

STRENGTHENING AMERICAN MANUFACTURING

QUICK SOURCE CATALOG



HARTFIEL
AUTOMATION

Email: info@hartfiel.com
Online: www.hartfiel.com

Hartfiel Automation Complete Line Card

Pneumatics

Adsens
Aladco
Alkon Corporation
Allenair Corporation
American Cylinder Co.
Arrow Pneumatics
Beach Filters
Bimba
Camozzi
Crouzet
Deltrol Fluid Products
Dynamic Fluid Components
Enertrols
Fabco Air
Firestone
Freelin-Wade
Hanna Corporation
Kepner
Legris (Parker)
LinkTech
MAC Valves
Mazzer Industries
McDaniel Controls
Mead Fluid Dynamics
Midland-ACS
Milwaukee Cylinder
Monnier
Moog Flo-Tork, Inc.
Nycoil
Parker Origa
Peter Paul Electronics
PHD, Inc.
Pisco USA Inc.
Pneumadyne
Polyconn
Quincy/Ortman
Rectus
Solenoid Solutions
Spartan Scientific
Springville Manufacturing
Suburban Manufacturing Inc.
Taiyo America
TRD Manufacturing
Universal Components (UCI)
Universal Plastics
Watts
Wilkerson

Motion Control/
AC/DC Motors & Controls
B&R
Kollmorgen
Baldor
Crouzet
Cutler-Hammer
Delta Electronics

Actuators & Slides

Ballscrews & Actuators
Dyadic Systems Co (Mirai)
Industrial Devices Corp
(Kollmorgen)
Intek Products
Parker Origa
Schneider Electric Motion USA
Thomson Linear

Gear Reducers Thomson Linear

Linear Motors

Kollmorgen

Motion Accessories

Ballscrews & Actuators (Thomson
Linear)
Delta Electronics
Deltran PT (Thomson Linear)
Harmonic Drives
QC Industries

Servo & Stepper

B&R
Baldor
Delta Electronics
G&L Motion Control (Kollmorgen)
Kollmorgen
Pacific Scientific (Kollmorgen)
Portescap (Kollmorgen)
Schneider Electric Motion USA
Superior Electric (Kollmorgen)
Trio Motion

Machine Control

Advanced Controls Inc.
B&R
Canfield Connectors
Cooper B-Line
Crouzet
Cutler-Hammer
IFM Efector
Kabelschlepp
Kollmorgen
Murrelektronik Inc.
OEM Controls Inc.
Omnex
Pro-Face (Xycom)
Saginaw Control & Engineering
Trio Motion
Unitronics
Vynckier Enclosure
Weintek H.M.I.

Hydraulics

Accessories
Daman Products
Diplomatic Hydraulics
Dynamic Fluid Components
Flow Ezy Filters
Lenz Inc.
McDaniel Controls
Olaer USA, Inc
Rectus
Rego Cryo-Flow Products
Vescor

Actuators

Bimba
Custom Actuator Products
Hanna Corporation
Milwaukee Cylinder
Moog Flo-Tork, Inc.
PHD, Inc.
Quincy/Ortman
TRD Manufacturing

Mobile

B&R
Balluff
Canfield Connectors
COBO
Cooper Bussmann
Custom Actuators
Cutler-Hammer
Data Panel
DeltaTech Controls
Gems Sensors & Controls
HED
IFM Efector
MAC Valves
Magnetek Material Handling
Murrelektronik Inc.
OEM Controls
OLAER USA, Inc.
SICK
Springville Mfg. Co.
Suburban Manufacturing

Sensors & Safety

Balluff
Canfield Connectors
Crouzet
Custom Actuator Products
Cutler-Hammer
Frame World
Gems
Murrelektronik Inc.
SICK
Spartan Scientific

Robotics

Yamaha
Vaccon Company, Inc.
Robotiq
Universal Robots

Vision

Balluff
Smart Vision Lights
SICK
Teledyne DALSA

Vacuum

Anver
Busch LLC
Edco USA
Parker (Convum Sensors & Vacuum)
Piab USA Inc.
Pisco
Vaccon Company, Inc.

The Quick Source Catalog is our collection of products made available for quick delivery to our customers. These items are most often in stock in limited quantities.

The products in this catalog are a small representation of the overall offerings of Hartfiel Automation. If you do not find the appropriate product or solution, please contact your sales representative or call our main line at (800) 331-7301.

Small MAC Valves	
35 Series	4-5
45 Series	6-7
Medium MAC Valves	
52 Series	8
400 Series	9
92 Series	10-14
Wiring Diagram	15
Large MAC Valves	
93 Series	16
Remote Air	17
Connectors & Cordsets	18-19
Camozzi Fittings.....	20
Camozzi Flow Control	21
Filters & Regulators	
Mini Wilkerson Series	22
Small Wilkerson Series 08	23
Medium Wilkerson Series 18	24
Large Wilkerson Series 28	25
Universal Robots	
UR5e	26
UR10e.....	26
PHD Pneu-Connect.....	26
SICK Sensors	
Photo Electric	27
Registration, Distance, Cylinder	28
Proximity	29
Safety	30
Barcode Reader	31
80/20	
Extrusions, Accessories	32
Connectors.....	33
Notes.....	34
Precautions.....	35



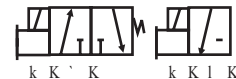


"BA" Option



"KJ" Option

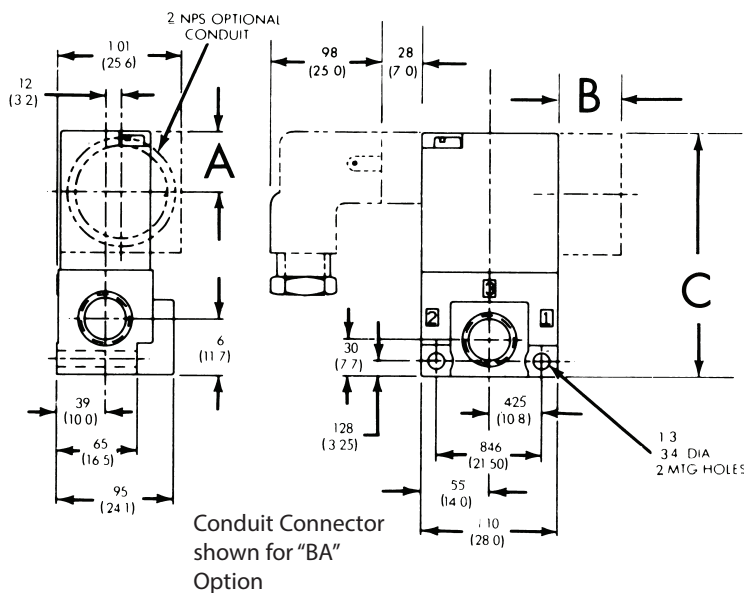
- 3 Way Universal
- Individual Body
- Single Solenoid
- Direct Acting
- 1/8" NPT Ports
- Cv .15
- Vacuum to 120 PSI



Inline Valve

Model Number	Electrical	Electrical Connector
35A-AAA-DAAA-1BA	120/60, 110/50 VAC	18" leads with grommet
35A-AAA-DAAJ-1KJ	120/60, 110/50 VAC	9.4 mm DIN connector, male only*
35A-AAA-DDAA-1BA	24 VDC, 5.4 Watt	18" leads with grommet
35A-AAA-DDAJ-1KJ	24 VDC, 5.4 Watt	9.4 mm DIN connector, male only*

Dimensions



Dim.	A	B	C
CA	.49 (12.4)	.51 (13.0)	1.97 (50.0)

DIN Connector
shown for "KJ"
Option

*Note: For mating 9.4 mm DIN connectors or molded cordsets, reference page.

Valves for Manifold Mounting

120/60, 110/50 VAC Manifold Valves - No Base

Model Number	Voltage	Connector
35A-B00-DAAA-1BA	110 VAC	18" leads
35A-B00-DAAJ-1KJ	110 VAC	9.4 mm DIN connector, male only*
35A-B00-DDAA-1BA	24 VDC	18" leads
35A-B00-DDAJ-1RA	24VDC	M12 connector, male only*

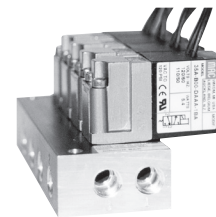


Manifold Valve with "BA" Option

Manifolds and Sub-bases

Fixed Length Manifolds with Side Outlet Ports (p 1-5 for dimension detail)

Model Number	No. of Stations	Ports
EBM35A-001A-02	2	1/8" NPT
EBM35A-001A-04	4	1/8" NPT
EBM35A-001A-06	6	1/8" NPT
M-35004	Blank station plate	-



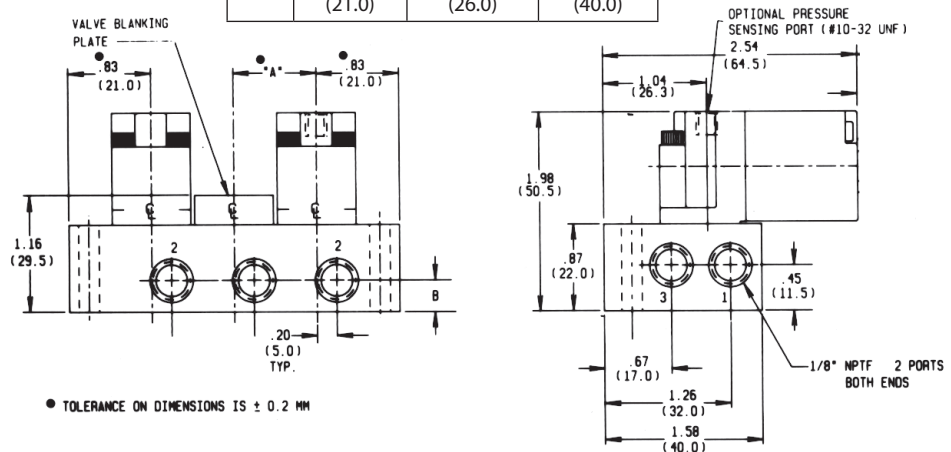
Fixed Length Manifold with "BA" Valve Option

Dimensions

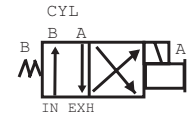
Fixed Length Manifolds

Dim.	Port Size	
	1/8"	10-32 & M5
B	.31 (8.0)	.22 (5.5)
D	.96 (24.5)	.95 (24.2)

Dim.	Standard Spacing	Spacing for CA & JB	Spacing for Gages
A	.83 (21.0)	1.02 (26.0)	1.57 (40.0)



*Note: For mating 9.4 mm DIN connectors or molded cordsets, reference page.

