ROSS®

BULLETIN 470

Madison Series

ROSS SELECT 4400™

High Pressure Pneumatic Valves

Applications for the following industries:

- PET Stretch Blow Molding
- Marine
- Aviation
- High Pressure Air Compression
- Metal Forming
- Petrochemical

The ROSS Solution to 40-Bar Air Control

Patents Pending in the U.S. and other countries.

Primary 3/2 Valve

- 3/2 normally closed.
- Patented ball-seat internal design.
- Base mounted.
- G 3/4, G 1, and SAE ports.
- Operates with 10 bar pilot pressure.
- Choice of solenoid voltages and power ratings.
- DIN 43650 Form A electrical connectors.
- Hardcoat anodized bodies inside and out.
- Rated flow of 4.72 C_v.*

Patents Pending in the U.S. and other countries.

Pressure Select Valve

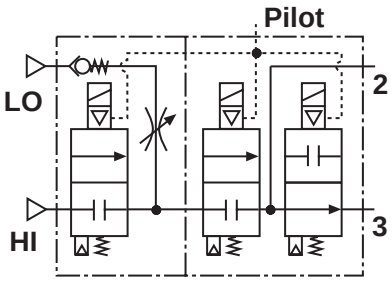
Patents Pending in the U.S. and other countries.

Pressure Select Valve with Integrated Flow Control

- Provides low pressure flow downstream.
- Built-in internal check function.
- Available with integrated flow control.
- Same flow rating and valve body specification as the Primary valve.

Primary & Pressure Select Manifold Assembly

Patents Pending in the U.S. and other countries.



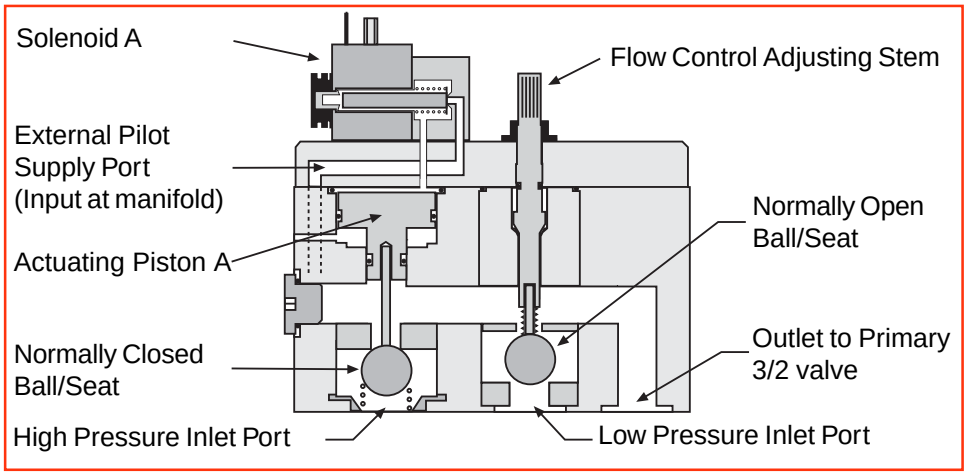
Schematic shown with optional integrated flow control.

- Complete 3/2 Primary valve with Pressure Selector valve in a compact assembly.
- All components are base mounted for ease of maintenance.
- Simple installation - just pipe the low pressure, high pressure, and pilot air lines and then install the silencer.
- No additional components to pipe up for high-pressure, low-pressure, and exhaust circuit.
- Repair kits available.
- Valves share common internal parts.
- Special high-nitrile seals retard decompression failures.

* C_v is an average reference value to define the ability of a valve to flow air. Consult ROSS for performance charts.

