

Norgren Pneumatic Valve Products

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VM10 Series Valves (See VAL-1)

Port Sizes: Port fittings of 1/8, 5/32, 1/4, (3 mm, 4 mm, 6 mm)

Flow: Cv of 0.36 to 0.44

Valve Type: 2 x 3/2, 5/2 and 5/3 with integral push-in fittings

Electrical Connections: 2-pin individually wired, 25 and 44-pin D connector, Fieldbus, and ASI

Subbase Mounting: DIN rail brackets, through hole brackets, or threaded screw mount

Operator Types: Solenoid pilot spool valve



V20 & V22 and Fieldbus II (See VAL-2)

Port Size: 1/8" and 1/4" NPT or ISO G

Flow: Cv of 0.41 to 1.17

Valve Type: 5-port/2-position, 5-port/3-position, dual 3-port/2-position (in one body)

Mounting options: Modular manifold up to 20-stations

Common Wireway Electrical Connections: 25-pin 'D' sub connector and 1" NPT conduit

Fieldbus I/O capability: 128 I/O per node

Fieldbus Protocols: DeviceNet, Profibus-DP, Interbus-S, CANOpen, and AS-Interface



V60/62 Series Valves (See VAL-3)

Port Size: 1/8" to 3/8" NPT, and ISO G

Flow: Cv of 0.75 to 4.2

Valve Type: 3-port/2-position, 5-port/2-position, and 5-port/3-position, and modular fixed length manifold 2 x 3-port/2-position

Mounting Options: Two through holes for wall or control cabinet mounting

Operator Types: Solenoid and pilot actuated

Electrical Connections: DIN 43650 Table "B"



Mini ISO Star Series Valves (See VAL-4)

Port Size: ISO 15407-1/VDMA 24 563, 18 and 26 mm

Flow: Cv of 0.92, 1.22, 1.17

Valve Type: 5-port/2-position, 5-port/3-position, dual 3-port/2-position

Mounting Options: Single or manifolding subbase

Operator Types: Solenoid pilot, or air pilot

Electrical Connections: Cable grip standard. Optional: electrical connectors are cable grip with indicator light, a 1/2" NPT conduit connector, 10-foot molded cable, and 10-foot molded cable with surge suppression, reverse polarity protection, and indicator light.



ISO Star Series Valves (See VAL-5)

Port Size: 1/4" (size 1), 3/8" (size 2), 1/2" (size 3), NPT or ISO G

Flow: Cv of 1.2, 2.4, 4.0

Valve Type: 5-port/2-position and 5-port/3-position

Mounting Options: single subbase, or manifolding subbase

Operator Types: Solenoid pilot, or air pilot

Electrical Connections: Cable grip standard. Optional: electrical connectors are cable grip with indicator light, a 1/2" NPT conduit connector, 6-foot, three-conductor molded cable, and 6-foot, three-conductor molded cable with surge suppression, reverse polarity protection, and indicator light.



Nugget 30 Series Valves (See VAL-6)

Port Size: Port fittings in 5/32", 1/4", 4 mm, or 6 mm

Flow: Cv of .27

Valve Type: 5-port/2-position and 5-port/3-position

Electrical Connections: 25-pin D connector and plug-in wireway, or pinch plugs with leads

Subbase Mounting: lightweight plastic manifolding subbase with plug-on common wireway and 25-pin D connector provides up to 24 stations, or Aluminum fixed length 10-32 UNF ported subbase (1 to 12 stations).

Operator Types: Solenoid pilot

Fieldbus Compatible



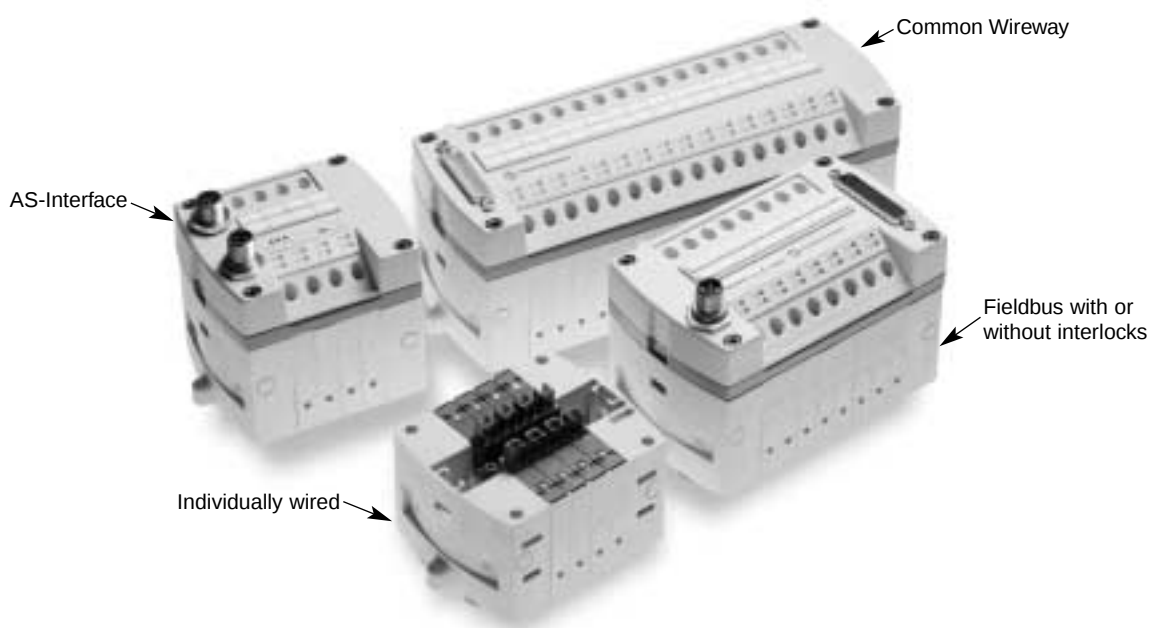
	Super X Series Valves (See VAL-7) Port Size: 1/8" and 1/4" NPT Flow: 1/8" (Cv of .34), 1/4" (Cv of .98) Valve Type: 3-port/2-position, 5-port/2-position, and 5-port/3-position Mounting Options: Two through holes for wall or control cabinet mounting. Many operators are available for panel mounting. Operator Types: Manual or mechanical
	Nugget 40 Series Valves (See VAL-8) Port Size: Inline ports - 10-32 UNF Subbase ports - 1/8" NPT Endplate ports - 1/4" NPT (inlet), 1/8" NPT (exhaust) Flow: Inline - Cv of .26, subbase Cv of .41 Valve Type: 3-port/2-position, 5-port/2-position, and 5-port/3-position Mounting Options: Inline, inline on a fixed length manifold, inline modular, single subbase valve, and subbase-modular manifolds Electrical Connections: 25-pin D connector, or 1" conduit electrical connection Operator Types: Solenoid pilot or air pilot Fieldbus Compatible
	Nugget 120 Valves Series Valves (See VAL-9) Port Size: Subbase ports - 1/4" NPT Subbase endplates - 3/8" NPT (inlet), 1/4" (exhaust) Flow: 3/2 and 5/2 Cv of 1.17, 5/3 Cv of 0.79 Valve Type: 3-port/2-position, 5-port/2-position, and 5-port/3-position Mounting Options: Subbase valve - through holes to subbase and manifold Manifold mounted - through holes in end plate or to a 35 mm DIN rail Operator Types: Solenoid pilot or air pilot Electrical Connections: 25-pin D connector, or 1" conduit electrical connection Fieldbus Compatible
	Nugget 200 Series Valves (See VAL-10) Port Size: 1/4", 3/8", or 1/2" NPT or ISO G Flow: Cv of 1.6 Valve Type: 3-port/2-position*, 5-port/2-position, and 5-port/3-position Mounting Options: Inline valves, stacking valve assembly, stacking valve assembly with junction box, or inline fixed length manifold. Operator Types: Solenoid pilot, air pilot, manual, or mechanical Electrical Connections: DIN 43650 Table "B", 1/2" NPT conduit connector, or 1" conduit (junction box) *Not available in 1/2" ports
	Nugget 500 Series Valves (See VAL-11) Port Size: 3/8", or 1/2" NPT or ISO G, and 3/4" ports NPT (inline valves only) Flow: Cv of 5.0 Valve Type: 5-port/2-position and 5-port/3-position Mounting Options: Inline have two sets of mounting holes through the body. Fixed length manifolds, single subbase, and subbase valves attached to a manifold subbase. Operator Types: Solenoid pilot or air pilot Electrical Connector Options: cable grip with indicator light, a 1/2" NPT conduit connector and a 5-foot, three-conductor, molded cable connector with or without indicator light and surge suppression.
	Prospector Series Poppet Valves (See VAL-12) Port Size: 1/4" through 2" Flow: Cv of 2.1 to 49.5 Valve Type: 2-port/2-position, 3-port/2-position, 4-port/2-position, and 3-port/2-position multi-directional Mounting Options: Inline or single subbase Operator Types: Solenoid pilot, air pilot, manual, or mechanical Electrical Connector Options: cable grip with indicator light, a 1/2" NPT conduit connector and a 5-foot, three-conductor, molded cable connector with or without indicator light and surge suppression.

VM10

10 mm pneumatic valves, with 5/2, 5/3, and 2 x 3/2 functions

Contents

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Easy to select and configure

VM10

- **Save time** with Norgren's unique easy-to-use valve island configurator, available either online or on CD
- Easy to configure up to 20 stations (40 coils)

Configure the unit that exactly meets your needs from:

- 260 valve options per station, including 5/2, 5/3 and 2 x 3/2 functions
- 7 fitting sizes per valve
- Individually wired, Multipole or Fieldbus
- Internal or external pilot
- With or without checked exhaust flow paths
- 4 inlet/exhaust fitting sizes

giving you more than 7 million possible configurations

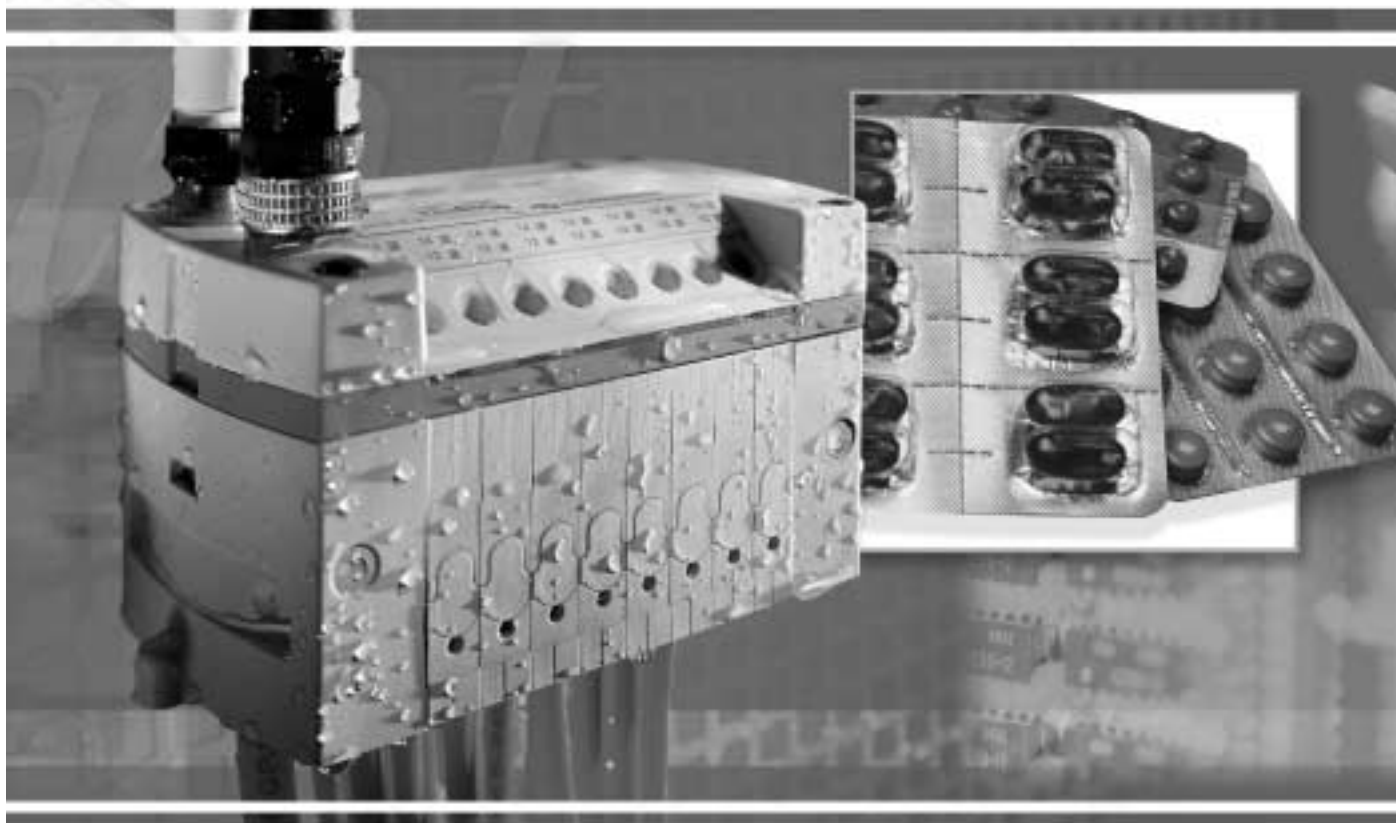
- Viewable/downloadable 2D and 3D CAD drawings in 13 file formats
- Downloadable multi-language technical and dimensional information
- List price automatically calculated for complete valve islands





Easy to install and use

- **Save space** with a very high performance compact unit.
- **Save assembly and installation** time with pre-configured and pre-tested valve islands ready to plug and play in seconds.
- **Save downtime** with quick and easy valve replacement with interlocking valve bodies (no tie rods).
 - ◊ Optional push only and slide to lock manual overrides for Multipole cover
 - ◊ Fast switching times
 - ◊ Interchangeable Fieldbus protocols: DeviceNet, Profibus-DP, CANopen, Interbus-S, AS-interface, AB RIO, Norgren Fieldbus II
 - ◊ Multipole and Fieldbus up to 16 stations (maximum 32 coils)
 - ◊ Integral push-in fittings
 - ◊ Long life of 50 million cycles achieved with 40 micron filtration
 - ◊ Push only or turn & lock manual overrides
 - ◊ High flow rate of 0.44 Cv
 - ◊ Optional exhaust check valves
 - ◊ Multipressure capability
 - ◊ Pneumapole sub-base for simple and fast replacement (no need to disconnect tubing)
 - ◊ Lightweight material (advanced engineering polymer) - extremely robust and stable



Easy to apply

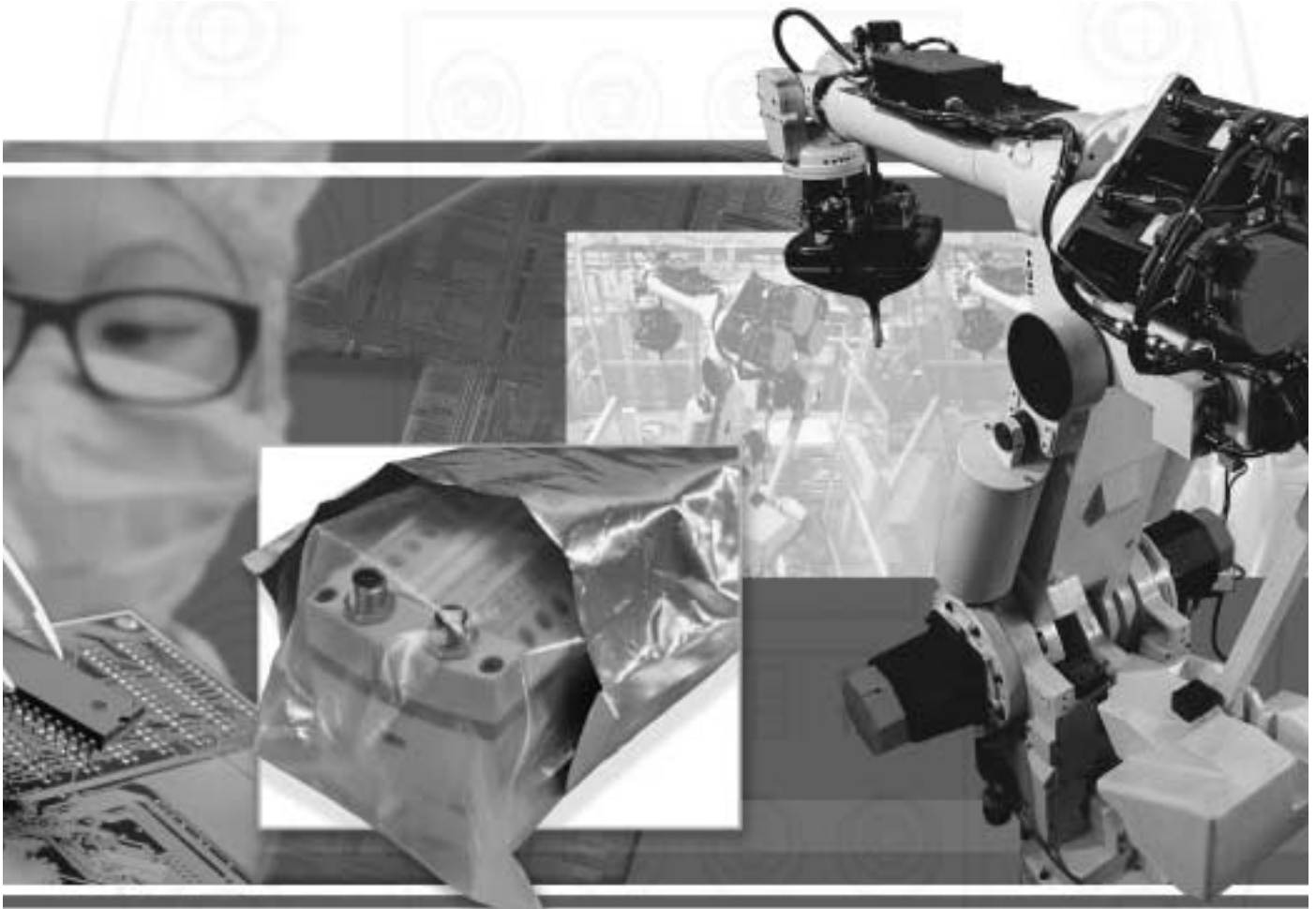
- The versatility of VM10 makes it highly suitable for many different industry sectors and applications including electronics, packaging and textile machinery and a wide variety of special purpose machines.

Suitable for packaging machinery

- High flow rate of 0.44 Cv from a 10 mm valve
- NEMA 4, IP65 protection rating
- High resistance to chemical washdowns
- Available in all major Fieldbus protocols

Suitable for electronics manufacturing

- Backed by a reliability test specification conforming to SEMI E10
- Up to 30% space saving in Fieldbus applications compared to other equivalent products. (Electronics fit in the same envelope size as a standard Multipole valve island)
- Clean, sleek design
- 2 x 3/2 function for piloting process valves
- Electronics grade cleaning and packaging options



Suitable for textile machinery

- Individually wired, Multipole and Fieldbus options
- Save space: 2 x 3/2 in single slice for control of single acting actuators
- Multi-pressure options

And many other applications

- High resistance to chemicals even with prolonged contact (eg food industry)
- Exceptional dimensional stability even in humid environments (eg paper industry)
- Excellent hydrolysis resistance even with hot water
- Low weight (eg robotics and end of arm tooling)

- Multipole or individually wired for installation flexibility
- Interchangeable Fieldbus compatible modules
- Compact and lightweight
- Standard or checked exhaust paths
- Quick disconnect base (Pneumapole)
- High flow from 10 mm valve width



Technical data

Medium:

Compressed air, filtered, lubricated and non-lubricated

Operation:

Solenoid pilot spool valve

Port sizes:

Push-in fittings of 1/8, 5/32, 1/4, 3 mm, 4 mm, 6 mm

Operating pressure:

Maximum 116 psig (8 bar)

Flow:

Function	Cv	'C'	b'	'A'	l/min	Kv
5/2 port 1 to 2 & 4	0.44	1.77	0.48	7.10	430	0.36
5/2 ports 2 to 3 & 4 to 5	0.41	1.65	0.45	6.61	400	0.34
3/2 ports 1 to 2 & 1 to 4	0.36	1.44	0.39	5.78	350	0.29
3/2 ports 2 to 3 & 4 to 5	0.36	1.44	0.39	5.78	350	0.29
5/3 ports 1 to 2 & 4	0.36	1.44	0.39	5.78	350	0.29
5/3 ports 2 to 3 & 4 to 5	0.36	1.44	0.39	5.78	350	0.29

Degree of protection:

NEMA 4 and IP65

Ambient temperature:

4°F to 122°F (-20°C to +50°C)

For use below 36°F (+2°C) consult our Technical Service

Materials

Aluminum spool with nitrile rubber seals

Body, end plates: engineered PPA co-polymer

Ordering information

To order please use valve island configurator available at www.norgren.com

Alternatively contact Norgren for a configurator on CD



2 x 3/2 Double solenoid actuated valves

Symbol	Model	Manual override	Function 2 x 3/2	Pilot supply	Actuation	Operating pressure psig (bar)	Pilot pressure psig (bar)	lbs (kg)
	VM10*A11*B213B	Turn & lock	NC	Internal	Sol/Spring	43.5 to 116 (3 to 8)	– (–)	0.12 (0.054)
	VM10*A11*B313B	Push only	NC	Internal	Sol/Spring	43.5 to 116 (3 to 8)	– (–)	0.12 (0.054)
	VM10*A22*B213B	Turn & lock	NC	External	Sol/Spring	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.12 (0.054)
	VM10*A22*B313B	Push only	NC	External	Sol/Spring	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.12 (0.054)
	VM10*B11*B213B	Turn & lock	NO	Internal	Sol/Spring	43.5 to 116 (3 to 8)	– (–)	0.12 (0.054)
	VM10*B11*B313B	Push only	NO	Internal	Sol/Spring	43.5 to 116 (3 to 8)	– (–)	0.12 (0.054)
	VM10*B22*B213B	Turn & lock	NO	External	Sol/Spring	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.12 (0.054)
	VM10*B22*B313B	Push only	NO	External	Sol/Spring	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.12 (0.054)
	VM10*C11*B213B	Turn & lock	NC/NO	Internal	Sol/Spring	43.5 to 116 (3 to 8)	– (–)	0.12 (0.054)
	VM10*C11*B313B	Push only	NC/NO	Internal	Sol/Spring	43.5 to 116 (3 to 8)	– (–)	0.12 (0.054)
	VM10*C22*B213B	Turn & lock	NC/NO	External	Sol/Spring	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.12 (0.054)
	VM10*C22*B313B	Push only	NC/NO	External	Sol/Spring	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.12 (0.054)

5/2 Single and double solenoid actuated valves

Symbol	Model	Manual override	Function	Pilot supply	Actuation	Operating pressure psig (bar)	Pilot pressure psig (bar)	lbs (kg)
	VM10*517*B213B	Turn & lock	5/2	Internal	Sol/Spring	43.5 to 116 (3 to 8)	– (–)	0.10 (0.044)
	VM10*517*B313B	Push only	5/2	Internal	Sol/Spring	43.5 to 116 (3 to 8)	– (–)	0.10 (0.044)
	VM10*527*B213B	Turn & lock	5/2	External	Sol/Spring	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.10 (0.044)
	VM10*527*B313B	Push only	5/2	External	Sol/Spring	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.10 (0.044)
	VM10*511*B213B	Turn & lock	5/2	Internal	Sol/Sol	29 to 116 (2 to 8)	– (–)	0.12 (0.054)
	VM10*511*B313B	Push only	5/2	Internal	Sol/Sol	29 to 116 (2 to 8)	– (–)	0.12 (0.054)
	VM10*522*B213B	Turn & lock	5/2	External	Sol/Sol	26" Hg to 116 (-0.9 to 8)	29 to 116 (2 to 8)	0.12 (0.054)
	VM10*522*B313B	Push only	5/2	External	Sol/Sol	26" Hg to 116 (-0.9 to 8)	29 to 116 (2 to 8)	0.12 (0.054)

5/3 Double solenoid actuated valves

Symbol	Model	Manual override	Function	Pilot supply	Actuation	Operating pressure psig (bar)	Pilot pressure psig (bar)	lbs (kg)
	VM10*611*B213B	Turn & lock	5/3 APB	Internal	Sol/Sol	43.5 to 116 (3 to 8)	– (–)	0.12 (0.055)
	VM10*611*B313B	Push only	5/3 APB	Internal	Sol/Sol	43.5 to 116 (3 to 8)	– (–)	0.12 (0.055)
	VM10*622*B213B	Turn & lock	5/3 APB	External	Sol/Sol	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.12 (0.055)
	VM10*622*B313B	Push only	5/3 APB	External	Sol/Sol	26" Hg to 116 (-0.9 to 8)	43.5 to 116 (3 to 8)	0.12 (0.055)

Note: For 5/3 COE please use 2 x 3/2 NC. For 5/3 COP please use 2 x 3/2 NO

APB = All Ports Blocked COE = Center Open Exhaust COP = Center Open Pressure

Options selector

VM109517A313A

Tube size	Substitute
3 mm PIF	3
4 mm PIF	4
6 mm PIF	6
1/8" PIF	A
1/4" PIF	9
5/32" PIF	1
No PIF (for use with Pneumapole)	7

Valve function	Substitute
5/2	5
5/3 APB	6
2 x 3/2 NC and 5/3 COE	A
2 x 3/2 NO and 5/3 COP	B
2 x 3/2 NC and NO	C

Manual override	Substitute
Turn to lock manual override	2
Push only manual override	3

Exhaust	Substitute
Standard open exhaust	A
Checked exhaust (integral non return valve) *	U

Actuation/pilot supply	Substitute
Solenoid/solenoid internal pilot	11
Solenoid/spring internal pilot **	17
Solenoid/solenoid external pilot	22
Solenoid/spring external pilot **	27

Note: For 5/3 COE and COP use 2 x 3/2

APB = All Ports Blocked COE = Center Open Exhaust COP = Center Open Pressure

For valve island specification see page VAL-1-18

Use our configurator under www.norgren.com (also available on CD)

* Requires Pneumapole sub-base

** Can only be used with 5/2 valve



Valve Islands, VM10 Series

Electrical details

Voltage:	24 V d.c. 0.6 W
Surge suppression:	Flywheel diode
Indication:	Yellow LED

Solenoids

Voltage tolerance:	± 10%
Rating:	100% ED

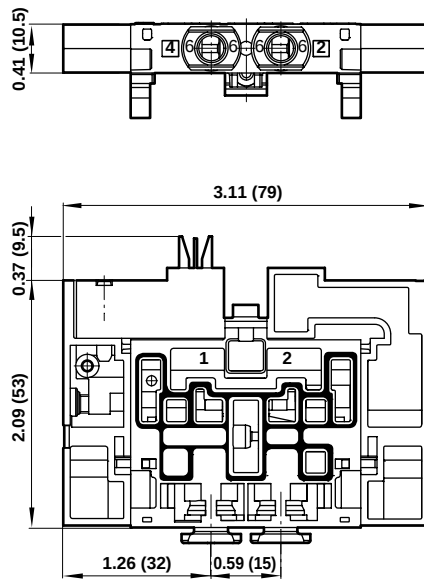
Accessories for individually wired and multipole valve islands

D Sub-connector 25 pin		D Sub-connector 44 pin		2 Pin connector		Valve blanking station		Port blocking station	
									
V11569-E01	3 ft (1m) L1	V11570-E01	3 ft (1m) M4	V11568-E01	3 ft (1m) K1	VM106517AQ0300 2A		VM106517AQ0301 Port 1 blocked 2B	
V11569-E03	10 ft (3m) L2	V11570-E03	10 ft (3m) M5	V11568-E03	10 ft (3m) K2			VM106517AQ0302 Ports 3 & 5 blocked 2C	
V11569-E05	16 ft (5m) L3	V11570-E05	16 ft (5m) M6	V11568-E05	16 ft (5m) K3			VM106517AQ0303 Ports 1, 3 &5 blocked 2D	
Pressure switch		DIN Rail		DIN Rail fixing kit		Manual override kit		Pneumapole sub-base	
									
VM106517AQ0804 4 mm	7A	V10009-C00 3 ft (1m)	A17	V11554-K30	8D	V11574-K30	Push only	N1	For part numbers and dimensional details see page VAL-1-15
VM106517AQ0806 6 mm	7B					V11574-K31	Slide to lock	N2	

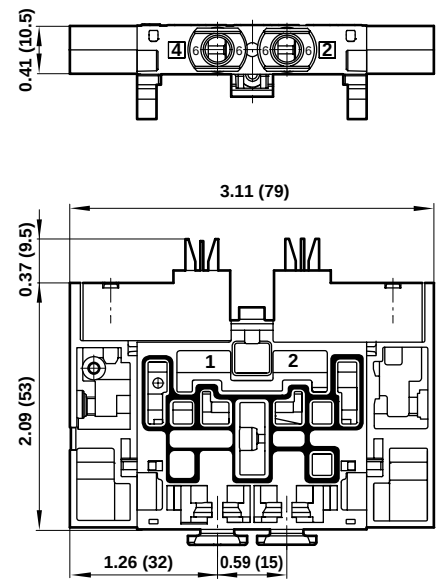


VM10 models

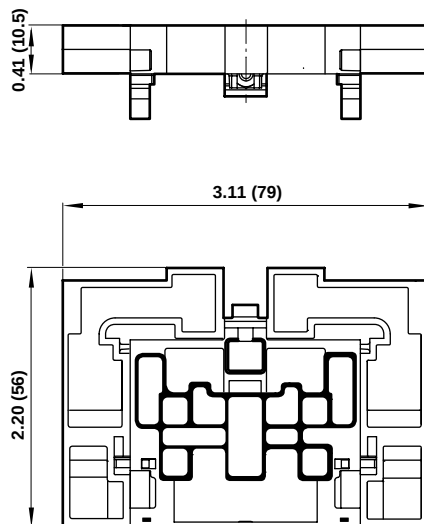
Single solenoid



Double solenoid



Blanking plates



Port blocking station

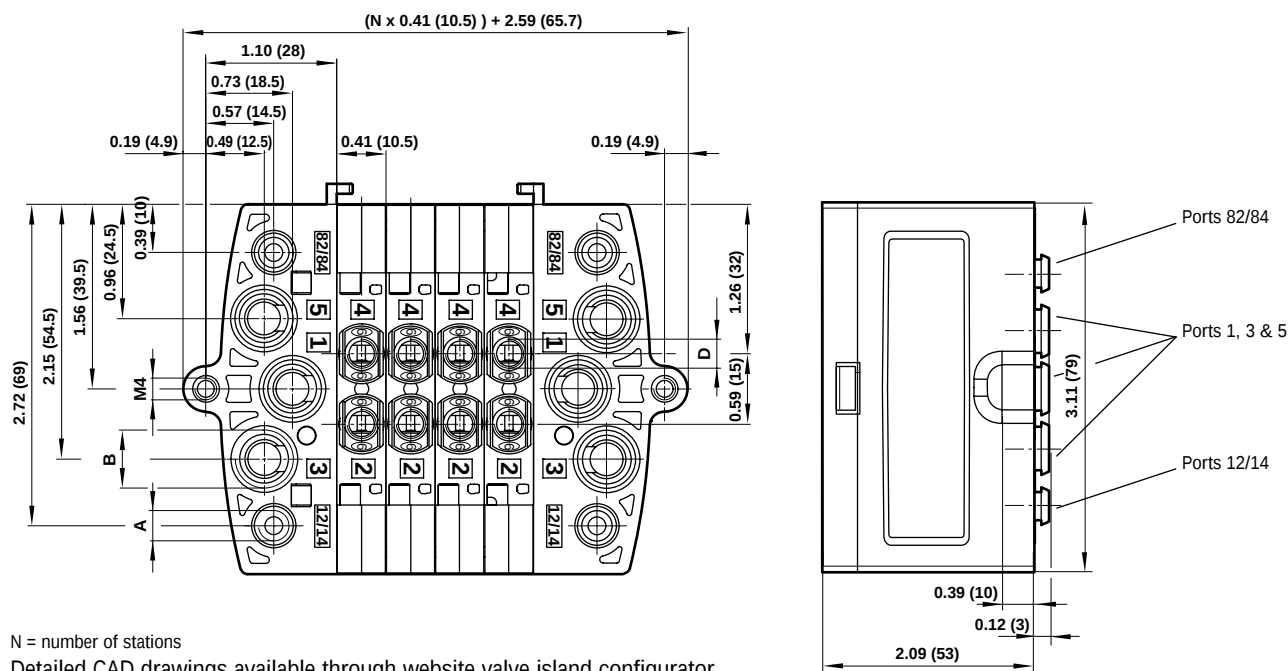
VM106517AQ0300	Ports 1, 3 & 5 open	2A
VM106517AQ0301	Port 1 blocked	2B
VM106517AQ0302	Ports 3 & 5 blocked	2C
VM106517AQ0303	Ports 1, 3 & 5 blocked	2D



Valve Islands, VM10 Series

All dimensions in inches (mm)

Port connections



End Plate Kit Model Number	Description	B Ports 1, 3 & 5	A Ports 12/14 & 82/84	Short code
VM106517AQ0202	End plate kit - feed both ends	3/8"	1/4"	1G
VM106517AQ020X	End plate kit - feed both ends	5/16"	5/32"	1H
VM106517AQ0212	End plate kit - feed left, right blocked	3/8"	1/4"	1J
VM106517AQ021X	End plate kit - feed left, right blocked	5/16"	5/32"	1K
VM106517AQ0222	End plate kit - feed right, left blocked	3/8"	1/4"	1L
VM106517AQ022X	End plate kit - feed right, left blocked	5/16"	5/32"	1M
VM106517AQ0231	End plate kit - feed both ends	No PIF*	No PIF*	1S
VM106517AQ0232	End plate kit - feed left, right blocked	No PIF*	No PIF*	1T
VM106517AQ0233	End plate kit - feed right, left blocked	No PIF*	No PIF*	1V
VM106517AQ010Y	End plate kit - feed both ends	10 mm	6 mm	1A
VM106517AQ0108	End plate kit - feed both ends	8 mm	4 mm	1B
VM106517AQ011Y	End plate kit - feed left, right blocked	10 mm	6 mm	1C
VM106517AQ0118	End plate kit - feed left, right blocked	8 mm	4 mm	1D
VM106517AQ012Y	End plate kit - feed right, left blocked	10 mm	6 mm	1E
VM106517AQ0128	End plate kit - feed right, left blocked	8 mm	4 mm	1F
VM106517AQ0131	End plate kit - feed both ends	No PIF*	No PIF*	1N
VM106517AQ0132	End plate kit - feed left, right blocked	No PIF*	No PIF*	1P
VM106517AQ0133	End plate kit - feed right, left blocked	No PIF*	No PIF*	1R

Available valve port sizes – Ø 1/8, 5/32, 1/4, 3 mm, 4 mm, 6 mm

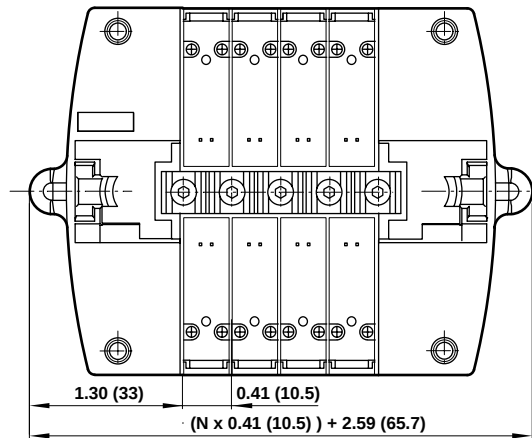
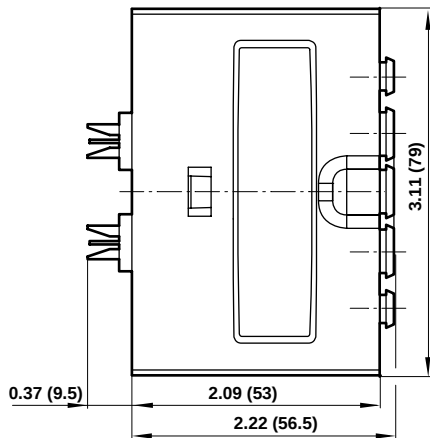
* No push in fitting for use with pneumapole sub-base



Modular assembly

Individually wired

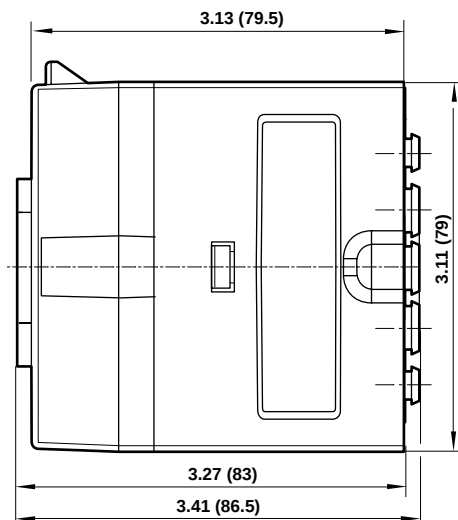
Individually wired	No. stations	Max. No. coils
2 Pin connector	2 to 20	40



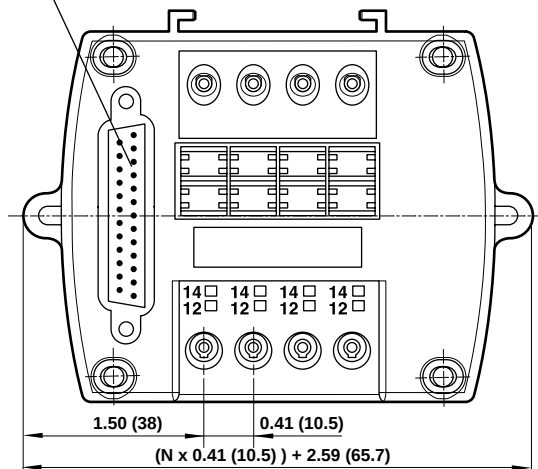
N = number of stations

Multipole

Multipole	No. stations	Model	Max. no. coils	Short code
25 Pin connector	04	VM106517AQ0404	8	A1
25 Pin connector	06	VM106517AQ0406	12	A2
25 Pin connector	08	VM106517AQ0408	16	A3
25 Pin connector	10	VM106517AQ0410	20	A4
25 Pin connector	12	VM106517AQ0412	24	A5
44 Pin connector	10	VM106517AQ0510	20	B1
44 Pin connector	12	VM106517AQ0512	24	B2
44 Pin connector	16	VM106517AQ0516	32	B3



25 Pin connector for 4, 6, 8, 10 & 12 station
44 Pin connector for 10, 12 & 16 station



N = number of stations



Valve Islands, VM10 Series

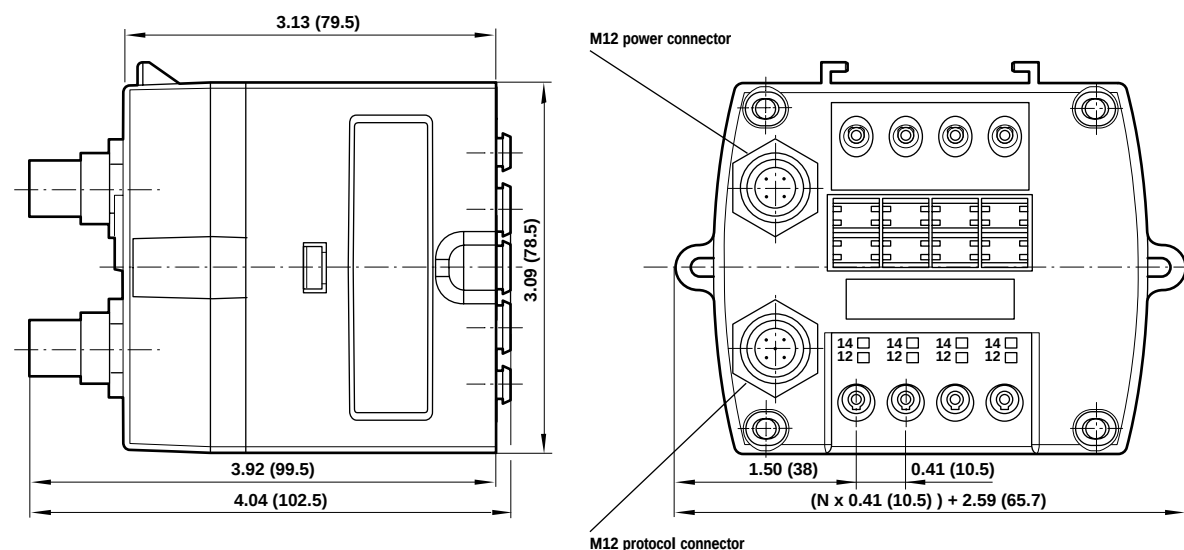
All dimensions in inches (mm)

Fieldbus connections (M12 connector types)

Standard fieldbus - available protocols	No. stations	Node part numbers	Max. No. coils	Short code
DeviceNet	08	VM10DNFNB-00080	16	C1
DeviceNet	10	VM10DNFNB-00100	20	C2
DeviceNet	12	VM10DNFNB-00120	24	C3
DeviceNet	16	VM10DNFNB-00160	32	C4
CANopen	08	VM10CAFNB-00080	16	D1
CANopen	10	VM10CAFNB-00100	20	D2
CANopen	12	VM10CAFNB-00120	24	D3
CANopen	16	VM10CAFNB-00160	32	D4
AS – interface*	04	VM10AS10A-00410**	4	J1
AS – interface*	08	VM10AS10A-00810**	8	J2
AS – interface*	04	VM10AS10A-00820**	8	J3
AS – interface*	06	VM10AS10A-00830**	8	J4
AB RIO	08	VM10RIFNB-00080	16	G1
AB RIO	10	VM10RIFNB-00100	20	G2
AB RIO	12	VM10RIFNB-00120	24	G3
AB RIO	16	VM10RIFNB-00160	32	G4

* Use 2 x M12 protocol connectors

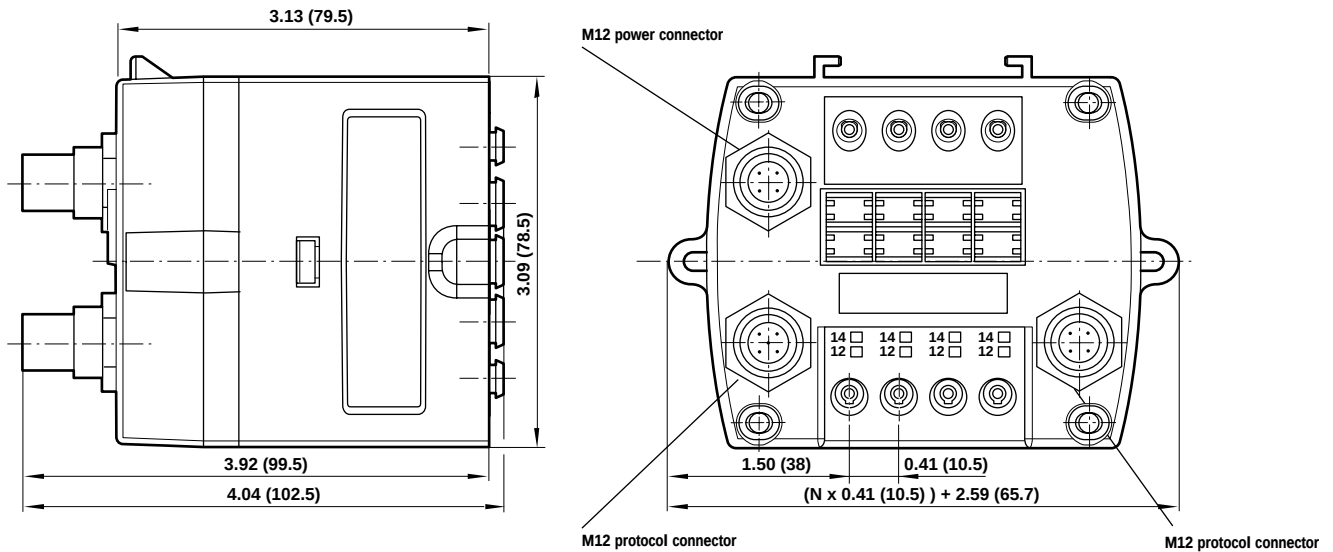
**Node part number = 410 (4 x sol/spring), 810 (8 x sol/spring), 820 (4 x sol/sol), 830 (4 x sol/spring, 2 x sol/sol)





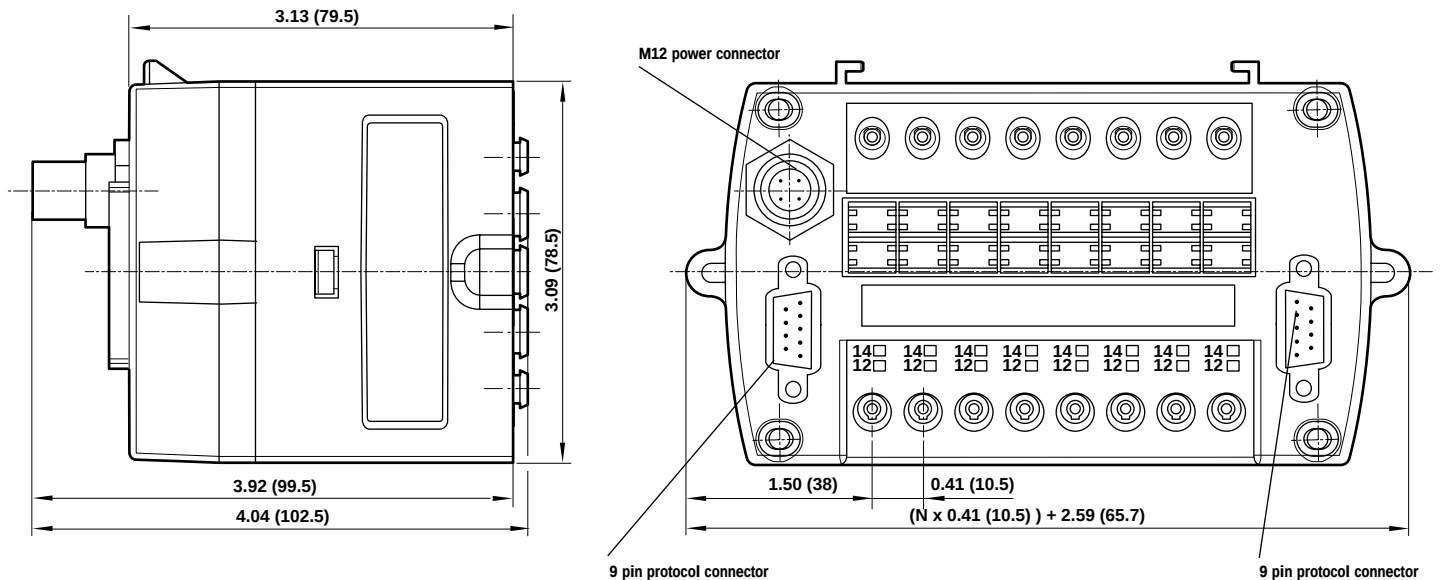
Fieldbus connections with (M12 connector types)

Standard fieldbus - available protocols	No. stations	Node part numbers	Max. no. coils	Short code
Profibus-DP	08	VM10DPFNB-00080	16	E1
Profibus-DP	10	VM10DPFNB-00100	20	E2
Profibus-DP	12	VM10DPFNB-00120	24	E3
Profibus-DP	16	VM10DPFNB-00160	32	E4



Fieldbus connections - (9 pin D-type connector)

Standard fieldbus - available protocols	No. stations	Node part numbers	Max. no. coils	Short code
Interbus-S	08	VM10IBFNB-00080	16	F1
Interbus-S	10	VM10IBFNB-00100	20	F2
Interbus-S	12	VM10IBFNB-00120	24	F3
Interbus-S	16	VM10IBFNB-00160	32	F4



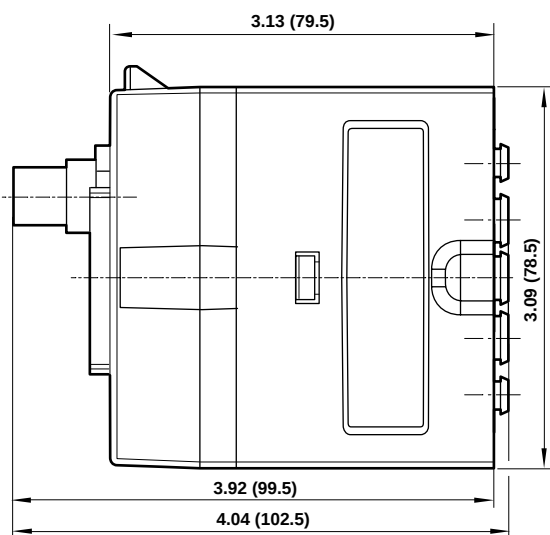


Valve Islands, VM10 Series

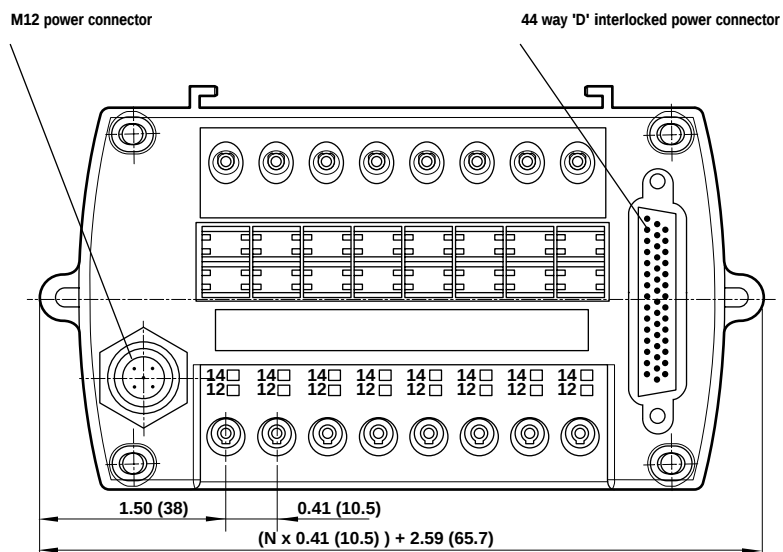
All dimensions in inches (mm)

Fieldbus connections with interlocks

Standard fieldbus - available protocols	No. stations	Node part numbers	Max. no. coils	Short code
DeviceNet	08	VM10DNFNB-00081	16	C5
DeviceNet	10	VM10DNFNB-00101	20	C6
DeviceNet	12	VM10DNFNB-00121	24	C7
DeviceNet	16	VM10DNFNB-00161	32	C8
CANopen	08	VM10CAFNB-00081	16	D5
CANopen	10	VM10CAFNB-00101	20	D6
CANopen	12	VM10CAFNB-00121	24	D7
CANopen	16	VM10CAFNB-00161	32	D8



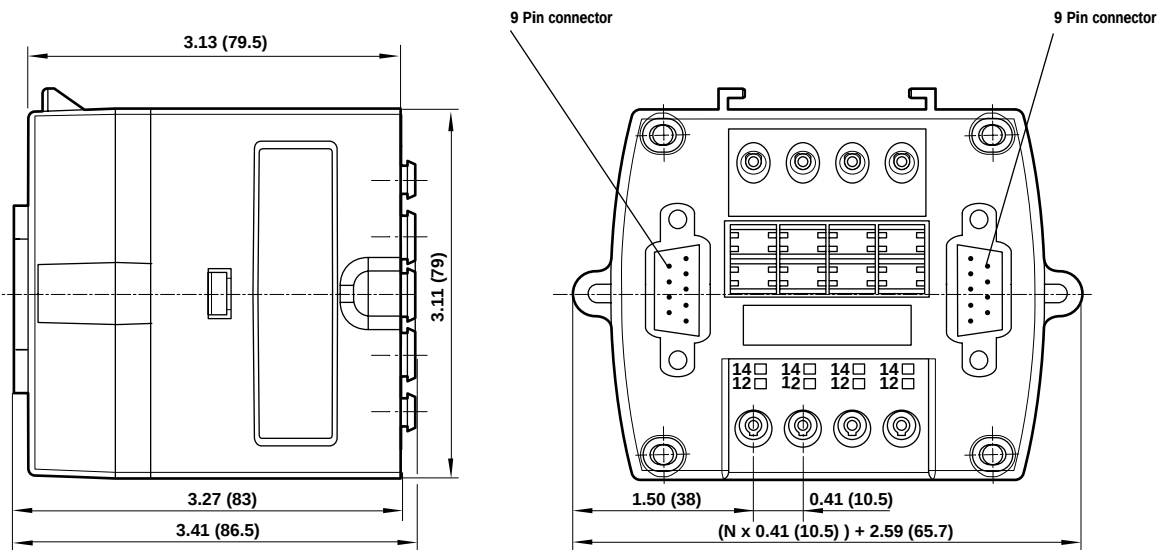
N = number of stations





Fieldbus connections - Norgren Bus (Fieldbus II)

Standard fieldbus - available protocols	No. stations	Node part numbers	Max. no. coils	Short code
Norgren fieldbus II	04	VM10LBFNB-00041	08	H1
Norgren fieldbus II	06	VM10LBFNB-00061	12	H2
Norgren fieldbus II	08	VM10LBFNB-00081	16	H3
Norgren fieldbus II	10	VM10LBFNB-00101	20	H4
Norgren fieldbus II	12	VM10LBFNB-00121	24	H5
Norgren fieldbus II	16	VM10LBFNB-00161	32	H6

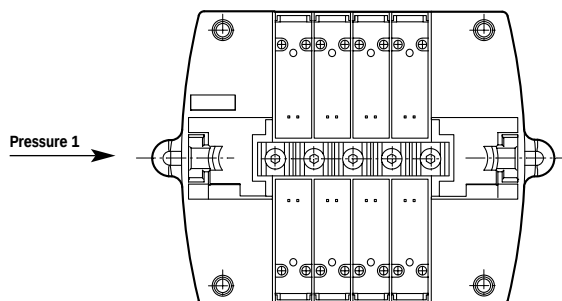


N = number of stations

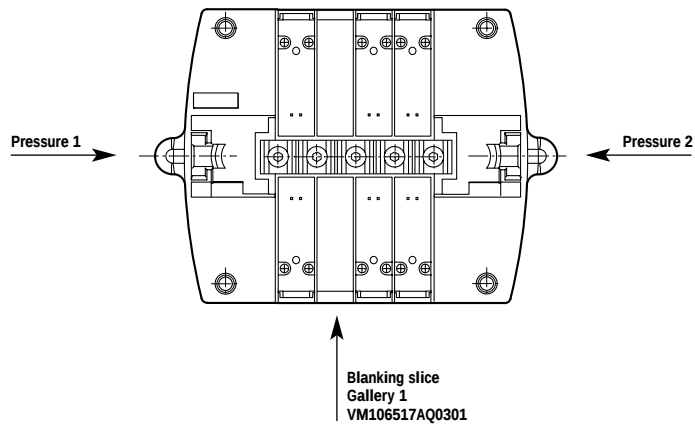


Multi-pressure options

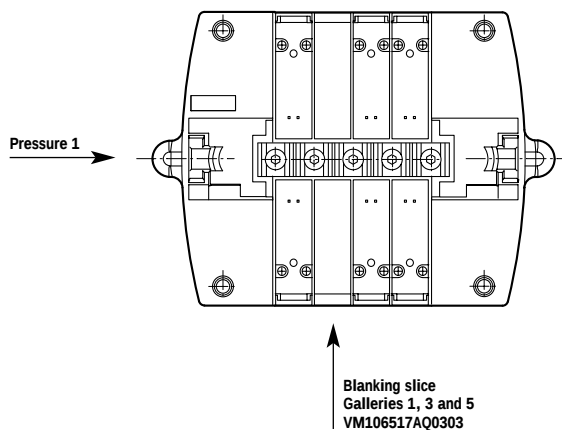
Single pressure



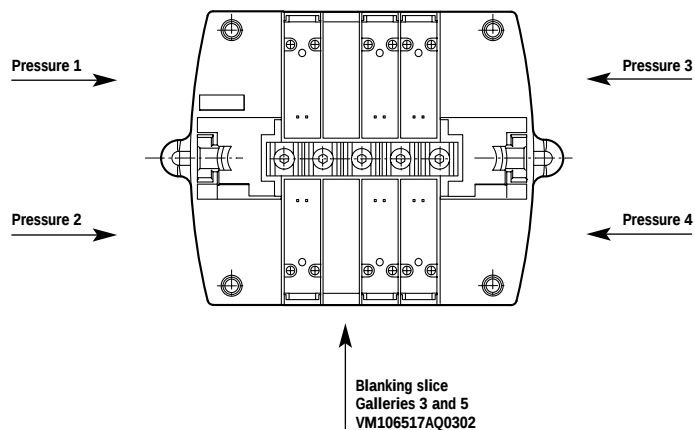
Dual pressure



Three pressure

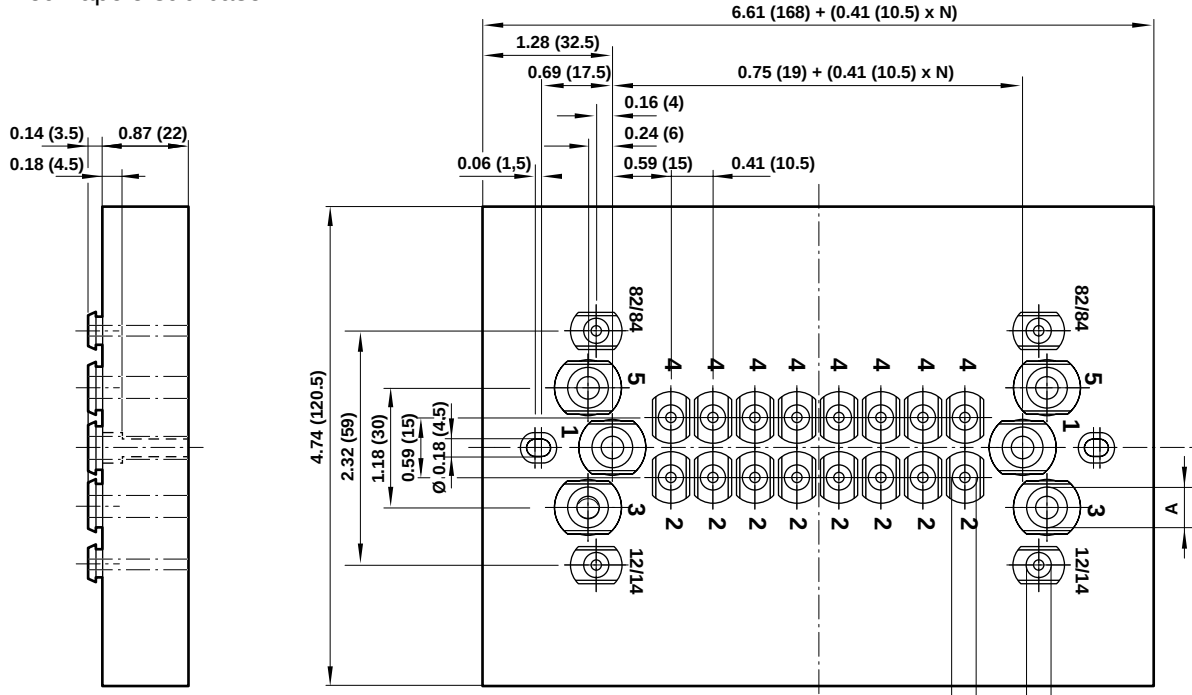


Four pressure





Pneumapole sub-base



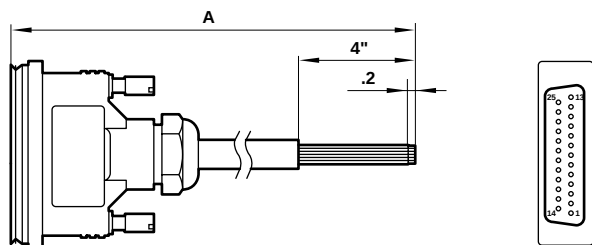
N = number of stations

Model	Description	A Ports 1 ,3 & 5	B Ports 12/14 & 82/84	C Ports 2 & 4	Exhaust type	Short code
VM106517AQ4604	4 station Pneumapole	5/16	1/8	1/8	Standard	4A
VM106517AQ9604	4 station Pneumapole	3/8	5/32	5/32	Standard	4B
VM106517AQ1604	4 station Pneumapole	3/8	1/4	1/4	Standard	4C
VM106517AQ4606	6 station Pneumapole	5/16	1/8	1/8	Standard	4D
VM106517AQ9606	6 station Pneumapole	3/8	5/32	5/32	Standard	4E
VM106517AQ1606	6 station Pneumapole	3/8	1/4	1/4	Standard	4F
VM106517AQ4608	8 station Pneumapole	5/16	1/8	1/8	Standard	4G
VM106517AQ9608	8 station Pneumapole	3/8	5/32	5/32	Standard	4H
VM106517AQ1608	8 station Pneumapole	3/8	1/4	1/4	Standard	4J
VM106517UQ4804	4 station Pneumapole	5/16	1/8	1/8	Checked exhaust	6A
VM106517UQ9804	4 station Pneumapole	3/8	5/32	5/32	Checked exhaust	6B
VM106517UQ1804	4 station Pneumapole	3/8	1/4	1/4	Checked exhaust	6C
VM106517UQ4806	6 station pneumapole	5/16	1/8	1/8	Checked exhaust	6D
VM106517UQ9806	6 station pneumapole	3/8	5/32	5/32	Checked exhaust	6E
VM106517UQ1806	6 station Pneumapole	3/8	1/4	1/4	Checked exhaust	6F
VM106517UQ4808	8 station Pneumapole	5/16	1/8	1/8	Checked exhaust	6G
VM106517UQ9808	8 station Pneumapole	3/8	5/32	5/32	Checked exhaust	6H
VM106517UQ1808	8 station Pneumapole	3/8	1/4	1/4	Checked exhaust	6J
VM106517AQ3604	4 station Pneumapole	8 mm	3 mm	3 mm	Standard	3A
VM106517AQ4604	4 station Pneumapole	10 mm	4 mm	4 mm	Standard	3B
VM106517AQ6604	4 station Pneumapole	10 mm	6 mm	6 mm	Standard	3C
VM106517AQ3606	6 station Pneumapole	8 mm	3 mm	3 mm	Standard	3D
VM106517AQ4606	6 station Pneumapole	10 mm	4 mm	4 mm	Standard	3E
VM106517AQ6606	6 station Pneumapole	10 mm	6 mm	6 mm	Standard	3F
VM106517AQ3608	8 station Pneumapole	8 mm	3 mm	3 mm	Standard	3G
VM106517AQ4608	8 station Pneumapole	10 mm	4 mm	4 mm	Standard	3H
VM106517AQ6608	8 station Pneumapole	10 mm	6 mm	6 mm	Standard	3J
VM106517UQ3804	4 station Pneumapole	8 mm	3 mm	3 mm	Checked exhaust	5A
VM106517UQ4804	4 station Pneumapole	10 mm	4 mm	4 mm	Checked exhaust	5B
VM106517UQ6804	4 station Pneumapole	10 mm	6 mm	6 mm	Checked exhaust	5C
VM106517UQ3806	6 station pneumapole	8 mm	3 mm	3 mm	Checked exhaust	5D
VM106517UQ4806	6 station pneumapole	10 mm	4 mm	4 mm	Checked exhaust	5E
VM106517UQ6806	6 station Pneumapole	10 mm	6 mm	6 mm	Checked exhaust	5F
VM106517UQ3808	8 station Pneumapole	8 mm	3 mm	3 mm	Checked exhaust	5G
VM106517UQ4808	8 station Pneumapole	10 mm	4 mm	4 mm	Checked exhaust	5H
VM106517UQ6808	8 station Pneumapole	10 mm	6 mm	6 mm	Checked exhaust	5J



Valve Islands, VM10 Series

25 pin D sub-connector



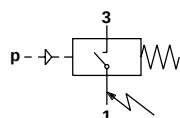
Model	A	Short code	lbs (kg)
V11569-E01	3' (1 m)	L1	0.61 (0.276)
V11569-E03	10' (3 m)	L2	1.49 (0.676)
V11569-E05	16' (5 m)	L3	2.37 (1.076)

PIN No.	Wire colour	Socket	Station
1	White	Solenoid 1-a	1
2	Brown	Solenoid 2-a	2
3	Green	Solenoid 3-a	3
4	Yellow	Solenoid 4-a	4
5	Grey	Solenoid 5-a	5
6	Pink	Solenoid 6-a	6
7	Blue	Solenoid 7-a	7
8	Red	Solenoid 8-a	8
9	Black	Solenoid 9-a	9
10	Violet	Solenoid 10-a	10
11	Grey	Solenoid 11-a	11
12	Red/Blue	Solenoid 12-a	12
13	White/Green	Common-Ve	-
14	Brown/Green	Solenoid 1-b	1
15	White/Yellow	Solenoid 2-b	2
16	Yellow/Brown	Solenoid 3-b	3
17	White/Grey	Solenoid 4-b	4
18	Grey/Brown	Solenoid 5-b	5
19	White/Pink	Solenoid 6-b	6
20	Pink/Brown	Solenoid 7-b	7
21	White/Blue	Solenoid 8-b	8
22	Brown/Blue	Solenoid 9-b	9
23	White/Red	Solenoid 10-b	10
24	Brown/Red	Solenoid 11-b	11
25	White/Black	Solenoid 12-b	12

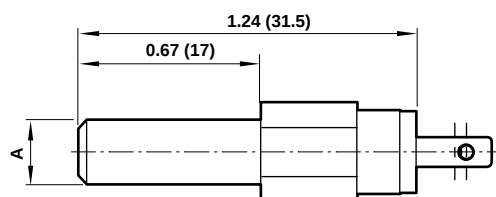
Note: Conforms to DIN 47100

Pressure switch

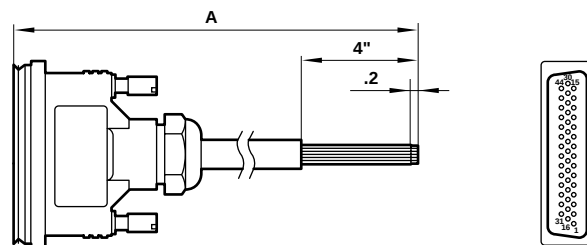
Model	A	Short code	lbs (kg)
VM106517AQ0804	0.16 (4)	7A	0.009 (0.004)
VM106517AQ0806	0.24 (6)	7B	0.009 (0.004)



AMP E-terminals 2.8 x 0.8
Degree of protection: NEMA 1, IP00
Non adjustable
Pressure range: 0 to 145 psig (0 to 10 bar)



44 pin D Sub-connector

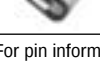


Model	A	Short code	lbs (kg)
V11570-E01	3' (1 m)	M1	0.62 (0.280)
V11570-E03	10' (3 m)	M2	1.50 (0.680)
V11570-E05	16' (5 m)	M3	2.38 (1.080)

PIN No.	Wire colour	Socket	Station
1	White	Solenoid 1-a	1
2	Brown	Solenoid 2-a	2
3	Green	Solenoid 3-a	3
4	Yellow	Solenoid 4-a	4
5	Grey	Solenoid 5-a	5
6	Pink	Solenoid 6-a	6
7	Blue	Solenoid 7-a	7
8	Red	Solenoid 8-a	8
9	Black	Solenoid 9-a	9
10	Violet	Solenoid 10-a	10
11	Grey	Solenoid 11-a	11
12	Red/Blue	Solenoid 12-a	12
13	White/Green	Solenoid 13-a	13
14	Brown/Green	Solenoid 14-a	14
15	White/Yellow	Solenoid 15-a	15
16	Yellow/Brown	Solenoid 1-b	1
17	White/Grey	Solenoid 2-b	2
18	Grey/Brown	Solenoid 3-b	3
19	White/Pink	Solenoid 4-b	4
20	Pink/Brown	Solenoid 5-b	5
21	White/Blue	Solenoid 6-b	6
22	Brown/Blue	Solenoid 7-b	7
23	White/Red	Solenoid 8-b	8
24	Brown/Red	Solenoid 9-b	9
25	White/Black	Solenoid 10-b	10
26	Brown/Black	Solenoid 11-b	11
27	Grey/Green	Solenoid 12-b	12
28	Yellow/Grey	Solenoid 13-b	13
29	Pink/Green	Solenoid 14-b	14
30	Yellow/Pink	Solenoid 15-b	15
31	Green/Blue	Solenoid 16-a	16
32	Yellow/Blue	Solenoid 16-b	16
33	Green/Red	NOT USED	-
34	Yellow/Red	NOT USED	-
35	Green/Black	NOT USED	-
36	Yellow/Black	NOT USED	-
37	Grey/Blue	NOT USED	-
38	Pink/Blue	NOT USED	-
39	Grey/Red	NOT USED	-
40	Pink/Red	NOT USED	-
41	Grey/Black	NOT USED	-
42	Pink/Black	NOT USED	-
43	Blue/Black	NOT USED	-
44	Red/Black	Common -Ve	-



Fieldbus accessories

Symbol	Description	Connection	Cable length	Model	Short code
Fieldbus power connector					
	DeviceNet (4 pin, female) CANopen (4 pin, female) AB RIO (4 pin, female) Profibus-DP (4 pin, female) Interbus-S (4 pin, female)	M12	Wireable	V11588-E01	R1
Interlock power connector					
	DeviceNet or CANopen (44 pin, female)	D-Sub	3' 10' 16'	V11570-E01 V11570-E03 V11570-E05	M1 M2 M3
Communication cable and connector					
	DeviceNet (5 pin, female) CANopen (5 pin, female) AB RIO (5 pin, female)	M12	Wireable	V11589-E01	R2
	Profibus-DP, reverse keyway (5 pin, female)	M12	Wireable	V11590-E01	R3
	Profibus-DP, tee connector (5 pin)	M12	–	V11591-E01	R4
	Profibus - DP terminating resistor	M12	–	V11592-E01	R6
	AS-interface power or communications (4 pin)	M12	–	VE1ASCN1-M1200	R5
	Interbus-S (9 pin)	D-Sub	3' 10' 16'	VE2FBC9P-9S010 VE2FBC9P-9S030 VE2FBC9P-9S050	F21 F22 F23
	Interbus-S (9 pin, male)	D-Sub	Wireable	VE2FBC9P-00000	F24
	Interbus-S (9 pin, female)	D-Sub	Wireable	VE2FBC9S-00000	F25
	Interbus-S terminating connector (9 pin male)	D-Sub	–	V11340-E03	R9
	Norgren Fieldbus II (9 pin, male terminating D connector)	D-Sub	–	V11599-E01	R8
	Norgren Fieldbus II (9 pin, female terminating D connector)	D-Sub	–	V11598-E01	R7

For pin information on wiring connections please refer to Fieldbus manual



Valve Islands, VM10 Series

Short codes for valve island specification

Model	Description	Manual override	Short code
VM103A11AB213B	2 x 3/2 - 2 x NC - Internal feed valve 3 mm PIF	Turn & lock	AA
VM103A11AB313B	2 x 3/2 - 2 x NC - Internal feed valve 3 mm PIF	Push only	AB
VM104A11AB213B	2 x 3/2 - 2 x NC - Internal feed valve 4 mm PIF	Turn & lock	AC
VM104A11AB313B	2 x 3/2 - 2 x NC - Internal feed valve 4 mm PIF	Push only	AD
VM106A11AB213B	2 x 3/2 - 2 x NC - Internal feed valve 6 mm PIF	Turn & lock	AE
VM106A11AB313B	2 x 3/2 - 2 x NC - Internal feed valve 6 mm PIF	Push only	AF
VM107A11AB213B	2 x 3/2 - 2 x NC - Internal feed valve no PIF	Turn & lock	AG
VM107A11AB313B	2 x 3/2 - 2 x NC - Internal feed valve no PIF	Push only	AH
VM103A22AB213B	2 x 3/2 - 2 x NC - External feed valve 3 mm PIF	Turn & lock	DA
VM103A22AB313B	2 x 3/2 - 2 x NC - External feed valve 3 mm PIF	Push only	DB
VM104A22AB213B	2 x 3/2 - 2 x NC - External feed valve 4 mm PIF	Turn & lock	DC
VM104A22AB313B	2 x 3/2 - 2 x NC - External feed valve 4 mm PIF	Push only	DD
VM106A22AB213B	2 x 3/2 - 2 x NC - External feed valve 6 mm PIF	Turn & lock	DE
VM106A22AB313B	2 x 3/2 - 2 x NC - External feed valve 6 mm PIF	Push only	DF
VM107A22AB213B	2 x 3/2 - 2 x NC - External feed valve no PIF	Turn & lock	DG
VM107A22AB313B	2 x 3/2 - 2 x NC - External feed valve no PIF	Push only	DH
VM10AA11AB213B	2 x 3/2 - 2 x NC - Internal feed valve 1/8" PIF	Turn & lock	AJ
VM10AA11AB313B	2 x 3/2 - 2 x NC - Internal feed valve 1/8" PIF	Push only	AK
VM109A11AB213B	2 x 3/2 - 2 x NC - Internal feed valve 5/32" PIF	Turn & lock	AL
VM109A11AB313B	2 x 3/2 - 2 x NC - Internal feed valve 5/32" PIF	Push only	AM
VM101A11AB213B	2 x 3/2 - 2 x NC - Internal feed valve 1/4" PIF	Turn & lock	AN
VM101A11AB313B	2 x 3/2 - 2 x NC - Internal feed valve 1/4" PIF	Push only	AP
VM10AA22AB213B	2 x 3/2 - 2 x NC - External feed valve 1/8" PIF	Turn & lock	DJ
VM10AA22AB313B	2 x 3/2 - 2 x NC - External feed valve 1/8" PIF	Push only	DK
VM109A22AB213B	2 x 3/2 - 2 x NC - External feed valve 5/32" PIF	Turn & lock	DL
VM109A22AB313B	2 x 3/2 - 2 x NC - External feed valve 5/32" PIF	Push only	DM
VM101A22AB213B	2 x 3/2 - 2 x NC - External feed valve 1/4" PIF	Turn & lock	DN
VM101A22AB313B	2 x 3/2 - 2 x NC - External feed valve 1/4" PIF	Push only	DP
VM103B11AB213B	2 x 3/2 - 2 x NO - Internal feed valve 3 mm PIF	Turn & lock	BA
VM103B11AB313B	2 x 3/2 - 2 x NO - Internal feed valve 3 mm PIF	Push only	BB
VM104B11AB213B	2 x 3/2 - 2 x NO - Internal feed valve 4 mm PIF	Turn & lock	BC
VM104B11AB313B	2 x 3/2 - 2 x NO - Internal feed valve 4 mm PIF	Push only	BD
VM106B11AB213B	2 x 3/2 - 2 x NO - Internal feed valve 6 mm PIF	Turn & lock	BE
VM106B11AB313B	2 x 3/2 - 2 x NO - Internal feed valve 6 mm PIF	Push only	BF
VM107B11AB213B	2 x 3/2 - 2 x NO - Internal feed valve no PIF	Turn & lock	BG
VM107B11AB313B	2 x 3/2 - 2 x NO - Internal feed valve no PIF	Push only	BH
VM103B22AB213B	2 x 3/2 - 2 x NO - External feed valve 3 mm PIF	Turn & lock	EA
VM103B22AB313B	2 x 3/2 - 2 x NO - External feed valve 3 mm PIF	Push only	EB
VM104B22AB213B	2 x 3/2 - 2 x NO - External feed valve 4 mm PIF	Turn & lock	EC
VM104B22AB313B	2 x 3/2 - 2 x NO - External feed valve 4 mm PIF	Push only	ED
VM106B22AB213B	2 x 3/2 - 2 x NO - External feed valve 6 mm PIF	Turn & lock	EE
VM106B22AB313B	2 x 3/2 - 2 x NO - External feed valve 6 mm PIF	Push only	EF
VM107B22AB213B	2 x 3/2 - 2 x NO - External feed valve no PIF	Turn & lock	EG
VM107B22AB313B	2 x 3/2 - 2 x NO - External feed valve no PIF	Push only	EH
VM10AB11AB213B	2 x 3/2 - 2 x NO - Internal feed valve 1/8" PIF	Turn & lock	BJ
VM10AB11AB313B	2 x 3/2 - 2 x NO - Internal feed valve 1/8" PIF	Push only	BK
VM109B11AB213B	2 x 3/2 - 2 x NO - Internal feed valve 5/32" PIF	Turn & lock	BL
VM109B11AB313B	2 x 3/2 - 2 x NO - Internal feed valve 5/32" PIF	Push only	BM
VM101B11AB213B	2 x 3/2 - 2 x NO - Internal feed valve 1/4" PIF	Turn & lock	BN
VM101B11AB313B	2 x 3/2 - 2 x NO - Internal feed valve 1/4" PIF	Push only	BP
VM10AB22AB213B	2 x 3/2 - 2 x NO - External feed valve 1/8" PIF	Turn & lock	EJ
VM10AB22AB313B	2 x 3/2 - 2 x NO - External feed valve 1/8" PIF	Push only	EK
VM109B22AB213B	2 x 3/2 - 2 x NO - External feed valve 5/32" PIF	Push only	EM
VM109B22AB313B	2 x 3/2 - 2 x NO - External feed valve 5/32" PIF	Turn & lock	EL
VM101B22AB213B	2 x 3/2 - 2 x NO - External feed valve 1/4" PIF	Turn & lock	EN
VM101B22AB313B	2 x 3/2 - 2 x NO - External feed valve 1/4" PIF	Push only	EP



Short codes for valve island specification

Model	Description	Manual override	Short code
VM103C11AB213B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve 3 mm PIF	Turn & lock	CA
VM103C11AB313B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve 3 mm PIF	Push only	CB
VM104C11AB213B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve 4 mm PIF	Turn & lock	CC
VM104C11AB313B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve 4 mm PIF	Push only	CD
VM106C11AB213B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve 6 mm PIF	Turn & lock	CE
VM106C11AB313B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve 6 mm PIF	Push only	CF
VM107C11AB213B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve no PIF	Turn & lock	CG
VM107C11AB313B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve no PIF	Push only	CH
VM103C22AB213B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve 3 mm PIF	Turn & lock	FA
VM103C22AB313B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve 3 mm PIF	Push only	FB
VM104C22AB213B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve 4 mm PIF	Turn & lock	FC
VM104C22AB313B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve 4 mm PIF	Push only	FD
VM106C22AB213B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve 6 mm PIF	Turn & lock	FE
VM106C22AB313B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve 6 mm PIF	Push only	FF
VM107C22AB213B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve no PIF	Turn & lock	FG
VM107C22AB313B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve no PIF	Push only	FH
VM10AC11AB213B	2 X 3/2 - 1 X N/C + 1 X N/O - Internal feed valve 1/8" PIF	Turn & lock	CJ
VM10AC11AB313B	2 X 3/2 - 1 X N/C + 1 X N/O - Internal feed valve 1/8" PIF	Push only	CK
VM109C11AB213B	2 X 3/2 - 1 X N/C + 1 X N/O - Internal feed valve 5/32" PIF	Turn & lock	CL
VM109C11AB313B	2 X 3/2 - 1 X N/C + 1 X N/O - Internal feed valve 5/32" PIF	Push only	CM
VM101C11AB213B	2 X 3/2 - 1 X N/C + 1 X N/O - Internal feed valve 1/4" PIF	Turn & lock	CN
VM101C11AB313B	2 X 3/2 - 1 X N/C + 1 X N/O - Internal feed valve 1/4" PIF	Push only	CP
VM10AC22AB213B	2 X 3/2 - 1 X N/C + 1 X N/O - External feed valve 1/8" PIF	Turn & lock	FJ
VM10AC22AB313B	2 X 3/2 - 1 X N/C + 1 X N/O - External feed valve 1/8" PIF	Push only	FK
VM109C22AB213B	2 X 3/2 - 1 X N/C + 1 X N/O - External feed valve 5/32" PIF	Turn & lock	FL
VM109C22AB313B	2 X 3/2 - 1 X N/C + 1 X N/O - External feed valve 5/32" PIF	Push only	FM
VM101C22AB213B	2 X 3/2 - 1 X N/C + 1 X N/O - External feed valve 1/4" PIF	Turn & lock	FN
VM101C22AB313B	2 X 3/2 - 1 X N/C + 1 X N/O - External feed valve 1/4" PIF	Push only	FP
VM103517AB213B	5/2 Solenoid Spring - Internal feed valve 3mm PIF	Turn & lock	GA
VM103517AB313B	5/2 Solenoid Spring - Internal feed valve 3mm PIF	Push only	GB
VM104517AB213B	5/2 Solenoid Spring - Internal feed valve 4mm PIF	Turn & lock	GC
VM104517AB313B	5/2 Solenoid Spring - Internal feed valve 4mm PIF	Push only	GD
VM106517AB213B	5/2 Solenoid Spring - Internal feed valve 6mm PIF	Turn & lock	GE
VM106517AB313B	5/2 Solenoid Spring - Internal feed valve 6mm PIF	Push only	GF
VM107517AB213B	5/2 Solenoid Spring - Internal feed valve No PIF	Turn & lock	GG
VM107517AB313B	5/2 Solenoid Spring - Internal feed valve No PIF	Push only	GH
VM103527AB213B	5/2 Solenoid Spring - External feed valve 3mm PIF	Turn & lock	HA
VM103527AB313B	5/2 Solenoid Spring - External feed valve 3mm PIF	Push only	HB
VM104527AB213B	5/2 Solenoid Spring - External feed valve 4mm PIF	Turn & lock	HC
VM104527AB313B	5/2 Solenoid Spring - External feed valve 4mm PIF	Push only	HD
VM106527AB213B	5/2 Solenoid Spring - External feed valve 6mm PIF	Turn & lock	HE
VM106527AB313B	5/2 Solenoid Spring - External feed valve 6mm PIF	Push only	HF
VM107527AB213B	5/2 Solenoid Spring - External feed valve No PIF	Turn & lock	HG
VM107527AB313B	5/2 Solenoid Spring - External feed valve No PIF	Push only	HH
VM10A517AB213B	5/2 Solenoid Spring - Internal feed valve 1/8" PIF	Turn & lock	GJ
VM10A517AB313B	5/2 Solenoid Spring - Internal feed valve 1/8" PIF	Push only	GK
VM109517AB213B	5/2 Solenoid Spring - Internal feed valve 5/32" PIF	Turn & lock	GL
VM109517AB313B	5/2 Solenoid Spring - Internal feed valve 5/32" PIF	Push only	GM
VM101517AB213B	5/2 Solenoid Spring - Internal feed valve 1/4" PIF	Turn & lock	GN
VM101517AB313B	5/2 Solenoid Spring - Internal feed valve 1/4" PIF	Push only	GP
VM10A527AB213B	5/2 Solenoid Spring - External feed valve 1/8" PIF	Turn & lock	HJ
VM10A527AB313B	5/2 Solenoid Spring - External feed valve 1/8" PIF	Push only	HK
VM109527AB213B	5/2 Solenoid Spring - External feed valve 5/32" PIF	Turn & lock	HL
VM109527AB313B	5/2 Solenoid Spring - External feed valve 5/32" PIF	Push only	HM
VM101527AB213B	5/2 Solenoid Spring - External feed valve 1/4" PIF	Turn & lock	HN
VM101527AB313B	5/2 Solenoid Spring - External feed valve 1/4" PIF	Push only	HP



Short codes for valve island specification

Model	Description	Manual override	Short code
VM103511AB213B	5/2 Solenoid Solenoid - Internal feed valve 3 mm PIF	Turn & lock	JA
VM103511AB313B	5/2 Solenoid Solenoid - Internal feed valve 3 mm PIF	Push only	JB
VM104511AB213B	5/2 Solenoid Solenoid - Internal feed valve 4 mm PIF	Turn & lock	JC
VM104511AB313B	5/2 Solenoid Solenoid - Internal feed valve 4 mm PIF	Push only	JD
VM106511AB213B	5/2 Solenoid Solenoid - Internal feed valve 6 mm PIF	Turn & lock	JE
VM106511AB313B	5/2 Solenoid Solenoid - Internal feed valve 6 mm PIF	Push only	JF
VM107511AB213B	5/2 Solenoid Solenoid - Internal feed valve No PIF	Turn & lock	JG
VM107511AB313B	5/2 Solenoid Solenoid - Internal feed valve No PIF	Push only	JH
VM103522AB213B	5/2 Solenoid Solenoid - External feed valve 3 mm PIF	Turn & lock	KA
VM103522AB313B	5/2 Solenoid Solenoid - External feed valve 3 mm PIF	Push only	KB
VM104522AB213B	5/2 Solenoid Solenoid - External feed valve 4 mm PIF	Turn & lock	KC
VM104522AB313B	5/2 Solenoid Solenoid - External feed valve 4 mm PIF	Push only	KD
VM106522AB213B	5/2 Solenoid Solenoid - External feed valve 6 mm PIF	Turn & lock	KE
VM106522AB313B	5/2 Solenoid Solenoid - External feed valve 6 mm PIF	Push only	KF
VM107522AB213B	5/2 Solenoid Solenoid - External feed valve No PIF	Turn & lock	KG
VM107522AB313B	5/2 Solenoid Solenoid - External feed valve No PIF	Push only	KH
VM10A511AB213B	5/2 Solenoid Solenoid - Internal feed valve 1/8" PIF	Turn & lock	JJ
VM10A511AB313B	5/2 Solenoid Solenoid - Internal feed valve 1/8" PIF	Push only	JK
VM109511AB213B	5/2 Solenoid Solenoid - Internal feed valve 5/32" PIF	Turn & lock	JL
VM109511AB313B	5/2 Solenoid Solenoid - Internal feed valve 5/32" PIF	Push only	JM
VM101511AB213B	5/2 Solenoid Solenoid - Internal feed valve 1/4" PIF	Turn & lock	JN
VM101511AB313B	5/2 Solenoid Solenoid - Internal feed valve 1/4" PIF	Push only	JP
VM10A522AB213B	5/2 Solenoid Solenoid - External feed valve 1/8" PIF	Turn & lock	KJ
VM10A522AB313B	5/2 Solenoid Solenoid - External feed valve 1/8" PIF	Push only	KK
VM109522AB213B	5/2 Solenoid Solenoid - External feed valve 5/32" PIF	Turn & lock	KL
VM109522AB313B	5/2 Solenoid Solenoid - External feed valve 5/32" PIF	Push only	KM
VM101522AB213B	5/2 Solenoid Solenoid - External feed valve 1/4" PIF	Turn & lock	KN
VM101522AB313B	5/2 Solenoid Solenoid - External feed valve 1/4" PIF	Push only	KP
VM103611AB213B	5/3 APB Solenoid Solenoid - Internal feed valve 3 mm PIF	Turn & lock	LA
VM103611AB313B	5/3 APB Solenoid Solenoid - Internal feed valve 3 mm PIF	Push only	LB
VM104611AB213B	5/3 APB Solenoid Solenoid - Internal feed valve 4 mm PIF	Turn & lock	LC
VM104611AB313B	5/3 APB Solenoid Solenoid - Internal feed valve 4 mm PIF	Push only	LD
VM106611AB213B	5/3 APB Solenoid Solenoid - Internal feed valve 6 mm PIF	Turn & lock	LE
VM106611AB313B	5/3 APB Solenoid Solenoid - Internal feed valve 6 mm PIF	Push only	LF
VM107611AB213B	5/3 APB Solenoid Solenoid - Internal feed valve No PIF	Turn & lock	LG
VM107611AB313B	5/3 APB Solenoid Solenoid - Internal feed valve No PIF	Push only	LH
VM103622AB213B	5/3 APB Solenoid Solenoid - External feed valve 3 mm PIF	Turn & lock	MA
VM103622AB313B	5/3 APB Solenoid Solenoid - External feed valve 3 mm PIF	Push only	MB
VM104622AB213B	5/3 APB Solenoid Solenoid - External feed valve 4 mm PIF	Turn & lock	MC
VM104622AB313B	5/3 APB Solenoid Solenoid - External feed valve 4 mm PIF	Push only	MD
VM106622AB213B	5/3 APB Solenoid Solenoid - External feed valve 6 mm PIF	Turn & lock	ME
VM106622AB313B	5/3 APB Solenoid Solenoid - External feed valve 6 mm PIF	Push only	MF
VM107622AB213B	5/3 APB Solenoid Solenoid - External feed valve No PIF	Turn & lock	MG
VM107622AB313B	5/3 APB Solenoid Solenoid - External feed valve No PIF	Push only	MH
VM10A611AB213B	5/3 APB Solenoid Solenoid - Internal feed valve 1/8" PIF	Turn & lock	LJ
VM10A611AB313B	5/3 APB Solenoid Solenoid - Internal feed valve 1/8" PIF	Push only	LK
VM109611AB213B	5/3 APB Solenoid Solenoid - Internal feed valve 5/32" PIF	Turn & lock	LL
VM109611AB313B	5/3 APB Solenoid Solenoid - Internal feed valve 5/32" PIF	Push only	LM
VM101611AB213B	5/3 APB Solenoid Solenoid - Internal feed valve 1/4" PIF	Turn & lock	LN
VM101611AB313B	5/3 APB Solenoid Solenoid - Internal feed valve 1/4" PIF	Push only	LP
VM10A622AB213B	5/3 APB Solenoid Solenoid - External feed valve 1/8" PIF	Turn & lock	MJ
VM10A622AB313B	5/3 APB Solenoid Solenoid - External feed valve 1/8" PIF	Push only	MK
VM109622AB213B	5/3 APB Solenoid Solenoid - External feed valve 5/32" PIF	Turn & lock	ML
VM109622AB313B	5/3 APB Solenoid Solenoid - External feed valve 5/32" PIF	Push only	MM
VM101622AB213B	5/3 APB Solenoid Solenoid - External feed valve 1/4" PIF	Turn & lock	MN
VM101622AB313B	5/3 APB Solenoid Solenoid - External feed valve 1/4" PIF	Push only	MP



VM10 checked exhaust valve codes

Model	Description	Manual override	Short code
VM107A11UB213B	2 x 3/2 - 2 x NC - Internal feed valve No PIF	Turn & lock	NA
VM107A11UB313B	2 x 3/2 - 2 x NC - Internal feed valve No PIF	Push only	NB
VM107A22UB213B	2 x 3/2 - 2 x NC - External feed valve No PIF	Turn & lock	RA
VM107A22UB313B	2 x 3/2 - 2 x NC - External feed valve No PIF	Push only	RB
VM107B11UB213B	2 x 3/2 - 2 x NO - Internal feed valve No PIF	Turn & lock	PA
VM107B11UB313B	2 x 3/2 - 2 x NO - Internal feed valve No PIF	Push only	PB
VM107B22UB213B	2 x 3/2 - 2 x NO - External feed valve No PIF	Turn & lock	SA
VM107B22UB313B	2 x 3/2 - 2 x NO - External feed valve No PIF	Push only	SB
VM107C11UB213B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve No PIF	Turn & lock	QA
VM107C11UB313B	2 x 3/2 - 1 x NC + 1 x NO - Internal feed valve No PIF	Push only	QB
VM107C22UB213B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve No PIF	Turn & lock	TA
VM107C22UB313B	2 x 3/2 - 1 x NC + 1 x NO - External feed valve No PIF	Push only	TB
VM107517UB213B	5/2 Solenoid Spring - Internal feed valve No PIF	Turn & lock	UA
VM107517UB313B	5/2 Solenoid Spring - Internal feed valve No PIF	Push only	UB
VM107527UB213B	5/2 Solenoid Spring - External feed valve No PIF	Turn & lock	VA
VM107527UB313B	5/2 Solenoid Spring - External feed valve No PIF	Push only	VB
VM107511UB213B	5/2 Solenoid Solenoid - Internal feed valve No PIF	Turn & lock	WA
VM107511UB313B	5/2 Solenoid Solenoid - Internal feed valve No PIF	Push only	WB
VM107522UB213B	5/2 Solenoid Solenoid - External feed valve No PIF	Turn & lock	XA
VM107522UB313B	5/2 Solenoid Solenoid - External feed valve No PIF	Push only	XB
VM107611UB213B	5/3 APB Solenoid Solenoid - Internal feed valve No PIF	Turn & lock	YA
VM107611UB313B	5/3 APB Solenoid Solenoid - Internal feed valve No PIF	Push only	YB
VM107622UB213B	5/3 APB Solenoid Solenoid - External feed valve No PIF	Turn & lock	ZA
VM107622UB313B	5/3 APB Solenoid Solenoid - External feed valve No PIF	Push only	ZB



VM10 Valve Island Specification

Valve island specification form VIP/.....

Company name Contact name

Address Tel no

..... Fax no.

..... E-mail

Using the short order codes provided complete the build model below.

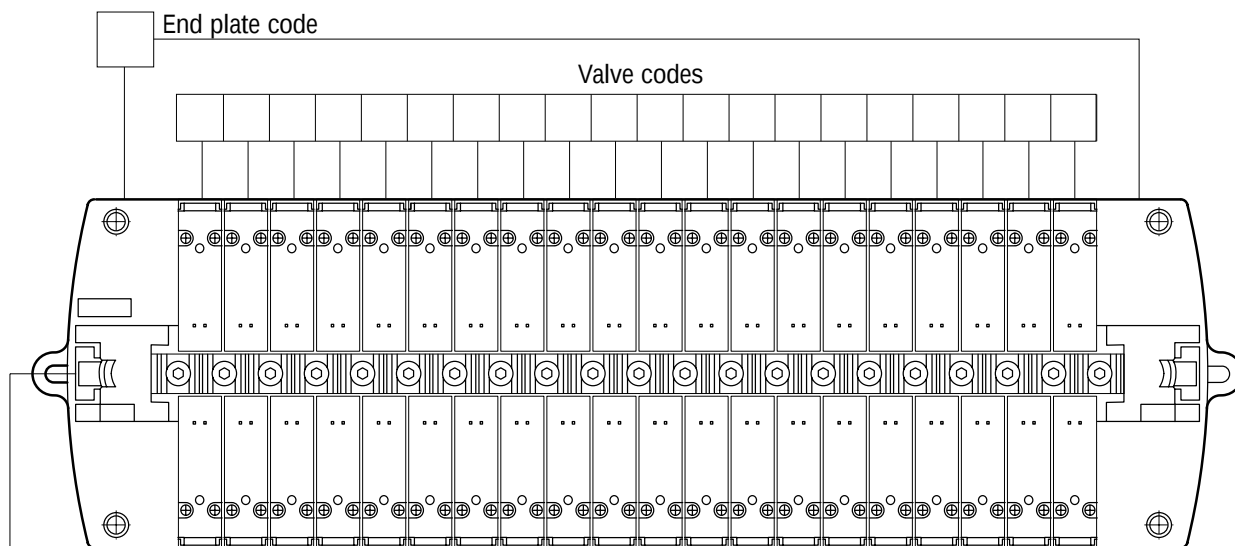
One valve island per sheet only

Unit ID No.

Norgren to specify

No. of units required

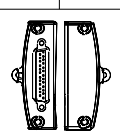
Valve range: VM10



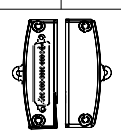
Options - select one only



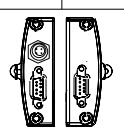
Individually
wired
2 to 20 stations

☐

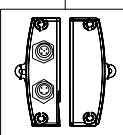
25 pin IP65
D-sub connector
4, 6, 8, 10 & 12
stations

☐

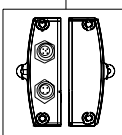
44 pin IP65
D-sub connector
10, 12 & 16
stations

☐

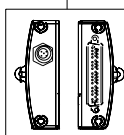
Interbus-S
8, 10, 12 & 16
stations

☐

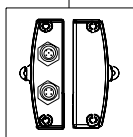
Profibus – DP
8, 10, 12 & 16
stations

☐

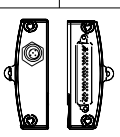
DeviceNet
8, 10, 12 &
16 stations

☐

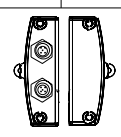
DeviceNet with
interlocks 8,
10, 12 & 16
stations

☐

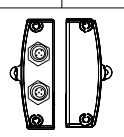
CANopen
8, 10, 12 & 16
stations

☐

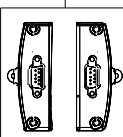
CANopen with
interlocks
8, 10, 12 & 16
stations

☐

AB RIO
8, 10, 12 & 16
stations

☐

AS interface
4, 6 & 8
stations

☐

Norgren Fieldbus
II
4, 6, 8, 10, 12 &
16 stations

☐

Accessories
Short code Qty per island

Short code	Qty per island

Connection options

Select one only

Standard: 24 V d.c. negative common (Multipole & Fieldbus) ☐

Multipole 24 V d.c. positive common ☐



Fieldbus system specification form VIE/

Company name Contact name

Address Tel no

..... Fax no.

..... E-mail

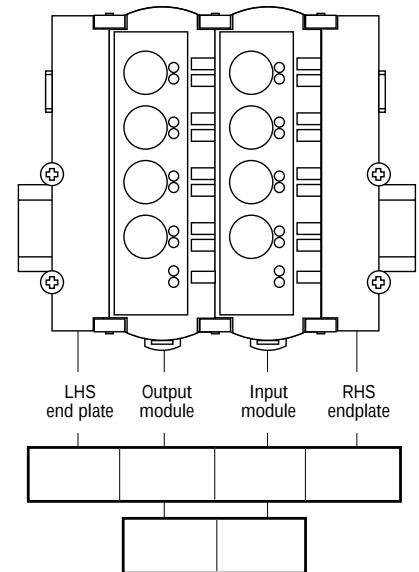
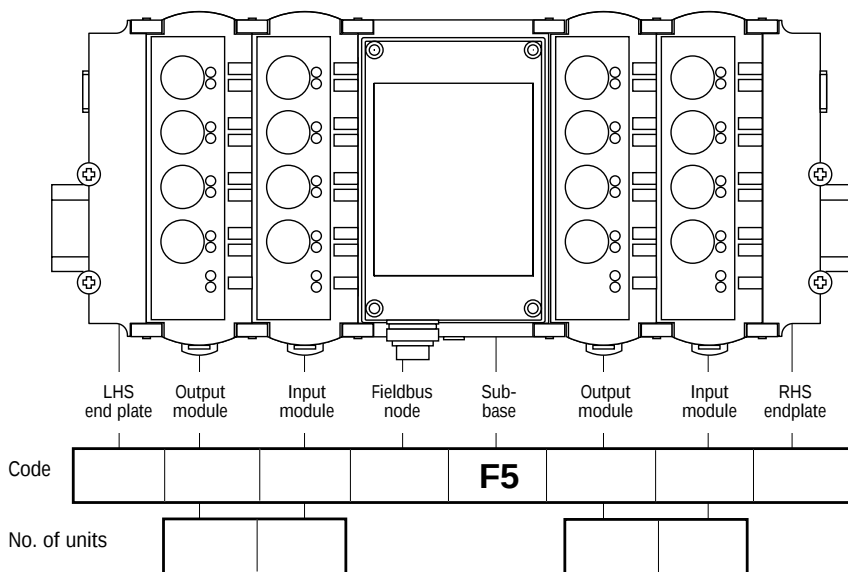
Using the short order codes provided complete the build model below.

One valve island per sheet only. **Unit ID No.**

..... Norgren to specify

Distributed configuration, No. of units required

Remote inputs and outputs, No. of units required



Accessories

Code Quantity

Distributed cables

Power cables (1 per node)

Sensor cables

Solenoid cable

Communication connectors

V20, V22 Valve Manifold and Fieldbus II

Contents

Features and Technical Data	VAL-2-2
Valve Islands, V20 Series	VAL-2-7
Valve Islands, V22 Series	VAL-2-15
Fieldbus II, VE2	VAL-2-23
Glossary	VAL-2-41



V22 Series with Fieldbus



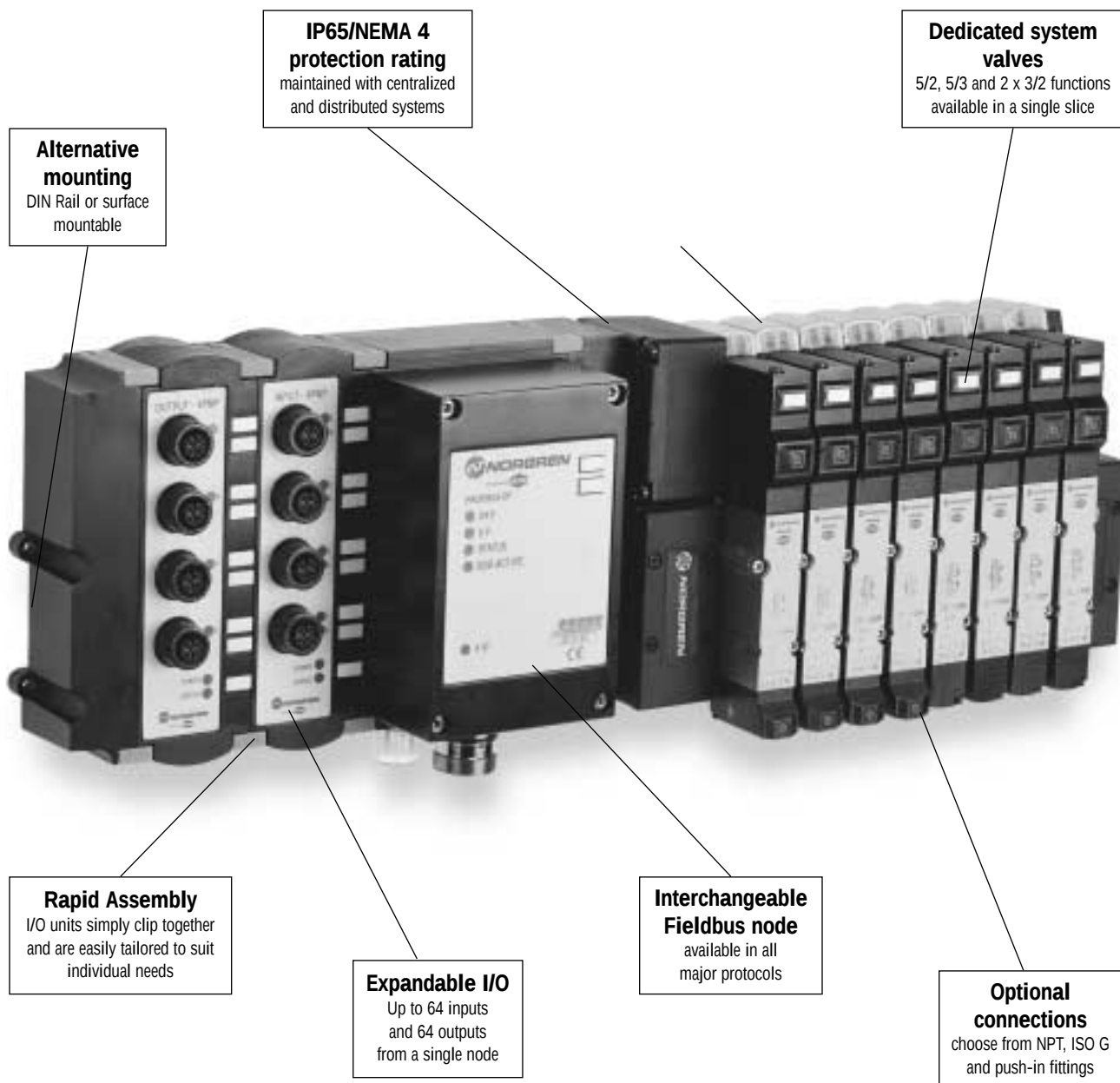
System products tailored to your business

Norgren Fieldbus II products are designed with flexibility in mind. Our design allows for a centralized or distributed system to be built for the most efficient use of the 128 I/O available per node.

V20 and V22 Series System Valves are the ideal partners for Fieldbus II or can be used independently as Valve Manifolds with a choice of Wireway connectors.

Fieldbus Diagnostics

Depending on the protocol being used, Norgren Fieldbus II provides immediate feedback on failure of system components.





Its a family affair!

V22 series Valves & Fieldbus II

A **Centralized** system proves to be a popular choice with machine designers. It provides the focus for control and with a protection rating of NEMA 4/IP65 it need not be mounted inside a cabinet.

V22 series valves provide Cv of 1.2 from a stacking width of just 0.79 inches.



V20 series Valves & Fieldbus II

Like the V22 series V20 can be directly coupled to Fieldbus II to form an NEMA 4/IP65 rated **Centralized** system. They can also be used in a **Distributed** system and up to 64 solenoids can be linked to just one Fieldbus Node.

V20 series valves provide Cv of 0.4 from a stacking width of just 0.71 inches.



AS-Interface

Our unique Integrated AS-I modules give you the opportunity to directly connect either a V20 or V22 series Valve Manifold to an AS-I system. Up to 8 solenoids can be driven on one Valve Manifold.



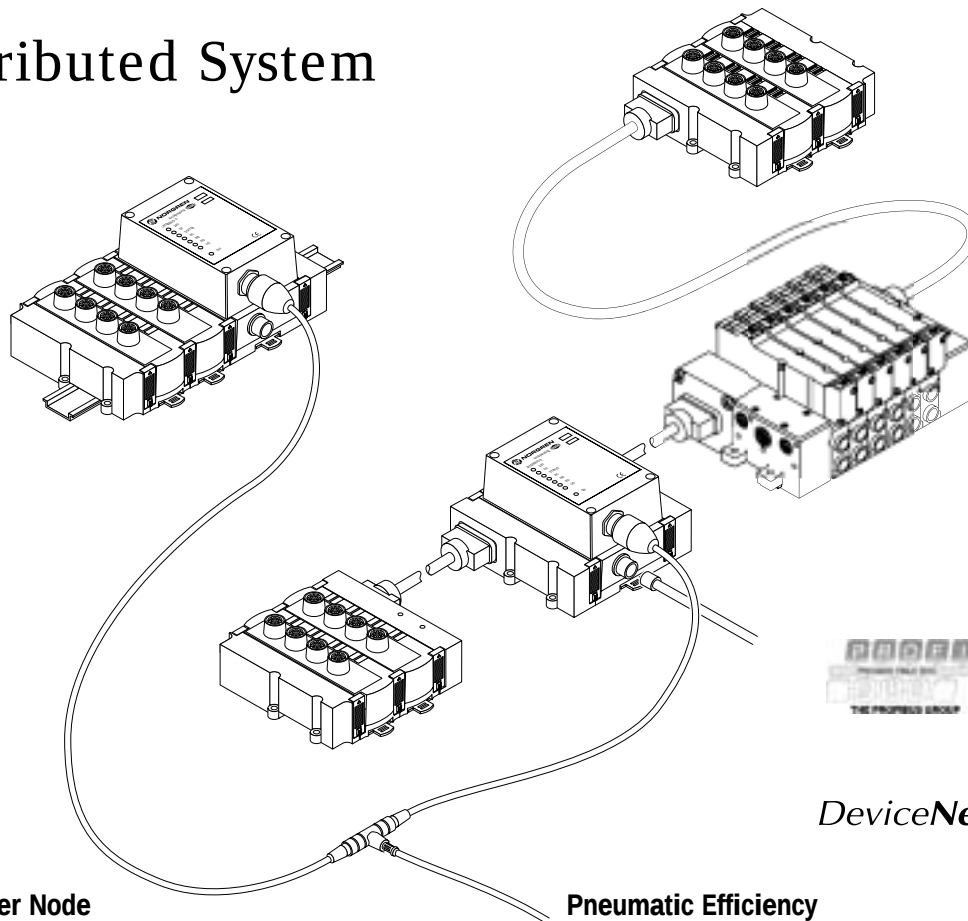
Wireway

Choose from 25 pin D sub connector or a NEMA 4 conduit type. Special cable assemblies with a shrouded 25 pin D sub connector ensure a NEMA 4 protection rating.





Distributed System



128 I/O per Node

Up to 64 inputs and 64 outputs are available per Node. This allows for a very efficient layout exactly matching your machine design needs. NEMA 4 rated plug and cable assemblies are available as part of our standard program.

Pneumatic Efficiency

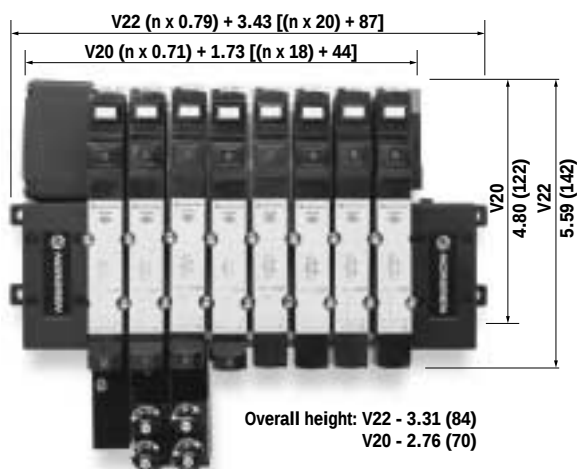
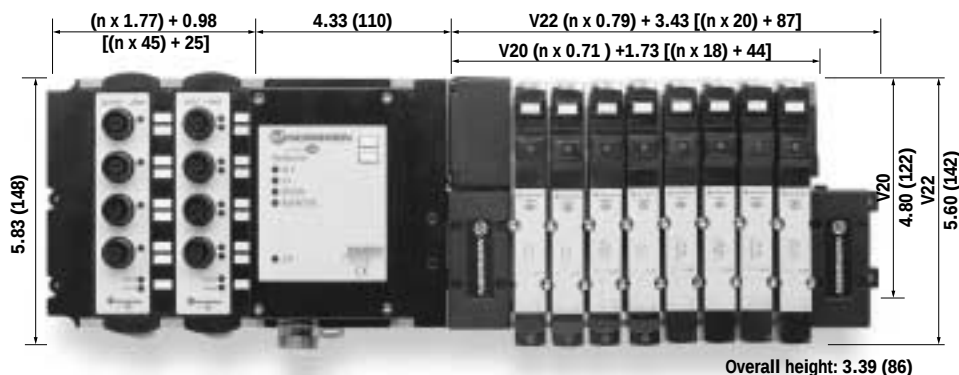
Long pipe runs with intermediate fittings not only reduce available pressure, but also contribute to a reduction in flow. Being able to locate your control valves close to their respective actuators ensures the most efficient and responsive pneumatic circuit.

We talk your language

Protocol	DeviceNet	Interbus 'S'	Profibus-DP	AS-Interface	CANOpen
Number of outputs per module	64	64	64	4	64
Number of inputs per module	64	64	64	4	64
Bus topology	Line	Ring	Line	Tree/Line	Line
System Configuration	Multi Master Multi Slaves	Single Master Multi Slaves	Max 3 Masters Multi Slaves	Single Master Multi Slaves	Multi Master Multi Slaves
Communication Interface	CAN	RS 422	RS 485	ASI	CAN
Max Baud Rate	500 Kbits/sec	500 Kbits/sec	12 Mbits/sec	N/A (max cycle time 16 ft (5m)	500 Kbits/sec
Cable length at max baud rate	328 ft (100m)	1312 ft (400m) between nodes 8 mi (13 km) max	656 ft (200m) or 3281 ft (1000m) with repeater	Sec 328 ft (100m)	328 ft (100m)
Number of units per installation	64 nodes	64 + master	3 masters + 121 slaves with repeaters	31 + master	64 nodes
Cable	4 wires + screen	4 wires + ground + screen	2 wires + screen	2 wires (data + power)	4 wires + screen

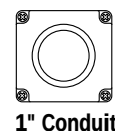
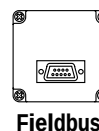
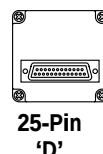


V20 and V22 valves and Fieldbus II



n = number of stations
All dimensions are in mm

Connectability



Accessories

Technical Data

Indication by yellow LED
Suppression by flywheel diode

Diagnostic:

Yellow LED = correct movement of armature
Flashing yellow LED = failed operation
50% power saving following correct armature movement

Temperature Range:

-4° to 122°F (-20° to 50°C)
*Consult our Technical Service for use below 35°F (2°C)

Degree of protection:

NEMA 1 'D' sub-connector
NEMA 4 'D' sub-connector with shroud
NEMA 4 conduit entry type
NEMA 4 AS-I with M12 connectors

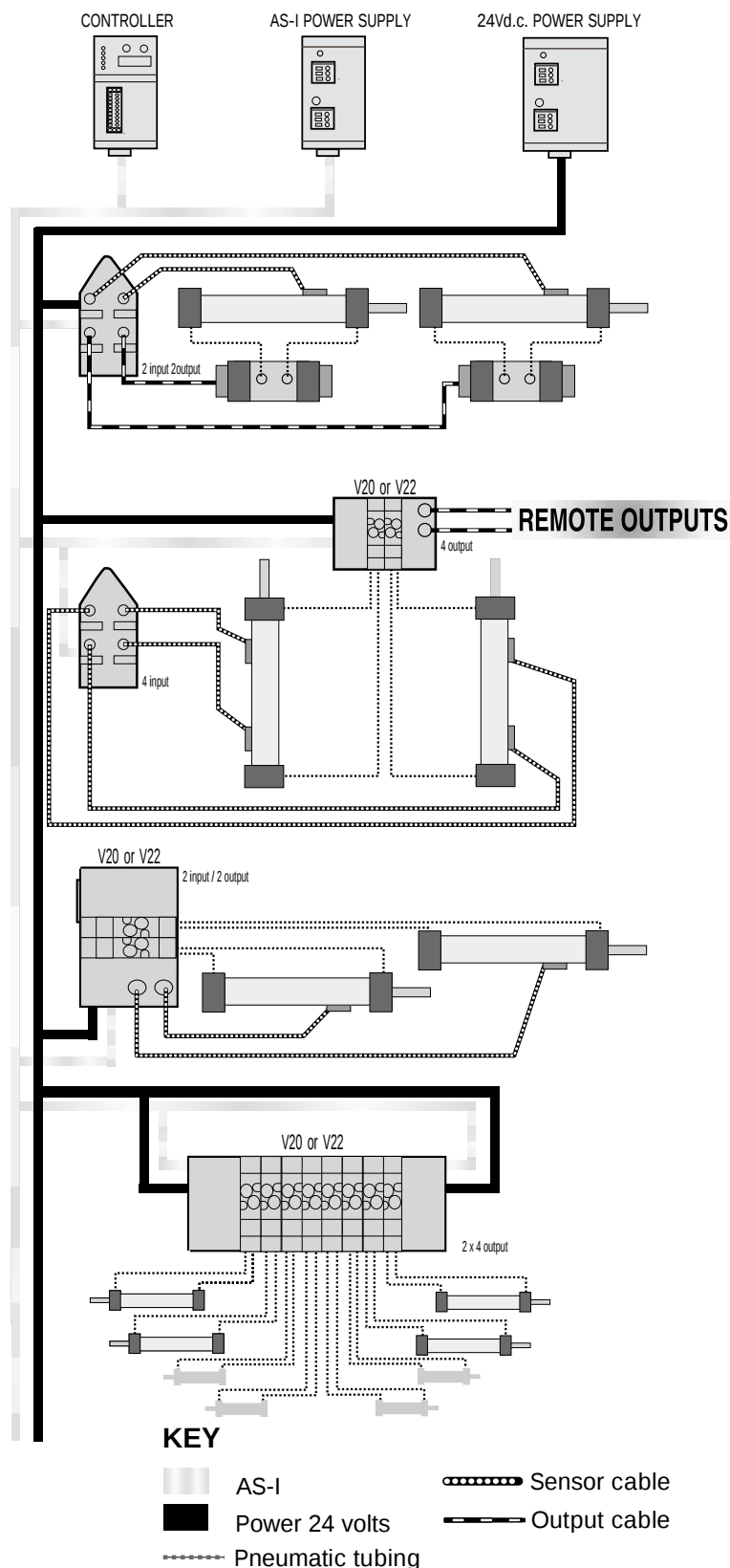
Materials:

Glass fiber reinforced polymer mouldings for solenoid and electrical housings. Conduit end caps – zinc pressure die-cast.
Aluminum alloy end plates, bodies and sub-base modules.

Cables	Intermediate supply/exhaust plate	Blanking plate



Simple and easy installation ...



Low cost solution

AS-Interface (AS-I) is a simple robust fieldbus system ideally suited to low level machine control.

Simple design

Complicated wiring is replaced by a single yellow AS-I cable which carries both power and information to all devices. This simplifies system design and greatly reduces installation costs. A secondary black power cable is used when extra power or separate emergency stop facilities are required.

Fast installation

Quick clip-on connections ensure fast easy installation and reverse polarity protection eliminating wiring mistakes.

Flexible open system

AS-I is a truly open system with standardised equipment.

It can be used as an independent network or integrated into higher level open bus systems such as Profibus, DeviceNet and Interbus-S using a range of Gateways.

Fast response

Fast, pneumatic response is a benefit of decentralised AS-I networks which allow shorter distances between valves and cylinders. This combined with a 5ms controller cycle time makes AS-I ideal for high speed applications.

Environmental protection

AS-I systems are protected to NEMA 4 and have very high immunity to electrical interference.

- reduced costs

Valve Islands, V20 Series

Sub-base Mounted 2 x 3/2, 5/2 and 5/3
Valves Solenoid Actuated with Wireway



- Wireway design for easy installation
- NEMA 1 and NEMA 4 25-pin "D" sub-connector models
- NEMA 4 Conduit entry models
- Fieldbus compatible
- Dedicated AS-Interface modules

Technical Data Valves

Medium:

Compressed air, filtered, lubricated and non-lubricated

Operation:

Spool valve, indirectly actuated

Solenoid Voltage:

24 V d.c.

Port Size (sub-base):

1/8" NPT or ISO G

1/4" PIF

Operating Pressure:

Maximum 116 psig (8 bar)

Flow Characteristics:

Size	Function	Cv	l/min
1/8" NPT	5/2,3/2	0.46	453
1/8" NPT	5/3 APB	0.28	274

Ambient Temperature:

-4° to 122°F (-20° to 50°C) Solenoid models

*Consult our Technical Service for use below 35°F (2°C)

Materials:

Body, sub-base, end plates pressure – die cast aluminum

End covers – PPS

Solenoids – glass reinforced acetal copolymer and PBT

Technical Data Wireway

Indication by yellow LED

Suppression by flywheel diode

Temperature Range:

-4° to 122°F* (-20° to 50°C)

*Consult our Technical Service for use below 35°F (2°C)

Degree of Protection:

NEMA 1 'D' sub-connector

NEMA 4 'D' sub-connector with seal

NEMA 4 conduit entry type



Valve Islands, V20 Series

General Information 2x3/2 Solenoid Actuated Valves

Symbol	Model	Manual Override	Function 2x3/2	Solenoid Pilot Supply	Actuation	Operating Pressure psi (bar)	Solenoid Pilot Pressure psi (bar)	Order Code
	V206A11A-B213R	locking	Normally closed	Internal	Sol/spring	32 to 116 (2.2 to 8)	—	01
	V206A11A-B313R	non-locking						02
	V206B11A-B213R	locking	Normally open	Internal	Sol/Spring	32 to 116 (2.2 to 8)	—	03
	V206B11A-B313R	non-locking						04
	V206A22A-B213R	locking	Normally closed	External	Sol/Spring	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	05
	V206A22A-B313R	non-locking						06
	V206B22A-B213R	locking	Normally open	External	Sol/Spring	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	07
	V206B22A-B313R	non-locking						08
	V206C11A-B213R	locking	Normally open/ normally closed	Internal	Sol/Spring	32 to 116 (2.2 to 8)	—	09
	V206C11A-B313R	non-locking						10
	V206C22A-B213R	locking	Normally open/ normally closed	External	Sol/Spring	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	11
	V206C22A-B313R	non-locking						12

5/2 Solenoid Actuated Valves

Symbol	Model	Manual Override	Solenoid Pilot Supply	Mid Position	Operating Pressure psi (bar)	Solenoid Pilot Pressure psi (bar)	Order Code
	V206517A-B213R	locking	Internal	Sol/Spring	26 to 116 (1.8 to 8)	—	13
	V206517A-B313R	non-locking					14
	V206527A-B213R	locking	External	Sol/Spring	26" Hg to 145 (-0.9 to 10)	26 to 116 (1.8 to 8)	15
	V206527A-B313R	non-locking					16
	V206516A-B213R	locking	Internal	Sol/Air	22 to 116 (1.5 to 8)	—	17
	V206516A-B313R	non-locking					18
	V206526A-B213R	locking	External	Sol/Air	26" Hg to 145 (-0.9 to 10)	22 to 116 (1.5 to 8)	19
	V206526A-B313R	non-locking					20
	V206511A-B213R	locking	Internal	Sol/Sol	17 to 116 (1.2 to 8)	—	21
	V206511A-B313R	non-locking					22
	V206522A-B213R	locking	External	Sol/Sol	26" Hg to 145 (-0.9 to 10)	17 to 116 (1.2 to 8)	23
	V206522A-B313R	non-locking					24

5/3 Double Solenoid Actuated Valves

Symbol	Model	Manual Override	Solenoid Pilot Supply	Mid Position	Operating Pressure psi (bar)	Solenoid Pilot Pressure psi (bar)	Order Code
	V206611A-B213R	locking	Internal	APB	32 to 116 (2.2 to 8)	—	25
	V206611A-B313R	non-locking					26
	V206622A-B213R	locking	External	APB	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	27
	V206622A-B313R	non-locking					28
	V206711A-B213R	locking	Internal	COE	32 to 116 (2.2 to 8)	—	29
	V206711A-B313R	non-locking					30
	V206722A-B213R	locking	External	COE	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	31
	V206722A-B313R	non-locking					32
	V206811A-B213R	locking	Internal	COP	32 to 116 (2.2 to 8)	—	33
	V206811A-B313R	non-locking					34
	V206822A-B213R	locking	External	COP	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	35
	V206822A-B313R	non-locking					36

APB = All Ports Blocked

COE = Center Open Exhaust

COP = Center Open Pressure



Electrical Details

Wireway

Voltage:	24V d.c. 1.5W
Surge suppression:	Flywheel diode
Indication:	Yellow LED

Solenoids

Voltage tolerance:	±10%
Rating:	100%ED

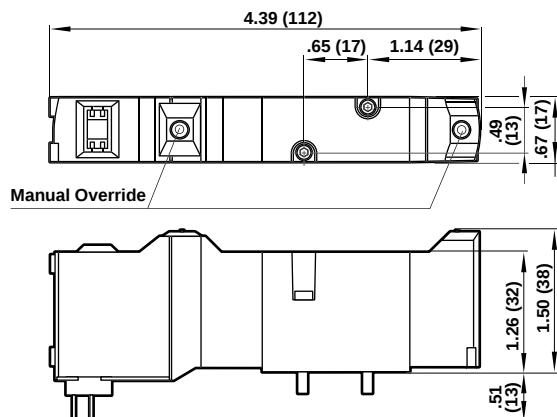
Accessories (Order codes in bold)

D Sub-connector IP40 V10020-E01 3 ft A1	D Sub-connector IP65 with seal V11063-E01 3 ft A4	Blanking Plate V095516AQ1100	Intermediate Supply/Exhaust Plate V095516A-Q160N 1/8" NPT A8	Sandwich Regulator V11270-K02 A22
V10020-E03 10 ft A2	V11063-E03 10 ft A5	V205516AQ2700 (kit) A7		
V10020-E05 16 ft A3	V11063-E05 16 ft A6			

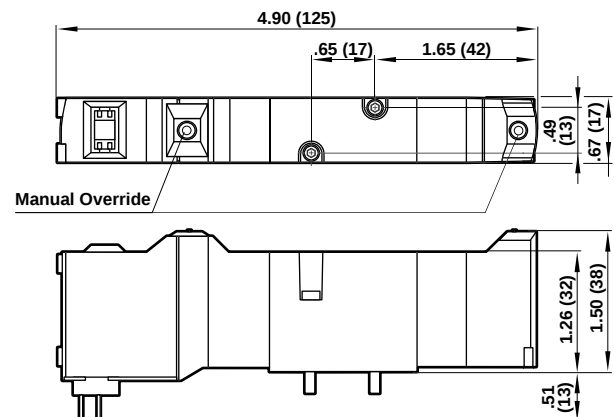
DIN Rail Mounting Kits V10009-C00 3 ft A10	DIN Rail Fixing Kit V10920-K01 A11	Blanking Disk Set V095516A-Q1900 A12	Remote Output Module VE1MP09B-00400 A13	Flow Control V11274-K01 A22

V20 Models

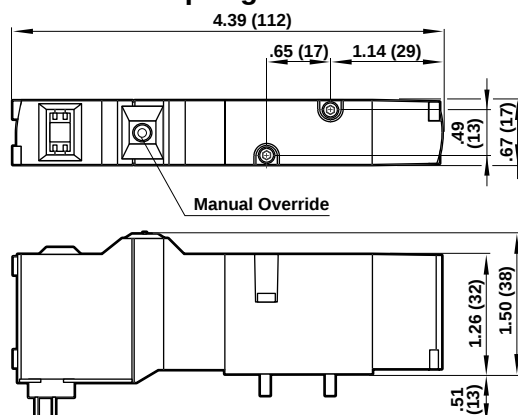
2 x 3/2 and 5/2 Double Solenoid Actuated Valves



5/3 Double Solenoid Actuated Valves



5/2 Solenoid/Spring Actuated Valves

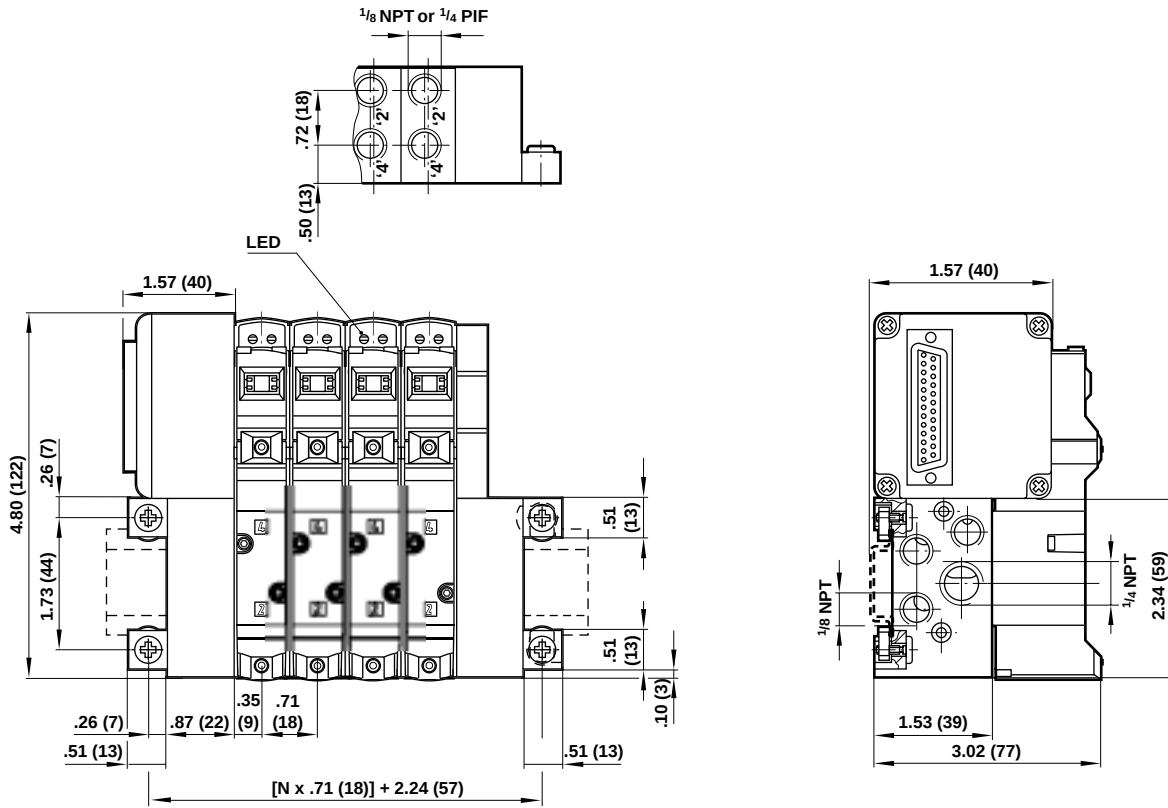




Valve Islands, V20 Series

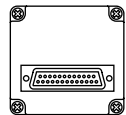
All Dimensions in Inches (mm)

Modular Sub-base Assembly Dimensions

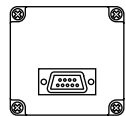


Electrical Connection Options

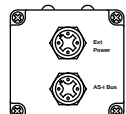
Left Hand Side



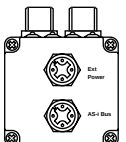
'D' Sub Connector



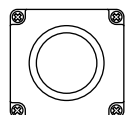
Local Bus



AS-I (4 Output)

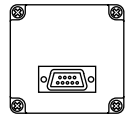


AS-I (2 Output, 2 Input)

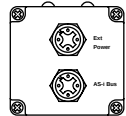


Conduit entry type

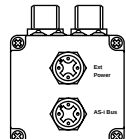
Right Hand Side



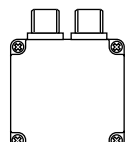
Local Bus



AS-I (4 Output)



AS-I (2 Output, 2 Input)



Remote Output

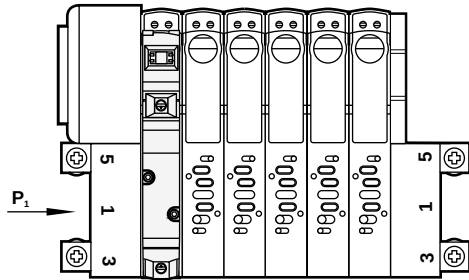


No Connection

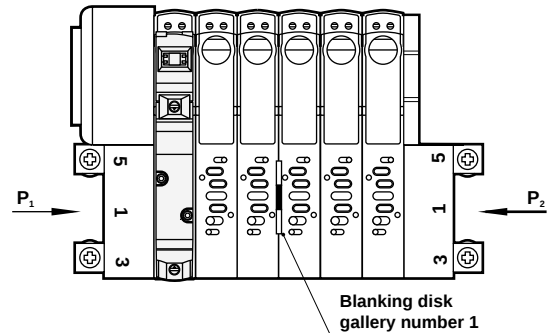


Multi-Pressure Options –

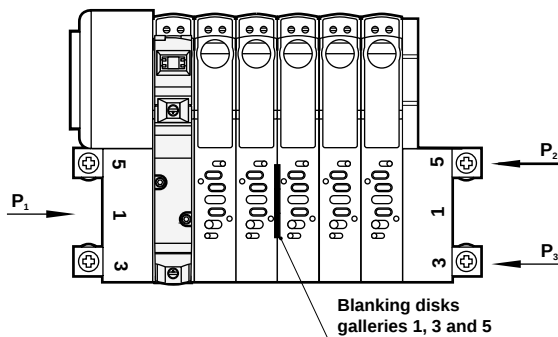
Single Pressure



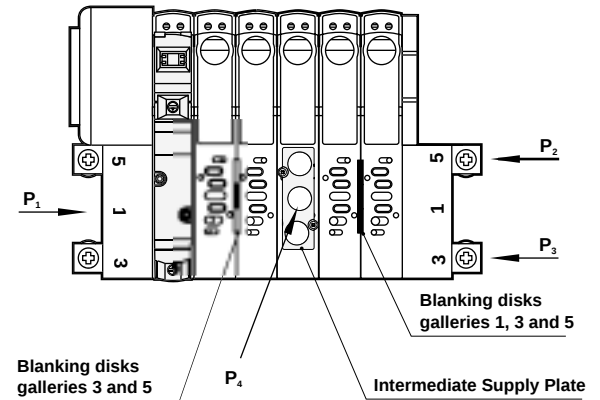
Two Pressure



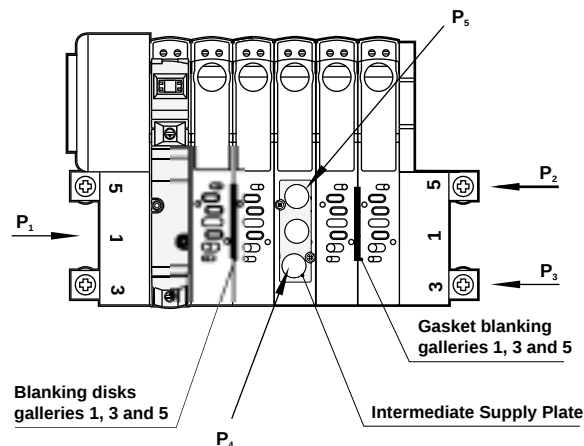
Three Pressure



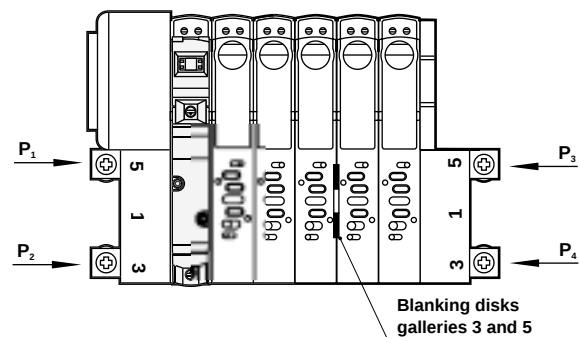
Four Pressure



Five Pressure



2 x Twin Pressure



Blanking Disk Codes

Order Code: G1



Gallery 1 blocked

10005-C95

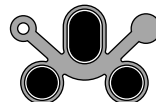
Order Code: G3



Gallery 3 and 5 blocked

10005-C96
(2 pcs)

Order Code: G5



Gallery 1, 3 and 5 blocked

V10258-K02



Fax back a copy of this order form to your local distributor.

Contact

Telephone

Fax

Date _____

Valve assembly

PORT SIZE		
G1/8	1/4 PIF	1/8 NPT

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No. of
Valve Islands
required

References

No. of
stations
required

☐ Yes ☐ No ☐ Not sure	☐ Yes ☐ No ☐ Not sure
--	--

Accessory Codes

[illegible]

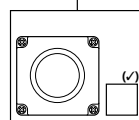
Valve Codes

[illegible]

LHS Connection

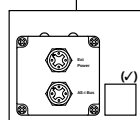
RHS Connection

DIN Rail Mntg Kit Gasket Codes - See Pressure Options page VAL-2-11

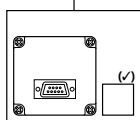


'D' Sub connector

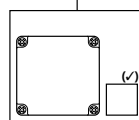
1" NPT Conduit



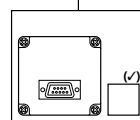
AS-1 (4 Output)



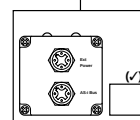
Local bus



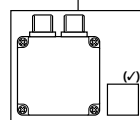
No connection



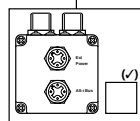
Local Bus



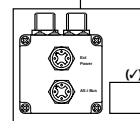
AS-I (4 Output)



Remote output



AS-I
(2 Output / 2 Input)

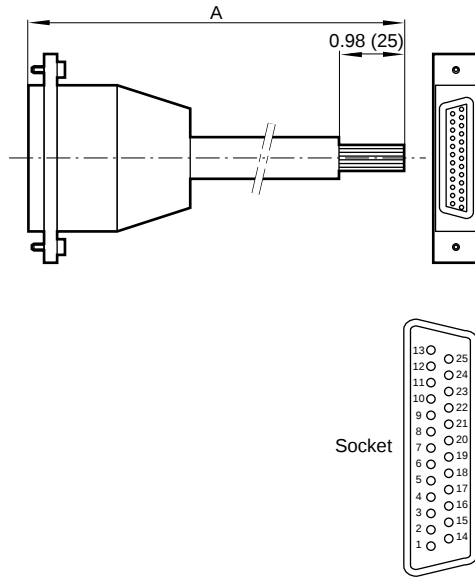


AS-I
(2 Output / 2 Input)

Connection options



IP40 D Sub-Connector



D-Sub Connector with Cable

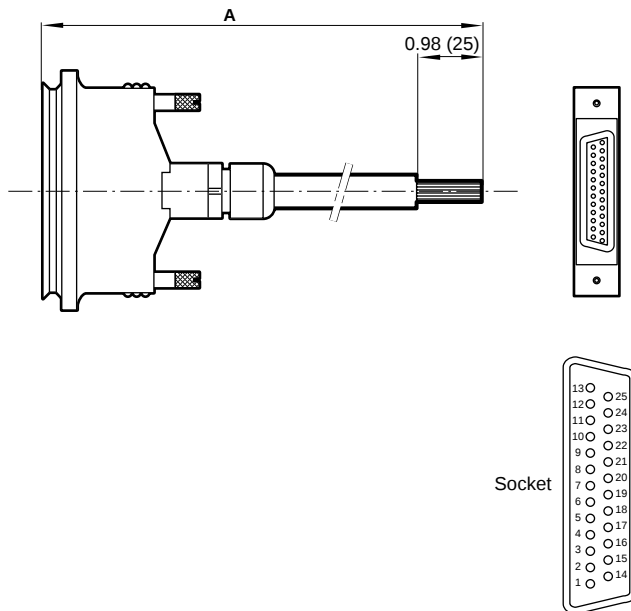
Type: 25 pin IP40

Model	A ft (m)	Weight lb (Kg)
V10020-E01	3.0 (1.0)	0.61 (0.276)
V10020-E03	10.0 (3.0)	1.49 (0.676)
V10020-E05	16.0 (5.0)	2.37 (1.076)

Pin no.	Socket	Plug	Pin no.	Socket	Plug
1	Solenoid 1	Red	14	Solenoid 14	Green/red
2	Solenoid 2	Blue	15	Solenoid 15	Yellow/red
3	Solenoid 3	Green	16	Solenoid 16	White/red
4	Solenoid 4	Yellow	17	Solenoid 17	Red/black
5	Solenoid 5	White	18	Solenoid 18	Red/brown
6	Solenoid 6	Brown	19	Solenoid 19	Yellow/blue
7	Solenoid 7	Violet	20	Solenoid 20	White/blue
8	Solenoid 8	Orange	21	Not used	Blue/black
9	Solenoid 9	Pink	22	Not used	Orange/blue
10	Solenoid 10	Turquoise	23	Not used	Yellow/green
11	Solenoid 11	Grey	24	Common	White/green
12	Solenoid 12	Red/blue	25	Common	Orange/green
13	Solenoid 13	Black			

Solenoid No. 1 is nearest to the connector on valve island

IP65 D Sub-Connector with seal



D-Sub Connector with Cable

Type: 25 pin IP65

Model	A ft (m)	Weight lb (Kg)
V11063-E01	3.0 (1.0)	0.61 (0.276)
V11063-E03	10.0 (3.0)	1.45 (0.676)
V11063-E05	16.0 (5.0)	2.37 (1.076)

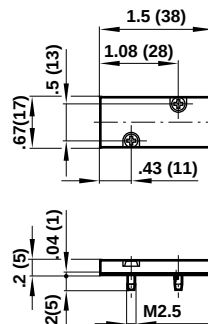
Pin no.	Socket	Plug	Pin no.	Socket	Plug
1	Solenoid 1	Red	14	Solenoid 14	Green/red
2	Solenoid 2	Blue	15	Solenoid 15	Yellow/red
3	Solenoid 3	Green	16	Solenoid 16	White/red
4	Solenoid 4	Yellow	17	Solenoid 17	Red/black
5	Solenoid 5	White	18	Solenoid 18	Red/brown
6	Solenoid 6	Brown	19	Solenoid 19	Yellow/blue
7	Solenoid 7	Violet	20	Solenoid 20	White/blue
8	Solenoid 8	Orange	21	Not used	Blue/black
9	Solenoid 9	Pink	22	Not used	Orange/blue
10	Solenoid 10	Turquoise	23	Not used	Yellow/green
11	Solenoid 11	Grey	24	Common	White/green
12	Solenoid 12	Red/blue	25	Common	Orange/green
13	Solenoid 13	Black			

Solenoid No. 1 is nearest to the connector on valve island

Blanking Plate

V095516A-Q1100

Blanking Plate for blocking off unwanted stations.





Valve Islands, V20 Series

All Dimensions in Inches (mm)

Intermediate Supply/Exhaust Module

V095516A-Q160N (1/8" NPT) 0.088 lb. (0.040 Kg)

Provides additional porting on Modular Sub-base systems. Occupies one valve station. Supplied with gaskets for Sub-base mounting.

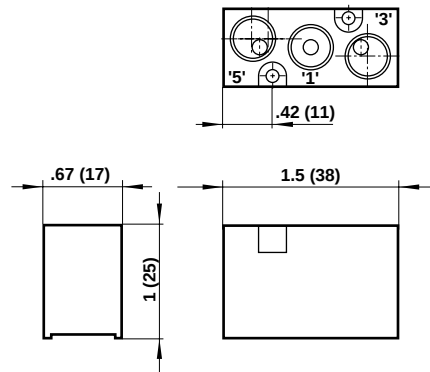
Can be used to:

- Improve supply flow

- Increase exhaust capacity

- Pneumatically separate valves used on Valve Islands for fail safe in emergency

- Supply and exhaust Twin Supply Valves

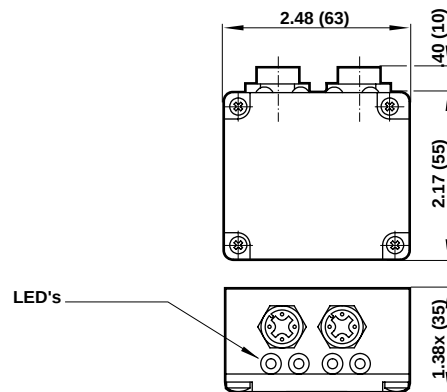


Remote Output Modules

Application:

Remote output modules are used with valve islands to provide up to 4 outputs to remote devices such as Soft Start and Monitored Dump Valves. Harness assemblies should be increased by the relevant number of stations.

V09, V20: 4 outputs VE1MP09B-00400



Blanking plug for unused Wireway Station

V11060-K01

Identification tabs

V11079-K01

Valve Islands, V22 Series

Sub-base Mounted 2 x 3/2, 5/2 and
5/3 Valves Solenoid Actuated
with Wireway



- Wireway design for easy installation
- NEMA 1, and NEMA 4 25-pin "D" sub-connector models
- NEMA 4 Conduit entry models
- Fieldbus compatible
- Dedicated AS-Interface modules

Technical Data Valves

Medium:

Compressed air, filtered to 40µm, lubricated or non-lubricated

Operation:

Spool valve, indirectly actuated

Solenoid Voltage:

24 V d.c.

Port Size:

1/4" NPT, or ISO G

Operating Pressure:

Maximum 116 psi (8 bar).

Flow Characteristics:

Size	Function	Cv	l/min
1/4" NPT	5/2	1.17	1152
1/4" NPT	3/2, 5/3 APB	1.03	1014

Ambient Temperature:

-4° to 122°F* (-20° to 50°C) Solenoid models

*Consult our Technical Service for use below 35°F (2°C)

Materials

Body, sub-base and endplates - aluminum alloy

End caps - PPS

Solenoid - PBT

Technical Data Wireway

Indication by yellow LED

Suppression by flywheel diode

Temperature Range:

-4° to 122°F* (-20° to 50°C)

*Consult our Technical Service for use below 35°F (2°C)

Degree of protection:

NEMA 1 'D' sub-connector

NEMA 4 'D' sub-connector with seal

NEMA 4 conduit entry type



Valve Islands, V22 Series

General Information 2x3/2 Solenoid Actuated Valves

Symbol	Model	Manual Override	Function 2x3/2	Solenoid Pilot Supply	Actuation	Operating Pressure psi (bar)	Solenoid Pilot Pressure psi (bar)	Order Code
	V22BA11A-B213R	locking	Normally closed	Internal	Sol/spring	32 to 116 (2.2 to 8)	–	01
	V22BA11A-B313R	non-locking						02
	V22BB11A-B213R	locking	Normally open	Internal	Sol/Spring	32 to 116 (2.2 to 8)	–	03
	V22BB11A-B313R	non-locking						04
	V22BA22A-B213R	locking	Normally closed	External	Sol/Spring	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	05
	V22BA22A-B313R	non-locking						06
	V22BB22A-B213R	locking	Normally open	External	Sol/Spring	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	07
	V22BB22A-B313R	non-locking						08
	V22BC11A-B213R	locking	Normally open/ normally closed	Internal	Sol/Spring	32 to 116 (2.2 to 8)	–	09
	V22BC11A-B313R	non-locking						10
	V22BC22A-B213R	locking	Normally open/ normally closed	External	Sol/Spring	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	11
	V22BC22A-B313R	non-locking						12

5/2 Solenoid Actuated Valves

Symbol	Model	Manual Override	Solenoid Pilot Supply	Mid Position	Operating Pressure psi (bar)	Solenoid Pilot Pressure psi (bar)	Order Code
	V22B517A-B213R	locking	Internal	Sol/Spring	26 to 116 (1.8 to 8)	–	13
	V22B517A-B313R	non-locking					14
	V22B527A-B213R	locking	External	Sol/Spring	26" Hg to 145 (-0.9 to 10)	26 to 116 (1.8 to 8)	15
	V22B527A-B313R	non-locking					16
	V22B513A-B213R	locking	Internal	Sol/Air	22 to 116 (1.5 to 8)	–	17
	V22B513A-B313R	non-locking					18
	V22B523A-B213R	locking	External	Sol/Air	26" Hg to 145 (-0.9 to 10)	22 to 116 (1.5 to 8)	19
	V22B523A-B313R	non-locking					20
	V22B511A-B213R	locking	Internal	Sol/Sol	17 to 116 (1.2 to 8)	–	21
	V22B511A-B313R	non-locking					22
	V22B522A-B213R	locking	External	Sol/Sol	26" Hg to 145 (-0.9 to 10)	17 to 116 (1.2 to 8)	23
	V22B522A-B313R	non-locking					24

5/3 Double Solenoid Actuated Valves

Symbol	Model	Manual Override	Solenoid Pilot Supply	Mid Position	Operating Pressure psi (bar)	Solenoid Pilot Pressure psi (bar)	Order Code
	V22B611A-B213R	locking	Internal	APB	32 to 116 (2.2 to 8)	–	25
	V22B611A-B313R	non-locking					26
	V22B622A-B213R	locking	External	APB	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	27
	V22B622A-B313R	non-locking					28
	V22B711A-B213R	locking	Internal	COE	32 to 116 (2.2 to 8)	–	29
	V22B711A-B313R	non-locking					30
	V22B722A-B213R	locking	External	COE	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	31
	V22B722A-B313R	non-locking					32
	V22B811A-B213R	locking	Internal	COP	32 to 116 (2.2 to 8)	–	33
	V22B811A-B313R	non-locking					34
	V22B822A-B213R	locking	External	COP	26" Hg to 145 (-0.9 to 10)	32 to 116 (2.2 to 8)	35
	V22B822A-B313R	non-locking					36

APB = All Ports Blocked

COE = Center Open Exhaust

COP = Center Open Pressure



Accessories

D Sub-connector IP40	D Sub-connector IP65 with seal	Blanking Plate
V10020-E01 3 ft A1	V11063-E01 3 ft A4	V14B517AQ2700
V10020-E03 10 ft A2	V11063-E03 10 ft A5	V22B517AQ2700 (kit) A7
V10020-E05 16 ft A3	V11063-E05 16 ft A6	

Intermediate Supply/Exhaust Plate	Remote Output Module	DIN Rail
V14B517A-Q240N 1/4" NPT A8	VE1MP098-00400 A16	V10009-C00 3 ft A17

DIN Rail Mounting Kits	Sandwich Regulator	Flow Control
V10319-K30 A18	V112274-K01	V11275-K01

Electrical Details

Wireway

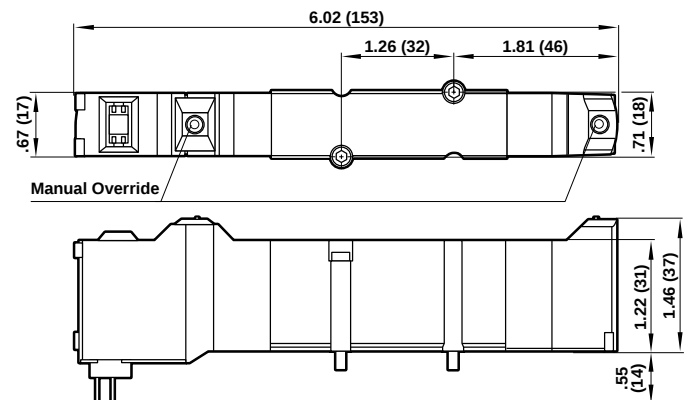
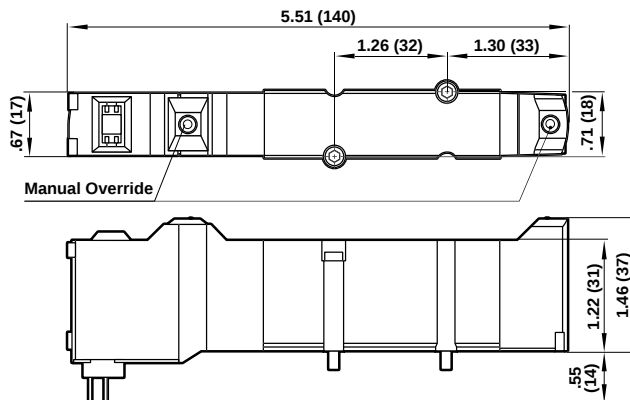
Voltage:	24V d.c. 1.5W
Surge suppression:	Flywheel diode
Indication:	Yellow LED

Solenoids

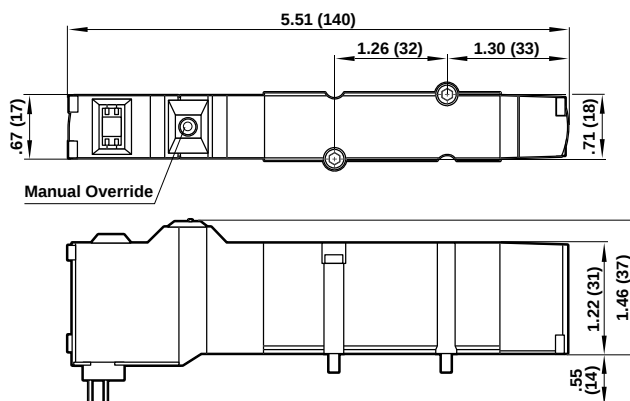
Voltage tolerance:	±10%
Rating:	100%ED

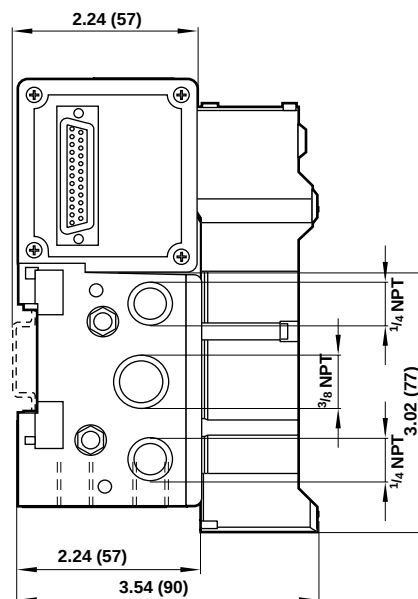
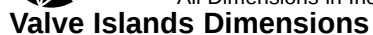
V22 Models

2 x 3/2 and 5/2 Double Solenoid Actuated Valves 5/3 Double Solenoid Actuated Valves



5/2 Solenoid/Spring Actuated Valves



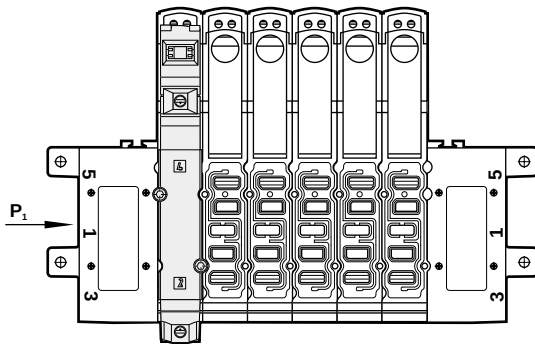


No Connection

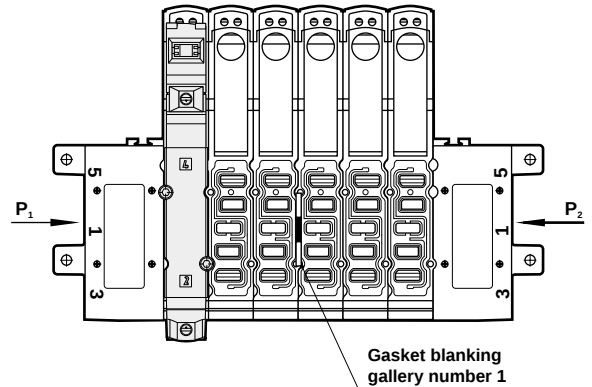


Pressure Options — Sub-base systems

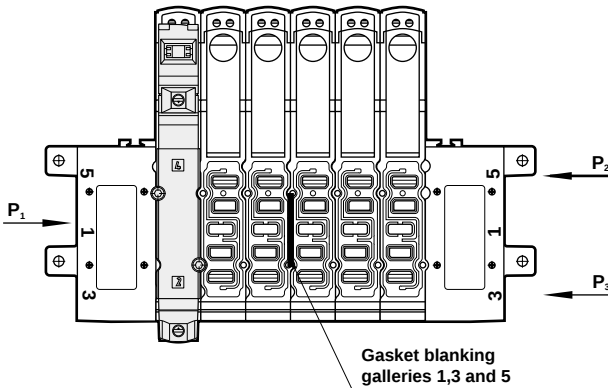
Single Pressure



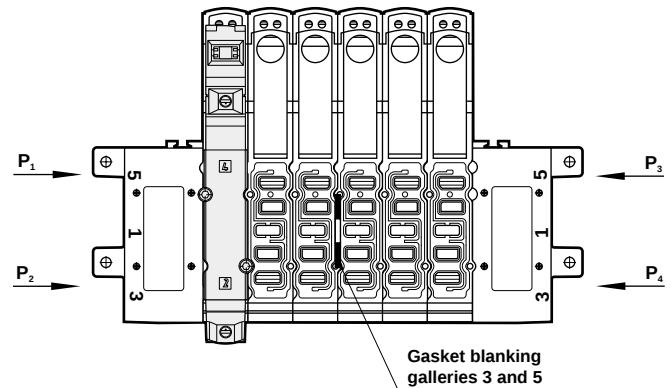
Two Pressures



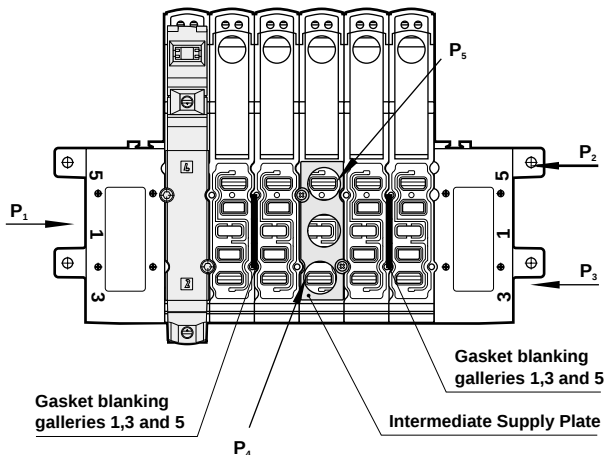
Three Pressures



Four Pressures

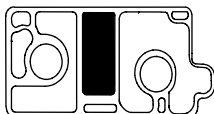


Five Pressures



Gasket Codes for use in Valve Island Specification Form

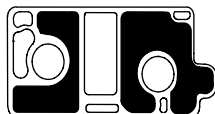
Order Code: G1



Gallery 1 blocked

V10040-C97

Order Code: G3



Gallery 3 and 5 blocked

V10040-C96

Order Code: G5



Gallery 1, 3 and 5 blocked

V10040-C98



Valve Islands, V22 Series

V22 Valve Island Specification Form

Fax back a copy of this order form to your local distributor.

