

ISO SERIES

3 & 4-Way options. Fastest available response time with patented MACSOLENOID®, a balanced poppet pilot valve for high flow, precise repeatability, and consistent operation.

Patents and Patents Pending

ISO SERIES VALVES

IS001, IS002, IS01, IS02, IS03 SERIES (Cv from 043)



ISO 1



ISO 2



ISO 3

ISO SERIES 1 - OPERATING DATA

REGULATOR: 0 to 120 PSI

Single Regulator - Single Pressure

Pressure supplied to the base or manifold passes through the regulator. Regulated pressure is supplied to both cylinder ports 2 & 4.

Single Regulator - Dual Pressure*

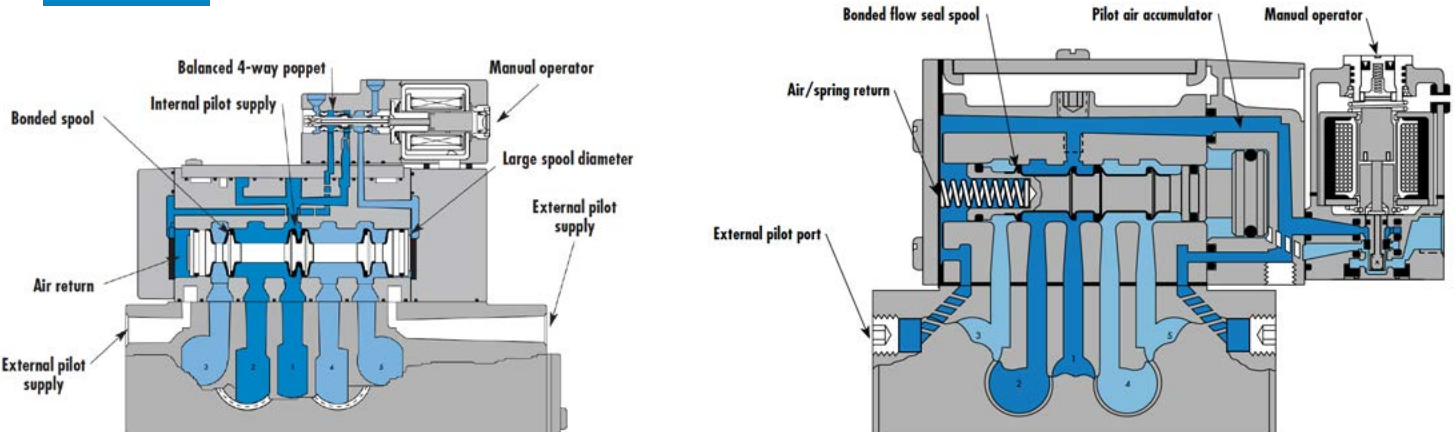
A by-pass plate opposite the regulator permits line pressure to one cylinder port and regulated pressure to the other.

Dual Regulator - Dual Pressure*

Regulated pressure from "12" end regulator supplies cylinder port 2.
Regulated pressure from "14" end regulator supplies cylinder port 4.

EXHAUST

PRESSURE



ISO SERIES 2 & 3 - OPERATING DATA

REGULATOR: 7 to 120 PSI

Single Regulator - Single Pressure*

Pressure supplied to the base or manifold passes through the regulator. Regulated pressure is supplied to both cylinder ports 2 & 4.

Single Regulator - Dual Pressure*

A by-pass plate opposite the regulator permits line pressure to one cylinder port and regulated pressure to the other.

Dual Regulator - Dual Pressure*

Regulated pressure from "12" end regulator supplies cylinder port 2.

