

# ISO Series

5599/2 Valves



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**General Information**

**ISO 1, ISO 2 and ISO 3 valve series incorporate the famous Numatics lapped spool and sleeve for ultimate service life.**

Due to the great variety of configuration and drive possibilities, they adapt to each task.

**Characteristics:**

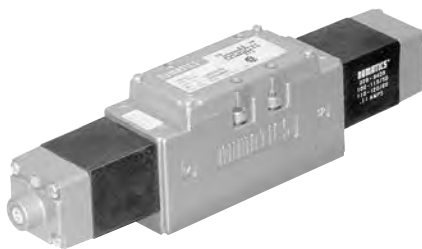
- Modular reality, thus flexible and wear-free.
- **Strong and light** due to **aluminium alloy housing.**
- Equipped with the famous **Numatics lapped spool and sleeve assembly:**
- Insensitive, self-cleaning spool made of stainless steel with "air bearing effect" by air entrained between spool and sleeve (1 µm clearance), typical service life of **more than 200 million cycles.**
- Can operate with **different pressures at the same time** within one valve, **independent** of flow direction.
- Available as **5-port., 2-pos. and 3-position valves.**
- Can be combined with **G2-2 Electronics.**
- **Worldwide support** by Numatics subsidiaries and dealers in **almost all countries in the world.**



**Sub-base mounted valves to ISO 5599/2**



**ISO 1 / ISO 2 / ISO 3 Series Solenoid pilot actuated**  
Port size 1/4 to 1/2  
Flow capacity 1300 NI/min (C<sub>v</sub> 1.3) to 5250 NI/min (C<sub>v</sub> 5.25)



**Serie ISO 1 / ISO 2 / ISO 3 Direct solenoid actuated**  
Port size 1/4 bis 1/2  
Flow capacity 1200 NI/min (C<sub>v</sub> 1.2) to 4400 NI/min (C<sub>v</sub> 4.4)



**ISO 1 / ISO 2 / ISO 3 Series Single or dual regulators**  
Port size 1/4 to 1/2



**G2-2 Electronics**  
Can be connected to G2-2 electronics see page 321

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**Accessories**

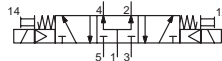
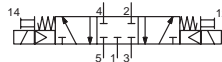
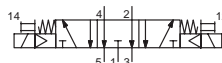
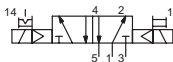
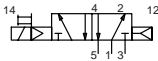
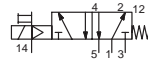
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**ISO 1 / ISO 2 / ISO 3 Series • Solenoid pilot actuated valves**

**5-ported, 2- and 3-position valves with spool and sleeve assembly**

NI/min = 1300 to 5250 /  $C_v = 1.3$  to 5.25

- Solenoid pilot actuated
- Meets with ISO standard 5599/2
- ISO size 1, 2 and 3
- Terminal block for simplified wiring
- Standard side and bottom ports
- VAC/VDC colour-coded solenoids
- Sandwich pressure regulator possible
- Plug-in sandwich speed control possible
- Valve isolating plate
- No internal wiring
- Protection IP 65/NEMA 4
- For flow media please see operating instructions for compressed air



**Solenoid pilot actuated**

- BA4** 5-ported, 2-pos., single actuated, spring return
- BW4** 5-ported, 2-pos., single actuated, air return
- BB4** 5-ported, 2-pos., double actuated, locking
- BB5** 5-ported, 3-pos., double actuated, spring centred (1 blocked, 4 & 2 exhausted)
- BB6** 5-ported, 3-pos., double actuated, spring centred (all ports blocked)
- BB7** 5-ported, 3-pos., double actuated, spring centred, 1 connected with 2 & 4

**Technical Data Valves**

Solenoid pilot actuated valves		Materials	
Flow capacity (at 6 bar, $\Delta p$ 1 bar):	Series ISO 1 = 1300 NI/min = $C_v$ 1.3 Series ISO 2 = 2900 NI/min = $C_v$ 2.9 Series ISO 3 = 5250 NI/min = $C_v$ 5.25	Body:	Aluminium alloy
Operating pressure:	Vacuum to 10 bar	Other parts:	Stainless steel, steel, aluminium alloy or plastic
Pilot pressure:	1 to 9 bar	Static seals:	NBR
Ambient temperature range:	-20°C to 45°C	Finish:	Anodized or varnished

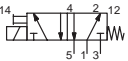
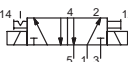
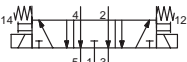
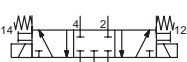
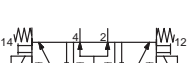
**Operating Data Valves**

Solenoid pilot actuated valves							
Voltage: all ISO sizes	24 VDC	24 VAC	24 VAC	115 VAC	120 VAC	230 VAC	240 VAC
Power (Watts):	4.0	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
all ISO sizes		N/A	N/A	N/A	N/A	N/A	N/A
Holding current (A): all ISO sizes	0.16	0.36	0.29	0.06	0.06	0.03	0.03
Peak energise voltage (A): all ISO sizes	N/A	0.52	0.47	0.10	0.09	0.05	0.05
Response Time [ms]							
ISO 1 single actuated (5-ported, 2-pos.):	Energ. 13	Energ. 13	Energ. 12	Energ. 12	Energ. 12	Energ. 13	Energ. 13
	De-en. 36	De-en. 34	De-en. 35	De-en. 35	De-en. 36	De-en. 39	De-en. 38
ISO 2 single actuated (5-ported, 2-pos.):	Energ. 13	Energ. 13	Energ. 12	Energ. 12	Energ. 12	Energ. 13	Energ. 13
	De-en. 60	De-en. 53	De-en. 53	De-en. 55	De-en. 54	De-en. 57	De-en. 58
ISO 3 single actuated (5-ported, 2-pos.):	Energ. 20	Energ. 18	Energ. 19	Energ. 17	Energ. 17	Energ. 18	Energ. 18
	De-en. 66	De-en. 67	De-en. 67	De-en. 69	De-en. 68	De-en. 72	De-en. 72
ISO 1 double actuated (5-ported, 2-pos.):	Energ. 13	Energ. 13	Energ. 12	Energ. 12	Energ. 12	Energ. 13	Energ. 13
	Energ. 13	Energ. 13	Energ. 12	Energ. 12	Energ. 12	Energ. 13	Energ. 13
ISO 2 double actuated (5-ported, 2-pos.):	Energ. 20	Energ. 18	Energ. 19	Energ. 17	Energ. 17	Energ. 18	Energ. 18
	Energ. 13	Energ. 13	Energ. 12	Energ. 12	Energ. 12	Energ. 13	Energ. 13
ISO 3 double actuated (5-ported, 2-pos.):	Energ. 13	Energ. 13	Energ. 12	Energ. 12	Energ. 12	Energ. 13	Energ. 13
	De-en. 36	De-en. 34	De-en. 35	De-en. 35	De-en. 36	De-en. 39	De-en. 38
ISO 2 double actuated (5-ported, 3-pos.):	Energ. 13	Energ. 13	Energ. 12	Energ. 12	Energ. 12	Energ. 13	Energ. 13
	De-en. 60	De-en. 53	De-en. 53	De-en. 55	De-en. 54	De-en. 57	De-en. 56
ISO 3 double actuated (5-ported, 3-pos.):	Energ. 20	Energ. 18	Energ. 19	Energ. 17	Energ. 17	Energ. 18	Energ. 18
	De-en. 66	De-en. 67	De-en. 67	De-en. 69	De-en. 68	De-en. 72	De-en. 72