Company _____

Contact _____

Address _____

Telephone _____

Fax _____

Date _____

Using the codes from the tables on page VAL-2-16, complete the build model below. Norgren will advise you of a unique part number for this assembly which can be quoted for future orders.

Valve assembly

Each valve island can be assembled with a maximum of 20 solenoids and up to 20 stations.

PORT SIZE

G1/4

1/4 NPT

No. of
Valve Islands
required

No. of
stations
required

Accessory Codes

Valve Codes

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

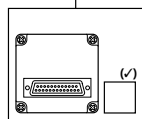
20

LHS
Connection

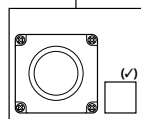
RHS
Connection

DIN Rail
Mntg Kit

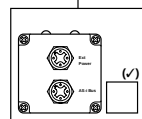
Gasket Codes - See Pressure Options page VAL-2-19



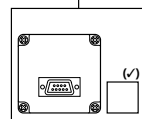
'D' Sub connector



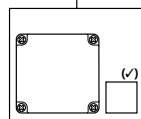
1" NPT Conduit



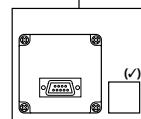
AS-I (4 Output)



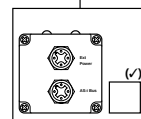
Local bus



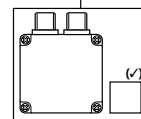
No connection



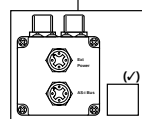
Local Bus



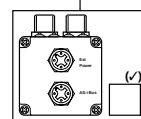
AS-I (4 Output)



Remote output



AS-I
(2 Output / 2 Input)

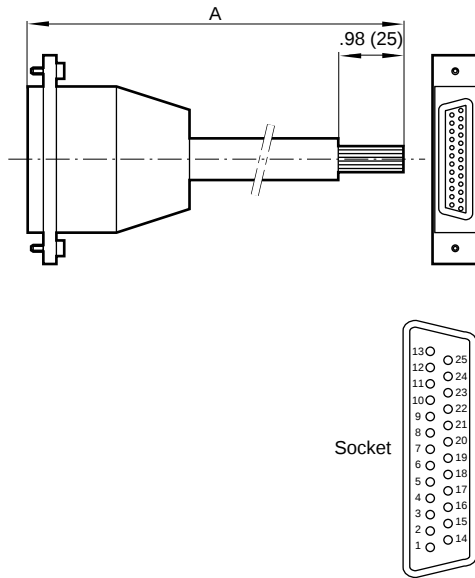


AS-I
(2 Output / 2 Input)

Connection options



IP40 D Sub-Connector



D-Sub Connector with Cable

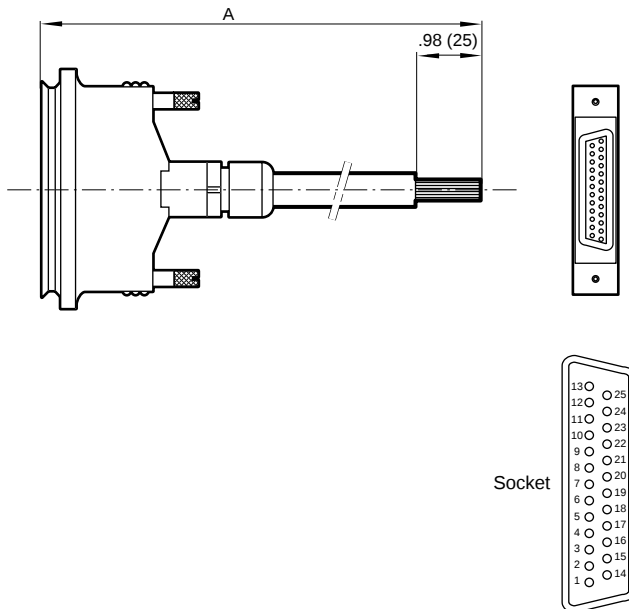
Type: 25 pin IP65

Model	A ft (m)	Weight lb (Kg)
V10020-E01	3.0 (1.0)	.61 (0.276)
V10020-E03	10.0 (3.0)	1.49 (0.676)
V10020-E05	16.0 (5.0)	2.37 (1.076)

Pin no.	Socket	Plug	Pin no.	Socket	Plug
1	Solenoid 1	Red	14	Solenoid 14	Green/red
2	Solenoid 2	Blue	15	Solenoid 15	Yellow/red
3	Solenoid 3	Green	16	Solenoid 16	White/red
4	Solenoid 4	Yellow	17	Solenoid 17	Red/black
5	Solenoid 5	White	18	Solenoid 18	Red/brown
6	Solenoid 6	Brown	19	Solenoid 19	Yellow/blue
7	Solenoid 7	Violet	20	Solenoid 20	White/blue
8	Solenoid 8	Orange	21	Not used	Blue/black
9	Solenoid 9	Pink	22	Not used	Orange/blue
10	Solenoid 10	Turquoise	23	Not used	Yellow/green
11	Solenoid 11	Grey	24	Common	White/green
12	Solenoid 12	Red/blue	25	Common	Orange/green
13	Solenoid 13	Black			

Solenoid No. 1 is nearest to the connector on valve island

IP65 D Sub-Connector



D-Sub Connector with Cable

Type: 25 pin IP65

Model	A ft (m)	Weight (Kg)
V11063-E01	3.0 (1.0)	.61 (0.276)
V11063-E03	10.0 (3.0)	1.49 (0.676)
V11063-E05	16.0 (5.0)	2.37 (1.076)

Pin no.	Socket	Plug	Pin no.	Socket	Plug
1	Solenoid 1	Red	14	Solenoid 14	Green/red
2	Solenoid 2	Blue	15	Solenoid 15	Yellow/red
3	Solenoid 3	Green	16	Solenoid 16	White/red
4	Solenoid 4	Yellow	17	Solenoid 17	Red/black
5	Solenoid 5	White	18	Solenoid 18	Red/brown
6	Solenoid 6	Brown	19	Solenoid 19	Yellow/blue
7	Solenoid 7	Violet	20	Solenoid 20	White/blue
8	Solenoid 8	Orange	21	Not used	Blue/black
9	Solenoid 9	Pink	22	Not used	Orange/blue
10	Solenoid 10	Turquoise	23	Not used	Yellow/green
11	Solenoid 11	Grey	24	Common	White/green
12	Solenoid 12	Red/blue	25	Common	Orange/green
13	Solenoid 13	Black			

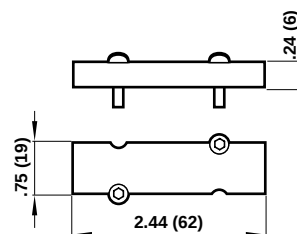
Solenoid No. 1 is nearest to the connector on valve island

Blanking Plate

V14B517A-Q2700

0.031 lbs (0.014 Kg)

Blanking Plate for blocking off unwanted station. Supplied with gaskets for Sub-base mounting.





Valve Islands, V22 Series

All Dimensions in Inches (mm)

Intermediate Supply and Exhaust Module

V14B517-Q240N

0.084 lb. (0.038 Kg)

1/4" NPT Provides additional porting on Modular Sub-base systems. Occupies one valve station. Supplied with gaskets for Sub-base mounting.

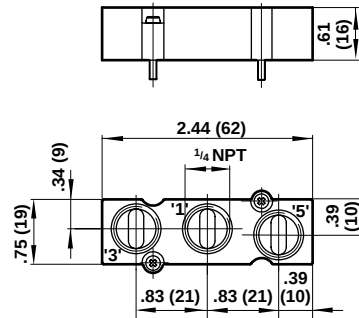
Can be used to:

Improve supply flow

Increase exhaust capacity

Pneumatically separate valves on Valve Island for fail safe in emergency

Supply and exhaust Twin Supply Valves

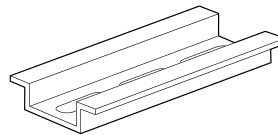


DIN Rail

V10009-C00

0.688 lb. (0.312 Kg)

3 ft (1m)

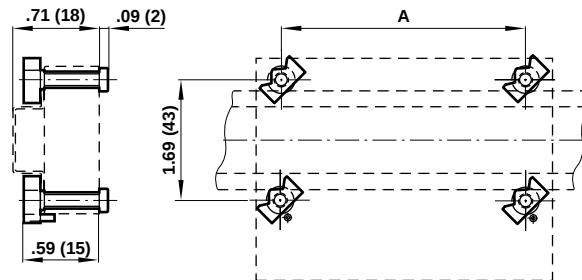


DIN Rail Mounting Kit

V10319-K30

0.018 lb. (0.008 Kg)

Kit for mounting side ported modular sub-bases on DIN 46277-3, BS5584 and CENELEC EN 50-022 mounting rail.

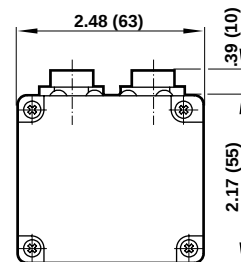


Remote Output Modules

Application:

Remote output modules are used with valve islands to provide up to 4 outputs to remote devices such as Excelon Smooth Start and Prospector Poppet Valves.

V14, V22: 4 outputs VE1MP22B-00400

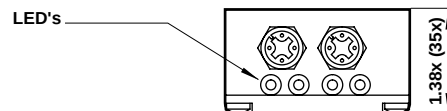


Blanking plug for unused Wireway Station

V11060-K01

Identification tabs

V11079-K01





- 128 I/O per node - 64 inputs and 64 outputs
- Distributed or centralized configurations
- Interchangeable protocol node
- Advanced diagnostic features
- Modular system clips together

Ordering Information

To order, complete the System Specification Form on page VAL-2-37 and fax to your local Norgren distributor for your free consultation service.

Technical Data

Operating Temperature:

32° to 122°F (0° to 50°C)

Vibration Tests:

To IEC 68-2-6

Degree of protection:

NEMA 4, IP65

EMC Standards:

Generic emission standard EN50081-2

Generic immunity standard EN50082-2

Materials:

Main enclosure mouldings

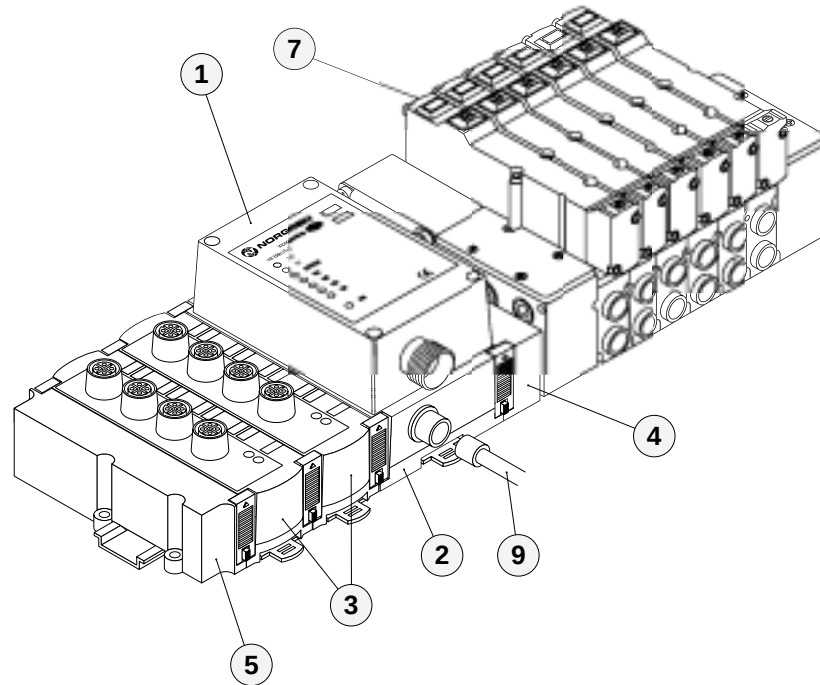
– glass fiber reinforced polyester (PBT)

Clips – Acetal Copolymer (POM)

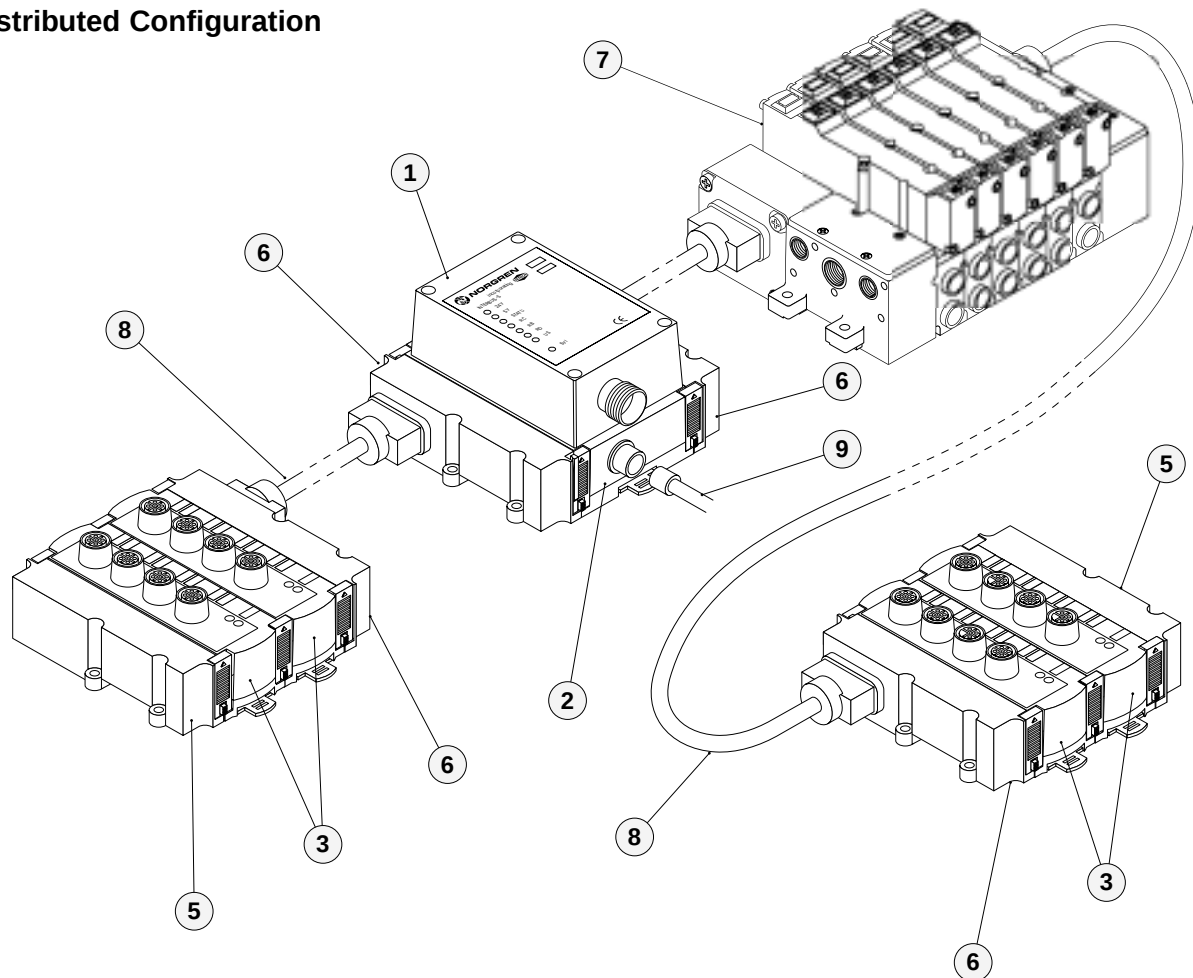


Fieldbus II, VE2 Series

Centralized Configuration

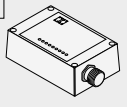
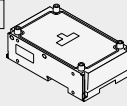
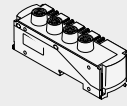
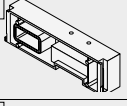
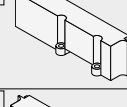
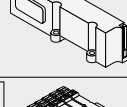
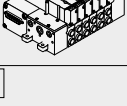
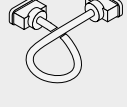
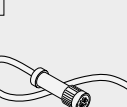


Distributed Configuration





VE2 Components

Symbol	Description	Part Number	Code	
1 	Fieldbus Node			
	Profibus-DP	VE2DPFNB-64640	F1	
	Interbus-S	VE2IBFNC-64640	F2	
	Devicenet	VE2DNFNB-64640	F3	
	CANOpen (Available June 1999)	VE2CAFNB-64640	F4	
2 	Common Node Sub-base			
		VE2FBSBA-00000	F5	
3 	Input/Output Modules			
	4 outputs	VE2FBOMA-00040	F6	
	8 outputs	VE2FBOMA-00080	F7	
	4 NPN inputs	VE2FBIMF-04000	F8	
	8 NPN inputs	VE2FBIMF-08000	F9	
	4 PNP inputs	VE2FBIMG-04000	F10	
	8 PNP inputs	VE2FBIMG-08000	F11	
4 	Valve Island Interface Plates (for Fieldbus Node or Input/Output modules)			
	Left Hand Side	VE2FBVPL-00000	F12	
	Right Hand Side (shown)	VE2FBVPR-00000	F13	
	Additional V20 kit	V10075-K32	F14	
5 	End Cover (for Fieldbus Node or Input/Output Modules)			
	Left Hand Side (shown)	VE2FBECL-00000	F15	
	Right Hand Side	VE2FBECL-00000	F16	
6 	IP65 9-pin Cable Interface Plate (for Fieldbus Node or Input/Output Modules)			
	Left Hand Side (shown)	VE2FBCPL-00000	F17	
	Right Hand Side	VE2FBCPR-00000	F18	
7 	Valve Island			
	V20		F19	
	V22		F20	
8 	Cable with 9-pin D-type Connectors			
	3 ft (1m)	VE2FBC9P-9S010	F21	
	10 ft (3m)	VE2FBC9P-9S030	F22	
	16 ft (5m)	VE2FBC9P-9S050	F23	
	Wirable 9-pin D-type Connector (male)	VE2FBC9P-00000	F24	
	Wirable 9-pin D-type Connector (female)	VE2FBC9S-00000	F25	
9 	Power Cable and Connector			
	3 ft (1m)	VE2FBCPS-M1810	F26	
	10 ft (3m)	VE2FBCPS-M1830	F27	
	16 ft (5m)	VE2FBCPS-M1850	F28	
	Wirable Power Connector	VE2FBCPS-M1800	F29	

Input and Output Modules Technical Specification

Description	4 Inputs NPN	4 Inputs PNP	8 Inputs NPN	8 Inputs PNP	4 Outputs	8 Outputs
Part Number	VE2FBIMF-04000	VE2FBIMG-04000	VE2FBIMF-08000	VE2FBIMG-08000	VE2FBOMA-00040	VE2FBOMA-00080
Connections	4 pin M12 female 1 input/connection	4 pin M12 female 1 input/connection	4 pin M12 female 2 inputs/connection	4 pin M12 female 2 inputs/connection	4 pin M12 female 1 output/connection	4 pin M12 female 2 outputs/connection
Inputs	Supply voltage Input On Input Off Max current load for all inputs Short circuit protected Opto isolated circuits	24V ± 10% 10V-24V/3mA <1,5mA 750mA Yes Yes	24V ± 10% 10V-24V/3mA <1,5mA 750mA Yes Yes	24V ± 10% 10V-24V/3mA <1,5mA 750mA Yes Yes		
Outputs	Output voltage Max current each output Max current all outputs Short circuit protected Opto isolated outputs				24V ± 10% 500mA 750mA Yes Yes	24V ± 10% 500mA 750mA Yes Yes



Accessories

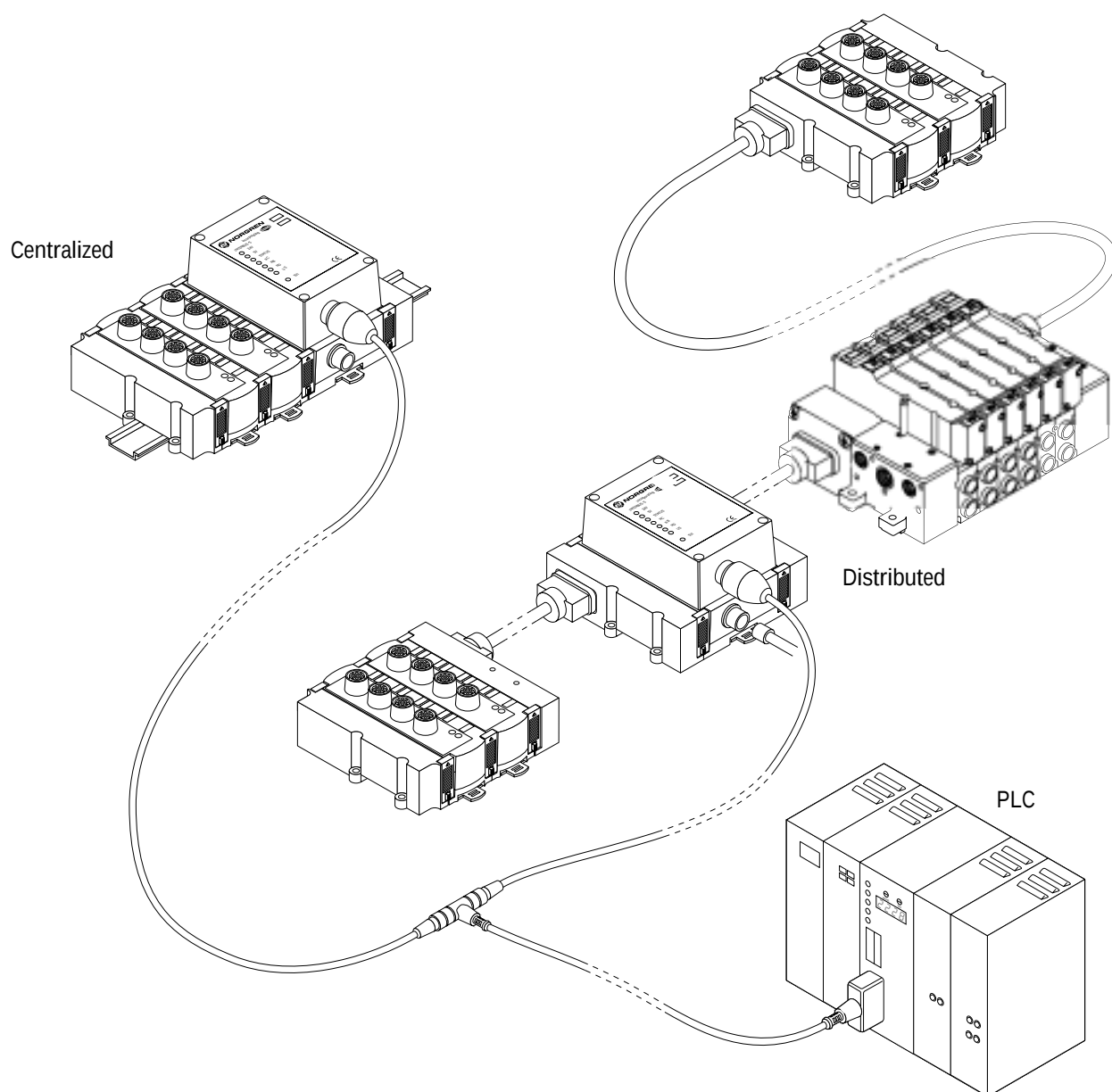
Symbol	Description	Connection size	Straight/Elbow	Cable Length (meters)	Part Number	Detail	Code
	Input M12 connecting plug and cable assemblies for sensors						
	3 pin plug to 3 pin socket	M12/Ø8	Straight/Straight	3 ft (.9)	VE1FBC8S-M1210	VAL-2-39	F30
	3 pin plug to 3 pin socket	M12/Ø8	Straight/Straight	10 ft (3)	VE1FBC8S-M1230	VAL-2-39	F31
	3 pin plug to 3 pin socket	M12/Ø8	Straight/Straight	16 ft (5)	VE1FBC8S-M1250	VAL-2-39	F32
	3 pin plug to 3 pin socket	M12/Ø8	Straight/Elbow	3 ft (.9)	VE1FBC8E-M1210	VAL-2-39	F33
	3 pin plug to 3 pin socket	M12/Ø8	Straight/Elbow	10 ft (3)	VE1FBC8E-M1230	VAL-2-39	F34
	3 pin plug to 3 pin socket	M12/Ø8	Straight/Elbow	16 ft (5)	VE1FBC8E-M1250	VAL-2-39	F35
	4 pin plug to 4 pin socket	M12/M12	Straight/Straight	3 ft (.9)	VE1FBC0S-M1210	VAL-2-39	F36
	4 pin plug to 4 pin socket	M12/M12	Straight/Straight	10 ft (3)	VE1FBC0S-M1230	VAL-2-39	F37
	4 pin plug to 4 pin socket	M12/M12	Straight/Straight	16 ft (5)	VE1FBC0S-M1250	VAL-2-39	F38
	3 pin plug to 2x3 pin socket	M12/Ø8	Straight/Straight	3 ft (.9)	VE1FBC8S-M121D	VAL-2-39	F39
	3 pin plug to 2x3 pin socket	M12/Ø8	Straight/Straight	10 ft (3)	VE1FBC8S-M123D	VAL-2-39	F40
	3 pin plug to 2x3 pin socket	M12/Ø8	Straight/Straight	16 ft (5)	VE1FBC8S-M125D	VAL-2-39	F41
	3 pin plug to 2x3 pin socket	M12/Ø8	Straight/Elbow	3 ft (.9)	VE1FBC8E-M121D	VAL-2-39	F42
	3 pin plug to 2x3 pin socket	M12/Ø8	Straight/Elbow	10 ft (3)	VE1FBC8E-M123D	VAL-2-39	F43
	3 pin plug to 2x3 pin socket	M12/Ø8	Straight/Elbow	16 ft (5)	VE1FBC8E-M125D	VAL-2-39	F44
	4 pin plug to 2x4 pin socket	M12/M12	Straight/Straight	3 ft (.9)	VE1FBC0S-M121D	VAL-2-39	F45
	4 pin plug to 2x4 pin socket	M12/M12	Straight/Straight	10 ft (3)	VE1FBC0S-M123D	VAL-2-39	F46
	4 pin plug to 2x4 pin socket	M12/M12	Straight/Straight	16 ft (5)	VE1FBC0S-M125D	VAL-2-39	F47
Input or Output M12 plug							
	Wireable 5 pin male – screw termination	M12	Straight	-	VE1FBCRS-M125P	VAL-2-40	F48
	Output M12 plug and connecting cables for solenoid coils*						
	5 pin plug to valve connection – Type C (15mm coil)	M12	Straight	1 ft (.3)	VE1FBCSC-M1203	VAL-2-40	F49
	5 pin plug to valve connection – Type C (15mm coil)	M12	Straight	3 ft (.9)	VE1FBCSC-M1210	VAL-2-40	F50
	5 pin plug to valve connection – Industrial (22mm coil)	M12	Straight	1 ft (.3)	VE1FBCSB-M1203	VAL-2-40	F51
	5 pin plug to valve connection – Industrial (22mm coil)	M12	Straight	3 ft (.9)	VE1FBCSB-M1210	VAL-2-40	F52
	5 pin plug to valve connection – Type A (32mm coil)	M12	Straight	1 ft (.3)	VE1FBCSA-M1203	VAL-2-40	F53
	5 pin plug to valve connection – Type A (32mm coil)	M12	Straight	3 ft (.9)	VE1FBCSA-M1210	VAL-2-40	F54
	5 pin plug to 2 valve connections – Type C (15mm coil)	M12	Straight	1 ft (.3)	VE1FBCTC-M1203	VAL-2-40	F55
	5 pin plug to 2 valve connections – Type C (15mm coil)	M12	Straight	3 ft (.9)	VE1FBCTC-M1210	VAL-2-40	F56
	5 pin plug to 2 valve connections – Industrial (22mm coil)	M12	Straight	1 ft (.3)	VE1FBCTB-M1203	VAL-2-40	F57
	5 pin plug to 2 valve connections – Industrial (22mm coil)	M12	Straight	3 ft (.9)	VE1FBCTB-M1210	VAL-2-40	F58
	5 pin plug to 2 valve connections – Type A (32mm coil)	M12	Straight	1 ft (.3)	VE1FBCTA-M1203	VAL-2-40	F59
	5 pin plug to 2 valve connections – Type A (32mm coil)	M12	Straight	3 ft (.9)	VE1FBCTA-M1210	VAL-2-40	F60
Wireable communication cable connectors							
	Profibus-DP 12 pin Coninver male	Ø22mm	Straight	N/A	VE1DPCRS-CN12P	VAL-2-40	F61
	Interbus-S 9 pin Coninver female	Ø22mm	Straight	N/A	VE1IBCRS-CN09S	VAL-2-40	F62
	Interbus-S 9 pin Coninver male	Ø22mm	Straight	N/A	VE1IBCRS-CN09P	VAL-2-40	F63

* Each coil plug has LED and suppression as standard.



Network Data

Protocol	Connector Type(s)	Node Part Number	Communication	Max Baud Rate	Node Details	Connector Details
Standard Products						
Profibus-DP	1xConinver (IP65)	VE2DPFNB-64640	RS485	12Mb/s	VAL-2-29	VAL-2-38
Interbus-S	2xConinver (IP65)	VE2IBFNC-64640	RS422	500Kb/s	VAL-2-30	VAL-2-38
Devicenet	1x Micro-Change (IP65)	VE2DNFNB-64640	CAN	500Kb/s	VAL-2-31	Local Stockist
CANopen (Available June 1999)	1xMicro-Change (IP65)	VE2CAFNB-64640	CAN	1Mb/s	VAL-2-31	Local Stockist
Alternative Connection Options						
Profibus-DP (F1D)	1xD-Type (IP65)	VE2DPFND-64640	RS485	12Mb/s	VAL-2-29	VAL-2-38
Interbus-S (F2D)	2xD-Type (IP65)	VE2IBFNE-64640	RS422	500Kb/s	VAL-2-30	VAL-2-38

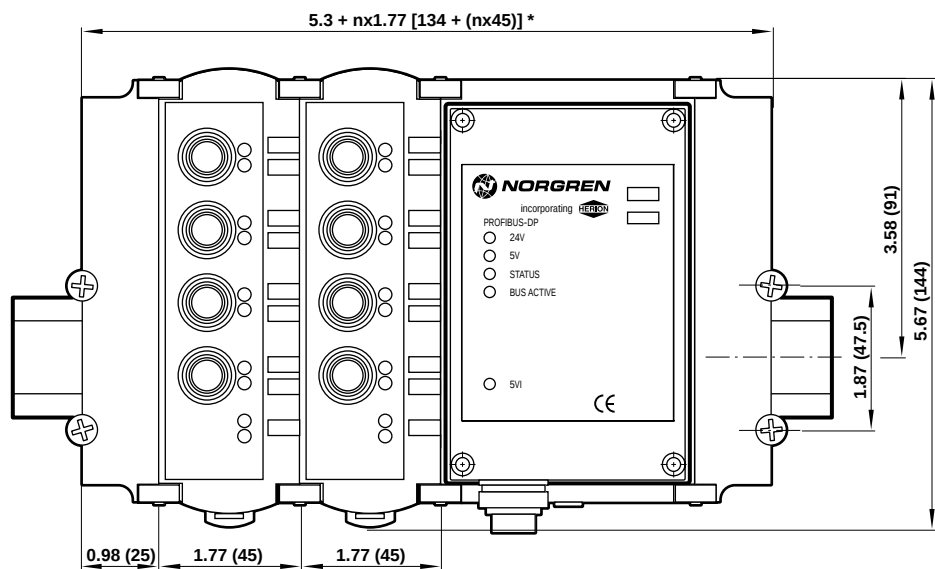




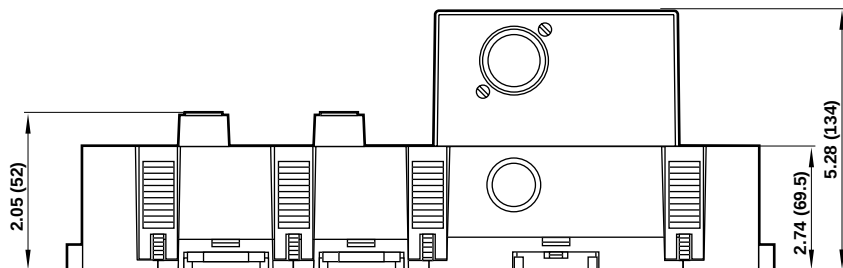
Fieldbus II, VE2 Series

All Dimensions in Inches (mm)

Assembly Dimensions



* n = no of modules

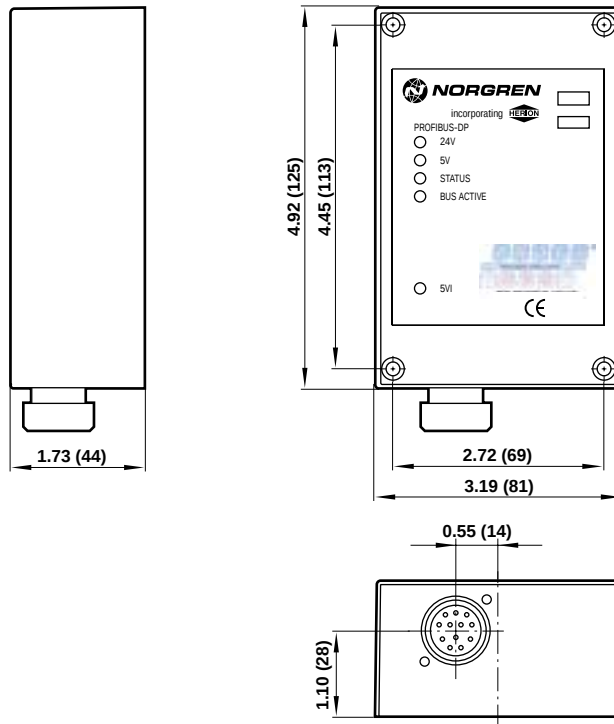




Profibus-DP Fieldbus Node

Single Coninver Connector (standard)

VE2DPFNB-64640



Profibus Node Accessories

Wirable 12 pin coninver type connector (NEMA 4, IP65)

Part Number

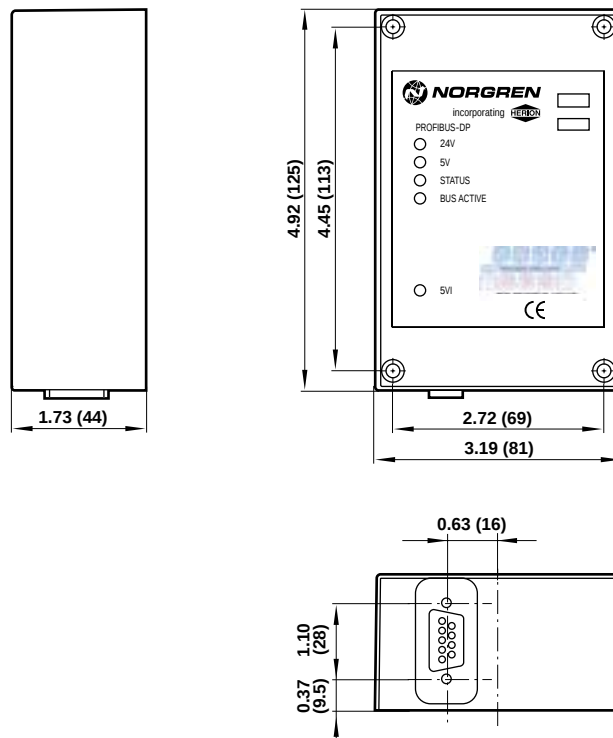
VE1DPCRS-CN12P

Male

Profibus-DP Fieldbus Node

Single D-Type Connector (option)

VE2DPFND-64640



Profibus Node Accessories

Wirable 9 pin D-Type connector (NEMA 4, IP65)

Part Number

VE2FBC9P-00000

Male



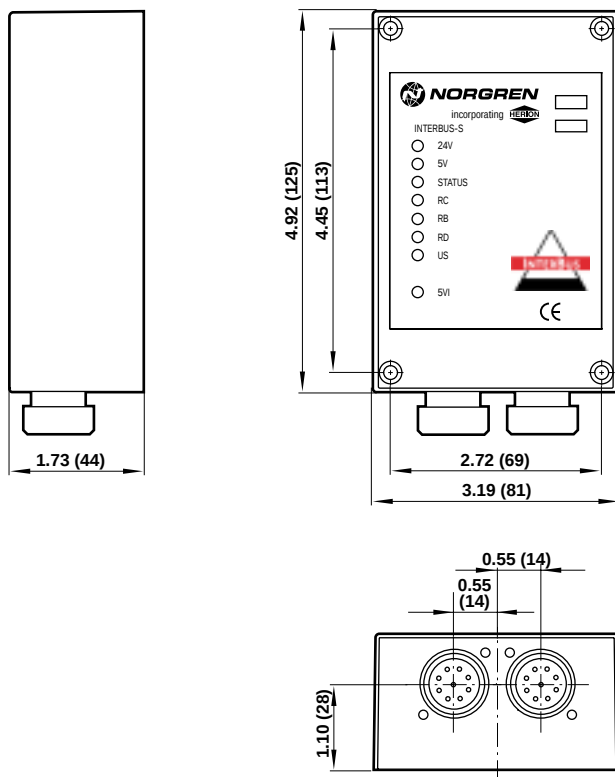
Fieldbus II, VE2 Series

All Dimensions in Inches (mm)

Interbus-S Fieldbus Node

Double Coninver Type Connectors (standard)

VE2IBFNC-64640



Interbus-S Node Accessories

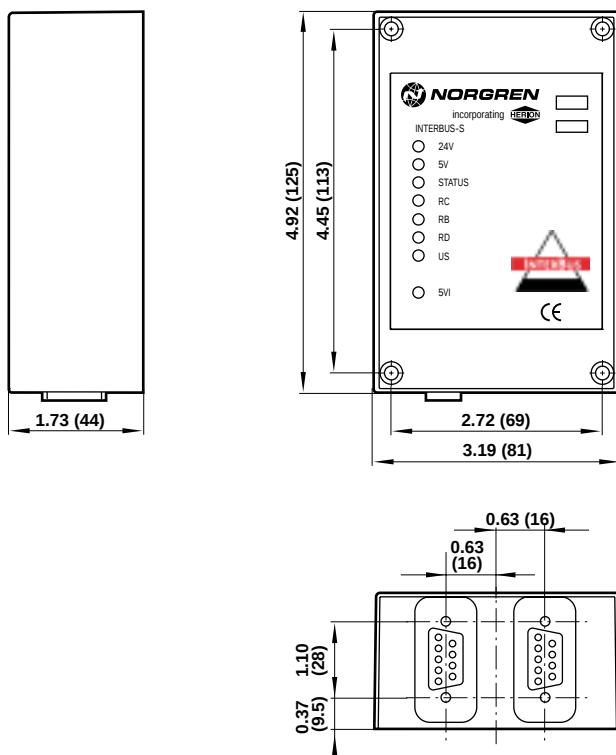
Wirable Interbus-S 9-pin connector

Part Number	
VE1IBCRS-CN09P	Male
VE1IBCRS-CN09S	Female

Interbus-S Fieldbus Node

Double D-Type Connectors (option)

VE2IBFNE-64640



Interbus-S Node Accessories

Wirable D-Type IP65 connector

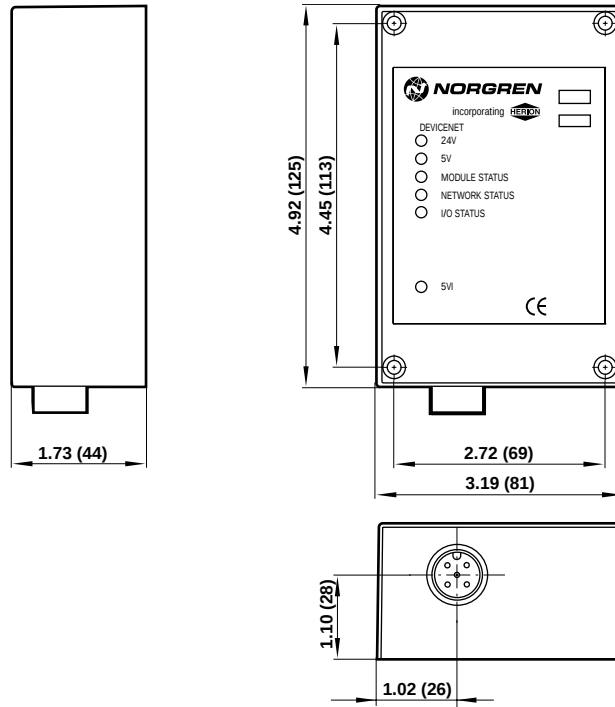
Part Number	
VE2FBC9P-00000	Male
VE2FBC9S-00000	Female



DeviceNet Fieldbus Node

Single Micro Change Type Connector (standard)

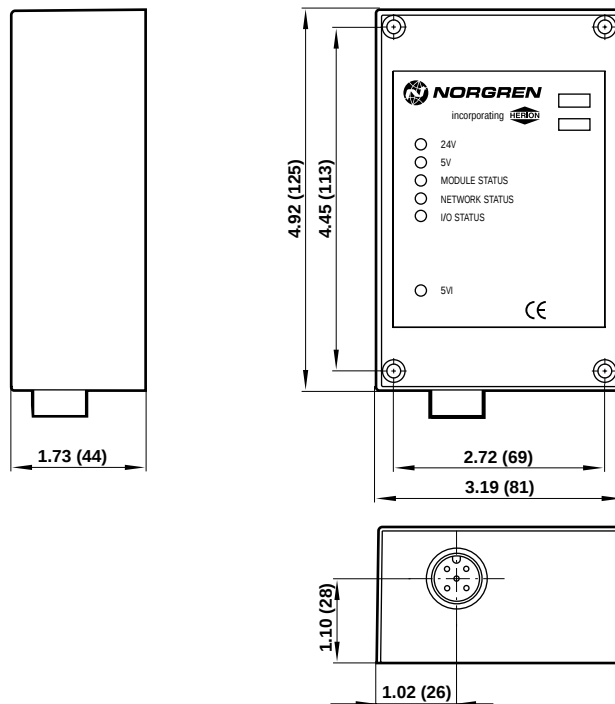
VE2DNFNB-64640



CANopen Fieldbus Node

Single Micro Change Type Connector (standard)

VE2CAFNB-64640



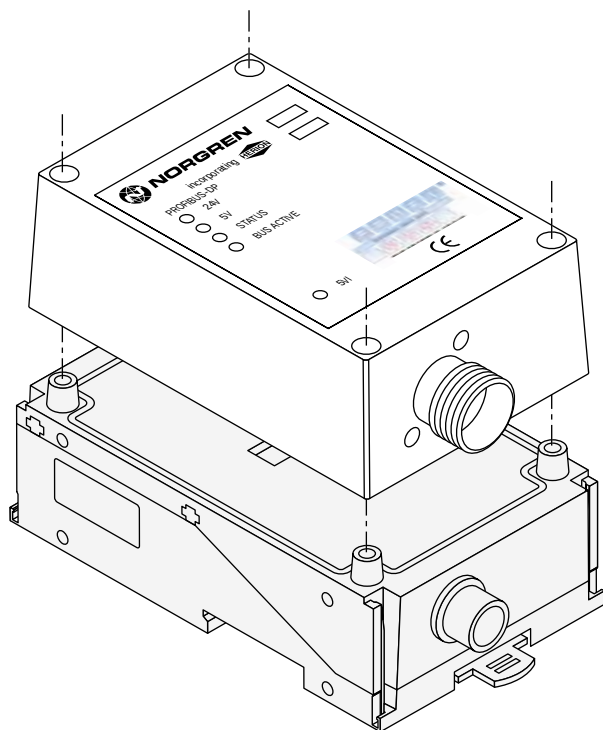


Fieldbus II, VE2 Series

All Dimensions in Inches (mm)

Common Node Sub-base

VE2FBSBA-00000



Common Node Accessories

Power cable with 4 pole female connector and hood

Part Number

VE2FBCPS-M1810 3 ft

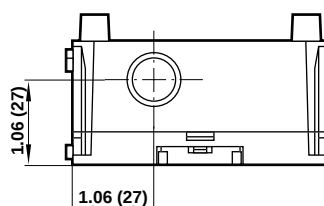
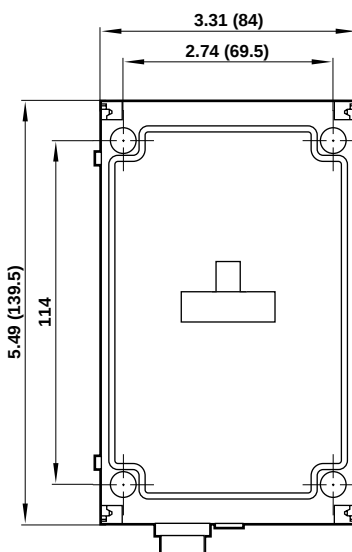
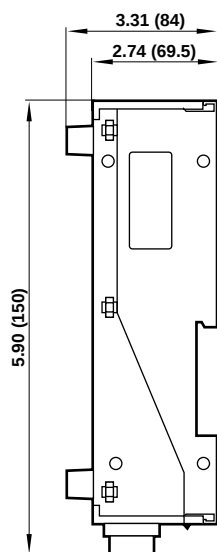
VE2FBCPS-M1830 10 ft

VE2FBCPS-M1850 16 ft

Wireable 4 pole female connector and hood

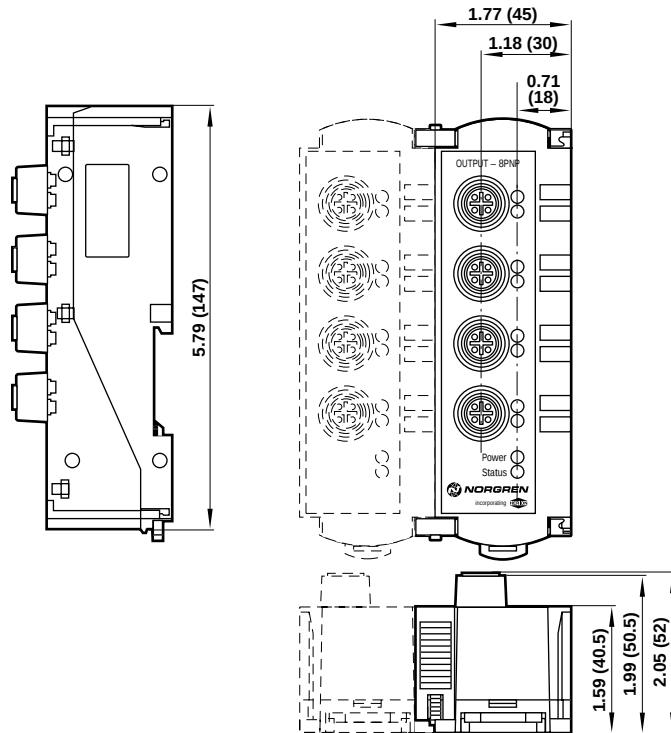
Part Number

VE2FBCPS-M1800





Input and Output Modules



VE2FBIMF-04000 4 Inputs NPN
 VE2FBIMG-04000 4 Inputs PNP
 VE2FBOMA-00040 4 Outputs

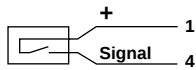
4 Pin input connection

Pin	
1	Sensor supply +
3	Sensor supply -
4	Signal input

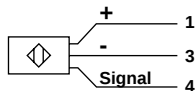
Module/Socket view



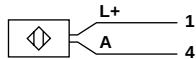
Mechanical switch
 Reed switch



3-wire-pnp-sensor



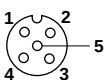
2-wire-pnp-sensor



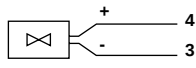
3 Pin output connection

Pin	
4	Switch output +
3	External voltage -

Module/Socket view



2-wire-solenoid-
 idle run diode
 recommended



VE2FBIMF-08000 8 Inputs NPN
 VE2FBIMG-08000 8 Inputs PNP
 VE2FBOMA-00080 8 Outputs

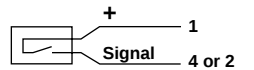
4 Pin input connection

Pin	
1	Sensor supply +
3	Sensor supply -
2+4	Signal input

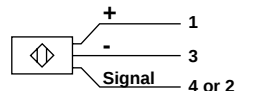
Module/Socket view



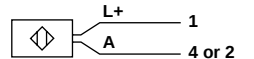
Mechanical switch
 Reed switch



3-wire-pnp-sensor



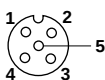
2-wire-pnp-sensor



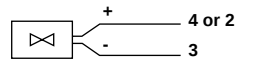
3 Pin output connection

Pin	
2+4	Switch output +
3	External voltage -

Module/Socket view



2-wire-solenoid-
 idle run diode
 recommended



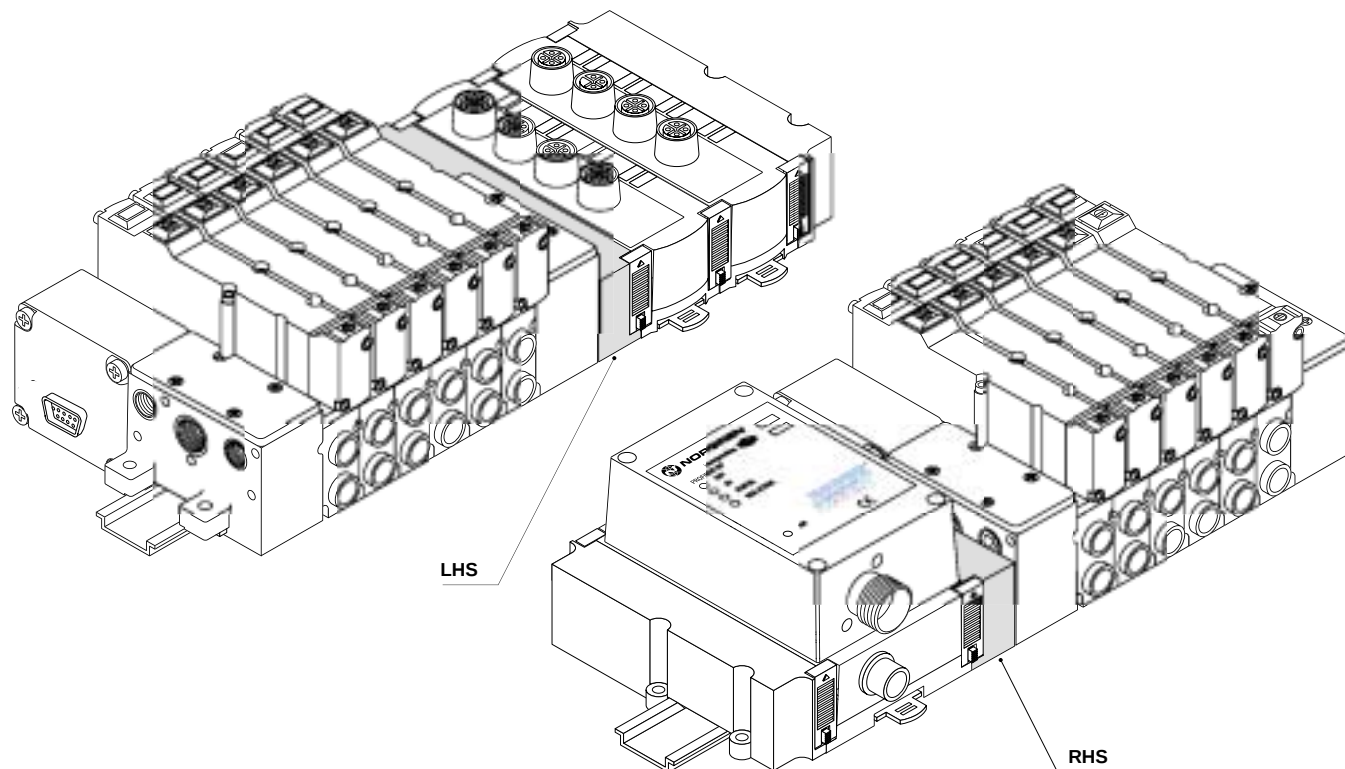


Fieldbus II, VE2 Series

All Dimensions in Inches (mm)

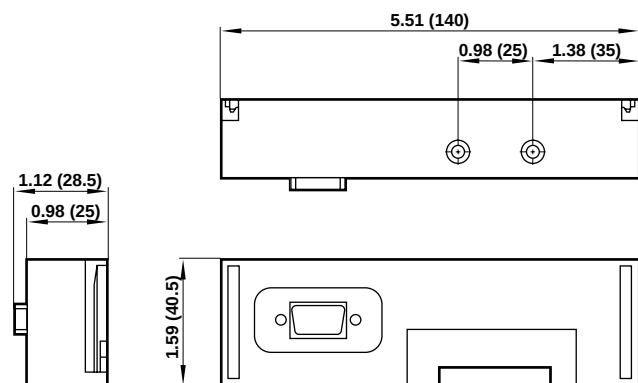
Valve Island Interface Plate

For connection between Common Node Sub-base or Input/Output Module and Valve Island



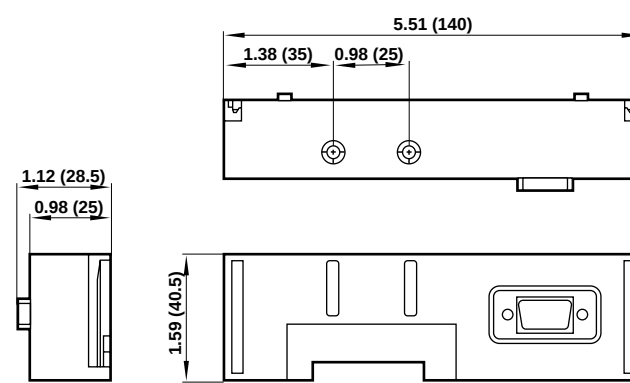
Left Hand Side (LHS)

VE2FBVPL-00000



Right Hand Side (RHS)

VE2FBVPR-00000

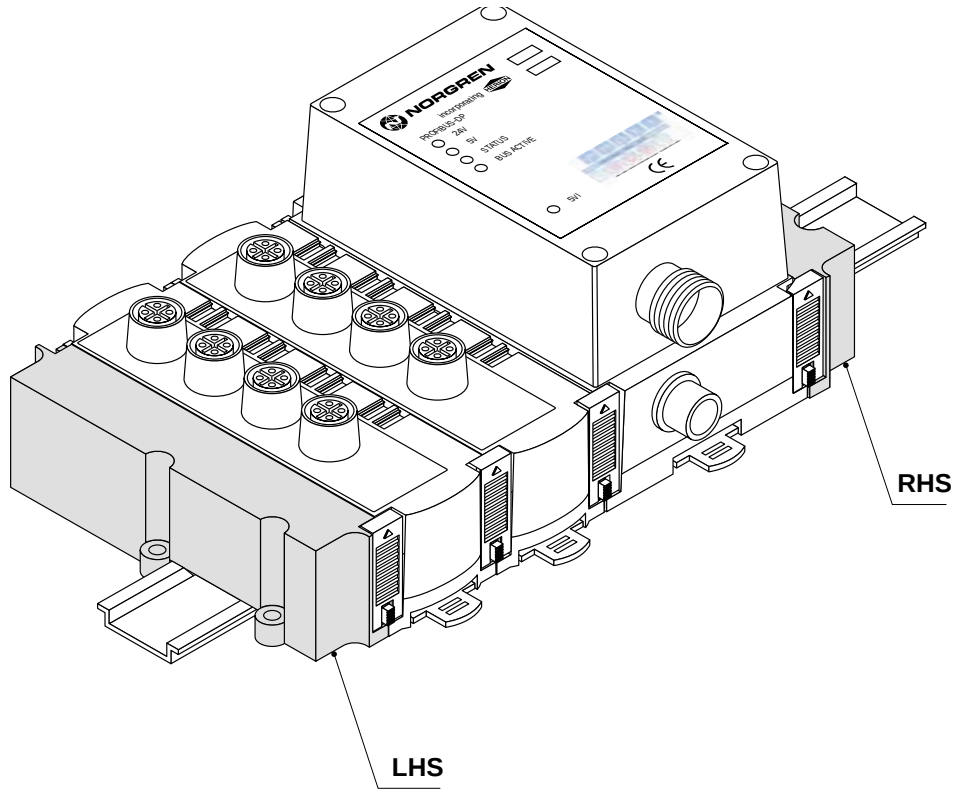


Additional V20 kit

V10075-K32

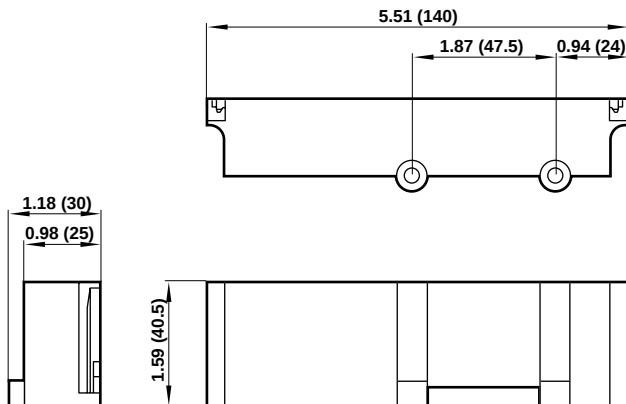


End Covers for Common Node Sub-base and Input/Output Modules



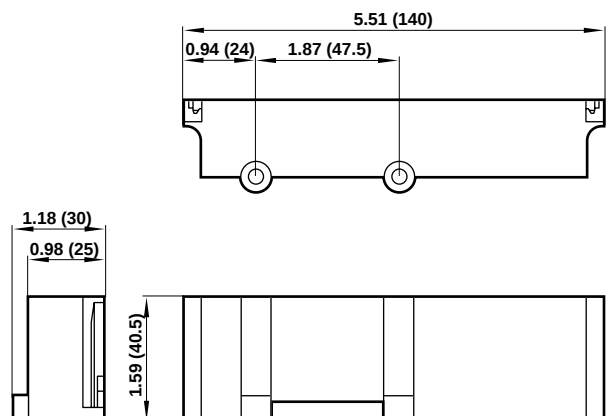
Left Hand Side (LHS)

VE2FBCL-00000



Right Hand Side (RHS)

VE2FBECR-00000



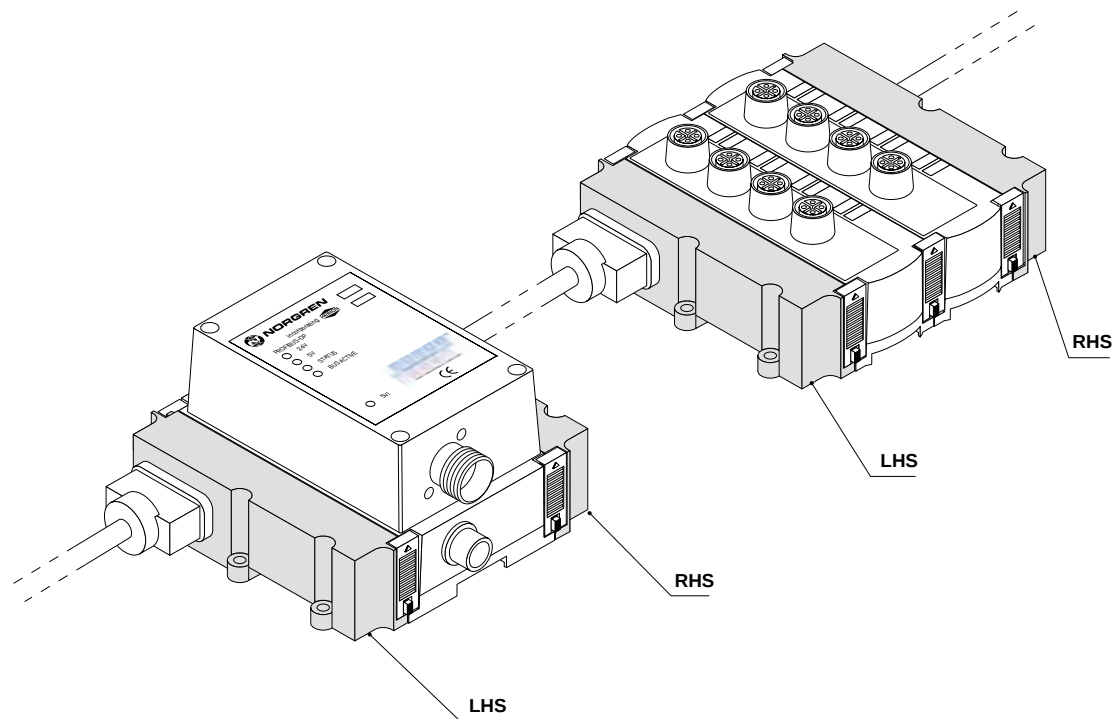


Fieldbus II, VE2 Series

All Dimensions in Inches (mm)

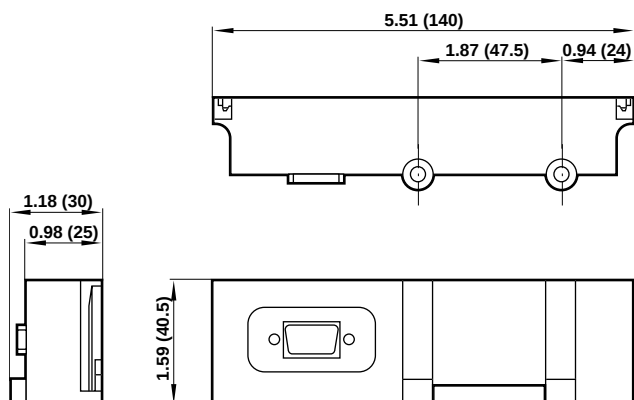
9-pin Cable Interface Plate

For Common Node Sub-base and Input/Output Modules



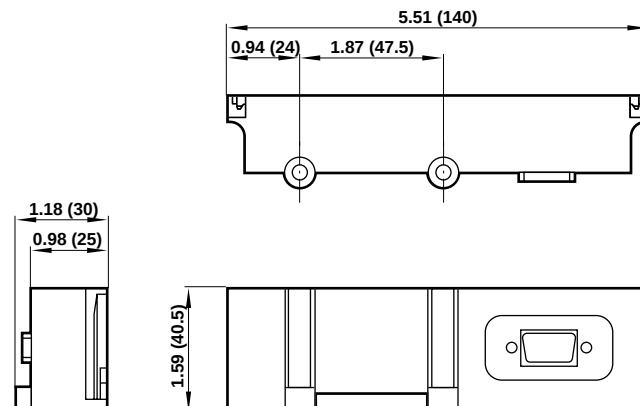
Left Hand Side (LHS)

VE2FBCPL-00000



Right Hand Side (RHS)

VE2FBCPR-00000



Fax back a copy of this form to your local IMI Norgren office.

_____ Date _____

VAL-2-37



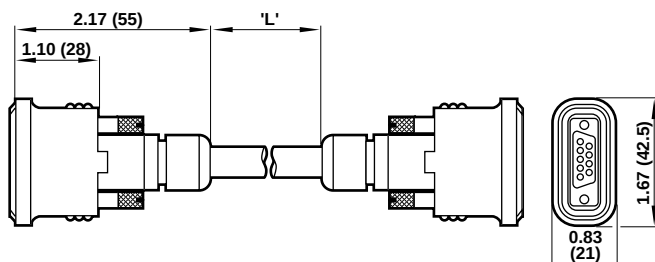
Fieldbus II, VE2 Series

All Dimensions in Inches (mm)

Distributed Systems

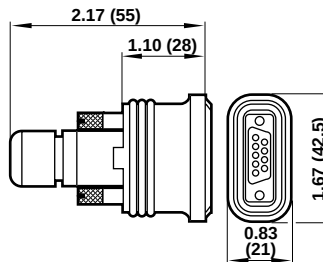
Cable with 9-pin D-Type Connectors (IP65, NEMA 4)

VE2FBC9P-9S010 L = 3 ft
VE2FBC9P-9S030 L = 10 ft
VE2FBC9P-9S050 L = 16 ft



Wireable 9-pin D-Type Connectors (IP65, NEMA 4)

VE2FBC9P-00000 male
VE2FBC9S-00000 female



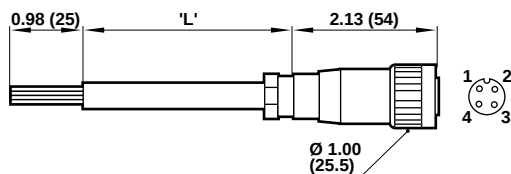
Cable specification:
Belden 9506 CMG 6pr24 Shielded

Pin No	9 Pin Male D-type	9 Pin Female D-type	Colour
1 5	24 Volt A 0V24	24 Volt A 024V	Red & Brown White
4 5	24 Volt B 0V24	24 Volt B 0V24	White Black
2 3	5 Volt 0V5	5Volt 0V5	Blue Black
9 7	A B	A B	Green Black
8 6	Config Out Config Rtn	Config In Config Rtn	Yellow Black
	Shell	Shell	Screen

Power supply cables and connectors (For common node sub-base)

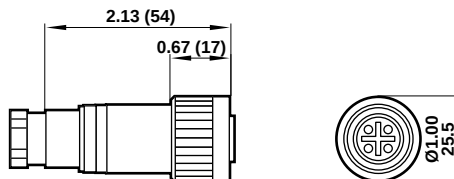
Cable and connector assemblies (IP65, NEMA 4)

VE2FBCPS-M1810 L = 3 ft
VE2FBCPS-M1830 L = 10 ft
VE2FBCPS-M1850 L = 16 ft



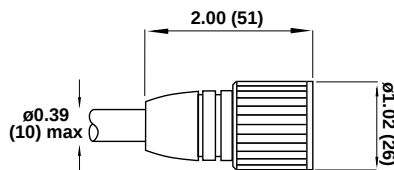
Wireable Power Supply Connector (IP65, NEMA 4)

VE2FBCPS-M1800



Wireable communication cable connectors (IP65, NEMA 4)

VE1DPCRS-CN12P Profibus-DP 12 pin coninver male
VE1IBCRS-CN09S Interbus-S 9 pin coninver female
VE1IBCRS-CN09P Interbus-S 9 pin coninver male

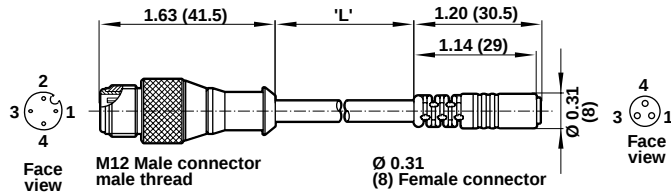




Input M12 plug and cable assemblies for sensors

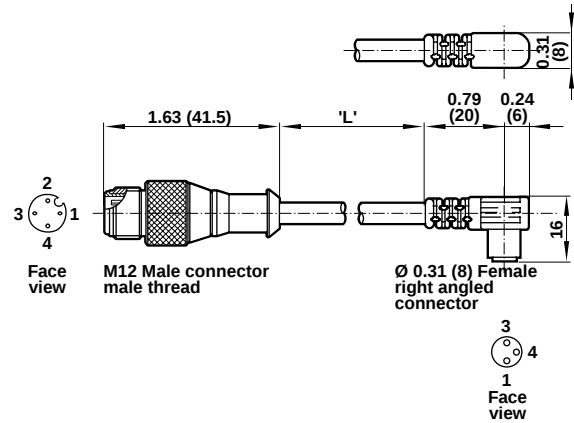
3 pin plug to 3 pin socket – straight connectors

VE1FBC8S-M1210	L = 3 ft
VE1FBC8S-M1230	L = 10 ft
VE1FBC8S-M1250	L = 16 ft



3 pin plug to 3 pin socket

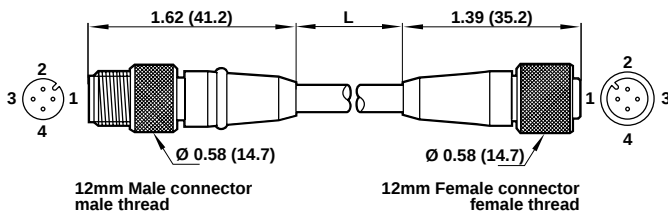
VE1FBC8E-M1210	L = 3 ft
VE1FBC8E-M1230	L = 10 ft
VE1FBC8E-M1250	L = 16 ft



Input M12 plug and cable assemblies for sensors

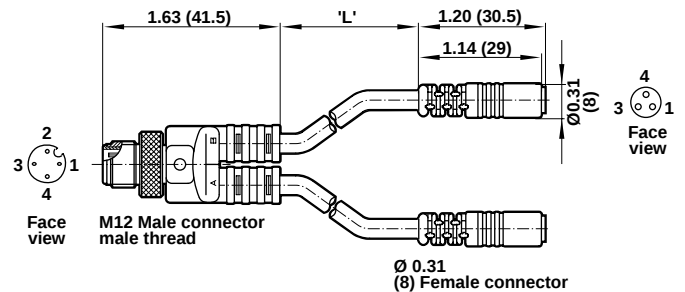
4 pin plug to 4 pin socket straight connector

VE1FBC0S-M1210	L = 3 ft
VE1FBC0S-M1230	L = 10 ft
VE1FBC0S-M1250	L = 16 ft



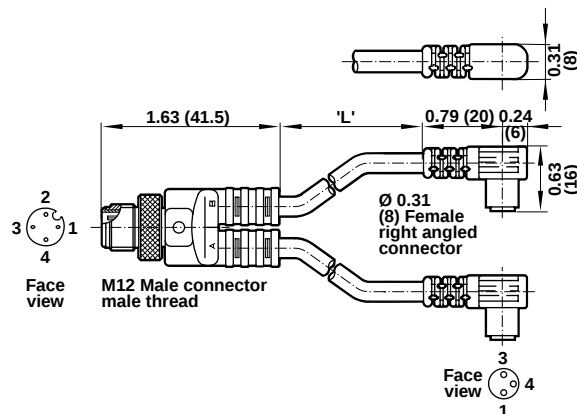
3 pin plug to 2x3 pin socket straight connector

VE1FBC8S-M121D	L = 3 ft
VE1FBC8S-M123D	L = 10 ft
VE1FBC8S-M125D	L = 16 ft



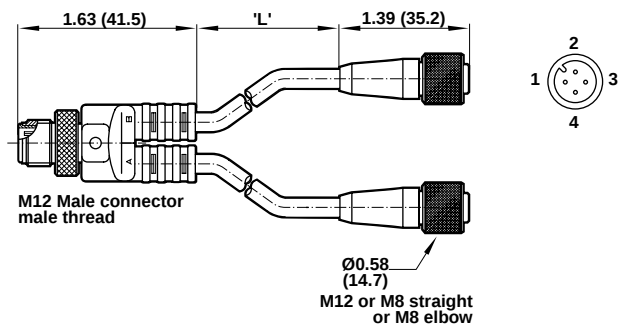
3 pin plug to 2x3 pin socket right angle connector

VE1FBC8E-M121D	L = 3 ft
VE1FBC8E-M123D	L = 10 ft
VE1FBC8E-M125D	L = 16 ft



4 pin plug to 2x4 pin socket straight connector

VE1FBC0S-M121D	L = 3 ft
VE1FBC0S-M123D	L = 10 ft
VE1FBC0S-M125D	L = 16 ft





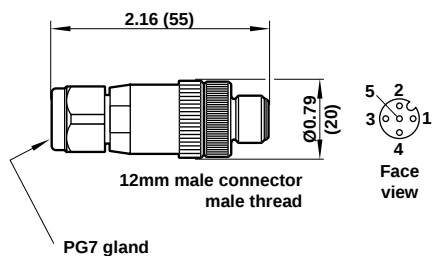
Fieldbus II, VE2 Series

All Dimensions in Inches (mm)

Input and Output M12 plug and cable assemblies for solenoid coils

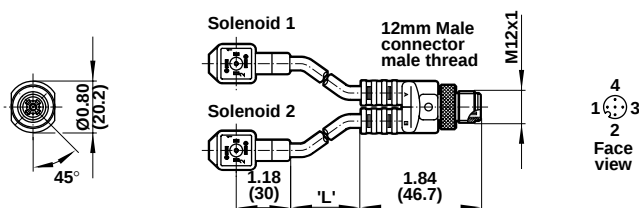
Wireable Input or output 5 pin male plug – screw termination

VE1FBCRS-M125P



5 pin plug to 2 valve connections

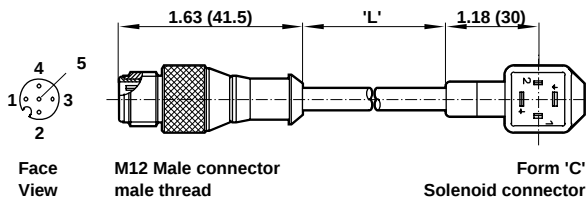
VE1FBCTC-M1203	L = 1 ft cable, Type 'C' connector
VE1FBCTC-M1210	L = 3 ft cable, Type 'C' connector
VE1FBCTB-M1203	L = 1 ft cable, Industrial connector
VE1FBCTB-M1210	L = 3 ft cable, Industrial connector
VE1FBCTA-M1203	L = 1 ft cable, Type 'A' connector
VE1FBCTA-M1210	L = 3 ft cable, Type 'A' connector



Form 'C' solenoid connector shown

5 pin plug to valve connection

VE1FBCSC-M1203	L = 1 ft cable, Type 'C' connector
VE1FBCSC-M1210	L = 3 ft cable, Type 'C' connector
VE1FBCSB-M1203	L = 1 ft cable, Industrial connector
VE1FBCSB-M1210	L = 3 ft cable, Industrial connector
VE1FBCSA-M1203	L = 1 ft cable, Type 'A' connector
VE1FBCSA-M1210	L = 3 ft cable, Type 'A' connector



Coil plugs are fitted with LED and suppression as standard



Address – Part of the message sent by the Fieldbus Controller is concerned with the device address. Each address is unique, and specifies the location of each valve driver and the solenoid position for the valve.

Analogue / Digital – Analogue signals are continuously variable (as is sound in the real world). Computers find it difficult to use analogue signals, so signals are converted into a digital form.

ASIC – Application Specific Integrated Circuits. These are designed for electronic circuits for use within a specific Fieldbus system. i.e. an ASIC for one type of system cannot usually be used with another.

Baud Rate – The speed at which digital information is transmitted. Baud rate is measured in bits/sec.

Bi-directional – Refers to the fact that messages can be sent in both directions along the same wires.

Binary – A mathematical system whereby the digits 0 and 1 are used to represent a character or piece of data in a computer. The electrical signals inside the computer can be thought of having only two states; signal off and signal on (0 and 1 respectively).

Bit/Byte/Word – A bit is a computing unit expressed as a choice of 0 or 1 (in basic terms - signal off or on). Bit actually stands for Binary Digit

Byte – A group of eight bits. The lowest bit (rightmost) is equal to 0 or 1 and the highest bit is equal to 0 of 128. The highest value that one byte can represent is 255 (or 256 states). i.e. $128 + 64 + 32 + 16 + 8 + 4 + 2 + 1 = 255$

Word – A group of sixteen bits. Words are used in 16 bit computers and many PLC data stores. A word can represent in binary form a maximum value of 65535 (or 65536 states).

Communication Bus – A physical link over which data is transmitted between suitable devices. The bus may be a wire, fiber optic, or radio wave.

Diagnostics – A way of receiving information on faults or problems between devices. This is achieved by using visible indicators on or inside the Fieldbus unit or by communication between devices. i.e. if a program finds a fault, it may be instructed to reset the system or possibly to wait for further instruction from an operator.

Fieldbus – Also bus. A data link (usually in the form of a cable) on which electrical devices communicate with each other for control purposes. In Pneumatic systems, Fieldbus linked drivers, operate valves or other remote devices. Feedback from sensors is provided by Input Modules.

Hexadecimal – A mathematical system where each character can represent a value up to 15 (i.e. 16 states). i.e. Hex 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F.

I/O – Also Input/Output. The I/O is the physical connection between a controller and the equipment that it controls. The connected inputs may be switches, proximity devices or analogue sensors. Outputs may be relays, pneumatic solenoid coils or analogue devices. The Input module also serves as a barrier against harsh spikes and noise often experienced in an industrial environment. It may contain opto-isolators which protect the CPU from large input surges.

IP rating – Provides a means of classifying the degrees of protection from dust, water and impact afforded by electrical equipment enclosures. It is common practice for manufacturers to apply ratings for only the first two numerals.

IP40 and IP65 – IP40 protects against solid objects over 1 mm (such as tools, wires, fingers), but has no protection against ingress of liquids. IP65 totally protects against dust and low pressure water jets from all directions.

Ladder Logic – A method of describing an electrical circuit in logic symbols and relay-based ladder diagrams. It is the usual way to program PLC's.

Line Bus – A line bus does

Master – A controller connected to a bus which issues messages to other devices on the same bus. Masters contain programs to logically control processes and can be a PLC, PC or other control device.

Supervisory Master – A controller which only concerns itself with the inputs and ignores all the outputs.

PLC – Programmable Logic Controller

Slave – A device connected to a bus which only responds when a message intended for itself is received. Except for a reply to that message, it can not access the bus. The common name for the valve driver or input module.

Repeater – A device which can either boost the signal generated by a fieldbus master (in order that slaves can be positioned further from the signal source): or it may allow a greater number of devices to be connected to a Fieldbus system.

Valve Manifold – Replaces the manifold solenoid valve bank. A combination of system valves, usually with a multipole, configured specifically to meet customers needs.

Gateway – A converter which allows systems running two different protocols to communicate with each other: in effect a translator.

Ladder logic – A method of describing an electrical circuit in logic symbols and relay-based ladder diagrams. It is the usual way to program PLC's.

Line bus – A line bus does not form a closed loop circuit. With the line bus networks Norgren promotes, all the stations are daisy chain together to overcome a problem associated with Spur distances. Although both a line-in and line-out are provided, they are effectively connected inside the Fieldbus units. However, DeviceNet units tap directly off the communication bus with t-pieces.

Ring bus – Also Closed loop. All stations in a system are linked into a physical ring. With Interbus-S the link passes through each station in turn and each station is therefore an integral part of the transmission path. The data makes one trip around the ring, passed from station to station. Each station checks whether the data is addressed to it. When this is the case, the station copies the data into its own memory.

Tree bus – Does not form a closed loop. Each station is linked to the transmission path by cables as required. Unlike Line bus, a Tree bus is more flexible because the communication can be laid out into any convenient shape.

Multi-drop – Refers to a communications system which has two or more devices connected to it off a bus (i.e. more than one device can be connected to it).

NEMA 4 – An American Standard for water penetration.

Multipole – A connector in which all the individual wires for devices are combined in a cable which has an integral multipin connector for quick connection and installation in a system. i.e. a printer cable for connection to a computer employs a similar principle.

Noise – Electrical interference, usually in the form of high voltage spikes or radio signals caused by unscreened or unsuppressed equipment. Noise can cause corruption of data during transmission or malfunction of electronic components.

Open System – For a system to function properly, all devices must be compatible. With Open systems, the technology (or protocol) is available to allow manufacturers to build compatible equipment.

Closed System – Also In-House or Proprietary system. A manufacturer develops the technology (or protocol) that is unique to him. Closed systems are therefore company specific and usually non-compatible with other types. Closed Norgren systems are: Pneubus, Sysmac, Jetterbus.

Opto-isolator – Separates harsh industrial signals from sensitive components in a controller or slave. This is achieved by converting the signal to light. The external signal is transmitted as light to a light sensitive receiver. This in turn converts the light back into an electrical signal.

Protocol – Defines the content and structure of a Fieldbus message. The differences between each Fieldbus protocol can be considered in the same way as those between languages.

RS232, RS422, RS485 – American Standards for the electrical characteristics of a link. The standard specifies the digit state values. Links are used in the digital transmission of data between electronic equipment.

RAM / ROM / EEPROM –

RAM – Random Access Memory. RAM is used internally by a PC or PLC as a short term store for data, program variables and control codes. It is volatile and as such will lose all its data when power is removed. Therefore, RAM used for programs is battery backed.

ROM – Read ONLY Memory. ROM is pre-programmed by the manufacturer. It holds the controller system memory and instructions for its operation. It cannot be altered. It is non-volatile; when power is removed a ROM retains all its information.

EEPROM – Electrically Erasable Programmable Read Only Memory. EEPROM's are used to store the user program. They can be erased and programmed with relative ease. As with ROMS. EEPROM's do not lose their contents when power is removed and as such they are non-volatile.

V60, V61, and V62

3/2, 5/2, 5/3 and 2 x 3/2 Directional Control Valves

Contents

Technical Data	VAL-3-2
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Manifold System	VAL-3-15
Mounting Instructions.....	VAL-3-16
Product Numbering System	VAL-3-17



- High flow rate
- Manual override option
- Manifold system for easy assembly
- Low power consumption
- Maintenance-free



Technical data

Medium:

Compressed air, filtered to 50 µm, lubricated or non-lubricated.

Operation:

Solenoid pilot or air pilot operated

Mounting: Individual or fixed length manifold

Connection:

1/8" NPT up to 3/8" NPT

Operating pressure:

Maximum pressure 116 to 145 psi (8 to 10 bar)

Flow direction:

Internal pilot supply: fixed

External pilot supply: optional

Flow:

Size NPT	3/2, 5/2	2 x 3/2, 5/3
	Cv (l/min)	Cv (l/min)
1/8	.75 (750)	.50 (500)
1/4	1.3 (1300)	.95 (950)
3/8	2.6 (2600)	1.9 (1900)

Ambient temperature:

14°F to +122°F (-10°C to +50°C)

Fluid temperature:

14°F to +122°F (-10°C to +50°C)

Consult our Technical Service for use below 36°F (+2°C).

Materials

Housing and base plate: aluminum

Spindle: stainless steel,

Piston, spacers and cover: synthetic material

Static and dynamic seals: NBR

Screws: zinc plated

Springs: stainless steel

Alternative models

ISO G ports.



3/2 Solenoid Pilot Valves

Symbol	Model	Port size	Pilot supply	Pilot exhaust	Solenoid variant	Flow Cv (l/min)	Operating pressure psi (bar)	Pilot pressure psi (bar)	lbs (kg)	Dimensional drawing no.
	V60P417A-Ax****	1/8	Internal	Not collected	Primary	0.75 (750)	29 to 116 (2 to 8)	—	0.49 (.22)	1
	V60P427A-Ax****	1/8	External	Not collected	Primary	0.75 (750)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.49 (.22)	1
	V60P417D-Cx13AA	1/8	Internal	Collected	Secondary	0.75 (750)	29 to 145 (2 to 10)	—	0.46 (.21)	4
	V60P427D-Cx13AA	1/8	External	Collected	Secondary	0.75 (750)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.46 (.21)	4
	V61B417A-Ax****	1/4	Internal	Not collected	Primary	1.30 (1300)	29 to 116 (2 to 8)	—	0.64 (.29)	1
	V61B427A-Ax****	1/4	External	Not collected	Primary	1.30 (1300)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.64 (.29)	1
	V61B417D-Cx13AA	1/4	Internal	Collected	Secondary	1.30 (1300)	29 to 145 (2 to 10)	—	0.60 (.27)	4
	V61B427D-Cx13AA	1/4	External	Collected	Secondary	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.60 (.27)	4
	V62S417A-Ax****	3/8	Internal	Not collected	Primary	2.60 (2600)	29 to 116 (2 to 8)	—	1.15 (.52)	1
	V62S427A-Ax****	3/8	External	Not collected	Primary	2.60 (2600)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.15 (.52)	1
	V62S417D-Cx13AA	3/8	Internal	Collected	Secondary	2.60 (2600)	29 to 145 (2 to 10)	—	1.10 (.50)	4
	V62S427D-Cx13AA	3/8	External	Collected	Secondary	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.10 (.50)	4
	V60P317A-Ax****	1/8	Internal	Not collected	Primary	0.75 (750)	29 to 116 (2 to 8)	—	0.5 (.22)	2
	V60P327A-Ax****	1/8	External	Not collected	Primary	0.75 (750)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.5 (.22)	2
	V60P317D-Cx13AA	1/8	Internal	Collected	Secondary	0.75 (750)	29 to 145 (2 to 10)	—	0.5 (.21)	4
	V60P327D-Cx13AA	1/8	External	Collected	Secondary	0.75 (750)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.5 (.21)	4
	V61R317A-Ax****	1/4	Internal	Not collected	Primary	1.30 (1300)	29 to 116 (2 to 8)	—	0.64 (.29)	2
	V61R327A-Ax****	1/4	External	Not collected	Primary	1.30 (1300)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.64 (.29)	2
	V61R317D-Cx13AA	1/4	Internal	Collected	Secondary	1.30 (1300)	29 to 145 (2 to 10)	—	0.60 (.27)	4
	V61R327D-Cx13AA	1/4	External	Collected	Secondary	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.60 (.27)	4
	V62S317A-Ax****	3/8	Internal	Not collected	Primary	2.60 (2600)	29 to 116 (2 to 8)	—	1.15 (.52)	2
	V62S327A-Ax****	3/8	External	Not collected	Primary	2.60 (2600)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.15 (.52)	2
	V62S317D-Cx13AA	3/8	Internal	Collected	Secondary	2.60 (2600)	29 to 145 (2 to 10)	—	1.10 (.50)	4
	V62S327D-Cx13AA	3/8	External	Collected	Secondary	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.10 (.50)	4
	V60P411A-Ax****	1/8	Internal	Not collected	Primary	0.75 (750)	22 to 116 (1.5 to 8)	—	.66 (.30)	3
	V60P422A-Ax****	1/8	External	Not collected	Primary	0.75 (750)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	.66 (.30)	3
	V60P411D-Cx13AA	1/8	Internal	Collected	Secondary	0.75 (750)	22 to 145 (1.5 to 10)	—	.44 (.20)	4
	V60P422D-Cx13AA	1/8	External	Collected	Secondary	0.75 (750)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	.44 (.20)	4
	V61R411A-Ax****	1/4	Internal	Not collected	Primary	1.30 (1300)	22 to 116 (1.5 to 8)	—	0.84 (.38)	3
	V61R422A-Ax****	1/4	External	Not collected	Primary	1.30 (1300)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.84 (.38)	3
	V61R411D-Cx13AA	1/4	Internal	Collected	Secondary	1.30 (1300)	22 to 145 (1.5 to 10)	—	0.60 (.27)	4
	V61R422D-Cx13AA	1/4	External	Collected	Secondary	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.60 (.27)	4
	V62S411A-Ax****	3/8	Internal	Not collected	Primary	2.60 (2600)	22 to 116 (1.5 to 8)	—	1.34 (.61)	3
	V62S422A-Ax****	3/8	External	Not collected	Primary	2.60 (2600)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.34 (.61)	3
	V62S411D-Cx13AA	3/8	Internal	Collected	Secondary	2.60 (2600)	22 to 145 (1.5 to 10)	—	1.10 (.50)	4
	V62S422D-Cx13AA	3/8	External	Collected	Secondary	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.10 (.50)	4

**** Insert coil connector code from tables below.

For manual override options, substitute 'x' as follows:

- 1 = without manual override
2 = locking
3 = non-locking

NC = Normally closed

NO = Normally open

Coil & voltage codes

Primary (22 mm coil industrial standard)

Voltage	Coil code	Power inrush/hold	Model
12 V d.c.	12J	2 W	54469-01
24 V d.c.	13J	2 W	54469-02
24 V 50/60 Hz	14J	4/2.5 VA	54469-04
48 V 50/60 Hz	16J	4/2.5 VA	54469-07
110/120 V 50/60 Hz	18J	4/2.5 VA	54469-03
220/240 V 50/60 Hz	19J	6/5 VA	54469-08

Secondary

Double solenoid DIN EN 175 301-803 (DIN 43650 type C) 4 pin

Voltage	Coil code	Power inrush/hold
24 V d.c.	13 A	2 W

Plug configuration, valve side/twin pilot

Symbol	Plug no.	Function	Actuation
	1	(+)	12 (Solenoid 2)
	2	(-)	12 + 14
	3	(+)	14 (Solenoid 1)

Electrical details

Voltage tolerance: $\pm 10\%$

Rating: 100% E.D.

Protection class: IP 65 with sealed plugs (ISO 6952)

Connectors

3-Pin Industrial Standard 22mm

A = no connector	
B = Cable grip 0-240Vac/Vdc	54934-01
C = 6 ft molded cable, 0-240Vac/Vdc	54934-21
H = Cable grip w/indicator light 24Vdc	54934-08
J = Cable grip w/indicator light 120Vac	54934-02
Z = 1/2" Conduit 0-240Vac/Vdc	54934-05
5 = 6 ft molded cable w/indicator light, surge suppression, 24Vac/Vdc	54934-30
6 = 6 ft molded cable w/indicator light, 120Vac	54934-35

4-Pin Connector

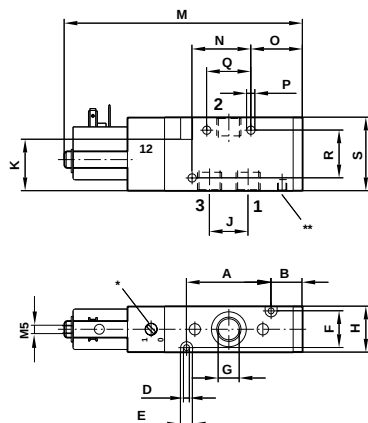
A = no connector	
Y = 4-pin cable grip 0-240Vac/Vdc	0588666
X = 4-pin 10' molded cable 0-240Vac/Vdc	0102144



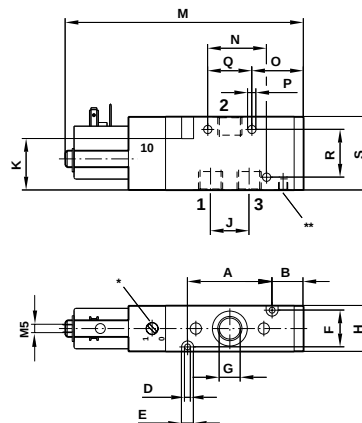
V60 Series

All Dimensions in Inches (mm)

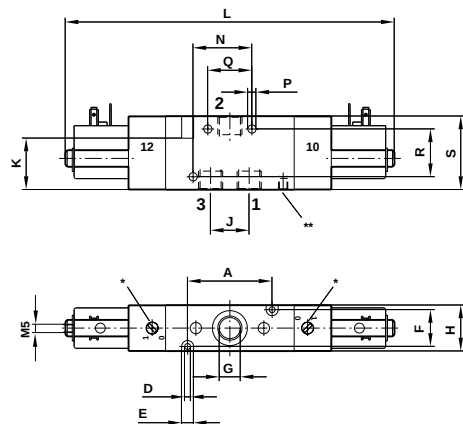
1



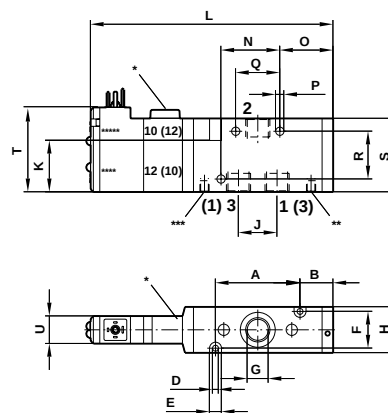
2



3



4



* Manual override
** External pilot supply 10-32
*** Collected pilot exhaust 10-32
**** Solenoid 1
***** Solenoid 2

Dimensional drawing no.	Type	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U
1	V60	1.38 (35)	0.67 (17)	—	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	0.64 (16.2)	1.10 (28)	—	4.49 (114)	0.98 (25)	0.98 (25)	0.18 (4.5)	0.71 (18)	1.02 (26)	1.38 (35)	—	—
1	V61	1.81 (46)	0.71 (18)	—	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	0.83 (21)	1.10 (28)	—	5.12 (130)	1.26 (32)	1.14 (29)	0.18 (4.5)	0.94 (24)	1.02 (26)	1.57 (40)	—	—
1	V62	2.13 (54)	0.83 (21)	—	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	0.96 (24)	1.73 (44)	—	5.71 (145)	0.47 (12)	1.42 (36)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	—	—
2	V60	1.38 (35)	0.67 (17)	—	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	0.64 (16)	1.10 (28)	—	4.49 (114)	0.98 (25)	0.98 (25)	0.18 (4.5)	0.71 (18)	1.02 (26)	1.38 (35)	—	—
2	V61	1.81 (46)	0.71 (18)	—	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	0.83 (21)	1.10 (28)	—	5.12 (130)	1.26 (32)	1.14 (29)	0.18 (4.5)	0.94 (24)	1.02 (26)	1.57 (40)	—	—
2	V62	2.13 (54)	0.83 (21)	—	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	0.96 (24)	1.73 (44)	—	5.71 (145)	0.47 (12)	1.34 (34)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	—	—
3	V60	1.38 (35)	—	—	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	0.64 (16)	1.10 (28)	6.30 (160)	—	0.98 (25)	—	0.18 (4.5)	0.71 (18)	1.02 (26)	1.38 (35)	—	—
3	V61	1.81 (46)	—	—	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	0.83 (21)	1.10 (28)	7.05 (179)	—	1.26 (32)	—	0.18 (4.5)	0.94 (24)	1.02 (26)	1.57 (40)	—	—
3	V62	2.13 (54)	—	—	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	0.96 (24)	1.73 (44)	7.64 (194)	—	0.47 (12)	—	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	—	—
4	V60	1.38 (35)	0.67 (17)	—	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	0.64 (16)	1.10 (28)	4.69 (119)	—	0.98 (25)	0.98 (25)	0.18 (4.5)	0.71 (18)	1.02 (26)	1.38 (35)	1.81 (46)	0.59 (15)
4	V61	1.81 (46)	0.71 (18)	—	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	0.83 (21)	1.10 (28)	5.24 (133)	—	1.26 (32)	1.14 (29)	0.18 (4.5)	0.94 (24)	1.02 (26)	1.57 (40)	1.81 (46)	0.59 (15)
4	V62	2.13 (54)	0.83 (21)	—	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	0.96 (24)	1.73 (44)	5.79 (147)	—	0.47 (12)	1.42 (36)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	2.13 (54)	0.59 (15)



2 x 3/2 Solenoid Pilot Valves

Symbol	Model	Port size	Pilot supply	Pilot exhaust	Solenoid variant	Flow Cv (l/min)	Operating pressure (bar)	Pilot pressure (bar)	lbs (kg)	Dimensional drawing no.
	V60PA11A-Ax****	1/8	Internal	Not collected	Primary	0.50 (500)	29 to 116 (2 – 8)	–	0.75 (0.34)	7
	V60PA11D-Cx13AA	1/8	Internal	Collected	Secondary	0.50 (500)	29 to 145 (2 – 10)	–	0.53 (0.24)	8
	V61RA11A-Ax****	1/4	Internal	Not collected	Primary	0.95 (950)	29 to 116 (2 – 8)	–	0.95 (0.43)	7
	V61RA11D-Cx13AA	1/4	Internal	Collected	Secondary	0.95 (950)	29 to 145 (2 – 10)	–	0.73 (0.33)	8
	V62SA11A-Ax****	3/8	Internal	Not collected	Primary	1.90 (1900)	29 to 116 (2 – 8)	–	0.73 (0.33)	7
	V62SA11D-Cx13AA	3/8	Internal	Collected	Secondary	1.90 (1900)	29 to 145 (2 – 10)	–	1.39 (0.63)	8
	V60PB11A-Ax****	1/8	Internal	Not collected	Primary	0.50 (500)	29 to 116 (2 – 8)	–	0.75 (0.34)	7
	V60PB11D-Cx13AA	1/8	Internal	Collected	Secondary	0.50 (500)	29 to 145 (2 – 10)	–	0.53 (0.24)	8
	V61RB11A-Ax****	1/4	Internal	Not collected	Primary	0.95 (950)	29 to 116 (2 – 8)	–	0.95 (0.43)	7
	V61RB11D-Cx13AA	1/4	Internal	Collected	Secondary	0.95 (950)	29 to 145 (2 – 10)	–	0.73 (0.33)	8
	V62SB11A-Ax****	3/8	Internal	Not collected	Primary	1.90 (1900)	29 to 116 (2 – 8)	–	1.61 (0.73)	7
	V62SB11D-Cx13AA	3/8	Internal	Collected	Secondary	1.90 (1900)	29 to 145 (2 – 10)	–	1.39 (0.63)	8
	V60PC11A-Ax****	1/8	Internal	Not collected	Primary	0.50 (500)	29 to 116 (2 – 8)	–	0.75 (0.34)	7
	V60PC11D-Cx13AA	1/8	Internal	Collected	Secondary	0.50 (500)	29 to 145 (2 – 10)	–	0.53 (0.24)	8
	V61RC11A-Ax****	1/4	Internal	Not collected	Primary	0.95 (950)	29 to 116 (2 – 8)	–	0.95 (0.43)	7
	V61RC11D-Cx13AA	1/4	Internal	Collected	Secondary	0.95 (950)	29 to 145 (2 – 10)	–	0.73 (0.33)	8
	V62SC11A-Ax****	3/8	Internal	Not collected	Primary	1.90 (1900)	29 to 116 (2 – 8)	–	1.61 (0.73)	7
	V62SC11D-Cx13AA	3/8	Internal	Collected	Secondary	1.90 (1900)	29 to 145 (2 – 10)	–	1.39 (0.63)	8

**** Insert coil connector code from tables below.

For manual override options, substitute 'x' as follows:

- 1 = without manual override
- 2 = locking
- 3 = non-locking

NC/NC = Both valves normally closed

NO/NO = Both valves normally open

NO/NC = 1 valve normally open, 1 valve normally closed

Coil & voltage codes

Primary (22 mm coil industrial standard)

Voltage	Coil code	Power inrush/hold	Model
12 V d.c.	12J	2 W	54469-01
24 V d.c.	13J	2 W	54469-02
24 V 50/60 Hz	14J	4/2.5 VA	54469-04
48 V 50/60 Hz	16J	4/2.5 VA	54469-07
110/120 V 50/60 Hz	18J	4/2.5 VA	54469-03
220/240 V 50/60 Hz	19J	6/5 VA	54469-08

Secondary

Double solenoid DIN EN 175 301-803 (DIN 43650 type C) 4 pin

Voltage	Coil code	Power inrush/hold
24 V d.c.	13 A	2 W

Electrical details

Voltage tolerance:	±10%
Rating:	100% E.D.
Protection class:	IP 65 with sealed plugs (ISO 6952)

Connectors

3-Pin Industrial Standard 22mm

A = no connector	
B = Cable grip 0-240Vac/Vdc	54934-01
C = 6 ft molded cable, 0-240Vac/Vdc	54934-21
H = Cable grip w/indicator light 24Vdc	54934-08
J = Cable grip w/indicator light 120Vac	54934-02
Z = 1/2" Conduit 0-240Vac/Vdc	54934-05
5 = 6 ft molded cable w/indicator light, surge suppression, 24Vac/Vdc	54934-30
6 = 6 ft molded cable w/indicator light, 120Vac	54934-35

4-Pin Connector

A = no connector	
Y = 4-pin cable grip 0-240Vac/Vdc	0588666
X = 4-pin 10' molded cable 0-240Vac/Vdc	0102144

Plug configuration, valve side/twin pilot

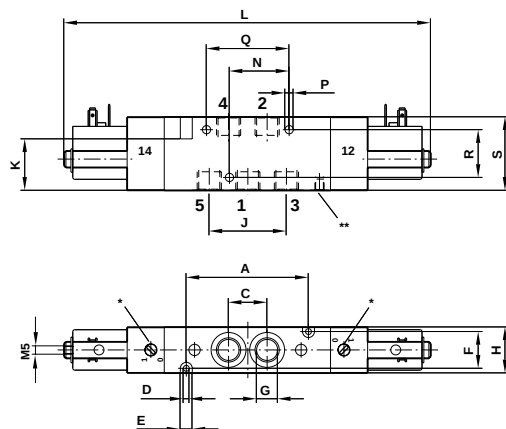
Symbol	Plug no.	Function	Actuation
	1	(+)	12 (Solenoid 2)
	2	(-)	12 + 14
	3	(+)	14 (Solenoid 1)



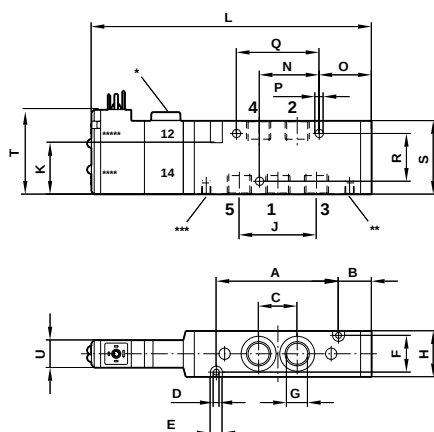
V60 Series

All Dimensions in Inches (mm)

7



8



- * Manual override
- ** External pilot supply 10-32
- *** Collected pilot exhaust 10-32
- **** Solenoid 1
- ***** Solenoid 2

Dimensional drawing no.	Type	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U
7	V60	1.97 (50)	—	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	6.89 (175)	—	0.98 (25)	—	0.18 (4.5)	1.32 (33.6)	1.02 (26)	1.38 (35)	—	—
7	V61	2.60 (66)	—	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	7.83 (199)	—	1.26 (32)	—	0.18 (4.5)	1.73 (44)	1.02 (26)	1.57 (40)	—	—
7	V62	3.07 (78)	—	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	8.58 (218)	—	0.47 (12)	—	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	—	—
8	V60	1.97 (50)	0.67 (17)	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	5.28 (134)	—	0.98 (25)	0.98 (25)	0.18 (4.5)	1.32 (33.6)	1.02 (26)	1.38 (35)	1.81 (46)	0.59 (15)
8	V61	2.60 (66)	0.71 (18)	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	6.02 (153)	—	1.26 (32)	1.14 (29)	0.18 (4.5)	1.73 (44)	1.02 (26)	1.57 (40)	1.81 (46)	0.59 (15)
8	V62	3.07 (78)	0.87 (22)	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	6.77 (172)	—	0.47 (12)	2.40 (61)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	2.13 (54)	0.59 (15)



5/2 Solenoid Pilot Valves

Symbol	Model	Port size	Pilot supply	Pilot exhaust	Solenoid variant	Flow Cv (l/min)	Operating pressure (bar)	Pilot pressure (bar)	lbs (kg)	Dimensional drawing no.
	V60P517A-Ax****	1/8	Internal	Not collected	Primary	0.75 (750)	29 to 116 (2 to 8)	–	0.53 (0.24)	9
	V60P527A-Ax****	1/8	External	Not collected	Primary	0.75 (750)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.53 (0.24)	9
	V60P517D-Cx13AA	1/8	Internal	Collected	Secondary	0.75 (750)	29 to 145 (2 to 10)	–	0.51 (0.23)	11
	V60P5223-Cx13AA	1/8	External	Collected	Secondary	0.75 (750)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.51 (0.23)	11
	V61R517A-Ax****	1/4	Internal	Not collected	Primary	1.30 (1300)	29 to 116 (2 to 8)	–	0.73 (0.33)	9
	V61R527A-Ax****	1/4	External	Not collected	Primary	1.30 (1300)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.73 (0.33)	9
	V61R517D-Cx13AA	1/4	Internal	Collected	Secondary	1.30 (1300)	29 to 145 (2 to 10)	–	0.71 (0.32)	11
	V62S517A-Ax****	3/8	Internal	Not collected	Primary	2.60 (2600)	29 to 116 (2 to 8)	–	1.36 (0.62)	9
	V62S527A-Ax****	3/8	External	Not collected	Primary	2.60 (2600)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.36 (0.62)	9
	V62S517D-Cx13AA	3/8	Internal	Collected	Secondary	2.60 (2600)	29 to 145 (2 to 10)	–	1.34 (0.61)	11
	V62S527D-Cx13AA	3/8	External	Collected	Secondary	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.34 (0.61)	11
	V60P511A-Ax****	1/8	Internal	Not collected	Primary	0.75 (750)	29 to 116 (2 to 8)	–	0.73 (0.33)	10
	V60P522A-Ax****	1/8	External	Not collected	Primary	0.75 (750)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.51 (0.23)	11
	V60P522D-Cx13AA	1/8	External	Collected	Secondary	0.75 (750)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.51 (0.23)	11
	V61R511A-Ax****	1/4	Internal	Not collected	Primary	1.30 (1300)	29 to 116 (2 to 8)	–	0.93 (0.42)	10
	V61R522A-Ax****	1/4	External	Not collected	Primary	1.30 (1300)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.93 (0.42)	10
	V61R511D-Cx13AA	1/4	Internal	Collected	Secondary	1.30 (1300)	29 to 145 (2 to 10)	–	0.71 (0.32)	11
	V61R522D-Cx13AA	1/4	External	Collected	Secondary	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.71 (0.32)	11
	V62S511A-Ax****	3/8	Internal	Not collected	Primary	2.60 (2600)	29 to 116 (2 to 8)	–	1.59 (0.72)	10
	V62S522A-Ax****	3/8	External	Not collected	Primary	2.60 (2600)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.59 (0.72)	10
	V62S511D-Cx13AA	3/8	Internal	Collected	Secondary	2.60 (2600)	29 to 145 (2 to 10)	–	1.36 (0.62)	11
	V62S522D-Cx13AA	3/8	External	Collected	Secondary	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.36 (0.62)	11

**** Insert coil connector code from tables below.

For manual override options, substitute 'x' as follows: 1 = without manual override
2 = locking

Coil & voltage codes

Primary (22 mm coil industrial standard)

Voltage	Coil code	Power inrush/hold	Model
12 V d.c.	12J	2 W	54469-01
24 V d.c.	13J	2 W	54469-02
24 V 50/60 Hz	14J	4/2.5 VA	54469-04
48 V 50/60 Hz	16J	4/2.5 VA	54469-07
110/120 V 50/60 Hz	18J	4/2.5 VA	54469-03
220/240 V 50/60 Hz	19J	6/5 VA	54469-08

Secondary

Double solenoid DIN EN 175 301-803 (DIN 43650 type C) 4 pin

Voltage	Coil code	Power inrush/hold
24 V d.c.	13 A	2 W

Electrical details

Voltage tolerance:	±10%
Rating:	100% E.D.
Protection class:	IP 65 with sealed plugs (ISO 6952)

Connectors

3-Pin Industrial Standard 22mm

A = no connector	
B = Cable grip 0-240Vac/Vdc	54934-01
C = 6 ft molded cable, 0-240Vac/Vdc	54934-21
H = Cable grip w/indicator light 24Vdc	54934-08
J = Cable grip w/indicator light 120Vac	54934-02
Z = 1/2" Conduit 0-240Vac/Vdc	54934-05
5 = 6 ft molded cable w/indicator light, surge suppression, 24Vac/Vdc	54934-30
6 = 6 ft molded cable w/indicator light, 120Vac	54934-35

4-Pin Connector

A = no connector	
Y = 4-pin cable grip 0-240Vac/Vdc	0588666
X = 4-pin 10' molded cable 0-240Vac/Vdc	0102144

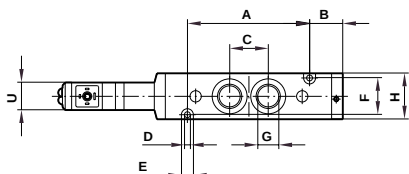
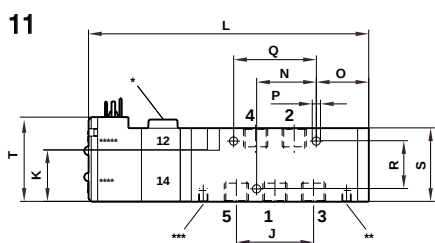
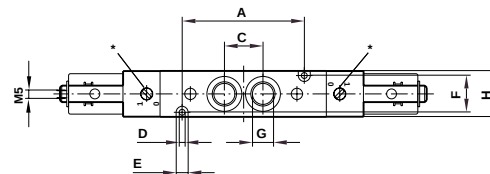
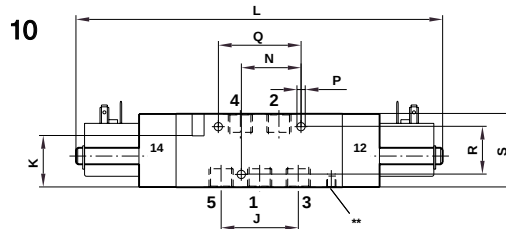
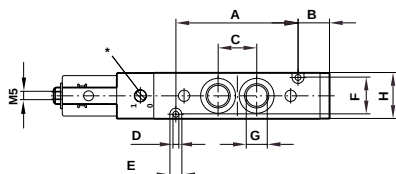
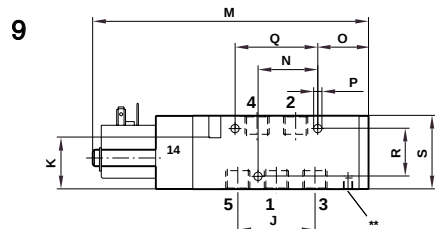
Plug configuration, valve side/twin pilot

Symbol	Plug no.	Function	Actuation
	1	(+)	12 (Solenoid 2)
	2	(-)	12 + 14
	3	(+)	14 (Solenoid 1)



V60 Series

All Dimensions in Inches (mm)



- * Manual override
- ** External pilot supply 10-32
- *** Collected pilot exhaust 10-32
- **** Solenoid 1
- ***** Solenoid 2

Dimensional drawing no.	Type	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U
9	V60	1.97 (50)	0.67 (17)	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	—	5.08 (129)	0.98 (25)	0.98 (25)	0.18 (4.5)	1.32 (33.6)	1.02 (26)	1.38 (35)	—	—
9	V6	2.60 (66)	0.71 (18)	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	—	5.91 (150)	1.26 (32)	1.14 (29)	0.18 (4.5)	1.73 (44)	1.02 (26)	1.57 (40)	—	—
9	V62	3.07 (78)	0.83 (21)	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	—	6.69 (170)	0.47 (12)	2.36 (60)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	—	—
10	V60	1.97 (50)	—	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	6.89 (175)	—	0.98 (25)	—	0.18 (4.5)	1.32 (33.6)	1.02 (26)	1.38 (35)	—	—
10	V61	2.60 (66)	—	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	7.83 (199)	—	1.26 (32)	—	0.18 (4.5)	1.73 (44)	1.02 (26)	1.57 (40)	—	—
10	V62	3.07 (78)	—	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	8.58 (218)	—	0.47 (12)	—	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	—	—
11	V60	1.97 (50)	0.67 (17)	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	5.28 (134)	—	0.98 (25)	0.98 (25)	0.18 (4.5)	1.32 (33.6)	1.02 (26)	1.38 (35)	1.81 (46)	0.59 (15)
11	V61	2.60 (66)	0.71 (18)	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	6.02 (153)	—	1.26 (32)	1.14 (29)	0.18 (4.5)	1.73 (44)	1.02 (26)	1.57 (40)	1.81 (46)	0.59 (15)
11	V62	3.07 (78)	0.87 (22)	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	6.77 (172)	—	0.47 (12)	2.40 (61)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	2.13 (54)	0.59 (15)



5/3 Solenoid Pilot Valves

Symbol	Model	Port size	Pilot supply	Pilot exhaust	Solenoid variant	Flow Cv (l/min)	Operating pressure (bar)	Pilot pressure (bar)	lbs (kg)	Dimensional drawing no.
 APB	V60P611A-Ax****	1/8	Internal	Not collected	Primary	0.50 (500)	44 to 116 (3 to 8)	–	0.77 (0.35)	14
	V60P622A-Ax****	1/8	External	Not collected	Primary	0.50 (500)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.77 (0.35)	14
	V60P611D-Cx13AA	1/8	Internal	Collected	Secondary	0.50 (500)	44 to 145 (3 to 10)	–	0.55 (0.25)	15
	V60P622D-Cx13AA	1/8	External	Collected	Secondary	0.50 (500)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.55 (0.25)	15
	V61R611A-Ax****	1/4	Internal	Not collected	Primary	0.95 (950)	44 to 116 (3 to 8)	–	1.04 (0.47)	14
	V61R622A-Ax****	1/4	External	Not collected	Primary	0.95 (950)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.04 (0.47)	14
	V61R611D-Cx13AA	1/4	Internal	Collected	Secondary	0.95 (950)	44 to 145 (3 to 10)	–	0.82 (0.37)	15
	V61R622D-Cx13AA	1/4	External	Collected	Secondary	0.95 (950)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.82 (0.37)	15
	V62S611A-Ax****	3/8	Internal	Not collected	Primary	1.90 (1900)	44 to 116 (3 to 8)	–	1.79 (0.81)	14
	V62S622A-Ax****	3/8	External	Not collected	Primary	1.90 (1900)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.79 (0.81)	14
 COE	V62S611D-Cx13AA	3/8	Internal	Collected	Secondary	1.90 (1900)	44 to 116 (3 to 8)	44 to 145 (3 to 10)	1.57 (0.71)	15
	V62S622D-Cx13AA	3/8	External	Collected	Secondary	1.90 (1900)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.57 (0.71)	15
	V60P711A-Ax****	1/8	Internal	Not collected	Primary	0.50 (500)	44 to 116 (3 to 8)	–	0.77 (0.35)	14
	V60P722A-Ax****	1/8	External	Not collected	Primary	0.50 (500)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.77 (0.35)	14
	V60P711D-Cx13AA	1/8	Internal	Collected	Secondary	0.50 (500)	44 to 145 (3 to 10)	–	0.55 (0.25)	15
	V60P722D-Cx13AA	1/8	External	Collected	Secondary	0.50 (500)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.55 (0.25)	15
	V61R711A-Ax****	1/4	Internal	Not collected	Primary	0.95 (950)	44 to 116 (3 to 8)	–	1.04 (0.47)	14
	V61R722A-Ax****	1/4	External	Not collected	Primary	0.95 (950)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.04 (0.47)	14
	V61R711D-Cx13AA	1/4	Internal	Collected	Secondary	0.95 (950)	44 to 145 (3 to 10)	–	0.82 (0.37)	15
	V61R722D-Cx13AA	1/4	External	Collected	Secondary	0.95 (950)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.82 (0.37)	15
 COP	V62S711A-Ax****	3/8	Internal	Not collected	Primary	1.90 (1900)	44 to 116 (3 to 8)	–	1.79 (0.81)	14
	V62S722A-Ax****	3/8	External	Not collected	Primary	1.90 (1900)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.79 (0.81)	14
	V62S711D-Cx13AA	3/8	Internal	Collected	Secondary	1.90 (1900)	44 to 145 (3 to 10)	–	1.57 (0.71)	15
	V62S722D-Cx13AA	3/8	External	Collected	Secondary	1.90 (1900)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.57 (0.71)	15
	V60P811A-Ax****	1/8	Internal	Not collected	Primary	0.50 (500)	44 to 116 (3 to 8)	–	0.77 (0.35)	14
	V60P822A-Ax****	1/8	External	Not collected	Primary	0.50 (500)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	0.77 (0.35)	14
	V60P811D-Cx13AA	1/8	Internal	Collected	Secondary	0.50 (500)	44 to 145 (3 to 10)	–	0.55 (0.25)	15
	V60P822D-Cx13AA	1/8	External	Collected	Secondary	0.50 (500)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.55 (0.25)	15
	V61R811A-Ax****	1/4	Internal	Not collected	Primary	0.95 (950)	44 to 116 (3 to 8)	–	1.04 (0.47)	14
	V61R822A-Ax****	1/4	External	Not collected	Primary	0.95 (950)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.04 (0.47)	14
	V61R811D-Cx13AA	1/4	Internal	Collected	Secondary	0.95 (950)	44 to 145 (3 to 10)	–	0.82 (0.37)	15
	V61R822D-Cx13AA	1/4	External	Collected	Secondary	0.95 (950)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.82 (0.37)	15
	V62S811A-Ax****	3/8	Internal	Not collected	Primary	1.90 (1900)	44 to 116 (3 to 8)	–	1.79 (0.81)	14
	V62S822A-Ax****	3/8	External	Not collected	Primary	1.90 (1900)	26" Hg to 116 (-0.9 to 8)	44 to 116 (3 to 8)	1.79 (0.81)	14
	V62S811D-Cx13AA	3/8	Internal	Collected	Secondary	1.90 (1900)	44 to 145 (3 to 10)	–	1.57 (0.71)	15
	V62S822D-Cx13AA	3/8	External	Collected	Secondary	1.90 (1900)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.57 (0.71)	15

**** Insert coil connector code from tables below.

For manual override options, substitute 'x' as follows:

- 1 = without manual override
2 = locking
3 = non-locking

APB = All ports blocked
COE = Center open exhaust
COP = Center open pressure

Coil & voltage codes

Primary (22 mm coil industrial standard)

Voltage	Coil code	Power inrush/hold	Model
12 V d.c.	12J	2 W	54469-01
24 V d.c.	13J	2 W	54469-02
24 V 50/60 Hz	14J	4/2,5 VA	54469-04
48 V 50/60 Hz	16J	4/2,5 VA	54469-07
110/120 V 50/60 Hz	18J	4/2,5 VA	54469-03
220/240 V 50/60 Hz	19J	6/5 VA	54469-08

Secondary

Double solenoid DIN EN 175 301-803 (DIN 43650 type C) 4 pin

Voltage	Coil code	Power inrush/hold
24 V d.c.	13 A	2 W

Plug configuration, valve side/twin pilot

Symbol	Plug no.	Function	Actuation
	1	(+)	12 (Solenoid 2)
	2	(-)	12 + 14
	3	(+)	14 (Solenoid 1)

Connectors

3-Pin Industrial Standard 22mm

A = no connector	
B = Cable grip 0-240Vac/Vdc	54934-01
C = 6 ft molded cable, 0-240Vac/Vdc	54934-21
H = Cable grip w/indicator light 24Vdc	54934-08
J = Cable grip w/indicator light 120Vac	54934-02
Z = 1/2" Conduit 0-240Vac/Vdc	54934-05
5 = 6 ft molded cable w/indicator light, surge suppression, 24Vac/Vdc	54934-30
6 = 6 ft molded cable w/indicator light, 120Vac	54934-35

4-Pin Connector

A = no connector	
Y = 4-pin cable grip 0-240Vac/Vdc	0588666
X = 4-pin 10' molded cable 0-240Vac/Vdc	0102144

Electrical details

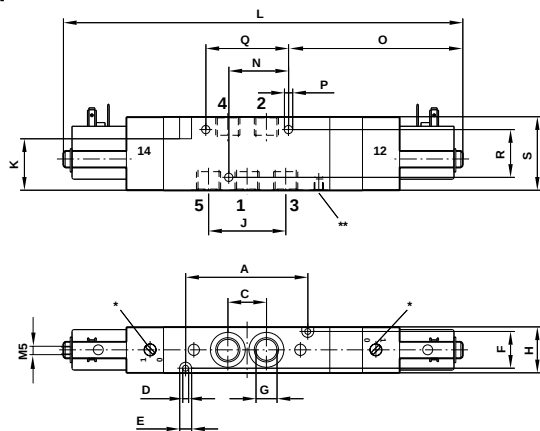
Voltage tolerance: ±10%
Rating: 100% E.D.
Protection class: IP 65 with sealed plugs (ISO 6952)



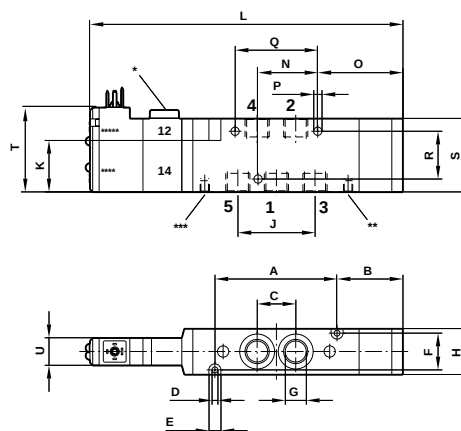
V60 Series

All Dimensions in Inches (mm)

14



15



- * Manual override
- ** External pilot supply 10-32
- *** Collected pilot exhaust 10-32
- **** Solenoid 1
- ***** Solenoid 2

Dimensional drawing no.	Type	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U
14	V60	1.97 (50)	—	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	7.44 (189)	—	0.98 (25)	3.33 (84.5)	0.18 (4.5)	1.32 (33.6)	1.02 (26)	1.38 (35)	—	—
14	V61	2.60 (66)	—	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	8.54 (217)	—	1.26 (32)	—	0.18 (4.5)	1.73 (44)	1.02 (26)	1.57 (40)	—	—
14	V62	3.07 (78)	—	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	9.49 (241)	—	0.47 (12)	5.20 (132)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	—	—
15	V60	1.97 (50)	1.22 (31)	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	5.83 (148)	—	0.98 (25)	1.54 (39)	0.18 (4.5)	1.32 (33.6)	1.02 (26)	1.38 (35)	1.81 (46)	0.59 (15)
15	V61	2.60 (66)	1.42 (36)	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	6.73 (171)	—	1.26 (32)	1.85 (47)	0.18 (4.5)	1.73 (44)	1.02 (26)	1.57 (40)	1.81 (46)	0.59 (15)
15	V62	3.07 (78)	1.75 (44.5)	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	7.68 (195)	—	0.47 (12)	3.31 (84)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	2.13 (54)	0.59 (15)



3/2 Air Pilot Valves

Symbol	Model	Port size	Operator 12	Operator 10	Flow Cv (l/min)	Operating pressure psi (bar)	Pilot pressure psi (bar)	lbs (kg)	Dimensional drawing no.
 NC	V60P4D7A-X5090	1/8	Air	Spring	0.75 (750)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.29 (0.13)	16
	V61R4D7A-X5090	1/4	Air	Spring	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.46 (0.21)	16
	V62S4D7A-X5090	3/8	Air	Spring	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.95 (0.43)	16
 NO	V60P3D7A-X5090	1/8	Spring	Air	0.75 (750)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.29 (0.13)	17
	V61R3D7A-X5090	1/4	Spring	Air	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.46 (0.21)	17
	V62S3D7A-X5090	3/8	Spring	Air	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.95 (0.43)	17
 NC/NO	V60P4DDA-X5020	1/8	Air	Air	0.75 (750)	26" Hg to 145 (-0.9 to 10)	22 to 145 (1.5 to 10)	0.29 (0.13)	18
	V61R4DDA-X5020	1/4	Air	Air	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	22 to 145 (1.5 to 10)	0.46 (0.21)	18
	V62S4DDA-X5020	3/8	Air	Air	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	22 to 145 (1.5 to 10)	0.95 (0.43)	18

NC = Normally closed, NO = Normally open

2 x 3/2 Air Pilot Valves

Symbol	Model	Port size	Operator 14	Operator 12	Flow Cv (l/min)	Operating pressure psi (bar)	Pilot pressure psi (bar)	lbs (kg)	Dimensional drawing no.
 NC/NC	V60PADDA-X5020	1/8	Air	Air	0.50 (500)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	0.40 (0.18)	19
	V61RADDA-X5020	1/4	Air	Air	0.95 (950)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	0.67 (0.28)	19
	V62SADDA-X5020	3/8	Air	Air	1.90 (1900)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	1.32 (0.60)	19
 NO/NO	V60PBDDA-X5020	1/8	Air	Air	0.50 (500)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	0.40 (0.18)	19
	V61RBDDA-X5020	1/4	Air	Air	0.95 (950)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	0.67 (0.28)	19
	V62SBDDA-X5020	3/8	Air	Air	1.90 (1900)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	1.32 (0.60)	19
 NO/NC	V60PCDDA-X5020	1/8	Air	Air	0.50 (500)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	0.40 (0.18)	19
	V61RCDDA-X5020	1/4	Air	Air	0.95 (950)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	0.67 (0.28)	19
	V62SCDDA-X5020	3/8	Air	Air	1.90 (1900)	29 to 145 (2 to 10)	29 to 145 (2 to 10)	1.32 (0.60)	19

NC/NC = Both valves normally closed

NO/NO = Both valves normally open

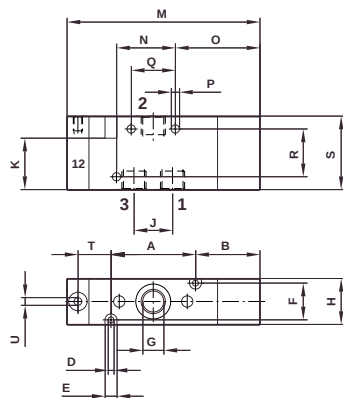
NO/NC = 1 valve normally open, 1 valve normally closed



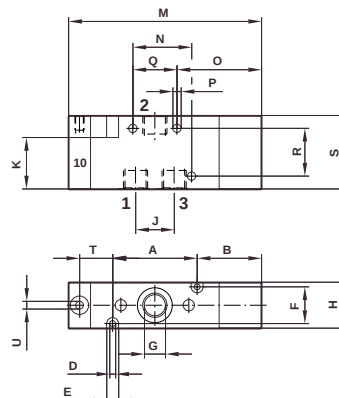
V60 Series

All Dimensions in Inches (mm)

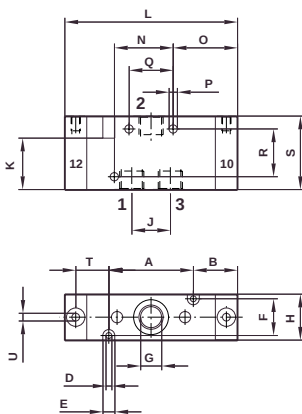
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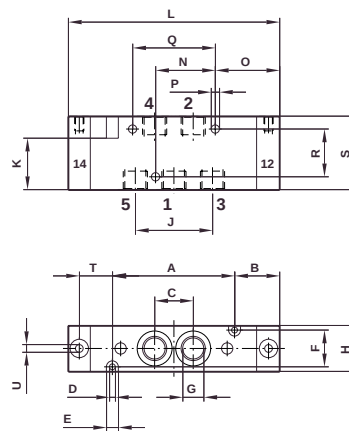
17



18



19



Dimensional drawing no.	Type	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U
16	V60	1.38 (35)	1.14 (29)	— (—)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	0.64 (16.2)	1.10 (28)	— (—)	3.39 (86)	0.98 (25)	1.46 (37)	0.18 (4.5)	0.71 (18)	1.02 (26)	1.38 (35)	0.67 (17)	1/8" NPT
16	V61	1.81 (46)	1.38 (35)	— (—)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	0.83 (21)	1.10 (28)	— (—)	4.13 (105)	1.26 (32)	1.81 (46)	0.18 (4.5)	0.94 (24)	1.02 (26)	1.57 (40)	0.71 (18)	1/8" NPT
16	V62	2.13 (54)	1.69 (43)	— (—)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	0.96 (24.4)	1.73 (44)	— (—)	4.88 (124)	0.47 (12)	2.28 (58)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	0.83 (21)	1/8" NPT
17	V60	1.38 (35)	1.14 (29)	— (—)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	0.64 (16.2)	1.10 (28)	— (—)	3.39 (86)	0.98 (25)	1.46 (37)	0.18 (4.5)	0.71 (18)	1.02 (26)	1.38 (35)	0.67 (17)	1/8" NPT
17	V61	1.81 (46)	1.38 (35)	— (—)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	0.83 (21)	1.10 (28)	— (—)	4.13 (105)	1.26 (32)	1.81 (46)	0.18 (4.5)	0.94 (24)	1.02 (26)	1.57 (40)	0.71 (18)	1/8" NPT
17	V62	2.13 (54)	1.69 (43)	— (—)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	0.96 (24.4)	1.73 (44)	— (—)	4.88 (124)	0.47 (12)	2.20 (56)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	0.83 (21)	1/8" NPT
18	V60	1.38 (35)	0.91 (23)	— (—)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	0.64 (16.2)	1.10 (28)	3.15 (80)	— (—)	0.98 (25)	1.22 (31)	0.18 (4.5)	0.71 (18)	1.02 (26)	1.38 (35)	0.67 (17)	1/8" NPT
18	V61	1.81 (46)	0.94 (24)	— (—)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	0.83 (21)	1.10 (28)	3.70 (94)	— (—)	1.26 (32)	1.38 (35)	0.18 (4.5)	0.94 (24)	1.02 (26)	1.57 (40)	0.71 (18)	1/8" NPT
18	V62	2.13 (54)	1.06 (27)	— (—)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	0.96 (24.4)	1.73 (44)	4.25 (108)	— (—)	0.47 (12)	1.65 (42)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	0.83 (21)	1/8" NPT
19	V60	1.97 (50)	0.91 (23)	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	3.74 (95)	— (—)	0.98 (25)	1.22 (31)	0.18 (4.5)	1.32 (33.6)	1.02 (26)	1.38 (35)	0.67 (17)	1/8" NPT
19	V61	2.60 (66)	0.94 (24)	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	4.49 (114)	— (—)	1.26 (32)	1.38 (35)	0.18 (4.5)	1.73 (44)	1.02 (26)	1.57 (40)	0.71 (18)	1/8" NPT
19	V62	3.07 (78)	1.06 (27)	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	5.20 (132)	— (—)	0.47 (12)	2.60 (66)	0.18 (4.5)	1.02 (26)	1.42 (36)	2.17 (55)	0.83 (21)	1/8" NPT



5/2 Air Pilot Valves

Symbol	Model	Port size	Operator 12	Operator 10	Flow Cv (l/min)	Operating pressure psi (bar)	Pilot pressure psi (bar)	lbs (kg)	Dimensional drawing no.
	V60P5D7A-X5090	1/8	Air	Spring	0.75 (750)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.35 (0.16)	22
	V61R5D7A-X5090	1/4	Air	Spring	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.57 (0.26)	22
	V62S5D7A-X5090	3/8	Air	Spring	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	1.23 (0.56)	22
	V60P5DDA-X5020	1/8	Air	Air	0.75 (750)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.37 (0.17)	23
	V61R5DDA-X5020	1/4	Air	Air	1.30 (1300)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	0.60 (0.27)	23
	V62S5DDA-X5020	3/8	Air	Air	2.60 (2600)	26" Hg to 145 (-0.9 to 10)	36 to 145 (2.5 to 10)	1.28 (0.58)	23

5/3 Air Pilot Valves

Symbol	Model	Port size	Operator 14	Operator 12	Flow Cv (l/min)	Operating pressure psi (bar)	Pilot pressure psi (bar)	lbs (kg)	Dimensional drawing no.
	V60P6DDA-X5020	1/8	Air	Air	0.50 (500)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.44 (0.2)	24
	V61R6DDA-X5020	1/4	Air	Air	0.95 (950)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.71 (0.32)	24
	V62S6DDA-X5020	3/8	Air	Air	1.90 (1900)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.48 (0.67)	24
	V60P7DDA-X5020	1/8	Air	Air	0.50 (500)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.44 (0.2)	24
	V61R7DDA-X5020	1/4	Air	Air	0.95 (950)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.71 (0.32)	24
	V62S7DDA-X5020	3/8	Air	Air	1.90 (1900)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.48 (0.67)	24
	V60P8DDA-X5020	1/8	Air	Air	0.50 (500)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.44 (0.2)	24
	V61R8DDA-X5020	1/4	Air	Air	0.95 (950)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	0.71 (0.32)	24
	V62S8DDA-X5020	3/8	Air	Air	1.90 (1900)	26" Hg to 145 (-0.9 to 10)	44 to 145 (3 to 10)	1.48 (0.67)	24

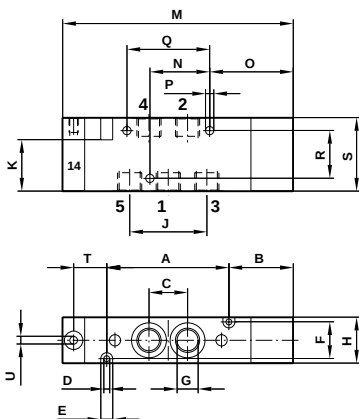
APB = All Ports Blocked,
COE = Center Open Exhaust
COP = Center Open Pressure



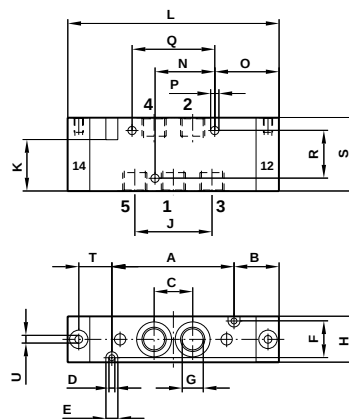
V60 Series

All Dimensions in Inches (mm)

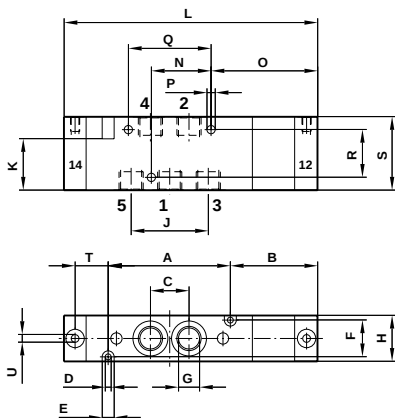
22



23



24



Dimensional drawing no.	Type	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U
22	V60	1.97 (50)	1.14 (29)	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	—	3.98 (101)	0.98 (25)	1.46 (37)	0.18 (4.5)	1.73 (44)	1.02 (26)	1.38 (35)	0.67 (17)	1/8" NPT
22	V61	2.60 (66)	1.38 (35)	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	—	4.92 (125)	1.26 (32)	1.38 (35)	0.18 (4.5)	1.02 (26)	1.02 (26)	1.57 (40)	0.71 (18)	1/8" NPT
22	V62	3.07 (78)	1.69 (43)	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	—	5.83 (148)	0.47 (12)	3.23 (82)	0.18 (4.5)	1.32 (33.6)	1.42 (36)	2.17 (55)	0.83 (21)	1/8" NPT
23	V60	1.97 (50)	0.91 (23)	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	3.74 (95)	—	0.98 (25)	1.22 (31)	0.18 (4.5)	1.73 (44)	1.02 (26)	1.38 (35)	0.67 (17)	1/8" NPT
23	V61	2.60 (66)	0.94 (24)	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	4.49 (114)	—	1.26 (32)	1.38 (35)	0.18 (4.5)	1.02 (26)	1.02 (26)	1.57 (40)	0.71 (18)	1/8" NPT
23	V62	3.07 (78)	1.06 (27)	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	5.20 (132)	—	0.47 (12)	2.60 (66)	0.18 (4.5)	1.32 (33.6)	1.42 (36)	2.17 (55)	0.83 (21)	1/8" NPT
24	V60	1.97 (50)	1.46 (37)	0.64 (16.2)	0.13 (3.2)	0.26 (6.5)	0.67 (17)	1/8	0.87 (22)	1.28 (32.4)	1.10 (28)	4.29 (109)	—	0.98 (25)	1.77 (45)	0.18 (4.5)	1.73 (44)	1.02 (26)	1.38 (35)	0.67 (17)	1/8" NPT
24	V61	2.60 (66)	1.85 (47)	0.83 (21)	0.13 (3.2)	0.26 (6.5)	0.79 (20)	1/4	0.98 (25)	1.65 (42)	1.10 (28)	5.39 (137)	—	1.26 (32)	2.28 (58)	0.18 (4.5)	1.02 (26v)	1.02 (26)	1.57 (40)	0.71 (18)	1/8" NPT
24	V62	3.07 (78)	1.95 (49.5)	0.96 (24.4)	0.18 (4.5)	0.31 (8)	1.10 (28)	3/8	1.34 (34)	1.92 (48.8)	1.73 (44)	6.08 (154.5)	—	0.47 (12)	3.48 (88.5)	0.18 (4.5)	1.32 (33.6)	1.42 (36)	2.17 (55)	0.83 (21)	1/8" NPT



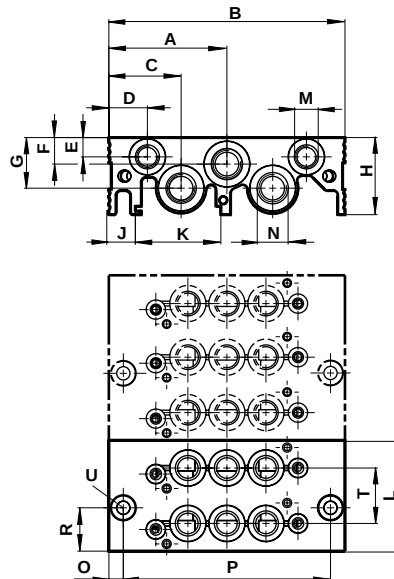
Manifold system

Manifold plate

Valve ports	V60 Model	lbs (kg)	V61 Model	lbs (kg)	V62 Model	lbs (kg)
2	2221032	0.51 (0.23)	2221132	0.62 (0.28)	2221232	1.10 (0.50)
3	2221033	0.62 (0.28)	2221133	0.99 (0.45)	2221233	1.87 (0.85)

Drawing dimensions

Manifold plate 2 stations + 3 stations



Type		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U
V60	2 stations	1.93 (49)	3.86 (98)	1.18 (30)	0.63 (16)	0.31 (8)	0.43 (11)	0.83 (21)	1.26 (32)	0.43 (11)	1.40 (35.5)	1.81 (46)	1/8	1/4	0.24 (6)	3.39 (86)	1.10 (28)	—	0.91 (23)	for 10-32
V60	3 stations	1.93 (49)	3.86 (98)	1.18 (30)	0.63 (16)	0.31 (8)	0.43 (11)	0.83 (21)	1.26 (32)	0.43 (11)	1.40 (35.5)	2.72 (69)	1/8	1/4	0.24 (6)	3.39 (86)	1.10 (28)	—	0.91 (23)	for 10-32
V61	2 stations	2.05 (52)	4.09 (104)	1.02 (26)	0.35 (9)	0.31 (8)	0.51 (13)	0.83 (21)	1.30 (33)	0.39 (10)	1.40 (35.5)	2.05 (52)	1/8	3/8	1.57 (40)	0.94 (24)	1.02 (26)	—	1.02 (26)	for 10-32
V61	3 stations	2.05 (52)	4.09 (104)	1.02 (26)	0.35 (9)	0.31 (8)	0.51 (13)	0.79 (20)	1.30 (33)	0.39 (10)	1.40 (35.5)	3.07 (78)	1/8	3/8	1.57 (40)	0.94 (24)	2.05 (52)	—	1.02 (26)	for 10-32
V62	2 stations	2.36 (60)	4.72 (120)	1.14 (29)	0.35 (9)	0.31 (8)	0.59 (15)	0.87 (22)	1.50 (38)	0.51 (13)	1.40 (35.5)	2.76 (70)	1/8	1/2	1.73 (44)	1.26 (32)	1.38 (35)	—	1.38 (35)	for M6
V62	3 stations	2.36 (60)	4.72 (120)	1.14 (29)	0.35 (9)	0.31 (8)	0.59 (15)	0.87 (22)	1.50 (38)	0.51 (13)	1.40 (35.5)	4.13 (105)	1/8	1/2	1.73 (44)	1.26 (32)	2.76 (70)	—	1.38 (35)	for M6

DIN Rail fixing kit



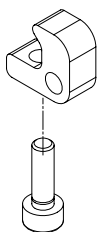
0101796 (V60→V62) 0.02 lbs (0.01 kg)



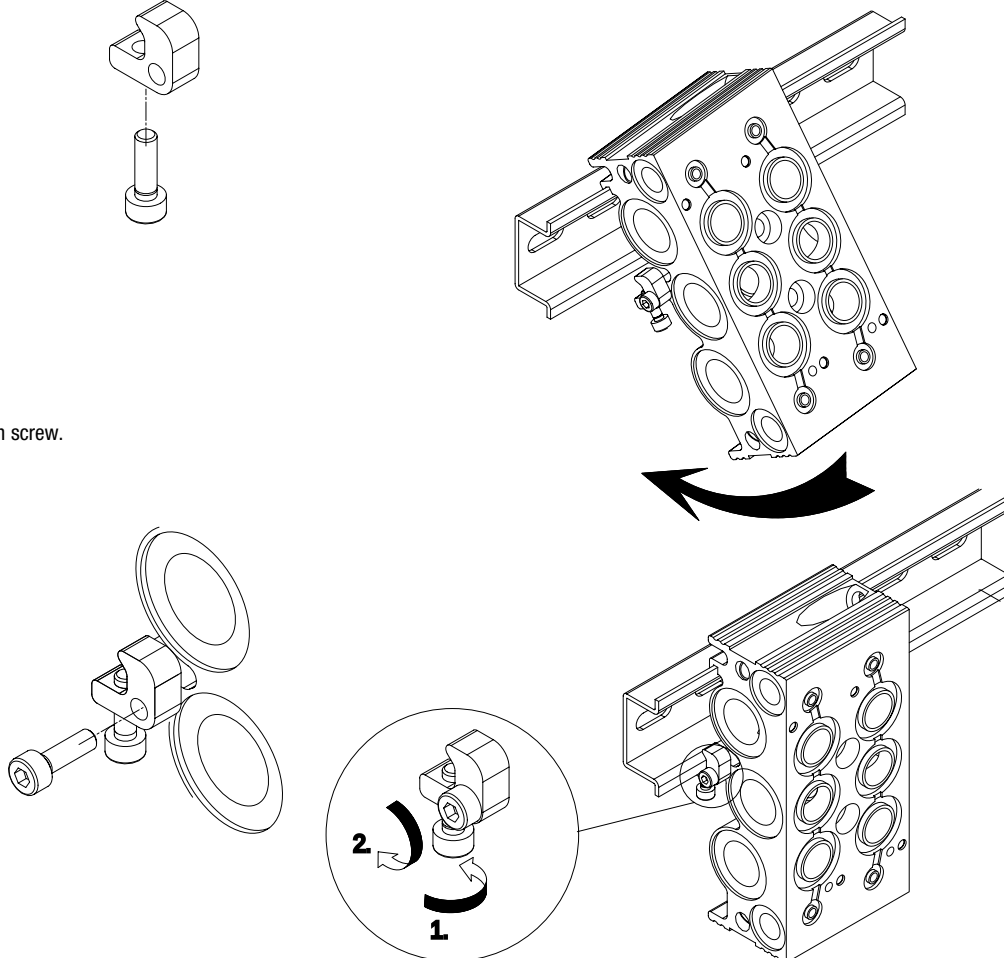
Mounting instructions

DIN Rail

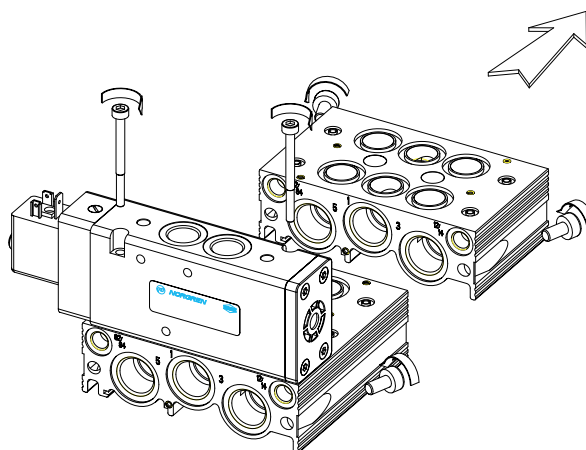
1. Mount screw in rod



2. Fix rod on manifold plate with screw.

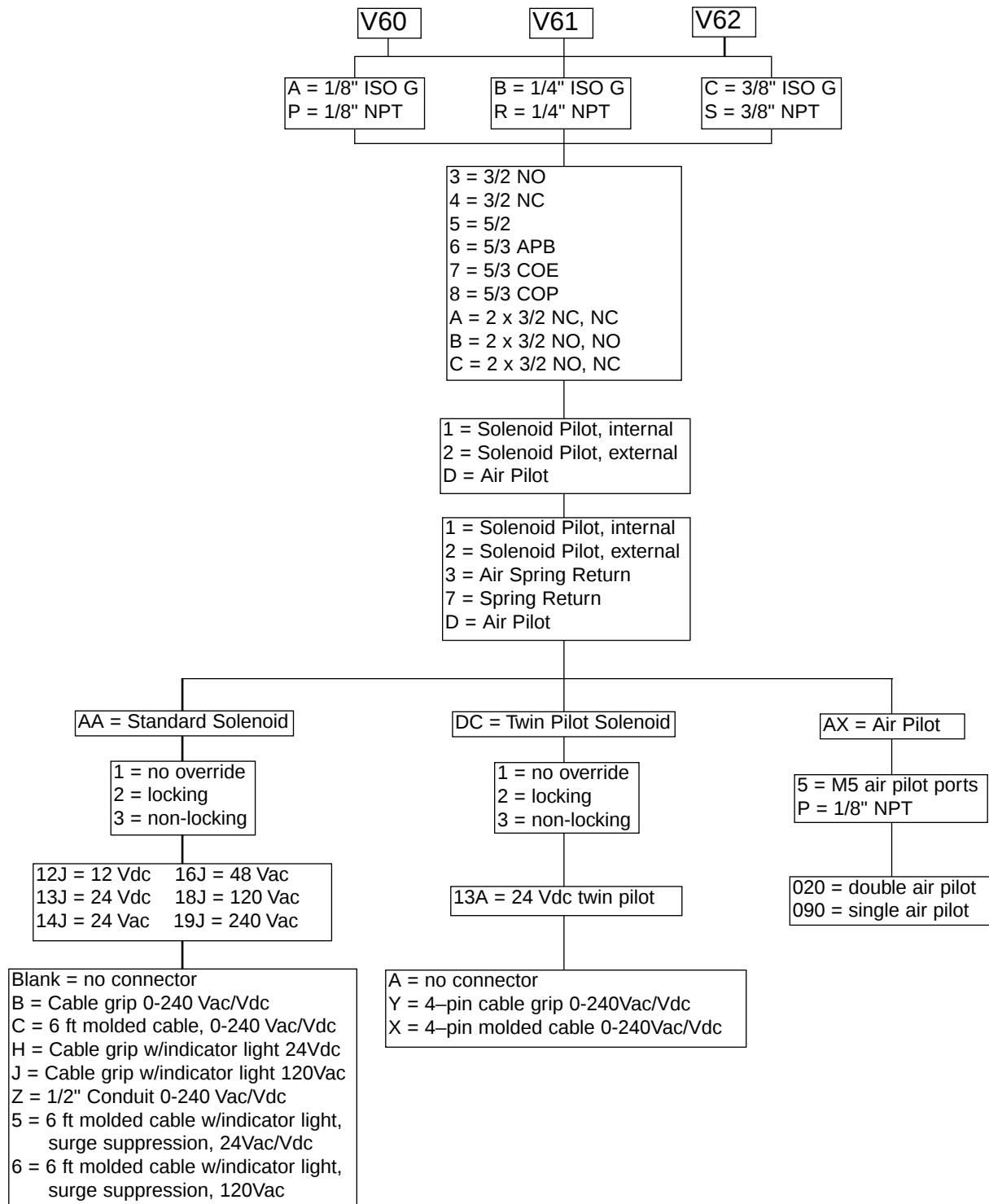


Extension possibilities with manifold plates





V 6 0 A 5 1 7 A – A 3 1 3 J B



Mini ISO Star Series Valves

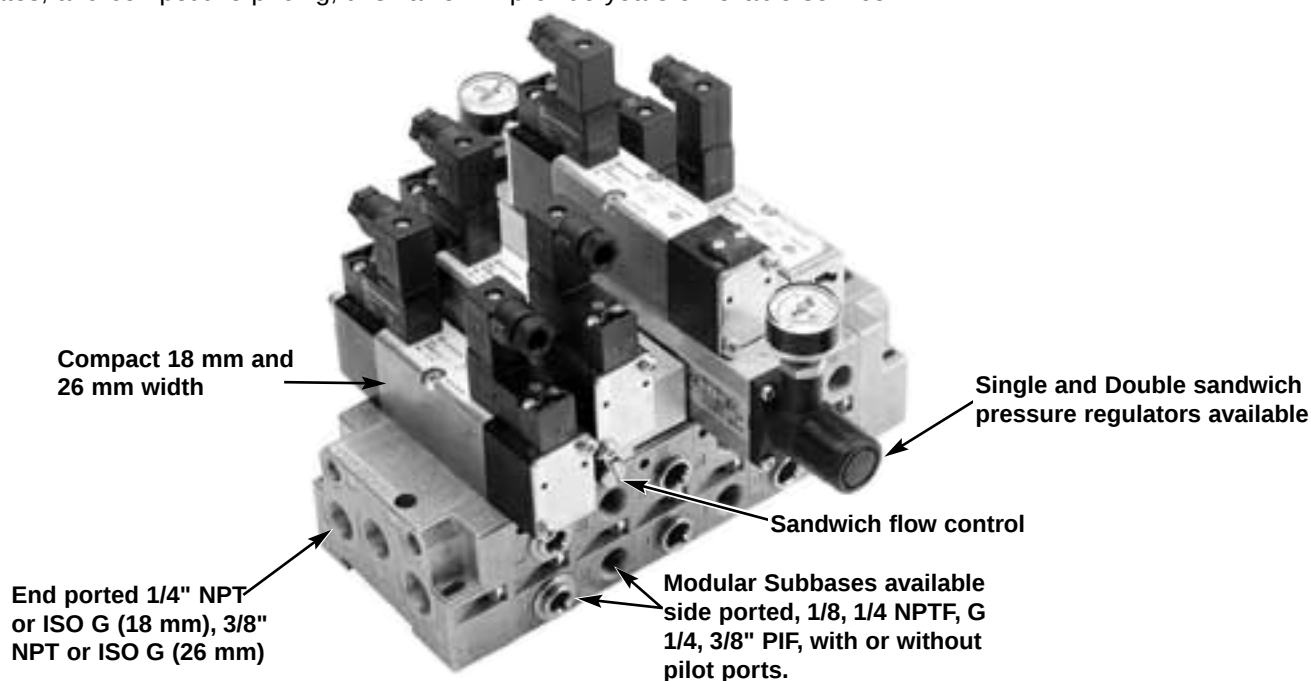
Compact, high performance pneumatic valves with a comprehensive range of subbases and accessories

Contents

Features and Benefits	VAL-4-2
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Bases and Accessories (18 mm)	VAL-4-7
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Norgren Mini ISO Star Series Directional Control Valves

Available with V40/V44 Glandless Technology, or V41/V45 Softseal technology, the Mini ISO Star is an excellent choice for high and low pressure applications where a long lasting mini valve is required. With fast response times, extremely low leak rates, and competitive pricing, this valve will provide years of reliable service.





Mini ISO Star Valve System

- International standard
- Compact design and high performance
- Comprehensive range of subbases and accessories
- The right spool technology for critical pneumatic applications
- Low power solenoid (1.2 W) and collected pilot exhaust
- Easily converted from internal to external pilot supply
- 18 mm and 26 mm widths
- A variety of valve functions and voltages



Flexible subbase system with a wide range of accessories



Single Valve Shut-Off Plate



Sandwich Flow Control



Single (Port 1,2 or 4)
and Double (Ports 2 and 4)
Sandwich Pressure Regulator



Intermediate Supply/
Exhaust Module



Single Station Subbase
Side ported, $\frac{1}{8}$ " or $\frac{1}{4}$ " NPTF or ISO G
with pilot ports



Modular Subbase
Side ported, $\frac{1}{8}$ " or $\frac{1}{4}$ " NPTF, or ISO G
with or without pilot ports



Modular Subbase
Side ported, $\frac{1}{4}$ " or $\frac{3}{8}$ " PIF
with or without pilot ports



End Plate Kit
End ported
 $\frac{1}{4}$ " or $\frac{3}{8}$ " NPTF or ISO G



V40/V44 Glandless Technology



- Non-corrosive, Nituff®* coated, precision matched aluminum spool and sleeve
- High and low pressure applications
- Cv of 0.58 (18 mm), and 0.9 (26 mm)
- Minimum 100 million cycles

* Nituff is a finishing process producing a hard anodized coating of low friction teflon type polymers.