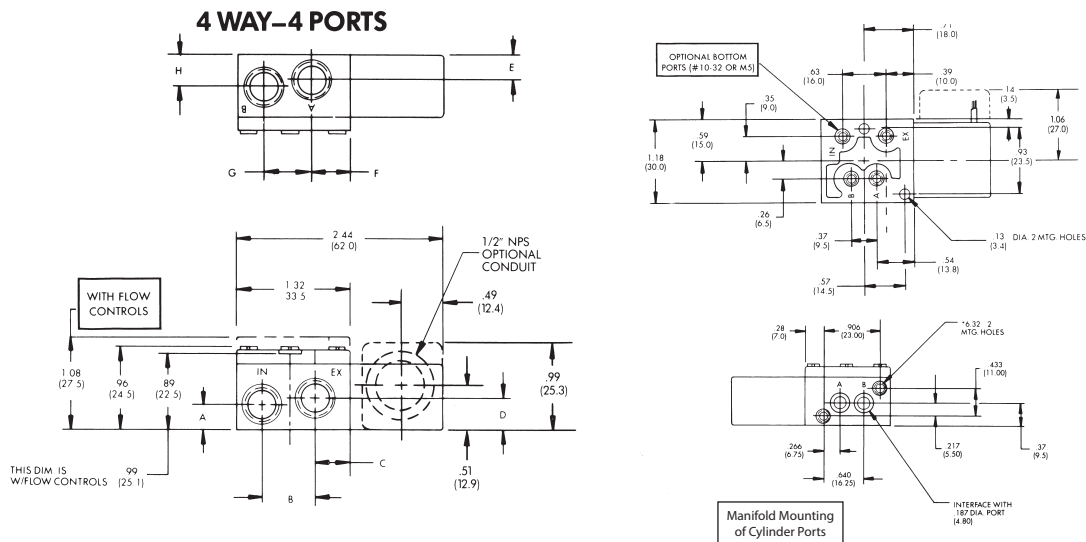


- 4 Way
- Modified Body
- Single Solenoid
- Direct Acting
- 1/8" NPT Ports
- Cv 0.18
- Vacuum to 120 PSI

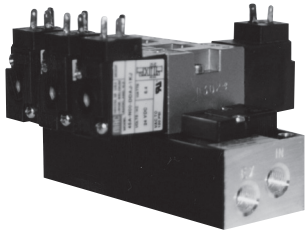
Inline Valve

Model Number	Cv	Electrical	Connector
45A-AA1-DAAA-1BA	.15	120/60, 110/50 VAC	18" leads with grommet
45A-AA1-DAAJ-1KJ	.15	120/60, 110/50 VAC	9.4mm DIN connector, male only*
45A-AA1-DDAA-1BA	.15	24 VDC, 5.4 Watt	18" leads with grommet
45A-AA1-DDAJ-1KJ	.15	24 VDC, 5.4 Watt	9.4mm DIN connector, male only*
45A-AA1-DFBA-1BA	.10	24 VDC, 1.8 Watt	18" leads with grommet
45A-AA1-DFBJ-1KJ	.10	24 VDC, 1.8 Watt	9.4mm DIN connector, male only*

Dimensions

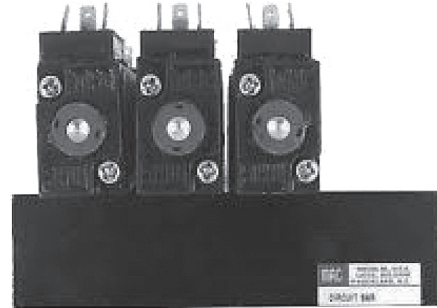


*Note: For mating 9.4 mm DIN connectors or molded cordsets, reference page.



Fixed Length Manifolds

- 4 Way
- Manifold Body
- Single or Double Solenoid
- Direct Acting
- 1/8" NPT Ports
- Cv .11
- Vacuum to 120 PSI



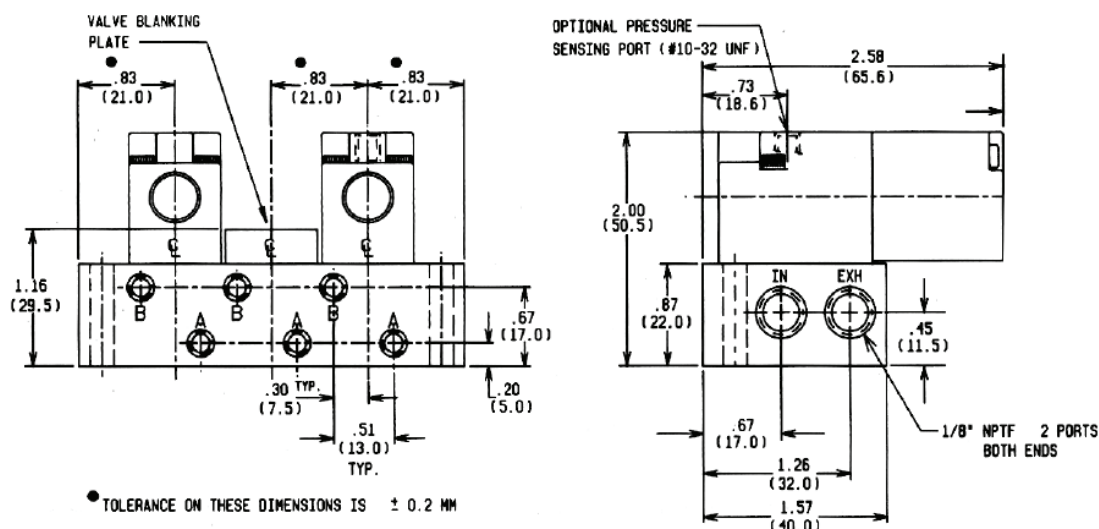
Valves for Manifold Mounting

Model Number	Voltage	Electrical Connector
45A-L00-DAAA-1BA	120/60, 110/50 VAC	Single 18" lead wires
45A-L00-DAAJ-1KJ	120/60, 110/50 VAC	Single 9.4mm DIN connector, male only*
45A-L00-DDAA-1BA	24 VDC, 5.4 Watt	Single 18" lead wires
45A-L00-DDAJ-1KJ	24 VDC, 5.4 Watt	Single 9.4mm DIN connector, male only*
45A-L00-DFBA-1BA	24 VDC, 1.8 Watt	Single 18" lead wires
45A-L00-DFBJ-1KJ	24 VDC, 1.8 Watt	Single 9.4mm DIN connector, male only*
45A-N00-DAAA-1BA	120/60, 110/50 VAC	Double 18" lead wires
45A-N00-DAAJ-1KJ	120/60, 110/50 VAC	Double 9.4mm DIN connector, male only*
45A-N00-DDAA-1BA	24 VDC, 5.4 Watt	Double 18" lead wires
45A-N00-DDAJ-1KJ	24 VDC, 5.4 Watt	Double 9.4mm DIN connector, male only*

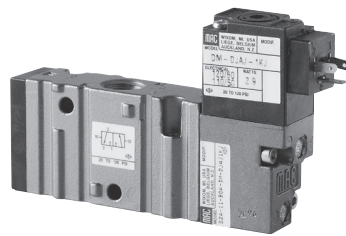
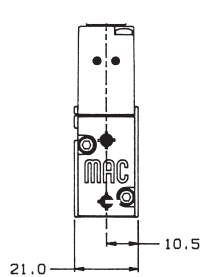
Fixed Length Manifolds with Side Outlet Ports

Model Number	No. of Stations	Porting	
		Inlet & Exhaust	Cylinder Ports
EBM45A-001A-02	2	1/8" NPT	1/8" NPT
EBM45A-001A-04	4	1/8" NPT	1/8" NPT
EBM45A-001A-06	6	1/8" NPT	1/8" NPT
M-45010	Blank station plate	-	-

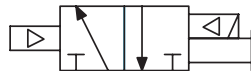
Dimensions



*Note: For mating 9.4 mm DIN connectors or molded cordsets, reference page.



