



Poppet Series

Compressed Air & Vacuum



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Poppet Valves

| | |
|-----------------------|---|
| Features and Benefits | 2 |
| How to Order | 2 |

NF Series - Compressed Air Valve

Solenoid Air Pilot Actuated

| | |
|-------------------------------|-----|
| 1/8" to 3/8" Technical Data | 3 |
| 1/8" to 3/8" Dimensions | 4 |
| 1/2" to 1-1/2" Technical Data | 5 |
| 1/2" to 1-1/2" Dimensions | 6-7 |

Air Pilot Actuated

| | |
|-------------------------------|-------|
| 1/8" to 1-1/2" Technical Data | 8 |
| 1/8" to 3/8" Dimensions | 9 |
| 1/2" to 1-1/2" Dimensions | 10-11 |

NG Series - Vacuum Valve

Solenoid Air Pilot Actuated

| | |
|-------------------------------|-------|
| 1/8" to 3/8" Technical Data | 12 |
| 1/8" to 3/8" Dimensions | 13 |
| 1/2" to 1-1/2" Technical Data | 14 |
| 1/2" to 1-1/2" Dimensions | 15-16 |

Air Pilot Actuated

| | |
|-------------------------------|-------|
| 1/8" to 1-1/2" Technical Data | 17 |
| 1/8" to 3/8" Dimensions | 18 |
| 1/2" to 1-1/2" Dimensions | 19-20 |

NM Series - Foot Pedal Valve

| | |
|----------------|----|
| Technical Data | 21 |
|----------------|----|

Accessories

| | |
|--------------------------------|----|
| Coils, Repair Kits, Pipe Plugs | 22 |
|--------------------------------|----|

Additional Information

| | |
|---|----|
| Standard Poppet Valve Weight Requirements | 23 |
| FAQs | 24 |

For Compressed Air and Vacuum

The Numatics Poppet Valves are ideal for single acting cylinders, Air Bellows and vacuum material handling.

- CAD Drawings Available
- High Flow
- Rugged Design
- Low Cost
- CSA and CE Approved



How to Order

NF 1 BA N 52 4 N 000 61

Valve Series

NF = Poppet for Compressed Air
NG = Poppet for Vacuum

Port Size

1 = 1/8"
2 = 1/4"
3 = 3/8"
4 = 1/2"
5 = 3/4"
6 = 1"
8 = 1-1/2"

Valve Actuator

BA = Solenoid pilot with spring return
PA = Air pilot with spring return

Valve Function

G = 2 Position 2-way Normally Closed (non-passing)
N = 2 Position 3-way Normally Closed (non-passing)
P = 2 Position 3-way Normally Open (passing)

Mounting

52 = Line mounted (ports in valve body)

Wiring Options

O = No wiring - Air piloted
2 = DIN Style Plug-in solenoid, AC voltage
4 = DIN Style Plug-in solenoid, DC voltage

Port Type

N = NPTF Pressure ports

Voltage

00 = Air Pilot
30 = 110V AC/50-60Hz
40 = 220V AC/50-60Hz
60 = 12VDC
61 = 24VDC

Special Options

000 = No Option
14A = External pilot (standard on air pilot only valves)
11M = No manual override access
66W = Field installable electrical connector included w/light
60T = Field installable electrical connector included w/o light
68C = (14A) External pilot (standard air pilot only valves) + (11M) no manual override access
68D = (11M) No manual override access + (66W) Field installable electrical connector included w/light
68E = (14A) External pilot (standard air pilot only valves) + (66W) field installable electrical connector included w/light
68F = (11M) No manual override access + (60T) Field installable electrical connector included w/o light
68G = (14A) External pilot (standard air pilot only valves) + (60T) field installable electrical connector included w/light
69A = (11M) No manual override + (14A) External pilot (standard on air pilot only valves) + (66W) Field installable electrical connector included w/light
69B = (11M) No manual override + (14A) External pilot (standard on air pilot only valves) + (60T) Field installable electrical connector included w/o light

Solenoid Air Pilot Actuated - 1/8" to 3/8"

- 3-way design
- Use with air or neutral gas
- AC & DC voltages available

NOTE:

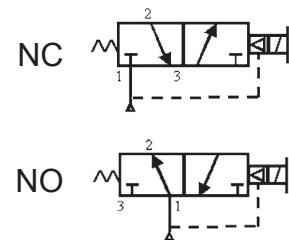
3 ported, 2 position valve (1/8" to 3/8") can be converted to a 2-way valve by inserting a pipe plug into the exhaust.