V41/V45 Softseal Technology



- High flow Cv of 0.66 (18 mm), 1.2 (26 mm)
- Fast response
- Minimum 50 million cycles
- Extremely low leakage rates
- Two 3/2 normally closed or normally open valves in one 5/2 body
- Competitively priced

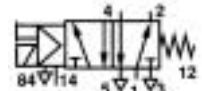
Technical/Electrical details

	V40/V44 Glandless valve	V41/V45 Softseal valve
Operation:	Solenoid pilot or air pilot	Solenoid pilot or air pilot
Operating pressure:	max. 230 psig	max. 150 psig
Flow:	Cv of 0.62 (18 mm) 0.9 (26 mm)	Cv of 0.69 (18 mm) 1.2 (26 mm)
Pilot pressure:	min. 15 psig	min. 30 psig
	Solenoid pilot valve	
Voltage tolerances:	-10% / +15%	
Rating:	100% continuous duty	
Inlet orifice:	0.8 mm	
Manual override:	Push button, spring return (non lockable) Convertible into push & turn type (lockable) with Set-up Kit part no. V70532-K00	
Electrical connection:	DIN 43650 table 'C'	
Protection class:	IP 65, NEMA 4	

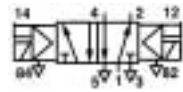
5/2 and 5/3 valve functions



Air spring return



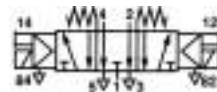
Mechanical spring return



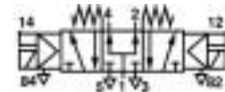
Impulse



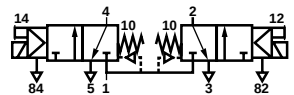
All ports blocked



Center open exhaust



Center open pressure



Dual 3-way

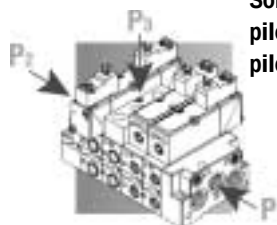
Solenoid pilot air valves are available with internal pilot supply and collected pilot exhaust, or external pilot supply with non-collected exhaust



Voltage variety



Medium compressed air,
filtered, lubricated or non-lubricated



Multi pressure system

- Compact design and high performance
- Flexible Sub-base system
- True multipressure system
- Sandwich regulators and flow controls
- Dual spool technology
V40 Glandless spool and sleeve
V41 Softseal spool
- Collected pilot exhaust with internal pilot air supply
- Easy to convert from internal to external pilot supply
- Exchange of valves under pressure

Technical Data

Medium:

Compressed air, 40µm filtered, lubricated or non-lubricated

Operation:

V40: Glandless spool valve, solenoid pilot or air pilot actuated

V41: Softseal spool valve, solenoid pilot or air pilot actuated

Mounting:

On sub-bases

Size:

ISO 15407/-1 / VDMA 24 563, 18 mm

Operating Pressure:

Maximum pressure

145 psig (10 bar) V41 models and V40 solenoid pilot actuated valves with internal pilot supply

232 psig (16 bar) V40 solenoid pilot actuated valves w. ext. pilot supply and V40 air pilot actuated valves

Details of minimum and maximum pilot pressure see overleaf

Flow Characteristics:

Series	Function	Cv	'C'	'b'	'A'	l/min	Kv
V40	5/2	0.58	2.39	0.19	9.14	570	0.50
V40	5/3	0.62	2.39	0.31	9.88	610	0.53
V41*	2x3/2	0.62	2.49	0.24	9.83	610	0.53
V41*	5/2	0.66	2.65	0.24	10.46	650	0.57
V41*	5/3	0.69	2.63	0.33	11.04	680	0.59

Ambient Temperature:

5°F* to +122°F (-15°C* to +50°C) V40/V41 sol. and V41 air pilot models

5°F* to +176°F (-15°C* to +80°C) V40 air pilot models

*Consult our Technical Service for use below 36° F (+2°C)

Materials:

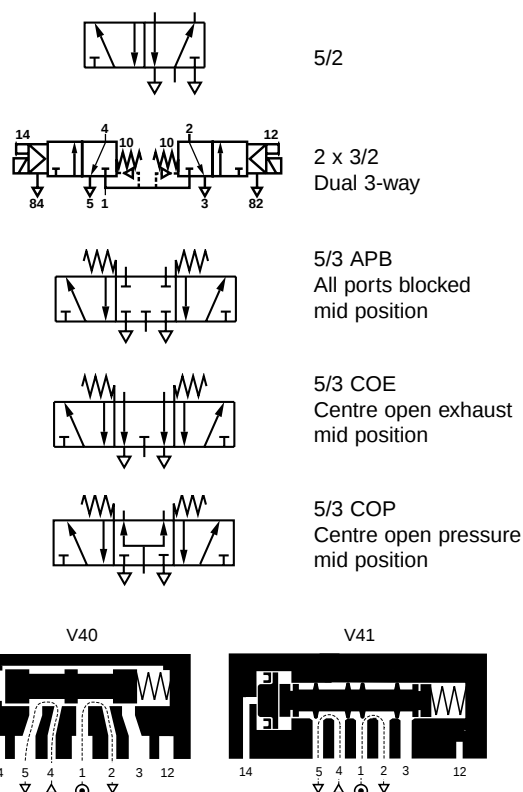
Aluminum alloy body and sub-base. Hard anodized, Teflon coated, matched aluminum spool and sleeve(V40) or aluminum alloy spool with HNBR Seals (V41). POM plastic parts and NBR static seals. End cover and screws zinc plated, stainless steel springs.



Ordering Information

To order select model number, add voltage code from table on page VAL-4-5, e.g. V415517D-C313A

for a 5/2 solenoid pilot actuated, spring return model, 24 V DC pilot.





General Information

2x3/2 Solenoid Pilot Actuated Valves (Softseal Spool only)

Symbol	Model	Function 2x3/2	Pilot Supply	Pilot Exhaust	Actuation 3/2 Function	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V415A11D-C3***	Normally Closed	Internal	Collected *	Sol/Spring	0.62	36-145 (2.5-10)	—	0.40 (0.18)	V70447-K50
	V415A22D-C3***	Normally Closed	External	Not Collected	Sol/Spring	0.62	0-145 (0-10)	24.7 + (0.35 x op. press.) [1.7 + (0.35 x op. press.)]	0.40 (0.18)	V70447-K50
	V415B11D-C3***	Normally Open	Internal	Collected *	Sol/Spring	0.62	36-145 (2.5-10)	—	0.40 (0.18)	V70448-K50
	V415B22D-C3***	Normally Open	External	Not Collected	Sol/Spring	0.62	0-145 (0-10)	24.7 + (0.35 x op. press.) [1.7 + (0.35 x op. press.)]	0.40 (0.18)	V70448-K50
	V415C11D-C3***	Norm. Open/ Norm. Closed	Internal	Collected *	Sol/Spring	0.62	36-145 (2.5-10)	—	0.40 (0.18)	V70449-K50
	V415C22D-C3***	Norm. Open/ Norm. Closed	External	Not collected	Sol/Spring	0.62	0-145 (0-10)	24.7 + (0.35 x op. press.) [(1.7 + (0.35 x op. press.)]	0.40 (0.18)	V70449-K50

5/2 Solenoid Pilot Actuated Valves

Symbol	Model	Spool Techn.	Pilot Supply	Pilot Exhaust	Operator 14	Return 12	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V405513D-C3***	GI	Internal	Collected *	Solenoid	Air Spring	0.58	14.5-145 (1-10)	—	0.26 (0.12)	V70440-K50
	V415513D-C3***	Ss	Internal	Collected *	Solenoid	Air Spring	0.66	14.5-145 (1-10)	—	0.29 (0.13)	V70442-K50
	V405523D-C3***	GI	External	Not collected	Solenoid	Air Spring	0.58	26" Hg-232 (-0.9-16)	14.5-145 (1-10)	0.26 (0.12)	V70440-K50
	V415523D-C3***	Ss	External	Not collected	Solenoid	Air Spring	0.66	26" Hg-145 (-0.9-10)	14.5-145 (1-10)	0.29 (0.13)	V70442-K50
	V405516D-C3***	GI	Internal	Collected *	Solenoid	Spring & Air	0.58	23.2-145 (1.6-10)	—	0.29 (0.13)	V70440-K50
	V415517D-C3***	Ss	Internal	Collected *	Solenoid	Spring	0.66	29-145 (2-10)	—	0.29 (0.13)	V70442-K50
	V405526D-C3***	GI	External	Not collected	Solenoid	Spring & Air	0.58	26" Hg-232 (-0.9-16)	23.2-145 (1.6-10)	0.29 (0.13)	V70440-K50
	V415527D-C3***	Ss	External	Not collected	Solenoid	Spring	0.66	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.29 (0.13)	V70442-K50
	V405511D-C3***	GI	Internal	Collected *	Solenoid	Solenoid	0.58	29-145 (2-10)	—	0.40 (0.18)	V70441-K50
	V415511D-C3***	Ss	Internal	Collected *	Solenoid	Solenoid	0.66	29-145 (2-10)	—	0.40 (0.18)	V70443-K50
	V405522D-C3***	GI	External	Not collected	Solenoid	Solenoid	0.58	26" Hg-232 (-0.9-16)	29-145 (2-10)	0.40 (0.18)	V70441-K50
	V415522D-C3***	Ss	External	Not collected	Solenoid	Solenoid	0.66	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.40 (0.18)	V70443-K50
	V405591D-C3***	GI	Internal	Collected *	Solenoid (Priority)	Solenoid	0.58	29-145 (2-10)	—	0.40 (0.18)	V70441-K50
	V405592D-C3***	GI	External	Not collected	Solenoid (Priority)	Solenoid	0.58	26" Hg-232 (-0.9-16)	29-145 (2-10)	0.40 (0.18)	V70441-K50

** Insert 'Voltage Code' from table 'Voltage Codes and Spare Pilot Valves' below.

† Add connector code from table below.

x Pilot Exhaust collected and exhausted via port 14

Spool Technology Designations:
GI = Glandless Spool and Sleeve
Ss = Softseal SpoolValve Function Designations: APB = All Ports Blocked
COE = Center Open Exhaust
COP = Center Open Pressure

Electrical Details for Solenoid Pilot

Voltage Tolerances	-10% / +15%
Rating	100% Continuous Duty
Inlet orifice	0.8 mm
Electrical Connection	DIN 43 650 table 'C'
Manual Override	Shrouded push button, spring return Convertible into lockable type with Set-up Kit Part no. V70532-K00 (see page VAL-4-7)
Protection Class	IP 65 with sealed plug (ISO 6952) NEMA 4
Materials	PPS (body), Viton and NBR (seals)

**Voltage Codes and Spare Pilot Valves

Voltage	Code	Power Inrush / Hold	Pilot Valve Part.-no.
12 V d.c.	12	1 W	VZC7L2C1-C312A
24 V d.c.	13	1.2 W	VZC7L2C1-C313A
24 V 50/60 Hz.	14	2.1 / 1.5 VA	VZC7L2C1-C314A
48 V 50/60 Hz	16	2.1 / 1.5 VA	VZC7L2C1-C316A
110 V d.c.	17	1 W	VZC7L2C1-C317A
115 V 50/60 Hz	18	2.1 / 1.5 VA	VZC7L2C1-C318A
230 V 50/60 Hz	19	2.1 / 1.5 VA	VZC7L2C1-C319A

Other voltages available on request. Spare pilot valves are delivered with mounting screws.

Connector Codes and Part Number

Code	Part Number
A = Solenoid without connector	
B = Cable grip	V10027-D00
C = 10 ft. molded cable, 0-240 VAC/VDC	V10013-D03
H = Cable grip w/indicator light, 24 VAC/VDC	V10012-D13
J = Cable grip w/indicator light, 120 VAC/VDC	V10012-D18
5 = 10 ft. molded cable with indicator light, surge suppression, 24 VAC/VDC	V10014-D03
6 = 10 ft. molded cable with indicator light, 110V/50 Hz-120V/60Hz	V10015-D03



Mini ISO Star Series 18 mm Valves

5/3 Solenoid Pilot Actuated Valves

Symbol	Model	Spool Techn.	Valve Function	Pilot Supply	Pilot Exhaust	Operator 14	Return 12	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V405611D-C3**†	GI	APB	Internal	Collected *	Solenoid	Solenoid	0.62	29-145 (2-10)	—	0.40 (0.18)	V70441-K50
	V415611D-C3**†	Ss	APB	Internal	Collected *	Solenoid	Solenoid	0.69	29-145 (2-10)	—	0.40 (0.18)	V70444-K50
	V405622D-C3**†	GI	APB	External	Not collected	Solenoid	Solenoid	0.62	26" Hg-232 (-0.9-16)	29-145 (2-10)	0.40 (0.18)	V70441-K50
	V415622D-C3**†	Ss	APB	External	Not collected	Solenoid	Solenoid	0.69	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.40 (0.18)	V70444-K50
	V405711D-C3**†	GI	COE	Internal	Collected *	Solenoid	Solenoid	0.62	29-145 (2-10)	—	0.40 (0.18)	V70441-K50
	V415711D-C3**†	Ss	COE	Internal	Collected *	Solenoid	Solenoid	0.69	29-145 (2-10)	—	0.40 (0.18)	V70445-K50
	V405722D-C3**†	GI	COE	External	Not collected	Solenoid	Solenoid	0.62	26" Hg-232 (-0.9-16)	29-145 (2-10)	0.40 (0.18)	V70441-K50
	V415722D-C3**†	Ss	COE	External	Not collected	Solenoid	Solenoid	0.69	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.40 (0.18)	V70445-K50
	V405811D-C3**†	GI	COP	Internal	Collected *	Solenoid	Solenoid	0.62	29-145 (2-10)	—	0.40 (0.18)	V70441-K50
	V415811D-C3**†	Ss	COP	Internal	Collected *	Solenoid	Solenoid	0.69	29-145 (2-10)	—	0.40 (0.18)	V70446-K50
	V405822D-C3**†	GI	COP	External	Not collected	Solenoid	Solenoid	0.62	26" Hg-232 (-0.9-16)	29-145 (2-10)	0.40 (0.18)	V70441-K50
	V415822D-C3**†	Ss	COP	External	Not collected	Solenoid	Solenoid	0.69	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.40 (0.18)	V70446-K50

2x3/2 Air Pilot Actuated Valves (Softseal Spool only)

Symbol	Model	Function 2x3/2	Actuation 3/2 Function	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V415A33A-X0020	Normally Closed	Air/Spring	0.62	0-145 (0-10)	24.7 + (0.35 x op. pressure) (1.7 + (0.35 x op. pressure))	0.26 (0.12)	V70447-K50
	V415B33A-X0020	Normally Open	Air/Spring	0.62	0-145 (0-10)	24.7 + (0.35 x op. pressure) (1.7 + (0.35 x op. pressure))	0.26 (0.12)	V70448-K50
	V415C33A-X0020	Normally Open/ Normally Closed	Air/Spring	0.62 0.62	0-145 (0-10)	24.7 + (0.35 x op. pressure) (1.7 + (0.35 x op. pressure))	0.26 (0.12)	V70449-K50

5/2 Air Pilot Actuated Valves

Symbol	Model	Spool Techn.	Operator 14	Return 12	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V405537A-X0090	GI	Air	Spring	0.58	26" Hg-232 (-0.9-16)	23.2-232 (1.6-16)	0.24 (0.11)	V70440-K50
	V415537A-X0090	Ss	Air	Spring	0.66	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.22 (0.10)	V70442-K50
	V405533A-X0020	GI	Air	Air	0.58	26" Hg-232 (-0.9-16)	29-232 (2-16)	0.24 (0.11)	V70441-K50
	V415533A-X0020	Ss	Air	Air	0.66	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.24 (0.11)	V70443-K50
	V405533A-X0070	GI	Air (Priority)	Air	0.58	26" Hg-232 (-0.9-16)	29-232 (2-16)	0.24 (0.11)	V70441-K50

5/3 Air Pilot Actuated Valves

Symbol	Model	Spool Techn.	Valve Function	Operator 14	Return 12	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Spares Kit
	V405633A-X0020	GI	APB	Air	Air	0.62	26" Hg-232 (-0.9-16)	29-232 (2-16)	0.24 (0.11)	V70441-K50
	V415633A-X0020	Ss	APB	Air	Air	0.69	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.26 (0.12)	V70444-K50
	V405733A-X0020	GI	COE	Air	Air	0.62	26" Hg-232 (-0.9-16)	29-232 (2-16)	0.24 (0.11)	V70441-K50
	V415733A-X0020	Ss	COE	Air	Air	0.69	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.26 (0.12)	V70445-K50
	V405833A-X0020	GI	COP	Air	Air	0.62	26" Hg-232 (-0.9-16)	29-232 (2-16)	0.24 (0.11)	V70441-K50
	V415833A-X0020	Ss	COP	Air	Air	0.69	26" Hg-145 (-0.9-10)	29-145 (2-10)	0.26 (0.12)	V70446-K50

** Insert 'Voltage Code' from table 'Voltage Codes and Spare Pilot Valves' on page VAL-4-5

† Add connector code from page VAL-4-5

x Pilot Exhaust collected and exhausted via port 14

Spool Technology Designations:

GI = Glandless Spool and Sleeve

Ss = Softseal Spool

Valve Function Designations:

APB = All Ports Blocked

COE = Center Open Exhaust

COP = Center Open Pressure



Bases and Accessories

Bases

Single Station Sub-base Side Ported with Pilot Ports	Modular Sub-base Side Ported without Pilot Ports	Modular Sub-base Side Ported with Pilot Ports	Modular Sub-base Side Ported (PIF) without Pilot Ports	Modular Sub-base Side Ported (PIF) with Pilot Ports
V70401-P5B (1/8NPTF)	V70425-P5F (1/8NPTF)	V70426-P5F (1/8NPTF)	V70425-15F (ø1/4")	V70426-15F (ø1/4")
V70401-A5B (G1/8)	V70425-A5F (G1/8)	V70426-A5F (G1/8)	V70425-85F (ø8 mm)	V70426-85F (ø8 mm)
		V70425-65F (ø6 mm)	V70426-65F (ø6 mm)	
End Plate Kit End Ported	Double Station Modular Sub-base Side Ported without Pilot Ports	End Plate Kit with 2 Side Ported Valve Stations without Pilot Ports	Fixed Length Sub-base Bottom Ported	
V70424-R5C (1/4NPTF)	V70432-P5F (1/8NPTF)	V70431-P5F (1/4, 1/8NPTF)	V704**-P50 (1/8NPTF)	
V70424-B5C (G1/4)	V70432-A5F (G1/8")	V70431-A5F (G1/4, G1/8)	** = 02,04,06,08,10,12 stations	

Accessories

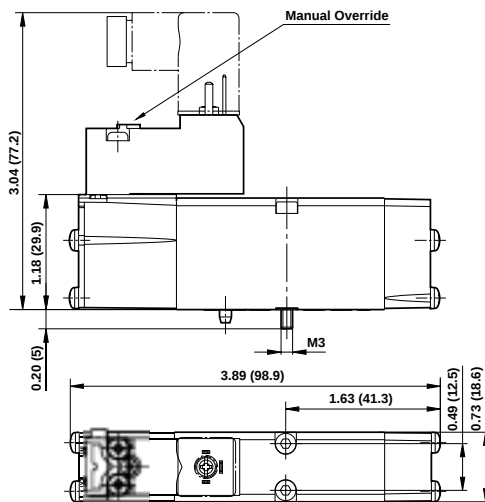
Intermediate Supply/Exhaust Module	Single Valve Shut-Off Plate	Sandwich Plate with additional Pressure Port 1	Single Pressure Regulator Plate	Double Pressure Regulator Plate
V70429-P50 (1/8NPTF)	V70430-K50 (Port 1 open/closed)	V70435-P50 (1/8NPTF)	V70427-K51 (Port 1 reg.)	V70427-K54 (Ports 2+4 reg.)
V70429-A50 (G1/8)			V70427-K52 (Port 2 reg.)	
			V70427-K53 (Port 4 reg.)	
Flow Regulator Plate	Blanking Plate for unused Station	DIN EN 50 022 rail (1 metre)	DIN-rail Mounting Kit	Blanking Disk to Modular Sub-base
V70428-K50 (Ports 3+5 reg.)	V70400-K50	V10009-C00 (35x7.5mm)	V70531-KA0	V70422-K50 (1 each) (Ports 1,3,5)
		V10592-C01 (35x15mm)		V70423-K50 (1 each) (Ports 12+14)
Blanking Plug for Fixed Length Sub-base	Manual Override Set-Up Kit	Transition Plate #18 mm → #26 mm*	Transition Plate #18 mm → #26 mm*	
V70421-K50 (Ports 1,3,5)	V70532-K00	V70436-K00	V70436-R00 (1/4 NPTF)	
			V70436-B00 (G1/4)	



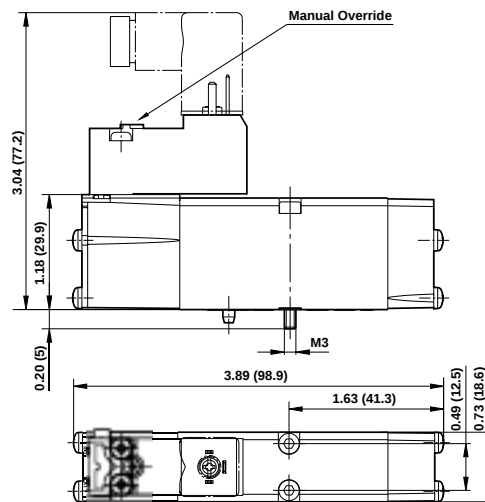
Mini ISO Star Series 18 mm Valves

All Dimensions in Inches (mm)

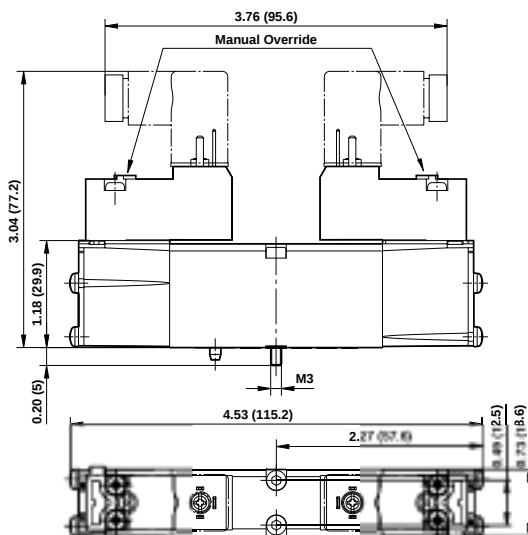
V4055*3D-C3*** and V4155*3D-C3*** Models 5/2 Single Solenoid Pilot Valve Air Spring Return



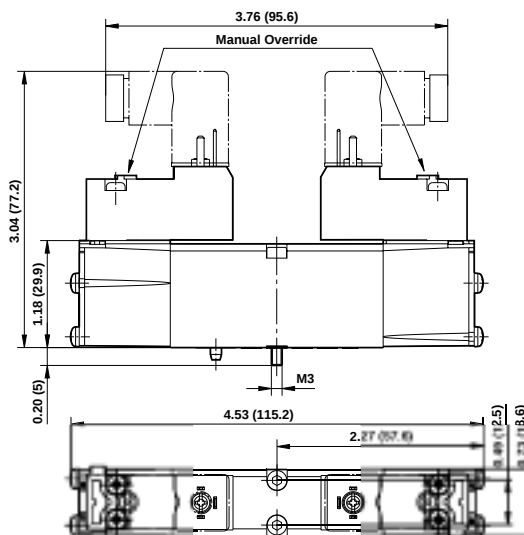
V4055*6D-C3*** and V4155*7D-C3*** Models 5/2 Single Solenoid Pilot Valve Mechanical (& Air) Spring Return



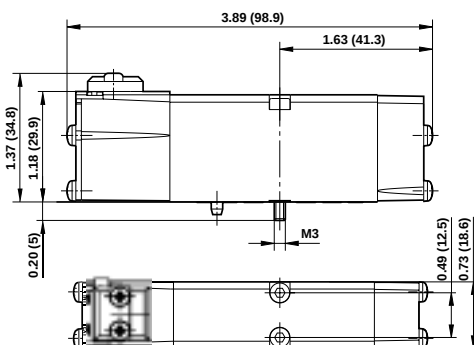
V4055**D-C3*** and V4155**D-C3*** Models 5/2 Double Solenoid Pilot Valve



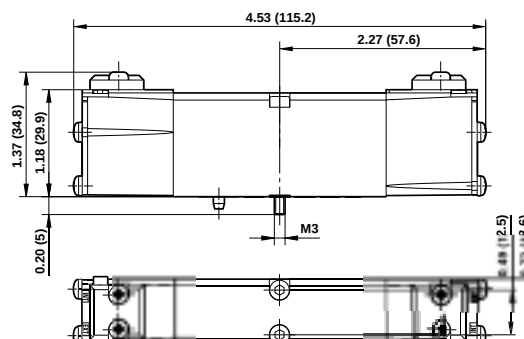
V405***D-C3*** and V415***D-C3*** Models 2x3/2 + 5/3 Double Solenoid Pilot Valve



V415537A-X0090 5/2 Single Air Pilot Valve



V405537A-X0090 5/2 Single Air Pilot Valve V405*33A-X00*0 and V415*33A-X00*0 Models 2x3/2, 5/2 + 5/3 Double Air Pilot Valve

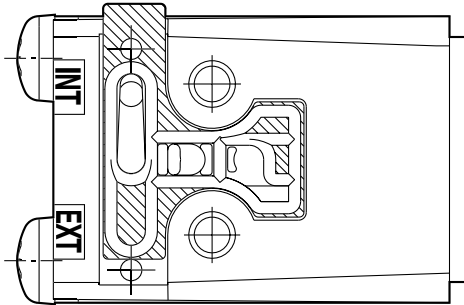




Conversion from internal to external pilot supply / Collected pilot exhaust

The lowered and captive gasket between valve body and pilot valve defines and indicates pilot air supply as well as pilot exhaust function of the valve.

Solenoid pilot actuated valves

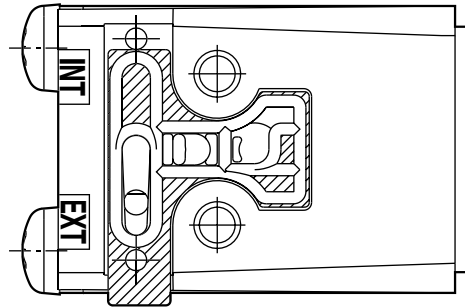


blue gasket

**Internal pilot supply,
pilot exhaust air collected and exhausted via port 14.**

All solenoid pilot valves with code 1 at position 6 in the part number (e.g V41551...) have the gasket mounted in this position on delivery.

Drawing shows
no pilot valve.



blue gasket

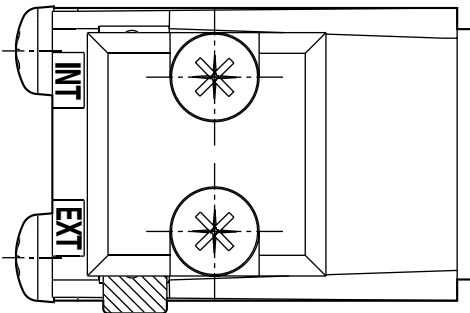
**External pilot supply from port 14 only,
pilot exhaust air not collected but
bleed through valve body.**

All solenoid pilot valves with code 2 at position 6 in the part number (e.g V41552...) have the gasket mounted in this position on delivery.

Note: Dismounting pilot valve gives access to gasket. Conversion from internal to external pilot supply (or vice versa) by turning the gasket.
Caution: In this case part number and symbol on label shows different function. Therefore check gasket position when mounting valve.

Air pilot actuated valves

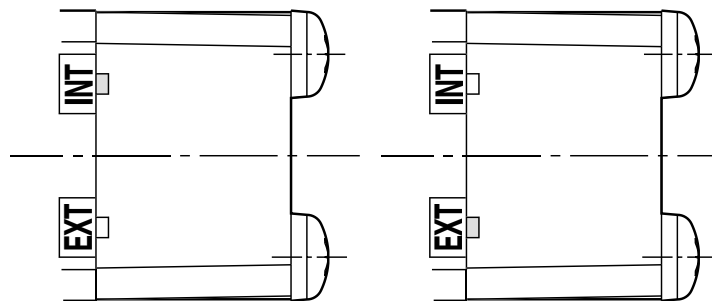
Drawing includes
cover plate.



blue gasket

Air pilot actuated valves
External pilot supply.

5/2 Solenoid pilot actuated valves with air spring return Drawing shows end cap side 12.



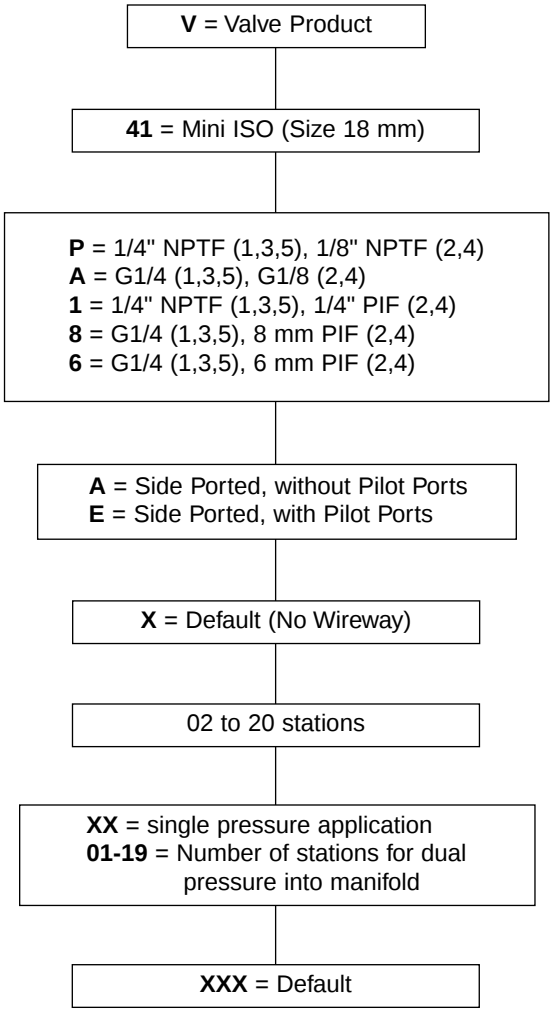
Note: Additional to above described work, gasket between end cap and valve body must be turned too at valves with this function. For detailed instructions see Installation- and Maintenance Sheet.



Mini ISO Star Series 18 mm Valves

Order a factory assembled manifold

V 4 1 P A X 0 7 - X X X X X



Ordering Example

The following ordering example details the information needed to order a 4-valve, single solenoid, 24 VDC, cable grip electrical connector, single pressure manifold.

One Mini ISO manifold consisting of:

Position	Quantity	Part No.
1-4	4	V40A513D-C313B
	1	V41PAX04-XXXXXX

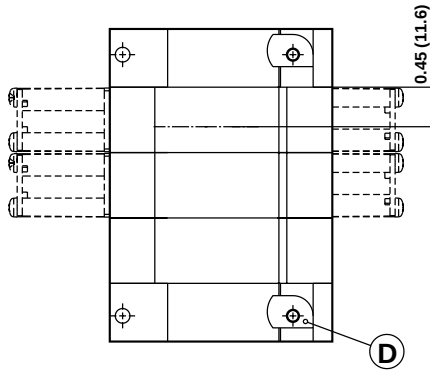
Mini ISO Star Series 18 mm Valves

All Dimensions in Inches (mm)

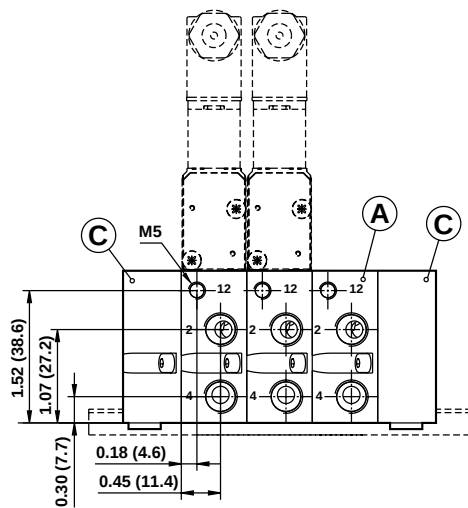


Modular Sub-bases parts for DIN rail or surface mounting

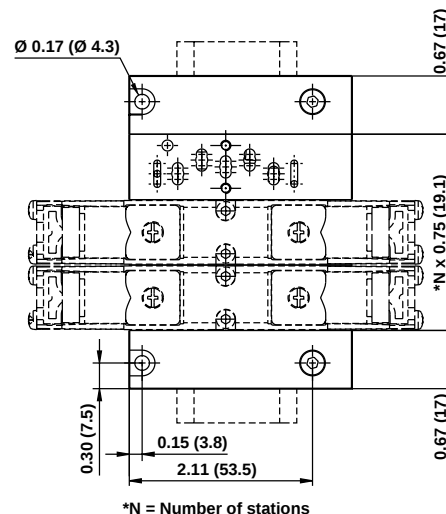
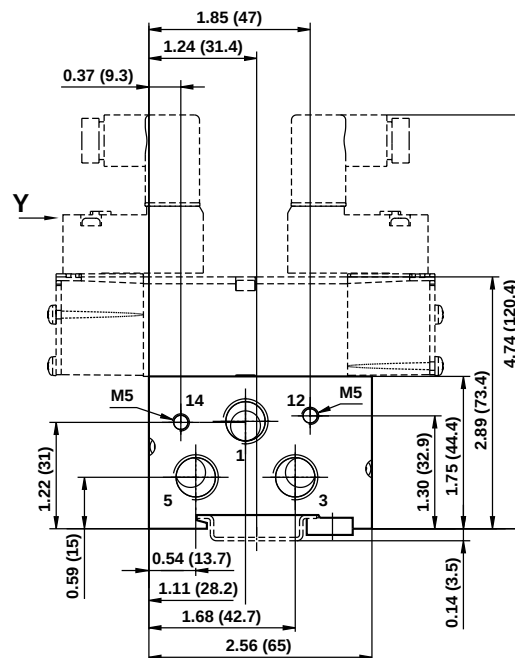
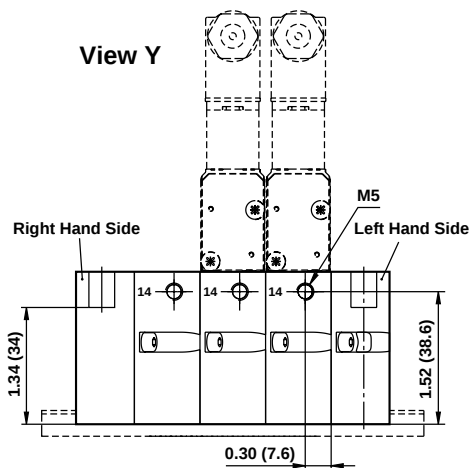
Bottom ported sub-base



Side ported sub-base



Bottom and side ported sub-base



*N = Number of stations

Individual components

Modular Sub-base (A) 0.12 kg
Ports 2+4 on side (0.26 lb)
V70425-x5F

Double Station
Modular Sub-base 0.24 kg
Ports 2+4 on side (0.53 lb)
V70432-y5F

Modular Sub-base (A) 0.12 kg
Ports 2+4 on side (0.26 lb)
Pilot Ports 12+14 on side
V70426-x5F

End Plate Kit (C) 0.21 kg
End Ported (0.46 lb)

V70424-B5C (G1/4)
V70424-R5C (1/4NPTF)
End ported end caps
1 left hand and 1 right hand

End Plate Kit with Valve Station
Ports 2+4 on side 0.4 kg
V70431-A5F (0.88 lb)
(1/3/5 G1/4, 2/4 G1/8)
V70431-P5F
(1/3/5 1/4NPTF, 2/4 1/8NPTF)
End ported end caps
1 left hand and 1 right hand

Accessories

DIN EN 50022 rail 0.31 kg
35 x 7,5 mm, 1m (0.68 lb)
V10009-C00

DIN EN 50022 rail 1.02 kg
35 x 15 mm, 1m (2.25 lb)
V10592-C01

DIN rail (D) 0.01 kg
Mounting Kit (0.02 lb)
V70531-KAO

Blanking Disk to 0.01 kg
Modular Sub-base (0.02 lb)
Ports 1, 3, 5
V70422-K50

Blanking Disk to 0.01 kg
Modular Sub-base (0.02 lb)
Ports 12+14
V70423-K50

x/y = Insert port type from table below

Code x	Code y	Ports 2+4	Ports 12+14
A	A	G1/8	M5
P	P	1/8NPTF	M5
8	-	ø 8 mm PIF	M5
6	-	ø 6 mm PIF	M5
1	-	ø 1/4" PIF	M5

Note:

Port 14 either used for external pilot air supply or for collected pilot air exhaust.

Therefore, never plug port 14 when using valves with internal pilot air supply.

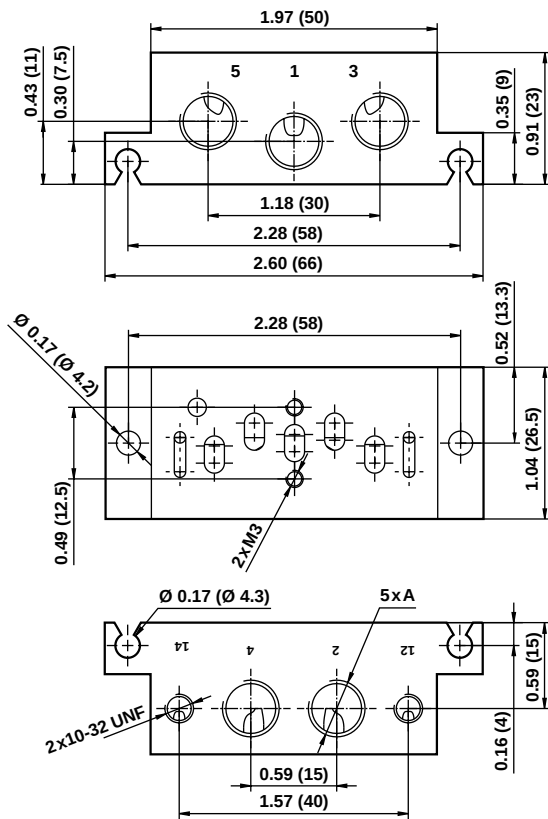
Port 12 is not used, plugging not necessary.



Mini ISO Star Series 18 mm Valves

All Dimensions in Inches (mm)

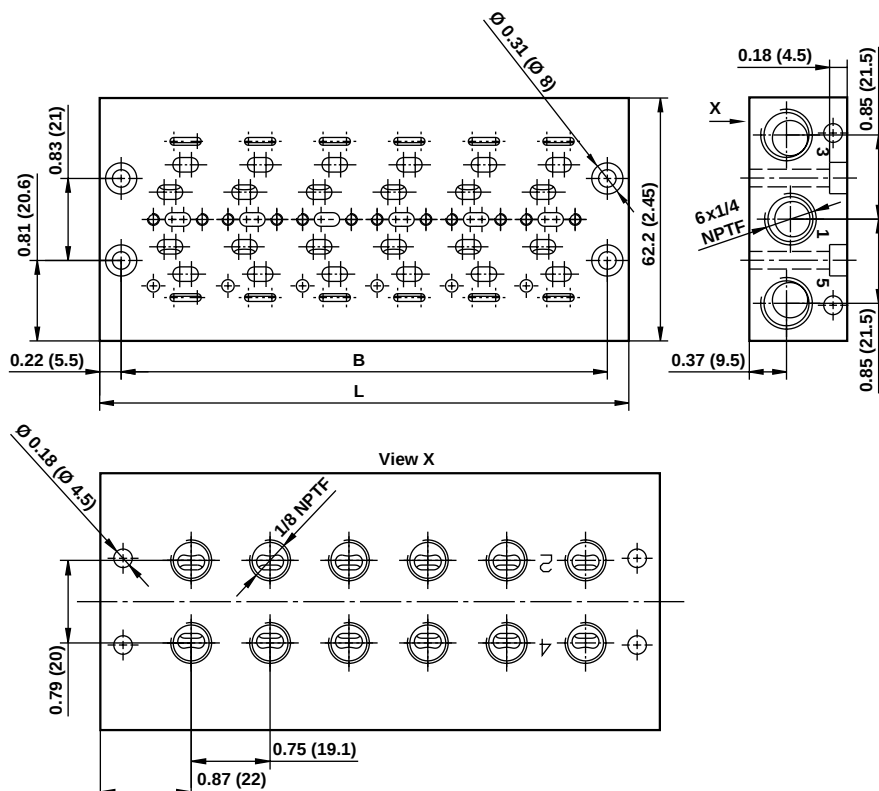
Single Station Sub-base - Side Ported with Pilot Ports



Model	Port Size A	Weight lb (kg)
V70401-P5B	1/8NPTF Side Ported with Pilot Ports	0.18 (0.08)
V70401-A5B	G1/8 Side Ported with Pilot Ports	

Note: Pilot Ports for both types = 10-32 UNF

Fixed Length Sub-base - Bottom Ported



Model	No. of Stations	A inch (mm)	B inch (mm)	Weight lb (kg)
V70402-P50	2	2.33 (59.1)	1.89 (48.1)	0.40 (0.18)
V70404-P50	4	3.83 (97.3)	3.40 (86.3)	0.66 (0.30)
V70406-P50	6	5.34 (135.5)	4.90 (124.5)	0.93 (0.42)
V70408-P50	8	6.84 (173.7)	6.41 (162.7)	1.19 (0.54)
V70410-P50	10	8.34 (211.9)	7.91 (200.9)	1.46 (0.66)
V70412-P50	12	9.85 (250.1)	9.41 (239.1)	1.72 (0.78)

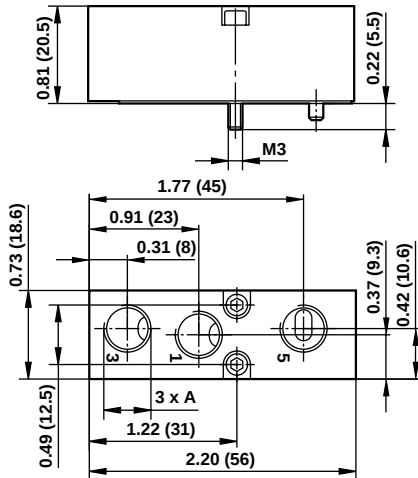
Note: This sub-base is suitable for solenoid pilot actuated valves with internal pilot air supply only.

Mini ISO Star Series 18 mm Valves

All Dimensions in Inches (mm)



Intermediate Supply / Exhaust Module



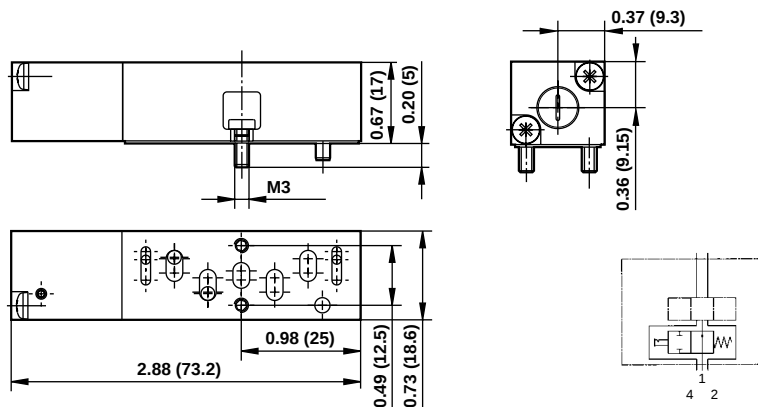
Model	Port Size A	Weight lb (kg)
V70429-P50	1/8NPTF	0.11
V70429-A50	G1/8	(0.05)

Provides additional porting on Modular- or Fixed Length Sub-base.
Occupies one valve station.
Supplied with gasket for both sub-bases.

Can be used to:

- Improve supply flow
- Increase exhaust capacity
- Pneumatically separate valves for fail save emergency
- Multipressure system and system solutions

Single Valve Shut-Off Plate



Model	Description	Weight lb (kg)
V70430-K50	Single Shut-Off Plate supplied with gasket	0.13 (0.06)

Allows individual exchange of valve, while valve island is pressurized by port 1.

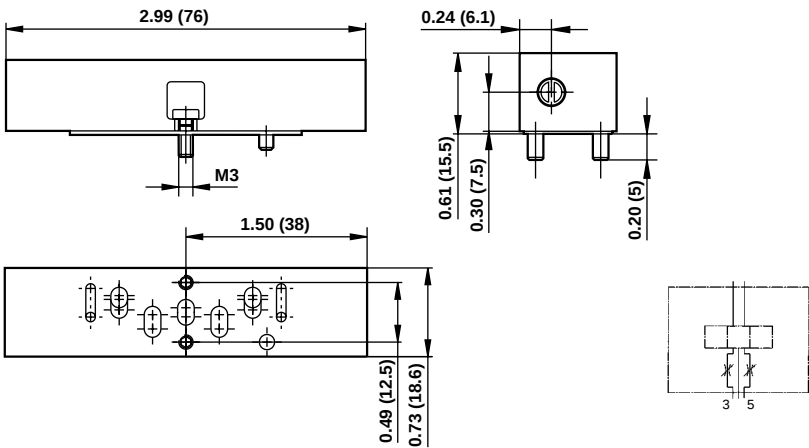
Note: Flow restricted to maximum .24 Cv



Mini ISO Star Series 18 mm Valves

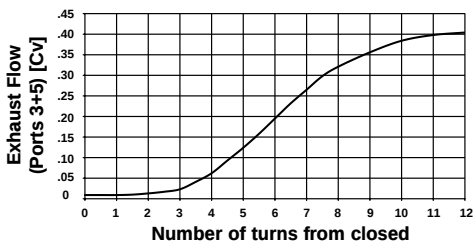
All Dimensions in Inches (mm)

Sandwich Flow Control



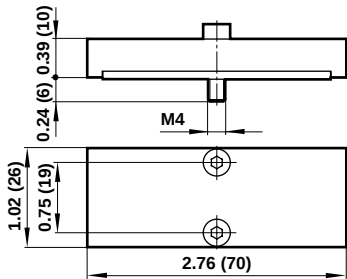
Model	Description	Weight lb (kg)
V70428-K50	Flow Control supplied with gasket	0.13 (0.06)

Dual Regulation of Exhaust Ports 3 and 5



Flow: Port 1 ➔ 2 and 1 ➔ 4: remains unchanged
Flow measured at 6 bar inlet, Pressure drop 1 bar

Blanking Plate



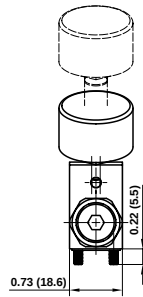
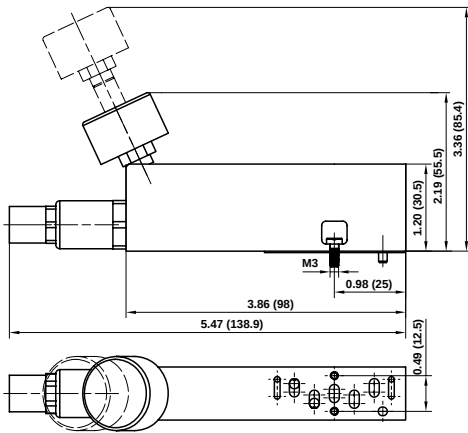
Model	Description	Weight lb (kg)
V70400-K50	Blanking Plate for blocking of unused Stations (supplied with gasket)	0.04 (0.02)

Mini ISO Star Series 18 mm Valves

All Dimensions in Inches (mm)

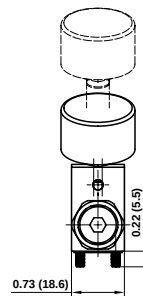
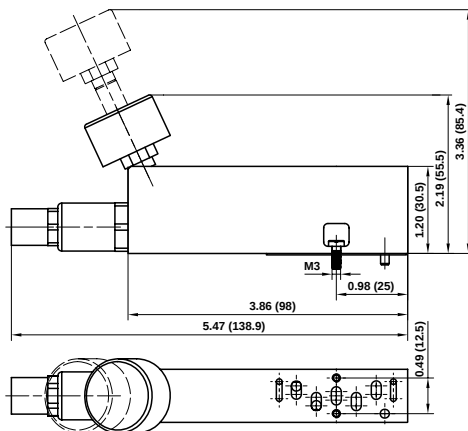
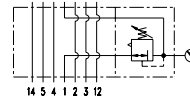


Pressure Regulator Plates (including gauge and adapter tube)



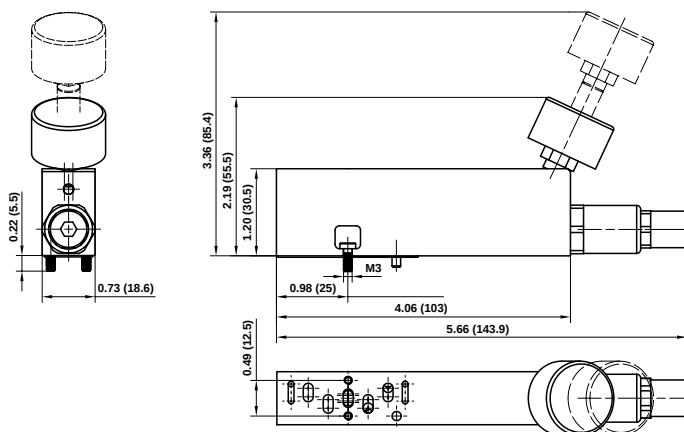
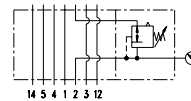
Model	Description	Weight lb (kg)
V70427-K51	Regulation of Port 1	0.46 (0.21)

Maximum inlet pressure 232 psig
(16 bar)
Regulated pressure 14.5–145 psig
(1–10 bar)



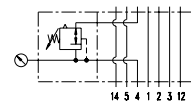
Model	Description	Weight lb (kg)
V70427-K52	Regulation of Port 2	0.46 (0.21)

Maximum inlet pressure 232 psig
(16 bar)
Regulated pressure 14.5–145 psig
(1–10 bar)



Model	Description	Weight lb (kg)
V70427-K53	Regulation of Port 4	0.46 (0.21)

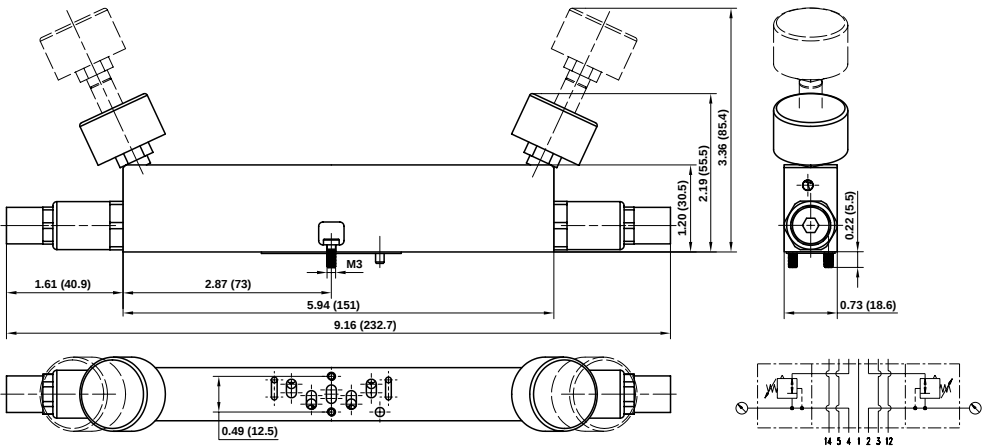
Maximum inlet pressure 232 psig
(16 bar)
Regulated pressure 14.5–145 psig
(1–10 bar)





Mini ISO Star Series 18 mm Valves

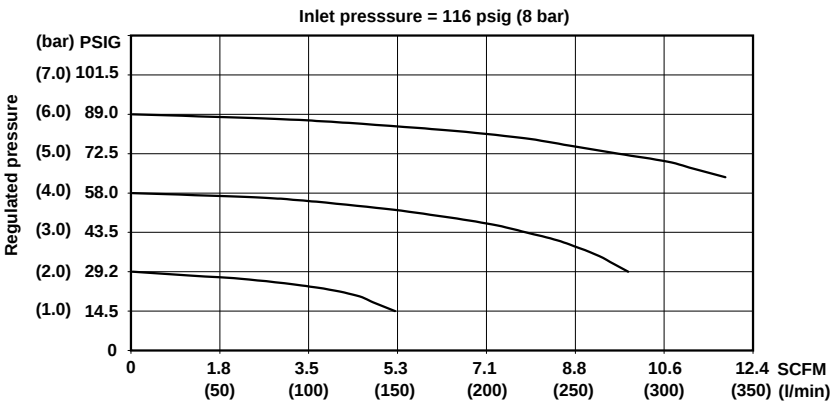
All Dimensions in Inches (mm)



Model	Description	Weight lb (kg)
V70427-K54	Regulation of Ports 2+4	0.79 (0.36)

Maximum inlet pressure 232 psig
(16 bar)
Regulated pressure 14.5–145 psig
(1–10 bar)

Flow Characteristics for Pressure Regulator Plates

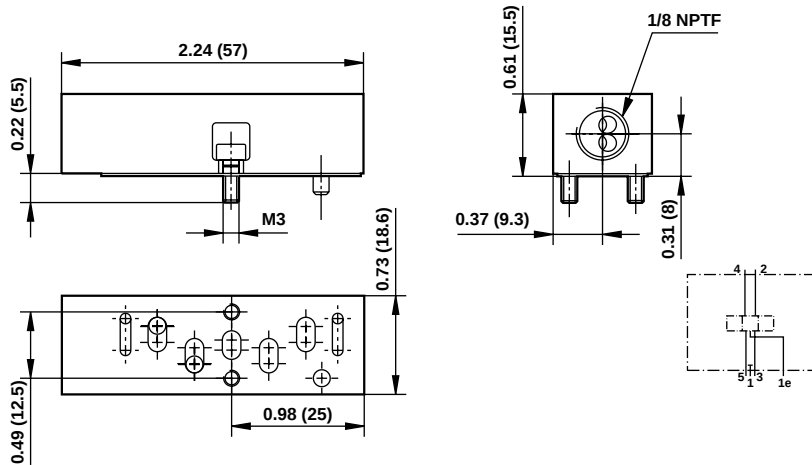


Mini ISO Star Series 18 mm Valves

All Dimensions in Inches (mm)

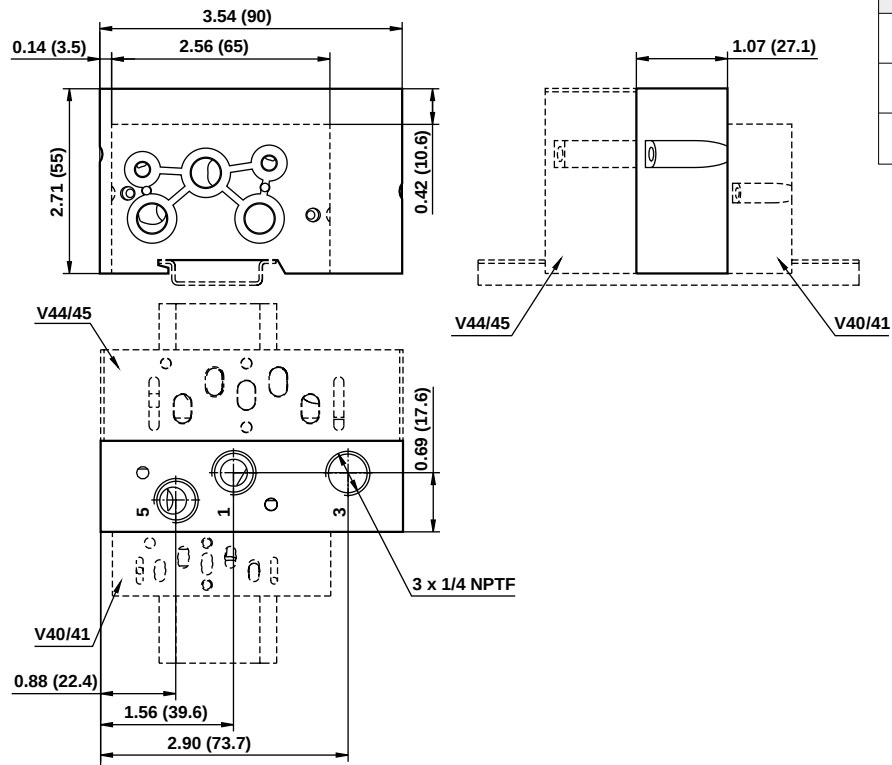


Sandwich Plate with additional Pressure Port 1



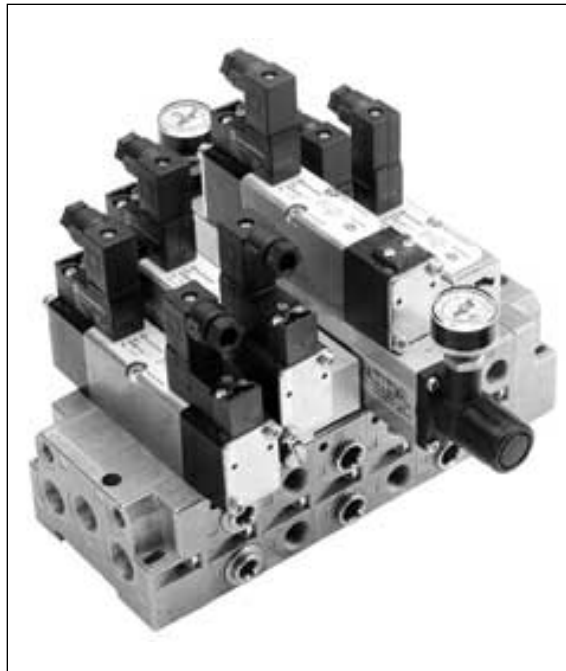
Model	Description	Weight lb (kg)
V70435-P50	Sandwich Plate with additional Port 1, supplied with gasket	0.09 (0.04)

Transition Plate #18 mm → #26 mm



Model	Description	Port 1/3/5	Weight lb (kg)
V70436-K00	Transition Plate # 18 – # 26 mm	without Ports 1/3/5	0.71 (0.32)
V70436-R00	Transition Plate # 18 – # 26 mm	1/4 NPTF	0.68 (0.31)
V70436-B00	Transition Plate # 18 – # 26 mm	G1/4	0.68 (0.31)

- Compact design and high performance
- Flexible Sub-base system
- True multipressure system (including vacuum)
- Sandwich regulators and flow controls
- Dual spool technology
V44 Glandless spool and sleeve
V45 Softseal spool
- Collected pilot exhaust with internal pilot air supply
- Easily converted from internal to external pilot supply
- Sandwich plate allows for exchange of valves under pressure



Technical Data

Medium

Compressed air, 40µm filtered, lubricated or non-lubricated

Operation

V44: Glandless spool valve, solenoid pilot or air pilot actuated

V45: Softseal spool valve, solenoid pilot or air pilot actuated

Mounting

On sub-bases

Size

ISO 15407-1 / VDMA 24 563, 26 mm

Operating Pressure

Maximum pressure

145 psig (10 bar) V45 models and V44 solenoid pilot actuated valves with internal pilot supply

232 psig (16 bar) V44 solenoid pilot actuated valves with external pilot supply and V44 air pilot actuated valves

Flow Characteristics

Series	Function	Cv	'C'	'b'	'A'	l/min	Kv
V44	5/2	0.92	4.03	0.07	14.38	900	0.79
V44	5/3	0.92	4.03	0.07	14.38	900	0.79
V45	5/2	1.22	5.26	0.11	19.19	1200	1.05
V45	5/3	1.17	5.06	0.10	18.36	1150	1.00
V45	2x3/2	1.17	5.06	0.10	18.36	1150	1.00

Ambient Temperature

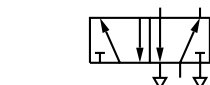
5°F* to +122°F (-15°C* to +50°C) V44/V45 sol. and V45 air pilot models

5°F* to +176°F (-15°C* to +80°C) V44 air pilot models

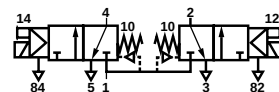
*Consult our Application Engineering for use below 36° F (+2°C)

Materials

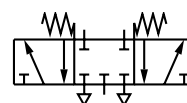
Die cast aluminum body and sub-base. Hard anodized, Teflon coated, matched aluminum spool and sleeve (V44) or aluminum alloy spool with HNBR Seals (V45). POM plastic parts and NBR static seals. End cover and screws zinc plated, stainless steel springs.



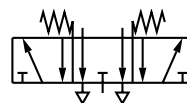
5/2



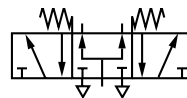
2 x 3/2
Dual 3-way



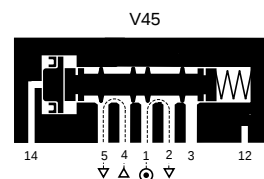
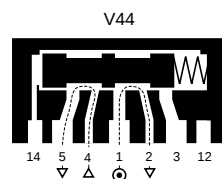
5/3 APB
All ports blocked



5/3 COE
Center open exhaust



5/3 COP
Center open pressure





2x3/2 Solenoid Pilot Actuated Valves (Softseal Spool only)

Symbol	Model	Function 2x3/2	Pilot Supply	Pilot Exhaust	Actuation 3/2 Function	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V45AA11D-C3***	Normally Closed	Internal	Collected *	Sol/Spring	1.1	43.5 - 145 (3 - 10)	-	0.53 (0.27)	V70546-KAO
	V45AA22D-C3***	Normally Closed	External	Not Collected	Sol/Spring	1.1	0 - 145 (0 - 10)	21.7+(0.5xop.press.) (1.5+(0.5xop.press.))	0.53 (0.27)	V70546-KAO
	V45AB11D-C3***	Normally Open	Internal	Collected *	Sol/Spring	1.0	43.5 - 145 (3 - 10)	-	0.53 (0.27)	V70547-KAO
	V45AB22D-C3***	Normally Open	External	Not Collected	Sol/Spring	1.0	0 - 145 (0 - 10)	21.7+(0.5xop.press.) (1.5+(0.5xop.press.))	0.53 (0.27)	V70547-KAO
	V45AC11D-C3***	Norm. Open/ Norm. Closed	Internal	Collected *	Sol/Spring	1.0/ 1.1	43.5 - 145 (3 - 10)	-	0.53 (0.27)	V70548-KAO
	V45AC22D-C3***	Norm. Open/ Norm. Closed	External	Not collected	Sol/Spring	1.0/ 1.1	0 - 145 (0 - 10)	21.7+(0.5xop.press.) (1.5+(0.5xop.press.))	0.53 (0.27)	V70548-KAO

5/2 Solenoid Pilot Actuated Valves

Symbol	Model	Spool Techn.	Pilot Supply	Pilot Exhaust	Operator 14	Return 12	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V44A513D-C3***†	GI	Internal	Collected *	Solenoid	Air Spring	0.9	14.5 - 145 (1 - 10)	-	0.53 (0.24)	V70540-KAO
	V44A523D-C3***†	GI	External	Not collected	Solenoid	Air Spring	0.9	26" Hg - 232 (-0.9 - 16)	14.5 - 145 (1 - 10)	0.53 (0.24)	V70540-KAO
	V44A517D-C3***†	GI	Internal	Collected *	Solenoid	Spring	0.9	23.2 - 145 (1.6 - 10)	-	0.44 (0.20)	V70540-KAO
	V45A517D-C3***†	Ss	Internal	Collected *	Solenoid	Spring	1.2	29 - 145 (2 - 10)	-	0.46 (0.21)	V70541-KAO
	V44A527D-C3***†	GI	External	Not collected	Solenoid	Spring	0.9	26" Hg - 232 (-0.9 - 16)	23.2 - 145 (1.6 - 10)	0.44 (0.20)	V70540-KAO
	V45A527D-C3***†	Ss	External	Not collected	Solenoid	Spring	1.2	26" Hg - 145 (-0.9 - 10)	29 - 145 (2 - 10)	0.46 (0.21)	V70541-KAO
	V44A511D-C3***†	GI	Internal	Collected *	Solenoid	Solenoid	0.9	29 - 145 (2 - 10)	-	0.60 (0.27)	V70540-KAO
	V45A511D-C3***†	Ss	Internal	Collected *	Solenoid	Solenoid	1.2	29 - 145 (2 - 10)	-	0.60 (0.27)	V70542-KAO
	V44A522D-C3***†	GI	External	Not collected	Solenoid	Solenoid	0.9	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	0.60 (0.27)	V70540-KAO
	V45A522D-C3***†	Ss	External	Not collected	Solenoid	Solenoid	1.2	26" Hg - 145 (-0.9 - 10)	29 - 145 (2 - 10)	0.60 (0.27)	V70542-KAO

** Insert 'Voltage Code' from table 'Voltage Codes and Spare Pilot Valves' below.

† Add connector code from table 'Connector Codes and Part Numbers' below.

x Pilot Exhaust collected and exhausted via port 14

Spool Technology Designations:

GI = Glandless Spool and Sleeve

Ss = Softseal Spool

Valve Function Designations: APB = All Ports Blocked

COE = Center Open Exhaust

COP = Center Open Pressure

Electrical Details for Solenoid Pilot

Voltage Tolerances	-10% / +15%
Rating	100% Continuous Duty
Inlet orifice	0.8 mm
Electrical Connection	DIN 43 650 table 'C'
Manual Override	Shrouded push button, spring return Convertible into lockable type with Set-up Kit Part no. V70532-K00 (see VAL-7-7)
Protection Class	IP 65 NEMA 4
Materials	PPS (body), Viton and NBR (seals)

Voltage Codes and Spare Pilot Valves

Voltage	Code	Power Inrush / Hold	Pilot Valve Part.-no.
12 V d.c.	12	1.2 W	VZC7L2C1-C312A
24 V d.c.	13	1.2 W	VZC7L2C1-C313A
24 V 50/60 Hz.	14	2.1 / 1.5 VA	VZC7L2C1-C314A
48 V 50/60 Hz	16	2.1 / 1.5 VA	VZC7L2C1-C316A
110 V d.c.	17	1 W	VZC7L2C1-C317A
115 V 50/60 Hz	18	2.1 / 1.5 VA	VZC7L2C1-C318A
230 V 50/60 Hz	19	2.1 / 1.5 VA	VZC7L2C1-C319A

Other voltages available on request.

Spare pilot valves are delivered with mounting screws.

Connector Codes and Part Number

Code	Part Number
A = Solenoid without connector	
B = Cable grip	V10027-D00
C = 10 ft. molded cable, 0-240 VAC/VDC	V10013-D03
H = Cable grip w/indicator light, 24 VAC/VDC	V10012-D13
J = Cable grip w/indicator light, 120 VAC/VDC	V10012-D18
5 = 10 ft. molded cable with indicator light, surge suppression, 24 VAC/VDC	V10014-D03
6 = 10 ft. molded cable with indicator light, 110V/50 Hz-120V.60Hz	V10015-D03



Mini ISO Star Series 26 mm Valves

5/3 Solenoid Pilot Actuated Valves

Symbol	Model	Spool Techn.	Valve Function	Pilot Supply	Pilot Exhaust	Operator 14	Return 12	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V44A611D-C3***†	GI	APB	Internal	Collected *	Solenoid	Solenoid	0.9	29 - 145 (2 - 10)	-	0.62 (0.28)	V70540-KAO
	V45A611D-C3***†	Ss	APB	Internal	Collected *	Solenoid	Solenoid	1.15	36.3 - 145 (2.5 - 10)	-	0.59 (0.27)	V70543-KAO
	V44A622D-C3***†	GI	APB	External	Not collected	Solenoid	Solenoid	0.9	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	0.62 (0.28)	V70540-KAO
	V45A622D-C3***†	Ss	APB	External	Not collected	Solenoid	Solenoid	1.15	26" Hg - 145 (-0.9 - 10)	36.3 - 145 (2.5 - 10)	0.59 (0.27)	V70543-KAO
	V44A711D-C3***†	GI	COE	Internal	Collected *	Solenoid	Solenoid	0.9	29 - 145 (2 - 10)	-	0.62 (0.28)	V70540-KAO
	V45A711D-C3***†	Ss	COE	Internal	Collected *	Solenoid	Solenoid	1.15	36.3 - 145 (2.5 - 10)	-	0.59 (0.27)	V70544-KAO
	V44A722D-C3***†	GI	COE	External	Not collected	Solenoid	Solenoid	0.9	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	0.62 (0.28)	V70540-KAO
	V45A722D-C3***†	Ss	COE	External	Not collected	Solenoid	Solenoid	1.15	26" Hg - 145 (-0.9 - 10)	36.3 - 145 (2.5 - 10)	0.59 (0.27)	V70544-KAO
	V44A811D-C3***†	GI	COP	Internal	Collected *	Solenoid	Solenoid	0.9	29 - 145 (2 - 10)	-	0.62 (0.28)	V70540-KAO
	V45A811D-C3***†	Ss	COP	Internal	Collected *	Solenoid	Solenoid	1.15	36.3 - 145 (2.5 - 10)	-	0.59 (0.27)	V70545-KAO
	V44A822D-C3***†	GI	COP	External	Not collected	Solenoid	Solenoid	0.9	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	0.62 (0.28)	V70540-KAO
	V45A822D-C3***†	Ss	COP	External	Not collected	Solenoid	Solenoid	1.15	26" Hg - 145 (-0.9 - 10)	36.3 - 145 (2.5 - 10)	0.59 (0.27)	V70545-KAO

2x3/2 Air Pilot Actuated Valves (Softseal Spool)

Symbol	Model	Function 2x3/2	Actuation 3/2 Function	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight kg (lb.)	Spares Kit
	V45AA33A-X0020	Normally Closed	Air/Spring	1.1	0 - 145 (0 - 10)	1.5 + (0.5xop. pressure) (21.7 + (0.5xop. pressure))	0.20 (0.40)	V70546-KAO
	V45AB33A-X0020	Normally Open	Air/Spring	1.0	0 - 145 (0 - 10)	1.5 + (0.5xop. pressure) (21.7 + (0.5xop. pressure))	0.20 (0.40)	V70547-KAO
	V45AC33A-X0020	Normally Open/ Normally Closed	Air/Spring	1.0/1.1	0 - 145 (0 - 10)	1.5 + (0.5xop. pressure) (21.7 + (0.5xop. pressure))	0.20 (0.40)	V70548-KAO

5/2 Air Pilot Actuated Valves

Symbol	Model	Spool Techn.	Operator 14	Return 12	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Repair Kit
	V44A537A-X0090	GI	Air	Spring	0.9	26" Hg - 232 (-0.9 - 16)	23 - 232 (1.6 - 16)	0.40 (0.18)	V70540-KAO
	V45A537A-X0090	Ss	Air	Spring	1.2	26" Hg - 145 (-0.9 - 10)	29 - 145 (2 - 10)	0.40 (0.18)	V70541-KAO
	V44A533A-X0020	GI	Air	Air	0.9	26" Hg - 232 (-0.9 - 16)	29 - 232 (2 - 16)	0.44 (0.20)	V70540-KAO
	V45A533A-X0020	Ss	Air	Air	1.2	26" Hg - 145 (-0.9 - 10)	29 - 145 (2 - 10)	0.44 (0.20)	V70542-KAO

** Insert 'Voltage Code' from table 'Voltage Codes and Spare Pilot Valves' on VAL-4-19.

† Add connector code from table 'Connector Codes and Part Numbers' on VAL-4-19.

* Pilot Exhaust collected and exhausted via port 14

Spool Technology Designations:

GI = Glandless Spool and Sleeve

Ss = Softseal Spool

Valve Function Designations: APB = All Ports Blocked

COE = Center Open Exhaust

COP = Center Open Pressure



5/3 Air Pilot Actuated Valves

Symbol	Model	Spool Techn.	Valve Function	Operator 14	Return 12	Flow Cv	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)	Spares Kit
	V44A633A-X0020	GI	APB	Air	Air	0.9	26" Hg - 232 (-0.9 - 16)	29 - 232 (2 - 16)	0.48 (0.22)	V70540-KAO
	V45A633A-X0020	Ss	APB	Air	Air	1.15	26" Hg - 145 (-0.9 - 10)	36 - 145 (2.5 - 10)	0.46 (0.21)	V70543-KAO
	V44A733A-X0020	GI	COE	Air	Air	0.9	26" Hg - 232 (-0.9 - 16)	29 - 232 (2 - 16)	0.48 (0.22)	V70540-KAO
	V45A733A-X0020	Ss	COE	Air	Air	1.15	26" Hg - 145 (-0.9 - 10)	36 - 145 (2.5 - 10)	0.46 (0.21)	V70544-KAO
	V44A833A-X0020	GI	COP	Air	Air	0.9	26" Hg - 232 (-0.9 - 16)	29 - 232 (2 - 16)	0.48 (0.22)	V70540-KAO
	V45A833A-X0020	Ss	COP	Air	Air	1.15	26" Hg - 145 (-0.9 - 10)	36 - 145 (2.5 - 10)	0.46 (0.21)	V70545-KAO

Bases

Modular Sub-base Side Ported without Pilot Ports	Modular Sub-base Side Ported with Pilot Ports	Modular Sub-base Side Ported (PIF) without Pilot Ports	Modular Sub-base Side Ported (PIF) with Pilot Ports	
V70525-PAF (1/8 NPTF)	V70526-PAF (1/8 NPTF)	V70525-2AF (3/8 PIF)	V70526-2AF (3/8 PIF)	
V70525-RAF (1/4 NPTF)	V70526-RAF (1/4 NPTF)	V70525-8AF (ø8 mm)	V70526-8AF (ø8 mm)	
V70525-BAF (G1/4)	V70526-BAF (G1/4)	V70525-YAF (ø10 mm)	V70526-YAF (ø10 mm)	
End Plate Kit End Ported	Single Station Sub-base Side ported with Pilot Ports	Fixed Length Sub-base Bottom ported		
V70524-SAC (3/8 NPTF)	V70501-RAB (1/4 NPTF)	V705**-RA0		
V70524-CAC (G3/8)	V70501-BAB (G1/4)	**=02, 04, 06, 08, 10, 12 stations		

Accessories

Intermediate Supply/Exhaust Module	Single Valve Shut-Off Plate	Single Pressure Regulator Plate	Double Pressure Regulator Plate	Flow Control Plate
V70529-RA0 (1/4 NPTF)	V70530-KAO (Port 1 blocked)	V70527-KA1 (Port 1 reg.)	V70527-KA4 (Ports 2+4 reg.)	V70528-KAO (Ports 3+5)
V70529-BA0 (G1/4)		V70527-KA2 (Port 2 reg.)		
		V70527-KA3 (Port 4 reg.)		
DIN EN 50 022 rail (3.28 feet)	DIN-rail Mounting Kit	Blanking Plate for unused station	Blanking Disk to Modular Sub-base	Manual Override Set-Up Kit
V10009-C00 (35x7.5mm)	V70531-KAO	V70500-KAO	V70522-K00 (Ports 1,3,5)	V70532-K00
V10592-C01 (35x15mm)			V70523-K00 (Ports 12+14)	
Sandwich Plate with additional Pressure Port 1	Transition Plate #18 → #26 mm	Transition Plate #18 → #26 mm		
V70535-RA0 1/4 NPTF	V70436-K00	V70436-R00 1/4 NPTF		
V70535-BA0 G1/4		V70436-B00 G1/4		

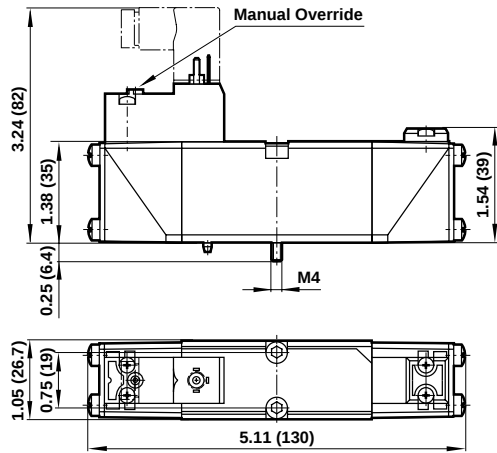


Mini ISO Star Series 26 mm Valves

All Dimensions in Inches (mm)

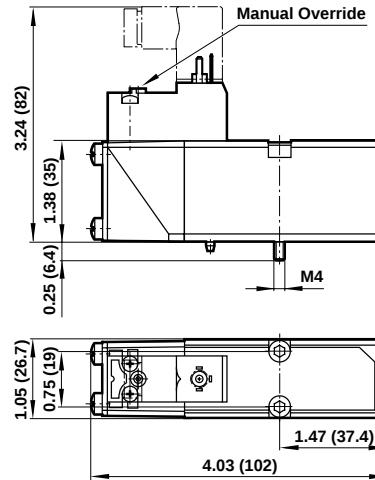
V44A5*3D-C3***

5/2 Single Solenoid Pilot Valve
Air Spring Return



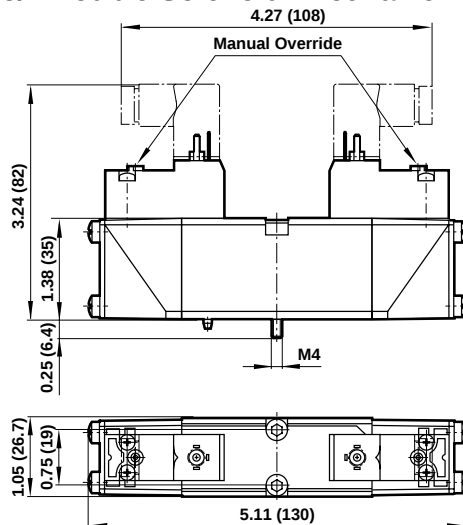
V44A5*7D-C3*** and V45A5*7D-C3***

5/2 Single Solenoid Pilot Valve
Mechanical Spring Return



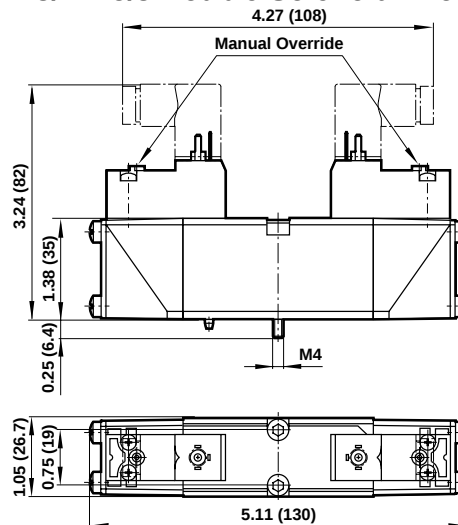
V44A5**D-C3*** and V45A5**D-C3***

5/2 Double Solenoid Pilot Valve



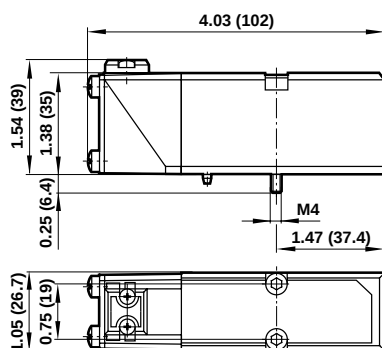
V44A***D-C3*** and V45A***D-C3***

2x3/2 + 5/3 Double Solenoid Pilot Valve



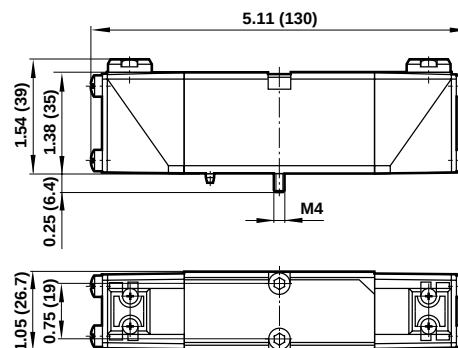
V44A537A-X00*0 and V45A537A-X00*0

5/2 Single Air Pilot Valves



V44A*33A-X00*0 and V45A*33A-X00*0

2x3/2 + 5/2 + 5/3 Double Air Pilot Valve

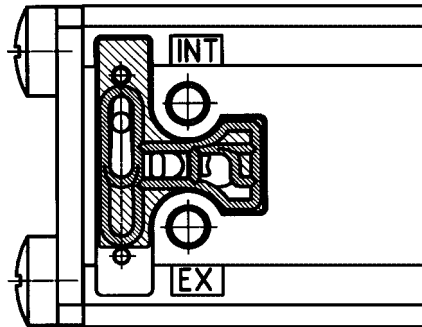




Conversion from internal to external pilot supply / collected pilot exhaust

The lowered and captive gasket between valve body and pilot valve defines and indicates pilot air supply as well as pilot exhaust function of the valve.

Solenoid pilot actuated valves

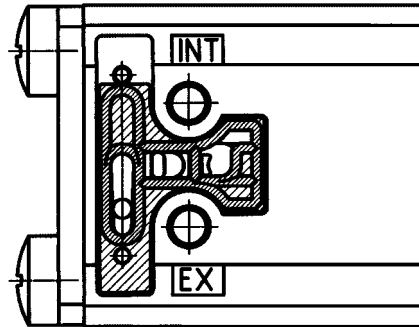


blue gasket

Internal pilot supply,
pilot exhaust air collected and exhausted via port 14.

All solenoid pilot valves with code 1 at position 6 in the part number (e.g V45A51...) have the gasket mounted in this position on delivery.

Drawing shows
no pilot valve.



blue gasket

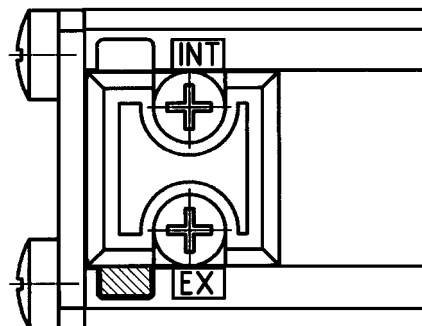
External pilot supply from port 14 only,
pilot exhaust air not collected but
bleed through valve body.

All solenoid pilot valves with code 2 at position 6 in the part number (e.g V45A52...) have the gasket mounted in this position on delivery.

Note: Dismounting pilot valve gives access to gasket. Conversion from internal to external pilot supply (or vice versa) by turning the gasket.

Caution: In this case part number and symbol on label shows different function. Therefore check gasket position when mounting valve.

Air pilot actuated valves



blue gasket

Drawing includes
cover plate.

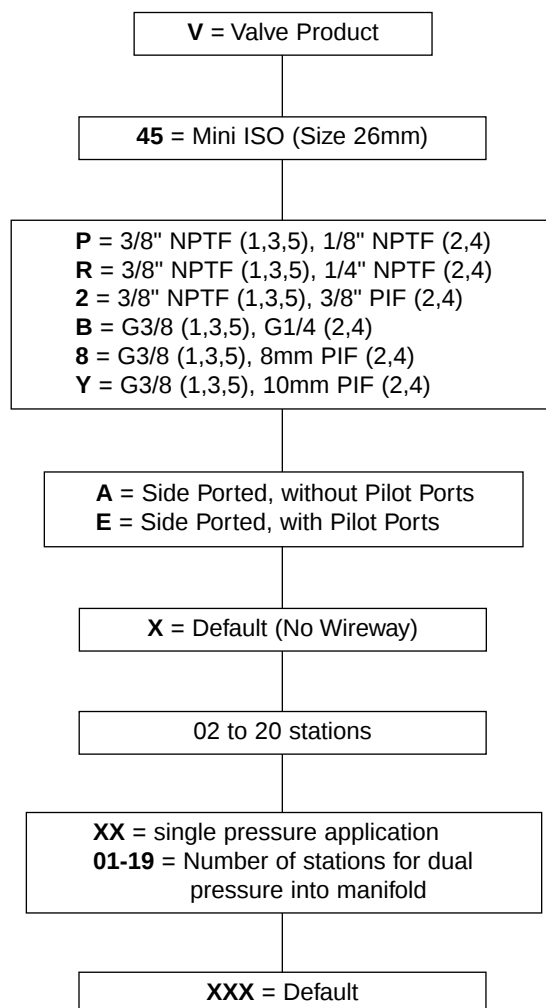
Air pilot actuated valves
External pilot supply.



Mini ISO Star Series 26 mm Valves

Order a factory assembled manifold

V 4 5 R A X 0 7 - X X X X X



Ordering Example

The following ordering example details the information needed to order a 4-valve, single solenoid, 24 VDC, cable grip electrical connector, single pressure manifold.

One Mini ISO manifold consisting of:

Position	Quantity	Part No.
1-4	4	V44A513D-C313B
	1	V45RAX04-XXXXXX

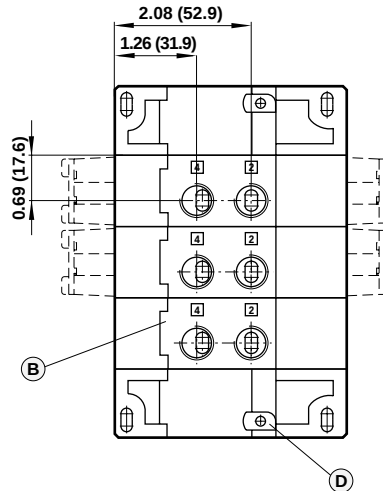
Mini ISO Star Series 26 mm Valves

All Dimensions in Inches (mm)

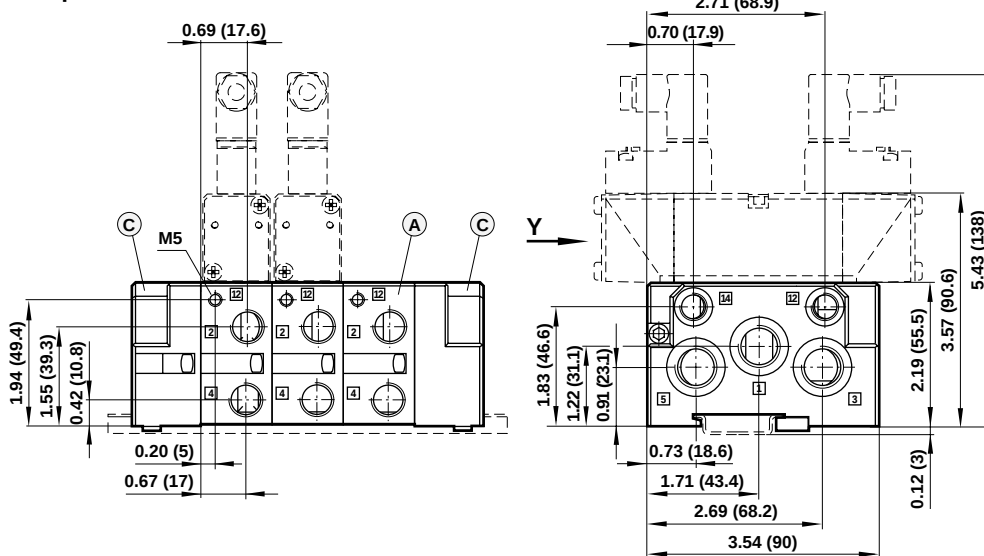


Modular Sub-bases parts for DIN rail or surface mounting

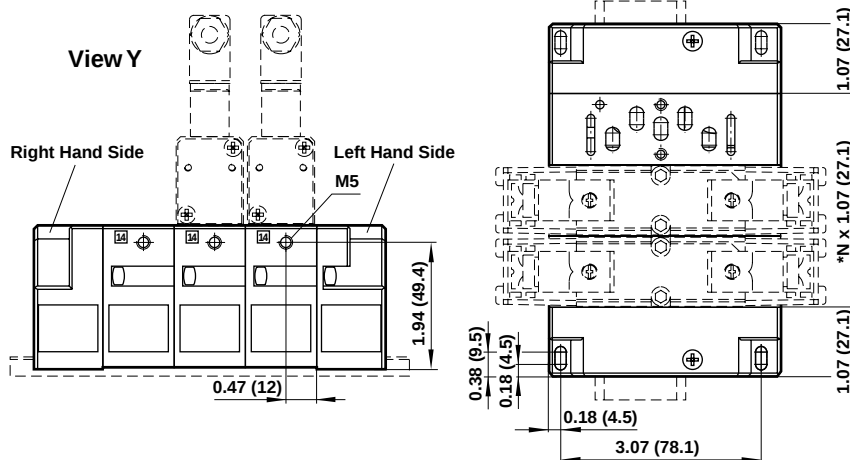
Bottom ported sub-base



Side ported sub-base



Bottom and side ported sub-base



* N = Number of stations

Note:

Port 14 used for external pilot air supply or for collected pilot air exhaust.

Never plug port 14 when using valves with internal pilot air supply.

Port 12 is not used, plugging not necessary.

Individual components

Modular Sub-base Ⓐ 0.40 lb
Ports 2+4 on side (0.18 kg)
V70525-xAF

Modular Sub-base Ⓐ 0.40 lb
Ports 2+4 on side (0.18 kg)
Pilot Ports 12+14 on side
V70526-xAF

Modular Sub-base Ⓑ 0.40 lb
Ports 2+4 on bottom (0.18 kg)
V70525-BAE

Modular Sub-base Ⓑ 0.40 lb
Ports 2+4 on bottom (0.18 kg)
Pilot Ports 12+14 on side
V70526-BAE

End Plate Kit Ⓒ 0.80 lb
Side Ported (0.36 kg)
V70524-CAC (G3/8)
V70524-SAC (3/8NPTF)
End ported end caps
1 left hand and 1 right hand

Accessories

DIN EN 50022 rail 0.68 lb
35 x 7.5 mm, 3.3' (1m) (0.31 kg)
V10009-C00

DIN EN 50022 rail 2.25 lb
35 x 15 mm, 3.3' (1m) (1.02 kg)
V10592-C01

DIN rail Ⓓ 0.02 lb
Mounting Kit (0.01 kg)
V70531-KAO

Blanking Disk to 0.02 lb
Modular Sub-base (0.01 kg)
Ports 1, 3, 5
V70522-K00

Blanking Disk to 0.02 lb
Modular Sub-base (0.01 kg)
Ports 12+14
V70523-K00

x = Insert port type from table below

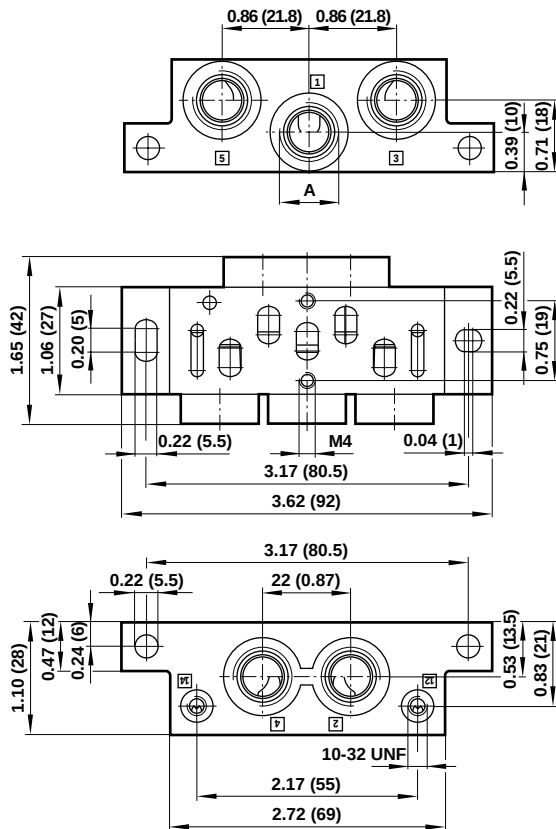
Code	Ports 2+4	Ports 12+14
P	1/8NPTF	10-32 UNF
R	1/4NPTF	10-32 UNF
2	3/8 PIF	10-32 UNF
B	G1/4	M5
8	ø 8 mm PIF	M5
Y	ø 10 mm PIF	M5



Mini ISO Star Series 26 mm Valves

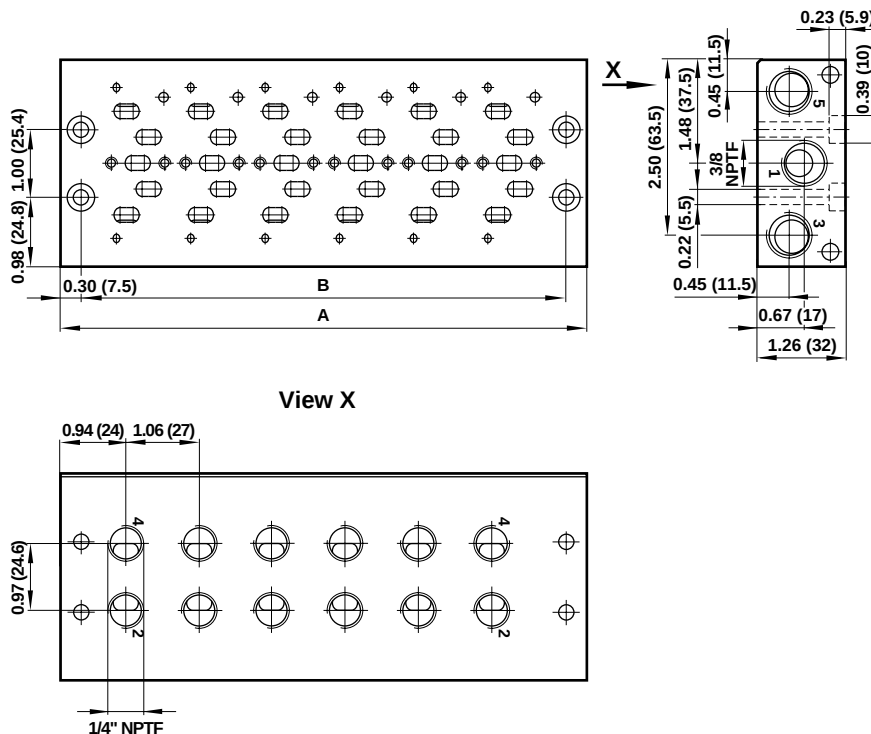
All Dimensions in Inches (mm)

Single Station Sub-base - Side Ported with Pilot Ports



Model	Port Size A	Weight lb (kg)
V70501-RAB	NPTF1/4 side ported with pilot ports	0.24 (0.11)
V70501-BAB	G1/4 side ported with pilot ports	

Fixed Length Sub-base - Bottom Ported



Model	No. of Stations	A inch (mm)	B inch (mm)	Weight lb (kg)
V70502-RA0	2	3.27 (83)	2.68 (68)	0.88 (0.40)
V70504-RA0	4	5.39 (137)	4.80 (122)	1.43 (0.65)
V70506-RA0	6	7.52 (191)	6.93 (176)	2.00 (0.91)
V70508-RA0	8	9.65 (245)	9.06 (230)	2.53 (1.15)
V70510-RA0	10	11.77 (299)	11.18 (284)	3.11 (1.41)
V70512-RA0	12	13.90 (353)	13.31 (338)	3.66 (1.66)

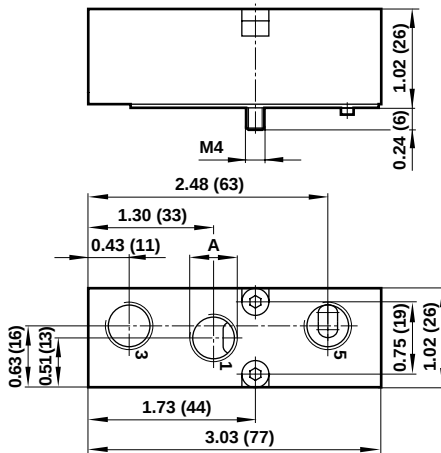
Note: This sub-base is suitable for solenoid pilot actuated valves with internal pilot air supply only.

Mini ISO Star Series 26 mm Valves

All Dimensions in Inches (mm)



Intermediate Supply / Exhaust Module



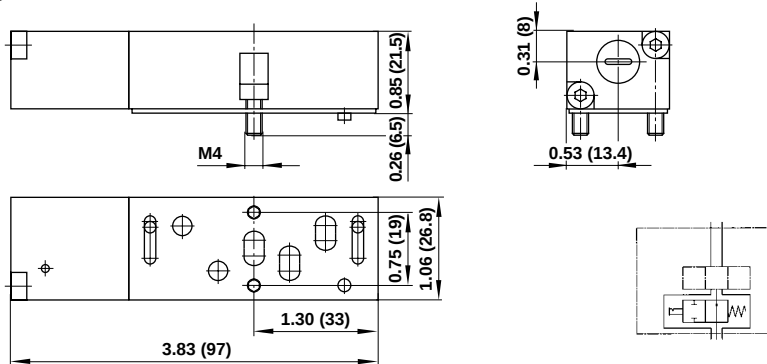
Model	Port Size A	Weight lb (kg)
V70529-RAO	1/4NPTF	0.26
V70529-BAO	G1/4	(0.12)

Provides additional porting on Modular or Fixed Length Sub-base.
Occupies one valve station.
Supplied with gasket for both sub-bases.

Can be used to:

- Improve supply flow
- Increase exhaust capacity
- Pneumatically separate valves for fail save emergency
- Multipressure system and system solutions

Single Valve Shut-Off Plate

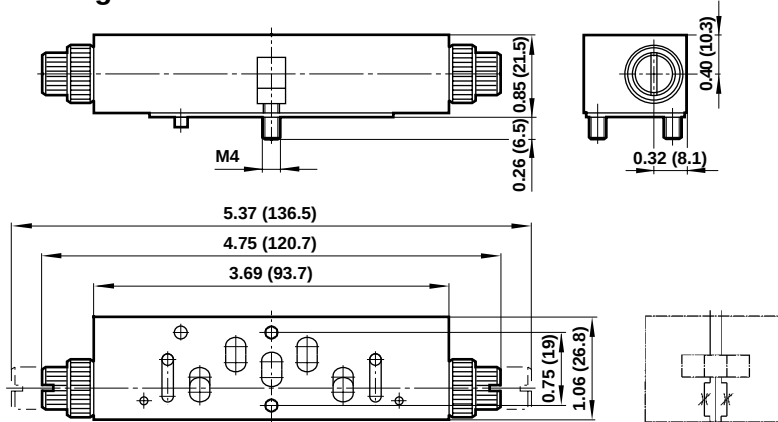


Model	Description	Weight lb (kg)
V70530-KAO	Single Shut-Off Plate supplied with gasket	0.28 (0.13)

Allows individual exchange of valve, while valve island is pressurized by port 1.

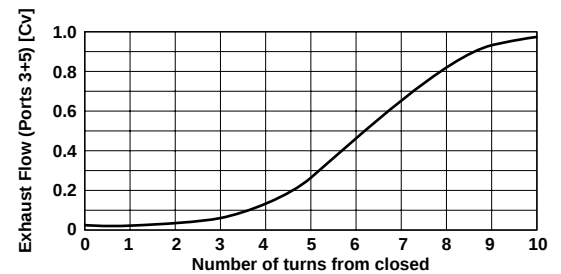
Note: Flow restricted to max. Cv of 0.5

Flow Regulator Plate



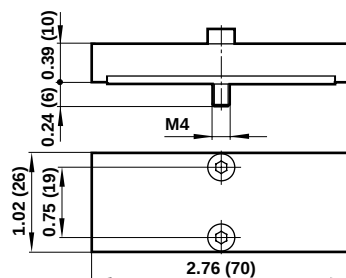
Model	Description	Weight lb (kg)
V70528-KAO	Flow Regulator supplied with gasket	0.37 (0.17)

Dual Regulation of Exhaust Ports 3 and 5



Flow: Port 1 → 2 and 1 → 4 remain unchanged
Flow measured at 87 psig inlet, Pressure drop 15 psi

Blanking Plate



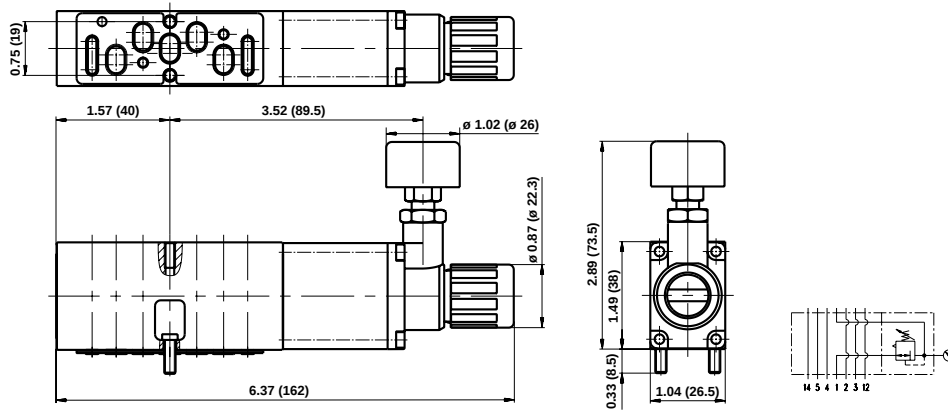
Model	Description	Weight lb (kg)
V70500-KAO	Blanking Plate for blocking of unused stations (supplied with gasket)	0.11 (0.05)



Mini ISO Star Series 26 mm Valves

All Dimensions in Inches (mm)

Pressure Regulator Plates (including gauges)



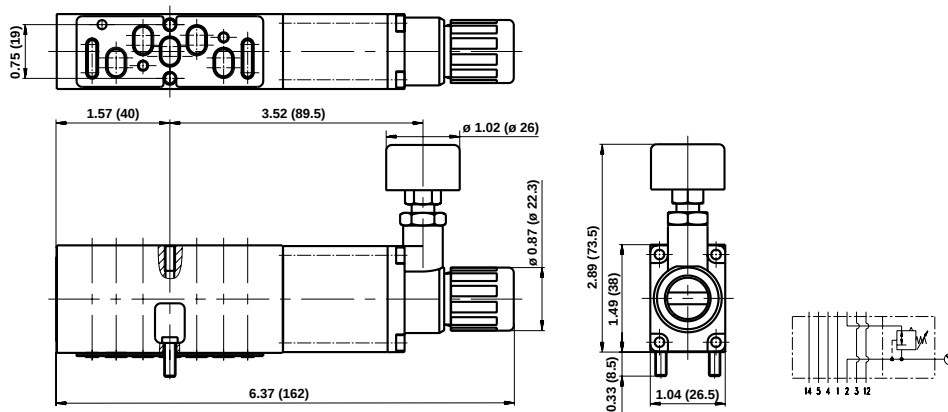
Model	Description	Weight lb (kg)
V70527-KA1	Regulation of Port 1	0.36 (0.79)

Maximum inlet pressure 232 psig

(16 bar)

Regulated pressure 7.25–145 psig
(0.5–10 bar)

Flow Characteristics
see page VAL-4-29



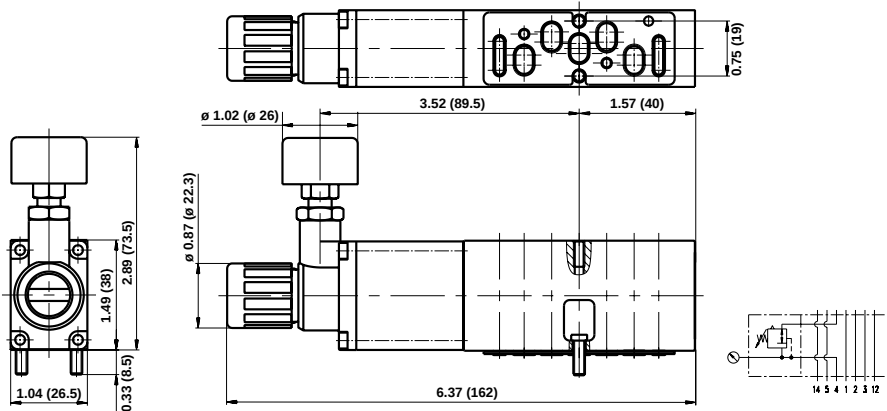
Model	Description	Weight lb (kg)
V70527-KA2	Regulation of Port 2	0.79 (0.36)

Maximum inlet pressure 232 psig

(16 bar)

Regulated pressure 7.25–145 psig
(0.5–10 bar)

Flow Characteristics
see page VAL-4-29



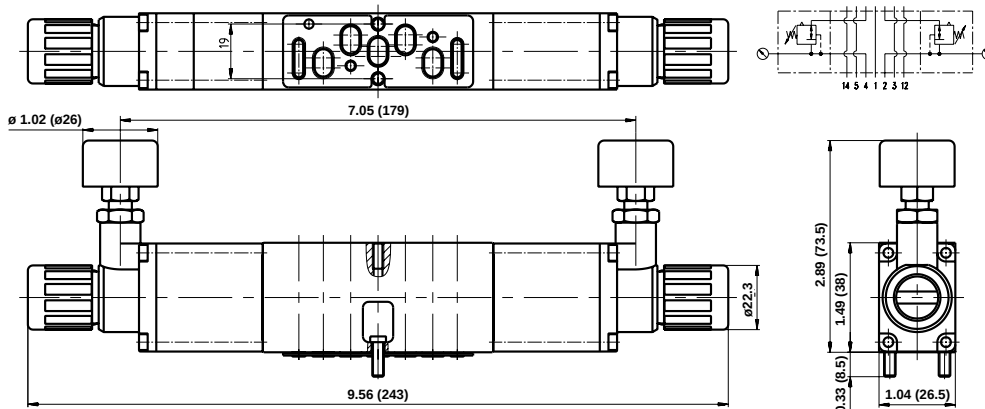
Model	Description	Weight lb (kg)
V70527-KA3	Regulation of Port 4	0.79 (0.36)

Maximum inlet pressure 232 psig

(16 bar)

Regulated pressure 7.25–145 psig
(0.5–10 bar)

Flow Characteristics
see page VAL-4-29



Model	Description	Weight lb (kg)
V70527-KA4	Regulation of Ports 2+4	1.23 (0.56)

Maximum inlet pressure 232 psig

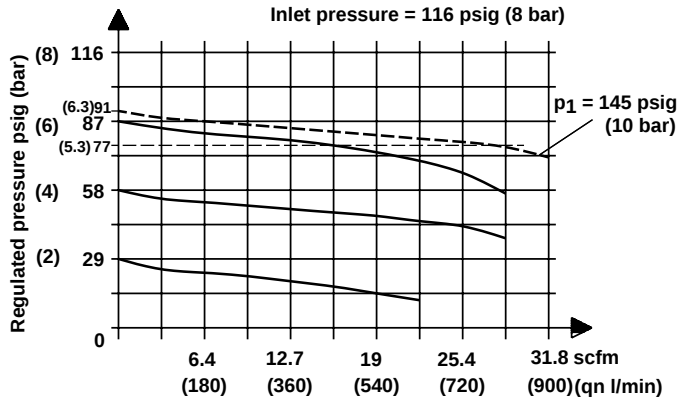
(16 bar)

Regulated pressure 7.25–145 psig
(0.5–10 bar)

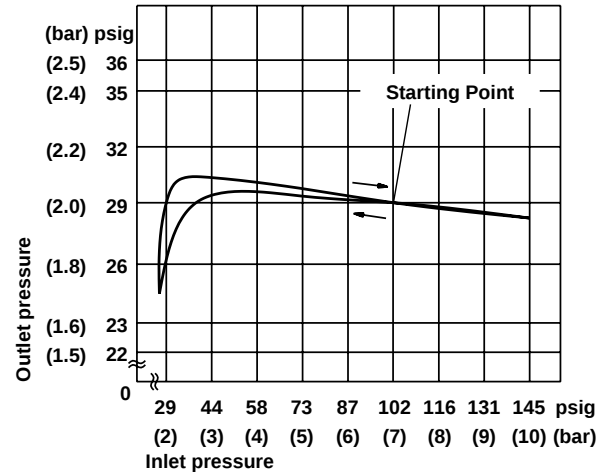
Flow Characteristics
see page VAL-4-29



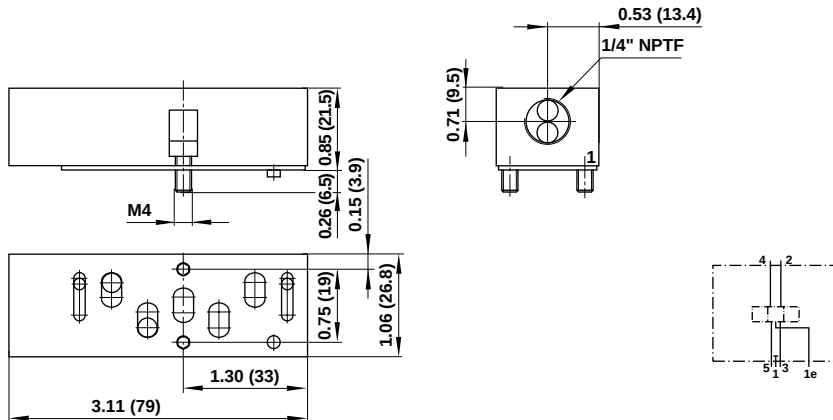
Flow Characteristics for Pressure Regulator Plates



Hysteresis



Sandwich Plate with additional Pressure Port 1



Model	Description	Weight lb (kg)
V70535-RAO	Sandwich Plate with additional Port 1, supplied with gasket	0.26 (0.12)



Mini ISO Star Valve Numbering System

V 4 5 A 5 1 7 D - C 3 1 8 B

V = Valve Product

40 = Mini ISO 18 mm Glandless
41 = Mini ISO 18 mm Soft Seal

44 = Mini ISO 26 mm Glandless
45 = Mini ISO 26 mm Soft Seal

5 = Subbase Valve

A = Subbase Valve

A = 2 x 3/2 NC (V41,V45 only)
B = 2 x 3/2 NO (V41,V45 only)
C = 2 x 3/2 NO/NC (V41,V45 only)
5 = 5/2
6 = 5/3 APB
7 = 5/3 COE
8 = 5/3 COP

1 = Solenoid, internal pilot
2 = Solenoid, external pilot
3 = Air Pilot

1 = Solenoid, internal pilot
2 = Solenoid, external pilot
3 = Air Spring Return/Air Pilot
7 = Spring Return

D = Default (Solenoid Pilot)

C = Solenoid Pilot

3 = Non-locking Override

12 = 12 VDC
13 = 24 VDC
14 = 24 VAC
16 = 48 VAC
17 = 110 VDC
18 = 120 VAC
19 = 240 VAC

A = Default (Air Pilot)

X = Air Pilot

0 = Default

02 = Double Air Pilot
09 = Single Air Pilot

0 = Default

A = Solenoid without Connector
B = Cable grip
C = 10 ft. molded cable, 0-240 VAC/VDC
H = Cable grip w/indicator light, 24 VAC/VDC
J = Cable grip w/indicator light, 120 VAC/VDC
5 = 10 ft. molded cable with indicator light, surge suppression, 24 VAC/VDC
6 = 10 ft. molded cable with indicator light, 120 VAC/VDC

ISO Star Series Valves

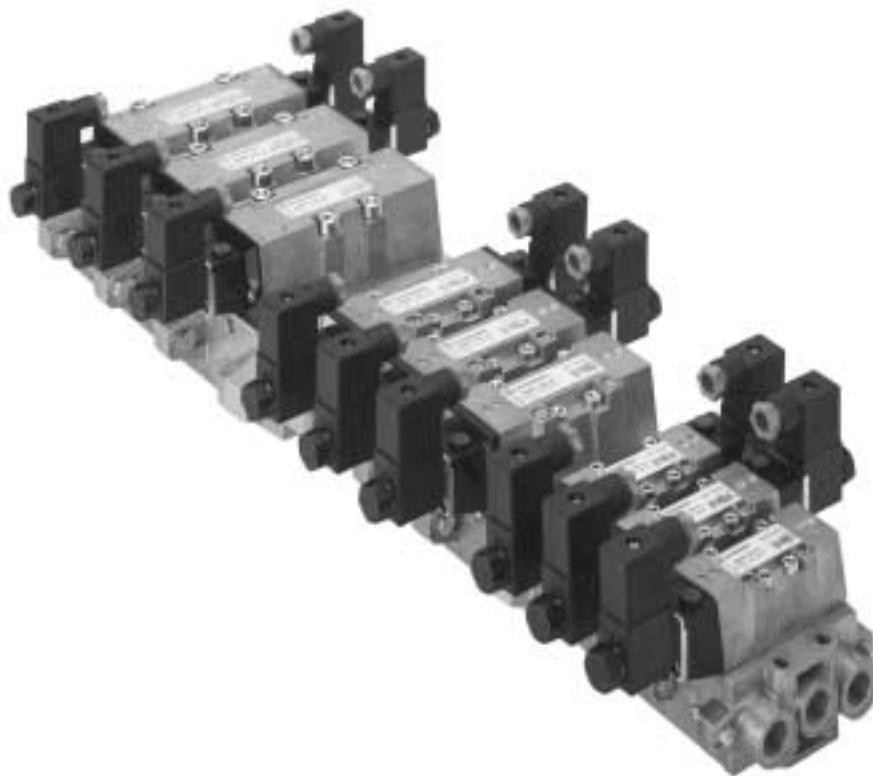
A long life (100 to 200 million cycles) precision spool and sleeve directional control air valve

Contents

Features and Benefits	VAL-5-2
Specifications and Technical Data ..	VAL-5-3
Accessories	VAL-5-8
Dimensional Data	VAL-5-9
Product Numbering Information ..	VAL-5-14

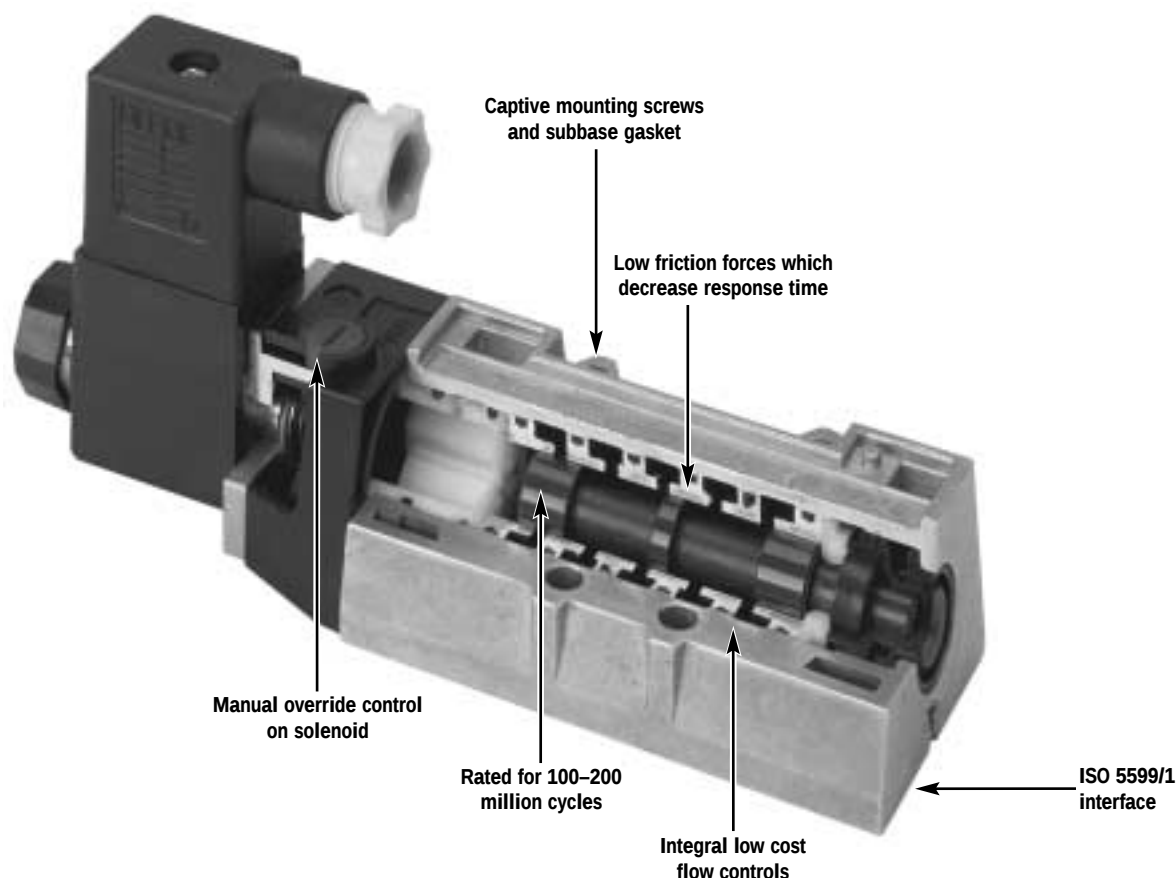
Norgren ISO Star Series Precision Spool and Sleeve Directional Control Valves

Available in sizes 1, 2, and 3, these compact, high flow valves feature fast, constant response times, and long, trouble-free life. Both 5/2 and 5/3 configurations in 1/4", 3/8", and 1/2" port subbases are available, along with accessories such as integral flow controls and sandwich regulators. These Swiss made valves are 100% corrosive resistant and are robust and reliable for use in harsh, industrial environments.





ISO*Star Series Valves



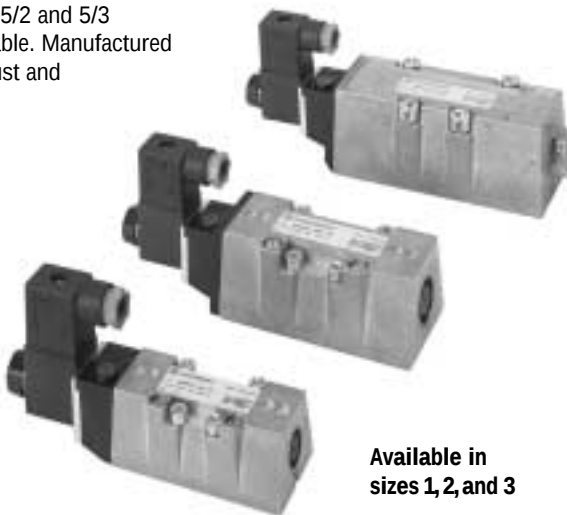
The ‘Fit and Forget’ Solution

Norgren ISO*Star Series precision spool and sleeve directional control valves are available in sizes 1, 2, and 3. These compact high flow valves feature fast and constant response times and long, trouble-free life. Many accessories are available including integral flow controls and sandwich regulators. Both 5/2 and 5/3 configurations in 1/4", 3/8", and 1/2" port subbases are available. Manufactured in Switzerland, these valves are 100% corrosive resistant, robust and reliable for use in harsh, industrial environments.

Design Features Provide Long Life and High Reliability

Norgren ISO*Star Series valves feature a hard-anodized NITUFF® coated matched spool and sleeve assembly which is rated for 100-200 million cycles. The spool and sleeve is 100% non-corrosive, requires no minimum number of operations, and will not stick even after extended periods of standstill. This rugged, simple design provides problem-free operation in the harshest industrial environments.

Just fit and forget!



Available in
sizes 1, 2, and 3



ISO*Star Precision Spool



- Hard-anodized aluminum spool and sleeve with NITUFF® coating
- Suitable for lube, non-lube or dry air applications
- Lightweight aluminum construction
- Precision matched spool and sleeve
- No minimum number of operations required
- Rated for 100-200 million cycles

ISO*Star accessories include single and dual sandwich regulators, sandwich flow controls, check valve sandwich plates, port #1 auxiliary pressure plates, transition plates, blanking plates and isolating plugs.



Technical Data

Specifications

Fluids:	40µm filtered, lubricated or nonlubricated, compressed air or vacuum service
Main Valve Inlet Pressure Range:	26" Hg vacuum to 150 psig (10 bar)
Minimum Pilot Pressures:	
Single Operator:	14.5 psig (1 bar)
Double Operators:	29 psig (2 bar)
Ambient Temperature Range:	5° to 120°F* (-15 to 50°C)
Inlet Temperature Range:	5° to 175°F* (-15° to 80°C)
*With dew point of supply air less than air temperature below 35°F (2°C).	

Subbase Specifications

Thread Types:	ISO G or NPT available
All Pilot Supply Ports:	1/8"
Size 1 Single Subbase:	1/4"
Size 1 Manifolding Subbase:	1/4" cylinder ports, 3/8" supply and exhaust ports in end plates
Size 2 Single Subbase:	3/8"
Size 2 Manifolding Subbase:	3/8" cylinder ports, 1/2" supply and exhaust ports in end plates
Size 3 Single Subbase:	1/2"
Size 3 Manifolding Subbase:	1/2" cylinder ports, 1" supply and exhaust ports in end plates

Average Flow Factor (C_v)[†]

Size 1:	Cv 1.2
Size 2:	Cv 2.4
Size 3:	Cv 4.0

[†]Flow rating determined in accordance with ANSI/NFPA T3.21.3, Pneumatic fluid power – Flow test procedure and reporting method – for fixed orifice components.

Standard Solenoid Pilot Operator Specifications

Voltages and Power Requirements:	
Standard:	120V/60Hz-110V/50Hz: 2.5W
Optional:	24V/60Hz-24V/50Hz: 2.5W
	12 VDC: 2W
	24 VDC: 2W
	240V/60Hz-220V/50Hz: 5.0W
Duty:	Continuous at 90 to 105 % of rated voltage.
Coil Type:	Class H. Molded with three-pin plug-in connector
Enclosure Classification:	NEMA 4 and DIN 40050 – IP 65
Override:	Manual, locking/nonlocking.
Electrical Plug-In Connection:	Cable grip for cables from 1/4" to 5/16" (6 mm) dia. standard

Electrical Spade Connections on the operator receptacle conform to industry standard form B for 3-pin connectors, 11 mm spacing.

Valve Materials

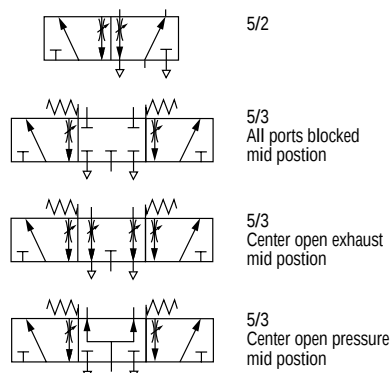
Body:	Aluminum die-cast
Spool & Sleeve:	Aluminum hard anodized (NITUFF® coated)
Valve Seals:	Nitrile
Pilot Seals:	Viton
Plastic Parts:	POM & PA6-3-T
Screws:	Steel, zinc plated
Locking Plate:	Zinc die-cast
Speed Controls:	Brass
Solenoid Operators:	
Base:	PPS plastic
Plunger & Spring:	Stainless steel
Solenoid Coil Housing:	Epoxy thermoset
Piston:	Acetal thermoplastic
Body:	Zinc

Response Time (ON/OFF)

Size 1:	20/34 msec ±20%
Size 2:	30/50 msec ±20%
Size 3:	48/48 msec ±20%

Note: Response times measured at 90 psig (6 bar) with a 5/2, single solenoid valve configuration.

Valve Graphic Symbols



- NITUFF® coated non-corrosive spool and sleeve for long trouble free life (100 million plus cycles)
- Integral flow controls for cylinder speed control on size #1, and #2 models
- Low power solenoids with manual override options
- End and CNOMO solenoid pilots
- Base mounted soft start valves available
- Minimal maintenance



Technical Data

Medium:

Compressed air, 40µm filtered, lubricated or non-lubricated

Operation:

Glandless spool valve, solenoid pilot or air pilot actuated

Mounting:

On sub-bases

Sizes:

#1

#2

#3

Operating Pressure:

Maximum pressure

145 psig (10 bar) solenoid pilot actuated valves with internal pilot supply

232 psig (16 bar) solenoid pilot actuated valves with external pilot supply

232 psig (16 bar) air pilot actuated valves

Details of minimum and maximum pilot pressure see VAL-5-3

Flow Characteristics (unregulated):

Size	Cv	'C'	'b'	'A'	l/min	Kv
#1	1.2	5.5	0.06	19.7	1230	1.08
#2	2.4	10.7	0.12	39.2	2450	2.16
#3	4.0	17.9	0.07	64.0	4000	3.52

Ambient Temperature:

5°F* to 122°F (–15°C to 50°C) solenoid pilot actuated valves

5°F* to 176°F (–15°C to 80°C) air pilot actuated valves

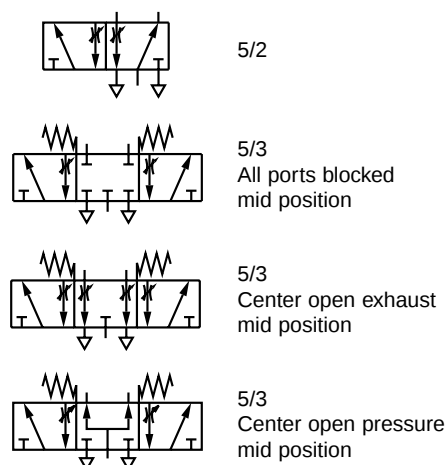
*Consult our Technical Service for use below 36°F (2°C)

Materials:

Die cast aluminum body. Hard anodized, Teflon coated, matched aluminum spool and sleeve. Viton and nitrile rubber seals. Zinc die cast locking plate. POM plastic parts. Zinc plated screws. Brass flow regulators.

Ordering Information

To order select model number, add voltage code and connector code, e.g. SXE 0573-A60-00/13JB for a 5/2 double end solenoid pilot size #1 valve with internal pilot air supply, integral flow regulators, shrouded push button lockable manual override, 22 mm coil 24V d.c. with cable grip connector.





5/2 End Solenoid Pilot Actuated Valves

Symbol	Model	Size	Flow Control	Pilot Supply	Operator	Return	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	SXE9573-A70-00***†	#1	-	Internal	Solenoid	Air Spring	14.5 - 145 (1 - 10)	-	0.74 (0.33)
	SXE9574-A70-00***†	#2	-						1.34 (0.59)
	SXE9575-A70-00***†	#3	-						1.93 (0.85)
	SXE9573-A80-00***†	#1	Integral						0.74 (0.33)
	SXE9574-A80-00***†	#2	Integral						1.34 (0.59)
	SXE9573-A75-00***†	#1	-	External	Solenoid	Air Spring	26" Hg - 232 (-0.9 - 16)	14.5 - 145 (1 - 10)	0.74 (0.33)
	SXE9574-A75-00***†	#2	-						1.34 (0.59)
	SXE9575-A75-00***†	#3	-						1.93 (0.85)
	SXE9573-A85-00***†	#1	Integral						0.74 (0.33)
	SXE9574-A85-00***†	#2	Integral						1.34 (0.59)
	SXE0573-A50-00***†	#1	-	Internal	Solenoid	Solenoid	29 - 145 (2 - 10)	-	1.02 (0.45)
	SXE0574-A50-00***†	#2	-						1.63 (0.72)
	SXE0575-A50-00***†	#3	-						2.18 (0.96)
	SXE0573-A60-00***†	#1	Integral						1.02 (0.45)
	SXE0574-A60-00***†	#2	Integral						1.63 (0.72)
	SXE0573-A55-00***†	#1	-	External	Solenoid	Solenoid	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	1.02 (0.45)
	SXE0574-A55-00***†	#2	-						1.63 (0.72)
	SXE0575-A55-00***†	#3	-						2.18 (0.96)
	SXE0573-A65-00***†	#1	Integral						1.02 (0.45)
	SXE0574-A65-00***†	#2	Integral						1.63 (0.72)

5/3 End Solenoid Pilot Actuated Valves

Symbol	Model	Size	Flow Control	Valve Function*	Pilot Supply	Operator	Operator	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	SXE9673-A60-00***†	#1	Integral	APB	Internal	Solenoid	Solenoid	29 - 145 (2 - 10)	-	1.02 (0.45)
	SXE9674-A60-00***†	#2	Integral							1.63 (0.72)
	SXE9675-A50-00***†	#3	-							2.18 (0.96)
	SXE9673-A65-00***†	#1	Integral	APB	External	Solenoid	Solenoid	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	1.02 (0.45)
	SXE9674-A65-00***†	#2	Integral							1.63 (0.72)
	SXE9675-A55-00***†	#3	-							2.18 (0.96)
	SXE9773-A60-00***†	#1	Integral	COE	Internal	Solenoid	Solenoid	29 - 145 (2 - 10)	-	1.02 (0.45)
	SXE9774-A60-00***†	#2	Integral							1.63 (0.72)
	SXE9775-A50-00***†	#3	-							2.18 (0.96)
	SXE9773-A65-00***†	#1	Integral	COE	External	Solenoid	Solenoid	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	1.02 (0.45)
	SXE9774-A65-00***†	#2	Integral							1.63 (0.72)
	SXE9775-A55-00***†	#3	-							2.18 (0.96)
	SXE9873-A60-00***†	#1	Integral	COP	Internal	Solenoid	Solenoid	29 - 145 (2 - 10)	-	1.02 (0.45)
	SXE9874-A60-00***†	#2	Integral							1.63 (0.72)
	SXE9875-A50-00***†	#3	-							2.18 (0.96)
	SXE9873-A65-00***†	#1	Integral	COP	External	Solenoid	Solenoid	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	1.02 (0.45)
	SXE9874-A65-00***†	#2	Integral							1.63 (0.72)
	SXE9875-A65-00***†	#3	-							2.18 (0.96)

***Insert 3-digit voltage code from **Voltage Codes and Replacement Coils** table below.† Insert letter from **Connector Option Codes** table below.

* Valve Function Designations:

APB = All Ports Blocked

COE = Center Open Exhaust

COP = Center Open Pressure

Voltage Codes and Replacement Coils

Voltage	22 mm Coil with connector interface acc. to Industrial Standard			30 mm Coil with connector interface acc. to DIN 43650 table "A"		
	Code	Power Inrush/Hold	Coil Part.-no.	Code	Power Inrush/Hold	Coil Part.-no.
12 V d.c.	12J	2 W	54469-01	22N	1.5 W	V10633-A12
24 V d.c.	13J	2 W	54469-02	23N	1.5 W	V10633-A13
24 V 50/60 Hz	14J	4/2.5 VA	54469-04	24N	3/2 VA	V10633-A14
48 V 50/60 Hz	16J	4/2.5 VA	54469-07	26N	3/2 VA	V10633-A16
110/120 V 50/60 Hz	18J	4/2.5 VA	54469-03	28N	3/2 VA	V10633-A18
220/240 V 50/60 Hz	19J	9/5.0 VA	54469-08	89N	10/8VA	V10633-A39

Other Voltages available on request.

For further technical data on coils see p. VAL-5-7.

Connector Option Codes

A = Solenoid without connector
 B = Cable grip
 C = 6 ft. molded cable, 0-240V a.c./V d.c.
 5 = 6 ft. molded cable with indicator light, surge suppression, 24V a.c./V d.c.
 6 = 6 ft. molded cable with indicator light, 110V/50 Hz - 120V/60Hz

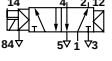
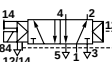
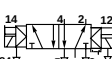
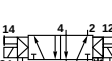
Part Number Example

SXE9573-Z70-00**12JA**

Where "12J" is a 12V d.c. coil with a 22 mm connector interface, and
 "A" is a solenoid without connector.

ISO Star Series Valves

5/2 CNOMO Solenoid Pilot Actuated Valves (Consult factory for lead times)

Symbol	Model	Size	Flow Control	Pilot Supply	Operator	Return	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	SXE9573-Z70-90***†	#1	-	Internal	Solenoid	Air Spring	14.5 - 145 (1 - 10)	-	0.74 (0.33)
	SXE9574-Z70-90***†	#2	-						1.34 (0.59)
	SXE9575-Z70-90***†	#3	-						1.93 (0.85)
	SXE9573-Z80-90***†	#1	Integral						0.74 (0.33)
	SXE9574-Z80-90***†	#2	Integral						1.34 (0.59)
	SXE9573-Z75-90***†	#1	-	External	Solenoid	Air Spring	26" Hg - 232 (-0.9 - 16)	14.5 - 145 (1 - 10)	0.74 (0.33)
	SXE9574-Z75-90***†	#2	-						1.34 (0.59)
	SXE9575-Z75-90***†	#3	-						1.93 (0.85)
	SXE9573-Z85-90***†	#1	Integral						0.74 (0.33)
	SXE9574-Z85-90***†	#2	Integral						1.34 (0.59)
	SXE0573-Z50-90***†	#1	-	Internal	Solenoid	Solenoid	29 - 145 (2 - 10)	-	1.02 (0.45)
	SXE0574-Z50-90***†	#2	-						1.63 (0.72)
	SXE0575-Z50-90***†	#3	-						2.18 (0.96)
	SXE0573-Z60-90***†	#1	Integral						1.02 (0.45)
	SXE0574-Z60-90***†	#2	Integral						1.63 (0.72)
	SXE0573-Z55-90***†	#1	-	External	Solenoid	Solenoid	26" Hg - 232 (-0.9 - 16)	29 - 145 (2 - 10)	1.02 (0.45)
	SXE0574-Z55-90***†	#2	-						1.63 (0.72)
	SXE0575-Z55-90***†	#3	-						2.18 (0.96)
	SXE0573-Z65-90***†	#1	Integral						1.02 (0.45)
	SXE0574-Z65-90***†	#2	Integral						1.63 (0.72)

***Insert 3-digit voltage code from **Voltage Codes and Replacement Coils** table below. † Insert letter from **Connector Option Codes** table below.

5/3 CNOMO Solenoid Pilot Actuated Valves (Consult factory for lead times)

[illegible]

Voltage Codes and Replacement Coils

Voltage	22 mm Coil with connector interface acc. to Industrial Standard			30 mm Coil with connector interface acc. to DIN 43650 table "A"		
	Code	Power Inrush/Hold	Coil Part.-no.	Code	Power Inrush/Hold	Coil Part.-no.
12 V d.c.	12J	2 W	54469-01	22N	1.5 W	V10633-A12
24 V d.c.	13J	2 W	54469-02	23N	1.5 W	V10633-A13
24 V 50/60 Hz	14J	4/2.5 VA	54469-04	24N	3/2 VA	V10633-A14
48 V 50/60 Hz	16J	4/2.5 VA	54469-07	26N	3/2 VA	V10633-A16
110/120 V 50/60 Hz	18J	4/2.5 VA	54469-03	28N	3/2 VA	V10633-A18
220/240 V 50/60 Hz	19J	9/5.0 VA	54469-08	89N	10/8VA	V10633-A39

Other Voltages available on request.

For further technical data on coils see p. VAL-5-7.

Connector Option Codes

A = Solenoid without connector

B = Cable grip

C = 6 ft. molded cable, 0-240V a.c./V d.c.

5 = 6 ft. molded cable with indicator light, surge suppression, 24V a.c./V d.c.

6 = 6 ft. molded cable with indicator light, 110V/50 Hz - 120V/60Hz

Part Number Example

SXE9573-Z70-00**12JA**

Where "12J" is a 12V d.c. coil with a 22 mm connector interface, and "A" is a solenoid without connector.

"A" is a solenoid without connector.

* Valve Function Designations:

APB = All Ports Blocked

COE = Center Open Exhaust

COP = Center Open Pressure



5/2 Air Pilot Actuated Valves

Symbol	Model	Size	Flow Control	Operator	Return	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	SXP9573-170-00B	#1	-	Air	Spring	26" Hg - 232 (-0.9 - 16)	23.2 - 232 (1.6 - 16)	0.47 (0.21)
	SXP9574-170-00B	#2	-					1.02 (0.45)
	SXP9575-170	#3	-					1.63 (0.72)
	SXP9573-180-00B	#1	Integral					0.47 (0.21)
	SXP9574-180-00B	#2	Integral					1.02 (0.45)
	SXP0573-170-00B	#1	-	Air	Air	26" Hg - 232 (-0.9 - 16)	29 - 232 (2 - 16)	0.68 (0.30)
	SXP0574-170-00B	#2	-					1.13 (0.50)
	SXP0575-170	#3	-					1.63 (0.72)
	SXP0573-180-00B	#1	Integral					0.68 (0.30)
	SXP0574-180-00B	#2	Integral					1.13 (0.50)

5/3 Air Pilot Actuated Valves

Symbol	Model	Size	Flow Control	Valve Function*	Operator	Operator	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	SXP9673-180-00B	#1	Integral	APB	Air	Air	26" Hg - 232 (-0.9 - 16)	29 - 232 (2 - 16)	0.57 (0.25)
	SXP9674-180-00B	#2	Integral						1.32 (0.58)
	SXP9675-170	#3	-						1.82 (0.80)
	SXP9773-180-00B	#1	Integral	COE	Air	Air	26" Hg - 232 (-0.9 - 16)	29 - 232 (2 - 16)	0.57 (0.25)
	SXP9774-180-00B	#2	Integral						1.32 (0.58)
	SXP9775-170	#3	-						1.82 (0.80)
	SXP9873-180-00B	#1	Integral	COP	Air	Air	26" Hg - 232 (-0.9 - 16)	29 - 232 (2 - 16)	0.57 (0.25)
	SXP9874-180-00B	#2	Integral						1.32 (0.58)
	SXP9875-170	#3	-						1.82 (0.80)

* Valve Function Designations:
 APB = All Ports Blocked
 COE = Center Open Exhaust
 COP = Center Open Pressure

Electrical Details for Solenoid Operators

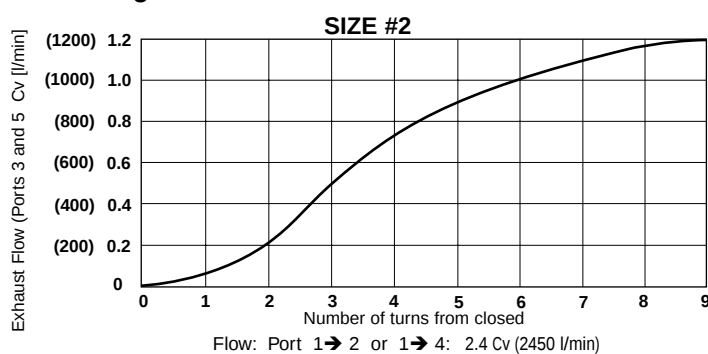
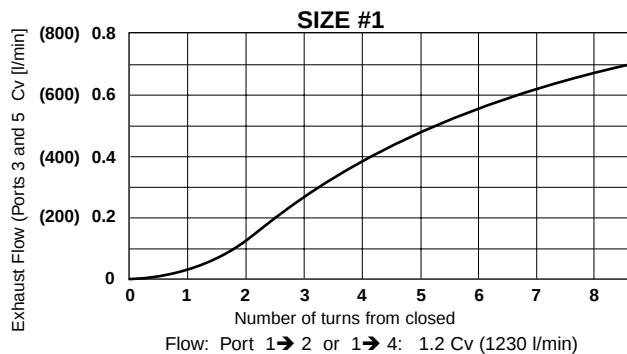
Voltage Tolerance	± 10%
Rating	100% Continuous Duty
Inlet orifice	1.0 mm (End & CNOMO Solenoid Operator)
Electrical Connection (corresponding to chosen coil)	DIN 43 650 table 'A' DIN 43 650 table 'B' Industrial Standard 22 mm width
Solenoid Coil	May be rotated at 90° intervals
Manual Override	End Solenoid versions: Shrouded push button, spring return, lockable Shrouded push button, spring return CNOMO Solenoid versions: Screwdriver, memory type Push to operate spring return
Protection Class	NEMA 4, and IP 65 with sealed plug (ISO 6952)

Replacement Connectors

Connector Option Codes	22 mm coil Industrial standard	30 mm coil DIN 43650 table "A"
A = Solenoid without connector		
B = Cable grip	54934-01	54933-05
C = 6 ft. molded cable, 0-240V a.c./V d.c.	54934-21	54933-06
5 = 6 ft. molded cable with indicator light surge suppression, 24V a.c./V d.c.	54934-30	54933-09
6 = 6 ft. molded cable with indicator light 110V/50 Hz - 120V/60 Hz	54934-35	M/P43316/23

Other Connectors available on request.

Exhaust Flow Characteristics For Valves With Integral Flow Regulators



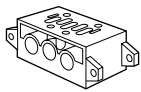
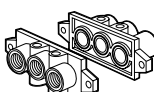
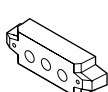
Flow measured at 90 psi (6 bar), Pressure drop 15 psi (1 bar)



ISO Star Series Valves

Base Ranges and Accessories

Side Ported Modular Base Range

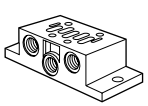
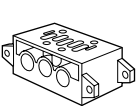
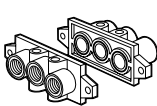
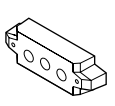
				
NPT #1 models	1001 (1/4)	1002 (3/8)	1009 (#1→#2)	1001-6-1
NPT #2 models	2101 (3/8) ¹	2102 (1/2)	2109 (#2→#3)	2106-1
NPT #3 models	3101 (3/4) ¹	3102-75-75 (3/4") ²	—	
		3102-75-B (3/4") ³		

¹-side and bottom ported

²-both ends ported

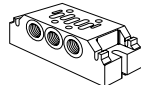
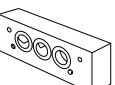
³-one end ported

VDMA 24 345 Base Range

VDMA 24 345	Form 'A' 	Form 'C' 	Form 'D' 		
NPT #1 models (1/4)	C/P19126	239-238B	239-289B	CQM/22152/3/24 #1→#2	239-251
NPT #2 models (3/8)	C/P19132	239-242B	239-291B	CQM/22253/3/24 #2→#3	239-252
NPT #3 models (1/2)	C/P19138	239-246B	239-293B	CQM/22354/3/24 #3→#4	239-253
ISO G #1 models	M/P19126	CQM/22152/3/21	CQM/22152/3/22	CQM/22152/3/24 #1→#2	FP8382
ISO G #2 models	M/P19132	CQM/22253/3/21	CQM/22253/3/22	CQM/22253/3/24 #2→#3	FP8482
ISO G #3 models	M/P19138	CQM/22354/3/21	CQM/22354/3/22	CQM/22354/3/24 #3→#4	FP8582

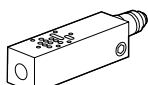
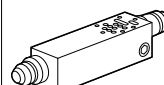
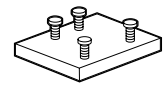
* Only suitable for specific base range.