"KJ" Option



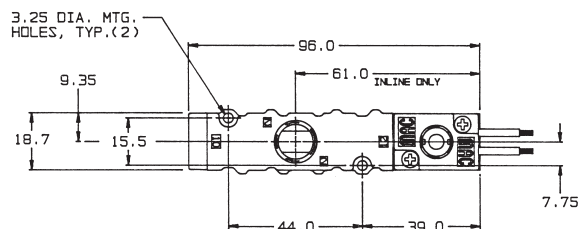
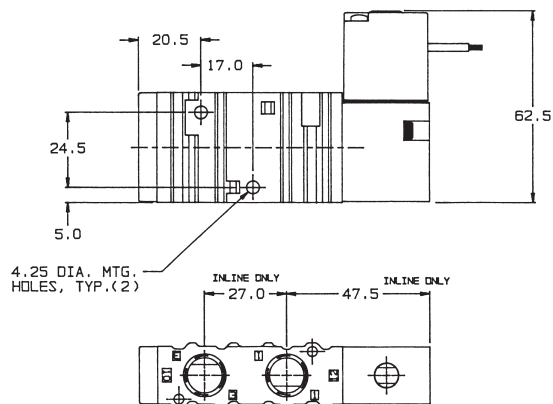
Normally Closed

- 3 Way
- Individual Body
- Single Solenoid
- Pilot Operated
- 1/4" NPT Ports
- Cv 1.5
- 20-120 PSI Internal Pilot
- Vac-120 PSI External Pilot

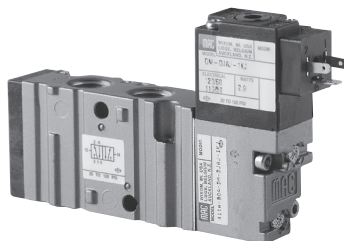
Inline Valve

Model Number	Voltage	Pilot Type	Connector
52A-11-B0A-DM-DJAJ-1KJ	120/60, 110/50 VAC	Internal	9.4 mm DIN connector, male only*
52A-11-B0B-DM-DJAJ-1KJ	120/60, 110/50 VAC	External	9.4 mm DIN connector, male only*
52A-11-B0A-DM-DFBJ-1KJ	24 VDC, 1.8 Watt	Internal	9.4 mm DIN Connector, male only*
52A-11-B0B-DM-DFBJ-1KJ	24 VDC, 1.8 Watt	External	9.4 mm DIN Connector, male only*
52A-11-B0A-DM-DDAJ-1KJ	24 VDC, 5.4 Watt	Internal	9.4 mm DIN connector, male only*
52A-11-B0B-DM-DDAJ-1KJ	24 VDC, 5.4 Watt	External	9.4 mm DIN connector, male only*
52A-11-B0A-DM-DDAA-1BA	24 VDC, 5.4 Watt	Internal	18" leads with grommet
52A-11-B0B-DM-DDAA-1BA	24 VDC, 5.4 Watt	External	18" leads with grommet

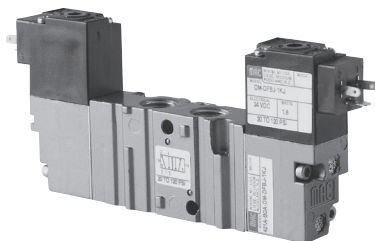
Dimensions



*Note: For mating 9.4 mm DIN connectors or molded cordsets, reference page.



Single with
"KJ" Option



Double with
"KJ" Option



- 4 Way
- Individual Body
- Single or Double Solenoid
- Pilot Operated
- 1/4" NPT Ports
- Cv 1.0
- 20-120 PSI Internal Pilot
- Vac-120 PSI External Pilot

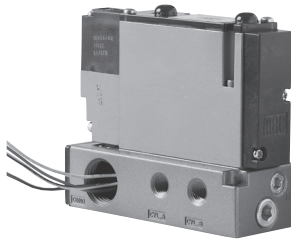
Single Solenoid with 1/4" NPT Inlet & Cylinder Ports, 1/8" NPT Exhaust Ports

Model Number	Pilot Type	Voltage	Electrical Connector
411A-B0A-DM-DJAJ-1KJ	Internal	120/60, 110/50	9.4mm DIN, male only*
411A-B0B-DM-DJAJ-1KJ	External	120/60, 110/50	9.4mm DIN, male only*
411A-B0A-DM-DFBJ-1KJ	Internal	24 VDC, 1.8 W	9.4mm DIN, male only*
411A-B0B-DM-DFBJ-1KJ	External	24 VDC, 1.8 W	9.4mm DIN, male only*
411A-B0A-DM-DDAJ-1KJ	Internal	24 VDC, 5.4 W	9.4mm DIN, male only*
411A-B0B-DM-DDAJ-1KJ	External	24 VDC, 5.4 W	9.4mm DIN, male only*
411A-B0A-DM-DDAA-1BA	Internal	24 VDC, 5.4 W	18" leads with grommet
411A-B0B-DM-DDAA-1BA	External	24 VDC, 5.4 W	18" leads with grommet

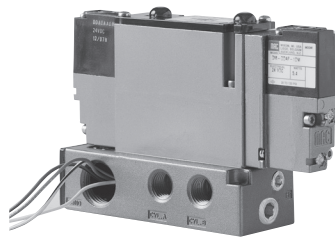
Double Solenoid with 1/4" NPT Inlet & Cylinder Ports, 1/8" NPT Exhaust Ports

Model Number	Pilot Type	Electrical	Connector
421A-B0A-DM-DJAJ-1KJ	Internal	120/60, 110/50	9.4mm DIN, male only*
421A-B0B-DM-DJAJ-1KJ	External	120/60, 110/50	9.4mm DIN, male only*
421A-B0A-DM-DFBJ-1KJ	Internal	24 VDC, 1.8 W	9.4mm DIN, male only*
421A-B0B-DM-DFBJ-1KJ	External	24 VDC, 1.8 W	9.4mm DIN, male only*
421A-B0A-DM-DDAJ-1KJ	Internal	24 VDC, 5.4 W	9.4mm DIN, male only*
421A-B0B-DM-DDAJ-1KJ	External	24 VDC, 5.4 W	9.4mm DIN, male only*
421A-B0A-DM-DDAA-1BA	Internal	24 VDC, 5.4 W	18" leads with grommet
421A-B0B-DM-DDAA-1BA	External	24 VDC, 5.4 W	18" leads with grommet

*Note: For mating 9.4 mm DIN connectors or molded cordsets, reference page.



Single
Solenoid



Double
Solenoid

- 4 Way
- Manifold Body Only - no base
- Single or Double Solenoid
- Pilot Operated
- 1/4" NPT Ports
- Cv 1.2
- VAC - 120 PSI Internal Pilot
- External Pilot Option
- Light
- Supression (DC only)

Single Solenoid, Two Position Valves



Model Number	Cv	Electrical	Description
92B-AAB-000-DM-DJAP-1DG	1.2	120/60, 110/50 VAC	Single Solenoid, Ground wire, plug-in wiring
92B-AAF-000-DM-DFBP-1DM	1.2	24 VDC, 1.8 Watt	Plug-in wiring
92B-AAF-000-DM-DDAP-1DM	1.2	24 VDC, 5.4 Watt	Plug-in wiring

Double Solenoid, Two Position Valves



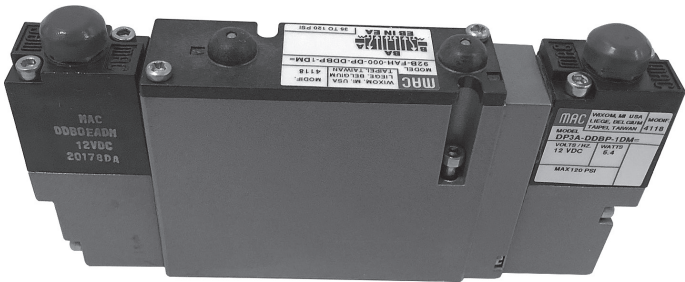
Model Number	Cv	Electrical	Description
92B-BAB-000-DM-DJAP-1DG	1.2	120/60, 110/50 VAC	Ground wire, plug-in wiring
92B-BAF-000-DM-DFBP-1DM	1.2	24 VDC, 1.8 Watt	Plug-in wiring
92B-BAF-000-DM-DDAP-1DM	1.2	24 VDC, 5.4 Watt	Plug-in wiring



Model Number	Cv	Electrical	Description
92B-EAB-000-DM-DJAP-1DG	1.2	120/60, 110/50 VAC	Ground wire, plug-in wiring
92B-EAF-000-DM-DFBP-1DM	1.2	24 VDC, 1.8 Watt	Plug-in wiring
92B-EAF-000-DM-DDAP-1DM	1.2	24 VDC, 5.4 Watt	Plug-in wiring

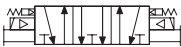
¹Will trap pressure in center position without power

*See Base Options on Page 12



- 4 Way
- Manifold Body
- Double Solenoid
- 1/4" NPT Ports
- Cv 1.2
- VAC - 120 PSI
- External Pilot Option
- Light
- Supression (DC only)

Double Solenoid, Three Position Open Center Valves



Model Number	Cv	Electrical	Description
92B-FAB-000-DM-DJAP-1DG	1.2	120/60, 110/50 VAC	Ground wire, plug-in wiring
92B-FAF-000-DM-DFBP-1DM	1.2	24 VDC, 1.8 Watt	Plug-in wiring
92B-FAF-000-DM-DDAP-1DM	1.2	24 VDC, 5.4 Watt	Plug-in wiring