Technical Data

| Ports (NPTF) | 1/8" | 1/4" | 3/8" |
|-----------------------------|---|---------------------------|---------------------------|
| Cv | 0.5 | 1.8 | 2 |
| Flow Capacity | 23 SCFM* (492 NI/min) | 83 SCFM* (1773 NI/min) | 93 SCFM* (1970 NI/min) |
| | *80 PSIG upstream pressure to atmosphere downstream | | |
| Operating Pressure Range | 24-145 PSIG (1.7-10 Bar) ¹ | | |
| Temperature Range (Ambient) | 23° to +122°F ambient (-5° to +50°C ambient) | | |
| Coil Type | U1 Series Coil | | |

¹ If ΔP from P1 to P2 is near 1 bar or less external pilot is required.



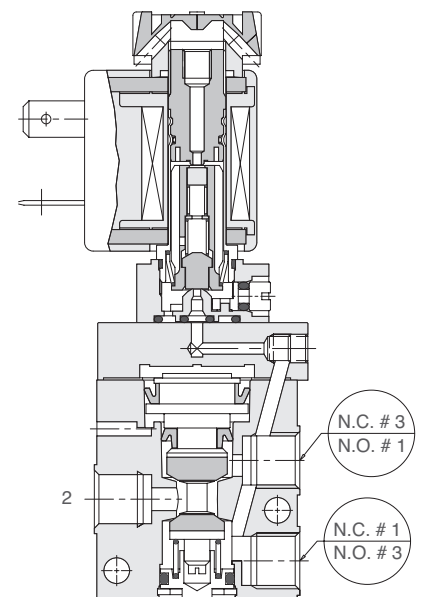
Operating Data

| Voltage | 12 VDC | 24 VDC | 110 VAC 50-60 Hz | 220 VAC 50-60 Hz |
|-------------------|--------|--------|------------------|------------------|
| Power Consumption | 3.5W | 3.5W | 0.04A | 0.04A |
| In-rush Current | 3.5W | 3.5W | 0.07A | 0.07A |

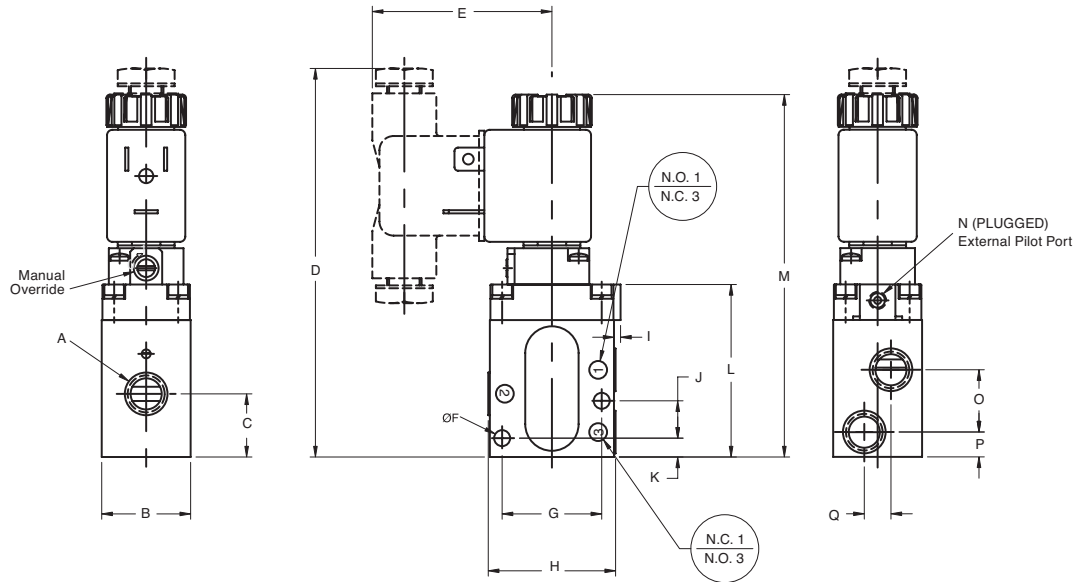
Plug Specifications: NEMA 4, IP 65 with plug-in connector
Solenoid Rating: Continuous Duty

| Response Time (Seconds) | Energize | De-Energize |
|-------------------------|----------|-------------|
| 1/8" (NC & NO) | 0.015 | 0.020 |
| 1/4" - 3/8" (NC) | 0.020 | 0.023 |
| 1/4" - 3/8" (NO) | 0.015 | 0.020 |

