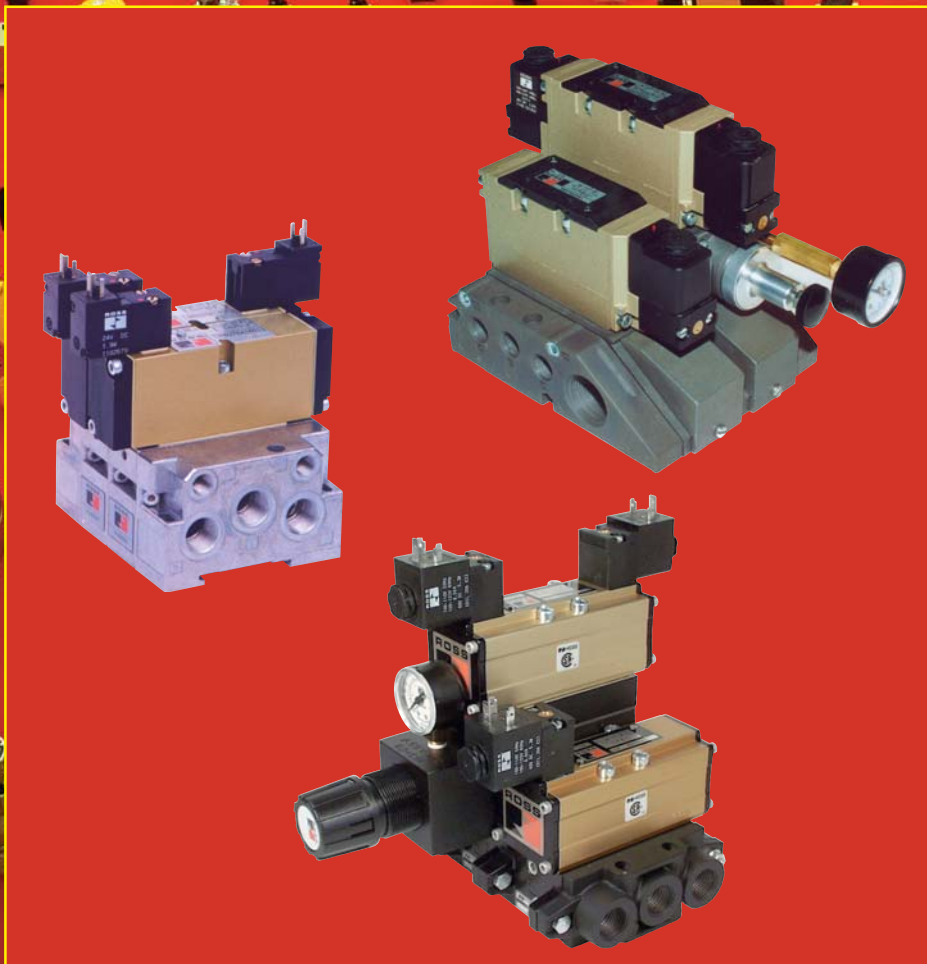




BULLETIN 379B

ISO & VDMA Standard Valves and Bases



• Manufacturers of Premium Pneumatic Controls since 1921 •

ROSS ASIA • ROSS CONTROLS • ROSS EUROPA • ROSS UK

ROSS ISO Valves with Plug-In-Base

Series W65 Valves

ISO 5599/II

- Available in ISO Sizes 1, 2, & 3

Precision Finish Stainless Steel Spool & Sleeve Internals

Provide high shifting speed, long life, non-lube service, and easy maintenance.

Viton® Seals

Robust performance in a wide temperature range and added resistance to chemical attack from lubricant additives.

Rugged Die Cast Construction

Rugged, yet sophisticated, Series W65 valves are built to last.

Solenoid Pilot Operators

Provide high shifting force with low power consumption and a choice of voltages.

ISO 5599/II Interface

Allows global interchangeability by adhering to ISO standards.

Plug-In Valve To Base Electrical Connector

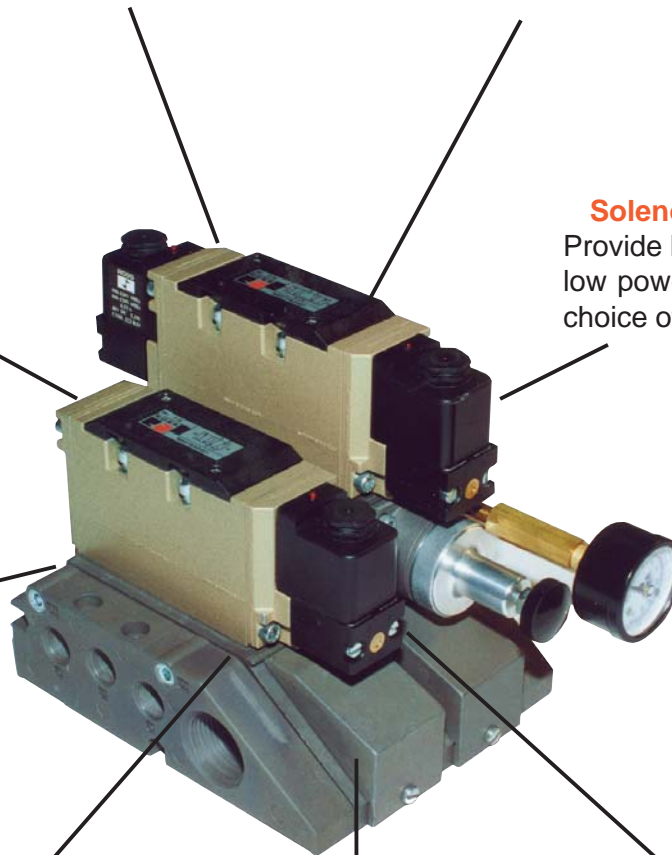
Eliminates need to disconnect wires to remove valve. Simple maintenance, and easy connection to serial bus systems.

“Spider” Gasketed Interface

Positive sealing with zero leakage at interface.

Wiring Cavity

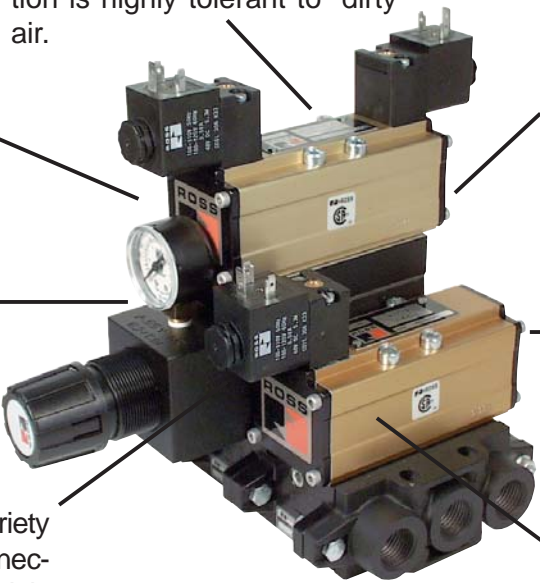
Terminal strips in bases and manifolds make wiring quick and easy, lowering the cost of installation.



ROSS ISO Valves with Drop-Cord Connections

Series W60, W63, & W64

ISO 5599/I



Poppet
Series W64 poppet construction is highly tolerant to “dirty” air.

Resilient Seal Spool
Series W63 resilient seal spool internals have minimal break away friction & are virtually leak-free.

ISO 5599/I Interface
Allows global interchangeability by adhering to ISO standards.

DIN 43650 Electrical Connections Standard
Electrical connectors come in a variety of options including pre-wired connectors with indicator lights. Also, models with 3-pin mini-connectors available that conform to ANSI B93.55M (Meets GM PS-1 standards).

Precision Finish Stainless Steel Spool & Sleeve Internals
Series W60 metal spool internals provide high shifting speed, long life, and easy maintenance.

Non-Lube Service
Long life without the expense of an additional lubrication system.

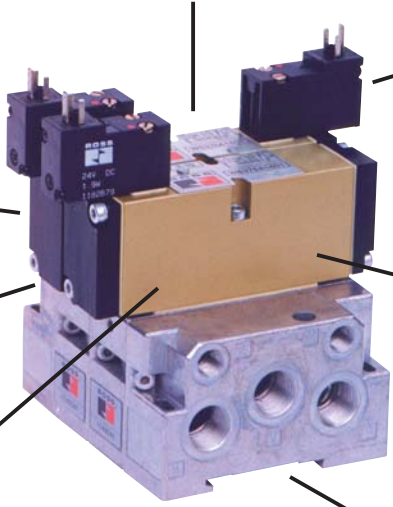
Viton® Seals
Robust performance in a wide temperature range and added resistance to chemical attack from lubricant additives. See pages 12 & 13 for high temperature W64 models.

- Available in ISO Sizes 1, 2, & 3

ROSS VDMA Valves with Drop-Cord Connections

Series W63

VDMA 24563



High Flow – Compact Size
Amazing 1.2 C_v from a 26 mm wide valve. Downsize your package size without sacrificing performance.

Low-wattage Solenoids
Electrical power consumption is only 1.9 watts.

Resilient Seal Spool
Minimal break away friction & virtually leak-free.

VDMA 24563 Interface
Allows global interchangeability by adhering to VDMA standards.

Viton® Seals
Robust performance in a wide temperature range and added resistance to chemical attack from lubricant additives.

Indicator Lights & Surge Suppressors
Electrical connectors come with indicator lights and built-in surge suppressors to protect your electrical controls.

Non-Lube Service
Long life without the expense of an additional lubrication system.

DIN Rail Mounting
Manifolds mount easily in control panels on existing DIN rails.

- Available in VDMA Size 0



ISO & VDMA INTERFACES

ISO valve-to-base interface standards are internationally recognized and used throughout the world. Valves made for bases conforming to ISO standards are interchangeable without regard to manufacturer. ROSS offers a full line of base-mount valves that conform to the ISO valve-to-base mounting interface standard which specifies the “foot print” of the valve - indicating size and locations of ports, mounting bolts, and maximum valve width. There are two specific interface standards. The ISO 5599/I standard is designed for valves with drop cord electrical connections and the 5599/II standard facilitates plug-in-base electrical connections. Additionally, ROSS is proud to offer valves that conform to the VDMA 24563 interface. The Series W63 size 0 valves are ROSS’ newest base-mount offering. These valves also use drop cord connections. All these valves are available with sub-bases for individual installations and with manifolds for stacking several valves together.

GENERAL FEATURES

Pilot Control. ROSS ISO valves are available for remote pressure control, or with solenoid pilots. With either type of control, full line pressure is used which delivers maximum shifting force.

There is no mechanical connection between the pilot valve and the operating valve as there is with direct-acting solenoid valves. This means that the plungers in ROSS solenoid valves move through their full travel, even if the valve is stuck, so that the solenoids are not subject to frequent burnout.

CSA Approval. All ROSS ISO valves meet the requirements of the Canadian Standards Association (CSA). Specify CSA approval when ordering.

Vacuum Service. Metal spool & sleeve valves and resilient seal spool valves (except VDMA size 0 solenoid valves) can be used for vacuum service. An external pilot supply is required for solenoid valves.

Solenoid Pilot Supply. Air pressure for a solenoid pilot is normally supplied via an internal passage from the inlet port. However, an external pilot supply line can be connected to the base at port 14. An internal check valve will then automatically block internal pilot supply when a higher external supply pressure is present (series W60, W63, W64 & W65). If an external supply line is not connected to the base, port 14 must remain blocked. Note: The air pressure for the solenoids on the VDMA size 0 valves can only be supplied from the inlet port - external pilot supply is not available.

Electrical Connectors. *Drop Cord Valves* - Electrical power is supplied via drop cords with connectors which receive the prongs on the solenoid coils. Connectors can be ordered with or without wiring, and with or without indicator lights. See pages 15 & 16.

Plug-in-base Valves - Electrical power is supplied via terminal blocks in the base or manifold. Simply connect your wires to the terminals in the base or manifold. When the valve is mounted on the sub-base, the electrical connection is made automatically.

CONTENTS

Drop Cord Valves

ISO 5599/I

Precision Spool & Sleeve (W60)	
Solenoid Control.....	6
Pressure Control.....	7

Resilient Seal Spool (W63)

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Poppet (W64)

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High Temperature Poppet (W64)

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Bases & Manifolds for ISO 5599/I

Accessories for ISO 5599/I.....