## ISO 1 / ISO 2 / ISO 3 Series • Direct Solenoid Pilot Actuated

### Direct Solenoid Actuated

	<b>SA4</b> 5-ported, 2-pos., single actuated, spring return
	<b>SS4</b> 5-ported, 2-pos., double actuated, locking
	<b>SS5</b> 5-ported, 3-pos., double actuated, spring centred (1 blocked, 4 & 2 exhausted)
	<b>SS6</b> 5-ported, 3-pos., double actuated, spring centred (all ports blocked)
	<b>SS7</b> 5-ported, 3-pos., double actuated, spring centred, 1 connected with 2 & 4

### 5-ported, 2- and 3-position valves with spool and sleeve assembly

NI/min = 1200 to 4400 /  $C_v = 1.2$  to 4.4

- Direct solenoid pilot actuated
- Meets with ISO standard 5599/2
- ISO sizes 1, 2 and 3
- Terminal block for simplified wiring
- Standard side and bottom ports
- VAC/VDC colour-coded solenoids
- Sandwich pressure regulator possible
- Plug-in Sandwich speed control possible
- Valve isolating plate
- No internal wiring
- Protection IP 65/NEMA 4
- For flow media please see operating instructions for compressed air,



## Technical Data Valves

Direct solenoid actuated		Materials	
Flow capacity (at 6 bar, $\Delta p$ 1 bar):	Series ISO 1 = 1200 NI/min = $C_v$ 1.2 Series ISO 2 = 2200 NI/min = $C_v$ 2.2 Series ISO 3 = 4400 NI/min = $C_v$ 4.4	Body:	Aluminium alloy
Operating pressure:	Vacuum to 10 bar	Other parts:	Stainless steel, steel, aluminium alloy or plastic
Pilot pressure:	1 to 9 bar	Static seals:	NBR
Ambient temperature range:	-20°C to 45°C	Finish:	Anodized or varnished

## Operating Data Valves

Direct solenoid actuated							
Voltage: all ISO sizes	24 VDC	24 VAC	24 VAC	115 VAC	120 VAC	230 VAC	240 VAC
		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
Power (Watts) ISO 1 / ISO 2:	6.0	N/A	N/A	N/A	N/A	N/A	N/A
ISO 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Holding current (A) ISO 1 / ISO 2:	0.25	0.59	0.42	0.11	0.09	0.07	0.05
ISO 3	N/A	0.59	0.42	0.11	0.09	0.07	0.05
Peak energise voltage (A): all ISO sizes	N/A	2.85	2.53	0.63	0.58	0.31	0.29
Response Time [ms]							
ISO 1 / ISO 2 single actuated (5-ported, 2-pos.)	Energ.	38	12	12	12	12	12
	De-en.	12	12	12	12	12	12
ISO 3 single actuated (5-ported, 2-pos.)	Energ.	N/A	12	12	12	12	12
	De-en.	N/A	12	12	12	12	12
ISO 1 / ISO 2 double act. (5-ported, 2-pos.)	Energ.	12	12	12	12	12	12
ISO 3 double actuated (5-ported, 2-pos.)	Energ.	N/A	12	12	12	12	12
ISO 1 / ISO 2 double actuated (5-ported, 3-pos.)	Energ.	38	12	12	12	12	12
	De-en.	12	12	12	12	12	12
ISO 3 double actuated (5-ported, 3-pos.)	Energ.	N/A	N/A	12	12	12	12
	De-en.	N/A	12	12	12	12	12

**Valves Series ISO 1 / ISO 2 / ISO 3 • Overview**

**How to Order: (example)**

**I24 BA 4 15 M Q 000 61**

**Series and Port Size**

- I12\* = ISO 5599/2 Size 1 = 1/4
- I13 = ISO 5599/2 Size 1 = 3/8
- I23\* = ISO 5599/2 Size 2 = 3/8
- I24 = ISO 5599/2 Size 2 = 1/2
- I34\* = ISO 5599/2 Size 3 = 1/2
- I35 = ISO 5599/2 Size 3 = 3/4

\* Use for valve unit only

**First letter = "14" Actuator  
Second letter = "12" Actuator**

- BA** = Single solenoid pilot actuated valve with spring control
- BB** = Double solenoid pilot actuated valve locking
- BW** = Single solenoid pilot actuated valve with differential air return (ISO 2 + ISO 3 series only)
- SA** = Single direct solenoid actuated valve with spring return
- SS** = Double direct solenoid actuated valve locking
- 00** = Valve without manifold block

**Function**

- 4** = 5-ported, 2-pos. valve
- 5** = 5-ported, 3-pos. valve, 1 blocked, 2 & 4 exhausted
- 6** = 5-ported, 3-pos. valve, all ports blocked
- 7** = 5-ported, 3-pos. valve, 1 connected with 4 & 2
- P** = Blank station plate

**Mounting**

- 00** = Valve unit only
- 01** = 00 with speed control
- 15\*** = Manifold block with side and bottom ports
- 25** = 15 with speed control
- 3\*A** = Manifold block with side ports and individual exhaust
- 3B** = Manifold block with side and bottom ports and individual exhaust
- 3C** = 3A with speed control
- 3D** = 3B with speed control
- MN** = Mid-station supply and exhaust block without "Z-Board"™
- MS** = Mid-station supply and exhaust block with "Z-Board"™
- Z1** = Manifold block with side and bottom ports, single "Z-Board"™
- Z2\*** = Manifold block with side and bottom ports, double "Z-Board"™
- Z5** = Z1 with speed control
- Z6** = Z2 with speed control

\* Also used with function P = blank station  
\*\* Not available for ISO 5599/2 Size 1

**Voltage**

- 00** = Blank station plate
- 20** = 24 VAC/50-60 Hz
- 30** = 110 VAC/50-60 Hz
- 40** = 230 VAC/50-60 Hz
- 61** = 24 VDC\*

\* Cannot be used with direct solenoid actuated Valves of ISO 3 Series

**Options**

- 000** = Standard
- 11B** = Flush manual override
- 11Z** = Extended locking manual override
- 14B** = Internal pilot supply from port 1 if not standard
- 14C\*** = Internal pilot supply from port 3
- 14D\*** = Internal pilot supply from port 5
- 15G** = 5 pin mini connector (valve conduit cover)
- 14X\*** = External pilot supply through base or manifold end plates
- 17N** = DC solenoid with surge suppression diode
- 46T** = Zinc plated "T" armature in solenoid(s)-AC only, direct acting only
- 56Y** = 4 pin micro connector in mounting
- 60V** = 4 pin micro connector (valve conduit cover)

\* Must use one of these options when used with RC, RQ or RD regulators and solenoid pilot valves.