NC: normally closed NO: normally open

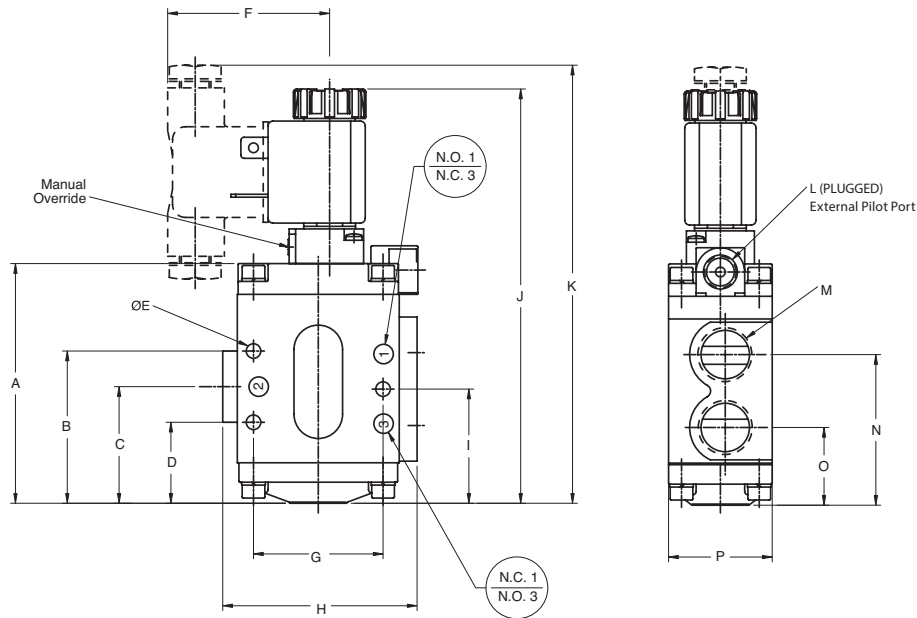


1/8" to 3/8" Dimensions for Solenoid Air Pilot Actuated



1/8" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|-------------|-----------------|-----------------|------------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|------------------|------|-----------------|----------------|----------------|
| 1/8" NPT | 0.984 (25.0) | 0.699 (17.8) | 4.488 (114.0) | 1.969 (50.0) | 0.177 (4.5) | 1.102 (28.0) | 1.417 (36.0) | 0.073 (1.9) | 0.413 (10.5) | 0.209 (5.3) | 1.909 (48.5) | 4.016 (102.0) | (M5) | 0.689 (17.5) | 0.276 (7.0) | 0.295 (7.5) |



1/4" to 3/8" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|--------------|---------------------|-----------------|-----------------|-----------------|
| 2.913 (74.0) | 1.850 (47.0) | 1.417 (36.0) | 0.984 (25.0) | 0.177 (4.5) | 2.028 (51.5) | 1.575 (40.0) | 2.362 (60.0) | 1.398 (35.5) | 5.079 (129.0) | 5.354 (136.0) | 1/8" GTAP | 1/4" or 3/8" NPT | 1.850 (47.0) | 0.945 (24.0) | 0.945 (24.0) |

Solenoid Air Pilot Actuated Compressed Air Valves - 1/2" to 1-1/2"

- 3-way design & 2-way design
- Use with air or neutral gas
- Solenoid pilot actuated
- AC & DC voltages available

NOTE:

- Always Supply Port #1.
- Port 3 must not be restricted.
- Normally open valve is a normally closed function using a normally open pilot operator.

NOTE:

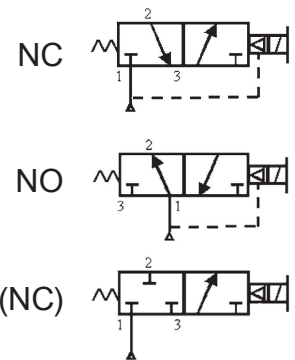
1/2" to 1-1/2" valves cannot be converted to a 2 ported (2-way), 2 position valve. If a 2-way valve is required, it must be ordered as a 2-way.



Technical Data

| Ports (NPTF) | 1/2" | 3/4" | 1" | 1-1/2" |
|-----------------------------|--|--|--|-----------------------------------|
| Cv | 5 | 5.6 | 8.8 | 24 |
| Flow Capacity | 232 SCFM* (4924 NI/min)** | 260 SCFM* (5515 NI/min)** | 407 SCFM*** (8667 NI/min)** | 1111 SCFM**** (23637 NI/min)** |
| | *80 PSIG upstream pressure to atmosphere downstream **6 Bar upstream to 5 Bar downstream ***70 PSIG upstream pressure to atmosphere downstream ****60 PSIG upstream pressure to atmosphere downstream | | | |
| Operating Pressure Range | 30-145 PSIG (2 - 10 Bar) ¹ | 32-145 PSIG (2.2 - 10 Bar) ¹ | 36-145 PSIG (2.5 - 10 Bar) ¹ | |
| Temperature Range (Ambient) | 23°F to +122°F ambient (-5°C to +50°C ambient) | | | |
| Coil Type | U2 Series Coil | | | |

¹ If ΔP from P1 to P2 is near 1 bar or less external pilot is required.



