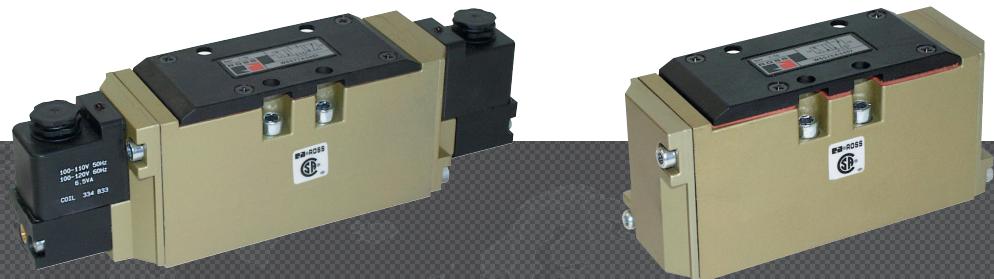




## **DIRECTIONAL CONTROL VALVES ISO 5599-2 W65 SERIES**

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### **PRODUCT CATALOG**



**ROSS**™  
a global family

# ISO 5599-2 Valves W65 Series

## Product Overview

The ROSS® ISO 5599-2 valves W65 Series are base mounted spool and sleeve valves that conform to the ISO standards 5599-2 mounting interface. The W65 series has a base electrical connector which eliminates the need to disconnect wires to remove the valve. Manifold bases feature the option for modular plug-together electrical connections terminating at end plates, offering a 25-pin D-sub or 19-pin round interface. Automotive connector option mounted to individual conduit cover. The ISO Valves W65 Series are adaptable to Serial Bus System.

These ISO Size 1, 2, and 3 valves are available as, 2- and 3-position, 5-ported 4-way solenoid pilot or pressure controlled valves with either internal or external pilot supply.



*Illustration examples.*

### VALVE FEATURES

<b>Spool and Sleeve Design</b>	Spool and Sleeve construction for high dirt tolerance; there are no seals to wear out
<b>Mounting Options</b>	Individual sub-base or manifold base mounting
<b>Pilot Supply</b>	Solenoid pilot controlled valves – Internal or external, selected automatically Pressure controlled valves – External
<b>Pilot Operation</b>	Provides high shifting force with low power consumption

Actuation	ISO Size	Available Inlet Port Sizes					Functions				Maximum Flow Cv	Page	
		1/8	1/4	3/8	1/2	3/4	5/2	5/3	Power Center	Closed Center	Open Center		
Solenoid Control	1	●	●	●			●	●	●	●	●	0.8	2 – 3 4 – 9
	2			●	●		●	●	●	●	●	1.9	
	3				●	●	●	●	●	●	●	3.8	
Pressure Control	1	●	●	●			●	●	●	●	●	0.8	2 – 3 10 – 15
	2			●	●		●	●	●	●	●	1.9	
	3				●	●	●	●	●	●	●	3.8	
Sub-Bases												16	
Manifold Stations, End Stations												17	
Manifold Accessories												18 – 24	

# Specifications

## STANDARD SPECIFICATIONS

<b>GENERAL</b>	Function	5/2 and 5/3 Valve		
	Construction Design	Spool and Sleeve		
	Actuation	Electrical – Solenoid Pilot Controlled		
		Pneumatic – Pressure Controlled		
	Mounting	Base Mounted		
	Connection	Threaded; G, NPT		
<b>OPERATING CONDITIONS</b>	Temperature	Solenoid Pilot Controlled	Ambient 40° to 120°F (4° to 50°C)	
		Media	40° to 175°F (4° to 80°C)	
		Pressure Controlled	Ambient 40° to 175°F (4° to 80°C)	
		Media	40° to 175°F (4° to 80°C)	
	Flow Media		Filtered air	
	Operating Pressure	ISO Size 1	30 to 150 psig (2 to 10 bar)	
		ISO Size 2 & 3	15 to 150 psig (1 to 10 bar)	
		All sizes also available up to 232 psig (16 bar)		
	Pilot Supply Pressure	Minimum 30 psig (2 bar)		
	External Pilot Supply	Must be equal to or greater than inlet pressure		
<b>ELECTRICAL DATA FOR SOLENOID PILOT VALVES</b>	Solenoids	Power Consumption	Operating Voltage (each solenoid)	
		24 volts DC	5.8 nominal, 6.5 watts maximum watts	
		110-120 volts AC		
		230-240 volts AC		
	Rated for continuous duty			
	Enclosure Rating	IP65, IEC 60529		
<b>CONSTRUCTION MATERIAL</b>	Electrical Connection	DIN EN 175301-803 Form A		
	Valve Body	Cast Aluminum		
	Spool	Stainless Steel		
	Seals	Buna-N		

**IMPORTANT NOTE:** Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.

## PRODUCT CREDENTIALS

CSA Certificate of Compliance	CE Conformity Declaration	EAC Conformity Declaration	CRN Certification
			Available for appropriately tested valves



## Ordering Information

### 5/2 Single Solenoid Pilot Controlled Valves

SOLENOID PILOT CONTROLLED VALVES		5-Way 2-Position Valves		
Size		Valve Model Number*		
		Voltage		
ISO	Port	24 V DC	110-120 V AC	230 V AC
1	1/8 - 3/8	W6576A2401W	W6576A2401Z	W6576A2401Y
2	3/8 - 1/2	W6576A3401W	W6576A3401Z	W6576A3401Y
3	1/2 - 3/4	W6576A4401W	W6576A4401Z	W6576A4401Y

For other voltages, consult ROSS.

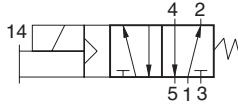
\* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages, for use with or without serial bus system.

The W65 Series has a base electrical connector which eliminates the need to disconnect wires to remove the valve. This eliminates drop cords, simplifies maintenance and connection to Serial Data Communication systems.