**Port Type**

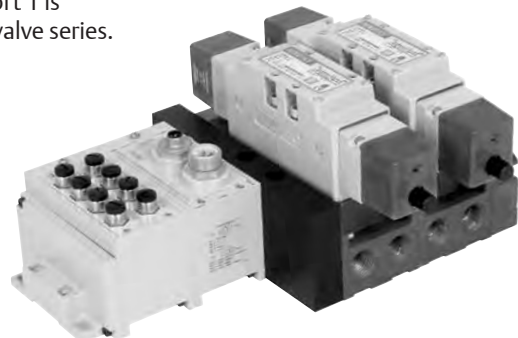
- 0** = NPTF-thread (direct solenoid valves)
- G** = G-thread (direct solenoid valves)
- P\*** = NPTF-thread (solenoid pilot valves)
- Q** = G-thread (solenoid pilot valves)

\* Standart by option 17N

**Wiring Option**

- K** = Plug-in VAC with LED indicator
- L** = Standard VAC, with special connector (15G)
- M** = Plug-in VDC with LED indicator
- O** = Blank station plate
- R** = Standard VDC with special connector (60V)

**Note:**  
Internal pilot supply from port 1 is standard for all ISO 5599/2 valve series.



## Regulators Series ISO 1 / ISO 2 / ISO 3 • Overview

How to Order: (example) **I24 RS 1 15 J P 000 00**

<p><b>Series and Port Size</b></p> <p><b>I12*</b> = ISO 5599/2 Size 1 = 1/4  <b>I13</b> = ISO 5599/2 Size 1 = 3/8  <b>I23*</b> = ISO 5599/2 Size 2 = 3/8  <b>I24</b> = ISO 5599/2 Size 2 = 1/2  <b>I34*</b> = ISO 5599/2 Size 3 = 1/2  <b>I35</b> = ISO 5599/2 Size 3 = 3/4          * Use for regulator unit only</p>	<p><b>Options</b></p> <p><b>000</b> = Standard  <b>12H</b> = Without gauge  <b>16N</b> = Jumper on 14 end  <b>16P</b> = Jumper on 12 end          Further options on request</p>
<p><b>Regulator Type</b></p> <p><b>RS</b> = Single pressure to port 1  <b>RD*</b> = Dual pressure to ports 3 and 5  <b>RC*</b> = Dual pressure with non-relieving checks air return (ISO 2 and ISO 3 series only)  <b>RQ*</b> = Dual pressure with relieving check valves  <b>RE</b> = Dual pressure, external outlet          * Solenoid pilot valves used with RC, RD or RQ regulators must have the pilot supply from other than internally from port 1.</p>	<p><b>Port Type</b></p> <p><b>P</b> = NPTF-thread (ISO 1, ISO 2 and ISO 3 Series)  <b>Q</b> = G-thread (ISO 1, ISO 2 and ISO 3 Series)</p>
<p><b>Pressure Range</b></p> <p><b>1</b> = 0.7 to 9 bar  <b>3</b> = 0.2 to 2 bar  <b>4</b> = 0.3 to 4 bar  <b>6</b> = 1.4 to 17 bar</p>	<p><b>Wiring Option</b></p> <p><b>J</b> = Plug-in Receptacle  <b>0</b> = No electrical connection</p>
	<p><b>Mounting</b></p> <p><b>00</b> = Regulator unit only  <b>01</b> = 00 with speed control  <b>15</b> = Manifold block with side and bottom ports  <b>3A*</b> = Individual base with side ports and individual exhaust  <b>3B</b> = Individual base with side and bottom ports and individual exhaust  <b>Z1</b> = Manifold block with side and bottom ports, single "Z-Board"<sup>™</sup>  <b>Z2</b> = Manifold block with side and bottom ports, double "Z-Board"<sup>™</sup>  <b>Z5</b> = Z1 with sandwich speed control  <b>Z6</b> = Z2 with sandwich speed control          * Not available for ISO 5599/2 Size 1</p>

## Completely Assembled Manifolds ISO 1 / ISO 2 / ISO 3 Series • Overview

How to Order: (example) **AK 0 R C 0000 4 G STD**

<p><b>Electric/Electronic System</b></p> <p><b>0</b> = Standard  <b>E*</b> = Fieldbus electronics (w/ "Z-Board"<sup>™</sup>)  <b>F*</b> = Terminal strip (1-16 solenoids)  <b>J*</b> = 25 pin SUB-D connector  <b>M*</b> = 37 pin SUB-D-connector  <b>R*</b> = 26 pin round connector  <b>S*</b> = 26 + 12 pin round connector  <b>T*</b> = Terminal strip (1-32 solenoids)  <b>V</b> = Fieldbus electronics (hardwired)          * Used with Z-Board<sup>™</sup> only</p>	<p><b>Options</b></p> <p><b>STD</b> = Standard</p>
<p><b>Series</b></p> <p><b>Q</b> = ISO 5599/2 Size 1  <b>R</b> = ISO 5599/2 Size 2  <b>S</b> = ISO 5599/2 Size 3</p>	<p><b>Port Type</b></p> <p><b>0</b> = NPTF-thread  <b>G</b> = G-thread</p>
<p><b>Number(s) of Valve Station</b></p> <p><b>A</b> = 1 ..... <b>Z</b> = 26  <b>2</b> = 27 ..... <b>7</b> = 32</p>	<p><b>End Plate Port Size</b></p> <p><b>3</b> = 3/8 (ISO 1)  <b>4</b> = 1/2 (ISO 2)  <b>6</b> = 1 (ISO 3)  <b>X</b> = Two or more valve series in one manifold assembly</p>
	<p><b>Valve Series and Number of Stations (with different valve series)</b>          Non-Z-Board<sup>™</sup> version only</p>

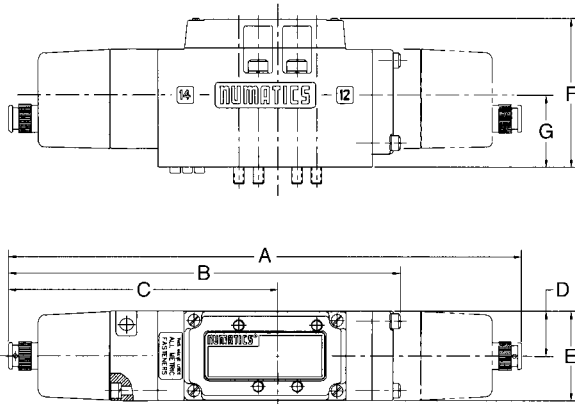
**Order example:**  
 Series ISO 2  
 Manifold block with side and bottom ports  
**AK0RC00004GSTD**  
 Station 1 **I23BA415MQ00061**  
 Station 2 **I23BB415MQ00061**  
 Station 3 **I23BB400MQ00061 + I23RS115JQ00000**  
**ASSEMBLED**

### Maximum Solenoid Outputs

Terminal strip		25 pin SUB-D connector	37 pin SUB-D connector	26 pin Round connector	26 + 12 pin Round connector
AK "F"	AK "T"	AK "J"	AK "M"	AK "R"	AK "S"
16	32	22	32	22	32