How it all works

Pressure Selector Valve with Flow Control and Internal Check



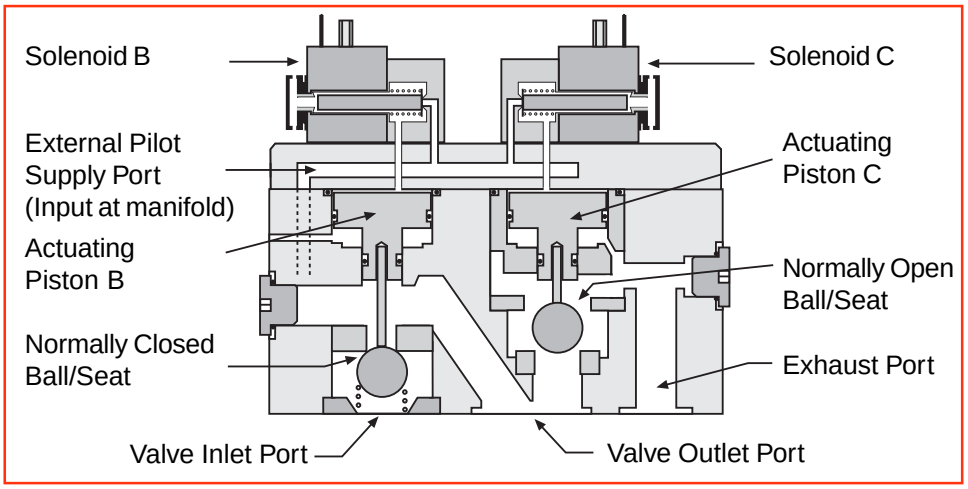
1. With no power to solenoid A, low-pressure air flows from the low pressure inlet to outlet feeding the inlet of the Primary valve. The flow rate is fully adjustable from no flow up to full flow by rotating the adjusting stem.

2. When solenoid A is energized, high pressure air is then supplied to the selector valve outlet thus supplying full pressure to the inlet of the Primary valve. The normally open ball, acting as a check, closes preventing high pressure air from flowing upstream in the low pressure line.

3. De-energizing solenoid A returns the valve to the state described in item 1 above.

NOTE: No additional components are needed to provide low pressure, flow control, and checking functions.

Primary 3/2 Valve



1. With no power to the solenoids, the valve inlet is closed and downstream air pressure is vented to atmosphere.

2. Energizing solenoid C causes the normally open ball to close the exhaust port. Energizing solenoid B pushes the normally closed ball off seat pressurizing the valve outlet port with pressure and flow as selected by the selector valve (see above).

3. Energizing solenoid A on the selector valve then supplies high pressure air downstream.

4. De-energizing solenoids B and C closes the valve inlet and opens the exhaust port allowing downstream pressure to vent to atmosphere.

STANDARD SPECIFICATIONS

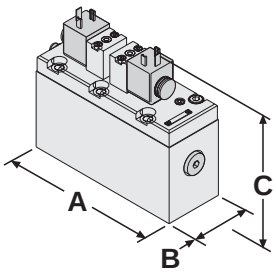
Solenoids: Rated for continuous duty.
Standard Voltage: 24 volts d.c.; 100–120 volts 60 Hz; 230 volts 50 Hz. Other voltages available on request.
Power Consumption (each solenoid): 11VA inrush, 8.5 VA holding on 50 or 60 Hz, 6 watts on d.c. Low-watt coil - 2.8 watts on d.c.
Electrical Protection Rating: NEMA 4; IP 65

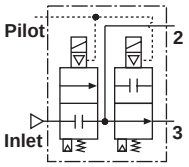
Materials: Anodized aluminum, stainless steel
Ambient/Media Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered, dry air – 5 micron minimum.
Inlet Pressure: 0 to 600 psig (0 to 40 bar).*
Pilot Supply Pressure: 100 to 150 psig (7 to 10 bar).**
Connector Type: DIN 43650 Type A.

*Contact ROSS for pressures greater than 600 psi (40 bar).
**Solenoid pilots rated for 230 psi (16 bar) available. Consult ROSS.

