode KA with suppression diode & ground wire Plug-in housing without wire assembly ('KA' without wire assembly) Plug-in housing without wire assembly ('KB' without wire assembly) KA with suppression diode plus blocking diode KA with suppression diode plus blocking diode KA with light on top KA with light on top & ground wire KA with suppression diode plus light on top KA with suppression diode plus light on top
1 2 3	Non-locking recessed Locking recessed Non-locking extended	GA GB GC GC GD GE GF GG GH KA KB KE KF KJ KM *KN *KN *KN *KN *KN *KN *KN *KN *KN	MAC JAC Solenoid plug-in MAC JAC Solenoid plug-in w/Diode MAC JAC Solenoid plug-in w/MOV MAC JAC Solenoid plug-in w/LED MAC JAC Solenoid plug-in w/Diode & LED MAC JAC Solenoid plug-in w/MOV & LED MAC JAC Solenoid plug-in w/Rectifier & LED Plug-in wire assembly KA with ground wire KA with suppression diode KA with suppression diode & ground wire Plug-in housing without wire assembly ('KA' without wire assembly) Plug-in housing without wire assembly ('KB' without wire assembly) KA with suppression diode plus blocking diode KA with suppression diode plus blocking diode KA with light on top KA with light on top & ground wire KA with suppression diode plus light on top

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