

# Nugget 70 Series Valves

Compressed air, directional control valves with thin lip spool design and low watt coil

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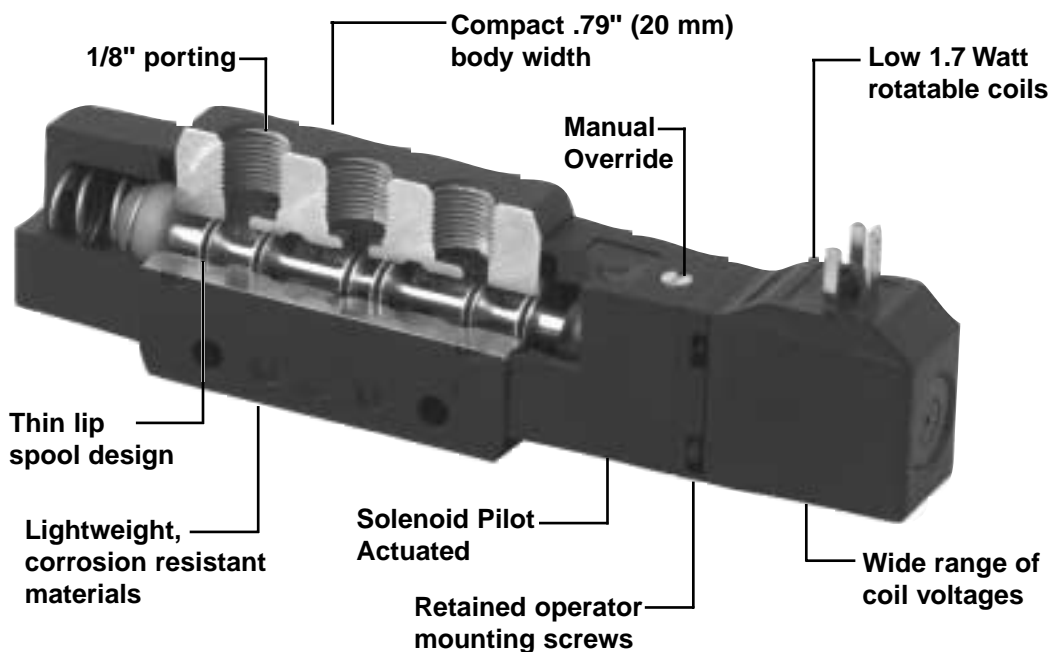
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NOTE: 48 hour shipment is available on selected Nugget 70 Valves. Look for the 

## Nugget 70 Inline 1/8" Spool Valve





## Nugget 70 Series Valves

**The Nugget 70 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 70 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 valuable assurance of quality and service.

### Thin Lip Seal Spool

Norgren Nugget 70 valves feature a lightweight, thin lip seal spool design. The lightweight, one piece aluminum spool and nitrile seal assembly has many benefits. Due to the low inertial spool coupled with the seal's ability to flex during actuation before breaking away, shifting forces are minimized to 29 psig (2.0 bar) for single solenoid operator. To eliminate contamination and increase valve life, the thin lip seal functions like a windshield wiper, cleaning the bore of the valve when shifting. The one piece spool assembly is easily serviced, and the durable low friction seals are designed to operate with non-lubricated or lubricated air supplies. The lip seal also functions in multi-pressure applications.

### High-flow Design

The flow of the Nugget 70 is comparable to much larger 1/8" PTF size valves. 3/2 and 5/2 valves have a Cv of 0.76, and 5/3 valves have a Cv of 0.67. Combined with careful sizing of a system this allows for a more economical valve for the application.

### Compact Dimensions

The Nugget 70 Inline valve, with a Cv of 0.76, is a mere 0.79" (20 mm) wide and 5.28" (134 mm) long in a single solenoid pilot configuration. This compact size ensures ease of mounting in limited space applications.

### Three Valve Configurations

Nugget 70 valves are available in either 3 port/2 position, 5 port/2 position, or 5 port/3 position configurations.

### Ports and Mounting

The Nugget 70 inline valves are available with 1/8" PTF, ISO G, or ISO Rc ports. Additionally, all valve bodies offer two through holes for wall or control cabinet mounting.