Primary & Pressure Select Valves

Primary Valves

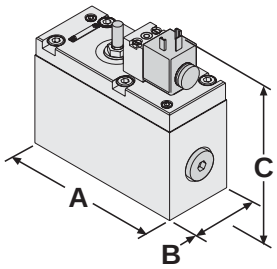


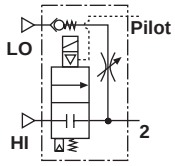


Port Size	Valve/Base	Valve Only	Base Only	Manual Override	Average C_v	Dimensions inches (mm)* A	B	C	Weight lb (kg) Valve	Base
G 3/4	D4473A5501	4473A5401	D1292C91	No	4.7	6.8 (171)	2.5 (64)	5.9 (150)	7.3 (3.3)	2.9 (1.3)
G 3/4	D4473A5511	4473A5411	D1292C91	Yes	4.7	6.8 (171)	2.5 (64)	5.9 (150)	7.3 (3.3)	2.9 (1.3)
G 1	D4473A6501	4473A5401	D1581C91	No	4.7	6.8 (171)	2.5 (64)	5.9 (150)	7.3 (3.3)	2.5 (1.1)
G 1	D4473A6511	4473A5411	D1581C91	Yes	4.7	6.8 (171)	2.5 (64)	5.9 (150)	7.3 (3.3)	2.5 (1.1)

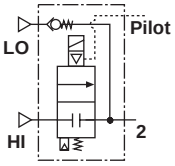
* Dimensions are for valve only. See page 6 for base and manifold dimensions.

Pressure Selector Valves





With Flow Control

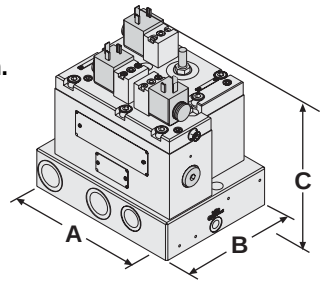


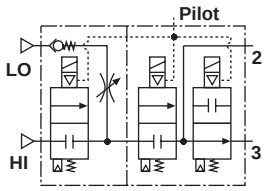
Without Flow Control

Port Size	Valve	Flow Control	Manual Override	Average C_v	Dimensions inches (mm) A	B	C	Weight lb (kg)
G 3/4	4470A5402	No	No	4.7	5.9 (150)	2.5 (64)	5.9 (150)	6.0 (2.7)
G 3/4	4470A5403	Yes	No	4.7	5.9 (150)	2.5 (64)	5.9 (150)	6.0 (2.7)
G 3/4	4470A5412	No	Yes	4.7	5.9 (150)	2.5 (64)	5.9 (150)	6.0 (2.7)
G 3/4	4470A5413	Yes	Yes	4.7	5.9 (150)	2.5 (64)	5.9 (150)	6.0 (2.7)

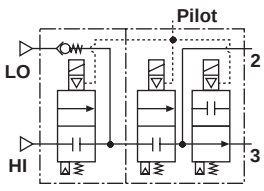
Primary & Pressure Selector Valve Manifold Assemblies

Shown with flow control option.





With Flow Control



Without Flow Control

Port Size	Valve/ Manifold	Manifold Only	Flow Control	Manual Override	Average C_v	Dimensions inches (mm)* A	B	C	Manifold Weight lb (kg)**
G 3/4	D4470A5501	D1286C91	No	No	4.7	7.7 (196)	5.8 (147)	7.8 (198)	7.0 (3.2)
G 3/4	D4470A5502	D1286C91	Yes	No	4.7	7.7 (196)	5.8 (147)	7.8 (198)	7.0 (3.2)
G 3/4	D4470A5511	D1286C91	No	Yes	4.7	7.7 (196)	5.8 (147)	7.8 (198)	7.0 (3.2)
G 1	D4470A6501	D1516C91	No	No	4.7	7.7 (196)	5.8 (147)	7.8 (198)	7.0 (3.2)
G 1	D4470A6502	D1516C91	Yes	No	4.7	7.7 (196)	5.8 (147)	7.8 (198)	7.0 (3.2)
G 1	D4470A6511	D1516C91	No	Yes	4.7	7.7 (196)	5.8 (147)	7.8 (198)	7.0 (3.2)

* Dimensions are for valve/manifold assembly. See page 6 for base and manifold dimensions.

** Manifold only weight. See tables above for individual valve weights.

More valves, more features, special designs

Primary Blow Valve

Patents Pending in the U.S. and other countries.

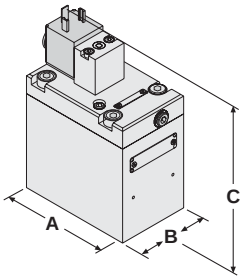
- 2/2 normally closed or open functions.
- Same stainless steel ball/seat design.
- Base mounted.
- Available in a wide range of solenoid voltages and power ratings.
- Base mounted design for easy installation and maintenance.