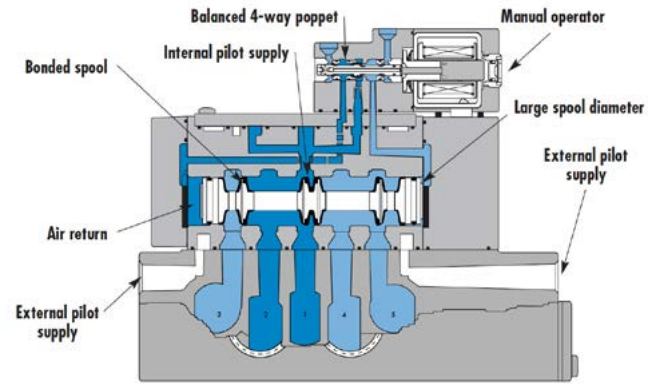
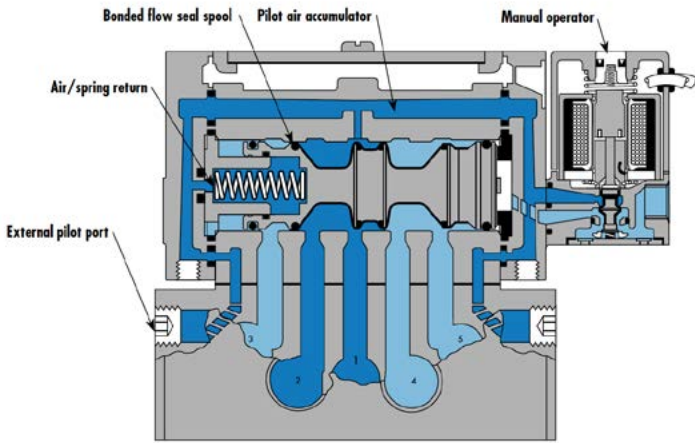
Regulated pressure from "14" end regulator supplies cylinder port 4.

EXHAUST

PRESSURE

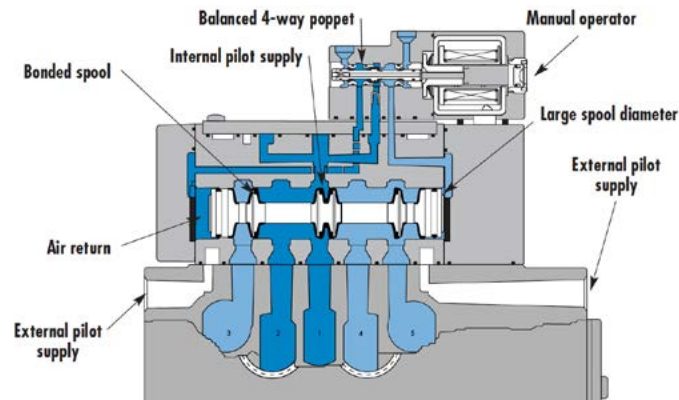
With single and Dual Pressure Regulators

ISO 2 (Cv 2.3)



With single and Dual Pressure Regulators

ISO 3 (Cv 54)



SMALL 3-WAY

LARGE 3-WAY

SMALL 4-WAY

LARGE 4-WAY

ISO VALVES

PPC VALVES

PULSE VALVES

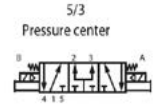
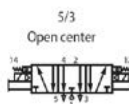
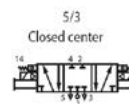
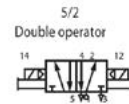
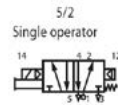
BULLET VALVES

ISO SERIES - 3-WAY PILOT

Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	1/4" - 3/8"	1.8Cv	Vac to 150PSI	Coverless Analog Base Mount

OPERATIONAL BENEFITS

- Fastest available response time with patented MACSOLENOID®.
- No-stick operation is ensured by wiping action of unique MAC spool/bore combination.
- Balanced poppet pilot valve for high flow, precise repeatability, and consistent operation.
- Large spool piston for high shifting force even at minimum operating pressure.
- Air/spring return for consistent shifting on single solenoid models.
- Patented virtually burn-out proof AC solenoid.
- Optional low wattage DC solenoids down to 1.0 watt.
- Various manual operators & electrical connectors are available.
- Muffled or threaded pilot exhaust ports.
- Internal or external pilot models available.



ISO 1

ISO SERIES - MV-AXB ISO 1, 2 & 3

MV A X B - X XXX - XX - XX X XX - 9
 1 2 3 4 5 6 7 Assembled to Base

1 - ISO Number

1 ISO 1	2 ISO 2	3 ISO 3
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2 - Operator

A Solenoid	B Remote Air
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3 - Functions Of Operators

Single Pressure

111	Internal Pilot Sgl. Op. w/Air Spring Return
121	External Pilot Sgl. Op. w/Air Spring Return
211	Internal Pilot, Double Operator
221	External Pilot, Double Operator
312	Internal 3 Position Closed Centre
322	External 3 Position Closed Centre
311	Internal 3 Position Open Centre
321	External 3 Position Open Centre