VDMA 24563

Resilient Seal Spool (W63)

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Plug-in-Base Valves

ISO 5599/II

Precision Spool & Sleeve (W65)

Solenoid Control.....	18
Pressure Control.....	19

Bases & Manifolds for Series W65.....

Accessories for Series W65.....

Valve Response Time and Cv Ratings.....

Thread Options.....

Cautions and Warranty.....

General Motors PS-1 Valves - To conform to the General Motors PS-1 standards, the series W60, W63 (ISO 5599/I), and W64 valves are also available with molded 3-pin quick-disconnect solenoid coils. Electrical connection to the pilot should be by a potted oil-tight, 3-pin connector conforming to ANSI standard B93.55M.

A complete pilot assembly can be ordered by part number **976C79**. The encapsulated coil is black with AC voltages and blue with dc voltages. The coil only from the above assembly can be ordered by part number **316K33**. Be sure to specify the correct voltage and hertz.

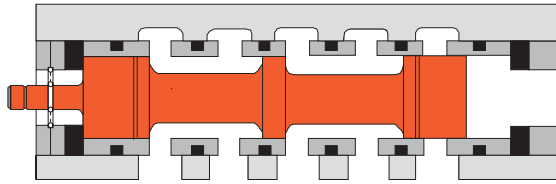


Solenoid pilot assembly with quick-disconnect.

Manual Overrides. Solenoid pilots have non-locking pushbutton manual overrides as standard equipment. The series W60, W63 (ISO 5599/I), W64, and W65 valves are also available with locking overrides.

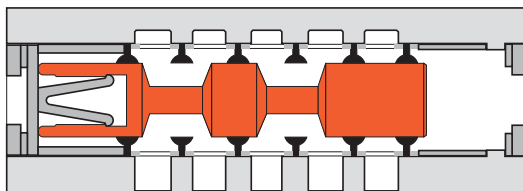
Low-wattage Solenoids. Electrical power consumption for the series W63 VDMA size 0 valves is only 1.9 watts and the series W65 valves use only 4.5 watts per solenoid. These low-wattage valves are easily adaptable to serial bus systems.

**Series W60 & W65
Metal Spool & Sleeve Construction**



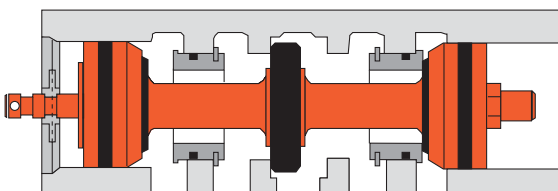
The matched spool and sleeve are precision finished, hardened, stainless steel. The spool moves on a micro-inch film of air between spool and sleeve so that wear is minimized. Designed for use in systems with or without air line lubrication. Available in both 2-position and 3-position designs. See pages 6, 7, 18, & 19 for model information.

**Series W63
Resilient Seal Spool Construction**



A light weight aluminum alloy spool is supported by Buna-N seals. The spool is specially treated to minimize breakaway and running friction. The resilient seals assure practically zero leakage between ports. Available in both 2-position and 3-position designs. See pages 8-11 for model information. Designed for use in systems with or without air line lubrication.

**Series W64
Poppet Construction**



Poppets are face seals which can open or close passages without sliding friction or the close tolerances required of spool valves. They don't build up breakaway resistance due to varnish, and they are highly tolerant of dirty air.

ROSS poppet valves have rugged internals and self-adjusting exhaust poppet seats which equalize wear and promote long life. Designed for use in systems with or without air line lubrication.

Series W64 poppet valves are available in 2-position designs with either single or double control. Models are also made with special internals for use in high-temperature applications. See pages 12 & 13 for both general purpose and high temperature model information

INTERPOSED UNITS

Several different units with special functions are offered for mounting between valve and base. In addition to making a compact installation, these interposed units simplify piping. To order see pages 15 & 21.



Valve shown with exhaust restrictor unit interposed between valve and base.

Interposed Flow Control for Spool Valves. Provides separately adjustable air flow from both exhaust ports so that the speed of the cylinder can be precisely set.

Independent Pressure Plate. Isolates a valve on a manifold from manifold inlet pressure. An independent supply can then be connected to the valve via an inlet port at the end of the pressure plate. (ISO 5599/I only.) See page 15.

Pressure Regulator. Both single and double pressure regulators are available. Single pressure regulators provide the same regulated pressure at both outlet ports. Double pressure regulators allow the pressure at each outlet port to be set independently. See pages 15 & 21.

SUB-BASES and MANIFOLDS

Sub-Bases. Side-ported sub-bases are available in port sizes ranging from 1/8 to 3/4. Bottom-ported sub-bases are also available in 1/4, 3/8, and 1/2 port sizes. See pages 14, 16, & 20

Manifolds. Manifold stations are available with either bottom-ported or end-ported outlets. Outlet port sizes range from 1/4 to 1/2. See pages 14, 17, & 20.

Assembled Manifolds. Fully assembled manifolds with valves installed can be delivered for any specific requirement. Consult ROSS for further information.

Transition Plate. Typically, a manifold installation consists of valves of the same size. However, it is sometimes simpler to make a single installation with valves of different sizes. A transition plate can be installed between manifold stations of different size in order to adapt them together. All valves can still use the same air supply and have common manifolded exhausts. See page 15.

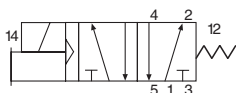
Blank Station Plate. A blank station plate is used to cover the top of a manifold station that is not in use (no valve installed). See pages 15, 16, & 21.

SERIES W60 SPOOL VALVES – Solenoid Control

ISO 5599/I - Drop Cord Connections



5/2 Single Solenoid Pilot Valve

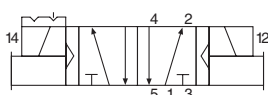


STANDARD SPECIFICATIONS

Solenoids: Rated for continuous duty.
 Standard voltages: 100–110 volts 50 Hz.; 100–120 volts 60 Hz.; 24, 110 volts d.c.
Power Consumption: 8.5 VA inrush; 6 VA holding on 50 or 60 Hz.; 6 watts on d.c.
Ambient Temperature: 40 to 120° F (4 to 50° C).
Media Temperature: 40 to 175° F (4 to 80° C).
Flow Media: 5 micron filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
 Size 1: At least 30 psig (2 bar).
 Size 2 and 3: At least 15 psig (1 bar).



5/2 Double Solenoid Pilot Valve

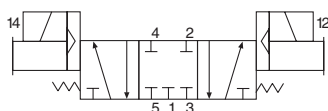


OPTIONS

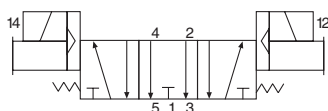
Sub-Bases & Manifolds: Page 14.
Connectors, Electrical: Page 15.
Regulators & Flow Controls, Interposed: Page 15.
Locking Overrides: See note below.[§]
GM PS-1 models with 3-pin mini-connectors: See note below.[♦]



5/3 Open or Closed Center Valve



Closed Center



Open Center

IMPORTANT NOTE

Please read carefully and thoroughly the **CAUTIONS** on page 23.

****VALVE RESPONSE TIME (msec) = M + (F • V)**
 Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE SOLENOID PILOT VALVES

Avg. Cv	ISO Size	Valve Model Number ^{§♦}	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height†	
					In-Out	Out-Exh.				
0.9	1	W6076B2401	1/8 – 3/8	29	3.5	4.9	5.4 (137)	1.7 (42)	4.4 (112)	1.5 (0.7)
1.9	2	W6076B3401	3/8 – 1/2	41	1.5	2.4	6.2 (158)	2.1 (54)	4.7 (119)	2.0 (1.0)
3.9	3	W6076B4401	1/2 – 3/4	51	0.8	1.1	5.9 (150)	2.6 (65)	4.9 (124)	3.5 (1.6)

5/2 DOUBLE SOLENOID PILOT VALVES

0.9	1	W6076B2407	1/8 – 3/8	17	3.5	5.0	6.7 (170)	1.7 (42)	4.4 (112)	2.0 (1.0)
1.9	2	W6076B3407	3/8 – 1/2	20	1.5	2.5	7.5 (191)	2.1 (54)	4.7 (119)	2.5 (1.2)
3.9	3	W6076B4407	1/2 – 3/4	20	0.8	1.1	6.0 (152)	2.6 (65)	4.9 (124)	4.0 (1.9)

5/3 CLOSED CENTER DOUBLE SOLENOID PILOT VALVES

0.9	1	W6077B2401	1/8 – 3/8	30	3.5	5.0	6.7 (170)	1.7 (42)	4.4 (112)	2.0 (1.0)
1.9	2	W6077B3401	3/8 – 1/2	40	1.5	2.5	7.7 (196)	2.1 (54)	4.7 (119)	2.5 (1.2)
3.9	3	W6077B4401	1/2 – 3/4	50	0.8	1.1	6.2 (158)	2.6 (65)	4.9 (124)	4.0 (1.9)

5/3 OPEN CENTER DOUBLE SOLENOID PILOT VALVES

0.9	1	W6077B2407	1/8 – 3/8	30	3.5	5.0	6.7 (170)	1.7 (42)	4.4 (112)	2.0 (1.0)
1.9	2	W6077B3407	3/8 – 1/2	40	1.5	2.5	7.7 (196)	2.1 (54)	4.7 (119)	2.5 (1.2)
3.9	3	W6077B4407	1/2 – 3/4	50	0.8	1.1	6.2 (158)	2.6 (65)	4.9 (124)	4.0 (1.9)

[§] Models with locking overrides can be ordered by changing the 9th digit of model number to "1". For example, W6076B2411.

[♦] For models with 3-pin mini-connectors that conform to G.M. PS-1 standards, change the 9th digit to "3". For example, W6076B2431.

* Port sizes determined by customer's choice of base or manifold. Bases and manifolds sold separately – see page 14.

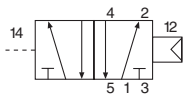
† Height of valve with electrical connector installed. Connectors sold separately – see page 15.

SERIES W60 SPOOL VALVES – Pressure Control

ISO 5599/I



5/2 Single Remote Pilot Valve



STANDARD SPECIFICATIONS

Ambient/Media Temperature: 40 to 175° F (4 to 80° C).

Flow Media: 5 micron filtered air.

Inlet Pressure: Vacuum to 150 psig (10 bar).

Pilot Pressure:

Size 1: At least 30 psig (2 bar).

Size 2 and 3: At least 15 psig (1 bar).

OPTIONS

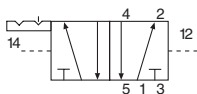
Sub-Bases & Manifolds: Page 14.

Flow Controls, Interposed: Page 15.

Regulators, Interposed: Page 15.



5/2 Double Remote Pilot Valve

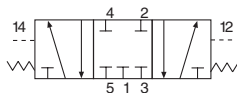


IMPORTANT NOTE

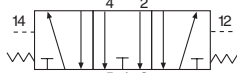
Please read carefully and thoroughly the **CAUTIONS** on page 23.



5/3 Open or Closed Center Valve



Closed Center



Open Center

****VALVE RESPONSE TIME (msec) = M + (F • V)**
Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE REMOTE PILOT VALVES

Avg. Cv	ISO Size	Valve Model Number	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height	
					In-Out	Out-Exh.				
0.9	1	W6056B2411	1/8 – 3/8	29	3.5	4.9	4.2 (106)	1.7 (42)	1.8 (47)	0.8 (0.4)
1.9	2	W6056B3411	3/8 – 1/2	41	1.5	2.4	5.0 (127)	2.1 (54)	2.1 (54)	1.5 (0.7)
3.9	3	W6056B4411	1/2 – 3/4	51	0.8	1.1	6.0 (152)	2.6 (65)	2.3 (59)	3.0 (1.4)

5/2 DOUBLE REMOTE PILOT VALVES

0.9	1	W6056B2417	1/8 – 3/8	17	3.5	5.0	4.2 (106)	1.7 (42)	1.8 (47)	0.8 (0.4)
1.9	2	W6056B3417	3/8 – 1/2	20	1.5	2.5	5.0 (127)	2.1 (54)	2.1 (54)	1.5 (0.7)
3.9	3	W6056B4417	1/2 – 3/4	20	0.8	1.1	6.0 (152)	2.6 (65)	2.3 (59)	3.0 (1.4)

5/3 CLOSED CENTER DOUBLE REMOTE PILOT VALVES

0.9	1	W6057B2411	1/8 – 3/8	30	3.5	5.0	4.3 (108)	1.7 (42)	1.8 (47)	1.0 (0.5)
1.9	2	W6057B3411	3/8 – 1/2	40	1.5	2.5	5.3 (135)	2.1 (54)	2.1 (54)	1.5 (0.7)
3.9	3	W6057B4411	1/2 – 3/4	50	0.8	1.1	6.6 (168)	2.6 (65)	2.3 (59))	3.0 (1.4)

5/3 OPEN CENTER DOUBLE REMOTE PILOT VALVES

0.9	1	W6057B2417	1/8 – 3/8	30	3.5	5.0	4.3 (108)	1.7 (42)	1.8 (47)	1.0 (0.5)
1.9	2	W6057B3417	3/8 – 1/2	40	1.5	2.5	5.3 (135)	2.1 (54)	2.1 (54)	1.5 (0.7)
3.9	3	W6057B4417	1/2 – 3/4	50	0.8	1.1	6.6 (168)	2.6 (65)	2.3 (59))	3.0 (1.4)

* Port sizes determined by customer's choice of base or manifold. Bases and manifolds sold separately – see page 14.

