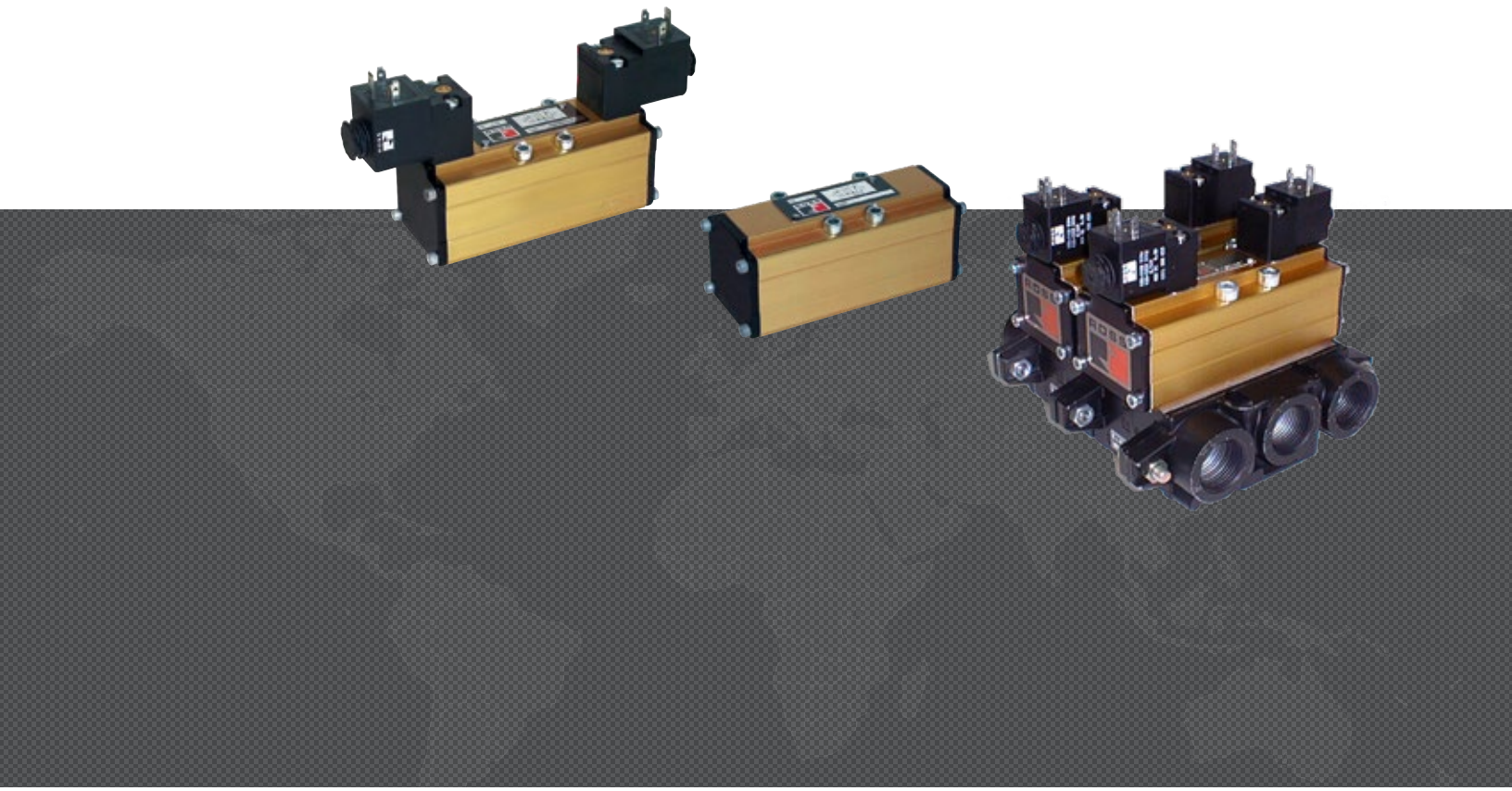
Directional Control Valves ISO 5599-1
W60 & W64 Series

Product Catalog



ROSS™
a global family

ISO 5599-1 Valves W60 Series
Product Overview

The ROSS® ISO 5599-1 valves W60 Series are base mounted spool and sleeve valves that conform to the ISO standards 5599-1 mounting interface.

These ISO Size 1, 2, and 3 valves are available as, 2- and 3-position, 5-ported 4-way valves. Solenoid pilot options include a non-locking manual override, and either internal or external pilot supply.

Solenoid Pilot Controlled		Pressure Controlled
Single Solenoid	Double Solenoid	
		

Illustration examples.

VALVE FEATURES

Spool Design	Spool and Sleeve construction with no seals to wear out
Mounting Options	Individual sub-base or manifold base mounting
Pilot Operation	Provides high shifting force with low power consumption
Pilot Supply	Internal or external; selected automatically
External Pilot Supply	Suitable for vacuum service

Actuation	ISO Size	Available Inlet Port Sizes					Functions					Flow C_v (Nl/min)	Page
							5/2		5/3				
		1/8	1/4	3/8	1/2	3/4	Single	Double	Power Center	Closed Center	Open Center		
Solenoid Control	1	●	●	●			●	●	●	●	●	0.8 (790)	2 – 3 4 – 9
	2			●	●		●	●	●	●	●	1.9 (1900)	
	3				●	●	●	●	●	●	●	3.8 (3700)	
Pressure Control	1	●	●	●			●	●	●	●	●	0.8 (790)	2 – 3 10 – 15
	2			●	●		●	●	●	●	●	1.9 (1900)	
	3				●	●	●	●	●	●	●	3.8 (3700)	
Sub-Bases													26 – 28
Manifold Bases													29 – 33
Manifold Accessories													34 – 35
Accessories													36 –37

Specifications

STANDARD SPECIFICATIONS

GENERAL	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	NPT, G	
	Manual Override		Flush; metal, non-locking		
OPERATING CONDITIONS	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		
	Flow Media		Filtered air		
	Operating Pressure		Vacuum to 150 psig (Vacuum to 10 bar)		
	Pilot Supply Pressure		ISO Size	1	Minimum 30 psig (2 bar)
				2 & 3	Minimum 15 psig (1 bar)
	External Pilot Supply		Must be equal to or greater than inlet pressure		
ELECTRICAL DATA FOR SOLENOID PILOT CONTROLLED VALVES	Solenoids		Current Flow	Operating Voltage	Power Consumption (each solenoid)
			DC	24 volts	6 watts
			AC	110 volts, 50 Hz 120 volts, 50/60 Hz	5.8 nominal, 6.5 watts maximum watts
				230-240 volts, 60 Hz	
			Rated for continuous duty		
	Enclosure Rating		IP65, IEC 60529		
	Electrical Connection		DIN EN 175301-803 Form A		
CONSTRUCTION MATERIAL	Valve Body		Bar Stock 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

Certificate of Compliance	UL Certification for the U.S. and CANADA Markets	Declaration of Conformity	
	Solenoid Pilot Valves Only		

Ordering Information

5/2 Single Solenoid Pilot Controlled Valves

SOLENOID PILOT CONTROLLED VALVES — **5-Way 2-Position Valves**

ISO Size	Base Port Size *	Valve Model Number		
		24 V DC	110-120 V AC	230 V AC
1	1/8 - 3/8	W6076B2401W	W6076B2401Z	W6076B2401Y
2	3/8 - 1/2	W6076B3401W	W6076B3401Z	W6076B3401Y
3	1/2 - 3/4	W6076B4401W	W6076B4401Z	W6076B4401Y

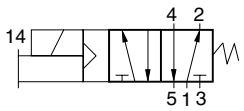
For other voltages, consult ROSS.