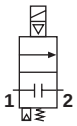
Custom Designs

- Special manifolds designed to fit your machine requirements.
- Choice of electrical connector options.
- Custom porting options.
- Custom valve layout.

2/2 Valves

2/2 Normally Closed Valves

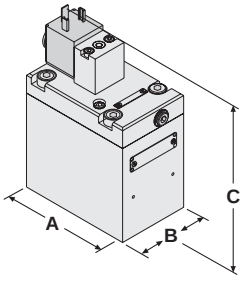


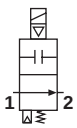


Port Size	Valve/Base	Valve	Base	Low Watt Coil	Manual Override	Average C_v	Dimensions inches (mm)* A	B	C	Weight lb (kg) Valve	Base
G 3/4	D4471A5501	4471A5401	D1518C91	Yes	Yes	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)
G 3/4	D4471A5521	4471A5401	D1572C91	Yes	Yes	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)
G 3/4	D4471A5522	4471A5402	D1572C91	No	No	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)
G 1	D4471A6501	4471A5401	D1519C91	Yes	Yes	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)
G 1	D4471A6502	4471A5402	D1519C91	No	No	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)

* Dimensions are for valve only. See page 6 for base and manifold dimensions.

2/2 Normally Open Valves



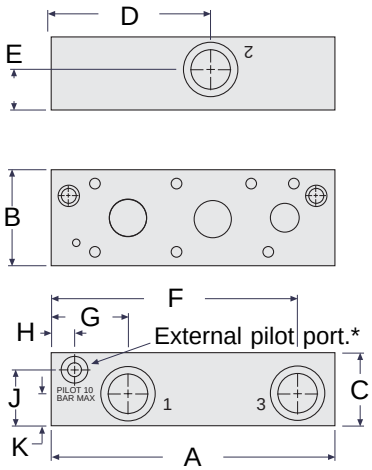


Port Size	Valve/Base	Valve	Base	Low Watt Coil	Manual Override	Average C_v	Dimensions inches (mm)* A	B	C	Weight lb (kg) Valve	Base
G 3/4	D4472A5501	4472A5401	D1518C91	Yes	Yes	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)
G 3/4	D4472A5502	4472A5402	D1518C91	No	No	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)
G 1	D4472A6501	4472A5401	D1519C91	Yes	Yes	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)
G 1	D4472A6502	4472A5402	D1519C91	No	No	4.7	5.0 (128)	3.0 (77)	7.8 (199)	4.0 (1.9)	2.5 (1.1)

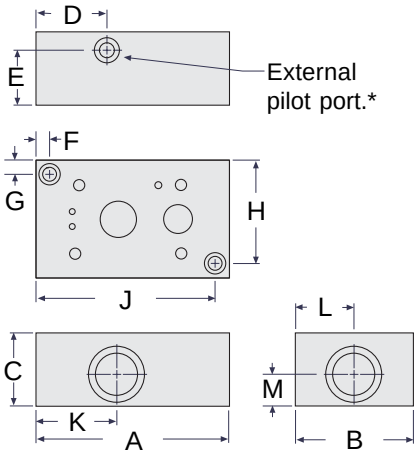
* Dimensions are for valve only. See page 6 for base and manifold dimensions.

Bases & Manifolds

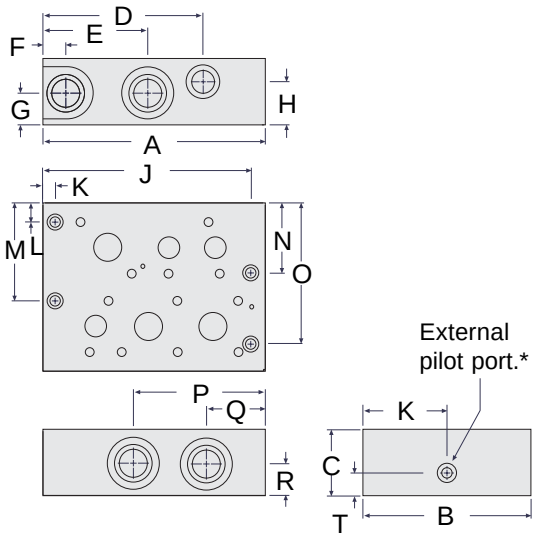
Dimensions inches (mm)