Double Solenoid, Three Position Pressure Center Valves



Model Number	Cv	Electrical	Description
92B-GAB-000-DM-DJAP-1DG	1.2	120/60, 110/50 VAC	Ground wire, plug-in wiring
92B-GAF-000-DM-DFBP-1DM	1.2	24 VDC, 1.8 Watt	Plug-in wiring
92B-GAF-000-DM-DDAP-1DM	1.2	24 VDC, 5.4 Watt	Plug-in wiring

*See Base Options on Page 12

Individual Inline Bases

Model Number	Description
92B-000-BAA	1/4" NPT side ported valve base
92B-000-CAA	3/8" NPT side ported valve base

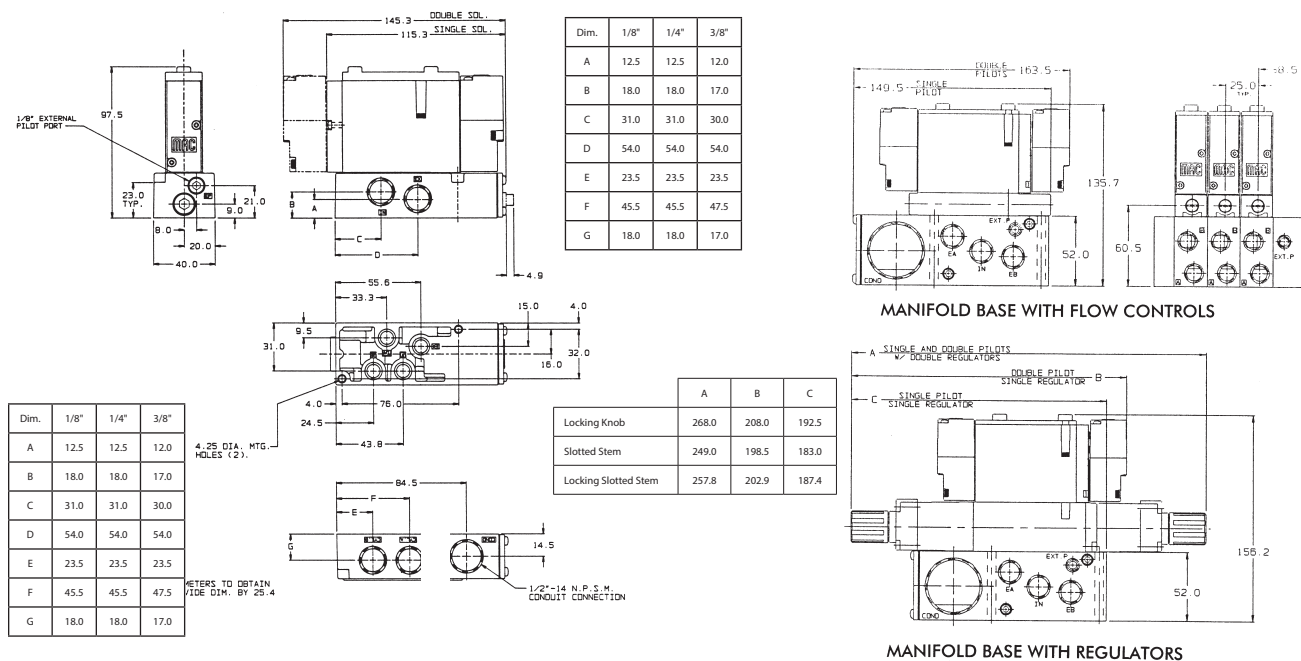
Conduit Add-A-Unit Sub Bases and Accessories (Includes all hardware)

Model Number	Description
92B-000-BJA	1/4" NPT side ported manifold base
92B-000-CJA	3/8" NPT side ported manifold base
M-92004-01-01	Manifold end plate kit, internal pilot, inlet and exhaust size = 3/8" NPTF
M-92004-02-01	Manifold end plate kit, external pilot, inlet and exhaust size = 3/8" NPTF
M-92002	Blank station cover plate
N-92018	Isolator disc, inlet or exhaust, non-MACConnect
32848	Conduit plug, 1 1/4" NPT

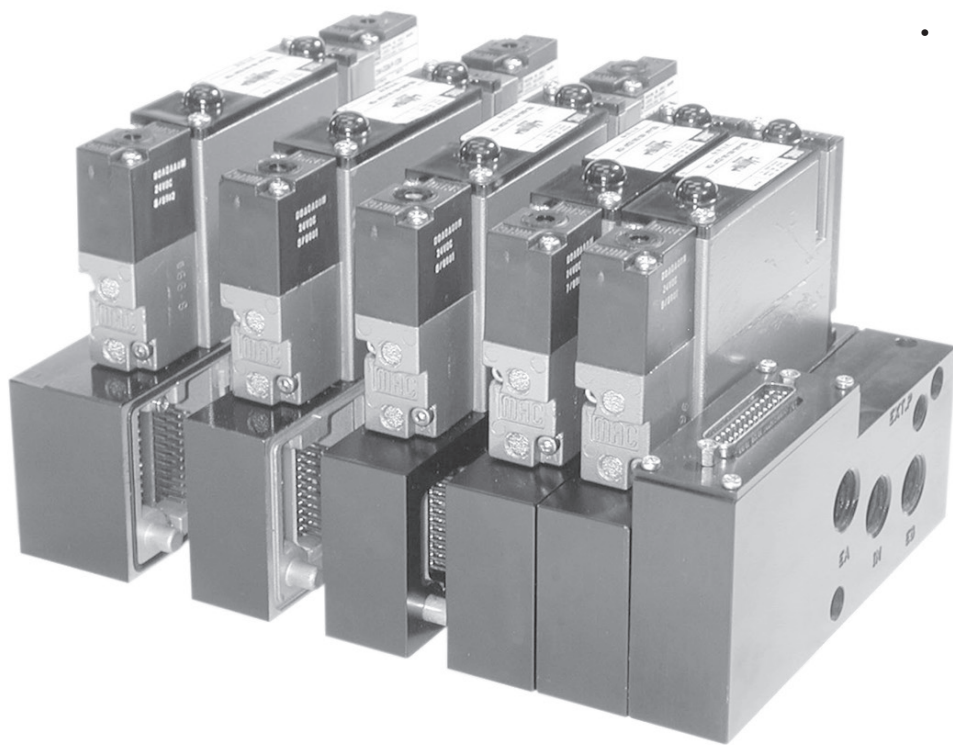
Accessories

Model Number	Description
FC92B-AA	Sandwich flow control, single solenoid
FC92B-BA	Sandwich flow control, double solenoid
PR92C-KAAA	Sandwich P port pressure regulator with knob
N-92006-01	0-120 PSI, pressure gauge with fitting kit

Dimensions



- Pre-wired to sub D Bases
- 1/4" NPT Work Ports
- 3/8" NPT Inlet/Exit Ports



MAConnect 3/8" NPTF Cylinder Inlet and Exhaust Ports

Model Number	Description
92B-000-CJ1=1705	Single solenoid, middle plug-in left, negative common
92B-000-CJ2=1705	Double solenoid, middle plug-in left, negative common
92B-000-CN1=1705	Single solenoid, right end, negative common
92B-000-CN2=1705	Double solenoid, right end, negative common
M-92012-25-1	Left end block with 25 pin sub-D connector, negative common
N-92018	Isolator disc, MAConnect™ only, (1 required for inlet, 2 required for exhaust)

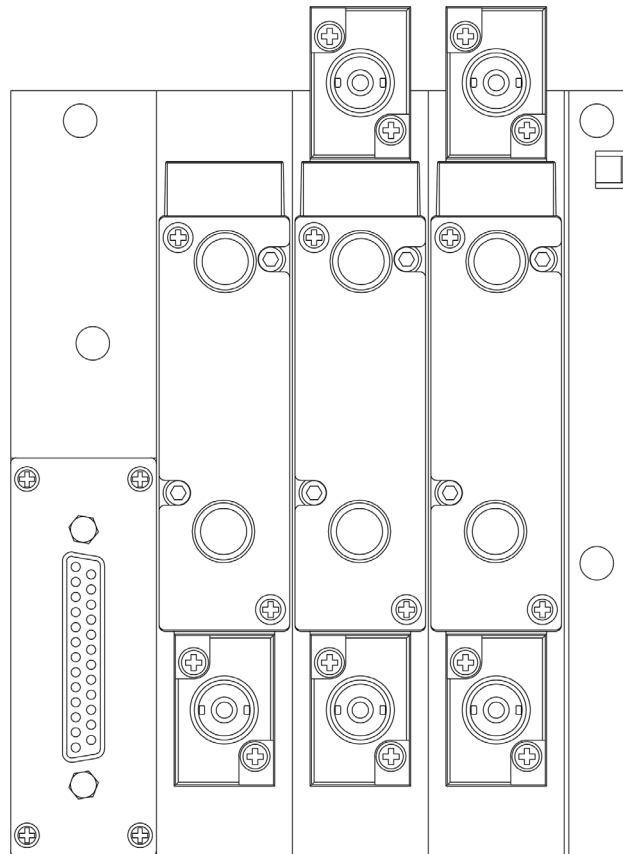
*Note: For mating 25 sub-D cables, reference page 15.