* **Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

ISO Size	Base Port Size	Flow C_V (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	0.8 (790)	29	3.5	4.9	1.5 (0.7)
2	3/8 - 1/2	1.9 (1900)	41	1.5	2.4	2.3 (1.1)
3	1/2 - 3/4	3.8 (3700)	51	0.8	1.1	3.5 (1.6)

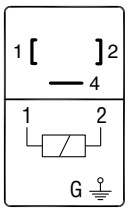
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic



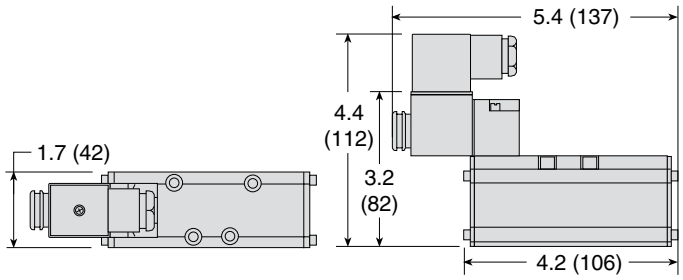
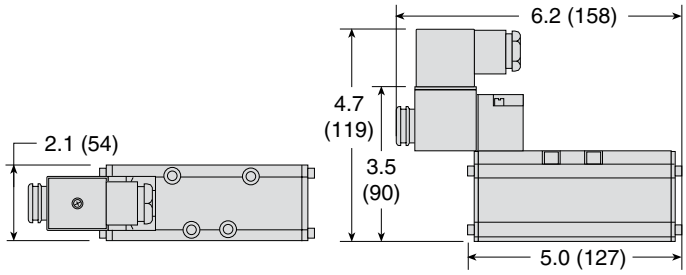
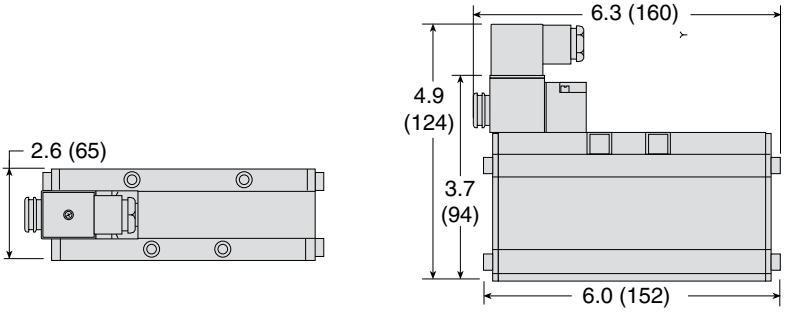
Solenoid Pinout

DIN EN 175301-803 Form A



1 - Positive
2 - Negative
4 - Ground

5/2 Single Solenoid Pilot Controlled Valves

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

Downloadable CAD models available.

Ordering Information

5/2 Double Solenoid Pilot Controlled Valves

SOLENOID PILOT CONTROLLED VALVES — 5-Way 2-Position Valves

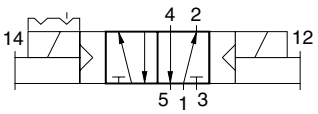
ISO Size	Base Port Size *	Valve Model Number		
		24 V DC	110-120 V AC	230 V AC
1	1/8 - 3/8	W6076B2407W	W6076B2407Z	W6076B2407Y
2	3/8 - 1/2	W6076B3407W	W6076B3407Z	W6076B3407Y
3	1/2 - 3/4	W6076E4407W	W6076E4407Z	W6076E4407Y
For other voltages, consult ROSS.				

* **Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

ISO Size	Base Port Size	Flow C_v (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	0.8 (790)	17	3.5	4.9	1.8 (0.9)
2	3/8 - 1/2	1.9 (1900)	20	1.5	2.5	2.7 (1.2)
3	1/2 - 3/4	3.8 (3700)	20	0.8	1.1	3.9 (1.8)

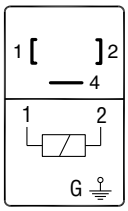
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic



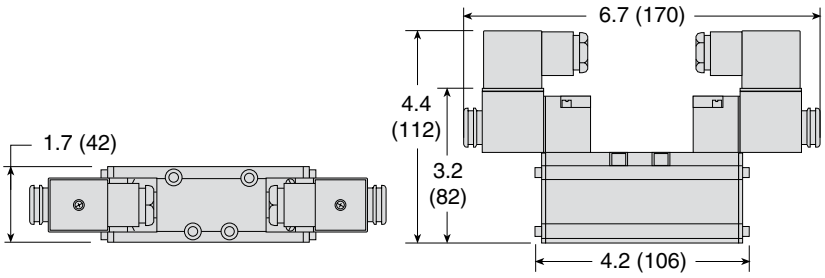
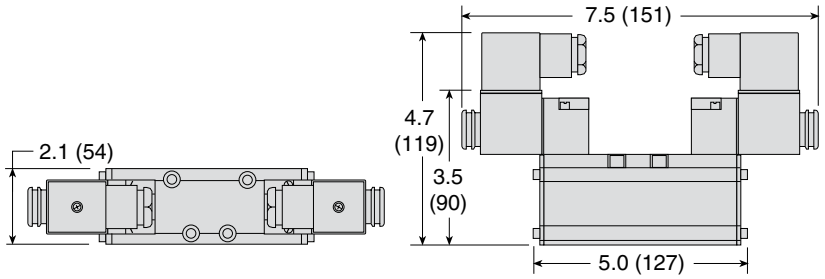
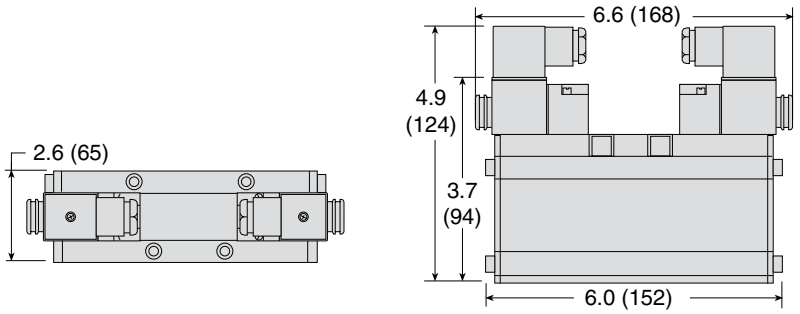
Solenoid Pinout

DIN EN 175301-803 Form A



1 - Positive
2 - Negative
4 - Ground

5/2 Double Solenoid Pilot Controlled Valves

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

Downloadable CAD models available.

Ordering Information

5/3 Double Solenoid Pilot Controlled Valves

SOLENOID PILOT CONTROLLED VALVES — 5-Way 2-Position Valves

Center Position	ISO Size	Base Port Size *	Valve Model Number*		
			24 V DC	110-120 V AC	230 V AC
Power Center	1	1/4 – 3/8	W6077A2951W	W6077A2951Z	W6077A2951Y
	2	3/8 – 1/2	W6077A3945W	W6077A3945Z	W6077A3945Y
	3	3/8 – 3/4	W6077B4934W	W6077B4934Z	W6077B4934Y
Closed Center	1	1/4 – 3/8	W6077B2401W	W6077B2401Z	W6077B2401Y
	2	3/8 – 1/2	W6077B3401W	W6077B3401Z	W6077B3401Y
	3	3/8 – 3/4	W6077B4401W	W6077B4401Z	W6077B4401Y
Open Center	1	1/4 – 3/8	W6077B2407W	W6077B2407Z	W6077B2407Y
	2	3/8 – 1/2	W6077B3407W	W6077B3407Z	W6077B3407Y
	3	3/8 – 3/4	W6077B4407W	W6077B4407Z	W6077B4407Y

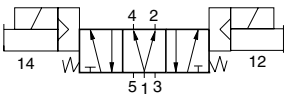
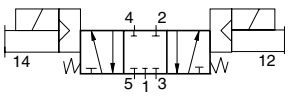
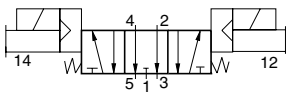
For other voltages, consult ROSS.

