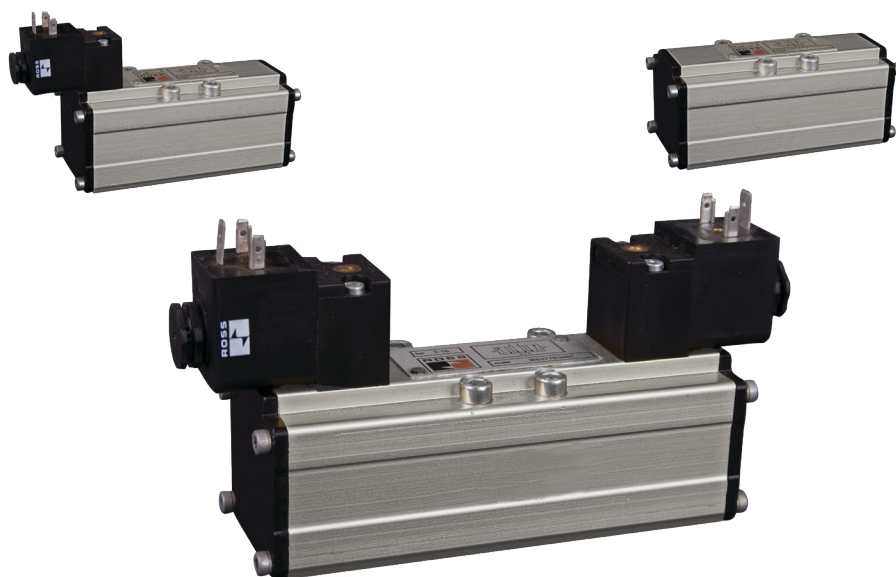




ISO 5599-1 VALVES



PRODUCT CATALOG

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.

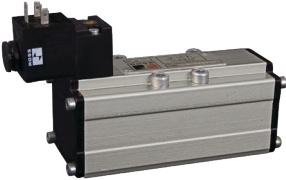
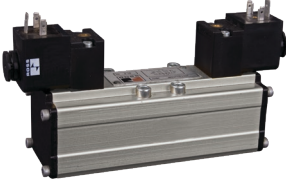
Solenoid Pilot Controlled		Pressure Controlled
Single Solenoid	Double Solenoid	
		

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 (NI/min)	Page
							5/2		5/3				
							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 –38

STANDARD SPECIFICATIONS

GENERAL	Function		5/2 Valve	
			5/3 Valve	Power Center
				Closed Center
				Open Center
	Construction Design		Spool and Sleeve	
	Actuation	Electrical	Solenoid Pilot Controlled	
		Pneumatic	Pressure Controlled	
	Mounting		Base Mounted	
	Connection	Threaded Port	NPT	
G				
Manual Override (Solenoid Controlled valves)		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)		
	Pilot Supply Pressure	Internal	Must meet minimum operating pressure			
External		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
				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

STANDARD TEMPERATURE APPLICATIONS

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

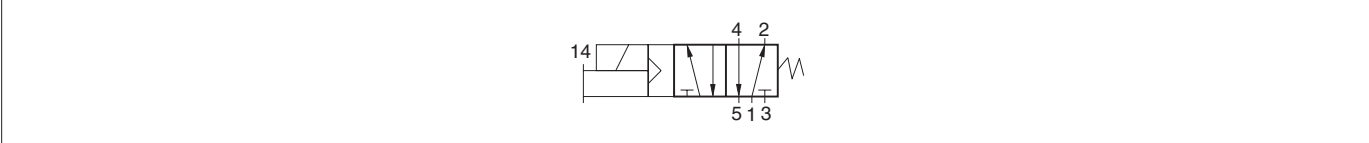
For other voltages, consult ROSS.

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

ISO Size	Base Port Size	Flow C _v (NI/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) = $M + (F \bullet V)$. 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 [] 2

— 4

1 2

G

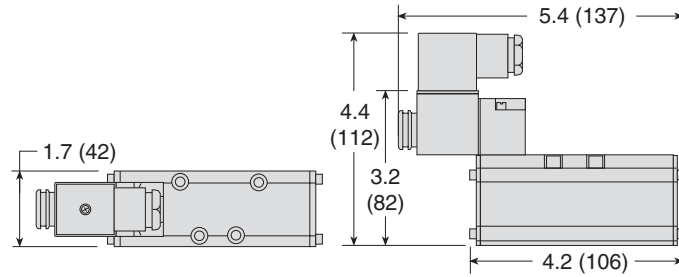
1 - Positive
2 - Negative
4 - Ground

5/2 Single Solenoid Pilot Controlled Valves

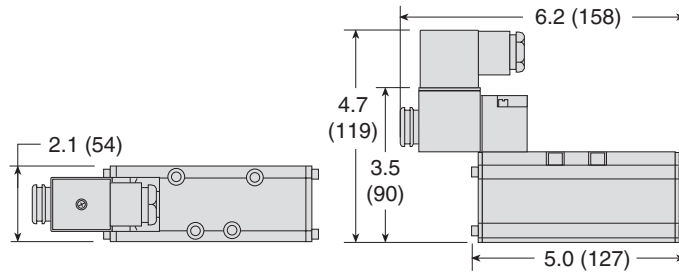
DIMENSIONS

Inches (mm)