### Operator Options

Solenoid pilot and air pilot operators are available for primary actuation and secondary return operation. Solenoids are available as internal, external or internal twin supply for dual pressure applications. Pilot operators are either standard or differential area pistons for logic circuits. Spring return operators are also available for return actuation.

### Retained Operator Mounting Screws

All Nugget 70 valves are assembled using two Phillips head screws to attach the operators to the valve bodies. These screws are retained in the operator body if it is removed, preventing the loss of screws during maintenance.

### Lightweight, Corrosive Resistance Materials

Aluminum and glass filled nylon are used in the manufacture of Nugget 70 valves resulting in a lightweight product with high corrosion resistance. This makes the Nugget 70 perfect for mobile applications where weight and corrosion are a concern.



**3/2 Single Air Pilot Valve**

### Durable Finish

External surfaces are protected with an oven cured, epoxy resin paint providing excellent corrosion and chip resistance.

**Pre-lubricated for Life**

During assembly, every Nugget 70 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.

**Port and Operator Identification**

Each of the ports is identified by a permanent number adjacent to the port on the body. 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 70 valves comply with ANSI/(NFPA) T3.21.15-1989.

**Quality Appearance**

Norgren's matte black color enhances the quality appearance of any control circuit installation, reflecting the superior operating capability built into every Nugget 70 Valve.

**Rotatable Connector and Coil**

To make installation easier the cable grip connector can be rotated in 90° increments, and the solenoid pilot coil can be rotated in 180° increments.

**Electrical Connector Options**

Options include a 10-foot, three-conductor molded cable, available with LED and surge protection.



**5/2 Single Solenoid Pilot Valve**

## 3/2, 5/2, and 5/3 Inline 1/8" Spool Valves Solenoid and Air Pilot Actuated

- Thin lip spool construction
- High flow compact valves
- Light weight, long life, corrosion resistant materials
- Low 1.7 watt coils
- Wide range of voltage and connector plug options



### Technical Data

#### Medium:

Compressed air, filtered, lubricated and non-lubricated

#### Operation:

Thin lip spool valve, solenoid pilot or air pilot actuated

#### Mounting:

Through-holes in valve body

#### Port Size:

1/8 PTF, ISO G 1/8, or Rc 1/8 taper

#### Operating Pressure:

Maximum pressure 145 psig (10 bar), for minimum pilot pressure see *Pilot Pressures* on following pages.

#### Flow Characteristics:

Function	Cv	'C'	'b'	'A'	l/min	Kv
3/2	0.76	2.68	0.4	11.91	724	.604
5/2	0.76	2.67	0.37	11.57	742	.611
5/3	0.67	2.41	0.33	10.14	650	.542

#### Ambient Temperature:

-4°F to 176°F (-20°C to 80°C) Pilot models

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

\* Consult Applications Engineering for use below 35.6°F (2°C).

#### Materials:

Body, pistons, and spool: Aluminum

End caps: nylon or polyphenylene

Solenoid adapters: polybutylene

Spool seals: hydrogenated nitrile

Gaskets: nitrile

#### Solenoid Connector Plugs:

See page VAL-4-7.

### Ordering Information

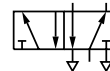
To order select model number, insert thread type code from options listed then insert voltage code from table on page VAL-4-7, e.g. V19P517A-B219A for a solenoid actuated spring return 5/2 valve with an internal pilot supply, PTF ports and suitable for an electricity supply of 220/240V 50/60 Hz.