* **Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

ISO Size	Base Port Size	Flow C_v (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	0.8 (790)	30	3.5	5.0	1.8 (0.9)
2	3/8 - 1/2	1.9 (1900)	40	1.5	2.5	2.8 (1.3)
3	1/2 - 3/4	3.8 (3700)	50	0.8	1.1	4.0 (1.8)

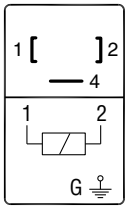
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic

Power Center	Closed Center	Open Center
		

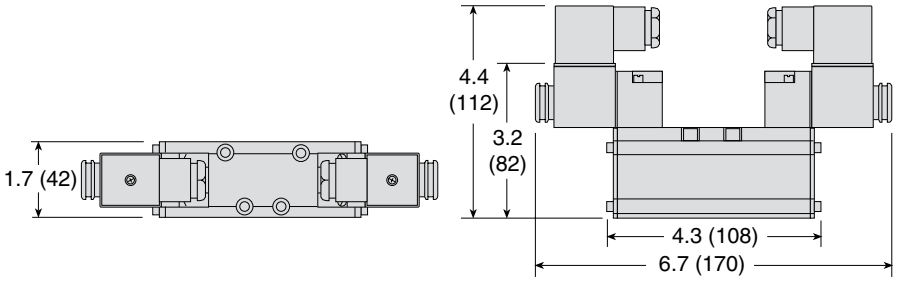
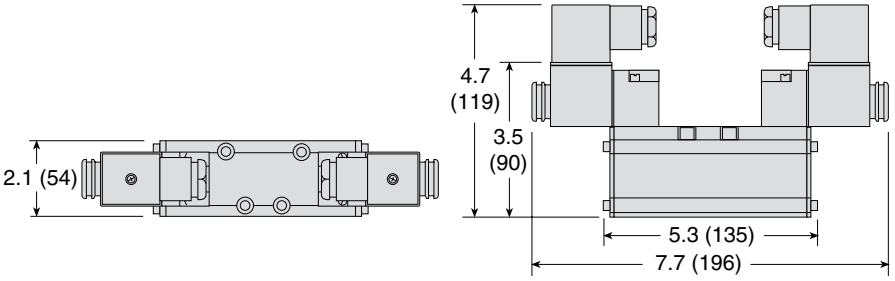
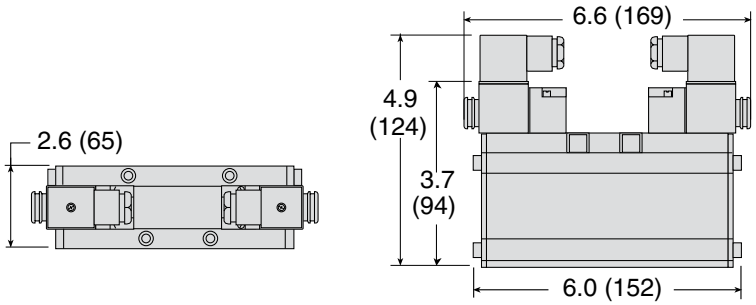
Solenoid Pinout

DIN EN 175301-803 Form A



1 - Positive
2 - Negative
4 - Ground

5/3 Double Solenoid Pilot Controlled Valves

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

Downloadable CAD models available.

Ordering Information

5/2 Single Pressure Controlled Valves

PRESSURE CONTROLLED VALVES — **5-Way 2-Position Valves**

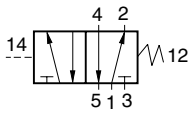
ISO Size	Base Port Size *	Valve Model Number*
1	1/8 - 3/8	W6056B2411
2	3/8 - 1/2	W6056B3411
3	1/2 - 3/4	W6056B4411

*** Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

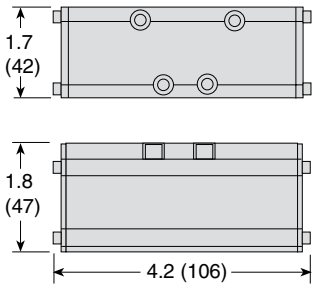
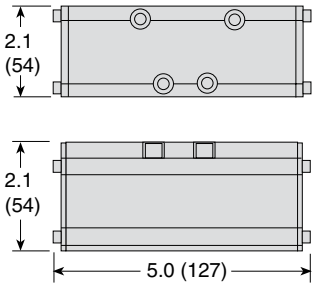
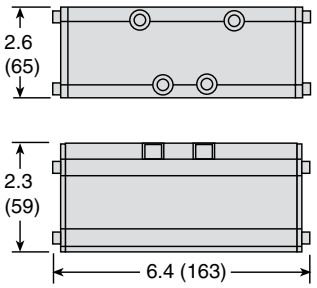
ISO Size	Base Port Size	Flow C_v (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	0.8 (790)	29	3.5	4.9	0.8 (0.4)
2	3/8 - 1/2	1.9 (1900)	41	1.5	2.4	1.5 (0.7)
3	1/2 - 3/4	3.8 (3700)	51	0.8	1.1	3.0 (1.4)

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



5/2 Single Pressure Controlled Valves

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

Downloadable CAD models available.

Ordering Information

5/2 Double Pressure Controlled Valves

PRESSURE CONTROLLED VALVES — **5-Way 2-Position Valves**

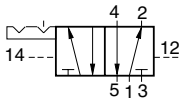
ISO Size	Base Port Size *	Valve Model Number*
1	1/8 - 3/8	W6056B2417
2	3/8 - 1/2	W6056B3417
3	1/2 - 3/4	W6056E4417

*** Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

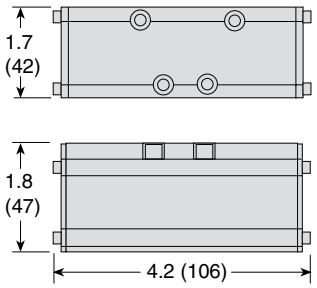
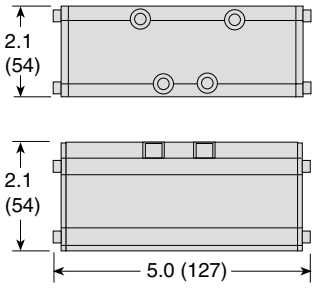
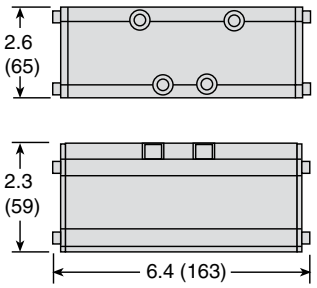
ISO Size	Base Port Size	Flow C_V (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	0.8 (790)	17	3.5	5.0	0.8 (0.4)
2	3/8 - 1/2	1.9 (1900)	20	1.5	2.5	1.5 (0.7)
3	1/2 - 3/4	3.8 (3700)	20	0.8	1.1	3.0 (1.4)

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



5/2 Double Pressure Controlled Valves

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

Downloadable CAD models available.