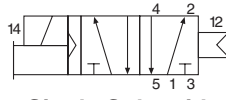
SERIES W63 RESILIENT SEAL SPOOL VALVES

— Solenoid Control

VDMA 24563 - Drop Cord Connections



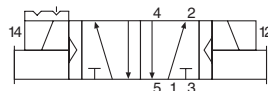
5/2 Single Solenoid Pilot –
Internal Air Return



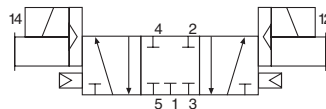
Single Solenoid



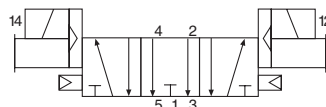
5/2 Double Solenoid Pilot
And
5/3 Open or Closed Center –
Air Spring to Center



Double Solenoid



Closed Center



Open Center

STANDARD SPECIFICATIONS

Solenoids: Rated for continuous duty. Standard voltage 24 volts d.c.; 100–120 volts 60 Hz.

Power Consumption: 1.9 watts.

Ambient/Media Temperature: 23 to 120° F (-5 to 50° C).

Flow Media: 5 micron filtered air.

Inlet Pressure: 30 to 150 psig.

OPTIONS

Sub-Bases & Manifolds: Page 16 & 17.

Connectors, Electrical: Page 16.

Blocking Disks: Page 16.

Blank Station Kit: Page 16.

Din Rail Mounting Kit: Page 16.

IMPORTANT NOTE

Please read carefully and thoroughly the **CAUTIONS** on page 23.

****VALVE RESPONSE TIME (msec) = M + (F • V)**
Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE SOLENOID PILOT VALVES

Avg. Cv	VDMA Size	Valve Model Number	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height	
					In-Out	Out-Exh.				
1.2	0	W6376A1401	1/4	64	4.9	5.2	4.8 (122)	1.0 (26)	3.2 (81)	0.7 (0.3)

5/2 DOUBLE SOLENOID PILOT VALVES

1.2	0	W6376A1407	1/4	43	3.1	5.4	5.2 (132)	1.0 (26)	3.2 (81)	0.8 (0.4)
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5/3 CLOSED CENTER DOUBLE SOLENOID PILOT VALVES

0.9	0	W6377A1401	1/4	38	5.2	5.7	5.2 (132)	1.0 (26)	3.2 (81)	0.9 (0.4)
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5/3 OPEN CENTER DOUBLE SOLENOID PILOT VALVES

0.9	0	W6377A1407	1/4	48	7.1	8.6	5.2 (132)	1.0 (26)	3.2 (81)	0.9 (0.4)
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* Bases and manifolds sold separately – see page 17.

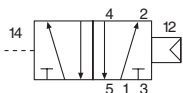
SERIES W63 RESILIENT SEAL SPOOL VALVES

— Pressure Control

VDMA 24563



5/2 Single Remote Pilot – Internal Air Return



STANDARD SPECIFICATIONS

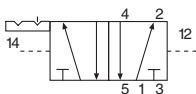
- Ambient/Media Temperature:** 23 to 212° F (-5 to 100° C).
- Flow Media:** 5 micron filtered air.
- Pressure:** 30 to 150 psig.
- Pilot Pressure:** Must be equal to or greater than inlet pressure.

OPTIONS

- Sub-Bases & Manifolds:** Page 16 & 17.
- Blocking Disks:** Page 16.
- Blank Station Kit:** Page 16.
- Din Rail Mounting Kit:** Page 16.



5/2 Double Remote Air Pilot



IMPORTANT NOTE
Please read carefully and thoroughly the **CAUTIONS** on page 23.

****VALVE RESPONSE TIME (msec) = M + (F • V)**
Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE REMOTE PILOT VALVES

Avg. Cv	VDMA Size	Valve Model Number	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height	
					In-Out	Out-Exh.				
1.2	0	W6356A1411	1/4	64	4.9	5.2	4.5 (117)	1.0 (26)	1.7 (42)	0.6 (0.3)

5/2 DOUBLE REMOTE PILOT VALVES

1.2	0	W6356A1417	1/4	43	3.1	5.4	4.2 (107)	1.0 (26)	1.7 (42)	0.6 (0.3)
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* Bases and manifolds sold separately – see page 17.

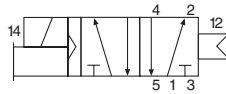
SERIES W63 RESILIENT SEAL SPOOL VALVES

— Solenoid Control

ISO 5599/I - Drop Cord Connections



5/2 Single Solenoid Pilot Valve

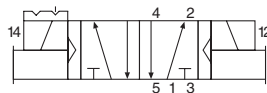


STANDARD SPECIFICATIONS

Solenoids: Rated for continuous duty.
 Standard voltages: 100–110 volts 50 Hz.; 100–120 volts 60 Hz.; 24, 110 volts d.c.
Power Consumption: 8.5 VA inrush; 6 VA holding on 50 or 60 Hz.; 6 watts on d.c.
Ambient Temperature: 40 to 120° F (4 to 50° C).
Media Temperature: 40 to 175° F (4 to 80° C).
Flow Media: 5 micron filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure: At least 30 psig (2 bar).



5/2 Double Solenoid Pilot Valve

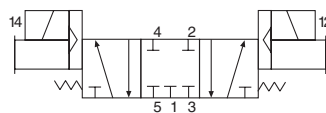


OPTIONS

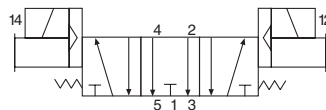
Sub-Bases & Manifolds: Page 14.
Connectors, Electrical: Page 15.
Regulators & Flow Controls, Interposed: Page 15.
Locking Overrides: See note below. §
GM PS-1 models with 3-pin mini-connectors: See note below. †



5/3 Open or Closed Center Valve



Closed Center



Open Center

IMPORTANT NOTE
 Please read carefully and thoroughly the **CAUTIONS** on page 23.

****VALVE RESPONSE TIME (msec) = M + (F • V)**
 Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE SOLENOID PILOT VALVES

Avg. Cv	ISO Size	Valve Model Number [§] †	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height†	
					In-Out	Out-Exh.				
1.1	1	W6376B2401	1/8 – 3/8	30	3.6	5.9	5.9 (137)	1.7 (42)	4.4 (112)	1.3 (0.6)
2.5	2	W6376B3401	3/8 – 1/2	22	1.6	2.3	6.9 (175)	2.1 (54)	4.7 (119)	1.8 (0.8)
4.6	3	W6376B4401	1/2 – 3/4	33	0.9	1.6	7.1 (181)	2.6 (65)	4.9 (124)	2.8 (1.3)

5/2 DOUBLE SOLENOID PILOT VALVES

1.1	1	W6376B2407	1/8 – 3/8	19	2.7	5.4	6.7 (170)	1.7 (42)	4.4 (112)	1.8 (0.8)
2.5	2	W6376B3407	3/8 – 1/2	23	1.4	2.0	7.7 (196)	2.1 (54)	4.7 (119)	2.3 (1.1)
4.6	3	W6376B4407	1/2 – 3/4	29	0.9	1.3	6.6 (168)	2.6 (65)	4.9 (124)	3.3 (1.5)

5/3 CLOSED CENTER DOUBLE SOLENOID PILOT VALVES

2.5	2	W6377C3401	3/8 – 1/2	40	1.3	4.8	7.1 (179)	2.1 (54)	4.7 (119)	2.5 (1.2)
4.6	3	W6377B4401	1/2 – 3/4	47	1.2	2.4	8.3 (211)	2.6 (65)	4.9 (124)	4.0 (1.9)

5/3 OPEN CENTER DOUBLE SOLENOID PILOT VALVES

2.5	2	W6377C3407	3/8 – 1/2	40	1.3	4.8	7.1 (179)	2.1 (54)	4.7 (119)	3.0 (1.4)
4.6	3	W6377B4407	1/2 – 3/4	47	1.2	2.4	8.3 (211)	2.6 (65)	4.9 (124)	4.3 (2.0)

§ Models with locking overrides can be ordered by changing the 9th digit of model number to "1". For example, W6076B2411.

† For models with 3-pin mini-connectors that conform to G.M. PS-1 standards, change the 9th digit to "3". For example, W6076B2431.

* Port sizes determined by customer's choice of base or manifold. Bases and manifolds sold separately – see page 14.

† Height of valve with electrical connector installed. Connectors sold separately – see page 15.

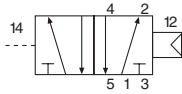
SERIES W63 RESILIENT SEAL SPOOL VALVES

— Pressure Control

ISO 5599/I



5/2 Single Remote Pilot Valve



STANDARD SPECIFICATIONS

Ambient/Media Temperature Range: 40 to 175° F (4 to 80° C).

Flow Media: 5 micron filtered air.

Inlet Pressure: Vacuum to 150 psig (10 bar).

Pilot Pressure: At least 30 psig (2 bar).

OPTIONS

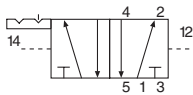
Sub-Bases & Manifolds: Page 14.

Flow Controls, Interposed: Page 15.

Regulators, Interposed: Page 15.



5/2 Double Remote Pilot Valve

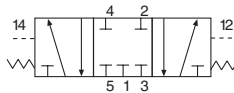


IMPORTANT NOTE

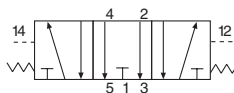
Please read carefully and thoroughly the **CAUTIONS** on page 23.



5/3 Open or Closed Center Valve



Closed Center



Open Center

$$**\text{VALVE RESPONSE TIME (msec)} = M + (F \cdot V)$$

Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE REMOTE PILOT VALVES

Avg. Cv	ISO Size	Valve Model Number	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height	
					In-Out	Out-Exh.				
1.1	1	W6356B2411	1/8 – 3/8	30	3.6	5.9	4.9(124)	1.7 (42)	1.8 (47)	0.8 (0.4)
2.5	2	W6356B3411	3/8 – 1/2	22	1.6	2.3	5.9 (150)	2.1 (54)	2.1 (54)	1.3 (0.6)
4.6	3	W6356B4411	1/2 – 3/4	33	0.9	1.6	7.1 (181)	2.6 (65)	2.3 (59)	2.3 (1.1)

5/2 DOUBLE REMOTE PILOT VALVES

1.1	1	W6356B2417	1/8 – 3/8	19	2.7	5.4	4.3 (109)	1.7 (42)	1.8 (47)	0.8 (0.4)
2.5	2	W6356B3417	3/8 – 1/2	23	1.4	2.0	5.3 (135)	2.1 (54)	2.1 (54)	1.3 (0.6)
4.6	3	W6356B4417	1/2 – 3/4	29	0.9	1.3	6.2 (158)	2.6 (65)	2.3 (59)	2.3 (1.1)

5/3 CLOSED CENTER DOUBLE REMOTE PILOT VALVES

2.5	2	W6357C3411	3/8 – 1/2	40	1.3	4.8	6.0 (152)	2.1 (54)	2.1 (54)	1.3 (0.6)
4.6	3	W6357B4411	1/2 – 3/4	47	1.2	2.4	8.3 (211)	2.6 (65)	2.3 (59))	2.3 (1.1)

5/3 OPEN CENTER DOUBLE REMOTE PILOT VALVES

2.5	2	W6357C3417	3/8 – 1/2	40	1.3	4.8	6.0 (152)	2.1 (54)	2.1 (54)	1.3 (0.6)
4.6	3	W6357B4417	1/2 – 3/4	47	1.2	2.4	8.3 (211)	2.6 (65)	2.3 (59))	2.3 (1.1)

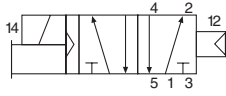
* Port sizes determined by customer's choice of base or manifold. Bases and manifolds sold separately – see page 14.