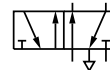
3/2 Normally closed



3/2 Normally open



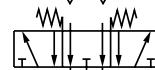
5/2



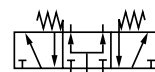
5/2 Twin Supply



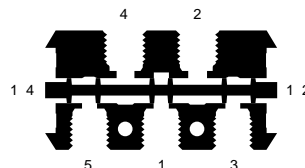
5/3 All ports blocked



5/3 Cylinder open to exhaust



5/3 Cylinder open to pressure





5/2 Solenoid Pilot Actuated Inline Valves

Symbol	Model	Manual Override	Pilot Supply	Operator	Return	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	V19P517A-B21#B	Push and turn locking	Internal	Solenoid	Spring	29 - 145 (2.0 - 10)	-	.38 (.17)
	V19P517A-B31#B	Push Non-locking						
	V19P5F7A-B21#B	Push and turn locking	Internal Twin Supply	Solenoid	Spring	26" Hg - 145 † (-0.9 - 10)	29 - 145 (2.0 - 10)	.38 (.17)
	V19P5F7A-B31#B	Push Non-locking						
	V19P5E7A-B21#B	Push and turn locking	External	Solenoid	Spring	26" Hg - 145 (-0.9 - 10)	29 - 145 (2.0 - 10)	.40 (.18)
	V19P5E7A-B31#B	Push Non-locking						
	V19P511A-B21#B	Push and turn locking	Internal	Solenoid	Solenoid	18 - 145 (1.2 - 10)	-	.51 (.23)
	V19P511A-B31#B	Push Non-locking						
	V19P5FFA-B21#B	Push and turn locking	Internal Twin Supply	Solenoid	Solenoid	26" Hg - 145 (-0.9 - 10)	18 - 145 (1.2-10)	.51 (.23)
	V19P5FFA-B31#B	Push Non-locking						
	V19P5EEA-B21#B	Push and turn locking	External	Solenoid	Solenoid	26" Hg - 145 (-0.9 - 10)	18 - 145 (1.2 - 10)	.56 (.25)
	V19P5EEA-B31#B	Push Non-locking						

# Insert voltage code from table on page VAL-4-7  
 † Minimum pressure to port 5 must be 29 psig (2.0 bar)

5/3 Solenoid Pilot Actuated Inline Valves

Symbol	Model	Manual Override	Pilot Supply	Valve Function††	Operator	Return	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	V19P611A-B21#B	Push and turn locking	Internal	APB	Solenoid	Solenoid	38 - 145 (2.6 - 10)	-	.53 (.24)
	V19P611A-B31#B	Push Non-locking							
	V19P6FFA-B21#B	Push and turn locking	Internal Twin Supply	APB	Solenoid	Solenoid	26" Hg - 145 † (-0.9 - 10)	38 - 145 (2.6 - 10)	.53 (.24)
	V19P6FFA-B31#B	Push Non-locking							
	V19P711A-B21#B	Push and turn locking	Internal	COE	Solenoid	Solenoid	38 - 145 (2.6 - 10)	-	.53 (.24)
	V19P711A-B31#B	Push Non-locking							
	V19P811A-B21#B	Push and turn locking	Internal	COP	Solenoid	Solenoid	38 - 145 (2.6 - 10)	-	.53 (.24)
	V19P811A-B31#B	Push Non-locking							

# Insert voltage code from table on page VAL-4-7  
 †† Valve Function Designations: APB = All Ports Blocked, COE = Cylinder Open to Exhaust, COP = Cylinder Open to Pressure  
 ‡ Minimum pressure to port 5 must be 38 psig (2.6 bar)

④ For details on Norgren's 48 hour valve program see page VAL-3 at the beginning of this catalog.



# Nugget 70 Series Valves

## 5/2 and 5/3 Air Pilot Actuated Inline Valves

Symbol	Model	Valve Function††	Operator	Return	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	V19P5D7A-XP090	–	Air	Spring	26" Hg - 145 (-0.9 - 10)	29 - 145 (2.0 - 10)	.25 (.11)
	V19P5DDA-XP020	–	Air	Air	26" Hg - 145 (-0.9 - 10)	18 - 145 (1.2 - 10)	.25 (.11)
	V19P59DA-XP060	–	Large Air	Small Air	26" Hg - 145 † (-0.9 - 10)	18 - 145 (1.2 - 10)	.25 (.11)
	V19P6DDA-XP020	APB	Air	Air	26" Hg - 145 (-0.90-10)	38 - 145 (2.6 - 10)	.25 (.11)
	V19P7DDA-XP020	COE	Air	Air	26" Hg - 145 (-0.9 - 10)	38 - 145 (2.6 - 10)	.25 (.11)
	V19P8DDA-XP020	COP	Air	Air	26" Hg - 145 (-0.9 - 10)	38 - 145 (2.6 - 10)	.25 (.11)