Universal Base Range

					
ISO #1 models (G1/4)	CQM/22152/3/27	CQM/22152/3/29#1→2	M/P43173	CQM/22152/3/28	CQM/22152/3/31
ISO #2 models (G3/8)	CQM/22253/3/27		M/P43174	CQM/22253/3/28	CQM/22253/3/31

** Universal base range only.

Accessories

				
#1 models	RM1A-8B [†]	DRM1A-8-8B [†]	CQM/22152/3/23	
#2 models	RM2A-8B [†]	DRM2A-8-8B [†]	CQM/22253/3/23	
#3 models	RM3A-8B [†]	—	CQM/22354/3/23	CQM/22354/3/26

[†] CNOMO style valves recommended

Sandwich Regulators (valve mounts to regulator, regulator mounts to subbase)

	Single Pressure port 1 regulated	Dual Pressure ports 2 & 4	Single Pressure port 2	Single Pressure Port 4
ISO #1	V71020-KB1	V71022-KB4	V71022-KB2	V71022-KB3
ISO #2	V71020-KC1	V71022-KC4	V71022-KC2	V71022-KC3
ISO #3	V71020-KD1	V71022-KD4	V71022-KD2	V71022-KD3

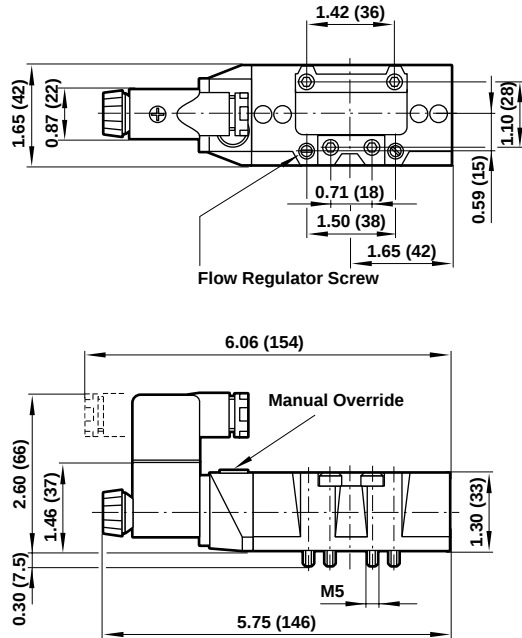
ISO Star Series Valves

All Dimensions in Inches (mm)



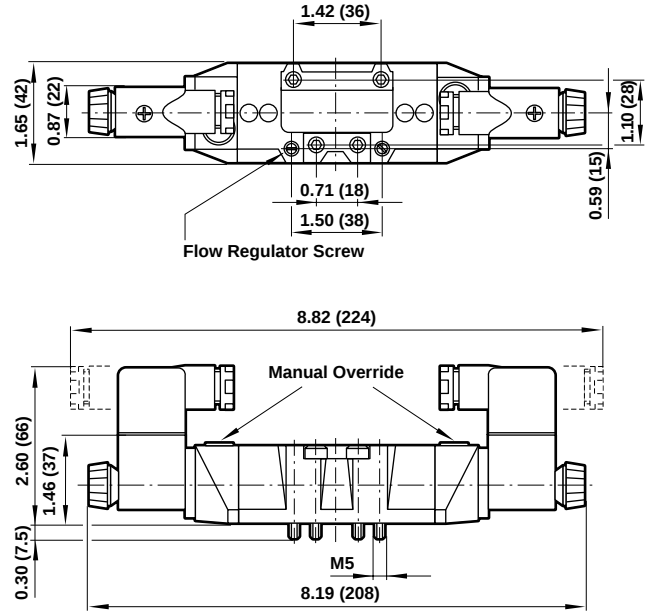
SXE 9573 – A Models

Single End Solenoid Pilot Valves Size #1



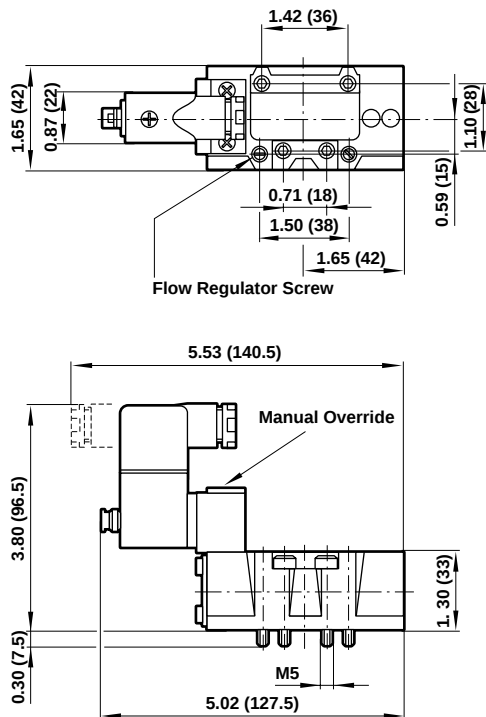
SXE 0573-A and SXE9*73-A Models

Double End Solenoid Pilot Valves Size #1



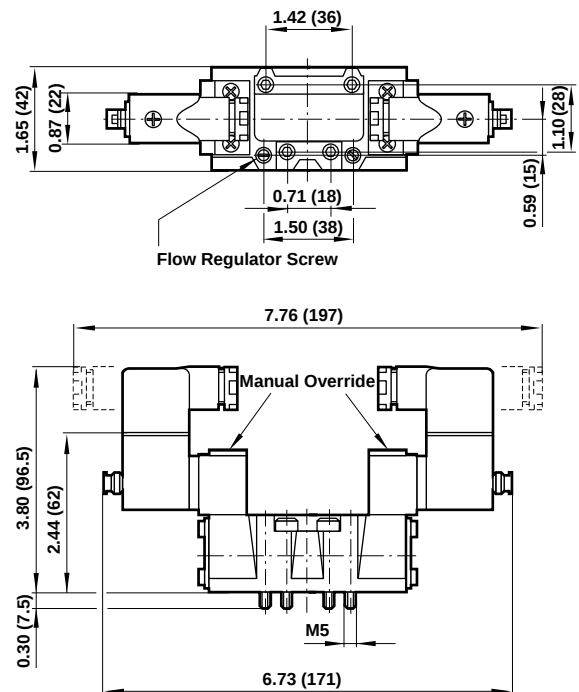
SXE 9573-Z Models

Single CNOMO Solenoid Pilot Valves Size #1



SXE 0573-Z and SXE 9*73-Z Models

Double CNOMO Solenoid Pilot Valves Size #1



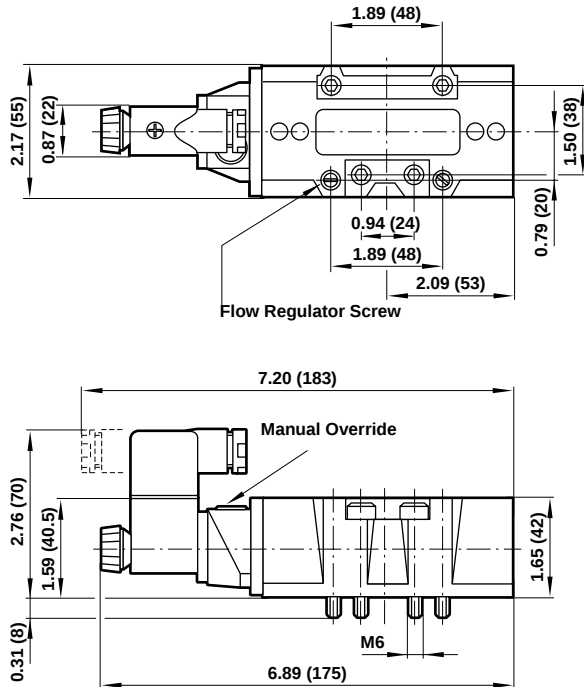


ISO Star Series Valves

All Dimensions in Inches (mm)

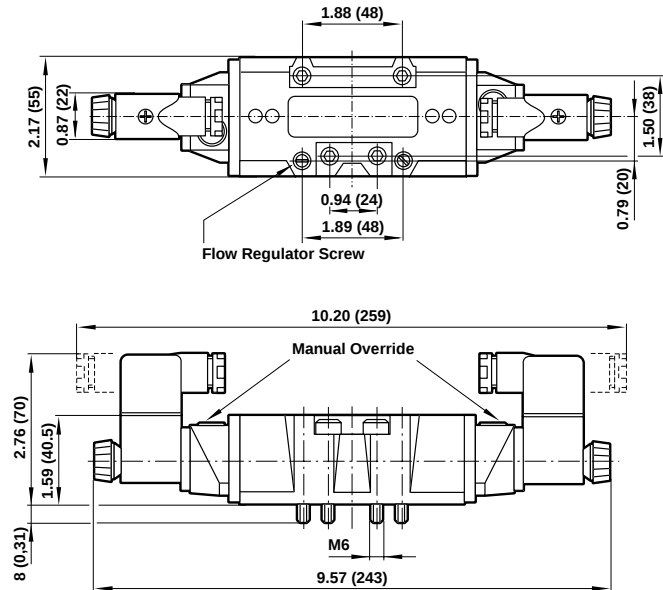
SXE 9574-A Models

Single End Solenoid Pilot Valves Size #2



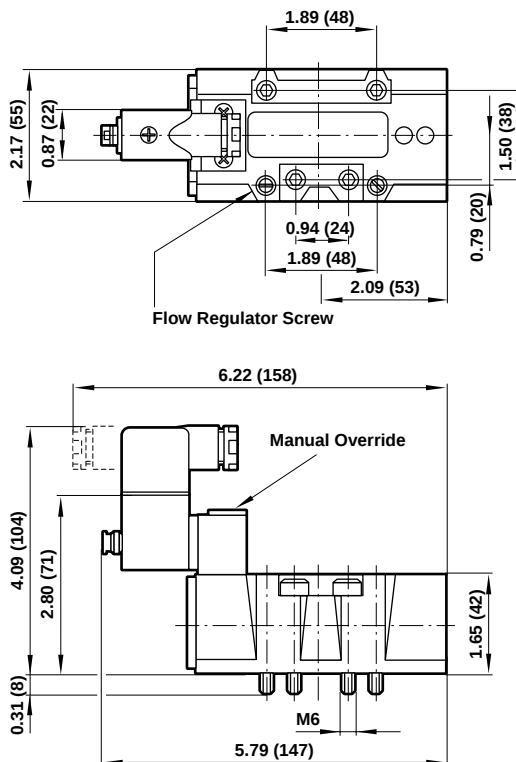
SXE 0574-A, SXE 9*74-A Models

Double End Solenoid Pilot Valves Size #2



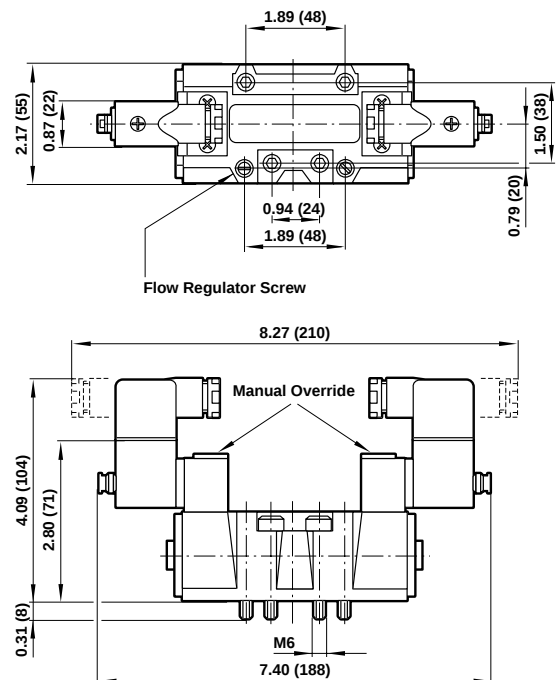
SXE 9574-Z Models

Single CNOMO Solenoid Pilot Valves Size #2



SXE 0574-Z and SXE 9*74-Z Models

Double CNOMO Solenoid Pilot Valves Size #2



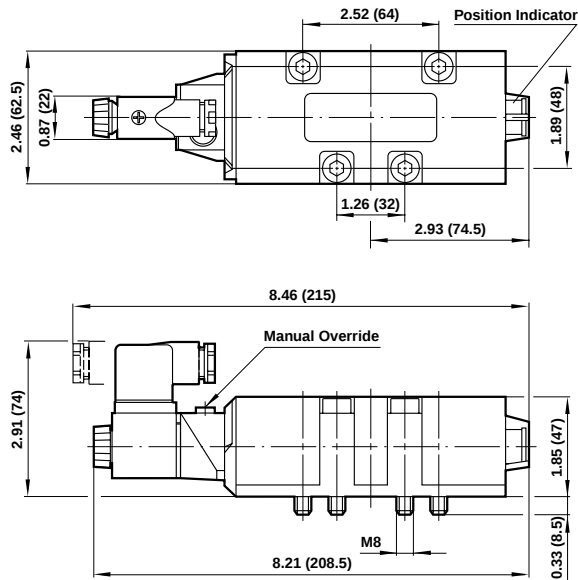
ISO Star Series Valves

All Dimensions in Inches (mm)



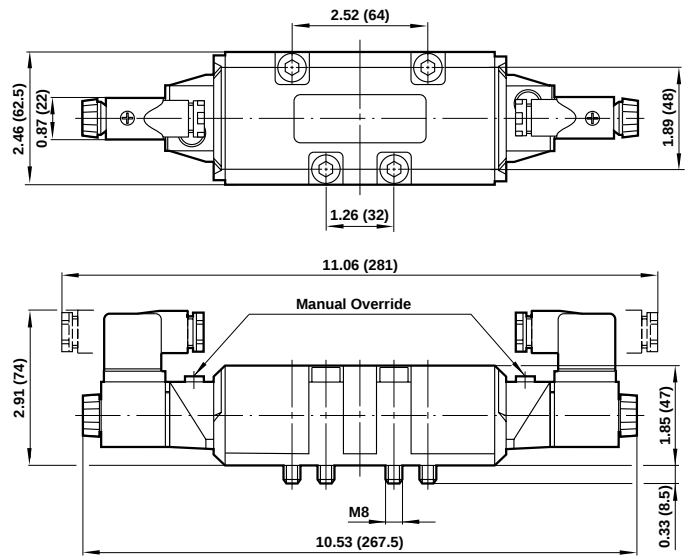
SXE 9575-A Models

Single End Solenoid Pilot Valves Size #3



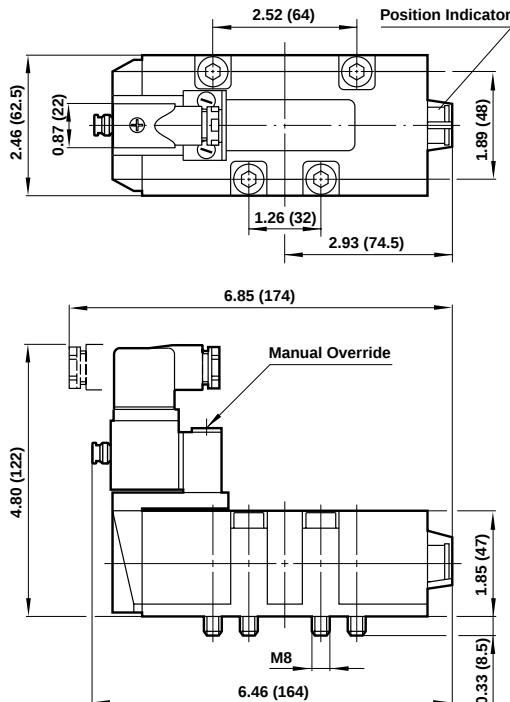
SXE 0575-A and SXE 9*75-A Models

Double End Solenoid Pilot Valves Size #3



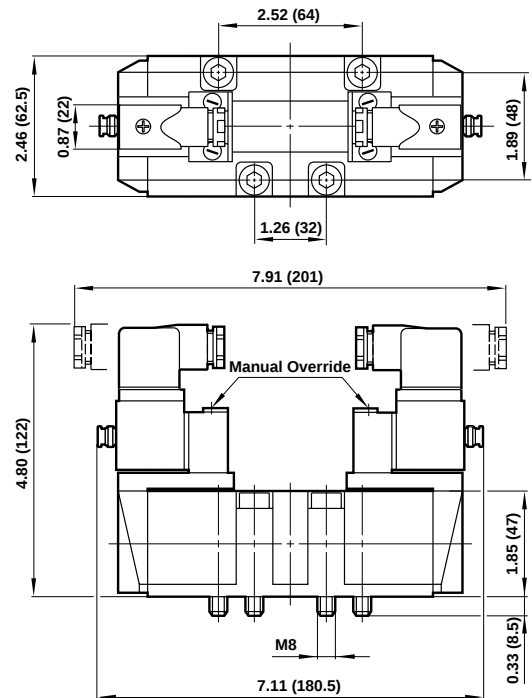
SXE 9575-Z Models

Single CNOMO Solenoid Pilot Valves Size #3



SXE 0575-Z and SXE 9*75-Z Models

Double CNOMO Solenoid Pilot Valves Size #3



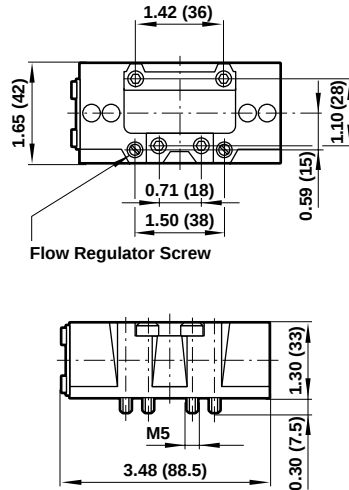


ISO Star Series Valves

All Dimensions in Inches (mm)

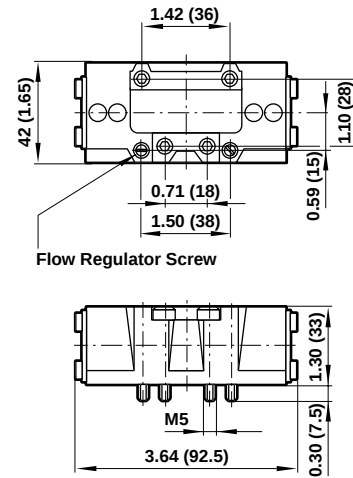
SXP 9573-1 Models

Single Air Pilot Valves Size #1 (5/2)



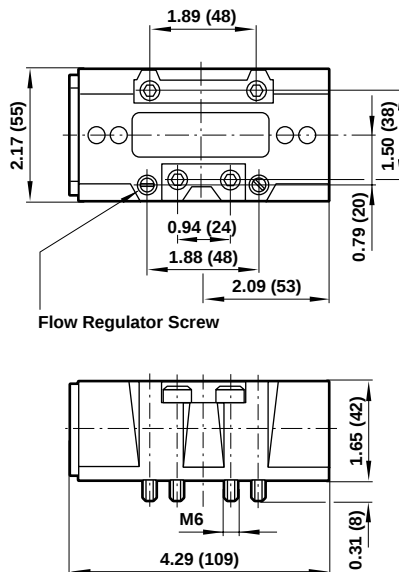
SXP 0573-1 and SXP 9*73-1 Models

Double Air Pilot, Spring Centered Valves
Size #1 (5/3)



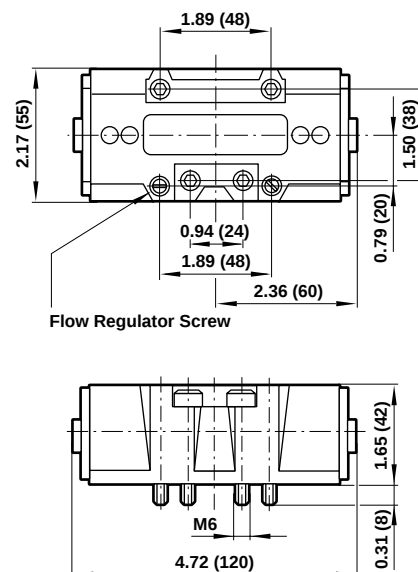
SXP *574-1 Models

Single and Double Air Pilot Valves Size #2 (5/2)



SXP 9*74-1 Models

Double Air Pilot, Spring Centered Valves
Size #2 (5/3)

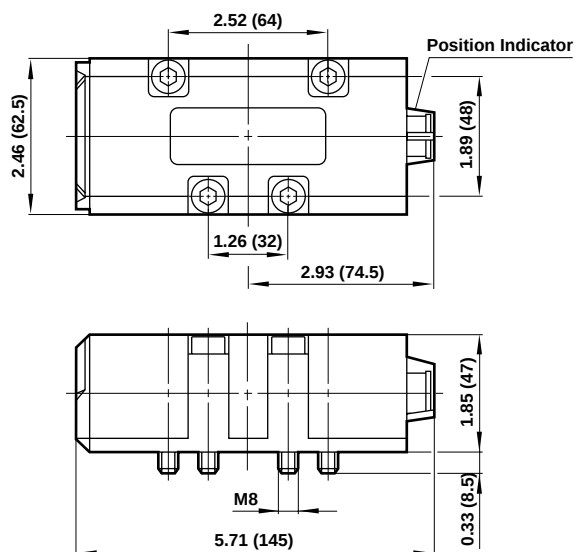




SXP *575-1 Models

Single and Double Air Pilot Valves

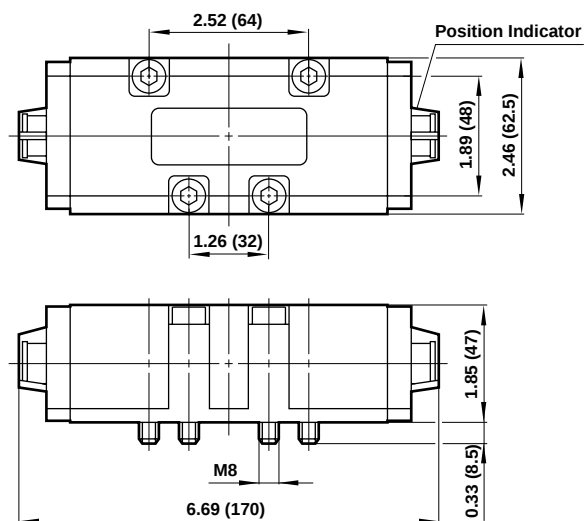
Size #3 (5/2)



SXP 9*75-1 Models

Double Air Pilot, Spring Centered Valves

Size #3 (5/3)





Factory Assembled Valve and Manifolding Subbase Assemblies

For the purpose of creating ordering information, the valve and manifolding subbase assembly are oriented with the 1 2 operator end on the right, and the 1 4 operator end on the left. The valves are listed from FRONT to BACK. The following ordering example details the information needed to order the valve assembly shown at right. This example includes valves sizes 1, 2, and 3, transition plates, ISO G subbases and end plates, and assembly charge, (dependent on the number of stations in the stack).

Position	Quantity	Part Number
1	1	SXE9573A800018JB
	1	CQM/22152/21
2	1	SXE0573A600018JB
	1	CQM/22152/21
3	1	SXE0573A600018JB
	1	CQM/22152/21
4	1	CQM/22152/3/24
5	1	SXE9574A800018JB
	1	CQM/22253/21
6	1	SXE0574A600018JB
	1	CQM/22253/21
7	1	SXE0574A600018JB
	1	CQM/22253/21
8	1	CQM/22253/3/24
9	1	SXE9575A700018JB
	1	CQM/22354/21
10	1	SXE0575A500018JB
	1	CQM/22354/21
11	1	SXE0575A500018JB
	1	CQM/22354/21
End Plate Kit	1	CQM/22152/22
	1	CQM/22354/22
	11*	99-130-530**

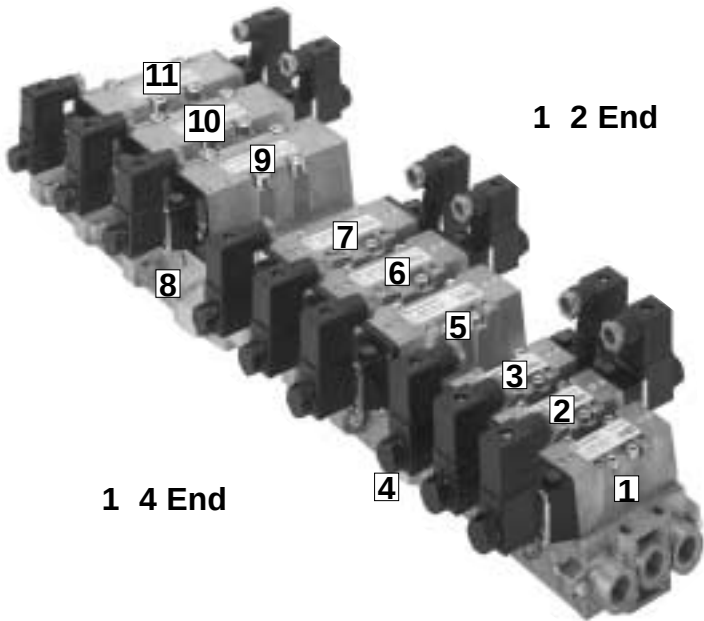
*Number of stations to be assembled
** Assembly charge order number

Valve Assembled to a Single Subbase

To order a valve assembled to a single subbase follow this example:

SXE9574A800018JB (valve order number)
with M/P19132 (subbase order number)

The product ordered is a size #2 single solenoid pilot operated valve with integral air return and speed controls attached to a 3/8" ported single subbase.



Assembly Charges

When ordering a factory assembled valve stack, include the total number of stations to be assembled in the stack and the assembly charge order number. See the example at left.
Assembly charge99-130-530
There is no assembly charge for valves assembled to a single subbase.

**SXE 9574-A70-0018 J B****Operator Type**

SXE = Solenoid pilot operated valve
SXP = Air pilot operated valve

Signal Duration

0 = Momentary (2-position double operator only)
9 = Continuous

Internal Variations

5 = 5-Port/2-position
6 = 5-Port/3-position, spring centered, all ports blocked
7 = 5-Port/3-position, spring centered, cylinder ports open to exhaust
8 = 5-Port/3-position, spring centered, cylinder ports open to pressure

Mounting Type

7 = ISO Star Series

Size

3 = Size 1
4 = Size 2
5 = Size 3

Connector

A = No electrical connector
B = Cable grip
C = 6 ft molded cable, 0-240 V a.c./V d.c.
5 = 6 ft molded cable, w/indicator light, surge suppression, 24V a.c./V d.c.
6 = 6 ft molded cable, 110-120 V a.c./V d.c.
Left Blank = Air pilot operated

Connector Interface

J = 22 mm coil with connector interface according to Industrial Standard
L = 22 mm coil with connector interface according to DIN 43650 table "B"
N = 30 mm coil with connector interface according to DIN 43650 table "A"
Blank = No coil or air pilot operated

Solenoid Voltage

2 = 12V d.c.
3 = 24V d.c.
4 = 24V 50/60 Hz
6 = 48V 50/60 Hz
8 = 110/120V 50/60 Hz
9 = 220/240V 50/60 Hz
Blank = No coil or air pilot operated

Coil

1 = 20 mm coil
2 = 30 mm coil

Manual Override

00 = Combination locking/nonlocking
01 = Nonlocking
90 = Low watt locking (CNOMO)

Pilot Supply/Integral Air Return Operator

0 = Internal / integral air return
1 = Internal / spring return
5 = External / integral air
6 = External / spring return

Valve Body Options

	Speed Control	Coils
5 =	no	double solenoid
6 =	yes	double solenoid
7 =	no	single solenoid
8 =	yes	single solenoid

Solenoid Type

A = Standard solenoid pilot operator
Z = CNOMO solenoid pilot operator

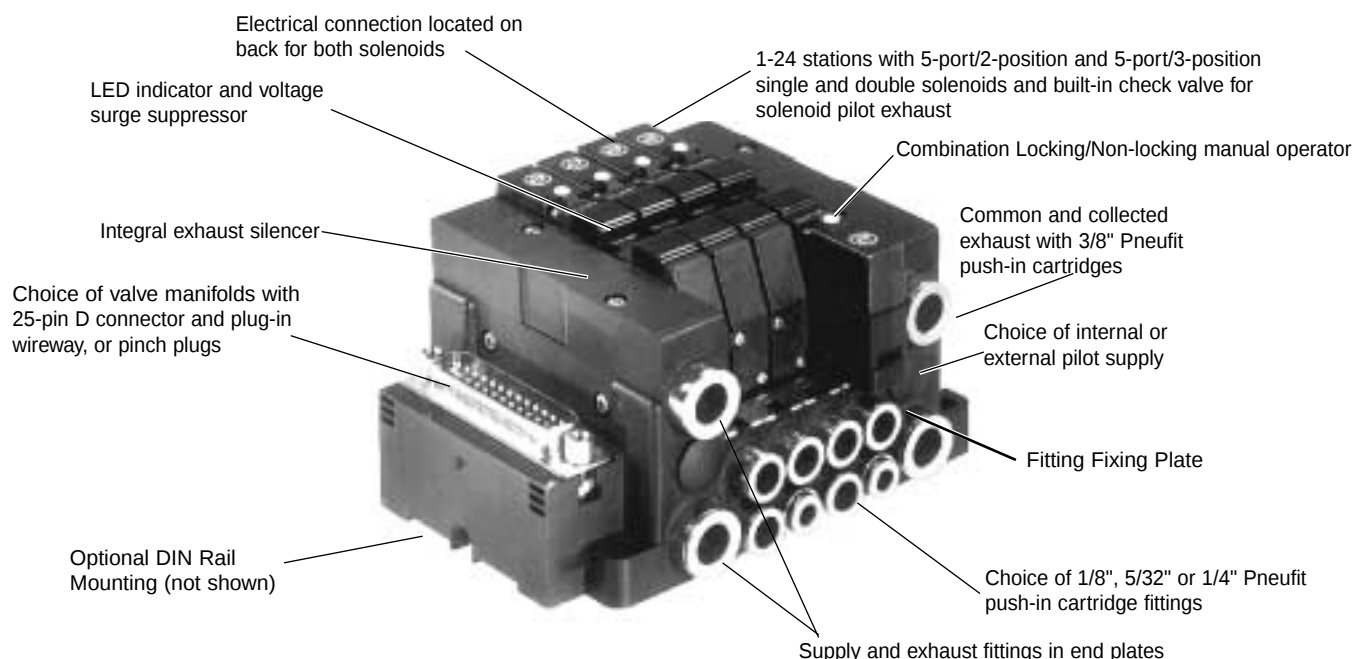
Nugget 30 Series Valves

5/2 and 5/3-position, high flow, compressed air micro valve with compact, lightweight 10mm body, and interchangeable fittings for 1/8", 5/32", 1/4", 4 or 6 mm tubing.

Contents

Features and Benefits	VAL-6-2
5-Port 2 and 3-Position Valves	VAL-6-3
Dimensional Information.....	VAL-6-4
25-pin D connectors	VAL-6-8
3-Port /2-Position Pilot Valves	VAL-6-9
Dimensional Information.....	VAL-6-10
Accessories.....	VAL-6-11
Ordering Subbase Assemblies.....	VAL-6-13
Product Numbering System	VAL-6-14

Four Station Nugget 30 High Flow Micro Valve with 25-pin D connector and Pneufit Fittings





Nugget 30 Series Valves

Two Year Warranty

All Nugget 30 Valves are warranted to be free from defects for two years from the date of purchase. This warranty period provides users with a valuable guarantee of quality and serviceability.

High Flow

A Cv of .27 provides exceptionally high flow for the ultra-compact size of the valve, making the Nugget 30 appropriate for a wide range of applications from machine control to air logic systems.

10 mm Wide Body

The compact envelope of the Nugget 30 body, only .39" (10 mm) wide, makes it an ideal valve for applications where limited space is a criteria.

Electrical Connector Options

Two connector options are available. Choose from either a 25-pin D connector and plug-in wireway or pinch plugs with leads.

Lightweight

The lightweight, non-corrosive aluminum body 1 oz. (30g), plastic reinforced co-polymer subbase and end plates result in handling and mounting ease.

Common/Collected Exhaust with Built-in Muffler

The Nugget 30 is standard with common port exhaust which also collects pilot exhaust. Also standard is an exhaust muffler that is integral to all end-plates.

Two Subbase Options

The Nugget 30 is available on a lightweight plastic manifold subbase with plug-in common wireway and 25-pin D connector that can provide for up to 24 stations. An aluminum fixed length, 10-32 UNF ported subbase is also available.

Interchangeable Pneufit Cartridge Push-In Fittings

The Nugget 30 offers the ease of field interchangeable port fittings for 1/8", 5/32", 1/4", 4 mm or 6 mm tubing. Simply slide out the quick fitting fixing plate and change cartridges. Endplates are available with 1/4", 3/8", or 8 mm push-in fittings.

Low Power Consumption

Extremely low power consumption of only one watt makes this valve ideal for computer based control systems as well as industrial applications where minimum energy consumption is desired.

LED and Surge Suppressor

The Nugget 30 comes standard with an LED and integrated surge suppressor.

Choice of Two Solenoid Operator Voltages

Two solenoid operator voltages are available on the Nugget 30: a 24V DC, or an optional 12V DC operator.

Long Life Rubber Seals

Extremely long-life nitrile seals provide durability and very low maintenance.

Same Length Body

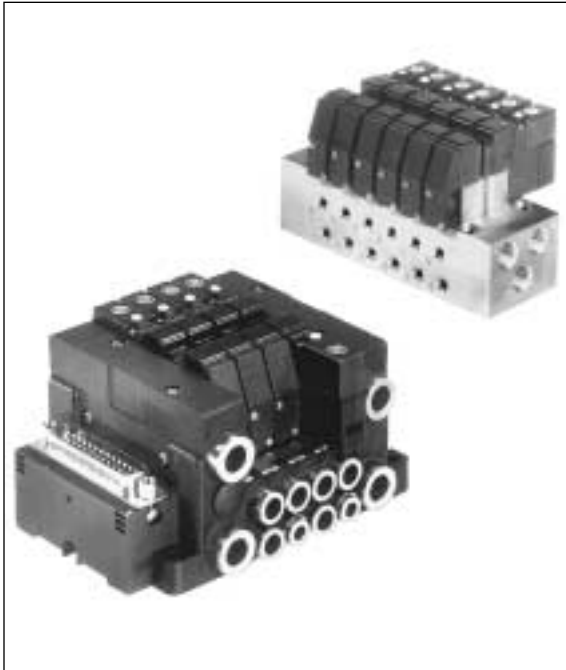
The length of the valve body is the same for both the 5-port/3-position and 5-port/2-position valves.

Certified Valve Stacks

All factory assembled stacks are fully inspected and certified.

Nugget 30 Series Valves

Nugget 30 5/2 and 5/3-Position V02 Valves



- Small .39" (10 mm) wide, and lightweight
- With a Cv of .27, this aluminum and plastic valve is ideal for robotic and PLC applications.
- May be mounted as a modular manifolding subbase system offering the ease of a 25-pin D connector and plug-in wireway, or to a fixed length subbase.
- One watt solenoids with diode indicators and surge suppression are standard on all valves.

Technical Data

Fluids: Lubricated or non-lubricated compressed air, filtered to 5 microns.

Main Valve Inlet Pressure Range:
26"Hg to 102 psig (-0.9 to 7 bar)

Minimum Pilot Pressure:
2/position: 22 psig (1.5 bar)
3/position: 29 psig (2 bar)

Temperature Range: 41° to 122°F
(5° to 50°C)

Materials of Construction

Body: Aluminum and co-polymer
Spool, single and fixed length bases: Aluminum
Seals: Nitrile
Springs and Yoke: Stainless Steel
Manifolding base and end plate:
Reinforced co-polymer
Fittings: Nickel plated brass

Flow Characteristics

Size and Type	C _v
10-32 pipe fitting	0.18
5/32" tubing	0.16
1/4" tubing	0.27

Solenoid Operators

Voltages and Power Requirements:

24V DC (standard): 1W
12V DC (optional)*: 1W

Voltage Tolerances:

±10% rated voltage

Power Indicator: LED (red)

Surge Suppressor: Fly-wheel diode

Manual Override: Combination locking/non-locking

Coil Type: Class B. Side or bottom plug and D subconnector. Only one plug needed for double solenoid

Standard: Common negative

Optional: Common positive*

Enclosure Classification: NEMA 1

**Consult factory for delivery.*

Port Size

10-32 UNF thread (fixed length subbase)

1/8", 5/32" or 1/4" interchangeable Pneufit push-in cartridges (modular manifolding subbase)

1/4", or 3/8" interchangeable Pneufit push-in cartridges, supply and exhaust on end plates

Note: Metric Tubing Push-In Cartridges available. See VAL-13-12.



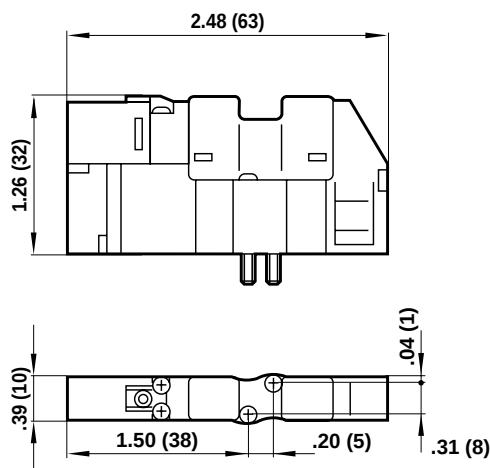
Nugget 30 Series Valves

All Dimensions in Inches (mm)

5/2 and 5/3 Position Valves

Symbol	Model	Solenoid Pilot	Electrical Connection	Operator	Mid-position	Return	Weight oz. (g)
	V025516A-B2631	Internal	Side Plug	Solenoid	—	Spring and air	0.9 (27)
	V025516A-B243A	Internal	Bottom plug	Solenoid	—	Spring and air	0.9 (27)
	V025526A-B2631	External	Side Plug	Solenoid	—	Spring and air	0.9 (27)
	V025526A-B243A	External	Bottom Plug	Solenoid	—	Spring and air	0.9 (27)
	V025511A-B2631	Internal	Side plug	Solenoid	—	Solenoid	1.32 (41)
	V025511A-B243A	Internal	Bottom plug	Solenoid	—	Solenoid	1.32 (41)
	V025522A-B2631	External	Side plug	Solenoid	—	Solenoid	1.32 (41)
	V025522A-B243A	External	Bottom plug	Solenoid	—	Solenoid	1.32 (41)
	V025611A-B2631	Internal	Side plug	Solenoid	All ports blocked	Solenoid	1.32 (41)
	V025611A-B243A	Internal	Bottom plug	Solenoid	All ports blocked	Solenoid	1.32 (41)
	V025711A-B2631	Internal	Side plug	Solenoid	Cylinder, open to exhaust	Solenoid	1.32 (41)
	V025711A-B243A	Internal	Bottom plug	Solenoid	Cylinder, open to exhaust	Solenoid	1.32 (41)
	V025622A-B2631	External	Side plug	Solenoid	All ports blocked	Solenoid	1.32 (41)
	V025622A-B243A	External	Bottom plug	Solenoid	All ports blocked	Solenoid	1.32 (41)
	V025722A-B2631	External	Side plug	Solenoid	Cylinder, open to exhaust	Solenoid	1.32 (41)
	V025722A-B243A	External	Bottom plug	Solenoid	Cylinder, open to exhaust	Solenoid	1.32 (41)

Solenoid Pilot, Air Assisted Spring Return, 2-Position



V025516A-B26*1

Type: 5/2 Side plug
Internal Pilot Supply

V025516A-B24*A

Type: 5/2 Bottom plug
Internal Pilot Supply

V025526A-B26*1

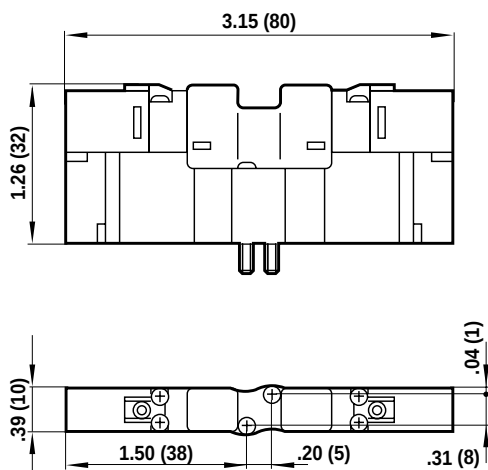
Type: 5/2 Side plug
External Pilot Supply

V025526A-B24*A

Type: 5/2 Bottom plug
External Pilot Supply

*Insert the voltage code:
2 for 12 VDC (Consult factory for delivery)
3 for 24 VDC

Double Solenoid Pilot, 2-Position



V025511A-B26*1

Type: 5/2 Side plug
Internal Pilot Supply

V025511A-B24*A

Type: 5/2 Bottom plug
Internal Pilot Supply

V025522A-B26*1

Type: 5/2 Side plug
External Pilot Supply

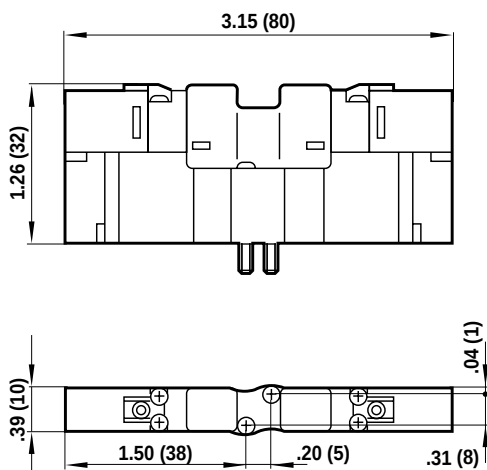
V025522A-B24*A

Type: 5/2 Bottom plug
External Pilot Supply

*Insert the voltage code:
2 for 12 VDC (Consult factory for delivery)
3 for 24 VDC



Double Solenoid Pilot, Spring Centered, 3-Position



V025611A-B26*1

Type: 5/3 All ports blocked, side plug
Internal Pilot Supply

V025611A-B24*A

Type: 5/3 All ports blocked, bottom plug
Internal Pilot Supply

V025622A-B26*1

Type: 5/3 All ports blocked, side plug
External Pilot Supply

V025622A-B24*A

Type: 5/3 All ports blocked, bottom plug
External Pilot Supply

*Insert the voltage code:

2 for 12 VDC (*Consult factory for delivery*)
3 for 24 VDC

V025711A-B26*1

Type: 5/3 Cylinder open to exhaust, side plug
Internal Pilot Supply

V025711A-B24*A

Type: 5/3 Cylinder open to exhaust, bottom plug
Internal Pilot Supply

V025722A-B26*1

Type: 5/3 Cylinder open to exhaust, side plug
External Pilot Supply

V025722A-B24*A

Type: 5/3 Cylinder open to exhaust, bottom plug
External Pilot Supply

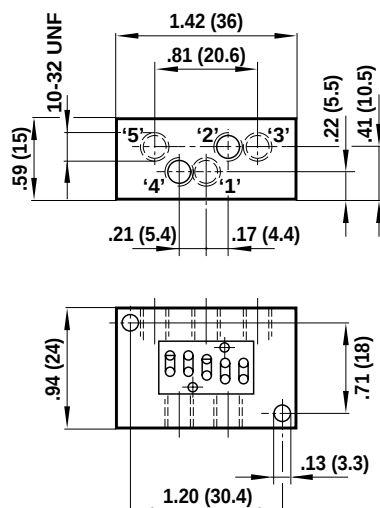
*Insert the voltage code:

2 for 12 VDC (*Consult factory for delivery*)
3 for 24 VDC



Nugget 30 Series Valves

Single Subbase

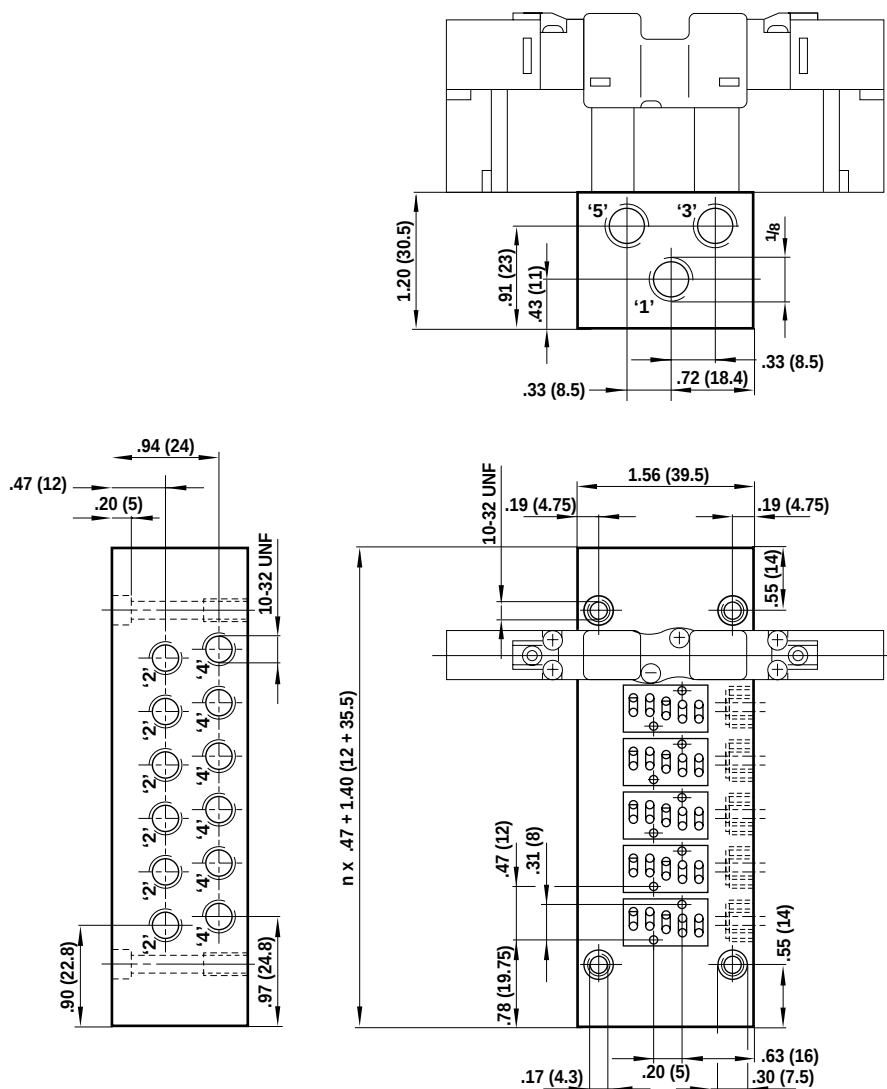


C/P43149/1

Type: 10-32 UNF Single station subbase

NOTE: For use with side plug, internal pilot versions only.

Fixed Length Subbase Manifold



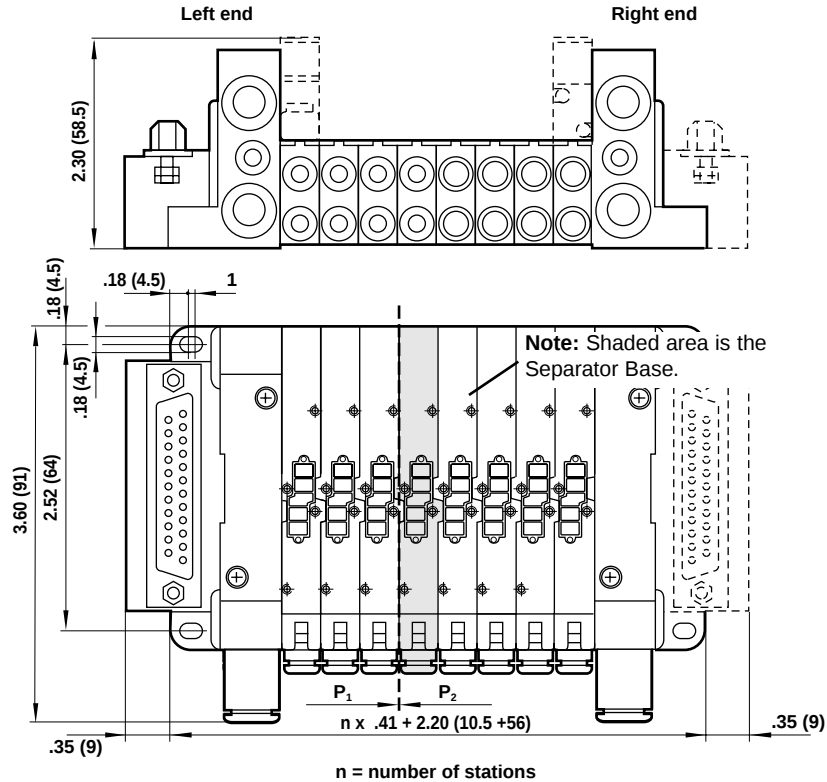
C/P43149/*

Type: 10-32 UNF Fixed Length Subbase Manifold

*Insert the number of stations, (2 to 12), being ordered.

NOTE: For use with side plug, internal pilot versions only.

Replacement Gasket: M/P43166



Subbases

Model: **V025516A-Q1112**

Type: Supplied with 1/8" push-in fittings

Model: **V025516A-Q1114**

Type: Supplied with 5/32" push-in fittings

Model: **V025516A-Q1116**

Type: Supplied with 1/4" push-in fittings.

Model: **V025516A-Q1106**

Type: Supplied with Ø6 mm push-in fittings.

NOTE: Subbases are supplied with fittings, base seal, an intermediate seal between bases and fittings retaining plate. Fittings cartridges are interchangeable between bases, and sizes can be mixed.

Separator Bases

Model: **V025516A-Q1212**

Type: Separator Base. Supplied with 1/8" push-in fittings.

Model: **V025516A-Q1214**

Type: Separator Base. Supplied with 5/32" push-in fittings.

Model: **V025516A-Q1216**

Type: Separator Base. Supplied with 1/4" push-in fittings.

Model: **V025516A-Q1206**

Type: Separator Base. Supplied with Ø6 mm push-in fittings.

NOTE: Separator Bases do not have through passages. Use one in place of a standard subbase station to enable different pressure supplies to be connected to either end of the manifold.

Tie Rod Kits

Model: **V025516A-Q14****

Type: For 2 to 24 stations.

**Specify the number of stations in the manifold- 2 to 24.

End Plate Kits

Model: **V025516A-Q1316**

Type: Internal pilot supply. Supplied with 1/4" push-in fittings and pilot connection plugs.

Model: **V025526A-Q1316**

Type: External pilot supply. Supplied with 1/4" push-in fittings and 5/32" push-in fittings for external pilot connection.

Model: **V025516A-Q1317**

Type: Internal pilot supply. Supplied with 3/8" push-in fittings and pilot connection plugs.

Model: **V025526A-Q1317**

Type: External pilot supply. Supplied with 3/8" push-in fittings and 5/32" push-in fittings for external pilot connection.

Model: **V025516A-Q1308**

Type: Internal pilot supply. Supplied with Ø8 mm push-in fittings and pilot connection plugs.

Model: **V025526A-Q1308**

Type: External pilot supply. Supplied with Ø8 mm push-in fittings, and Ø4 mm pilot connection fittings.

NOTE: Kit consists of (1) left hand and (1) right hand end plate with push-in fittings as detailed above. Each End Plate features an inlet connection and a common silenced exhaust.



Nugget 30 Series Valves

25-Pin D Connector Subbase Harness and Housing

Model: **V025516A-Q1904** for 4 stations, harness and housing.

V025516A-Q1908 for 8 stations, harness and housing.

V025516A-Q1912 for 12 stations, harness and housing.

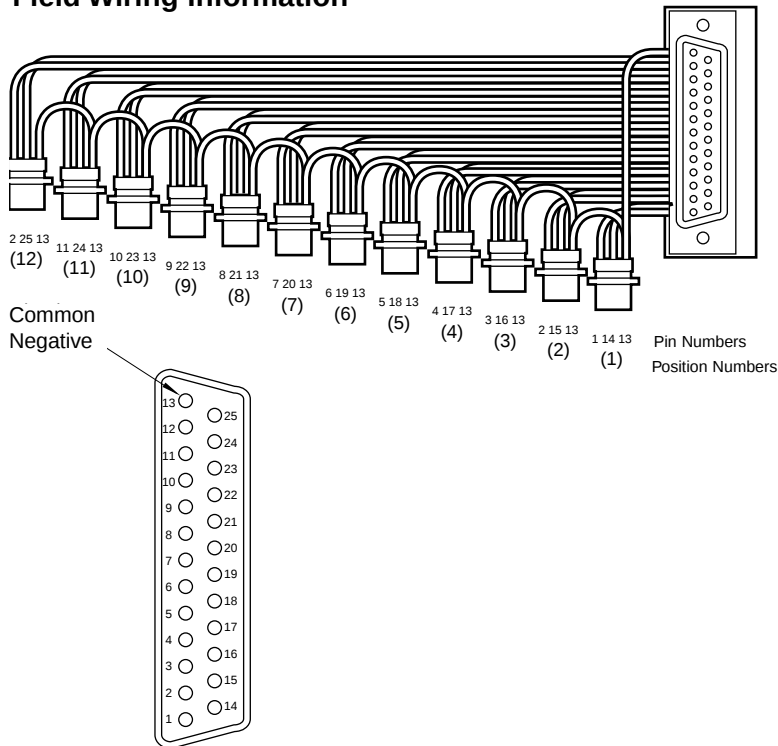
V025516A-Q1923 for 23 stations, single solenoid only.

NOTE: For 13 to 24 stations use one harness at each end of the manifold.

When ordering, select a harness with an equal or greater number of stations than the valve stack. Unused plugs remain in the subbase endplate. For 25-pin D connector use bottom plug versions of the valves. Wiring is routed through a gallery in the bases and all connections go to one end of the valve. Double solenoid models feature an internal through-connection. The 25-pin D connector wiring is available for modular manifolding subbases only.

Station Number	Wire Color		
	Left	Center	Right (Com)
1	Brown	Red	Green
2	Orange	Yellow	Green
3	Green	Blue	Green
4	Purple	Grey	Green
5	White	Black	Green
6	Brown	Red	Green
7	Orange	Yellow	Green
8	Green	Blue	Green
9	Purple	Grey	Green
10	White	Black	Green
11	Brown	Red	Green
12	Orange	Yellow	Green

Field Wiring Information



The Subbase Harness carries wiring for double solenoid valves in multiples of 4, 8, or 12 stations. Pins 1-12 are for 1 4 end operators (single and double solenoid). Pins 14-25 are for 1 2 end operators (double solenoid only). Pin 13 is the common negative. To connect a single solenoid, wire two of the three pins called out on the diagram at left.

For Example:

V025516A-B243A Position 1 Single Solenoid

V025511A-B243A Position 2 Double Solenoid

Connect pins 1 and 13 for position 1, 1 4 end solenoid actuation.

Connect pins 2 and 13 for position 2, 1 4 end solenoid actuation and 15 and 13 for position 1 2 end solenoid actuation.

Nugget 30 Series Valves

Nugget 30

3-Port/2-Position V01 Valves



- Ideal for manifolding pilot applications where size is a consideration.
- The valve's .39" (10mm) width coupled with 24V DC or optional 12V DC coils make these valves ideal for lightweight and compact applications.
- Valves come with 300 mm pinch plugs.

Valve Order Information

Model	Operation	Voltage	Wt oz. (g)
V015416A-B2631	NC	24V DC	0.4 (12.6)
V015416A-B2621	NC	12V DC*	0.4 (12.6)

*Consult factory for delivery

Technical Data

Fluids: Lubricated or non-lubricated compressed air, filtered to 5 microns.

Operating Pressure:

15 to 102 psig (1 to 7 bar)

Temperature Range:

41°F to 122°F (5° to 50°C)

C_v : 0.015

Port Size

10-32 UNF thread (on subbase)

Solenoid Valves

Voltages and Power Requirements:

24V DC (standard): 1W

12V DC (optional)*: 1W

Voltage Tolerances: ±10% rated voltage

Power Indicator: LED (red)

Surge Suppressor: Fly-wheel diode

Manual Override: Combination locking/non-locking

Coil Type: Class B Side plug

Operation: Direct acting poppet

Enclosure Classification: NEMA 1

*Consult factory for delivery

Materials of Construction

Body: Aluminum and co-polymer

Single and fixed length bases: Aluminum

Seals: Nitrile

Springs and Yoke: Stainless Steel

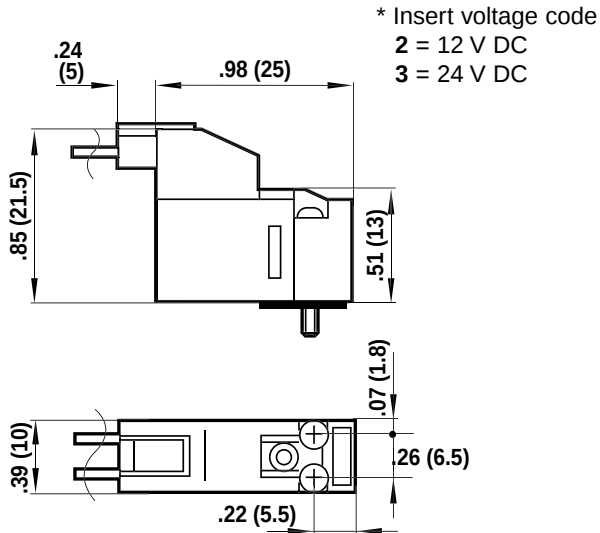
Fittings: Nickel plated brass



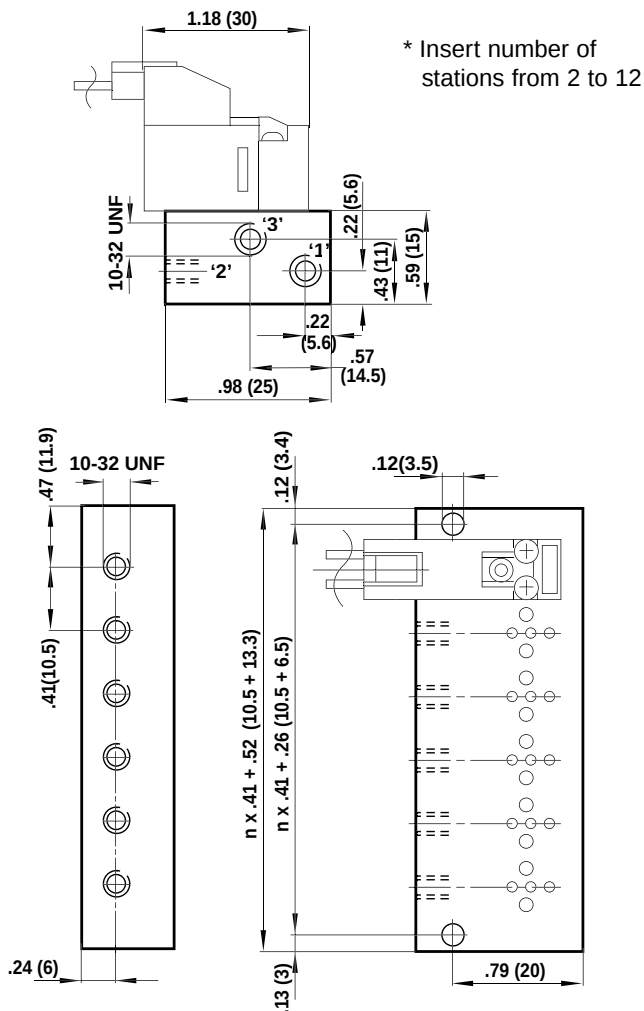
Nugget 30 Series Valves

All Dimensions in Inches (mm)

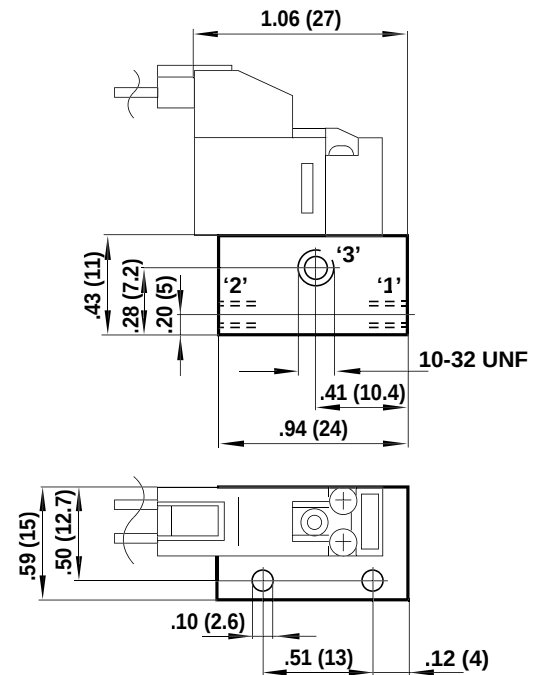
Direct Solenoid, Spring Return Subbase Mounted Valve V015416A-B26*1 3/2 Normally Closed



Fixed Length Subbase Manifolds C/P43154/ _ *



10-32 UNF Single Subbase C/P43154/1



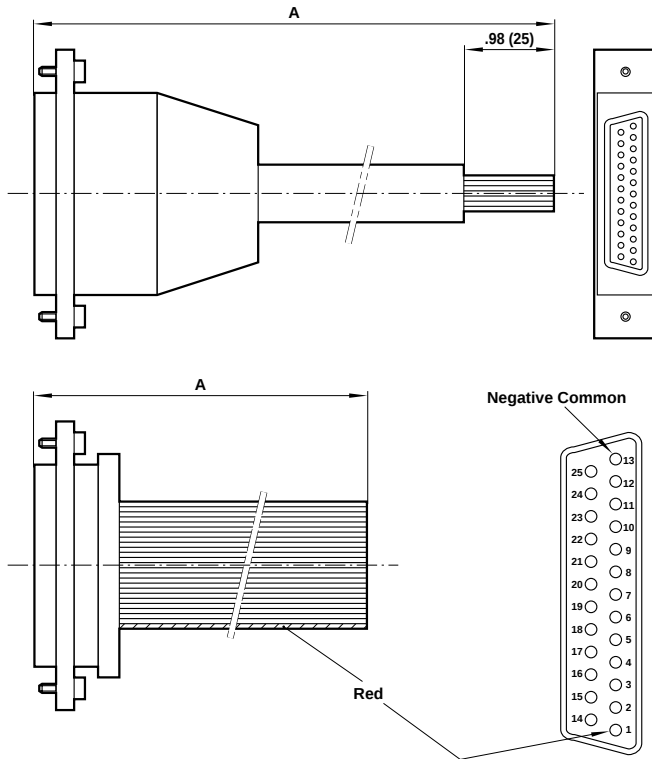
Replacement gasket: M/P43150

Nugget 30 Series Valves

All Dimensions in Inches (mm)



25-Pin D Connectors



Pin Number	Wire Color	Pin Number	Wire Color
1	Red	2-25	Grey

25-Pin D Connector Cable (For use with 25-pin D connector on manifold subbase wireway stacks.)

V025516A-Q2210

Type: 25 way MIL Standard D connector, A = 3' (1.0m)

V025516A-Q2230

Type: 25 way MIL Standard D connector, A = 10' (3.0m)

V025516A-Q2250

Type: 25 way MIL Standard D connector, A = 16' (5.0m)

Pin Number	Wire Color	Pin Number	Wire Color
1	Red	14	Green/red
2	Blue	15	Yellow/red
3	Green	16	White/red
4	Yellow	17	Red/black
5	White	18	Red/brown
6	Brown	19	Yellow/blue
7	Violet	20	White/blue
8	Orange	21	Blue/black
9	Pink	22	Orange/blue
10	Turquoise	23	Yellow/green
11	Grey	24	White/green
12	Red/blue	25	Orange/green
13	Black		

25-Pin D Connector Ribbon Cable*

V025516A-Q4310

Type: 25 way MIL Standard D connector, A = 3' (1.0m)

V025516A-Q4330

Type: 25 way MIL Standard D connector, A = 10' (3.0m)

V025516A-Q4350

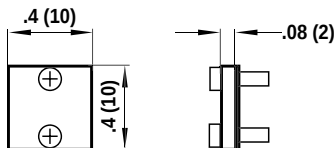
Type: 25 way MIL Standard D connector, A = 16' (5.0m)

* Low cost option

Blanking Plate

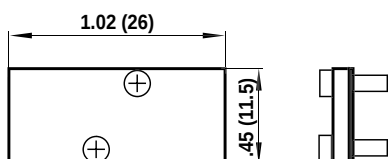
M/P43164

Blocks unused stations on single and fixed length subbase 3-port/2-position valves.



M/P43165

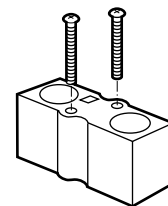
Blocks unused stations on single and fixed length subbase 5-port/2-position valves.



Blanking Block

V025516A-Q1600

Blocks unused intermediate base stations on 4-way modular sub-bases





Nugget 30 Series Valves

All Dimensions in Inches (mm)

Pinch Plugs (for 5/2 and 5/3 valves)

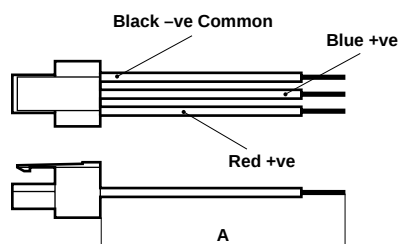
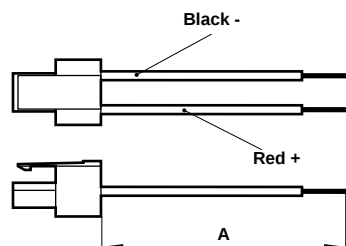
V025516A-Q20**

Type: 2-wire negative common, for single solenoid

Model: V025516A-Q21**

Type: 3-wire negative common, for double solenoid

Model	Dim. A
V025516A-Q2003	11.8 (300)
V025516A-Q2010	39.4 (1000)
V025516A-Q2103	11.8 (300)
V025516A-Q2110	39.4 (1000)



Pneufit Blanking Plug

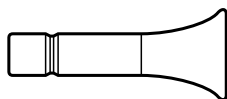
Use to plug unused ports on manifold subbase.

Nickel plated brass Blanking Plug

1/8"	12-004-0100
5/32" (4 mm)	12-004-0200
1/4"	12-004-0400
3/8"	12-004-0600

Thermoplastic Blanking Plug

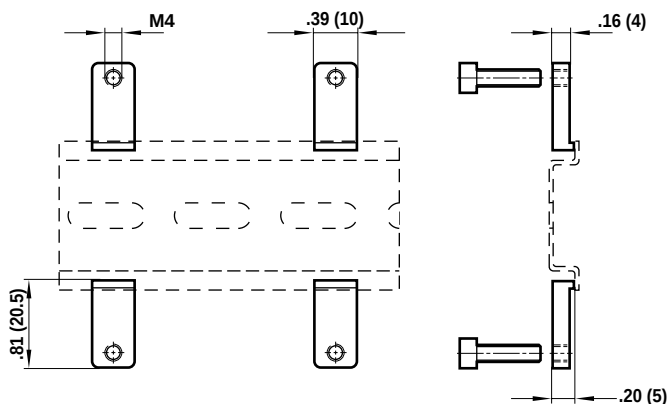
5/32" (4 mm)	11-004-0400
1/4"	94-050-904
3/8"	94-050-906
6 mm	11-004-0600
8 mm	11-004-0800



DIN Mounting Rail Kits

V025516A-Q1700

Type: Kit fits modular bases to DIN EN 50022 mounting rail.



Pneufit Push-In Fitting Cartridges

Interchangeable cartridges



Cylinder Port Fittings

1/8"	12-X00-0013
5/32"	10-X00-0004
1/4"	12-X00-0004
4 mm	10-X00-0004
6 mm	10-X00-0006

Supply / Exhaust Fittings

1/4"	12-X00-0025
3/8"	12-X00-0006
8 mm	10-X00-0008



To Order Modular Manifolding Subbases

There are a variety of configurations that can be supplied as assembled stacks. To order factory assembled valve and manifolding subbase assemblies:

1. Select your valve and voltage from the table on VAL-1-4, and indicate the station number on the base where each valve is to be positioned.
2. Select the base configuration using the following table as a guide.

25-Pin D Connector (left side)

X No 25-Pin D Connector
A for up to 4 valves
B for up to 8 valves
C for up to 12 valves

Cylinder and External Pilot Ports

1E	1/8" PIF cylinder, INT pilot, 3/8 PIF inlet/exhaust
1F	1/8" PIF cylinder, EXT pilot, 3/8 PIF inlet/exhaust
1G	1/8" PIF cylinder, INT pilot, 1/4" inlet/exhaust
1H	1/8" PIF cylinder, EXT pilot, 1/4" PIF inlet/exhaust
2A	Ø4 mm, INT pilot, 8 mm PIF inlet/exhaust
2B	Ø4 mm, EXT pilot, 8 mm PIF inlet/exhaust
2E	5/32" PIF cylinder, INT pilot, 3/8" PIF inlet/exhaust
2F	5/32" PIF cylinder, EXT pilot, 3/8" PIF inlet/exhaust
2G	5/32" PIF cylinder, INT pilot 1/4" inlet/exhaust
2H	5/32" PIF cylinder, EXT pilot 1/4" inlet/exhaust
3A	Ø6 mm, INT pilot, 8 mm PIF inlet/exhaust
3B	Ø6 mm, EXT pilot, 8 mm PIF inlet/exhaust
4E	1/4" PIF INT pilot, 3/8" PIF inlet/exhaust
4F	1/4" PIF EXT pilot, 3/8" PIF inlet/exhaust

Number of stations 01-24 _____

25-Pin D Connector (right side)

X No 25-Pin D Connector
A for up to 4 valves
B for up to 8 valves
C for up to 12 valves

Cylinder and External Pilot Ports (Dual Pressure)

1E	1/8" PIF cylinder, INT pilot, 3/8 PIF inlet/exhaust
1F	1/8" PIF cylinder, EXT pilot, 3/8 PIF inlet/exhaust
1G	1/8" PIF cylinder, INT pilot, 1/4" inlet/exhaust
1H	1/8" PIF cylinder, EXT pilot, 1/4" PIF inlet/exhaust
2A	Ø4 mm, INT pilot, 8 mm PIF inlet/exhaust
2B	Ø4 mm, EXT pilot, 8 mm PIF inlet/exhaust
2E	5/32" PIF cylinder, INT pilot, 3/8" PIF inlet/exhaust
2F	5/32" PIF cylinder, EXT pilot, 3/8" PIF inlet/exhaust
2G	5/32" PIF cylinder, INT pilot 1/4" inlet/exhaust
2H	5/32" PIF cylinder, EXT pilot 1/4" inlet/exhaust
3A	Ø6 mm, INT pilot, 8 mm PIF inlet/exhaust
3B	Ø6 mm, EXT pilot, 8 mm PIF inlet/exhaust
4E	1/4" PIF INT pilot, 3/8" PIF inlet/exhaust
4F	1/4" PIF EXT pilot, 3/8" PIF inlet/exhaust

Number of stations 01-23 dual pressure _____
XX Single pressure default

Factory Assembled Valve and Manifolding Subbase Assemblies

The following ordering example details the information needed to order the 6 valve assembly shown at right.
One Nugget 30 valve stack consisting of:

Position	Quantity	Part Number
Position 3-6	4 pcs	V025516A-B243A
Positions 1-2	2 pcs	V025511A-B243A
	1 pcs	V02B2E06-XXXXX

NOTE: Bottom plug version valves must be used with 25-pin D connector and wireway.



Fixed Length Subbase Assemblies

Order fixed length assemblies as follows-
One Nugget 30, six valve stack consisting of:

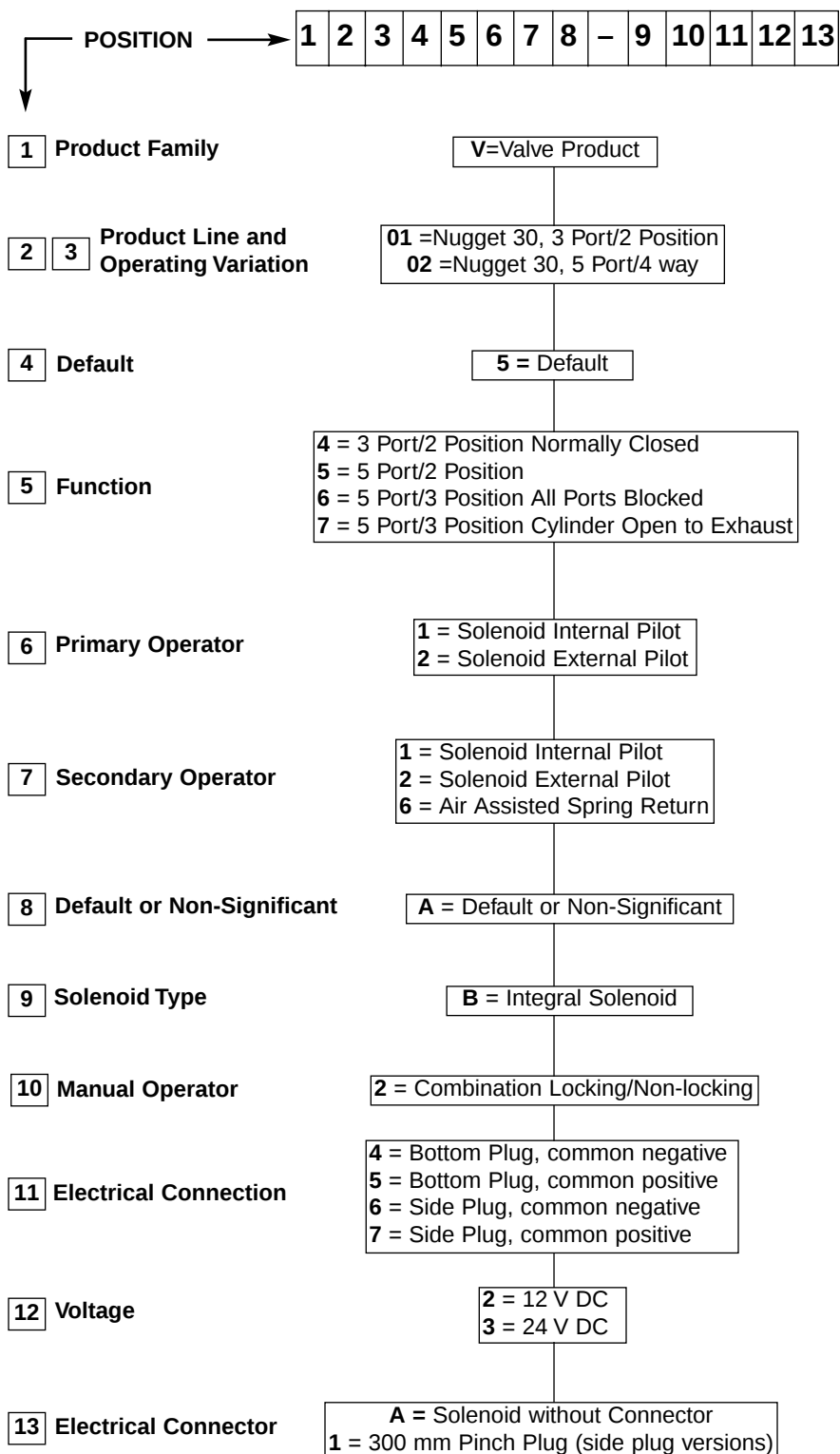
Position	Quantity	Part Number
Positions 1-6	6 pcs	V025516A-B2631 C/P43149/6

NOTE: Fixed length subbases must use side-plug version valves.





Nugget 30 Series Valves



Super X Valves

3/2 and 5/2, 1/8" and 1/4" ported manually and mechanically operated compressed air valves

Contents

Features.....	VAL-7-1
3/2 Mechanically Operated Spool Valves	VAL-7-8
5/2 Mechanically Operated Spool Valves	VAL-7-11
3/2 Manually Operated Spool Valves	VAL-7-18
5/2 Manually Operated Spool Valves	VAL-7-22

- The compact size of the Super X Valve makes it an ideal choice for applications where space and envelope size are limited.
- Super X offers a wide range of operator types suitable for variety of industrial applications.
- Many of the Super X Manual Valves are suitable for panel mounting, and come with the panel mounting nut.
- The Super X Valves are suitable for multi-directional flow and dual pressure applications.
- Cv's of 0.34 (1/8") and 0.98 (1/4") provide exceptionally high flow for the compact size of the valve, making the Super X ideal for a wide range of applications.
- All Super X Valves are warranted to be free from defects for a full two years from the date of purchase. This extended warranty period provides users with a valuable guarantee of quality and service.





Super X Series Valves

In-line 3/2, 5/2 and 5/3 Spool Valves
Manual and Mechanical 1/8" and 1/4" NPT

- Wide range of operators
- Suitable for multi-directional flow and dual supply applications
- High flow capacity
- Lightweight corrosion resistant materials



Technical Data

Medium:

Compressed air, filtered, lubricated and non-lubricated

Operation:

Spool Valve, directly and indirectly actuated

Mounting:

Through-holes in valve body

Port Size:

1/8" and 1/4" NPT

Operating Pressure:

Maximum 26.5" Hg to 145 psig (-0.9 to 10 bar)

Flow Characteristics:

Size	Function	Cv	'C'	'b'	'A'	l/min	Kv
1/8" NPT	3/2, 5/2, 5/3	0.34	1.4	0.441	5.5	335	0.295
1/4" NPT	3/2, 5/2, 5/3	0.98	4.0	0.434	16	965	0.351

Operating Temperature:

32°F* to 158°F (0°C* to 70°C)

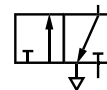
* Consult our Technical Service for use below 35°F (2°C).

Materials:

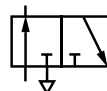
Diecast aluminum alloy body, aluminum or glass filled nylon end covers, nitrile rubber seals

Ordering Information

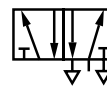
To order, quote number from tables on VAL-7-3, e.g. 03 0402 22 for a 1/8 NPT, 3/2 Roller Actuated, Spring Return Model.



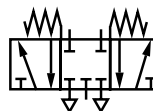
3/2 Normally closed



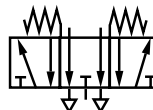
3/2 Normally open



5/2



5/3
All ports blocked mid position



5/3
Center open exhaust mid position

Super X Series Valves

All Dimensions in Inches (mm)



1/8 NPT 3/2 Mechanical Valves

Symbol	Model	Operator	Return	Weight lbs. (kg)	Repair kit	Page no	Stock
	03 0400 22	Plunger	Spring	0.31 (.14)	03 8408 02	VAL-7-8	yes
	03 0417 22	Plunger	Pilot	0.44 (.20)	03 8408 02	VAL-7-8	no
	03 0402 22	Roller	Spring	0.31 (.14)	03 8408 02	VAL-7-8	yes
	03 0411 22	Roller Lever	Spring	0.46 (.21)	03 8408 02	VAL-7-9	yes
	03 0293 22	Roller Lever (Heavy Duty)	Spring	0.46 (.21)	03 8408 02	VAL-7-9	no
	03 0423 22	Sensitive Roller Lever	Spring	0.55 (.25)	N/A	VAL-7-9	yes
	03 0409 22	Roller	Pilot	0.40 (.18)	03 8408 02	VAL-7-8	no
	03 0427 22	Roller Lever	Pilot	0.55 (.25)	03 8408 02	VAL-7-9	no
	03 0410 22	One-way Trip	Spring	0.46 (.21)	03 8408 02	VAL-7-10	yes
	03 0294 22	One-way trip (Heavy Duty)	Spring	0.46 (.21)	03 8408 02	VAL-7-10	no
	03 0432 22	Antenna	Spring	0.46 (.21)	N/A	VAL-7-10	yes

1/8 NPT 5/2 Mechanical Valves

Symbol	Model	Operator	Return	Weight lbs. (kg)	Repair kit	Page no.	Stock
	X3 0440 22	Plunger	Spring	0.55 (.25)	03 8408 02	VAL-7-11	yes
	X3 0457 22	Plunger	Pilot	0.68 (.31)	03 8408 02	VAL-7-11	no
	X3 0442 22	Roller	Spring	0.55 (.25)	03 8408 02	VAL-7-11	yes
	X3 0451 22	Roller Lever	Spring	0.71 (.32)	03 8408 02	VAL-7-12	yes
	X3 0393 22	Roller Lever (Heavy Duty)	Spring	0.64 (.29)	03 8408 02	VAL-7-12	no
	X3 0463 22	Sensitive Roller Lever	Spring	0.80 (.36)	N/A	VAL-7-12	yes
	X3 0449 22	Roller	Pilot	0.64 (.29)	03 8408 02	VAL-7-11	no
	X3 0467 22	Roller Lever	Pilot	0.80(.36)	03 8408 02	VAL-7-12	no
	X3 0450 22	One-way Trip	Spring	0.71 (.32)	03 8408 02	VAL-7-13	yes
	X3 0394 22	One Way Trip (Heavy Duty)	Spring	0.64 (.29)	03 8408 02	VAL-7-13	no
	X3 0472 22	Antenna	Spring	0.66 (.30)	N/A	VAL-7-13	yes

1/4 NPT 3/2 Mechanical Valves

Symbol	Model	Operator	Return	Weight lbs. (kg)	Repair kit	Page no.	Stock
	03 0600 22	Plunger	Spring	0.75 (.34)	03 8602 02	VAL-7-14	yes
	03 0602 22	Roller	Spring	0.75 (.34)	03 8602 02	VAL-7-14	yes
	03 0611 22	Roller Lever	Spring	0.90 (.41)	03 8602 02	VAL-7-15	yes
	03 0609 22	Roller	Pilot	0.86 (.39)	03 8612 02	VAL-7-14	no
	03 0624 22	Roller Lever	Pilot	1.0 (.45)	03 8612 02	VAL-7-15	no



Super X Series Valves

All Dimensions in Inches (mm)

1/4" NPT 5/2 Mechanical Valves

Symbol	Model	Operator	Return	Weight lbs. (kg)	Repair kit	Page no.	Stock
	X3 0640 22	Plunger	Spring	1.0 (.46)	03 8602 02	VAL-7-16	yes
	X3 0642 22	Roller	Spring	1.0 (.46)	03 8602 02	VAL-7-16	yes
	X3 0651 22	Roller Lever	Spring	1.17 (.53)	03 8602 02	VAL-7-17	yes
	X3 0649 22	Roller	Pilot	1.10 (.50)	03 8612 02	VAL-7-16	no
	X3 0664 22	Roller Lever	Pilot	3.57 (1.62)	03 8612 02	VAL-7-17	no

1/8" NPT 3/2 Manual Valves

Symbol	Model	Color	Operator	Return	Weight lbs. (kg)	Repair kit	Page no.	Stock
	03 0404 22	Black	Button (Palm)	Spring	0.33 (.15)	03 8408 02	VAL-7-18	yes
	03 0366 22	Red	Button, (Palm)	Spring	0.64 (.29)	03 8408 02	VAL-7-18	no
	03 0367 22	Green						
	03 0368 22	Black						
	03 0414 22	Black	Button, (Shrouded)	Spring	0.46 (.21)	03 8408 02	VAL-7-18	yes
	03 0408 22	Black	Button (Palm)	Pilot	0.49 (.22)	03 8408 02	VAL-7-18	no
	03 0420 22	Green						
	03 0421 22	Red						
	03 0428 22	Red	Emergency Stop	Twist Ring	0.68 (.31)	03 8473 02	VAL-7-19	no
	03 0335 22	Red	Button, Palm	Key	0.82 (.37)	03 8408 02	VAL-7-19	yes
	03 0438 22	Black	Lever	Spring	0.62 (.28)	03 8408 02	VAL-7-20	yes
	03 0403 22	Black	Lever	Lever	0.35 (.16)	03 8408 02	VAL-7-19	yes
	03 0437 22	Black	Lever	Lever	0.64 (.29)	03 8408 02	VAL-7-20	yes
	03 0296 22	Black	Lever	Lever	0.55 (.25)	03 8048 02	VAL-7-19	no
	03 0425 22	Black	Knob	Knob	0.37 (.17)	03 8408 02	VAL-7-20	yes
	03 0424 22	Black	Knob	Knob or Pilot	0.46 (.21)	03 8408 02	VAL-7-20	no
	03 0419 22	Black	Rotary Knob	Rotary Knob	0.64 (.29)	03 8408 02	VAL-7-20	yes
	03 0418 22 801	Chrome	Key	Key	0.79 (.36)	03 8408 02	VAL-7-21	yes
	03 0481 22	Black	Pedal	Spring	2.27 (1.03)	03 8408 02	VAL-7-21	yes
	03 0483 22	Black	Pedal	Pedal	2.36 (1.07)	03 8408 02	VAL-7-21	yes

Super X Series Valves

All Dimensions in Inches (mm)



1/8 NPT 5/2 & 5/3 Manual Valves

Symbol	Model	Color	Operator	Mid-position	Return	Weight lbs. (kg)	Spares kit	Page no.	Stock
	X3 0444 22	Black	Button (Palm)	-	Spring	0.57 (.26)	03 8408 02	VAL-7-22	yes
	X3 0386 22	Red	Button (Palm)	-	Spring	0.88 (.40)	03 8408 02	VAL-7-22	no
	X3 0387 22	Green							
	X3 0388 22	Black							
	X3 0454 22	Black	Button (Shrouded)	-	Spring	0.71 (.32)	03 8408 02	VAL-7-22	yes
	X3 0455 22	Green	Button (Shrouded)	-	Spring	0.71 (.32)	03 8408 02	VAL-7-22	yes
	X3 0456 22	Red	Button (Shrouded)	-	Spring	0.71 (.32)	03 8408 02	VAL-7-22	yes
	X3 0448 22	Black	Button (Palm)	-	Pilot	0.75 (.34)	03 8408 02	VAL-7-22	no
	X3 0460 22	Green							
	X3 0461 22	Red							
	X3 0465 22	Black	Knob, push	-	Knob, Pull	0.62 (.28)	03 8408 02	VAL-7-24	yes
	X3 0468 22	Red	Emergency Stop	-	Twist Ring	1.19 (.54)	03 8473 02	VAL-7-23	no
	X3 0375 22	Red	Palm Button, push	-	Key	1.06 (.48)	03 8408 02	VAL-7-23	yes
	X3 0478 22	Black	Lever	-	Spring	0.88 (.40)	03 8408 02	VAL-7-24	yes
	X3 0443 22	Black	Lever	-	Lever	0.60 (.27)	03 8408 02	VAL-7-23	yes
	X3 0477 22	Black	Lever	-	Lever	0.88 (.40)	03 8408 02	VAL-7-24	yes
	X3 0296 22	Black	Lever	-	Lever	0.80 (.36)	03 8408 02	VAL-7-23	no
	X3 3438 22	Black	Lever	APB	Lever	1.87 (.85)	03 8408 02	VAL-7-24	yes
	X3 3478 22	Black	Lever	COE	Lever	1.87 (.85)	03 8408 02	VAL-7-24	yes
	X3 3437 22	Black	Lever	APB	Lever	0.97 (.44)	03 8408 02	VAL-7-24	yes
	X3 3477 22	Black	Lever	COE	Lever	0.97 (.44)	03 8408 02	VAL-7-24	yes
	X3 0464 22	Black	Knob (push)	-	Knob (pull) or Pilot	0.71 (.32)	03 8408 02	VAL-7-24	no
	X3 0459 22	Black	Rotary Knob	-	Rotary Knob	0.88 (.40)	03 8408 02	VAL-7-25	yes
	X3 0458 22 801	Chrome	Key	-	Key	1.04 (.47)	03 8408 02	VAL-7-25	yes
	X3 0482 22	Black	Pedal	-	Spring	2.47 (1.12)	03 8408 02	VAL-7-25	yes
	X3 0484 22	Black	Pedal	-	Pedal	2.60 (1.18)	03 8408 02	VAL-7-25	yes

APB = All Ports Blocked, COE = Center Open Exhaust.



Super X Series Valves

All Dimensions in Inches (mm)

1/4" NPT 3/2 Manual Valves

Symbol	Model	Color	Operator	Return	Weight (kg)	Spares kit	Page no.	Stock
	03 0604 22	Black	Button	Spring	0.77 (.35)	03 8602 02	VAL-7-26	yes
	03 0608 22	Black	Button	Pilot	0.93 (.42)	03 8612 02	VAL-7-26	no
	03 0638 22	Black	Lever	Spring	1.06 (.48)	03 8602 02	VAL-7-26	yes
	03 0637 22	Black	Lever	Lever	1.08 (.49)	03 8602 02	VAL-7-26	yes
	03 0625 22	Black	Knob	Knob	0.82 (.37)	03 8602 02	VAL-7-26	yes
	03 0627 22	Black	Knob	Knob or Pilot	0.90 (.41)	03 8612 02	VAL-7-27	no
	03 0681 22	Black	Pedal	Spring	2.71 (1.23)	03 8602 02	VAL-7-27	no
	03 0683 22	Black	Pedal	Pedal	2.80 (1.27)	03 8602 02	VAL-7-27	no

Super X Series Valves

All Dimensions in Inches (mm)



1/4" NPT 5/2 & 5/3 Manual Valves

Symbol	Model	Color	Operator	Mid-position	Return	Weight lbs. (kg)	Spares kit	Page no.	Stock
	X3 0644 22	Black	Button	-	Spring	1.04 (.47)	03 8602 02	VAL-7-28	yes
	X3 0648 22	Black	Button	-	Pilot	1.19 (.54)	03 8612 02	VAL-7-28	no
	X3 0678 22	Black	Lever	-	Spring	1.32 (.60)	03 8602 02	VAL-7-28	yes
	X3 0677 22	Black	Lever	-	Lever	1.35 (.61)	03 8602 02	VAL-7-28	yes
	X3 3638 22	Black	Lever	APB	Lever	2.34 (1.06)	03 8602 02	VAL-7-28	yes
	X3 3678 22	Black	Lever	COE	Lever	2.34 (1.06)	03 8602 02	VAL-7-28	yes
	X3 3637 22	Black	Lever	APB	Lever	1.43 (.65)	03 8602 02	VAL-7-28	yes
	X3 3677 22	Black	Lever	COE	Lever	1.43 (.65)	03 8602 02	VAL-7-28	yes
	X3 0665 22	Black	Knob	-	Knob	1.08 (.49)	03 8602 02	VAL-7-29	yes
	X3 0682 22	Black	Pedal	-	Spring	2.93 (1.33)	03 8602 02	VAL-7-29	no
	X3 0684 22	Black	Pedal	-	Pedal	3.06 (1.39)	03 8602 02	VAL-7-29	no

APB = All Ports Blocked, COE = Center Open Exhaust.

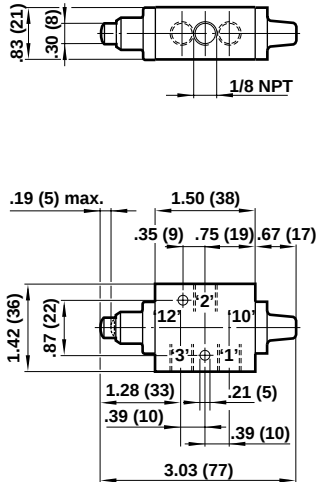


Super X Series Valves

All Dimensions in Inches (mm)

03 0400 22

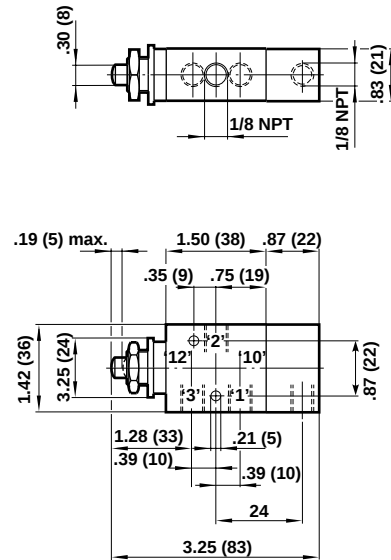
1/8 NPT 3/2 Plunger Actuated Spring Return Valve



Operating Force: 7 lbs (31N)
The plunger on this valve is designed for axial loading only.

03 0417 22

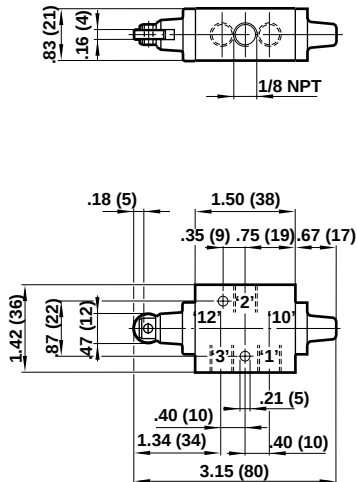
1/8" NPT 3/2 Plunger Actuated Pilot Return Valve



Operating Force: 4 lbs (18N), '10' at zero bar
Reset Pressure: 30 lb (2 bar) minimum; Full Movement: 0.19" (4.8mm)
The plunger on this valve is designed for axial loading only. This valve can be panel mounted.
Panel Cut-out: Ø.59" (15 mm); Panel thickness: 0.2" (5mm)

03 0402 22

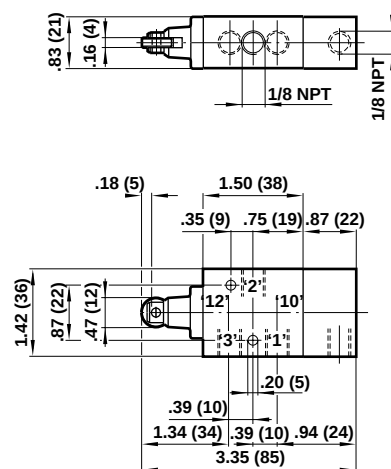
1/8" NPT 3/2 Roller Actuated Spring Return Valve



Operating Force: 7 lbs (31N)
Maximum Recommended Cam Rise: .18" (4.5 mm)
Cam Angle of Approach: 30° maximum
Cam Speed: 26' (8 m)/min. maximum
Operating Speed: 300 cpm

03 0409 22

1/8" NPT 3/2 Roller Actuated Pilot Return Valve



Operating Force: 4 lbs (18N), '10' at zero bar
Reset Pressure: 30 psi (2 bar) minimum
Maximum Recommended Cam Rise: .18" (4.5 mm)
Cam Angle of Approach: 30° maximum
Cam Speed: 26' (8 m)/min. maximum
Operating Speed: 300 cpm

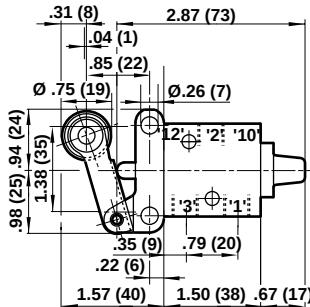
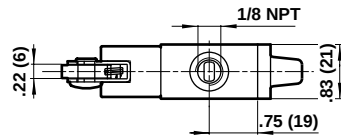
Super X Series Valves

All Dimensions in Inches (mm)



03 0293 22

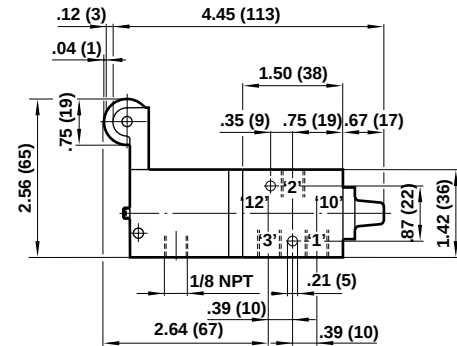
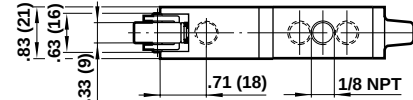
1/8" NPT 3/2 Heavy Duty Roller Lever Actuated Spring Return Valve



Operating Force: 4 lbs (18N); Operating Travel: .31" (8 mm)
Over-travel: .04" (1mm)
Cam Angle of Approach: 45° maximum
Cam Speed: 26' (8 m)/min. maximum
Operating Speed: 300 cpm

03 0423 22

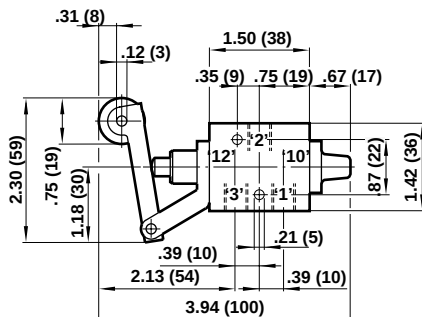
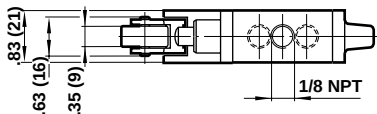
1/8" NPT 3/2 Sensitive Roller Lever Actuated Spring Return Valve



Operating Force: .22 lbs (1N)
Constant Bleed Pilot Supply: 30 psi (2 bar) minimum
Pre-travel: .04" (1 mm); Over-travel: .12" (3 mm)
Cam Angle of Approach: 45° maximum
Cam Speed: 21' (6.5 m)/min. maximum

03 0411 22

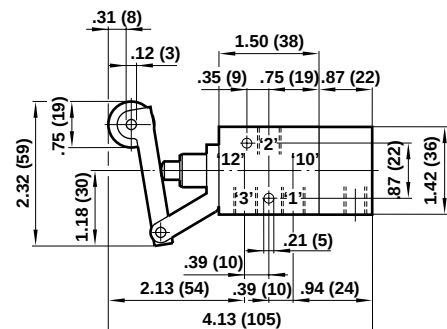
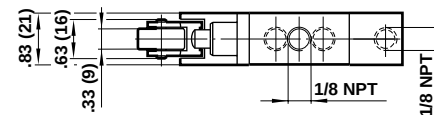
1/8" NPT 3/2 Roller Lever Actuated Spring Return Valve



Operating Force: 4 lbs (18N); Operating Travel: .31" (8 mm)
Over-travel: .12" (3 mm)
Cam Angle of Approach: 45° maximum
Cam Speed: 26' (8 m)/min. maximum
Operating Speed: 300 cpm

03 0427 22

1/8" NPT 3/2 Roller Lever Actuated Pilot Return Valve



Operating Force: 2 lbs (9N), '10' at zero bar
Reset Pressure: 30 lbs (2 bar) minimum
Operating travel: 26' (8 mm); Over-travel: .12" (3 mm)
Cam Angle of Approach: 45° maximum
Cam Speed: 26' (8 m)/min. maximum
Operating Speed: 300 cpm

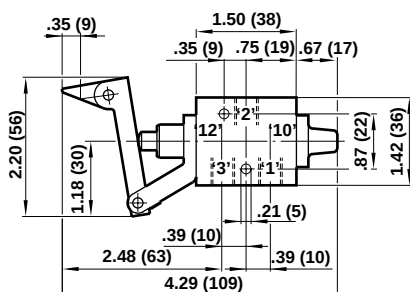
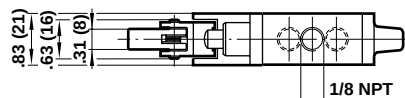


Super X Series Valves

All Dimensions in Inches (mm)

03 0410 22

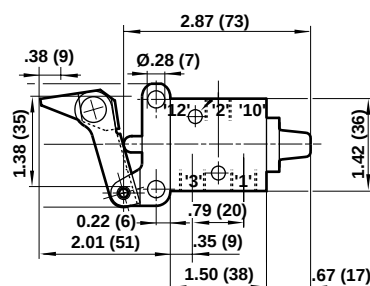
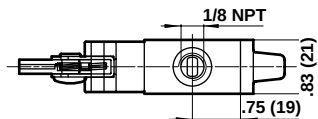
1/8" NPT 3/2 One-way Trip Actuated Spring Return Valve



Operating Force: 7 lbs (31N)
Cam Rise: .35" (9 mm)
Cam Angle of Approach: 90° maximum
Cam Speed: 6.6' (2 m)/min. maximum
Operating Speed: 120 cpm

03 0294 22

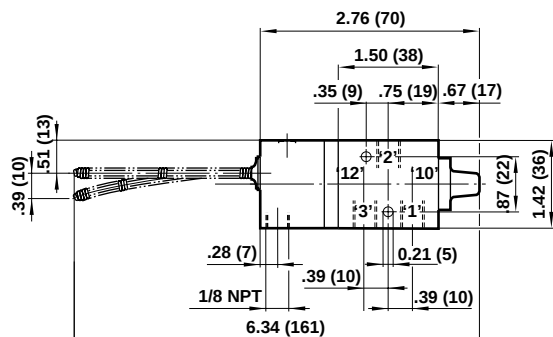
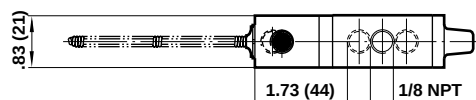
1/8" NPT 3/2 Heavy Duty One Way Trip Actuated Spring Return Valve



Operating Force: 7 lbs (31N)
Cam Rise: .35" (9 mm)
Cam Angle of Approach: 90° maximum
Cam Speed: 6.6' (2 m)/min. maximum
Operating Speed: 120 cpm

03 0432 22

1/8" NPT 3/2 Antenna Actuated Spring Return Valve

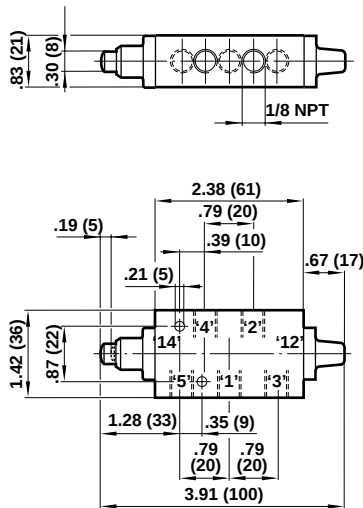


Operating Force: .06 lbs (0.3N) at tip
Constant Pilot Supply: 30 lbs (2 bar) minimum
Operating Movement: .40" (10 mm) minimum in any direction.



X3 0440 22

1/8" NPT 5/2 Plunger Actuated Spring Return Valve



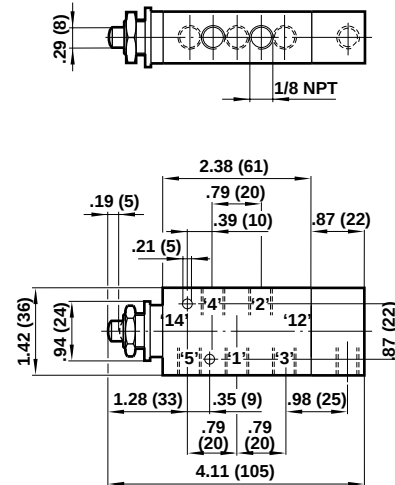
Operating Force: 12 lbs (54N)

Full Movement: .20" (4.8 mm)

The plunger on this valve is designed for axial loading only.

X3 0457 22

1/8" NPT 5/2 Plunger Actuated Pilot Return Valve



Operating Force: 5 lbs (22N), '12' at zero bar

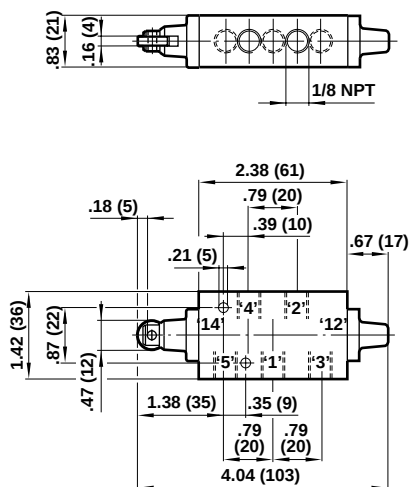
Reset Pressure: 30 lbs (2 bar) minimum; Full Movement: .20" (4.8 mm)

The plunger on this valve is designed for axial mounting only. This valve can be panel mounted.

Panel Cut-out: .59" (Ø15 mm); Maximum Panel Thickness: .20" (5 mm)

X3 0442 22

1/8" NPT 5/2 Roller Actuated Spring Return Valve



Operating Force: 12 lbs (54N)

Maximum Recommended Cam Rise: .20" (4.5 mm)

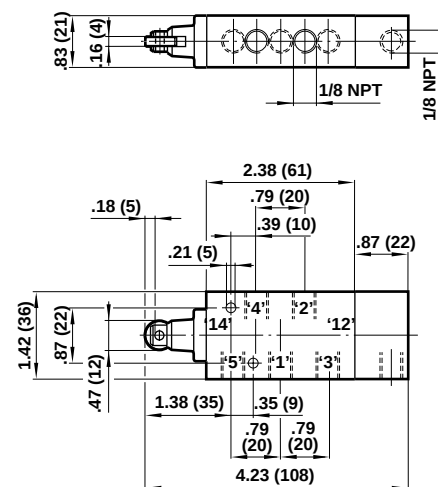
Cam Angle of Approach: 30° maximum

Cam Speed: 26" (8 m)/min. maximum

Operating Speed: 300 cpm

X3 0449 22

1/8" NPT 5/2 Roller Actuated Pilot Return Valve



Operating Force: 5 lbs (22N), '12' at zero bar

Reset Pressure: 30 psi (2 bar) minimum

Maximum Recommended Cam Rise: .18" (4.5 mm)

Cam Angle of Approach: 30° maximum

Cam Speed: 26' (8m)/min. maximum

Operating Speed: 300 cpm

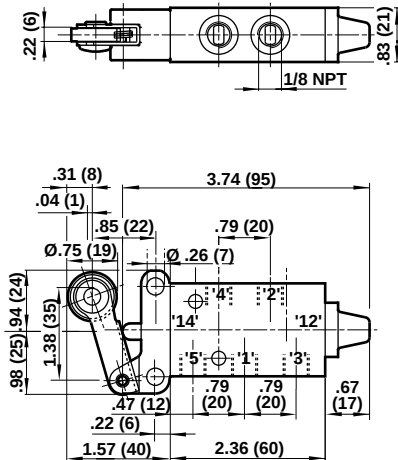


Super X Series Valves

All Dimensions in Inches (mm)

X3 0393 22

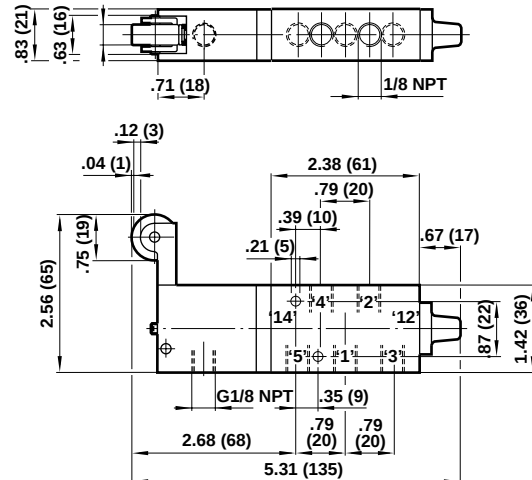
1/8" NPT 5/2 Heavy Duty Roller Lever Actuated Spring Return Valve



Operating Force: 7 lbs (31N); Operating Travel: 8 mm
Over-travel: .04 (1mm)
Cam Angle of Approach: 45° maximum
Cam Speed: 26' (8m)/min. maximum
Operating Speed: 300 cpm

X3 0463 22

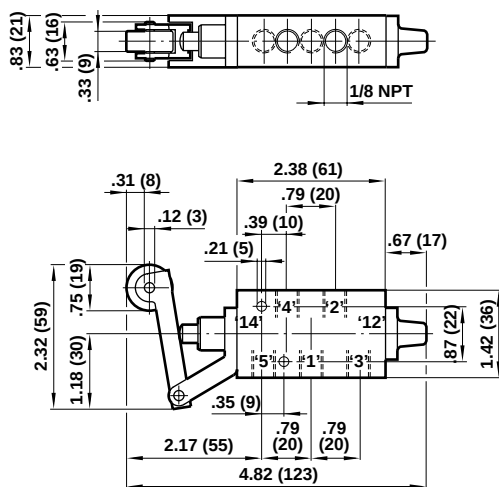
1/8" NPT 5/2 Sensitive Roller Lever Actuated Spring Return Valve



Operating Force: .23 lbs (1N)
Constant Pilot Supply: 44 psi (3 bar) minimum
Pre-travel: .04" (1 mm); Over-travel: .12" (3 mm)
Cam Angle of Approach: 45° maximum
Cam Speed: 21' (6.5m)/min. maximum

X3 0451 22

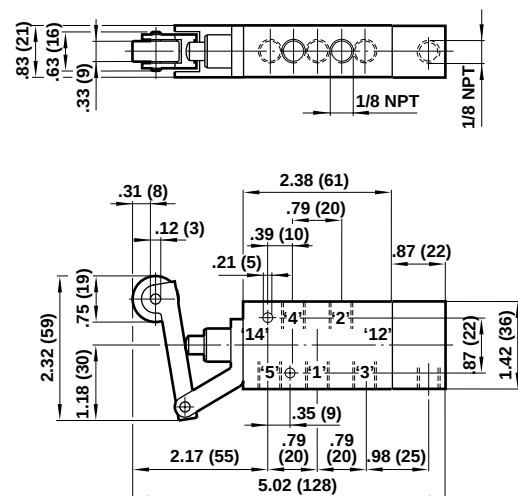
1/8" NPT 5/2 Roller Lever Actuated Spring Return Valve



Operating Force: 7 lbs (31N); Operating Travel: 8 mm
Over-travel: .12 (3mm)
Cam Angle of Approach: 45° maximum
Cam Speed: 26' (8 m)/min. maximum
Operating Speed: 300 cpm

X3 0467 22

1/8" NPT 5/2 Roller Lever Actuated Pilot Return Valve



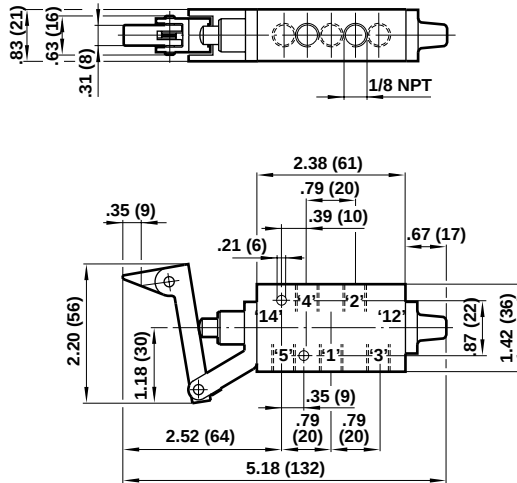
Operating Force: 2 lbs (9N), '12' at zero bar
Reset Pressure: 30 psi (2 bar) minimum
Operating Travel: 26" (8 mm); Over-travel: .12" (3mm)
Cam Angle of Approach: 45° maximum
Cam Speed: 26' (8m)/min. maximum
Operating Speed: 300 cpm

Super X Series Valves

All Dimensions in Inches (mm)

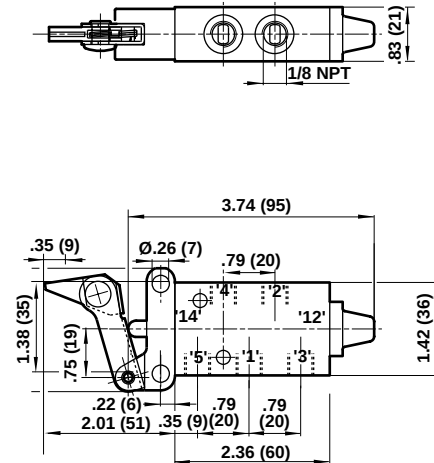


X3 0450 22 1/8" NPT 5/2 One-way Trip Actuated Spring Return Valve



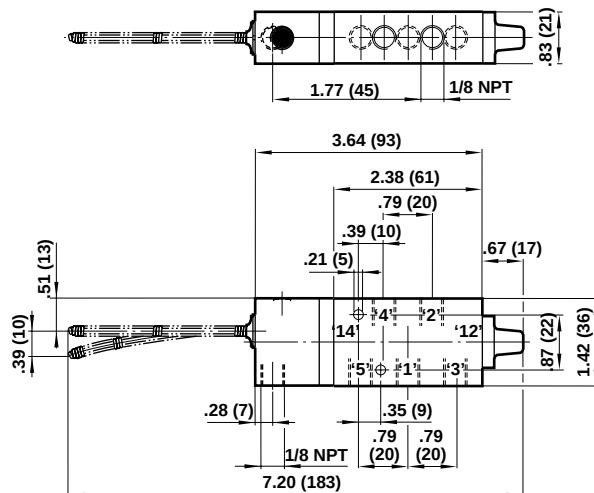
Operating Force: 7 lbs (31N)
Cam Rise: .35" (9mm)
Cam Angle of Approach: 90° maximum
Cam Speed: 6.5' (2 m)/min. maximum
Operating Speed: 120 cpm

X3 0394 22 1/8" NPT 5/2 Heavy Duty One Way Trip Actuated Spring Valve



Operating Force: 7 lbs (31N)
Cam Rise: .35" (9mm)
Cam Angle of Approach: 90° maximum
Cam Speed: 6.5' (2 m)/min. maximum
Operating Speed: 120 cpm

X3 0472 22 1/8" NPT 5/2 Antenna Actuated Spring Return Valve



Operating Force: .07 lbs (0.3N) at tip
Constant Pilot Supply: 45 psi (3 bar) minimum
Operating Movement: .40" (10 mm) minimum in any direction

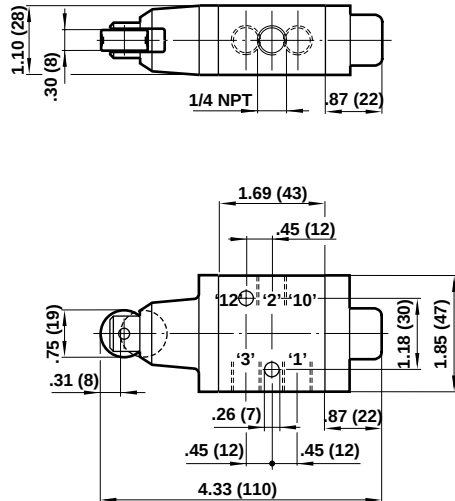


Super X Series Valves

All Dimensions in Inches (mm)

03 0602 22

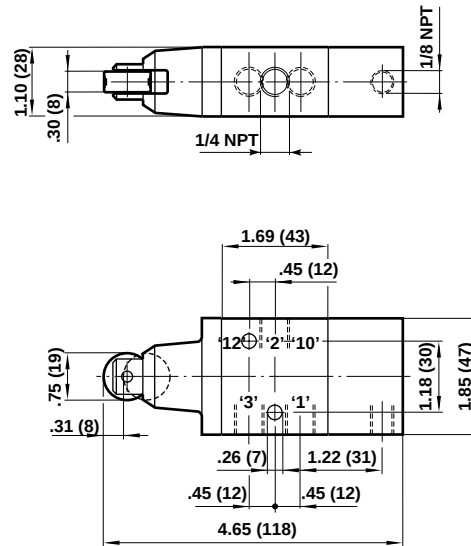
1/4" NPT 3/2 Roller Actuated Spring Return Valve



Operating Force: 14 lbs (61N)
Cam Angle of Approach: 45° maximum
Cam Speed: 20' (6 m)/min. maximum
Operating Speed: 200 cpm

03 0609 22

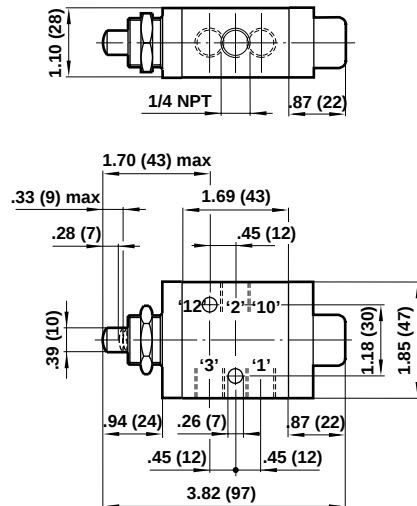
1/4" NPT 3/2 Roller Actuated Pilot Return Valve



Operating Force: 3 lbs (13N), '10' at zero bar
Reset Pressure: 30 psi (2 bar) minimum
Cam Angle of Approach: 45° maximum
Cam Speed: 20' (6 m)/min. maximum
Operating Speed: 200 cpm

03 0600 22

1/4" NPT 3/2 Plunger Actuated Spring Return Valve

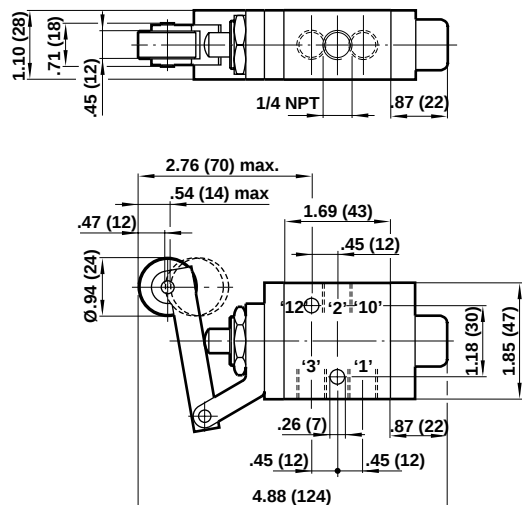


Operating Force: 12 lbs (53N)
The plunger on this valve is designed for axial loading only.



03 0611 22

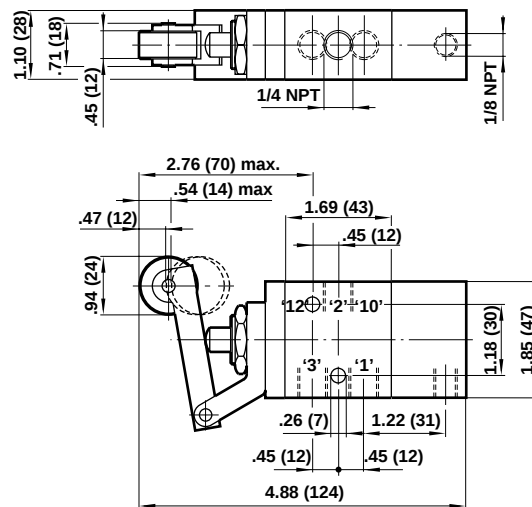
1/4" NPT 3/2 Roller Lever Actuated Spring Return Valve



Operating Force: 10 lbs (45N)
Cam Angle of Approach: 45° maximum
Cam Speed: 16' (5 m)/min. maximum
Operating Speed: 150 cpm

03 0624 22

1/4" NPT 3/2 Roller Lever Actuated Pilot Return Valve



Operating Force: 2 lbs (9N), '10' at zero bar
Reset Pressure: 30 psi (2 bar) minimum
Cam Angle of Approach: 45° maximum
Cam Speed: 16' (5 m)/min. maximum
Operating Speed: 150 cpm

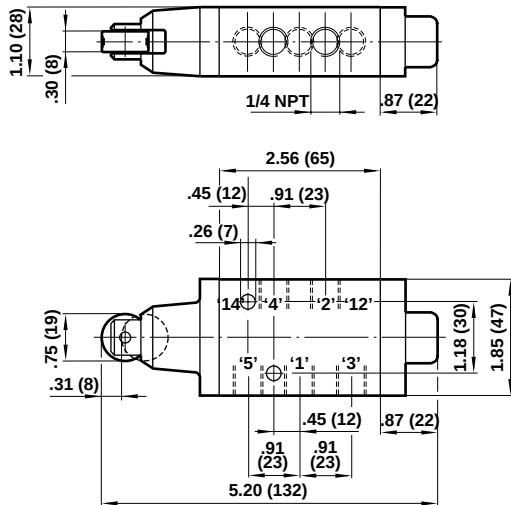


Super X Series Valves

All Dimensions in Inches (mm)

X3 0642 22

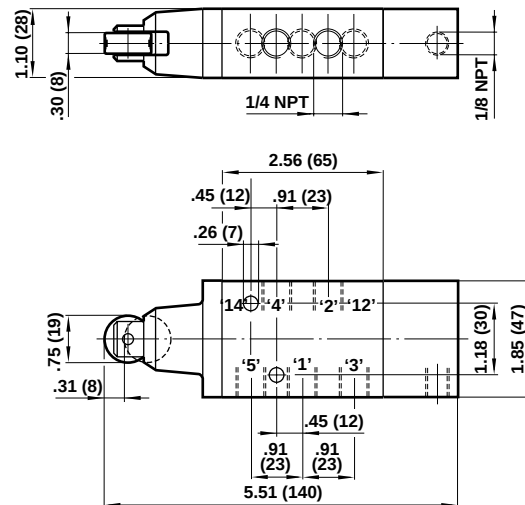
1/4" NPT 5/2 Roller Actuated Spring Return Valve



Operating Force: 15 lbs (67N)
Cam Angle of Approach: 45° maximum
Cam Speed: 20' (6 m)/min. maximum
Operating Speed: 200 cpm

X3 0649 22

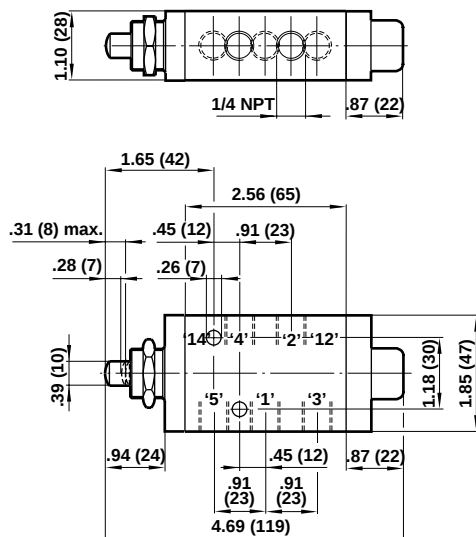
1/4" NPT 5/2 Roller Actuated Pilot Return Valve



Operating Force: 3 lbs (13N), '12' at zero bar
Reset Pressure: 30 psi (2 bar) minimum
Cam Angle of Approach: 45° maximum
Cam Speed: 20' (6 m)/min. maximum
Operating Speed: 200 cpm

X3 0640 22

1/4" NPT 5/2 Plunger Actuated Spring Return Valve

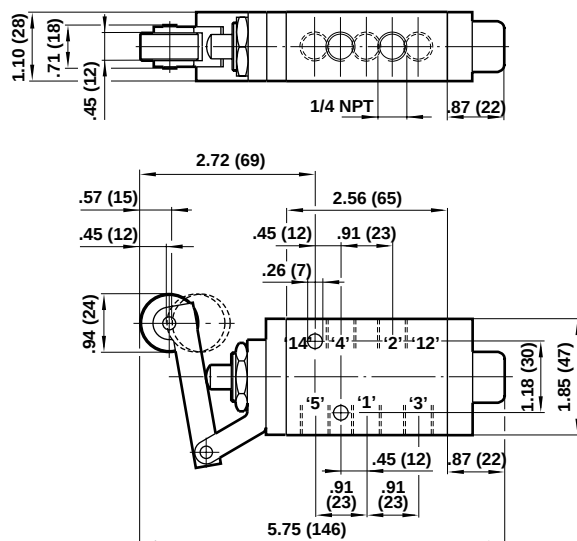


Operating Force: 14 lbs (62N)
The plunger on this valve is designed for axial loading only.



X3 0651 22

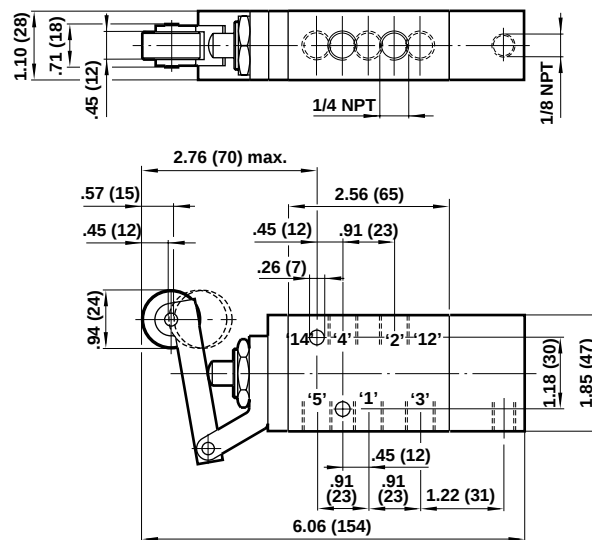
1/4" NPT 5/2 Roller Lever Actuated Spring Return Valve



Operating Force: 10 lbs (45N)
Cam Angle of Approach: 45° maximum
Cam Speed: 16' (5 m)/min. maximum
Operating Speed: 150 cpm

X3 0664 22

1/4" NPT 5/2 Roller Lever Actuated Pilot Return Valve



Operating Force: 2 lbs (9N), '12' at zero bar
Reset Pressure: 30 psi (2 bar) minimum
Cam Angle of Approach: 45° maximum
Cam Speed: 16' (5 m)/min. maximum
Operating Speed: 150 cpm Man 1/8 NPT-5/2

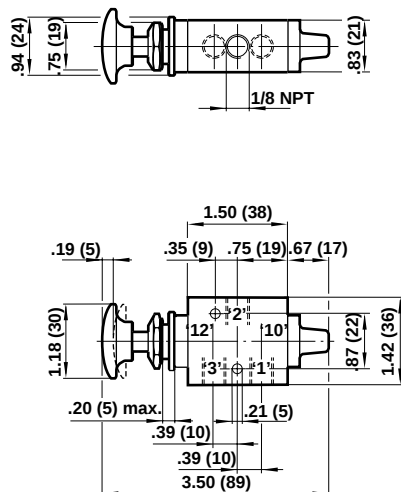


Super X Series Valves

All Dimensions in Inches (mm)

03 0404 22

1/8" NPT 3/2 Button Operated Spring Return Valve



Operating Force: 7 lbs (31N)

These valves are suitable for panel mounting by means of an optional nut and washer, reference 03 0430 00; a shrouded panel mounting kit is also available, reference 03 0429 00.

Panel Hole: Ø.59" (15 mm); Panel Thickness: .2 (5 mm) maximum

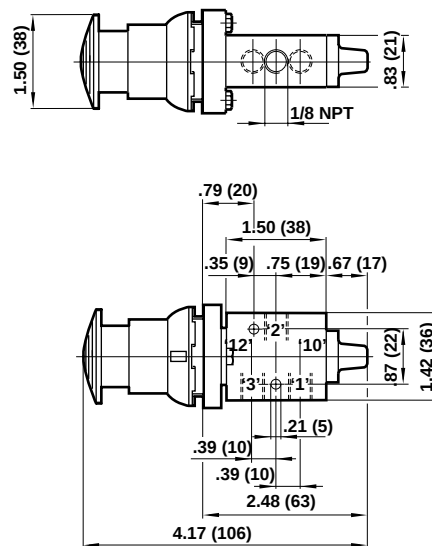
Replacement Button Red - part number: 03040965

Green - part number: 03040865

Black - part number: 03040765

03 0366 22, 03 0367 22, 03 0368 22 Models

1/8" NPT 3/2 Button (Palm) Operated Spring Return Valves



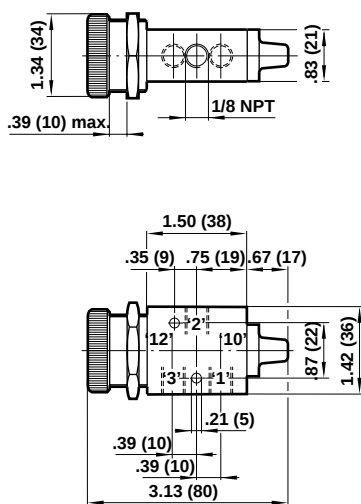
Operating Force: 7 lbs (31N)

These valves are suitable for panel mounting.

Panel Hole: Ø1.26" (32.1 mm); Panel Thickness: .24" (6 mm) maximum

03 0414 22

1/8" NPT 3/2 Button (Shrouded) Operated Spring Return Valve



Operating Force: 7 lbs (31N)

These valves are suitable for panel mounting.

Panel Hole: Ø1.22" (31 mm); Panel Thickness: .39" (10 mm) maximum

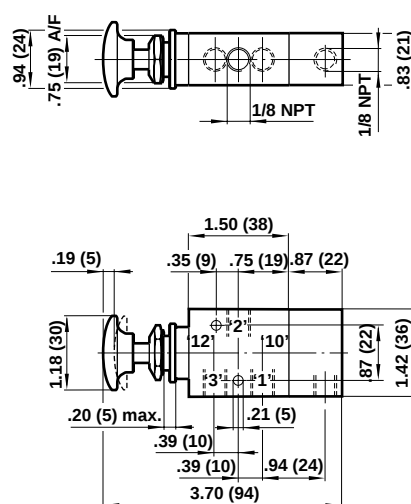
Replacement Button Red - part number: 03041661

Green - part number: 03041561

Black - part number: 03041463

03 0408 22, 03 0420 22, 03 0421 22 Models

1/8" NPT 3/2 Button Operated Pilot Return Valve



Operating Force: 4 lbs (18N), pilot port '10' at zero bar

Reset Pressure: 30 psi (2 bar) minimum

These valves are suitable for panel mounting by means of an optional nut and washer, reference 03 0430 00; a shrouded panel mounting kit is also available, reference 03 0429 00.

Panel Hole: Ø.59" (15 mm); Panel Thickness: .20" (5 mm) maximum

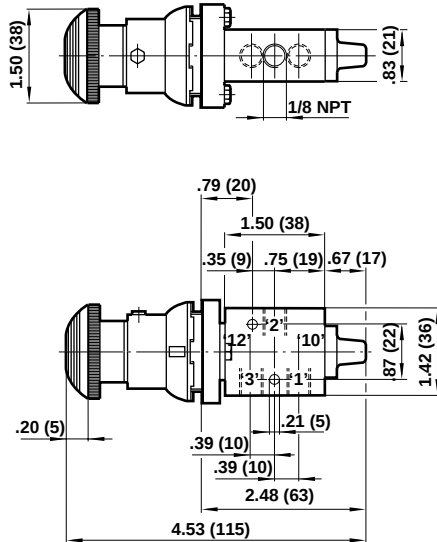
Super X Series Valves

All Dimensions in Inches (mm)



03 0428 22

1/8" NPT 3/2 Palm Button Operated, Twist Return Valve (Emergency Stop)



Operating Force: 4 lbs (18N)

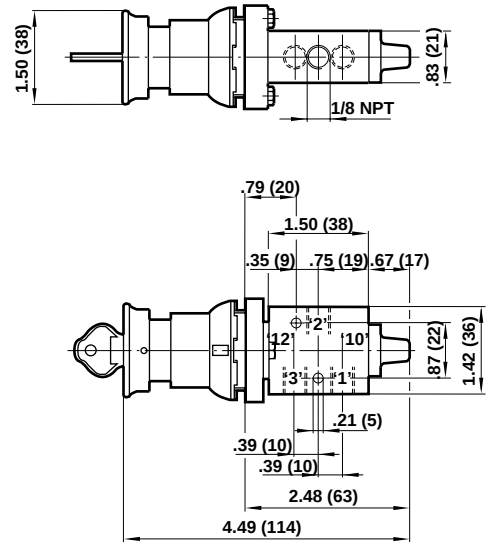
Valve latches when button is depressed and returns when the locking ring is rotated anti-clockwise.

This valve is suitable for panel mounting.

Panel Hole: 1.26" (32.1 mm); Panel Thickness: .31" (8 mm) maximum

03 0335 22

1/8" NPT 3/2 Button (Palm) Operated Key Return Valve



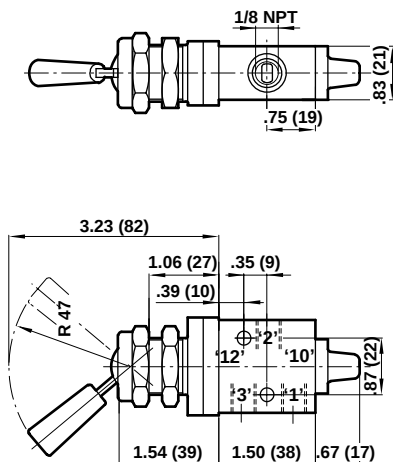
Operating Force: 7 lbs (31N)

Valve latches when button is depressed. To reset, turn key. This valve is suitable for panel mounting.

Panel Hole: 1.26" (32.1 mm); Panel Thickness: .24" (6mm) maximum

03 0296 22

1/8" NPT 3/2 Lever Operated Lever Return Valve



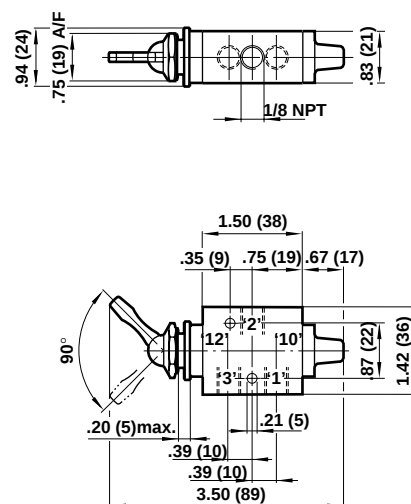
Operating Force: 3 lbs (13N)

This valve is suitable for panel mounting.

Panel Hole: .89" (22.5 mm); Panel Thickness: .24 (6 mm) maximum

03 0403 22

1/8" NPT 3/2 Lever Operated Spring Return Valve



Operating Force: 6 lbs (28N)

This valve is suitable for panel mounting. A fingertip extension is available for this valve, reference 07 0033 01.

Panel Hole: Ø.59" (15 mm); Panel Thickness: .20 (5 mm) maximum

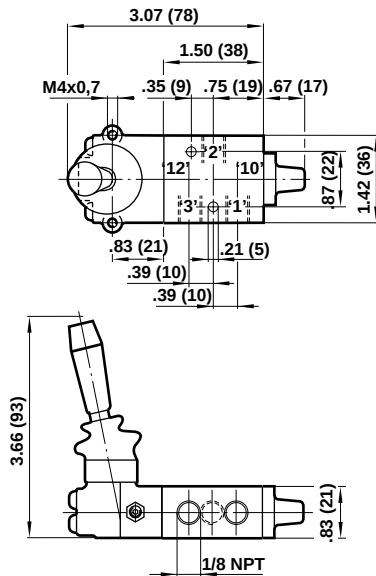


Super X Series Valves

All Dimensions in Inches (mm)

03 0438 22 & 03 0437 22 Models

1/8" NPT 3/2 Lever Operated Spring Return Valves



Operating Force: 2 lbs (9N)

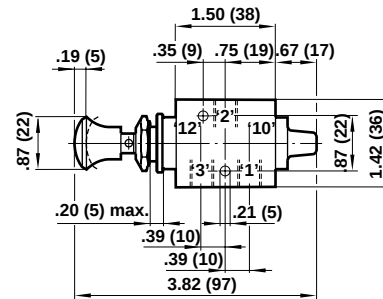
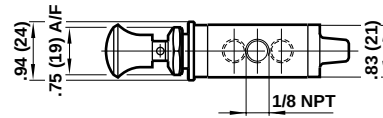
Model 03 0437 22 features a positive detent in each position and is suitable for panel mounting by means of a bezel kit, reference 03 3437 64.

Panel Hole: Ø.94" (24 mm)

Panel Thickness: .31" (8 mm) maximum

03 0425 22

1/8" NPT 3/2 Knob Operated Knob Return Valve



Operating Force: 4 lbs (18N)

This valve is suitable for panel mounting by means of an optional nut and washer, reference 03 0430 00.

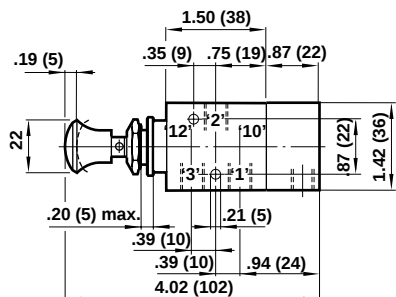
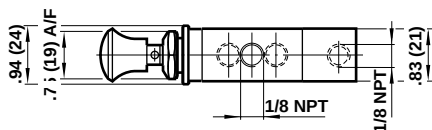
Panel Hole: Ø.59" (15 mm); Panel Thickness: .20" (5 mm) maximum

Replacement Button Red - part number: 03046463

Black - part number: 03046462

03 0424 22

1/8" NPT 3/2 Knob Operated, Knob or Pilot Return Valve



Operating Force: 4 lbs (18N)

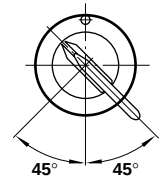
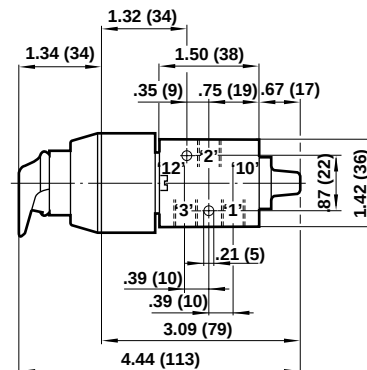
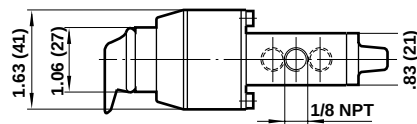
Reset Pressure: 30 psi (2 bar) minimum

This valve is suitable for panel mounting by means of an optional nut and washer, reference 03 0430 00.

Panel Hole: Ø.59" (15 mm); Panel Thickness: .20" (5 mm) maximum

03 0419 22

1/8" NPT 3/2 Rotary Knob Operated Rotary Knob Return Valve



Switch shown in non-operated position

This valve is suitable for panel mounting.

Panel Hole: Ø1.26" (32.1mm); Panel Thickness: .24" (6mm) maximum

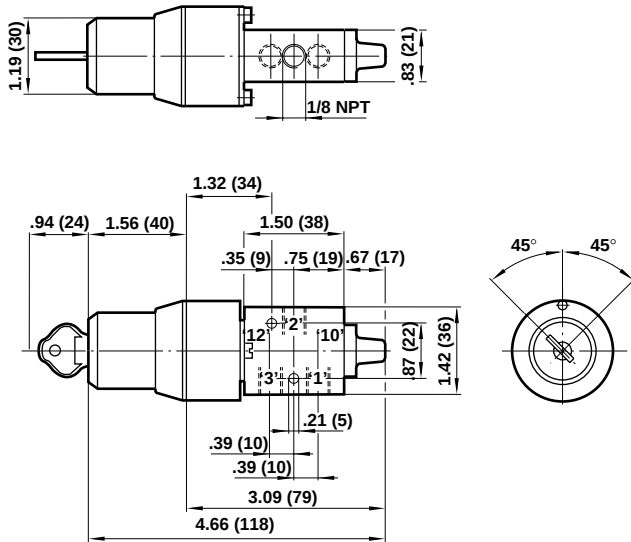
Super X Series Valves

All Dimensions in Inches (mm)



03 0418 22 801

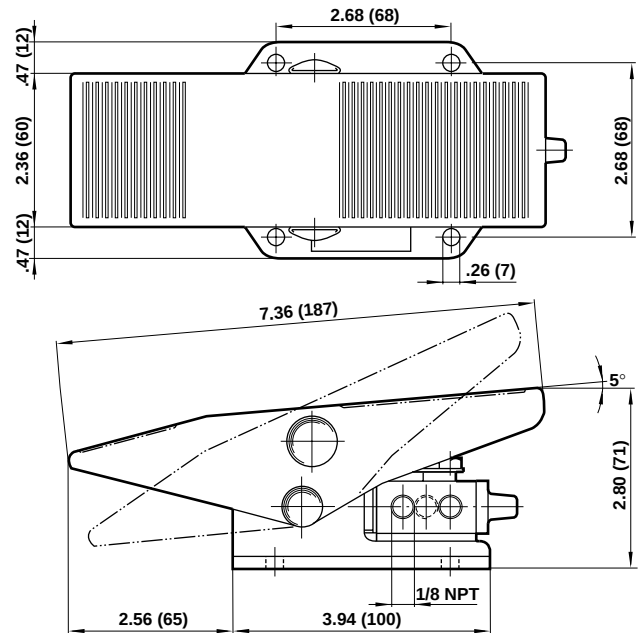
1/8" NPT 3/2 Key Operated Key Return Valve



The key is removable in both positions. Key slot shown in non-operated position. Two keys are supplied.
This valve is suitable for panel mounting.
Panel Hole: Ø1.26" (32.1 mm)
Panel Thickness: .24" (6 mm) maximum

03 0481 22

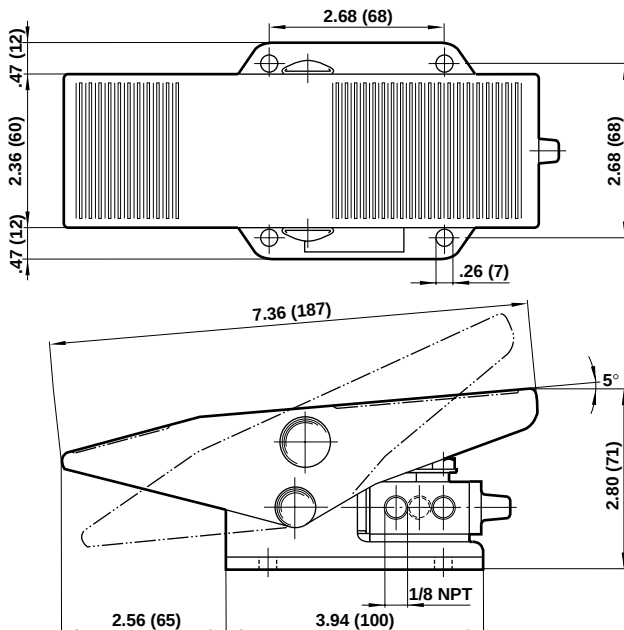
1/8" NPT 3/2 Pedal Operated Spring Return Valve



Operating Force: 5 lbs (22N)
A foot guard is available for this valve, reference 03 0480 60.

03 0483 22

1/8" NPT 3/2 Pedal Operated Pedal Return Valve



Operating Force: 5 lbs (22N)
A foot guard is available for this valve, reference 03 0480 60.

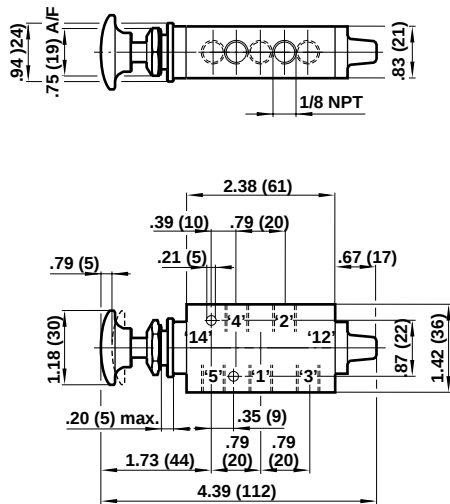


Super X Series Valves

All Dimensions in Inches (mm)

X3 0444 22

1/8" NPT 5/2 Button (Palm) Operated Spring Return Valves



Operating Force: 12 lbs (54N)

These valves are suitable for panel mounting by means of an optional nut and washer, reference 03 0430 00; a shrouded panel mounting kit is also available, reference 03 0429 00.

Panel Hole: Ø.59" (15 mm); Panel Thickness: .20" (5mm) maximum

Replacement Button

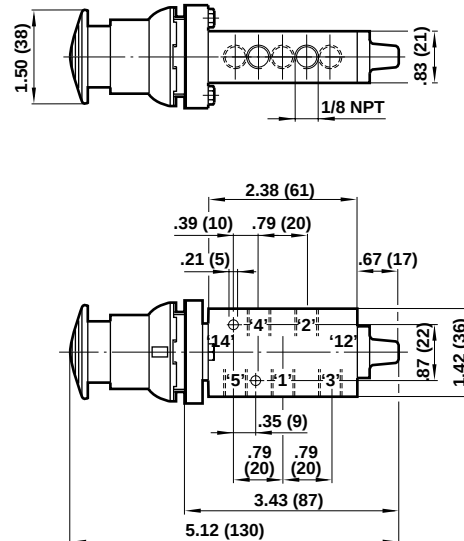
Red - part number: 03040965

Green - part number: 03040865

Black - part number: 03040765

X3 0386 22, X3 0387 22, X3 0388 22

1/8" NPT 5/2 Button (Palm) Operated Spring Return Valves



Operating Force: 7 lbs (31N)

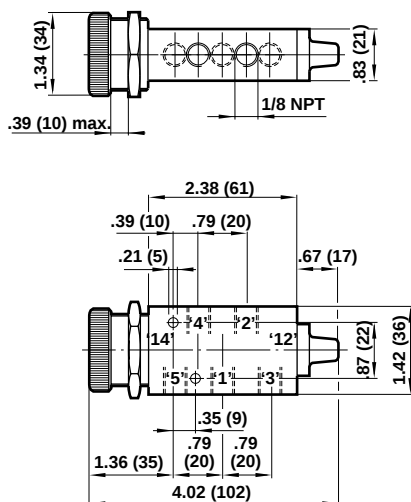
These valves are suitable for panel mounting.

Panel Hole: Ø1.26" (32.1 mm)

Panel Thickness: .24" (6 mm) maximum

X3 0454 22, X3 0455 22, X3 0456 22

1/8" NPT 5/2 Button (Shrouded) Operated Spring Return Valves



Operating Force: 12 lbs (54N)

These valves are suitable for panel mounting.

Panel Hole: Ø1.22" (31 mm)

Panel Thickness: .39" (10 mm maximum)

Replacement Button

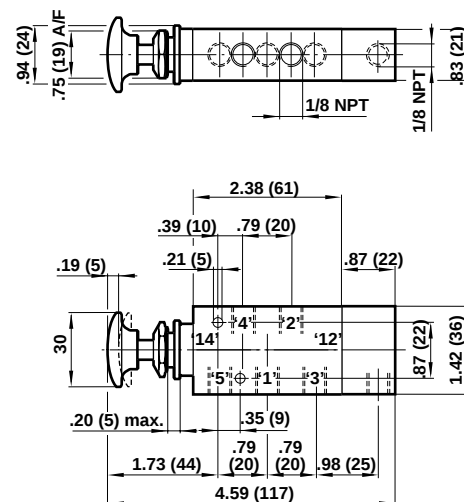
Red - part number: 03041661

Green - part number: 03041561

Black - part number: 03041463

X3 0448 22, X3 0460 22, X3 0461 22

1/8" NPT 5/2 Button (Palm) Operated Pilot Return Valves



Operating Force: 5 lbs (22N), pilot port '12' at zero bar

Reset Pressure: 30 psi (2 bar) minimum

These valves are suitable for panel mounting by means of an optional nut and washer, reference 03 0430 00; a shrouded panel mounting kit is also available, reference 03 0429 00.

Panel Hole: Ø.59" (15 mm); Panel Thickness: .20" (5 mm) maximum

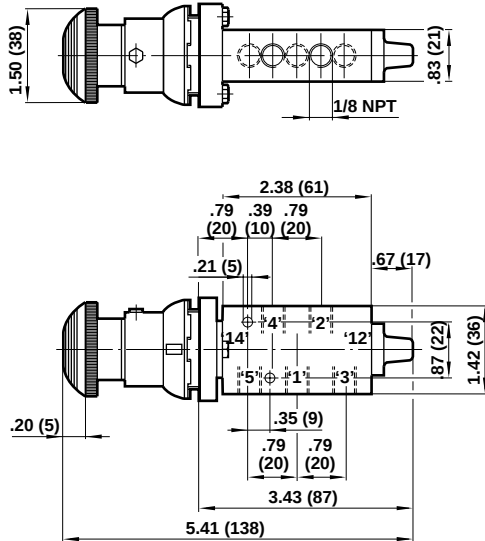
Super X Series Valves

All Dimensions in Inches (mm)



X3 0468 22

1/8" NPT 5/2 Button (Palm) Operated Twist Return Valve (Emergency Stop)



Operating Force: 4 lbs (18N)

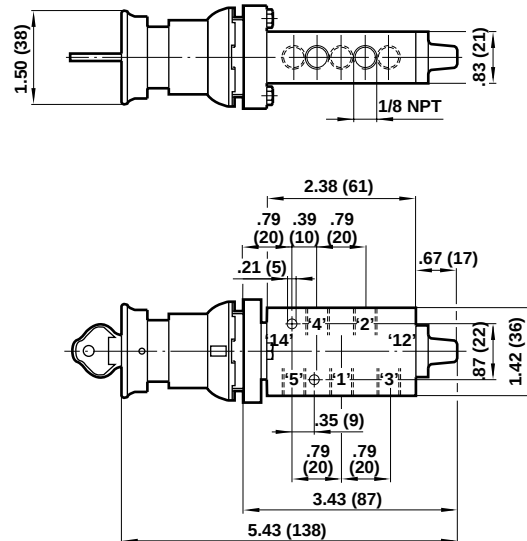
Valve latches when button is depressed and returns when the locking ring is rotated anti-clockwise.

This valve is suitable for panel mounting.

Panel Hole: Ø1.26" (32.1 mm); Panel thickness: .31" (8mm) maximum

X3 0375 22

1/8" NPT 5/2 Button (Palm) Operated Key Return Valve



Operating Force: 12 lbs (54N)

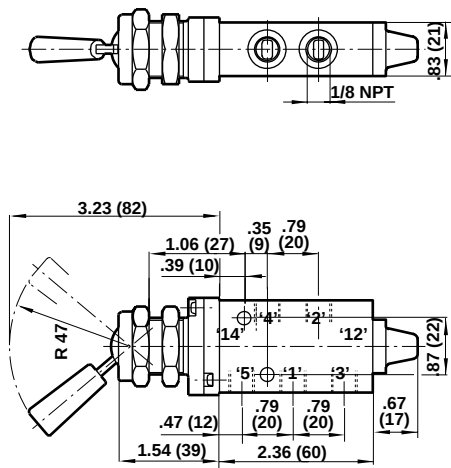
Valve latches when button is depressed. To reset, turn key. This valve is suitable for panel mounting.

Panel Hole: Ø1.26" (32.1 mm)

Panel Thickness: .24" (6 mm) maximum

X3 0296 22

1/8" NPT 5/2 Lever Operated Lever Return Valve



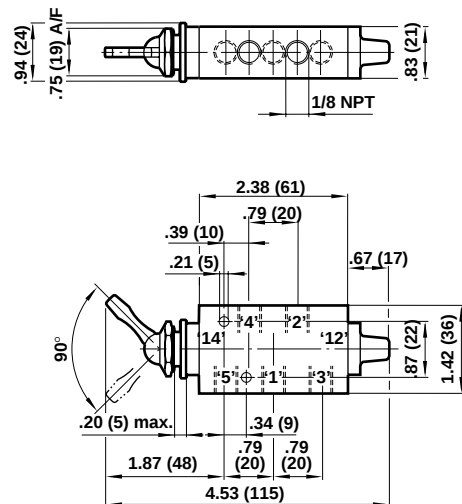
Operating Force: 3 lbs (13N)

This valve is suitable for panel mounting.

Panel Hole: .89" (22.5 mm); Panel Thickness: .24" (6 mm) maximum

X3 0443 22

1/8" NPT 5/2 Lever Operated Spring Return Valve



Operating Force: 11 lbs (48N)

This valve is suitable for panel mounting. A fingertip extension is available for use on this valve, reference 07 0033 01.

Panel Hole: Ø.59" (15 mm); Panel thickness: .20" (5 mm) maximum

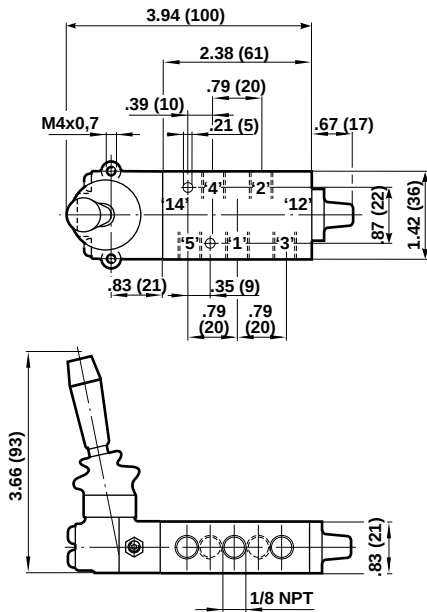


Super X Series Valves

All Dimensions in Inches (mm)

X3 0478 22, X3 0477 22

1/8" NPT 5/2 Lever Operated Valves



Operating Force: X3 0478 22 = 3.6 lbs (16N)

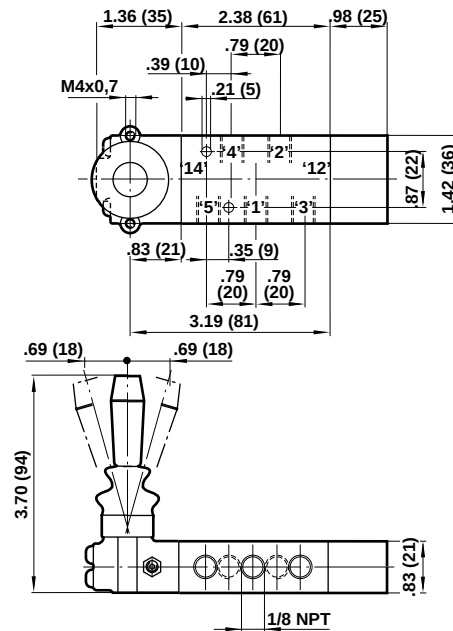
X3 0477 22 = 3 lbs (13N)

Both models are suitable for panel mounting by means of a bezel kit, reference 03 3437 64.

Panel Hole: Ø.94" (24 mm); Panel Thickness: .31" (8 mm) maximum

X3 3438 22, X3 3478 22, X3 3437 22, X3 3477 22 1/8"

NPT 5/2 Three Position Lever Operated Valves



Operating Force: X3 3438 22 and X3 3478 22 = 3.4 lbs (15N)

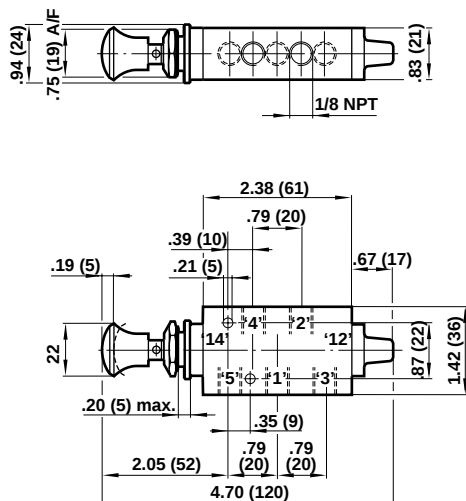
X3 3437 22 and X3 3477 22 = 3 lbs (12N)

All models are suitable for panel mounting, by means of a bezel kit, reference 03 3437 64.

Panel Hole: Ø.94" (24 mm); Panel Thickness: .31" (8mm) maximum

X3 0465 22

1/8" NPT 5/2 Knob Operated Knob Return Valve



Operating Force: 5 lbs (22N)

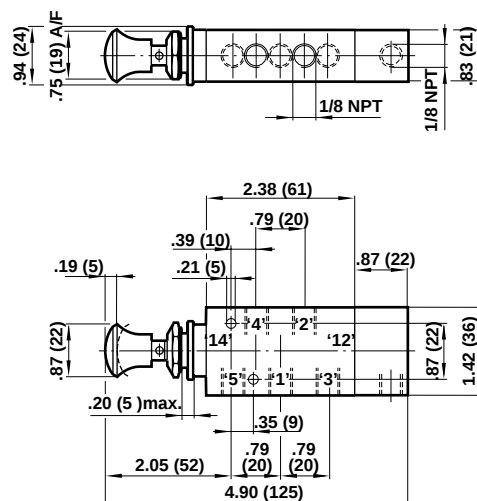
This valve is suitable for panel mounting by means of an optional nut and washer, reference 03 0430 00.

Panel Hole: Ø.59" (15 mm)

Panel thickness: .20" (5mm) maximum

X3 0464 22

1/8" NPT 5/2 Knob Operated, Knob or Pilot Return Valve



Operating Force: 5 lbs (22N)

Reset Pressure: 30 psi (2 bar) minimum

This valve is suitable for panel mounting by means of an optional nut and washer, reference 03 0430 00.

Panel Hole: Ø.59" (15 mm)

Panel thickness: .20" (5mm) maximum

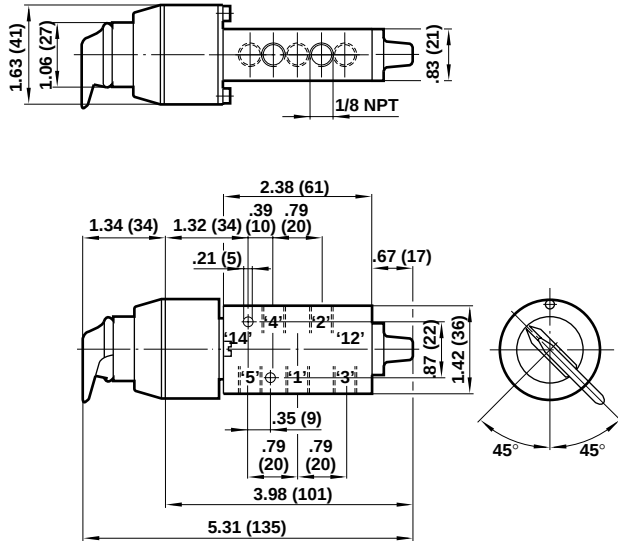
Super X Series Valves

All Dimensions in Inches (mm)



X3 0459 22

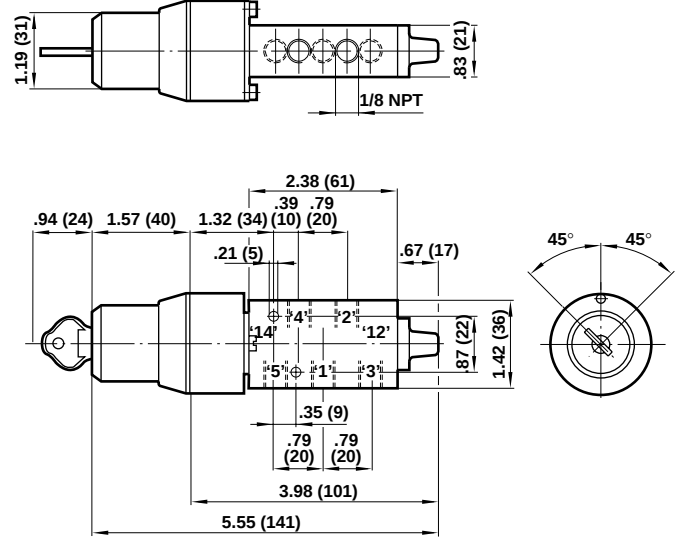
1/8" NPT 5/2 Rotary Knob Operated Knob Return Valve



Switch shown in non-operated position.
This valve is suitable for panel mounting.
Panel Hole: Ø1.26" (32 mm); Panel Thickness: .24" (6 mm) maximum

X3 0458 22 801

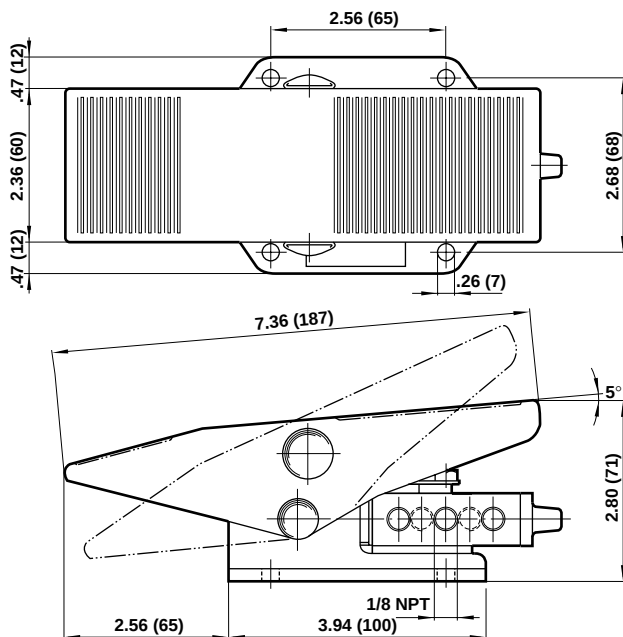
1/8" NPT 5/2 Key Operated Key Return Valve



The key is removable in both positions. Key slot shown in non-operated position. Two keys are supplied.
This valve is suitable for panel mounting.
Panel Hole: Ø1.26" (32 mm); Panel Thickness: .24" (6 mm) maximum

X3 0482 22

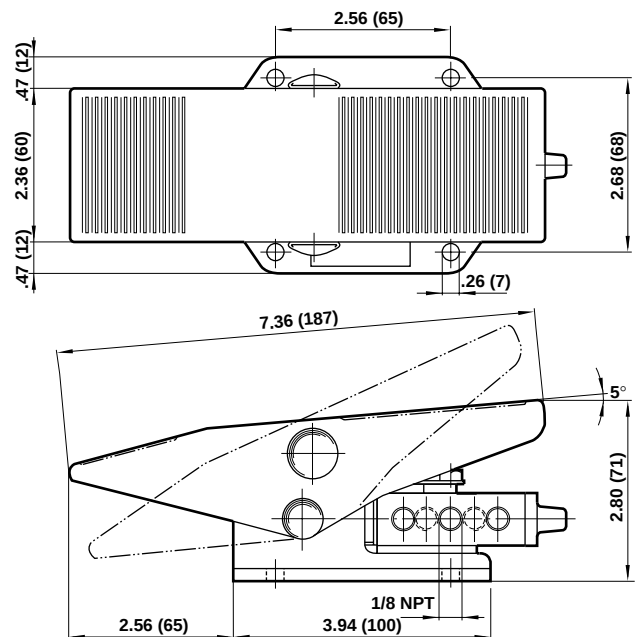
1/8" NPT 5/2 Pedal Operated Spring Return Valve



Operating Force: 5 lbs (22N)
A foot guard is available for this valve, reference
03 0480 60.

X3 0484 22

1/8" NPT 5/2 Pedal Operated Pedal Return Valve



Operating Force: 5 lbs (22N)
A foot guard is available for this valve, reference
03 0480 60.

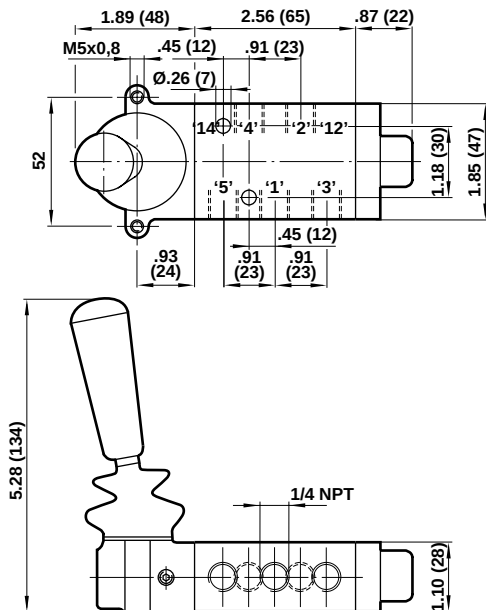


Super X Series Valves

All Dimensions in Inches (mm)

03 0638 22, 03 0637 22

1/4" NPT 3/2 Lever Operated Valves



Operating Force: 03 0638 22 = 5 lbs (15N)

03 0637 22 = 3 lbs (13N)

Model 03 0637 02 features a positive detent in each position.

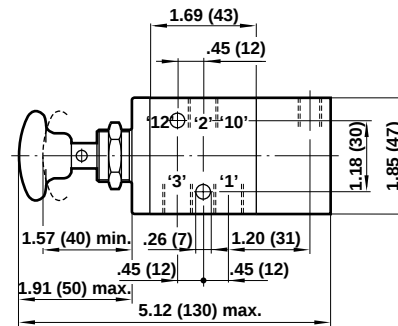
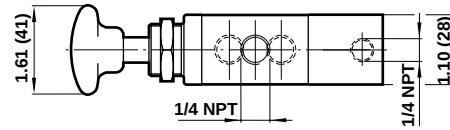
Both Models are suitable for panel mounting by means of a bezel kit, reference 03 3637 64.

Panel Hole: Ø1.22" (31 mm);

Panel Thickness: .31" (8 mm) maximum

03 0608 22

1/4" NPT 3/2 Button Operated Pilot Return Valve



Operating Force: 3 lbs (13N), pilot port '10' at zero bar

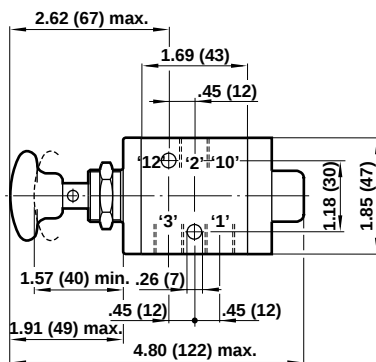
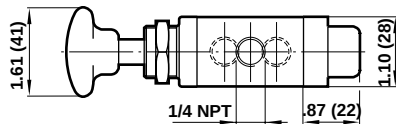
Reset Pressure: 30 psi (2 bar) minimum

This valve is suitable for panel mounting and includes a nut and washer.