Size		Flow Cv	Average Response Constants*			Weight lb (kg)		
ISO	Port		M	F				
				1-2	2-3			
1	1/8 - 3/8	1.0	29	3.5	4.9	1.5 (0.7)		
2	3/8 - 1/2	2.3	41	1.5	2.4	2.0 (1.0)		
3	1/2 - 3/4	3.4	51	0.8	1.1	3.5 (1.6)		

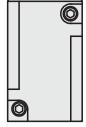
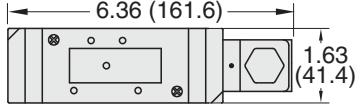
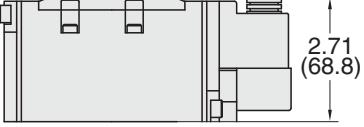
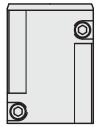
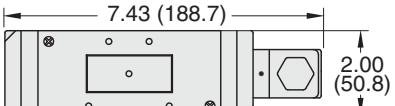
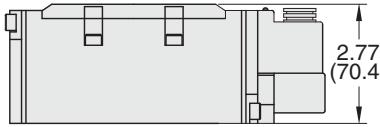
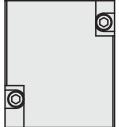
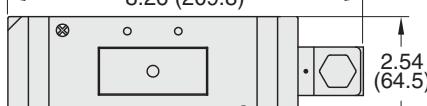
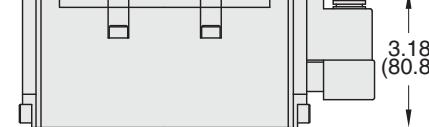
**Valve Response Time** – Response Time (msec) =  $M + (F \cdot V)$ . This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic



# Valve Technical Data

## 5/2 Single Solenoid Pilot Controlled Valves

DIMENSIONS		Inches (mm)
ISO Size 1	  	6.36 (161.6) 1.63 (41.4) 2.71 (68.8)
ISO Size 2	  	7.43 (188.7) 2.00 (50.8) 2.77 (70.4)
ISO Size 3	  	8.26 (209.8) 2.54 (64.5) 3.18 (80.8)
<p>For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D drawings and 3D CAD models in a wide range of options including native formats. Please visit <a href="http://www.rosscontrols.com">www.rosscontrols.com</a>.</p>		

## Ordering Information

### 5/2 Double Solenoid Pilot Controlled Valves

#### SOLENOID PILOT CONTROLLED VALVES

#### 5-Way 2-Position Valves

Size		Valve Model Number*		
		Voltage		
ISO	Port	24 V DC	110-120 V AC	230 V AC
1	1/8 - 3/8	W6576A2407W	W6576A2407Z	W6576A2407Y
2	3/8 - 1/2	W6576A3407W	W6576A3407Z	W6576A3407Y
3	1/2 - 3/4	W6576E4407W	W6576E4407Z	W6576E4407Y

For other voltages, consult ROSS.

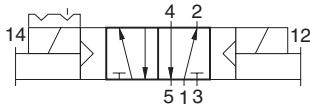
\* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages, for use with or without serial bus system.

The W65 Series has a base electrical connector which eliminates the need to disconnect wires to remove the valve.  
This eliminates drop cords, simplifies maintenance and connection to Serial Data Communication systems.

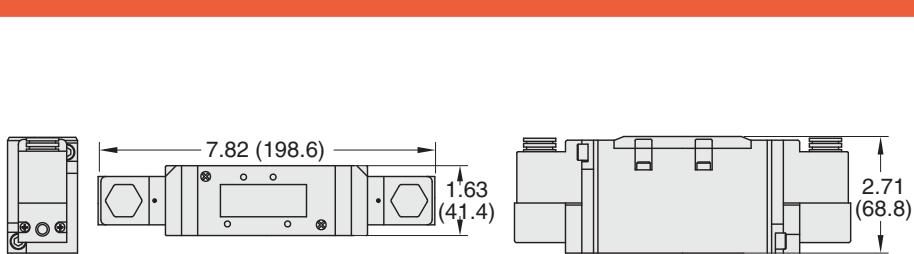
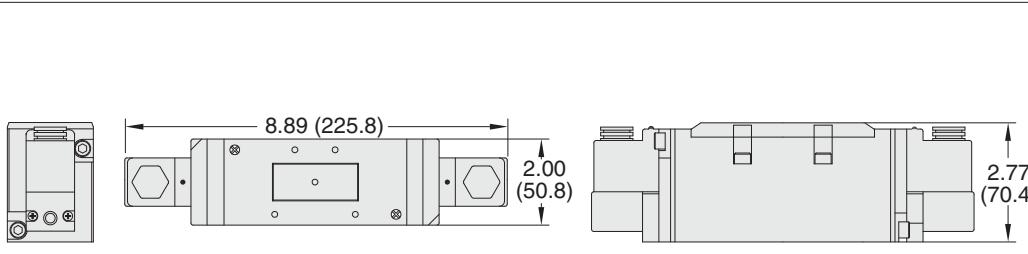
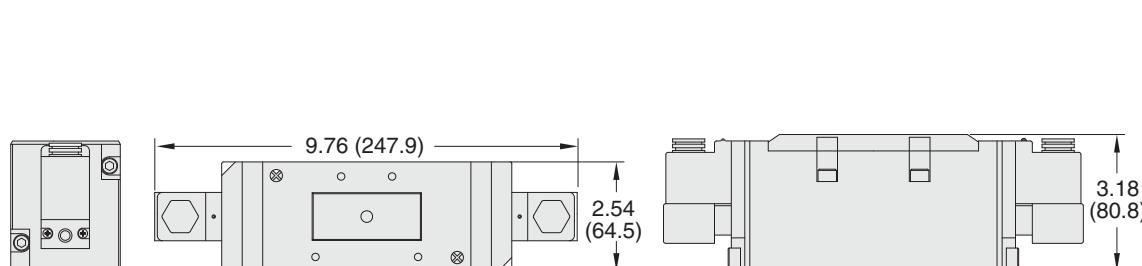
Size		Flow Cv	Average Response Constants*			Weight lb (kg)		
ISO	Port		M	F				
				1-2	2-3			
1	1/8 - 3/8	1.0	17	3.5	4.9	2.0 (1.0)		
2	3/8 - 1/2	2.3	20	1.5	2.5	2.5 (1.2)		
3	1/2 - 3/4	3.4	20	0.8	1.1	4.0 (1.9)		

**Valve Response Time** – Response Time (msec) =  $M + (F \cdot V)$ . This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

#### Valve Schematic



## 5/2 Double Solenoid Pilot Controlled Valves

DIMENSIONS	Inches (mm)
ISO Size 1	
ISO Size 2	
ISO Size 3	

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## Ordering Information

### 5/3 Double Solenoid Pilot Controlled Valves

SOLENOID PILOT CONTROLLED VALVES		5-Way 3-Position Valves				
Center Position	Size	Valve Model Number*				
		Voltage				
		ISO	Port	24 V DC	110-120 V AC	230 V AC
Power Center	1	1/4 - 3/8		W6577A2902W	W6577A2902Z	W6577A2902Y
	2	3/8 - 1/2		W6577A3901W	W6577A3901Z	W6577A3901Y
	3	3/8 - 3/4		W6577A4900W	W6577A4900Z	W6577A4900Y
Closed Center	1	1/4 - 3/8		W6577A2401W	W6577A2401Z	W6577A2401Y
	2	3/8 - 1/2		W6577A3401W	W6577A3401Z	W6577A3401Y
	3	3/8 - 3/4		W6577A4401W	W6577A4401Z	W6577A4401Y
Open Center	1	1/4 - 3/8		W6577A2407W	W6577A2407Z	W6577A2407Y
	2	3/8 - 1/2		W6577A3407W	W6577A3407Z	W6577A3407Y
	3	3/8 - 3/4		W6577A4407W	W6577A4407Z	W6577A4407Y

For other voltages, consult ROSS.

\* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages, for use with or without serial bus system.

The W65 Series has a base electrical connector which eliminates the need to disconnect wires to remove the valve. This eliminates drop cords, simplifies maintenance and connection to Serial Data Communication systems.

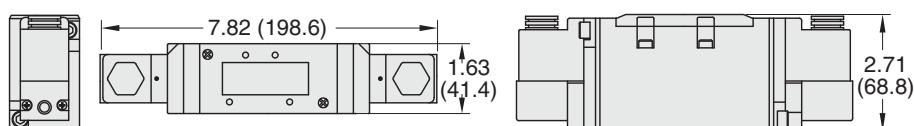
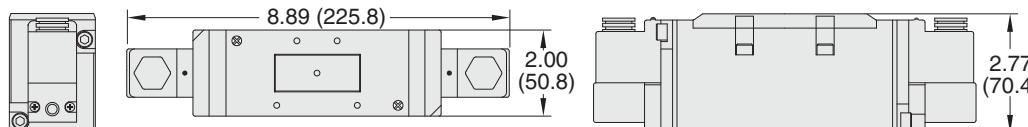
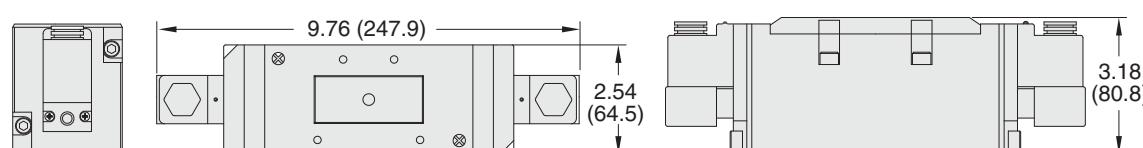
Size		Flow Cv	Average Response Constants*			Weight lb (kg)	
ISO	Port		1-2	M	F		
					1-2	2-3	
1	1/8 - 3/8	1.0	30	3.5	5.0	2.0 (1.0)	
2	3/8 - 1/2	2.3	40	1.5	2.5	2.5 (1.2)	
3	1/2 - 3/4	3.4	50	0.8	1.1	4.0 (1.9)	

Valve Response Time – Response Time (msec) =  $M + (F \cdot V)$ . This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic					
Power Center			Closed Center		Open Center

# Valve Technical Data

## 5/3 Double Solenoid Pilot Controlled Valves

DIMENSIONS		Inches (mm)
ISO Size 1		
ISO Size 2		
ISO Size 3		
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## Ordering Information

### 5/2 Single Pressure Controlled Valves

PRESSURE CONTROLLED VALVES		5-Way 2-Position Valves
Size		Valve Model Number*
ISO	Port	
1	1/8 - 3/8	W6556A2411
2	3/8 - 1/2	W6556A3411
3	1/2 - 3/4	W6556A4411

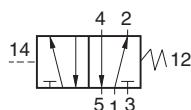
For other voltages, consult ROSS.

\* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages, for use with or without serial bus system.

Size		Flow C <sub>v</sub>	Average Response Constants*			Weight lb (kg)	
ISO	Port	1-2	M	F			
				1-2	2-3		
1	1/8 - 3/8	1.0	29	3.5	4.9	0.8 (0.4)	
2	3/8 - 1/2	2.3	41	1.5	2.4	1.5 (0.7)	
3	1/2 - 3/4	3.4	51	0.8	1.1	3.0 (1.4)	

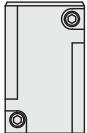
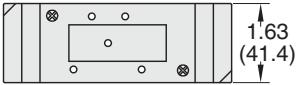
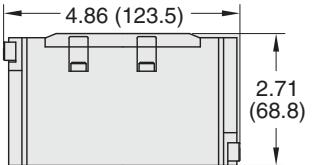
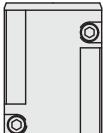
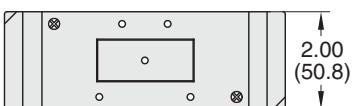
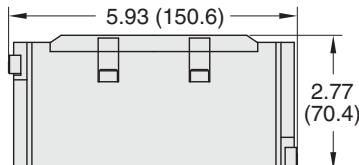
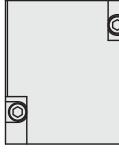
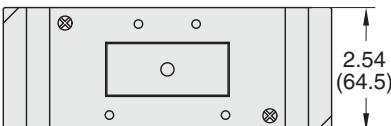
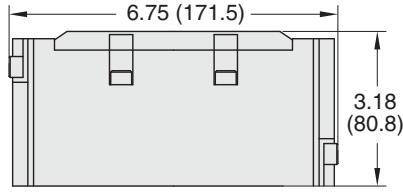
**Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic



# Valve Technical Data

## 5/2 Single Pressure Controlled Valves

DIMENSIONS		Inches (mm)
ISO Size 1	  	1.63 (41.4) 4.86 (123.5) 2.71 (68.8)
ISO Size 2	  	2.00 (50.8) 5.93 (150.6) 2.77 (70.4)
ISO Size 3	  	2.54 (64.5) 6.75 (171.5) 3.18 (80.8)
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## Ordering Information

### 5/2 Double Pressure Controlled Valves

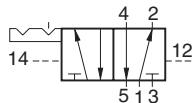
PRESSURE CONTROLLED VALVES		5-Way 2-Position Valves
Size		Valve Model Number*
ISO	Port	
1	1/8 - 3/8	W6556A2417
2	3/8 - 1/2	W6556A3417
3	1/2 - 3/4	W6556A4417

\* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages, for use with or without serial bus system.