†† Valve Function Designations: APB = All Ports Blocked, COE = Cylinder Open to Exhaust, COP = Cylinder Open to Pressure

† A differential pressure of 17 psig (1.2 bar) is required to shift the valve from output at ports 2 and 4

## 3/2 Solenoid Pilot Actuated Inline Valves

Symbol	Model	Manual Override	Pilot Supply	Inline Function	Operator	Return	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb. (kg)
	V19P417A-B21#B	Push and turn locking	Internal	N.C.	Solenoid	Spring	29 - 145 (2.0 - 10)	–	.31 (.13)
	V19P417A-B31#B	Push Non-locking							
	V19P4E7A-B21#B	Push and turn locking	External	N.C.	Solenoid	Spring	26" Hg - 145 (-0.9 - 10)	29 - 145 (2.0 - 10)	.33 (.15)
	V19P4E7A-B31#B	Push Non-locking							
	V19P317A-B21#B	Push and turn locking	Internal	N.O.	Solenoid	Spring	29 - 145 (2.0 - 10)	–	.31 (.13)
	V19P317A-B31#B	Push Non-locking							
	V19P3E7A-B21#B	Push and turn locking	External	N.O.	Solenoid	Spring	26" Hg - 145 (-0.9 - 10)	29 - 145 (2.0 - 10)	.33 (.15)
	V19P3E7A-B31#B	Push Non-locking							
	V19P311A-B21#B	Push and turn locking	Internal	–	Solenoid	Solenoid	18 - 145 (1.2 - 10)	–	.44 (.20)
	V19P311A-B31#B	Push Non-locking							
	V19P3EEA-B21#B	Push and turn locking	External	–	Solenoid	Solenoid	26" Hg - 145 (-0.9 - 10)	18 - 145 (1.2 - 10)	.48 (.22)
	V19P3EEA-B31#B	Push Non-locking							

# Insert voltage code from table on page VAL-4-7

(48) For details on Norgren's 48 hour valve program see page VAL-3 at the beginning of this catalog.



3/2 Air Pilot Actuated Inline Valves

Symbol	Model	Valve Function	Operator	Return	Operating Pressure psig (bar)	Pilot Pressure psig (bar)	Weight lb (kg)
	V19P4D7A-XP090	N.C.	Air	Spring	26" Hg - 145 (-0.9 - 10)	29 - 145 (2.0 - 10)	.20 (.09)
	V19P3D7A-XP090	N.O.	Air	Spring	26" Hg - 145 (-0.9 - 10)	29 - 145 (2.0 - 10)	.20 (.09)
	V19P49DA-XP060	N.C.	Large Air	Small Air	26" Hg - 145 † (-0.9 - 10)	18 - 145 (1.2 - 10)	.20 (.09)
	V19P39DA-XP060	N.O.	Large Air	Small Air	26" Hg - 145 † (-0.9 - 10)	18 - 145 (1.2 - 10)	.20 (.09)
	V19P3DDA-XP020	-	Air	Air	26" Hg - 145 (-0.9 - 10)	18 - 145 (1.2 - 10)	.20 (.09)

† A differential pressure of 17 psig (1.2 bar) is required to shift the valve

Voltage Codes and Spare Coils

Voltage	Codes	Power Inrush/Hold	Coil Part Number
6V d.c. & 12V 50/60 Hz	1	1.5 W 4.1/2.9 VA	V10025-A11
12V d.c.	2	1.7 W	V10025-A12
24V d.c.	3	1.7 W	V10025-A13
24V 50/60Hz	4	4.1/2.9 VA	V10025-A14
48V 50/60Hz	6	4.1/2.9 VA	V10025-A16
110V/120V 50/60Hz	8	3.5/2.5 VA	V10025-A18
220/240V 50/60Hz	9	3.5/2.5 VA	V10025-A19

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:	V19P5--A-B11#B - No override V19P5--A-B21#B - Push and Turn Locking V19P5--A-B31#B - Non-Locking
Protection Class:	NEMA 4, IP 65 (DIN 40 050)

Ⓒ For details on Norgren's 48 hour valve program see page VAL-3 at the beginning of this catalog.