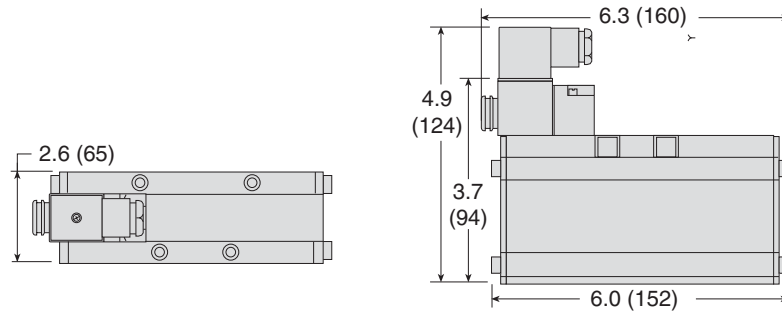
ISO Size 1



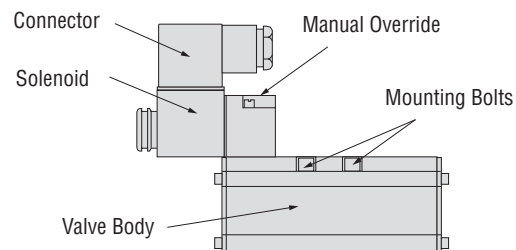
ISO Size 2



ISO Size 3



Downloadable CAD models available.



Ordering Information

5/2 Double Solenoid Pilot Controlled Valves

STANDARD TEMPERATURE APPLICATIONS

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

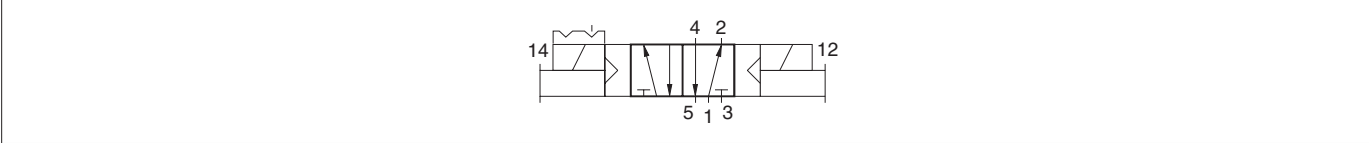
For other voltages, consult ROSS.

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

ISO Size	Base Port Size	Flow C _v (NI/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) = $M + (F \bullet V)$. 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

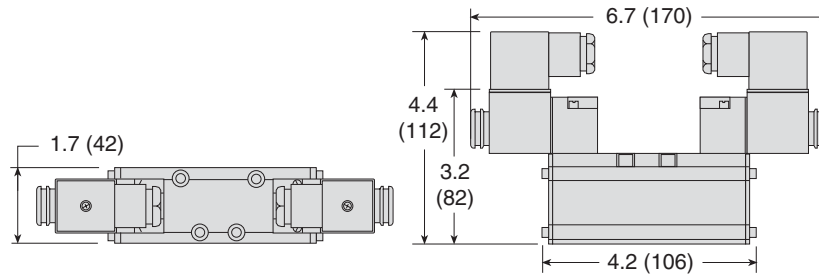
1 - Positive
2 - Negative
4 - Ground

5/2 Double Solenoid Pilot Controlled Valves

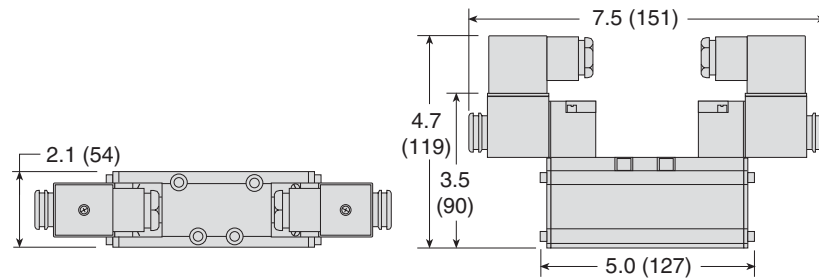
DIMENSIONS

Inches (mm)

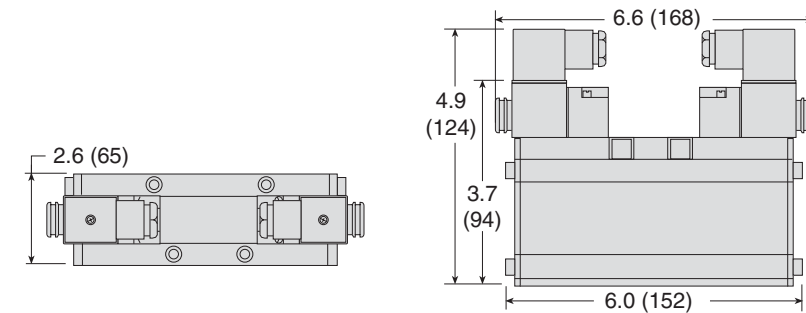
ISO Size 1



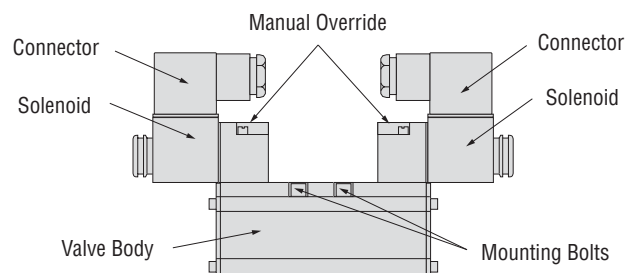
ISO Size 2



ISO Size 3



Downloadable CAD models available.