Panel Hole: Ø.83 (21 mm); Panel thickness: .31 (8 mm) maximum

03 0604 22

1/4" NPT 3/2 Button Operated Spring Return Valve



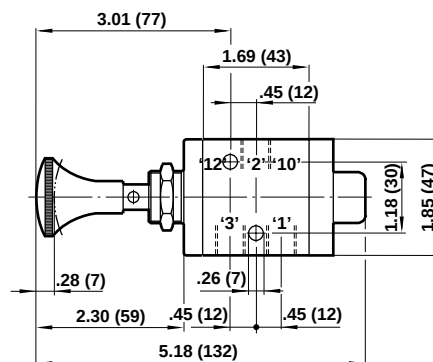
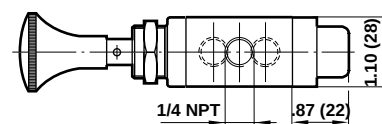
Operating Force: 12lbs (53N)

This valve is suitable for panel mounting and includes a nut and washer.

Panel Hole: Ø.83" (21 mm); Panel Thickness: .31" (8 mm) maximum

03 0625 22

1/4" NPT 3/2 Knob Operated Knob Return Valve



Operating Force: 3 lbs (13N)

This valve is suitable for panel mounting and includes a nut and washer.

Panel Hole: Ø.83" (21 mm); Panel Thickness: .31" (8 mm) maximum

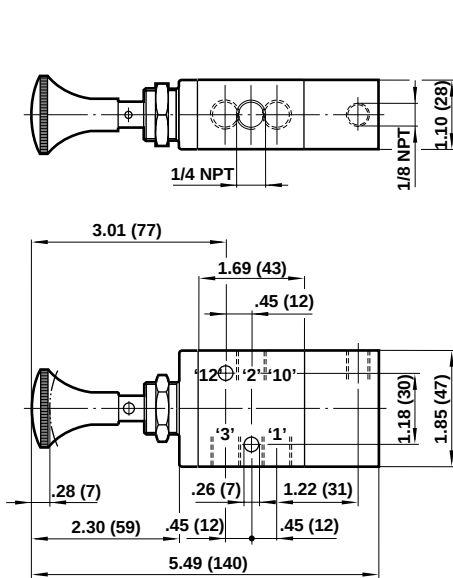
Super X Series Valves

All Dimensions in Inches (mm)



03 0627 22

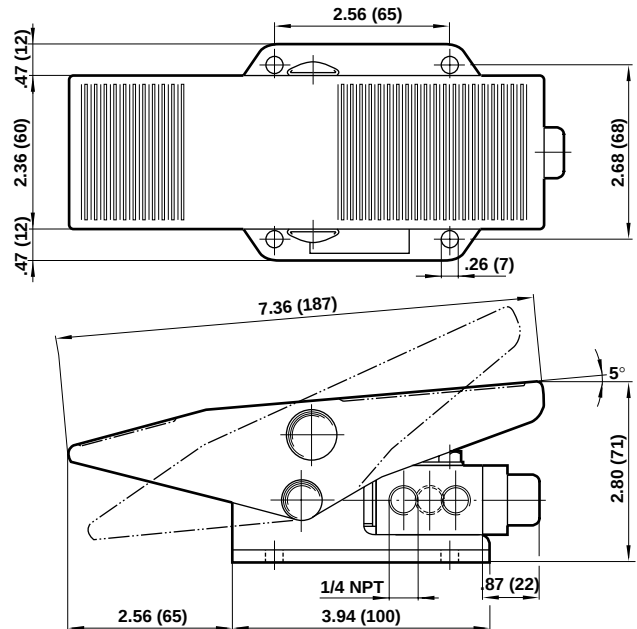
1/4" NPT 3/2 Knob Operated, Knob or Pilot Return Valve



Operating Force: 3 lbs (13N)
 Reset Pressure: 58 psi (4 bar) minimum
 This valve is suitable for panel mounting and includes a nut and washer.
 Panel Hole: Ø.53" (21 mm); Panel Thickness: .31" (8 mm) maximum

03 0681 22

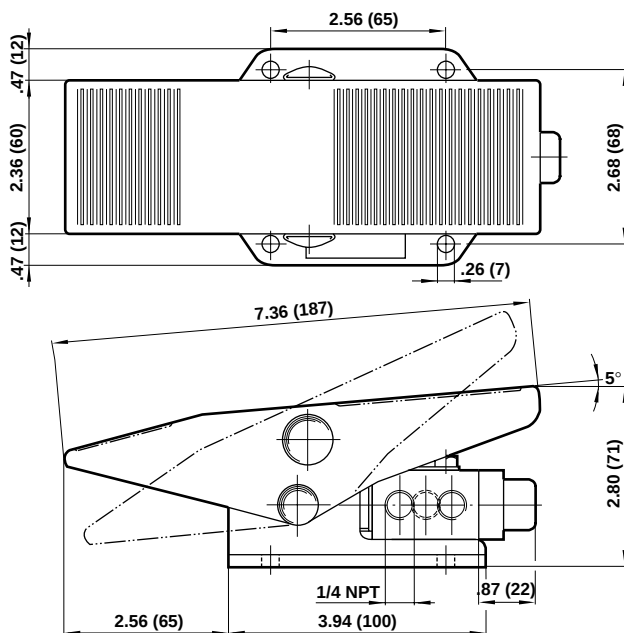
1/4" NPT 3/2 Pedal Operated Spring Return Valve



Operating Force: 5 lbs (22N)
 A foot guard is available for this valve, reference
 03 0480 60.

03 0683 22

1/4" NPT 3/2 Pedal Operated Pedal Return Valve



Operating Force: 5 lbs (22N)
 A foot guard is available for this valve, reference
 03 0480 60.

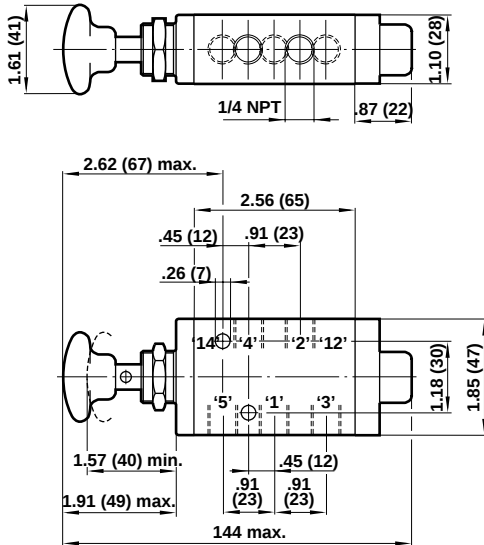


Super X Series Valves

All Dimensions in Inches (mm)

X3 0644 22

1/4" NPT 5/2 Button Operated Spring Return Valve



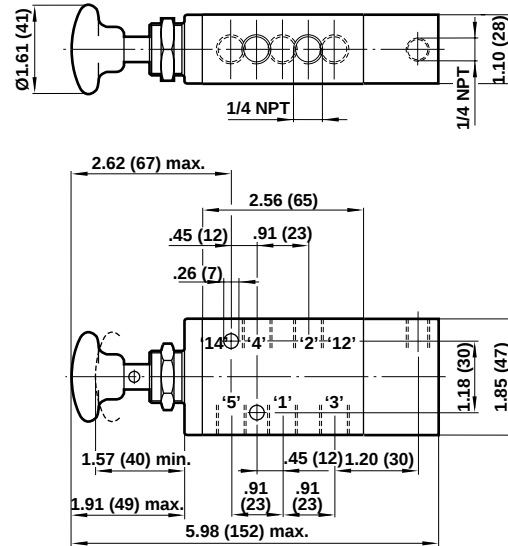
Operating Force: 14 lbs (62N)

This valve is suitable for panel mounting and includes a nut and washer.

Panel Hole: Ø.83" (21 mm); Panel Thickness: .31" (8 mm) maximum

X3 0648 22

1/4" NPT 5/2 Button Operated Pilot Return Valve



Operating Force: 3 lbs (13N), pilot port '12' at zero bar

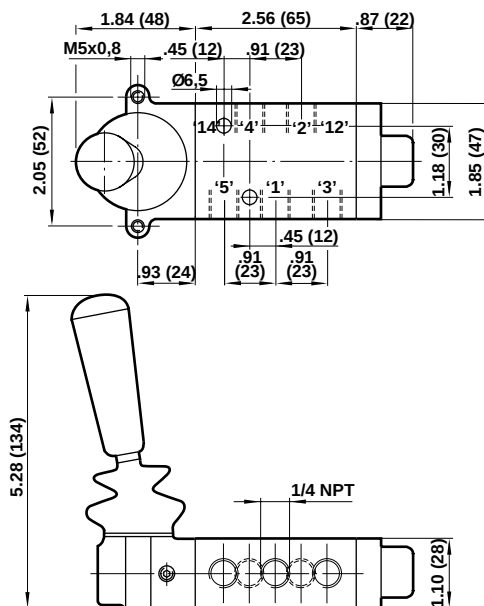
Reset Pressure: 30 psi (2 bar) minimum

This valve is suitable for panel mounting and includes a nut and washer.

Panel Hole: Ø.83" (21 mm); Panel thickness: .31" (8mm) maximum

X3 0678 22, X3 0677 22

1/4" NPT 5/2 Lever Operated Valves



Operating Force: X3 0678 22 = 3.4 lbs (15N)

X3 0677 22 = 3 lbs (13N)

Model X3 0677 02 features a positive detent in each position.

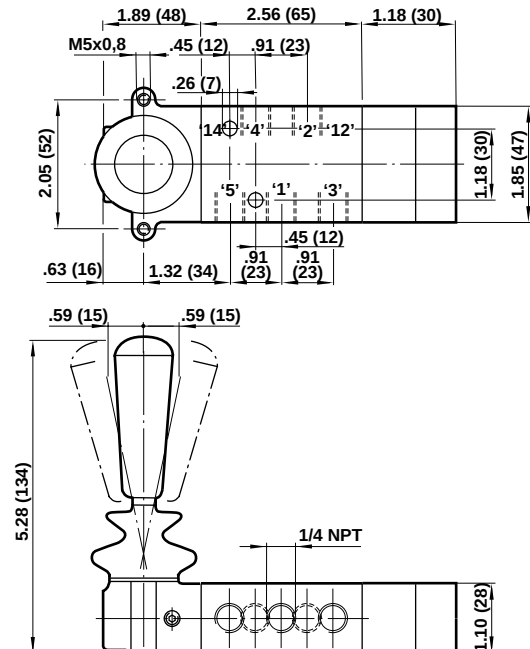
Both models are suitable for panel mounting by means of a bezel kit, reference 03 3637 64.

Panel Hole: Ø1.22" (31 mm);

Panel Thickness: .31" (8 mm) maximum

X3 3638 22, X3 3678 22, X3 3637 22, X3 3677 22

1/4" NPT 5/3 Three Position Lever Operated Valves



Operating Force: X3 3638 22 & X3 3678 22 models = 3.4 lbs (15N)

X3 3637 22 & X3 3677 22 models = 3 lbs (12N)

These valves are suitable for panel mounting by means of a bezel kit, reference 03 3637 64.

Panel Hole: Ø1.22" (31 mm)

Panel Thickness: .31" (8 mm) maximum

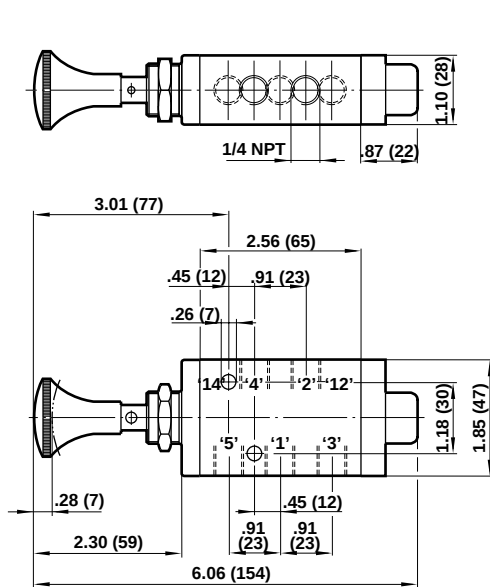
Super X Series Valves

All Dimensions in Inches (mm)



X3 0665 22

1/4" NPT 5/2 Knob Operated Knob Return Valve

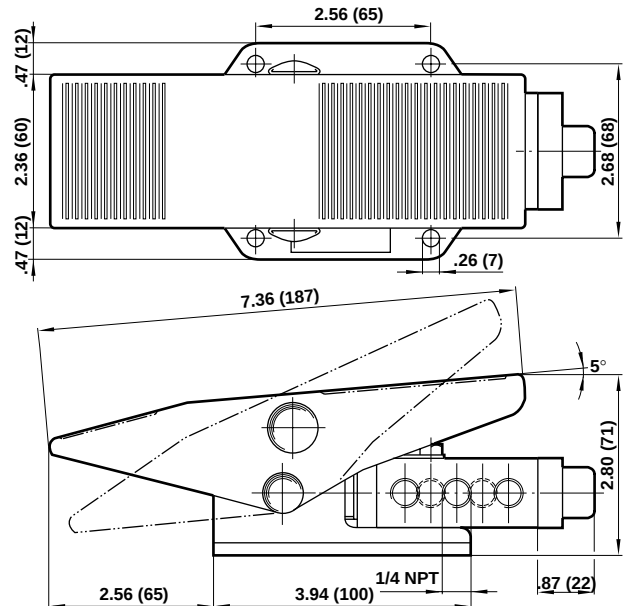


Operating Force: 3 lbs (13N)

This valve is suitable for panel mounting and includes a nut and washer.
Panel Hole: Ø.83" (21 mm); Panel Thickness: .31" (8 mm) maximum

X3 0682 22

1/4" NPT 5/2 Pedal Operated Spring Return Valve

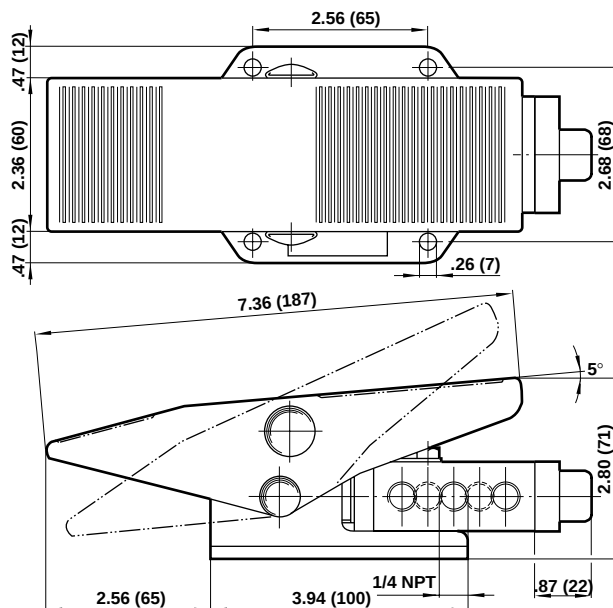


Operating Force: 5 lbs (22N)

A foot guard is available for this valve, reference
03 0480 60

X3 0684 22

1/4" NPT 5/2 Pedal Operated Pedal Return Valve



Operating Force: 5 lbs (22N)

A foot guard is available for this valve, reference
03 0480 60

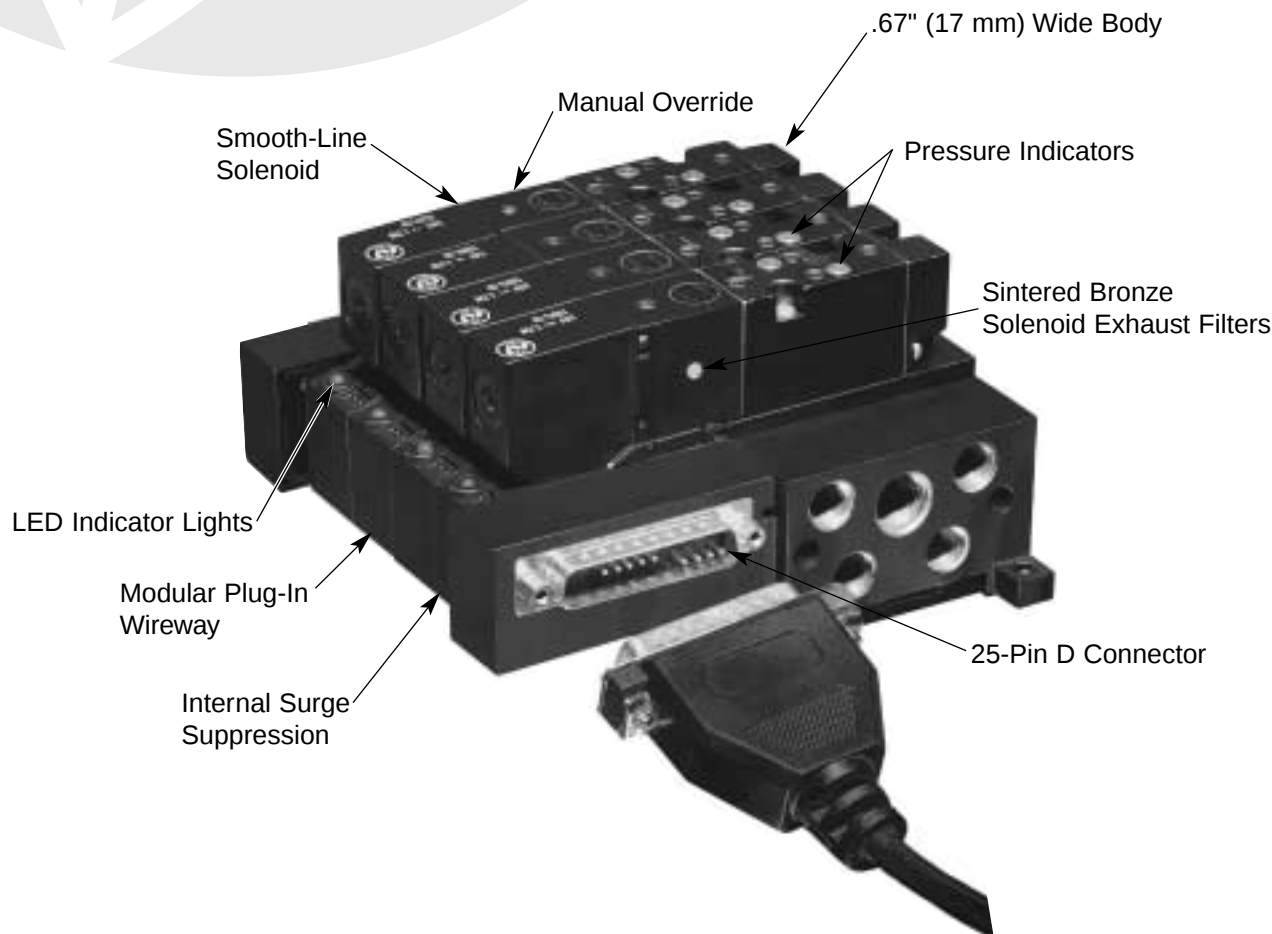
Nugget 40 Series Valves

5 port/2-position, compressed air, directional control, thin-lip spool valve with plug-in wireway

Contents

Features and Benefits	VAL-8-2
Technical Data	VAL-8-4
Inline V08 Valves	VAL-8-5
Subbase Mounted V09 Valves	VAL-8-8
V08 and V09 Manifold Ordering Information.....	VAL-8-12
Valve Manifold Dimensions	VAL-8-13
Components and Accessories	VAL-8-20
Repair Parts and Kits	VAL-8-24
Valve Product Numbering System	VAL-8-25

Nugget 40 with Plug-In Wireway and 25-Pin D Connector





Nugget 40 Series Valves

The Nugget 40 Valve is ideally suited for applications designed around low cost PC's coupled with small electro-pneumatic interface modules. Its high flow (C_V Of 0.4) and compact profile .67" (17 mm) make it ideal for the limited space available in today's control cabinets.

Two Year Unconditional Warranty

All Nugget 40 valves are warranted to be free from defects for a full two years from the date of purchase. This extended warranty period provides users with a valuable guarantee of quality and service.

Compact Dimensions

Valves are a slim .67" (17 mm) wide and 4.02" (102 mm) long in a single solenoid pilot configuration.

Pre-lubricated for Life

On assembly, every Nugget 40 spool is pre-lubed for the life* of the valve. This allows non-lubricated air service.

* (Approximately 20 million cycles with lubricated air service. Non-lubricated air will reduce the number of cycles.)

High-flow Design

Improvements to body and base design combine to substantially increase flow. Base galleries linked to the zinc die cast body combine with deep cavities to provide flow levels comparable to much larger 1/8" NPT size valves. Inline valves have a C_V of 0.26 and subbase valves have a C_V of 0.41.

Thin Lip Seal Spool

Norgren Nugget 40 valves feature a lightweight, one-piece aluminum spool and nitrile seal assembly. The one piece spool and seal assembly is easily serviced, resulting in cost savings during maintenance. Durable low friction lip seals are designed to operate with lubricated or non-lubricated air, and can be used for multi-pressure applications.

Port and Operator Identification

Each of the ports is identified by a permanent number adjacent to the port on the body or subbase. In addition, a two-digit number at each end of the valve body indicates the ports connected when the operator is actuated. Port and operator identification on all Nugget 40 valves comply with ANSI/(NFPA) T3.21.15-1989.

DIN Rail Mounting

Nugget 40 manifolds and subbases can be mounted to DIN rails; OEM's building machines for export can take advantage of this feature.

Quality Appearance

Norgren's matt black color gives any control circuit installation a quality appearance, reflecting the superior operating capability built into every Nugget 40 Valve.

Sintered Bronze Solenoid Pilot Exhaust Filters

Solenoid pilot internal parts are protected by a built-in sintered bronze solenoid pilot exhaust filter.



Operator Options

Solenoid pilot and air pilot operators are available for primary actuation and secondary return operation. Air assisted spring return operators are also available for return operation.

Rotatable Connector and Coil

The standard cable grip connector can be rotated in 90° increments, and the solenoid pilot coil can be turned in increments of 180°, making the operators adaptable for easy installation.

Electrical Connector Options

Options include a 10-foot, three-conductor, molded cable with or without LED and surge protection. See Product Numbering System on page VAL-8-25 for specifics on optional electrical connector availability.

Valve Accessories

Saddle Blocks are used with inline valves on modular or fixed length manifolds. They increase the flow of the inline valve up to $C_V = 0.35$, and allow the user to replace the valve without disturbing the plumbing. 1/4", 5/32", or 6 mm cartridge push-in fittings are used.

Pressure Indicators, standard on saddle blocks and subbase valves, show which cylinder port is pressurized for increased diagnostic capability.

Blanking plates are available for covering unused stations on inline and subbase manifolds.

Dual sandwich speed control is mounted between the subbase valve and subbase and is used to meter exhaust flow for cylinder speed control.



Five Mounting Styles Available

Inline Valves have mounting holes running through the valve body. Two versions are offered: a compact 10-32 UNF or an M5 ported body. Inline valves can be bolted to a surface or may be supported by connecting pipe.

Inline, Fixed Length Manifolds allow the installation of inline valves on a competitively priced common manifold. For quick installation, valves are attached to the manifold with two Phillips head screws. Valves share common supply and exhaust galleries in the manifold. Inlet and exhaust ports are available in either 1/8" PTF or ISO G.

Inline, Modular Manifolds can also be used to mount inline valves and provide common inlet and exhaust porting. These manifolds are made of glass-filled nylon, and are extremely lightweight. Additionally, this is a modular design which allows the user to add a station to the manifold for future expansion. These manifolds are also available for optional wireway mounting, and available in either 3/8" or 8 mm inlet and exhaust ports.

A **Single Subbase Valve** is attached to a single subbase with two socket head cap screws, providing easy installation and removal. Inlet, exhaust, external pilot supply, and cylinder ports are located on the sides of the subbase. Inlet and cylinder ports are available in either 1/4" or 6 mm O.D. tube sizes. Exhaust ports are available in either 1/8" PTF or ISO G.

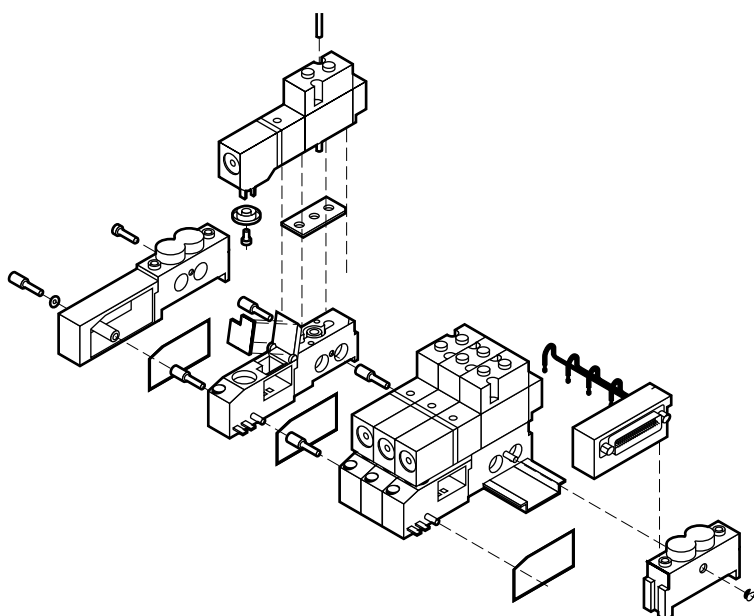
Subbase, Modular Manifolds attach with two socket head cap screws, which reduces the potential of leaks and allows quick assembly of valve stations. Common inlet and exhaust ports and common external pilot supply ports are located in the end plates, and cylinder ports are located in the ends of the subbases. Inlet ports are available in either 1/4" PTF or ISO G. Exhaust and cylinder ports are available in either 1/8" PTF or ISO G. These manifolds are available for optional wireway mounting.

Nugget 40 Wireway Features

Nugget 40 wireways are available with a 25-Pin D Connector, 1" conduit electrical connection, or a Round IP65 connector. All share the following cost and work saving features:

- The **single wire** for each solenoid pilot means lower installation cost and easier trouble shooting.
- Wireways feature **modular circuit boards** with solid state design. The boards plug into each other providing for up to a 16-station manifold.
- **Surge suppression and LED indicators** are standard on all wireway modules.
- **24 VDC Diagnostic/ Power Saving Option** senses complete solenoid pilot plunger travel. LED's turn amber if a fault is detected. Coils run cooler due to 50% power reduction upon actuation. All these add up to simplified trouble shooting, less downtime, and a more efficient valve stack.
- Nugget 40 offers a **1" conduit** version which is rated IP 65. Terminal connectors are made with WAGO® Quick Clips for reduced installation time.
- Low **1.7 Watt coils** consume less power and generate very little heat. These coils allow users to operate equipment more efficiently and safely.
- Nugget 40 wireways offer a **wide range of voltages** including: 12VDC, 24 VDC, 110-120V 50/60 Hz, 220-240V 50/60Hz.

Exploded View of a Nugget 40 with Plug-in Wireway and 25-Pin D Connector





Nugget 40 Series Valves

Technical Data

Fluids: Filtered and lubricated or non-lubricated compressed air

Operation: Thin lip spool valve, air pilot or solenoid pilot actuated

Inlet Pressure Ranges

Solenoid Pilot Operated Valves* –

With Internal Pilot Supply:

44 to 150 psig (3 to 10.3 bar)

With External Pilot Supply:

26" Hg to 150 psig (26" Hg to 10.3 bar)**

Air Pilot Operated Valves:

26" Hg to 150 psig (26" Hg to 10.3 bar)**

* Solenoid pilot operators must be externally piloted if the supply pressure to the main valve is below the minimum pilot pressure listed in the table below.

** With vacuum source plumbed to an exhaust port, and 135 psig (9.3 bar) maximum at inlet port.

Operating Pilot Pressures

Maximum Pressure: 150 psig (10.3 bar)

Minimum Pilot Pressures

14 End Primary Operator	12 End Secondary Return Operator	Minimum Operator Pressure psig (bar)
Air Pilot	Air pilot	29 (2.0)
Large Air pilot	Small Air pilot	22 (1.5) at 1 4 end 44 (3.0) at 1 2 end
Air pilot	Air pilot-Assisted spring	44 (3.0)
Solenoid pilot	Solenoid pilot	29 (2.0)
Solenoid pilot**	Air pilot-assisted spring	44 (3.0)

Pressure Indicators –

Minimum indicator pressure: 44 psig (3 bar)

Operating Temperatures –

Air Pilot Operated Valves: -4°F to 176°F (-20°C to 80°C)†

Solenoid Pilot Operated Valves: 20°F to 122°F
(-6°C to 50°C)

† With a dew point of supply air less than air temperature below 35°F (2°C)

Port Size

In-line: 10-32 UNF, M5

Inline, Fixed Length Manifold: 1/8" PTF or ISO G.

Inline, Modular Manifold: 3/8" or 8 mm O.D. tube inlet and exhaust ports.

Saddle Block: 1/4", 5/32", 4 and 6 mm O.D tube.

Single Subbase Version A - 1/8" PTF or ISO G exhaust ports, 1/4" or 6 mm O.D. tube inlet and cylinder ports.

Single Subbase Version B - 1/8" NPT inlet, exhaust, and cylinder ports.

Subbase, Modular Manifold: 1/4" PTF or ISO G inlet port, 1/8" PTF or ISO G cylinder and exhaust ports.

Mounting

In-line valve: through-holes in valve body

Subbase valve: through holes to subbase and manifold

Manifold Mounted: through holes in end plate or to a 35 mm DIN rail

Average Flow Factor (C_v)*

In-line Mounted

10-32 UNF or M5 ports: C_v .26

5/32" or 4 mm saddle block: C_v .23

1/4" or 6 mm saddle block: C_v .35

Subbase mounted: C_v 0.41

*Flow rating determined in accordance with ANSI/NFPA/T3.21.3, Pneumatic Fluid Power Flow Test Procedure and Reporting Method, for fixed orifice components.

Solenoid Pilot Operator Specifications

Duty: Continuous at 90 to 110% of rated voltage.

Coil Type: Molded with three-pin electrical plug-in connector. 8 mm pin spacing conforms to DIN 43650, Form C.

Electrical Plug-in Connector: Cable grip for cables up to 7/32" (5.6 mm) in diameter or with 10-ft molded cable.

Enclosure Classification: NEMA 4, DIN 40050-IP65

Wireway Enclosure Classification –

25-Pin D Connector: NEMA 1

1" Conduit Connector: IP65, NEMA 4

Round Connector: IP65

Override: Non-locking or combination.

Materials of Construction

Valve Materials –

Body, air pilot, return operator: Zinc

Spool: Aluminum

Elastomers: Nitrile

Solenoid pilot operator–

Base: PPS Plastic

Plunger and Spring: Stainless Steel

Coil Housing: Epoxy thermoset

Subbase Materials –

Inline, Modular Manifold: Glass filled nylon

Inline, Fixed Length Manifold: Aluminum

Subbase, Modular Manifold: Aluminum and zinc

Elastomers: Nitrile

Wireway Materials –

Modules and end plates: Glass filled nylon

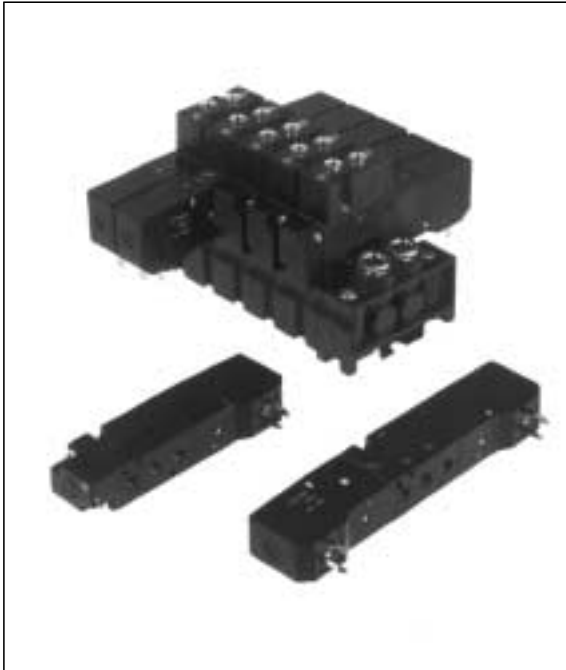
Conduit end plate: Zinc

Response Times* @ 132 psig (9 bar)			
Type		mSec	
Inline	Sol pilot/Air pilot Assisted Sprg	20	22
	Sol pilot/Sol pilot	20	20
Subbase	Sol pilot/Air pilot Assisted Sprg	18	16
	Sol pilot/Sol pilot	18	18

*Response times are based on 50% rise/fall of inlet pressure at outlet port.

Nugget 40 Series Valves

5-Port/2-Position Inline V08 Valves



- .67" (17mm) wide body
- High-flow, thin lip spool technology
- Built-in low power solenoids
- Modular base system for DIN rail (35 mm) mounting
- Available with common wireway

Order Information

Valves listed in the table below include 10-32 UNF threads, air assisted spring, pressure or solenoid return, 110-120V 50/60 Hz, non-locking override, internal pilot and cable grip connector. For other options see Valve Product Numbering System on pp. VAL-8-25.

Symbol	Model Number	14 End Operator	Valve Function*	12 End Return	Weight lbs. (kg)
	V08N516A-B318B	Solenoid Pilot	—	Air Assisted Spring	.35 (.16)
	V08N511A-B318B	Solenoid Pilot	—	Solenoid Pilot	.44 (.20)
	V08N536A-X0130	Air Pilot	—	Air Assisted Spring	.33 (.15)
	V08N533A-X0020	Air Pilot	—	Air Pilot	.31 (.14)
	V08N511P-B318A**	Solenoid Pilot	—	Solenoid Pilot	.70 (.32)
	V08N611A-B318B	Solenoid Pilot	APB	Solenoid Pilot	.35 (.16)
	V08N711A-B318B	Solenoid Pilot	COE	Solenoid Pilot	.35 (.16)
	V08N811A-318B	Solenoid Pilot	COP	Solenoid Pilot	.35 (.16)
	V08N633A-X0020	Air Pilot	APB	Air Pilot	.26 (.12)
	V08N733A-X0020	Air Pilot	COE	Air Pilot	.26 (.12)
	V08N833A-X0060	Air Pilot	COP	Air Pilot	.26 (.15)

*Valve Function Designations: APB = All Ports Blocked, COE = Center Open Exhaust, COP = Center Open Pressure

**Double solenoid valve for wireway application (two manifold stations required).

NOTE: All wireway solenoid valve numbers must end with an "A", signifying no connector, e.g. V08N516A-B318A.

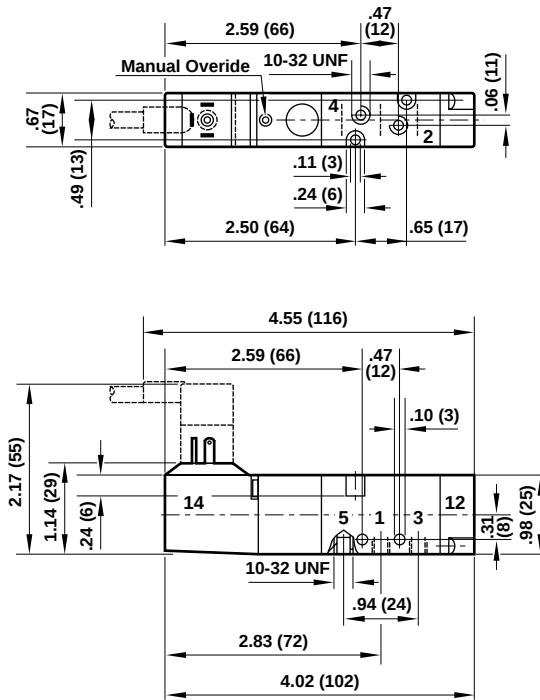


Nugget 40 Series Valves

All Dimensions in Inches (mm)

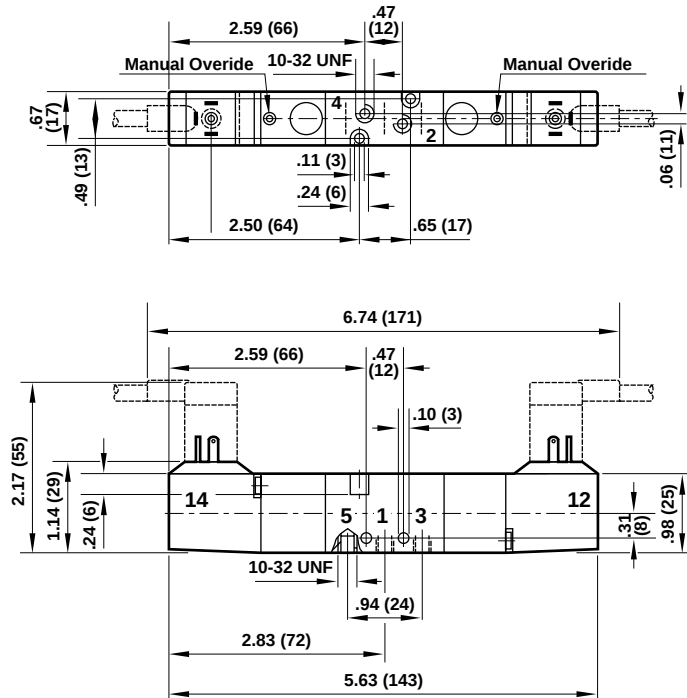
V08N516A-B318B

Single Solenoid Pilot, Air Assisted Spring Return



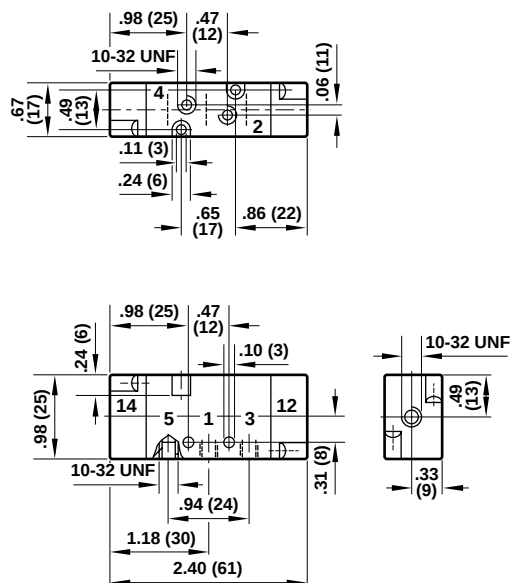
V08N511A-B318B

Double Solenoid Pilot



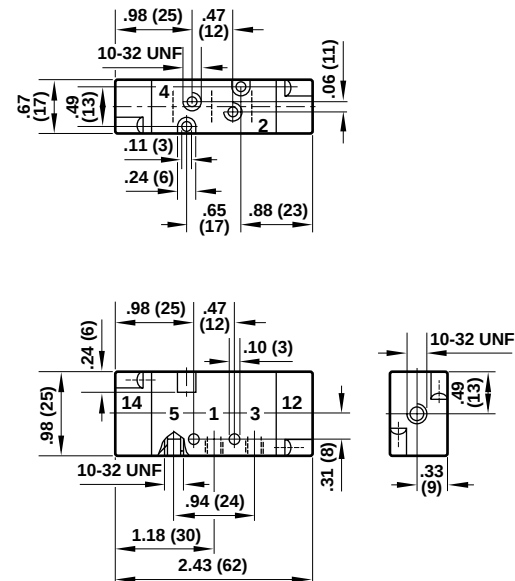
V08N536A-X0130

Air Pilot Operated, Air Assisted Spring Return



V08N533A-X0020

Double Air Pilot Operated



Nugget 40 Series Valves

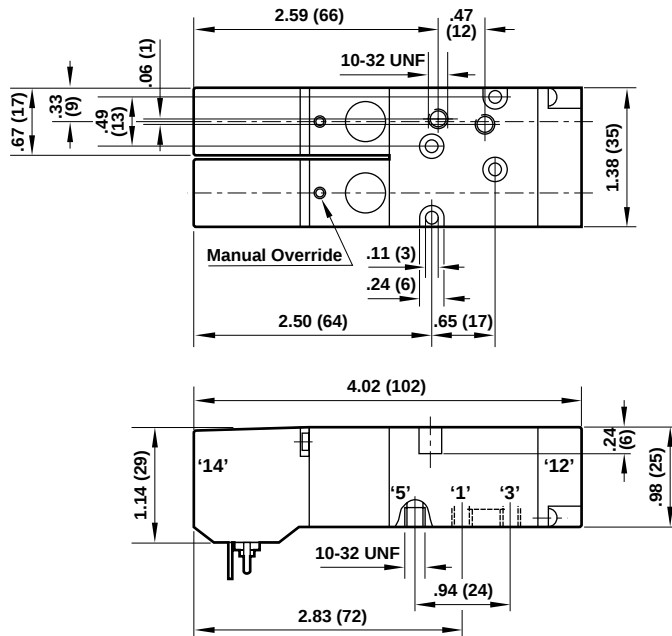
All Dimensions in Inches (mm)



V08N511P-B318A

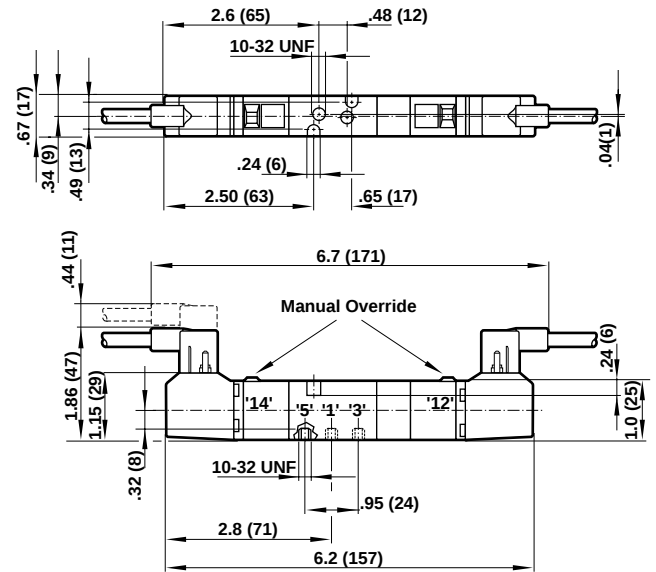
Double Solenoid Pilot Valve for Wireway Application

NOTE: Two manifold stations required.

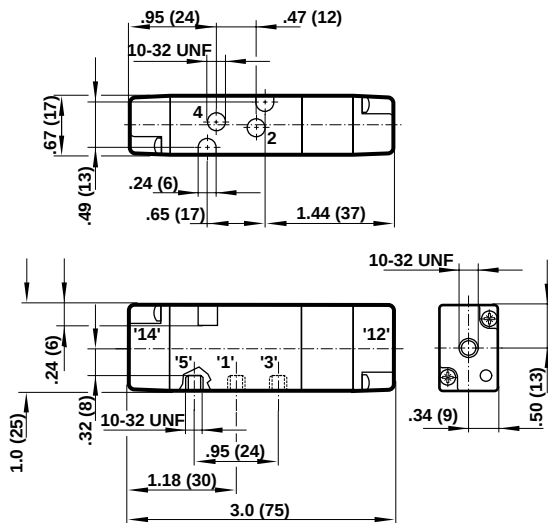


V08N611A-B318B

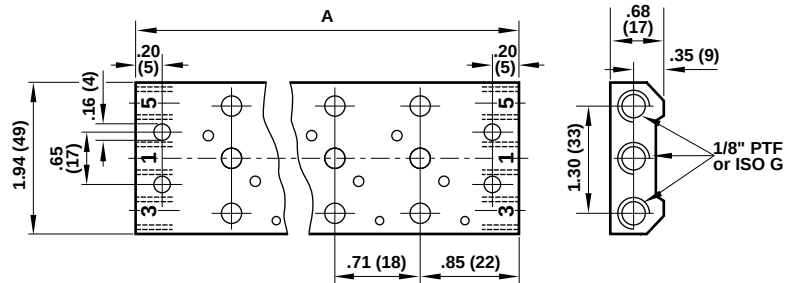
Double Solenoid Pilot Valve for Wireway Application



V08N*33A-X0020 Model 5/3 Double Pilot Valve



Inline, Fixed Length Manifold



Model Number		Number of Stations	A
1/8" PTF	1/8" ISO G		
V10026-N02	V10026-G02	2	2.28 (58)
V10026-N04	V10026-G04	4	3.70 (94)
V10026-N06	V10026-G06	6	5.12 (130)
V10026-N08	V10026-G08	8	6.54 (166)
V10026-N10	V10026-G10	10	7.95 (202)
V10026-N12	V10026-G12	12	9.37 (238)

NOTE: Gaskets and valve mounting screws are supplied with these manifolds

Ordering Example for Valves Assembled to a Fixed Length Manifold —

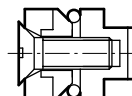
Provide the following information:

1. Manifold part number
2. Valve part number
3. Assembly charge

Example —

1 fixed length manifold, part number V10026-N02, consisting of two valves, part numbers V08N516A-B318B, and two assembly charges, part numbers 99 055 530 (2).

Multi-Pressure Plug
V10511-R01





- .67" (17 mm) wide body
- High-flow thin lip spool
- Built-in low power solenoids
- Optional DIN rail mounting
- Suitable for non-lubricated air supplies
- Available with common wireway



Order Information

Valves listed in the table are **less subbase**, with air assisted spring, pressure or solenoid return, 110-120V 50/60 Hz, non-locking override, internal pilot and cable grip connector. For other options see Valve Product Number System on pp. VAL-8-12/25.

Symbol	Model Number	14 End Operator	Valve Function*	12 End Return	Weight lbs. (kg)
	V096516A-B318B	Solenoid Pilot	—	Air Assisted Spring	.35 (.16)
	V096511A-B318B	Solenoid Pilot	—	Solenoid Pilot	.44 (.20)
	V096536A-X0130	Air Pilot	—	Air Assisted Spring	.33 (.15)
	V096533A-X0020	Air Pilot	—	Air Pilot	.31 (.14)
	V096533A-X0060	Large Air Pilot	—	Small Air Pilot	.31 (.14)
	V096511P-B318A**	Solenoid Pilot		Solenoid Pilot	.70 (.32)
	V096611A-B318B	Solenoid Pilot	APB	Solenoid Pilot	.44 (.21)
	V096711A-B318B	Solenoid Pilot	COE	Solenoid Pilot	.44 (.21)
	V096811A-B318B	Solenoid Pilot	COP	Solenoid Pilot	.44 (.21)
	V0966DDA-X0020	Air Pilot	APB	Pilot	.33 (.15)
	V0967DDA-X0020	Air Pilot	COE	Pilot	.33 (.15)
	V0968DDA-X0020	Air Pilot	COP	Pilot	.33 (.15)

*Valve Function Designations: APB = All Ports Blocked, COE = Center Open Exhaust, COP = Center Open Pressure

**Double solenoid valve for wireway application (two manifold stations required).

NOTE: All wireway solenoid valve numbers must end with a "A", signifying no connector, e.g. V08N516A-B318A.

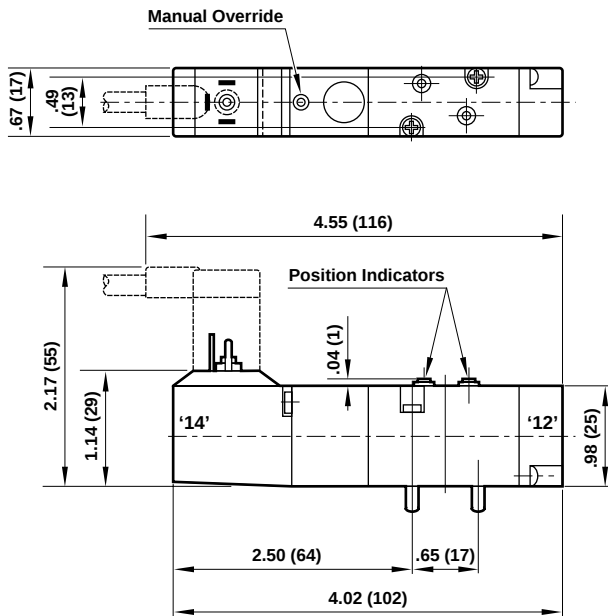
Nugget 40 Series Valves

All Dimensions in Inches (mm)



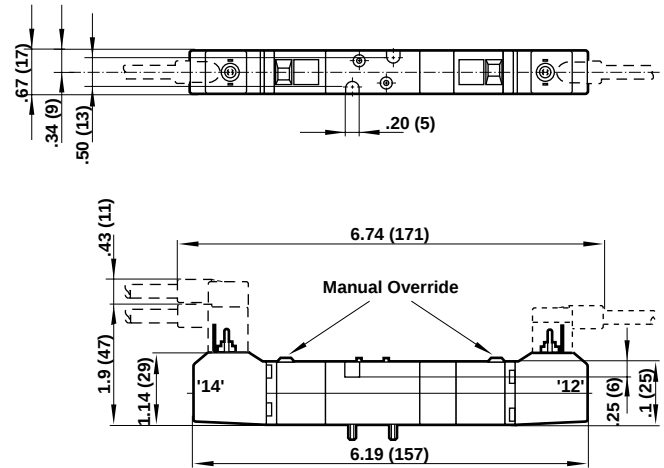
V096516A-B318B

Single Solenoid Pilot, Air Assisted Spring Return



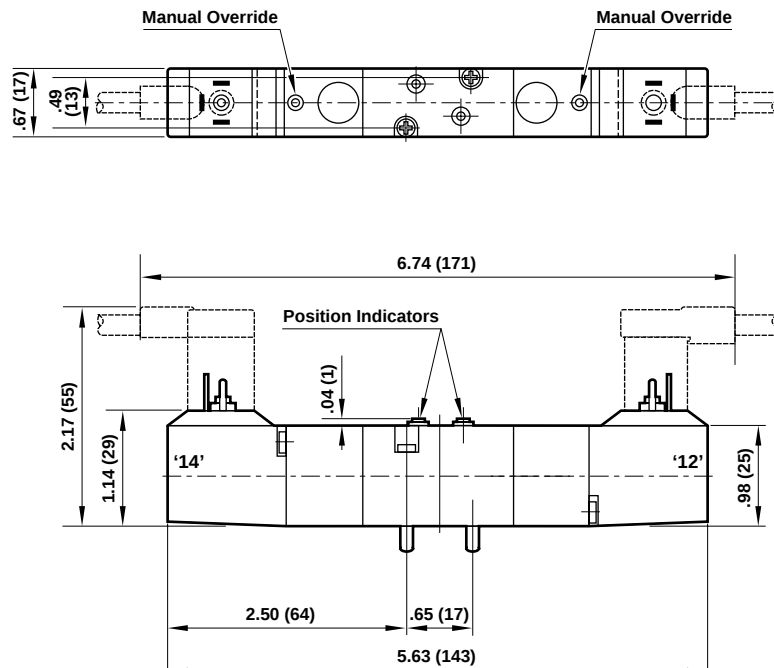
V096*11A-B318B Models

5/3 Double Solenoid Valve



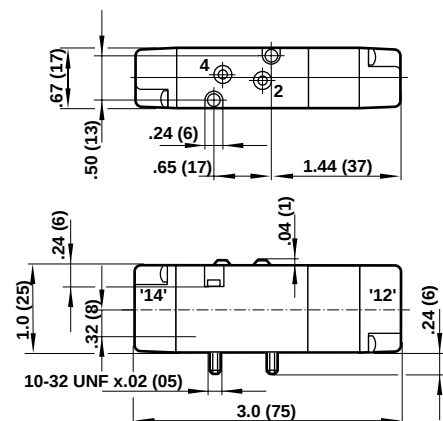
V096511A-B318B

Double Solenoid Pilot



V096*DDA-X0020 Model

5/3 Double Pilot Valve



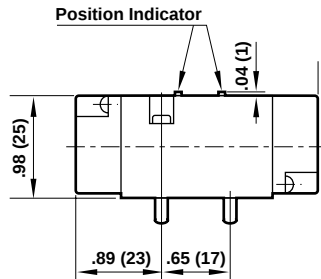
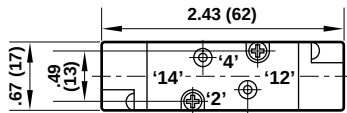


Nugget 40 Series Valves

All Dimensions in Inches (mm)

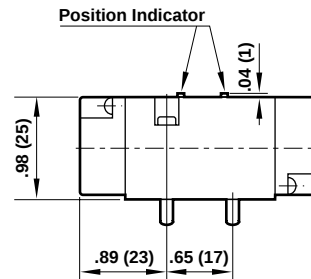
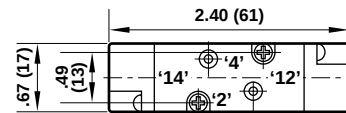
V096533A-X0020

Double Air Pilot Operated



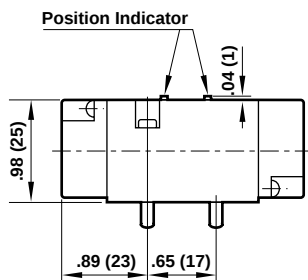
V096536A-X0130

Air Pilot Operated,
Air Assisted Spring Return



V096533A-X0060

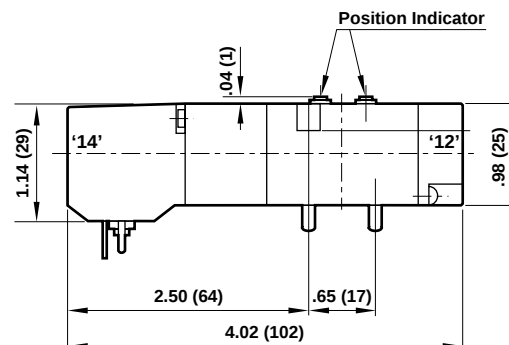
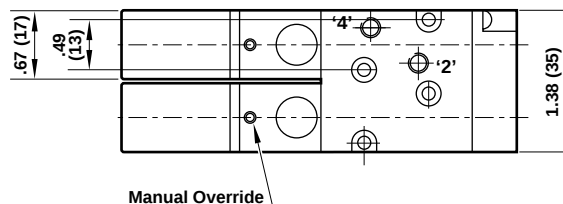
Large Air Pilot Operated,
Small Air Pilot Return



V096*11P-B318A

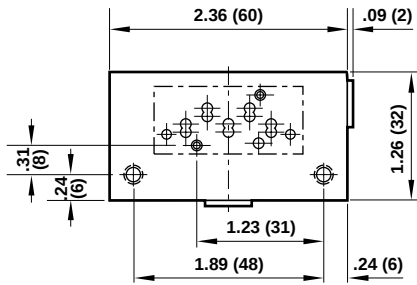
Double Solenoid Pilot Valve for Wireway Applications

NOTE: Two manifold stations required.



Nugget 40 Series Valves

All Dimensions in Inches (mm)



Single Subbase (Version A)

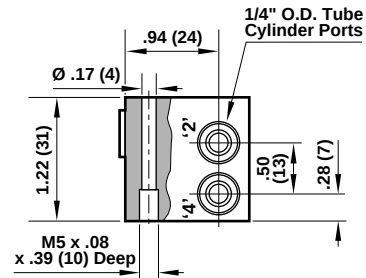
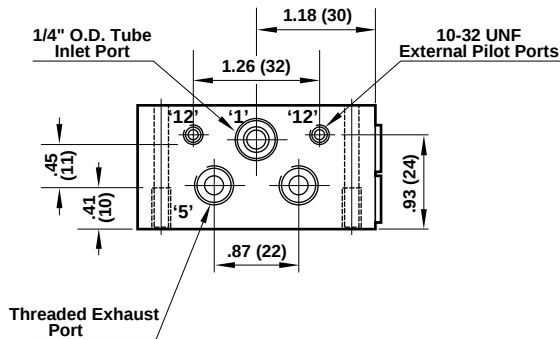
Type: Single station subbase with inlet, exhaust, cylinder and external pilot ports.

Model Number: **V10038-N00**

Porting: 1/4" O.D. Tube push-in connector.

Model Number: **V10038-G00**

Porting: 6 mm O.D. tube push-in connector

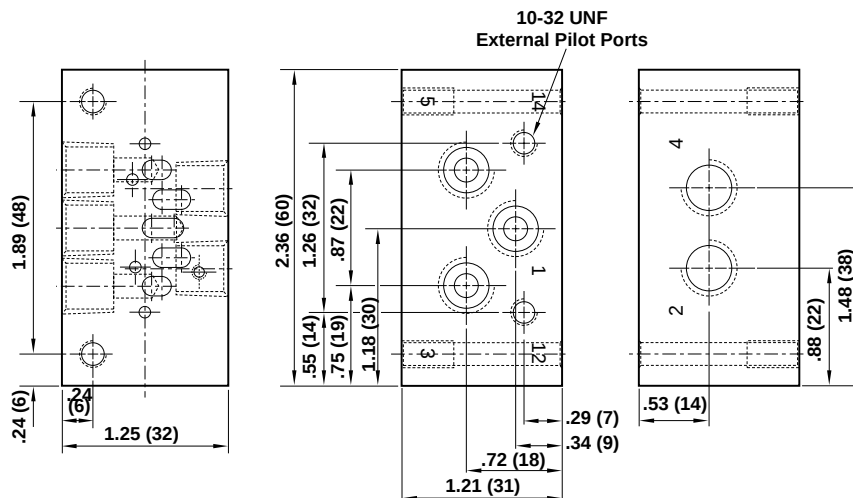


Single Subbase (Version B)

Type: Single station subbase with inlet, exhaust, cylinder and external pilot ports.

Model Number: **81-119-61**

Porting: 1/8" NPT





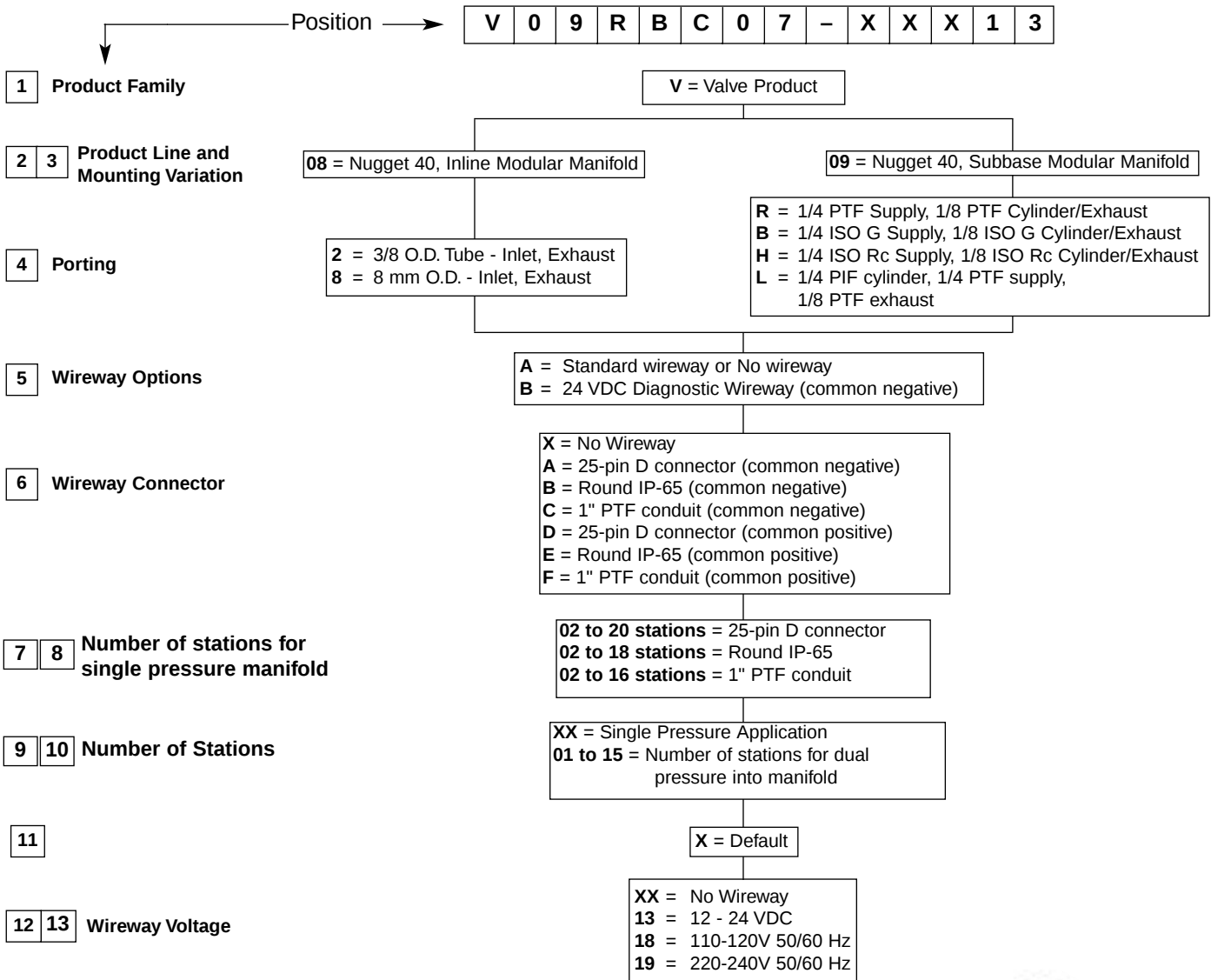
Nugget 40 Series Valves

Ordering a Factory Assembled Nugget 40 Valve Modular Manifold

1. Select the valve and voltage from p. VAL-8-8, and indicate the station number on the base where each valve is to be positioned.

NOTE: Position 1 is referenced from the right hand end. See photo below.

2. Select the base configuration using the following as a guide.



NOTE: The Maximum number of stations in an assembly is 16: the total of positions 7-8, and 9-10.

Ordering Example

The following ordering example details the information needed to order the 4-valve assembly shown at right.

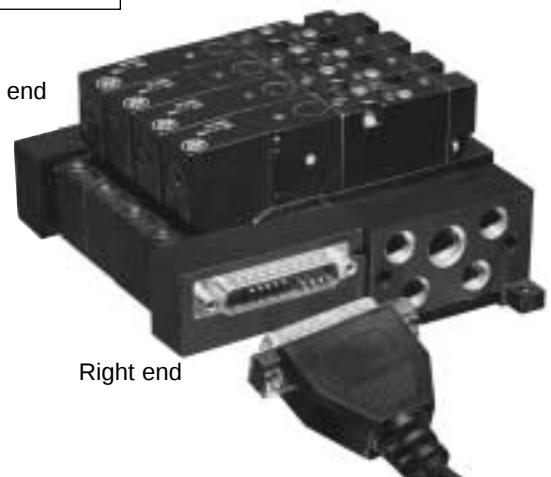
One Nugget 40, 4-valves stack consisting of:

Position	Quantity	Part No.	Description
	1	V09RAA02-02X13	Manifold Assembly
1-4	4	V096516A-B313A	Single Solenoid Valve

NOTE: Product number includes isolating plugs.

For additional accessories such as Blanking Plates see p. VAL-8-20.

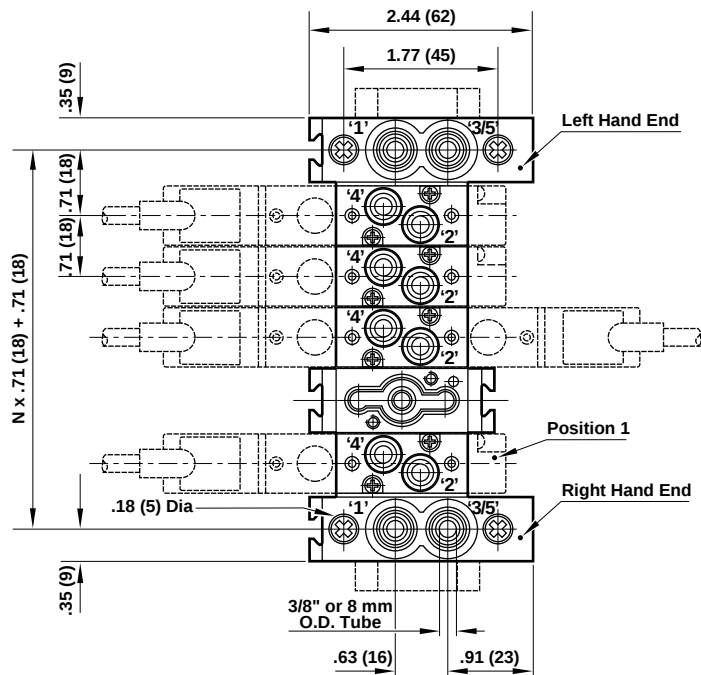
Left end



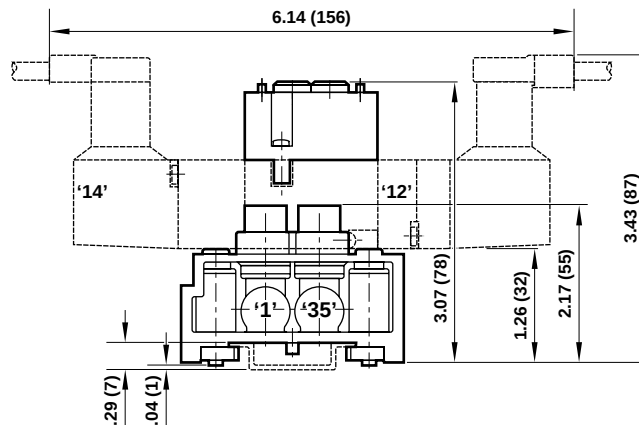
Right end



Inline, Modular Manifold for V08 Valves



N = Number of Stations

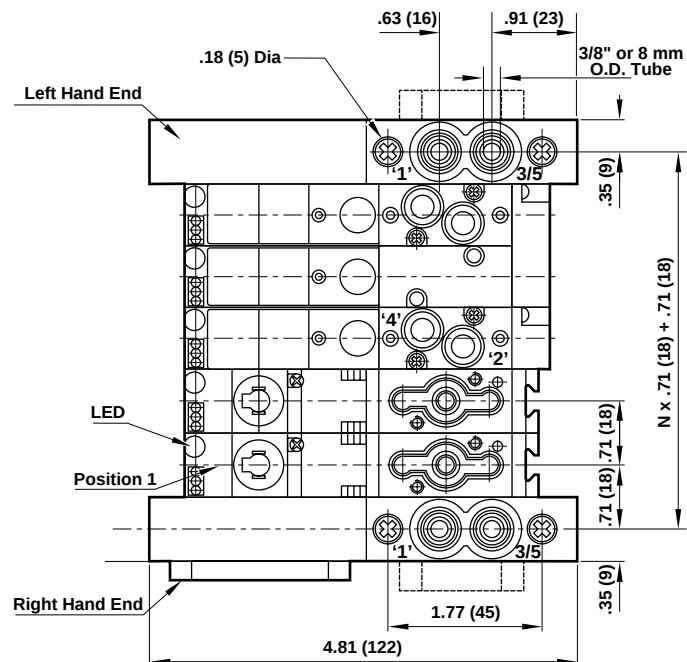




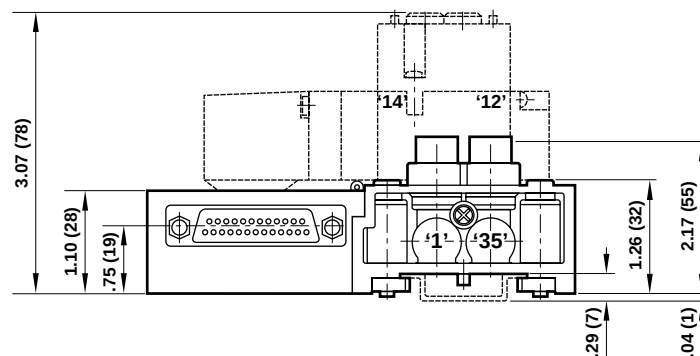
Nugget 40 Series Valves

All Dimensions in Inches (mm)

Inline, Modular Manifold with Common Wireway and 25-Pin D Connector for V08 Valves

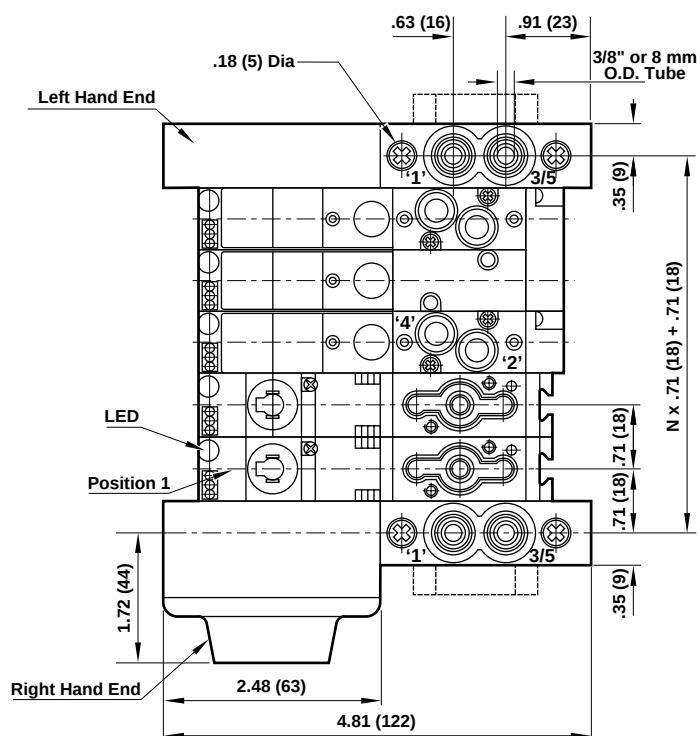


N= Number of Stations

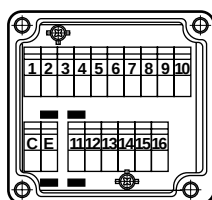
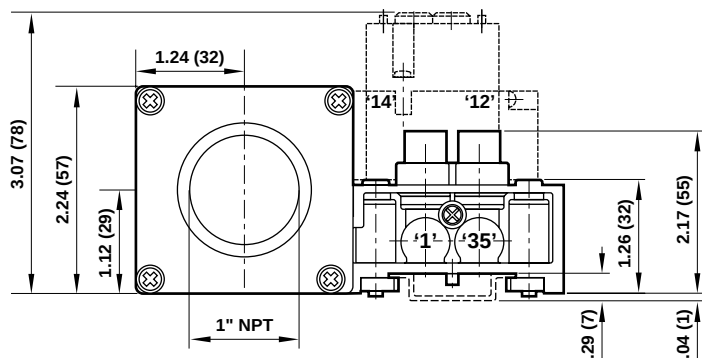




Inline, Modular Manifold with Common Wireway and 1" Conduit Connection for V08 Valves



N= Number of Stations



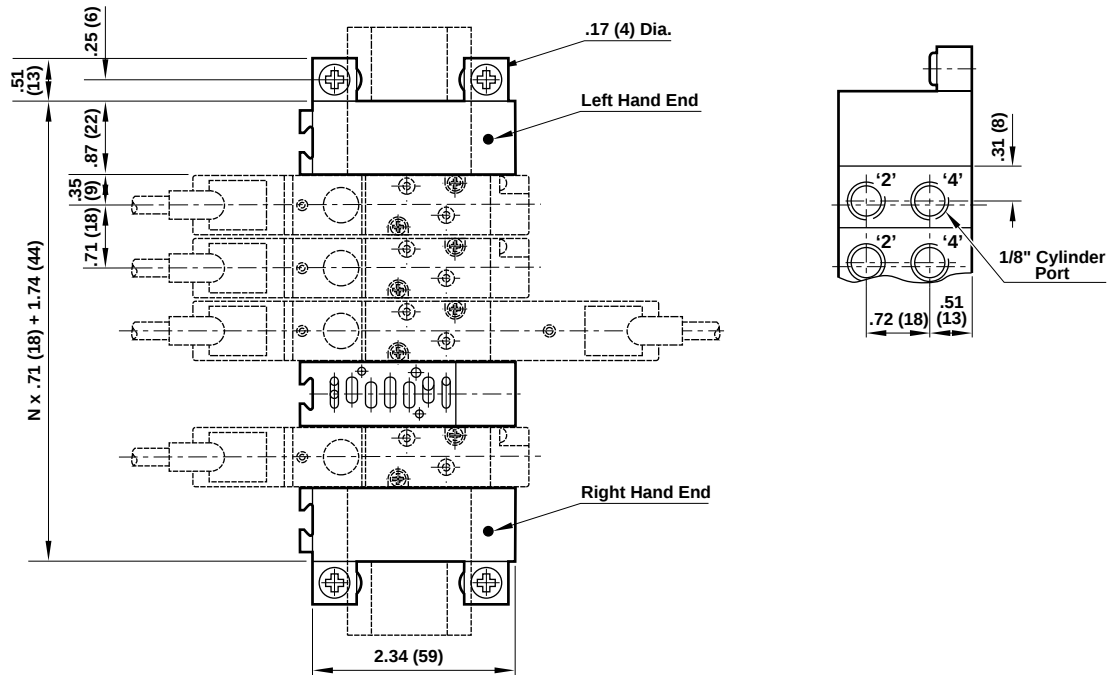
1" conduit housing
w/conduit entry plate
removed showing quick
connects.



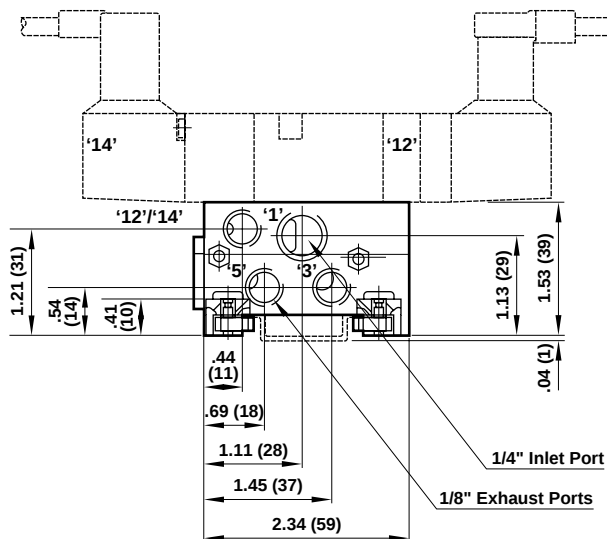
Nugget 40 Series Valves

All Dimensions in Inches (mm)

Subbase, Modular Manifold for V09 Valves

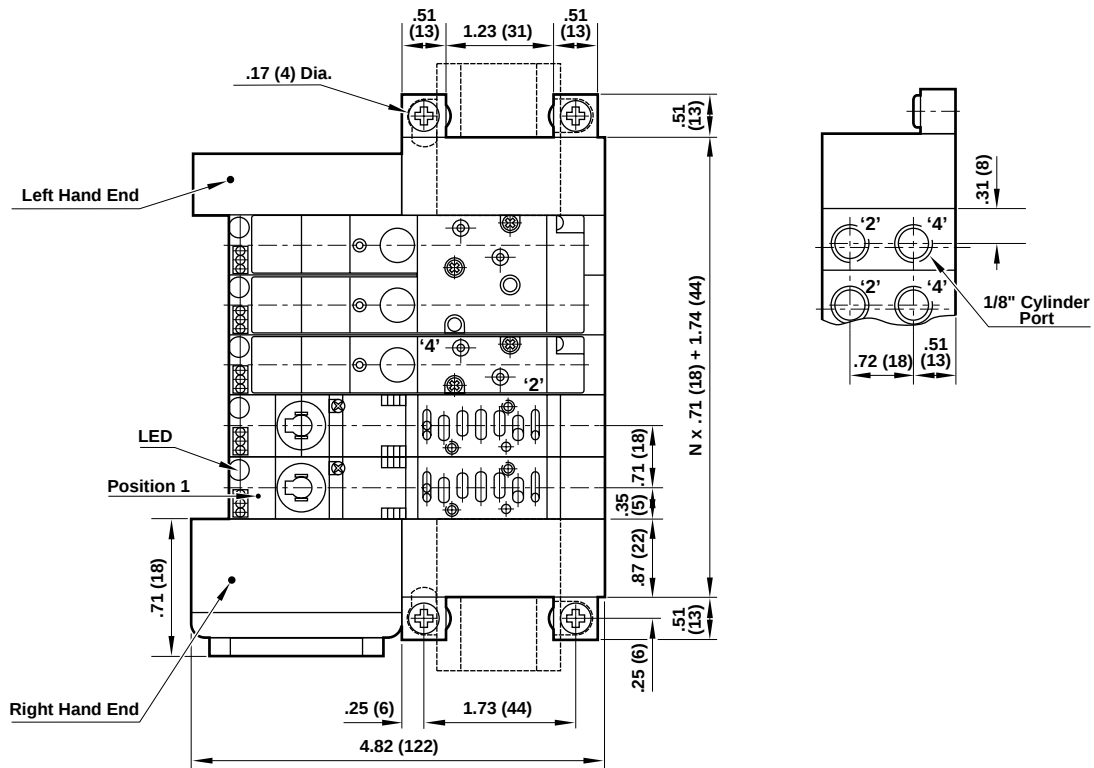


N = Number of Stations

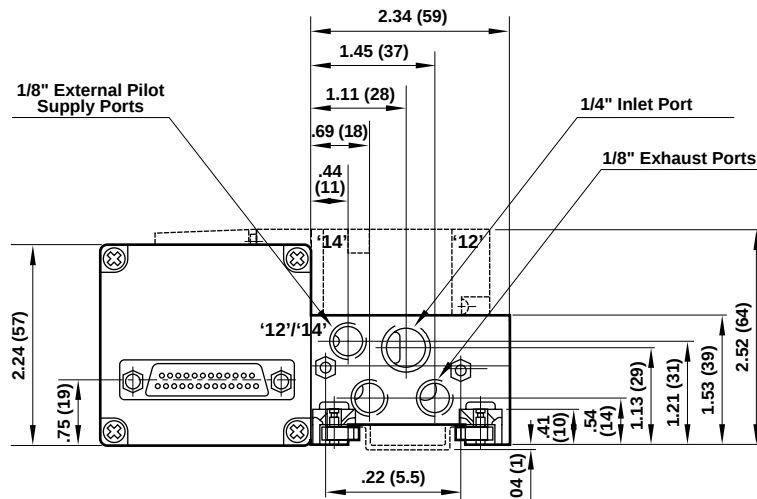


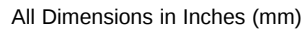


Subbase, Modular Manifold with Common Wireway and 25-Pin Connector for V09 Valves



N = Number of Stations

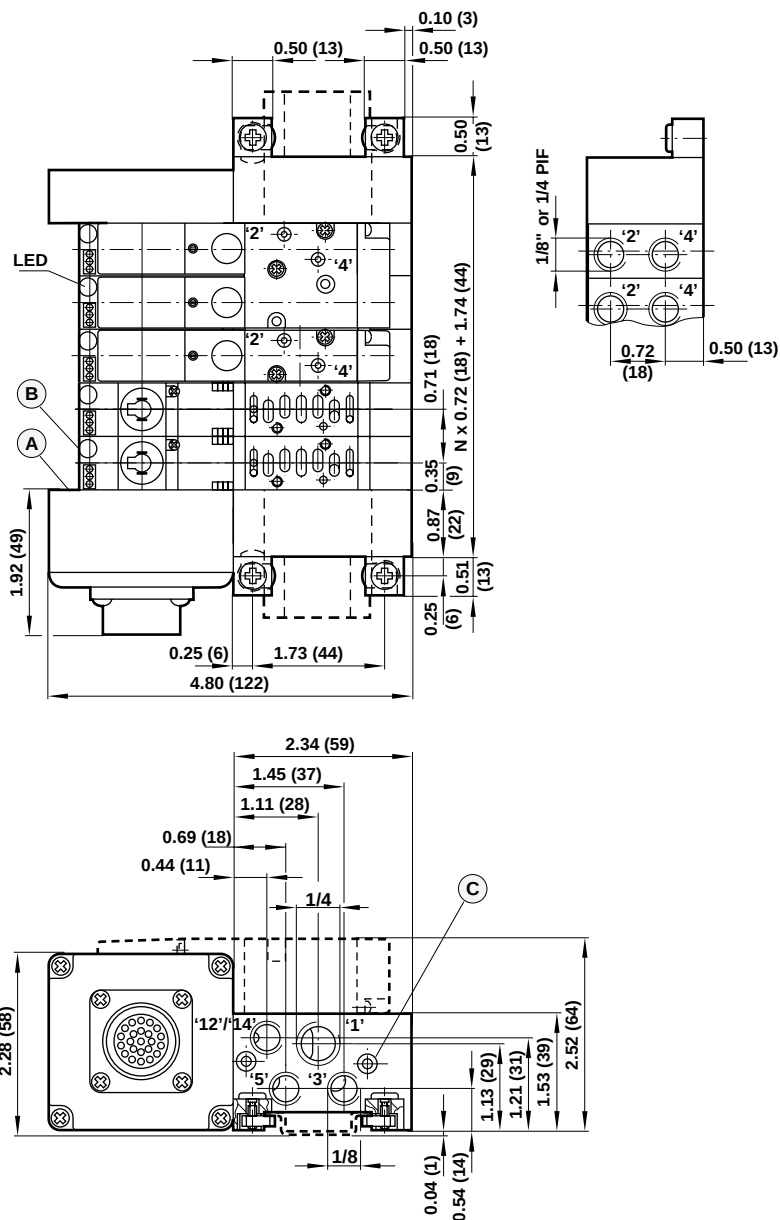




1" conduit housing
w/conduit entry plate
removed showing quick
connects.



Modular Sub-bases with IP65 Round Connector Wireway for V09 valves





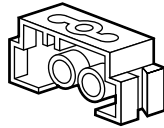
Nugget 40 Series Valves

All Dimensions in Inches (mm)

Components for V08 Inline Modular Manifolds

Modular Manifold Block

Type: Single station manifold block
Model Number: **V085516A-Q01A8**

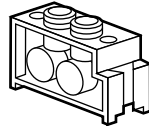


End Plate Kits

Type: Consists of 1 left and 1 right end cap with inlet and exhaust push-in connectors, and DIN rail clamp kit.

Model Number **V085516A-Q02A2**

Porting: 3/8" O.D. tube



Model Number: **V085516A-Q02A8**

Porting: 8 mm O.D. tube

Saddle Blocks

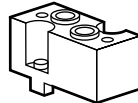
Type: Push-in connector port block with integral pressure indicators.

Model Number: **V085516A-Q0404**

Porting: 5/32" (4 mm) O.D. tube

Model Number: **V085516A-Q0416**

Porting: 1/4" O.D. tube



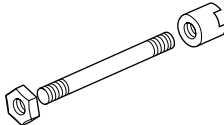
Model Number: **V085516A-Q0406**

Porting: 6 mm O.D. tube

Tie rod kits w/ fasteners

V085516A-Q03**

** Insert number of stations 02-16 stations



NOTE: Kit includes (1) fixed length tie rod and fasteners. Subbases require (2) kits per manifold, and wireways require (1) kit per manifold. Length for subbase is determined by the number of stations to be manifolded. Length for wireway is one station less e.g. V085516AQ0303 would be for a 4 station wireway.

Wireway Module

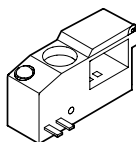
V085516A-Q0913 12-24 VDC with indicator, common negative

V085516A-Q0918 110-120V 50/60 Hz w/indicator

V085516A-Q0919 220-240V 50/60 Hz w/indicator

V085516A-Q09B3 24 VDC Diagnostic / Power Saving, common negative

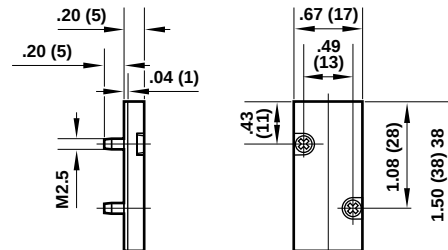
V085516A-Q0953 12-24 VDC w/indicator, common positive



Blanking Plate Kit

Type: Installed in place of a valve to allow an additional valve to be added at a later date.

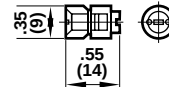
Model Number **V095516A-Q110**



Isolating Plugs for V08 Modular Manifold Valves

Type: Permits the use of two different inlet pressures on the same subbase assembly.

Model Number **V085516A-Q05AA**



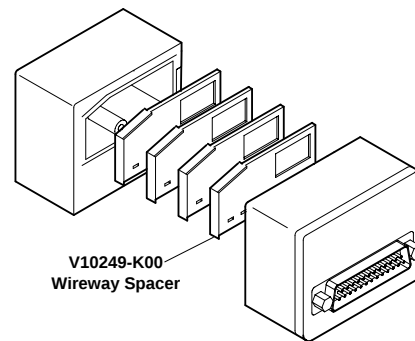
Wireway End Plate and Harness Kit with 25-Pin D subconnector

V085516A-Q0604 4 stations

V085516A-Q0608 8 stations

V085516A-Q0612 12 stations

V085516A-Q0616 16 stations



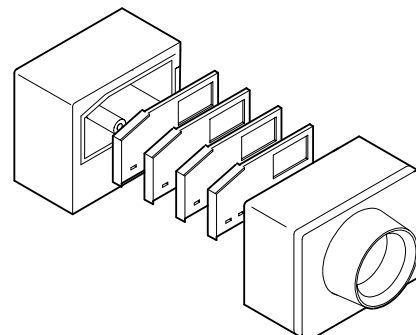
V08 Wireway End Plate and Harness Kit with 1" conduit connector

V085516A-Q0804 4 stations

V085516A-Q0808 8 stations

V085516A-Q0812 12 stations

V085516A-Q0816 16 stations



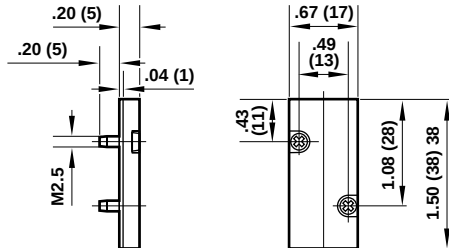


Components for V09 Subbase Modular Manifolds

Manifold Blanking Plate Kit

Type: Installed in place of a valve to allow an additional valve to be added at a later date.

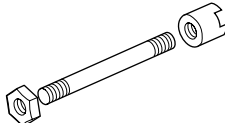
Model Number **V095516A-Q1100**



Tie rod kits w/ fasteners

V085516A-Q03**

** Insert number of stations 02-16 stations



NOTE: Kits include (1) fixed length tie rod and fasteners. Subbases require (2) kits per manifold, and wireways require (1) kit per manifold. Length for subbase is determined by the number of stations to be manifolded. Length for wireway is one station less e.g. V085516AQ0303 would be for a 4 station wireway.

Modular Subbase

Type: Single station modular subbase

Model Number: **V095516R-Q130N**

Porting: 1/8" PTF

Model Number: **V095516R-Q130I**

Porting: 1/4" PIF

Model Number: **V095516R-Q130G**

Porting: 1/8" ISO G

Model Number: **V095516R-Q130R**

Porting: 1/8" ISO Rc

End Plate Kits

Type: Consists of 1 left and 1 right end cap with common inlet, exhaust and external pilot supply ports, and DIN rail clamp kit.

Model Number: **V095516R-Q140N**

Porting: 1/4" PTF supply, 1/8" PTF exhaust

Model Number: **V095516R-Q140G**

Porting: 1/4" ISO G supply, 1/8" ISO G exhaust

Model Number: **V095516R-Q140R**

Porting: 1/4" ISO Rc supply, 1/8" ISO Rc exhaust

DIN Rail Mounting Kit

Model Number: **V10920-K01**

Isolating Plugs for V09 Valves

Type: Permits the use of two different inlet pressures on the same subbase assembly.

Model Number: **V10258-K02**

Din Rail

Type: 39" (1 meter)

Model Number: **V10009-C00**

Din Rail Mounting Kit

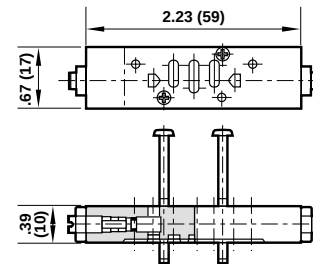
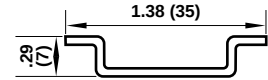
Model Number **V10920-K01**

Speed Control

Type: Restricts exhaust flow from the valve to control speed of an air cylinder or air motor. Kit is installed between valve and subbase.

Model Number: **V095516A-Q1200**

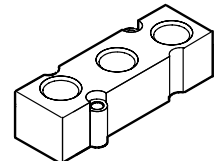
NOTE: Speed Control is not available for wireway manifolds.



Intermediate Supply Exhaust Plate

Type: 1/8" NPT

Model Number: **V095516A-Q160N**



Wireway Module

V085516R-Q0913

12-24 VDC with indicator, common negative

V085516R-Q0918

110-120V 50/60 Hz w/indicator

V085516R-Q0919

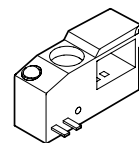
220-240V 50/60 Hz w/indicator

V085516R-Q09B3

24 VDC Diagnostic / Power Saving, common negative

V085516R-Q0953

12-24 VDC w/indicator, common positive

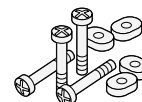


Accessories

Blanking Plug for wireway module:

V10089-C90 (qty. of 1)

V10018-K00 (qty. of 10)





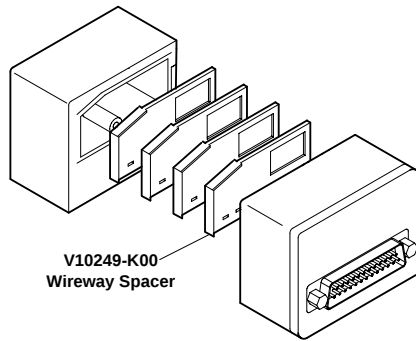
Nugget 40 Series Valves

All Dimensions in Inches (mm)

Components for V09 Subbase Modular Manifolds (cont.)

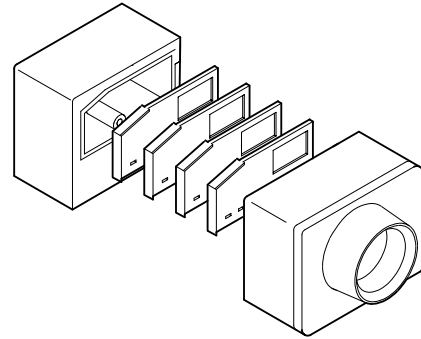
Wireway End Plate and Harness Kit with 25-Pin D subconnector

V095516A-Q0604	4 stations
V095516A-Q0608	8 stations
V095516A-Q0612	12 stations
V095516A-Q0616	16 stations
V095516A-Q0620	20 stations

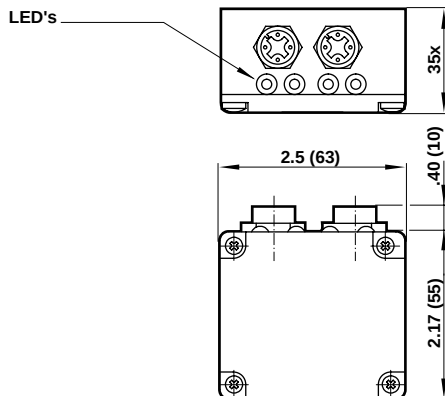


Wireway End Plate and Harness Kit with 1" conduit connector

V095516A-Q0804	4 stations
V095516A-Q0808	8 stations
V095516A-Q0812	12 stations
V095516A-Q0816	16 stations



Remote Output Modules



Application:

Remote output modules are used with Nugget 40 and Nugget 120 valve manifolds to provide up to 4 outputs to remote devices such as Excelon, and Prospector poppet valves. Harness assemblies should be increased by the relevant number of stations.

Nugget 40 end plate 4 outputs VE1MP09B-00400

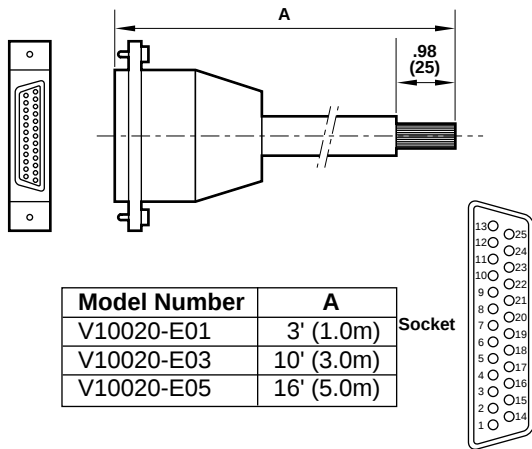
Nugget 40 Series Valves

All Dimensions in Inches (mm)



25-Pin D Connector Cable

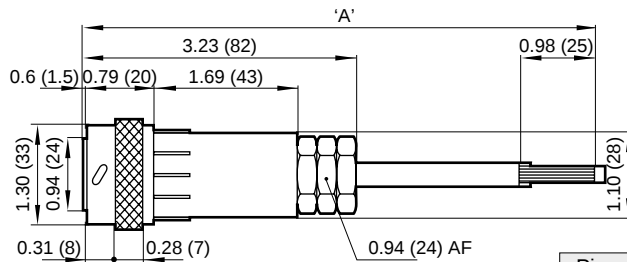
Type: 25 way MIL Standard D Connector



Pin out Wiring Information

Pin No.	Socket	Plug	Pin No.	Socket	Plug
1	Solenoid 1	Red	14	Solenoid 14	Green/red
2	Solenoid 2	Blue	15	Solenoid 15	Yellow/red
3	Solenoid 3	Green	16	Solenoid 16	White/red
4	Solenoid 4	Yellow	17	Solenoid 17	Red/black
5	Solenoid 5	White	18	Solenoid 18	Red/brown
6	Solenoid 6	Brown	19	Common, negative	Yellow/blue
7	Solenoid 7	Violet	20	Common, negative	White/blue
8	Solenoid 8	Orange	21	Common, negative	Blue/black
9	Solenoid 9	Pink	22	Common, negative	Orange/blue
10	Solenoid 10	Turquoise	23	Common ground	Yellow/green
11	Solenoid 11	Grey	24	Solenoid 19	White/green
12	Solenoid 12	Red/Blue	25	Solenoid 20	Orange/green
13	Solenoid 13	Black			

IP65 'Round' Connector



Round Connector with Cable

Type: 23 pin IP65 'Round' connector. Cable size 20 AWG (.52 mm²)

Model	A	Weight (Kg)
V10021-E01	3 (1m)	.75 (.34)
V10021-E03	10 (3m)	1.63 (.74)
V10021-E05	16 (5m)	2.51 (1.14)
V10021-E08	26 (8m)	4.67 (2.12)
V10021-E10	32 (10m)	5.89 (2.67)

Pin.	Socket	Plug	Pin.	Socket	Plug
A	Solenoid 1	Red	N	Solenoid 13	Black
B	Solenoid 2	Blue	P	Solenoid 14	Green/red
C	Solenoid 3	Green	R	Solenoid 15	Yellow/red
D	Solenoid 4	Yellow	S	Solenoid 16	White/red
E	Solenoid 5	White	T	Solenoid 17	Red/black
F	Solenoid 6	Brown	U	Solenoid 18	Red/brown
G	Solenoid 7	Violet	V	Common,-negative	Yellow/blue
H	Solenoid 8	Orange	W	Common,-negative	White/blue
J	Solenoid 9	Pink	X	Common,-negative	Blue/black
K	Solenoid 10	Turquoise	Y	Common,-negative	Orange/blue
L	Solenoid 11	Grey	Z	Common, -ground	Yellow/green
M	Solenoid 12	Red/blue			

Solenoid No. 1 is nearest to the connector on valve manifold



Part Numbers for Repair Kits

Spool Replacement Kit	.55009-50
Complete Valve Repair Kit	.V10034-K00
Modular Manifold/Subbase/Wireway Clamp Screw Kit	.V10258-K01
Solenoid Connector Seal Kit	.54644-52
Solenoid Coil Screw Kit	.V10259-K00
Modular Subbase Isolation Plug Kit	.V10258-K02
Wireway Seal Kit	.V10258-K00
Subbase Gasket	.V10589-C95

Part Numbers for Replacement Solenoid Coils

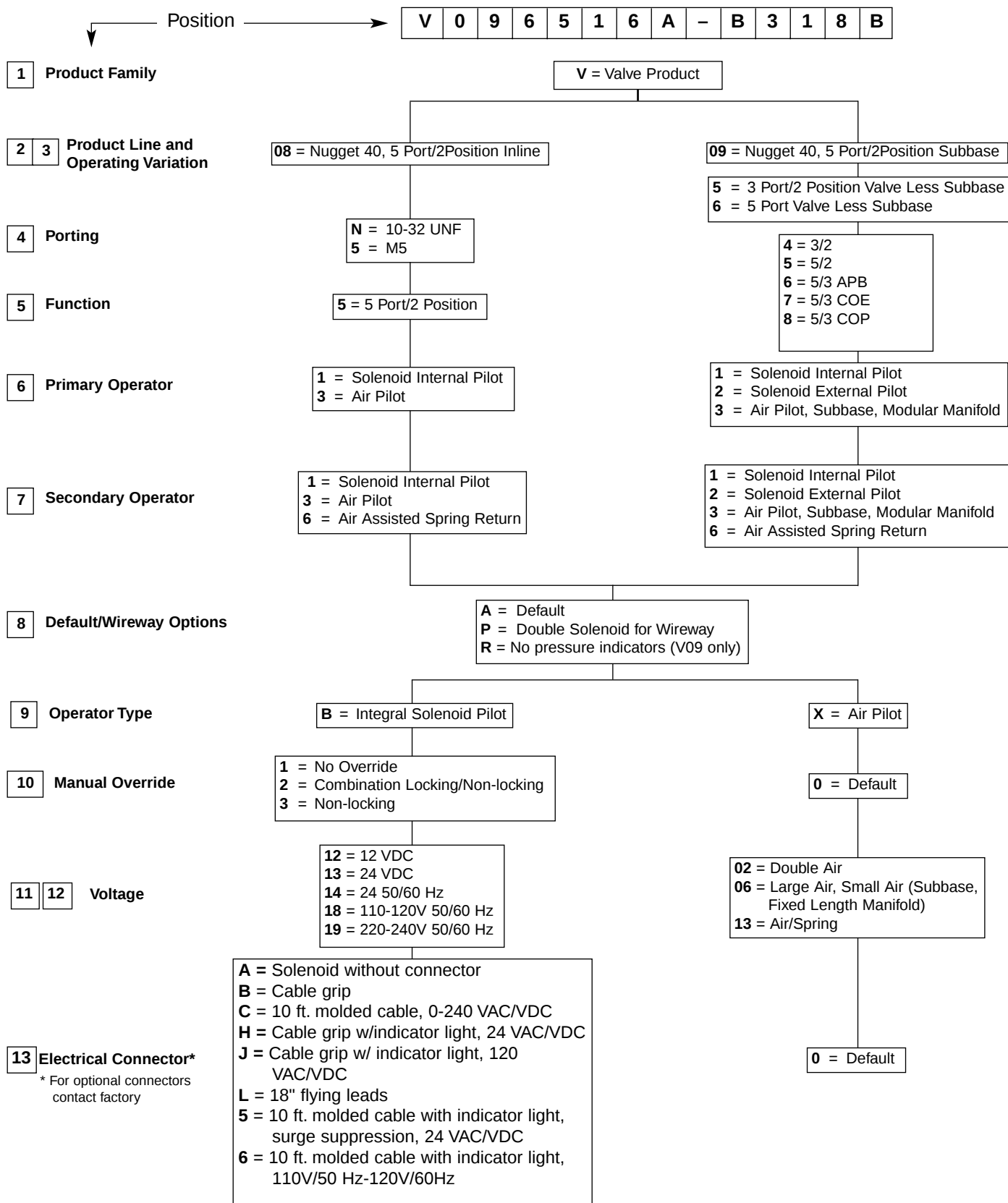
6 VDC, 1.5W, 12V 50/60 Hz, 2.9 VA	.V10025-A11
12 VDC, 1.7W	.V10025-A12
24 VDC, 1.7W	.V10025-A13
24V/60 Hz-24V/50Hz, 2.9 VA	.V10025-A14
48V 50/60 Hz, 2.9 VA	.V10025-A16
120V/60 Hz-110V/50Hz, 2.5 VA	.V10025-A18
240V/60 Hz-220V/50Hz, 2.5 Va	.V10025-A19

Part Numbers for Replacement Solenoid Coil Connectors

Cable Grip Connector	.V10027-D00
Molded 10-ft Cable Connector, 0-240 VAC/VDC	.V10013-D03
Molded 10-ft Cable Connector with Indicator Light, 110/120 VAC/VDC	.V10015-D03
Molded 10-ft Cable Connector with Indicator Light, and Surge Suppression, 24 VAC/VDC	.V10014-D03
Cable grip w/indicator light 24 VAC/VDC	.V10012-D13
Cable grip w/indicator light 120 VAC/VDC	.V10012-D18

Accessories

Blanking Plug for wireway module:	.V10089-C90 (qty. of 1)
	.V10018-K00 (qty of 10)
Coil Seal for coil terminal pins to wireway module:	.V10258-K03 (qty of 1)
	.V10024-K00 (qty of 10)
Pillar Screw	.V10176-K00



NOTE: All wireway valves must end with an "A", signifying no connector. i.e. V096516AB318A

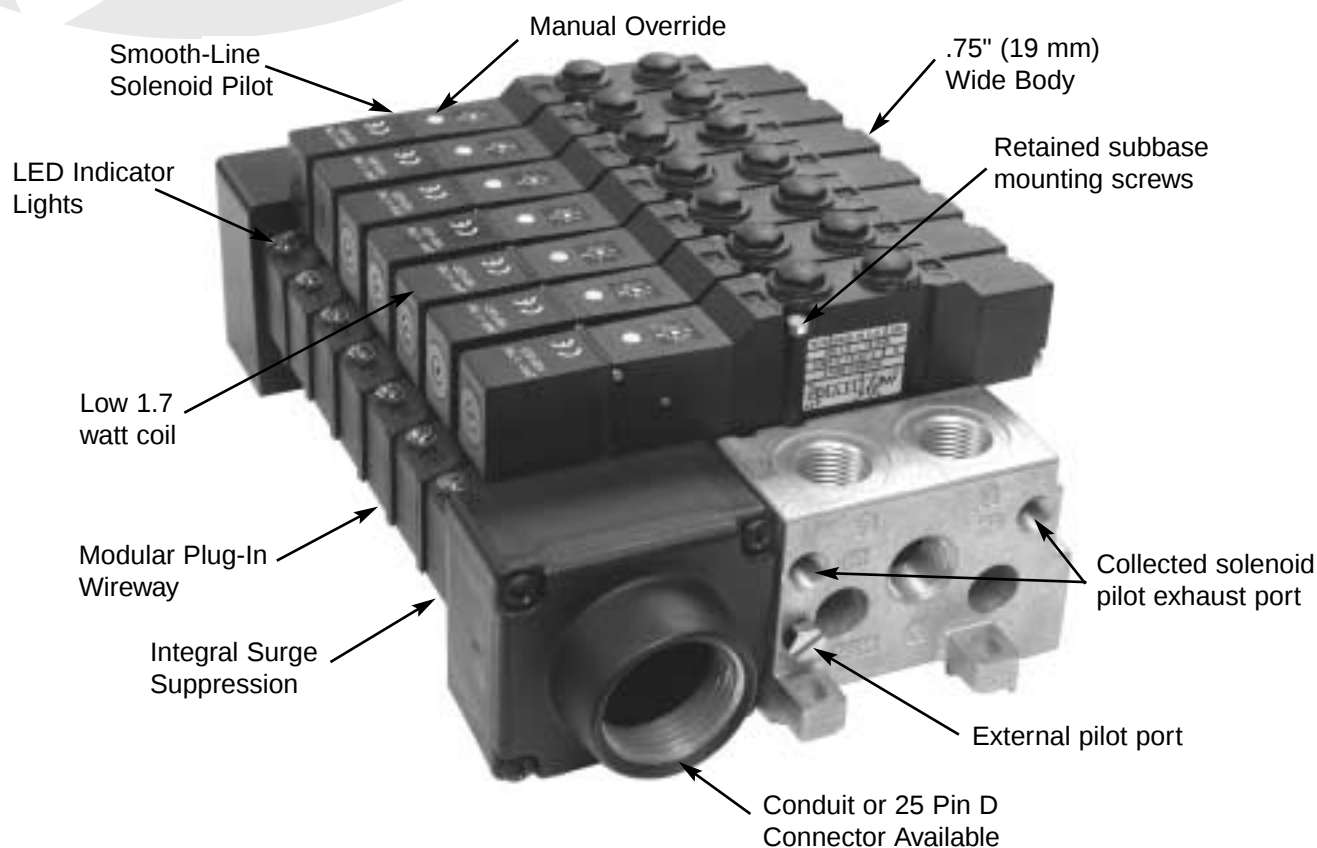
Nugget 120 Series Valves

Compressed air, directional control valves with diagnostic plug-in wireway

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Four Station Nugget 120 Valve Stack with Conduit Connector





Nugget 120 Series Valves

The Nugget 120 Valve – Ideally suited for applications designed around low cost PC's coupled with small electro-pneumatic interface modules. Ideal for the limited space available in today's control cabinets.

Two Year Unconditional Warranty

All Nugget 120 valves are warranted to be free from defects for a full two years from the date of purchase. This extended warranty period provides users with a valuable guarantee of quality and service.

Compact Dimensions

Subbase valves are .75" (19 mm) wide and 5.51" (140 mm) long in a single solenoid pilot configuration.

Thin Lip Seal Spool

Norgren Nugget 120 valves feature a lightweight, one-piece aluminum spool and nitrile seal assembly. Shifting forces are minimized to 29 psig (2.0 bar) for single solenoid by the low inertial spool made from high strength anodized aluminum. The one piece spool and seal assembly is easily serviced, resulting in cost savings during maintenance. Durable low friction lip seals are designed to operate with lubricated or non-lubricated air, and can be used for multi-pressure applications.

Top Ported Subbase Valves

Nugget 120 subbase mounted valves come standard with 1/4" cylinder top ports. The ports are shipped plugged with attractive plastic acorn nut style pipe plugs. These ports may be employed to provide a number of customer benefits. The subbase valve top ports may be plumbed with pressure indicators to show the position of the spool. These full flow ports may also be used as a plumbing convenience when two pieces of equipment are actuated simultaneously. Finally, top porting offers the user a third porting orientation when combined with side or bottom ported subbases.

Fixed Length Manifold

The Nugget 120 subbase valve can be mounted on a fixed length manifold with the use of an optional seal. This feature allows the user to mount one valve on either the standard modular subbase or the economical fixed length manifold.

Retained Subbase Mounting Screws

All Nugget 120 subbase valves are assembled with the two socket head cap mounting screws retained in the valve body. This feature prevents loss of the mounting screws during assembly or maintenance.

Collected Pilot Exhaust on Subbase Valves

Exhaust from each solenoid pilot operator mounted to a modular subbase manifold is routed to a single exhaust port on the manifold end plate. This makes routing of exhaust air very easy when potential contamination of the product is an issue.

Pre-lubricated for Life

During assembly, every Nugget 120 spool is pre-lubed for the life* of the valve. This allows non-lubricated air service.

*(Approximately 20 million cycles of lubricated air service. Non-lubricated air will reduce the number of cycles.)

High-flow Design

Improvements to body and base design combine to substantially increase flow. Base galleries linked to the aluminum die cast body combine with deep cavities to provide flow levels comparable to much larger 1/4" NPT size valves. 5/2 valves have a C_v of 1.17, and 5/3 valves have a C_v of 0.79.

Port and Operator Identification

Each of the ports is identified by a permanent number adjacent to the port on the body or subbase. In addition, a two-digit number at each end of the valve body indicates the ports connected when the operator is actuated. Port and operator identification on all Nugget 120 valves comply with ANSI/(NFPA) T3.21.15-1989.

Quality Appearance

Norgren's matte black color gives any control circuit installation a quality appearance, reflecting the superior operating capability built into every Nugget 120 Valve.

Operator Options

Solenoid pilot and air pilot operators are available for primary actuation and secondary return operation. Spring return operators are also available for return operation.

Rotatable Connector and Coil

The cable grip connector can be rotated in 90° increments, and the solenoid pilot coil can be turned in increments of 180°, making the operators adaptable for easy installation.

Electrical Connector Options

Options include a 10-foot, three-conductor, molded cable with or without LED and surge protection.

Valve Accessories

Pressure Indicators can be plumbed into the subbase valves' top ports to show the relative position of the spool. This feature decreases down time by increasing diagnostic capability.

Blanking plates are available for covering unused stations on subbase manifolds, making manifold expansion easy.

Intermediate Supply/Exhaust Plates are used to introduce additional pressures to, or control exhaust from, manifolds simplifying plumbing in complex pneumatic circuits.



Blanking Plugs and Gaskets can be employed to isolate multiple pressures or direct exhaust.

DIN Rail Mounting

Nugget 120 modular manifolds can be mounted to DIN rails; OEM's building machines for export can take advantage of this feature.

Three Mounting Styles Available

Subbase Valves are attached to subbase modular manifolds with two socket head cap screws, which reduces the potential for leaks and allows quick assembly of valves to manifolds. Porting for common inlet, exhaust, external pilot and collected solenoid pilot exhaust are located in the end plates. Cylinder porting is located in the subbases. Both end plates and subbases are available either side or bottom ported. Inlet ports are 3/8" PTF or ISO G. Cylinder and exhaust ports are 1/4" PTF or ISO G. External pilot and collected solenoid exhaust ports are 10-32 UNF or M5. These manifolds may also be mounted with the Nugget 120 Wireway.



A single subbase valve is attached to a **Single Subbase** with two socket head cap screws, providing easy installation. Inlet, exhaust, external pilot supply, and cylinder ports are located on the sides or bottom of the subbase. Inlet, cylinder and exhaust are 1/4" PTF or ISO G. External pilot ports are 10-32 UNF or M5.

Subbase, Fixed Length Manifolds use standard subbase mounted valves and a different seal to produce an economical manifold. For quick installation and maintenance, valves are attached to the manifold with two socket head cap screws. Valves share common supply and exhaust galleries in the manifold. Nugget 120 subbase top ports are utilized for output to the application. The optional pressure indicators are not available for use with subbase fixed length manifolds.



Nugget 120 Wireway Features

Nugget 120 wireways are available with a 25-Pin D connector, Round IP-65 connector, or a 1" conduit electrical connector. All share the following cost and work saving features:

- The **single wire** for each solenoid pilot means lower installation cost and easier trouble shooting.
- Wireways feature **modular circuit boards** with solid state design. These boards plug into each other providing up to an 16-station manifold for 25-pin electrical connection, or a 16-station manifold for a 1" conduit connection.
- **Surge suppression and LED indicators** are standard on all wireway modules providing protection to controlling devices.
- **24 VDC Diagnostic/ Power Saving Option** senses complete solenoid pilot plunger travel. LED's turn amber if a fault is detected. Coils run cooler due to 50% power reduction upon actuation. All these features add up to simplified trouble shooting, less downtime, and a more efficient valve stack.
- Nugget 120 offers a **1" conduit** version which is rated NEMA 4. Terminal connectors are made with WAGO® Quick Clips for reduced installation time.
- Low **1.7 Watt coils** consume less power and generate very little heat. These coils allow users to operate equipment more efficiently and safely.
- Nugget 120 wireways offer a **wide range of voltages** including: 12 VDC, 24 VDC, 110-120V 50/60 Hz, 220-240V 50/60Hz., and are continuous duty rated.



Nugget 120 Series Valves

Specifications

Fluids: Filtered and lubricated or non-lubricated compressed air.

Operation: Thin lip seal spool valve, solenoid pilot or air pilot actuated.

Inlet Pressure Ranges

Solenoid Pilot Operated Valves* –

With Internal Pilot Supply:

18 to 150 psig (1.2 to 10.3 bar)

With External Pilot Supply:

26" Hg to 150 psig (26" Hg to 10.3 bar)**

Air Pilot Operated Valves:

26" Hg to 150 psig (26" Hg to 10.3 bar)**

* Solenoid pilot operators must be externally piloted if the supply pressure to the main valve is below the minimum pilot pressure listed in the table below.

** With vacuum source plumbed to an exhaust port, and 135 psig (9.3 bar) maximum at inlet port.

Operating Pilot Pressures –

Maximum Pressure: 150 psig (10.3 bar)

Primary Operator	Secondary (return) Operator	Minimum Pilot Pressures	
		Minimum Operating Pressure psig (bar)	
		2-position	3-position
Air Pilot	Air Pilot	18 (1.2)	38 (2.6)
Large Air Pilot	Small Air Pilot	18 (1.2)	–
Air Pilot	Spring	29 (2.0)	–
Solenoid Pilot	Solenoid Pilot	18 (1.2)	38 (2.6)
Solenoid Pilot	Spring	29 (2.0)	–

Pressure Indicators –

Minimum indicator pressure: 44 psig (3 bar)

Operating Temperatures –

Air Pilot Operated Valves: -4°F to 176°F (-20°C to 80°C)†

Solenoid Pilot Operated Valves: -4°F to 122°F

(-20°C to 50°C)†

† With a dew point of supply air less than air temperature below 35°F (2°C)

Port Size

Subbase valve top ports

1/4" NPT or ISO G

Subbase End Plates

Inlet – 3/8" NPT or ISO G

Exhaust – 1/4" NPT or ISO G

External Pilot and collected solenoid pilot exhaust – 10-32 UNF or M5.

Subbase, Modular manifold cylinder ports – 1/4" NPT or ISO G

Air Pilot Ports – 1/8" NPT, 10-32 UNF, or M5

Mounting

Subbase valve: through holes to subbase and manifold.

Manifold Mounted: through holes in end plate or to a 35 mm DIN rail.

Average Flow Factor (C_v)*

5-port, 2-position : 1.17

5-port, 3-position: 0.79

*Flow rating determined in accordance with ANSI/NFPA/T3.21.3, Pneumatic Fluid Power Flow Test Procedure and Reporting Method, for fixed orifice components.

Solenoid Pilot Operator Specifications

Duty: Continuous at 90% to 110% of rated voltage.

Coil Type: Molded with three-pin, electrical plug-in connector with 8 mm pin spacing. Conforms to DIN 43650, Form C.

Electrical Plug-in Connector: Cable grip for cables up to 7/32" (5.6 mm) in diameter or with 10-ft molded cable.

Enclosure Classification: NEMA 4, DIN 40050-IP65

Wireway Enclosure Classification –

25-Pin D Connector: NEMA 1, IP40

Round Connector: IP65

1" Conduit Connector: NEMA 4, IP65

Override: Non-locking or combination.

Materials of Construction

Valve Materials –

Body, pistons, spool, subbases, manifolds: aluminum

End Caps: nylon or polyphenylene

Solenoid Adapters: polybutylene

Spool Seals: hydrogenated nitrile

Gaskets: nitrile

Subbase Materials –

End plates, subbase modules, and manifold: aluminum

Wireway Materials –

Wireway housings, modules, and manifolds: glass filled nylon

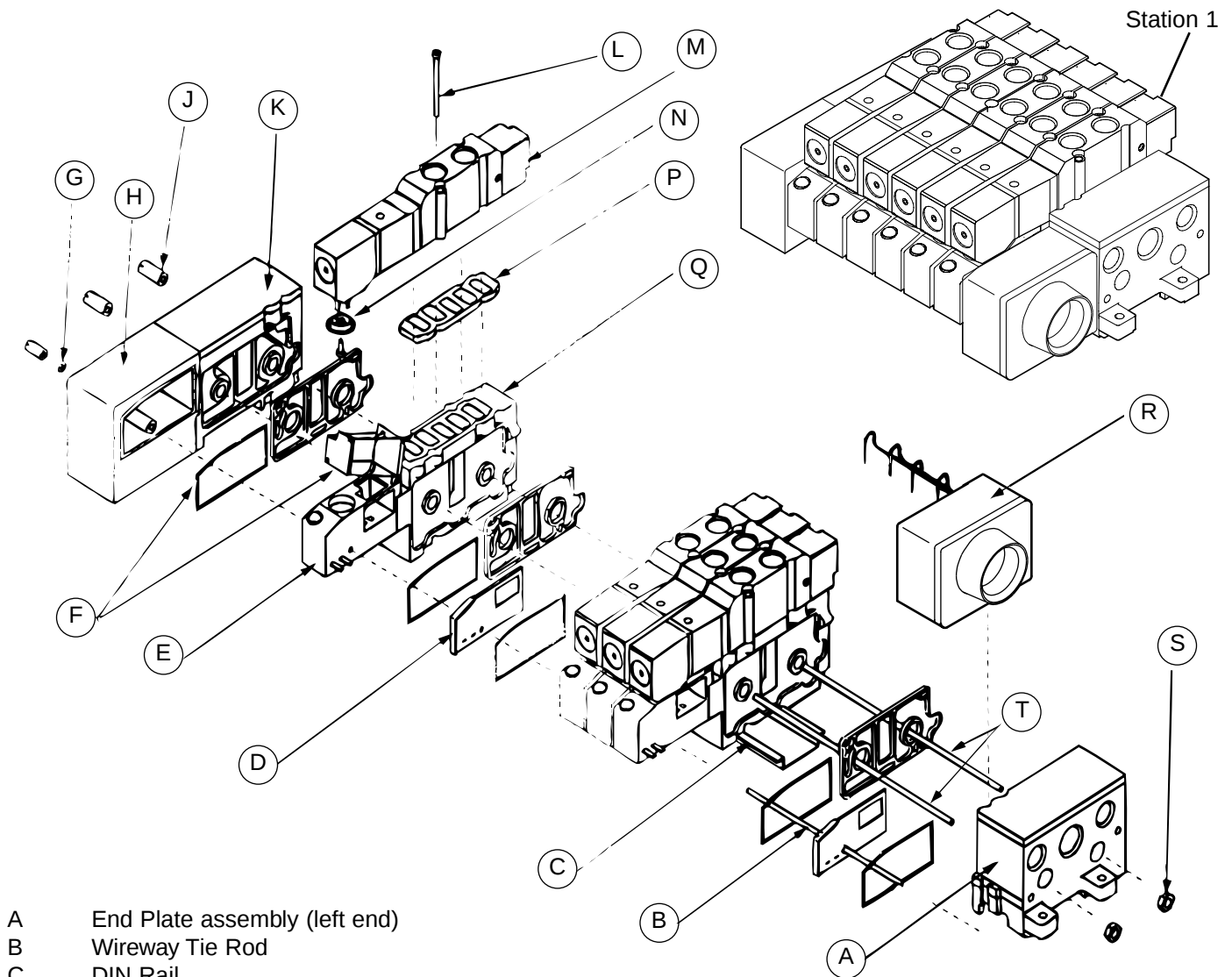
Conduit end caps: zinc

Response Times** @ 132 psig (9 bar)		
Type	mSec	
	On	Off
Solenoid pilot/ Spring	17	30
Solenoid pilot/Solenoid pilot	17	17

**Response times are based on start of pressure change at outlet port. For other operating pressures contact factory.



Exploded View of a Nugget 120 with Plug-in Wireway and 1" Conduit Connector



- A End Plate assembly (left end)
- B Wireway Tie Rod
- C DIN Rail
- D Wireway Spacer (spacers are included in Wireway End Plate Kits)
- E Wireway Module
- F Gaskets (included with Wireway Module)
- G O-ring
- H Wireway End Plate (included in End Plate and Harness Assembly Kit) (Right End)
- J Nut
- K End Plate assembly (right end)
- L Mounting screws
- M Valve Assembly
- N Coil terminal seal and screw (included with Wireway Module)
- P Gasket
- Q Subbase Module
- R One Inch Conduit Wireway End Plate and Harness assembly (Left End)
- S Nut
- T Subbase Tie Rods

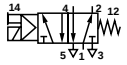
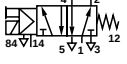
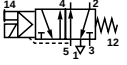
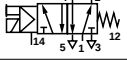
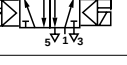
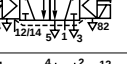
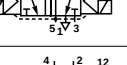
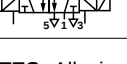
- High flow compact valves.
- Subbase valves with top porting.
- Light weight, long life corrosion resistant materials.
- Available with common wireway.
- Flexible single station expansion.
- Low 1.7 watt coils.



Order Information

Valves listed in the table below include 1/4" PTF top cylinder ports, spring, pressure or solenoid return, 110-120V 50/60 Hz, non-locking override, internal pilot and cable grip connector. For voltage options see Voltage Codes Table on p. VAL-9-7. For other options see Valve Product Numbering System on pp. VAL-9-32.

5/2 Solenoid Pilot Actuated Subbase Valves

Symbol	Model	Pilot Supply Gasket Type ¹	1 4 End Operator	1 2 End Return	Weight lb. (kg)	Mounting Option
	V14R517A-B318B	Internal (W)	Solenoid	Spring	.34 (.16)	All bases
	V14R527A-B318B	External (X)	Solenoid	Spring	.34 (.16)	Modular Subbases
† 	V14R5F7A-B318B	Internal Twin Supply (Z)	Solenoid	Spring	.34 (.16)	Single subbase and fixed length manifold
	V14R5E7A-B318B	Independent External (Y)	Solenoid	Spring	.37 (.17)	Single subbase and fixed length manifold
	V14R511A-B318B	Internal (W)	Solenoid	Solenoid	.49 (.22)	All bases
	V14R522A-B318B	External (X)	Solenoid	Solenoid	.49 (.22)	Modular Subbases
† 	V14R5FFA-B318B	Internal Twin Supply (Z)	Solenoid	Solenoid	.49 (.22)	Single subbase and fixed length manifold
	V14R5EEA-B318B	Independent External (Y)	Solenoid	Solenoid	.53 (.24)	Single subbase and fixed length manifold

NOTES: All wireway valve numbers must end with an "A", signifying no connector, i.e. V14R517A-B318A

Double solenoid valves for wireway applications require two manifold stations. Insert a "P" in position 8, e.g. V14R511P-B318A.

¹ Gasket type supplied with the valve. For details see p. VAL-9-26.

† Minimum pressure to port 5 must be 18 psig (1.2 bar)



5/3 Solenoid Pilot Actuated Subbase Valves

Symbol	Model	Pilot Supply Gasket Type ¹	Valve Function*	1 4 End Operator	1 2 End Return	Weight lb. (kg)	Mounting Option
	V14R611A-B318B	Internal (W)	APB	Solenoid	Solenoid	0.50 (.23)	All bases
	V14R622A-B318B	External (X)	APB	Solenoid	Solenoid	0.50 (.23)	Modular Subbases
	V14R6FFA-B318B	Internal Twin Supply (Z)	APB	Solenoid	Solenoid	.0.50 (.23)	Single subbase and fixed length manifold
	V14R711A-B318B	Internal (W)	COE	Solenoid	Solenoid	0.50 (.23)	All bases
	V14R722A-B318B	External (X)	COE	Solenoid	Solenoid	0.50 (.23)	Modular Subbases
	V14R811A-B318B	Internal (W)	COP	Solenoid	Solenoid	0.50 (.23)	All bases
	V14R822A-B318B	External (X)	COP	Solenoid	Solenoid	0.50 (.23)	Modular Subbases

¹ Gasket type supplied with the valve. For details see p. VAL-9-26.

*Valve Function Designations: APB = All Ports Blocked, COE = Cylinder Ports Open Exhaust, COP = Cylinder Ports Open Pressure

‡ Minimum pressure to port 5 must be 18 psig (1.2 bar)

Notes: For voltage options see Voltage Code Table below.

NOTES: All wireway valve numbers must end with an "A", signifying no connector, e.g. V14R517A-B318A

Double solenoid valves for wireway applications require two manifold stations. Insert a "P" in position 8, e.g. V14R511P-B318A.

5/2 and 5/3 Air Pilot Actuated Subbase Valves

Symbol	Model	Gasket Type ¹	Valve Function*	1 4 End Operator	1 2 End Return	Weight lb. (kg)	Mounting Option
	V14R5D7A-X0090	Internal (W)	—	Air	Spring	.22 (.10)	All bases
	V14R5DDA-X0020	External (X)	—	Air	Air	.22 (.10)	All bases
	V14R59DA-X0060	Internal Twin Supply (Z)	—	Large Air	Small Air	.22 (.10)	All bases
	V14R6DDA-X0020	Internal (W)	APB	Air	Air	.22 (.10)	All bases
	V14R7DDA-X0020	External (X)	COE	Air	Air	.22 (.10)	All bases
	V14R8DDA-X0020	Internal (X)	COP	Air	Air	.22 (.10)	All bases

¹ Gasket type supplied with valve. For details see p. VAL-9-26

*Valve Function Designations: APB = All Ports Blocked, COE = Cylinder Ports Open Exhaust, COP = Cylinder Ports Open Pressure

Voltage Codes

Voltage	Codes	Power Inrush/Hold
12V d.c.	2	1.7 W
24V d.c.	3	1.7 W
24V 50/60Hz	4	4.1 / 2.9 VA
110V 50/60Hz	8	3.5 / 2.5 VA
240V 50/60Hz	9	3.5 / 2.5 VA

Electrical Details for Solenoid Operators

Voltage Tolerances:	±10%
Rating:	100% Continuous Duty
Inlet Orifice:	0.8 mm
Electrical Connection:	DIN 43 650 table 'C'
Manual Override:	V14R5--A-B11*A – No override V14R5--A-B21*A – Push button, spring return with locking facility V14R5--A-B31*A – Push button, spring return
Protection Class:	NEMA 4, IP 65 (DIN 40 050)

NOTE: Insert the voltage code from the above table for the required voltage into position 12 of the valve model number.

Example: To change V14B5EEA-B318A from 110-120V 50/60 Hz to 24 VDC, order V14B5EEA-B313A.

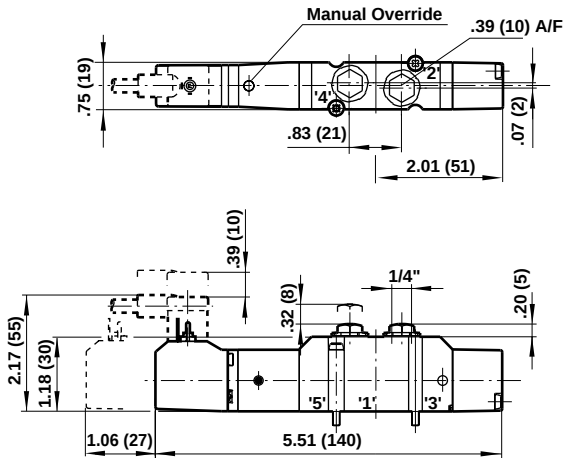


Nugget 120 Series Valves

All Dimensions in Inches (mm)

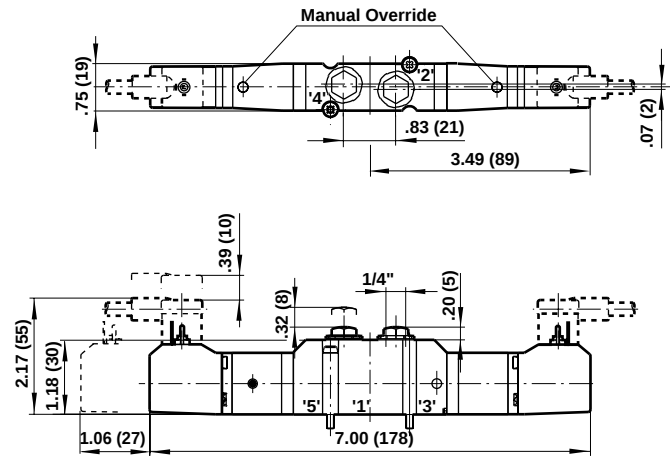
V14R5*7A Models

5/2 Single Solenoid Pilot Valves



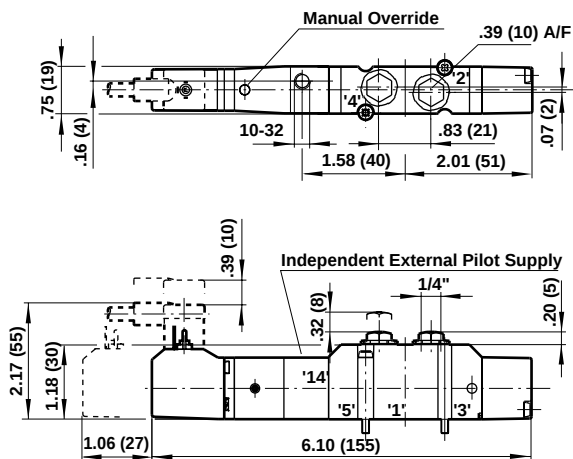
V14R5**A Models

5/2 Double Solenoid Pilot Valves



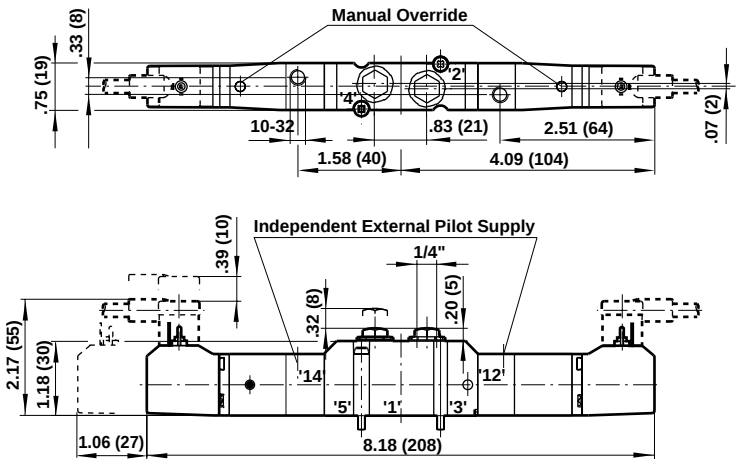
V14R5E7A Models

5/2 Single Solenoid Pilot Valves With Independent External Pilot Supply



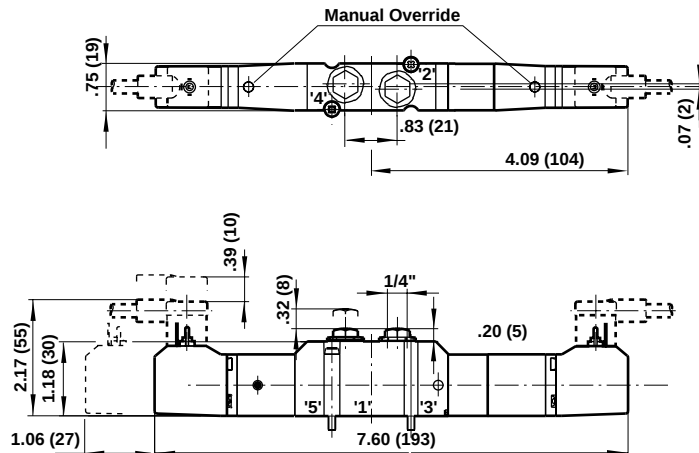
V14R5EEA Models

5/2 Double Solenoid Pilot Valves With Independent External Pilot Supply



V14R***A Models

5/3 Double Solenoid Pilot Valves



Nugget 120 Series Valves

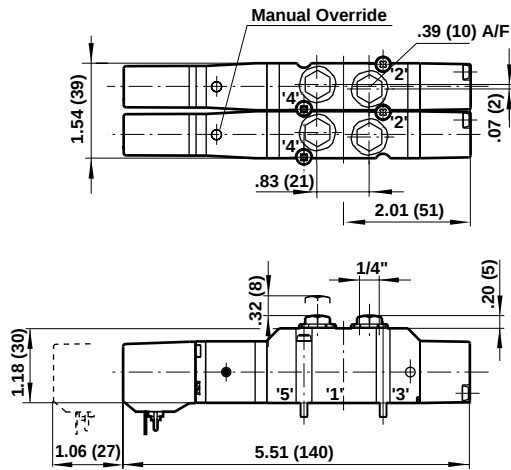
All Dimensions in Inches (mm)



V14R5**P Models

5/2 Double Solenoid Pilot Valves

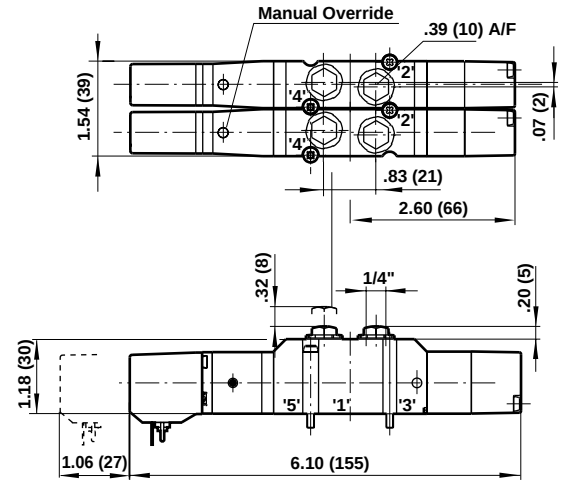
Note: Two manifold stations required



V14R***P Models

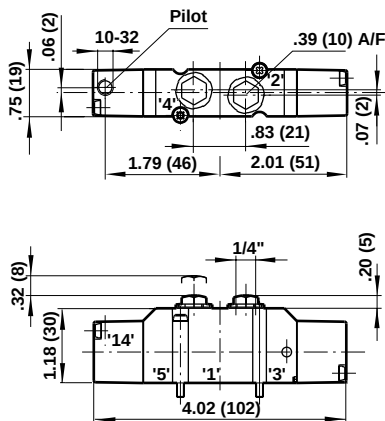
5/3 Double Solenoid Pilot Valves

for Wireway Applications



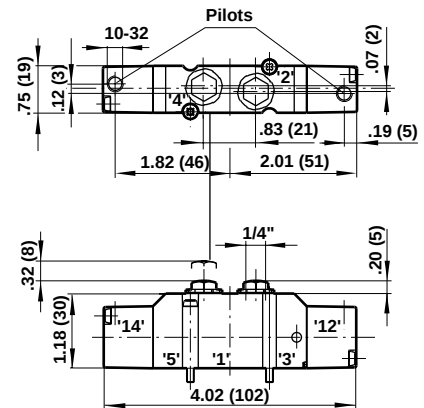
V14R5D7A-X0090

5/2 Single Air Pilot Valves



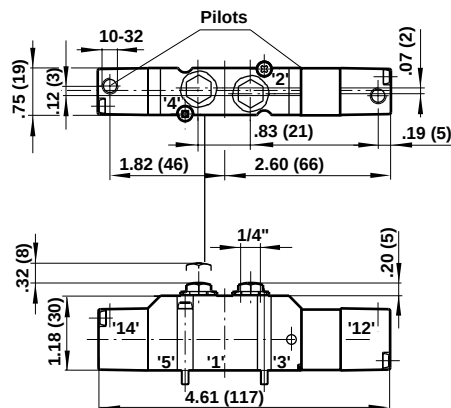
V14R**DA Models

5/2 Double Air Pilot Valves



V14R*DDA Models

5/3 Double Air Pilot Valves

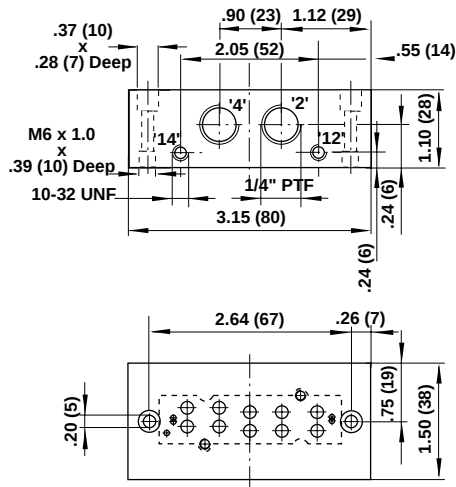




Nugget 120 Series Valves

All Dimensions in Inches (mm)

Single Subbase - Side Ported with Pilot Ports



Ports 1, 2, 3, 4, 5, 12 and 14 on side

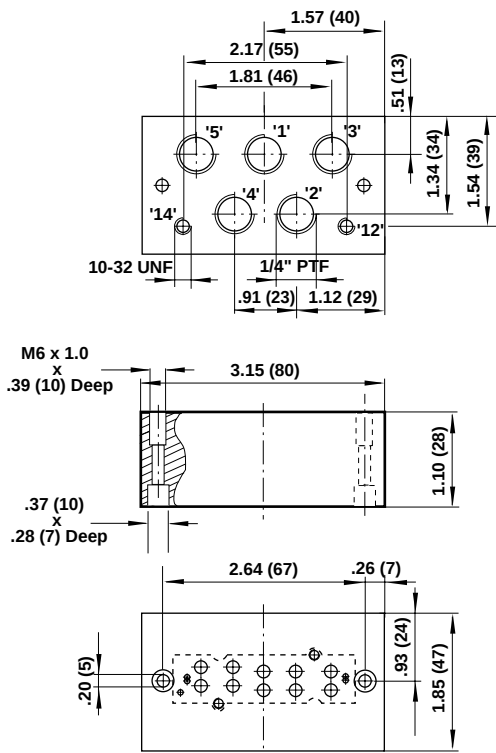
Supplied with internal pilot supply gasket 10238-C01

For twin supply valves, gasket No. 10239-C01 supplied with the valves should be used.

Weight: .52 lbs. (0.235 kg)

Port Size	1/4" PTF	ISO G
Part Number	V10121-N01	V10121-G01

Single Subbase - Bottom Ported with Pilot Ports



Ports 1, 2, 3, 4, 5, 12 and 14 on bottom

Supplied with internal pilot supply gasket 10238-C01

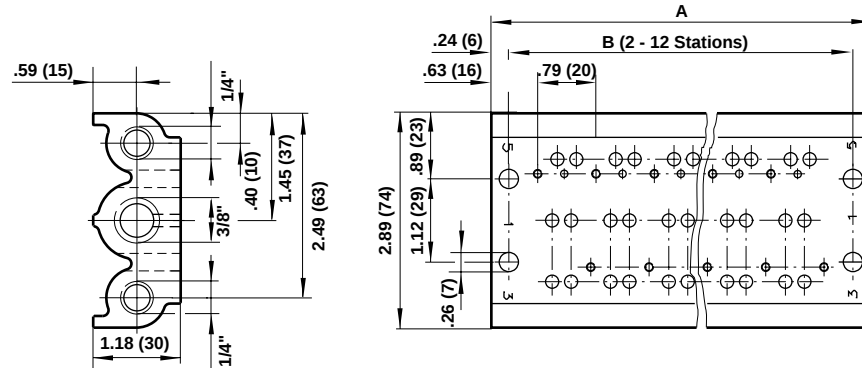
For twin supply valves, gasket No. 10239-C01 supplied with the valves should be used.

Weight: .52 lbs. (0.235 kg)

Port Size	1/4" PTF	ISO G
Part Number	V10122-N01	V10122-G01



Fixed Length Manifold for Subbase Valves (with top port plugs removed)



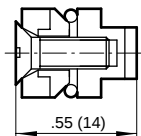
Part Number	ISO G	Number of Stations	A	B	Weight lbs. (kg)
PTF					
V10028-N01	V10028-G01	1	1.77 (45)	-	.34 (.168)
V10028-N02	V10028-G02	2	2.76 (70)	2.28 (58)	.54 (.257)
V10028-N04	V10028-G04	4	4.33 (110)	3.86 (98)	.88 (.40)
V10028-N06	V10028-G06	6	5.91 (150)	5.4 (138)	1.19 (.54)
V10028-N08	V10028-G08	8	7.48 (190)	7.0 (178)	1.52 (.69)
V10028-N10	V10028-G10	10	9.1 (230)	8.58 (218)	1.85 (.84)
V10028-N12	V10028-G12	12	10.63 (270)	10.16 (258)	2.21 (1.0)

Note: Fixed Length Manifolds are supplied with internal pilot valve gaskets. For twin supply valves and intermediate supply/exhaust modules, use the gaskets supplied with the valves and modules.

Blanking plug

Allows multiple pressures in the same manifold when used with fixed length manifolds.

10320-K01 3/8" supply port
10320-K02 1/4" exhaust port

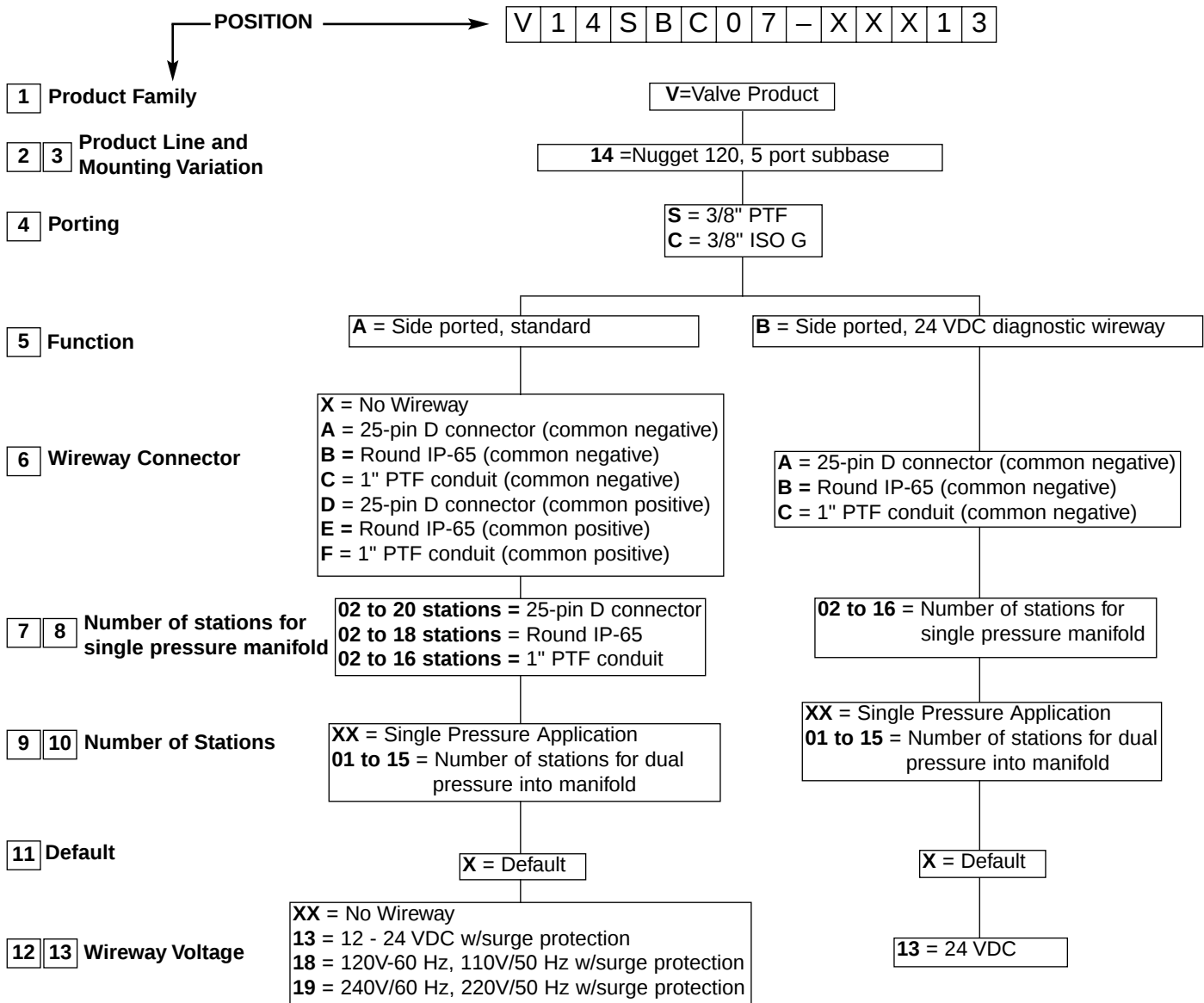




Nugget 120 Series Valves

Ordering a Factory Assembled Nugget 120 Valve Modular Manifold

1. Select the valve and voltage from pp. VAL-9-6/7, and indicate the station number on the base where each valve is to be positioned. **NOTE:** Position 1 is referenced from the left hand end. See photo below.
2. Select the base configuration using the following table as a guide.
3. The maximum number of stations in any assembly is 16.



Ordering Example

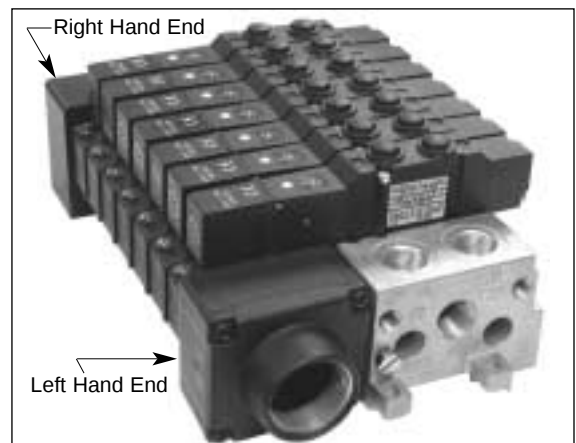
The following ordering example details the information needed to order the 4-valve, single solenoid, 24 VDC, dual pressure manifold assembly shown at right.

One Nugget 120, 4-valve stack consisting of:

Position	Quantity	Part No.	Description
1-4	4	V14R517A-B313A	Single Solenoid Valve
	1	V14SAC02-02X13	Manifold Assembly

NOTES: Product number includes blanking gasket between positions 2 and 3.

For additional accessories such as Blanking Plates see Components and Accessories p.VAL-9-27.

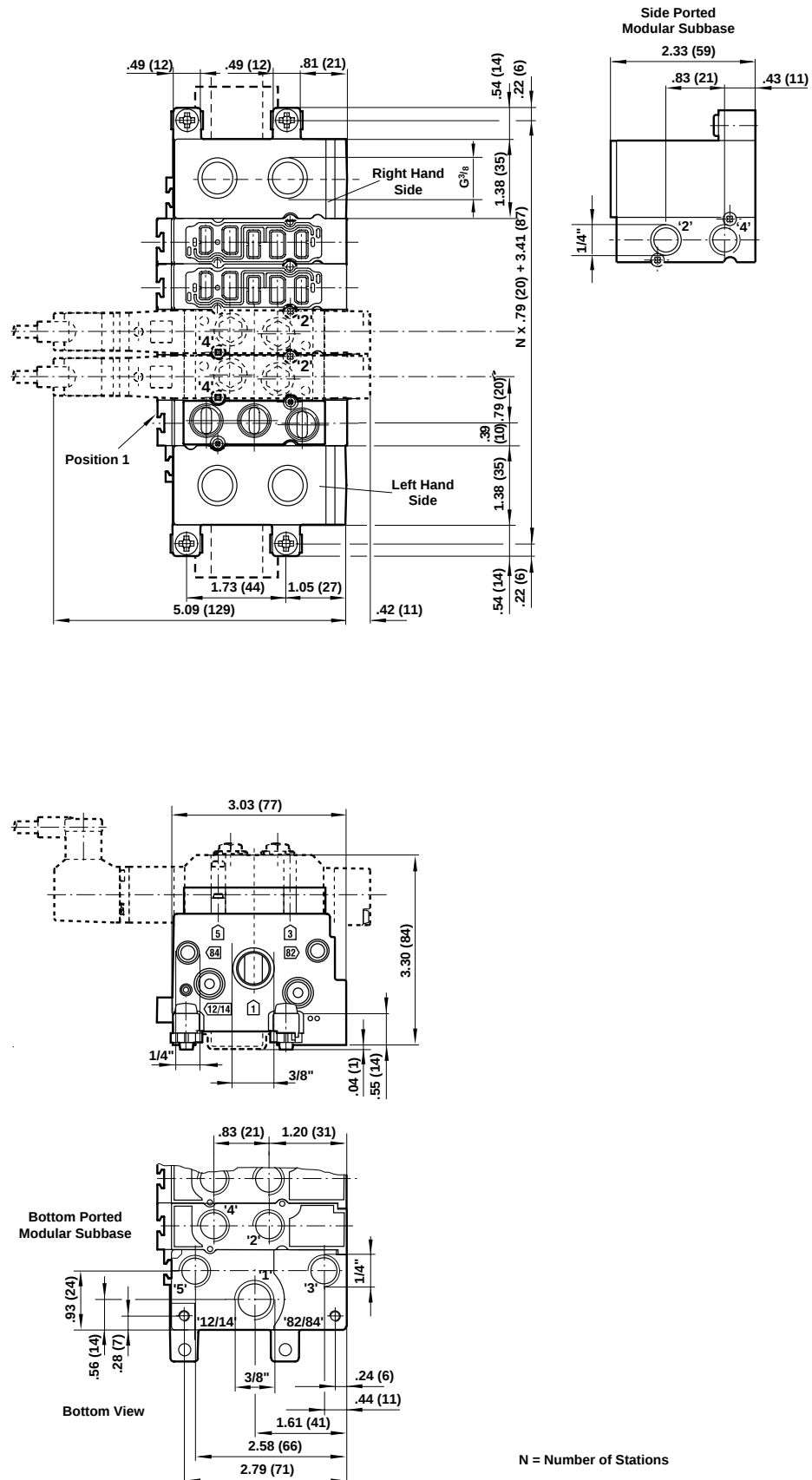


Nugget 120 Series Valves

All Dimensions in Inches (mm)



Modular Subbases for DIN rail or surface mounting

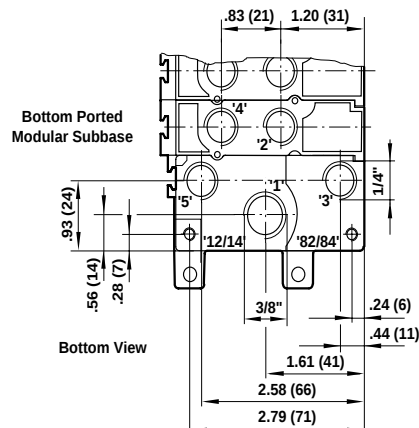
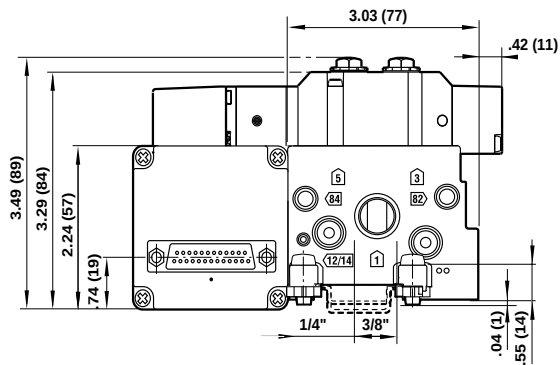
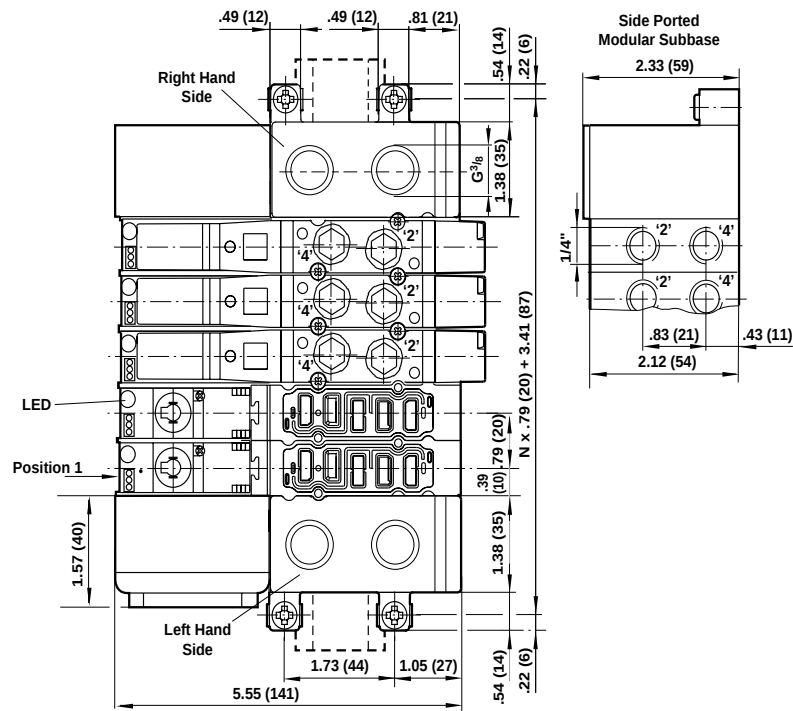




Nugget 120 Series Valves

All Dimensions in Inches (mm)

Modular Subbase with 25-Pin D Sub-Connector Wireway for V14 valves



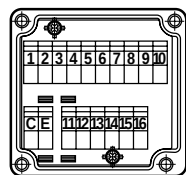
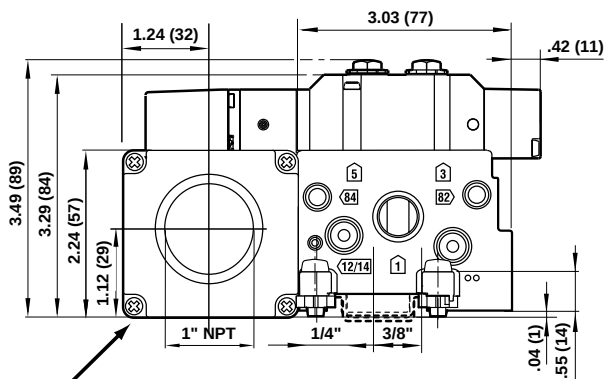
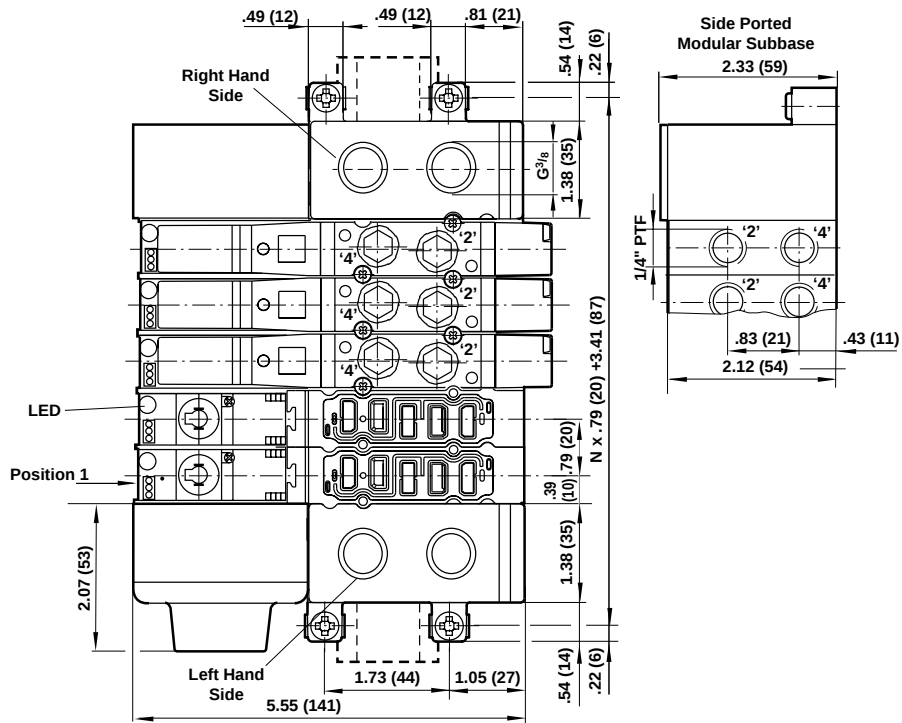
N = Number of stations

Nugget 120 Series Valves

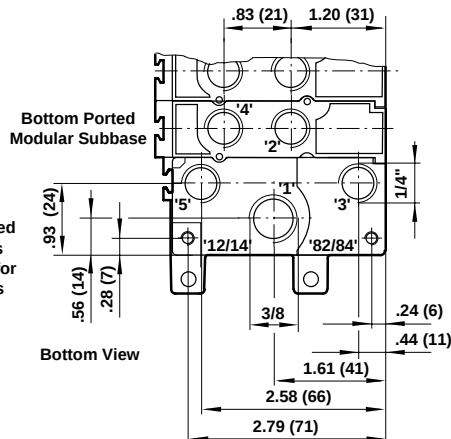
All Dimensions in Inches (mm)

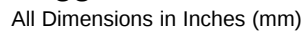


Modular Subbase with One Inch Conduit Entry Wireway for V14 valves



1" conduit housing with conduit entry plate removed showing quick connects
Note: Maximum wire size for conduit entry connectors is 12 AWG (2.5 mm²)

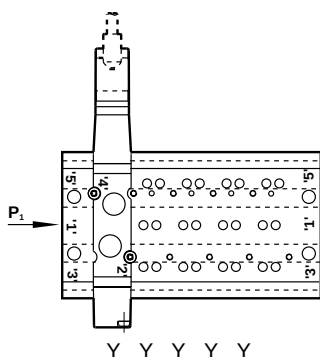






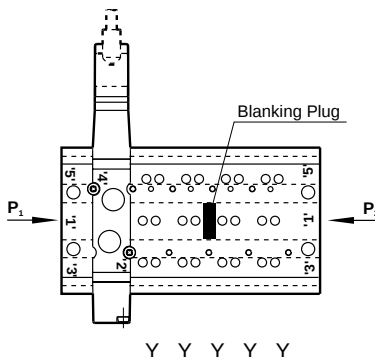
Pressure Options - Fixed Length Manifold Systems

Single Pressure



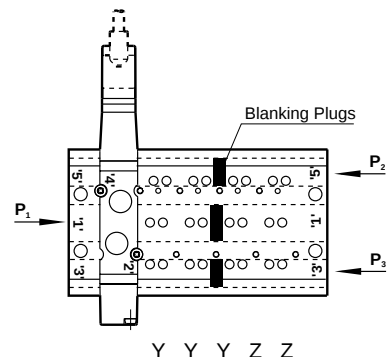
Note the use of special FLM internal pilot gaskets supplied with the manifold.