Ordering Information

5/3 Double Pressure Controlled Valves

PRESSURE CONTROLLED VALVES — **5-Way 3-Position Valves**

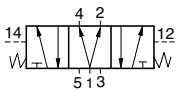
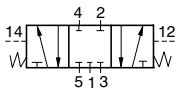
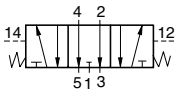
Center Position	ISO Size	Base Port Size *	Valve Model Number*
			24 V DC
Power Center	1	1/8 - 3/8	W6057A2934
	2	3/8 - 1/2	W6057A3933
	3	1/2 - 3/4	W6057A4937
Closed Center	1	1/8 - 3/8	W6057B2411
	2	3/8 - 1/2	W6057B3411
	3	1/2 - 3/4	W6057B4411
Open Center	1	1/8 - 3/8	W6057B2417
	2	3/8 - 1/2	W6057B3417
	3	1/2 - 3/4	W6057B4417

* **Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

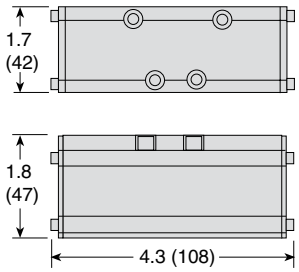
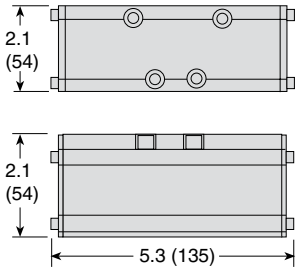
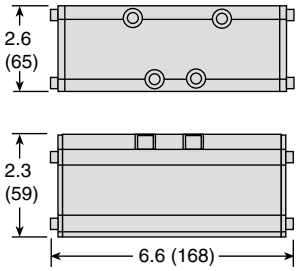
ISO Size	Base Port Size	Flow C_v (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	0.8 (790)	30	3.5	5.0	1.0 (0.5)
2	3/8 - 1/2	1.9 (1900)	40	1.5	2.5	1.5 (0.7)
3	1/2 - 3/4	3.8 (3700)	50	0.8	1.1	3.0 (1.4)

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

Power Center	Closed Center	Open Center
		

5/3 Double Pressure Controlled Valves

DIMENSIONS	Inches (mm)
ISO Size 1	
ISO Size 2	
ISO Size 3	
Downloadable CAD models available.	

ISO 5599-1 Valves W64 Series
Product Overview

The ROSS® ISO 5599-1 valves W64 Series are base mounted poppet valves that conform to the ISO standard 5599-1 mounting interface.

These ISO Size 1, 2, and 3 valves are available as standard and high temperature valves, 2- and 3-position, 5-ported 4-way valves. Solenoid pilot options include a non-locking manual override, and either internal or external pilot supply.

Solenoid Pilot Controlled		Pressure Controlled
Single Solenoid	Double Solenoid	
		

Illustration examples.

VALVE FEATURES

Poppet Design	Highly tolerant of contaminated air and are self compensating for wear
Mounting Options	Individual sub-base or manifold base mounting
Pilot Operation	Provides high shifting force with low power consumption
Pilot Supply	Internal or external; selected automatically
External Pilot Supply	Suitable for vacuum service

Actuation	ISO Size	Available Inlet Port Sizes					Functions		Flow C_v (Nl/min)	Page
							5/2			
		1/8	1/4	3/8	1/2	3/4	Standard Temperature	High Temperature		
Solenoid Control	1	●	●	●			●	●	1.0 (980)	16 – 17 18 – 21
	2			●	●		●	●	2.0 (2000)	
	3				●	●	●	●	4.0 (3900)	
Pressure Control	1	●	●	●			●	●	1.0 (980)	16 – 17 22 – 25
	2			●	●		●	●	2.0 (2000)	
	3				●	●	●	●	4.0 (3900)	
Sub-Bases										26 – 28
Manifold Bases										29 – 33
Manifold Accessories										34 – 35
Accessories										36 – 37

Specifications

STANDARD SPECIFICATIONS

GENERAL	Function		5/2 and 5/3 Valve		
	Construction Design		Poppet		
	Actuation		Electrical	Solenoid Pilot Controlled	
			Pneumatic	Pressure Controlled	
	Mounting		Base Mounted		
	Connection		Threaded	NPT, G	
	Manual Override		Flush; metal, non-locking		
OPERATING CONDITIONS	Temperature	Solenoid Pilot Controlled	Standard Temperature	Ambient	40° to 120°F (4° to 50°C)
				Media	40° to 175°F (4° to 105°C)
			High Temperature	Ambient	40° to 175°F (4° to 80°C)
				Media	40° to 220°F (4° to 105°C)
				For other temperature ranges, consult ROSS.	
		Pressure Controlled	Standard Temperature	Ambient	40° to 175°F (4° to 80°C)
				Media	
			High Temperature	Ambient	40° to 220°F (4° to 105°C)
				Media	
				For other temperature ranges, consult ROSS.	
	Flow Media		Filtered air		
	Operating Pressure		30 to 150 psig (2 to 10 bar)		
	External Pilot Supply		Must be equal to or greater than inlet pressure		

ELECTRICAL DATA FOR SOLENOID PILOT VALVES	Solenoids	Current Flow	Operating Voltage	Power Consumption (each solenoid)
		DC	24 volts	6 watts
		AC	110 volts, 50 Hz 120 volts, 50/60 Hz	5.8 nominal, 6.5 watts maximum watts
			230-240 volts, 60 Hz	
		Rated for continuous duty		
	Enclosure Rating	IP65, IEC 60529		
	Electrical Connection	DIN EN 175301-803 Form A		

CONSTRUCTION MATERIAL	Valve Body	Bar Stock Aluminum
	Poppet	Aluminum & Stainless Steel
	Seals	Buna-N or Fluorocarbon

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

PRODUCT CREDENTIALS

Certificate of Compliance	UL Certification for the U.S. and CANADA Markets	Declaration of Conformity	
	Solenoid Pilot Valves Only		

Ordering Information

5/2 Single Solenoid Pilot Controlled Valves

SOLENOID PILOT CONTROLLED VALVES — 5-Way 2-Position Valves

ISO Size	Base Port Size *	Valve Model Number					
		Standard Temperature			High Temperature		
		24 V DC	110-120 V AC	230 V AC	24 V DC	110-120 V AC	230 V AC
1	1/8 - 3/8	W6476B2401W	W6476B2401Z	W6476B2401Y	W6476B2402W	W6476B2402Z	W6476B2402Y
2	3/8 - 1/2	W6476B3401W	W6476B3401Z	W6476B3401Y	W6476B3402W	W6476B3402Z	W6476B3402Y
3	1/2 - 3/4	W6476B4401W	W6476B4401Z	W6476B4401Y	W6476B4402W	W6476B4402Z	W6476B4402Y

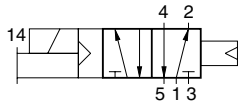
For other voltages, consult ROSS.