Ordering Information

5/3 Double Solenoid Pilot Controlled Valves					
STANDARD TEMPERATURE APPLICATIONS				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 (NI/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

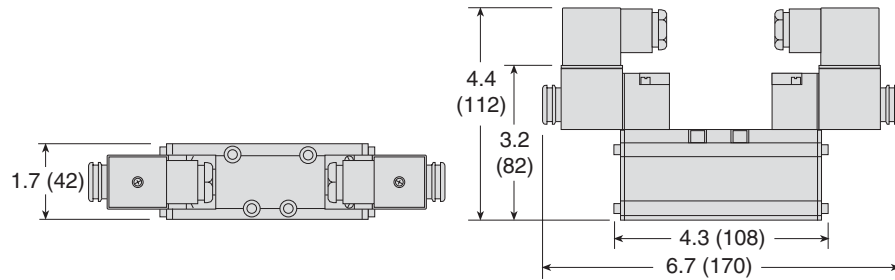
Solenoid Pinout	
DIN EN 175301-803 Form A	
	1 - Positive 2 - Negative 4 - Ground

5/3 Double Solenoid Pilot Controlled Valves

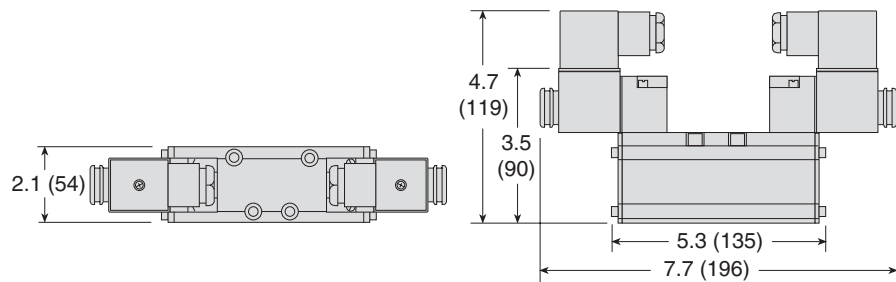
DIMENSIONS

Inches (mm)

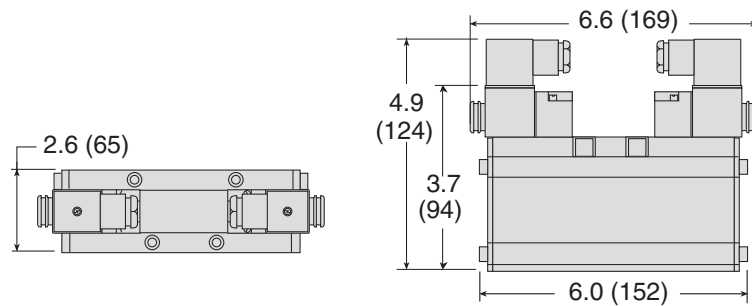
ISO Size 1



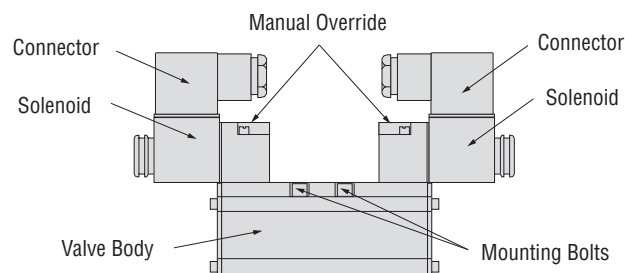
ISO Size 2



ISO Size 3



Downloadable CAD models available.



Ordering Information

5/2 Single Pressure Controlled Valves

STANDARD TEMPERATURE APPLICATIONS

5-Way 2-Position Valves

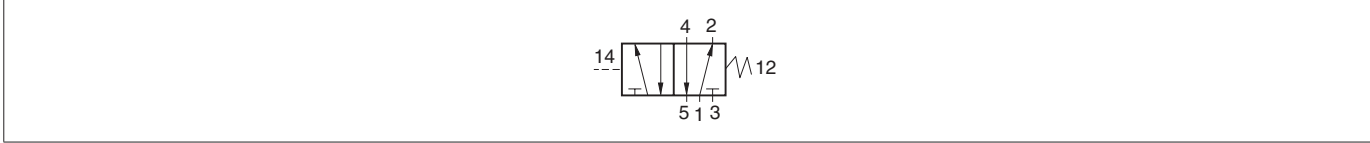
ISO Size	Base Port Size *	Valve Model Number
1	1/8 - 3/8	W6056B2411
2	3/8 - 1/2	W6056B3411
3	1/2 - 3/4	W6056B4411

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

ISO Size	Base Port Size	Flow C _v (NI/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.