Dual Pressure Value

131	Internal Pilot from Port 3. Sgl. Op. w/Air Spring
135	Internal Pilot from Port 5. Sgl. Op. w/Air Spring
141	External Pilot Sgl. Op. w/Air Spring
231	Internal Pilot from Port 3. Dbl. Op. 2 Position
232	Internal Pilot from Port 5. Dbl. Op. 2 Position
241	External Pilot Double Operator 2 Position
331	Internal Pilot from Port 3. 3 Position P. Centre
332	Internal Pilot from Port 5. 3 Position P. Centre
341	External Pilot 3 Position P. Centre
161	External Universal Spool Sgl. Op. w/Air Spring
261	External Universal Spool, Dbl. Op. 2 Position

4 - Pilot Exhaust

PM	Pilot Exhaust Muffled	PP	Pilot Exhaust Piped
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5 - Voltage

AC Voltage

11	120/60, 110/50	22	24/50-60
26	400/50	39	230/50

DC Voltage

50	24 VDC (6W)	55	12 VDC (6W)
57	12 VDC (2.5W)	59	24 VDC (2.5W)
60	12 VDC (8.5W)	61	24 VDC (8.5W)

Other AC & DC voltages available. DC wattage from 1.0 to 17 Watts

6 - Manual Operators

0	No Operator	1	Non-Locking Recessed (Standard)
2	Locking Recessed	3	Non-Locking Extended
4	Locking Extended		

7 - Enclosure

JA	Square No Light (On Sol.)	JB	Rect. No Light (On Sol.)
JC	Square w/Light (On Sol.)	JD	Rect. w/Light (On Sol.)
JE	Square w/o Light (On Body)	JF	Rect. No Light (On Body)
JG	Square w/Light (On Body)	JH	Rect. w/Light (On Body)

MODEL NUMBER EXAMPLE: MV - A1B - A212 - PM - 391JD

ISO1, Valve Only, Double Solenoid, 2-Position Single Pres., Internal Pilot, Muffled Pilot Exhaust, 230/50 AC Voltage, Standard Non Locking Recessed Override, Rectangular DIN Connector w/Light.

FLOW: Cv (average all ports: individual base & manifold)

PILOT EXHAUST		ISO1	ISO2	ISO3
2 Position	1/4"	1.6	-	-
	3/8"	1.6	3.0	-
	1/2"	-	3.0	6.3
	3/4"	-	-	6.3
3 Position	1/4"	14	-	-
	3/8"	14	2.7	-
	1/2"	-	2.7	5.8
	3/4"	-	-	5.8

ISO SANDWICH FLOW CONTROL

Style

FCP1A-AA	Plug-In flow control w/screwdriver slot
FCP1A-AB	Plug-In flow control w/locking knob
FCP1A-BA	Non Plug-In flow control w/screwdriver slot
FCP1A-BB	Non Plug-In flow control w/locking knob

Note: If flow control module is to be installed between valve and base at the factory, add -9 after the flow control model number.

For example: FCP1A-AA-9 19489 Tie Rod

ISO - NON PLUG-IN BASES AND MANIFOLDS

$$\begin{array}{cccc} \text{M} & \text{X} & \text{A} & \text{X} & \text{C} & - & \text{X} & \text{X} & \text{X} & - & 9 \\ \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & & \text{T} & \text{T} & \text{T} & & \text{T} \\ 1 & 2 & 3 & 4 & & & & & & & \text{Assembled to Base} \end{array}$$

1 - Type

M Manifold B Individual Base

2 - ISO Number

1 ISO #1 2 ISO #2 3 ISO #3

3 - Port Size & Thread Type

ISO1	ISO2	ISO3
12 1/4" BSPP	3/8" BSPP	1/2" BSPP
13 3/8" BSPP	1/2" BSPP	3/4" BSPP
15 1/4" BSPT	3/8" BSPT	1/2" BSPT
16 3/8" BSPT	1/2" BSPT	3/4" BSPT
32 1/4" BSPP	3/8" BSPP	Common External Pilot Manifold Only
33 3/8" BSPP	1/2" BSPP	
35 1/4" BSPT	3/8" BSPT	
36 3/8" BSPT	1/2" BSPT	