SERIES W64 POPPET VALVES – Solenoid Control

ISO 5599/I - Drop Cord Connections



5/2 Single Solenoid Pilot Valve



STANDARD SPECIFICATIONS

Solenoids: Rated for continuous duty.

Standard voltages: 100–110 volts 50 Hz.; 100–120 volts 60 Hz.; 24, 110 volts d.c.

Power Consumption: 8.5 VA inrush; 6 VA holding on 50 or 60 Hz.; 6 watts on d.c.

Ambient Temperature: 40 to 120° F (4 to 50° C); *High temperature models:* 40 to 175° F (4 to 80° C).

Media Temperature: 40 to 175° F (4 to 80° C); *High temperature models:* 40 to 220° F (4 to 105° C).

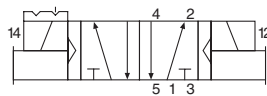
Flow Media: Filtered air.

Inlet Pressure: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.



5/2 Double Solenoid Pilot Valve



OPTIONS

Sub-Bases & Manifolds: Page 14.

Connectors, Electrical: Page 15.

Regulators, Interposed: Page 15.

Locking Overrides: See note below. §

GM PS-1 models with 3-pin mini-connectors: See note below. †

IMPORTANT NOTE

Please read carefully and thoroughly the **CAUTIONS** on page 23.

****VALVE RESPONSE TIME (msec) = M + (F • V)**
Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE SOLENOID PILOT VALVES

Avg. Cv	ISO Size	Valve Model Number [§] †	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height†	
					In-Out	Out-Exh.				
1.0	1	W6476B2401	1/8 – 3/8	33	2.9	5.9	5.6 (142)	1.7 (42)	4.4 (112)	1.3 (0.6)
2.1	2	W6476B3401	3/8 – 1/2	33	1.2	2.3	6.3 (160)	2.1 (54)	4.7 (119)	1.8 (0.8)
4.0	3	W6476B4401	1/2 – 3/4	50	0.7	1.2	6.4 (163)	2.6 (65)	4.9 (124)	2.8 (1.3)

5/2 DOUBLE SOLENOID PILOT VALVES

1.0	1	W6476B2407	1/8 – 3/8	16	2.9	5.6	6.9 (175)	1.7 (42)	4.4 (112)	1.8 (0.8)
2.1	2	W6476B3407	3/8 – 1/2	16	1.2	2.3	7.7 (196)	2.1 (54)	4.7 (119)	2.3 (1.1)
4.0	3	W6476B4407	1/2 – 3/4	16	0.7	1.1	6.4 (163)	2.6 (65)	4.9 (124)	3.3 (1.5)

HIGH TEMPERATURE 5/2 SINGLE SOLENOID PILOT VALVES

1.0	1	W6476B2402	1/8 – 3/8	33	2.9	5.9	5.6 (142)	1.7 (42)	4.4 (112)	1.3 (0.6)
2.1	2	W6476B3402	3/8 – 1/2	33	1.2	2.3	6.3 (160)	2.1 (54)	4.7 (119)	1.8 (0.8)
4.0	3	W6476B4402	1/2 – 3/4	50	0.7	1.2	6.4 (163)	2.6 (65)	4.9 (124)	2.8 (1.3)

HIGH TEMPERATURE 5/2 DOUBLE SOLENOID PILOT VALVES

1.0	1	W6476B2408	1/8 – 3/8	16	2.9	5.6	6.9 (175)	1.7 (42)	4.4 (112)	1.8 (0.8)
2.1	2	W6476B3408	3/8 – 1/2	16	1.2	2.3	7.7 (196)	2.1 (54)	4.7 (119)	2.3 (1.1)
4.0	3	W6476B4408	1/2 – 3/4	16	0.7	1.1	6.4 (163)	2.6 (65)	4.9 (124)	3.3 (1.5)

§ Models with locking overrides can be ordered by changing the 9th digit of model number to “1”. For example, W6076B2411.

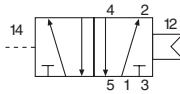
† For models with 3-pin mini-connectors that conform to G.M. PS-1 standards, change the 9th digit to “3”. For example, W6076B2431.

* Port sizes determined by customer’s choice of base or manifold. Bases and manifolds sold separately – see page 14.

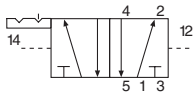
† Height of valve with electrical connector installed. Connectors sold separately – see page 15.

SERIES W64 POPPET VALVES – Pressure Control

ISO 5599/I



5/2 Single Remote Pilot Valve



5/2 Double Remote Pilot Valve

STANDARD SPECIFICATIONS

Ambient/Media Temperature Range: 40 to 175° F (4 to 80° C).

High temperature models: 40 to 220° F (4 to 105° C).

Flow Media: 5 micron filtered air.

Inlet Pressure: Vacuum to 150 psig (10 bar).

Pilot Pressure: At least 30 psig (2 bar).

OPTIONS

Sub-Bases & Manifolds: Page 14.

Regulators, Interposed: Page 15.

****VALVE RESPONSE TIME (msec) = M + (F • V)**
Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

IMPORTANT NOTE
Please read carefully and thoroughly the **CAUTIONS** on page 23.

5/2 SINGLE REMOTE PILOT VALVES

Avg. Cv	ISO Size	Valve Model Number	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height	
					In-Out	Out-Exh.				
1.0	1	W6456B2411	1/8 – 3/8	33	2.9	5.9	4.4 (110)	1.7 (42)	1.8 (47)	0.8 (0.4)
2.1	2	W6456B3411	3/8 – 1/2	33	1.2	2.3	5.1 (130)	2.1 (54)	2.1 (54)	1.3 (0.6)
4.0	3	W6456B4411	1/2 – 3/4	50	0.7	1.2	6.4 (163)	2.6 (65)	2.3 (59)	2.3 (1.1)

5/2 DOUBLE REMOTE PILOT VALVES

1.0	1	W6456B2417	1/8 – 3/8	16	2.9	5.6	4.4 (110)	1.7 (42)	1.8 (47)	0.8 (0.4)
2.1	2	W6456B3417	3/8 – 1/2	16	1.2	2.3	5.1 (130)	2.1 (54)	2.1 (54)	1.3 (0.6)
4.0	3	W6456B4417	1/2 – 3/4	16	0.7	1.1	6.4 (163)	2.6 (65)	2.3 (59)	2.3 (1.1)

HIGH TEMPERATURE 5/2 SINGLE REMOTE PILOT VALVES

1.0	1	W6456B2412	1/8 – 3/8	33	2.9	5.9	4.4 (110)	1.7 (42)	1.8 (47)	0.8 (0.4)
2.1	2	W6456B3412	3/8 – 1/2	33	1.2	2.3	5.1 (130)	2.1 (54)	2.1 (54)	1.3 (0.6)
4.0	3	W6456B4412	1/2 – 3/4	50	0.7	1.2	6.4 (163)	2.6 (65)	2.3 (59)	2.3 (1.1)

HIGH TEMPERATURE 5/2 DOUBLE REMOTE PILOT VALVES

1.0	1	W6456B2418	1/8 – 3/8	16	2.9	5.6	4.4 (110)	1.7 (42)	1.8 (47)	0.8 (0.4)
2.1	2	W6456B3418	3/8 – 1/2	16	1.2	2.3	5.1 (130)	2.1 (54)	2.1 (54)	1.3 (0.6)
4.0	3	W6456B4418	1/2 – 3/4	16	0.7	1.1	6.4 (163)	2.6 (65)	2.3 (59)	2.3 (1.1)

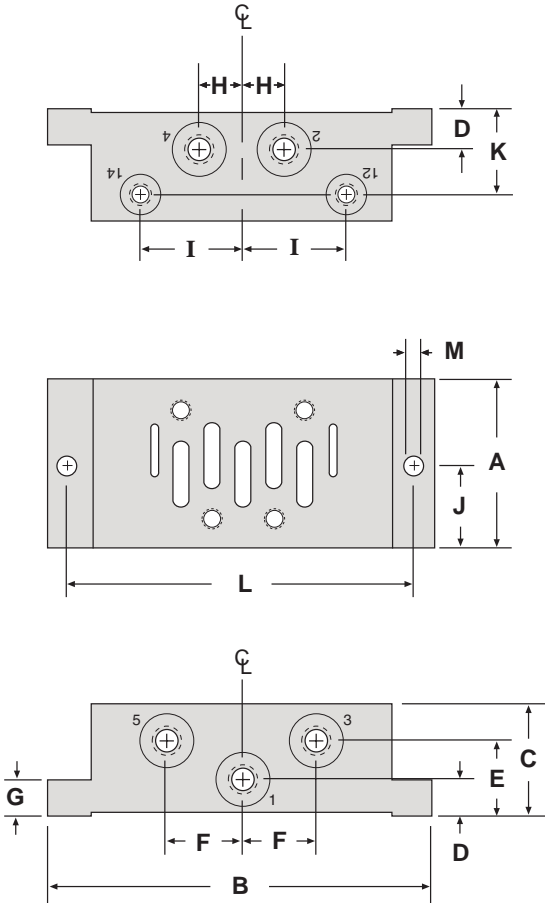
* Port sizes determined by customer's choice of base or manifold. Bases and manifolds sold separately – see page 14.



SUB-BASES and MANIFOLDS for ISO 5599/I VALVES

SUB-BASE NUMBERS and PORT SIZES

ISO Size	Side Ported	Bottom Ported	Port Sizes		
			1, 2, 4	3, 5	12, 14
1	654K91	-	1/8	1/4	1/8
	600C01	659K91	1/4	1/4	1/8
	D600C01	-	G1/4	G1/4	G1/8
	642K91	-	3/8	3/8	1/8
2	601C01	660K91	3/8	3/8	1/8
	D601C01	-	G3/8	G3/8	G1/8
	643K91	-	1/2	1/2	1/8
3	602C01	661K91	1/2	1/2	1/8
	D602C01	-	G1/2	G1/2	G1/8
	644K91	-	3/4	3/4	1/8



Sub-base Dimensions inches (mm)

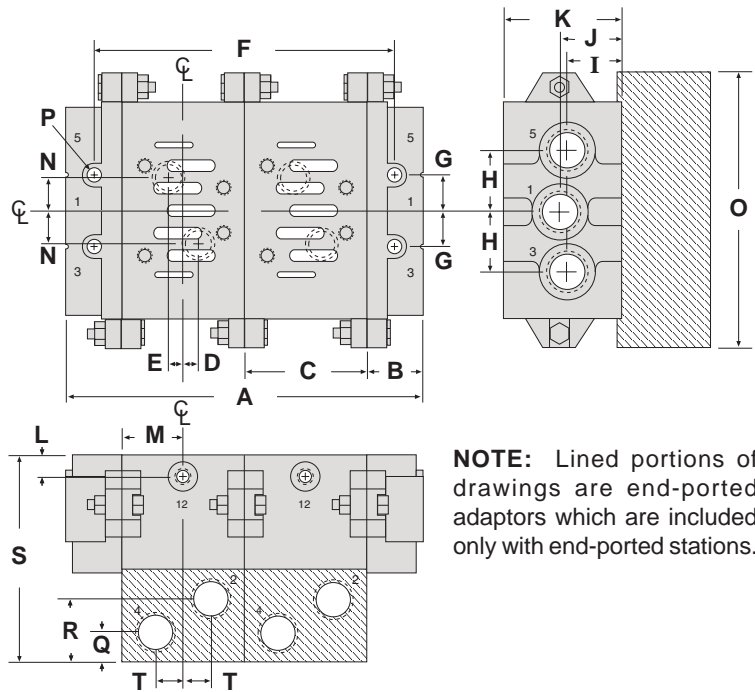
	ISO 1	ISO 2	ISO 3
A	1.89 (48)	2.24 (57)	2.80 (71)
B	4.33 (110)	4.88 (124)	5.87 (149)
C	1.26 (32)	1.57 (40)	1.26 (32)*
D	0.41 (11)	0.55 (14)	0.67 (17)
E	0.85 (22)	1.02 (26)	0.67 (17)
F	0.85 (22)	1.10 (28)	1.34 (34)
G	0.39 (10)	0.51 (13)	0.71 (18)
H	0.47 (12)	0.59 (15)	0.63 (16)
I	1.14 (29)	1.46 (37)	1.77 (45)
J	0.94 (24)	1.12 (29)	1.40 (36)
K	0.93 (24)	1.18 (30)	0.87 (22)
L	3.86 (98)	4.41 (112)	5.35 (136)
M	0.22 (6)	0.26 (7)	0.26 (7)

* 1.77 (45) on sub-base 644K91.