* **Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

ANSI Size	Base Port Size	Flow C_v (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	1.0 (980)	33	2.9	5.9	1.3 (0.6)
2	3/8 - 1/2	2.0 (2000)	33	1.2	2.3	1.8 (0.8)
3	1/2 - 3/4	4.0 (3900)	50	0.7	1.2	2.8 (1.3)

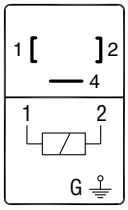
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic



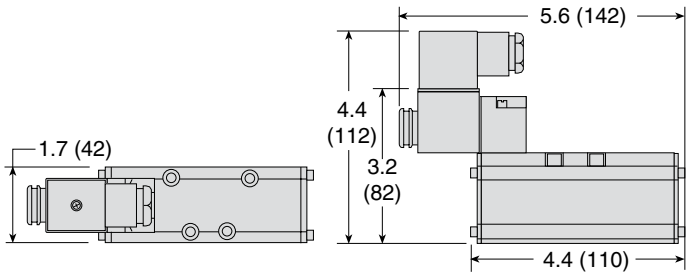
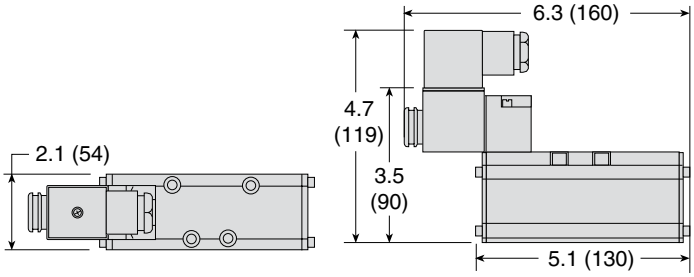
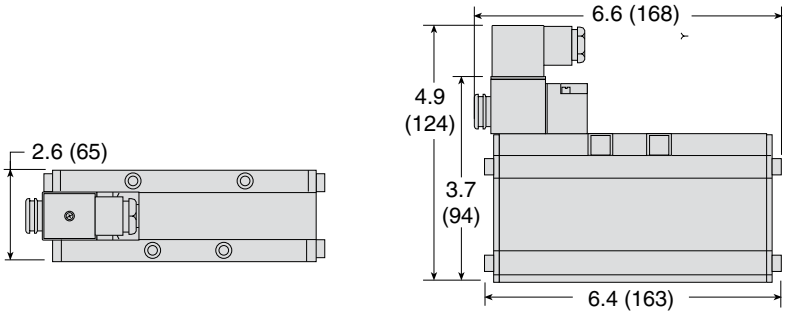
Solenoid Pinout

DIN EN 175301-803 Form A



1 - Positive
2 - Negative
4 - Ground

5/2 Single Solenoid Pilot Controlled Valves

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

Downloadable CAD models available.

Ordering Information

5/2 Double Solenoid Pilot Controlled Valves

SOLENOID PILOT CONTROLLED VALVES — 5-Way 2-Position Valves

ISO Size	Base Port Size *	Valve Model Number					
		Standard Temperature			High Temperature		
		24 V DC	110-120 V AC	230 V AC	24 V DC	110-120 V AC	230 V AC
1	1/8 - 3/8	W6476B2407W	W6476B2407Z	W6476B2407Y	W6476B2408W	W6476B2408Z	W6476B2408Y
2	3/8 - 1/2	W6476B3407W	W6476B3407Z	W6476B3407Y	W6476B3408W	W6476B3408Z	W6476B3408Y
3	1/2 - 3/4	W6476B4407W	W6476B4407Z	W6476B4407Y	W6476B4408W	W6476B4408Z	W6476B4408Y

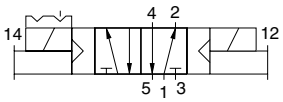
For other voltages, consult ROSS.

* **Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

ANSI Size	Base Port Size	Flow C_v (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	1.0 (980)	16	2.9	5.6	1.8 (0.8)
2	3/8 - 1/2	2.0 (2000)	16	1.2	2.3	2.3 (1.0)
3	1/2 - 3/4	4.0 (3900)	16	0.7	1.1	3.3 (1.5)

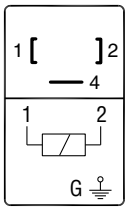
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Schematic



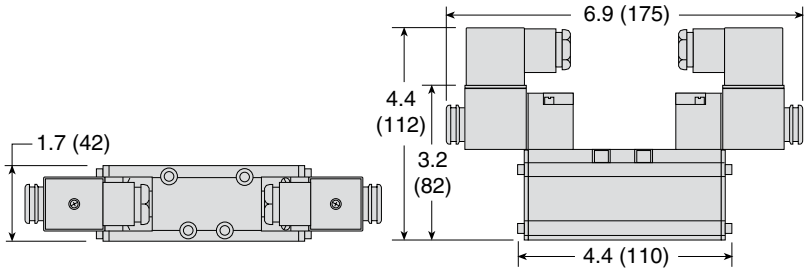
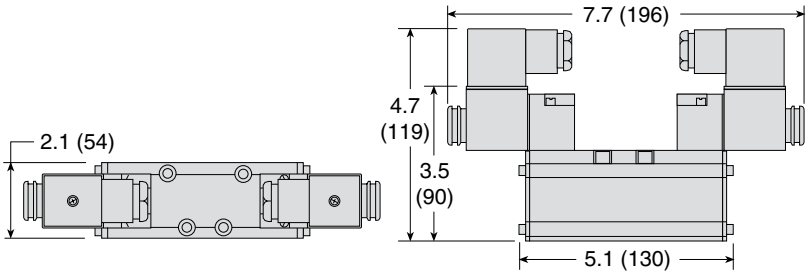
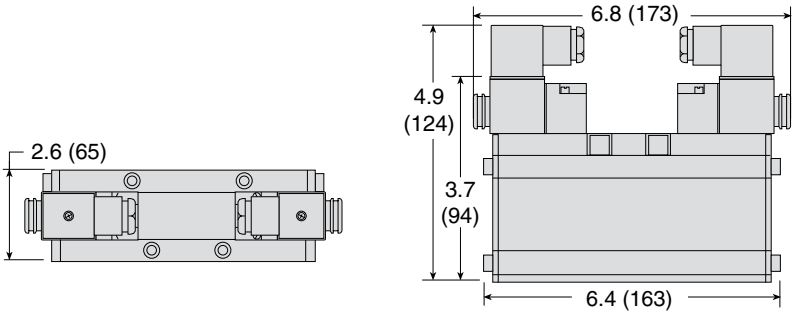
Solenoid Pinout

DIN EN 175301-803 Form A



1 - Positive
2 - Negative
4 - Ground

5/2 Double Solenoid Pilot Controlled Valves

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

Downloadable CAD models available.

Ordering Information

5/2 Single Pressure Controlled Valves

PRESSURE CONTROLLED VALVES — **5-Way 2-Position Valves**

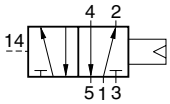
ISO Size	Base Port Size *	Valve Model Number	
		Standard Temperature	High Temperature
1	1/8 - 3/8	W6456B2411	W6456B2412
2	3/8 - 1/2	W6456B3411	W6456B3412
3	1/2 - 3/4	W6456B4411	W6456B4412

*** Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

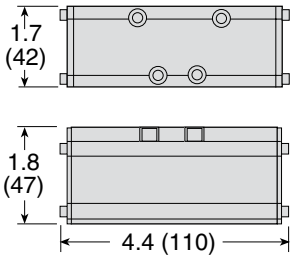
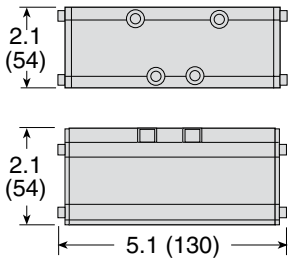
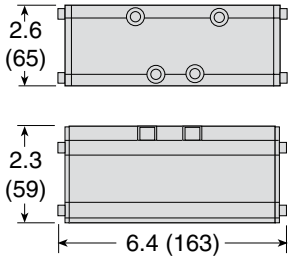
ISO Size	Base Port Size	Flow C_V (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	1.0 (980)	33	2.9	5.9	0.8 (0.4)
2	3/8 - 1/2	2.0 (2000)	33	1.2	2.3	1.3 (0.6)
3	1/2 - 3/4	4.0 (3900)	50	0.7	1.2	2.3 (1.1)

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



5/2 Single Pressure Controlled Valves

DIMENSIONS	Inches (mm)
ISO Size 1	
ISO Size 2	
ISO Size 3	
Downloadable CAD models available.	