Size		Flow Cv	Average Response Constants*			Weight lb (kg)	
ISO	Port	1-2	M	F			
				1-2	2-3		
1	1/8 - 3/8	1.0	17	3.5	5.0	0.8 (0.4)	
2	3/8 - 1/2	2.3	20	1.5	2.5	1.5 (0.7)	
3	1/2 - 3/4	3.4	20	0.8	1.1	3.0 (1.4)	

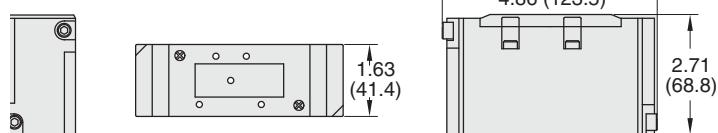
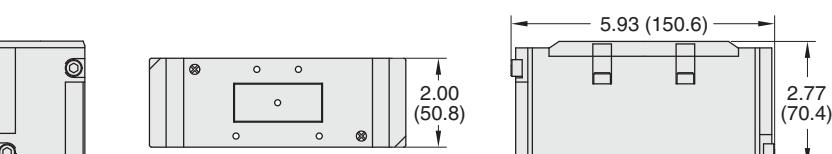
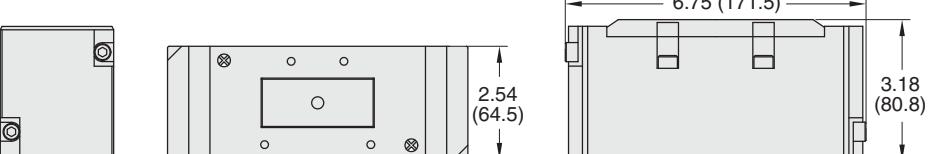
**Valve Response Time** – Response Time (msec) =  $M + (F \cdot V)$ . This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic



# Valve Technical Data

## 5/2 Double Pressure Controlled Valves

DIMENSIONS	Inches (mm)
ISO Size 1	 <p>Front view: 1.63 (41.4) mm height.      Top view: 1.63 (41.4) mm height.      Side view: 4.86 (123.5) mm width, 2.71 (68.8) mm height.</p>
ISO Size 2	 <p>Front view: 2.00 (50.8) mm height.      Top view: 2.00 (50.8) mm height.      Side view: 5.93 (150.6) mm width, 2.77 (70.4) mm height.</p>
ISO Size 3	 <p>Front view: 2.54 (64.5) mm height.      Top view: 2.54 (64.5) mm height.      Side view: 6.75 (171.5) mm width, 3.18 (80.8) mm height.</p>
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## Ordering Information

### 5/3 Double Pressure Controlled Valves

PRESSURE CONTROLLED VALVES			5-Way 3-Position Valves
Center Position	Size		Valve Model Number*
	ISO	Port	24 V DC
Power Center	2	3/8 - 1/2	W6557A3901
	3	1/2 - 3/4	W6557A4900
Closed Center	1	1/8 - 3/8	W6557A2411
	2	3/8 - 1/2	W6557A3411
	3	1/2 - 3/4	W6557A4411
Open Center	1	1/8 - 3/8	W6557A2417
	2	3/8 - 1/2	W6557A3417
	3	1/2 - 3/4	W6557A4417

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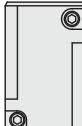
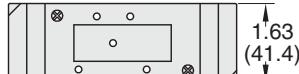
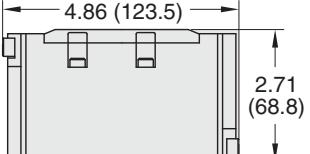
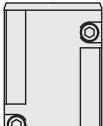
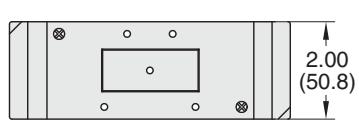
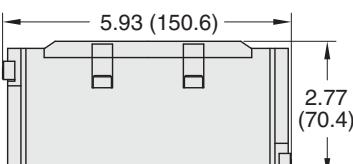
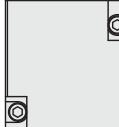
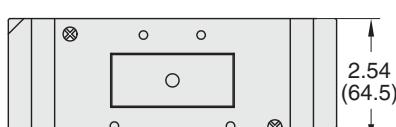
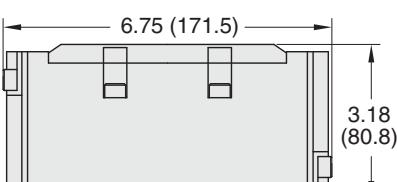
Size		Flow Cv	Average Response Constants*			Weight lb (kg)	
ISO	Port	1-2	M	F			
				1-2	2-3		
1	1/8 - 3/8	1.0	30	3.5	5.0	0.8 (0.4)	
2	3/8 - 1/2	2.3	40	1.5	2.5	1.5 (0.7)	
3	1/2 - 3/4	3.4	50	0.8	1.1	3.0 (1.4)	

**Valve Response Time** – Response Time (msec) =  $M + (F \cdot V)$ . This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic		
Power Center	Closed Center	Open Center

# Valve Technical Data

## 5/3 Double Pressure Controlled Valves

DIMENSIONS		Inches (mm)
ISO Size 1	  	1.63 (41.4) 4.86 (123.5) 2.71 (68.8)
ISO Size 2	  	2.00 (50.8) 5.93 (150.6) 2.77 (70.4)
ISO Size 3	  	2.54 (64.5) 6.75 (171.5) 3.18 (80.8)
<p>For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D drawings and 3D CAD models in a wide range of options including native formats. Please visit <a href="http://www.rosscontrols.com">www.rosscontrols.com</a>.</p>		