Sample BOM for MAConnect Drawing

Valve Stack Consists of:

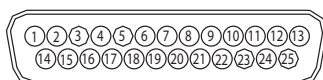
- 1 pc – 92B-000-CN2 = 1705
- 1 pc – 92B-000-CJ1 = 1705
- 1 pc – 92B-000-CJ2 = 1705
- 1 pc – M-92012-25-1
- 1 pc – 92B-BAF-000-DM-DFBP-1DM
- 1 pc – 92B-EAF-000-DM-DFBP-1DM
- 1 pc – 92B-AAF-000-DM-DFBP-1DM

Cylinder Ports located on
this side.



Fluids:	Compressed Air or Inert Gases
Lubrication:	Not required. If used, select a medium aniline point lubricant (between 180°F and 210°F).
Safe Operating Temperature Range:	0°F to 120°F (-18°C to 50°C)
Pressure Range:	20 to 120 PSI (Internal Pilot) Vacuum to 120 PSI (External Pilot) 35 to 120 PSI (3 Position, Internal/External Pilot) 36/46 Series - Vacuum to 120 PSI

25 Pin Sub-D Connector Pin Out



Pin #	Solenoid #
1	1
2	2
-	-
20	20
21	Common
22	Common
23	Common
24	Common
25	Common

92 Series

- Maximum of 20 solenoids can be powered by Single Multi-Pin Connector
- Maximum allowable coil amperage is 250 milliamps
- Standard AC and DC voltage options available

Wiring Instructions

25 Pin Sub-D Wiring For MACConnect

PIN NUMBER	WIRE / COLOR
1	Black
2	White
3	Red
4	Green
5	Orange
6	Blue
7	White / Black
8	Red / Black
9	Green / Black
10	Orange / Black
11	Blue / Black
12	Black / White
13	Red / White
14	Green / White
15	Blue / White
16	Black / Red
17	White / Red
18	Orange / Red
19	Blue / Red
20	Red / Green
21	Orange / Green
22	Black / White / Red
23	White / Black / Red
24	Red / Black / White
25	Green / Black / White



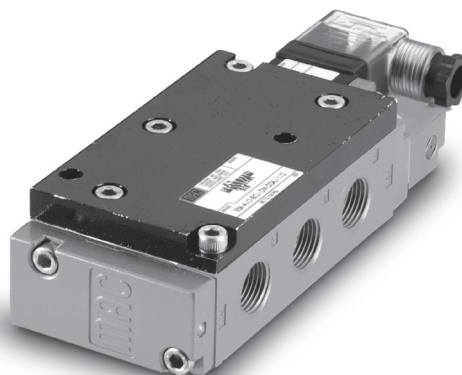
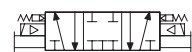
25 Pin Sub-D Cable Assembly

HA#	Model #	Description
9-1006601	25S5M	25 PIN D-sub cable 5 meters long

92 & 93 Inline and Add-A-Unit Bases

"A" Solenoid
Yellow – Positive
Yellow / Black – Negative

"B" Solenoid
Red – Positive
Red / Black – Negative



93 Series Single Solenoid with Connector

- 4 Way
- Manifold Body
- Single or Double Solenoid
- Pilot Operated
20 PSI Min. Op.
- 1/2" NPT Work Ports
- 3.8 Cv. Flow
- VAC - 120 PSI Internal
- External Pilot Option

Single Solenoid, Two Position Valve

Model Number	Electrical	Description
93A-AJ0-C0J-DM-DDAJ-1KJ	24 VDC, 5.4 Watt	9.4mm DIN, male only*
93A-AJ0-C0J-DM-DDAJ-1RA	24 VDC, 5.4 Watt	M12 connector, male only*
93A-AJ0-C0J-DM-DJAJ-1KJ	120/60, 110/50 VAC	Ground wire, 9.4mm DIN, male only*

Double Solenoid, Two Position Valve

Model Number	Electrical	Description
93A-BJ0-C0J-DM-DDAJ-1KJ	24 VDC, 5.4 Watt	9.4mm DIN, male only*
93A-BJ0-C0J-DM-DDAJ-1RA	24 VDC, 5.4 Watt	M12 connector, male only*
93A-BJ0-C0J-DM-DJAJ-1KJ	120/60, 110/50 VAC	Ground wire, 9.4mm DIN, male only*

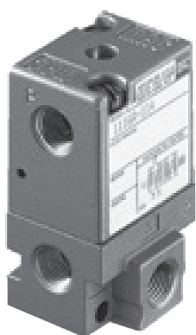
Double Solenoid, Three Position Closed Center Valve

Model Number	Electrical	Description
93A-EJ0-C0J-DM-DDAJ-1KJ	24 VDC, 5.4 Watt	9.4mm DIN, male only*
93A-EJ0-C0J-DM-DDAJ-1RA	24 VDC, 5.4 Watt	M12 connector, male only*
93A-EJ0-C0J-DM-DJAJ-1KJ	120/60, 110/50 VAC	Ground wire, 9.4mm DIN, male only*

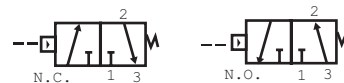
Double Solenoid, Three Position Open Center Valve

Model Number	Electrical	Description
93A-FJ0-C0J-DM-DDAJ-1KJ	24 VDC, 5.4 Watt	9.4mm DIN, male only*
93A-FJ0-C0J-DM-DDAJ-1RA	24 VDC, 5.4 Watt	M12 connector, male only*
93A-FJ0-C0J-DM-DJAJ-1KJ	120/60, 110/50 VAC	Ground wire, 9.4mm DIN, male only*

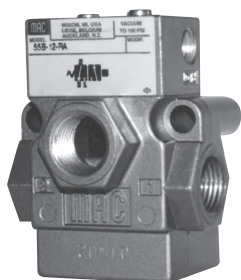
*Note: For mating 9.4 mm DIN connectors or molded cordsets, reference page 18 - 19.



1100 Series Inline
3-Way Universal 1/8" NPT



Model Number	Cv	Pilot Port	Type
1111A-111	.18	1/8" NPT	Single air pilot



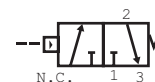
55 Series Inline
3-Way, Normally Closed, 3/8" NPT



Model Number	Cv	Pilot Port	Type
55B-12-RA	2.5	1/8" NPT	Single air pilot



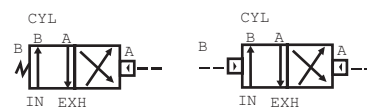
56 Series Inline
3-Way, Normally Closed, 3/4" NPT



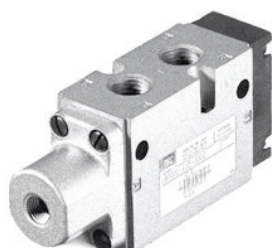
Model Number	Cv	Pilot Port	Type
56C-57-RA	6.2	1/8" NPT	Single air pilot



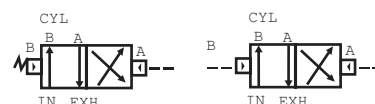
900 Series Inline
4-Way 1/4" NPT



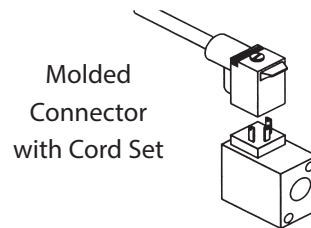
Model Number	Cv	Pilot Port	Type
912B-RA	1.4	1/8" NPT	Single air pilot
922B-RA	1.4	1/8" NPT	Double air pilot



1800 Series Inline
4-Way 1/4" NPT



Model Number	Cv	Pilot Port	Type
180001-112-0003	1.4	1/8" NPT	Single air pilot
180003-112-0003	1.4	1/8" NPT	Double air pilot



MAC 35 Series
Valve with E-45007
Connector Shown



9.4 mm Mini DIN - Connector Only

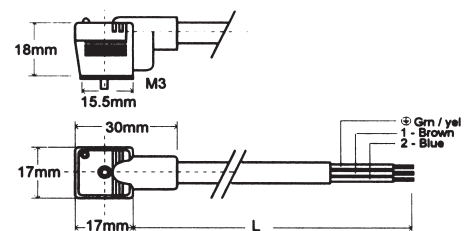
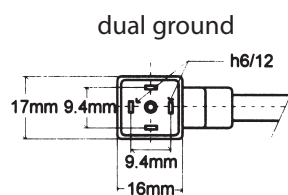
Model Number	Description
E-45007	Plain connector
E-45009	Diode, no light
E-45010	120 VAC, M.O.V., no light
E-45007-AA	120 VAC with light
E-45007-DA	24 VDC with light
E-45009-DA	24 volt, LED light & diode
E-45010-AA	120 VAC, M.O.V., with light

9.4 mm Mini DIN Cord Set (Canfield Connector)

Model Number	Description
5J464-000-US0L	12-120 Volt AC/DC, 6 ft., M.O.V.
5J4F4-000-US0L-15FT	12-120 Volt AC/DC, 15 ft., M.O.V.
5J464-251-US0L	6-24 VDC, 6 ft. w/ led, M.O.V.
5J4F4-251-US0L	6-24 VDC, 15 ft. w/ led, M.O.V.
5J464-551-US0L	120 VAC, 6 ft. w/ led, M.O.V.
5J4F4-551-US0L	120 VAC, 15 ft. w/ led, M.O.V.