Dual Pressure



Again use special FLM internal pilot gaskets supplied with the manifold.

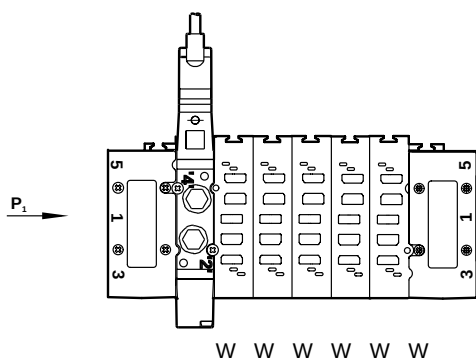
Dual Pressure/Twin Supply



Special twin supply gaskets should be used with twin supply valves so that the solenoid pilot supply is taken from port 5.

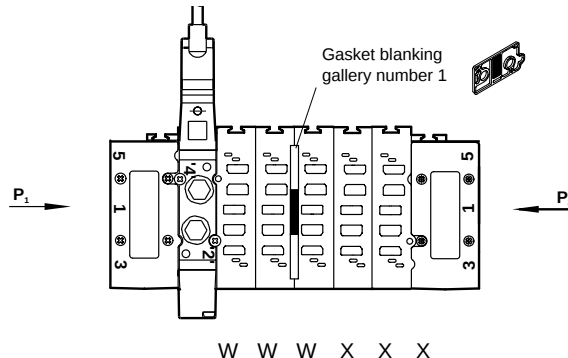
Pressure Options - Subbase Systems

Single Pressure



All valves have internal pilot gaskets.

Dual Pressure



Note the use of external pilot supply gaskets for valves having P2 applied. This ensures that these valves are isolated from gallery 12/14 otherwise P1 = P2.

Gasket Key

The letters below each valve station indicate which valve to subbase gasket must be used in the configuration.

W = Internal Pilot Supply Gasket for Modular Subbase – 10041-C95 (black)

X = External Pilot Supply Gasket for Modular Subbase – 10041-C96 (red)

Y = Internal Pilot Supply Gasket for FLM and Single Subbase – 10238-C01 (grey)

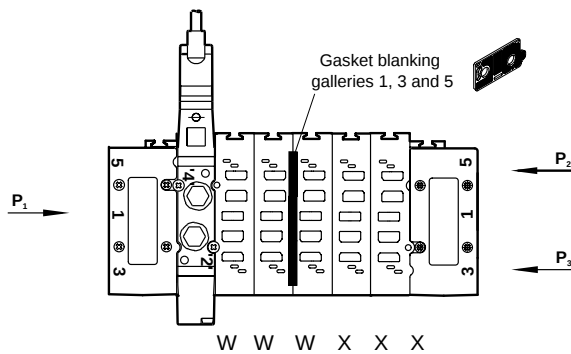
Z = Twin Supply Gasket for FLM and Single Subbase – 10239-C01 (yellow)



Nugget 120 Series Valves

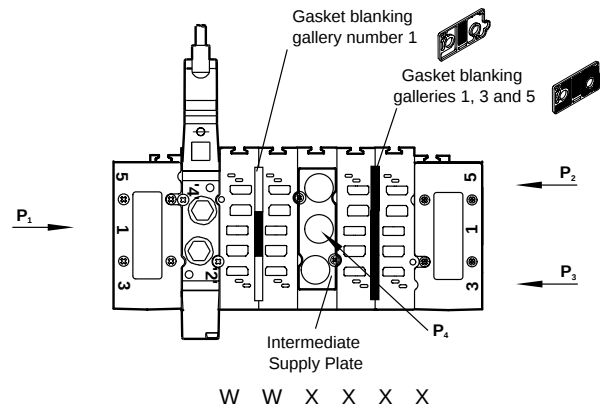
Pressure Options - Subbase Systems

Dual Pressure/Twin Supply



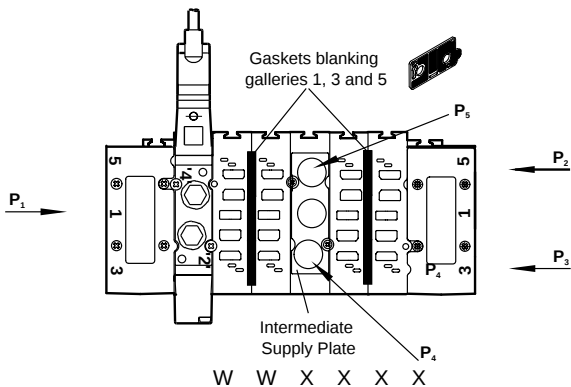
Here again note the use of external pilot gaskets for the same reason as in Dual Pressure.

Triple Pressure/Twin Supply



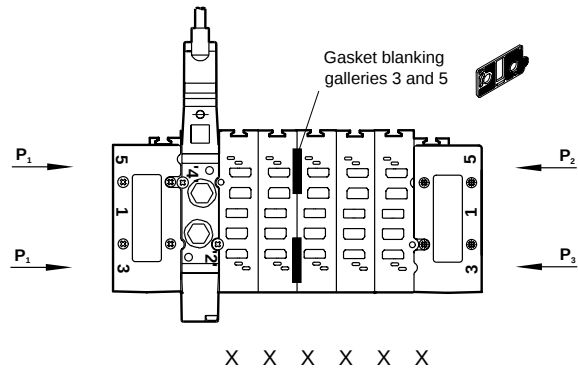
The internal pilot gaskets fitted to stations 1 and 2 ensure external supply via the 12/14 gallery to valve stations 3 to 6.

Triple Pressure/2 x Twin Supply



Valve/gasket combinations are as in Four pressure.

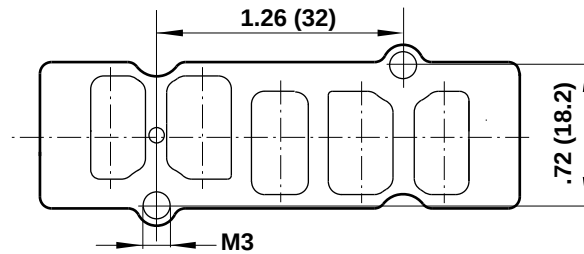
2 x Twin Supply



All of the valves are external supply and a separate pilot connection needs to be made to 12/14 via the end plate port (s).



Subbase Valve Surface Mounting Dimensions

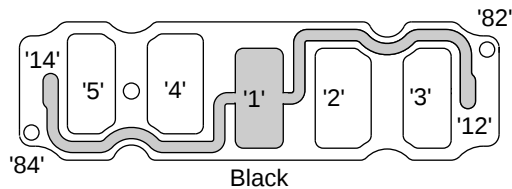


Functional Valve Gaskets

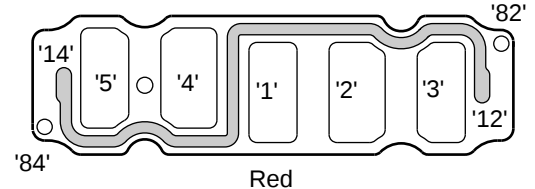
The information given below shows pilot supply flow path, gasket color, and the valve / base combinations the gaskets are used for. For modular subbase mounting, gaskets supplied with the valve must be used. For single station subbase and fixed length manifold mounting, gaskets supplied with the base must be used except for twin supply valves where gaskets supplied with the valve must be used.

For Modular Subbase

V10041-C95 - Internal Pilot Supply Gasket
Gasket type: W supplied with all internal pilot supply valves.

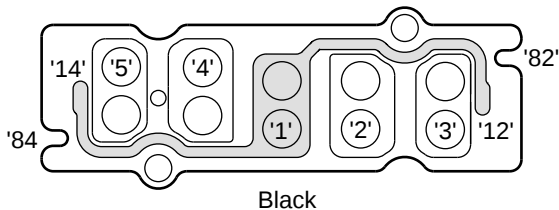


V10041-C96 - External Pilot Supply Gasket
Gasket type: X supplied with all external pilot supply valves and pilot operated valves.

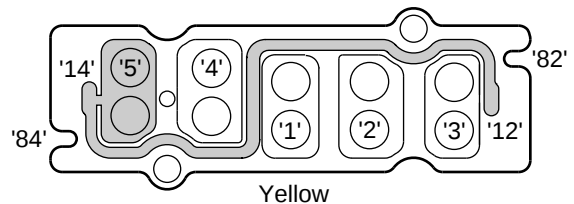


For Fixed Length Manifold and Single Subbase

V10238-C01 - Internal Pilot Supply Gasket
Gasket type: Y supplied with fixed length manifolds and single subbases.

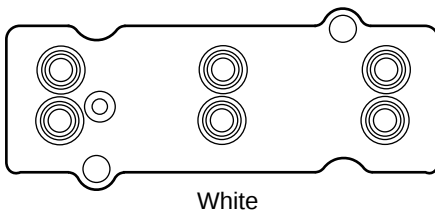


V10239-C01 - Twin Supply Gasket
Gasket type: Z supplied with all twin supply valves.



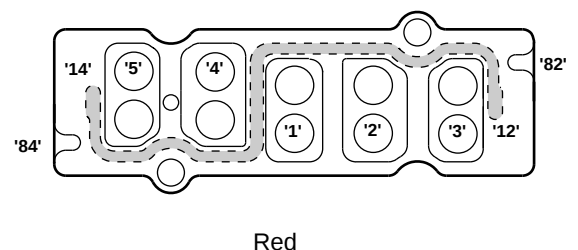
For Intermediate Supply Exhaust Module and Blanking Plate

V10356-C01 - ISEM/Blanking Plate Gasket
 Supplied with Intermediate Supply Exhaust Module and Blanking Plate



For Single Sub-base

V10381-C01 - External Supply Gasket

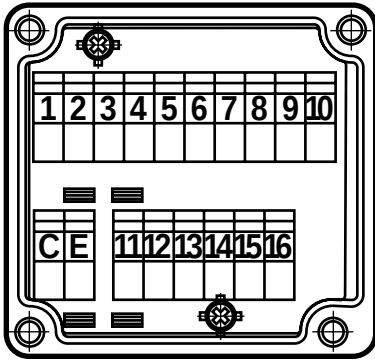




Nugget 120 Series Valves

All Dimensions in Inches (mm)

1" Conduit Housing with cover plate removed



1" conduit housing with conduit entry plate removed to show the unique, easy to use quick connects.

Note: Maximum wire size for the conduit entry connectors is 12 AWG (2.5 mm²)

C = Common negative

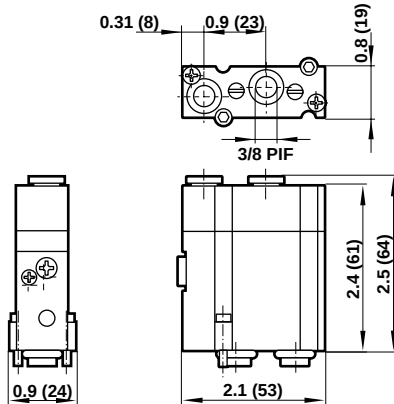
E = Ground

Pressure Regulator Block

V14B517A-Q2113 Dual

V14B517A-Q2116 Mono port 2

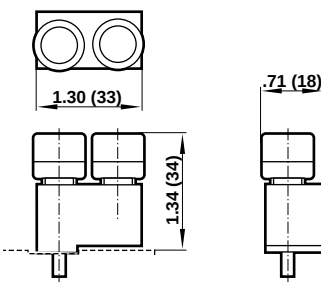
V14B517A-Q2119 Mono port 4



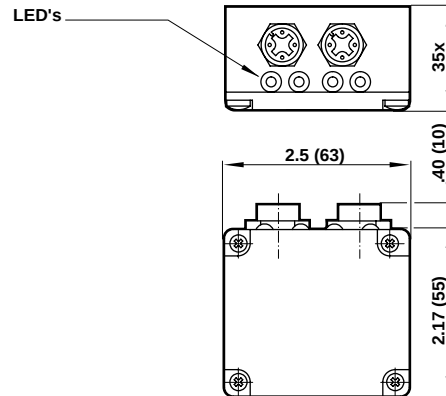
Pressure Gauge Kit for Regulator

V14B517A-Q2120 Dual

V14B517A-Q2121 Mono



Remote Output Modules



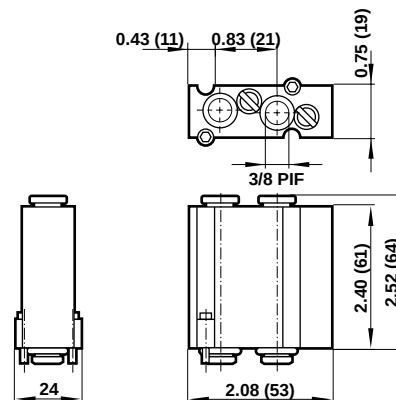
Nugget 120 end plate 4 outputs VE1MP14B-00400

Application:

Remote output modules are used with Nugget 40 and Nugget 120 valve manifolds to provide up to 4 outputs to remote devices such as Soft Start and Monitored Dump Valves. Harness assemblies should be increased by the relevant number of stations.

Flow Control Block

V14B517A-Q2211 (3/8 OD PIF)

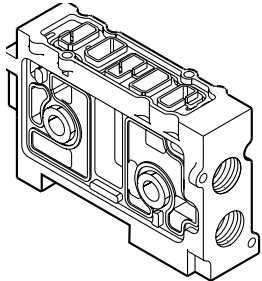




Modular subbase* – Single station manifold block.

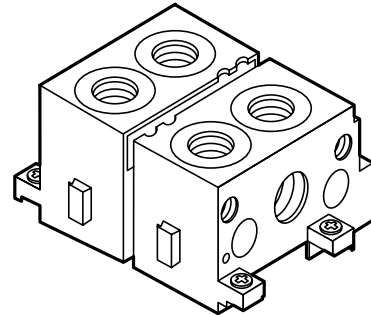
V14B517R-Q010N	Side ported	1/4" PTF
V14B517R-Q010G	Side ported	1/4" ISO G

*Includes side gasket.



End Plate Kit

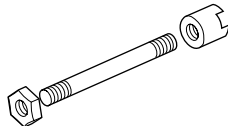
V11273-N01	Side ported	3/8" PTF
V11273-G01	Side ported	3/8" ISO G



Tie rod kits w/ fasteners

V14B517A-Q03**	M3	For wireway
V14B517A-Q04**	M5	For subbase

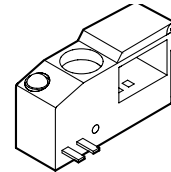
** Insert number of stations 02-16 stations



NOTE: Kits include (1) fixed length tie rod and fasteners. Subbases require (2) kits per manifold, and wireways require (1) kit per manifold. Length is determined by the number of stations to be manifolded.

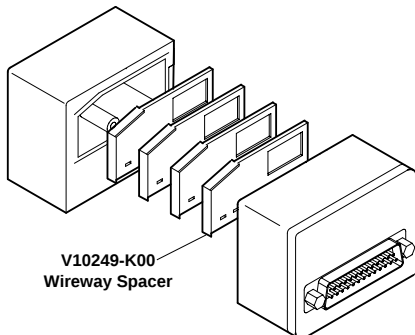
Wireway Module

V14B517R-Q0913	12-24 VDC with indicator, common negative
V14B517R-Q0918	110-120V 50/60 Hz w/indicator
V14B517R-Q0919	220-240V 50/60 Hz w/indicator
V14B517R-Q09B3	24 VDC Diagnostic / Power Saving, common negative
V14B517R-Q0953	12-24 VDC w/indicator, common positive



Wireway End Plate and Harness Kit with 25-Pin D subconnector

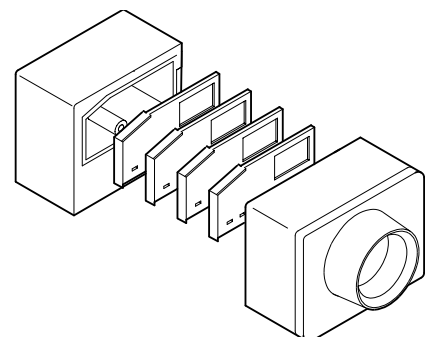
V14B517R-Q0604	4 stations
V14B517R-Q0608	8 stations
V14B517R-Q0612	12 stations
V14B517R-Q0616	16 stations
V14B517R-Q0620	20 stations



Note: See p. VAL-9-5 for component reference locations

Wireway End Plate and Harness Kit with 1" conduit connector

V14B517R-Q0804	4 stations
V14B517R-Q0808	8 stations
V14B517R-Q0812	12 stations
V14B517R-Q0816	16 stations





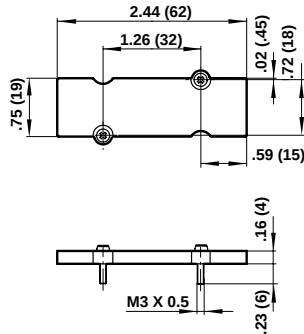
Nugget 120 Series Valves

All Dimensions in Inches (mm)

Blanking Plate Kit

Installed in place of a valve to allow an additional valve to be added at a later date.

V14B517A-Q2700



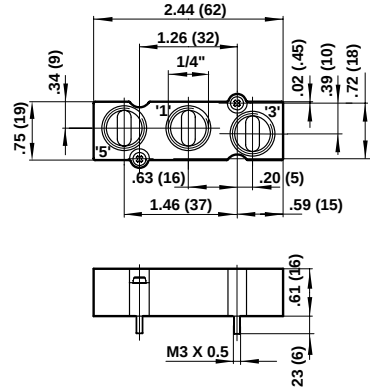
Intermediate Supply/Exhaust plate kit

Used to introduce additional pressure or exhaust air flow within a valve stack.

Part Number Port Form

V14B517A-Q240N 1/4" PTF

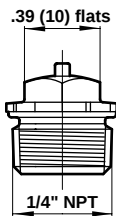
V14B517A-Q240G 1/4" ISO G



Pressure Indicator

V14B517AQ2800

1/4" port plug with integral pressure indicator. Replaces standard port plugs. Minimum 44 psig (3 bar) operating pressure.

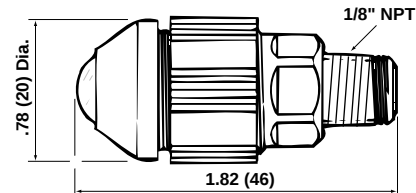


Rotowink Indicator Kit

40000-K30 Red indicates unactuated, green indicates actuated.

40000-K31 Green indicates unactuated, red indicates actuated.

Spring-loaded pressure-actuated device indicates through the use of two contrasting fluorescent colors the presence or absence of air pressure at the cylinder port. Kits include 1/8" and 1/4" bushings for installation. Minimum 10 psig (0.7) operating pressure.

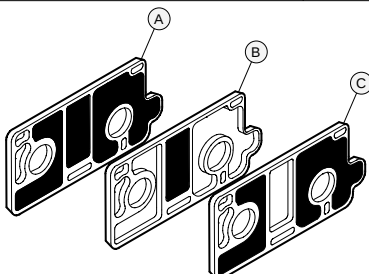


Blanking Gasket Set

V10040-K96 .01 lbs. (.006 Kg)

For dual or Multi-pressure Supply on Modular Sub-base. Set of 3 sub-base to sub-base gaskets for blanking port 1, ports 3 & 5 or ports 1,3 & 5.

Description	Part Number
(A) Gasket for blanking ports 1, 3 and 5	V10040-C98
(B) Gasket for blanking port 1	V10040-C97
(C) Gasket for blanking ports 3 and 5	V10040-C96



Wireway End Plate and Harness Kit with IP65 Round

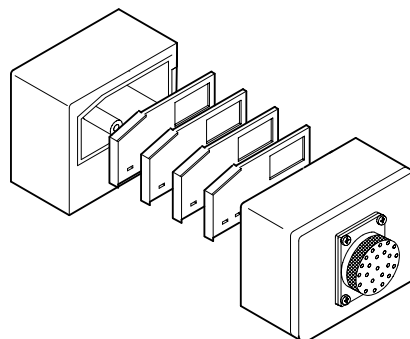
Connector Connector

V14B517R-Q0704 4 stations

V14B517R-Q0708 8 stations

V14B517R-Q0712 12 stations

V14B517R-Q0716 16 stations



Nugget 120 Series Valves

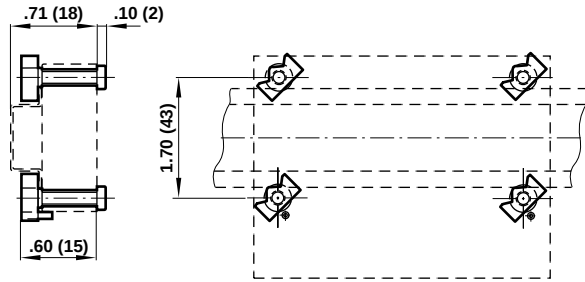
All Dimensions in Inches (mm)



DIN Rail Mounting Kit

10319-K30 .02 lbs. (.008 Kg)

Kit for mounting side ported modular sub-bases on DIN 46277-3, BS5584 and CENELEC EN 50-022 mounting rail.

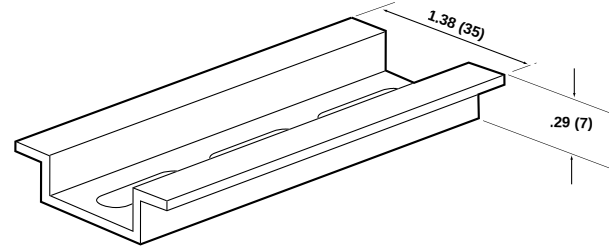


DIN-rail

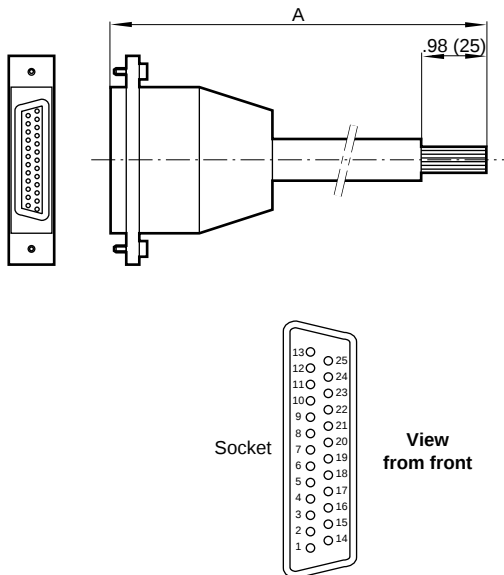
V10009-C00

.69 lbs. (.312 Kg)

39" (1 meter) length.



IP 40 D Sub-Connector



D Sub-Connector with Cable

Type: 25 pin IP 40 D Sub-connector. Cable size 20 AWG (.52 mm²)

Model	A	Weight (Kg)
V10020-E01	3' (1m)	.61 lbs. (.28)
V10020-E03	10' (3m)	1.50 lbs. (.68)
V10020-E05	16' (5m)	2.38 (1.08)

Pin no.	Socket	Plug	Pin no.	Socket	Plug
1	Solenoid 1	Red	14	Solenoid 14	Green/red
2	Solenoid 2	Blue	15	Solenoid 15	Yellow/red
3	Solenoid 3	Green	16	Solenoid 16	White/red
4	Solenoid 4	Yellow	17	Solenoid 17	Red/black
5	Solenoid 5	White	18	Solenoid 18	Red/brown
6	Solenoid 6	Brown	19	Common, -negative	Yellow/blue
7	Solenoid 7	Violet	20	Common, -negative	White/blue
8	Solenoid 8	Orange	21	Common, -negative	Blue/black
9	Solenoid 9	Pink	22	Common, -negative	Orange/blue
10	Solenoid 10	Turquoise	23	Common, -ground	Yellow/green
11	Solenoid 11	Grey	24	Solenoid 19	White/green
12	Solenoid 12	Red/blue	25	Solenoid 20	Orange/green
13	Solenoid 13	Black			

Solenoid No. 1 is nearest to the socket

Round Connector with Cable

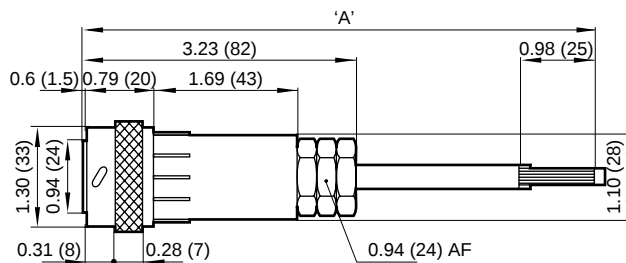
Type: 23 pin IP65 'Round' connector. Cable size 20 AWG (.52 mm²)

Model	A	Weight (Kg)
V10021-E01	3 (1m)	.75 (.34)
V10021-E03	10 (3m)	1.63 (.74)
V10021-E05	16 (5m)	2.51 (1.14)
V10021-E08	26 (8m)	4.67 (2.12)
V10021-E10	32 (10m)	5.89 (2.67)

Pin.	Socket	Plug	Pin.	Socket	Plug
A	Solenoid 1	Red	N	Solenoid 13	Black
B	Solenoid 2	Blue	P	Solenoid 14	Green/red
C	Solenoid 3	Green	R	Solenoid 15	Yellow/red
D	Solenoid 4	Yellow	S	Solenoid 16	White/red
E	Solenoid 5	White	T	Solenoid 17	Red/black
F	Solenoid 6	Brown	U	Solenoid 18	Red/brown
G	Solenoid 7	Violet	V	Common, -negative	Yellow/blue
H	Solenoid 8	Orange	W	Common, -negative	White/blue
J	Solenoid 9	Pink	X	Common, -negative	Blue/black
K	Solenoid 10	Turquoise	Y	Common, -negative	Orange/blue
L	Solenoid 11	Grey	Z	Common, -ground	Yellow/green
M	Solenoid 12	Red/blue			

Solenoid No. 1 is nearest to the connector on valve manifold

IP65 'Round' Connector





Repair Kits

Valve repair kit – 3/2	V40003-K30
Valve repair kit – 5/2	V10316-K30
Valve repair kit – 5/3 APB	V10317-K30
Valve repair kit – 5/3 COE	V10318-K30
Valve repair kit – 5/3 COP	V10347-K30
Solenoid connector seal kit	54644-52
Solenoid coil screw kit	V10259-K00
Wireway seal kit	V10258-K00
Wireway spacer/seal kit	V10249-K00
Subbase gasket	V10040-C95
Valve/subbase gasket-internal pilot	V10041-C95
Valve/subbase gasket-external pilot	V10041-C96
Single subbase, fixed length manifold gasket - internal pilot	V10238-C01
Single subbase, fixed length manifold gasket - twin supply	V10239-C01
Single subbase, fixed length manifold gasket - supply block	V10356-C01
Single subbase gasket - external pilot	V10381-C01

Replacement solenoids coils

6 VDC, 1.5W, 12V 50/60 Hz, 2.9 VA	V10025-A11
12 VDC, 1.7W	V10025-A12
24 VDC, 1.7W	V10025-A13
24V/60 Hz-24V/50Hz, 2.9 VA	V10025-A14
48V 50/60 Hz, 2.9 VA	V10025-A16
120V/60 Hz-110V/50Hz, 2.5 VA	V10025-A18
240V/60 Hz-220V/50Hz, 2.5 Va	V10025-A19

Replacement Solenoid Coil Connector

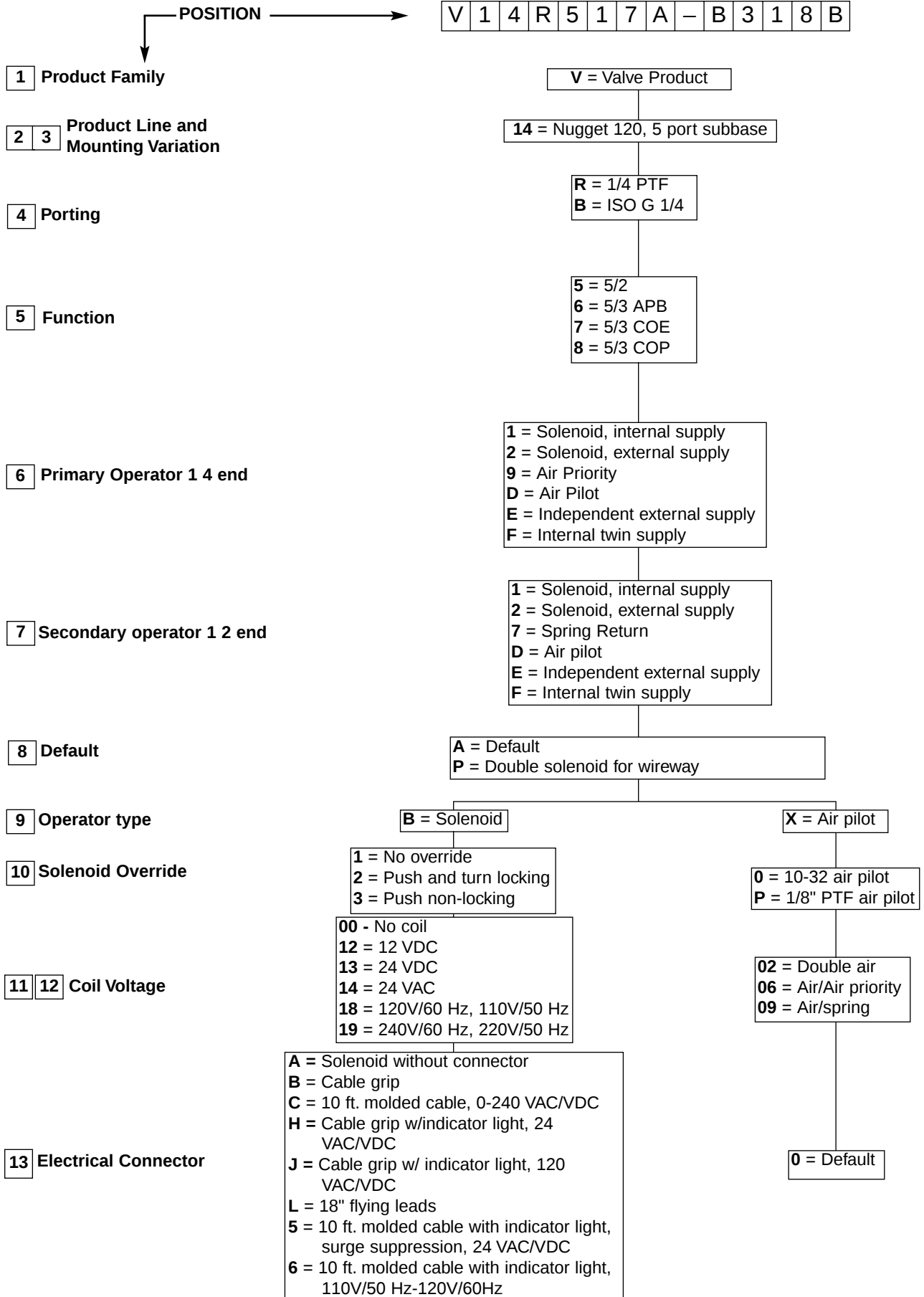
Cable grip connector	V10027-D00
Molded 10 ft. cable connector, 0-240 VAC/VDC*	V10013-D03
Molded 10 ft. cable connector with indicator light, 110-120 VAC/VDC*	V10015-D03
Molded 10 ft. cable connector with indicator light and surge suppression, 24 VAC/VDC*	V10014-D03
Cable grip w/indicator light 24 VAC/VDC	V10012-D13
Cable grip w/indicator light 120 VAC/VDC	V10012-D18

Accessories

Blanking plug for wireway module	V10089-C90
	V10018-K00 (qty. 10)
Coil seal for coil terminal pins to wireway module	V10258-K03
	V10024-K00 (qty. 10)
Cylinder port plug	V10230-R90 (qty. 10)
Replacement mounting screw	V00021-C01

* Cable leads: blue = positive, brown = negative, green w/yellow stripe = ground.

Nugget 120 Series Valves



Nugget 200 Spool Valves

Solenoid, Air, Manual, and Mechanically Operated Pneumatic Valves. Available in 1/4", 3/8", or 1/2" ports

Contents	
Features	VAL-10-2
Solenoid Pilot Actuated Inline and Stacking Valves	VAL-10-4
Air Pilot Actuated Inline and Stacking Valves	VAL-10-18
Manual and Mechanical Actuated Inline and Stacking Valves	VAL-10-23
Fixed Length Manifold	VAL-10-32
Special Instructions - Stacking Valves	VAL-10-34
Product Numbering System	VAL-10-36



Stacking Valve with Junction Box



Manual Lever Operator



Low Pressure Air Operator on Inline Valve



Nugget 200 Spool Valves

Norgren Nugget 200 valves feature a lightweight, one-piece aluminum spool and nitrile seal assembly. Shifting forces are minimized because of the low inertial spool made from high strength anodized aluminum. Highly durable low friction lip seals are designed to operate with lubricated or nonlubricated air.

Rugged Solenoid, Air, Manual, or Mechanical Operators

Nugget 200's one hundred and twelve different operators are designed to last for millions of cycles. Bodies and operators are made of precision machined, cast aluminum, zinc, PPA, or acetal.

High Flow

An inline Cv of 1.6 provides exceptionally high flow for its compact size. This makes the Nugget 200 valve appropriate for a wide range of applications, from machine control systems to air line control.

Segmented Latch Type Detent

The spool is held securely in place by a unique segmented detent which engages a lip on the piston.

Shock Absorbent Bumpers

Valve life is extended because of substantial bumpers which absorb the shock and vibration of the rapidly shifting spool and piston.

Port and Operator Identification

Each of the ports is identified by a permanent number adjacent to the port on both the body and end plates. In addition, on inline valves, a two-digit number at each end of the body indicates the ports connected when the operator at that end is actuated.

A Wide Range of Valve Accessories

Norgren offers a wide range of accessories for use with the Nugget 200 valve, including valve body cover plates, mufflers, intermediate supply exhaust block, isolating plugs, solenoid exhaust filter nut and many more. These accessories allow cost-efficient customizing for your specific application.



Stacking Valve with Junction Box

Four Mounting Styles

Inline Valves mount directly to the air line and are available with the following features:

- 1/4", 3/8", or 1/2" PTF or ISO G ports.
- 3-port/2-position, 5-port/2-position, or 5-port/3-position configurations. The 3-port/2-position configuration is not available with 1/2" ports.

Stacking Valve Assemblies are two or more valves manifolded together with tie rods and end plates. They are available with either a common inlet port, independent exhaust ports, or with common inlet and exhaust ports located in the end plates. Features include:

- 3/8" ports in the end plate. 1/4" or 3/8" cylinder ports in valve body.
- 5-port/2-position or 5-port/3-position configurations.

Stacking Valve Assemblies with Junction

Box feature a plug-in solenoid operator which allows the valve to be serviced without disturbing the electrical wires. The solenoid plugs into a terminal block in the junction box, with a gasket to prevent entry of dust or moisture. They are available only in the common inlet and exhaust ports configuration. Other features are the same as listed above for Stacking Valve Assemblies.

All **stacking valves** mount on approximately 1-1/4" centers reducing installation space requirements.

Fixed Length Manifolds are available for most Nugget 200 1/4" and 3/8" inline valves. The fixed length manifold reduces plumbing and installation time. The lightweight aluminum construction uses 3/4" PTF common inlet and exhaust ports. These manifolds are available in 2 to 10 station lengths.

Durable Finish

External surfaces are protected with an oven cured, epoxy resin paint which provides excellent corrosion protection and chip resistance.

**Aesthetic Appearance**

Norgren's high luster black powder paint gives any control circuit installation the quality appearance reflecting the superior operating capacity built into every Nugget 200 valve.

Low Watt Solenoid Options

The 120 VAC and 24 VAC solenoid operator options require only 3.5-watts of power and the 115 VDC operator requires 3.4 watts. All other DC operators require only 2 watts of power, ideal for computer based control systems as well as industrial applications where minimum energy consumption is desired.

Rotatable Connector and Coil

The standard cable grip electrical connector can be rotated 180°, the solenoid coil can be turned in increments of 90°, and the solenoid operator housing can be turned in increments of 180° making the operators adaptable for easy installation.

Electrical Connector Options

A cable grip connector with indicator light; a 1/2" NPT conduit connector; and a 5-foot, three-conductor, molded cable with or without indicator light, surge protection and reverse voltage protection are available.

Solenoid Manual Overrides

Standard solenoid operators are furnished with locking manual overrides to provide a means of shifting the valve without electrical power. Optional solenoids without overrides and with nonlocking overrides are available.

CSA Certified Valves

Completed inline and stacking valve assemblies with certain operators are CSA Certified. Stacking valves with junction box and indicator light are CSA Component Certified.

Internal or External Solenoid Pilot Supply

All solenoid operated valves can be quickly converted from an internal to an external pilot supply by interchanging the positions of two interface seals and removing the external supply port pipe plug.

High Flow Pilot Exhaust Orifice

Oversize pilot exhaust orifice provides rapid return time when valve is deactuated.



**Low Pressure Air Operator on
Inline Valve**

Solenoid Diffuser Plug

A diffuser plug is factory installed in every solenoid pilot exhaust to help prevent entry of contaminants during shipping and normal operation. It may be removed when minimum response times are desired.

Electrical Connector Options

A cable grip connector with indicator light; a 1/2" NPT conduit connector; and a 5-foot, three-conductor, molded cable with or without indicator light, surge protection and reverse voltage protection are available.



Manual Lever Operator

Nugget 200 Spool Valves

1/4", 3/8", and 1/2" Solenoid Pilot Actuated
3/2, 5/2, & 5/3 Inline and Stacking Valves

- Long lasting spool design
- High flow compact valves
- Four mounting styles: inline, stacking valve assemblies, stacking valve assemblies with junction box, and fixed length manifold.
- Wide range of operators and voltages available
- Three functional types: available in 3/2, 5/2, and 5/3 configurations



Technical Data

Medium:

Filtered and lubricated or non-lubricated compressed air or vacuum.

Operation:

Spool valve solenoid pilot actuated.

Mounting:

Stacking – through holes on manifold base.

Inline – through holes in valve body.

Port Size:

PTF – 1/4", 3/8", 1/2"

ISO G – 1/4", 3/8" .

Operating Pressure:

Maximum 150 psig (10.3 bar). For details see overleaf.

Operating Temperature:

-20° to 120°F (-29° to 50°C)

Consult Technical Service for use below 36°F (2°C).

Materials:

Body: Aluminum

Spool: Anodized aluminum

Solenoid Operator Base: plastic

Plunger and spring: Stainless steel

Elastomers: Nitrile and special nitrile-based low-friction elastomers.

Note: See **Seal Compatibility** p. VAL-10-5.

Ordering Information

To order standard Nugget 200 valves with coils, quote model number from tables overleaf, e.g. order: K71DA00-K36-KV21W2 for a 5-port/2-position, single Solenoid Pilot Operated, Spring Return model with an internal pilot supply, fitted with a 24 VDC standard wattage coil, and rotatable cable grip connector and locking override.



Solenoid Operating Specifications

Inlet Pressure Range for Solenoid Operated Valves:

With Internal Pilot Supply: 15 to 150 psig*
(1.03 to 10.3 bar)

With External Pilot Supply: 10" Hg vacuum to 150 psig
(10.3 bar)

Temperature Range (Ambient/Inlet):

Solenoid Operated Valves: -20° to 120°F** (-29° to 50°C)

Low Wattage Solenoids: -20° to 155°F** (-29° to 68°C)

Operator Pilot Pressures:

Maximum Pilot Pressure: 150 psig (10.3 bar)

Minimum Pilot Pressure at 150 psig (10.3 bar) main valve inlet pressures are given in the following table:

- * Minimum Inlet Pressure is dependent on the type of operator and return used. See Operator Pilot Pressure specifications in Operating Specifications.
- ** With the dew point of supply air less than air temperature below 35°F (2°C)

Minimum Pilot Pressures

Operator	Return	Nondetent psig (bar)	Spring Detented psig (bar)	Centered psig (bar)
Solenoid	Solenoid	15 (1.0)	25 (1.7)	45 (3.1)
Solenoid	Spring	35 (2.4)	—	—

Average Flow Factors in Cv‡ (l/min)

Valve	Port Size	Flow Path	
		Port 1 to 2 1 to 4	Port 2 to 3 4 to 5
3-Port, Inline	1/4"	1.6 (1700)	1.7 (1800)
	3/8"	1.6 (1700)	1.7 (1800)
5-Port, Inline	1/4"	1.6 (1700)	1.7 (1800)
	3/8"	1.6 (1700)	1.7 (1800)
	1/2"	1.6 (1700)	1.7 (1800)
5-Port, Stacking	1/4"	1.8 (1900)	1.4 (1450)
	3/8"	1.8 (1900)	1.4 (1450)

- ‡ Flow Rating determined in accordance with NFPA/T3.21.3, Pneumatic fluid power – Flow test procedure and reporting method – For fixed orifice components.

Seal Compatibility

Nugget 200 seals are compatible with the following lubricants:

DC BR-2+ grease (Dow Corning)

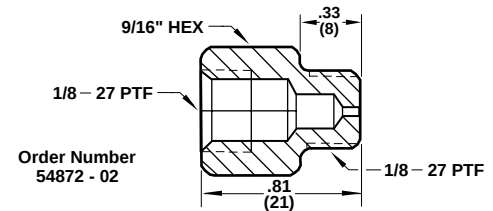
DC 44 grease (Dow Corning)

Nondetergent mineral based oil such as Mobil DTE light oil

Note: Nugget 200 seals are not compatible with WD-40 or commonly used de-icer fluids. Consult factory to verify compatibility of lubricants or fluids not listed above.

Warning

When a solenoid operator is used as a return for a manual or mechanical operator, the pilot pressure applied to the return operator must not exceed 40 psig (2.8 bar). Pilot pressures greater than 40 psig for a solenoid or air return will cause structural damage to the manual or mechanical operator and can also result in injury to the user. If the available pilot pressure exceeds 40 psig, an external pilot supply only must be used and a restrictor, part number 54872-02, must be installed in the pilot port of the return operator to reduce the return force to an acceptable level. Pilot pressure to the restrictor must not exceed 150 psig (10.3 bar).





Nugget 200 Spool Valves

Solenoid Operator Specifications

KV_x/KU_x, K0_x/K1_x, K2_x/K3_x, K4_x/K5_x, & K6_x/K7_x Series

Voltages Available and Power Requirements:

Standard:	120V/60Hz-110V/50Hz: 7W
Optional:	KV _x , K1 _x , K3 _x , K5 _x , & K7 _x Series
	12V/60Hz/50Hz: 7W
	24V/60Hz/50Hz: 7W
	48V/60Hz/50 Hz: 7W
	240V/60Hz: 7W
	220V/50Hz: 7W
	12 VDC: 6W
	24 VDC: 6W
Low Wattage:	KU _x , K0 _x , K2 _x , K4 _x , & K6 _x Series
Standard:	24 VDC: 2W
Optional:	24V/50Hz/60Hz: 3.5W
	120V/60Hz: 3.5W
	110V/50Hz: 3.5W
	6 VDC: 2W
	12 VDC: 2W
	115 VDC: 3.4W

Duty: Continuous at 90 to 105% of rated voltage

Coil Type: Class H. Molded with three-pin plug-in connector

Enclosure Classification: NEMA 4, per DIN 40050 – IP 65

Connector Plug:

KU _x /KV _x Series:	Standard, Cable grip for cables 1/4" to 5/16" (6 to 8 mm) in diameter
K2 _x /K3 _x Series:	Rotatable 1/2" Conduit Connector
K4 _x /K5 _x Series:	Class H. Molded with three-pin plug-in connector

Override: Manual, locking

Pilot Supply: Internal - standard, External - optional

External Pilot Supply Port: 1/8" PTF (ISO G Optional).

Minimum Electrical Signal Duration: Solenoid operated 2-position detented or nondetented valves can be shifted with a momentary electrical signal. Minimum signal duration is 13 milliseconds for single solenoid operated spring return valves. Double solenoid operated valves minimum signal duration is 20 milliseconds.

Electrical connector spades on the operator coil are 3-pin with 11 mm spacing.

KD_x & KQ_x Series

Voltages Available and Power Requirements:

Standard:	120V/60Hz: 6W
Optional:	24V/60Hz/50Hz: 6W
	12VDC: 6W
	24VDC: 6W

Duty: Continuous at 85 to 105% of rated voltage

Coil Type: Class H. Molded with three-pins for electrical connection or optional electrical plug-in connector.

Enclosure Classification:

NEMA 4, per DIN 40050 – IP 65
Connector Plug: Cable grip for cables 1/4" to 5/16" (6 to 8 mm) in diameter.

Electrical Connections –

KD Series Operators: Furnished with 1/2" conduit connector molded into coil, leads are 18" long
KQ Series Operators: Furnished without a connector

Override: Manual, locking or nonlocking.

Pilot Supply: Internal - standard, External - optional

External Pilot Supply Port: 1/8" PTF (ISO G Optional).

Minimum Electrical Signal Duration: Solenoid operated 2-position detented or nondetented valves can be shifted with a momentary electrical signal. Minimum signal duration is 13 milliseconds for single solenoid operated spring return valves. Double solenoid operated valves minimum signal duration is 20 milliseconds.

Optional electrical connectors for KQ_x Series operators conform to DIN43650 Form A for Three-Pin Electrical Connectors.

Electrical spades on the KQ_x Series operator coil are 3-pin with 18 mm spacing.

CSA Certified Valves

KD_x and KQ_x Series solenoid operators are CSA Certified. Optional solenoid coil voltages, solenoid cable grip electrical connectors and 1/2" NPT conduit electrical connectors also qualify for CSA Certification.



KMx Series

Voltages Available and Power Requirements:

- Standard: KMx: 120V/60Hz, 6W
- Optional: KMx: 24V/60Hz/50Hz, 6W
- 12VDC: 6W
- 24VDC: 6W

Duty: Continuous at 85 to 105% of rated voltage.

Coil Type: Class H Molded with three-pin plug-in terminal block connector.

KMx Series has an indicator light molded into coil

Enclosure Classification: NEMA 1

Override: Manual, locking or nonlocking

External Pilot Supply Port: 1/8" PTF (ISO G Optional).

Minimum Electrical Signal Duration: Solenoid operated 2-position detented or nondetented valves can be shifted with a momentary electrical signal. Minimum signal duration is 13 milliseconds for single solenoid operated valves. Double solenoid operated valves minimum signal duration is 20 milliseconds.

Electrical connectors conform to DIN43650 Form A for Three-Pin

Electrical Connectors.

CSA Component Certified

KXx Series Hazardous Location Solenoid

Voltages Available and Power Requirements

- Standard: 120V/60Hz-100V/50Hz: 12W
- Optional: 240V/60Hz: 12W
- 208V/50Hz: 12W
- 24V/60Hz: 12W
- 22V/50Hz: 12W
- 6 VDC: 12W
- 12 VDC: 12W
- 24 VDC: 12W
- 48 VDC: 12W
- 115 VDC: 12W

Duty: Continuous at 85 to 105% of rated voltage

Coil Type: Molded

Enclosure Classification: NEMA 7C, 7D, 8C, 8D, 9E, 9F and 9G. Meets the requirements of Underwriters Laboratories for use in hazardous locations as defined in National Electrical Code (ANSI CI-1975): Class I, Groups C & D; and Class II, Groups E, F & G. Per DIN 40050 – IP 65.

Electrical Connection: Furnished with fixed connection for 1/2" conduit.

Override: Manual, nonlocking - standard, locking - optional

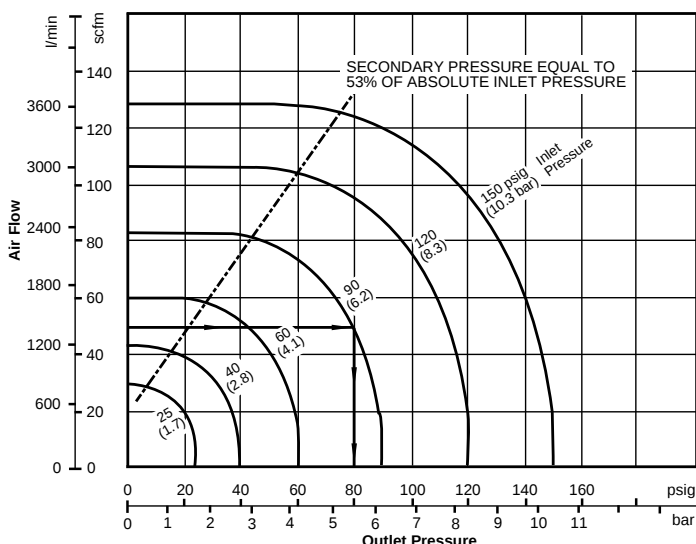
Pilot Supply: internal - standard, external - optional

External Pilot Port: 1/8-27 NPTF

Exhaust Port: 1/4" NPT

Minimum Electrical Signal Duration: Solenoid operated 2-position detented or nondetented valves can be shifted with a momentary air or electrical signal. Minimum signal duration is 17 milliseconds.

Flow Chart
1/4", 3/8" & 1/2" Ported Valves



Example –

Find: Pressure drop

Given: Inlet pressure = 90 psig

Air Flow = 50 scfm

Solution: Enter chart at 50 scfm and intersect with 90 psig inlet pressure line.

Read outlet pressure = 80 psig.

Pressure drop is equal to 90 minus 80 = 10 psig



Nugget 200 Spool Valves

Solenoid Pilot Operated Inline Valves

Description	Symbol	Type	Port Size	Body*	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Solenoid Spring Return		3-Port/ 2-Position	1/4"	K41DA00	KS1-KV2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KV2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS6-KV2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS6-KV2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KS6-KV2	35 - 150 (2.4 - 10.3)	4.40 (2.00)	54237-56
Double Solenoid (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KV2-KV2	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-59
			3/8"	K41EA00	KV2-KV2	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KV2-KV2	15 - 150 (1.0 - 10.3)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KV2-KV2	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-56
			1/2"	K71FA00	KV2-KV2	15 - 150 (1.0 - 10.3)	2.22 (1.01)	54237-56
		5-Port/ 3-Position All Ports Blocked	1/4"	K81DA00	KV0-KV0	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-56
			3/8"	K81EA00	KV0-KV0	1.0 - 10.3 (15 - 150)	4.40 (2.00)	54237-56
			1/2"	K81FA00	KV0-KV0	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K81DA05	KV0-KV0	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-57
			3/8"	K81EA05	KV0-KV0	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-57
			1/2"	K81FA05	KV0-KV0	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K81DA06	KV0-KV0	15 - 150 (1.0 - 10.3)	2.22 (1.01)	54237-58
			3/8"	K81EA06	KV0-KV0	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-58
			1/2"	K81FA06	KV0-KV0	15 - 150 (1.0 - 10.3)	4.40 (2.00)	54237-58
Double Solenoid (Detented)		3-Port/ 2-Position	1/4"	K41DA00	KVL-KVL	25 - 150 (1.7 - 10.3)	4.40 (2.00)	54237-59
			3/8"	K41EA00	KVL-KVL	25 - 150 (1.7 - 10.3)	4.40 (2.00)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KVL-KVL	25 - 150 (1.7 - 10.3)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KVL-KVL	25 - 150 (1.7 - 10.3)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KVL-KVL	25 - 150 (1.7 - 10.3)	2.22 (1.01)	54237-56

* Standard valves are equipped with PTF threads, solenoid operators with locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-10-11/12. Solenoid specifications given on pp. VAL-10-6/7.

Note: For ISO-G threads, insert "G" in the 5th position. 1/2" ported bodies are not available with ISO G threads.



Solenoid Pilot Operated Stacking Valves

Description	Symbol	Type	Port Size	Body*	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Solenoid Spring Return		5-Port/ 2-Position Common Inlet	1/4"	K78DA00	KS6-KV2	35 - 150 (2.4 - 10.3)	.53 (.24)	54237-56
			3/8"	K78EA00	KS6-KV2	35 - 150 (2.4 - 10.3)	.53 (.24)	54237-56
		5-Port/ 2-Position Common Inlet & Exh.	1/4"	K79DA00	KS6-KV2	35 - 150 (2.4 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA00	KS6-KV2	35 - 150 (2.4 - 10.3)	.53 (.24)	54237-56
Double Solenoid (Non-Detented)		5-Port/ 2-Position Common Inlet	1/4"	K78DA00	KV2-KV2	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K78EA00	KV2-KV2	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
		5-Port/ 2-Position Common Inlet & Exh.	1/4"	K79DA00	KV2-KV2	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA00	KV2-KV2	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
Double Solenoid (Non-Detented) Common Inlet-Port 1		5-Port/ 3-Position All Ports Blocked	1/4"	K88DA00	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K88EA00	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K88DA05	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-57
			3/8"	K88EA05	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K88DA06	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-58
			3/8"	K88EA06	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-58
Double Solenoid (Non-Detented) Common Inlet & Exhaust - Ports 1,3&5		5-Port/ 3-Position All Ports Blocked	1/4"	K89DA00	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K89EA00	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K89DA05	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-57
			3/8"	K89EA05	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K89DA06	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-58
			3/8"	K89EA06	KV0-KV0	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-58
Double Solenoid (Detented)		5-Port/ 2-Position Common Inlet	1/4"	K78DA00	KVL-KVL	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
			3/8"	K78EA00	KVL-KVL	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
		5-Port/ 2-Position Common Inlet & Exh	1/4"	K79DA00	KVL-KVL	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA00	KVL-KVL	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56

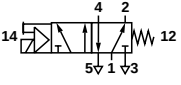
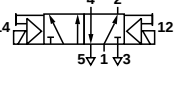
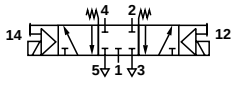
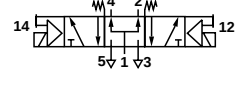
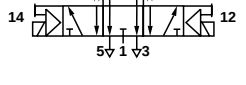
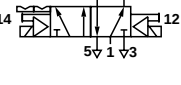
* Standard valves are equipped with PTF threads, solenoid operators with locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-10-11/12. Solenoid specifications given on pp. VAL-10-6/7.

Note: For ISO-G threads, insert "G" in the 5th position.



Nugget 200 Spool Valves

Solenoid Pilot Operated Stacking Valves With Junction Box

Description	Symbol	Type	Port Size	Body*	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Solenoid Spring Return		5-Port/ 2-Position No Lights	1/4"	K79DA80	KS6-K72	35 - 150 (2.4 - 150)	.53 (.24)	54237-56
			3/8"	K79EA80	KS6-K72	35 - 150 (2.4 - 150)	.53 (.24)	54237-56
		5-Port/ 2-Position One Light	1/4"	K79DA50	KS6-KM1	35 - 150 (2.4 - 150)	.53 (.24)	54237-56
			3/8"	K79EA50	KS6-KM1	35 - 150 (2.4 - 150)	.53 (.24)	54237-56
Double Solenoid (Non-Detented)		5-Port/ 2-Position No Lights	1/4"	K79DA80	K72-K72	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA80	K72-K72	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
		5-Port/ 2-Position Two Lights	1/4"	K79DA50	KM1-KM1	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA50	KM1-KM1	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
Double Solenoid (Non-Detented) 5-Port/ 3-Position Common Inlet & Exhaust - Ports 1,3,5		All Ports Blocked No Lights	1/4"	K89DA80	K70-K70	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K89EA80	K70-K70	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
		All Ports Blocked Two Lights	1/4"	K89DA50	KM8-KM8	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K89EA50	KM8-KM8	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
		Inlet Open to Cyl No Lights	1/4"	K89DA85	K70-K70	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-57
			3/8"	K89EA85	K70-K70	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-57
		Inlet Open to Cyl Two Lights	1/4"	K89DA55	KM8-KM8	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-57
			3/8"	K89EA55	KM8-KM8	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-57
		Cyl Open to Exhaust No Lights	1/4"	K89DA86	K70-K70	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-58
			3/8"	K89EA86	K70-K70	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-58
		Cyl Open to Exhaust Two Lights	1/4"	K89DA56	KM8-KM8	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-58
			3/8"	K89EA56	KM8-KM8	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-58
Double Solenoid (Detented)		5-Port/ 2-Position No Lights	1/4"	K79DA80	K7L-K7L	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA80	K7L-K7L	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
		5-Port/ 2-Position Two Lights	1/4"	K79DA50	KM6-KM6	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA50	KM6-KM6	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56

* Standard valves are equipped with PTF threads, solenoid operators with locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-10-11/12. Solenoid specifications given on pp. VAL-10-6/7.

Note: For ISO-G threads, insert "G" in the 5th position.



Solenoid Pilot Operators

Position	Operator		Description	Operating Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
	ISO G	PTF				
Standard Solenoid Operator with Rotatable Grip Connector*						
2-Position Valves	KVB	KV1	non-locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	KVC	KV2	locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	KVE	KV4	non-locking override, nondetented, external pilot	10" Hg - 150 (Vacuum - 10.3)	.53 (.24)	54344-17
	KVF	KV5	locking override, nondetented, external pilot	10" Hg - 150 (Vacuum - 10.3)	.53 (.24)	54344-17
	KVG	KV6	non-locking override, detented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	KVN	KVL	locking override, detented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
3-Position Valves	KVJ	KV8	non-locking override, spring centered, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	KVA	KV0	locking override, spring centered, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	KVD	KV3	non-locking override, spring centered, external pilot	10" Hg - 150 (Vacuum - 10.3)	.53 (.24)	54344-17
Standard Solenoid Operator without Electrical Connector*						
2-Position Valves	K1B	K11	non-locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	K1G	K16	non-locking override, detented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	K1N	K1L	locking override, detented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
3-Position Valves	K1A	K10	locking override, spring centered, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
Standard Solenoid Operator with Rotatable 1/2" Conduit Connector*						
2-Position Valves	K3B	K31	non-locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	K3C	K32	locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.53 (.24)	54344-17
	K3E	K34	non-locking override, nondetented, external pilot	10" Hg - 150 (Vacuum - 10.3)	.53 (.24)	54344-17
	K3F	K35	locking override, nondetented, external pilot	10" Hg - 150 (Vacuum - 10.3)	.53 (.24)	54344-17
	K3G	K36	non-locking override, detented, internal pilot	1.03 - 10.3 (15 - 150)	.53 (.24)	54344-17
	K3N	K3L	locking override, detented, internal pilot	1.03 - 10.3 (15 - 150)	.53 (.24)	54344-17
	K3P	K3M	locking override, detented, external pilot	10" Hg - 150 (Vacuum - 10.3)	.53 (.24)	54344-17
3-Position Valves	K3J	K38	non-locking override, spring centered, internal pilot	1.03 - 10.3 (15 - 150)	.80 (.36)	54344-17
	K3A	K30	locking override, spring centered, internal pilot	1.03 - 10.3 (15 - 150)	.80 (.36)	54344-17
Standard Solenoid Operator with Molded Cord Connector, 1.6 mm (5/32") Connector Cable*						
2-Position Valves	K5C	K52	locking override, nondetented, internal pilot	1.03 - 10.3 (15 - 150)	.80 (.36)	54344-17
	K5F	K55	locking override, nondetented, external pilot	10" Hg - 150 (Vacuum - 10.3)	.80 (.36)	54344-17
	K5N	K5L	locking override, detented, internal pilot	15 - 150 (1.03 - 10.3)	.80 (.36)	54344-17
3-Position Valves	K5A	K50	locking override, spring centered, internal pilot	15 - 150 (1.03 - 10.3)	.82 (.37)	54344-17
CSA Certified Solenoid Operator with Fixed 1/2" Conduit Connector Molded into Cord**						
2-Position Valves	KDB	KD1	non-locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.60 (.27)	54344-17
	KDC	KD2	locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.60 (.27)	54344-17
CSA Certified Solenoid Operator without Electrical Connector**†						
2-Position Valves	KQB	KQ1	non-locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.61 (.28)	54344-17
	KQC	KQ2	locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	.61 (.28)	54344-17
	KQG	KQ6	non-locking override, detented, internal pilot	15 - 150 (1.03 - 10.3)	.61 (.28)	54344-17
3-Position Valves	KQJ	KQ8	non-locking override, spring centered, internal pilot	15 - 150 (1.03 - 10.3)	.62 (.29)	54344-17
Hazardous Location Solenoid Operator**						
2-Position Valves	KXB	KX1	non-locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	1.48 (.67)	53478-07
	KXC	KX2	locking override, nondetented, internal pilot	15 - 150 (1.03 - 10.3)	1.48 (.67)	53478-07
3-Position Valves	KXJ	KX8	non-locking override, spring centered, internal pilot	15 - 150 (1.03 - 10.3)	1.49 (.68)	53478-07

* Standard voltage is 110/1250 AC 50/60 Hz. For optional voltages add three characters to the end of the part number. See p. VAL-10-12. For low wattage options contact Application Engineering.

** For external pilot options contact Application Engineering.

† Electrical connectors for KQX series solenoid operators see VAL-10-12.



Nugget 200 Spool Valves

Lightweight Plastic* Solenoid Operator

	Wattage		Connector Type				Override	
	Standard Watt	Low Watt	No Connector	Cable Grip	Conduit	5' Molded	Locking	Non Locking
KY0		X	X				X	
KY1		X	X					X
KY2	X		X				X	
KY3	X		X					X
KY5		X		X			X	
KY5		X		X				X
KY6	X			X			X	
KY7	X			X				X
KY8		X			X		X	
KY9		X			X			X
KYA	X				X		X	
KYB	X				X			X
KYC		X				X	X	
KYD		X				X		X
KYE	X					X	X	
KYF	X					X		X

* Polyphthalamide resin (PPA)

Optional Coil Voltages

Additional Part Number Characters

Voltages			Standard Wattage KV _x , K1 _x , K3 _x , K5 _x , & K7 _x Series Operators		Low Wattage KU _x , K0 _x , K2 _x , K4 _x , & K6 _x Series Operators		KD _x , Series Operators		KQ _x Series Operators		KM _x Series Operators		KX _x Series Operators	
			Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid
60 Hz	50 Hz	DC	Standard	Standard	1WH	2WH	Standard	Standard	Standard	Standard	Standard	Standard	—	—
120	110	—	—	—	—	—	1TE	2TE	1T2	2T2	1TN	2TN	1NH	2NH
240	220	—	1W6	2W6	—	—	—	—	—	—	—	—	—	—
12	12	—	1W3	2W3	—	—	—	—	—	—	—	—	—	—
24	24	—	1W4	2W4	1WJ	2WJ	1TD	2TD	1T1	2T1	1TM	2TM	—	—
48	48	—	1W5	2W5	—	—	—	—	—	—	—	—	—	—
—	240	—	—	—	—	—	—	—	1T3	2T3	—	—	—	—
120	100	—	—	—	—	—	—	—	—	—	—	—	Standard	Standard
—	—	6	1W7	2W7	1WK	2WK	1TF	2TF	1T4	2T4	—	—	1N7	2N7
—	—	12	1W1	2W1	1WF	2WF	1T6	2T6	1T5	2T5	1TS	2TS	1NA	2NA
—	—	24	1W2	2W2	Standard	—	1TH	2TH	1T6	2T6	1TT	2TT	1ND	2ND
—	—	48	—	—	—	—	1TJ	2TJ	1T7	2T7	1TU	2TU	—	—
—	—	115	—	—	1WL	2WL	1TK	2TK	1T8	2T8	1TX	2TX	—	—
—	—	10.5	—	—	—	—	—	—	1T9	2T9	—	—	—	—

Example: On K41DA00-KS6-KV1, change from standard 110VAC to 240VAC by adding 1W6 to the part number. New part number becomes K41DA00-KS6-KV11W6

Electrical Connectors for KQ_x Series Solenoid Operators – Order With Numbers

To order solenoid connectors for KQ_x Series Operators, specify the desired solenoid connector part number listed below in addition to the desired valve model number, e. g. K41DA00-KQ1-KQ12VC

CSA Certified Electrical Connectors for KQ_x Series Solenoid Operators

Single/Dual

Rotatable Cable Grip Connector1VC/2VC

1/2" NPT Conduit Connector1V2/2V2

Rotatable Cable Grip with Indicator Light,

110V AC/DC only1C3/2C3

24V AC/DC only1C2/2C2

12V AC/DC only1C1/2C1

220V AC/DC only1C4/2C4

Optional KQ_x Series Electrical Connectors Non-CSA Certified

5-Foot Molded Cord Connector 1V1/2V1

KQ_x Series Accessories – Non-CSA Certified

Extended Locking Override – Black Knob with Stainless Steel Plunger
Contact Application Engineering



Replacement Coils

Voltages			Standard Wattage KVx, K1x, K3x, K5x & K7x Series Operators Coil Only	Low Wattage KUx, K0x, K2x, K4x, & K6x Series Operators Coil Only	KDx, Series Operators Coil Only	KQx Series Operators Coil Only	KMx Series Operators Coil Only
60 Hz	50 Hz	DC					
120	110	—	54452-01	54469-03	54944-21	54932-21	54960-21
240	220	—	54452-07	—	54944-23	54932-23	54960-23
12	12	—	54452-04	—	—	—	—
24	24	—	54452-05	54469-04	54944-22	54932-22	54960-22
48	48	—	54452-06	—	—	—	—
—	240	—	—	—	54932-24	—	—
120	100	—	—	—	—	—	—
240	208	—	—	—	—	—	—
24	22	—	—	—	—	—	2362-07
—	—	6	—	54469-05	54944-25	54932-25	—
—	—	12	54452-02	54469-01	54944-26	54932-26	54960-26
—	—	24	54452-03	54469-02	54944-27	54932-27	54960-27
—	—	48	—	—	54944-28	54932-28	54960-28
—	—	115	—	54469-06	54944-29	54932-29	54960-29
—	—	10.5	—	—	—	54932-30	—

Solenoid Assemblies Ordered Separately

Includes coil, plunger, sleeve and seal

Voltages			KDx, Series Operators	KQx Series Operators	KMx Series Operators	KXx Series
60 Hz	50 Hz	DC				
120	110	—	54944-01	54932-01	54960-01	53902-01
240	220	—	54944-03	54932-03	54960-03	53902-14
24	24	—	54944-02	54932-02	54960-02	—
—	240	—	—	54932-04	—	—
120	100	—	—	—	—	—
240	208	—	—	—	—	—
24	22	—	—	—	—	—
—	—	6	54944-05	54932-05	54960-05	53902-10
—	—	12	54944-06	54932-06	54960-06	53902-11
—	—	24	54944-07	54932-07	54960-07	53902-12
—	—	48	54944-08	54932-08	54960-08	—
—	—	115	54944-09	54932-09	54960-09	—
—	—	10.5	—	54932-10	—	—

KUx/KVx, K0x/K1x, K2x/K3x, K4x/K5x, K6x/K7x Series Operators

Solenoid assemblies for these operators can be obtained by ordering a replacement coil from the ordering information on this page. Appropriate solenoid base, standard or low wattage assemblies can be ordered from the following table.

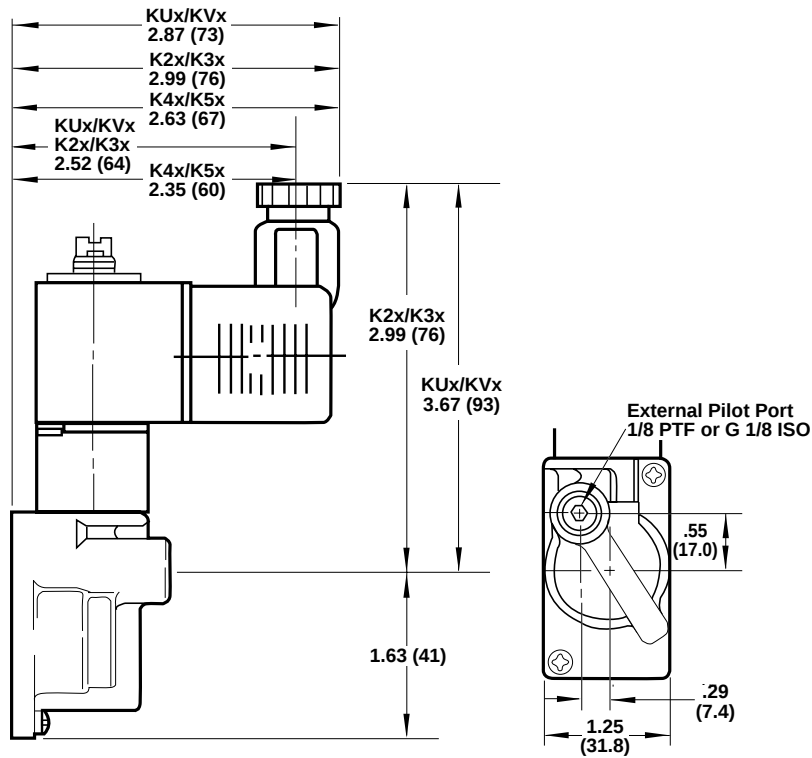
	KVx, K1x, K3x, K5x & K7x Series	KUx, K0x, K2x, K4x & K6x Series
	Replacement Bases	Replacement Bases
Locking Override	54462-02	54462-04
Non-locking Override	54462-09	54462-10



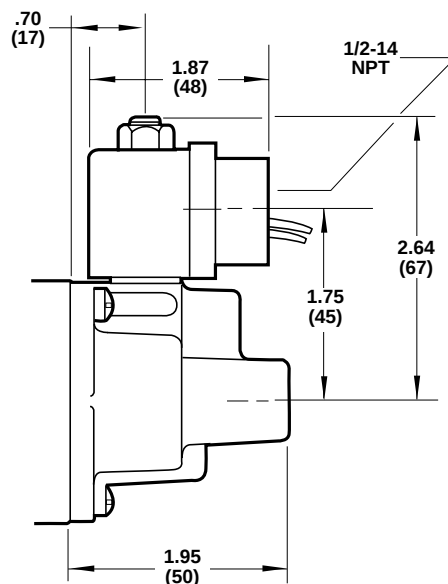
Nugget 200 Spool Valves

All Dimensions in Inches (mm)

KUx/KVx Series (cable grip)
K2x/K3x Series (conduit)
K4x/K5x Series (molded cord)



KD Series (integral conduit)

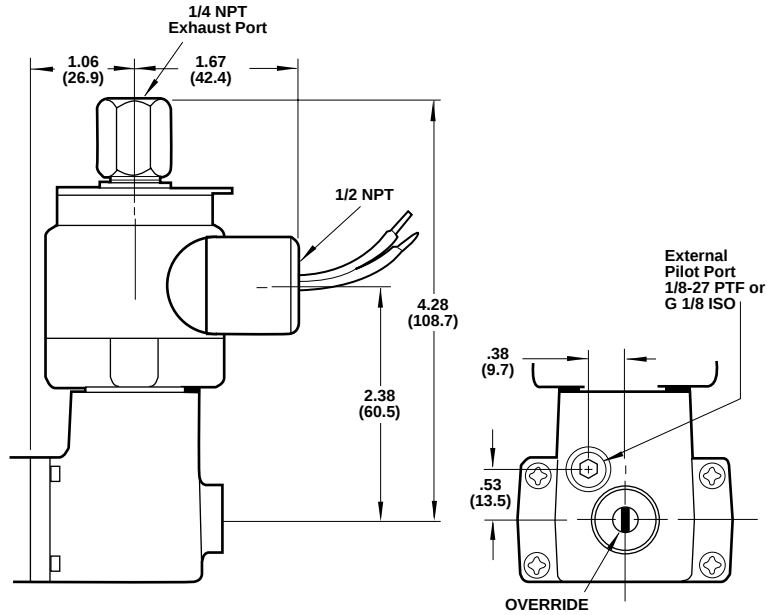


Nugget 200 Spool Valves

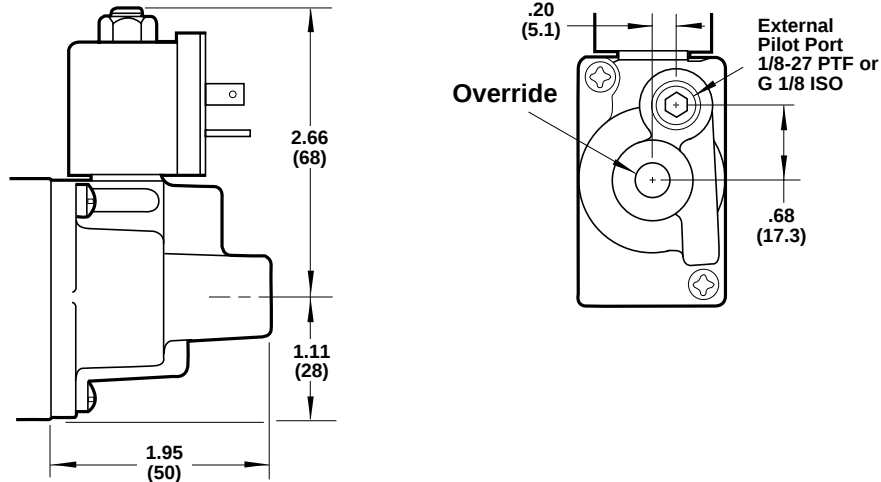
All Dimensions in Inches (mm)



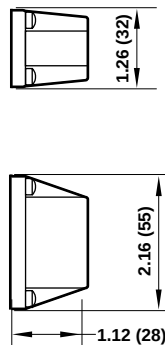
KX Series Hazardous Location



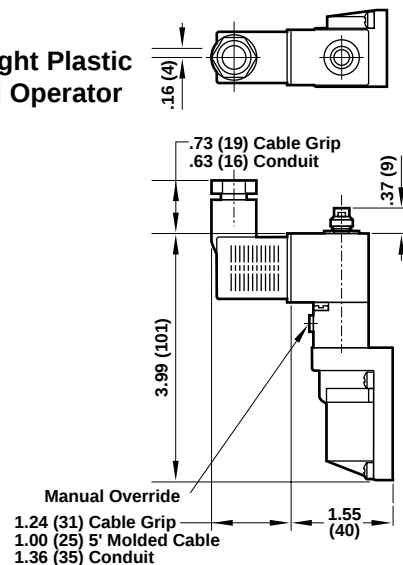
KQx Series (no connector)



KS6 Spring Return



KYX Lightweight Plastic Solenoid Operator



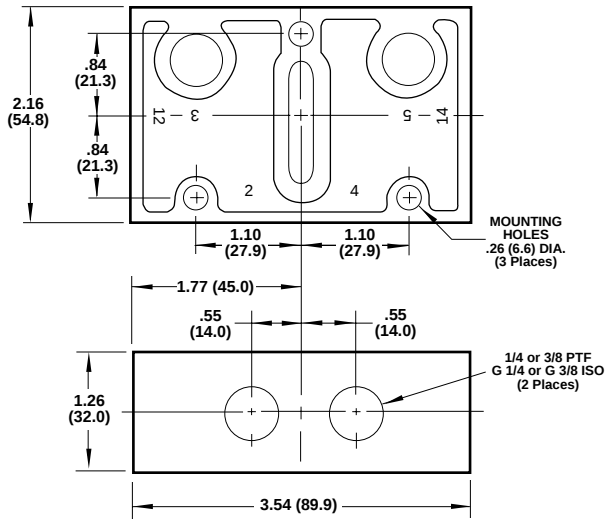


Nugget 200 Spool Valves

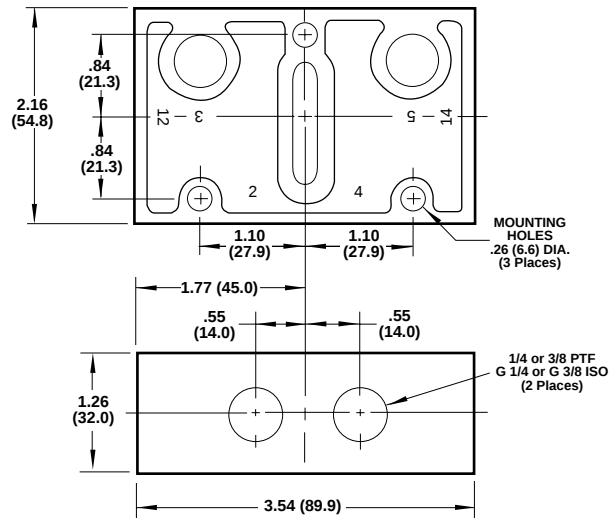
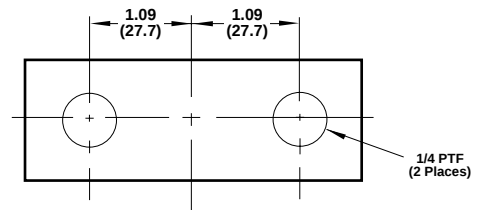
All Dimensions in Inches (mm)

Stacking Bodies

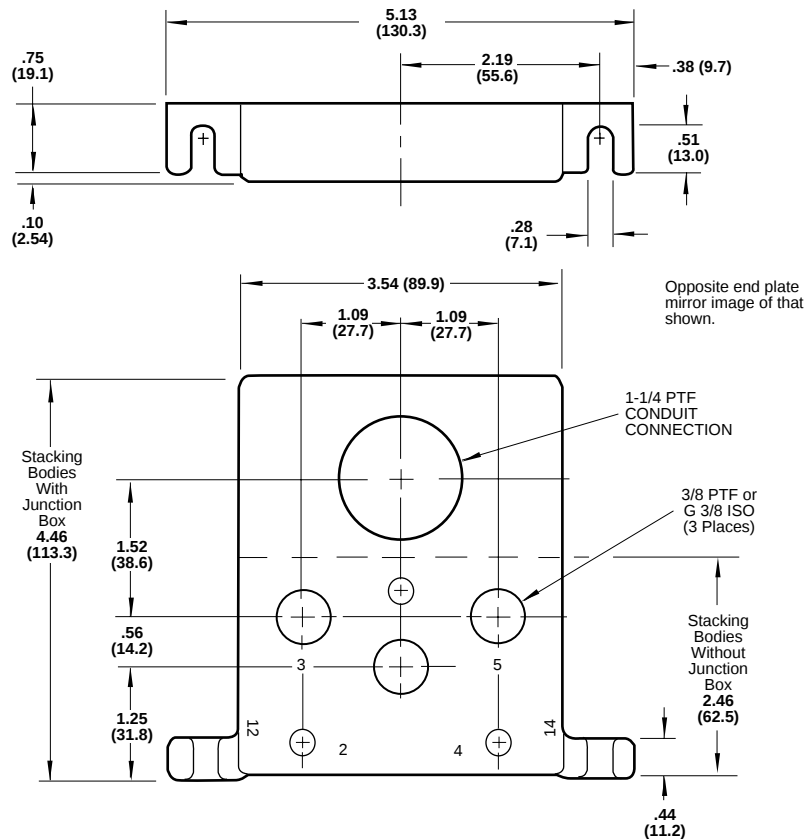
COMMON PORTS 1, 3 & 5 K79 or K89



COMMON PORT 1 K78 or K88



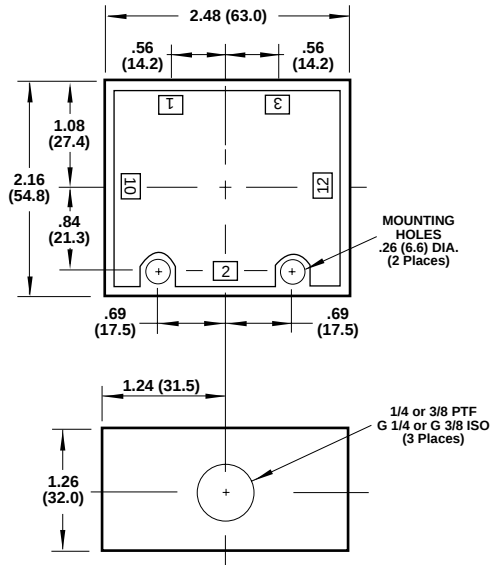
Stacking Body End Plates



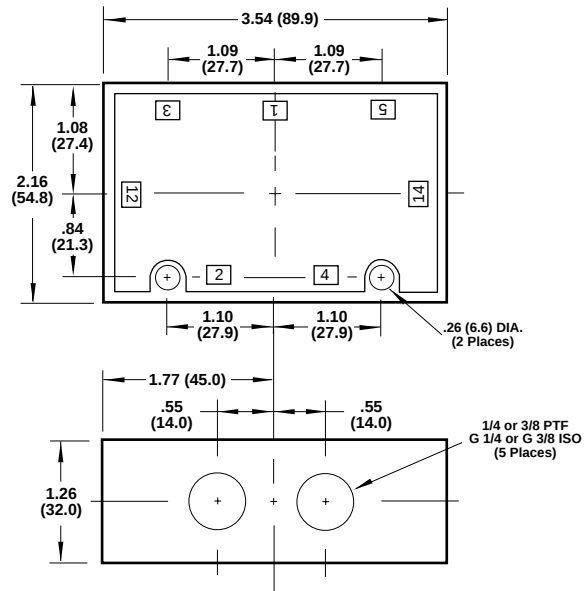


Inline Bodies

3-WAY – 1/4" & 3/8" PORTS K41

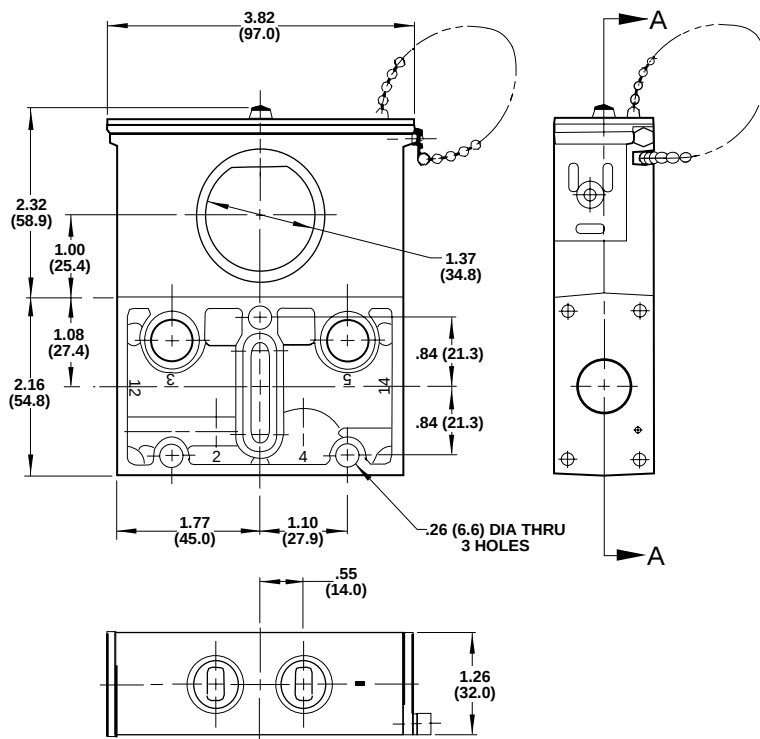


4-WAY – 1/4" & 3/8" PORTS K71 or K81

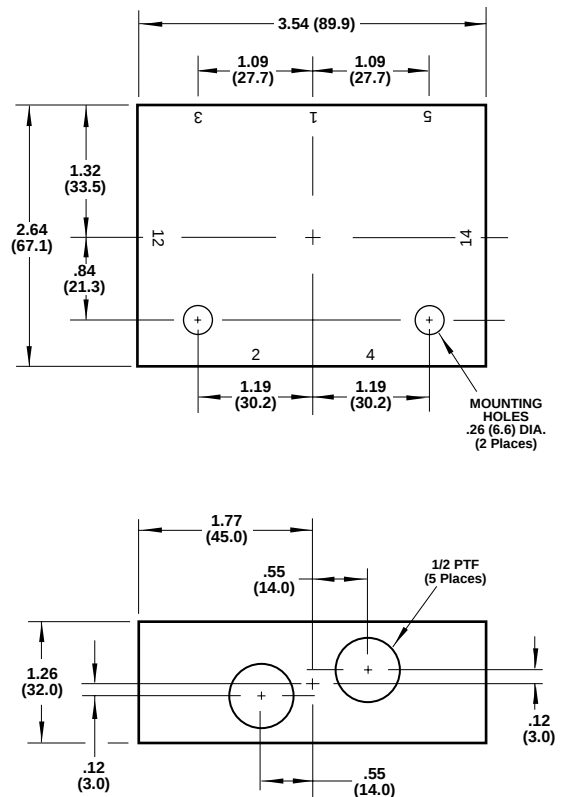


Stacking Body Junction Box

COMMON PORTS 1, 3 & 5 K79 or K89



4-WAY – 1/2" PORTS K71 or K81





Nugget 200 Spool Valves

1/4", 3/8", and 1/2" Air Pilot Actuated
3/2, 5/2, & 5/3 Inline and Stacking Valves

- Long lasting spool design
- High flow compact valves
- Wide range of Air Pilot Operators available
- Three functional types available in 3/2, 5/2, and 5/3 configurations



Technical Data

Medium:

Filtered and lubricated or non-lubricated compressed air or vacuum.

Operation:

Spool valve air pilot actuated.

Mounting:

Stacking – through holes on manifold subbase.
Inline – through holes in valve body.

Port Size:

1/4", 3/8", or 1/2" PTF, or 1/4" or 3/8" ISO G

Operating Pressure:

Maximum 150 psig (10.3 bar). For details see overleaf.

Operating Temperature:

-20°F to 160°F (-29°C to 71°C).

Consult Technical Service for use below +2°C (36°F).

Materials

Body: Aluminum

Spool: Anodized aluminum

Elastomers: Nitrile and special nitrile-based low-friction elastomers.

Ordering Information

To order standard Nugget 200 air pilot operated valves, quote model number from tables overleaf, e.g. order: K71DA00-KS6-KA2 for a 5-port/2-position, single Air Pilot Operated, Spring Return model.

Seal Compatibility

Nugget 200 seals are compatible with the following lubricants:

DC BR-2+ grease (Dow Corning)

DC 44 grease (Dow Corning)

Nondetergent mineral based oil such as Mobil DTE light oil

Nugget 200 seals are not compatible with WD-40 or commonly used de-icer fluids. Consult factory to verify compatibility of lubricants or fluids not listed above.



Air Pilot Operating Specifications

Inlet Pressure Range:

10" Hg vacuum to 150 psig (10.3 bar)

Temperature Range (Ambient/Inlet):

-20° to 160°F* (-29° to 71°C)

Operator Pilot Pressures:

Maximum Pilot Pressure: 150 psig (10.3 bar)

Minimum Pilot Pressure at 150 psig (10.3 bar) main valve inlet pressures are given in the following table:

* With the dew point of supply air less than air temperature below 35°F (2°C)

Minimum Pilot Pressures

Operator	Return	Nondetent psig (bar)	Spring Detented psig (bar)	Centered psig (bar)
Large Air	Large Air	15 (1.0)	25 (1.7)	45 (3.1)
Large Air †	Small Air	35 (2.4)	—	—
Small Air	Small Air	25 (1.7)	—	—
Large Air	Spring	35 (2.4)	—	—
Low PressureAir††	Spring	4 (.27)	—	—
Small Air	Spring	65 (4.5)	—	—
Air Bleed	Air Bleed	15 (1.0)	25 (1.7)	—
Air Bleed	Spring	35 (2.4)	—	—

† Pressure applied simultaneously to both operators. The piston area of the KA2 operator is approximately twice that of the KA1 operator.

†† Pressure applied to port B of KA6 operator (port A open). A minimum vacuum of 6.1 inches Hg (KS1 return) applied to A (port B open) will also operate the valve. The KA6 operator can also be used as a differential pressure operator with or without return spring. The differential pressure required to shift the valve without return spring is less than 1 psig (2" Hg). To reduce the possibility of internal contamination, it is suggested that a filter/breather be installed in the port.

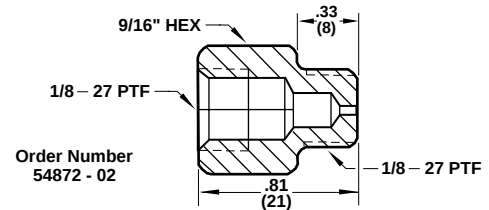
Average Flow Factors in Cv‡ (l/min)

Valve	Port Size	Flow Path	
		Port 1 to 2 1 to 4	Port 2 to 3 4 to 5
3-Port, Inline	1/4"	1.6 (1700)	1.7 (1800)
	3/8"	1.6 (1700)	1.7 (1800)
5-Port, Inline	1/4"	1.6 (1700)	1.7 (1800)
	3/8"	1.6 (1700)	1.7 (1800)
	1/2"	1.6 (1700)	1.7 (1800)
5-Port, Stacking	1/4"	1.8 (1900)	1.4 (1450)
	3/8"	1.8 (1900)	1.4 (1450)

‡ Flow Rating determined in accordance with NFPA/T3.21.3, Pneumatic fluid power – Flow test procedure and reporting method – For fixed orifice components.

Warning

When a solenoid or air operator is used as a return for a manual or mechanical operator, the pilot pressure applied to the return operator must not exceed 40 psig (2.8 bar). Pilot pressures greater than 40 psig for a solenoid or air return will cause structural damage to the manual or mechanical operator and can also result in injury to the user. If the available pilot pressure exceeds 40 psig, an external pilot supply only must be used and a restrictor, part number 54872-02, must be installed in the pilot port of the return operator to reduce the return force to an acceptable level. Pilot pressure to the restrictor must not exceed 150 psig (10.3 bar).





Nugget 200 Spool Valves

Air Pilot Operated Inline Valves

Description	Symbol	Type	Port Size	Body*	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Air Spring Return		3-Port/ 2-Position	1/4"	K41DA00	KS1-KA2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KA2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS6-KA2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS6-KA2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KS6-KA2	35 - 150 (2.4 - 10.3)	2.22 (1.01)	54237-56
Double Air (Non- Detented)		3-Port/ 2-Position	1/4"	K41DA00	KA2-KA2	15 - 150 (1.0 - 10.3)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KA2-KA2	15 - 150 (1.0 - 10.3)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KA2-KA2	15 - 150 (1.0 - 10.3)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KA2-KA2	15 - 150 (1.0 - 10.3)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KA2-KA2	15 - 150 (1.0 - 10.3)	2.22 (1.01)	54237-56
		5-Port/ 3-Position All Ports Blocked	1/4"	K81DA00	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-56
			3/8"	K81EA00	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-56
			1/2"	K81FA00	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K81DA05	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-57
			3/8"	K81EA05	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-57
			1/2"	K81FA05	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K81DA06	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-58
			3/8"	K81EA06	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-58
			1/2"	K81FA06	KAC-KAC	45 - 150 (3.1 - 10.3)	4.40 (2.00)	54237-58
Double Air (Detented)		3-Port/ 2-Position	1/4"	K41DA00	KAA-KAA	25 - 150 (1.7 - 10.3)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KAA-KAA	25 - 150 (1.7 - 10.3)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KAA-KAA	25 - 150 (1.7 - 10.3)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KAA-KAA	25 - 150 (1.7 - 10.3)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KAA-KAA	25 - 150 (1.7 - 10.3)	2.22 (1.01)	54237-56

* Standard valves are equipped with PTF threads, solenoid operators with locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors.

Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-10-11/12.

Note: For ISO-G threads, insert "G" in the 5th position. 1/2" ported bodies are not available with ISO G threads.



Air Pilot Operated Stacking Valve

Description	Symbol	Type	Port Size	Body*	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Solenoid Spring Return		5-Port/ 2-Position	1/4"	K78DA00	KS6-KA2	35 - 150 (2.4 - 10.3)	.53 (.24)	54237-56
			3/8"	K78EA00	KS6-KA2	35 - 150 (2.4 - 10.3)	.53 (.24)	54237-56
		5-Port/ 2-Position Common Inlet & Exh.	1/4"	K79DA00	KS6-KA2	35 - 150 (2.4 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA00	KS6-KA2	35 - 150 (2.4 - 10.3)	.53 (.24)	54237-56
Double Solenoid (Non-Detented)		5-Port/ 2-Position	1/4"	K78DA00	KA2-KA2	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K78EA00	KA2-KA2	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
		5-Port/ 2-Position Common Inlet & Exh.	1/4"	K79DA00	KA2-KA2	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA00	KA2-KA2	15 - 150 (1.0 - 10.3)	.53 (.24)	54237-56
Double Solenoid (Non-Detented) Common Inlet-Port 1		5-Port/ 3-Position All Ports Blocked	1/4"	K88DA00	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-56
			3/8"	K88EA00	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K88DA05	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-57
			3/8"	K88EA05	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K88DA06	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-58
			3/8"	K88EA06	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-58
Double Solenoid (Non-Detented) Common Inlet & Exhaust - Ports 1,3&5		5-Port/ 3-Position All Ports Blocked	1/4"	K89DA00	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-56
			3/8"	K89EA00	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K89DA05	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-57
			3/8"	K89EA05	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K89DA06	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-58
			3/8"	K89EA06	KAC-KAC	45 - 150 (3.1 - 10.3)	.53 (.24)	54237-58
Double Solenoid (Detented)		5-Port/ 2-Position	1/4"	K78DA00	KAA-KAA	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
			3/8"	K78EA00	KAA-KAA	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
		5-Port/ 2-Position Common Inlet & Exh	1/4"	K79DA00	KAA-KAA	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56
			3/8"	K79EA00	KAA-KAA	25 - 150 (1.7 - 10.3)	.53 (.24)	54237-56

* Standard valves are equipped with PTF threads, solenoid operators with locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-10-11/12.

Note: For ISO-G threads, insert "G" in the 5th position.



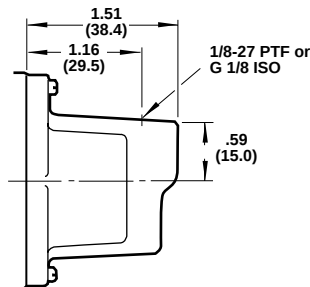
Nugget 200 Spool Valves

Air Operators

Position	Operator		Description	Operating Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
	ISO-G	PTF				
2-Position Valves	KAB	KAA	detent, large air	25 (1.7)	.73 (.33)	54344-16
	KA5	KA2	nondetent, large air	15 (1.0)	.70 (.32)	54344-16
	KAF	KAE	detent bleed - .02 (.5mm) diameter bleed orifice	25 (1.7)	.73 (.33)	54344-16
	KA9	KA8	nondetent bleed - .02 (.5mm) diameter bleed orifice	15 (1.0)	.70 (.32)	54344-16
	KA7	KA6	nondetent, low pressure (inline only)	4 (.27)	2.46 (1.12)	—
	KA4	KA1	nondetent, air bias (small air), return for manual operators or as air bias with KA2 or KA5	25 (1.7)	.33 (.15)	54344-16
	KS5	KS4	nondetent, spring bias, use with KA2 or KA5	35 (2.5)	.44 (.20)	54344-16
3-Position Valves	KAD	KAC	spring centered	25 (1.7)	.73 (.33)	54344-16

Air Operators

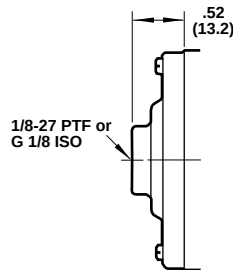
KAA/KAF
KA2, KA5
KA8, KA9
LARGE AIR



Air Bleed Operators

Air bleed operators have a 0.02" (0.5 mm) diameter orifice which connects pressure port 1 of the main valve to the operator piston and to atmosphere. A small amount of air constantly bleeds to atmosphere. The valve spool shifts when air bleed is stopped by a customer-supplied on-off valve.

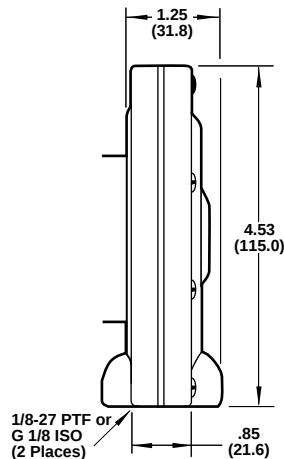
KA1, KA4
SMALL AIR
(AIR BIAS)



KA1 Air Bias Operator

Piston area of the KA1 operator is approximately 1/2 of the KA2 piston. When pressure is applied to the KA1 operator the valve spool shifts to the KA2 end. When pressure is applied to both the KA1 and KA2 operators the valve spool shifts to the KA1 end.

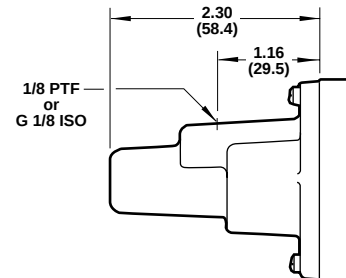
KA6, KA7
LOW PRESSURE



KA6 Low Pressure Operator (inline valves only)

The low pressure operator will shift the valve spool with only 4 psig (.28 bar) applied to Port B (Port A open). A minimum vacuum of 6.1" Hg (with HS1 spring return) applied to port A (Port B open) will also operate the valve. The KA6 operator can also be used as a differential pressure operator with or without spring return. The differential pressure required to shift the valve spool without a spring return is less than 1 psig (2" Hg). A filter/breather should be installed in the open port to reduce the possibility of internal contamination.

KS4, KS5
SPRING BIAS



KS4 Spring Bias Operator

Piston area of the KS4 operator is the same as the KA2 operator. The piston of the KS4 operator is spring loaded to shift the valve spool to the KA2 end. When pressure is applied to the KS4 and KA2 operators the valve spool shifts to the KA2 end.

1/4", 3/8", or 1/2" Ports, Manual and Mechanical Actuated 3/2, 5/2, & 5/3 Inline and Stacking Valves



- Long lasting spool design
- High flow compact valves
- Wide range of Manual and Mechanical Operators available
- Three functional types available in 3/2, 5/2, and 5/3 configurations

Ordering Information

To order standard Nugget 200 manual/mechanical operated valves, quote model number from tables overleaf, e.g. order:

K71DA00-KS1-KK0 for a 5-port/2-position, single Manually Operated black knob, Spring Return (nondetented) model.

Technical Data

Medium:

Filtered and lubricated or non-lubricated compressed air or vacuum.

Operation:

Spool valve air pilot actuated.

Mounting:

Stacking – through holes on manifold base.

Inline – through holes in valve body.

Port Size:

1/4", 3/8", or 1/2" PTF, or 1/4", or 3/8" ISO-G

Operating Pressure:

Maximum 150 psig (10.3 bar). For details see overleaf.

Operating Temperature:

-20°F to 160°F (-29°C to 71°C)

Consult Technical Service for use below 36°F (2°C).

Materials:

Body: Aluminum

Spool: Anodized aluminum

Elastomers: Nitrile and special nitrile-based low-friction elastomers.

Average Flow Factors in Cv‡ (l/min)

Valve	Port Size	Flow Path	
		Port 1 to 2 1 to 4	Port 2 to 3 4 to 5
3-Port, Inline	1/4"	1.6 (1700)	1.7 (1800)
	3/8"	1.6 (1700)	1.7 (1800)
5-Port, Inline	1/4"	1.6 (1700)	1.7 (1800)
	3/8"	1.6 (1700)	1.7 (1800)
	1/2"	1.6 (1700)	1.7 (1800)
5-Port, Stacking	1/4"	1.8 (1900)	1.4 (1450)
	3/8"	1.8 (1900)	1.4 (1450)

‡ Flow Rating determined in accordance with NFPA/T3.21.3, Pneumatic fluid power – Flow test procedure and reporting method – For fixed orifice components.



Manual Operators

Position	Operator	Description	Min. Operating Force lbs. (kg)
2-Position	KB0	Palm Button - Black, Nondetent (Inline Only)	18.0 (8.2)
	KB1	Palm Button - Red, Nondetent (Inline Only)	18.0 (8.2)
	KB2	Palm Button - Green, Nondetent (Inline Only)	18.0 (8.2)
	KB3	Palm Button - Black, Detent (Inline Only)	9.0 (4.1)
	KB4	Palm Button - Red, Detent (Inline Only)	9.0 (4.1)
	KB5	Palm Button - Green, Detent (Inline Only)	9.0 (4.1)
	KF0	Foot Pedal, Nondetent	11.0 (5.0)
	KK0	Knob - Black, Nondetent	18.0 (8.2)
	KK1	Knob - Black, Detent	9.0 (4.1)
	KL0	Lever, Nondetent (Inline Only)	9.0 (4.1)
	KL1	Lever, 2-Position Detent (Inline Only)	7.0 (3.2)
	KL5	Lever, Nondetent	9.0 (4.1)
	KL6	Lever, 2-Position Detent	7.0 (3.2)
	KT0	Treadle, Nondetent (Inline Only)	13.0 (5.9)
	KT1	Treadle, 2-Position Detent (Inline Only)	9.0 (4.1)
3-Position	KB6	Palm Button - Black, Spring Centered	9.0 (4.1)
	KK2	Knob - Black, Spring Centered	9.0 (4.1)
	KK3	Knob - black, 3-Position Detent	9.0 (4.1)
	KL2	Lever, Spring Centered (Inline Only)	7.0 (3.2)
	KL3	Lever, 3-Position Detent (Inline Only)	7.0 (3.2)
	KL7	Lever, Spring Centered	7.0 (3.2)
	KL8	Lever, 3-Position Detent	7.0 (3.2)
	KT2	Treadle, Spring Centered	9.0 (4.1)

Mechanical Operators

Position	Operator	Description	Min. Operating Force lbs. (kg)
2-Position	KP0	Tappet, Nondetent	18.0 (8.2)
	KR2	Lever Roller, Nondetent (Inline Only)	11.0 (5.0)
	KR3	One-Way Trip Roller, Nondetent	11.0 (5.0)
	KR4	Lever Roller, Nondetent	11.0 (5.0)
	KR5	One-Way Trip Roller, Nondetent (Inline Only)	11.0 (5.0)



Manually Operated Inline Valves - Palm Button

Description	Symbol	Type	Port Size	Body*	Operator	Miniature Operating Force lbs. (kg)	Weight lbs. (kg)	Repair Kits
Spring Return (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KS1-KB0	18.0 (8.2)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KB0	18.0 (8.2)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS1-KB0	18.0 (8.2)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS1-KB0	18.0 (8.2)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KS1-KB0	18.0 (8.2)	2.22 (1.01)	54237-56
End Cap (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KC0-KB0	18.0 (8.2)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KC0-KB0	18.0 (8.2)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KC0-KB0	18.0 (8.2)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KC0-KB0	18.0 (8.2)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KC0-KB0	18.0 (8.2)	2.22 (1.01)	54237-56
End Cap (Detented)		3-Port/ 2-Position	1/4"	K41DA00	KC0-KB3	9.0 (4.1)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KC0-KB3	9.0 (4.1)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KC0-KB3	9.0 (4.1)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KC0-KB3	9.0 (4.1)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KC0-KB3	9.0 (4.1)	2.22 (1.01)	54237-56
End Cap (Spring Centered)		5-Port/ 3-Position All Ports Blocked	1/4"	K81DA00	KC0-KB6	9.0 (4.1)	4.40 (2.00)	54237-56
			3/8"	K81EA00	KC0-KB6	9.0 (4.1)	4.40 (2.00)	54237-56
			1/2"	K81FA00	KC0-KB6	9.0 (4.1)	4.40 (2.00)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K81DA05	KC0-KB6	9.0 (4.1)	4.40 (2.00)	54237-57
			3/8"	K81EA05	KC0-KB6	9.0 (4.1)	4.40 (2.00)	54237-57
			1/2"	K81FA05	KC0-KB6	9.0 (4.1)	4.40 (2.00)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K81DA06	KC0-KB6	9.0 (4.1)	2.00 (4.40)	54237-58
			3/8"	K81EA06	KC0-KB6	9.0 (4.1)	4.40 (2.00)	54237-58
			1/2"	K81FA06	KC0-KB6	9.0 (4.1)	4.40 (2.00)	54237-58

* Standard valves are equipped with PTF threads, solenoid operators with locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-10-11/12.

Note: For ISO-G threads, insert "G" in the 5th position. 1/2" ported bodies are not available with ISO G threads.



Nugget 200 Spool Valves

Manually Operated Inline Valves - Knob

Description	Symbol	Type	Port Size	Body*	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Spring Return (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KS1-KK0	18.0 (8.2)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KK0	18.0 (8.2)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS1-KK0	18.0 (8.2)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS1-KK0	18.0 (8.2)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KS1-KK0	18.0 (8.2)	2.22 (1.01)	54237-56
End Cap (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KC0-KK0	18.0 (8.2)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KC0-KK0	18.0 (8.2)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KC0-KK0	18.0 (8.2)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KC0-KK0	18.0 (8.2)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KC0-KK0	18.0 (8.2)	2.22 (1.01)	54237-56
End Cap (Detented)		3-Port/ 2-Position	1/4"	K41DA00	KC0-KK1	9.0 (4.1)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KC0-KK1	9.0 (4.1)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KC0-KK1	9.0 (4.1)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KC0-KK1	9.0 (4.1)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KC0-KK1	9.0 (4.1)	2.22 (1.01)	54237-56
		5-Port/ 3-Position All Ports Blocked	1/4"	K81DA00	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-56
			3/8"	K81EA00	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-56
			1/2"	K81FA00	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K81DA05	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-57
			3/8"	K81EA05	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-57
			1/2"	K81FA05	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K81DA06	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-58
			3/8"	K81EA06	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-58
			1/2"	K81FA06	KC0-KK3	9.0 (4.1)	4.40 (2.00)	54237-58
End Cap (Spring Centered)		5-Port/ 3-Position All Ports Blocked	1/4"	K81DA00	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-56
			3/8"	K81EA00	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-56
			1/2"	K81FA00	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K81DA05	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-57
			3/8"	K81EA05	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-57
			1/2"	K81FA05	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K81DA06	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-58
			3/8"	K81EA06	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-58
			1/2"	K81FA06	KC0-KK2	9.0 (4.1)	4.40 (2.00)	54237-58

* Standard valves are equipped with PTF threads, solenoid operators with locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-10-11/12.

Note: For ISO-G threads, insert "G" in the 5th position. 1/2" ported bodies are not available with ISO G threads.



Manually Operated Inline Valves - Lever

Description	Symbol	Type	Port Size	Body*	Operator	Minimum Operating Force lbs. (kg)	Weight lbs. (kg)	Repair Kit
Spring Return (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KS1-KL0	9.0 (4.1)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KL0	9.0 (4.1)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS1-KL0	9.0 (4.1)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS1-KL0	9.0 (4.1)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KS1-KL0	9.0 (4.1)	2.22 (1.01)	54237-56
End Cap (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KC0-KL0	9.0 (4.1)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KC0-KL0	9.0 (4.1)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KC0-KL0	9.0 (4.1)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KC0-KL0	9.0 (4.1)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KC0-KL0	9.0 (4.1)	2.22 (1.01)	54237-56
End Cap (Detented)		3-Port/ 2-Position	1/4"	K41DA00	KC0-KL1	7.0 (4.1)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KC0-KL1	7.0 (4.1)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KC0-KL1	7.0 (4.1)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KC0-KL1	7.0 (4.1)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KC0-KL1	7.0 (4.1)	2.22 (1.01)	54237-56
		5-Port/ 3-Position All Ports Blocked	1/4"	K81DA00	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-56
			3/8"	K81EA00	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-56
			1/2"	K81FA00	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K81DA05	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-57
			3/8"	K81EA05	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-57
			1/2"	K81FA05	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K81DA06	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-58
			3/8"	K81EA06	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-58
			1/2"	K81FA06	KC0-KL3	7.0 (4.1)	4.40 (2.00)	54237-58
End Cap (Spring Centered)		5-Port/ 3-Position All Ports Blocked	1/4"	K81DA00	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-56
			3/8"	K81EA00	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-56
			1/2"	K81FA00	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K81DA05	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-57
			3/8"	K81EA05	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-57
			1/2"	K81FA05	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K81DA06	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-58
			3/8"	K81EA06	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-58
			1/2"	K81FA06	KC0-KL2	7.0 (4.1)	4.40 (2.00)	54237-58

* Standard valves are equipped with PTF threads, solenoid operators with locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-10-11/12.

Note: For ISO-G threads, insert "G" in the 5th position. 1/2" ported bodies are not available with ISO G threads.



Nugget 200 Spool Valves

Manually Operated Inline Valves - Foot Pedal

Description	Symbol	Type	Port Size	Body*	Operator	Minimum Operating Force lbs. (kg)	Weight lbs. (kg)	Repair Kit
Foot Pedal (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KS1-KF0	11.0 (5.0)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KF0	11.0 (5.0)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS6-KF0	11.0 (5.0)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS6-KF0	11.0 (5.0)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KS6-KF0	11.0 (5.0)	2.22 (1.01)	54237-56

* Standard valves are equipped with PTF threads.

Note: For ISO-G threads, insert "G" in the 5th position. 1/2" ported bodies are not available with ISO G threads.

Manually Operated Inline Valves - Treadle

Description	Symbol	Type	Port Size	Body*	Operator	Minimum Operating Force lbs. (kg)	Weight lbs. (kg)	Repair Kit
Treadle (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KC0-KT0	13.0 (5.9)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KC0-KT0	13.0 (5.9)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KC0-KT0	13.0 (5.9)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KC0-KT0	13.0 (5.9)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KC0-KT0	13.0 (5.9)	2.22 (1.01)	54237-56
Treadle (Detented)		3-Port/ 2-Position	1/4"	K41DA00	KC0-KT1	9.0 (4.1)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KC0-KT1	9.0 (4.1)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KC0-KT1	9.0 (4.1)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KC0-KT1	9.0 (4.1)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KC0-KT1	9.0 (4.1)	2.22 (1.01)	54237-56
Treadle (Spring Centered)		5-Port/ 3-Position All Ports Blocked	1/4"	K81DA00	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-56
			3/8"	K81EA00	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-56
			1/2"	K81FA00	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-56
		5-Port/ 3-Position Inlet Open to Cylinder	1/4"	K81DA05	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-57
			3/8"	K81EA05	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-57
			1/2"	K81FA05	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-57
		5-Port/ 3-Position Cyl Open to Exhaust	1/4"	K81DA06	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-58
			3/8"	K81EA06	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-58
			1/2"	K81FA06	KC0-KT2	9.0 (4.1)	4.40 (2.00)	54237-58

* Standard valves are equipped with PTF threads.

Note: For ISO-G threads, insert "G" in the 5th position. 1/2" ported bodies are not available with ISO G threads.



Mechanically Operated Inline Valves - Lever Roller

Description	Symbol	Type	Port Size	Body*	Operator	Minimum Operating Force lbs. (kg)	Weight lbs. (kg)	Repair Kit
Lever Roller (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KS1-KR2	11.0 (5.0)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KR2	11.0 (5.0)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS6-KR2	11.0 (5.0)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS6-KR2	11.0 (5.0)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KS6-KR2	11.0 (5.0)	2.22 (1.01)	54237-56
1-Way Trip Lever Roller (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KS1-KR5	11.0 (5.0)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KR5	11.0 (5.0)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS6-KR5	11.0 (5.0)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS6-KR5	11.0 (5.0)	2.22 (1.01)	54237-56
			1/2"	K71FA00	KS6-KR5	11.0 (5.0)	2.22 (1.01)	54237-56

* Standard valves are equipped with PTF threads.

Note: For ISO-G threads, insert "G" in the 5th position. 1/2" ported bodies are not available with ISO G threads.

Mechanically Operated Inline Valves - Tappet

Description	Symbol	Type	Port Size	Body*	Operator	Minimum Operating Force lbs. (kg)	Weight lbs. (kg)	Repair Kit
Tappet (Non-Detented)		3-Port/ 2-Position	1/4"	K41DA00	KS1-KP0	18.0 (8.2)	2.22 (1.01)	54237-59
			3/8"	K41EA00	KS1-KP0	18.0 (8.2)	2.22 (1.01)	54237-59
		5-Port/ 2-Position	1/4"	K71DA00	KS6-KP0	18.0 (8.2)	2.22 (1.01)	54237-56
			3/8"	K71EA00	KS6-KP0	18.0 (8.2)	2.22 (1.01)	54237-56

* Standard valves are equipped with PTF threads.

Note: For ISO-G threads, insert "G" in the 5th position.

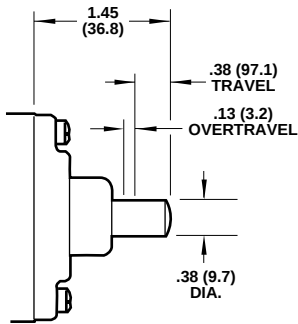


Nugget 200 Spool Valves

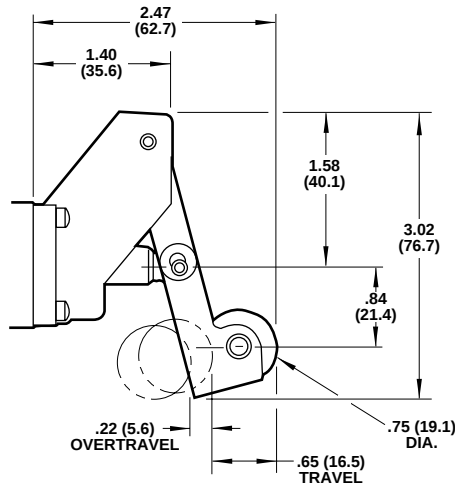
All Dimensions in Inches (mm)

Mechanical Operators

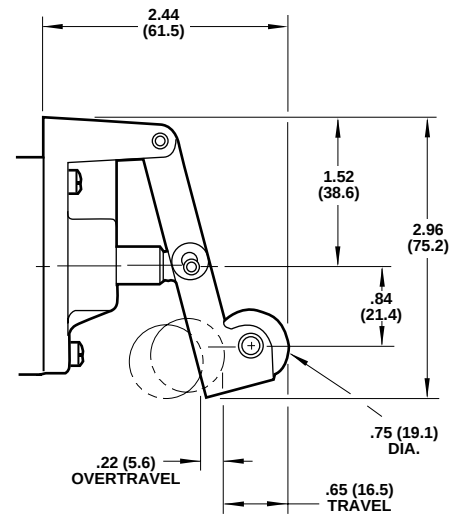
KP0 – TAPPET



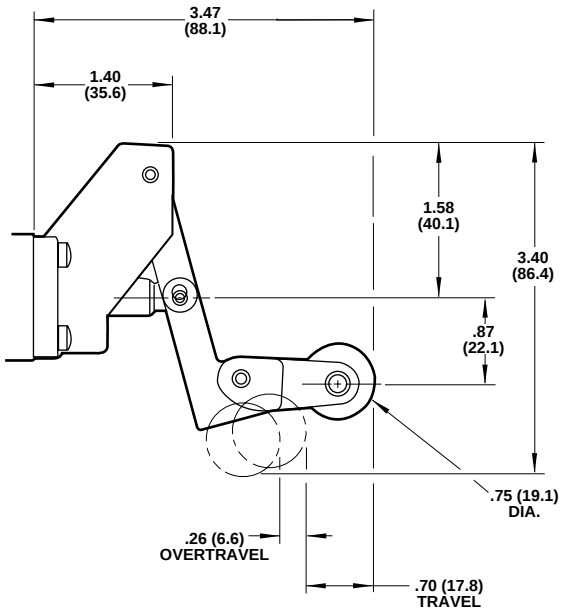
KR2 – LEVER ROLLER



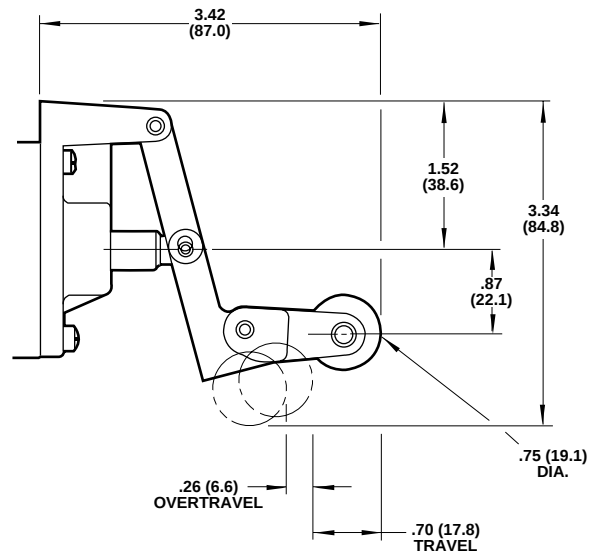
KR4 – LEVER ROLLER



KR5 – LEVER ROLLER
ONE-WAY TRIP

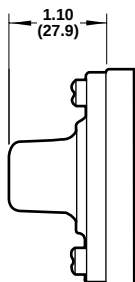


KR3 – LEVER ROLLER
ONE-WAY TRIP

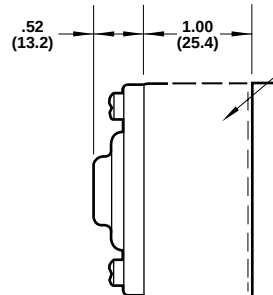


Spring Return & End Cap

KS1- SPRING RETURN



KC0 – END CAP



SPACER BLOCK – Used only with spring centered manual operators (KK2, KL2, KL7, KT2).

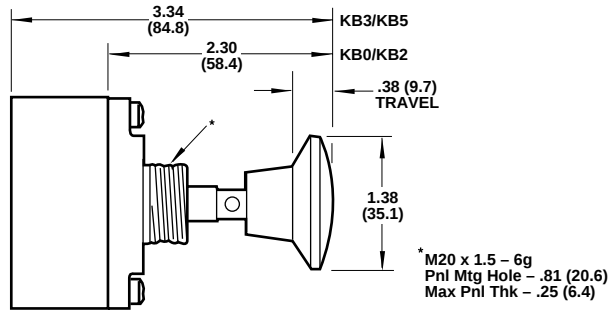
Nugget 200 Spool Valves

All Dimensions in Inches (mm)

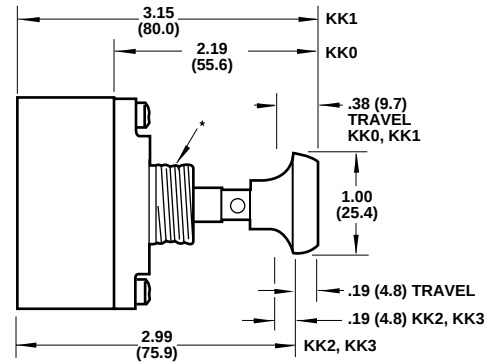


Manual Operators

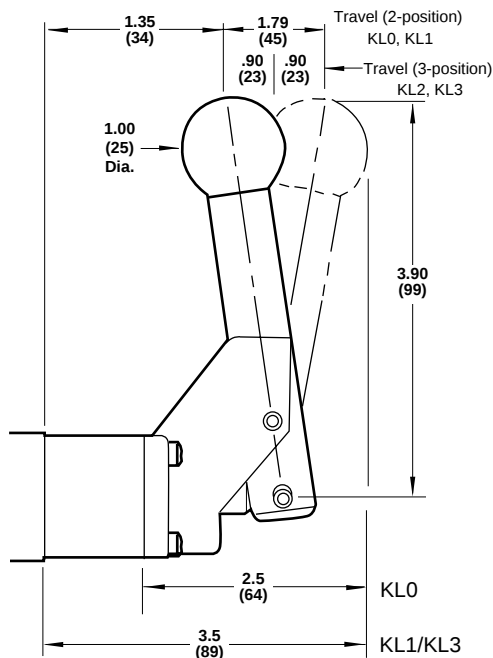
KB0/KB5 – PALM BUTTON



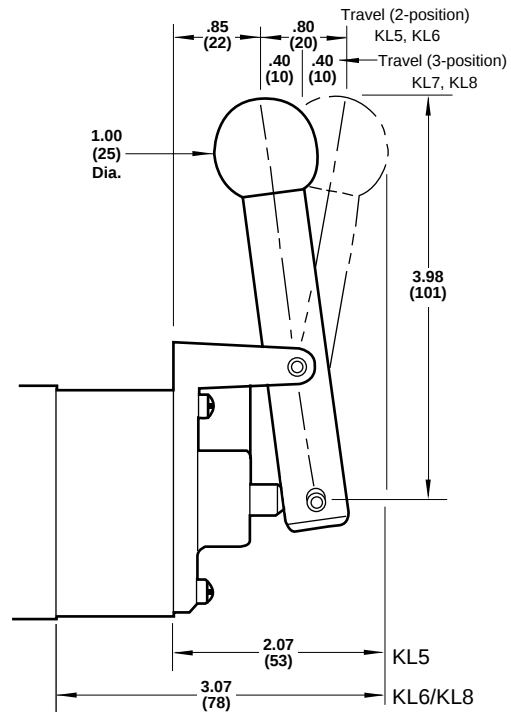
KK0/KK3 – KNOB



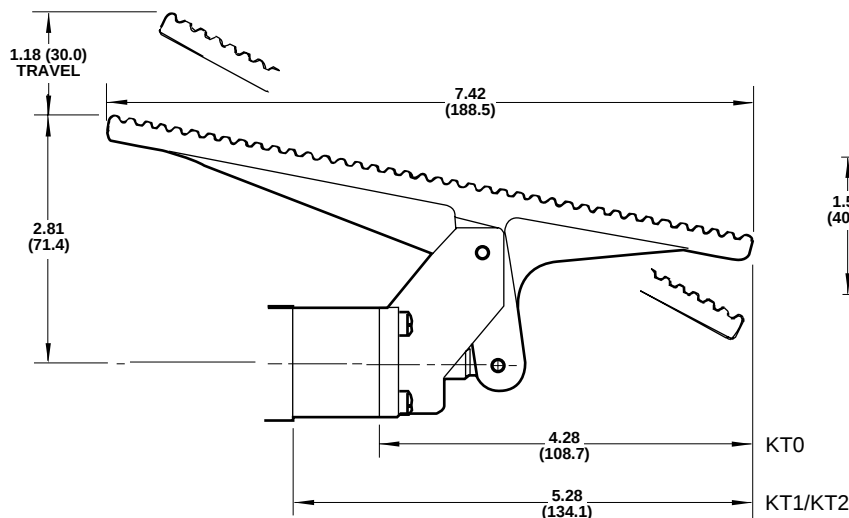
KL0/KL3 – LEVER



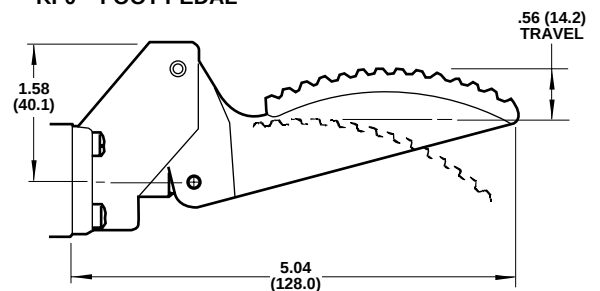
KL5/KL8 – LEVER



KT0/KT2 – TREADLE



KF0 – FOOT PEDAL



Nugget 200 Spool Valves

Fixed Length Manifold for 1/4" and 3/8" Inline Valves

- Reduces plumbing and installation time.
- Lightweight aluminum construction.
- 3/4" PTF common inlet and exhaust ports.
- For use with most Nugget 200 1/4" and 3/8" inline valves.
- Available in 2 to 10 station lengths.



Technical Data

Fluid: Compressed air

Maximum Pressure: See valve specifications

Operating Pressure: See valve specifications

Port Size: 3/4" PTF Inlet and Exhaust

Mounting Holes: 0.28" (7 mm) Diameter

Materials:

Manifold – Aluminum

Seals – Nitrile

Ordering Example

To order valves mounted to a fixed length manifold please follow these steps:

1. Order only 1/4" and 3/8" inline bodies ending in 2 (i.e. K71DA02)*
2. Note the manifold is to be assembled.
3. Note positions of various valving.

Example:

One four station Nugget 200 fixed length manifold assembly consisting of:

Position 1:

- (1) K71DA02 - KY6 - KY6 (Dbl Sol Valve)

Positions 2 - 4:

- (3) K71DA02 - KS6 - KY6 (Single Solenoid Valve)
- (1) 13249-62 (Four Station Manifold)
- (4) 99-051-530 (Assembly Charge)

* Note standard K71DA00 and K71EA00 bodies cannot be mounted to fixed length manifold.

Blanking Plate Kit: 54588-50

Nugget 200 Spool Valves

All Dimensions in Inches (mm)



Ordering Information - Models listed include all mounting hardware and gaskets. Inlet and exhaust ports are 3/4" PTF.

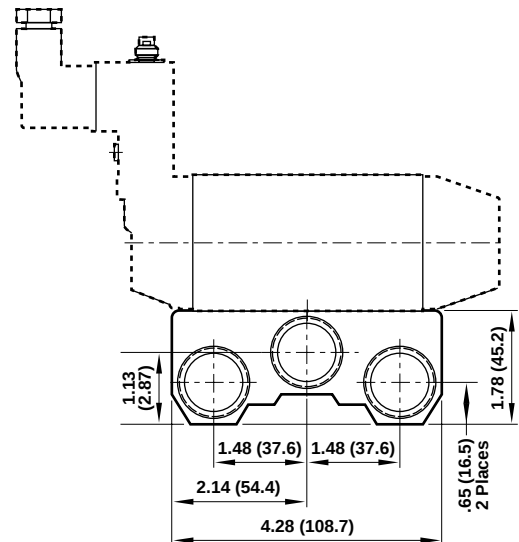
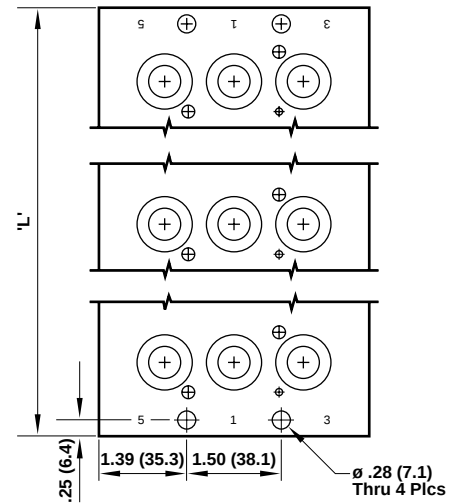
Fixed Length Manifold

Number of Stations	Part Number
2	13249-60
3	13249-61
4	13249-62
5	13249-63
6	13249-64
8	13249-65
10	13249-66

Repair Parts

Item	Number Required	Part Number
Mounting Screws	2	6005-14
Seals	3	2338-25

M5 x 0.8 - 6G
(typ 2 places per station)



Dash	"L"
-60	4.000 (101.6)
-61	5.750 (146.0)
-62	7.375 (187.3)
-63	9.125 (231.8)
-64	10.750 (273.0)
-65	14.125 (358.8)
-66	17.375 (441.3)



Nugget 200 Spool Valves

Special Instructions – Factory Assembled Stacking Valves

For Ordering purposes the valve stack is oriented as shown in column two:

Unless otherwise noted:

1. Cylinder (outlet) ports are oriented toward the bottom
2. The 1 2 operator is on the left side, the 1 4 operator on the right side.
3. Valves are listed from the FRONT to the BACK

Example 1: One stacking valve assembly with common inlet and exhaust (ports 1, 3 and 5) and junction boxes with solenoid operators with indicator lights. Isolating plugs for two different working pressures installed between valves 4 and 5.

Example 2: One Combination stacking valve assembly without junction boxes. Valves on one end of stack with common inlet and exhaust (ports 1, 3 and 5), and on the opposite end with common inlet only (port 1).

Answer Example 1

Valve Pos. No.	Quantity	Product Number	Special Instructions
1	1	K79DA50-KS6-KM1	
2	1	K79DA50-KS6-KM1	
3	1	K79DA50-KM6-KM6	
4	1	K89EA50-KM8-KM8	
			Isolating Plugs Common Ports 1, 3 & 5
5	1	K79DA50-KM6-KM6	
6	1	K79DA50-KM6-KM6	
7	1	K79DA50-KM6-KM6	
	1	13295-50	End Plate Kit

Answer Example 2

Valve Pos. No.	Quantity	Product Number	Special Instructions
1	1	K79DA00-KS6-KV2	
2	1	K89EA00-KV0-KV0	
3	1	K79EA00-KV2-KV2	
4	1	K78DA00-KS6-KV2	
5	1	K78EA00-KS6-KV2	
	1	13295-52	End Plate Kit

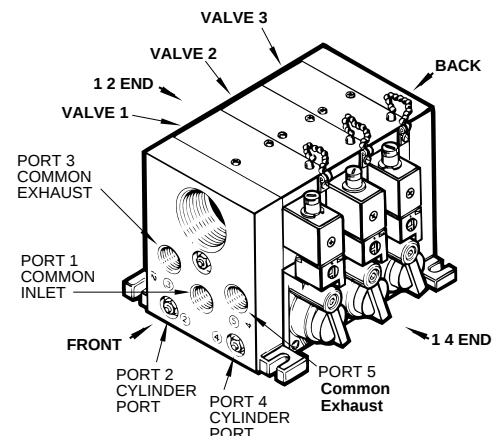
Note:

Mufflers or filter nuts should be used in all valve body, end plate, or solenoid operator exhaust ports to prevent entry of dirt and to reduce the noise level of the exhausting air.
In wet locations, exhaust ports should not face upward to lessen the possibility of liquids entering the unit.

Important:

1. Solenoid operated 2-position detent and nondetent, and 3-position spring centered valves can be combined in the same stack.
2. Plain stacking valves with common port 1 only and plain valves with common ports 1, 3 and 5 can be combined in one stack if grouped together at opposite ends.
3. A stack or group of valves with common port 1 only must have isolating plugs installed in the manifolding exhaust ports (3 and 5) between each valve and each of the end plates. Two exhaust port isolating plugs are furnished with each valve. Installation need not be specified on orders for factory assembled stacks as this will be done automatically.
4. Isolating plugs furnished in the end plate kit at no extra cost can be placed between two stacking valves to block the common ports and separate a section of the valve stack to accommodate two different input pressures. One pressure is brought in from the front end plate and the second pressure from the end plate in the back. (Specify on order form under "Special Instructions" where to install isolating plugs.)
5. Ports 1, 3 and 5 in one end plate can be plugged if so specified on order under "Special Instructions".

Factory Assembled Stacking Valve Common Inlet & Exhaust





Special Instructions – Stacking Valves

- The numbers shown in the stacking valve Ordering Information tables include the valve plus the interface seals and threaded tie rods needed to connect the valve to the adjacent valve or end plate.
- An end plate kit is required to complete a valve stack assembly. It includes two end plates and the necessary seals and attaching hardware. Also included are three pipe plugs to close one end of the stack and three isolating plugs (discs). The isolating plugs can be used to separate the valve stack into two sections and thus allow valves with a common inlet only to be combined with valves having both a common inlet and common exhausts, or to allow the use of different inlet pressures.
- Always specify the valve order number, the end plate kit number and the quantity desired. See table below.

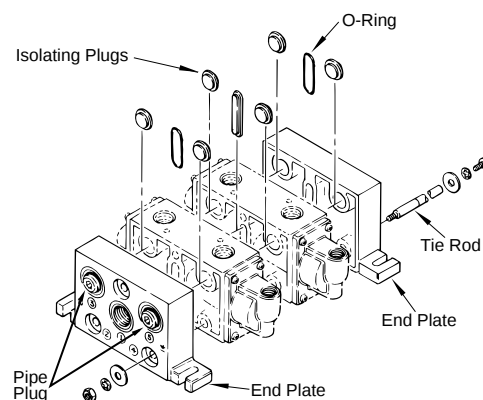
End Plate Kit	Order Number	
	3/8 PTF Ports	G 3/8 ISO Ports
For valves without junction box	13295-52	13295-53
For valves with junction box	13295-50	13295-51

- Valves and end plates are shipped unassembled. See pp. VAL-10-36/37 for factory assembled stacks.
- Stacking valves are available in two configurations – Common Inlet and Exhaust (Ports 1, 3, and 5) and Common Inlet Only (Port 1). Speed controls can be installed in the exhaust ports only on the Common Inlet (Port 1) configuration. The Common Inlet (Port 1) configuration cannot be used with the junction box.
- Solenoid operated 2-position detent and nondetent, and 3-position spring centered valves can be combined in the same stack.

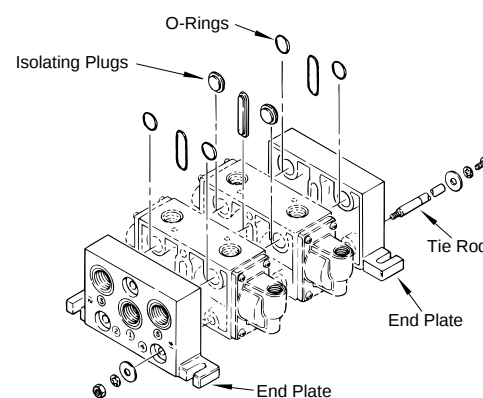
Isolating Plugs

Stacked banks of valves can be divided into two sections by substituting the isolating plugs for the O-rings between any two valves. They can also be used to block the end plate ports on one end if desired. Although one inlet port and two exhaust port isolating plugs are included with the end plate kit, the individual plugs can be ordered separately.

Isolating Plugs	Quantity Required	Order No.
Inlet (Port 1)	1	54350-89
Exhaust (Ports 3 & 5)	2	54350-88



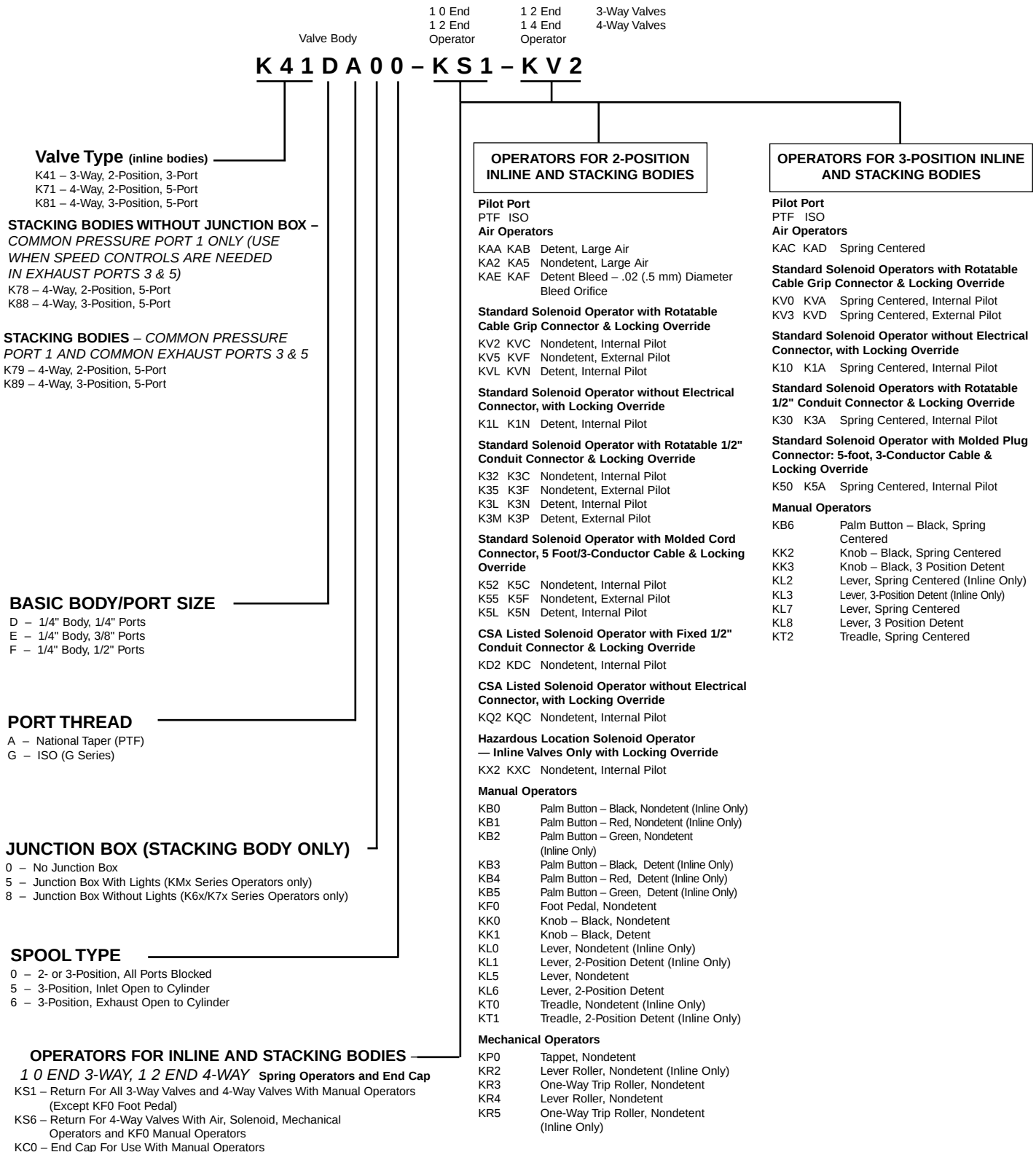
Typical Valve Stack (Common Inlet Only - Port1)



Typical Valve Stack (Common Inlet and Exhaust - Ports 1, 3 and 5)

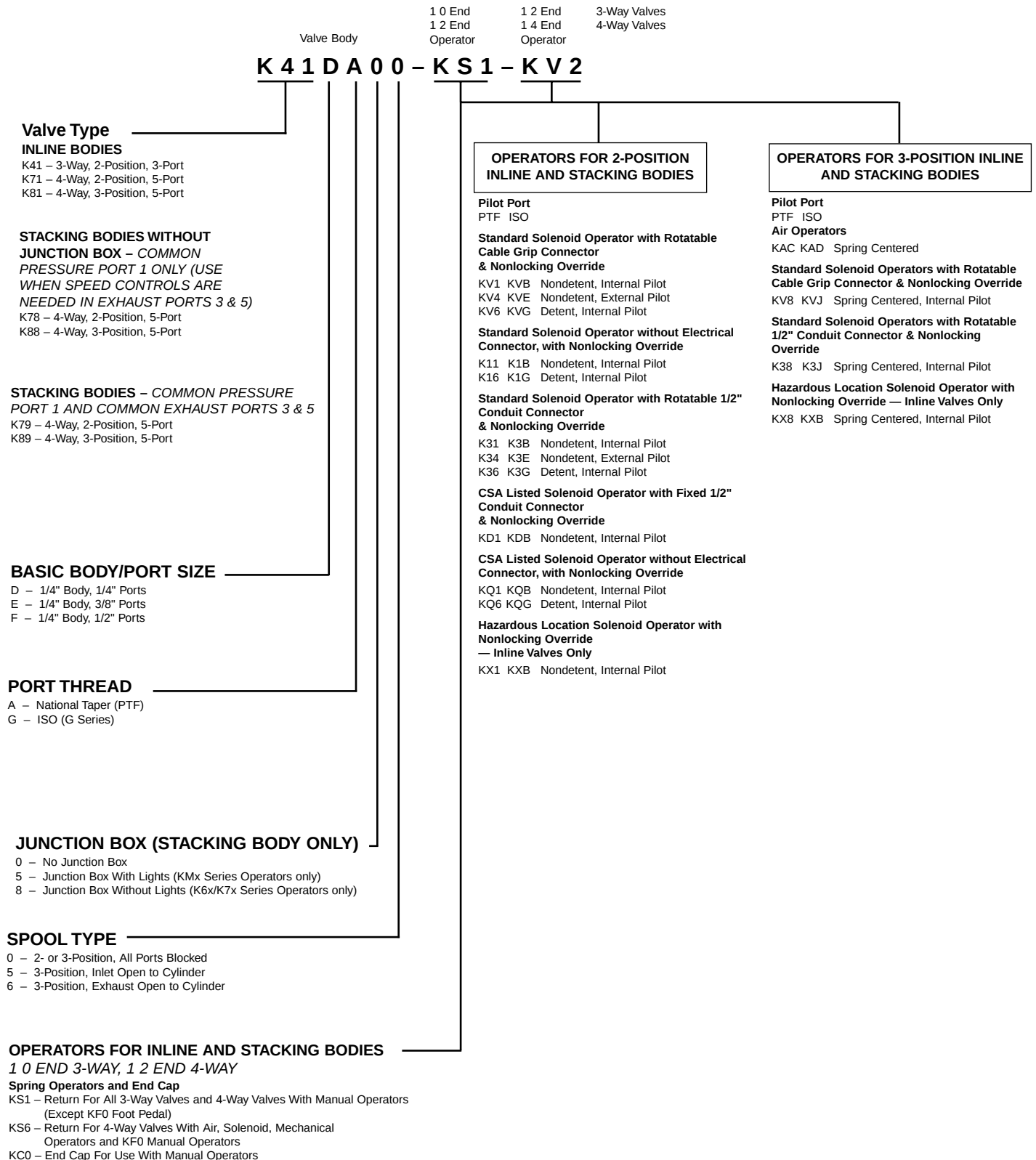


Nugget 200 Product Numbering System — Air, Manual, and Mechanical Operators and Solenoid Operators with Locking Override





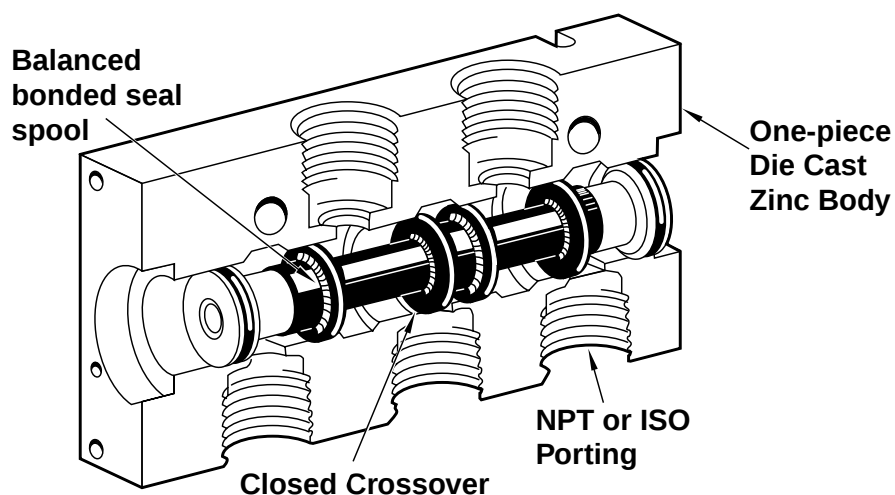
Nugget 200 Product Numbering System — Solenoid Operators with Nonlocking Override



Nugget 500

Compressed air, directional
control spool valves with integral
bonded seals

Contents	
Features	VAL-11-2
Specifications	VAL-11-4
Assembled Valve and Manifolding Assemblies	VAL-11-17
Assembled Valve and Fixed Length Assemblies	VAL-11-18
Accessories	VAL-11-19
Product Numbering System	VAL-11-22





Design Features Provide High Reliability.

Norgren Nugget 500 Valves feature a precision spool with integral bonded seals. This design provides superior performance, fast and easy maintenance, dependable operation, and long life. Other key features and benefits include:

Two-Year Unconditional Warranty

All Nugget valves are warranted to be free from defects for a full two years from the date of purchase. This extended warranty period provides users with a valuable guarantee of quality and serviceability.

Two Valve Configurations

Nugget 500 are available in a 5-Port/2-Position or 5-Port/3-Position configuration.

A Wide Range of Valve Accessories

Norgren offers a number of accessories for use with the Nugget 500 Valve, including valve body cover plates, speed control kits, mufflers, intermediate supply/exhaust block, solenoid exhaust filters, manifold blanking plates, and isolating plugs. These accessories allow cost-effective customizing for your specific application.

Small Subbase Footprint

All subbase valves mount on approximately 1.50" (38 mm) centers, reducing installation space requirements.

High Flow

A Cv of 5.0 provides exceptionally high flow for the compact size of the valve, making the Nugget 500 appropriate for machine control and general purpose industrial applications.

Nitrile Rubber-Based Seals

All Norgren Nugget 500 Valves utilize nitrile O-rings and seals for superior compatibility, wear, and operation over a wide temperature range.

Port and Operator Identification

Each of the ports is identified by a permanent number adjacent to the port on the body or subbase. In addition, a two-digit number at each end of the valve body indicates the ports connected when the operator at that end is actuated. Port and operator identification on Nugget 500 Valves comply with ANSI and NFPA T3.21.15-1989. See **Operating Variations** on page VAL-9-5 for examples.

Durable Finish

External valve body, operator and subbase surfaces are protected with an oven cured, epoxy resin paint that provides excellent corrosion and chip-resistant protection.

Quality Appearance

Norgren's high luster black gives any control circuit installation a quality appearance reflecting the superior operating capability built into every Nugget 500 Valve.

Four Mounting Styles

Inline Valves have two sets of mounting holes running through the valve body. Inline valves may be bolted to a surface or may be supported by connecting piping.

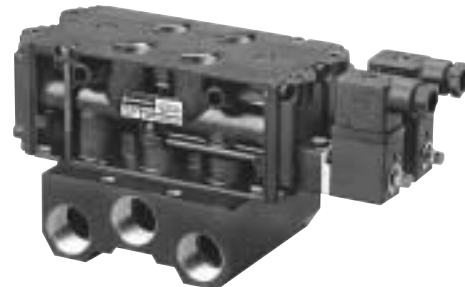
Fixed Length Manifolds allow the installation of inline valves on a competitively priced common manifold. For quick installation, valves are attached to the manifold with two socket head cap screws. Valves share common supply and exhaust galleries in the manifold.

A single **Subbase Valve** is attached to a **Single Subbase** with four socket head cap screws, providing easy installation. Inlet, exhaust, external pilot supply and cylinder ports are located on the sides of the subbase.

Subbase Valves are attached to **Manifolding Subbases** with four socket head cap screws. Subbases are held together with a clamping pin and set screw combination, which reduces potential leaks and allows quick assembly of valve stations. Common inlet and exhaust ports and common external pilot supply ports are located in the end plates. Cylinder ports are located in the ends of the subbases.

Closed Crossover

The design of the Nugget spool ensures that no air flow occurs between supply port 1 and exhaust ports 3 & 5, preventing the waste of compressed air.



Fixed Length Manifold



Operator Choices

Solenoid pilot and air pilot operators are available for primary actuation and return operation. For secondary operation air-assisted spring return, spring return and integral air return operators are offered.

Low Wattage Solenoid Operators

AC and DC operators requiring only 3.5 and 2.0 watts of power, respectively, are ideal for computer based control systems as well as industrial applications where minimum energy consumption is desired. Faster response times are realized using the 7.5 watt AC and DC operators.

Solenoid Exhaust Filter

Optional solenoid exhaust filters, for use in dusty environments, are available.

Solenoid Diffuser Plug

A diffuser plug installed in the pilot exhaust helps prevent entry of contaminants during shipping and normal operation. It may be removed when minimum response times are desired.

Rotatable Connector and Coil

The standard cable grip connector can be rotated 180°, and the solenoid coil can be turned 360° in 90° increments, making the operators adaptable for easy installation.

Electrical Connector Options

A cable grip electrical connector with indicator light; a 1/2" NPT conduit connector and a 5-foot, three-conductor, molded cable connector with or without indicator light and surge suppression are available.

Solenoid Manual Overrides

Standard solenoid operators are furnished with manual non-locking overrides to provide a means of shifting the valve without electrical power. Optional solenoids without overrides or with locking overrides are also available.

Internal or External Solenoid Pilot Supply

All inline solenoid operated valves may be quickly converted from an internal to an external pilot supply by reversing a one-piece seal between the operator and the body and removing the external supply port pipe plug. All subbase solenoid operated valves may be quickly converted from an internal pilot to a common external pilot supply by rotating a one-piece seal between the valve body and the subbase to provide pilot pressure from the external pilot supply port in the single subbase or endplate.

Sintered Bronze Vent Filters

Internal parts are protected by built-in sintered bronze vent filters on operators.

High Flow Pilot Exhaust Orifice

An oversized pilot exhaust orifice provides rapid return time when the valve is deactivated.



Inline Double Solenoid Valve



Single Subbase Valve



Manifolding Subbase Valve



Specifications

Operating Specifications

Fluids: Filtered, lubricated or nonlubricated, compressed air or vacuum service.

Inlet Pressure Range:

Solenoid Operated Valves:*

With Internal Pilot Supply:

20 to 150 psig (1.4 to 10.3 bar)

With External Pilot Supply:

26" Hg** to 150 psig

(26" Hg** to 10.3 bar)

Air Operated Valves: 26" Hg** to 150 psig (26" Hg** to 10.3 bar).

Temperature Range (Ambient & Inlet):

Solenoid Operated Valves: -20°F to 120°F† (-29°C to 50°C).

Air Operated Valves: -20°F to 160°F†

(-29°C to 71°C).

Operator Pilot Pressures:

Maximum Pressure: 150 psig (10.3 bar)

Minimum Pressure requirements are given in the table below:

* Solenoid operators must be externally piloted if the supply pressure to the main valve is below the minimum pilot pressure listed in the table below.

** With vacuum supply plumbed to an exhaust port.

†With dewpoint of supply air less than air temperature below 35°F (2°C).

Port Size (PTF Standard, ISO Optional)

Inline Valves: 3/8" & 1/2" PTF standard, (ISO G optional); 3/4" PTF only

Inline Valve Fixed Length Manifold: 3/4" PTF inlet and exhaust ports standard (ISO G optional).

Single Subbase: 3/8" or 1/2" PTF standard (ISO G optional); 1/8" PTF or ISO G external pilot supply.

Manifolding Subbase: 3/8" or 1/2" PTF standard (ISO G optional) cylinder ports.