## Sub-Bases – Side and Bottom-Ported

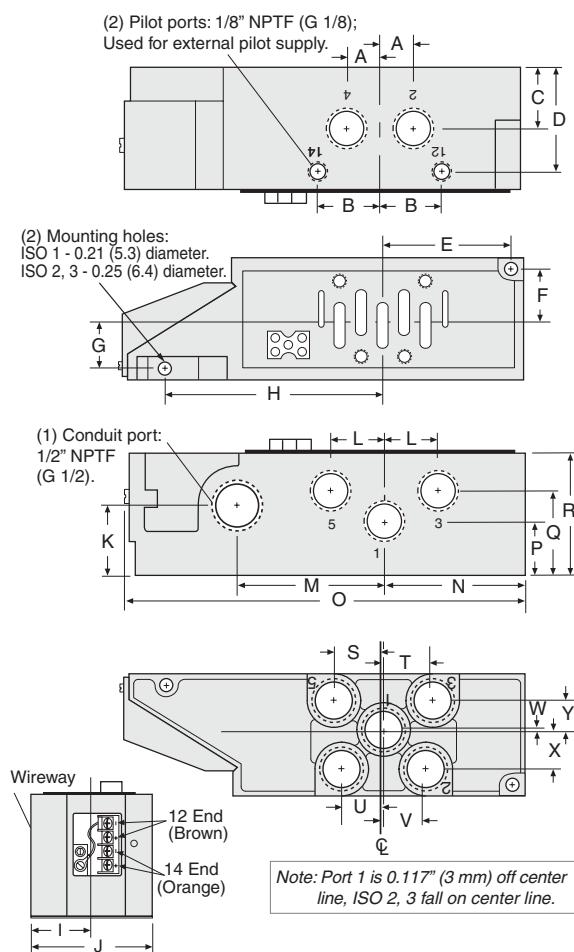
### SIDE AND BOTTOM-PORTED SUB-BASES

Size		Port Location	Model Number	
ISO	Port		G Thread	NPT Thread
1	3/8	Side/Bottom	D950N91	972N91
2	1/2	Side	D953N91	953N91
		Side/Bottom	—	954N91
3	3/4	Side/Bottom	D958N91	—



### DIMENSIONS

Inches (mm)



	ISO Size		
	1	2	3
A	0.5 (13)	0.6 (16)	0.8 (21)
B	1.0 (26)	1.3 (33)	1.8 (45)
C	0.8 (21)	1.2 (31)	1.3 (34)
D	1.5 (38)	1.9 (49)	2.7 (70)
E	1.6 (39)	2.3 (57)	2.5 (63)
F	0.9 (23)	1.1 (29)	1.5 (39)
G	0.9 (23)	1.1 (29)	1.4 (36)
H	3.6 (92)	4.3 (108)	5.4 (137)
I	1.1 (29)	1.4 (35)	1.8 (45)
J	2.3 (58)	2.8 (70)	3.5 (90)
K	0.9 (24)	1.5 (37)	1.8 (47)
L	0.9 (22)	1.1 (27)	1.5 (38)
M	2.4 (60)	3.0 (75)	4.1 (104)
N	1.8 (46)	2.5 (64)	2.7 (69)
O	6.5 (164)	7.8 (197)	9.3 (235)
P	0.8 (21)	1.1 (28)	1.3 (34)
Q	1.3 (34)	1.7 (44)	2.0 (51)
R	1.9 (47)	2.4 (60)	3.3 (85)
S	0.8 (21)	1.1 (27)	1.6 (42)
T	1.1 (27)	1.1 (27)	1.6 (42)
U	0.5 (13)	0.9 (22)	1.1 (27)
V	0.6 (15)	0.9 (22)	1.1 (27)
W	0.3 (8)	0.1 (3)	0.8 (20)
X	0.7 (17)	0.8 (20)	0.8 (20)
Y	0.6 (16)	0.9 (20)	0.8 (20)

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# Manifold Stations, End Stations

## MANIFOLD STATION ASSEMBLY

Size		Port Location	Model Number*	
ISO	Port		G Thread	NPT Thread
1	3/8	End/Bottom	D960N91	960N91
2	1/2	End/Bottom	D962N91	962N91
3	3/4	End/Bottom	D964N91	964N91

\* Includes a manifold assembly, socket head screws, nuts and seals.

Assembled manifolds also available, consult ROSS.

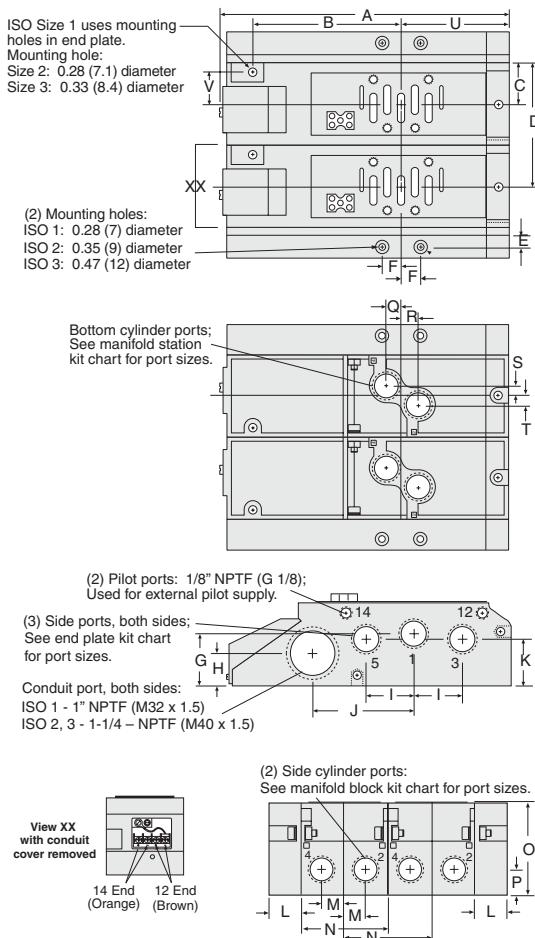
## END STATIONS

Size		Model Number*	
ISO	Port	G Thread	NPT Thread
1	3/8	D493N86	493N86
2	1/2	D494N86	494N86
3	3/4	D495N86	495N86

\* Includes left and right end plates, socket head screws, nuts and seals.

## DIMENSIONS

Inches (mm)



	ISO Size		
	1	2	3
A	7.2 (183)	9.0 (229)	10.6 (270)
B	4.9 (125)	6.0 (152)	7.1 (180)
C	1.0 (26)	1.3 (33)	1.7 (43)
D	3.1 (79)	3.9 (100)	5.1 (128)
E	0.6 (14)	0.6 (16)	0.6 (15)
F	0.6 (14)	0.7 (17)	1.0 (26)
G	1.3 (34)	1.7 (42)	1.8 (46)
H	1.0 (25)	1.2 (30)	1.2 (31)
I	1.1 (28)	1.4 (35)	2.1 (52)
J	2.5 (64)	3.1 (79)	4.1 (104)
K	1.2 (31)	1.6 (40)	1.7 (42)
L	0.9 (22)	1.0 (25)	1.2 (30)
M	0.5 (13)	0.6 (16)	0.8 (21)
N	2.1 (53)	2.6 (67)	3.4 (86)
O	2.2 (55)	2.6 (66)	3.1 (78)
P	0.6 (16)	0.9 (22)	0.8 (20)
Q	0.5 (13)	0.6 (15)	0.7 (18)
R	0.5 (13)	0.6 (15)	0.8 (21)
S	0.3 (7)	0.3 (8)	0.5 (13)
T	0.3 (7)	0.3 (8)	0.5 (12)
U	2.0 (51)	2.8 (67)	3.1 (79)
V	-----	1.0 (26)	1.3 (31)

For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D drawings and 3D CAD models in a wide range of options including native formats. Please visit [www.rosscontrols.com](http://www.rosscontrols.com).