	D1292C91	D1581C91
Port Size	G 3/4	G 1
A	7.4 (188)	7.4 (188)
B	2.5 (64)	2.5 (64)
C	1.9 (48)	1.9 (48)
D	4.2 (107)	4.2 (107)
E	1.1 (28)	1.1 (28)
F	6.4 (163)	6.4 (163)
G	2.0 (51)	2.0 (51)
H	0.6 (15)	0.6 (15)
J	1.5 (38)	1.5 (38)
K	0.8 (21)	0.8 (21)



	D1518C91	D1519C91
Port Size	G 3/4	G 1
A	5.0 (127)	5.0 (127)
B	3.1 (79)	3.1 (79)
C	1.9 (48)	1.9 (48)
D	1.9 (48)	1.9 (48)
E	1.4 (36)	1.4 (36)
F	0.4 (10)	0.4 (10)
G	0.4 (10)	0.4 (10)
H	2.7 (69)	2.7 (69)
J	4.7 (119)	4.7 (119)
K	2.1 (53)	2.1 (53)
L	1.5 (38)	1.5 (38)
M	0.8 (20)	0.8 (20)



	D1286C91	D1516C91
Port Size	G 3/4	G 1
A	7.7 (196)	7.7 (196)
B	5.8 (147)	5.8 (147)
C	2.3 (58)	2.3 (58)
D	5.6 (142)	5.6 (142)
E	3.7 (94)	3.7 (94)
F	0.8 (20)	0.8 (20)
G	1.1 (28)	1.1 (28)
H	1.5 (38)	1.5 (38)
J	7.3 (185)	7.3 (185)
K	0.5 (13)	0.5 (13)
L	0.7 (18)	0.7 (18)
M	3.4 (86)	3.4 (86)
N	2.4 (61)	2.4 (61)
O	4.9 (124)	4.9 (124)
P	4.6 (116)	4.6 (116)
Q	2.0 (51)	2.0 (51)
R	1.1 (28)	1.1 (28)
S	2.9 (74)	2.9 (74)
T	0.8 (20)	0.8 (20)

***All external pilot supply ports are G 1/8. (10 bar max.)

Repair Kits & Accessories

Valve Body Repair Kits

3/2 Primary Valves:	**1817H77**
Pressure Select Valves:	**1818H77**
2/2 Normally Closed Valves:	**1870H77**
2/2 Normally Open Valves:	**1869H77**

WARRANTY AND CAUTIONS

Special care to prevent injury to humans and/or damage to equipment must be taken with high pressure products. Standard ROSS warranty and cautions apply, available upon request.

Electrical Connectors

Wired connectors have a 2-meter (6 1/2 ft.) cord with three 18-gauge conductors. Cord is available in either 6-mm or 10-mm diameter and with or without indicator light.

	Without Light	With Light
Wired with 6-mm cord	**721K77**	**720K77**
Wired with 6-mm cord & a blocking diode.	N/A	**989B30-B**
Wired with 10-mm cord	**371K77**	**383K77**
For threaded conduit	**723K77**	**724K77**
For use with drop cord (cord not included)	**937K87**	**936K87**

ROSS CONTROLS® U.S.A. TEL 888-TEK-ROSS custsvc@rosscontrols.com

ROSS EUROPA GmbH Germany FAX 49-6103-7469-4 info@rosseuropa.com

ROSS ASIA K.K. Japan/China FAX 81-427-78-7256 custsvc@rossasia.co.jp

ROSS UK Ltd. United Kingdom FAX 44-1280-705630 sales@rossuk.co.uk

ROSS SOUTH AMERICA Ltda. Brazil TEL 55-11-4335-2200 vendas@ross-sulamerica.com.br

ROSS CONTROLS INDIA Pvt. Ltd. India FAX 91-44-625-8730 sales@rosscontrolsindia.com

Printed in the U.S.A.–3/02