4 - Porting Arrangement

- | | |
|--|-----------------------------------|
| 1 Side Ports | 2 Side Ports w/Bottom 2 & 4 Ports |
| 3 Side & Bottom Ports (all) | 4 Bottom Port #1 |
| 5 Side Ports w/Bottom #1, 2, & 4 Ports | 6 Bottom Port #1, 3, & 5 |
| 8 Bottom Port #2, 3, 4 & 5 | 7 Bottom Port #3, & 5 |

Manifold Accessories

MA1003	Blank station cover plate
32835	Inlet/Exhaust Isolator Plug
N-63002-01	Manifold fastening kit

ISO - NON PLUG-IN REGULATOR

$$\begin{array}{ccccccc} \text{P} & \text{R} & \text{A} & \text{X} & \text{A} & - & \text{X} & \text{X} & \text{X} & \text{X} & \text{X} \\ \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} \\ \text{ISO } 1, 2 \text{ \& } 3 & 1 & 2 & 3 & 4 & 5 \end{array}$$

1 - Adjustment Type

Manual Adjust w/ Slotted Stem

A * B ** C ***

Air Pilot Adjust

D * E ** F ***

Manual Adjust w/ Locking Knob

G * H ** J ***

Manual Adjust w/ Locking Slotted Stem

K * L ** M ***

* Internal pilot

** External Pilot Or Double Remote Air

*** Regulator Only

2 - Configuration

- O "Regulator only"
- A Regulator "14" end blank plate "12" end
- B Regulator "14" end w/bypass "12" end
- C Regulator "12" end blank plate "14" end
- D Regulator "12" end w/bypass "14" end
- E Regulators both ends

3 - Gauges

- A No gauge
- B Non-filled gauge (1)
- C Non-filled gauge (2)
- D Non-filled gauge (1)
- E Non-filled gauge (2)
- K Gauge port only w/pipe plug

Note: Must order as separate line item @ N/C if part of regulator

4 - Pressure Range

- A 0 to 120PSI B 0 to 80PSI C 0 to 30PSI
- D 0 to 120PSI on "14" end - 0 to 80PSI on "12" end
- E 0 to 120PSI on "12" end - 0 to 80PSI on "14" end
- F 0 to 120PSI on "14" end - 0 to 30PSi on "12" end
- G 0 to 120PSI on "12" end - 0 to 30PSi on "14" end
- H 0 to 80PSI on "14" end - 0 to 30PSi on "12" end
- J 0 to 80PSI on "12" end - 0 to 30PSi on "14" end

5 - Assembly

- 9 Regulator assembled to valve

Gauge Assemblies

N-82016-01	Gauge kit (0-120 PSI - "B & C" options)
N-82016-02	Gauge kit (0-120 PSI - "D & E" options)
N-82016-03	Gauge kit (0-80 PSI - "B & C" options)
N-82016-04	Gauge kit (0-80 PSI - "D & E" options)
N-82016-05	Gauge kit (0-30 PSI - "B & C" options)
N-82016-06	Gauge kit (0-30 PSI - "D & E" options)
N-82015-01	Gauge kit (0-120 PSI - "F & G" options)
N-82015-02	Gauge kit (0-120 PSI - "H & J" options)

NOTE:

Use an externally piloted valve assembly with ISO regulators. There is no need for external piping since the internal unregulated pilot air is supplied by a cross drilling in the rectangular block. To order, substitute the figure 4 (dual pressure) or 5 (single pressure) in the standard model number:

MV-AXB-XX4X-XX-XXXZZ Example: MV-A2B

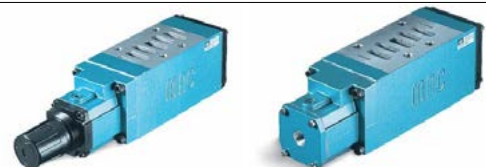
ISO 1



ISO 2



ISO 3

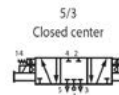
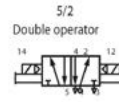
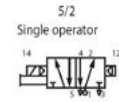


ISO SERIES - 4-WAY PILOT

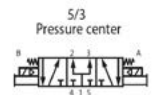
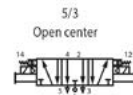
Function	Port size	Flow (Max)	Pressure Range	Individual Mounting
5/2, 5/3	1/4"	6.1Cv	Vac. to 150PSI	Valve only - No base non-'Plug-In'. Conform to ISO 15407/1

OPERATIONAL BENEFITS

- Unique patented MACsolenoid with oval shaped armature for fastest possible response times.
- Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
- MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
- Large spool area for maximum shifting force seven at minimum operating pressure.
- Very high flow in a compact package. Pilot valve and main valve in the same body.
- Internal or external pilot operation.
- Air only return.
- Optional low wattage DC solenoid down to 1.0 Watt.