# Manifold Bases, End Stations

## MANIFOLD BASES FOR ISO SIZE 1 & 2

### MANIFOLD MODEL NUMBER CONFIGURATOR

RPSHU11 5 5 J 1 P

ISO 15407-1

ISO 15407-1 Size	Port Size	
ISO Size 1	3/8 NPT	5
	3/8 BSPP	6
ISO Size 2	1/2 NPT	7
	1/2 BSPP	8

#### Circuit Board Address Configuration

Interconnect, Single Address

J

Interconnect, Double Address

M

#### Gasket Options

1, 3, 5 Ports Open and Pilots Open	1
1, 3, 5 Ports Closed and Pilots Open	2
1 Port Closed, 3, 5 Ports Open and Pilots Closed	3
1 Port Open, 3, 5 Ports Closed and Pilots Open	4
1, 3, 5 Ports Open and Pilots Closed	5
1, 3, 5 Ports Closed and Pilots Closed	6
1 Port Closed, 3, 5 Ports Open and Pilots Closed	7
1 Port Open, 3, 5 Ports Closed and Pilots Open	8



## END STATIONS FOR ISO SIZE 1 & 2

### END STATION MODEL NUMBER CONFIGURATOR

RPSHU20 L2 1 0 P

#### Valve Type

Non Plug-in (Internal Pilot)	RPSHU20
Non Plug-in (External Pilot)	RPSHU2X

#### Left Hand End Station Type

25-Pin-D-Sub (top) # L2

#### Industrial Communication

ROSS Serial Bus L6^

Turck BL67 with Valve Driver Module - For 16 Outputs T1\*

Turck BL67 with Valve Driver Module - For 32 Outputs T2\*

# RPSHU11 gaskets included in each end station kit.

^ Valve Driver Module and 24 Output Cable installed. Must order communication modules separately. Must Order Bases with Circuit Boards.

\* Turck Network and P2M Ethernet node communication module ordered separately.

#### Thread Type

NPT	0
G	1*
* G thread model conforms to ISO 1179-1 w 228-1 thread.	



Left Hand End Station  
25-pin D-Sub (top)

#### Right Hand End Station Ports

1/2 Exhaust and Inlet Ports	1
3/4 Exhaust and Inlet Ports	2



Hi-Flow Right Hand  
End Station

End Plate Type	Type/Port Size	Avg. Flow Cv
Right Hand	1/2	6.07
	3/4	8.35

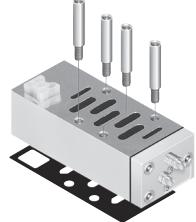
# Manifold Accessories

## BLANK STATION PLATE KITS

Blank Station Plates	ISO Size	Model Number*	
	1	RPS4034CP	
	2	RPS4134CP	
	3	RPS4234CP	

\* Includes: Blank Station Plate, Gasket, and Mounting Bolts.

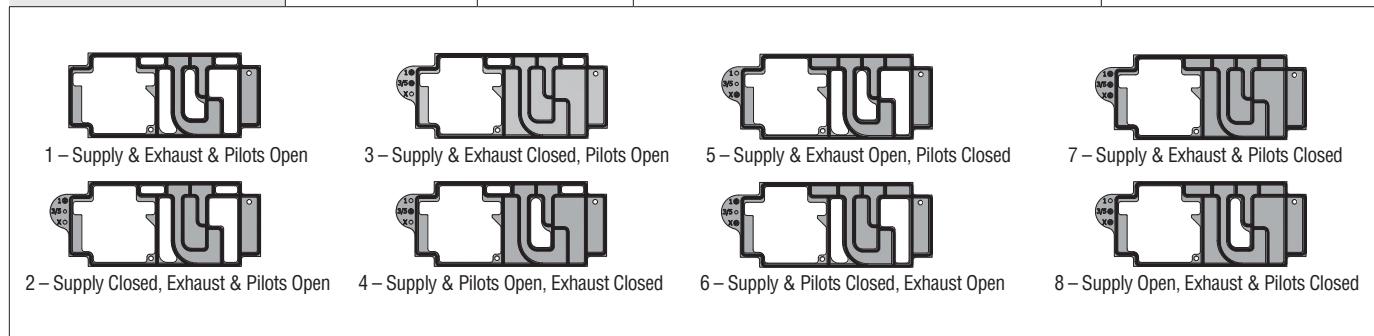
## REMOTE PILOT ACCESS PLATE KITS

Remote Pilot Access Plates	ISO Size	Port Size	Model Number*		
			G Thread	NPT Thread	
	1	1/8"	RPS401501CP	RPS401500CP	
	2	1/8"	RPS411501CP	RPS411500CP	
	3	1/8"	RPS421501CP	RPS421500CP	

\* Includes: Pilot Port Access Plate, Gasket and Mounting Studs.

## GASKET KITS

Gasket Kits Manifold to Manifold	Pilots Status	Diagram Reference	Description	Kit Number
	Pilots Opened	1	Supply & Exhaust & Pilots Open	RPSHU11P
		2	Supply Closed, Exhaust & Pilots Open	RPSHU12P
		3	Supply & Exhaust Closed, Pilots Open	RPSHU13P
		4	Supply & Pilots Open, Exhaust Closed	RPSHU14P
	Pilots Blocked	5	Supply & Exhaust Open, Pilots Closed	RPSHU15P
		6	Supply & Pilots Closed, Exhaust Open	RPSHU16P
		7	Supply & Exhaust & Pilots Closed	RPSHU17P
		8	Supply Open, Exhaust & Pilots Closed	RPSHU18P



# Manifold Accessories

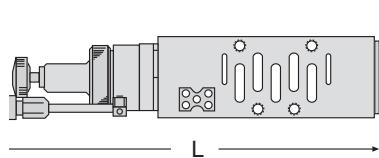
**NOTE:** Accessories from this page are to be used only with sub-bases and manifolds on page 16 & 17.