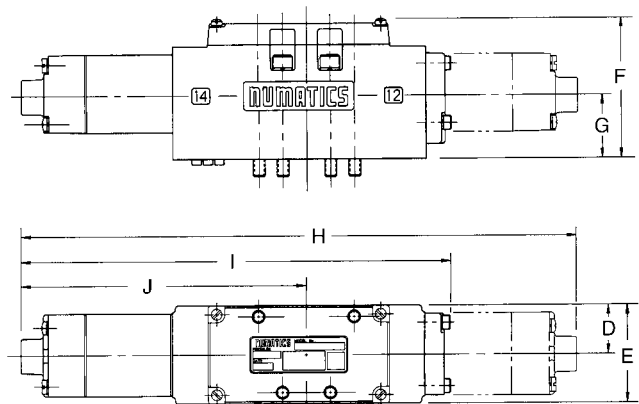
**Dimensions : mm - Valves - Sandwich Pressure Regulator**

**Solenoid Pilot Actuated Valves**



**Solenoid pilot actuated valve  
(BA..BW..BB..)**

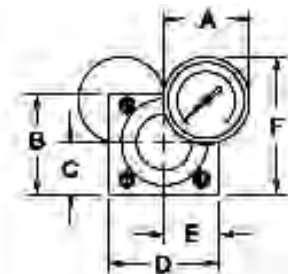
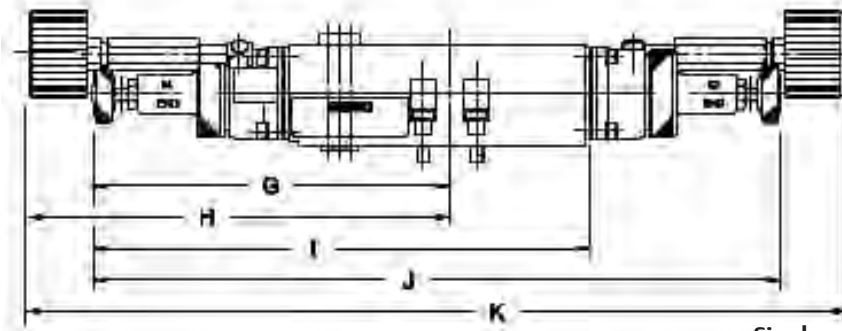
**Direct Solenoid Actuated Valves**



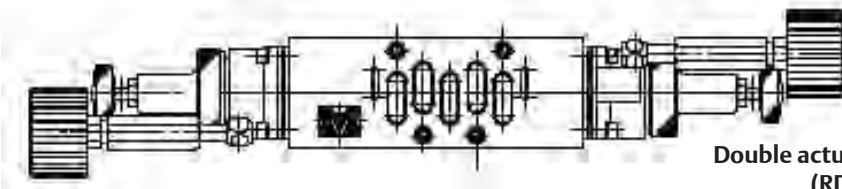
**Direct solenoid actuated valve  
(SA..SS..)**

Series	A	B	C	D	E	F	G	H		I		J	
								VDC	VAC	VDC	VAC	VDC	VAC
Size 1	236.7	180.6	124.2	21.0	41.9	68.4	33.0	285.3	247.7	205.5	186.7	148.1	129.5
Size 2	264.4	210.1	136.1	25.1	50.0	70.8	31.8	313.4	275.8	233.2	214.7	160.5	141.7
Size 3	295.9	235.5	153.7	32.0	64.0	74.4	31.0	N/A	315.0	N/A	229.9	N/A	148.8

**Sandwich Pressure Regulator, Single or Double Actuated**



**Single actuated regulator  
(RS..)**



**Double actuated regulator  
(RD..RC..RQ..RE..)**



Série	A	B	C	D	E	F	G	H	I	J	K
Size 1	39.4	45.0	23.4	43.2	21.6	62.5	151.9	180.3	198.9	284.2	341.4
Size 2	39.4	45.0	23.4	51.3	25.9	62.5	160.8	189.5	223.8	309.6	366.8
Size 3	39.4	67.3	33.5	64.0	32.0	85.3	231.4	195.8	299.0	443.2	371.6

## Sandwich Pressure Regulator

**Types: RS / RD / RC / RQ**

When ordering a valve plus regulator mounted on a base or manifold, list the valve unit-only model number and include the mounting requirements only with the regulator.

**Example 1:**

A single solenoid pilot actuated 5-port., 2-pos. valve is to be assembled with a single sandwich pressure regulator on an individual base with side and bottom ports and individual exhaust.

**Order code:**

5-port., 2-pos. valve (without individual base)	<b>I23BA400MQ00061</b>
Sandwich pressure regulator with individual base	<b>I23RS13AJQ000000</b>
	<b>ASSEMBLED</b>



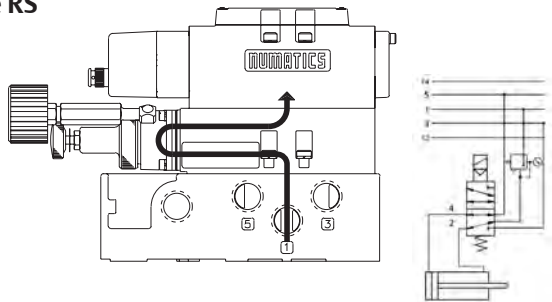
**Example 2:**

A double solenoid pilot actuated 5-port., 2-pos. valve is to be assembled with a dual sandwich pressure regulator on a manifold block with side and bottom ports.

**Order code:**

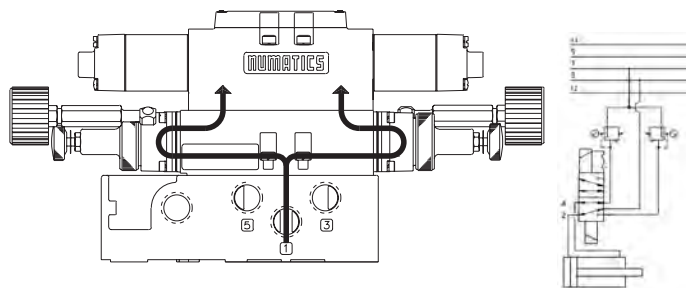
5-port., 2-pos. valve (without manifold block)	<b>I23BB400MQ14C61</b>
Sandwich pressure regulator with manifold block	<b>I23RD115JQ000000</b>
	<b>ASSEMBLED</b>

**Type RS**



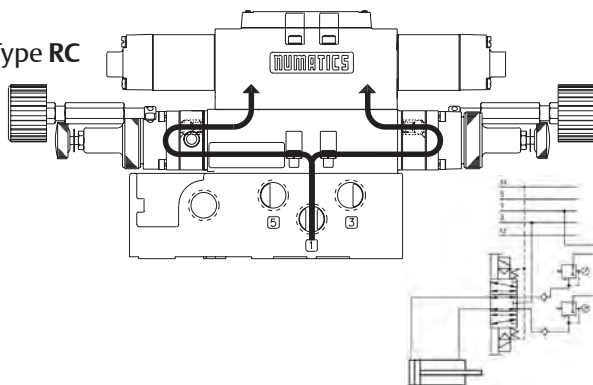
Single pressure from a single supply

**Type RD**



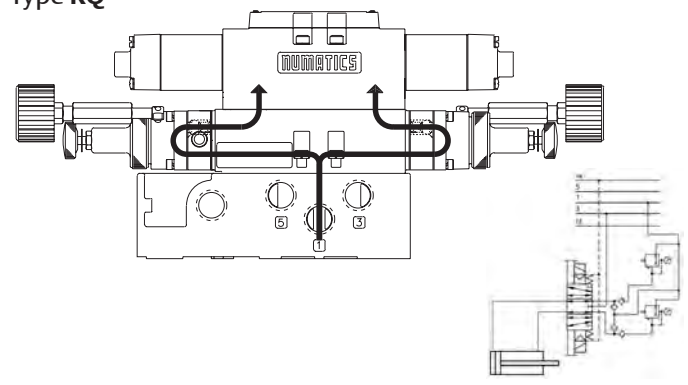
Dual pressure from a single supply.