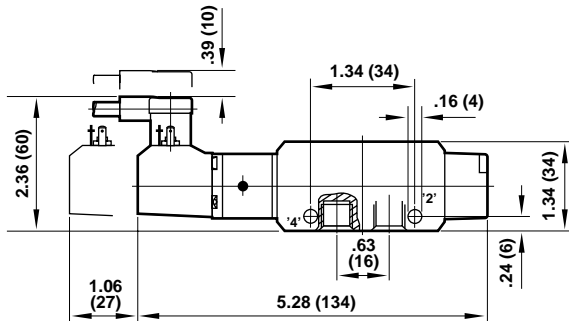
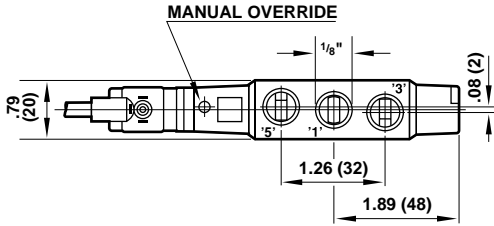


# Nugget 70 Series Valves

All Dimensions in Inches (mm)

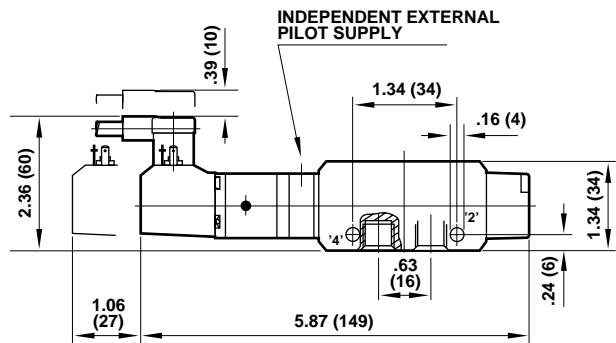
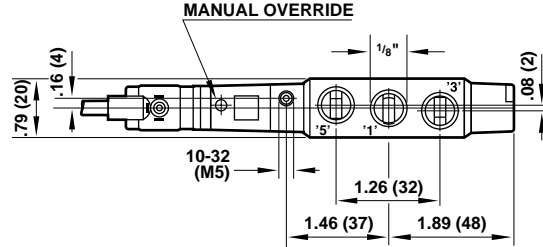
## V19P5\*7A

5/2 Single Solenoid Pilot Valves



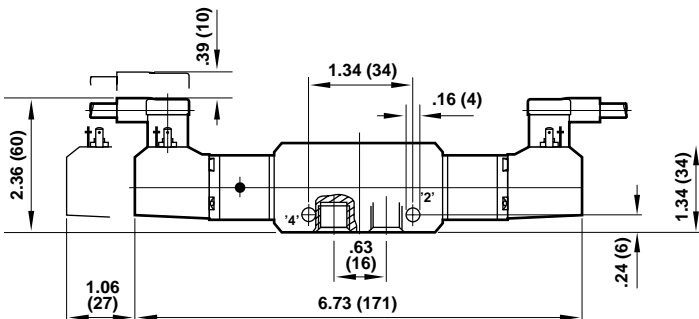
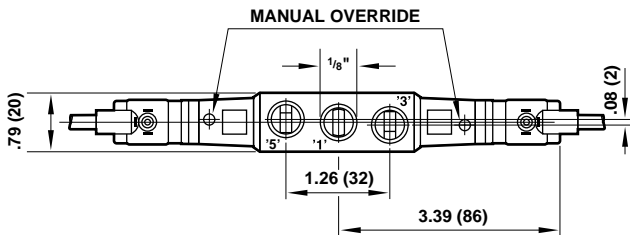
## V19P5E7A