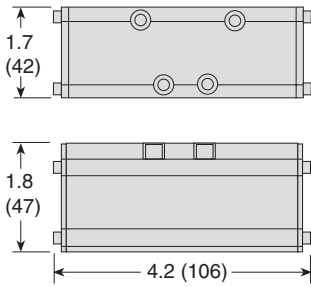
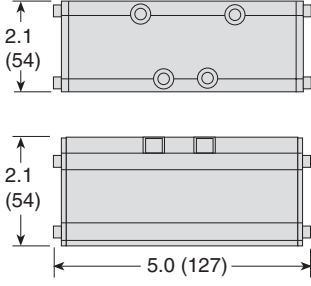
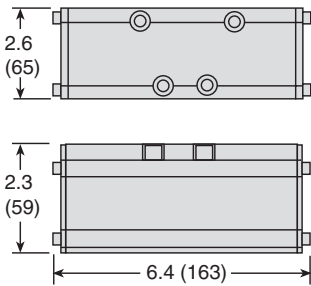
Valve Schematic



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

STANDARD TEMPERATURE APPLICATIONS

5-Way 2-Position Valves

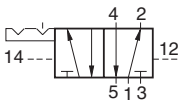
ISO Size	Base Port Size *	Valve Model Number
1	1/8 - 3/8	W6056B2417
2	3/8 - 1/2	W6056B3417
3	1/2 - 3/4	W6056E4417

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

ISO Size	Base Port Size	Flow C _v (NI/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.

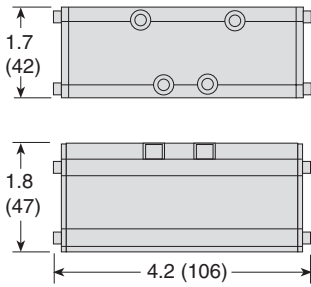
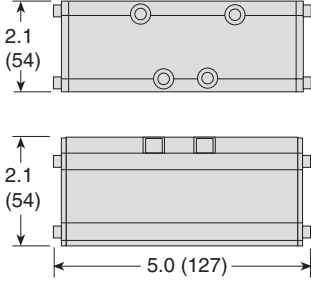
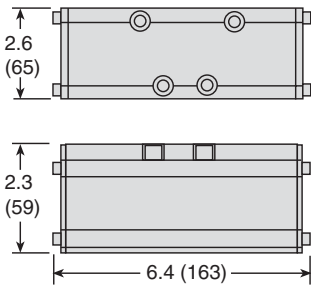
Valve Schematic



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

STANDARD TEMPERATURE APPLICATIONS

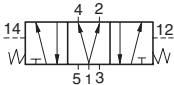
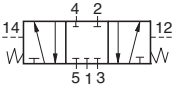
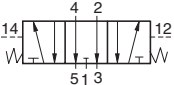
5-Way 3-Position Valves

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 (NI/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.

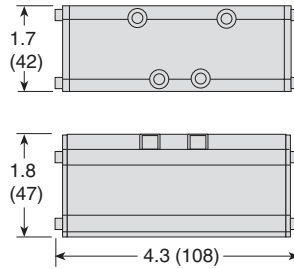
Valve Schematic		
Power Center	Closed Center	Open Center
		

5/3 Double Pressure Controlled Valves

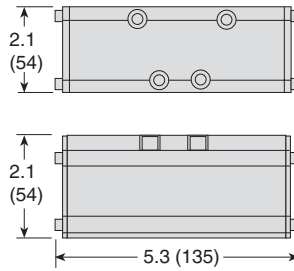
DIMENSIONS

Inches (mm)

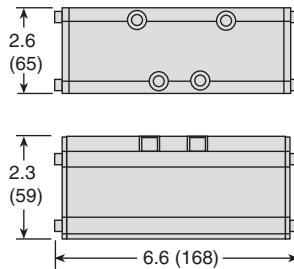
ISO Size 1



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-position, 5-ported 4-way valves. Solenoid pilot options include a non-locking manual override, and either internal or external pilot supply.

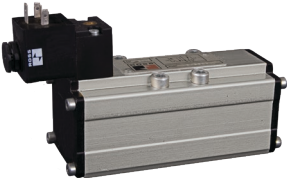
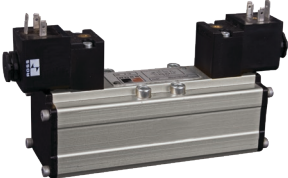
Solenoid Pilot Controlled		Pressure Controlled
Single Solenoid	Double Solenoid	
		

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
		1/8	1/4	3/8	1/2	3/4	5/2			
							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 – 38

STANDARD SPECIFICATIONS

GENERAL	Function		5/2 Valve		
	Construction Design		Poppet		
	Actuation	Electrical		Solenoid Pilot Controlled	
		Pneumatic		Pressure Controlled	
	Mounting		Base Mounted		
	Connection	Threaded Port	NPT		
			G		
Manual Override (Solenoid Controlled valves)		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)		
	Pilot Supply Pressure	Internal		Must meet minimum operating pressure	
External		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
			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	Standard Temperature Valves		Buna-N
		High Temperature Valves		Fluorocarbon

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

PRODUCT CREDENTIALS

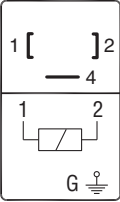
Certificate of Compliance 	UL Certification for the U.S. and CANADA Markets  Solenoid Pilot Valves Only	Declaration of Conformity  
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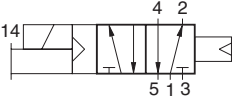
Ordering Information

5/2 Single Solenoid Pilot Controlled Valves				
STANDARD TEMPERATURE APPLICATIONS			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	W6476B2401W	W6476B2401Z	W6476B2401Y
2	3/8 - 1/2	W6476B3401W	W6476B3401Z	W6476B3401Y
3	1/2 - 3/4	W6476B4401W	W6476B4401Z	W6476B4401Y
For other voltages, consult ROSS.				
* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.				