In addition to the manifold stations, an end station kit must be ordered for each manifold installation. End-ported stations are assemblies consisting of a bottom-ported station and an end-ported adaptor plate. Adaptor plates are cross-hatched in the drawings below.

MANIFOLD NUMBERS and PORT SIZES

ISO Size	Bottom Ported Station	End Ported Station	End Station Kit	Port Sizes		
				2, 4	1, 3, 5	12, 14
1	460K91	664K91	326K86	1/4	3/8	1/8
	D460K91	D664K91	D326K86	G1/4	G3/8	G1/8
2	461K91	665K91	327K86	3/8	1/2	1/8
	D461K91	D665K91	D327K86	G3/8	G1/2	G1/8
3	462K91	666K91	328K86	1/2	1	1/8
	D462K91	D666K91	D328K86	G1/2	G1	G1/8



NOTE: Lined portions of drawings are end-ported adaptors which are included only with end-ported stations.

Manifold Dimensions inches (mm)

	ISO 1	ISO 2	ISO 3
A	5.12 (130)	6.46 (164)	7.95 (202)
B	0.87 (22)	1.02 (26)	1.18 (30)
C	1.69 (43)	2.20 (56)	2.80 (71)
D	0.30 (8)	0.24 (6)	0.31 (8)
E	0.06 (2)	0.20 (5)	0.24 (6)
F	4.25 (108)	5.43 (138)	6.77 (172)
G	0.55 (14)	0.69 (18)	1.02 (26)
H	0.94 (24)	1.24 (32)	1.85 (47)
I	0.83 (21)	0.87 (22)	1.22 (31)
J	0.94 (24)	0.94 (24)	1.34 (34)
K	1.81 (46)	1.85 (47)	2.20 (56)
L	0.33 (9)	0.35 (9)	0.39 (10)
M	0.85 (22)	1.10 (28)	1.40 (36)
N	0.51 (13)	0.59 (15)	0.75 (19)
O	4.33 (110)	5.31 (135)	7.48 (190)
P	0.27 (7)	0.35 (9)	0.47 (12)
Q	0.47 (12)	0.55 (14)	0.67 (17)
R	0.98 (25)	1.02 (26)	1.14 (29)
S	3.19 (81)	3.54 (90)	3.90 (99)
T	0.43 (11)	0.57 (15)	0.71 (18)

ACCESSORIES and OPTIONS for MANIFOLDS

Blank Station Kits, Blocking Discs, Pressure Plates, Transition Plates and other available options are shown on page 15.

A and F dimensions are for a 2-station manifold. For each additional station add the C dimension to obtain new A and F dimensions.

ACCESSORIES for ISO 5599/I VALVES



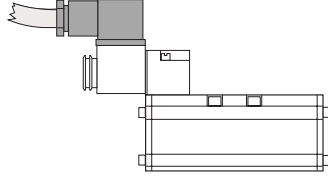
CONNECTORS for use with DROPCORDS

Electrical connectors are required to connect the valve solenoids to the dropcords supplying electrical power.

Each connector can be oriented so that the cord can exit in any one of four directions: outboard, inboard, and to the right or to the left of the valve centerline. Cords of 6-mm to 10-mm diameter can be used.

Indicator Lights. Lights in connectors with a translucent housing can be used as indicator lights to show when solenoids are energized.

Wired Connectors. Connectors have a 6-1/2-ft (2-meter) cord with three 18-gauge conductors. Cord exits outboard as shown at the right. Insulation is water, oil, and abrasion resistant. Connectors are available with 10-mm cords for maximum abrasion resistance, or with 6-mm cords where added flexibility or small diameter is required.



CONNECTORS for use with THREADED CONDUIT

Connectors similar to those above but threaded to accept 1/2-inch electrical conduit fittings are also available.

FLYING SOLENOID LEADS

Instead of the connectors described, power to the solenoids can also be supplied via "flying leads." These are 18-gauge insulated wires with spade connectors at one end. A kit of flying leads consists of three wires, each 39 inches (one meter) long. Order by kit number **725K77**.

PART NUMBERS of ELECTRICAL CONNECTORS

Connector Type	Without Light	With Light*
For use with drop cord (Cord not included)	937K87	936K87
Wired with 6-mm cord	721K77	720K77
Wired with 10-mm cord	371K77	383K77
For use with threaded conduit	723K77	724K77

* Specify solenoid voltage.

BLANK STATION KITS

A blank station plate is used to cover the top of a manifold station that is not in use. A kit consists of a metal plate 0.32 inch (8mm) thick, a gasket, and mounting bolts.

ISO Size 1:	546H77
ISO Size 2:	694K77
ISO Size 3:	537H77

TRANSITION PLATES

Different size ISO valves can be used in the same manifold installation by means of transition plates. The inlet and exhaust ports of two different size manifold stations are connected by means of a transition plate installed between the two stations. Thickness [inches (mm)] of the plates is shown below.

ISO Size 1 to 2 - 0.79 (20):	D355K86
ISO Size 2 to 3 - 1.26 (32):	D356K86
ISO Size 1 to 3 - 1.26 (32):	D357K86

INTERPOSED FLOW CONTROLS for SPOOL VALVES

An interposed flow control unit regulates the exhaust flow of air from a pneumatic cylinder, thereby controlling the extension and retraction speeds. Separate controls regulate the air flow from each end of the cylinder. Being located between the valve and base, the unit requires no additional piping. Available only for Series W60 and W63 spool valves.

ISO Size 1:	701B77
ISO Size 2:	702B77
ISO Size 3:	722K77

INDEPENDENT PRESSURE PLATES

When a valve in a manifold installation must work at a different pressure than that supplied to the manifold, an independent supply can be provided via an independent pressure plate. The pressure plate mounts between valve and base and isolates the valve from the manifold inlet pressure. The independent supply is connected to an inlet port in the end of the pressure plate.

ISO Size 1 (1/4 inlet port):	703K77
ISO Size 2 (3/8 inlet port):	692K77
ISO Size 3 (1/2 inlet port):	715K77

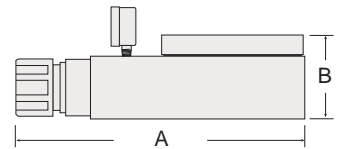
BLOCKING DISKS

Ports between manifold stations can be closed by means of blocking disks.

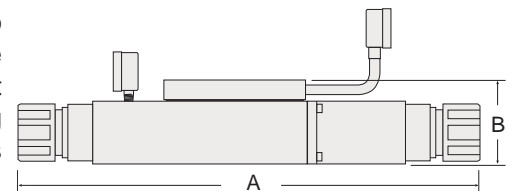
	Single Disk	Kit of 3 Disks
ISO Size 1:	235A40	1007K77
ISO Size 2:	236A40	1008K77
ISO Size 3:	253A40	1009K77

INTERPOSED PRESSURE REGULATORS

Both single and double pressure regulators are available. Single pressure regulators provide the same regulated pressure at both outlet ports. Double pressure regulators allow the pressure at each outlet port to be set independently. Pressure can be regulated from 5 to 100 psig (0.3 to 7 bar) for ISO sizes 1 and 2; 5 to 125 psig (0.3 to 8.5 bar) for ISO size 3. Maximum inlet pressure is 150 psig (10 bar). Requires no new piping.



Single Regulator



Double Regulator

ISO Size	Single	Double** (Solenoid)	Double** (Air)
1	620C91	621C91	710C91
2	624C91	625C91	711C91
3	628C91	629C91	712C91

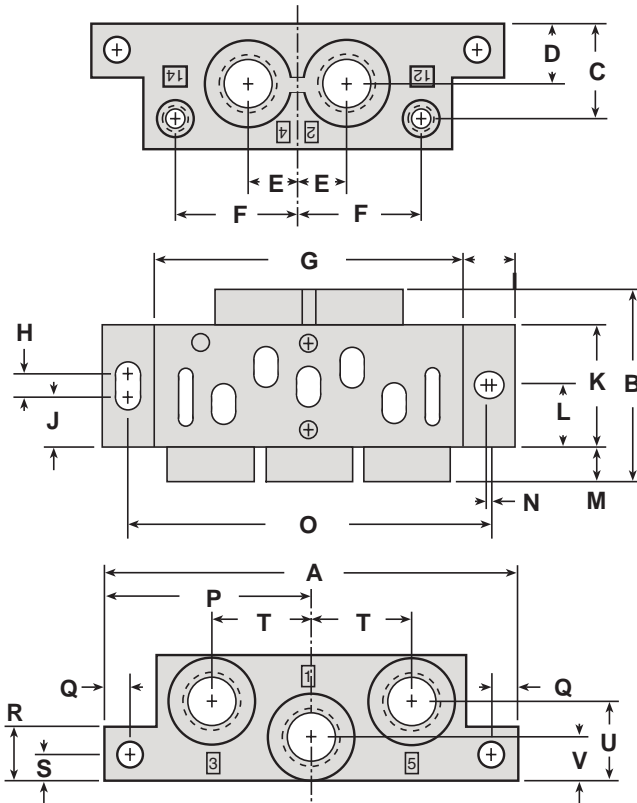
**Double regulators only for series W60 and W63 spool valves.

Regulator Dimensions - inches (mm)

ISO Size	A (Single)	A (Double)	B (Single/Double)
1	7.75 (197)	12.90 (328)	2.50 (64)
2	8.25 (210)	13.60 (346)	2.90 (74)
3	12.70 (323)	20.00 (508)	3.78 (96)



Bases for Series W63 Size 0 VDMA 24563 Valves



SUB-BASE NUMBERS and PORT SIZES

Sub-Base Numbers	Port Sizes			WEIGHT lb(kg)
	1, 2, 4	3, 5	12, 14	
1144C91	1/4	1/4	M5	0.2 (0.1)
D1144C91	G 1/4	G 1/4	M5	0.2 (0.1)

SUB-BASE DIMENSIONS inches(mm)

A	3.7 (92)	L	0.5 (14)
B	1.7 (42)	M	0.3 (8)
C	0.8 (21)	N	0.04 (1)
D	0.5 (14)	O	3.2 (81)
E	0.4 (11)	P	1.9 (46)
F	1.1 (28)	Q	0.2 (6)
G	2.8 (69)	R	0.5 (12)
H	0.2 (5)	S	0.2 (6)
I	0.5 (12)	T	0.9 (22)
J	0.4 (11)	U	0.7 (18)
K	1.1 (27)	V	0.4 (10)

Accessories for Series W63 Size 0 VDMA 24563 Valves



- LED indicator lights
- Built-in surge suppressors

CONNECTORS for use with DROPCORDS

Electrical connectors are required to connect the valve solenoids to the dropcords supplying electrical power. Each connector can be oriented so that the cord can exit in any one of four directions: outboard, inboard, and to the right or left of the valve centerline. Includes a strain relief nut, that accepts a 5-mm diameter cord, a gasket and a mounting screw.

Connector Type	Model Number
For use with dropcord (cord not included)	1604K77*
Wired with 5-mm diameter cord (Cord length - 2 meters)	1605K77*

*Specify solenoid voltage.

WIRED CONNECTORS

Connectors have a 6-1/2 foot (2 meters) cord with three 20-gauge conductors. Cord exits outboard. Insulation is water, oil, and abrasion resistant. Connectors are available with 5-mm diameter cords. Includes gasket and mounting screw.