5/2 Single Solenoid Pilot Valves with external pilot supply



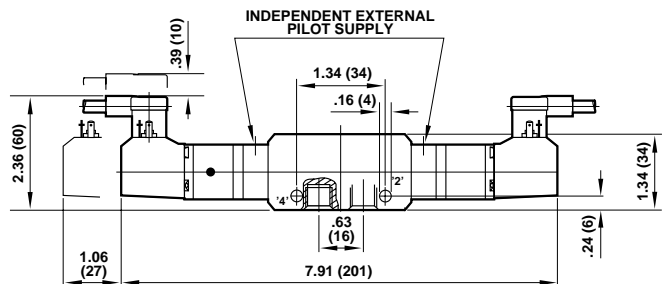
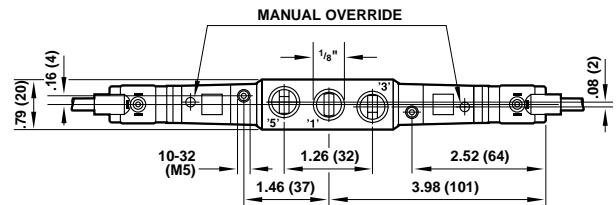
## V19P5\*\*A

5/2 Double Solenoid Pilot Valves



## V19P5EEA

5/2 Double Solenoid Pilot Valves with external pilot supply



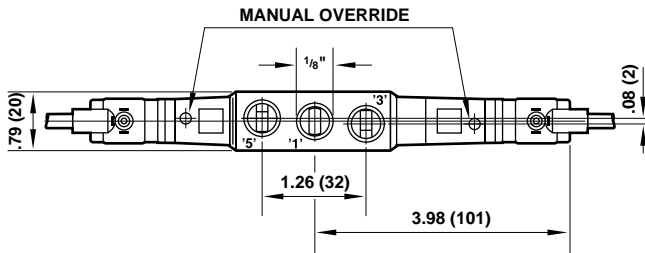
# Nugget 70 Series Valves

All Dimensions in Inches (mm)



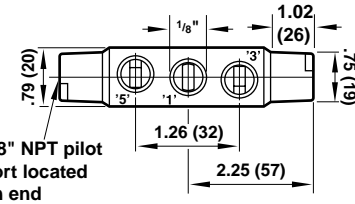
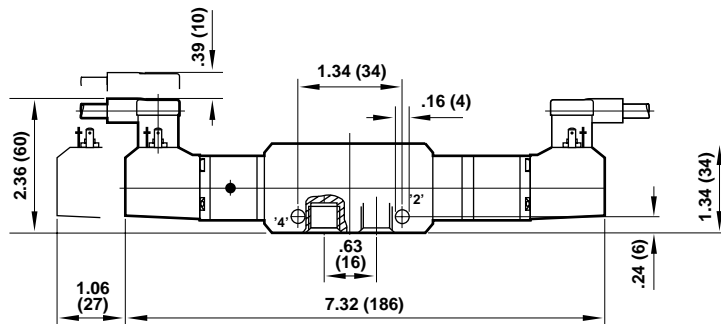
## V19P\*EEA

5/3 Double Solenoid Pilot Valves



## V19P5D7A-XP090

5/2 Single Air Pilot Valves

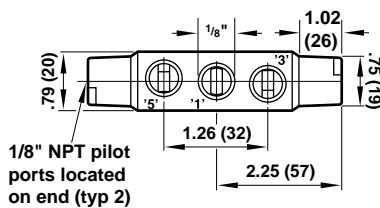


## V19P5DDA-XP020

5/2 Double Air Pilot Valves

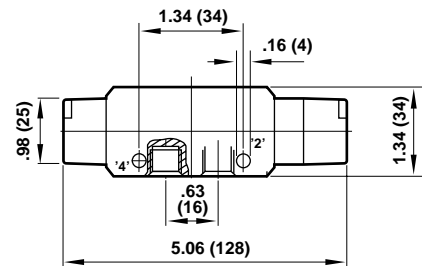
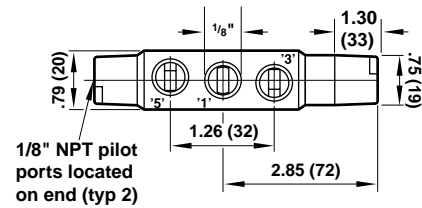
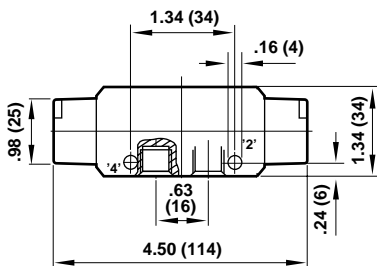
## V19P59A-XP060