ISO 2



ISO - MV-X1A (4-WAY PILOT)

MV - $\begin{matrix} X & X & A & - & X & X & X & X & - & XX & - & D & XX & X & - & X & XX \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & & & 8 & 9 & 10 & 11 & & & & \end{matrix}$

1 - Style

B 4-way non plug-in Base P 4-way plug-in Base

2 - ISO

1 ISO1 2 ISO2 3 ISO3

3 - Type

A Solenoid B Remote Air

4 - Valve Function

Option from section 1

A Sgl. Oper./Sgl. Pressure	B Dbl. Oper./Sgl. Pressure
C Sgl. Oper./Dual Pressure	D Dbl. Oper./Dual Pressure
E 3-Pos. Closed Center	F 3-Pos. Open Center
G 3-Pos. Dual Pressure PC.	
J Sgl. Oper. /Sgl. & Dual Pressure (Universal)	
K Dbl. Oper./Sgl. & Dual Pressure (Universal)	
L 3 Position Universal Closed Center	
M 3 Position Universal Open Center	

5 - Spool Return

A Standard return	B Memory spring (N/A w/Univ.)
D Standard return / light on top	E Memory spring / light on top
G Standard Return/Pilot Exh.out Main Exhaust (DU Pilot Only)	

6 - Internal / External Pilot

A Internal pilot sgl. pressure	B Ext. pilot 12 end
C External pilot 14 end	D Dual pres. int. pilot from #3
E Dual pres. int. pilot from #5	

7 - Pilot Valve Exhaust Options

DM Pilot valve w/muffled exhaust	DP Pilot valve w/piped exhaust
DU Pilot Valve w/ Exhaust to Main Exhaust	

8 - Voltage Options

JA 120/60, 110/50	JC 24/60, 24/50
JF 240/50	DA 24 VDC (54W)
DB 12 VDC (54W)	DE 12 VDC (12.7W)(CLSF)
DF 24 VDC (12.7W)(CLSF)	FA 12 VDC (1.8W)
FB 24 VDC (1.8W)	FE 12 VDC (24W)
FF 24 VDC (24W)	

9 - Lead Length - Other Options Available

P Plug-in standard	O No wires
A 18" Coil leads	J 6" Coil leads

10 - Manual Operator Options

0 No operator	1 Non-locking manual operator
2 Locking manual op.	3 Non-locking extended manual operator
4 Locking extended manual operator	

11 - Electrical Connection Options

BA Grommet	BK Grommet with diode
BL Grommet with M.O.V.	JB Rectangular plug-in
JD Rect. plug-in w/light	JM Rectangular male only
KA Mini plug-in	KB Mini plug-in with diode
KC Mini plug-in w/M.O.V.	KD Mini plug-in with light
KE Mini plug-in w/light & diode	KF Mini plug-in w/light & M.O.V.
KG Mini plug-in w/LED light & diode	KJ Mini plug-in male only
KK Mini plug-in male only w/diode	KL Mini plug-in M. only w/M.O.V.

Note: On above options a ground wire is required when the coil is above 30 volts.

Pilot Valves - Bodies and Assemblies

DMB-A3	4 Way Pilot Body (Muffled Exhaust)
DPB-A3	4 Way Pilot Body (Piped Exhaust)
DMB-DXXX-XXX-3	Complete Pilot Valve
DPB-DXXX-XXX-3	Complete Pilot Valve
DXXX-XXX 1	Solenoid and Cover Assembly
DM3A-A3	3 Way Pilot Body (Muffled Exhaust)
DP3A-A3	3 Way Pilot Body (Piped Exhaust)
DM3A-DXXX-XXX-3	Complete 3-Way Pilot Valve
DP3A-DXXX-XXX-3	Complete 3-Way Pilot Valve

Modifications

416G	2 1/2ft. Prewired cord (for mini connector)
416K	6ft. Prewired cord (for mini connector)
416L	10ft. Prewired cord (for mini connector)

Note: Low wattage available as complete valves only.