Ordering Information

5/2 Double Pressure Controlled Valves

PRESSURE CONTROLLED VALVES — **5-Way 2-Position Valves**

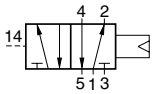
ISO Size	Base Port Size *	Valve Model Number	
		Standard Temperature	High Temperature
1	1/8 - 3/8	W6456B2417	W6456B2418
2	3/8 - 1/2	W6456B3417	W6456B3418
3	1/2 - 3/4	W6456B4417	W6456B4418

* **Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.**

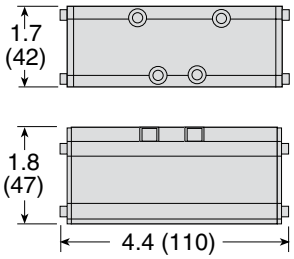
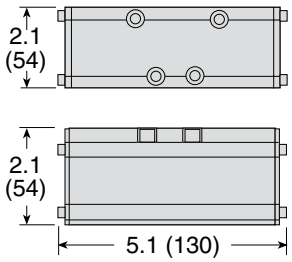
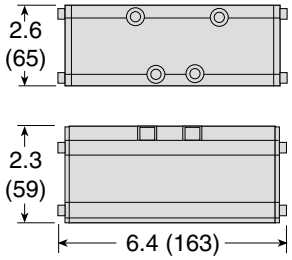
ISO Size	Base Port Size	Flow C_V (Nl/min)	Average Response Constants*			Weight lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	1.0 (980)	16	2.9	5.6	1.8 (0.8)
2	3/8 - 1/2	2.0 (2000)	16	1.2	2.3	2.3 (1.0)
3	1/2 - 3/4	4.0 (3900)	18	0.7	1.1	3.3 (1.5)

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



5/2 Double Pressure Controlled Valves

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

Downloadable CAD models available.

Single Bases – Side Ported

SIDE PORTED SINGLE BASES

ISO Size	Size			Model Number	
	Port 2, 4	Port 1, 3, 5	Port 12, 14	NPT Thread	G Thread
1	1/4	1/4	1/8	2076C01	D2076C01
2	3/8	3/8	1/8	2078C01	D2078C01
3	1/2	1/2	1/8	2080C01	D2080C01

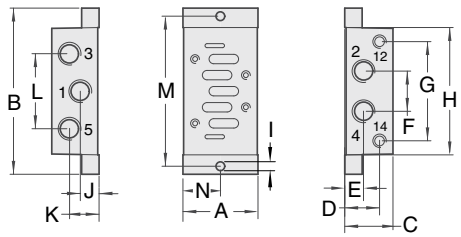
ISO Size 1 & 2

ISO Size 3

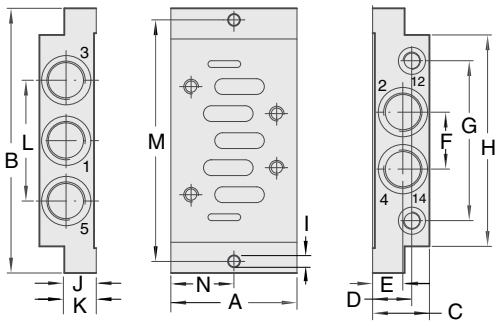
DIMENSIONS

Inches (mm)

ISO Size 1 & 2



ISO Size 3



	ISO Size		
	1	2	3
A	1.81 (46)	2.20 (56)	2.80 (71)
B	4.33 (110)	4.88 (124)	5.87 (149)
C	1.18 (30)	1.42 (36)	1.26 (32)
D	0.85 (21.5)	1.02 (26)	0.87 (22)
E	0.39 (10)	0.55 (14)	0.67 (17)
F	0.94 (24)	1.18 (30)	1.26 (32)
G	2.38 (60.5)	3.91 (74)	3.54 (90)
H	3.27 (83)	3.74 (95)	2.69 (119)
I	0.22 (5.5)	2.56 (6.5)	0.26 (6.6)
J	0.41 (10.5)	0.41 (10.5)	0.67 (17)
K	0.77 (19.5)	0.87 (22)	0.67 (17)
L	1.69 (43)	2.20 (56)	2.67 (68)
M	3.86 (98)	4.41 (112)	5.35 (136)
N	0.90 (23)	1.10 (28)	1.40 (35.5)

Downloadable CAD models available.

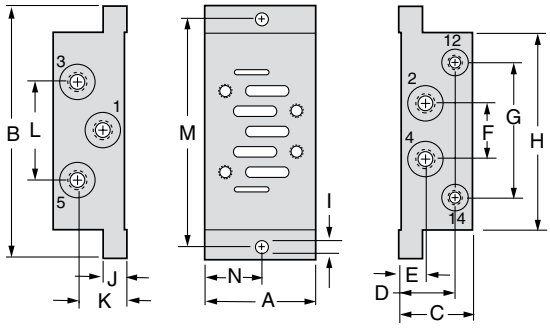
SIDE PORTED SINGLE BASES

ISO Size	Size			Model Number
	Port 2, 4	Port 1, 3, 5	Port 12, 14	NPT Thread
1	1/8	1/4	1/8	654K91
	3/8	3/8	1/8	642K91
2	1/2	1/2	1/8	643K91
3	3/4	3/4	1/2	644K91

* NPT port thread only.

DIMENSIONS

Inches (mm)



	ISO Size		
	1	2	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	0.93 (24)	1.18(30)	0.87 (22)
E	0.41 (38)	0.55 (14)	0.67 (17)
F	0.94 (24)	1.18 (30)	1.26 (32)
G	2.28 (58)	2.92 (74)	3.54 (90)
H	3.27 (83)	3.74 (95)	2.69 (119)
I	0.22 (5.5)	0.26 (7)	0.26 (6.6)
J	0.41 (10.5)	0.55 (14)	0.67 (17)
K	0.85 (22)	1.02 (26)	0.59 (15)
L	1.70 (43)	2.20 (56)	2.68 (68)
M	3.86 (98)	4.41 (112)	5.35 (136)

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

Downloadable CAD models available.

Single Bases – Bottom Ported

BOTTOM PORTED SINGLE BASES

ISO Size	Size			Model Number	
	Port 2, 4	Port 1, 3, 5	Port 12, 14	NPT Thread	G Thread
1	1/4	1/4	1/8	2077C01	D2077C01
2	3/8	3/8	1/8	2079C01	D2079C01
3	1/2	1/2	1/8	2081C01	D2081C01

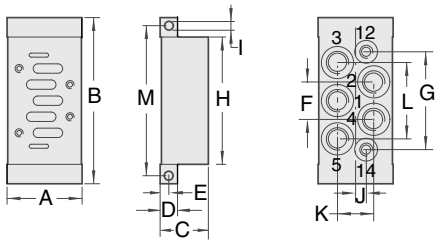
ISO Size 1 & 2

ISO Size 3

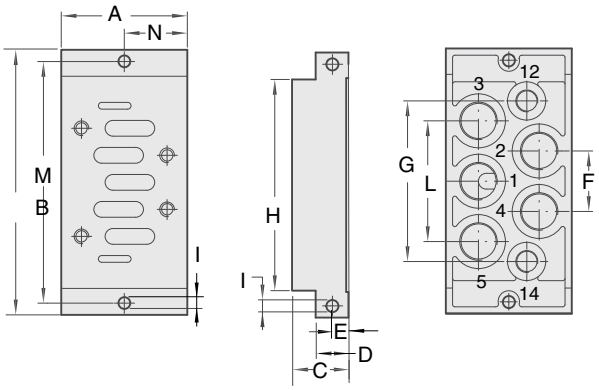
DIMENSIONS

Inches (mm)

ISO Size 1 & 2



ISO Size 3



	ISO Size		
	1	2	3
A	1.81 (46)	2.20 (56)	2.80 (71)
B	4.33 (110)	4.88 (124)	5.87 (149)
C	1.18 (30)	1.42 (36)	1.26 (32)
D	0.39 (10)	0.51 (13)	0.71 (18)
E	0.20 (5)	0.26 (6.5)	0.35 (9)
F	0.94 (24)	1.18 (30)	1.26 (32)
G	2.36 (60)	2.87 (73)	3.54 (90)
H	3.27 (83)	3.74 (95)	2.69 (119)
I	0.22 (5.5)	2.56 (6.5)	0.26 (6.6)
J	0.41 (10.5)	0.41 (10.5)	–
K	0.91 (23)	1.06 (27)	–
L	1.81 (46)	2.24 (57)	–
M	3.86 (98)	4.41 (112)	5.35 (136)
N	–	–	1.40 (35.5)

Downloadable CAD models available.