5/2 Small Air/Large Air Valves



## V19P\*DDA

5/3 Double Air Pilot Valves



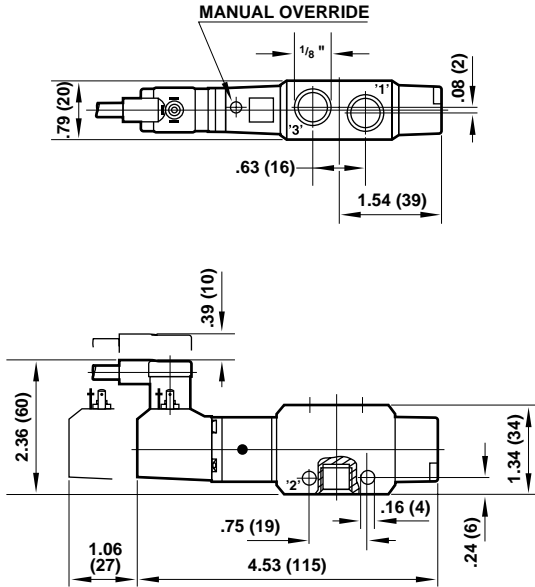


# Nugget 70 Series Valves

All Dimensions in Inches (mm)

## V19P417A

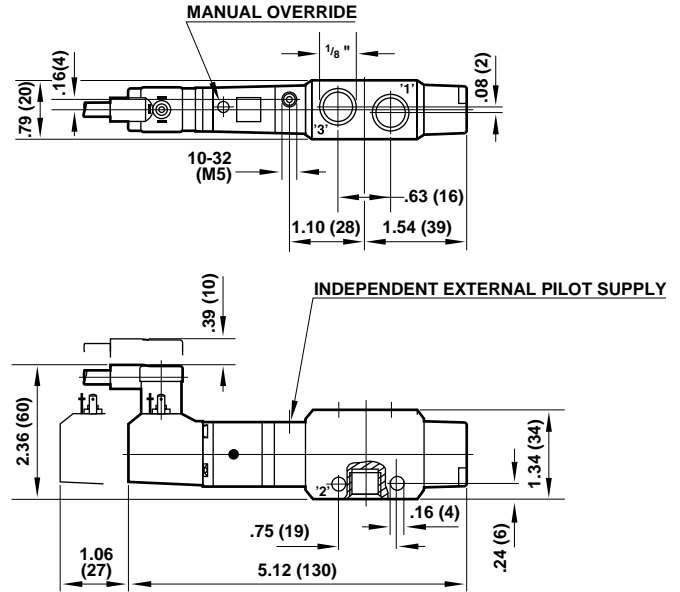
3/2 NC Single Solenoid Pilot Valve\*



\* Normally Open valves have the same envelope dimensions with operators mounted on opposite ends of the valve body.

## V19P4E7A

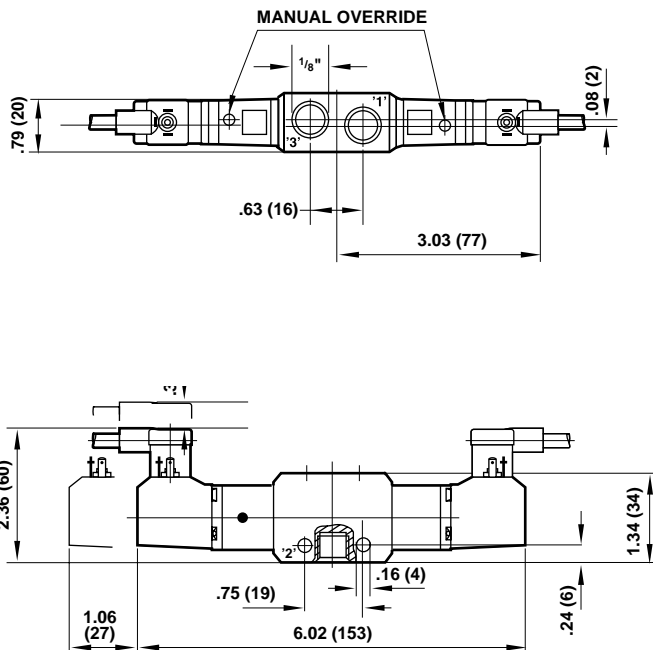
3/2 NC Single Solenoid Pilot Valves with external pilot supply\*