End Plates for Manifolding Subbases: 3/4" PTF standard (ISO G optional) inlet and exhaust ports;

1/8" PTF or ISO G external pilot supply.

Operator: 1/8" PTF or ISO G external pilot supply port.

Special Order Threads: ISO Rc – Consult Factory.

Valve Materials

Body: Aluminum

Spool: Aluminum

Elastomers: Nitrile

Solenoid Operator Base: PPS Plastic

Operator Housing: Zinc

Speed Control Materials

Body: Zinc

Adjusting Screw: Brass

Elastomers: Nitrile

Subbase Materials

Fixed Length Manifold: Aluminum

Single & Manifolding Subbases: Aluminum

End Plate: Zinc

Elastomers: Nitrile

Solenoid Operator Specifications

Voltages and Power Requirements:

Standard:

120V/60Hz-110V/50Hz: 3.5W.

Optional:

24V/60Hz-24V/50Hz: 3.5W;

6 VDC: 2.0W;

12 VDC: 2.0W;

24 VDC: 2.0W;

110 VDC: 3.4W.

120V/60Hz-110V/50Hz: 7.5W;

240V/60Hz-220V/50Hz: 7.5W;

24V/60Hz-24V/50Hz: 7.5W;

12 VDC: 7.5W;

24 VDC: 6.0W.

Duty: Continuous at 90 to 105 % of rated voltage.

Coil Type: Class H. Molded with three-pin electrical plug-in connector.

Enclosure Classification: NEMA 4, and DIN 40050-IP65.

Electrical spade connections on the operator receptacle conform to industry standard form B for 3-pin connectors with 11 mm spacing.

Electrical Plug-in Connector: Cable grip for cables 1/4" to 5/16" (6 to 8 mm) in diameter.

Override: Non-locking, locking or no override

External Pilot Supply Port: 1/8" PTF or ISO G

Average Flow Factor (C_v)†

3/8", 1/2", & 3/4" Ported Valves: 4.0, 5.0, & 5.6, respectively.

†Flow rating determined in accordance with ANSI (NFPA).T3.21.3, Pneumatic fluid power – Flow test procedure and reporting method – for fixed orifice components.

Operator Pilot Pressures

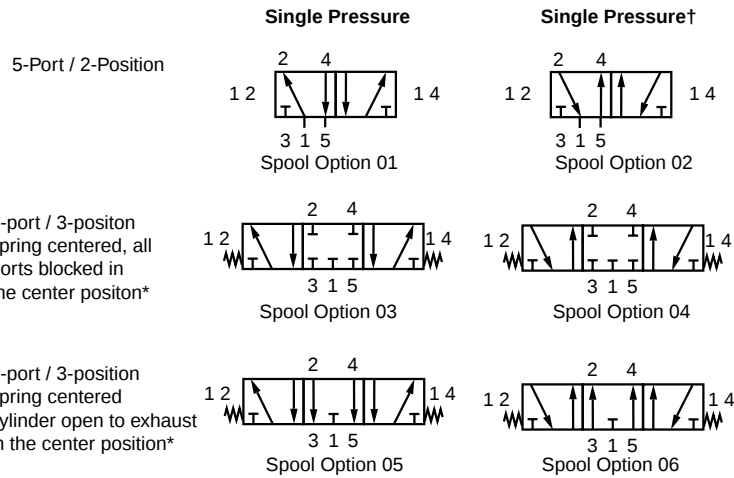
Maximum Pressure: 150 psig (10.3 bar)

Minimum Pilot Pressures are given in the following table

Primary Operator	Secondary Return Oper	Minimum Operating Pressure		
		Nondetent psig (bar)	Detent psig (bar)	Spring Centered psig (bar)
Air	Air	20 (1.4)	30 (2.1)	40 (2.8)
Solenoid	Solenoid	20 (1.4)	30 (2.1)	40 (2.8)
Solenoid	Spring	40 (2.8)	—	—
Solenoid	Air-Assisted Spring	40 (2.8)	—	—
Solenoid	Integral Air	40 (2.8)	—	—
Air	Spring	40 (2.8)	—	—
Air	Air-Assisted Spring	40 (2.8)	—	—
Air	Integral Air	40 (2.8)	—	—

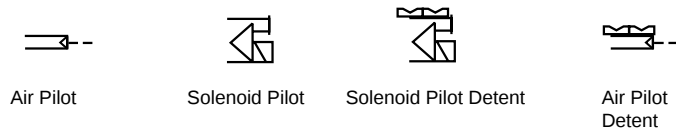


Operating Variations

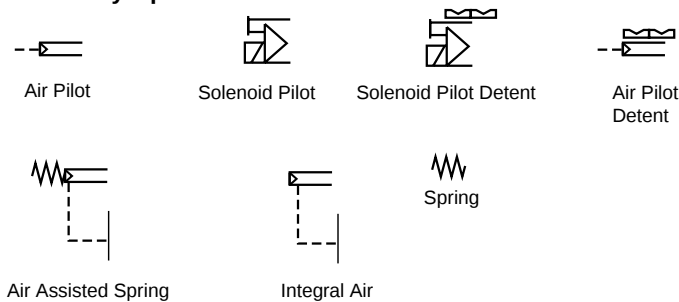


* 5-port / 3-position valves available with double solenoid pilot or double air pilot operators only
 † Dual pressure valves require externally piloted operators

Primary Operators



Secondary Operators



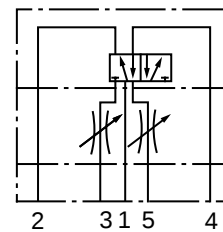
Seal Compatibility

Nugget 500 seals are compatible with most good quality O-ring lubricants, including:

- DC BR-2+ grease (Dow Corning)
- DC 44 grease (Dow Corning)
- Parker Super O-Lube (Parker Seal)
- Magnalube G (Saunders Industries)
- Nondetergent mineral based oil such as Mobil DTE light oil

Nugget 500 seals are not compatible with WD-40 or commonly used de-icer fluids. Consult factory to verify compatibility of lubricants or fluids not listed above.

Dual Sandwich Speed Control



Nugget 500 Series Valves

5/2 and 5/3 directional control
spool valves

- Long lasting spool design
- High flow compact valves
- Four mounting styles: inline, fixed length manifolds, single subbase, or subbase valves attached to manifolding subbases
- Wide range of operators available
- Two functional types: available in 5/2, and 5/3 configurations



Technical Data

Medium:

Filtered, lubricated or non-lubricated, compressed air or vacuum

Operation:

Spool valve air pilot actuated

Mounting:

Inline, fixed length manifold, single subbase, and manifolding subbase

Port Sizes:

3/8", 1/2", or 3/4", ISO G or PTF

Operating Pressure:

Maximum 150 psig (10.3 bar).

Flow Characteristics:

Port	Cv	l/min	scfm
3/8" Inline	4.0	4250	150
1/2" Inline	5.0	5150	180
3/4" Inline	5.6	6000	210
1/2" Subbase	4.7	5300	190

Operating Temperature

Solenoid Operated Valves: -20° to 120°F (-29° to 50°C)

Air Operated Valves: -20° to 160°F (-29° to 71°C)

*Consult our Technical Service for use below 36°F (2°C)

Materials:

Valve Body: Aluminum

Spool: Aluminum

Elastomers: Nitrile

Solenoid Operator Base: PPS plastic

Operator Housing: Zinc

Speed Control Materials

Body: Zinc

Adjusting Screw: Brass

Elastomers: Nitrile

Subbase Materials

Fixed Length Manifolds: Aluminum

Single and Manifolding Subbase: Aluminum

End Plate: Zinc

Elastomers: Nitrile

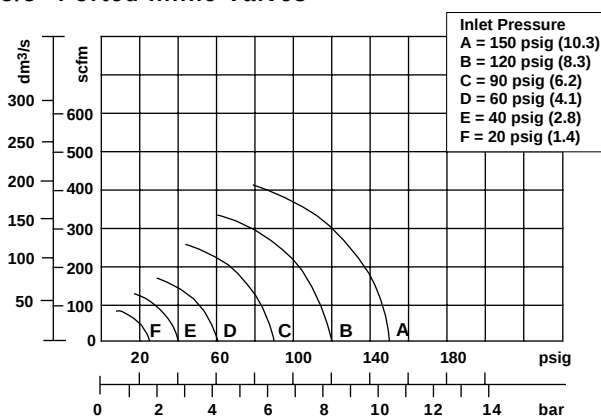
Order Information

To order standard Nugget 500 air pilot solenoid operated valves, quote model number from table, e.g. order

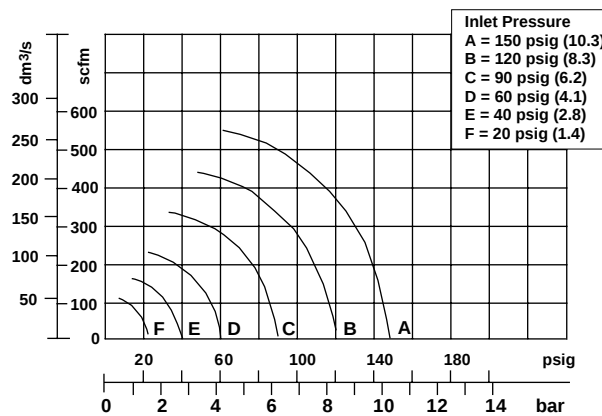
MN01CGA-35-AJJA for a 5-port/2-position, single solenoid, spring return model.



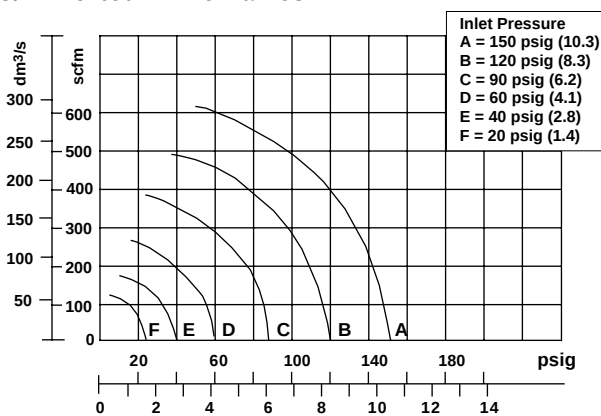
FLOW CHARACTERISTICS 3/8" Ported Inline Valves



FLOW CHARACTERISTICS 1/2" Ported Inline Valves



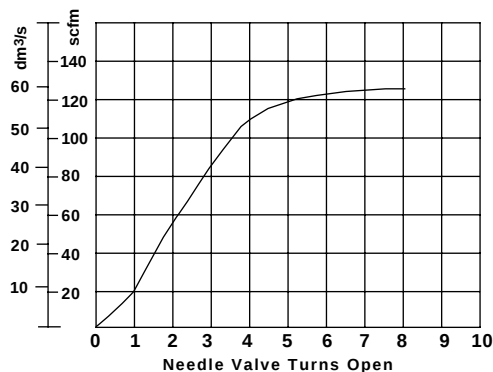
FLOW CHARACTERISTICS 3/4" Ported Inline Valves



SPEED CONTROL

Inlet Pressure: 90 PSIG (6.2 bar)

Flow Path: 2 to 3 and 4 to 5 (cyl to exhaust)





Nugget 500 Series Valves

Inline Valves

Description	Symbol	Type	Port Size	Body	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Solenoid		5-port/2-position single pressure	1/2" PTF	MN01CGA	35-AJJA	40 - 150 (2.8 - 10.3)	1.42 (.65)	54677-50
Spring Return*		5-port/2-position dual pressure	1/2" PTF	MN02CGA	35-AKJA	40 - 150 (2.8 - 10.3)	1.42 (.65)	54677-51
Double Solenoid		5-port/2-position single pressure	1/2" PTF	MN01CGA	25-AJJA	20 - 150 (1.4 - 10.3)	1.71 (.78)	54677-50
		5-port/2-position dual pressure	1/2" PTF	MN02CGA	25-AJJA	20 - 150 (1.4 - 10.3)	1.71 (.78)	54677-51
Double Solenoid Detent		5-port/2 position single pressure	1/2" PTF	MN01CGA	25-BJJA	30 - 150 (2.1 - 10.3)	1.99 (.90)	54677-50
		5-port/2 position dual pressure	1/2" PTF	MN02CGA	25-BJJA	30 - 150 (2.1 - 10.3)	1.99 (.90)	54677-51 54677-51
Double Solenoid		5-port/3-position single pressure, all ports blocked in center position	1/2" PTF	MN03CGA	25-FJJA	40 - 150 (2.8 - 10.3)	1.99 (.90)	54677-52
		5-port/3-position dual pressure, all ports blocked in center position	1/2" PTF	MN04CGA	25-FJJA	40 - 150 (2.8 - 10.3)	1.99 (.90)	54677-53
Double Solenoid Spring Centered Cylinder Open to Exhaust		5-port/3-position single pressure, cylinder open to exhaust	1/2" PTF	MN05CGA	25-FJJA	20 - 150 (1.4 - 10.3)	1.99 (.90)	54677-54
		5-port/3-position dual pressure cylinder open to exhaust	1/2" PTF	MN06CGA	25-FJJA	20 - 150 (1.4 - 10.3)	1.99 (.90)	54677-55

* Standard valves are equipped with PTF threads, solenoid operators with non-locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-11-22.

Note: For ISO-G threads, insert "G" in the 7th position.



Inline Valves

Description	Symbol	Type	Port Size	Body	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Air Spring Return*		5-port/2-position single pressure	1/2" PTF	MN01CGA	33-A000	40 - 150 (2.8 - 10.3)	1.16 (.53)	54677-50
		5-port/2-position dual pressure	1/2" PTF	MN02CGA	33-A000	40 - 150 (2.8 - 10.3)	1.16 (.53)	54677-51
Double Air		5-port/2-position single pressure	1/2" PTF	MN01CGA	23-A000	20 - 150 (1.4 - 10.3)	1.16 (.53)	54677-50
		5-port/2-position dual pressure	1/2" PTF	MN02CGA	23-A000	20 - 150 (1.4 - 10.3)	1.16 (.53)	54677-51
Double Air Detent		5-port/2 position single pressure	1/2" PTF	MN01CGA	23-B000	30 - 150 (2.1 - 10.3)	1.42 (.65)	54677-50
		5-port/2 position dual pressure	1/2" PTF	MN02CGA	23-B000	30 - 150 (2.1 - 10.3)	1.42 (.65)	54677-51
Double Air, Spring Centered, all ports blocked		5-port/3-position single pressure, all ports blocked in center position	1/2" PTF	MN03CGA	23-F000	40 - 150 (2.8 - 10.3)	1.42 (.65)	54677-52
		5-port/3-position dual pressure, all ports blocked in center position	1/2" PTF	MN04CGA	23-F000	40 - 150 (2.8 - 10.3)	1.42 (.65)	54677-53
Double Air Spring Centered Cylinder Open to Exhaust		5-port/3-position single pressure, cylinder open to exhaust	1/2" PTF	MN05CGA	23-F000	20 - 150 (1.4 - 10.3)	1.42 (.65)	54677-54
		5-port/3-position dual pressure, cylinder open to exhaust	1/2" PTF	MN06CGA	23-F000	20 - 150 (1.4 - 10.3)	1.42 (.65)	54677-55

* Standard valves are equipped with PTF threads..

Note: For ISO-G threads, insert "G" in the 7th position.



Nugget 500 Series Valves

Valves with Manifolding Subbases

Description	Symbol	Type	Port Size	Body	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Solenoid		5-port/2-position single pressure	1/2" PTF	MN01GGA	35-AJJA	40 - 150 (2.8 - 10.3)	2.37 (1.08)	54677-50
Spring Return*		5-port/2-position dual pressure	1/2" PTF	MN02GGA	35-AKJA	40 - 150 (2.8 - 10.3)	2.37 (1.08)	54677-51
Double Solenoid		5-port/2-position single pressure	1/2" PTF	MN01GGA	25-AJJA	20 - 150 (1.4 - 10.3)	2.64 (1.20)	54677-50
		5-port/2-position dual pressure	1/2" PTF	MN02GGA	25-AJJA	20 - 150 (1.4 - 10.3)	2.64 (1.20)	54677-51
Double Solenoid Detent		5-port/2 position single pressure	1/2" PTF	MN01GGA	25-BJJA	30 - 150 (2.1 - 10.3)	2.94 (1.34)	54677-50
		5-port/2 position dual pressure	1/2" PTF	MN02GGA	25-BJJA	30 - 150 (2.1 - 10.3)	2.94 (1.34)	54677-51
Double Solenoid		5-port/3-position single pressure, all ports blocked in center position	1/2" PTF	MN03GGA	25-FJJA	40 - 150 (2.8 - 10.3)	2.94 (1.34)	54677-52
		5-port/3-position dual pressure, all ports blocked in center position	1/2" PTF	MN04GGA	25-FJJA	40 - 150 (2.8 - 10.3)	2.94 (1.34)	54677-53
Double Solenoid Spring Centered Cylinder Open to Exhaust		5-port/3-position single pressure, cylinder open to exhaust	1/2" PTF	MN05GGA	25-FJJA	20 - 150 (1.4 - 10.3)	2.94 (1.34)	54677-54
		5-port/3-position dual pressure cylinder open to exhaust	1/2" PTF	MN06GGA	25-FJJA	20 - 150 (1.4 - 10.3)	2.94 (1.34)	54677-55

* Standard valves are equipped with PTF threads, solenoid operators with non-locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors.

Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-11-22.

Note: For ISO-G threads, insert "G" in the 7th position.



Valves with Manifolding Subbases

Description	Symbol	Type	Port Size	Body	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Air Spring Return*		5-port/2-position single pressure	1/2" PTF	MN01GGA	33-A000	40 - 150 (2.8 - 10.3)	2.09 (.95)	54677-50
		5-port/2-position dual pressure	1/2" PTF	MN02GGA	33-A000	40 - 150 (2.8 - 10.3)	2.09 (.95)	54677-51
Double Air		5-port/2-position single pressure	1/2" PTF	MN01GGA	23-A000	20 - 150 (1.4 - 10.3)	2.09 (.95)	54677-50
		5-port/2-position dual pressure	1/2" PTF	MN02GGA	23-A000	20 - 150 (1.4 - 10.3)	2.09 (.95)	54677-51
Double Air Detent		5-port/2 position single pressure	1/2" PTF	MN01GGA	23-B000	30 - 150 (2.1 - 10.3)	2.37 (1.08)	54677-50
		5-port/2 position dual pressure	1/2" PTF	MN02GGA	25-B000	30 - 150 (2.1 - 10.3)	2.37 (1.08)	54677-51
Double Air, Spring Centered, all ports blocked		5-port/3-position single pressure, all ports blocked in center position	1/2" PTF	MN03GGA	23-F000	40 - 150 (2.8 - 10.3)	2.37 (1.08)	54677-52
		5-port/3-position dual pressure, all ports blocked in center position	1/2" PTF	MN04GGA	23-F000	40 - 150 (2.8 - 10.3)	2.37 (1.08)	54677-53
Double Air Spring Centered Cylinder Open to Exhaust		5-port/3-position single pressure, cylinder open to exhaust	1/2" PTF	MN05GGA	23-F000	20 - 150 (1.4 - 10.3)	2.37 (1.08)	54677-54
		5-port/3-position dual pressure, cylinder open to exhaust	1/2" PTF	MN06GGA	23-F000	20 - 150 (1.4 - 10.3)	2.37 (1.08)	54677-55

* Standard valves are equipped with PTF threads.

Note: For ISO-G threads, insert "G" in the 7th position.



Nugget 500 Series Valves

Valves on a Single Subbase

Description	Symbol	Type	Port Size	Body	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Solenoid		5-port/2-position single pressure	1/2" PTF	MN01EGA	35-AJJA	40 - 150 (2.8 - 10.3)	2.08 (.95)	54677-50
Spring Return*		5-port/2-position dual pressure	1/2" PTF	MN02EGA	35-AKJA	40 - 150 (2.8 - 10.3)	2.08 (.95)	54677-51
Double Solenoid		5-port/2-position single pressure	1/2" PTF	MN01EGA	25-AJJA	20 - 150 (1.4 - 10.3)	2.33 (1.06)	54677-50
		5-port/2-position dual pressure	1/2" PTF	MN02EGA	25-AJJA	20 - 150 (1.4 - 10.3)	2.33 (1.06)	54677-51
Double Solenoid Detent		5-port/2 position single pressure	1/2" PTF	MN01EGA	25-BJJA	30 - 150 (2.1 - 10.3)	2.62 (1.19)	54677-50
		5-port/2 position dual pressure	1/2" PTF	MN02EGA	25-BJJA	30 - 150 (2.1 - 10.3)	2.62 (1.19)	54677-51
Double Solenoid		5-port/3-position single pressure, all ports blocked in center position	1/2" PTF	MN03EGA	25-FJJA	40 - 150 (2.8 - 10.3)	2.62 (1.19)	54677-52
		5-port/3-position dual pressure, all ports blocked in center position	1/2" PTF	MN04EGA	25-FJJA	40 - 150 (2.8 - 10.3)	2.62 (1.19)	54677-53
Double Solenoid Spring Centered Cylinder Open to Exhaust		5-port/3-position single pressure, cylinder open to exhaust	1/2" PTF	MN05EGA	25-FJJA	20 - 150 (1.4 - 10.3)	2.62 (1.19)	54677-54
		5-port/3-position dual pressure cylinder open to exhaust	1/2" PTF	MN06EGA	25-FJJA	20 - 150 (1.4 - 10.3)	2.62 (1.19)	54677-55

* Standard valves are equipped with PTF threads, solenoid operators with non-locking overrides, internal pilot, 120V/60 Hz-110V/50 Hz coils and cable grip connectors. Optional solenoid operators, coil voltages and electrical connectors can be ordered using the information on p. VAL-11-22.

Note: For ISO-G threads, insert "G" in the 7th position.



Valves on a Single Subbase

Description	Symbol	Type	Port Size	Body	Operator	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit
Single Air		5-port/2-position single pressure	1/2" PTF	MN01EGA	33-A000	40 - 150 (2.8 - 10.3)	1.81 (.82)	54677-50
Spring Return*		5-port/2-position dual pressure	1/2" PTF	MN02EGA	33-A000	40 - 150 (2.8 - 10.3)	1.81 (.82)	54677-51
Double Air		5-port/2-position single pressure	1/2" PTF	MN01EGA	23-A000	20 - 150 (1.4 - 10.3)	1.81 (.82)	54677-50
		5-port/2-position dual pressure	1/2" PTF	MN02EGA	23-A000	20 - 150 (1.4 - 10.3)	1.81 (.82)	54677-51
Double Air Detent		5-port/2 position single pressure	1/2" PTF	MN01EGA	23-B000	30 - 150 (2.1 - 10.3)	2.09 (.95)	54677-50
		5-port/2 position dual pressure	1/2" PTF	MN02EGA	23-B000	30 - 150 (2.1 - 10.3)	2.09 (.95)	54677-51
Double Air, Spring Centered, all ports blocked		5-port/3-position single pressure, all ports blocked in center position	1/2" PTF	MN03EGA	23-F000	40 - 150 (2.8 - 10.3)	2.09 (.95)	54677-52
		5-port/3-position dual pressure, all ports blocked in center position	1/2" PTF	MN04EGA	23-F000	40 - 150 (2.8 - 10.3)	2.09 (.95)	54677-53
Double Air Spring Centered Cylinder Open		5-port/3-position single pressure, cylinder open to exhaust	1/2" PTF	MN05EGA	23-F000	20 - 150 (1.4 - 10.3)	2.09 (.95)	54677-54
to Exhaust		5-port/3-position dual pressure, cylinder open to exhaust	1/2" PTF	MN06EGA	23-F000	20 - 150 (1.4 - 10.3)	2.09 (.95)	54677-55

* Standard valves are equipped with PTF threads.

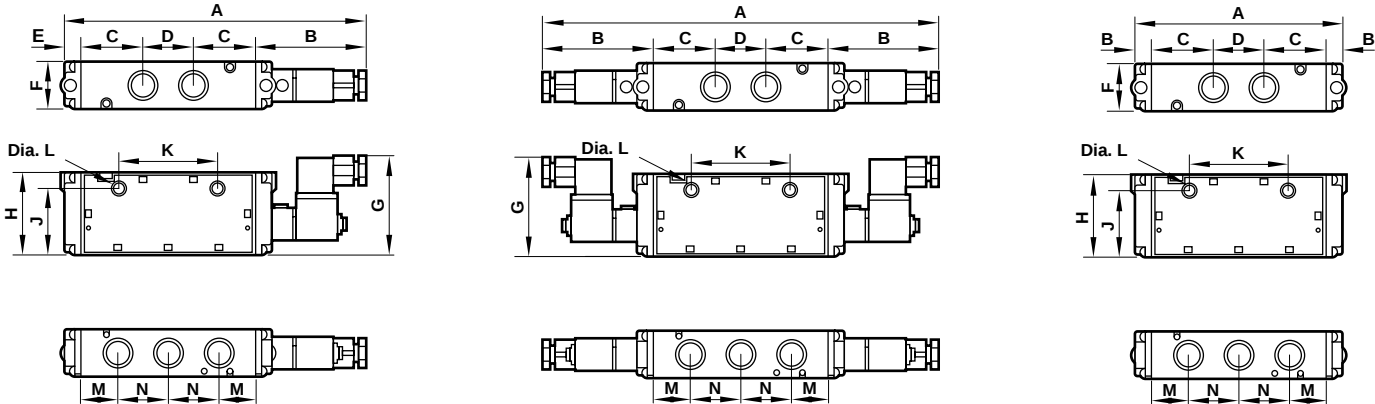
Note: For ISO-G threads, insert "G" in the 7th position.



Nugget 500 Series Valves

All Dimensions in Inches (mm)

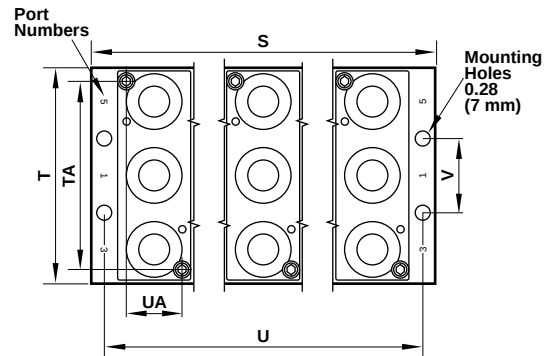
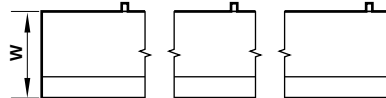
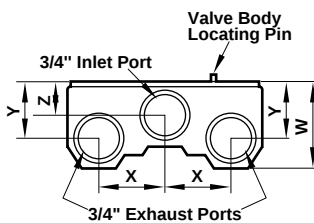
Inline Valve Dimensions



Note: 4 mm hex key drive required for mounting screw removal/replacement

Valve	A	B	C	D	E	F	G	H	J	K	L	M	N
Solenoid Pilot Operator — 5-Port/2-Position Nondetent													
Single Solenoid*	9.46 (240)	3.53 (90)	1.91 (49)	1.48 (38)	0.63 (16)	1.44 (37)	2.71 (69)	2.44 (62)	1.94 (49)	3.00 (76)	0.27 (7)	1.17 (30)	1.48 (38)
Double Solenoid	12.36 (314)	3.53 (90)	1.91 (49)	1.48 (38)	—	1.44 (37)	2.71 (69)	2.44 (62)	1.94 (49)	3.00 (76)	0.27 (7)	1.17 (30)	1.48 (38)
Solenoid Pilot Operator — 5-Port/2-Position Detent or 5-Port/3-Position Spring Centered													
Double Solenoid	13.30 (338)	4.00 (102)	1.91 (49)	1.48 (38)	—	1.44 (37)	2.71 (69)	2.44 (62)	1.94 (49)	3.00 (76)	0.27 (7)	1.17 (30)	1.48 (38)
Air Pilot Operator — 5-Port/2-Position Nondetent													
Single Air*	6.56 (167)	0.63 (16)	1.91 (49)	1.48 (38)	0.63 (16)	1.44 (37)	—	2.44 (62)	1.94 (49)	3.00 (76)	0.27 (7)	1.17 (30)	1.48 (38)
Double Air	6.56 (7)	0.63 (16)	1.91 (49)	1.48 (38)	—	1.44 (37)	—	2.44 (62)	1.94 (49)	3.00 (76)	0.27 (7)	1.17 (30)	1.48 (38)
Air Pilot Operator — 5-Port/2-Position Detent or 5-Port/3-Position Spring Centered													
Double Air	7.50 (191)	1.10 (28)	1.91 (49)	1.48 (38)	—	1.44 (37)	—	2.44 (62)	1.94 (49)	3.00 (76)	0.27 (7)	1.17 (30)	1.48 (38)

*With air-assisted spring return, spring return or integral air return

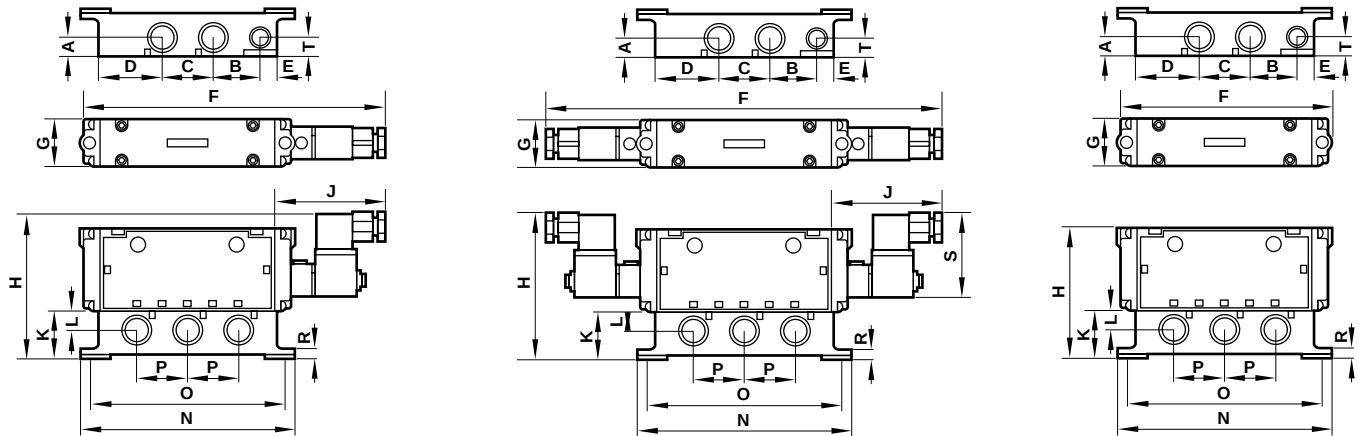


Manifold Kits*		Fixed Length Manifold Kits and Dimensions											
Ports	No. of Stations	S	T	U	V	W	X	Y	Z	TA	UA		
3/4 NPT	3/4 ISO G												
13342-60	13342-70	2	4.00 (102)	4.28 (109)	3.50 (89)	1.50 (38)	1.78 (45)	1.48 (38)	1.13 (29)	0.65 (17)	3.75 (95)	1.12 (28)	
13342-61	13342-71	3	5.50 (140)	4.28 (109)	5.00 (127)	1.50 (38)	1.78 (45)	1.48 (38)	1.13 (29)	0.65 (17)	3.75 (95)	1.12 (28)	
13342-62	13342-72	4	7.00 (178)	4.28 (109)	6.50 (165)	1.50 (38)	1.78 (45)	1.48 (38)	1.13 (29)	0.65 (17)	3.75 (95)	1.12 (28)	
13342-63	13342-73	5	8.50 (216)	4.28 (109)	8.00 (203)	1.50 (38)	1.78 (45)	1.48 (38)	1.13 (29)	0.65 (17)	3.75 (95)	1.12 (28)	
13342-64	13342-74	6	10.00 (254)	4.28 (109)	9.50 (241)	1.50 (38)	1.78 (45)	1.48 (38)	1.13 (29)	0.65 (17)	3.75 (95)	1.12 (28)	
13342-65	13342-75	8	13.00 (330)	4.28 (109)	12.50 (318)	1.50 (38)	1.78 (45)	1.48 (38)	1.13 (29)	0.65 (17)	3.75 (95)	1.12 (28)	
13342-66	13342-76	10	16.00 (406)	4.28 (109)	15.50 (394)	1.50 (38)	1.78 (45)	1.48 (38)	1.13 (29)	0.65 (17)	3.75 (95)	1.12 (28)	

*Kits include manifolds, seals, and valve attaching hardware. See VAL-11-19 for blanking plate kits.



Subbase Valve on Single Subbase Dimensions

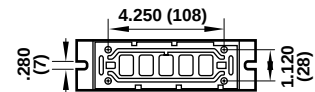
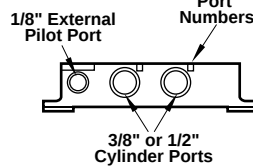
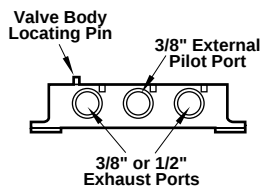


Note: 4 mm hex key drive required for mounting screws

Valve	A	B	C	D	E	F	G	H	J	K	L	N	O	P	R	S	T
Solenoid Pilot Operator — 5-Port/2-Position Nondetent																	
Single Solenoid*	0.63 (16)	1.94 (49)	1.48 (38)	1.46 (37)	0.48 (12)	9.46 (240)	1.80 (46)	4.15 (105)	3.53 (90)	1.38 (35)	0.63 (16)	6.50 (165)	6.05 (154)	1.48 (38)	0.25 (6)	2.71 (69)	0.63 (16)
Double Solenoid	0.63 (16)	1.94 (49)	1.48 (38)	1.46 (37)	0.48 (12)	10.40 (264)	1.80 (46)	4.15 (105)	4.00 (102)	1.38 (35)	0.63 (16)	6.50 (165)	6.05 (154)	1.48 (38)	0.25 (6)	2.71 (69)	0.63 (16)
Solenoid Pilot Operator — 5-Port/2-Position Detent or 5-Port/3-Position Spring Centered																	
Double Solenoid	0.63 (16)	1.94 (49)	1.48 (38)	1.46 (37)	0.48 (12)	12.36 (314)	1.80 (46)	4.15 (105)	3.53 (90)	1.38 (35)	0.63 (16)	6.50 (165)	6.05 (154)	1.48 (38)	0.25 (6)	2.71 (69)	0.63 (16)
Air Pilot Operator — 5-Port/2-Position Nondetent																	
Single Air*	0.63 (16)	1.94 (49)	1.48 (38)	1.46 (37)	0.48 (12)	6.56 (167)	1.80 (46)	3.89 (99)	—	1.38 (35)	0.63 (16)	6.50 (165)	6.05 (154)	1.48 (38)	0.25 (6)	—	0.63 (16)
Double Air	0.63 (16)	1.94 (49)	1.48 (38)	1.46 (37)	0.48 (12)	6.56 (167)	1.80 (46)	3.89 (99)	—	1.38 (35)	0.63 (16)	6.50 (165)	6.05 (154)	1.48 (38)	0.25 (6)	—	0.63 (16)
Air Pilot Operator — 5-Port/2-Position Detent or 5-Port/3-Position Spring Centered																	
Double Air	0.63 (16)	1.94 (49)	1.48 (38)	1.46 (37)	0.48 (12)	7.50 (191)	1.80 (46)	3.89 (99)	—	1.38 (35)	0.63 (16)	6.50 (165)	6.05 (154)	1.48 (38)	0.25 (6)	—	0.63 (16)

*With air-assisted spring return, spring return or integral air return.

Single Subbase Ports

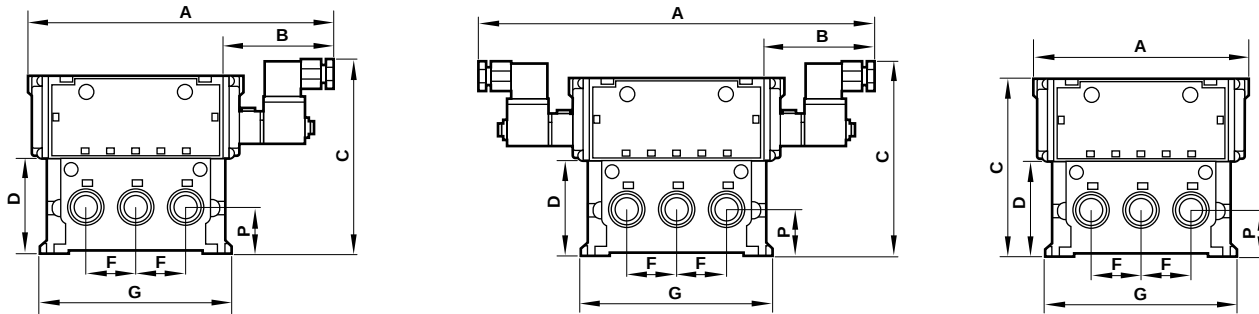




Nugget 500 Series Valves

All Dimensions in Inches (mm)

Subbase Valves on Modular Manifold Dimensions



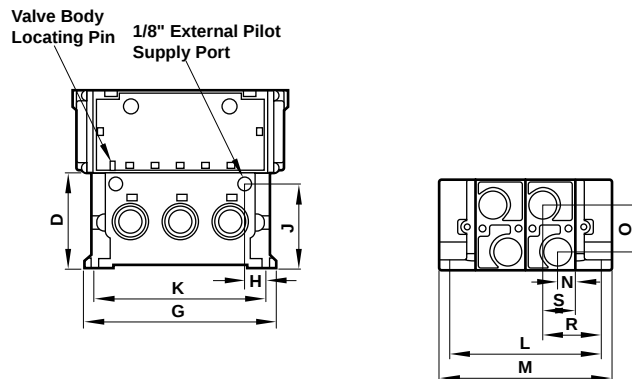
Note: 4 mm hex key drive required for mounting screws

Valve	A	B	C	D	F	G	H	J	K	L**	M**	N	O	P	R	S
Solenoid Pilot Operator — 5-Port/2-Position Nondetent																
Single Solenoid*	9.46 (240)	3.53 (90)	5.62 (143)	2.85 (72)	1.48 (38)	5.76 (146)	0.97 (25)	2.48 (63)	5.13 (130)	4.58 (116)	5.14 (131)	0.53 (14)	1.44 (37)	1.35 (34)	0.97 (25)	1.82 (46)
Double Solenoid	12.36 (314)	3.53 (90)	5.62 (143)	2.85 (72)	1.48 (38)	5.76 (146)	0.97 (25)	2.48 (63)	5.13 (130)	4.58 (116)	5.14 (131)	0.53 (14)	1.44 (37)	1.35 (34)	0.97 (25)	1.82 (46)
Solenoid Pilot Operator — 5-Port/2-Position Detent or 5-Port/3-Position Spring Centered																
Double Solenoid	13.30 (338)	4.00 (102)	5.62 (143)	2.85 (72)	1.48 (38)	5.76 (146)	0.97 (25)	2.48 (63)	5.13 (130)	4.58 (116)	5.14 (131)	0.53 (14)	1.44 (37)	1.35 (34)	0.97 (25)	1.82 (46)
Air Pilot Operator — 5-Port/2-Position Nondetent																
Single Air*	6.56 (167)	—	5.36 (136)	2.85 (72)	1.48 (38)	5.76 (146)	0.97 (25)	2.48 (63)	5.13 (130)	4.58 (116)	5.14 (131)	0.53 (14)	1.44 (37)	1.35 (34)	0.97 (25)	1.82 (46)
Double Air	6.56 (167)	—	5.36 (136)	2.85 (72)	1.48 (38)	5.76 (146)	0.97 (25)	2.48 (63)	5.13 (130)	4.58 (116)	5.14 (131)	0.53 (14)	1.44 (37)	1.35 (34)	0.97 (25)	1.82 (46)
Air Pilot Operator — 5-Port/2-Position Detent or 5-Port/3-Position Spring Centered																
Double Air	7.50 (191)	—	5.36 (136)	2.85 (72)	1.48 (38)	5.76 (146)	0.97 (25)	2.48 (63)	5.13 (130)	4.58 (116)	5.14 (131)	0.53 (14)	1.44 (37)	1.35 (34)	0.97 (25)	1.82 (46)

*With air-assisted spring return, spring return or integral air return.

**Dimensions shown are for two end plates and two manifolding subbases. Add 1.50" (38 mm) for each additional manifolding subbase.

Manifold Subbase Assembly

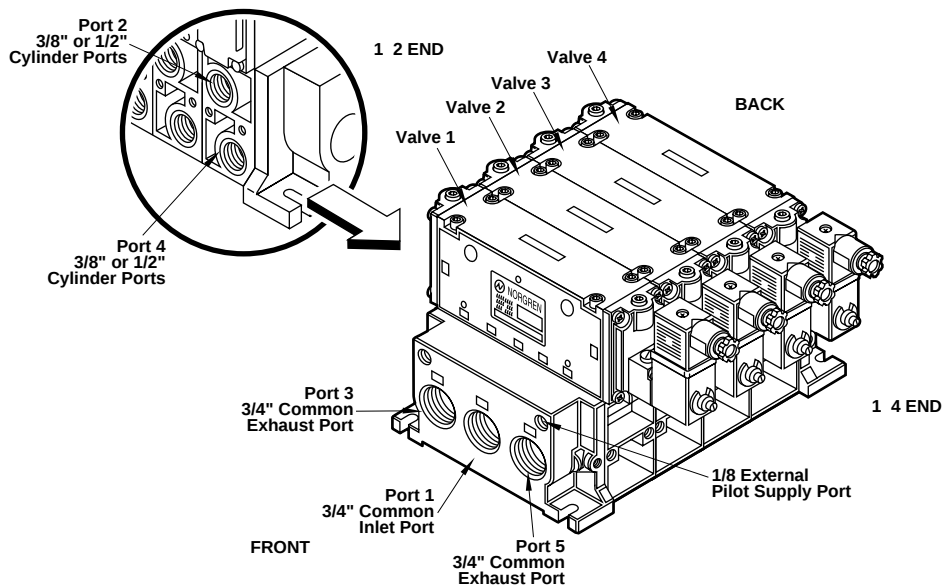




Factory Assembled Valve and Manifolding Subbase Assemblies

For ordering information, the valve and manifolding subbase assembly are oriented with the 1 2 operator end on the left side, and the 1 4 operator end on the right side. The valves are listed from FRONT to BACK. This example illustrates how to order a valve and manifolding subbase assembly, with isolating plugs for two different working pressures installed between valve manifold subbases 2 and 3. Four pipe plugs are included with the end plate kit to allow blocking of unused common inlet, exhaust, and pilot end plate ports to prevent air loss and entry of contaminants.

Valve Pos. No.	Qty.	Product Number	Special Instructions
1	1	MN01GCA-75-ALJA	
2	1	MN01GGA-75-ALJA	
	1	54676-50	Install isolating plugs
3	1	MN01GGA-75-ALJA	
4	1	MN01GGA-75-ALJA	
	1	13338-50	End Plate kit
	4	99-059-530	Ass'y charge



Isolating Plug Kits

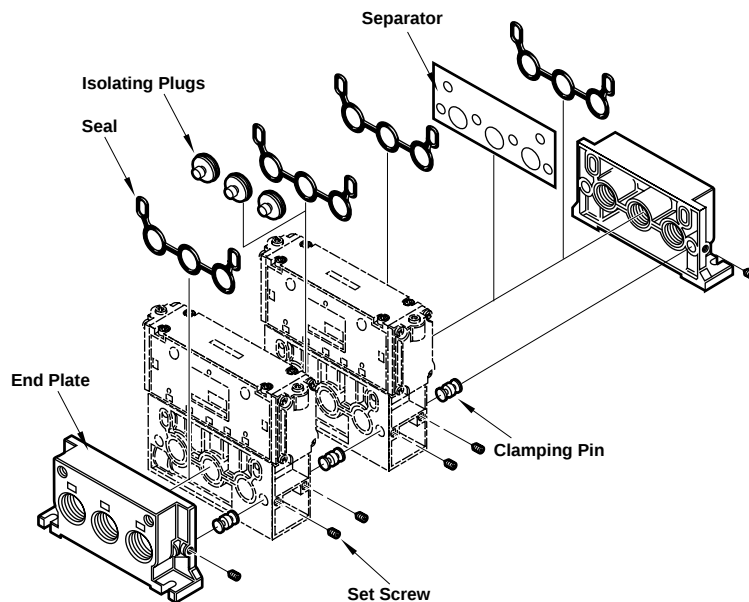
An isolating plug kit is available to allow the use of different inlet pressures. A valve and manifolding subbase assembly can be divided into two sections by inserting isolating plugs between any two manifolding subbases.

The drawing at right illustrates a valve and manifolding subbase assembly separated for a two pressure applications by isolating plugs.

Ordering Information

Isolating Plug Kit* 54676-50

*Kit contains 3-Isolating Plugs





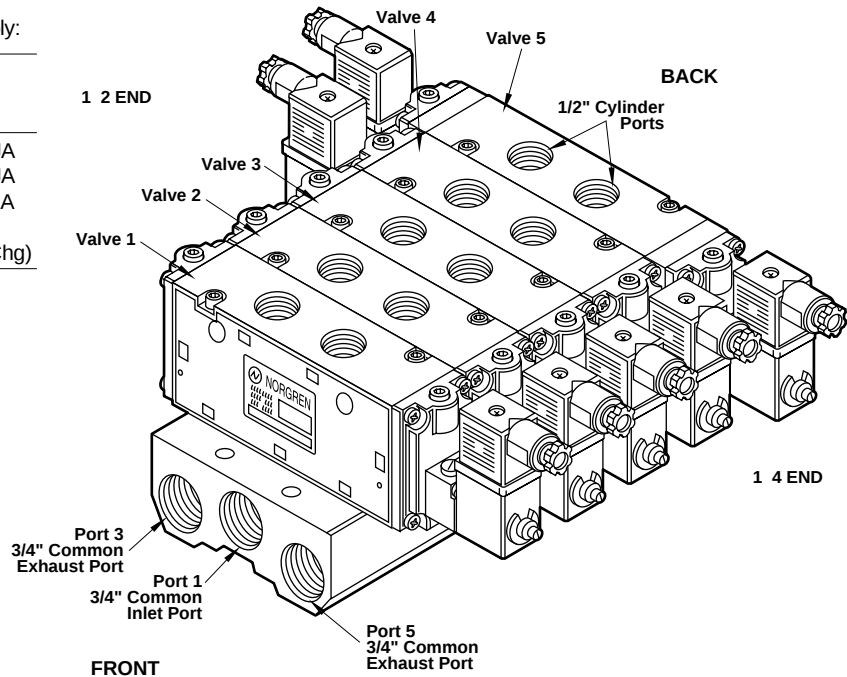
Factory Assembled Valve and Fixed Length Assemblies

For ordering information, the valve and manifold assembly is oriented with the 1 2 operator end on the left side and the 1 4 operator end on the right side. The valves are listed from FRONT to BACK.

e.g. to order a five station, fixed length manifold assembly:

Valve Pos. No.	Qty.	Product Number
1-3	3	MN01CGA-75-AJJA
4	1	MN01CGA-25-AJJA
5	1	MN03CGA-25-FJJA
	1	13342-63
	4	33-059-530 (Ass'y Chg)

Special Instructions: One assembly consisting of the Nugget stack above.

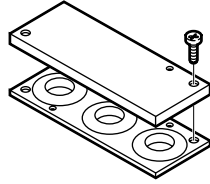




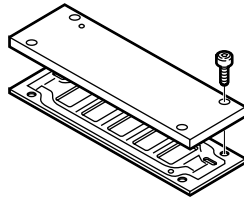
Blanking Plate Kit

The blanking plate kit consists of a blanking plate, seal, and attaching hardware. The plate is installed on a subbase in place of a valve, allowing an additional valve to be added at a later date.

For Fixed Length
Manifolds: 54689-50



For Single and
Manifolding Subbases: 54689-51



Quietaire® Mufflers and Speed Control Mufflers

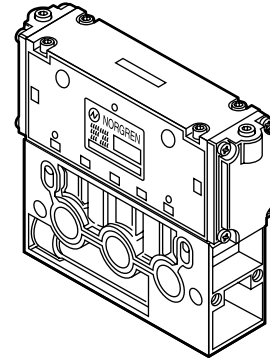
Mufflers should be installed in the exhaust ports of Nugget 500 Valves to reduce work area noise and help prevent contaminants from entering the valve. Speed control mufflers also allow metering of the exhaust air flow to restrict the speed of air cylinders and air motors. Do not use speed control mufflers in manifold exhaust ports.

Port Size NPT	Sintered Type Muffler	Speed Control Muffler	Shell Type
3/8	MS003A	MM003A	MB003A
1/2	MS004A	MM004A	MB004A
3/4	MS006A	MM006A	MB006A

See Norgren publication APC-101 for complete muffler information.

Intermediate Supply/Exhaust Block

The intermediate supply/exhaust block consists of a supply/exhaust block, a manifolding subbase valve body without spool, interface seals and hardware needed to connect the subbase to the adjacent subbase and six isolating plugs. The supply/exhaust block provides a method of connecting an additional air supply to the valve manifold. This helps prevent starvation of supply air to the valves when a number of valves are operated simultaneously. The block also allows use of three or more supply pressures in the same manifold, and may also be used to exhaust individual valves.

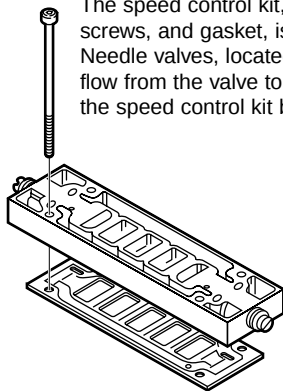


Supply/Exhaust Block

1/2" PTF54693-50
1/2" ISO G54693-51

Dual Sandwich Speed Control Kit

The speed control kit, consisting of a speed control block, mounting screws, and gasket, is installed between a subbase valve and a subbase. Needle valves, located at both ends of the speed control, restrict exhaust flow from the valve to control the speed of an air cylinder or motor. Order the speed control kit below.



Speed Control Kit13336-60



Nugget 500 Series Valves

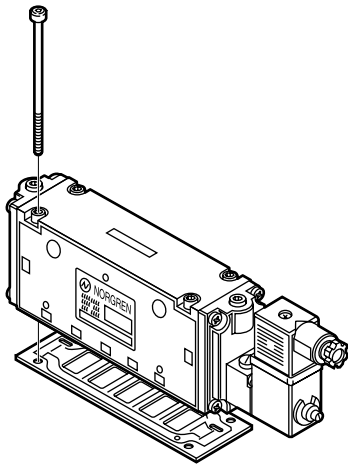
Subbase Valves with Operators without Subbase

Note: Mounting screws and gaskets are included.

Single Solenoid, Spring Return

5-Port/2-Position:

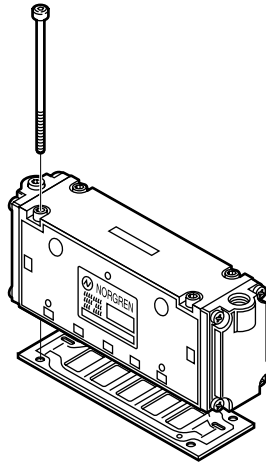
NondetentMN01D0A-35-ALJA



Single Air, Spring Return

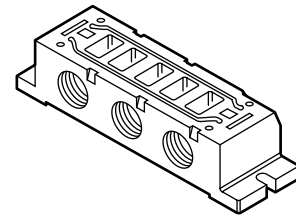
5-Port/2-Position:

NondetentMN01D0A-33-A000



Single Subbase for Subbase Valve

3/8 PTF	13340-70
3/8 ISO G	13340-71
1/2 PTF	13340-72
1/2 ISO G	13340-73



Double Solenoid

5-Port/2-Position:

NondetentMN01D0A-25-ALJA

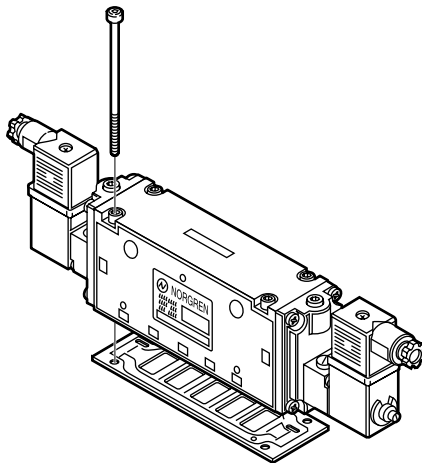
DetentMN01D0A-25-BLJA

5-Port/3-Position:

All Ports Blocked...MN03D0A-25-FLJA

Cylinder Open to

Exhaust.....MN05D0A-25-FLJA



Double Air

5-Port/2-Position:

NondetentMN01D0A-23-A000

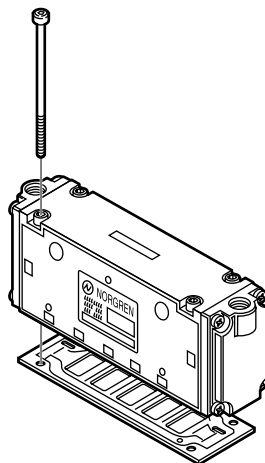
DetentMN01D0A-23-B000

5-Port/3-Position:

All Ports Blocked.....MN03D0A-23-F000

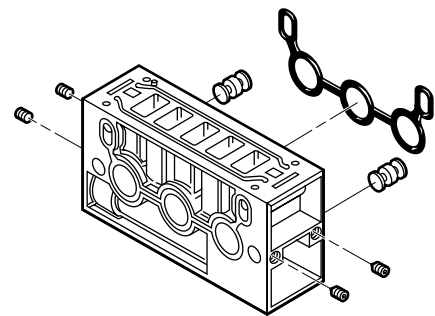
Cylinder Open to

ExhaustMN05D0A-23-F000



Manifolding Subbase for Subbase Valve

3/8 PTF	13335-50
3/8 ISO G	13335-51
1/2 PTF	13335-52
1/2 ISO G	13335-53





Factory Installed Back Cover Plates for Valve Bodies

The Back Cover Plate ordered with the valve allows the valve to be used in wash-down environments such as food or medical processing. If a subbase valve is desired for wash-down environments, use only the single subbase.

- For cover plate installed on an Inline Valve body specify **with 54690-11** after the valve body number.
- For cover plate installed on a Subbase Valve body specify **with 54690-12** after the valve body number.

Pneu-Fit Push-in Tube Fittings

Push-in tube fittings are an excellent way to save valve connection time and simplify component replacement. See Norgren Fittings catalog APC-101 for a complete selection of push-in tube fittings, flexible tubing, tubing markers, and tube mounts.

Part Numbers for Replacement Solenoid Coils & Armature Bases

Solenoid Coils:

24V/60Hz-24V/50Hz, 3.5W	54469-04
120V/60Hz-110V/50Hz, 3.5W	54469-03
6VDC, 2W	54469-05
12VDC, 2W	54469-01
24VDC, 2W	54469-02
110VDC, 3.4W	54469-06
240V/60Hz-220V/50Hz, 7.5W	54452-07
120V/60Hz-110V/50Hz, 7.5W	54452-01
24V/60Hz-24V/50Hz, 7.5W	54452-05
12VDC, 7.5W	54452-02
24VDC, 6W	54452-03

Solenoid Base and Armature:

Without Override

6 to 7.5 Watt	54462-01
2 to 3.5 Watt	54462-03

With Locking Override

6 to 7.5 Watt	54462-02
2 to 3.5 Watt	54462-04

With Non-Locking Override

6 to 7.5 Watt	54462-09
2 to 3.5 Watt	54462-10

Part Numbers for Replacement Connectors

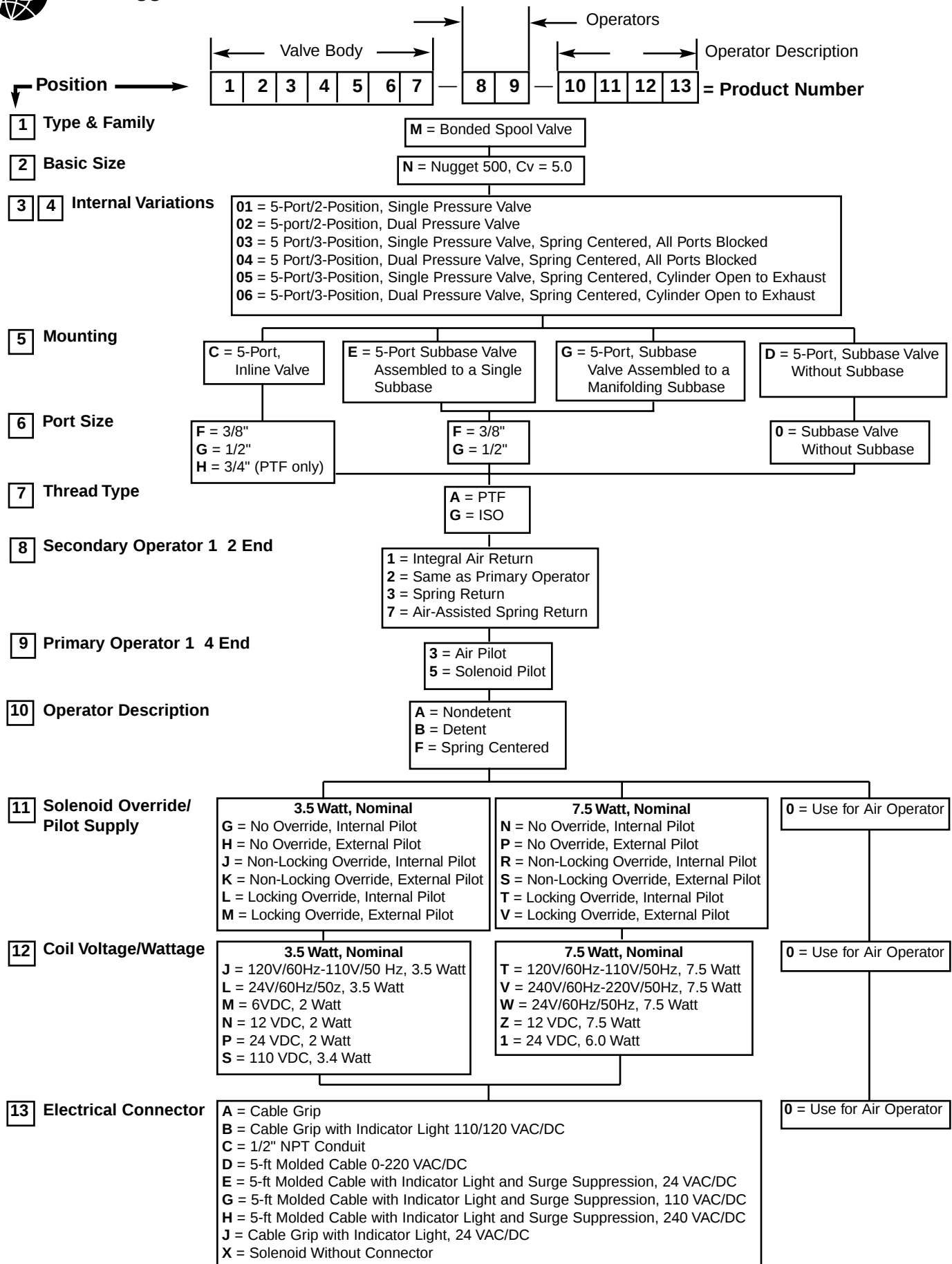
Cable Grip Connector.....	54934-01
Cable Grip Connector with Indicator Light	
110/120 VAC/DC	54934-02
24 VAC/DC	54934-08
1/2" NPT Conduit	54934-05
Molded 5-ft Cable Connector	
0-220 VAC/DC	54934-21
Molded 5-ft Cable Connector with Indicator Light and surge suppression	
24 VAC/DC	54934-30
110 VAC/DC	54934-35
240 VAC/DC	54934-37

Part Numbers for Repair Parts & Kits

Metal Coil Retaining Ring.....	54453-01
Solenoid Connector Seal Kit	54935-01
Solenoid Exhaust Port Diffuser	54463-01
Solenoid Exhaust Port Filter	
Ordered With Valve	54463-50
Ordered Separately	54463-51
Spool Replacement Kits:	
Single Pressure, 2-Position	54677-50
Dual Pressure, 2-Position	54677-51
Single Pressure, 3-Position,	
All Ports Blocked*	54677-52
Dual Pressure, 3-Position,	
All Ports Blocked*	54677-53
Single Pressure, 3-Position, Cylinder	
Open to Exhaust*	54677-54
Dual Pressure, 3-Position, Cylinder	
Open to Exhaust*	54677-55
*In the center position	
Seal Kits	
Inline Valves	54692-50
Subbase Valves	54692-51
Inline Valve to Fixed	
Length Manifold	54674-89
Subbase Valve	
to Subbase	54672-89
Manifolding Subbase to	
End Plates	54673-89
Manifold clamping	
pin (1) & set screws (2)	54574-50
Mounting Screws Valve to Fixed	
Length Manifold or Subbase	54580-60
Mounting Screws Valve and	
Speed Control to Subbase	54580-61

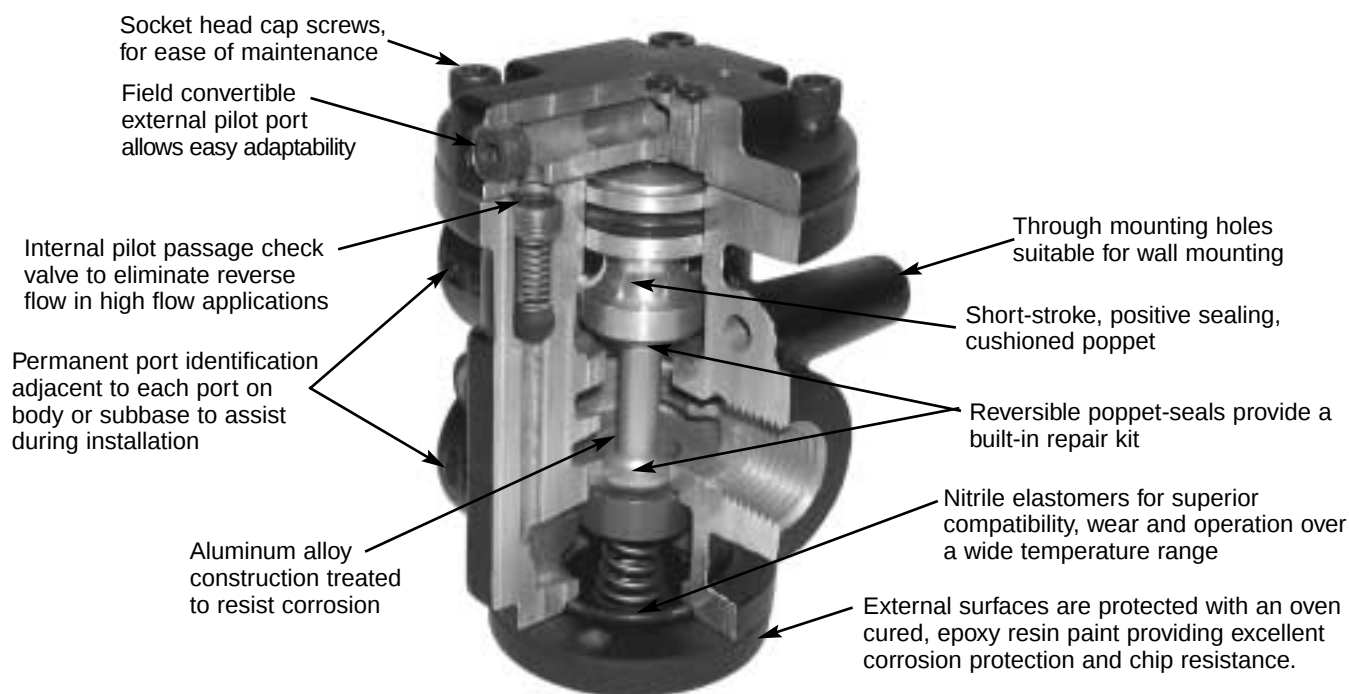


Nugget 500 Series Valves



Prospector Series Poppet Valves Compressed Air Directional Control Poppet Valves

Contents	
Features	VAL-12-2
1/4" to 2" Solenoid Pilot Actuated 2/2, 3/2, and 4/2 Inline and Subbase Valves	VAL-12-4
1/4" to 2" Air Pilot Actuated 2/2, 3/2, and Inline and Subbase Valves	VAL-12-20
1/4" to 2" Manual and Mechanical Actuated 2/2, 3/2, and 4/2 Inline and Subbase Valves	VAL-12-32
Smooth Start Valves and Time Delay Options	VAL-12-46
Lockouts	VAL-12-54
Flow Factors	VAL-12-58
Part Numbering System	VAL-12-60





Design Features Provide High Reliability.

Norgren Prospector Valves feature a short-stroke, positive-sealing, cushioned poppet. This rugged, simple design eliminates metal-to-metal contact, insuring long life and trouble free operation. Shock absorption by the resilient mass of the poppet seals virtually eliminates the impact damage common to other designs. Worn or damaged poppet seals can be turned over, considerably extending their service life before replacement is necessary. With these reversible seals, the valve may be said to carry its own spare parts for quick and economical maintenance.

High Flow

A Cv of 1.2 to 49.5 provides exceptionally high flow, making Prospector Poppet Valves appropriate for a wide range of industrial applications.

Valve Accessories

Prospector Poppet Valve accessories include a footguard for foot-actuated valves, time delays for use with air and solenoid operators, mufflers, push-in tube fittings, and optional solenoid operators.

Nitrile Rubber-Based Seals

All Norgren Prospector Valves utilize nitrile O-rings and seals for superior compatibility, wear, and operation over a wide temperature range.

Port Identification

Each of the ports is identified by a permanent marking adjacent to the port on the body or subbase.

Two Mounting Styles

All Prospector Valves are manufactured with mounting holes and are available as **inline mounted valves**. The 4-port/2-position (4-way) valves are also available in a **single subbase mounted style**. Subbase valves are attached to a single subbase with six socket head cap screws, providing providing easy removal and installation.

Durable Finish

External surfaces are protected with an oven cured, epoxy resin paint which provides excellent corrosion and chip resistant protection.

Aesthetic Appearance

Norgren's high luster black gives any control circuit installation the quality appearance reflecting the superior operating capability built into every Prospector Valve.





Standard Solenoid Operator Features

Rotatable Connector and Coil

The standard cable grip connector used on basic 1/4" and 1/2" valves can be rotated 180°, and the solenoid coil can be turned in increments of 90°, making the operators adaptable for easy installation. The standard cable grip connector used on basic 1" and 2" valves can be turned in increments of 90°.

Low Wattage Solenoid Operators

The standard solenoid operator used on basic 1/4" and 1/2" valves requires only 6 WDC and 7 WAC of power. It is available in a low wattage option that requires only 2 WDC and 3.5 WAC. The standard solenoid operator used on basic 1" and 2" valves requires 8 WAC and DC.

Solenoid Diffuser Plug

A diffuser plug installed in the pilot exhaust on basic 1/4" and 1/2" valves helps prevent entry of contaminants during shipping and normal operation. It may be removed when minimum response times are desired.

Electrical Connector Identification

Up to three lettered or numbered plates snap into a slot molded into the standard cable grip connector to identify that operator within the system.

Solenoid Manual Overrides.

Standard solenoid operators are furnished with a nonlocking manual override to provide a means of shifting the valve without electrical power. Optional solenoid operators with a locking override, or without an override, are also available.

High Flow Pilot Exhaust Orifice.

Oversize pilot exhaust orifice provides rapid return time when valve is de-energized.

Electrical Connector Options.

A cable grip connector with indicator light; a 1/2" NPT conduit connector; and a 5- foot, three-conductor, molded cable with or without indicator light, surge protection and reverse voltage protection are available.

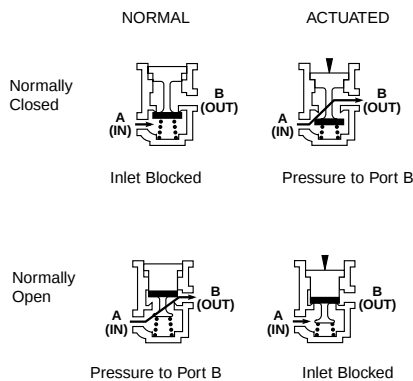




2-Port/2-Position

These 2-way valves have an inlet and outlet port and are used as shutoff valves that open or close an air line. They are available in **normally closed** or **normally open** models. The normally closed model blocks flow when in its normal position, and permits flow when it is actuated. The normally open model permits flow when in its normal position, and blocks flow when actuated. Typical applications include on-off control of main plant air, air to branch lines, systems and air motors.

Flow Diagrams

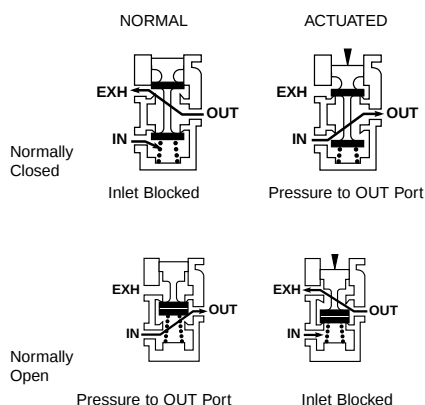


3-Port/2-Position

These 3-way valves have an inlet, outlet, and exhaust port and are typically used to pressurize and then exhaust air from such devices as single-acting cylinders. They are available in **normally closed** or **normally open** models. The normally closed model exhausts air from the device when in its normal position, and pressurizes the device when actuated. The normally open model pressurizes the device when in its normal position and exhausts air from the device when actuated.

The normally closed valve is available with two options: a **position indicator pin** and an air or solenoid **momentary signal operator**. The **indicator pin** can be used to operate a switch or other device to provide a signal for a control circuit. The **momentary signal operator** is used when it is desirable to control the valve with two alternately applied momentary signals (first signal shifts and holds the poppet; the second allows the poppet to return to its normal position).

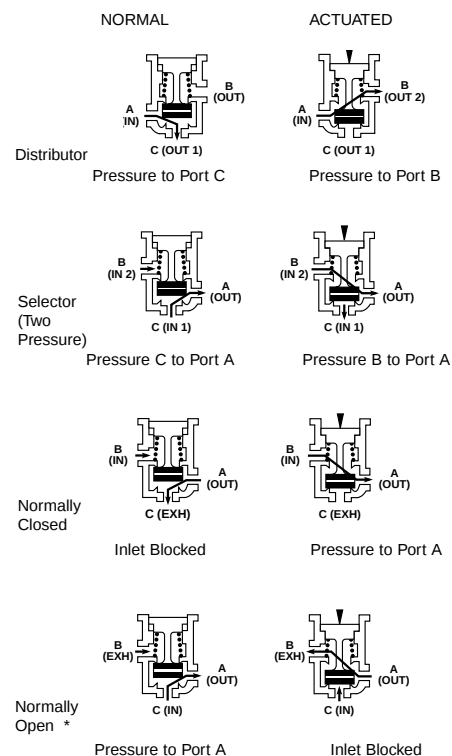
Flow Diagrams



3-Port/2-Position (Multi-Directional)

These 3-way valves can be used in four different ways — as a **distributor**, directing air first to one port, then to another; as a **selector**, directing first high, then low pressure air (or vacuum) to the same outlet; as a standard 3-port/2-position **normally closed** valve; and as a standard 3-port/2-position **normally open** * valve. Multi-directional valves are the only poppet valves with which speed controls can be installed in the exhaust port.

Flow Diagrams



* Normally open valves require an external pilot supply.

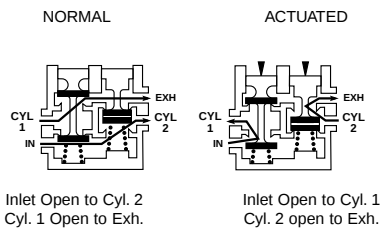


4-Port/2-Position (4-Way)

This 4-way valve has a normally closed and a normally open 3-way valve element in a common body. Both elements are actuated simultaneously by a single operator. The valve body has an inlet, exhaust, and two outlet ports. In the normal position, pressurized air is directed to one outlet port and air is exhausted from the second outlet port. In the actuated position, the connections are reversed. Typical applications include control of double acting cylinders and reversible air motors.

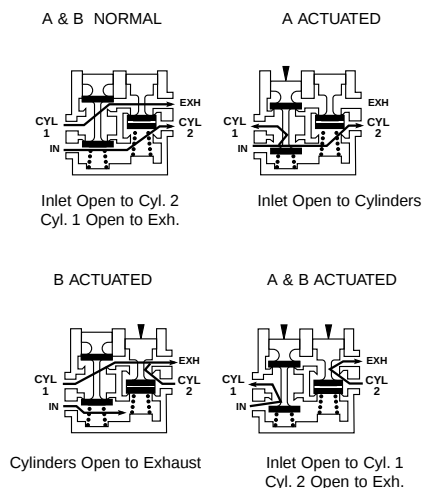
This valve is available with an optional air or solenoid **momentary signal operator**. Momentary signal operators are used when it is desirable to control the valve with two alternately applied momentary signals. The first signal shifts and holds the valve poppets in the actuated position; the second allows the poppets to return to the normal position.

Flow Diagrams with Single and Momentary Signal Operator



The 4-port/2-position (4-way) valve is also available with an optional air or solenoid **twin operator**, which allows independent operation of each valve element.

Flow Diagrams with Twin Operator



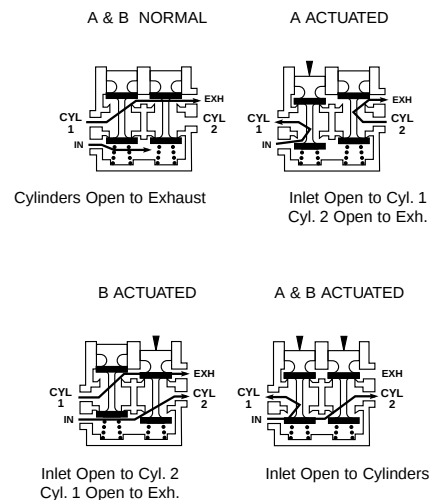
4-Port/2-Position (3-Way Twin, Normally Closed)

This 3-way twin valve has two normally closed 3-way valve elements in a common body. Each element is capable of independent actuation by an air or a solenoid operator. The valve body has an inlet, exhaust, and two outlet ports. In the normal position, pressurized air is blocked at the inlet port and air is exhausted from both outlet ports. It functions the same as two 3-port/2-position valves but provides greatly simplified plumbing and reduced package size.

NOTE

This valve may be used as a 3-position, 4-way, spring centered valve with cylinder ports open to exhaust in centered or normal position.

Flow Diagrams



1/4" to 2" Solenoid Pilot Actuated 2/2, 3/2, & 4/2 Inline and Subbase Valves

- High flow - Cv of 1.2 to 49.5
- Durable, robust construction
- Two mounting styles: inline or subbase
- 1/4" to 2" ports (BSPP, PTF, or ISO Rc threads)
- Wide range of voltages available
- Four functional types: available in 2/2, 3/2, 3/2 multi-directional, and 4/2 configurations



Technical Data

Medium:

Filtered and lubricated or non-lubricated compressed air or vacuum.

Operation:

Poppet valve solenoid pilot actuated.

Mounting:

Through-holes in valve body and subbase.

Port Size:

1/4" to 2" PTF, BSPP, or ISO Rc.

Operating Pressure:

Maximum 150 psig (10.3 bar).

Flow Characteristics:

Basic Size	Function	Cv*	l/min
1/4"	3/2 & 4/2	1.2 - 1.8	984 - 2,435
1/2"	2/2, 3/2 & 4/2	3.2 - 5.8	3,398 - 6,230
1"	2/2, 3/2 & 4/2	10.3 - 17.7	4,474 - 15,348
2"	2/2 & 3/2	39.6 - 49.5	38,228 - 54,085

*See VAL-12-58 for additional flow information.

Operating Temperature:

-20°F to 120°F** (-29°C to 49°C)

**Consult Technical Service for use below 34°F (+2°C).

Materials:

Body: Aluminum alloy body, piston, poppets and subbase.

Operators: Zinc or aluminum solenoid pilot operators, stainless steel or steel, reinforced polyester, brass or polyurethane, acetal, copper wire.

Elastomers: Nitrile rubber seals. (Fluorocarbon seals are optional, contact Technical Services.)

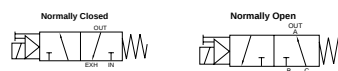
Ordering Information

To order standard poppet valves with coils, quote model number and voltage code from tables overleaf, e.g. order D1024C-00-CY1W6 for a 3-port, 2-position, normally closed, Solenoid Pilot Operated, Spring Return model with an internal pilot supply, fitted with a 240/220V, 60/50Hz coil, and manual non-locking override.

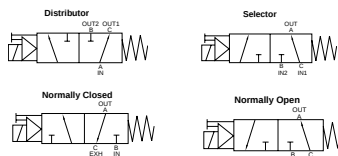
2-Port/2-Position



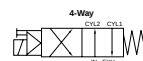
3-Port/2-Position



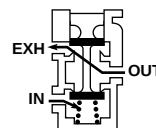
3-Port/2-Position Multi-Directional



4-Port/2-Position



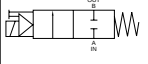
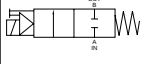
This example shows a 3-way normally closed valve.





Solenoid Pilot Operated Spring Return Inline and Subbase Valves 2-Port/2-Position (2 way) Inline, Normally Closed

Below listed operators have non-locking override and 110/120V 50/60Hz coil.

Symbol	Solenoid Pilot	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit§
	Internal Pilot	1/2"	1/4"	A1012C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (1.01)	53474-03
			3/8"	A1013C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.22 (1.01)	53474-03
			1/2"	A1014C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.22 (1.01)	53474-03
			3/4"	A1015C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.22 (1.01)	53474-03
		1"	3/4"	A1025C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.40 (2.00)	53475-01
			1"	A1026C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.40 (2.00)	53475-01
		2"	1-1/4"	A1027C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.40 (2.00)	53475-01
			1-1/2"	A1038C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.40 (3.98)	53822-01
			2"	A1039C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	8.76 (3.98)	53822-01
	External Pilot	1/2"	1/4"	A1012H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.12 (1.01)	53474-03
			3/8"	A1013H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.22 (1.01)	53474-03
			1/2"	A1014H-00-CY	0 - 150 (10 - 10.3)	30 - 150 (2.1 - 10.3†)	2.22 (1.01)	53474-03
			3/4"	A1015H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.22 (1.01)	53474-03
		1"	3/4"	A1025H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.40 (2.00)	53475-01
			1"	A1026H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.40 (2.00)	53475-01
			1-1/4"	A1027H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.40 (2.00)	53475-01
		2"	1-1/2"	A1038H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.40 (3.98)	53822-01
			2"	A1039H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	8.76 (3.98)	53822-01

† **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

§ **Repair Kit:** Kits contain all elastomers necessary to service one valve body.



Prospector Series Poppet Valves

2-Port/2-Position (2 way) Inline, Normally Open

Below listed operators have non-locking override and 110/120V 50/60Hz coil.

Symbol	Solenoid Pilot	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit\$
	Internal Pilot	1/2"	1/4"	B1012C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.22 (1.01)	53474-03
			3/8"	B1013C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.22 (1.01)	53474-03
			1/2"	B1014C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.22 (1.01)	53474-03
			3/4"	B1015C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.22 (1.01)	53474-03
		1"	3/4"	B1025C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.40 (2.00)	53475-01
			1"	B1026C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.40 (2.00)	53475-01
			1-1/4"	B1027C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.40 (2.00)	53475-01
	External Pilot	1/2"	1/4"	B1012H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.22 (1.01)	53474-03
			3/8"	B1013H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.22 (1.01)	53474-03
			1/2"	B1014H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.22 (1.01)	53474-03
			3/4"	B1015H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.22 (1.01)	53474-03
		1"	3/4"	B1025H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.40 (2.00)	53475-01
			1"	B1026H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.40 (2.00)	53475-01
			1-1/4"	B1027H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.40 (2.00)	53475-01

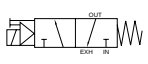
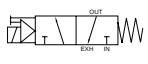
† **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

\$ **Repair Kit:** Kits contain all elastomers necessary to service one valve body.



3-Port/2-Position (3 way) Inline, Normally Closed

Below listed operators have non-locking override and 110/120V 50/60Hz coil.

Symbol	Solenoid Pilot	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit [§]
	Internal Pilot	1/4"	1/4"	D1012B-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	1.91 (0.87)	53473-05
			3/8"	D1013B-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	1.91 (0.87)	53473-05
		1/2"	1/4"	D1022C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-03
			3/8"	D1023C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-03
			1/2"	D1024C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-03
			3/4"	D1025C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-03
		1"	3/4"	D1035C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.49 (2.04)	53475-01
			1"	D1036C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.49 (2.04)	53475-01
			1-1/4"	D1047C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.49 (2.04)	53475-01
	External Pilot	1/4"	1/4"	D1012H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	1.91 (0.87)	53473-05
			3/8"	D1013H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	1.91 (0.87)	53473-05
		1/2"	1/4"	D1022H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	2.50 (1.13)	53474-03
			3/8"	D1023H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	2.50 (1.13)	53474-03
			1/2"	D1024H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	2.50 (1.13)	53474-03
			3/4"	D1025H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	2.50 (1.13)	53474-03
		1"	3/4"	D1035H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	4.49 (2.04)	53475-01
			1"	D1036H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	4.49 (2.04)	53475-01
			1-1/4"	D1047H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	4.49 (2.04)	53475-01

[†] **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

[§] **Repair Kit:** Kits contain all elastomers necessary to service one valve body.



Prospector Series Poppet Valves

3-Port/2-Position (3 way) Inline, Normally Open

Below listed operators have non-locking override and 110/120V 50/60Hz coil.

Symbol	Solenoid Pilot	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit [§]
	Internal Pilot	1/4"	1/4"	E1012B-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	1.91 (0.87)	53473-05
			3/8"	E1013B-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	1.91 (0.87)	53473-05
		1/2"	1/4"	E1022C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-03
			3/8"	E1023C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-03
			1/2"	E1024C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-03
			3/4"	E1025C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-03
		1"	3/4"	E1035C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	6.49 (2.00)	53475-01
			1"	E1036C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.49 (2.04)	53475-01
			1-1/4"	E1047C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.49 (2.04)	53475-01
	External Pilot	1/4"	1/4"	E1012H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	1.91 (0.87)	53473-05
			3/8"	E1013H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	1.91 (0.87)	53473-05
		1/2"	1/4"	E1022H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	2.50 (1.13)	53474-03
			3/8"	E1023H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	2.50 (1.13)	53474-03
			1/2"	E1024H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	2.50 (1.13)	53474-03
			3/4"	E1025H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	2.50 (1.13)	53474-03
		1"	3/4"	E1035H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	6.49 (2.00)	53475-01
			1"	E1036H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	4.49 (2.04)	53475-01
			1-1/4"	E1047H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3) [†]	4.49 (2.04)	53475-01

[†] **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

[§] **Repair Kit:** Kits contain all elastomers necessary to service one valve body.



3-Port/2-Position (3-Way) Multi-Directional Inline

Below listed operators have non-locking override and 110/120V 50/60Hz coil.

Symbol	Solenoid Pilot	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit§
	Internal Pilot	1/2"	1/4"	C1012C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53474-03
			3/8"	C1013C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53474-03
			1/2"	C1014C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53474-03
			3/4"	C1025C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53474-03
		1"	3/4"	C1035C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53475-01
			1"	C1036C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.64 (2.11)	53475-01
			1-1/4"	C1037C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.64 (2.11)	53475-01
		2"	1-1/2"	C1048C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	9.42 (4.28)	53822-01
			2"	C1049C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	9.42 (4.28)	53822-01
These models may be used as Distributor, Selector, Normally Open or Normally Closed.	External Pilot	1/2"	1/4"	C1012H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.12 (0.94)	53474-03
			3/8"	C1013H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.12 (0.94)	53474-03
			1/2"	C1014H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.12 (0.94)	53474-03
			3/4"	C1025H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.12 (0.94)	53474-03
		1"	3/4"	C1035H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.64 (2.11)	53475-01
			1"	C1036H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.64 (2.11)	53475-01
			1-1/4"	C1037H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.42 (2.11)	53475-01
		2"	1-1/2"	C1048H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	9.42 (4.28)	53822-01
			2"	C1049H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	9.42 (4.28)	53822-01
	Internal Pilot	1/2"	1/4"	C1052C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53474-03
			3/8"	C1053C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53474-03
			1/2"	C1054C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53474-03
			3/4"	C1065C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.12 (0.94)	53474-03
		2"	1-1/2"	C1088C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	9.42 (4.28)	53822-01
			2"	C1089C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	9.42 (4.28)	53822-01

† **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

§ **Repair Kit:** Kits contain all elastomers necessary to service one valve body.



Prospector Series Poppet Valves

4-Port/2-Position (4 way) Inline & Subbase

Below listed operators have non-locking override and 110/120V 50/60Hz coil.

Symbol	Solenoid Pilot	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kits
	Internal Pilot	1/4"	1/4"	F1012C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	1.91 (0.87)	53477-06
			3/8"	F1013C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	1.91 (0.87)	53473-05
		1/2"	3/8"	F1023C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-06
			1/2"	F1024C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-06
			3/4"	F1025C-00-CY	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53474-06
		1"	3/4"	F1035C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	2.50 (1.13)	53475-06
			1"	F1036C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.49 (2.04)	53475-06
			1-1/4"	F1037C-00-CC	30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	4.49 (2.04)	53475-01
			External Pilot	1/4"	1/4"	F1012H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)
3/8"	F1013H-00-CY				0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	1.91 (0.87)	53473-05
3/8"	F1023H-00-CY				0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.50 (1.13)	53474-06
1/2"	1/2"			F1024H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.50 (1.13)	53474-06
	3/4"			F1025H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.50 (1.13)	53474-06
	3/4"			F1035H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	2.50 (1.13)	53475-06
1"	1"			F1036H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.49 (2.04)	53475-06
	1-1/4"			F1037H-00-CC	30 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.49 (2.04)	53475-01
				Subbase Internal Pilot	1/2"	1/2"	F2214C-00-CY	30 - 150 (2.1 - 10.3)
1"		1"	F2226C-00-CC		30 - 150 (2.1 - 10.3)	30 - 150 (2.1 - 10.3)	9.33 (4.24)	53475-06
Subbase External Pilot		1/2"	1/2"	F2214H-00-CY	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	4.67 (2.12)	53474-06
		1"	1"	F2226H-00-CC	0 - 150 (0 - 10.3)	30 - 150 (2.1 - 10.3†)	9.33 (4.24)	53475-06

† **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

\$ **Repair Kit:** Kits contain all elastomers necessary to service one valve body.

Technical Details for Prospector Solenoid Pilot Operated Valves

Rating	90 - 105% Continuous Duty; and 85 - 105% for CC.
Power Requirements	CC: 8 WDC, 8 WAC. CY: 6 WDC, 7 WAC. (See Options on VAL-12-13).
Electrical Connection	CC: Form A per DIN 43650; CE, CF, CY: Industry Standard Form B per DIN 43650.
Manual Override	Non-Locking (See Options on VAL-12-13)
Protection Class	IP65 (NEMA 4) (See Options on VAL-12-13)
Coil Type	Class H. Molded with 3-pin plug in connector. (See Options on VAL-12-13).
Plug	Cable grips for cables 6 to 8 mm (1/4" to 5/16") in diameter.



Solenoid Pilot Operated Inline & Subbase Valves

Options Information

For optional features, note the valve model number that comes closest to the desired valve from the preceding order table. Change the model number as shown in the following diagram to obtain the desired option. For example: the ordering table on VAL-12-9 shows D1022C-00-CY, a 3-port/2-position valve with a solenoid operator, spring return and non-locking override. To use this valve with a locking override change the last two digits to CE, as shown below. To order operators with fluorocarbon elastomers, please contact Technical Services. See following page for optional operator voltages and connectors.

Position in Model Number									
1	2	3	4	5	6	7	8	9	10
D	1	0	2	2	C	0	0	C	E

7	Indicator Pin (Basic 1/2" valve)
8	Indicator Pin (Basic 1" valve)

J	Vacuum Service [†]
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Vacuum Service[†]

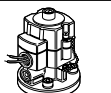
For on-off application of vacuum, use a normally closed 2-port/2-position (2-way) valve. When the valve is actuated, vacuum will be applied to the outlet port.

For selecting alternately between vacuum and pressure, use a normally open 3-port/2-position (3-way) valve. Connect the vacuum to the exhaust port and pressure to the inlet port. When the valve is actuated, vacuum will be applied to the outlet port.

For selecting alternately between vacuum and vent, use a normally open 3-port/2-position (3-way) valve. Connect the vacuum to the exhaust port and vent the inlet port. When the valve is actuated, vacuum will be applied to the outlet port.

In addition, a 4-port/2-position (4-way) valve can be connected the same way as 3-port/2-position (3-way) valves for selecting alternately between vacuum and pressure or vacuum and vent. That is, connect the vacuum to the exhaust port and pressure or vent to the inlet port. When the valve is actuated, the cylinder ports (outlets) will be alternately switched between vacuum and pressure or vacuum and vent.

Optional Operator for Basic 1/4" & 1/2" Valves		Weight lbs. (kg)
C F	Locking override, low wattage	1.00 (0.45)

Optional Solenoid Operators**		Weight lbs. (kg)	
C 0	1/2" NPT conduit without override	1.11 (0.50)	
C 1	1/2" NPT conduit, locking override		
P 1	1/2" NPT conduit, non-locking override	2.05 (0.93)	
X 1	1/2" NPT conduit, hazardous location, locking override	1.57 (0.71)	

Optional Operator Classification: CY, CC, CE, CF, P1: IP65 (NEMA 4); C0, C1: IP30 (NEMA 1); X1: EEx d 11B T4 (NEMA 7C, 7D, 8C, 8D, 9E and 9G. Solenoids using specified optional coils, meet the requirements of Underwriters Laboratories and Canadian Standards Association for use in hazardous locations as defined in the National Electric Code (ANSI C1): Class I, Groups C & D; Class II, Groups E, F & G.

Power Requirements: CC: 8 WDC; 8 WAC; CE, CY: 6 WDC, 7 WAC; CF: 2 WDC, 3.5 WAC; C0, C1, P1, X1: 12 W

**** Orifice Diameter:** C0, C1, X1: 1.2mm (3/64")

Pilot Supply: Internal (Convertible to External)

Solenoid Exhaust Port: P1: 1/8" PTF; X1: 10-32 UNF; C0, C1: Not Threaded.

To calculate the weight of a valve and optional operator take the weight given for the relevant valve from the ordering tables, subtract either 1.65 lbs (0.75 kg) for a CC operator, or 1.00 lbs. (0.45 kg) for a CE or CY operator, and add the weight given above for the appropriate optional operator.

For example: For D1022C-00-CY has a listed weight of 2.50 lbs (1.13 kg). To convert this from a non-locking override to a hazardous location, locking override, i.e. D1022C-00-X1 → 1.13 - 1.00 + 1.57 = 1.70 kg (3.74 lbs).



Prospector Series Poppet Valves

Solenoid Pilot Operated Inline & Subbase Valves

Voltage Options

Specify the desired valve model number (from pages 2, 3 or 5) and note the solenoid operator from the last 2 digits. Use the table below to obtain options and add the desired option part number to the model number.

For example: order AA025C-00-CY1W4 for a 2-port/2-position, normally closed, internal pilot, Solenoid Pilot Operated spring return valve with non-locking override using 24V/60Hz optional voltage.

	STANDARD SOLENOID OPERATORS			OPTIONAL SOLENOID OPERATORS		
VOLTAGE	CC	CE, CY	CF*	C0, C1	X1	P1
12V/60Hz/50Hz	—	1W3	—	—	—	—
24V/50Hz	1WC	1W4	1WJ	—	—	1PG
24V/60Hz	1WC	1W4	1WJ	—	—	1PH
48V/50Hz	—	1W5	—	—	—	—
48V/60Hz	—	1W5	—	—	—	1PF
100V/50Hz	—	—	—	Standard	Standard	—
110V/50Hz	Standard	Standard	1WH	—	—	Standard
120V/50Hz	—	—	—	1RD	1NF	—
120V/60Hz	Standard	Standard	1WH	Standard	Standard	Standard
220V/50Hz	1WB	1W6	—	—	—	1PD
240V/60Hz	1WB	1W6	—	1R5	1NH	1PA
440V/50Hz	—	—	—	—	—	1PE
480V/60Hz	—	—	—	—	—	1PB
6VDC	—	—	1WK	1R1	1N7	—
12VDC	1WD	1W1	1WF	1R2	1NA	—
24VDC	1WA	1W2	Standard	1R3	1ND	—
110VDC	—	—	1WL	—	—	—

Connector Options for Standard Operators

OPTIONAL CONNECTORS	CC	CE, CF, CY
DIN Plug	Standard	Standard
1/2" NPT Conduit	1V2	1V3
6 m (10 ft.) Molded Cord	1V1	1V5
Cable Grip with Indicator Light:		
12VDC or AC	1C1	—
24VDC or AC	1C2	1V4
120VDC or AC	1C3	1VB
220VDC or AC	1C4	—

Replacement Coils

For replacement connectors and bases, please contact Technical Services.

	STANDARD SOLENOID OPERATORS			OPTIONAL SOLENOID OPERATORS		
VOLTAGE	CC	CE, CY	CF*	C0, C1	X1	P1
12V/60Hz/50Hz	—	54452-04	—	—	—	—
24V/50Hz	54458-53	54452-05	54469-04	—	—	53761-32
24V/60Hz	54458-53	—	54469-04	—	—	53761-33
48V/50Hz	—	54452-06	—	—	—	—
48V/60Hz	—	54452-06	—	—	—	53761-31
100V/50Hz	—	—	—	53900-01	53902-01	—
110V/50Hz	54458-51	54452-01	54469-03	—	—	53761-28
120V/50Hz	—	—	—	53900-07	53902-13	—
120V/60Hz	54458-51	54452-01	54469-03	53900-01	53902-01	53761-28
220V/50Hz	54458-52	54452-07	54452-07	—	—	53761-29
240V/60Hz	54458-52	54452-07	54452-07	53900-05	53902-14	53761-26
440V/50Hz	—	—	—	—	—	53761-30
480V/60Hz	—	—	—	—	—	53761-27
6VDC	—	—	54469-05	53900-02	53902-10	—
12VDC	54458-54	54452-02	54469-01	53900-03	53902-11	—
24VDC	54458-50	54452-03	54469-02	53900-04	53902-12	—
110VDC	—	—	54469-06	—	—	—

* CF operator is equipped with fluorocarbon elastomer as standard.

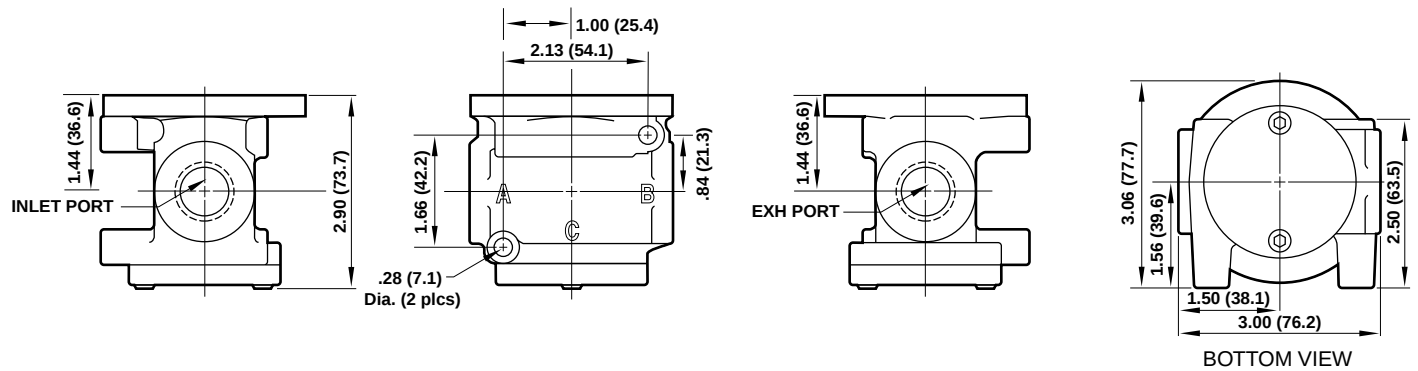
Prospector Series Poppet Valves

All Dimensions in Inches (mm)

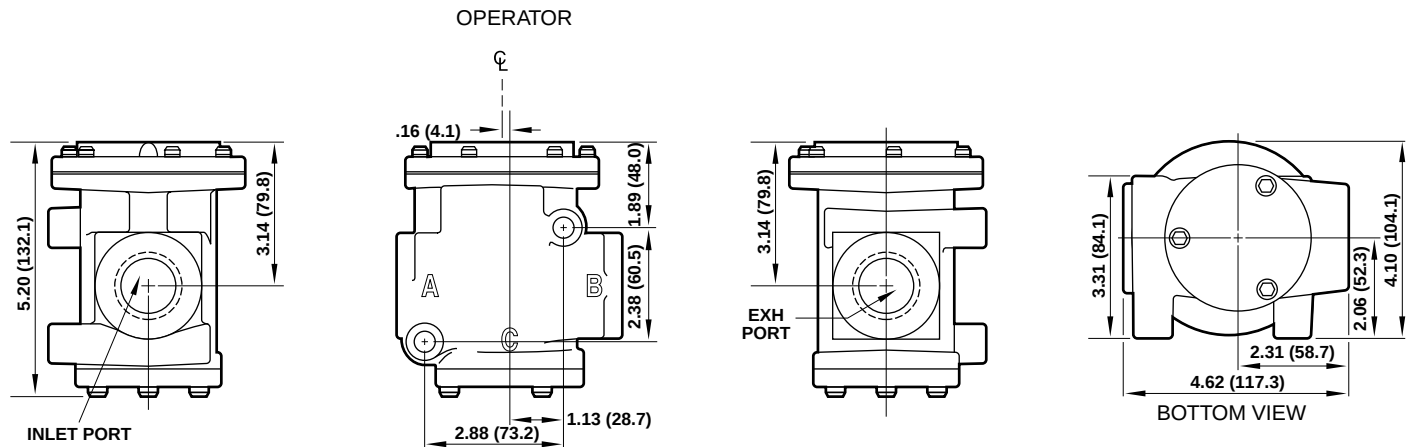


2-Port/2-Position Inline Bodies

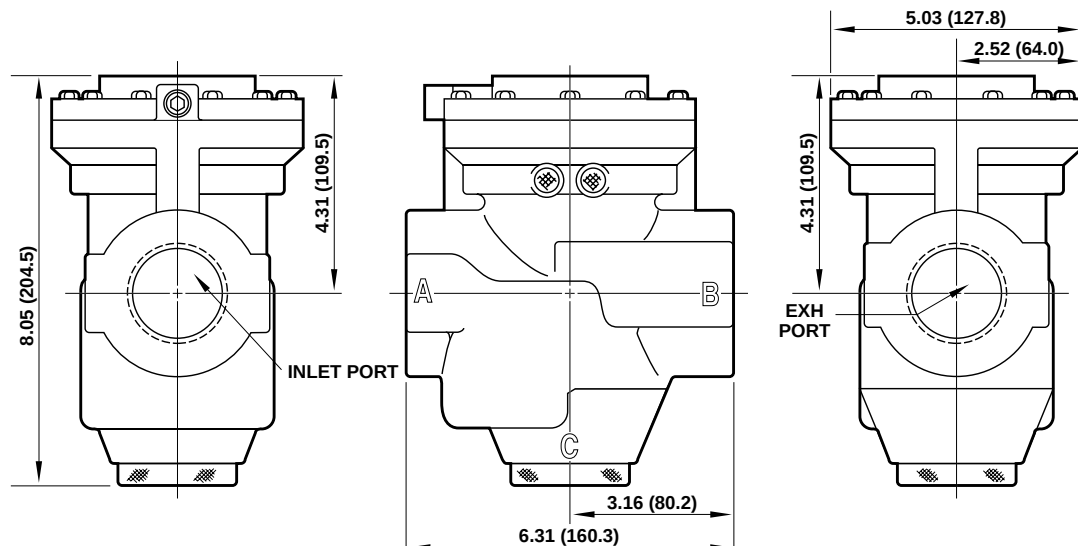
Basic 1/2-Inch Body A101*C & B101*C (2-Port/2 Position Pilot Operated Valve)



Basic 1-Inch Body A102*C & B102*C (2-Port/2 Position Pilot Operated Valve)



Basic 2-Inch Body A103*C & C104*C (2-Port/2 Position Pilot Operated Valve)



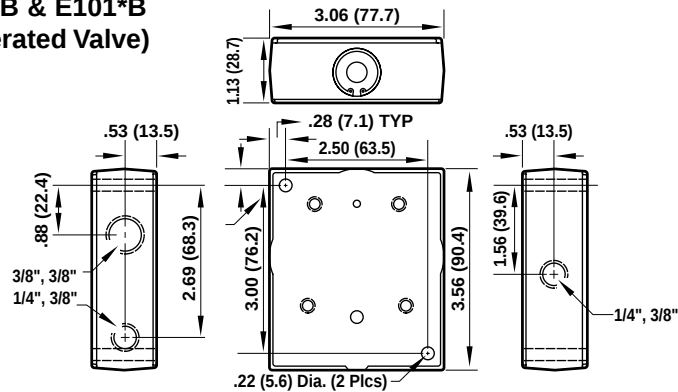


Prospector Series Poppet Valves

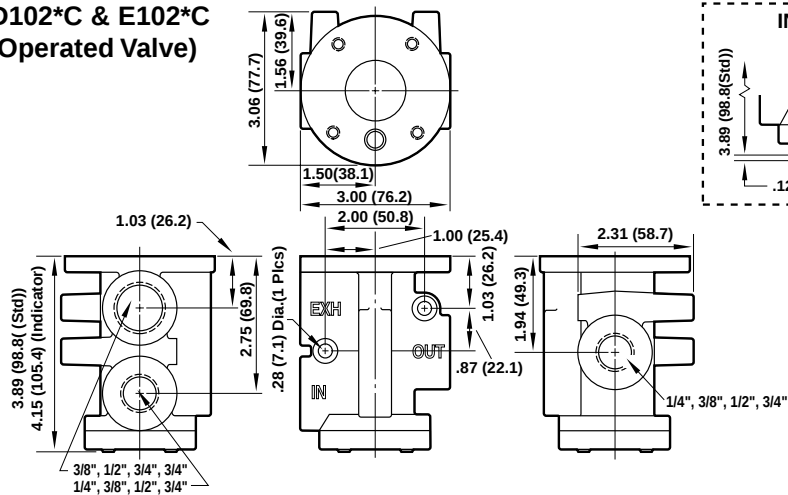
All Dimensions in Inches (mm)

3-Port/2-Position Inline Bodies

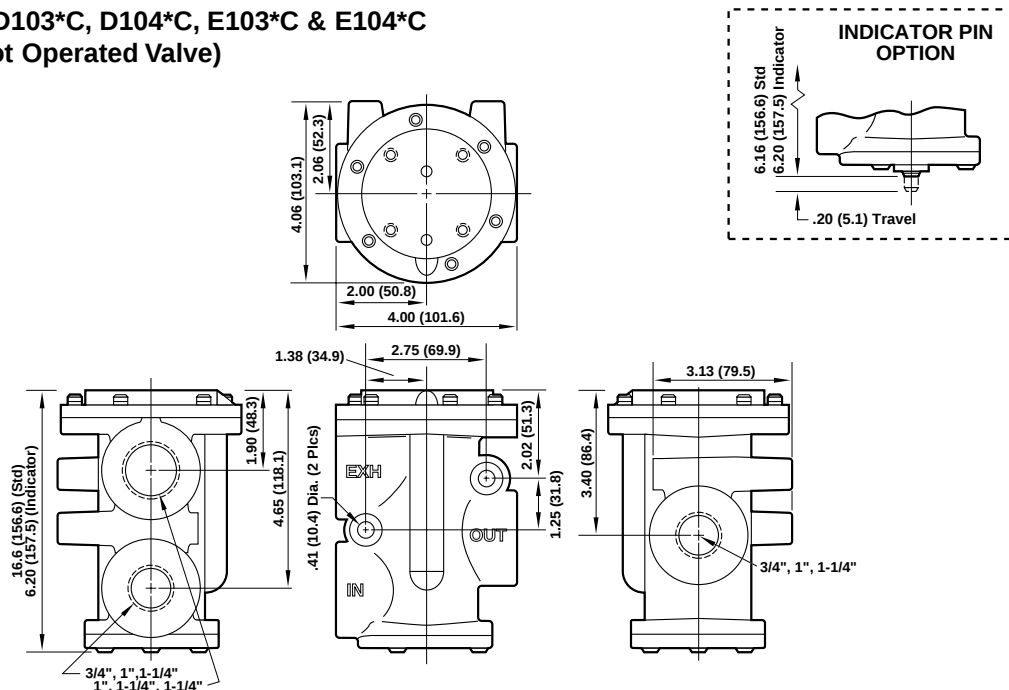
Basic 1/4-Inch Body D101*B & E101*B (3-Port/2-Position Pilot Operated Valve)



Basic 1/2 - Inch Body D102*C & E102*C (3-Port/2-Position Pilot Operated Valve)



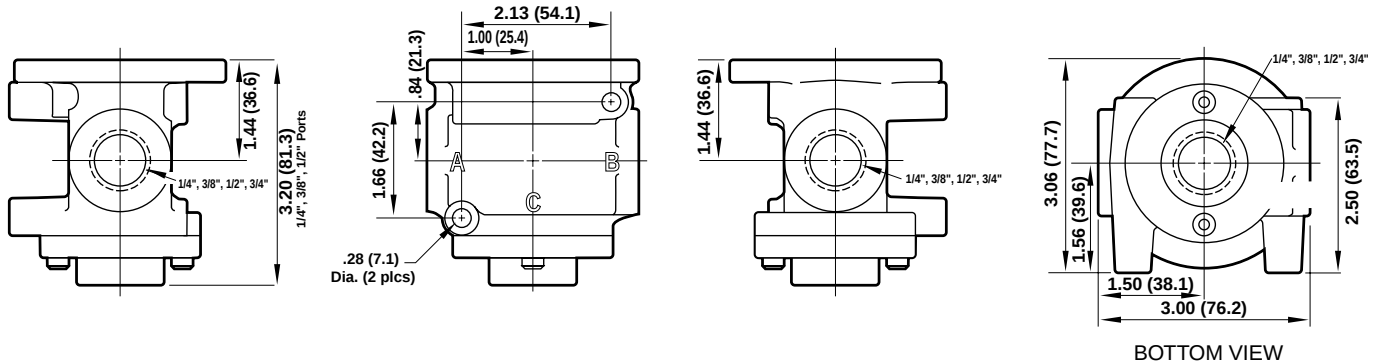
Basic 1 - Inch Body D103*C, D104*C, E103*C & E104*C (3-Port/2-Position Pilot Operated Valve)



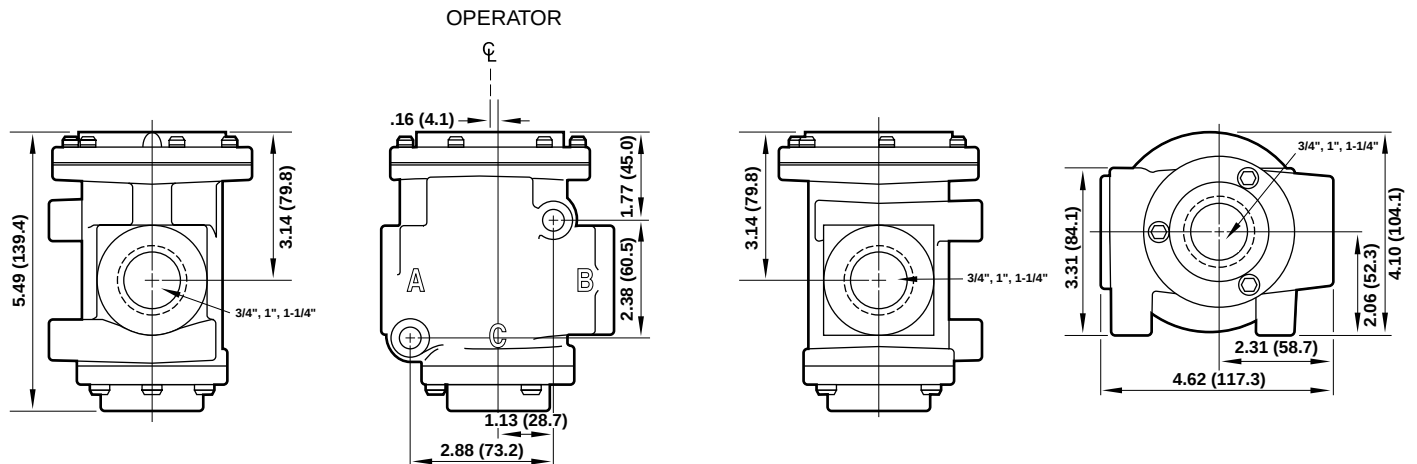


3-Port/2-Position Multi-Directional Inline Bodies

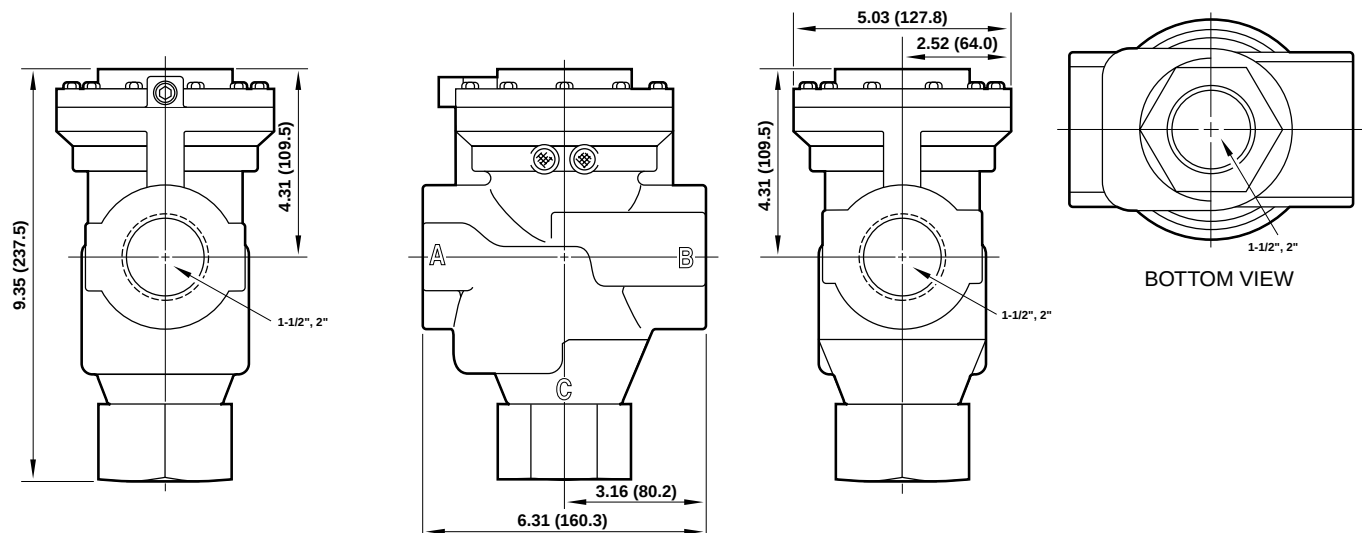
Basic 1/2 - Inch Body C101*C, C102*C, C105*C & C106*C (3-Port/2-Position Multi-Directional Pilot Operated Valve)



Basic 1 - Inch Body C103*C (3-Port/2-Position Multi-Directional Pilot Operated Valve)



Basic 2 - Inch Body C104*C & C108*C (3-Port/2-Position Multi-Directional Pilot Operated Valve)



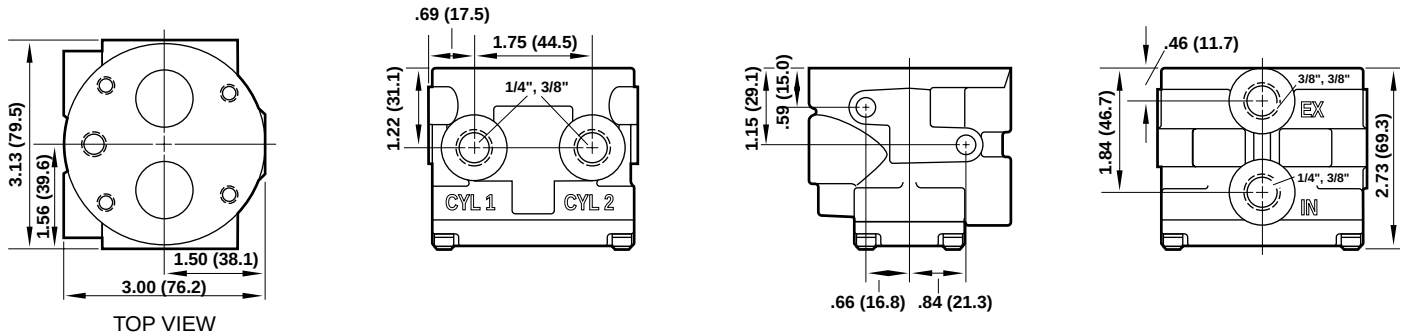


Prospector Series Poppet Valves

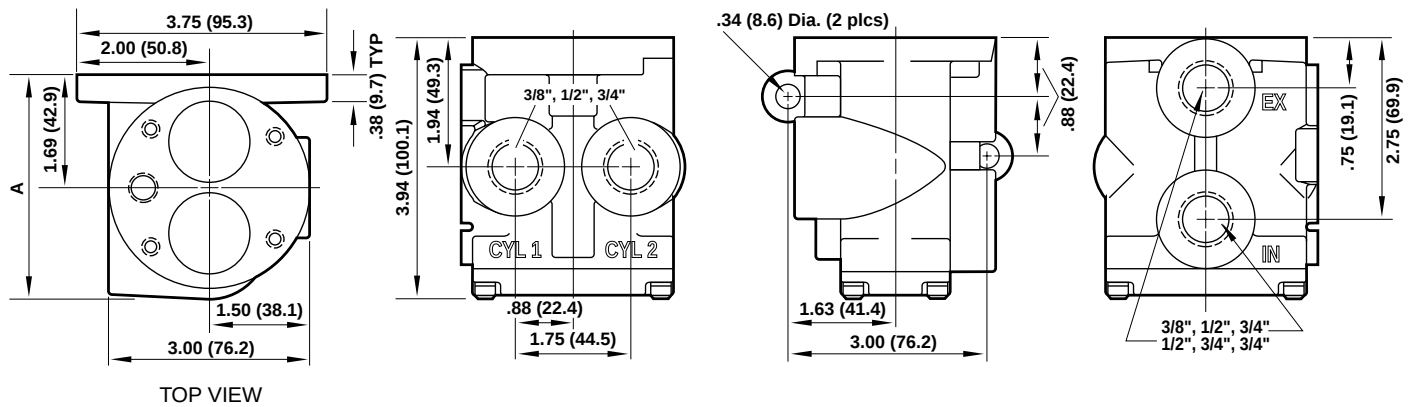
All Dimensions in Inches (mm)

4-Port/2-Position Inline Bodies

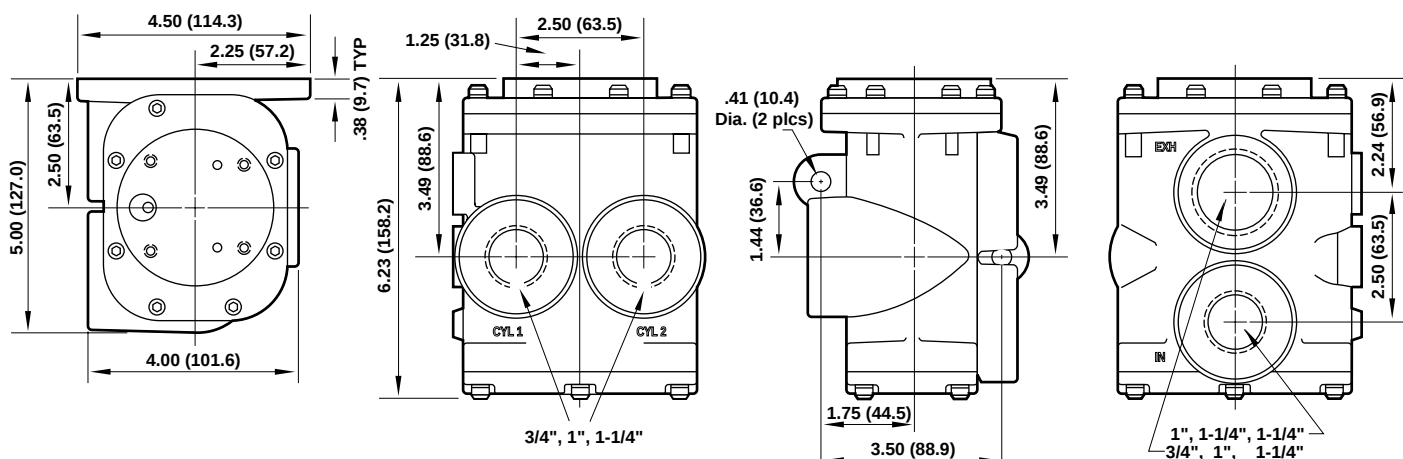
Basic 1/4 - Inch Body F101*C (4-Port/2-Position Pilot Operated Valve)



Basic 1/2 - Inch Body F102*C (4-Port/2-Position Pilot Operated Valve)



Basic 1 - Inch Body F103*C (4-Port/2-Position Pilot Operated Valve)

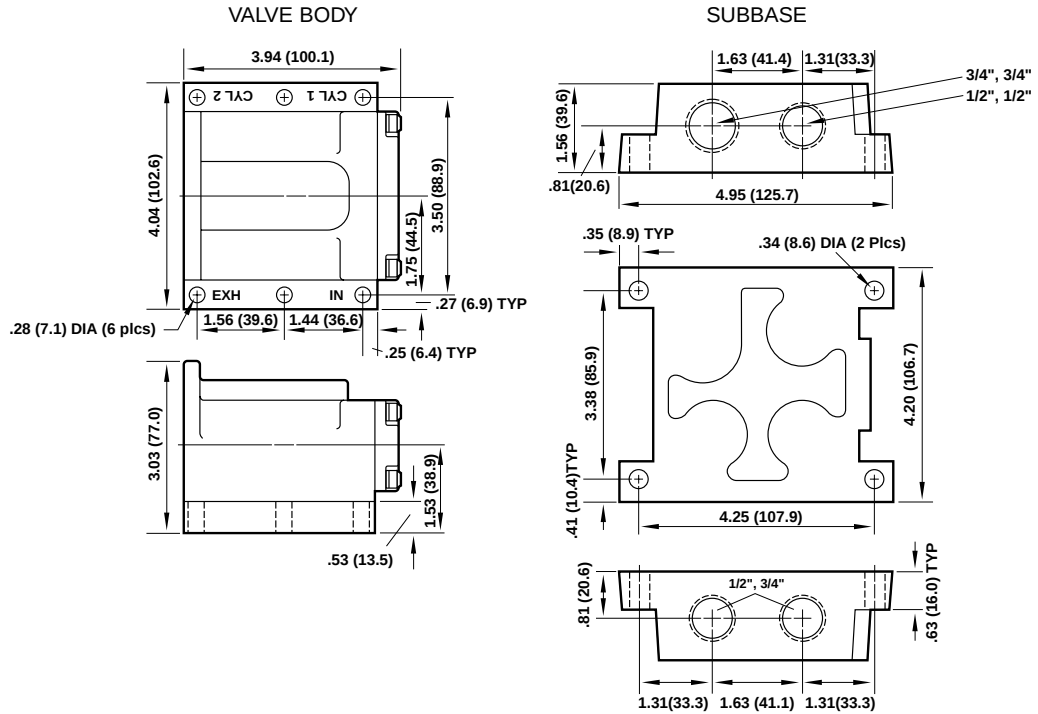




4-Port/2-Position Subbase Bodies

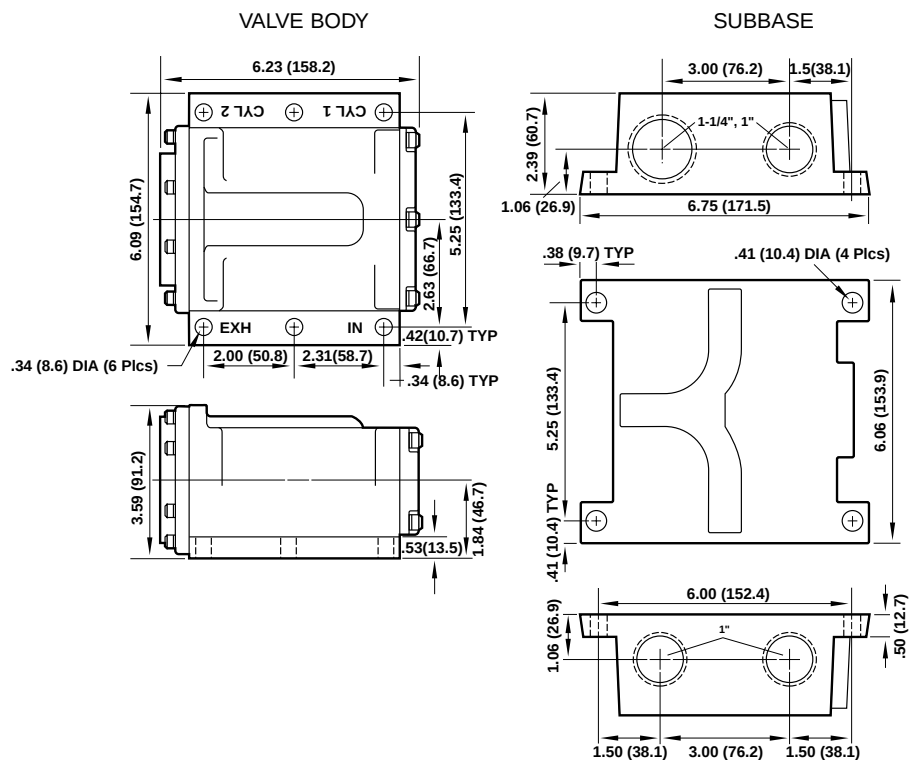
Basic 1/2 - Inch Body F2214C

(4-Port/2-Position Pilot Operated Valve)



Basic 1- Inch Body F2226C

(4-Port/2-Position Pilot Operated Valve)



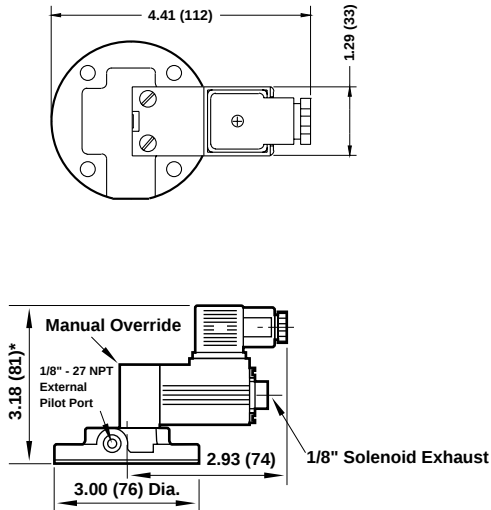


Prospector Series Poppet Valves

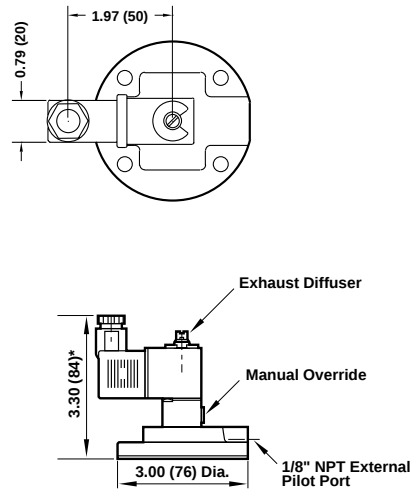
All Dimensions in Inches (mm)

Valve Body Operator with Standard Cable Grip Connector

CC



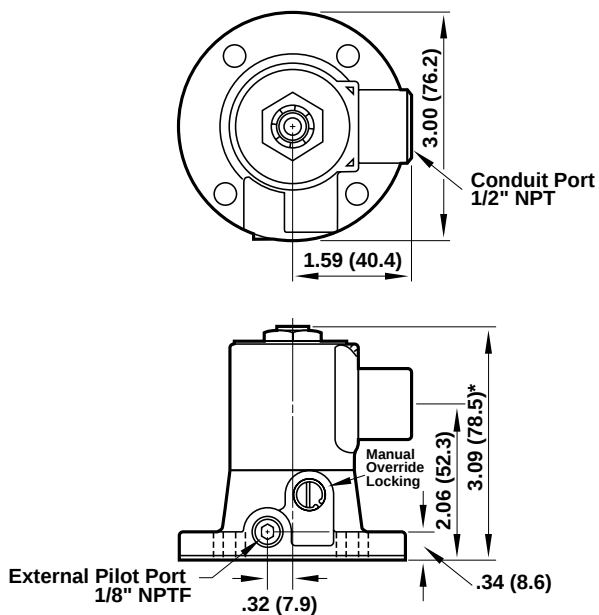
CE, CF, CY



*Gasket 0.03 (0.8) thick included in dimensions

Optional C Series

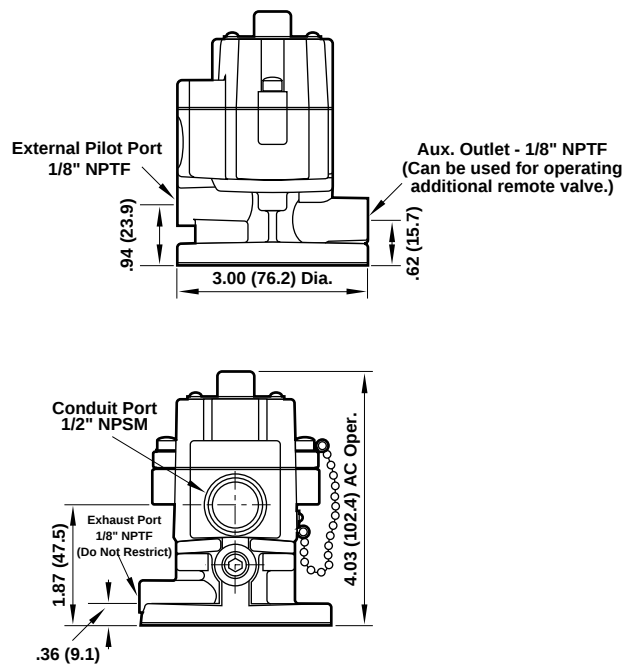
Conduit Housing
C0, C1



* Gasket 0.03 (0.8) thick included in dimensions.

Optional P Series

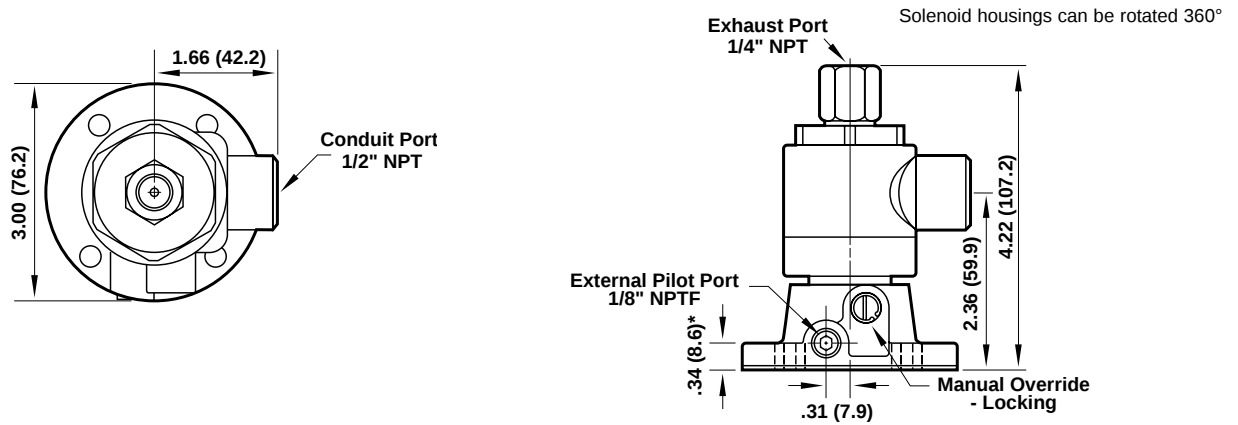
P1





Valve Body Operator Dimensions with Optional X Series - Hazardous Location

X1



- High flow - Cv of 1.2 to 49.5
- Durable, robust construction
- Two mounting styles: inline or subbase
- 1/4" to 2" ports (BSPP, PTF, or ISO Rc threads)
- Wide range of Air Pilot Operators available
- Four functional types: available in 2/2, 3/2, 3/2 multi-directional and 4/2 configurations



Technical Data

Medium:

Filtered and lubricated or non-lubricated compressed air or vacuum.

Operation:

Poppet valve air pilot actuated.

Mounting:

Through-holes in valve body and subbase.

Port Size:

1/4" to 2" PTF, BSPP, or ISO Rc.

Operating Pressure:

300 psig (Maximum 20.7 bar). For details see overleaf.

Flow Characteristics:

Basic Size	Function	Cv*	l/min
1/4"	3/2 & 4/2	1.2 - 1.8	984 - 2,435
1/2"	2/2, 3/2 & 4/2	3.2 - 5.8	3,398 - 6,230
1"	2/2, 3/2 & 4/2	10.3 - 17.7	4,474 - 15,348
2"	2/2 & 3/2	39.6 - 49.5	38,228 - 54,085

*See VAL-12-58 for additional flow information.

Operating Temperature:

-20°F to 175°F** (-29°C to 79°C)

**Consult Technical Service for use below 35°F (+2°C).

Materials:

Body: Aluminum alloy body, piston, poppets and subbase.

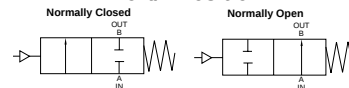
Operators: Zinc or aluminum air pilot operators.

Elastomers: Nitrile rubber seals. (Fluorocarbon seals are optional, contact Technical Services.)

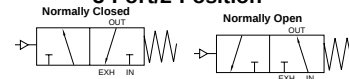
Ordering Information

To order standard poppet valves with air pilot operators, quote model number from tables overleaf, i.e. order D1024C-00-A1 for a 3-port, 2-position, normally closed, Air Pilot Operated Spring Return model.

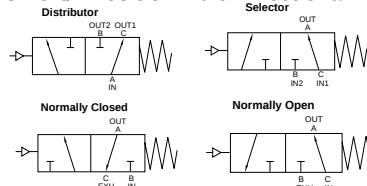
2-Port/2-Position



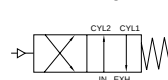
3-Port/2-Position



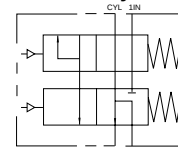
3-Port/2-Position Multi-Directional



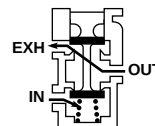
4-Port/2-Position 4-Way



4-Port/2-Position 3-Way Twin Normally Closed



This example shows a 3-way normally closed valve.





Air Pilot Operated Spring Return Inline and Subbase Valves

Below listed operators are single air operators with spring returns.

2-Port/2-Position (2 way) Inline, Normally Closed

Symbol	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit§
	1/2"	1/4"	A1012C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.51 (0.69)	53474-03
		3/8"	A1013C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.51 (0.69)	53474-03
		1/2"	A1014C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.51 (0.69)	53474-03
		3/4"	A1015C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.51 (0.69)	53474-03
	1"	3/4"	A1025C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.69 (1.68)	53475-01
		1"	A1026C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.69 (1.68)	53475-01
		1-1/4"	A1027C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.69 (1.68)	53475-01
	2"	1-1/2"	A1038C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	8.05 (3.65)	53822-01
		2"	A1039C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	8.05 (3.65)	53822-01

2-Port/2-Position (2 way) Inline, Normally Open

Symbol	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit§
	1/2"	1/4"	B1012C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.51 (0.69)	53474-03
		3/8"	B1013C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.51 (0.69)	53474-03
		1/2"	B1014C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.51 (0.69)	53474-03
		3/4"	B1015C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.51 (0.69)	53474-03
	1"	3/4"	B1025C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.69 (1.68)	53475-01
		1"	B1026C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.69 (1.68)	53475-01
		1-1/4"	B1027C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.69 (1.68)	53475-01

§ **Repair Kit:** Kit contains all elastomers necessary to service one valve body.

Note: Pilot supply pressure must be equal to or greater than the operating pressure.



Prospector Series Poppet Valves

Below listed operators are single air operators with spring returns.

3-Port/2-Position (3 way) Inline, Normally Closed

Symbol	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit§
	1/4"	1/4"	D1012H-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.20 (0.55)	53474-05
		3/8"	D1013H-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.20 (0.55)	53474-05
	1/2"	1/4"	D1022C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53474-03
		3/8"	D1023C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53474-03
		1/2"	D1024C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53475-03
		3/4"	D1025C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53475-03
	1"	3/4"	D1035C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.78 (1.72)	53475-01
		1"	D1036C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.78 (1.72)	53475-01
		1-1/4"	D1047C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.78 (1.72)	53475-01

3-Port/2-Position (3 way) Inline, Normally Open

Symbol	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit§
	1/4"	1/4"	E1012H-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.20 (0.55)	53473-05
		3/8"	E1013H-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.20 (0.55)	53473-05
	1/2"	1/4"	E1022C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53474-03
		3/8"	E1023C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53474-03
		1/2"	E1024C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53474-03
		3/4"	E1025C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53474-03
	1"	3/4"	E1035C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.78 (1.72)	53475-01
		1"	E1036C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.78 (1.72)	53475-01
		1-1/4"	E1047C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.78 (1.72)	53475-01

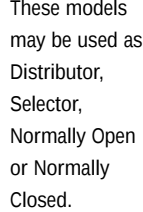
§ **Repair Kit:** Kit contains all elastomers necessary to service one valve body.

Note: Pilot supply pressure must be equal to or greater than the operating pressure.

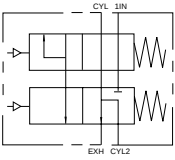


Below listed operators are single air operators with spring returns.

3-Port/2-Position (3 way) Multi-Directional Inline

Symbol	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit§
 These models may be used as Distributor, Selector, Normally Open or Normally Closed.	1/2"	1/4"	C1012C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.41 (0.64)	53474-03
		3/8"	C1013C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.41 (0.64)	53474-03
		1/2"	C1014C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.41 (0.64)	53474-03
		3/4"	C1025C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.41 (0.64)	53474-03
	1"	3/4"	C1035C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.94 (1.79)	53475-01
		1"	C1036C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.94 (1.79)	53475-01
		1-1/4"	C1037C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.94 (1.79)	53475-01
	2"	1-1/2"	C1048C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	8.75 (3.97)	53822-01
		2"	C1049C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	8.75 (3.97)	53822-01

4-Port/2-Position (3 way twin) Inline

Symbol	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit§
	1/2"	3/8"	G1023B-00-A4	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	2.25 (1.02)	53474-03
		1/2"	G1024B-00-A4	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	2.25 (1.02)	53474-03
		3/4"	G1025B-00-A4	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	2.25 (1.02)	53474-03
	1"	3/4"	G1035B-00-A4	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	4.96 (2.25)	53474-03
		1"	G1036B-00-A4	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	4.96 (2.25)	53475-01
		1-1/4"	G1037B-00-A4	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	4.96 (2.25)	53475-01

§ **Repair Kit:** Kit contains all elastomers necessary to service one valve body.

Note: Pilot supply pressure must be equal to or greater than the operating pressure.



Prospector Series Poppet Valves

Below listed operators are single air operators with spring returns.

4-Port/2-Position (4 way) Inline

Symbol	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit\$
	1/4"	1/4"	F1012C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.81 (0.82)	53473-05
		3/8"	F1013C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	1.81 (.82)	53473-05
	1/2"	3/8"	F1023C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	2.30 (1.04)	53474-06
		1/2"	F1024C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	2.30 (1.04)	53474-06
		3/4"	F1025C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	2.30 (1.79)	53474-06
	1"	3/4"	F1035C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	5.42 (2.46)	53475-06
		1"	F1036C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	5.42 (2.46)	53475-06
		1-1/4"	F1037C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	5.42 (2.46)	53475-06

4-Port/2-Position (4 way) Subbase

Symbol	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit\$
	1/2"	1/2"	F2214C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	3.96 (1.80)	53474-06
	1"	1"	F2226C-00-A1	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7)	9.62 (4.37)	53475-06

* **Thread:** Insert **A** for Inline BSPP; **1** for Inline PTF; or **B** for Inline ISO Rc; **4** for Subbase valve with subbase, BSPP; **5** for Subbase valve without subbase, BSPP; **2** for Subbase valve with subbase, PTF; **3** for Subbase valve without subbase, PTF; **6** for Subbase valve with subbase, ISO Rc; or **7** for Subbase valve without subbase, ISO Rc.

\$ **Repair Kit:** Kit contains all elastomers necessary to service one valve body.

Note: Pilot supply pressure must be equal to or greater than the operating pressure.



Air Pilot Operated Inline & Subbase Valves

Options Information

For optional features, note the valve model number that comes closest to the desired valve from the preceding order table. Change the model number as shown in the following diagram to obtain the desired option. For example: the ordering table on VAL-12-21 shows D1022C-00-A1, a 3-port/2-position single air pilot operated valve with spring return. To use this valve with a twin operator, change the last two digits to A4, as shown below.

Position in Model Number									
1	2	3	4	5	6	7	8	9	10
D	1	0	2	2	C	0	0	A	1

Example model number is a 3-port/2-position (3-way) normally closed valve with a single air operator, and spring return.

7	Indicator Pin (Basic 1/2" valve)**
8	Indicator Pin (Basic 1" valve)**

F	Bleed Operation ^{††}
K	Momentary Signal Operation [†]
J	Vacuum Service [§]

Vacuum Service[§]

For on-off application of vacuum, use a normally closed 2-port/2-position (2-way) valve. When the valve is actuated, vacuum will be applied to the outlet port.

For selecting alternately between vacuum and pressure, use a normally open 3-port/2-position (3-way) valve. Connect the vacuum to the exhaust port and pressure to the inlet port. When the valve is actuated, vacuum will be applied to the outlet port.

For selecting alternately between vacuum and vent, use a normally open 3-port/2-position (3-way) valve. Connect the vacuum to the exhaust port and vent the inlet port. When the valve is actuated, vacuum will be applied to the outlet port.

In addition, a 4-port/2-position (4-way) valve can be connected the same way as 3-port/2-position (3-way) valves for selecting alternately between vacuum and pressure or vacuum and vent. That is, connect the vacuum to the exhaust port and pressure or vent to the inlet port. When the valve is actuated, the cylinder ports (outlets) will be alternately switched between vacuum and pressure or vacuum and vent.

Operator Options		Weight lbs. (kg)
A A	A1 Operator with BSPP Threads	0.29 (0.13)
A 6	Momentary Signal Operator (PTF Threads) [†]	0.38 (0.17)
AF	Momentary Signal Operator (BSPP Threads) ^{†*}	0.38 (0.17)
A4	Twin Operator (PTF Threads Only) ^{§§}	0.59 (0.27)

[†] **MOMENTARY SIGNAL OPERATOR** : Used when it is desirable to control the valve with 2 alternately applied momentary signals of 0.2 second minimum duration (first signal shifts and hold the poppet; the second allows the poppet to return to its normal position). Available only on 3-port/2-position normally closed valves and on 4-port/2 position (4-way) valves. Be sure to change the 6th, 9th and 10th positions of the model number.

^{§§} **TWIN OPERATOR** : Allows independent operation of each valve element. Available only on 4-port/2-position (4-way) valves.

* **REPAIR KIT** : Available for A6 operator. Kit contains all elastomers necessary to service one operator body. To order, request: 53476-01.

To calculate the weight of a valve and optional operator take the weight given for the relevant valve from the ordering tables, subtract either 0.29 lbs (0.13 kg) for an A1 operator and add the weight given above for the appropriate optional operator.

For example: For D1022C-00-A1 has a listed weight of 1.79 lbs (0.81 kg). To convert this to a Momentary Signal Operator, i.e. D1022C-00-A6 → 0.81 - 0.13 + 0.17 = 0.85 kg (1.87 lbs.)