BLOCKING DISKS FOR INLET/EXHAUST PORTS

Ports 1, 3, and 5, between manifold stations, can be closed with blocking disks which are available in kits of three disks. **1600K77**

BLOCKING DISKS FOR CONTROL PORTS

Ports 12 and 14, between manifold stations, can be closed with blocking disks which are available in kits of two disks. **1601K77**

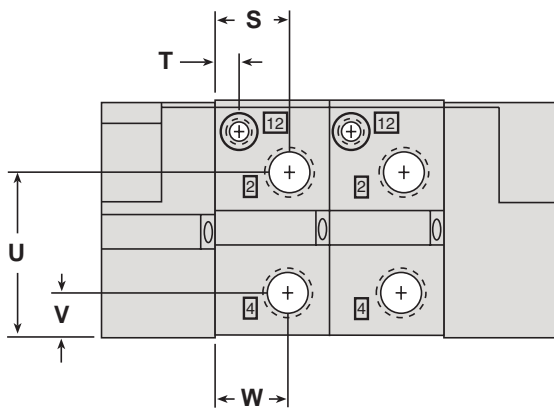
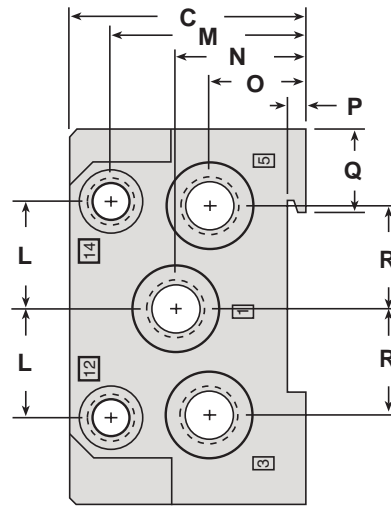
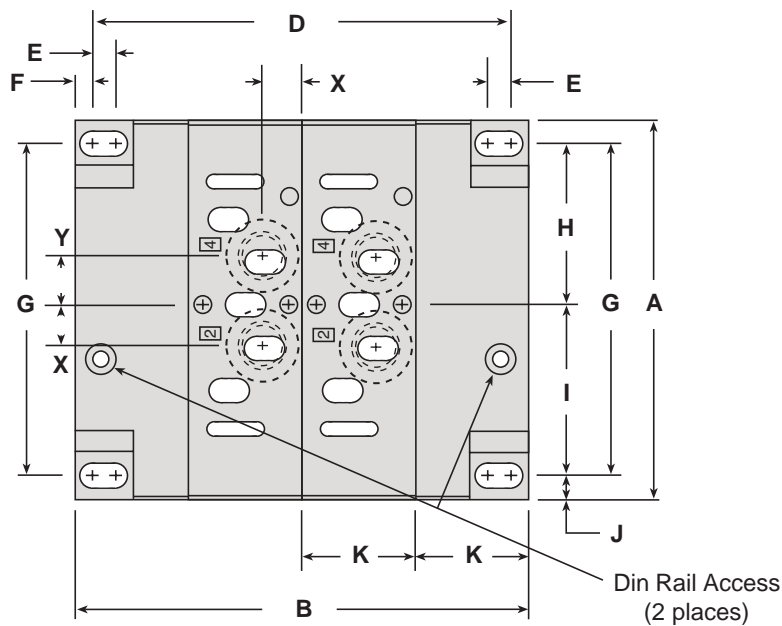
BLANK STATION KIT

A blank station plate is used to cover the top of a manifold station that is not in use. A kit consists of a metal plate 0.4 inch (10 mm) thick, a gasket, and mounting bolts. **1602K77**

DIN RAIL MOUNTING KIT

A cam assembly is used to mount a manifold assembly (through the end-station plates) to a din rail. A kit consists of two cam assemblies (rail not included). **1603K77**

Manifolds for Series W63 Size 0 VDMA 24563 Valves



MANIFOLD DIMENSIONS inches(mm)

A	3.5	(90)	N	1.2	(31)
B	4.3	(108)	O	0.9	(23)
C	2.2	(55)	P	0.2	(5)
D	3.9	(100)	Q	0.8	(20)
E	0.2	(5)	R	1.0	(25)
F	0.2	(5)	S	0.7	(18)
G	3.1	(78)	T	0.2	(5)
H	1.5	(39)	U	1.5	(39)
I	1.5	(39)	V	0.4	(11)
J	0.3	(8)	W	0.7	(17)
K	1.1	(27)	X	0.4	(10)
L	1.0	(26)	Y	0.5	(12)
M	1.8	(47)			

MANIFOLD NUMBERS and PORT SIZES

	Manifold Numbers	Port Sizes			WEIGHT lb(kg)
		1, 3, 5	2, 4	12, 14	
End Ported	1145C91	–	1/4	M5	0.4 (0.2)
	D1145C91	–	G 1/4	M5	0.4 (0.2)
Bottom Ported	1146C91	–	1/4	M5	0.4 (0.2)
	D1146C91	–	G 1/4	M5	0.4 (0.2)
End Station Kit	519B86	3/8	–	1/8	0.7 (0.3)
	D519B86	G 3/8	–	G 1/8	0.7 (0.3)

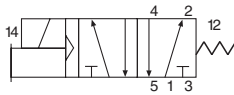
End Station Kit : In addition to the necessary manifold stations, an end station kit must be ordered for each manifold installation.

SERIES W65 SPOOL VALVES – Solenoid Control

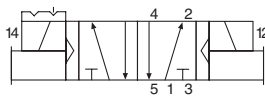
ISO 5599/II - Plug-In-Base Connections



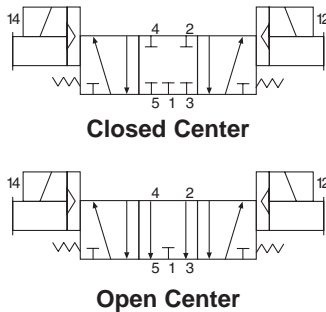
5/2 Single Solenoid Pilot Valve



5/2 Double Solenoid Pilot Valve



5/3 Open or Closed Center Valve



STANDARD SPECIFICATIONS

Solenoids: Rated for continuous duty.
 Standard voltages: 100–110 volts 50 Hz.; 100–120 volts 60 Hz.; 24, 110 volts d.c.
Power Consumption: 6.5 VA holding on 50 or 60 Hz.; 3.5 watts on d.c.
Ambient Temperature: 40 to 120° F (4 to 50° C).
Media Temperature: 40 to 175° F (4 to 80° C).
Flow Media: 5 micron filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar). Consult ROSS for 16 bar models.
Pilot Pressure:
 Size 1: 30 to 150 psig (2 to 10 bar)
 Sizes 2 & 3: 15 to 150 psig (1 to 10 bar)

OPTIONS

Sub-Bases & Manifolds: Page 20.
Regulators & Flow Controls, Interposed: Page 21.
Locking Overrides: See note below. §

IMPORTANT NOTE
 Please read carefully and thoroughly the **CAUTIONS** on page 23.

****VALVE RESPONSE TIME (msec) = M + (F • V)**
 Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE SOLENOID PILOT VALVES

Avg. Cv	ISO Size	Valve Model Number [§]	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height	
					In-Out	Out-Exh.				
1.0	1	W6576A2401	1/4 – 3/8	50	4.2	7.1	6.3 (161)	1.6 (41)	2.7 (69)	1.5 (0.7)
2.3	2	W6576A3401	3/8 – 1/2	57	1.4	2.7	7.3 (186)	2.1 (52)	2.8 (71)	2.0 (1.0)
3.4	3	W6576A4401	1/2 – 3/4	66	0.8	1.2	8.5 (216)	2.6 (67)	3.1 (79)	3.5 (1.6)

5/2 DOUBLE SOLENOID PILOT VALVES

1.0	1	W6576A2407	1/4 – 3/8	33	4.2	6.9	8.8 (222)	1.6 (41)	2.7 (69)	2.0 (1.0)
2.3	2	W6576A3407	3/8 – 1/2	32	1.5	2.5	9.0 (228)	2.1 (52)	2.8 (71)	2.5 (1.2)
3.4	3	W6576A4407	1/2 – 3/4	26	0.9	1.3	10.0 (254)	2.6 (67)	3.1 (79)	4.0 (1.9)

5/3 CLOSED CENTER DOUBLE SOLENOID PILOT VALVES

1.0	1	W6577A2401	1/4 – 3/8	30	4.0	7.2	8.8 (222)	1.6 (41)	2.7 (69)	2.0 (1.0)
2.3	2	W6577A3401	3/8 – 1/2	20	1.5	1.8	9.0 (228)	2.1 (52)	2.8 (71)	2.5 (1.2)
3.4	3	W6577A4401	1/2 – 3/4	25	0.8	1.3	10.0 (254)	2.6 (67)	3.1 (79)	4.0 (1.9)

5/3 OPEN CENTER DOUBLE SOLENOID PILOT VALVES

1.0	1	W6577A2407	1/4 – 3/8	30	4.0	7.2	8.8 (222)	1.6 (41)	2.7 (69)	2.0 (1.0)
2.3	2	W6577A3407	3/8 – 1/2	20	1.5	1.8	9.0 (228)	2.1 (52)	2.8 (71)	2.5 (1.2)
3.4	3	W6577A4407	1/2 – 3/4	25	0.8	1.3	10.0 (254)	2.6 (67)	3.1 (79)	4.0 (1.9)

§ Models with locking overrides can be ordered by changing the 9th digit of model number to "1". For example, W6576B2411.

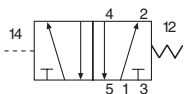
* Port sizes determined by customer's choice of base or manifold. Bases and manifolds sold separately – see page 20.

SERIES W65 SPOOL VALVES – Pressure Control

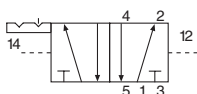
ISO 5599/II



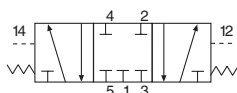
5/2 Single Remote Pilot Valve



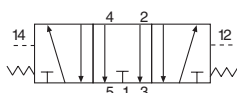
5/2 Double Remote Pilot Valve



5/3 Open or Closed Center Valve



Closed Center



Open Center

STANDARD SPECIFICATIONS

Ambient/Media Temperature: 40 to 175° F (4 to 80° C).

Flow Media: 5 micron filtered air.

Inlet Pressure: Vacuum to 150 psig (10 bar). Consult ROSS for 16 bar models.

Pilot Pressure:

Size 1: 30 to 150 psig (2 to 10 bar)

Sizes 2 & 3: 15 to 150 psig (1 to 10 bar)

OPTIONS

Sub-Bases & Manifolds: Page 20.

Flow Controls, Interposed: Page 21.

Regulators, Interposed: Page 21.

IMPORTANT NOTE

Please read carefully and thoroughly the **CAUTIONS** on page 23.

****VALVE RESPONSE TIME (msec) = M + (F • V)**
Average time required to fill volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown in charts for each valve. See discussion of *Valve Response Time* on page 22.