## INTERPOSED PRESSURE REGULATORS

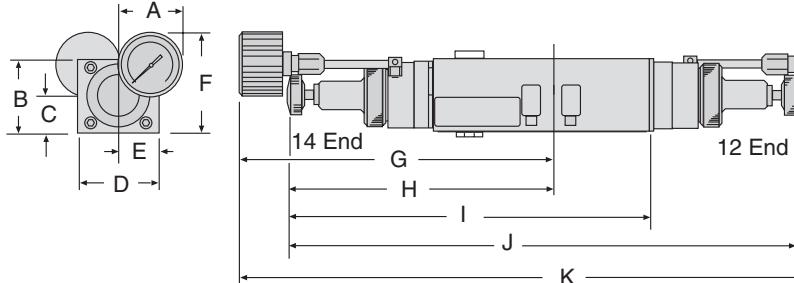
ISO Size	Model Number	Dimensions inches (mm)											
		A	B	C	D	E	F	G	H	I	J	K	L
1 – Single	965N91	1.6 (39)	1.8 (45)	0.9 (23)	1.7 (43)	0.9 (22)	2.5 (63)	6.2 (157)	7.2 (182)	8.0 (204)	11.6 (295)	13.6 (345)	9.0 (229)
1 – Double	966N91	1.6 (39)	1.8 (45)	0.9 (23)	1.7 (43)	0.9 (22)	2.5 (63)	6.2 (157)	7.2 (182)	8.0 (204)	11.6 (295)	13.6 (345)	9.0 (229)
2 – Single	967N91	1.6 (39)	1.8 (45)	0.9 (23)	2.0 (51)	1.0 (26)	2.5 (63)	6.5 (166)	7.5 (191)	9.0 (229)	12.6 (320)	14.6 (370)	10.0 (254)
2 – Double	968N91	1.6 (39)	1.8 (45)	0.9 (23)	2.0 (51)	1.0 (26)	2.5 (63)	6.5 (166)	7.5 (191)	9.0 (229)	12.6 (320)	14.6 (370)	10.0 (254)
3 – Single	969N91	2.1 (52)	2.7 (67)	1.3 (34)	2.6 (66)	1.3 (33)	3.4 (85)	9.5 (242)	8.0 (203)	10.6 (270)	18.2 (463)	15.2 (386)	13.0 (330)
3 – Double	970N91	2.1 (52)	2.7 (67)	1.3 (34)	2.6 (66)	1.3 (33)	3.4 (85)	9.5 (242)	8.0 (203)	10.6 (270)	18.2 (463)	15.2 (386)	13.0 (330)

The interposed regulator controls the pressure through the base-mounted valve. These interposed devices are “sandwich” style, mounting between a valve and base or manifold. When using a dual interposed regulator for a W65 Series solenoid valve, the valve must be externally piloted (port 14).

Single Interposed Regulator  
(top view)



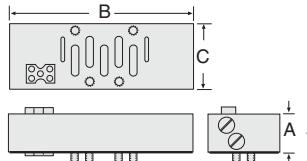
Double Interposed Regulator  
(top view)



**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.

## INTERPOSED FLOW CONTROL

ISO Size	Model Number	Dimensions inches (mm)			A	B	C
		A	B	C			
1	1371N77	0.9 (24)	3.8 (97)	1.7 (43)			
2	1372N77	1.3 (33)	5.1 (130)	2.0 (51)			
3	1373N77	1.6 (41)	5.6 (142)	2.6 (66)			



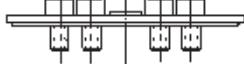
The interposed flow control independently adjusts the speed of a cylinder's extend and retract motions. This action is achieved by throttling the flow of exhaust air through ports 3 and 5 by means of a separate needle valve across each of these ports. These interposed devices are “sandwich” style, mounting between a valve and base or manifold.

**NOTE:** Accessories from this page are to be used only with sub-bases and manifolds on page 16 & 17.

# Manifold Accessories

**NOTE:** Accessories from this page are to be used only with sub-bases and manifolds on page 16 & 17.

## BLANK STATION PLATES

Blank Station Plate	ISO Size	Model Number*	
	1	1381N77	
	2	1382N77	
	3	1383N77	
A blank station plate is used to cover the top of a manifold station not in use.			

## PORT BLOCKING DISKS

Port Blocking Disks	ISO Size	Model Number*	
	1	1376N77	
	2	1378N77	
	3	1380N77	
A blocking disk closes the ports between manifold stations.			

## PILOT PORT BLOCKING PLUGS

Pilot Port Blocking Plugs	ISO Size	Model Number*	
	1	1375N77	
	2	1377N77	
	3	1379N77	
The pilot blocking plug blocks the pilot ports between manifold stations.			

## MANIFOLD TRANSITION PLATES

Manifold Transition Plates	Left Manifold ISO Size	Right Manifold ISO Size	Model Number*	
	1	2	1387N77	
	2	1	1388N77	
	2	3	1389N77	
	3	2	1390N77	
To bank different manifold sizes together.				

## EXHAUST SILENCERS

Silencers	Port Size	Thread Type	Model Number		Flow Avg. C <sub>v</sub>	Pressure Range psig (bar)
			R/Rp Thread	NPT Thread		
	1/4	Male	5500A2003	5500A2003	1.2	0-290 (0-20) maximum
	3/8	Male	5500A3013	5500A3013	2.7	
	1/2	Male	5500A4003	5500A4003	4.7	
	1	Male	5500A6003	5500A6003	14.6	

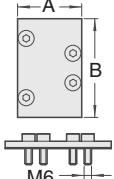
**NOTE:** Accessories from this page are to be used only with sub-bases and manifolds on page 16 & 17.



# Manifold Accessories

## BLANKING PLATE KITS

### Blanking Plates

ISO SIZE	Model Number*																			
1	2602H77																			
2	2603H77																			
3	2604H77																			
* A blanking plate is used to cover the top of a manifold station that is not in use. Includes: a metal plate, a gasket, and mounting bolts.																				
		<b>Dimensions inches (mm)</b> <table border="1"> <thead> <tr> <th></th> <th>ISO 1</th> <th>ISO 2</th> <th>ISO 3</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>1.57 (40)</td> <td>2.04 (52)</td> <td>3.03 (77)</td> </tr> <tr> <td>B</td> <td>2.60 (66)</td> <td>3.15 (80)</td> <td>4.17 (106)</td> </tr> <tr> <td>Plate Thickness</td> <td>0.16 (4)</td> <td>0.24 (6.2)</td> <td>0.41 (12)</td> </tr> </tbody> </table>				ISO 1	ISO 2	ISO 3	A	1.57 (40)	2.04 (52)	3.03 (77)	B	2.60 (66)	3.15 (80)	4.17 (106)	Plate Thickness	0.16 (4)	0.24 (6.2)	0.41 (12)
	ISO 1	ISO 2	ISO 3																	
A	1.57 (40)	2.04 (52)	3.03 (77)																	
B	2.60 (66)	3.15 (80)	4.17 (106)																	
Plate Thickness	0.16 (4)	0.24 (6.2)	0.41 (12)																	



## BLOCKING DISKS

### Blocking Disks ISO Size 1 & 2

ISO SIZE	Model Number*			
1	319A40			
2	320A40			
3	321A40			



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

## INDEPENDENT PRESSURE MODULES

### Independent Pressure Modules

ISO Size	Inlet Port	Part Number*
1	1/4	703K77
2	3/8	692K77
3	1/2	715K77

\* 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 module. The pressure module 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 module.