- Saves on Installation & Labor Costs
- Durable Solid Plastic Construction
- Impact Resistant
- Superior Strain Relief
- 100% Quality Control Tested
- With or Without Suppression and LED
- Rated to 5 Amp

Features & Pin Configuration

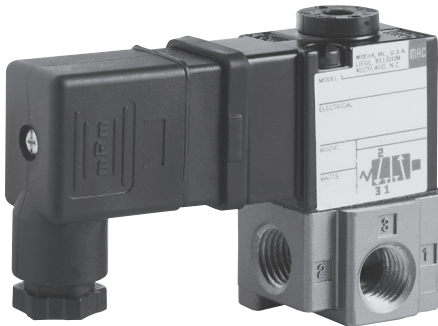


M12 Connector Cord Set (Murr)

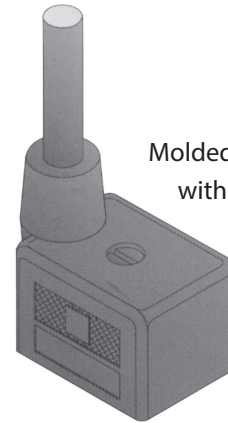
Model Number	Description
7000-12221-0140500	5 meter straight
7000-12341-0140500	5 meter 90 degrees
7000-12481-0000000	Field wireable M12 connector

25 Pin Sub D Connector Cordset

Model Number	Description
25S-10M-D-SUB	25 pin sub D straight connector/ 10 meter
25S-10M-D-SUB-RA	25 pin sub D 90 degree right angle/10 meter



E-01007
Connector



Molded Connector
with Cord Set

Photo Shown For DIN Connector Only

Connector Only

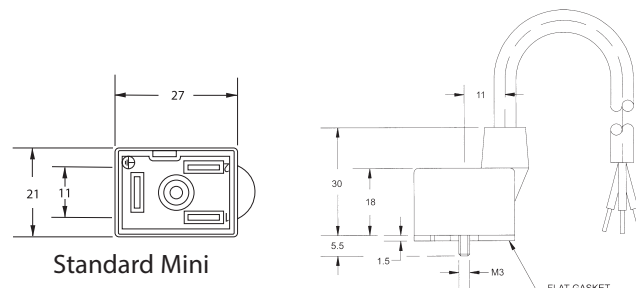
Model Number	Description
E-01007	Plain connector
E-01013-11	120 VAC with light
E-01013-61	24 VDC with light

11mm Connector Cord Sets (Canfield Connectors)

Model Number	Description
5J561-000-US0L	0-120 VAC/DC, 6 ft
5J5F1-000-US0L	0-120 VAC/DC, 15 ft
5J561-251-US0L	6-24V DC, 6 ft, w/ LED, mov
5J5F1-251-US0L	6-24V DC, 15 ft, w/ LED, mov
5J561-551-US0L	48-120 VAC/DC, 6 ft, w/ LED, mov
5J5F1-551-US0L	48-120 VAC/DC, 6 ft, w/ LED, mov

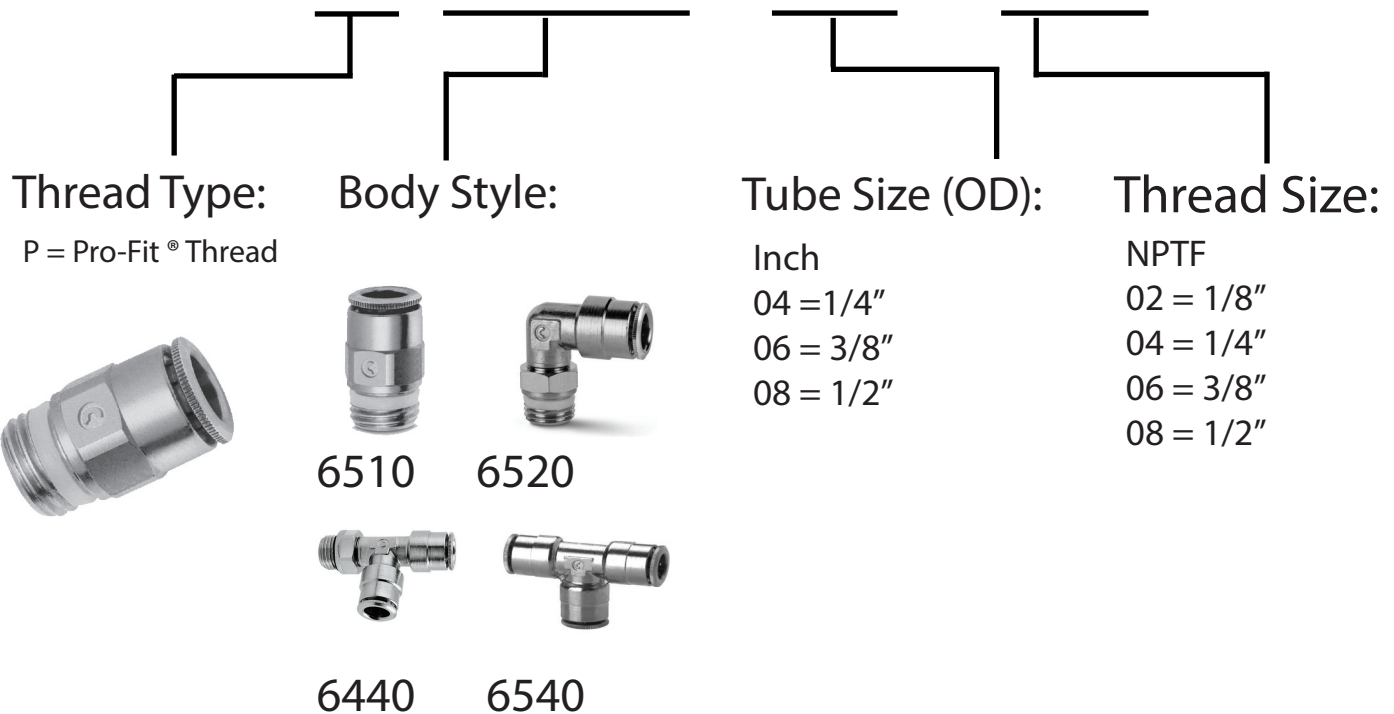
Features & Pin Configuration

- Saves on Installation & Labor Costs
- Durable Solid Plastic Construction
- Impact Resistant
- Superior Strain Relief
- 100% Quality Control Tested
- With or Without Suppression and LED
- Rated to 5 Amp



Camozzi Fitting Builder

P6510 04-06



i.e. Straight fitting Pro-Fit 1/8 NPT to 1/4" tube fitting
P6510 04-02



Cylinder Port Mounted Flow Controls Meter Out

Tube OD	Thread	Meter Out
1/4	1/8	GSCU 0402
1/4	1/4	GSCU 0404
3/8	1/4	GSCU 0604
3/8	3/8	GSCU 0606



Valve Port Mounted Flow Controls

Tube OD	Thread	Flow Control
1/4	1/8	GSVU 0402
1/4	1/4	GSVU 0404
3/8	1/4	GSVU 0604