5/2 SINGLE REMOTE PILOT VALVES

Avg. Cv	ISO Size	Valve Model Number	Port Sizes*	Avg. Response Constants**			Dimensions inches (mm)			Weight lb (kg)
				M	F		Length	Width	Height	
					In-Out	Out-Exh.				
1.0	1	W6556A2411	1/4 – 3/8	50	4.2	7.1	4.8 (121)	1.6 (41)	2.7 (69)	0.8 (0.4)
2.3	2	W6556A3411	3/8 – 1/2	57	1.4	2.7	5.8 (148)	2.1 (52)	2.8 (71)	1.5 (0.7)
3.4	3	W6556A4411	1/2 – 3/4	66	0.8	1.2	7.0 (178)	2.6 (67)	3.1 (79)	3.0 (1.4)

5/2 DOUBLE REMOTE PILOT VALVES

1.0	1	W6556A2417	1/4 – 3/8	33	4.2	6.9	4.8 (121)	1.6 (41)	2.7 (69)	0.8 (0.4)
2.3	2	W6556A3417	3/8 – 1/2	32	1.5	2.5	5.8 (148)	2.1 (52)	2.8 (71)	1.5 (0.7)
3.4	3	W6556A4417	1/2 – 3/4	26	0.9	1.3	7.0 (178)	2.6 (67)	3.1 (79)	3.0 (1.4)

5/3 CLOSED CENTER DOUBLE REMOTE PILOT VALVES

1.0	1	W6557A2411	1/4 – 3/8	30	4.0	7.2	4.8 (121)	1.6 (41)	2.7 (69)	1.0 (0.5)
2.3	2	W6557A3411	3/8 – 1/2	20	1.5	1.8	5.8 (148)	2.1 (52)	2.8 (71)	1.5 (0.7)
3.4	3	W6557A4411	1/2 – 3/4	25	0.8	1.3	7.0 (178)	2.6 (67)	3.1 (79)	3.0 (1.4)

5/3 OPEN CENTER DOUBLE REMOTE PILOT VALVES

1.0	1	W6557A2417	1/4 – 3/8	30	4.0	7.2	4.8 (121)	1.6 (41)	2.7 (69)	1.0 (0.5)
2.3	2	W6557A3417	3/8 – 1/2	20	1.5	1.8	5.8 (148)	2.1 (52)	2.8 (71)	1.5 (0.7)
3.4	3	W6557A4417	1/2 – 3/4	25	0.8	1.3	7.0 (178)	2.6 (67)	3.1 (79)	3.0 (1.4)

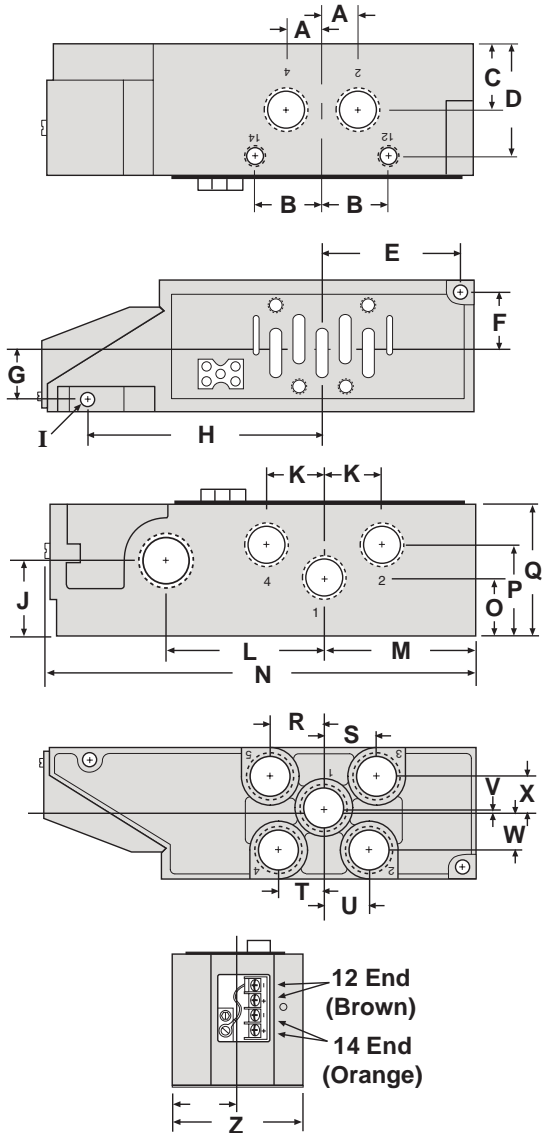
* Port sizes determined by customer's choice of base or manifold. Bases and manifolds sold separately – see page 20.
Pressure controlled valves use the same bases/manifolds as the solenoid control valves, but the electrical plug is not used.

SUB-BASES and MANIFOLDS for ISO 5599/II VALVES

SUB-BASE NUMBERS and PORT SIZES

ISO Size	Side Ported	Side/Bottom Ported	Port Sizes		
			1, 2, 4	3, 5	12, 14
1	949N91	971N91	1/4	1/4	1/8
	950N91	972N91	3/8	3/8	1/8
2	951N91	952N91	3/8	3/8	1/8
	953N91	954N91	1/2	1/2	1/8
3	955N91	956N91	1/2	1/2	1/8
	957N91	958N91	3/4	3/4	1/8

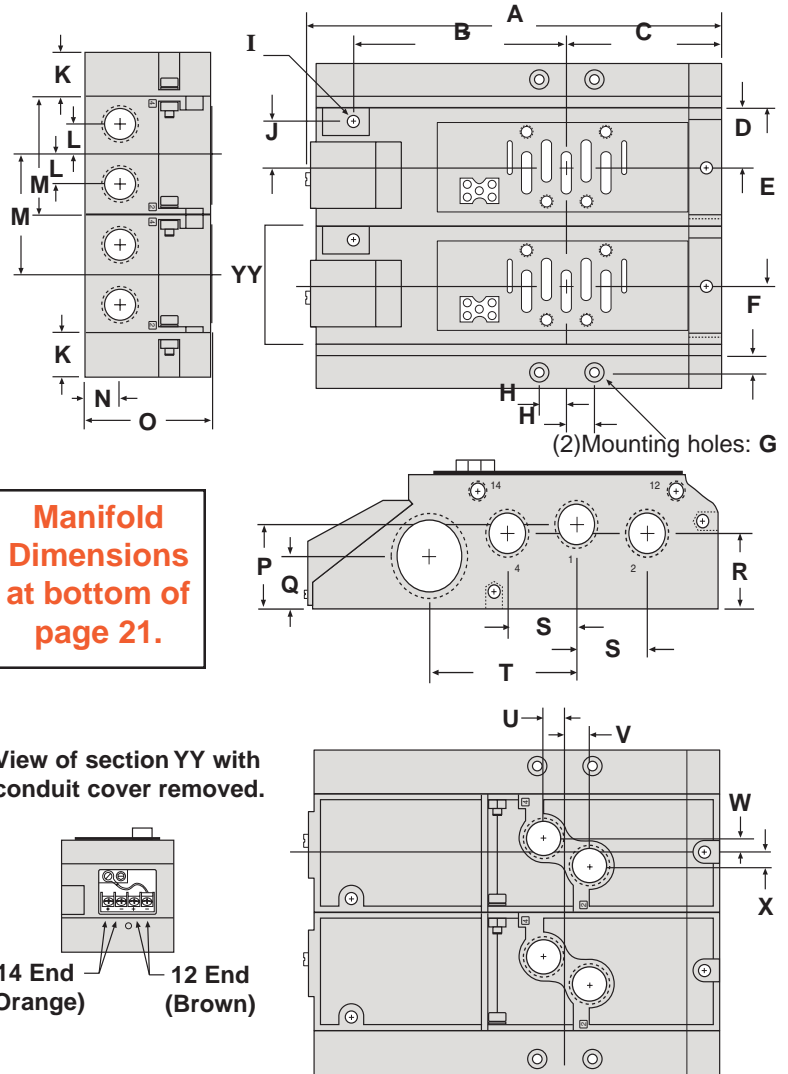
For G threads, add a D prefix to the base model number.
Conduit port is 1/2 NPT on NPT ported bases and G1/2 on G ported bases.



MANIFOLD NUMBERS and PORT SIZES

ISO Size	End/Bottom Ported Station	End Station Kit	Port Sizes				Conduit
			2, 4	1, 3, 5	12, 14		
1	959N91	493N86	1/4	3/8	1/8	1 1/4	
	960N91	493N86	3/8	3/8	1/8	1 1/4	
2	961N91	494N86	3/8	1/2	1/8	1 1/4	
	962N91	494N86	1/2	1/2	1/8	1 1/4	
3	963N91	495N86	1/2	1	1/8	1 1/4	
	964N91	495N86	3/4	1	1/8	1 1/4	

In addition to the manifold stations, an end station kit must be ordered for each manifold installation. For G threads, add a D prefix to the manifold station and end station kit model numbers.



Sub-base Dimensions - inches (mm)

ISO 1	ISO 2	ISO 3	ISO 1	ISO 2	ISO 3	ISO 1	ISO 2	ISO 3			
A	0.50 (12.7)	0.61 (15.5)	0.81 (20.7)	J	0.94 (23.9)	1.47 (37.2)	1.84 (46.7)	S	1.07 (27.2)	1.05 (26.7)	1.63 (41.3)
B	1.02 (25.8)	1.31 (33.1)	1.77 (45.0)	K	0.86 (21.8)	1.06 (26.9)	1.49 (37.8)	T	0.50 (12.7)	0.85 (21.6)	1.07 (27.3)
C	0.82 (20.8)	1.19 (30.2)	1.33 (33.9)	L	2.37 (60.2)	2.97 (75.3)	4.09 (104.0)	U	0.59 (15.0)	0.85 (21.6)	1.07 (27.3)
D	1.49 (37.8)	1.94 (49.3)	2.73 (69.3)	M	1.81 (46.0)	2.50 (63.5)	2.73 (69.3)	V	0.33 (8.4)	0.13 (3.3)	0.81 (20.4)
E	1.55 (39.4)	2.25 (57.2)	2.48 (63.0)	N	6.47 (164.3)	7.76 (197.1)	9.26 (235.2)	W	0.65 (16.5)	0.78 (19.8)	0.81 (20.4)
F	0.89 (22.6)	1.13 (28.6)	1.52 (38.5)	O	0.82 (20.8)	1.09 (27.6)	1.33 (33.9)	X	0.63 (16.0)	0.78 (19.8)	0.81 (20.4)
G	0.90 (22.9)	1.13 (28.6)	1.43 (36.3)	P	1.33 (33.9)	1.74 (44.1)	2.02 (51.4)	Y	1.14 (29.0)	1.38 (34.9)	1.77 (44.9)
H	3.63 (92.2)	4.25 (108.0)	5.38 (136.6)	Q	1.85 (47.0)	2.38 (60.3)	3.34 (84.7)	Z	2.27 (57.7)	2.75 (69.9)	3.54 (89.8)
I	0.21 (5.3)	0.25 (6.4)	0.25 (6.4)	R	0.84 (21.3)	1.05 (26.7)	1.63 (41.3)				

ACCESSORIES for ISO 5599/II VALVES

INTERPOSED PRESSURE REGULATORS

Both single and double pressure regulators are available. These interposed devices are “sandwich” style, mounting between a valve and base or manifold. Single pressure regulators provide the same regulated pressure at both outlet ports. Double pressure regulators allow the pressure at each outlet port to be set independently. Requires no new piping. When using an interposed regulator for a Series W65 double solenoid valve, the valve **must be externally piloted**.

Interposed Regulator Dimensions - inches (mm)

	ISO 1	ISO 2	ISO 3
A	1.55 (39.4)	1.55 (39.4)	2.05 (52.1)
B	1.77 (45)	1.77 (45)	2.65 (67.3)
C	1.70 (43.2)	2.02 (51.3)	2.58 (65.5)
D	2.46 (62.5)	2.46 (62.5)	3.36 (85.3)
E	7.17 (182.1)	7.53 (191.3)	7.98 (202.7)
F	13.58 (344.9)	14.58 (370.3)	15.18 (385.6)
G	9.0 (228.6)	10.0 (254)	–

WARNING

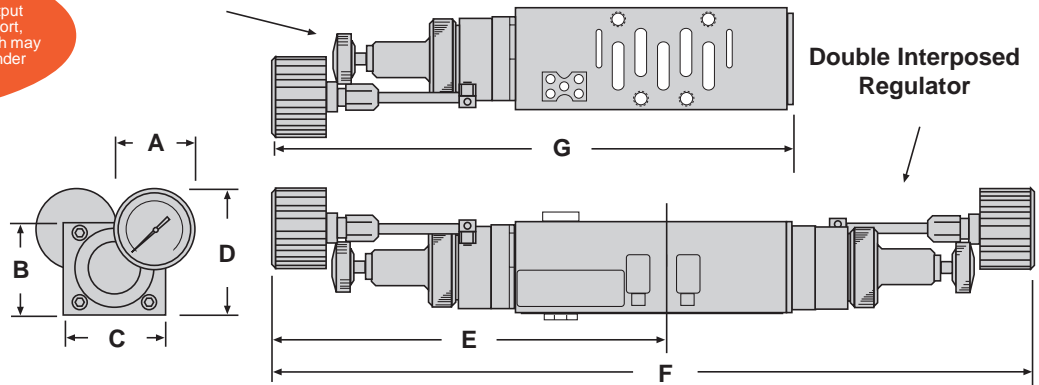
Double interposed regulators will reverse output ports - the 12 solenoid will pressurize the 4 port, the 14 solenoid will pressurize the 2 port - which may cause unexpected, potentially dangerous cylinder movement at valve pressurization.