**Type RC**



Non-relieving:  
traps downstream pressure if upstream is exhausted.

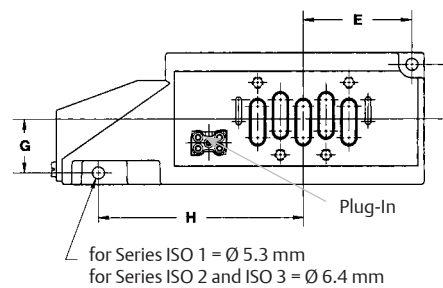
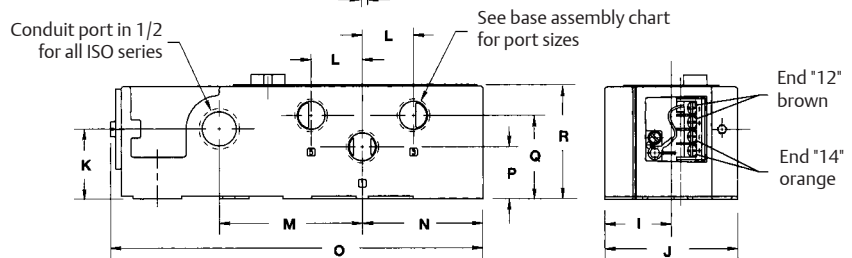
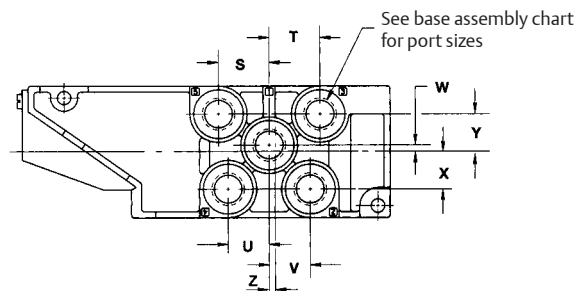
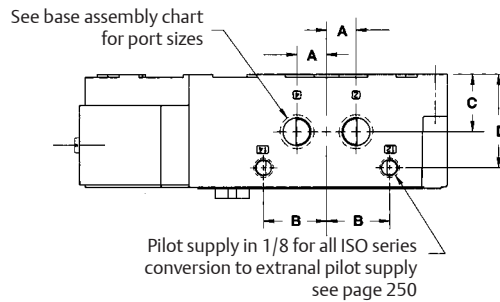
**Type RQ**



Relieving:  
exhausts pressure in cylinder if upstream is exhausted.



**Dimensions : mm - Individual Bases**



**Receptacle Assembly Part Numbers**

	Standard	With Z-Board
Size 1	230-680	230-1066
Size 2	230-707	230-1062
Size 3	230-707	230-1062

**Base Assembly Part Number**

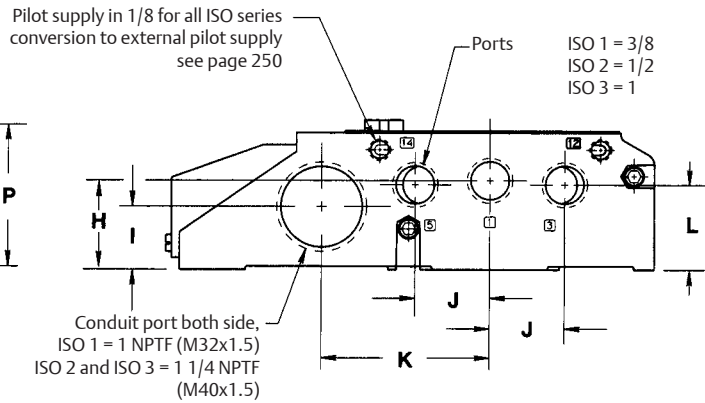
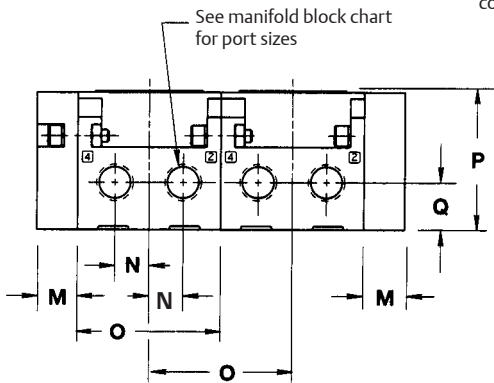
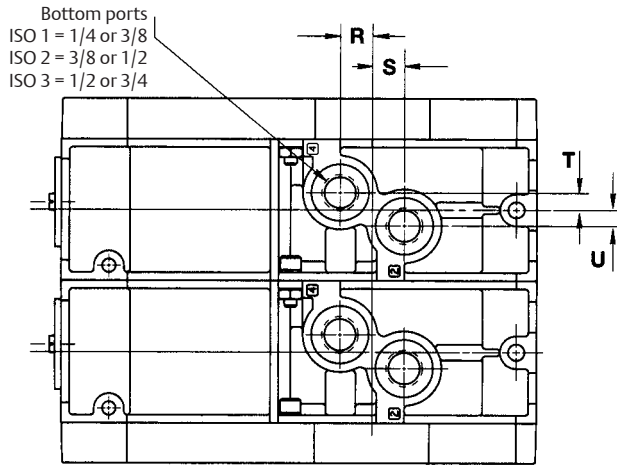
Series	Port Size	Side Ports Only	Side and Bottom Ports
ISO 1	G 1/4	203-819	203-823
	G 3/8	203-820	203-824
ISO 2	G 3/8	203-831	203-835
	G 1/2	203-832	203-836
ISO 3	G 1/2	203-839	203-843
	G 3/4	203-840	203-844