HIGH TEMPERATURE APPLICATIONS			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	W6476B2402W	W6476B2402Z	W6476B2402Y
2	3/8 - 1/2	W6476B3402W	W6476B3402Z	W6476B3402Y
3	1/2 - 3/4	W6476B4402W	W6476B4402Z	W6476B4402Y
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 (NI/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.						

Solenoid Pinout	
DIN EN 175301-803 Form A	
	1 - Positive 2 - Negative 4 - Ground

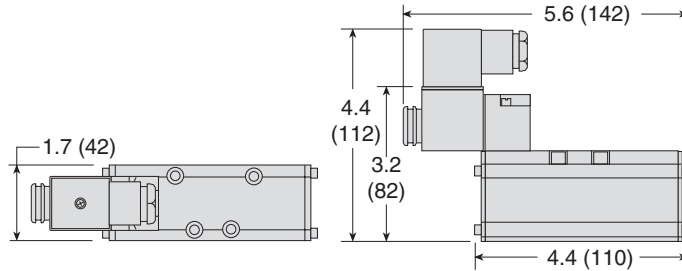
Valve Schematic


5/2 Single Solenoid Pilot Controlled Valves

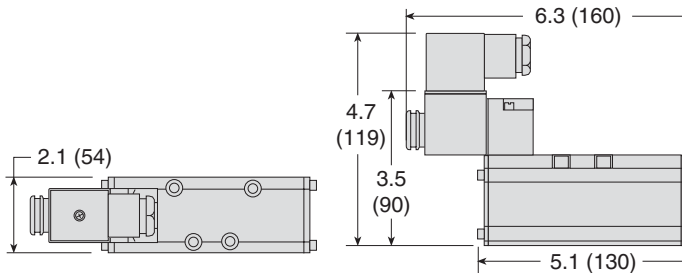
DIMENSIONS

Inches (mm)

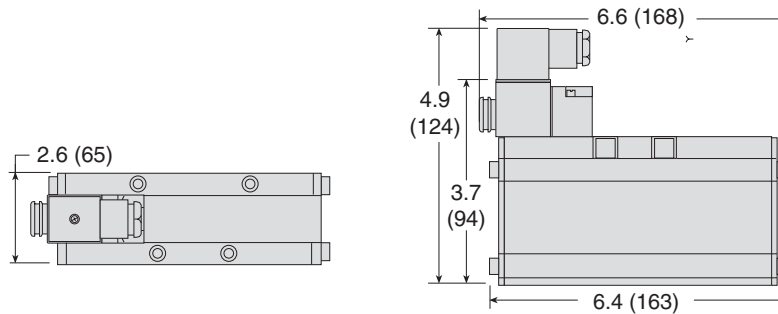
ISO Size 1



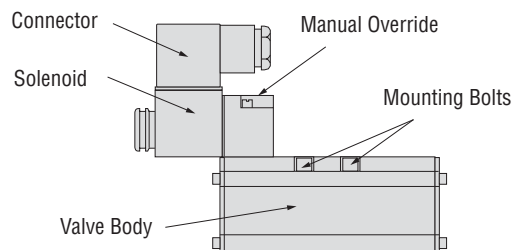
ISO Size 2



ISO Size 3



Downloadable CAD models available.



Ordering Information

5/2 Double Solenoid Pilot Controlled Valves

STANDARD TEMPERATURE APPLICATIONS				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	W6476B2407W	W6476B2407Z	W6476B2407Y
2	3/8 - 1/2	W6476B3407W	W6476B3407Z	W6476B3407Y
3	1/2 - 3/4	W6476B4407W	W6476B4407Z	W6476B4407Y
For other voltages, consult ROSS.				
* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.				

HIGH TEMPERATURE APPLICATIONS				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	W6476B2408W	W6476B2408Z	W6476B2408Y
2	3/8 - 1/2	W6476B3408W	W6476B3408Z	W6476B3408Y
3	1/2 - 3/4	W6476B4408W	W6476B4408Z	W6476B4408Y
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 (NI/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.						

Solenoid Pinout

DIN EN 175301-803 Form A

1 [] 2

— 4

1 2

G

1 - Positive
2 - Negative
4 - Ground

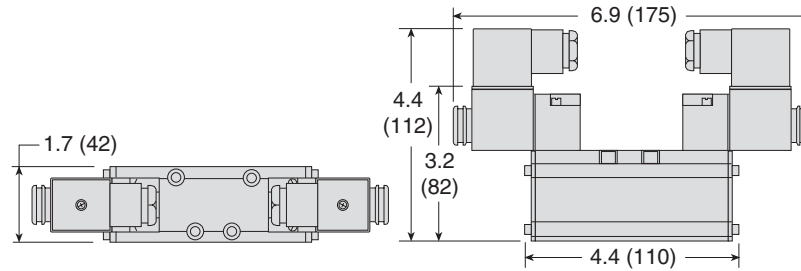
Valve Schematic

5/2 Double Solenoid Pilot Controlled Valves

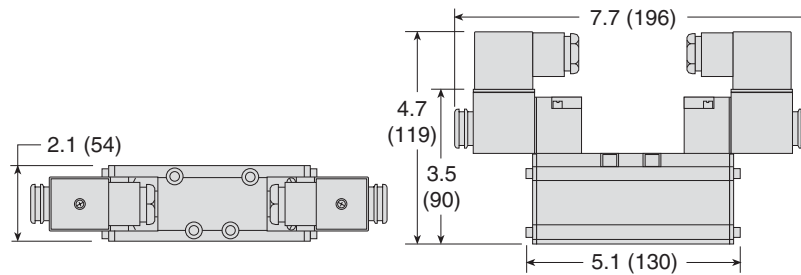
DIMENSIONS

Inches (mm)