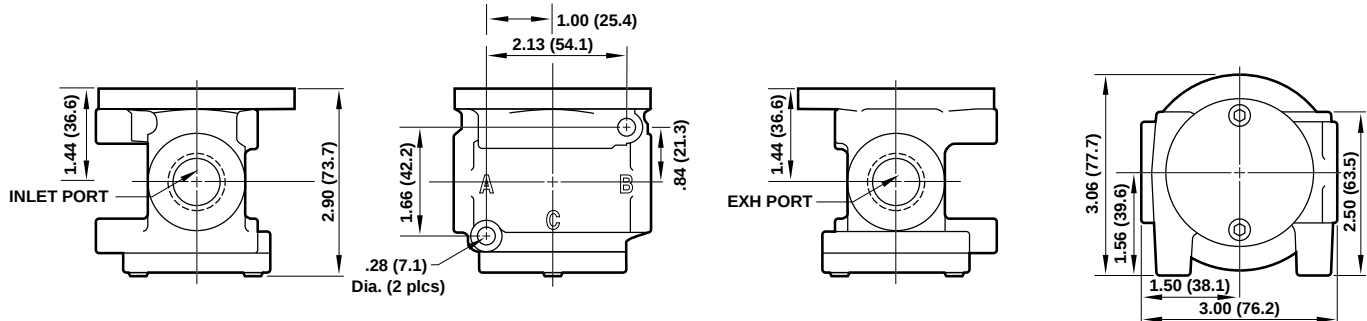


Prospector Series Poppet Valves

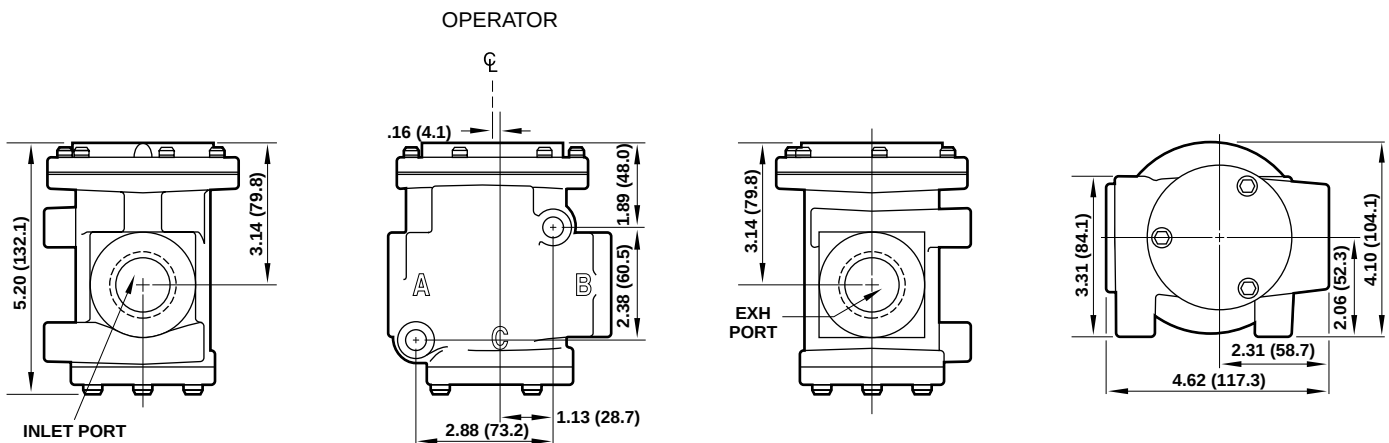
All Dimensions in Inches (mm)

Valve Body Dimensions – 2-Port/2-Position Inline Bodies

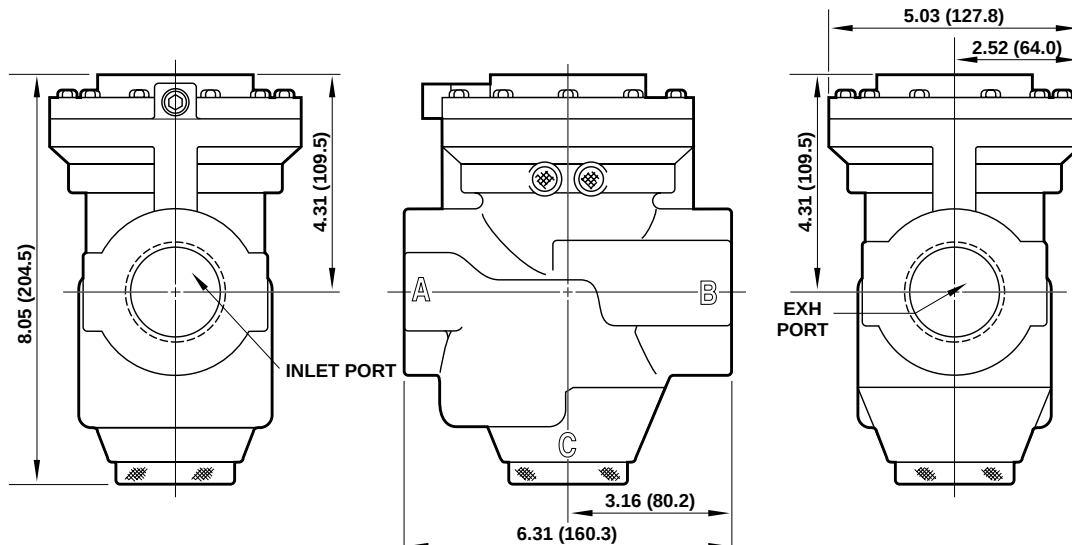
Basic 1/2-Inch Body A101*C & B101*C (2-Port/2 Position Pilot Operated Valve)



Basic 1-Inch Body A102*C & B102*C (2-Port/2 Position Pilot Operated Valve)



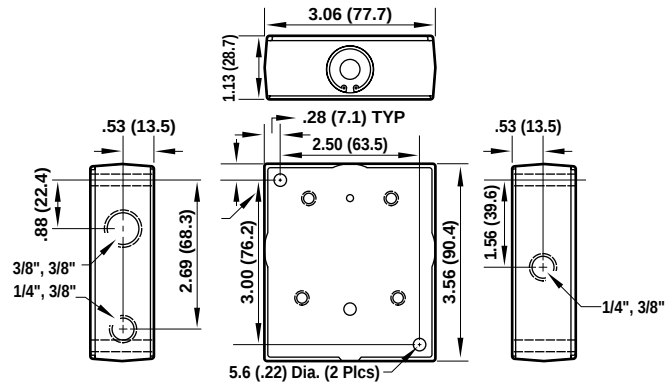
Basic 2-Inch Body A103*C & C104*C (2-Port/2 Position Pilot Operated Valve)



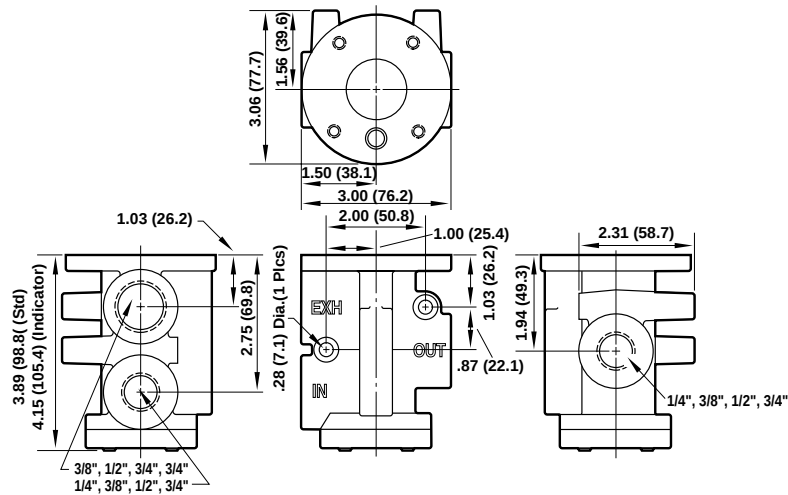


3-Port/2-Position Inline Bodies

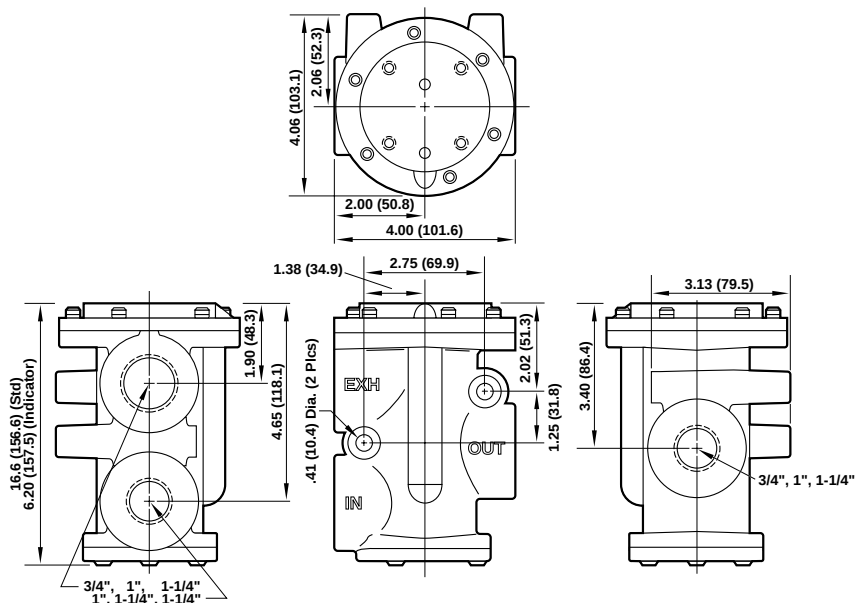
Basic 1/4-Inch Body D101*B & E101*B (3-Port/2-Position Pilot Operated Valve)



Basic 1/2 - Inch Body D102*C & E102*C (3-Port/2-Position Pilot Operated Valve)



Basic 1 - Inch Body D103*C, D104*C, E103*C & E104*C (3-Port/2-Position Pilot Operated Valve)



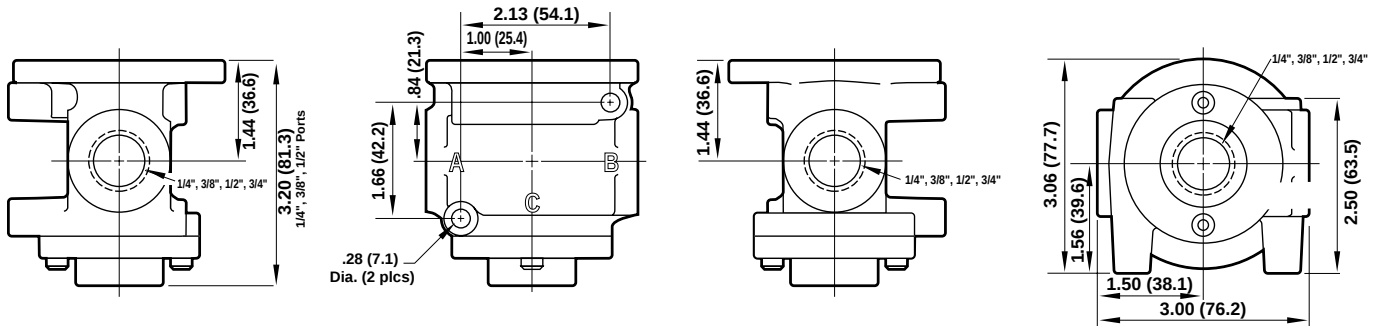


Prospector Series Poppet Valves

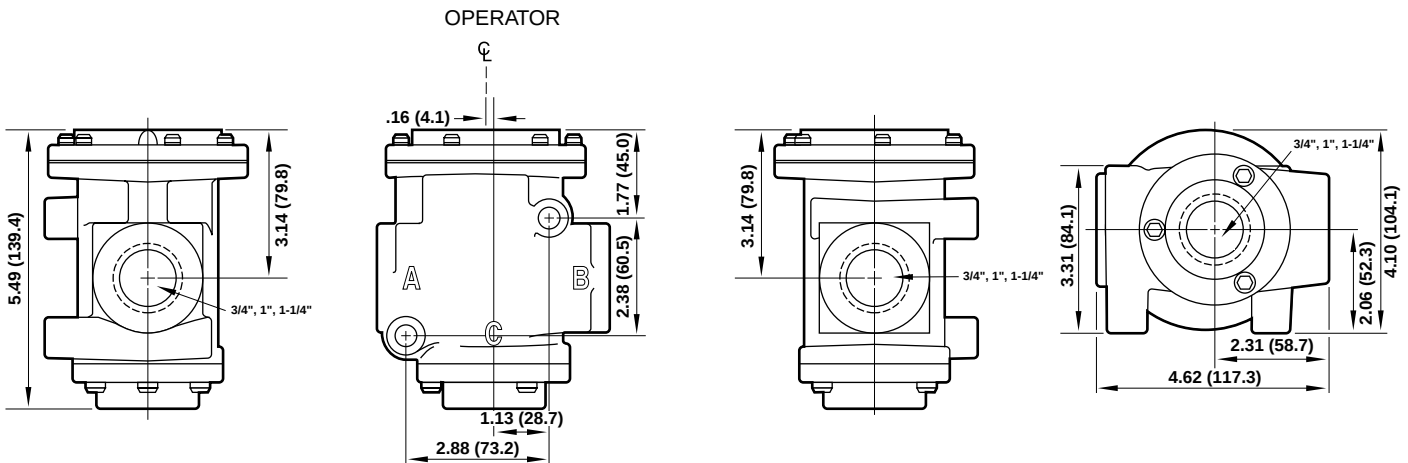
All Dimensions in Inches (mm)

3-Port/2-Position Multi-Directional Inline Bodies

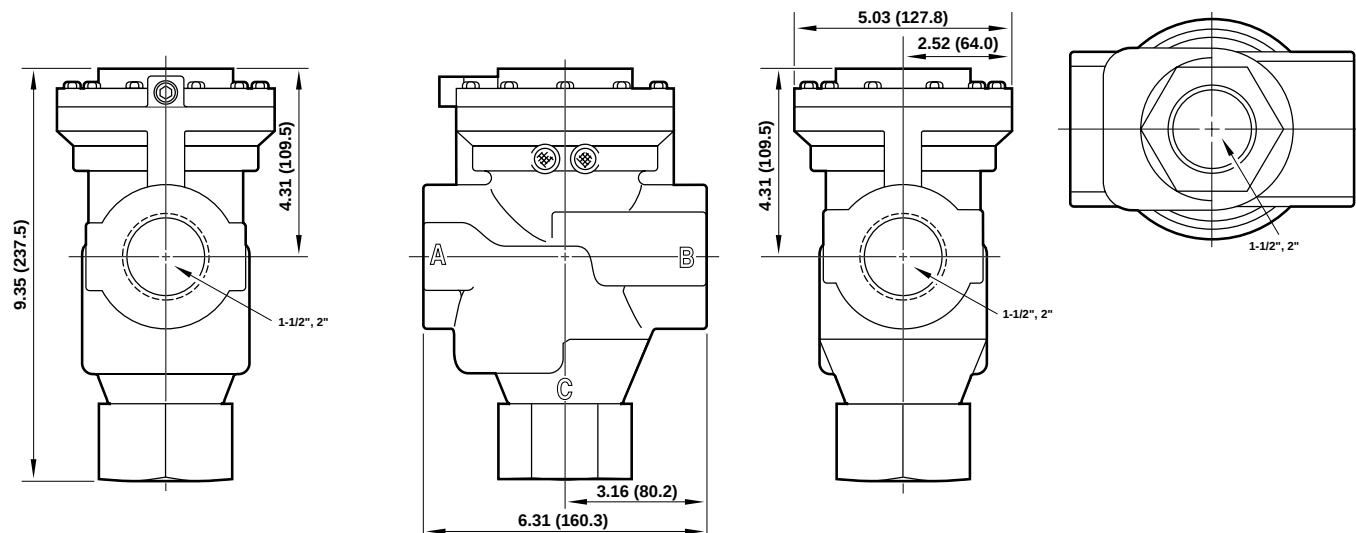
Basic 1/2 - Inch Body C101*C, C102*C, C105*C & C106*C (3-Port/2-Position Multi-Directional Operated Valve)



Basic 1 - Inch Body C103*C & C103*H (3-Port/2-Position Multi-Directional Operated Valve)



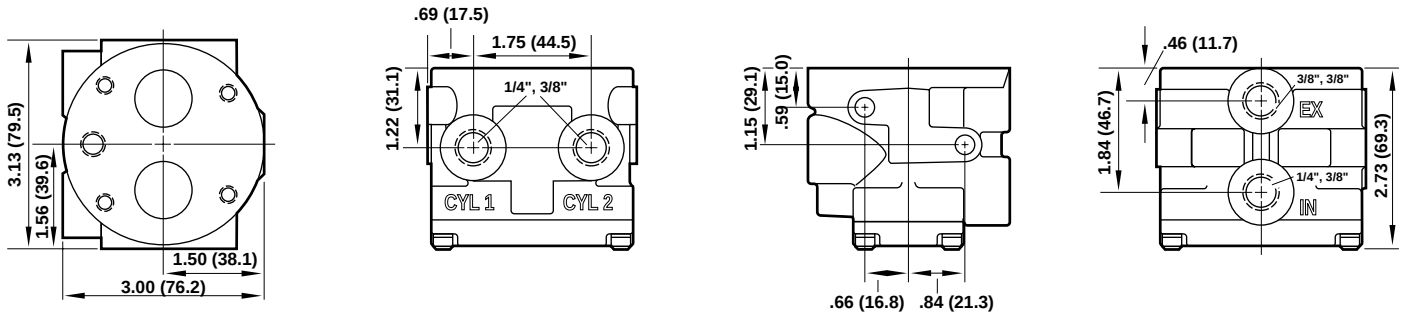
Basic 2 - Inch Body C104*C, C108*C & C104*H (3-Port/2-Position Multi-Directional Operated Valve)



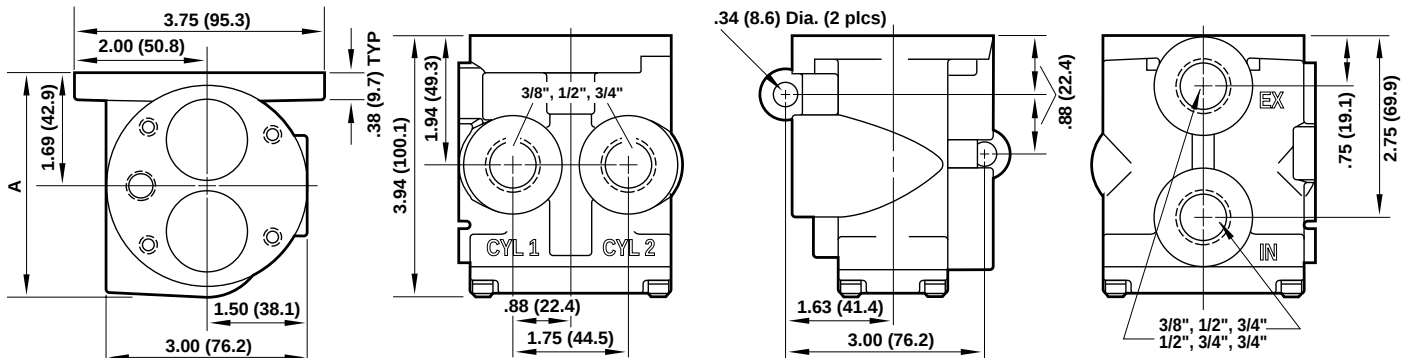


Valve Body Dimensions – 4-Port/2-Position Inline Bodies

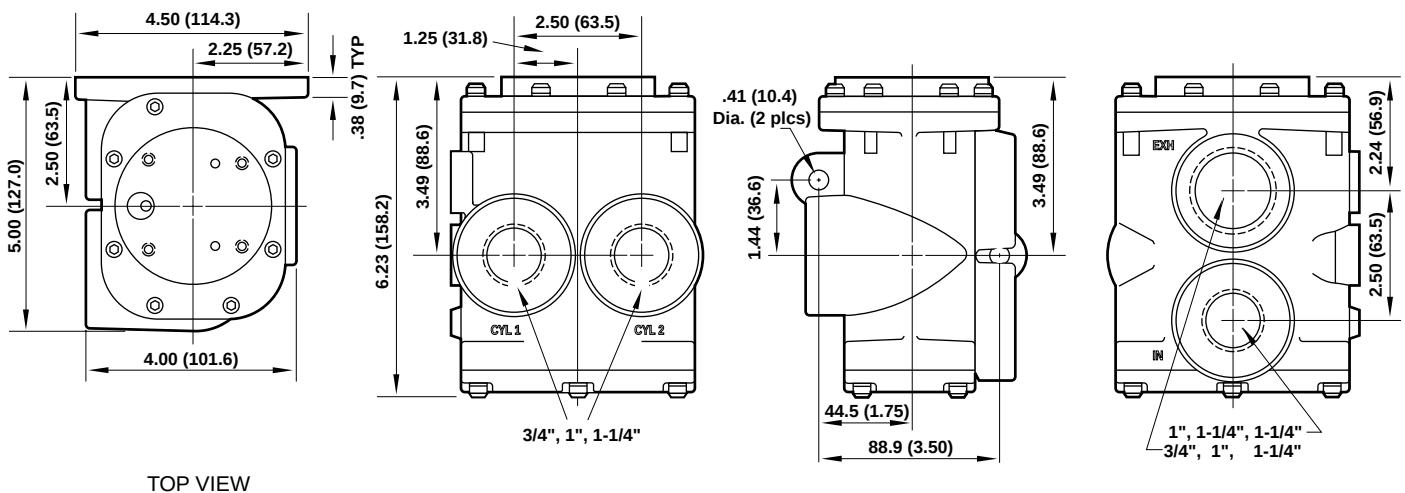
Basic 1/4 - Inch Body F101*C (4-Port/2-Position Pilot Operated Valve)



Basic 1/2 - Inch Body F102*C (4-Port/2-Position Pilot Operated Valve)



Basic 1 - Inch Body F103*C (4-Port/2-Position Pilot Operated Valve)



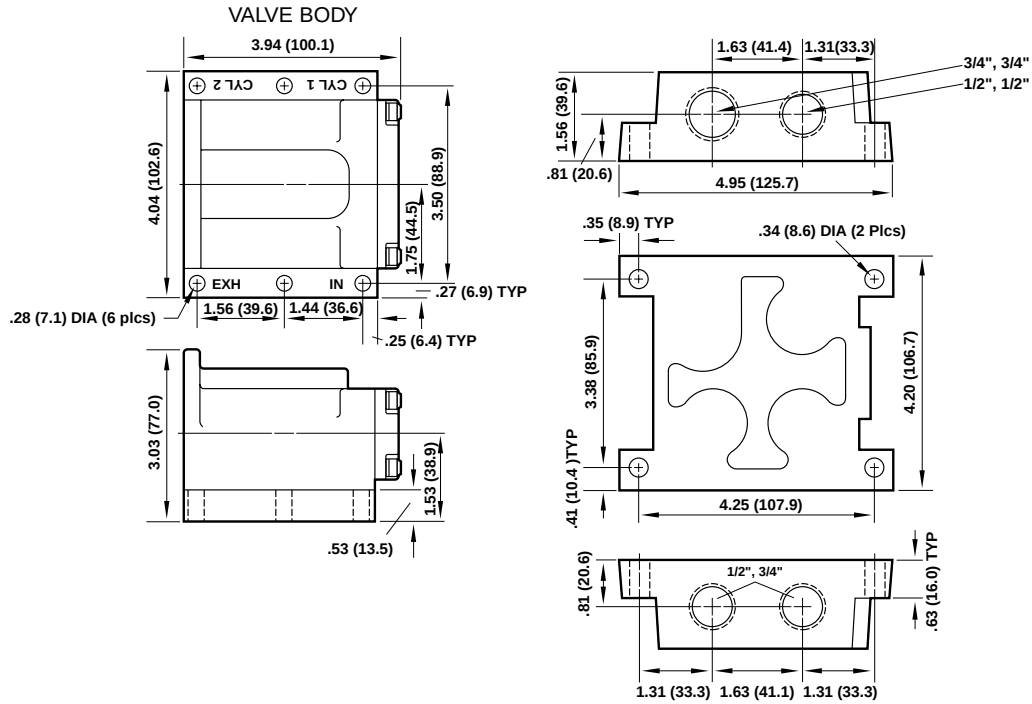


Prospector Series Poppet Valves

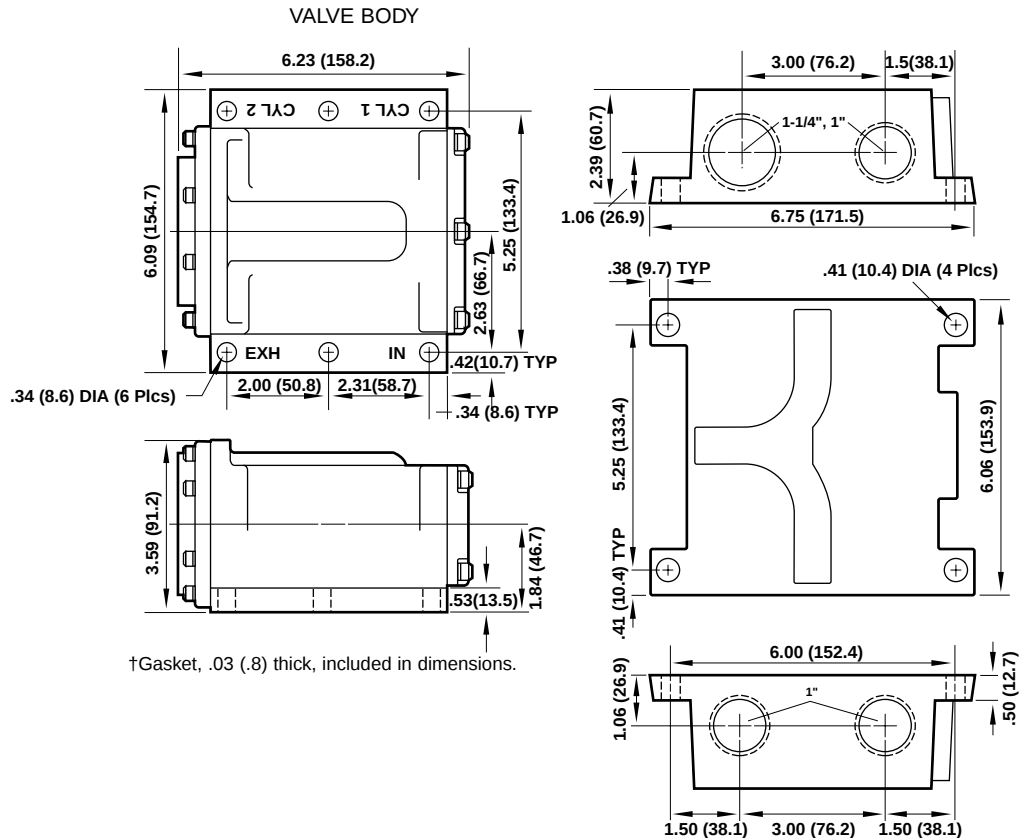
All Dimensions in Inches (mm)

Valve Body Dimensions – 4-Port/2-Position Subbase Bodies

Basic 1/2 - Inch Body F2214C (4-Port/2-Position Pilot Operated Valve)



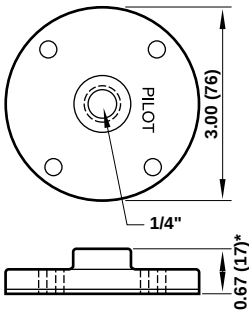
Basic 1- Inch Body F2226C (4-Port/2-Position Pilot Operated Valve)



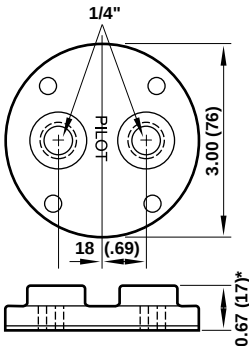


Air Pilot Operator Dimensions

A1 & AA Single



A4 Twin



* Gasket, 0.03 (0.8) thick included in dimension.

1/4" to 2" Manual & Mechanical Actuated 2/2, 3/2, & 4/2 Inline and Subbase Valves

- High flow - Cv of 1.2 to 49.5
- Durable, robust construction
- Two mounting styles: inline or subbase
- 1/4" to 2" ports (PTF, BSPP, or ISO Rc threads)
- Wide range of Manual and Mechanical Operators available
- Four functional types: available in 2/2, 3/2, 3/2 multi-directional and 4/2 configurations



Technical Data

Medium:

Filtered and lubricated or non-lubricated compressed air or vacuum.

Operation:

Poppet valve manual and mechanical pilot actuated.

Mounting:

Through-holes in valve body and subbase.

Port Size:

1/4" to 2" PTF, BSPP, or ISO Rc.

Operating Pressure:

Maximum 300 psig (20.7 bar). For details see overleaf.

Flow Characteristics:

Basic Size	Function	Cv*	l/min
1/4"	3/2 & 4/2	1.2 - 1.8	984 - 2,435
1/2"	2/2, 3/2 & 4/2	3.2 - 5.8	3,398 - 6,230
1"	2/2, 3/2 & 4/2	10.3 - 17.7	4,474 - 15,348
2"	2/2 & 3/2	39.6 - 49.5	38,228 - 54,085

*See VAL-12-58 for additional flow information.

Operating Temperature:

-20°F to 175°F** (-29°C to 79°C)

**Consult Technical Service for use below 35°F (+2°C).

Materials:

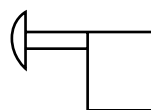
Body: Aluminum alloy body, piston, poppets and subbase.

Operators: Aluminum manual and mechanical operators, stainless steel, acetal, steel.

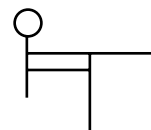
Elastomers: Nitrile rubber seals. (Fluorocarbon seals are optional, contact Technical Services.)

Ordering Information

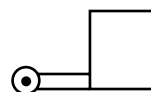
To order standard poppet valves with manual/mechanical operators, quote model number from tables overleaf, e.g. order D1024C-00-MB for a 3-port, 2-position, normally closed, Palm Button Mechanically Operated Spring Return model.



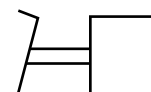
M B - Palm Button



M C, M D - Lever



M J, M K - Roller



M M - Foot Pedal



Manual & Mechanical Operated Spring Return Inline and Subbase Valves

2-Port/2-Position (2 way) Inline, Normally Closed

Below listed operators are palm button, spring return mechanical operators.

Symbol	Pilot Type	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit [§]
	Internal Pilot	1/2"	1/4"	A1012C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.10 (0.95)	53474-03
			3/8"	A1013C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.10 (0.95)	53474-03
			1/2"	A1014C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.10 (0.95)	53474-03
			3/4"	A1015C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.10 (0.95)	53474-03
		1"	3/4"	A1025C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.27 (1.94)	53475-01
			1"	A1026C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.27 (1.94)	53475-01
			1-1/4"	A1027C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.27 (1.94)	53475-01
		2"	1-1/2"	A1038C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	8.64 (3.92)	53822-01
			2"	A1039C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	8.64 (3.92)	53822-01
	External Pilot	1/2"	1/4"	A1012H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.10 (0.95)	53474-03
			3/8"	A1013H-00-MB	0 - 300 (0 - 10.3)	30 - 300 (2.1 - 20.7†)	2.10 (0.95)	53474-03
			1/2"	A1014H-00-MB	0 - 300 (0 - 10.3)	30 - 300 (2.1 - 10.3†)	2.10 (0.95)	53474-03
			3/4"	A1015H-00-MB	0 - 300 (0 - 10.3)	30 - 300 (2.1 - 10.3†)	2.10 (0.95)	53474-03
		1"	3/4"	A1025H-00-MB	0 - 300 (0 - 10.3)	30 - 300 (2.1 - 10.3†)	4.27 (1.94)	53475-01
			1"	A1026H-00-MB	0 - 300 (0 - 10.3)	30 - 300 (2.1 - 10.3†)	4.27 (1.94)	53475-01
			1-1/4"	A1027H-00-MB	0 - 300 (0 - 10.3)	30 - 300 (2.1 - 10.3†)	4.27 (1.94)	53475-01
		2"	1-1/2"	A1038H-00-MB	0 - 300 (0 - 10.3)	30 - 300 (2.1 - 10.3†)	8.64 (3.92)	53822-01
			2"	A1039H-00-MB	0 - 300 (0 - 10.3)	30 - 300 (2.1 - 10.3†)	8.64 (3.92)	53822-01

† **External Pilot Supply** : Pilot supply pressure must be equal to or greater than the operating pressure.

§ **Spares Kit**: Kits contain all elastomers necessary to service one valve body.



Prospector Series Poppet Valves

2-Port/2-Position (2 way) Inline, Normally Open

Below listed operators are palm button, spring return mechanical operators.

Symbol	Pilot Type	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit [§]
	Internal Pilot	1/2"	1/4"	B1012C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.10 (0.95)	53474-03
			3/8"	B1013C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.10 (0.95)	53474-03
			1/2"	B1014C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.10 (0.95)	53474-03
			3/4"	B1015C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.10 (0.95)	53474-03
		1"	3/4"	B1025C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.27 (1.94)	53475-01
			1"	B1026C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.27 (1.94)	53475-01
			1-1/4"	B1027C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.27 (1.94)	53475-01
	External Pilot	1/2"	1/4"	B1012H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	2.10 (0.95)	53474-03
			3/8"	B1013H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	2.10 (0.95)	53474-03
			1/2"	B1014H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 10.3) [†]	2.10 (0.95)	53474-03
			3/4"	B1015H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 10.3) [†]	2.10 (0.95)	53474-03
		1"	3/4"	B1025H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 10.3) [†]	4.27 (1.94)	53475-01
			1"	B1026H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 10.3) [†]	4.27 (1.94)	53475-01
			1-1/4"	B1027H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 10.3) [†]	4.27 (1.94)	53475-01

[†] **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

[§] **Spares Kit:** Kits contain all elastomers necessary to service one valve body.



3-Port/2-Position (3 way) Inline, Normally Closed

Below listed operators are palm button, spring return mechanical operators.

Symbol	Pilot Type	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit§
	Internal Pilot	1/4"	1/4"	D1012B-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53473-05
			3/8"	D1013B-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53473-05
		1/2"	1/4"	D1022C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.38 (1.08)	53474-03
			3/8"	D1023C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.38 (1.08)	53474-03
			1/2"	D1024C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.38 (1.08)	53474-03
			3/4"	D1025C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.38 (1.08)	53474-03
		1"	3/4"	D1035C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.37 (1.99)	53475-01
			1"	D1036C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.37 (1.99)	53475-01
			1-1/4"	D1047C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.37 (1.99)	53475-01
	External Pilot	1/4"	1/4"	D1012H-00-MB	0 - 150 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	1.79 (0.81)	53473-05
			3/8"	D1013H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	1.79 (0.81)	53473-05
		1/2"	1/4"	D1022H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.38 (1.08)	53474-03
			3/8"	D1023H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.38 (1.08)	53474-03
			1/2"	D1024H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.38 (1.08)	53474-03
			3/4"	D1025H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.38 (1.08)	53474-03
		1"	3/4"	D1035H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	4.37 (1.99)	53475-01
			1"	D1036H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	4.37 (1.99)	53475-01
			1-1/4"	D1047H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	4.37 (1.99)	53475-01

† **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

§ **Spares Kit:** Kits contain all elastomers necessary to service one valve body.



Prospector Series Poppet Valves

3-Port/2-Position (3 way) Inline, Normally Open

Below listed operators are palm button, spring return mechanical operators.

Symbol	Pilot Type	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit [§]
	Internal Pilot	1/4"	1/4"	E1012B-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53473-05
			3/8"	E1013B-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.79 (0.81)	53473-05
		1/2"	1/4"	E1022C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.38 (1.08)	53474-03
			3/8"	E1023C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.38 (1.08)	53474-03
			1/2"	E1024C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.38 (1.08)	53474-03
			3/4"	E1025C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.38 (1.08)	53474-03
		1"	3/4"	E1035C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.37 (1.99)	53475-01
			1"	E1036C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.37 (1.99)	53475-01
			1-1/4"	E1047C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.37 (1.99)	53475-01
	External Pilot	1/4"	1/4"	E1012H-00-MB	0 - 150 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	1.79 (0.81)	53473-05
			3/8"	E1013H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	1.79 (0.81)	53473-05
		1/2"	1/4"	E1022H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	2.38 (1.08)	53474-03
			3/8"	E1023H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	2.38 (1.08)	53474-03
			1/2"	E1024H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	2.38 (1.08)	53474-03
			3/4"	E1025H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	2.38 (1.08)	53474-03
		1"	3/4"	E1035H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	4.37 (1.99)	53475-01
			1"	E1036H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	4.37 (1.99)	53475-01
			1-1/4"	E1047H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7) [†]	4.37 (1.99)	53475-01

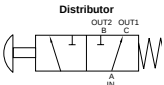
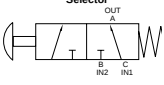
[†] **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

[§] **Spares Kit:** Kits contain all elastomers necessary to service one valve body.



3-Port/2-Position (3-Way) Multi-Directional Inline

Below listed operators are palm button, spring return mechanical operators.

Symbol	Pilot Type	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs. (kg)	Repair Kit§
	Internal Pilot	1/2"	1/4"	C1012C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.99 (0.91)	53474-03
			3/8"	C1013C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.99 (0.91)	53474-03
			1/2"	C1014C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.99 (0.91)	53474-03
			3/4"	C1025C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.99 (0.91)	53474-03
		1"	3/4"	C1035C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.52 (2.06)	53475-01
			1"	C1036C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.52 (2.06)	53475-01
			1-1/4"	C1037C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	4.52 (2.06)	53475-01
		2"	1-1/2"	C1048C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	9.30 (4.22)	53822-01
			2"	C1049C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	9.30 (4.22)	53822-01
These models may be used as Distributor, Selector, Normally Open or Normally Closed.	External Pilot	1/2"	1/4"	C1012H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	1.99 (0.91)	53474-03
			3/8"	C1013H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	1.99 (0.91)	53474-03
			1/2"	C1014H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	1.99 (0.91)	53474-03
			3/4"	C1025H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	1.99 (0.91)	53474-03
		1"	3/4"	C1035H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	4.52 (2.06)	53475-01
			1"	C1036H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	4.52 (2.06)	53475-01
		2"	1-1/4"	C1037H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	4.52 (2.06)	53475-01
			1-1/2"	C1048H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	9.30 (4.22)	53822-01
			2"	C1049H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	9.30 (4.22)	53822-01
	Internal Pilot	1/2"	1/4"	C1052C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.99 (0.91)	53474-03
			3/8"	C1053C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.99 (0.91)	53474-03
			1/2"	C1054C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.99 (0.91)	53474-03
			3/4"	C1065C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	1.99 (0.91)	53474-03
		2"	1-1/2"	C1088C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	9.30 (4.22)	53822-01
			2"	C1089C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	9.30 (4.22)	53822-01

† **External Pilot Supply:** Pilot supply pressure must be equal to or greater than the operating pressure.

§ **Spares Kit:** Kits contain all elastomers necessary to service one valve body.



Prospector Series Poppet Valves

4-Port/2-Position (4 way) Inline & Subbase

Below listed operators are palm button, spring return mechanical operators.

Symbol	Pilot Type	Basic Size	Port Size	Model	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lbs.(kg)	Repair Kit§
	Internal Pilot	1/4"	1/4"	F1012C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.37 (1.08)	53473-05
			3/8"	F1013C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.37 (1.08)	53473-05
		1/2"	3/8"	F1023C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.89 (1.31)	53474-06
			1/2"	F1024C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.89 (1.31)	53474-06
			3/4"	F1025C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	2.89 (1.31)	53474-06
		1"	3/4"	F1035C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	6.00 (2.73)	53475-06
			1"	F1036C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	6.00 (2.73)	53475-06
			1-1/4"	F1037C-00-MB	30 - 300 (2.1 - 20.7)	30 - 300 (2.1 - 20.7)	6.00 (2.73)	53475-06
	External Pilot	1/4"	1/4"	F1012H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.37 (1.08)	53473-05
			3/8"	F1013H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.37 (1.08)	53473-05
		1/2"	3/8"	F1023H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.89 (1.31)	53474-06
			1/2"	F102CH-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.89 (1.31)	53474-06
			3/4"	F1025H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	2.89 (1.31)	53474-06
		1"	3/4"	F1035H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	6.00 (2.73)	53475-06
			1"	F1036H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	6.00 (2.73)	53475-06
			1-1/4"	F1037H-00-MB	0 - 300 (0 - 20.7)	30 - 300 (2.1 - 20.7†)	6.00 (2.73)	53475-06
	Subbase Internal Pilot	1/2"	1/2"	F2214C-00-MB	30 - 200 (2.1 - 13.8)	30 - 200 (2.1 - 13.8)	4.55 (2.07)	53474-06
		1"	1"	F2226C-00-MB	30 - 200 (2.1 - 13.8)	30 - 200 (2.1 - 13.8)	10.21 (4.64)	53475-06
	Subbase External Pilot	1/2"	1/2"	F2214H-00-MB	0 - 200 (0 - 13.8)	30 - 200 (2.1 - 13.8†)	4.55 (2.07)	53474-06
		1"	1"	F2226H-00-MB	0 - 200 (0 - 13.8)	30 - 200 (2.1 - 13.8†)	10.21 (4.64)	53475-06

* **Thread:** Insert **A** for Inline BSPP; **1** for Inline PTF; or **B** for Inline ISO Rc; **4** for Subbase valve with subbase, BSPP; **5** for Subbase valve without subbase, BSPP; **2** for Subbase valve with subbase, PTF; **3** for Subbase valve without subbase, PTF; **6** for Subbase valve with subbase, ISO Rc; or **7** for Subbase valve without subbase, ISO Rc.

† **External Pilot Supply** : Pilot supply pressure must be equal to or greater than the operating pressure.

§ **Spares Kit:** Kits contain all elastomers necessary to service one valve body.



Manual & Mechanical Operated Inline & Subbase Valves

Options Information

For optional features, note the valve model number that comes closest to the desired valve from the preceding order table. Change the model number as shown in the following diagram to obtain the desired option. For example: the ordering table on VAL12-37 shows D1022C-00-MB, a 3-port/2-position valve with a palm button operator with spring return. To use this valve with a lever, horizontal detented operator, change the last two digits to MD, as shown below. To order operators with fluorocarbon elastomers, please contact Technical Services.

Position in Model Number

1	2	3	4	5	6	7	8	9	10
D	1	0	2	2	C	0	0	M	B

Example model number is a 3-port/2-position (3-way) valve with a palm button operator and a spring return.

J Vacuum Service[†]

Vacuum Service[†]

For on-off application of vacuum, use a normally closed 2-port/2-position (2-way) valve. When the valve is actuated, vacuum will be applied to the outlet port.

For selecting alternately between vacuum and pressure, use a normally open 3-port/2-position (3-way) valve. Connect the vacuum to the exhaust port and pressure to the inlet port. When the valve is actuated, vacuum will be applied to the outlet port.

For selecting alternately between vacuum and vent, use a normally open 3-port/2-position (3-way) valve. Connect the vacuum to the exhaust port and vent the inlet port. When the valve is actuated, vacuum will be applied to the outlet port.

In addition, a 4-port/2-position (4-way) valve can be connected the same way as 3-port/2-position (3-way) valves for selecting alternately between vacuum and pressure or vacuum and vent. That is, connect the vacuum to the exhaust port and pressure or vent to the inlet port. When the valve is actuated, the cylinder ports (outlets) will be alternately switched between vacuum and pressure or vacuum and vent.

Operator Options§		Weight lbs. (kg)	Operating Forces lbs (kg.)	
M B	Palm Button, Spring Return	0.87 (0.40)	6.0 (2.7)	
M C	Lever Horizontal, Spring Return	0.93 (0.42)	1.5 (0.7)	
M D	Lever Horizontal, Detented	0.93 (0.42)	To open: 2.3 (1.0) To close: 1.5 (0.7)	
M J	Roller Horizontal, Spring Return	1.20 (0.55)	1.8 (0.8)	
M K	Roller Vertical, Spring Return	1.20 (0.55)	2.5 (1.1)	
M M	Foot Pedal, Vertical Spring Return	9.19 (4.17)	4.0 (1.8)	

§ **Repair Kit:** Kits are available for the above operators. For nitrile order: 53769 - 01.

To calculate the weight of a valve and optional operator take the weight given for the relevant valve from the ordering tables, subtract 0.87 lbs (0.40 kg) for an MB operator and add the weight given above for the appropriate optional operator.

For example: For D1022C-00-MB has a listed weight of 2.38 lbs (1.08 kg). To convert this from a palm button operator to a foot pedal, vertical operator, i.e. D1022C-00-MM → 1.08 - 0.47 + 4.17 = 4.78 kg (10.53 lbs.)

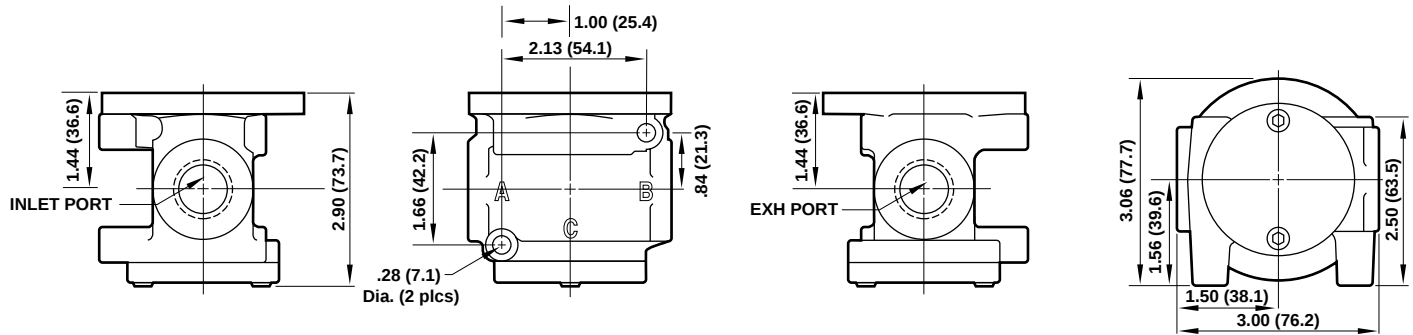


Prospector Series Poppet Valves

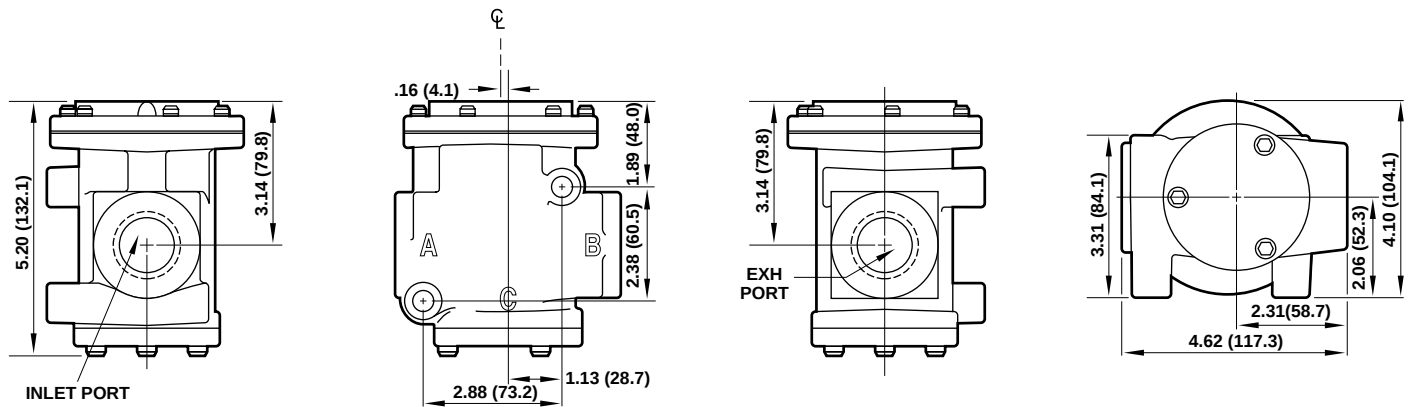
All Dimensions in Inches (mm)

Valve Body Dimensions – 2-Port/2-Position Inline Bodies

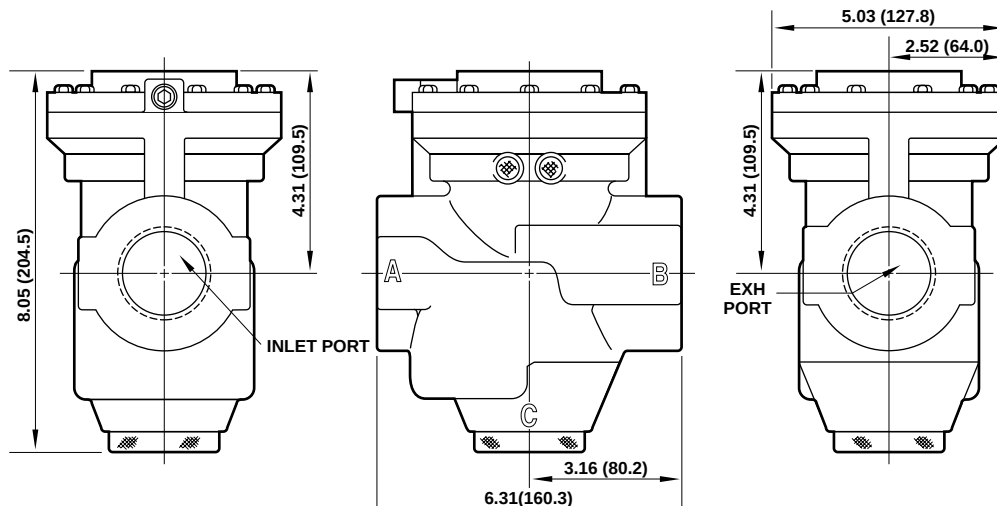
Basic 1/2-Inch Body A101*C & B101*C (2-Port/2 Position Pilot Operated Valve)



Basic 1-Inch Body A102*C & B102*C (2-Port/2 Position Pilot Operated Valve)



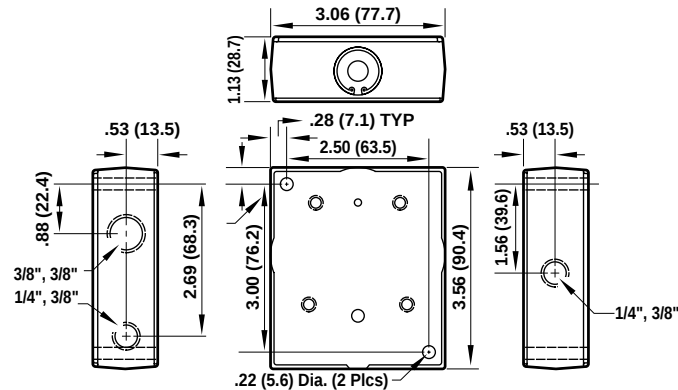
Basic 2-Inch Body A103*C & C104*C (2-Port/2 Position Pilot Operated Valve)



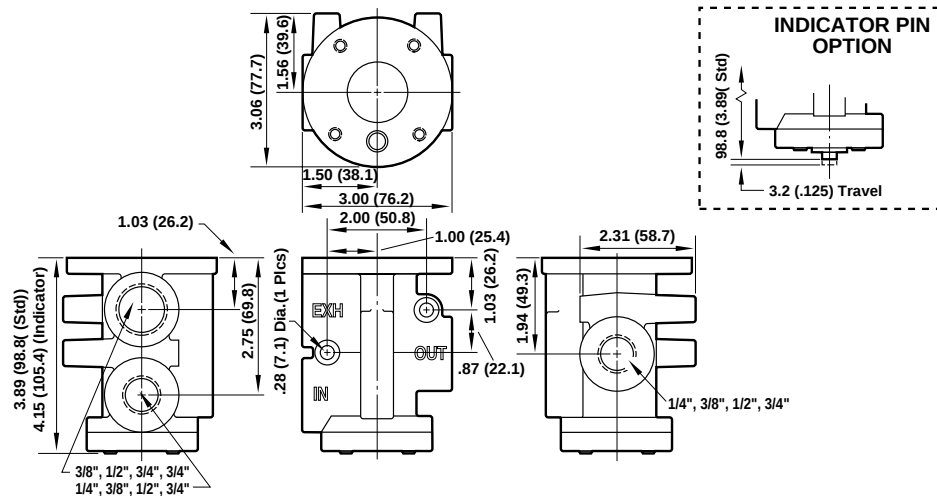


Valve Body Dimensions – 3-Port/2-Position Inline Bodies

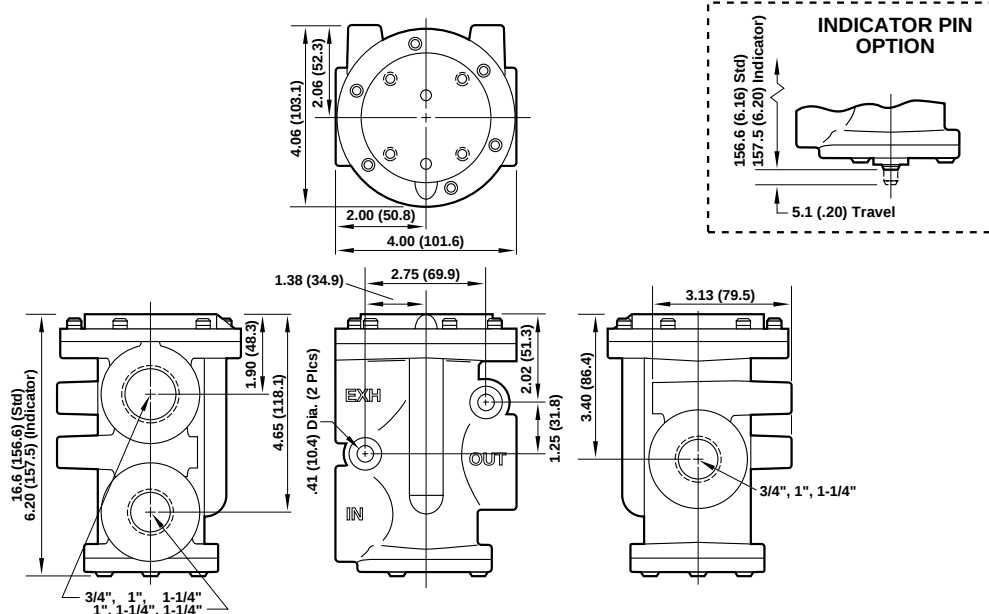
Basic 1/4-Inch Body D101*B & E101*B (3-Port/2-Position Pilot Operated Valve)



Basic 1/2 - Inch Body D102*C & E102*C (3-Port/2-Position Pilot Operated Valve)



Basic 1 - Inch Body D103*C, D104*C, E103*C & E104*C (3-Port/2-Position Pilot Operated Valve)



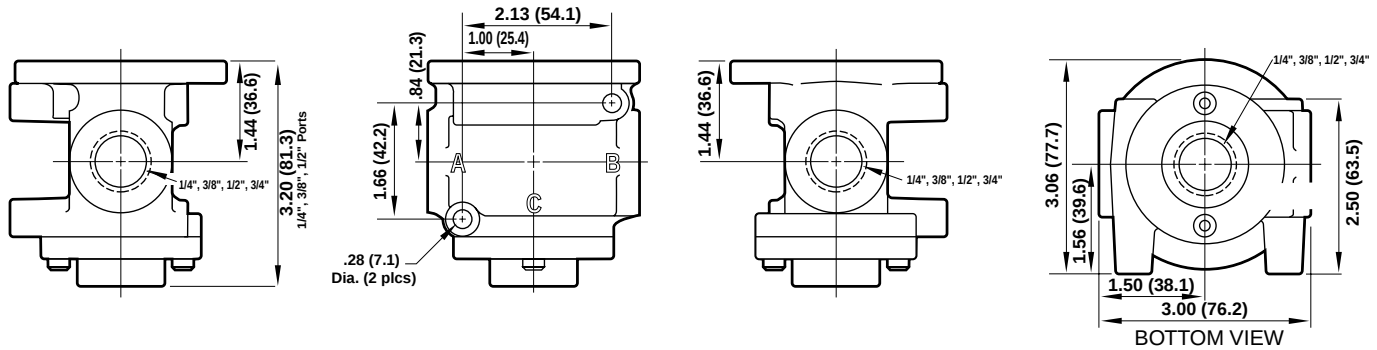


Prospector Series Poppet Valves

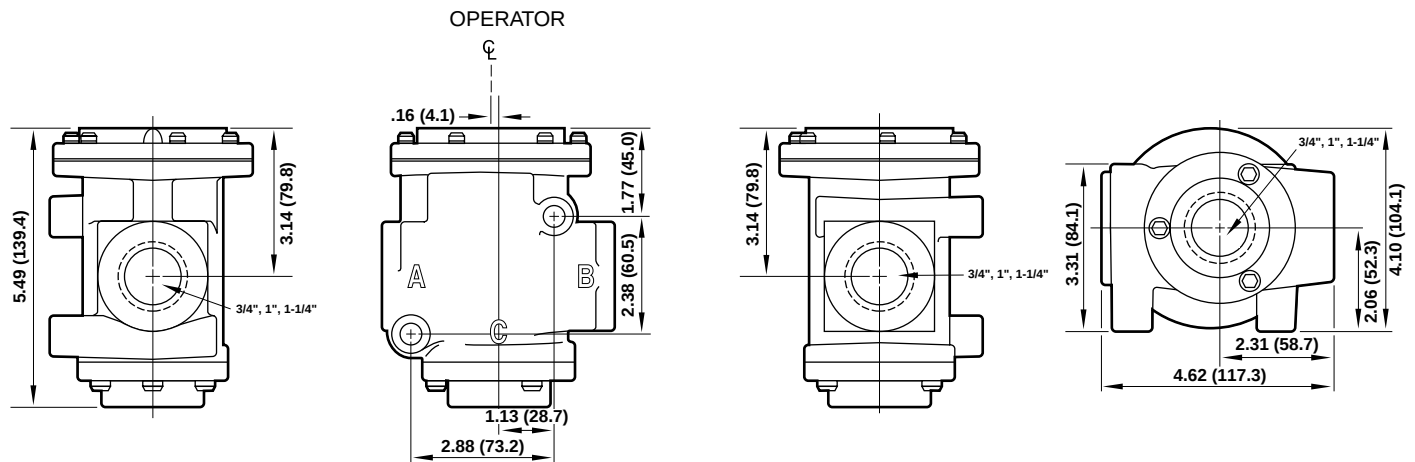
All Dimensions in Inches (mm)

Valve Body Dimensions – 3-Port/2-Position Multi-Directional Inline Bodies

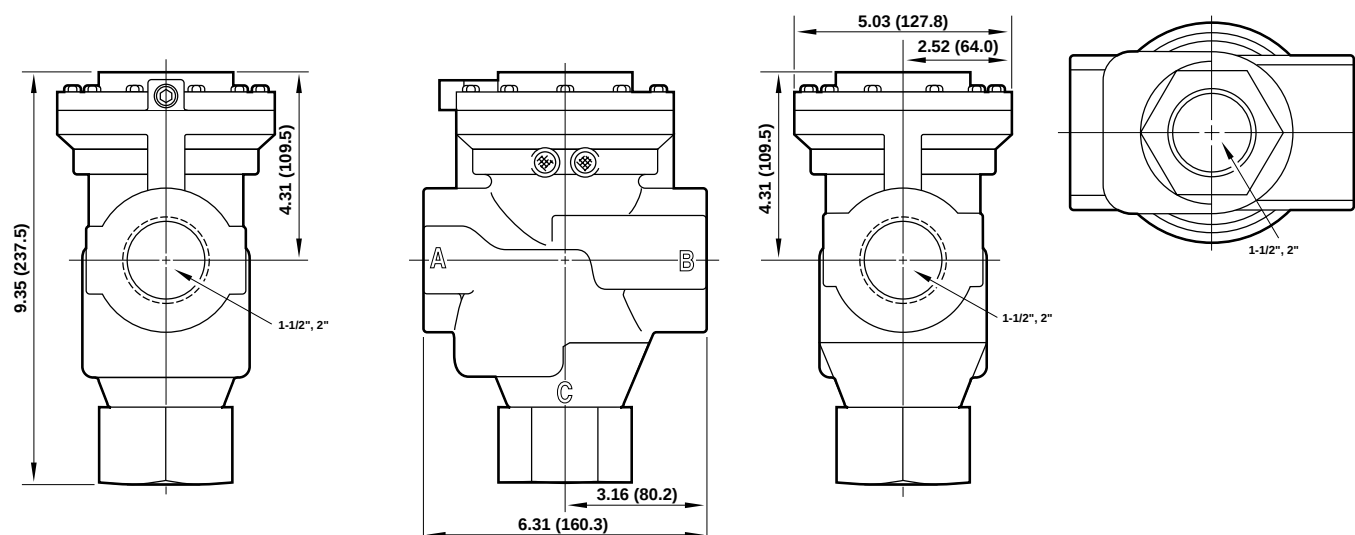
Basic 1/2 - Inch Body C101*C, C102*C, C105*C & C106*C (3-Port/2-Position Multi-Directional Pilot Operated Valve)



Basic 1 - Inch Body C103*C (3-Port/2-Position Multi-Directional Pilot Operated Valve)



Basic 2 - Inch Body C104*C & C108*C (3-Port/2-Position Multi-Directional Pilot Operated Valve)

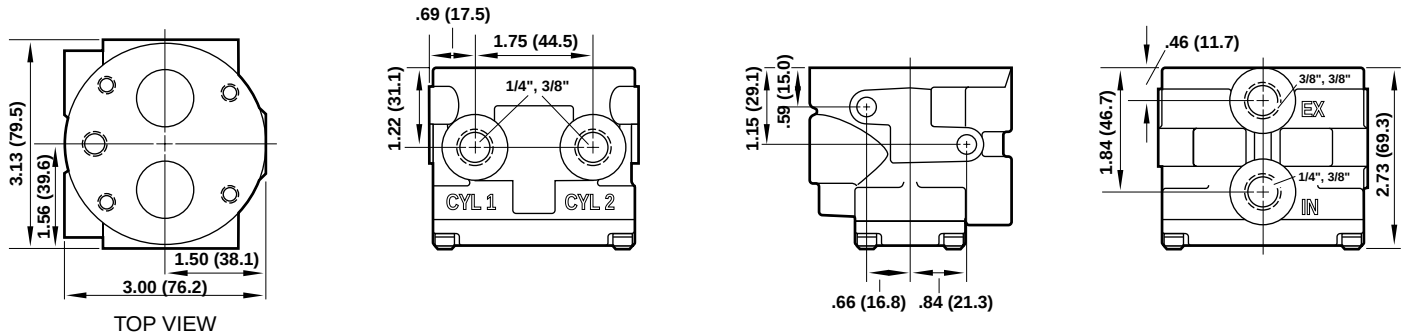




Valve Body Dimensions – 4-Port/2-Position Inline Bodies

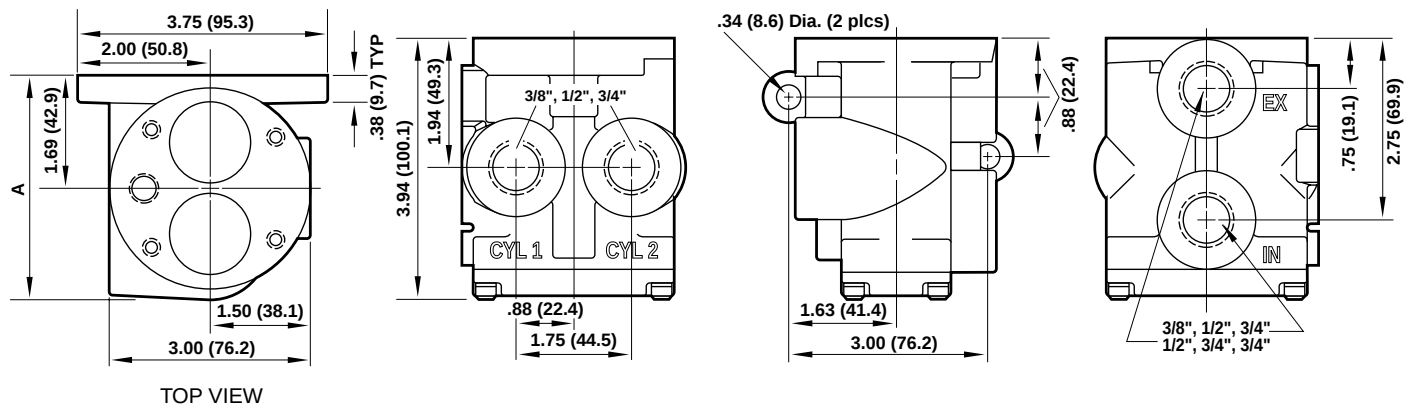
Basic 1/4 - Inch Body F101*C

(4-Port/2-Position Pilot Operated Valve)



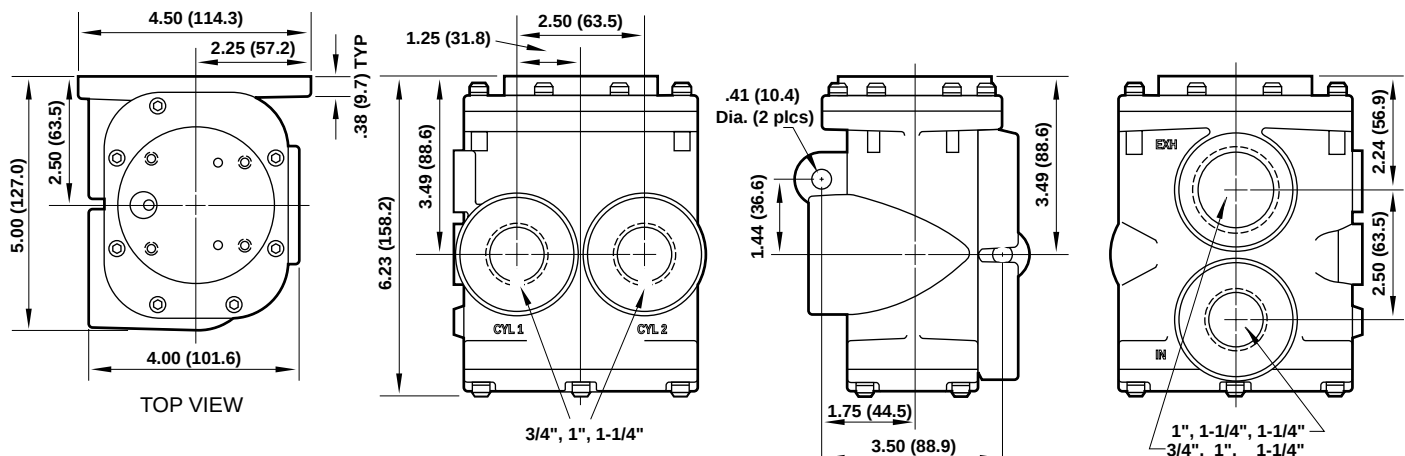
Basic 1/2 - Inch Body F102*C

(4-Port/2-Position Pilot Operated Valve)



Basic 1 - Inch Body F103*C

(4-Port/2-Position Pilot Operated Valve)





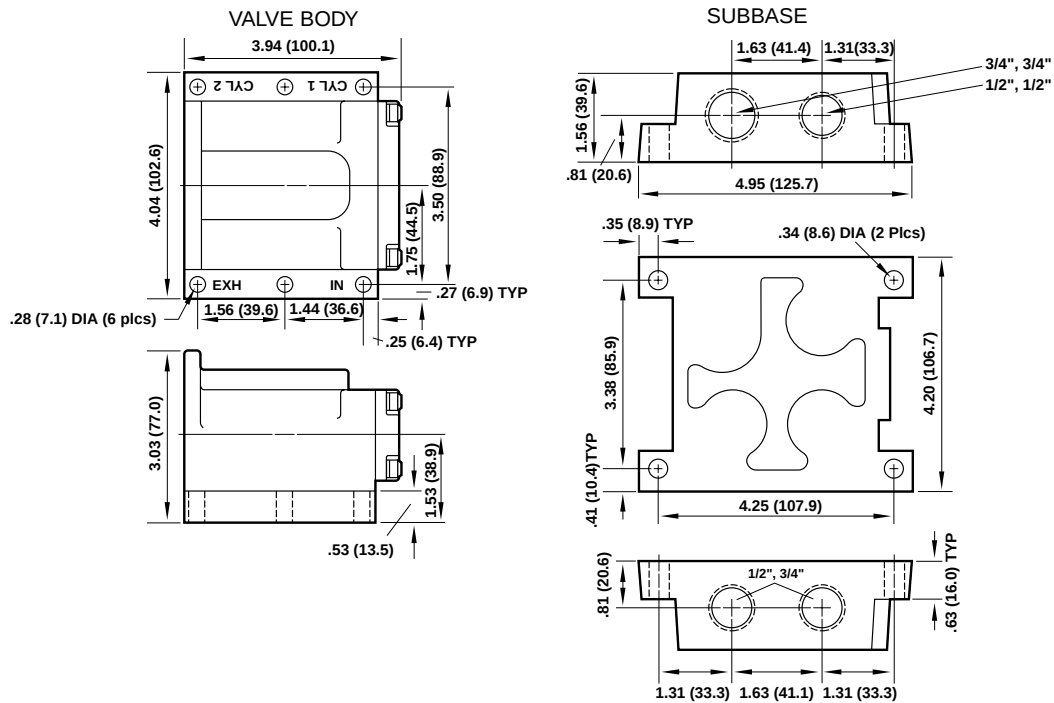
Prospector Series Poppet Valves

All Dimensions in Inches (mm)

Valve Body Dimensions – 4-Port/2-Position Subbase Bodies

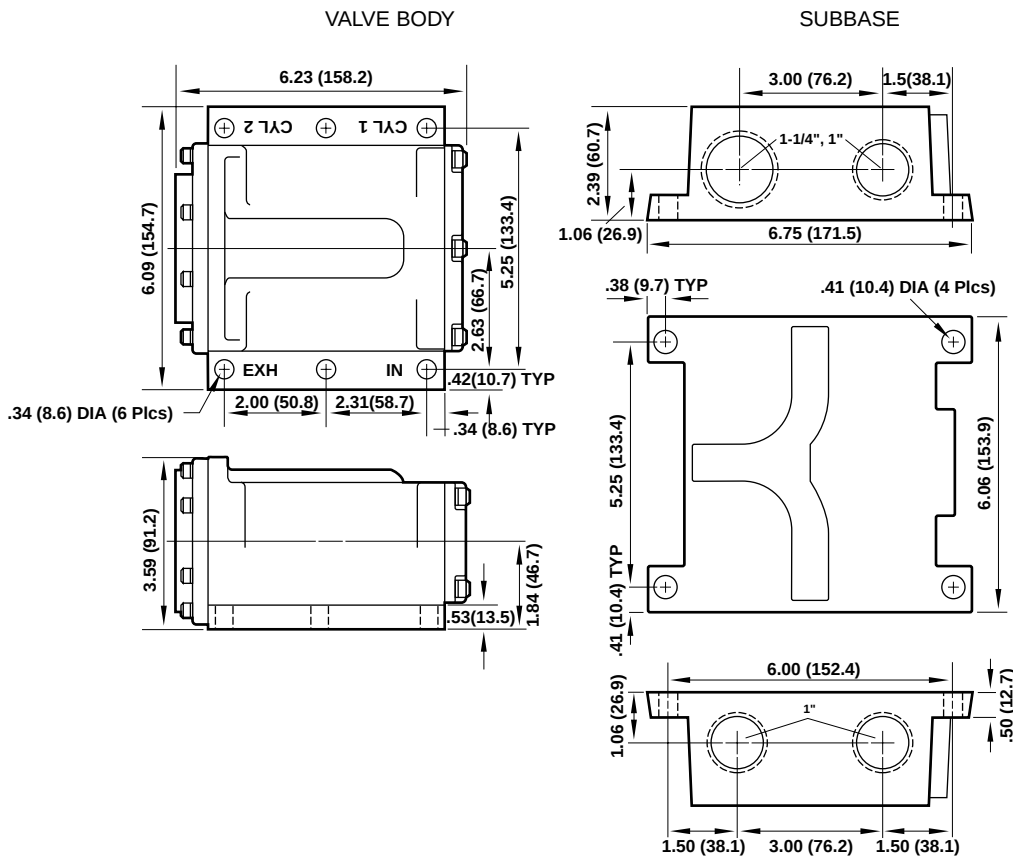
Basic 1/2 - Inch Body F2214C

(4-Port/2-Position Pilot Operated Valve)



Basic 1- Inch Body F2226C

(4-Port/2-Position Pilot Operated Valve)

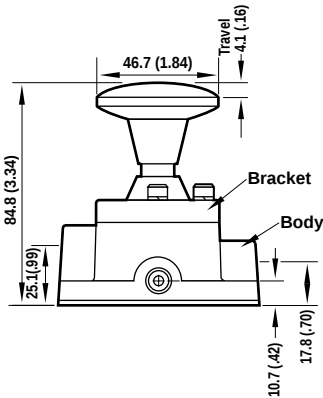




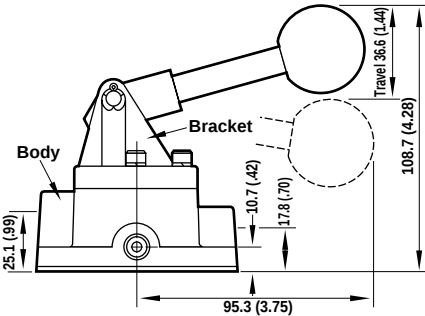
Manual & Mechanical Operators Dimensions

Bracket can be rotated in 90° increments on operator body.

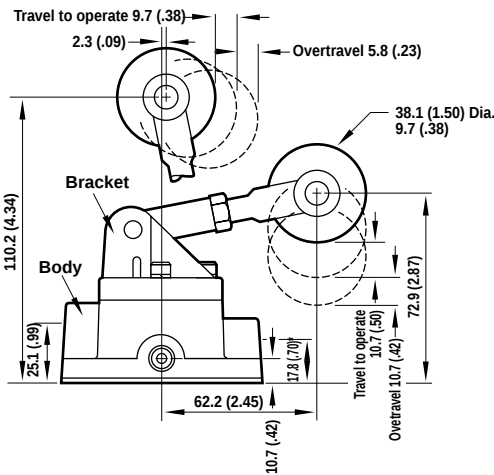
MB – Palm Button



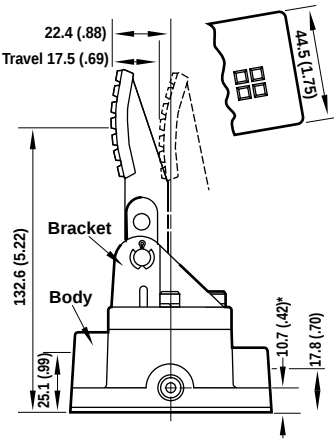
MC, MD Lever, Horizontal



MJ, MK - Roller, Horizontal or Vertical



MM - Foot Pedal, Vertical



* Gasket, .03 (.8) thick, included in dimensions.

- Smooth Start Valves available in 2 Basic Body sizes
- 1/4" to 1-1/4" port sizes available
- Retards rate of downstream pressure buildup at start up
- Adjustable delay, up to 50 seconds
- Time delays available in two functional models for 0 to 5 and 0 to 60 second delays
- Time Delay on Operate and Time Delay on Release, normally open and normally closed available
- Can be used in conjunction with most Norgren Poppet valves

Smooth Start Valves and Time Delay Options



Technical Data

Medium

Smooth Start Valves: Filtered and lubricated compressed air or vacuum.

3-Port/2-Position Time Delays: Filtered, nonlubricated dry compressed air.

Other Time Delays: Filtered (5-micron), nonlubricated, dry compressed air at a constant pressure and temperature. The finer the filtration and the closer the regulation, the better the accuracy and repeatability of the time delay.

Mounting

Through-holes in valve body, inline, or on valve.

Port Size

Smooth Start Valves: 1/4" – 1-1/4" PTF, BSPP, or ISO Rc.

3-Port/2-Position Time Delays: 1/4" PTF, BSPP, or ISO Rc.

Operating Pressure Range

Smooth Start Valves: 30 to 300 psig (2.1 to 20.7 bar).

3-Port/2-Position Time Delays: 30 to 150 psig (2.1 to 10.3 bar).

Other Time Delays: Equal to or greater than main valve inlet pressure but not less than 30 psig (2.1 bar) and not greater than 150 psig (10.3 bar).

Operating Temperature

Smooth Start Valves: -20°F to 75°F (-29°C to 79°C).

All Time Delays: 35°F to 130°F (2°C to 54°C).

Consult Technical Service for use below 35°F (+2°C).

Materials

Body: Aluminum alloy body, acetal, or aluminum check valve, stainless steel adjusting screw.

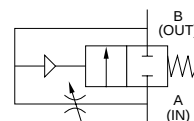
Elastomers: Nitrile rubber seals.

Ordering Information

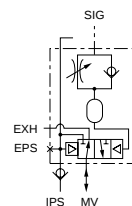
To order poppet valve accessories, quote model number from Tables overleaf, e.g. order

- A0015C for a 1/2" basic size, 1/2" port size Smooth Start 2-port, 2-position, spring return, normally closed valve.
- A104C-04- CE for a 2 port, 2-position spring return, normally closed Solenoid Pilot Operated valve fitted with a 0-60 second, normally closed Time Delay on Release (as indicated by the '04' in the model number).

Smooth Start Valve



Time Delay Model 04



Examples of other models shown on following pages.



Smooth Start Valves

Norgren Smooth Start Valves are 2-port/2-position, spring return, normally closed valves. They are used in compressed air systems to retard the rate of downstream pressure buildup at start up. Cylinders and other air operated devices are eased into positions corresponding to initial system pressurization, reducing the possibility of equipment damage and hazards to the user. Application of full downstream pressure can be delayed for as long as 50 seconds, depending on the setting of the adjustable needle valve and downstream air volume. *Smooth start valves never shut off completely and must be installed downstream of a directional control valve, such as a Norgren Poppet Valve listed on the preceding pages.*

Symbol	Basic Size	Port Size	C _v Factor	Model	Weight lbs.(kg)	Repair Kit\$
	1/2"	1/4"	2.1	A0015A	1.51 (0.57)	53474-28
		3/8"	3.4	A0015B	1.51 (0.57)	53474-28
		1/2"	5.3	A0015C	1.51 (0.57)	53474-28
		3/4"	6.5	A0015D	1.51 (0.57)	53474-28
	1"	3/4"	10.7	A0015E	3.78 (1.71)	53475-26
		1"	13.5	A0015F	3.78 (1.71)	53475-26
		1-1/4"	16.3	A0015G	3.78 (1.71)	53475-26

3-Port/2-Position Time Delay Valves

Norgren Time Delay Valves consist of a 0 to 60 second time delay fitted with an A1 air operator and a special bottom cap with *IN* and *OUT* ports. They are used to provide delayed actuation or release of valves or other pneumatic devices that do not require large air flows.

Symbol	Type	Port Size	C _v Factor		Model	Weight lbs (kg)
			In to Out Ports	Out to Exhaust Ports		
	Normally Closed, Time Delay on Operate (TDO)	1/4"	0.15	0.16	Z0002A	2.06 (0.94)
	Normally Open, Time Delay on Operate (TDO)	1/4"	0.16	0.09	Z0003A	2.06 (0.94)

* Thread: Insert **4** for BSPP; **1** for PTF; or **6** for ISO Rc.



Prospector Series Poppet Valves

0 to 5 Second Time Delays, & 0 to 60 Second Time Delays - Standard Applications and Special Applications For Use With Air and Solenoid Operated Poppet Valves

Most Norgren solenoid and air operated poppet valves can be equipped with an adjustable 0 to 5 or 0 to 60 second time delay. Both available in two functional models.

- (1) *Time Delay on Operation* (TDO), which delays shifting of the main valve poppet on application of the pilot signal, and releases the poppet immediately upon removal of the signal, and
- (2) *Time Delay on Release* (TDR), which shifts the main valve poppet immediately upon the application of the pilot signal, and delays release of the poppet on removal of the signal.

Norgren Air Pilot Operated Poppet Valves can be equipped with a Special Application 0 to 60 second One Shot Model, which shifts the main poppet respectively upon application of the pilot signal and releases the poppet after the time delay period is completed.

Ordering Information

- **USE ONLY WITH** valves as defined in the following diagram.
- To order valves with a time delay, note the desired valve model number from previous pages in Section 10. Insert the desired time delay model number in the 7th and 8th positions of the valve model number as shown in the following diagram. For example: for a 4-Port/2-Position Air Pilot Operated Inline valve, F1024C-00-A1, with a 0 to 5 Second Time Delay on release order: F1024C-02-A1.
- **FOR 0 TO 5 SECOND TIME DELAY - DO NOT USE WITH 2" basic valves.**
- **FOR 0 TO 60 SECOND ONE SHOT SPECIAL APPLICATION - DO NOT USE WITH 3-way twin valves.**

Position in Model Number

1	2	3	4	5	6	7	8	9	10
						0	0		

There must be an **A, B, C, D, E, or F** in the 1st position of the desired valve model number.

There must be a **C, H, or J** in the 6th position of the desired valve model number.*

For 0 to 60 Second, One Shot Models, there must be an **A1** or **AA** in the 9th and 10th position of the desired model number.

Time Delay Models**			Weight lbs. (kg)	Spares Kit\$ (Nitrile Only)	For Details see page
0	1	0 to 5 Second Time delay on operate.	0.68 (0.31)	53477-01	7
0	2	0 to 5 Second Time delay on release.	0.68 (0.31)		
0	3	0 to 60 Second Time delay on operate; Normally closed.	0.95 (0.43)		
0	4	0 to 60 Second Time delay on release; Normally closed.	0.95 (0.43)	53477-03	
2	3	0 to 60 Second One Shot Time delay; Normally open.	0.95 (0.43)		

NOTES:

- * Valves with an internal pilot supply are identified by a **C** in the 6th position of the model number. See Figure 1 (on following page) for installation. **ALTERNATE CONFIGURATION - MODE - 23 ONE SHOT TIME DELAY:** The Alternate Configuration of Model 23 Time Delay (see next page for description) requires an unrestricted internal pilot supply passage. Select the desired valve model number as described above, then change the 6th position of the model number to **B**, i.e. D1022B-23-A1, when ordering Model 23 Alternate Configuration. See figure 1 for installation. When used with valves that have an external pilot supply (designated by an **H** or **J** in the 6th position of the valve model number), the pilot supply must be connected to the operator (Figure 2). Zero to five second time delays do not have an external pilot supply port.
- ** An adjustment screw provides an adjustment range of 0 to 5 or 0 to 60 seconds. For 0 to 60 second **ONLY** this range can be extended by increasing the volume of the time delay cavity in the timer body. A port is provided in the body for connecting an additional external cavity which can consist of a short length of pipe (capped at one end) or other similar air receiver. Increasing the cavity an additional 29.5 cubic cm., (1.8 cubic inches) will roughly double the delay time for the same adjustment screw setting. There must be an **A, B, C, D, E, or F** in the 1st position of the desired valve model number.



0 to 5 Second Time Delays, & 0 to 60 Second Time Delays - Standard Applications Cont.

Pilot Air Supply

The pilot air supply to the time delay must be filtered and regulated as described under *Medium*. For best timer performance, the installation shown in Figure 2 is recommended.

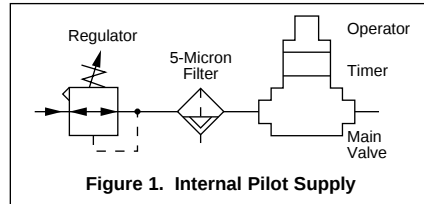


Figure 1. Internal Pilot Supply

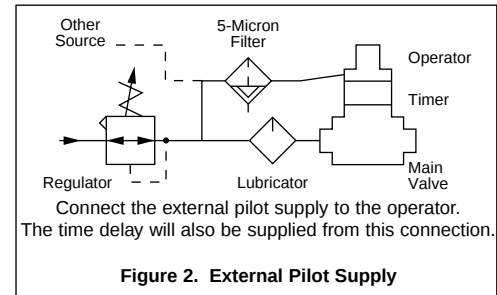
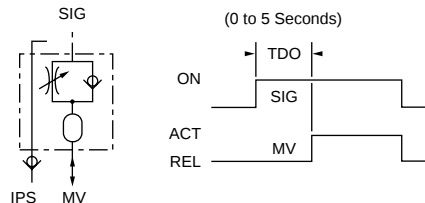


Figure 2. External Pilot Supply

Graphic Symbols and Timing Sequences

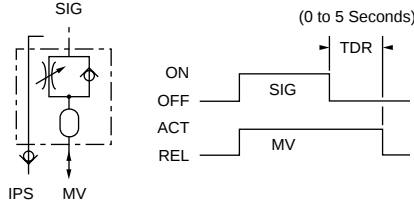
SIG — Pilot Signal	EXH — Exhaust	REL — Released (Deactuated)	—X— — Port/Passage Plugged
IPS — Internal Pilot Supply	MV — Main Valve (Piston)	IN PR — Inlet Pressure (Main Valve)	— — — Passage Blocked
EPS — External Pilot Supply (Shown Plugged)	ACT — Actuated		

Model 01 - Time Delay on Operate (TDO)



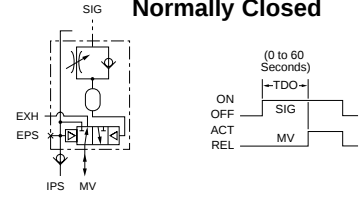
1. No pilot signal - main valve released.
2. Pilot signal applied - main valve actuates after the time delay period (TDO) is completed and remains actuated so long as the pilot signal is sustained.
3. Pilot signal removed - main valve released immediately.

Model 02 - Time Delay on Release (TDR)



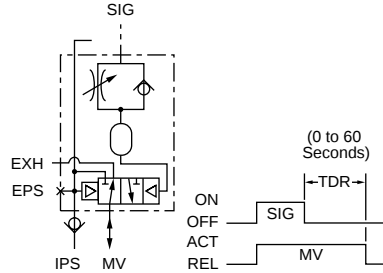
1. No pilot signal - main valve released.
2. Pilot signal applied - main valve actuates immediately and remains actuated so long as the pilot signal is sustained.
3. Pilot signal removed - main valve releases after the time delay period (TDR) is completed.

Model 03 - Time Delay on Operate (TDO) Normally Closed



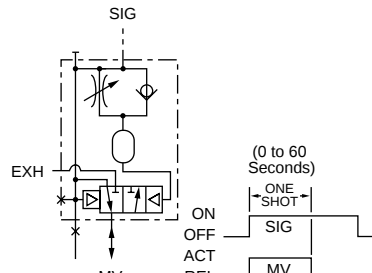
1. No pilot signal - main valve released.
2. Pilot signal applied - main valve actuates after the time delay period (TDO) is completed and remains actuated so long as the pilot signal is sustained.
3. Pilot signal removed - main valve released immediately.

Model 04 - Time Delay on Release (TDR) Normally Closed



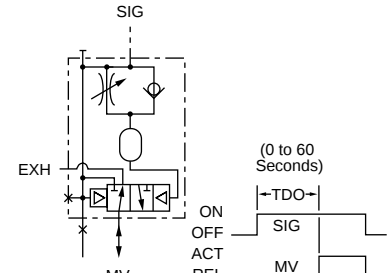
1. No pilot signal - main valve released.
2. Pilot signal applied - main valve actuates immediately and remains actuated so long as the pilot signal is sustained.
3. Pilot signal removed - main valve releases after the time delay period (TDR) is completed.

Model 23 One Shot, Normally Open Standard Configuration



1. No pilot signal - main valve released.
2. Pilot signal applied - main valve actuates immediately, then releases after the time delay period (one shot) is completed and remains released.
3. Pilot signal removed - main valve remains released.

Model 23 One Shot, Normally Open Alternate Configuration



1. Main valve inlet pressurized - main valve actuates immediately, then releases after the time delay period (one shot) is completed and remains released.
2. Main valve inlet pressure reduced to zero psig - main valve remains released.

Internal pilot supply Shut off air supply to main valve. Cycle valve operator until trapped air is exhausted from the main valve piston chamber, operator, and time delay. You may also install a 2-way vent valve on the external pilot supply port.

External pilot supply Shut off air supply to main valve and the pilot supply. Cycle the valve operator until the trapped air is exhausted. You may also install a 2-way vent valve on external pilot supply line.

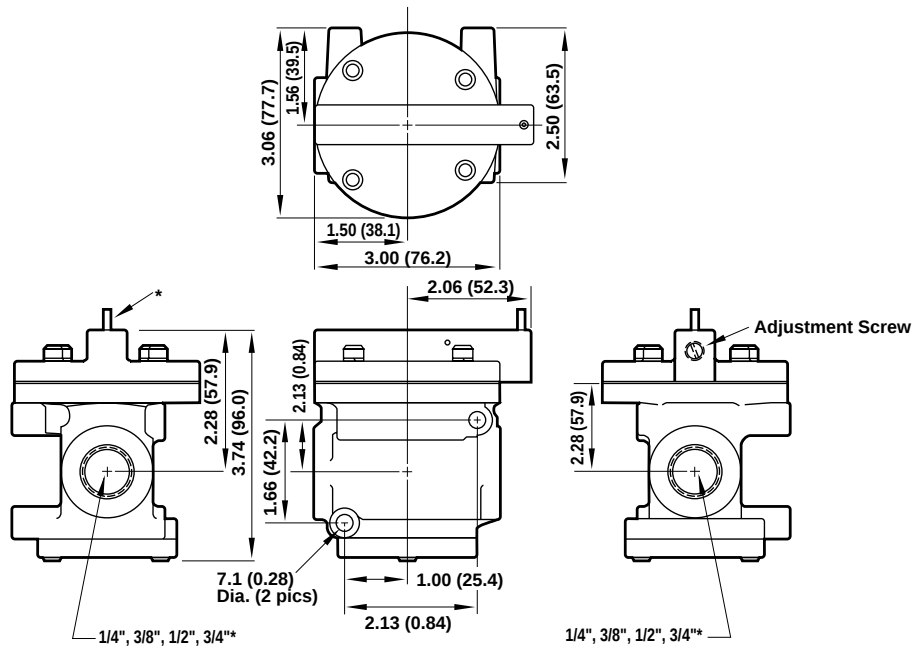


Prospector Series Poppet Valves

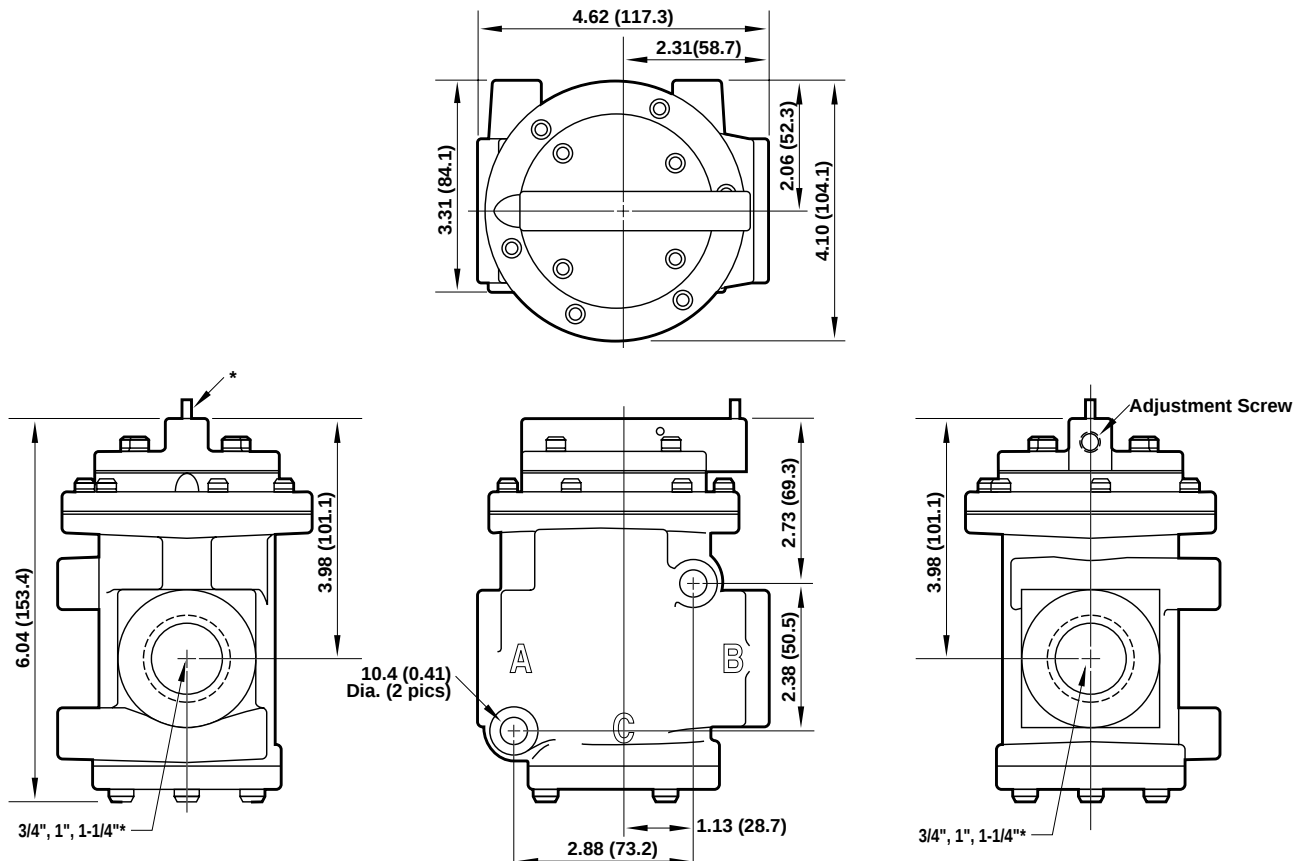
All Dimensions in Inches (mm)

Smooth Start Valves Dimensions

Basic 1/2-Inch A00*5A, A00*5B, A00*5C & A00*5D.



Basic 1-Inch A00*5E, A00*5F & A00*5G.

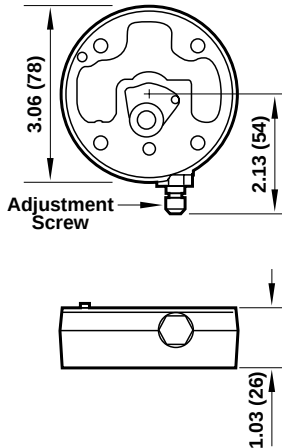


* After final adjustment, drive pin in until flush to make adjustment tamper resistant.

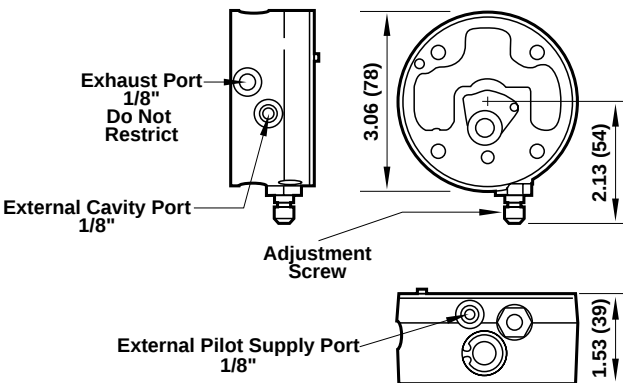


Time Delay Valve Dimensions

0 to 5 Second Time Delays

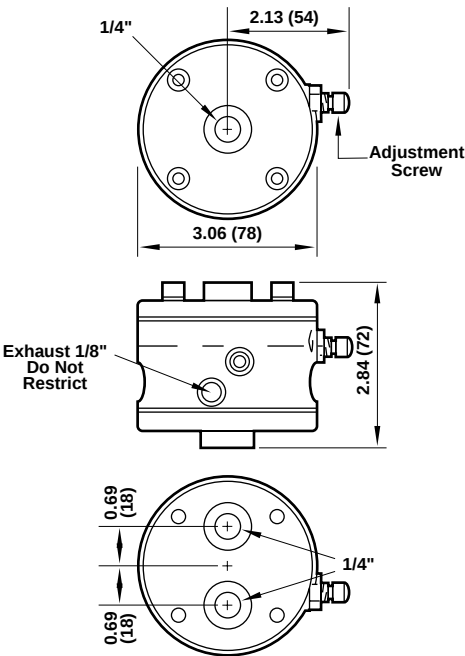


0 to 60 Second Time Delays



Models 03, 04, 23

3-Port/2-Position Time Delays



For installation in 1/4"
through 1-1/2" air lines.

- 3-way, manually operated, full flow lockout valves can be locked in the closed position with a customer supplied padlock.
- In the closed position, these valves shut off the flow of air between the inlet and outlet ports and exhaust the downstream air.
- Helps you comply to OSHA regulations, as they relate to OSHA regulation 29 CFR Part 1910, standard for lockout/tagout procedures.



Options

C0021A/D and C0023A/D Valves with fluorocarbon elastomers: Specify **1FA** after the desired valve model number.

C0022A/D and C0024A/D Valves with fluorocarbon elastomers: Specify **1EX** after the desired valve model number.

C0021A/D Valves with tapped muffler base that accepts a muffler with 3/4" NPT male threads: Specify **1M2** after the desired valve model number.
Recommended muffler: **MB006A**.

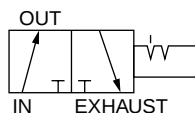
C0022A/D Valves with tapped muffler base that accepts a muffler with 1" NPT male threads: Specify **1M1** after the desired valve model number.
Recommended muffler **MB008A**.

Note: Standard valves have a black handle. To order valves with a red handle, change the second position of the model number to an R (e.g., C0021A would change to CR021A).

Order Information

Basic Size	Port Size PTF	Model Numbers		Basic Size	Port Size ISO G	Model Numbers		Cv Factor	
		Without Muffler	With Muffler			Without Muffler	With Muffler	In-Out Ports	Out-Exhaust Ports
1/2"	1/4"	C0021A	C0023A	1/2"	G1/4	C0041A	C0043A	4.2	6.0
	3/8"	C0021B	C0023B		G3/8	C0041B	C0043B	6.6	6.6
	1/2"	C0021C	C0023C		G1/2	C0041C	C0043C	9.3	7.9
	3/4"	C0021D	C0023D		G3/4	C0041D	C0043D	12.6	8.6
1"	3/4"	C0022A	C0024A	1"	G3/4	C0042A	C0044A	10.6	8.0
	1"	C0022B	C0024B		G1	C0042B	C0044B	16.2	9.2
	1-1/4"	C0022C	C0024C		G1-1/4	C0042C	C0044C	25.3	8.9
	1-1/2"	C0022D	C0024D		—	—	—	22.4	10.0

Graphic Symbol





Technical Data

Fluid: Compressed air
Maximum Pressure: 300 psig (20.4 bar)
Temperature Range: -20° to 175°F* (-29° to 79°C).
*With a dew point of supply air less than air temperature below 35°F (2°C).
Maximum Diameter of Lock Shackle: 5/16" (8mm)

Materials of Construction

Valve Body: Aliminum
Muffler Base: Zinc
Spool, T-Handle, Muffler Shell: Aluminum
Spring Detent: Stainless Steel
Elastomers
Standard: Nitrile and Polyurethane
Optional: Fluorocarbon

Repair Kits

C0021A/D and C0023A/D Valves:
Standard Elastomers: 53474-43
Fluorocarbon Elastomers:
53474-44

C0022A/D and C0024A/D Valves:
Standard Elastomers: 53475-34
Fluorocarbon Elastomers: 53475-36

Replacement Mufflers* for C0021A/C0024D Valves

C0021A/D and C0023A/D Valves: ML004F
C0022A/D and C0024A/D Valves: ML008F

*Contains all bolts and washers required to flange mount with the respective sized lockout valve.

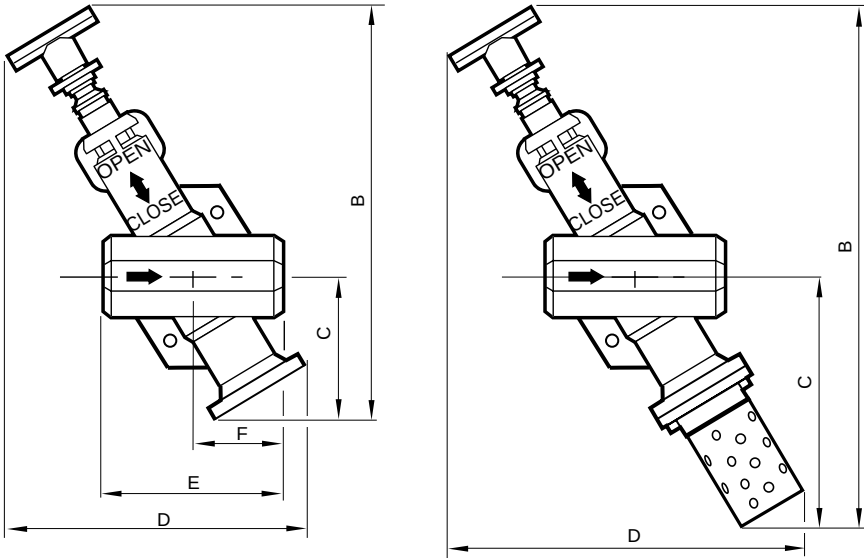
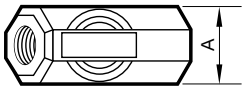
Lockout Hasp

Part Number: 54547-01

The 1-1/2" diameter jaws can be used with all Norgren Inline, Olympian, and Poppet Lockout Valves except the T15. High-tensile steel affords extra protection against unauthorized access. Red vinyl coated and plated to resist rust. Locking holes accommodate padlocks up to 11/32" shackle diameter.



Lockout Hasp
54547-01



Valve Type	A	B		C		D		E	F
		Without Muffler	With Muffler	Without Muffler	With Muffler	Without Muffler	With Muffler		
All 1/2" basic	1.87 (48)	9.33 (237)	11.78 (299)	2.90 (74)	5.35 (136)	6.97 (177)	7.97 (202)	4.00 (102)	2.00 (51)
All 1" basic	2.26 (57)	12.07 (307)	15.72 (399)	4.13 (105)	7.78 (198)	8.65 (220)	10.46 (266)	5.00 (127)	2.50 (64)

- 3-way, normally closed, solenoid operated, poppet valves are equipped with a manually operated lockout slide that can be locked in the closed position with a customer supplied padlock.
- In the closed position, the flow of air between the inlet and outlet ports is blocked and downstream air is exhausted.
- The Inline Poppet Valves listed below have threaded ports and install directly into the air line.



Technical Data

Fluid: Filtered & lubricated compressed air.

Main Valve Inlet Pressure: 30 to 150 psig (2.1 to 10.3 bar).

Temperature Range:

-20° to 130°F* (-29° to 54°C).

*With a dew point of supply air less than air temperature below 35°F (2°C).

Maximum Diameter of Lock Shackle: 5/16" (8mm)

Solenoid Operator Specifications

Standard Voltage & Power Requirements:

120V/60Hz, 110V/50Hz; 7.5W

Optional Voltage & Power Requirements:

12V/60Hz/50Hz; 7.5W

24V/60Hz/50Hz; 7.5W

48V/60Hz/50Hz; 7.5W

240V/60Hz, 220V/50Hz; 7.5W

12VDC; 7.5W

24VDC; 6.0W

Duty: Continuous at 90 to 105% of rated voltage.

Coil Type: Class H. Molded with 3-pin plug-in connector.

Enclosure Classification: NEMA 4

Electrical Connectors on Receptacle:

Industry Standard Form B with 11 mm spacing.

Connector Plug:

Cable grip for cables 1/4" to 5/16" (6 to 8 mm) in diameter.

Override: Manual, nonlocking

Pilot Supply: Internal

Materials of Construction

Body:

C0030A, C0030B, C0030C: Zinc

All Others: Aluminum

Pistons, Poppets: Aluminum

Solenoid Operator:

Body: Zinc

Solenoid: Copper, acetal, stainless steel

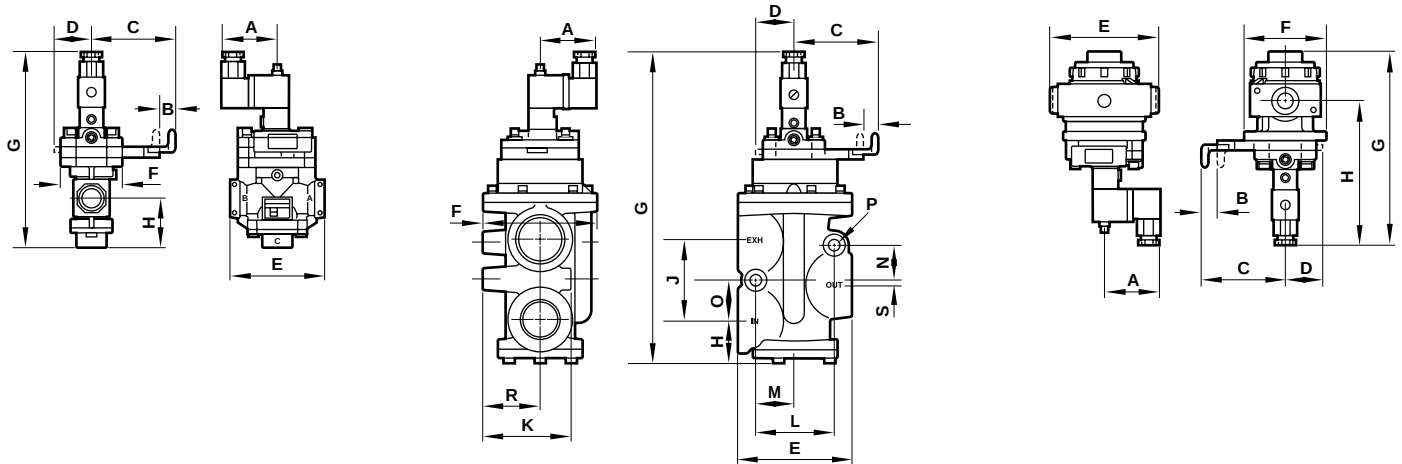
Elastomers: Nitrile.

Order Information

Basic Size	Port Size PTF	Model Number	Cv Factor	Exhaust Port PTF
1/2"	1/4"	C0030A	2.4	1/2"
	3/8"	C0030B	3.2	1/2"
	1/2"	C0030C	3.2	1/2"
1/2"	3/4"	C0030D	6.1	3/4"
1"	1"	C0030E	13.2	1-1/4"
	1-1/4"	C0030F	16.6	1-1/4"
2"	1-1/2"	C0030G	44.8	1-1/2"
	2"	C0030H	49.5	2"



Poppet Valve Dimensions



Valve	A (Rad)	B	C	D	E	F	G	H	J	K	L	M	N	O	P (Dia)	R	S
C0030A/B/C/X (50)	1.97 (15)	0.57 (76)	2.99 (36)	1.40 (83)	3.25 (60)	2.28 (174)	6.85 (44)	1.75 —	— —	— —	— —	— —	— —	— —	— —	— —	—
C0030D (50)	1.97 (15)	0.57 (76)	2.99 (36)	1.40 (76)	3.00 (76)	3.00 (192)	7.56 (29)	1.14 (44)	1.72 (59)	2.31 (51)	2.00 (25)	1.00 (22)	0.87 (21)	0.84 (7)	0.28 (40)	1.56 (1)	0.04
C0030E/F (50)	1.97 (15)	0.57 (76)	2.99 (36)	1.40 (102)	4.00 (102)	4.00 (271)	10.66 (38)	1.48 (70)	2.75 (79)	3.12 (70)	2.75 (35)	1.37 (32)	1.25 (35)	1.37 (10)	0.41 (52)	2.06 (3)	0.12
C0030G/H (50)	1.97 (15)	0.57 (76)	2.99 (36)	1.40 (160)	6.31 (128)	5.03 (352)	13.84 (128)	5.04 —	— —	— —	— —	— —	— —	— —	— —	— —	—
C0030Y (50)	1.97 (15)	0.57 (76)	2.99 (36)	1.40 (106)	4.19 † (76)	3.00 (174)	6.85 (130)	5.10 —	— —	— —	— —	— —	— —	— —	— —	— —	—

† 4.19 (106) for valves with 1/4", 3/8" and 1/2" ports; 5.67 (144) for valves with 3/4" ports.

Optional Voltages

12V/60Hz/50Hz	1W3*
24V/60Hz/50Hz	1W4*
48V/60Hz/50Hz	1W5*
240V/60Hz, 220V/50Hz	1W6*
12VDC	1W1*
24VDC	1W2*

Optional Connectors

Cable grip with Indicator Light

24VDC or AC	1V4*
120VDC or AC	1VB*
1/2" NPT Conduit	1V3*
5-Ft. Molded Cord	1V5*
5-Ft. Molded Cord, Indicator Light, Surge Protection, Polarity Independent	
24VAC or DC	1V7*
48VAC or DC	1V8*

Repair Kits for Poppet Valves

C0030A	53474-40
C0030B	53474-40
C0030C	53474-40
C0030D	53474-40
C0030E	53474-42
C0030F	53474-42
C0030G	53474-41
C0030H	53474-41
C0030X	53474-40
C0030Y	53474-40

Mufflers For C0030 Valves

1/2" NPT Male Thread	MB004A
3/4" NPT Male Thread	MB006A
1" NPT Male Thread	MB008A
1-1/4" NPT Male Thread	MBP10A
1-1/2" NPT Female Thread	MA012A
2" NPT Female Thread	MA016A

* Specify the desired valve model number from the previous page plus the desired voltage and/or connector option number.



Prospector Series Poppet Valves

Flow (Cv) Factors. Flow ratings determined in accordance with ANSI (NFPA) T3.21.3,
Pneumatic fluid power - Flow test procedure and reporting method - for fixed orifice components.

Valve Type		Basic Size	Port Size	Average C _v Factor												
2-Port/2-Position				Normally Closed Models		Normally Open Models										
				A to B Ports		A to B Ports										
		1/2"	1/4"	2.1		2.3										
			3/8"	3.4		3.8										
			1/2"	5.3		5.4										
			3/4"	6.5		6.3										
		1"	3/4"	10.7		12.0										
			1"	13.5		15.4										
			1-1/4"	16.3		17.9										
		2"	1-1/2"	34.0		—										
			2"	39.6		—										
3-Port/2-Position				Normally Closed Models		Normally Open Models										
				In to Out Ports	Out to Exh Ports	In to Out Ports	Out to Exh Ports									
	Basic	1/4"	1/4"	1.5	1.8	1.5	1.8									
			3/8"	1.7	1.8	1.7	1.8									
	Basic	1/2"	1/4"	2.7	3.9	2.0	3.6									
			3/8"	3.6	4.9	3.1	4.6									
			1/2"	4.6	5.8	4.1	5.5									
			3/4"	5.4	6.2	4.9	5.8									
	Basic	1"	3/4"	11.2	13.3	10.6	12.8									
			1"	13.2	14.6	11.7	13.8									
			1-1/4"	16.6	18.4	12.0	15.5									
3-Port/2-Position Multi-Directional				A to C Ports	A to B Ports	C to A Ports	B to A Ports									
<table><tr><th>Type</th><th>Ports</th></tr><tr><td>Distributor</td><td>A to C & A to B</td></tr><tr><td>Selector</td><td>C to A & B to A</td></tr><tr><td>N.C.</td><td>A to C & B to A</td></tr><tr><td>N.O.</td><td>C to A & A to B</td></tr></table>	Type	Ports	Distributor	A to C & A to B	Selector	C to A & B to A	N.C.	A to C & B to A	N.O.	C to A & A to B	1/2"	1/4"	2.5	2.0	2.3	2.1
	Type	Ports														
	Distributor	A to C & A to B														
	Selector	C to A & B to A														
	N.C.	A to C & B to A														
	N.O.	C to A & A to B														
		3/8"	4.0	2.7	3.7	2.9										
		1/2"	5.7	3.4	4.7	4.0										
		3/4"	6.1	4.0	5.2	4.4										
		1"	3/4"	14.8	10.3	13.4	11.1									
			1"	17.7	13.2	14.0	14.1									
			1-1/4"	18.3	14.0	14.6	16.5									
	2"	1-1/2"	44.8	33.1	41.2	35.6										
		2"	49.5	40.0	46.1	42.8										
4-Port/2-Position (Inline Valves)				4-Way		3-Way Twin, Normally Closed										
				In to Cyl 2	Cyl 1 to Exh	In to Cyl 1	Cyl 2 to Exh									
						In to Cyls 1 & 2	Cyls 1 & 2 to Exh									
	1/4"	1/4"	1.2	1.6	1.2	1.6										
		3/8"	1.4	1.6	1.4	1.6										
	1/2"	3/8"	3.0	4.5	3.1	4.3										
		1/2"	4.0	5.4	4.1	5.1										
		3/4"	4.8	5.8	5.0	5.4										
	1"	3/4"	10.3	13.1	11.0	12.5										
		1"	11.3	14.3	12.9	13.4										
		1-1/4"	11.6	14.5	14.3	13.7										
All Subbase Valves				In to Cyl 1 Port	In to Cyl 2 Port	Cyl 1 to Exh Port	Cyl 2 to Exh Port									
	1/2"	1/4"	1.8	2.0	3.4	3.2										
		3/8"	2.7	3.0	3.7	3.7										
		1/2"	3.2	3.6	4.7	4.7										
		3/4"	3.5	3.9	4.7	4.7										
	1"	3/4"	10.0	9.0	12.0	10.5										
		1"	11.9	10.3	12.7	11.1										
		1-1/4"	13.0	11.1	13.0	11.3										



Repair Kits and Factory Installed Fluorocarbon Elastomers

- When requesting repair kits or information for your valve, give both main valve and operator model numbers exactly as found on their respective nameplates.
- Repair Kits** - Repair kits contain all elastomers necessary to service one valve body, operator, or time delay. Order the appropriate valve body, operator, and time delay repair kit as required to service your valve.
- Valve Bodies and Operators with Factory Installed Fluorocarbon Elastomers** - Valve bodies and some operators are available with fluorocarbon elastomers for use when contaminants in the air system are incompatible with the standard nitrile elastomers. To order valves with fluorocarbon elastomers, specify the desired valve model number (from the preceding pages plus the Order With numbers given below. Be sure to specify the Order With number for the valve body and the Order With number for the operator. Fluorocarbon elastomers are not available on Time Delays, on the A6 Air Operator, or on the standard C Series Solenoid Operators.

Position in Model Number

VALVE BODY

TIME DELAY

OPERATOR

1 2 3 4 5 6
A 1 0 1 2 C

7 8
0 0

9 10
A 1

Type	Internal Variation	Repair Kit		Order With Factory Installed Fluorocarbon Elastomer
		Nitrile	Fluoro- carbon	
A101	B, C, E, F, H, J, K	53474-03	53474-14	53474-21 1EE
A102	B, C, E, F, H, J, K	53475-01	53475-07	53475-13 1F2
A103	B, C, H, J	53822-01	53909-01	53909-03 1F8
B101	B, C, E, F, H, J, K	53474-03	53474-14	53474-21 1EE
B102	B, C, E, F, H, J, K	53475-01	53475-07	53475-13 1F2
C101	B, C, E, F, H, J, K	53474-03	53474-08	53474-15 1E8
C102	B, C, E, F, H, J, K	53474-03	53474-08	53474-15 1E8
C103	B, C, E, F, H, J, K	53475-01	53475-07	53475-13 1F2
C104	B, C, H, J	53822-01	53909-02	53909-04 1F9
C105	B, C, E, F, H, J, K	53474-03	53474-08	53474-15 1E8
C106	B, C, E, F, H, J, K	53474-03	53474-08	53474-15 1E8
C108	B, C, H, J	53822-01	53909-02	53909-04 1F9
D101	B, E, F, H, K	53473-05	53473-06	53473-11
D102	B, C, E, F, H, J, K	53474-03	53474-09	53474-16 1E9
D103	B, C, E, F, H, J, K	53475-01	53475-08	53475-14 1F2
D104	B, C, E, F, H, J, K	53475-01	53475-08	53475-14
D107	B, C, F, H, J	53474-03	53474-24	53474-23
D108	B, C, F, H, J	53475-01	53475-22	53475-21
E101	B, F, H	53473-05	53473-07	53473-12
E102	B, C, F, H, J	53474-03	53474-10	53474-17 1EA
E103	B, C, F, H, J	53475-01	53475-09	53475-15
E104	B, C, F, H, J	53475-01	53475-09	53475-15
F101	B, C, E, H, K	53473-05	53473-08	53473-13 1E5
F101	F	53473-16	53473-08*	53473-13
F102	B, C, E, H, J, K	53474-06	53474-11	53474-18 1EB
F102	F	53474-25	53474-11*	53474-18
F103	B, C, E, H, J, K	53475-06	53475-10	53475-16
F103	F	53475-25	53475-10*	53475-16
F221	B, C, E, H, J, K	53474-06	53474-11	53474-18
F221	F	53474-25	53474-11*	53474-18
F222	B, C, E, H, J, K	53475-06	53475-10	53475-16
F222	F	53475-25	53475-10*	53475-16
F223	B, C, E, H, J, K	53474-06	53474-11	53474-18
F223	F	53474-25	53474-11*	53474-18
F224	B, C, E, H, J, K	53475-06	53475-10	53475-16
F224	F	53475-25	53475-10*	53475-16
F323	B, C, E, H, J, K	53474-06	53474-11	53474-18
F323	F	53474-25	53474-11*	53474-18
F324	B, C, E, H, J, K	53475-06	53475-10*	53475-16
F324	F	53475-25	53475-10*	53475-16
G102	B, C, E, H, J, K	53474-06	53474-12	53474-19 1EC
G102	F	53474-25	53474-12*	53474-19 1EC
G103	B, C, E, H, J, K	53475-06	53475-11	53475-17
G103	F	53475-25	53475-11*	53475-17

Type	Repair Kit (Nitrile Only)
01	53477-01
02	53477-01
03	53477-03
04	53477-03
05 Top	53477-01
05 Bottom	53477-03
09	53477-03
10	53477-03
22 Top	53477-03
22 Bottom	53477-03
23	53477-03
24	53477-03

Type	Repair Kit **		Order With Factory Installed Fluorocarbon Elastomer
	Nitrile	Fluoro- carbon	
A1	None Used	None Used	None Used
A4	None Used	None Used	None Used
A6	53476-01	—	—
CC	—	—	—
CE	—	—	—
CF	—	—	Standard ††
CN	—	—	—
CP	—	—	—
CR	—	—	—
CS	—	—	—
CT	—	53478-13	Standard ††
CU	—	—	—
CV	—	—	—
CW	—	—	—
CY	—	—	—
CZ	—	—	Standard ††
C0	53478-01	53478-13	53478-20
C1	53478-01	53478-13	53478-20
C2	53478-04	53478-13	53478-25
C3	53478-04	53478-13	53478-25
C4	53478-01	53478-13	53478-20
C8	53478-01	53478-13	53478-20
DA	—	—	Standard ††
D0 †	53478-02	53478-14	53478-24
D1 †	53478-02	53478-14	53478-24
D2 †	53478-05	53478-16	53478-26
D3 †	53478-05	53478-16	53478-26
D4 †	53478-01	53478-13	53478-20
D5 †	53478-01	53478-13	53478-20
D6 †	53478-04	53478-15	53478-25
D7 †	53478-04	53478-15	53478-25
D8 †	53478-04	53478-15	53478-25
E1	53478-01	53478-13	53478-20
E3	53478-04	53478-15	53478-25
E8	53478-01	53478-13	53478-20
F4 †	53478-02	53478-14	53478-24
F5 †	53478-05	53478-16	53478-26
F6 †	53478-01	53478-13	53478-20
F7 †	53478-04	53478-15	53478-25
M Series	53769-01	53769-02	53769-03
X0	53478-07	53478-17	53478-19
X1	53478-07	53478-17	53478-19
X2 †	53478-08	53478-18	53478-28
X3 †	53478-08	53478-18	53478-28
X4 †	53478-07	53478-17	53478-19
X5 †	53478-07	53478-17	53478-19

* Order Gasket 53045-02 when ordering fluorocarbon repair kits for main valves with internal variation F.

** Solenoid operator repair kits do not include coils.

† Order two kits to service these operators.

†† The CF, CT, CZ, and DA operators are equipped with fluorocarbon elastomers.

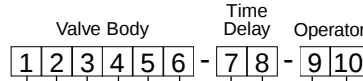


Prospector Series Poppet Valves

Prospector Popped Valve Product Number System

The following chart is intended to be used only as a general guide to the model number system. It is not designed to "build" model numbers.

POSITION IN MODEL NUMBER



1 Valve Type

- A = 2-Port/2-Position, Normally Closed.
- B = 2-Port/2-Position, Normally Open.
- C = 3-Port/2-Position, Multi-Directional.
- D = 3-Port/2-Position, Normally Closed.
- E = 3-Port/2-Position, Normally Open.
- F = 4-Port/2-Position (4-way).
- G = 4-Port/2-Position, (3-way twin, Normally Closed).

2 Mounting Style

- 1 = Inline, PTF Threads
- A = Inline, BSPP Threads
- 2 = Subbase valve with subbase, PTF Threads
- 3 = Subbase valve without subbase, PTF Threads

3 & 4 Basic Size

- 01 = 1/4" Basic, (Valve Types D, E, F)
1/2" Basic, (Valve Types A, B, C)
- 02 = 1/2" Basic, (Valve Types C, D, E, F, G)
1" Basic, (Valve Types A, B)
- 03 = 1" Basic, (Valve Types C, D, E, F, G)
2" Basic, (Valve Type A)
- 04 = 1" Basic, (Valve Types D, E)
2" Basic, (Valve Type C)
- 05 = 1/2" Basic, (Valve Type C with 1/4", 3/8" & 1/2" ports)
- 06 = 1/2" Basic, (Valve Type C with 3/4" port)
- 07 = 1/2" Basic, (Valve Type D with indicator pin)
- 08 = 1" Basic, (Valve Type D with indicator pin)
2" Basic, (Valve Type C)
- 21 = 1/2" Basic, (Valve Type F, Valve with subbase)
- 22 = 1" Basic, (Valve Type F, Valve with subbase)
- 23 = 1/2" Basic, (Valve Type F, Valve without subbase)
- 24 = 1" Basic, (Valve Type F, Valve without subbase)

5 Port Size PTF

- 2 = 1/4" Ports
- 3 = 3/8" Ports
- 4 = 1/2" Ports
- 5 = 3/4" Ports
- 6 = 1" Ports
- 7 = 1-1/4" Ports
- 8 = 1-1/2" Ports
- 9 = 2" Ports
- 0 = Subbase valve without subbase.

6 Internal Variation

- B = **Internal Pilot Supply** with unrestricted passage.
- C = **Internal Pilot Supply** with check valve.
- E = **Sustaining Bleed Operation.** Use only with momentary signal solenoid operator. Has an internal pilot supply.
- F = **Bleed Operation.** Has an internal pilot supply with flow restrictor. Use only with A1 and A4 air operators.
- H = **External Pilot Supply.**
- J = **Vacuum Service.** Has an external pilot supply with heavy spring.
- K = **Sustaining Bleed Operation.** Use only with momentary signal air operator.

7 & 8 Time Delay

00 = None		
01 = 0 to 5 seconds.	TDO	Normally closed.
02 = 0 to 5 seconds.	TDR	Normally closed.
03 = 0 to 60 seconds.	TDO	Normally closed.
04 = 0 to 60 seconds.	TDR	Normally closed.
05 = 0 to 60 seconds.	TDOR	Normally closed.
09 = 0 to 60 seconds.	TDO	Normally open.
10 = 0 to 60 seconds.	TDR	Normally open.
22 = 0 to 60 seconds.	Delayed One Shot.	
23 = 0 to 60 seconds.	One Shot	Normally closed.
24 = 0 to 60 seconds.	TDO	Normally closed.

**9 & 10 Solenoid Operators**
**Standard Solenoid Operators with Cable Grip Connector
for use with Basic 1" & 2" Valves
(Optional for use with Basic 1/4" & 1/2" Valves)**

CC = Single solenoid, nonlocking override, 8 WAC & DC.
 CR = Twin solenoid, nonlocking override, 8 WAC & DC.
 CU = Momentary signal solenoid, nonlocking override, 8 WAC & DC
 CK = CCW/24VDC & surge protector cable grip connector.*

**Standard Solenoid Operators with Cable Grip Connector
for use with Basic 1/2" & 1/4" Valves**

CY = Single solenoid, nonlocking override, 7WAC, 6WDC
 CE = Single solenoid, locking override, 7WAC, 6WDC
 CS = Single solenoid, no override, 7WAC, 6WDC

CZ = Single solenoid, nonlocking override, 3.5WAC, 2WDC
 CF = Single solenoid, locking override, 3.5WAC, 2WDC
 DA = Single solenoid, no override, 3.5WAC, 2WDC

CW = Twin solenoid, nonlocking override, 7WAC, 6WDC
 CN = Twin solenoid, locking override, 7WAC, 6WDC
 CP = Twin solenoid, no override, 7WAC, 6WDC

CV = Momentary signal solenoid, nonlocking override, 7WAC, 6WDC.

Optional Solenoid Operators

C0 = Single, no override, 1/2" conduit.
 C1 = Single, locking override, 1/2" conduit.
 C2 = Single, no override, junction box.
 C3 = Single, locking override, junction box.
 C4 = Single, no override, low pressure, 1/2" conduit.
 C8 = Single, locking override, high pressure, 1/2" conduit.
 CT = Single, no override, high temperature, 1/2" conduit.

D0 = Momentary Signal, no override, 1/2" conduit.
 D1 = Momentary Signal, locking override, 1/2" conduit.
 D2 = Momentary Signal, no override, junction box.
 D3 = Momentary Signal, locking override, junction box.
 D4 = Twin, no override, 1/2" conduit.
 D5 = Twin, locking override, 1/2" conduit.
 D6 = Twin, no override, junction box.
 D7 = Twin, locking override, junction box.
 D8 = Twin, locking override, high pressure, junction box.

E1 = Single, nonlocking override, 1/2" conduit.
 E3 = Single, nonlocking override, junction box.
 E8 = Single, nonlocking override, high pressure, 1/2" conduit.

F4 = Momentary Signal, nonlocking override, 1/2" conduit.
 F5 = Momentary Signal, nonlocking override, junction box.
 F6 = Twin, nonlocking override, 1/2" conduit.
 F7 = Twin, nonlocking override, junction box.

X0 = Single, no override, hazardous location.
 X1 = Single, locking override, hazardous location.
 X2 = Momentary Signal, no override, hazardous location.
 X3 = Momentary Signal, locking override, hazardous location.
 X4 = Twin, no override, hazardous location.
 X5 = Twin, locking override, hazardous location.

9 & 10 Air Operators

A1 = Single, PTF Threads
 AA = Single, BSPP Threads
 A4 = Twin, PTF Threads
 A6 = Momentary signal, PTF Threads
 Af = Momentary Signal, BSPP Threads

9 & 10 Manual & Mechanical Operators

MA = Plunger, spring return.
 MB = Palm button, spring return.
 MC = Hand Lever, horizontal, spring return.
 MD = Hand Lever, horizontal, detented.
 ME = Hand Lever, vertical, spring return.
 MF = Hand Lever, vertical, detented
 MG = Clevis Lever, horizontal, spring return.
 MH = Clevis Lever, vertical, spring return.
 MJ = Roller Lever, horizontal, spring return.
 MK = Roller Lever, vertical, spring return.
 ML = Foot Pedal, horizontal, spring return.
 MM = Foot Pedal, vertical, spring return.

Voltage & Connector Options for Standard Solenoid Operators

Specify the desired valve model number (from pages 8, 10, or 12) plus the desired option part number from the following tables. When ordering options for the CN, CP, CR, CU, CV, and CW operators, specify (Qty 2) after the option part number.

Optional Voltages	Operator		
	CD, CE, CN, CP, CS, CV, CW, CY	DA, CF, CZ	CC, CR, CU
12V/60Hz/50Hz	54452-34	—	—
24V/60Hz/50Hz	54452-35	54469-24	54458-63
48V/60Hz/50Hz	54452-36	—	—
120V/60Hz, 110V/50Hz	Standard	54469-23	Standard
240V/60Hz, 220V/50Hz	54452-37	—	54458-62
6VDC	—	54469-25	—
12VDC	54452-32	54469-21	54458-64
24VDC	54452-33	Standard	54458-60
110VDC	—	54469-26	—
Optional Connectors	DA, CE, CF, CN, CP, CS, CV, CW, CY, CZ		
	CC, CR, CU		
Cable Grip with Indicator Light			
12VDC or AC	—	54257-54	
24VDC or AC	54934-09	54257-55	
120VDC or AC	54934-03	54257-56	
220VDC or AC	—	54257-57	
1/2" NPT Conduit	54934-04	54933-18	
5-ft. Molded Cord	54934-06	54933-17	
5-ft. Molded Cord, Indicator Light, Surge Protection, Polarity Independent			
24VAC or DC	54934-11	54933-08	
48VAC or DC	54934-12	54933-10	
120VAC or DC	54934-14	54933-12	
240VAC or DC	54934-16	54933-14	

Accessories, and Helpful Engineering Information

Contents

Fittings and Accessories	VAL-13-2
Helpful Engineering Information	VAL-13-6
Conversion Tables	VAL-13-8
Warning/Warranty	VAL-13-9
Part Number Index	VAL-13-10

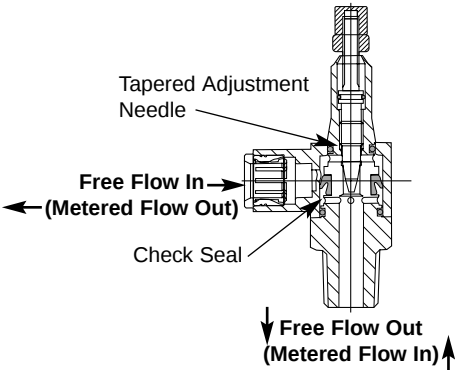


Right Angle (Banjo) Flow Controls

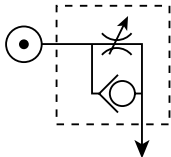
Operation:
Flow Controls are meter out type. Compressed air passes freely into the push-in fitting portion of the flow control, flowing past the check seal and entering the connected component. In reverse flow conditions, air passes back into the flow control and energizes the check seal. Air must now flow through the metered passage controlled by the tapered adjustment needle of the flow control, and finally exits through the push-in fitting end.

Specifications
Fluid: Compressed air.
Working Pressure: 5 to 150 psig (.3 to 10 bar)
Temperature Range: 0° to 175°F (-20° to 80°C)

Materials of Construction:
Banjo bolt, body, collet: Nickel plated brass
Tapered adjusting needle: Brass
O-rings and check-seal: Silicone free Nitrile
Sealing washer: Thermoplastic (10-32 UNF)
Tubing: Nylon 11 or 12, 95 durometer polyurethane.
Thread Sealant: Applied to the full circumference of tapered male threads.



Pneumatic Symbol



VB0 Series

Tube O.D.	NPT or UNF Thread	Screw Driver Slot Part Number	Knob
5/32"	10-32 UNF	12 VB0 0210	12 VA0 0210
	1/8	12 VB0 0218	12 VA0 0218
1/4"	1/8	12 VB0 0418	12 VA0 0418
	1/4	12 VB0 0428	12 VA0 0428
3/8"	1/4	12 VB0 0628	12 VA0 0628
	3/8	12 VB0 0638	12 VA0 0638
1/2"	3/8	12 VB0 0738	—
	1/2	12 VB0 0748	12 VA0 0748

NPT Female	NPT Male	Screw Driver Slot Part Number
1/8	1/8	12 VB0 1818
1/4	1/4	12 VB0 2828
3/8	3/8	12 VB0 3838
1/2	1/2	12 VB0 4848

For additional sizes, configurations, metric products, and technical specifications request catalog Fittings APC-101.



Check Valves - T51, T52, T53
In-line Push-in
5/32" - 1/2" O.D. tube

Technical Data

Fluid: Compressed air, nitrogen, inert and non-combustible gases compatible with materials of construction.

Operating Pressure:

26.8" Hg vacuum to 145 psi (-0.9 to 16 bar)

Operating Temperature:

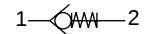
0°* to 175°F (-20°* to 80°C)

* Consult our Technical Service for use below 35°F (2°C)



O.D. Tube	Part Number
5/32"	T51Y0002
1/4"	T51Y0004
5/16"	T51Y0005
3/8"	T51Y0006
1/2"	T51Y0007
PIF x NPT Thread	Part Number
5/32" x 1/8"	T52A1802
1/4" x 1/8"	T52A1804
1/4" x 1/4"	T52A2804
Male to PIF	Part Number
1/8" x 5/32"	T53A1802
1/8" x 1/4"	T53A1804
1/4" x 1/4"	T53A2804

ISO Symbol



Pressure Reducing Fitting - 124GB

In-line Push-in
5/32" - 1/2" O.D. tube
1/8 - 1/2 NPTF pipe

Technical Data

Fluid: Compressed air, nitrogen, inert and non-combustible gases compatible with materials of construction.

Operating Pressure:

Primary (inlet) pressure 0 to 150 psi (0 - 10 bar)

Maximum secondary (regulated) pressure 115 psi (8 bar)

Operating Temperature:

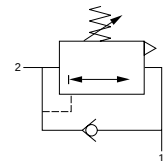
0° to 175°F (-20° to +80°C)

Pressure Reducing Fitting: It is often necessary to provide a secondary reduced pressure to an actuator to control its operating force. A pressure reducing fitting provides this function, and can be manually adjusted to the required pressure level.



Part Number	O/D Tube	NPTF Thread
12 4GB 0218	5/32	1/8
12 4GB 0418	1/4	1/8
12 4GB 0428	1/4	1/4
12 4GB 0528	5/16	1/4
12 4GB 0538	5/16	3/8
12 4GB 0638	3/8	3/8
12 4GB 0748	1/2	1/2

ISO Symbol



Pilot Operated Check Valve - 124GA

In-line Push-in
1/4" - 1/2" O.D. tube
1/8 - 1/2 NPTF pipe

Technical Data

Fluid: Compressed air, nitrogen, inert and non-combustible gases compatible with materials of construction.

Operating Pressure:

15-150 psi (1 - 10 bar)

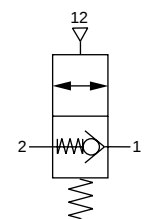
Operating Temperature:

0° to 175°F (-20° to +80°C)



Product Number	O.D. Tube	NPTF Thread	Max Tightening Torque
12 4GA 0418	1/4"	1/8	5 ft. lbs.
12 4GA 0428	1/4"	1/4	11 ft. lbs.
12 4GA 0638	3/8"	3/8	14 ft. lbs.
12 4GA 0748	1/2"	1/2	14 ft. lbs.

ISO Symbol



Pilot Operated Check Valve: A blocking fitting which allows air flow in both directions if a pilot pressure is applied to port 12. When pressure to the pilot port is removed flow occurs in one direction only due to an integral control valve. When used in pairs, blocking fittings can control an actuator to give controlled operation in the event of an electrical problem, air failure, or tube breakage.

For additional sizes, configurations, metric products, and technical specifications request catalog Fittings APC-101.



Fittings and Accessories

Pressure Sensor Fitting -124GD

In-line Push-in

5/32" O.D. tube

1/8 - 1/4 NPTF pipe

Technical Data

Fluid: Compressed air, nitrogen, inert and non-combustible gases compatible with materials of construction.

Operating Pressure:

Cylinder pressure (Pc) 145 psi (10 bar) max

Sensor supply pressure 43 to 145 psi (3 - 10 bar)

Sensor switch pressure 14.5 psi (1.0 bar) typical

Operating Temperature:

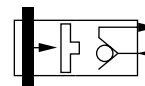
0° to 175°F (−20° to +80°C)

Pneumatic Sensor Fittings: Provides an air signal when a cylinder has reached the end of travel. Sensor fittings operate by detecting the drop in exhaust pressure at the end of a stroke. They effectively offer an all-pneumatic option to the electrical reed switch.



Product Number	Tube O/D	NPTF Thread
12 4GD 0218	5/32"	1/8
12 4GD 0228	5/32"	1/8

ISO Symbol



Check Valves



Port Size NPT	Model
1/8	T55A1800
1/4	T55A2800
3/8	T55A3800
1/2	T55A4800
3/4	TC/523
1	TC/524



Push-In Flow Controls

Port Size NPT	Model
1/8	T15Y0001
5/32	T15Y0002
1/4	T15Y0004
3/8	T15Y0006
1/2	T15Y0007

Quick Exhaust Valves



Port Size NPT	Model
1/8	T70A 1800
1/4	T70A 2800
3/8	T70A 3800
1/2	T70A 4800

In-line Flow Controls



Port Size NPT	Model
1/8	T1000A1800
1/4	T1000A2800
3/8	T1000A3800
1/2	T1000A4800

Shuttle Valves



Port Size NPT	Model
1/8	T65A1800
1/4	T65A2800



Quietaire™ Pneumatic Silencers



Heavy-duty
shell type

Port Size NPT	Part Number (male)	Part Number (female)
1/8	MB001A	MA001A
1/4	MB002A	MA002A
3/8	MB003A	MA003A
1/2	MB004A	MA004A
3/4	MB006A	MA006A
1	MB008A	MA008A



Standard-duty,
sintered bronze

Port Size NPT	Part Number
10-32	MS000A
1/8	MS001A
1/4	MS002A
3/8	MS003A
1/2	MS004A
3/4	MS006A
1	MS008A



Standard-duty
porous plastic

Port Size NPT	Part Number
10-32 UNF	M/S0
1/8	C/S1
1/4	C/S2
3/8	C/S3
1/2	C/S4
3/4	C/S6
1	C/S8



Breather vent
sintered bronze

Port Size NPT	Part Number
1/8	MV001A
1/4	MV002A
3/8	MV003A
1/2	MV004A
3/4	MV006A
1	MV008A



Heavy duty speed control
sintered bronze

Port Size NPT	Part Number
1/8	MM001A
1/4	MM002A
3/8	MM003A
1/2	MM004A



Standard-duty speed control
porous plastic

Port Size NPT	Part Number
10-32 UNF	T20M0500
1/8	T20A1800
1/4	T20A2800
3/8	T20A3800
1/2	T20A4800

For additional sizes, configurations, metric products, and technical specifications request catalog Fittings APC-101.



Determining Proper Air Valve Size

Most manufacturers catalogs give flow rating C_v for the valve, which was established using proposed National Fluid Power Association (NFPA) standard T3.21.3. The following tables and formulas will enable you to quickly size a valve properly. The traditional, often used, approach of using the valve size equivalent to the port in the cylinder can be very costly. Cylinder speed, not port size, should be the determining factor.

The following C_v calculations are based upon simplified formulas which yield results with acceptable accuracy under the following standard condition:

Air at a temperature of 68°F (20°C)

Absolute downstream or secondary pressure must be 53% of absolute inlet or primary pressure or greater. Below 53%, the air velocity may become sonic and the C_v formula does not apply. To calculate air flow to atmosphere, enter outlet pressure p_2 as 53% of absolute p_2 . Pressure drop ΔP would be 47% of absolute inlet pressure. These valves have been calculated for a $C_v = 1$ in Table 3.

Nomenclature

B	Pressure drop factor	
C	Compression factor	
C_v	Flow factor	
D	Cylinder Diameter	(IN)
F	Cylinder Area	(SQ IN)
L	Cylinder Stroke	(IN)
p_1	Inlet or Primary Pressure	(PSIG)
p_2	Outlet or Secondary Pressure	(PSIG)
ΔP	Pressure differential ($p_1 - p_2$)	(PSID)
q	Air flow at actual condition	(CFM)
Q	Air flow of free air	(SCFM)
t	Time to complete one cylinder stroke	(SEC)
T	Absolute temperature at operating pressure	
	Deg R = Deg F + 460	(R°)

Valve Sizing for Cylinder Actuation – (Method A)

$$C_v = \frac{\text{cylinder area (Sq In) (see Table 1) } F \times \text{cylinder stroke (IN) } L \times \text{Compression factor (see Table 2) } C}{\text{Pressure drop factor (See Table 2) } B \times \text{time to complete cylinder stroke (SEC) } t \times 29}$$

Example:

Cylinder size 4" Dia. x 10" stroke. Time to extend: 2 seconds. Inlet pressure 90 psig. Allowable pressure drop 5 psid. Determine C_v .

Solution: Table 1 $F = 12.57$ sq in
Table 2 $C = 7.1$
 $B = 21.6$

$$C_v = \frac{12.57 \times 10 \times 7.1}{21.6 \times 2 \times 29} = .7$$

Select a valve that has a C_v factor of .7 or higher. In most cases a 1/4" valve would be sufficient.

It is considered good engineering practice to limit the pressure drop ΔP to approximately 10% of primary pressure p_1 . The smaller the allowable pressure drop, the larger the required valve will become.

After the minimum required C_v has been calculated, the proper size valve can be selected from the catalog.

Bore Size D (in)	Push Bore F (sq in)	Bore Size D (in)	Push Bore F (sq in)
3/4"	.44	4"	12.57
1"	.79	4-1/2"	15.90
1-1/8"	.99	5"	19.64
1-1/4"	1.23	6"	28.27
1-1/2"	1.77	7"	38.48
1-3/4"	2.41	8"	50.27
2"	3.14	10"	78.54
2-1/2"	4.91	12"	113.10
3-1/4"	8.30	14"	153.94

Table 1: Cylinder push bore area F for standard size cylinders

Inlet Pressure (psig)	Compression Factor C	Pressure Drop Factor B for various Pressure Drops ΔP				
		2 psig	5 psid	10 psid	15 psid	20 psid
10	1.7	6.5				
20	2.4	7.8	11.8			
30	3.0	8.9	13.6	18.0		
40	3.7	9.9	15.3	20.5	23.6	
50	4.4	10.8	16.7	22.6	26.4	29.0
60	5.1	11.7	18.1	24.6	29.0	32.0
70	5.8	12.5	19.3	26.5	31.3	34.8
80	6.4	13.2	20.5	28.2	33.5	37.4
90	7.1	13.9	21.6	29.8	35.5	39.9
100	7.8	14.5	22.7	31.3	37.4	42.1
110	8.5	15.2	23.7	32.8	39.3	44.3
120	9.2	15.8	24.7	34.2	41.0	46.4
130	9.8	16.4	25.6	35.5	42.7	48.4
140	10.5	16.9	26.5	36.8	44.3	50.3
150	11.2	17.5	27.4	38.1	45.9	52.1
160	11.9	18.0	28.2	39.3	47.4	53.9
170	12.6	18.5	29.0	40.5	48.9	55.6
180	13.2	19.0	29.8	41.6	50.3	57.2
190	13.9	19.5	30.6	42.7	51.7	58.9
200	14.6	20.0	31.4	43.8	53.0	60.4
210	15.3	20.4	32.1	44.9	54.3	62.0
220	16.0	20.9	32.8	45.9	55.6	63.5
230	16.7	21.3	33.5	46.9	56.8	64.9
240	17.3	21.8	34.2	47.9	58.1	66.3
250	18.0	22.2	34.9	48.9	59.3	67.7

Table 2: Compression Factor C and pressure drop Factor B.



Valve Sizing with $C_v = 1$ Table (Method B) (For nomenclature see previous page)

This method can be used if the required air flow is known or has been calculated with the formulas as shown below:

$$1. \quad Q = .0273 \frac{D^2 L}{t} \times \frac{p_2 + 14.7}{14.7} \quad (\text{SCFM})$$

Conversion of CFM to SCFM

$$2. \quad Q = q \times \frac{p_2 + 14.7}{14.7} \times \frac{528}{T} \quad (\text{SCFM})$$

Flow factor C_v (standard conditions)

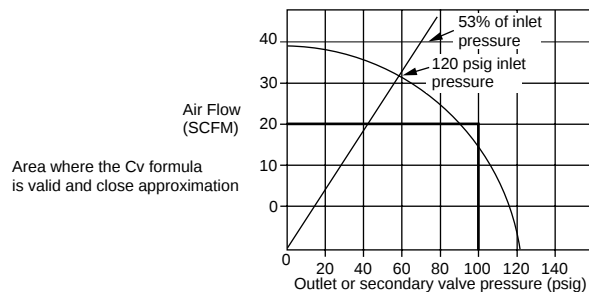
$$3. \quad C_v = \frac{1.024 \times Q}{\sqrt{\Delta P \times (p_2 + 14.7)}} \quad \text{Proposed NFPA Standard T3.21.3}$$

Maximum pressure drop Δp across the valve should be less than 10% of inlet pressure p_1 .

Inlet Pressure (psig)	Air Flow Q (scfm) for various Pressure drops ΔP at $C_v = 1$					Air Flow Q (scfm) to atmosphere
	2 psid	5 psid	10 psid	15 psid	20 psid	
10	6.7					12.0
20	7.9	11.9				16.9
30	9.0	13.8	18.2			21.8
40	9.9	15.4	20.6	23.8		26.6
50	10.8	16.9	22.8	26.7	29.2	31.5
60	11.6	18.2	24.8	29.2	32.3	36.4
70	12.3	19.5	26.7	31.6	35.1	41.2
80	13.0	20.7	28.4	33.8	37.7	46.1
90	13.7	21.8	30.0	35.8	40.2	51.0
100	14.4	22.9	31.6	37.8	42.5	55.9
110	15.0	23.9	33.1	39.6	44.7	60.7
120	15.6	24.9	34.5	41.4	46.8	65.6
130	16.1	25.8	35.8	43.1	48.8	70.5
140	16.7	26.7	37.1	44.7	50.7	75.3
150	17.2	27.6	38.4	46.3	52.5	80.2
160	17.7	28.4	39.6	47.8	54.3	85.1
170	18.2	29.3	40.8	49.3	56.0	90.0
180	18.7	30.1	42.0	50.7	57.7	94.8
190	19.2	30.9	43.1	52.1	59.4	99.7
200	19.6	31.6	44.2	53.4	60.9	104.6
210	20.1	32.4	45.2	54.8	62.5	109.4
220	20.5	33.1	46.3	56.1	64.0	114.3
230	21.0	33.8	47.3	57.3	65.5	119.2
240	21.4	34.5	48.3	58.6	66.9	124.0
250	21.8	35.2	49.3	59.8	68.3	128.9

Table 3: Air Flow Q (scfm) for $C_v = 1$

Flow Curves: How to read them



Example 1: Find air flow Q (scfm) if C_v is known.

C_v (from valve catalog) = 1.8

Primary pressure $p_1 = 90$ psig

Pressure drop across valve $\Delta P = 5$ psid

Flow through valve from Table 3 for $C_v = 1$: 21.8 scfm

$$Q = C_v \text{ of valve} \times \text{air flow at } C_v = 1 \text{ (scfm)}$$

$$Q = 1.8 \times 21.8 = 39.2 \text{ scfm}$$

Example 2: Find C_v if air flow Q (scfm) is given.

Primary pressure $p_1 = 90$ psig

Pressure drop $\Delta P = 10$ psid

Air flow - $Q = 60$ scfm

Flow through valve from Table 3 for $C_v = 1$: 30 scfm

$$C_v = \frac{\text{Air flow } Q \text{ (scfm)}}{\text{Air flow at } C_v = 1 \text{ (scfm)}}$$

$$C_v = \frac{60 \text{ scfm}}{30} = 2.0$$

A valve with a C_v of minimum 2 should be selected.

Example 3: Find C_v if air flow Q (scfm) to atmosphere is given (from catalog).

Primary pressure $p_1 = 90$ psig

Air flow to atmosphere $Q = 100$ scfm

Flow to atmosphere through valve from Table 3 for $C_v = 1$: 51 scfm

$$C_v = \frac{\text{Air flow to atmosphere } Q \text{ (scfm)}}{\text{Air flow to atmosphere at } C_v = 1 \text{ (scfm)}}$$

$$C_v = \frac{100}{51} = 2.0$$

Flow given in catalog is equivalent to a valve with $C_v = 2$. This conversion is often necessary to size a valve properly since some manufacturers do not show the standard C_v to allow a comparison.

Example 4: Find C_v if cylinder size and stroke speed is known, using the formulas 1 and 3.

Primary pressure = 90 psig

Pressure drop across valve 5 psid

Cylinder size 4" dia. x 10" stroke

Time to complete stroke 2 sec.

$$Q = .0273 \frac{4^2 \times 10}{2} \times \frac{85 + 14.7}{14.7} = 14.81 \text{ scfm}$$

$$C_v = \frac{1.024 \times 14.81}{\sqrt{5 \times (85 + 14.7)}} = 1.7$$



Conversion Tables

VOLUME

from/to	cm ³	liter	in ³	ft ³	fl oz	pt.	qt.	gal
cm ³	1	.001	0.06102	3.53 x 10 ⁻⁵	.03381	.00211	0.106	2.64 x 10 ⁻⁴
liter	1000	1	61.02	0.03532	33.81	2.113	10.057	.2642
in ³	16.39	0.01639	1	5379 x 10 ⁻⁴	.5541	.03463	0.01732	.00433
ft ³	2.83 x 10 ⁴	28.32	1728	1	957.5	59.84	29.92	7.481
fl oz	29.57	0.02957	1.805	0.00104	1	.06250	.03125	.00781
pt	473.2	0.4732	28.88	0.01671	16	1	0.500	0.1250
qt	946.4	0.9463	57.75	0.03342	32	2	1	0.2500
gal (US)	3785	3.785	231	0.1337	128	8	4	1

PRESSURE

from/to	mm Hg	in Hg	in H ₂ O	ft H ₂ O	atm	lb/in ²	kg/cm ²
mm Hg	1	0.03937	0.5353	0.04460	.00132	0.01934	.00136
in Hg	25.40	1	13.60	1.133	.03342	0.4912	0.03453
in H ₂ O	1.868	0.07355	1	0.08333	0.00246	0.03613	0.00254
ft H ₂ O	22.42	0.8826	12	1	0.02950	0.4335	0.03048
atm	760	29392	406.8	33.9	1	14.70	1.033
lb/in ²	51.71	2.036	27.67	2.307	0.06805	1	0.07031
kg/cm ²	735.6	28.96	393.7	32.81	0.9678	14.22	1
bar	750.0	29.53	401.32	33.46	0.98592	14.504	1.01978

Length

from/to	cm	m	km	in	ft.	mile
cm	1	0.01	1 x 10 ⁻⁵	0.3937	0.03281	6.21 x 10 ⁻⁶
m	100	1	0.001	39.37	3.281	6.21 x 10 ⁻⁴
km	1 x 10 ⁵	1000	1	3.94 x 10 ⁴	3281	0.6214
in	2.540	0.02540	2.54 x 10 ⁻⁵	1	0.08333	1.58 x 10 ⁻⁵
ft	30.48	0.3048	3.05 x 10 ⁻⁴	12	1	1.89 x 10 ⁻⁴
mile	1.61 x 10 ⁵	1609	1.609	6.34 x 10 ⁴	5280	1

ENERGY

from/to	BTU	Cal	Joule	Hp. hr.	Kw hr.
BTU	1	252.0	1055	3.93 x 10 ⁻⁴	2.93 x 10 ⁻⁴
Cal	0.397	1	4.186	1.56 x 10 ⁻⁵	1.16 x 10 ⁻⁵
joule	9.48 x 10 ⁻⁴	0.2389	1	3.73 x 10 ⁻⁷	2.78 x 10 ⁻⁷
Hp hr	2545	6.41 x 10 ⁵	2.68 x 10 ⁶	1	0.7457
Kw hr	3413	8.60 x 10 ⁵	3.60 x 10 ⁶	1.341	1

AREA

from/to	cm ⁴	m ²	km ²	in ²	ft ²
cm ²	1	0.0001	1 x 10 ⁻¹⁰	0.1550	0.00108
m ²	1 x 10 ⁴	1	1 x 10 ⁻⁵	1550	10.76
km ²	1 x 10 ¹⁰	1x 10 ⁵	1	1.55 x 10 ⁹	1.08 x 10 ⁷
in ²	6.452	6.45 x 10 ⁻⁴	6.45 x 10 ⁻¹⁰	1	0.00694
ft ²	929.00	0.09290	9.29 x 10 ⁻⁸	144	1

TEMPERATURE CONVERSION

°C = 5/9 (°F - 32)
°F = 9/5 (°C + 32)
°K = °C + 273.2
°R = °F + 459.7

WEIGHT

from/to	gm	kg	oz	lb
gm	1	0.001	0.03527	0.00220
kg	1000	1	35.27	2.205
oz	28.35	0.02835	1	0.06250
lb	453.6	0.4536	16	1

TEMPERATURE COMPARISON

-100°C to +300°C			
°C	°F	°C	°F
-100	-148	29	84.2
-90	-130	30	86.0
-80	-112	31	87.8
-70	-94	32	89.6
-60	-76	33	91.4
-50	-58	34	93.2
-40	-40	35	95.0
-35	-31	36	96.8
-30	-22	37	98.6
-25	-13	38	100.4
-20	-4	39	102.2
-15	5	40	104.0
-10	14	45	113
-5	23	50	122
0	32	55	131
1	33.8	60	140
2	35.6	65	149
3	37.4	70	158
4	39.2	75	167
5	41	80	176
6	42.8	85	185
7	44.6	90	194
8	46.4	95	203
9	48.2	100	212
10	50	110	230
11	51.8	120	248
12	53.6	130	266
13	55.4	140	284
14	57.2	150	302
15	59	160	320
16	60.8	170	338
17	62.6	180	356
18	64.4	190	374
19	66.2	200	392
20	68	210	410
21	69.8	220	428
22	71.6	230	446
23	73.4	240	464
24	75.2	250	482
25	77	260	500
26	78.8	270	518
27	80.6	280	531
28	82.4	290	554
		300	572



Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under **Specifications**.

Before using these products with fluids other than those specified, for nonindustrial applications, life-support systems, or other applications not within published specifications, consult Norgren.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure modes. **System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.**

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products. System designers should also provide for all OSHA requirements including Title 29 CFR 1910.147 Lockout/Tagout.

It should be recognized that warnings are valid for any product, regardless of manufacturer, and are not restricted to products manufactured by Norgren. Norgren's reputation for product quality and performance is well established. We feel we have the additional obligation to provide information or warnings to customers to assist them in applying our products in a reasonable and safe manner.

Warranty

Items sold by Norgren are warranted to be free from defects in materials and workmanship for a period of two years from the date of manufacture, provided said items are used according to Norgren's recommended usages. Norgren's liability is limited to the repair of, refund of purchase price paid for, or replacement in kind of, at Norgren's sole option, any items proved defective, provided the allegedly defective items are returned to Norgren prepaid. The warranties expressed above are in lieu of and exclusive of all other warranties.

There are no other warranties, expressed or implied, except as stated herein. There are no implied warranties of merchantability or fitness for a particular purpose, which are specifically disclaimed. Norgren's liability for breach of warranty as herein stated is the exclusive remedy, and in no event shall Norgren be liable or responsible for incidental or consequential damages, even if the possibility of such incidental or consequential damages has been made known to Norgren.

Norgren reserves the right to discontinue manufacture of any product or change product materials, design, or specifications.



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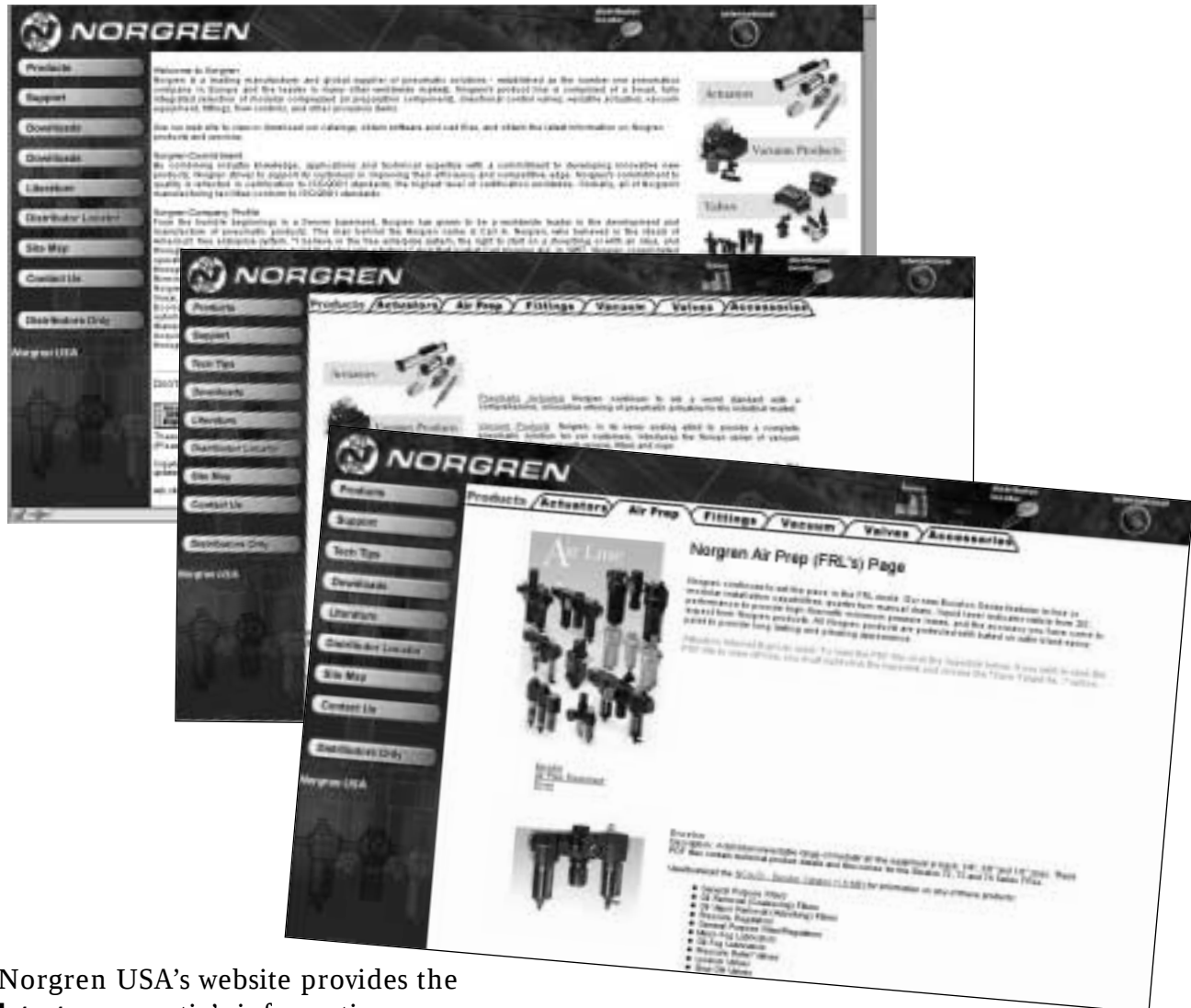


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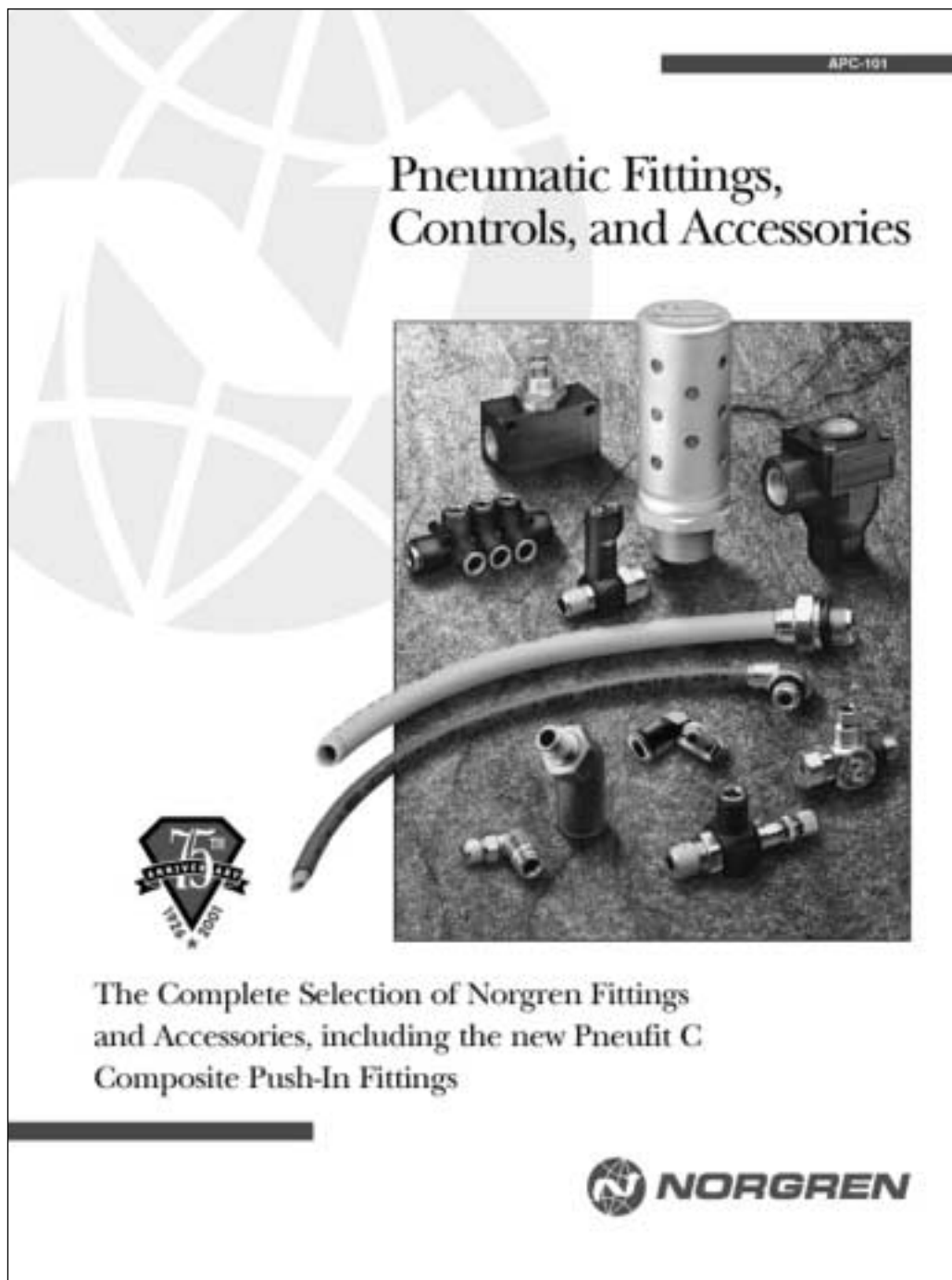
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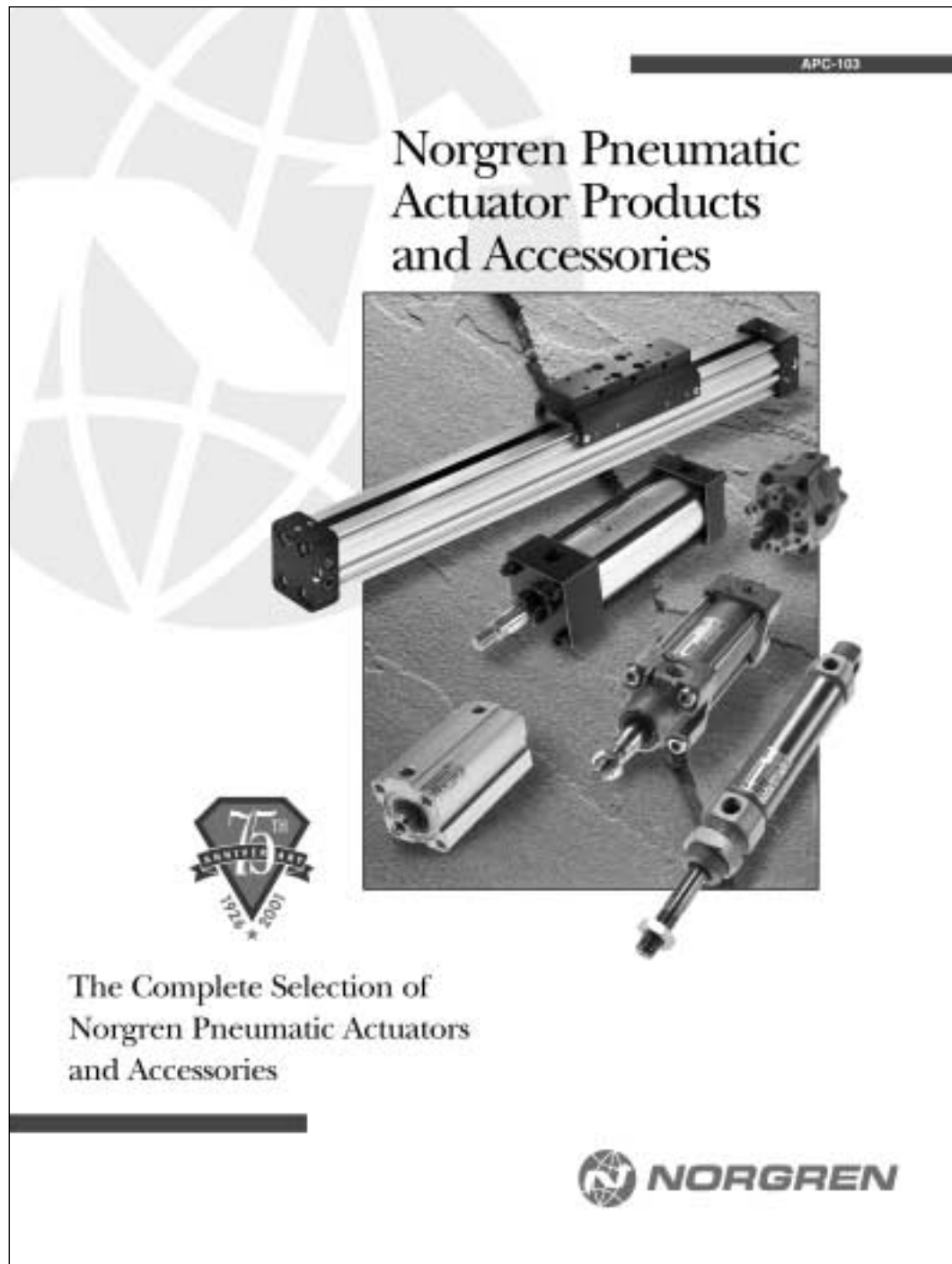


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Norgren's CD Catalog is a Complete Source for Norgren Pneumatic Products, Solutions, Pricing, CAD, and a host of additional information.

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