NFPT-thread on request

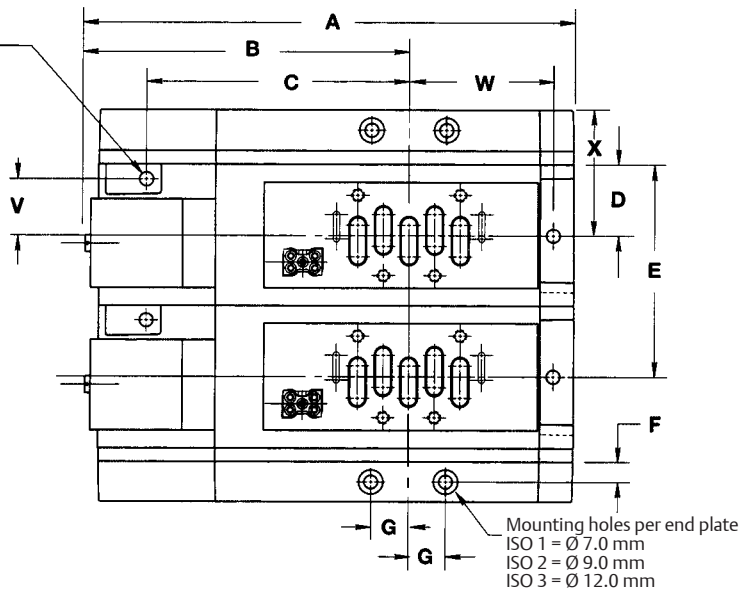
	A	B	C	D	E	F	G	H	I	J	K	L	M
Size 1	12.7	25.9	20.8	37.8	39.4	22.6	22.9	92.2	29.0	57.7	23.9	21.8	60.2
Size 2	15.5	33.3	30.2	49.3	57.2	28.7	28.7	108.0	35.1	69.9	37.2	26.9	75.4
Size 3	20.6	45.0	33.9	69.3	63.0	38.6	36.3	136.7	45.0	89.9	46.7	37.8	103.9

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Size 1	45.9	164.3	20.8	33.8	47.0	21.3	27.2	12.7	15.0	8.4	16.5	16.0	3.0
Size 2	63.5	197.1	27.7	44.2	60.5	26.7	26.7	21.6	21.6	3.3	19.8	19.8	N/A
Size 3	69.3	235.2	33.9	51.3	84.8	41.4	41.4	27.2	27.2	20.6	20.6	20.6	N/A

Dimensions : mm - Manifolds



2 mounting holes per station  
 ISO 1 = Ø 4.3 mm  
 ISO 2 = Ø 6.4 mm  
 ISO 3 = Ø 8.4 mm



	A	B	C	D	E	F	G	H	I	J	K	L	M
Size 1	182.6	125.0	N/A	26.4	79.0	14.0	14.0	33.5	24.6	27.9	63.5	30.5	22.1
Size 2	228.6	151.6	122.9	33.3	100.1	16.0	17.5	41.9	29.5	35.1	78.7	39.9	25.4
Size 3	269.5	180.3	150.9	42.7	128.3	15.0	25.9	45.5	31.0	52.1	104.1	42.4	30.0

	N	O	P	Q	R	S	T	U	V	W	X
Size 1	13.0	52.8	55.4	16.0	13.0	13.0	6.6	6.6	N/A	51.3	48.3
Size 2	16.0	66.8	65.5	21.8	15.0	15.0	8.1	7.6	26.4	67.3	58.7
Size 3	21.1	85.6	77.7	19.6	17.8	20.3	12.4	11.9	31.8	79.0	72.6

**Completely Assembled Manifolds**



**Manifold Assembly Kits with "Z-Board"™**

Series	Port Size	Kit Number with Single Z-Board	Kit Number with Double Z-Board	Kit Number with Single Ribbon Cable	Kit Number with Double Ribbon Cable
ISO 1	G 1/4	239-2130	239-1933	239-2134	239-1937
	G 3/8	239-2131	239-1932	239-2135	239-1936
ISO 2	G 3/8	239-2138	239-1895	239-2142	239-1899
	G 1/2	239-2139	239-1896	239-2143	239-1900
ISO 3	G 1/2	239-2146	239-1903	239-2150	239-1907
	G 3/4	239-2147	239-1904	239-2151	239-1908

NPTF-thread on request.

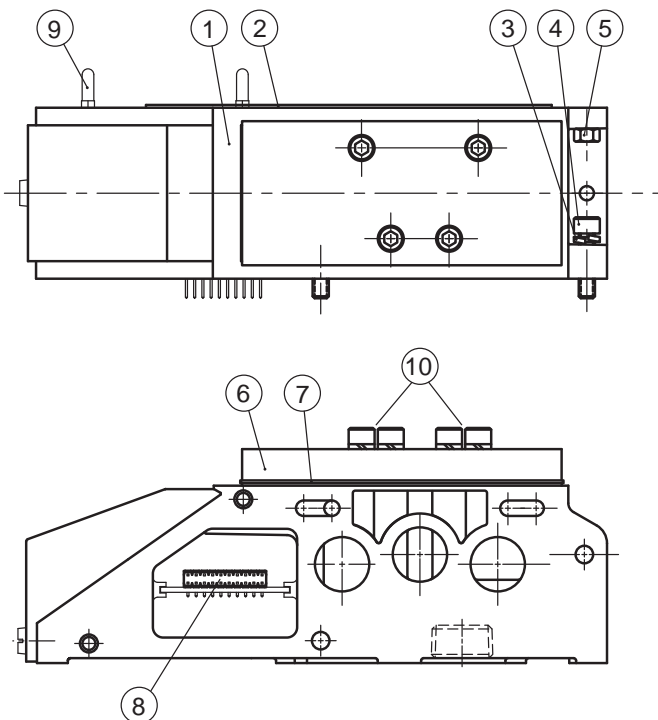


**Manifold Assembly Kits without "Z-Board"™**

Series	Port Size	Kit Number
ISO 1	G 1/4	239-640
	G 3/8	239-639
ISO 2	G 3/8	239-649
	G 1/2	239-650
ISO 3	G 1/2	239-656
	G 3/4	239-657

NPTF-thread on request.

**Mid-station Supply & Exhaust Block**



Det. No.	No. Req'd	Part Name
1	1	Manifold assembly
2	1	Gasket
3	6	Lockwasher
4	2	Screw
5	2	Nut
6	1	Blank station plate
7	1	Gasket
8*	1	Transfer board
9*	2	Guide pin
10*	4	Screw

\*Not required for mid-station supply and exhaust blocks without "Z-Board."™

Series	Port Size	Kit Number
ISO 1	G 3/8	239-1939
ISO 2	G 1/2	239-1941
ISO 3	G 3/4	239-1943

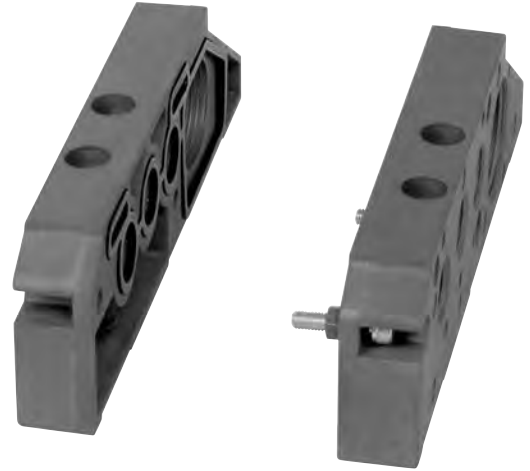
NPTF-thread on request.