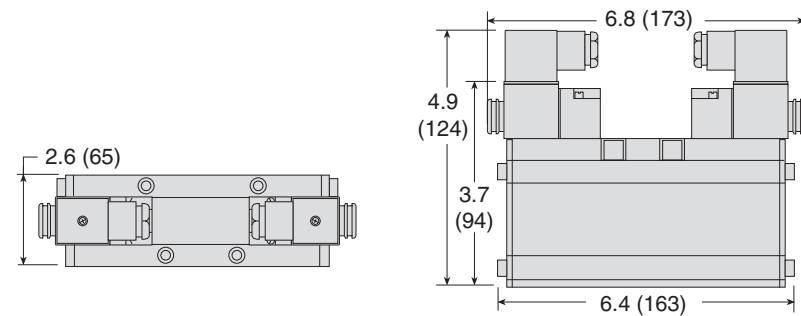
ISO Size 1



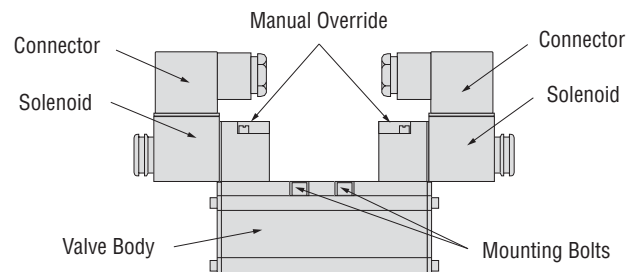
ISO Size 2



ISO Size 3



Downloadable CAD models available.



Ordering Information

5/2 Single Pressure Controlled Valves

STANDARD TEMPERATURE APPLICATIONS

5-Way 2-Position Valves

ISO Size	Base Port Size *	Valve Model Number
1	1/8 - 3/8	W6456B2411
2	3/8 - 1/2	W6456B3411
3	1/2 - 3/4	W6456B4411

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

HIGH TEMPERATURE APPLICATIONS

5-Way 2-Position Valves

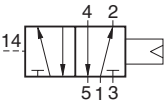
ISO Size	Base Port Size *	Valve Model Number
1	1/8 - 3/8	W6456B2412
2	3/8 - 1/2	W6456B3412
3	1/2 - 3/4	W6456B4412

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

ISO Size	Base Port Size	Flow C _v (NI/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.

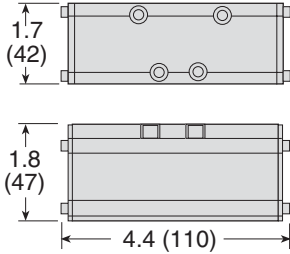
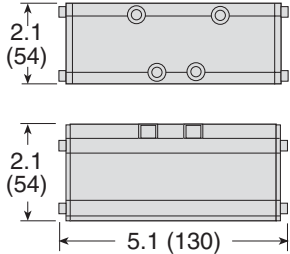
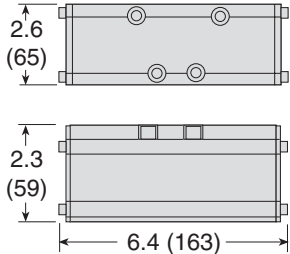
Valve Schematic



5/2 Single Pressure Controlled Valves

DIMENSIONS

Inches (mm)

ISO Size 1	
ISO Size 2	
ISO Size 3	

Downloadable CAD models available.

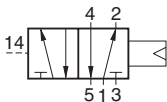
Ordering Information

5/2 Double Pressure Controlled Valves

STANDARD TEMPERATURE APPLICATIONS			5-Way 2-Position Valves
ISO Size	Base Port Size *	Valve Model Number	
1	1/8 - 3/8	W6456B2417	
2	3/8 - 1/2	W6456B3417	
3	1/2 - 3/4	W6456B4417	
* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.			

HIGH TEMPERATURE APPLICATIONS		5-Way 2-Position Valves
ISO Size	Base Port Size *	Valve Model Number
1	1/8 - 3/8	W6456B2418
2	3/8 - 1/2	W6456B3418
3	1/2 - 3/4	W6456B4418
* Sub-bases and manifold bases ordered separately. Please see Sub-Bases and Manifolds pages.		