SIDE PORTED MANIFOLD BASES

ISO Size	Size		Model Number	
	Port 2, 4	Port 12, 14	NPT Thread	G Thread
1	1/4	1/8	2002K91	D2002K91
2	3/8	1/8	2003K91	D2003K91
3	1/2	1/8	2004K91	D2004K91

ISO Size 1 & 2	ISO Size 3
	

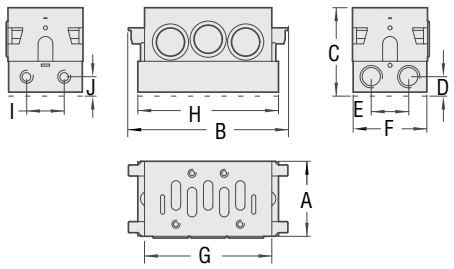
In addition to the manifold stations, an end station kit must be ordered for each manifold installation.

Connectors and gaskets are included with each manifold base.
The ISO Size 1 & 2 manifold bases contain 3 O-rings and 2 connector brackets.

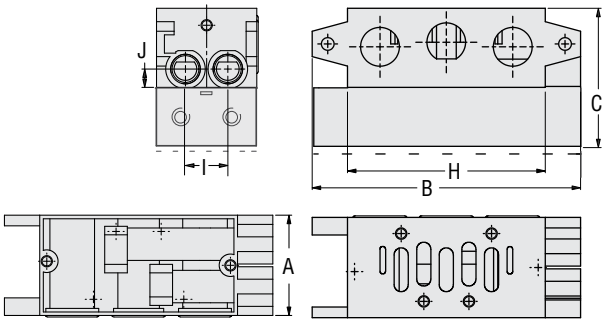
DIMENSIONS

Inches (mm)

ISO Size 1 & 2



ISO Size 3



	ISO Size		
	1	2	3
A	1.69 (43)	2.20 (56)	2.80 (71)
B	4.33 (110)	4.72 (120)	7.48 (190)
C	2.05 (52)	2.60 (66)	3.98 (101)
D	0.39 (10)	0.57 (14.5)	–
E	0.87 (22)	1.10 (28)	–
F	1.65 (42)	2.17 (55)	–
G	2.95 (75)	3.74 (95)	–
H	3.50 (89)	4.13 (105)	5.51 (140)
I	0.87 (22)	1.10 (28)	1.18 (30)
J	0.39 (10)	0.57 (14.5)	0.51 (13)

Downloadable CAD models available.

Manifold Bases – Bottom Ported

BOTTOM PORTED MANIFOLD BASES

ISO Size	Size		Model Number	
	Port 2, 4	Port 12, 14	NPT Thread	G Thread
1	1/4	1/8	1997K91	D1997K91
2	3/8	1/8	1998K91	D1998K91
3	1/2	1/8	1999K91	D1999K91

ISO Size 1 & 2	ISO Size 3
	

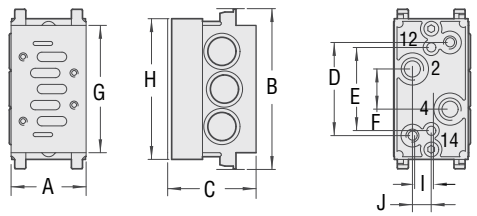
In addition to the manifold stations, an end station kit must be ordered for each manifold installation.

Connectors and gaskets are included with each manifold base.
The ISO Size 1 & 2 manifold bases contain 3 O-rings and 2 connector brackets.

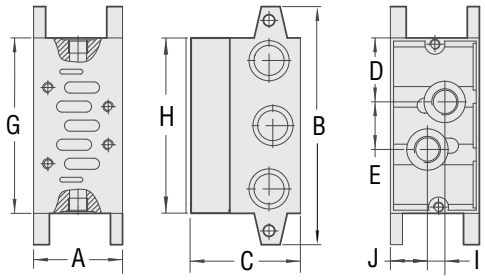
DIMENSIONS

Inches (mm)

ISO Size 1 & 2



ISO Size 3



	ISO Size		
	1	2	3
A	1.69 (43)	2.20 (56)	2.80 (71)
B	4.33 (110)	4.72 (120)	7.48 (190)
C	2.05 (52)	2.60 (66)	2.20 (56)
D	2.28 (58)	2.73 (69.5)	2.01 (51)
E	1.57 (40)	2.44 (62)	1.50 (38)
F	0.79 (20)	1.18 (30)	–
G	2.28 (58)	2.73 (69.5)	5.51 (140)
H	3.50 (89)	4.13 (105)	–
I	0.35 (9)	0.55 (14)	0.55 (14)
J	0.43 (11)	0.55 (14)	0.16 (29.5)

Downloadable CAD models available.

END STATIONS

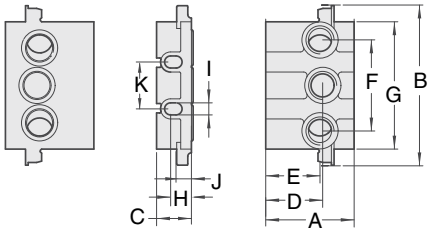
ISO Size	Size	Model Number	
	Port 1, 3, 5	NPT Thread	G Thread
1	3/8	723K86	D723K86
2	1/2	724K86	D724K86
3	1	731K86	D731K86

ISO Size 1 & 2	ISO Size 3
	

DIMENSIONS

Inches (mm)

ISO Size 1 & 2



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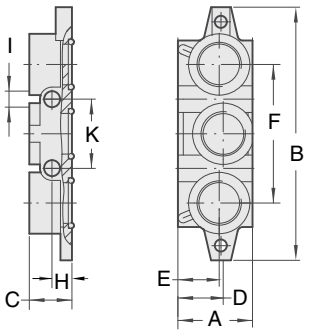


	ISO Size		
	1	2	3
A	2.05 (52)	2.60 (66)	2.20 (56)
B	3.94 (100)	4.72 (120)	7.48 (190)
C	0.87 (22)	1.02 (26)	1.26 (32)
D	1.53 (39)	1.67 (42.5)	1.34 (34)
E	1.22 (31)	1.59 (40.5)	1.22 (31)
F	2.17 (55)	2.68 (68)	4.09 (104)
G	2.95 (75)	3.74 (95)	–
H	0.55 (14)	0.61 (15.5)	0.59 (15)
I	0.28 (7)	0.35 (9)	0.47 (12)
J	0.39 (10)	0.45 (11.5)	–
K	1.10 (28)	1.38 (35)	2.05 (52)

Downloadable CAD models available.