## End Plates for Manifolds without "Z-Board"™

### End Plate Kit

Series	Port Size	Kit Number
ISO 1	G 3/8	239-636
ISO 2	G 1/2	239-643
ISO 3	G 1	239-659

NPTF-thread on request.



## Accessories for End Plates without "Z-Board"™

Part Name	Kit Number
Screw fitting M32 x 1.5	140-295
Screw fitting M40 x 1.5	140-296
Plug M32 x 1.5	140-297
Plug M40 x 1.5	140-298

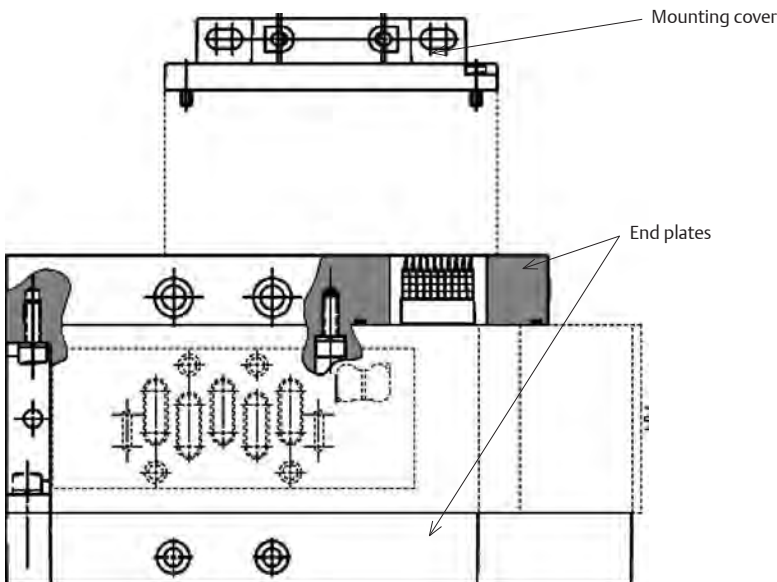


Screw fitting



Plug

## End Plates for Manifolds with "Z-Board"™



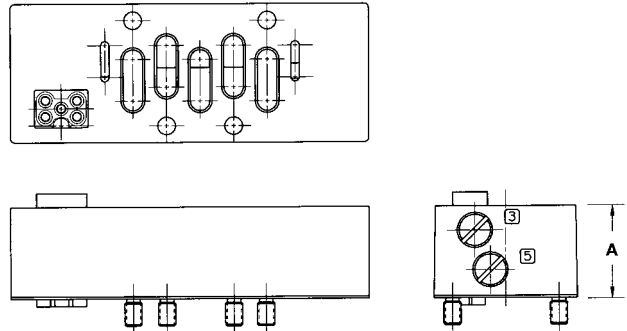
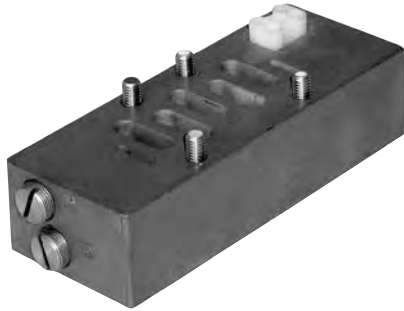
### End Plate Kits for "Z-Board"™ Manifolds

Series	Port Size	Kit Number	
		With Mounting Cover	Without Mounting Cover
ISO 1	G 3/8	239-1948	239-1946
ISO 2	G 1/2	239-1952	239-1950
ISO 3	G 1	239-1956	239-1954

NPTF-thread on request.

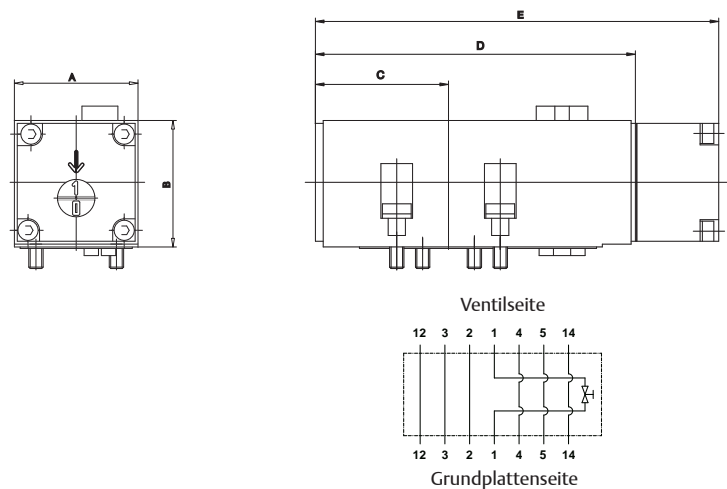
### Speed Controls Kits

The ISO speed control kit mounts between the valve unit and any base, manifold, or RS regulator. The 3 and 5 ports of the unit contain needle valves which can be adjusted to throttle the flow of exhaust air out of the valve unit. Thus, the speeds of the two strokes of a cylinder piston can be adjusted independently on the same end of the speed control unit.



Series	Dimensions "A"	Part Numbers
ISO 1	23.6 mm	239-634
ISO 2	33.0 mm	239-645
ISO 3	41.4 mm	239-661

### Valve Isolating Plate



Series	Operating pressure	A	B	C	D	E	Weight (kg)	Part Numbers
ISO 1	vacuum to 21 bar	42.5 mm	44.3 mm	46.0 mm	111.5 mm	140.3 mm	0.510	239-2247
ISO 2	vacuum to 21 bar	50.5 mm	44.5 mm	62.5 mm	137.4 mm	166.2 mm	0.650	239-2249
ISO 3	vacuum to 21 bar	65.5 mm	67.0 mm	67.0 mm	154.0 mm	199.5 mm	1.630	239-2257

### Transition Plate Kits

	ISO 1 to ISO 2	ISO 2 to ISO 1	ISO 2 to ISO 3	ISO 3 to ISO 2
Hardwired	239-662	239-663	239-664	239-665
With Z-Board	239-1957	N/A	239-1960	N/A



## Blank Station Plate Kit

### Plate Kit Numbers

Series	Part Number
ISO 1	239-641
ISO 2	239-644
ISO 3	239-660

Note: Includes screws and gasket.



## Gallery Blocking Disc Kits

May be used to block any gallery in a manifold system.

### Disc Kit Numbers

Series	1-5 Gallery	Pilot Supply Gallery
ISO 1	239-251	239-651
ISO 2	239-252	239-652
ISO 3	239-253	239-653



## Solenoid Pilot Assemblies

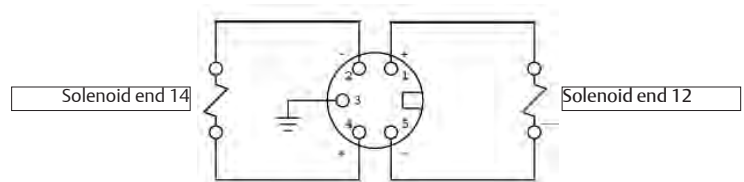
Voltages	Part Number
110 VAC, 50 Hz (Black Coil)	237-1045
230 VAC, 50 Hz (Black Coil)	237-1046
24 VAC, 50-60 Hz (Black Coil)	237-1044
24 VDC, 4 Watt (Blue Coil)	236-384

Includes Solenoid, Core Tube & Nut (128-317)  
NOTE: Core tube not available separately.