## ASSEMBLY KITS

### Assembly Kits ISO Size 1 & 2

ISO SIZE	Kit Number			
1	732K86			
2	733K86			



Includes: O-rings and assembly clamps.

# Manifold Accessories

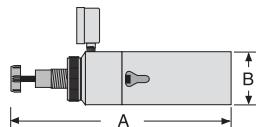
## INTERPOSED PRESSURE REGULATORS

ISO Size	Pressure psig (bar)	Model Number		
		Single		Double
		Left Hand (14)	Right Hand (12)	
1	10 (0.68) to 130 (9)	1300K91	1301K91	1302K91
2	10 (0.68) to 130 (9)	1303K91	1304K91	1305K91
	5 (0.34) to 60 (4.13)	2044K91	—	—
3	10 (0.68) to 130 (9)	1306K91	1307K91	1308K91

Interposed pressure regulator controls pressure through the base-mounted valve. Single pressure regulator available with left hand (14) and right hand (12) orientation. Single pressure regulators provide the same regulated pressure at both outlet ports.

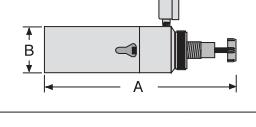
Double pressure regulators allow the pressure at each outlet port to be set independently. Requires no new piping.

**Single**  
**Left Hand (14)**

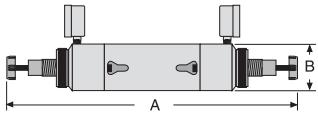




**Single**  
**Right Hand (12)**



**Double**



ISO Size	Regulator Dimensions – inches (mm)		
	A (Single)	A (Double)	B (Single/Double)
1	7.3 (186)	13.2 (336)	1.5 (39)
2	8.3 (211)	14.8 (376)	2.0 (51)
3	10.5 (267)	18.3 (465)	2.5 (64)

## INTERPOSED FLOW CONTROL

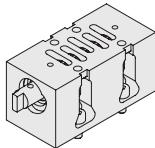
Interposed Flow Control for W60 Series Valves	ISO SIZE	Model Number
	1	701B77
	2	702B77
	3	722K77

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.

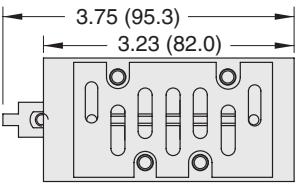
## INTERPOSED SHUT-OFF

ISO SIZE	Model Number
1	1871B91
2 & 3	Please contact ROSS.

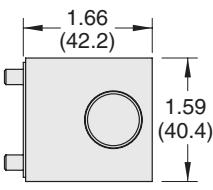
Manually actuated with a 1/4 turn, the interposed shut-off isolates all ports, including the pilot.



ISO Size 1



Dimensions - inches (mm)





## Manifold Accessories

### EXHAUST SILENCERS

Silencers	Port Size	Thread Type	Model Number		Flow Avg. C <sub>v</sub>	Pressure Range psig (bar)
			R/Rp Thread	NPT Thread		
Silencers	1/4	Male	D5500A2003	5500A2003	2.1	0-290 (0-20) maximum
	3/8	Male	D5500A3013	5500A3013	2.7	
	1/2	Male	D5500A4003	5500A4003	4.7	
	3/4	Male	D5500A5013	5500A5013	5.1	



## Notes

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# CAUTIONS, WARNINGS And STANDARD WARRANTY

ROSS OPERATING VALVE, ROSS CONTROLS®, ROSS DECCO®, and AUTOMATIC VALVE INDUSTRIAL, collectively the “ROSS Group”.

## PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure all sources of energy are turned off, the entire pneumatic system is shut down and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS Group Products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any product can be tampered with and/or need servicing after installation, persons responsible for the safety of others or the care of equipment must check ROSS Group Products on a regular basis and perform all necessary maintenance to ensure safe operating conditions.
3. All applicable instructions should be read and complied with before using any fluid power system to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use. If you have any questions, call your nearest ROSS Group location.
4. Each ROSS Group Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Group Products.

### WARNINGS:

*Failure to follow these instructions can result in personal injury and/or property damage.*

## FILTRATION and LUBRICATION

1. 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. The ROSS Group recommends a filter with a 5-micron rating for normal applications.
2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. 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 liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.
3. 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 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with

phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks personal injury, and/or damage to property.

### WARNINGS:

*Failure to follow these instructions can result in personal injury and/or property damage.*

## AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.
2. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must 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.

**WARNINGS:** *Failure to follow these instructions can result in personal injury and/or property damage.*

## SAFETY APPLICATIONS

1. 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.
2. Safe Exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All Safe Exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

### WARNINGS:

*Failure to follow these instructions can result in personal injury and/or property damage.*

## STANDARD WARRANTY

All products sold by the ROSS Group are warranted for a one-year period [with the exception of Filters, Regulators and Lubricators (“FRLs”) which are warranted for a period of seven (7) years] from the date of purchase. All products are, during their respective warranty periods, warranted to be free of defects in material and workmanship. The ROSS Group's obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Group has determined, in its sole discretion, are defective. All warranties become void if a product has been subject to misuse, misapplication, improper maintenance, modification or tampering. Products for which warranty protection is sought must be returned to the ROSS Group freight prepaid.

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*Other literature is available for engineering, maintenance, and service requirements.*

*If you need products or specifications not shown in this catalog, please visit ROSS' website, contact ROSS or your ROSS distributor. The ROSS Support Team will be happy to assist you in selecting the best product for your application.*

*For a current list of countries and local distributors, visit ROSS' at [www.rosscontrols.com](http://www.rosscontrols.com).*