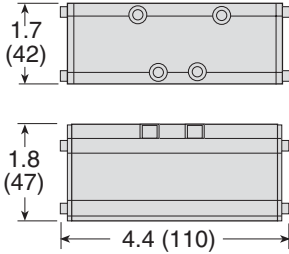
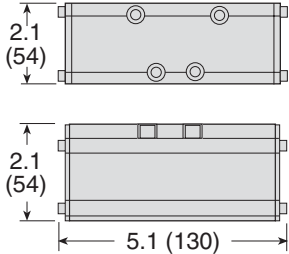
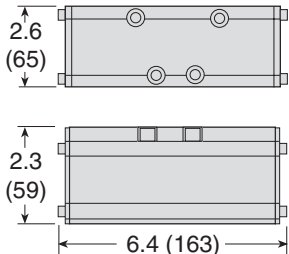
ISO Size	Base Port Size	Flow C _v (NI/min)	Average Response Constants *			Weight ≈ lb (kg)
			M	F		
		1-2		1-2	2-3	
1	1/8 - 3/8	1.0 (980)	33	2.9	5.9	0.8 (0.4)
2	3/8 - 1/2	2.0 (2000)	33	1.2	2.3	1.3 (0.6)
3	1/2 - 3/4	4.0 (3900)	50	0.7	1.2	2.3 (1.1)
* Valve Response Time – Response Time (msec) = M + (F • 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 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

Technical drawings for ISO Size 1 & 2 showing front, top, and side views with dimension lines A through N.

	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)	0.26 (6.6)	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)

ISO Size 3

Technical drawings for ISO Size 3 showing front, top, and side views with dimension lines A through N.

Downloadable CAD models available.

SIDE PORTED SINGLE BASES

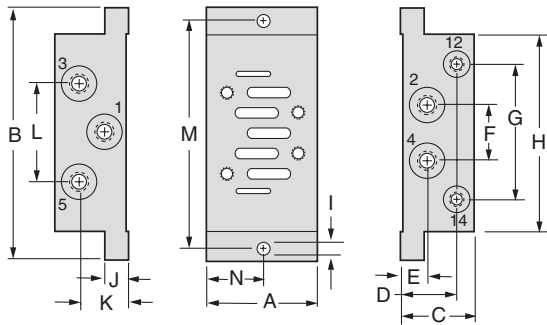
ISO Size	Size			Model Number
	Port 2, 4	Port 1, 3, 5	Port 12, 14	NPT Thread
1	1/8	1/4	1/8	654K91
	3/8	3/8	1/8	642K91
2	1/2	1/2	1/8	643K91
3	3/4	3/4	1/2	644K91

* 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 (6.6)	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

Technical drawings for ISO Size 1 & 2 base. The front view shows a rectangular base with dimensions A (width) and B (height). The side view shows dimensions M (total height), H (height to top of base), I (height to top of mounting holes), D (width of base), E (width of mounting holes), and C (width of base). The top view shows dimensions F (width of base), G (width of mounting holes), L (height of mounting holes), J (width of base), K (width of base), and 14 (number of mounting holes).

	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)

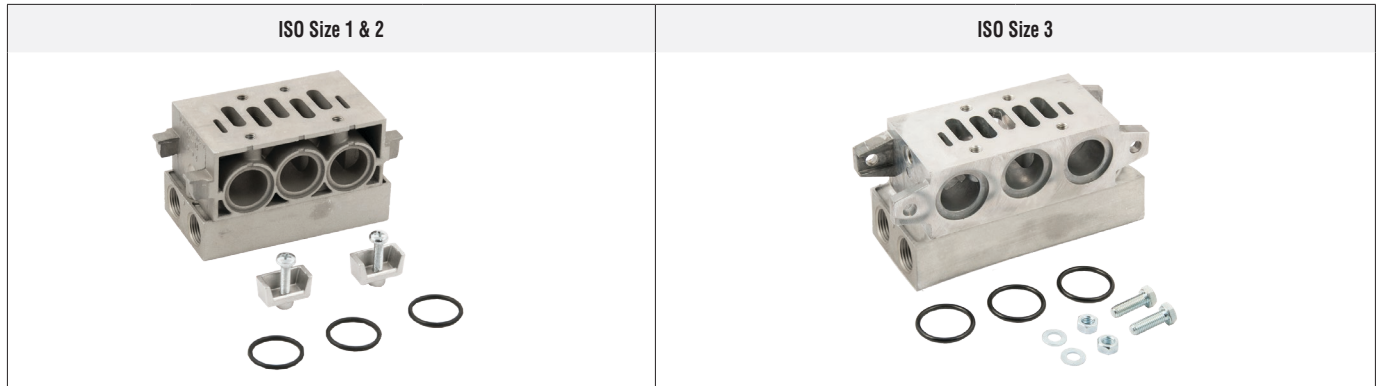
ISO Size 3

Technical drawings for ISO Size 3 base. The front view shows a rectangular base with dimensions A (width), B (height), M (total height), N (width of mounting holes), and I (height to top of mounting holes). The side view shows dimensions H (height to top of base), I (height to top of mounting holes), E (width of mounting holes), D (width of base), and C (width of base). The top view shows dimensions G (width of base), L (height of mounting holes), F (width of mounting holes), 14 (number of mounting holes), and 12 (width of mounting holes).

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



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

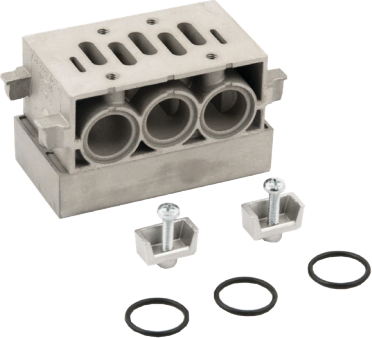
Inches (mm)

ISO Size	ISO Size			
	1	2	3	
ISO Size 1 & 2	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)	–
ISO Size 3	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.