Single Interposed Regulator

Double Interposed Regulator

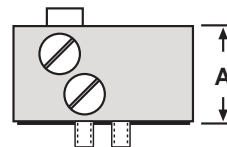
Model Numbers

ISO Size	Single	Double
1	965N91	966N91
2	967N91	968N91
3	969N91	970N91



INTERPOSED FLOW CONTROLS for SPOOL VALVES

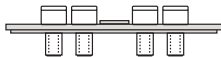
An interposed flow control unit regulates the exhaust flow of air from a pneumatic cylinder, thereby controlling the extension and retraction speeds. Separate controls regulate the air flow from each end of the cylinder. Being located between the valve and base, the unit requires no additional piping.



ISO Size	Model Number	A inches (mm)
1	1371N77	0.93 (23.6)
2	1372N77	1.3 (33)
3	1373N77	1.63 (41.4)

BLANK STATION KITS

A blank station plate is used to cover the top of a manifold station when a valve is not installed on the manifold station.



ISO Size	Model Number
1	1381N77
2	1382N77
3	1383N77

PILOT PORT PLUG

The pilot port plug blocks the 14 port between manifold stations when external pilot supply is not in use.



ISO Size	Model Number
1	1375N77
2	1377N77
3	1379N77

BLOCKING DISK KITS

Blocking disks are used to plug ports 1, 3, and 5 between manifold stations.



ISO Size	Model Number
1	1376N77
2	1378N77
3	1380N77

Manifold Dimensions - inches (mm)

ISO 1	ISO 2	ISO 3	ISO 1	ISO 2	ISO 3	ISO 1	ISO 2	ISO 3
A 7.19 (182.6)	9.0 (228.6)	10.6 (269.5)	I -	0.28 (7.1)	0.33 (8.4)	Q 0.97 (24.6)	1.16 (29.5)	1.22 (31)
B 4.92 (125)	5.97 (151.6)	7.10 (180.3)	J -	1.04 (26.4)	1.25 (31.8)	R 1.20 (30.5)	1.57 (39.9)	1.67 (42.4)
C 2.02 (51.3)	2.65 (67.3)	3.11 (79)	K 0.87 (22.1)	1.00 (25.4)	1.18 (30)	S 1.10 (27.9)	1.38 (35)	2.05 (52)
D 1.04 (26.4)	1.31 (33.3)	1.68 (42.7)	L 0.51 (13)	0.63 (16)	0.83 (21)	T 2.50 (63.5)	3.10 (78.7)	4.10 (104.1)
E 3.11 (79)	3.94 (100.1)	5.05 (128.3)	M 2.08 (52.8)	2.63 (66.8)	3.37 (85.6)	U 0.51 (13)	0.59 (15)	0.70 (17.8)
F 0.55 (14)	0.63 (16)	0.59 (15)	N 0.63 (16)	0.86 (21.8)	0.77 (19.6)	V 0.51 (13)	0.59 (15)	0.80 (20.3)
G 0.28 (7)	0.35 (9)	0.47 (12)	O 2.18 (55.4)	2.58 (65.5)	3.06 (77.7)	W 0.26 (6.6)	0.32 (8.1)	0.49 (12.4)
H 0.55 (14)	0.69 (17)	1.02 (25.9)	P 1.32 (33.5)	1.65 (41.9)	1.79 (45.5)	X 0.26 (6.6)	0.30 (7.6)	0.47 (11.9)

VALVE RESPONSE TIME and C_v RATINGS

VALVE RESPONSE TIMES

Most pneumatic applications call for a valve to be used to control the repeated filling and exhausting of a device (cylinder, clutch, etc.) having a certain volume. The time required to fill or exhaust this volume is called the “*valve response time*.”

The time to fill a volume is usually different from the time to exhaust the volume. However, both times can be found using the following formula:

$$\text{Valve Response Time (msec)} = M + F \cdot V$$

This formula will give the number of milliseconds (msec) required to fill the volume V to 90 percent of supply pressure or to exhaust the volume to 10 percent of supply pressure. M and F are *average response constants*, and their values for each valve are given on the valve specification pages (6-19). V is the number of cubic inches in the volume to be filled or exhausted. Response times will be valid for any supply pressure from 3.5 to 8.5 bar (50 to 125 psig).

What is the constant M? When a valve is energized, it takes a number of milliseconds for the valve to shift and allow a steady flow of air to be established at the outlet port. In a like manner, when the valve is de-energized, it takes a number of milliseconds for the valve to cut off the flow of air and establish the flow of exhaust air. These valve “movement” times are designated by M in the above formula.

What is the constant F? After the valve has shifted and air flow (either to fill or exhaust) is established, the air flows rapidly at first, then flows at a reducing rate. The *average*

flow rate is represented in the above formula by the letter F. It is the average number of milliseconds required to fill or exhaust one cubic inch of the volume V. The product F • V, then, is the average number of milliseconds required to fill or exhaust the entire volume V after the valve has shifted.

Sample Problem. How long will it take to fill a 100-cubic-inch clutch to 90 percent of supply pressure using a size 3 Series W60 single solenoid valve.

Solution. Specifications for size 3 valves are given on page 6. From the chart on page 6 we find that the average response constants for a size 3 single solenoid valve are M = 51 and F = 0.8. The F value of 1.1 is for the exhausting path and is not needed for this problem. Putting the M and F values into the response time formula gives:

$$\begin{aligned} \text{Average response time} &= 51 + (0.8)(100) \\ &= 51 + 80 \\ &= 131 \text{ msec} \end{aligned}$$

Therefore, the 100-cubic-inch volume would be filled to 90 percent of supply pressure in just 131 milliseconds.

AVERAGE C_v RATINGS

Because widely differing test standards are used in the measurement of C_v values, the figures listed in this catalog should not be used in comparing ROSS valves with other makes. These C_v ratings are intended only for use with performance charts published by ROSS.

THREAD OPTIONS

To serve customers around the world, ROSS supplies bases and manifolds with threaded pressure ports and electrical openings that conform to various local standards. These variations are identified by a letter preceding the base or manifold number. The specifications for these prefix letters are shown in the chart at the right.

Prefix Letter	Pneumatic Port Threads	Electrical Opening	
		Series W65 Bases	Series W65 Manifolds
None	NPT	1/2 NPTF	1 1/4 NPTF
D	DIN 259, BSPP (parallel)	G 1/2	G 1 1/4

CAUTIONS

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure that all sources of energy are turned off, the entire pneumatic system is shut off and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any installation can be tampered with or need servicing after installation, persons responsible for the safety of others or the care of equipment must check every installation on a regular basis and perform all necessary maintenance.
3. All applicable instructions should be read and complied with before using any fluid power system in order to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use.
4. Each ROSS product should be used within its specification limits. In addition, use only ROSS parts to repair ROSS products. Failure to follow these directions can adversely affect the performance of the product or result in the potential for human injury.

FILTRATION and LUBRICATION

5. Dirt, scale, moisture, etc. are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. ROSS recommends a filter with a 5-micron rating for normal applications.
6. All standard ROSS filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Do *not* fail to use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquified petroleum gas, as they can cause bowls to rupture, creating a combustible condition, hazardous leakage, and the potential for human injury. Immediately replace a crazed, cracked, or deteriorated bowl. When bowl gets dirty, replace it or wipe it with a clean dry cloth.

7. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum base oils with oxidation inhibitors, an aniline point between 82 degrees Celsius (180 degrees Fahrenheit) and 104 degrees Celsius (220 degrees Fahrenheit), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure and/or human injury.

AVOID INTAKE/EXHAUST RESTRICTION

8. Do not restrict the air flow in the supply line. To do so could reduce the pressure of the supply air below the minimum requirements for the valve and thereby cause erratic action.
9. Do not restrict a poppet valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure. *ROSS expressly disclaims all warranties and responsibility for any unsatisfactory performance or injuries caused by the use of the wrong type, wrong size, or inadequately maintained silencer installed with a ROSS product.*

POWER PRESSES

10. Mechanical power presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.

ENERGY ISOLATION/EMERGENCY STOP

11. Per specifications and regulations, ROSS' **L-O-X®** and **L-O-X®/EEZ-ON®** products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

WARRANTY

Products manufactured by ROSS are warranted to be free of defects in material and workmanship for a period of one year from the date of purchase. ROSS' obligation under this warranty is limited to repair or replacement of the product or refund of the purchase price paid solely at the discretion of ROSS and provided such product is returned to ROSS freight prepaid and upon examination by ROSS such product is found to be defective. This warranty shall be void in the event that product has been subject to misuse, misapplication, improper maintenance, modification or tampering. THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND ROSS EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ROSS MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT SHALL ROSS BE LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF ROSS SHALL EXTEND THE LIABILITY OF ROSS AS SET FORTH HEREIN.



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New Product Information

PRESSURE SELECT ADAPTORS FOR SERIES W65 VALVES (ISO 5599/II)

The Series W65 Pressure Select Adaptor is designed to adapt Series W65 ISO 5599/II valves and manifolds to function as a weld gun cylinder control package. When using the Pressure Select Adaptor as shown in the schematic below, two independent adjustable pressures are available for extending the weld gun cylinder and full line pressure is used for retracting the cylinder with maximum force. The ability to select different extend pressures makes it possible to control weld tip closure force, reduce damage to the weld tip, and control weld tip squeeze for proper weld. The adaptor 524H86 eliminates the extra piping that was traditionally necessary to build a weld gun package, thus keeping costs relatively low by use of standard components.

Since the weld cylinder is a double acting cylinder, a standard 5/2 or 5/3 directional valve is needed. Via the Pressure Select Adaptor, the cylinder control valve is supplied with full line pressure to exhaust port (5) and a lower pressure (selected by the pressure select valve) is supplied to the other exhaust port (3). The cylinder valve will then either supply full line pressure to port (4) for retracting or one of the lower pressures to port (2) for extending.

External pilot supply is automatically supplied through the unique pilot supply selector feature built into Series W65 valves.

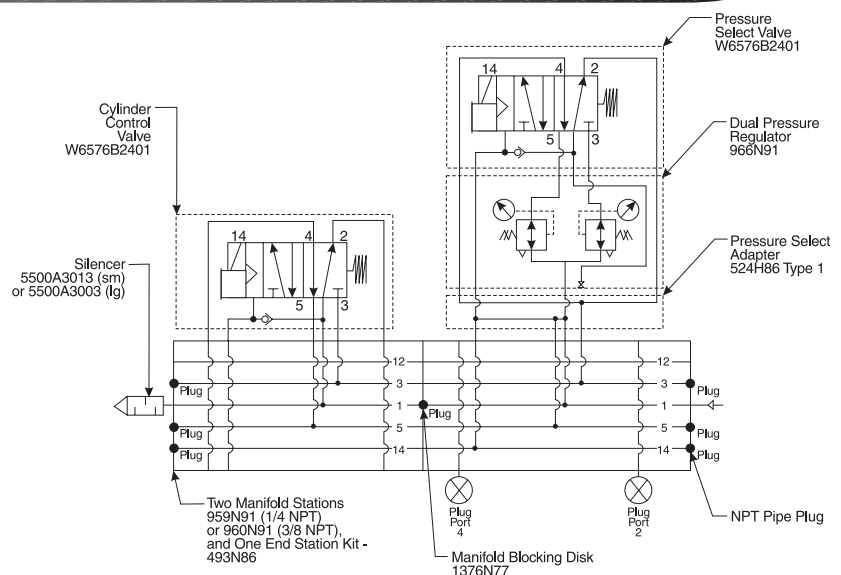
The exhaust ports of the pressure select valve are also supplied with two different pressures, which are controlled by a dual interposed regulator that is sandwiched between the pressure select valve and the Pressure Select Adaptor 524H86.

A pressure select package can easily be built by assembling two manifold stations with an end station kit as shown below. Critical to the package is the placement of pipe plugs in ports 3, 5, and 14 at both ends of the manifold and a single plug in port 1 between the two stations. A 5/2 or 5/3 valve is installed on the manifold station on the left and this valve becomes the cylinder control valve. Ports 2 and 4 of this valve are connected to the weld cylinder.

A 5/2 valve, dual interposed regulator, and a Pressure Select Adaptor are all installed on the manifold station on the right and this valve becomes the pressure select valve. Ports 2 and 4 of this valve should be plugged. Additional cylinder valves can be added to the left side of the manifold; these valves' extend pressures will be controlled by the pressure select valve. Other valves can be added to the right of the manifold, but will not be affected by the pressure select valve and will supply full line pressure to both work ports.

APPLICATIONS:

- Weld Guns
- High-Speed Transfers
- Clamps
- Part Checking
- Anywhere you require a two or three pressure system



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