R03-02-000
1/4" Mini Regulator



B03-02-000
1/4" Mini Filter Regulator



K4515N18160
1/8" 0-160 Gauge



F08-02-SK00
1/4" Filter



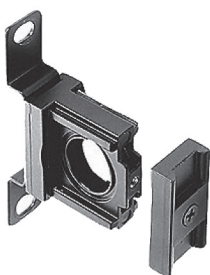
R08-02-F000
1/4" Regulator



L08-02-KK00
1/4" Lubricator



B08-02-FKG0
1/4" Filter Regulator
w/ Gauge



GPA-96-737
Connector Bracket



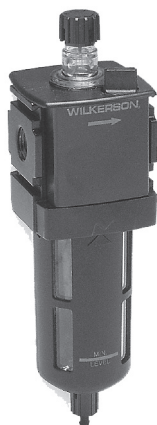
K4515N18160
1/8" 0-160 Gauge



F18-03-SK00
3/8" Filter



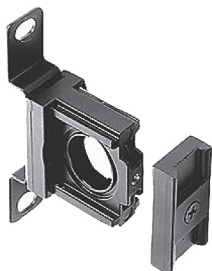
R18-03-F0G0
3/8" Regulator



L18-03-KK00
3/8" Lubricator



B18-03-FKG0
3/8" Filter Regulator
w/ Gauge



GPA-96-603
Connector Bracket



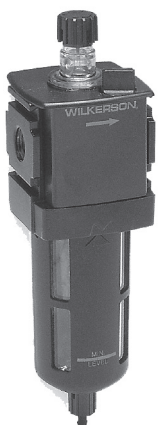
K4515N14160
1/4" 0-160 Gauge



F28-04-SK00
1/2" Filter



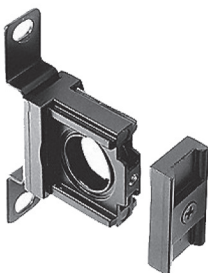
R28-04-F0G0
1/2" Regulator



L28-04-KK00
1/2" Lubricator



B28-04-FKG0
1/2" Filter Regulator
w/ Gauge



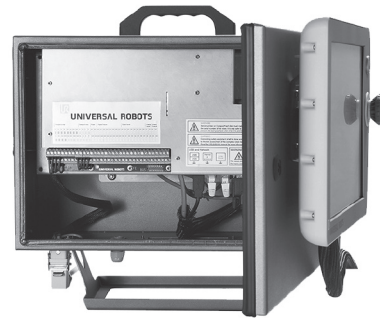
GPA-96-603
Connector Bracket



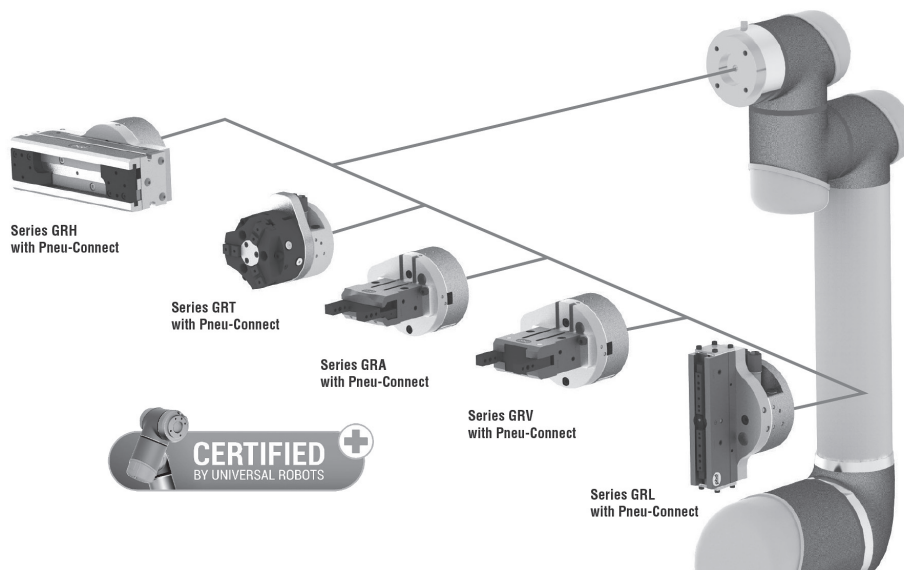
K4515N14160
1/4" 0-160 Gauge



UR5e
Payload 11 Lbs
33.5" Radius Reach



UR10e
Payload 22 Lbs
51.2" Radius Reach



PHD
Pneu-Connect
Pneumatic
Grippers



H18 Suresense Photoelectric Sensor M12 4 Pin, 10-30 VDC, IP 69K

Model Number	Description
HL18-P4A3BA	Retro Reflective PNP
HL18-N4A3BA	Retro Reflective NPN
HSE18-P4A2BA	Through Beam Pair PNP
HSE18-N4A2BA	Through Beam Pair NPN
HTB18-P4A2BB	Background Suppression PNP with Potentiometer
HTB18-N4A2BB	Background Suppression NPN with Potentiometer
P250	Square 2" Reflector
7000-1221-0141000	Murr Female M12 4 Pin, 5 Meter Cable



VL180 Cylindrical Photoelectric M12 4 Pin, 10-30 VDC, IP 67

Model Number	Description
VL180-2P42436	Retro-Reflective, PNP with M12, 4-Pin Connector
VL180-2N42436	Retro-Reflective, NPN with M12, 4-Pin Connector
VSE180-2P42437	Through Beam Pair, PNP with M12, 4-Pin Connector
VSE180-2N42437	Through Beam Pair, NPN with M12, 4-Pin Connector
VTE180-2P42487	Diffuse PNP with Potentiometer
P250	Square 2" Reflector
7000-1221-0141000	Murr Female M12 4 Pin, 5 Meter Cable



MZT7 Cylinder Slot Sensor
M8 3 Pin 6" Pigtail 10-30 VDC, IP 67

Model Number	Description
MZT7-03VPS-KP0	PNP NO
MZT7-03VPO-KP0	PNP NC
MZT7-03VNO-KP0	NPN NO
7000-08041-6100500	Murr M8 Female 3 Pin, 5 Meter Cable



DT Distance Sensor
M12 4 Pin, 10-30 VDC

Model Number	Description
DT35-B15551	DT35 Up to 12 Meters
DT50-P1113	DT50 Up to 30 Meters



KTS Core Registration Sensor
M12 10-30 VDC
Can replace a KT5 or NT

Model Number	Description
KTX-WP91142252ZZZZ	PNP, Sensing on short device side
KTX-WP91141252ZZZZ	PNP, Sensing on Long device side
KTX-WN91142252ZZZZ	NPN, Sensing on short device side
KTX-WN91141252ZZZZ	NPN, Sensing on Long device side
7000-1221-0141000	Murr Female M12 4 Pin, 5 Meter Cable

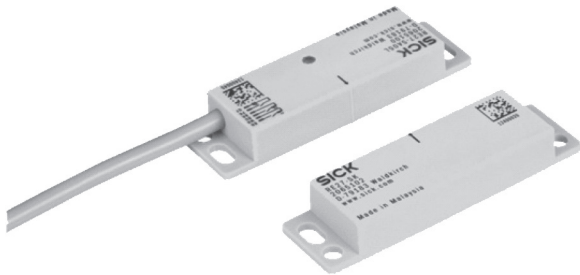


IME Proximity Sensor
M8 3 Pin, 10-30 VDC, IP 67, non shielded

Model Number	Description
IME08-2N5PSZT0S	08mm PNP NO
IME08-2N5POZT0S	08mm PNP NC
IME08-2N5NSZT0S	08mm NPN NO
IME08-2N5NOZT0S	08mm NPN NC
7000-08041-6100500	Murr M8 Female 3 Pin, 5 Meter Cable

IME Proximity Sensor
M12 4 Pin, 10-30 VDC, IP 67, non shielded

Model Number	Description
IME12-04NPSZC0S	12mm PNP NO
IME12-04NPOZC0S	12mm PNP NC
IME12-04NNSZC0S	12mm NPN NO
IME12-04NNOZC0S	12mm NPN NC
IME18-08NPSZC0S	18mm PNP NO
IME18-08NPOZC0S	18mm PNP NC
IME18-08NNSZC0S	18mm NPN NO
IME18-08NNOZC0S	18mm NPN NC
IME30-15NPSZC0S	30mm PNP NO
IME30-15NPOZC0S	30mm PNP NC
IME30-15NNSZC0S	30mm NPN NO
IME30-15NNOZC0S	30mm NPN NC
7000-1221-0141000	Murr Female M12 4 Pin, 5 Meter Cable



RE2 Safety Door Switch
M12 10-30 VDC

Model Number	Description
RE27-SA68L	2 NO Magnetic Switch w/ M12
7000-1221-0141000	Murr Female M12 4 Pin, 5 Meter Cable



i10 Safety Door Lock
M12 10-30 VDC

Model Number	Description
i10-E0454 Lock	2 NC Contacts, Power to Lock
iE10-S4	Straight Actuator
iE10-A4	90 degrees actuator
7000-1221-0141000	Murr Female M12 4 Pin, 5 Meter Cable



IDM Handheld Scanner

Model Number	Description
IDM160-300S USB Kit	Corded USB Kit for 1D codes
IDM260-100S USB Kit	Corded USB Kit for 1D and 2D codes
IDM260-100S RS-232 Power Kit	Corded RS-232 Kit for 1D and 2D codes

1515-LS Profile



1515-S Profile



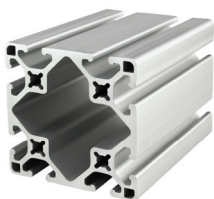
1530-LS Profile



1530-S Profile



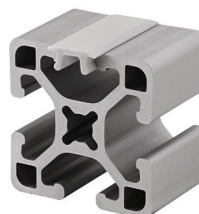
3030-LS Profile



3030-S Profile



Standard
T-Slot Cover



2109 Yellow
2111 Grey

End Cap with
Push-In Fastener



2030 1515 Pro-
file
2045 1530 Pro-
file

Cable Tie
Mounting Block



12316

Deluxe
Leveling Foot



2194

Economy Floor
Mount Base Plate



2415 1515 Profile
2417 1530 / 3030
Profile

Drop-in Lite Panel
Mount Block



14167

Standard Captive
Lift-Off Hinge Assembly



2106

Plastic
Door Handle



2061

0 Degree
Deadbolt Latch



2107

Single Arm Narrow
Mesh Retainer
with Narrow
Backing Plate



2436

*Call your local Hartfel 80/20 resource on how to order.