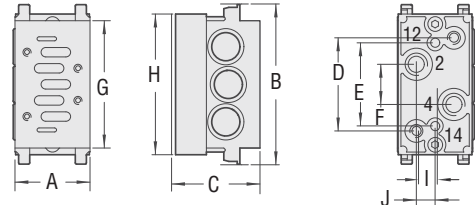
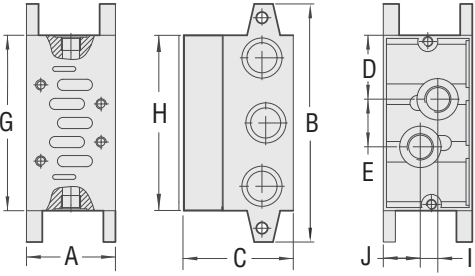
Manifold Bases – Bottom Ported

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



DIMENSIONS

Inches (mm)

ISO Size	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

Technical drawings of the Top Ports manifold. The drawings show three views: a front view, a side view, and a top view. The dimensions are labeled as follows: A (width), B (height), C (depth), D (depth), E (height), F (height), and G (height).

	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)

Bottom Ports
ISO Size 1 & 2

Technical drawings of the Bottom Ports manifold. The drawings show three views: a front view, a side view, and a top view. The dimensions are labeled as follows: A (width), B (height), C (depth), D (depth), E (height), F (height), and G (height).

Downloadable CAD models available.

TRANSITION MODULES

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

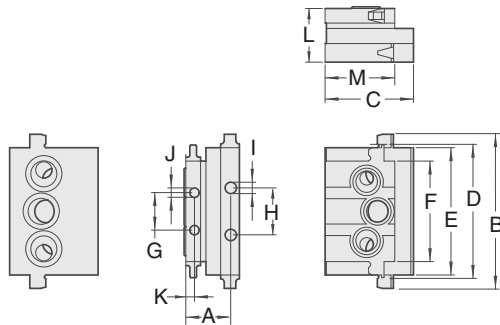


Different size ISO valves can be used in the same manifold installation by means of transition module. The inlet and exhaust ports of two different size manifold stations are connected by means of a transition module installed between the two stations.

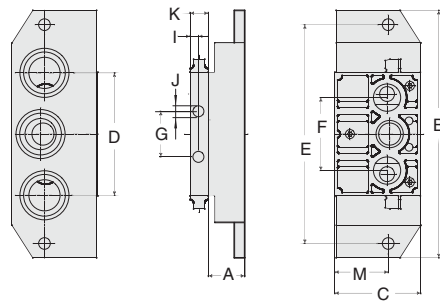
DIMENSIONS

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

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.		

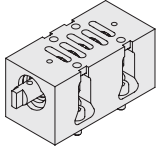
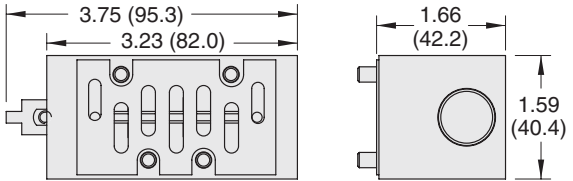
INDEPENDENT PRESSURE MODULES

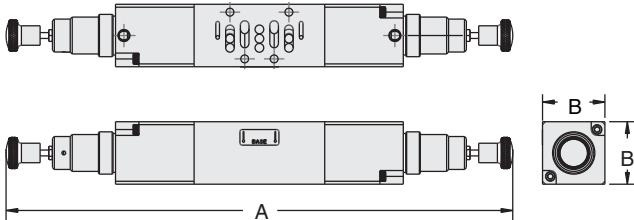
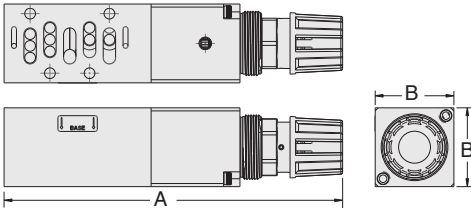
Independent Pressure Modules	ISO Size	Inlet Port	Model Number
	1	1/4	703K77
	2	3/8	692K77
	3	1/2	715K77
	When a valve in a manifold installation must work at a different pressure than that supplied to the manifold, an independent supply can be provided via an independent pressure module. The pressure 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	
		

INTERPOSED PRESSURE REGULATORS				
ISO Size	Pressure psig (bar)	Model Number		
		Single		Double
		Left Hand (14)	Right Hand (12)	
1	0 (0) to 174 (12)	–	SR1SR1A	–
	5 (0.34) to 60 (4.13)	SR1SL2A	–	–
	10 (0.68) to 130 (9)	SR1SL1A	–	SR1DB1A
2	0 (0) to 174 (12)	–	SR2SR1A	–
	5 (0.34) to 60 (4.13)	SR2SL2A	–	–
	10 (0.68) to 130 (9)	SR2SL1A	–	SR2DB1A
3	10 (0.68) to 130 (9)	SR3SL1A	SR3SR1A	SR3DB1A
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.				
ISO Size 1 or 2 – Double				
				
ISO Size 3 Single				
				
ISO Size	Dimensions – inches (mm)			
	A		B	
	Single	Double	Single/Double	
	1	9.23 (235)	15.91 (231)	1.5 (39)
	2	9.72 (247)	16.25 (413)	2.0 (51)
	3	10.76 (273)	17.34 (440)	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

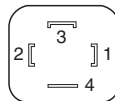
Cable Grip	
Without Light	With Light
	

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 (NI/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	2.9 (2900)	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)

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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