Manifold Air Supply Modules

AIR SUPPLY MODULES TOP & BOTTOM PORTS

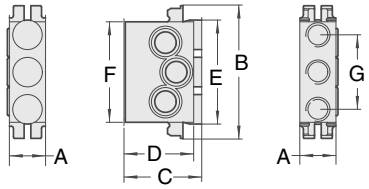
ISO Size	Size		Model Number			
	Port 2, 4	Port 12, 14	Top Ports		Bottom Ports	
1	1/4	1/8	725K86	D1997K91	727K86	D727K86
2	3/8	1/8	726K86	D1998K91	728K86	D728K86

Top Ports ISO Size 1 & 2	Bottom Ports ISO Size 1 & 2
	

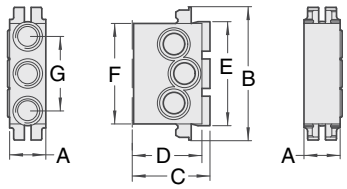
DIMENSIONS

Inches (mm)

Top Ports ISO Size 1 & 2



Bottom Ports ISO Size 1 & 2



	ISO Size	
	1	2
A	1.06 (27)	1.06 (27)
B	3.94 (100)	4.72 (120)
C	2.28 (58)	2.71 (69)
D	2.05 (52)	2.60 (66)
E	3.07 (78)	3.74 (95)
F	2.95 (75)	3.74 (95)
G	2.20 (56)	2.20 (56)

Downloadable CAD models available.

TRANSITION MODULES

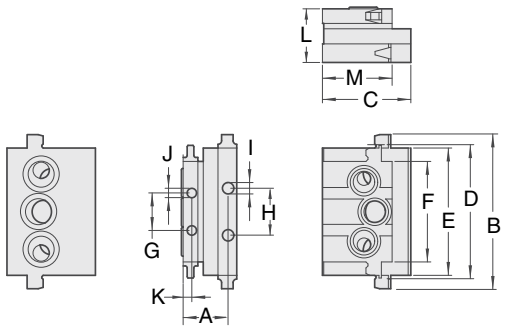
ISO Size	Model Number
1 to 2	729K86
2 to 3	730K86

Different size ISO valves can be used in the same manifold installation by means of transition module. The inlet and exhaust ports of two different size manifold stations are connected by means of a transition module installed between the two stations.

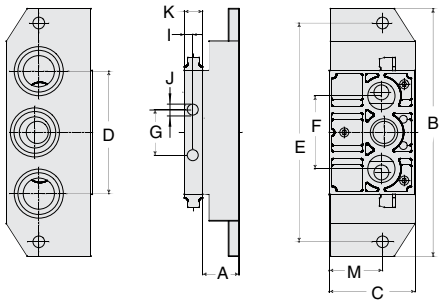
DIMENSIONS

Inches (mm)

ISO Size 1 to 2



ISO Size 2 to 3



	ISO 1 & 2	ISO 2 to 3
A	1.32 (33.5)	1.10 (28)
B	4.72 (120)	7.48 (190)
C	2.60 (66)	2.60 (66)
D	3.94 (100	3.94 (100)
E	3.74 (95)	6.61 (168)
F	2.95 (75)	2.20 (56)
G	1.10 (28)	1.38 (35)
H	1.38 (35)	–
I	0.34 (8.5)	2.56 (6.5)
J	0.28 (7)	0.34 (8.5)
K	2.56 (6.5)	0.56 (14)
L	1.58 (40)	–
M	2.05 (52)	1.61 (41)

Downloadable CAD models available.

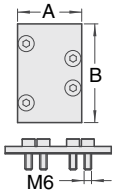
Manifold Accessories

BLANKING PLATES

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. All models consist of a metal plate, a gasket, and mounting bolts.



Dimensions inches (mm)			
	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)

ASSEMBLY KITS

Assembly Kits ISO Size 1 & 2

ISO SIZE	Kit Number
1	732K86
2	733K86

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	Model 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.

INTERPOSED FLOW CONTROL

Interposed Flow Control for W60 Series Valves

ISO SIZE	Model Number
1	701B77
2	702B77
3	722K77

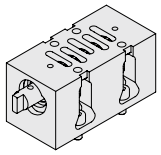
An interposed flow control unit regulates the exhaust flow of air from a pneumatic cylinder, thereby controlling the extension and retraction speeds. Separate controls regulate the air flow from each end of the cylinder. Being located between the valve and base, the unit requires no additional piping.

INTERPOSED SHUT-OFF

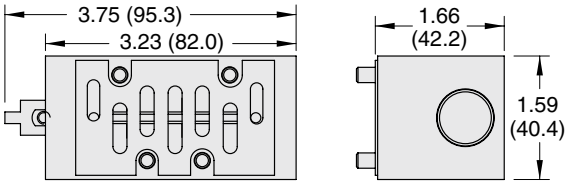
Interposed Shut-Off

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)



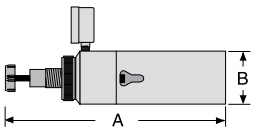
INTERPOSED PRESSURE REGULATORS

Interposed Regulators

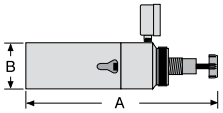
ISO Size	Pressure psig (bar)	Model Number		
		Single		Double
		Left Hand (14)	Right Hand (12)	
1	10 (0.68) to 130 (9)	1300K91	2000K91	1302K91
2	10 (0.68) to 130 (9)	1303K91	2001K91	1305K91
	5 (0.34) to 60 (4.13)	2045K91	–	–
3	10 (0.68) to 130 (9)	1306K91	1307K91	1308K91

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.

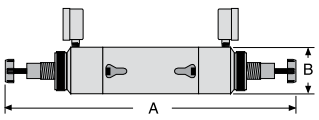
Single Left Hand (14)



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)

PREWIRED ELECTRICAL CONNECTORS

Illustration example.

Prewired Connectors	Cable						Model Number			
	End 1	End 2	Connection	Quantity Included	Length meters (feet)	Cord Diameter mm	Without Light	Lighted Connector*		
	Connector	Cord						24 V DC	120 V AC	230 V AC
	DIN EN 175301-803 Form A	Flying leads	Solenoid	1	2 (6.5)	6	721K77	720K77-W	720K77-Z	720K77-Y
				1	2 (6.5)	10	371K77	383K77-W	383K77-Z	383K77-Y

ELECTRICAL CONNECTORS

Cable Grip

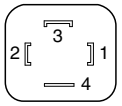
Without Light	With Light
	

Illustration examples.

Connectors	Connector					Model Number			
	Type	Connection	Fitting Connection	Quantity Included	Cord Diameter mm	Without Light	Lighted Connector*		
							24 V DC	120 V AC	230 V AC
	DIN EN 175301-803 Form A	Solenoid	Cable grip	1	8 to 10	937K87	936K87-W	936K87-Z	936K87-Y
			1/2" NPT conduit	1	–	723K77	724K77-W	724K77-Z	724K77-Y

Connector Pinout

DIN EN 175301-803



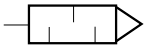
1 - Black
2 - Black
4 - Green/Yellow (Ground)

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

EXHAUST SILENCERS

Illustration example.

Silencers

SPECIFICATIONS	Silencer Material	Pressure Range psig (bar)	Schematic
	Aluminum	0-290 (0-20) maximum	

Port Size	Thread Type	Flow C_V (Nl/min)	Model Number		Dimensions inches (mm)		Weight lb (kg)
			NPT Thread	R/Rp Thread	Length	Hex Size (D)	
1/4	Male	2.3 (2300)	5500A2003	D5500A2003	2.2 (6)	0.81 (21)	0.07 (0.03)
3/8	Male	9.0 (8900)	5500A3013	D5500A3013	2.2 (6)	0.81 (21)	0.07 (0.03)
1/2	Male	6.8 (6700)	5500A4003	D5500A4003	3.6 (9)	1.25 (32)	0.2 (0.1)
3/4	Male	7.2 (7100)	5500A5013	D5500A5013	3.6 (9)	1.25 (32)	0.2 (0.1)

Notes

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.