Flanged Button Head
Socket Cap Screw



3330 15 Series
5/16 - 18 X .687

Standard
End Fastener



3380 15 Series
5/16 - 18

4 Hole 90 Degree
Angled Flat Plates



4328

5 Hole 90 Degree
Angled Flat Plates



4351

12 Hole 90 Degree
Angled Flat Plates



4350

2 Hole Straight
Flat Plate



4307

3 Hole Straight
Flat Plate



4306

4 Hole Square
Flat Plate



4367

5 Hole Tee
Flat Plate



4340

7 Hole Cross
Flat Plate



4335

16 Hole Cross
Flat Plate



4370

5 Hole "L"
Flat Plate



4481

5 Hole "T"
Flat Plate



4480

2 Hole Inside
Corner Bracket



4302

4 Hole Wide Inside
Corner Bracket



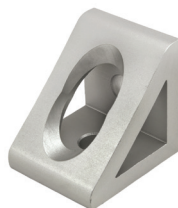
4303

8 Hole Gusseted
Inside Corner Bracket



4338

2 Hole Gusseted
Inside Corner Bracket



4332

4 Hole Tall
Gusseted Inside
Corner Bracket



4336

4 Hole Wide
Gusseted Inside
Corner Bracket



4334

Roll-in T-Nut with Flex
Handle



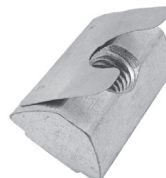
3282
5/16 - 18

Slide-in Economy T-Nut
Offset Thread



3278
5/16 - 18

Tall Self-Aligning Roll-in
T-Nut with Spring Leaf



13041
5/16 - 18

Economy Sensor
Drop-in T-Nut



13180
M4 - .60

[illegible]

Information is provided "as is" without any express or implied warranty of any kind. Hartfield Automation will not be responsible for clerical, typographic, or printing errors.

The descriptions and specifications of the products listed in this catalog were correct at the the date of publication and are subject to change without notice.

Precautions Concerning the Application, Installation and Service of MAC[®] Valves

The precautions below are important to be read and understood before designing into a system any MAC valve, and before installing or servicing any MAC valve. Improper use, installation or servicing of any MAC valve in some systems could create a hazard to personnel or equipment.

APPLICATION PRECAUTIONS:

INDUSTRIAL USE –

MAC valves are intended for use in industrial pneumatic and/or vacuum systems. They are not intended for consumer use or service. They are general purpose industrial valves with literally thousands of different applications in industrial systems. These products are not inherently dangerous, but they are only a component of an overall system. The system in which they are used must provide adequate safeguards to prevent injury or damage in the event failure occurs, whether it be failure of switches, regulators, cylinders, valves or any other component.

POWER PRESSES –

MAC valves are not designed nor intended to be used to operate and/or control the operation of clutch and/or brake systems on power presses. There are special products on the market for such use.

2-POSITION VALVES –

Some MAC valves are 2-position, 4-way valves. When air is supplied to the inlet port(s) of these valves, there will always be a flow path from the inlet to one of the outlets regardless of which of the two positions the valve

is situated. Therefore, if pressurized air retained in the system would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the trapped air.

3-POSITION VALVES –

Some MAC valves are 3-position, 4-way valves. These valves are either double solenoid or double remote air operated. If either of the two operators is in control, air supplied to the inlet port(s) will pass through the valve to one of the outlets as on 2-position, 4-way valves. However, if neither operator is in control, the valve moves to a center position. Listed below are the various center position functions:

A. CLOSED CENTER –

With this type valve, when in the center position all ports are blocked (inlets and exhausts) meaning the air at both outlet ports is trapped. If trapping the air in both outlet ports would present a hazard in the application or servicing, a separate method in the system must be provided to remove the trapped air or this type valve should not be used.

B. OPEN CENTER –

With this type valve, when in the center position, the inlet port(s) is blocked and the two outlet parts are open to the exhaust port(s) of the valve. If having no air in either outlet part would present a hazard in the application or servicing, this type valve should not be used.

C. PRESSURE CENTER –

With this type valve, when in the center position, the inlet port(s) is connected to both outlet parts of the valve. If having pressurized air to either or both outlet ports would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the retained air.

OPERATING SPECIFICATIONS –

MAC valves are to be installed only on applications that meet all operating specifications described in the MAC catalog for the valve.

MANUAL OPERATORS –

Most MAC valves can be ordered with manual operators. Manual operators when depressed, are designed to shift the valve to the same

position as would the corresponding solenoid or remote air pilot operator if it were activated. Care must be taken to order a type, if any, that will be safe for the physical location of the manual operator in the system. Accidental activation of a manual operator could create a dangerous situation. If intentional or accidental operation of a valve by a manual operator could create a dangerous situation then the “no operator” option should be used.

REMOTE AIR OPERATED VALVES

Pilot valves supplying signal pressure to remote air operated valves should be 3-way valves with adequate supply and exhaust capacity to provide positive pressurizing and exhausting of the pilot supply line. Pilot lines should be open to exhaust when valves are deenergized.

INSTALLATION PRECAUTIONS:

A. Do not install MAC valves on a machine without first turning off air (bleed system completely) and electricity to the machine.

B. MAC valves should only be installed by qualified, knowledgeable personnel who understand how the specific valve is to be pneumatically piped and electrically connected (where applicable). Flow paths through the valve are shown in the catalog and on the valve by use of ANSI or ISO type standard graphic symbols. Do not install unless these symbols and the valve functions and operations are thoroughly understood.

SERVICE PRECAUTIONS:

A. Do not service or remove from service any MAC valve without first shutting off both the air and electricity to the valve and making certain no pressurized air which could present a hazard is retained in the system.

B. MAC valves should only be serviced or removed from service by qualified, knowledgeable personnel who understand how the specific valve is piped and used and whether there is air retained in the connecting lines to the valve or electric power still connected to the valve.

C. MAC valves are never to be stepped on while working on a machine. Damage to the valve, or lines to the valve (either air or electrical lines) or accidental activating of a manual operator on the valve could result in a dangerous situation.

WARNING:

Under no circumstances are MAC valves to be used on power presses for air clutch and/or brake operations where failure of the valve to operate as intended could in any way jeopardize the safety of the operator or any other person. Under no circumstances are MAC valves to be used in any circuit or in any manner intended to prevent unintended operation of any machinery or other equipment where failure of the valve to operate as intended could jeopardize the safety of the operator or any other person. Air valves are not safety devices nor should they be used in safety systems of any type.

LIMITATION OF GUARANTEE

This Guarantee is limited to the replacement or rebuilding of any valve which should fail to operate properly. Valves, under the MAC Guarantee, must be returned (with or without bases) transportation prepaid and received at our factory within the Guarantee period. They will be returned to the customer at the expense of MAC Valves, Inc., and will carry the same guarantee as provided under the Flat Rate Rebuild Program.

DISCLAIMER OF GUARANTEE

No claims for labor, material, time, damage, or transportation are allowable nor will any valve be replaced or rebuilt under this guarantee which has been damaged by the purchaser not in the normal course of its use and maintenance during the warranty period. Thus guarantee does not apply to loss or damage caused by fire, theft, riot, explosion, labor dispute, act of God, or other causes beyond the control of MAC Valves, Inc. MAC Valves, Inc. shall in no event be liable for remote, special or consequential damages under the MAC Guarantee, nor under any implied warranties, including the implied warranty of merchantability.

The above Guarantee is our manner of extending the engineering and service resources of the MAC Valves, Inc. organization to assure our customer long, and continued satisfaction.

Locations

Minneapolis, MN (Headquarters)
Serving Minnesota, North Dakota,
and South Dakota

6533 Flying Cloud Drive, Suite 100,
Eden Prairie, MN 55344

Ph: 952.974.2500

Fx: 952.974.2600

Des Moines, IA

Serving Iowa and Nebraska

3215 99th Street, Urbandale, IA 50322

Ph: 515.309.0670 Fx: 515.309.0671

Kansas City, KS

Serving Kansas, Western Missouri,
and Oklahoma

8017 Flint Street, Lenexa, KS 66214

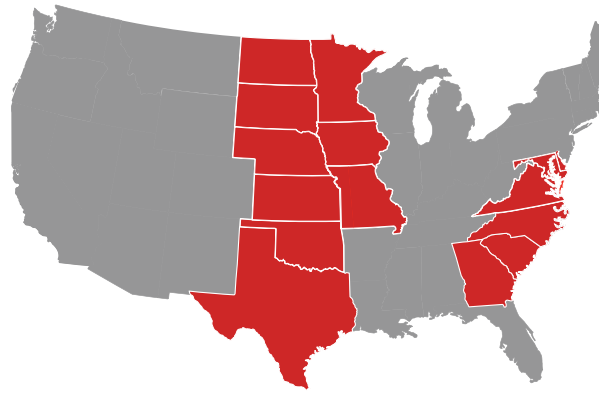
Ph: 913.894.6545 Fx: 913.894.6674

Dallas, TX

Serving Texas

2600 Technology Drive, Suite 300,
Plano, TX 75074

Ph: 972.633.0000 Fx: 972.663.8010



Atlanta, GA

Serving Georgia

1400 Northbrook Pkwy, Suite 350

Suwanee, GA 30024

Ph: 678.221.2703 Fx: 678.221.2750

Charlotte, NC

Serving North and South Carolina

7148 Weddington Rd, Suite 130,

Concord, NC 28027

Ph: 704.788.1240 Fx: 704.788.1245

Richmond, VA

Serving Virginia, West Virginia, Delaware,
Maryland, and DC

11501 North Lakeridge Parkway, Suite 450,
Ashland, VA 23005

Ph: 540.898.4511 Fx: 540.898.2067

Products

Pneumatics

Machine Control

Mobile Automation

Robotics

Motion Control

Sensors & Safety

Vision Systems

Hydraulics

Vacuum

Services

Customer Profit

Reinforcement (CPR[®])

Custom Assembly

Automation Consulting

Hartfiel Automation

Headquarters

6533 Flying Cloud Drive, Suite 100

Eden Prairie, MN 55344

Ph: 952.974.2500

info@Hartfiel.com

FX: 952.974.2600

www.Hartfiel.com



HARTFIEL
AUTOMATION