\* Normally Open valves have the same envelope dimensions with operators mounted on opposite ends of the valve body.

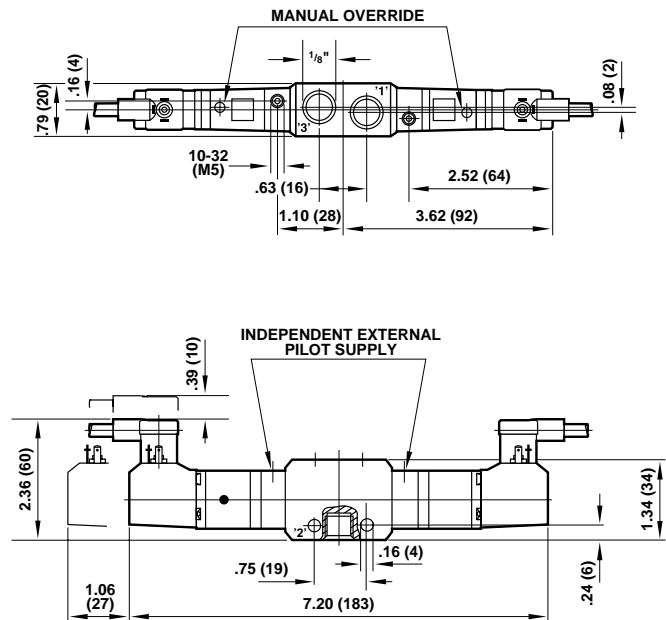
## V19P311A

3/2 Double Solenoid Pilot Valves



## V19P3EEA

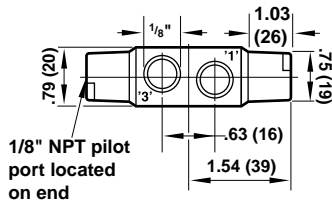
3/2 Double Solenoid Pilot Valves with external pilot supply





## V19P4D7A-XP090

3/2 NC Single Air Pilot Valve\*

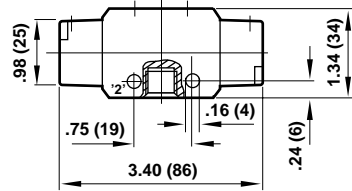
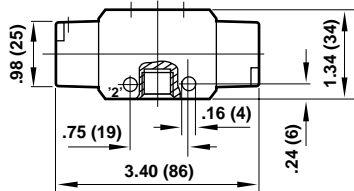
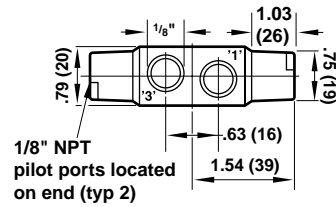


## V19P\*9DA-XP060

3/2 NC and NO\* Small Air/Large Air Valves

## V19P3DDA-X0020

3/2 Double Air Pilot Valve



\* Normally Open valves have the same envelope dimensions with operators mounted on opposite ends of the valve body.

\* Normally Open valves have the same envelope dimensions with operators mounted on opposite ends of the valve body.



### Repair Kits

Valve repair kit – 3/2	V40232-K30
Valve repair kit – 5/2	V40233-K30
Valve repair kit – 5/3 APB	V40234-K30
Valve repair kit – 5/3 COE	V40235-K30
Valve repair kit – 5/3 COP	V40236-K30
Solenoid connector seal kit	.54644-52
Solenoid coil screw kit	V10259-K00

### 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 connector w/indicator light - 120 VAC	V10012-D18