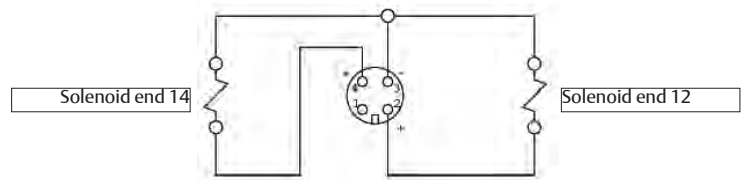


## Circuit Diagrams

5 pin connector  
Option 15G (valve conduit cover)



4 pin 12 mm connector  
Option 15G (valve conduit cover)  
Option 56Y (assembled)



**"Z-Boards"™ Ribbon Cable**

ISO 5599/2 series includes 4 different "Z-Boards"™ for driving up to 32 solenoids of single and/or double solenoid actuated valves.

Ribbon cable option used for manifold assemblies that exceed 16 solenoid outputs.

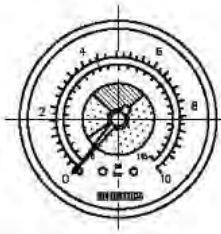
In order to allow the full capacity of 32 solenoids, the assembly must be configured so that an even number of solenoids is utilised prior to the station using the ribbon cable feature.

Note: The 16th and 17th solenoid cannot be on the same valve!

Size	Ribbon Cable
Size 1	230-1065
Size 2	230-1063
Size 3	230-1064



**Regulator Gauges**



Pressure Range	R	Weight (kg)	Part No.
0 to 2.5 bar	1/8	0.040	214-151
0 to 4 bar	1/8	0.040	214-152
0 to 10 bar	1/8	0.040	214-153
0 to 16 bar	1/8	0.040	214-154

Pressure Range	NPTF	Weight (kg)	Part No.
0 to 2.5 bar	1/8	0.040	214-138
0 to 4 bar	1/4	0.052	214-139
0 to 10 bar	1/8	0.040	214-140
0 to 16 bar	1/4	0.052	214-141

Pressure Range	Ø	R	Weight (kg)	Part No.
0 to 10 bar	40	1/8	0.040	217-274
0 to 10 bar	50	1/4	0.052	217-275

## Valve Service Kits and Parts

### Solenoid Pilot (BA / BW / BB4)

#### Solenoid Pilot continued (BB5/BB6/BB7)

Symbol	Valve	Series	Kit Number
	BA4	ISO 1	I1BP-K1
	BA4	ISO 2	I2BP-K1
	BA4	ISO 3	I3BP-K1
	-	-	-
	BW4	ISO 2	I2BP-K4
	BW4	ISO 3	I3BP-K4
	BB4	ISO 1	I1BP-K2
	BB4	ISO 2	I2BP-K2
	BB4	ISO 3	I3BP-K2
	BB5	ISO 1	I1BP-K3
	BB5	ISO 2	I2BP-K3
	BB5	ISO 3	I3BP-K3
	BB6	ISO 1	I1BP-K3
	BB6	ISO 2	I2BP-K3
	BB6	ISO 3	I3BP-K3
	BB7	ISO 1	I1BP-K3
	BB7	ISO 2	I2BP-K3
	BB7	ISO 3	I3BP-K3

### Direct Solenoid (SA)

#### Solenoid Pilot continued (SA4/SS5/SS6/SS7)

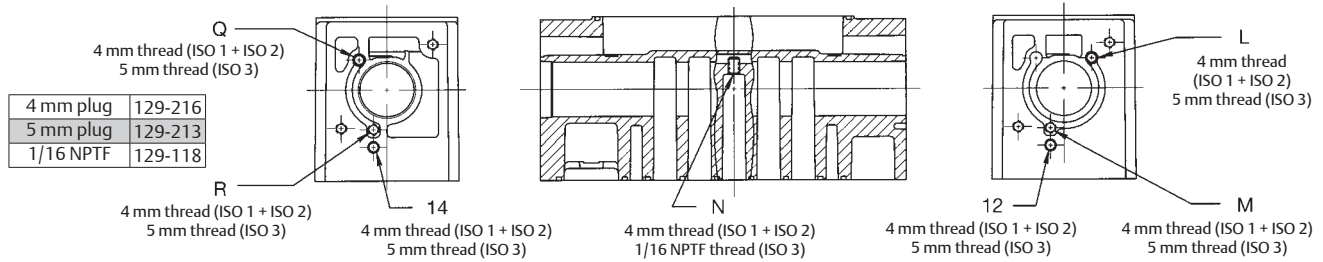
Symbol	Valve	Series	Kit Number
	SA4	ISO 1	I1SP-K1
	SA4	ISO 2	I2SP-K1
	SA4	ISO 3	I3SP-K1
	SS4	ISO 1	I1SP-K2
	SS4	ISO 2	I2SP-K2
	SS4	ISO 3	I3SP-K2
	SS5	ISO 1	I1SP-K3
	SS5	ISO 2	I2SP-K3
	SS5	ISO 3	I3SP-K3
	SS6	ISO 1	I1SP-K3
	SS6	ISO 2	I2SP-K3
	SS6	ISO 3	I3SP-K3
	SS7	ISO 1	I1SP-K3
	SS7	ISO 2	I2SP-K3
	SS7	ISO 3	I3SP-K3

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**Pilot Plugging Arrangements and Service Kits**

The Numatics valve bodies used for the Series ISO 5599/2 have a number of tapped pilot passages. Simply by opening or plugging certain passages, a number of different pilot supply options are available. A cross section of the valve bodies and both end views are shown below. These views show the location of all passages. The letters do not appear on the casting. They are used only to identify the ports and the locations.



Pilot Port	Standard Internal Supply From Port 1		External Supply From Port 12		14X External Supply From Port 14		14C Internal Supply From Port 3		14D Internal Supply From Port 5	
	Single Pilot	Double Pilot	Single Pilot	Double Pilot	Single Pilot	Double Pilot	Single Pilot	Double Pilot	Single Pilot	Double Pilot
L	Plug	Open	N/A	Open	Plug	Open	N/A	Open	Open	Open
M	Plug	Plug	N/A	Plug	Plug	Plug	N/A	Open	Plug	Plug
N	Open	Open	N/A	Plug	Plug	Plug	N/A	Plug	Plug	Plug
Q	Open	Open	N/A	Open	Plug	Open	N/A	Open	Plug	Open
R	Plug	Plug	N/A	Plug	Plug	Plug	N/A	Plug	Open	Open
12	Plug	Plug	N/A	Open	Plug	Plug	N/A	Plug	Plug	Plug
14	Plug	Plug	N/A	Plug	Open	Open	N/A	Plug	Plug	Plug

Note: Standard for all Series ISO 5599/2 valve is the internal supply from port 1.

**Flow Paths for Solenoid Air Pilot Actuation**