Note: For double solenoid valves, all adders must be doubled.

ISO - PLUG-IN BASES AND MANIFOLDS

$$\begin{array}{cccccc} \text{M} & \text{P} & \text{A} & \text{X} & \text{X} & \text{X} & \text{X} & \text{X} & \text{9} \\ \text{T} & \text{T} & & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} \\ 1 & 2 & & 3 & 4 & 5 & 6 & & \end{array}$$
 Assembled to Base

1 - Type

M Manifold B Individual base

2 - ISO

1 ISO1 2 ISO2 3 ISO3

3 - Port Size & Thread Type

Bases and End Station Manifolds

12 1/4" BSPPL 13 3/8" BSPPL

Manifolds Only

32 1/4" BSPPL (Common External Pilot)

33 3/8" BSPPL (Common External Pilot)

Manifolds Only Middle Stations

*42 1/4" BSPPL *43 3/8" BSPPL

*62 1/4" BSPPL (Common External Pilot)

*63 3/8" BSPPL (Common External Pilot)

* Common Inlet and Exhaust Ports Untapped. Use For Middle Stations In a Stack.

4 - Port Configuration

1 Side Ports 2 Side Ports w/ Bottom 2 & 4 Ports
3 Side & Bottom Ports (all)

5 - Wiring

A Single Wire Assembly B Double Wire Assembly

6 - Light Voltage - No light in base

JA 120 Volt light JB 220/240 Volt light

DA 24 Volt light

Manifold Accessories

M-P1001 Blank station cover plate

32835 Inlet/Exhaust Isolator Plug

N-P1007-01 Manifold fastening kit

ISO PLUG-IN REGULATOR

$$\begin{array}{cccccc} \text{PRP1A} & \text{X} & \text{X} & \text{X} & \text{X} & \text{X} \\ \text{T} & \text{T} & \text{T} & \text{T} & \text{T} & \text{T} \\ 1 & 2 & 3 & 4 & 5 & \end{array}$$

1 - Adjustment

Manual Adjust With Screwdriver Slot

A Internal Pilot B External Pilot

C Regulator Only

Air Adjust

D Internal Pilot E External Pilot

F Regulator Only

Manual Adjust With Knob

G Internal Pilot H External Pilot

J Regulator Only

Manual Adjust w/ Screwdriver Slot w/ Locknut

K Internal Pilot L External Pilot

M Regulator Only

2 - Configuration

0 "Regulator Only"

A Regulator "14" End Blank Plate "12" End

B Regulator "14" End w/Bypass "12" End

C Regulator "12" End Blank Plate "14" End

D Regulator "12" End w/Bypass "14" End

E Regulators Both Ends

3 - Gauges

A No Gauge

B Non-Filled Gauge (1) Perpendicular To Manual Operator

C Non-Filled Gauge (2) Perpendicular To Manual Operator

D Non-Filled Gauge (1) Parallel To Manual Operator

E Non-Filled Gauge (2) Parallel To Manual Operator

K Gauge Port Only w/Pipe Plug

Note: Must order as separate line item @ N/C if part of regulator

4 - Pressure Range

A 0 to 120 psi

B 0 to 80 psi

C 0 to 30 psi

D 0 to 120 psi on "14" end, 0 to 80 psi on "12" end

E 0 to 120 psi on "12" end, 0 to 80 psi on "14" end

F 0 to 120 psi on "14" end, 0 to 30 psi on "12" end

G 0 to 120 psi on "12" end, 0 to 30 psi on "14" end

H 0 to 80 psi on "14" end, 0 to 30 psi on "12" end

J 0 to 80 psi on "12" end, 0 to 30 psi on "14" end

5 - Assembly

9 Regulator Assembled To Valve

Gauge Assemblies

N-82016-01 Gauge Kit (0-120 PSI - "B & C" Options)

N-82016-02 Gauge Kit (0-120 PSI - "D & E" Options)

N-82016-03 Gauge Kit (0-80 PSI - "B & C" Options)

N-82016-04 Gauge Kit (0-80 PSI - "D & E" Options)

N-82016-05 Gauge Kit (0-30 PSI - "B & C" Options)

N-82016-06 Gauge Kit (0-30 PSI - "D & E" Options)