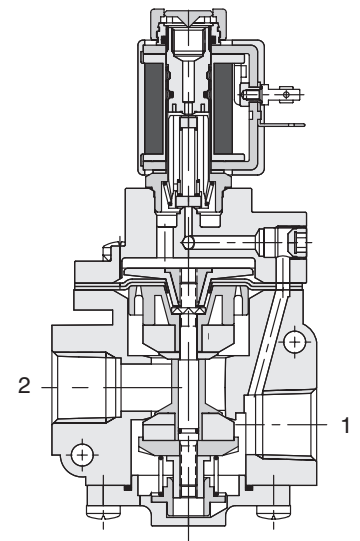
Operating Data

| Voltage | 12 VDC | 24 VDC | 110 VAC 50-60 Hz | 220 VAC 50-60 Hz |
|-------------------|--------|--------|------------------|------------------|
| Power Consumption | 11W | 11W | 0.08A | 0.08A |
| In-rush Current | 11W | 11W | 0.13A | 0.13A |

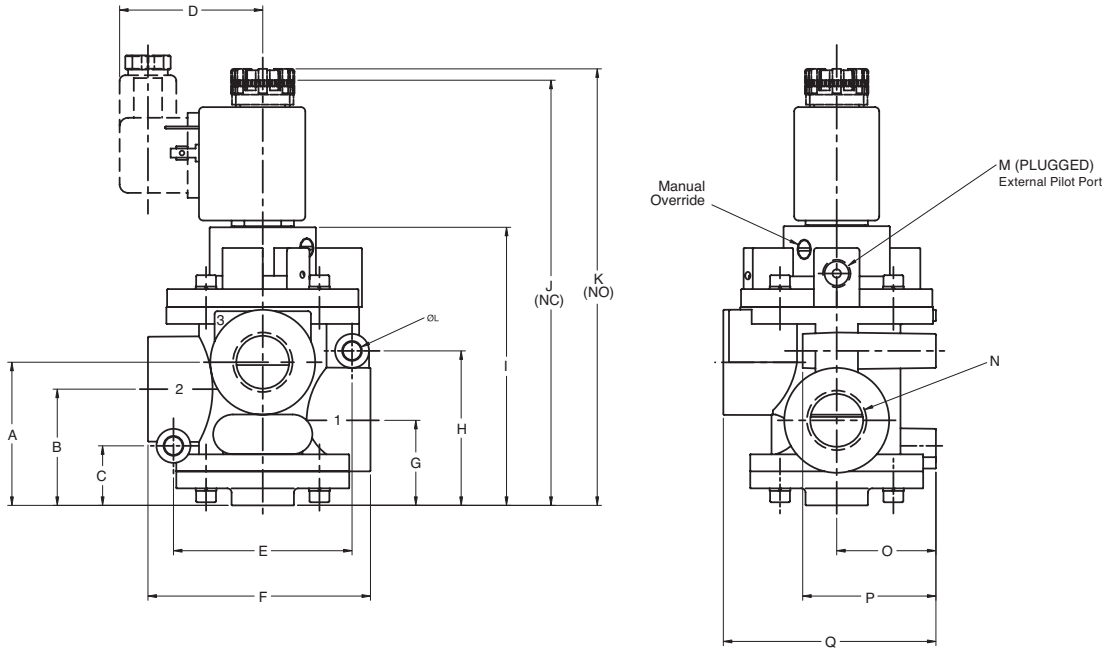
Plug Specifications: NEMA 4, IP 65 with plug-in connector
Solenoid Rating: Continuous Duty

| Response Time (Seconds) | Energize | De-Energize |
|-------------------------|----------|-------------|
| 1/2" & 3/4" (NC) | 0.017 | 0.027 |
| 1/2" & 3/4" (NO) | 0.030 | 0.022 |
| 1" (NC) | 0.020 | 0.032 |
| 1" (NO) | 0.028 | 0.023 |
| 1-1/2" (NC) | 0.047 | 0.022 |
| 1-1/2" (NO) | 0.055 | 0.020 |

NC: normally closed NO: normally open

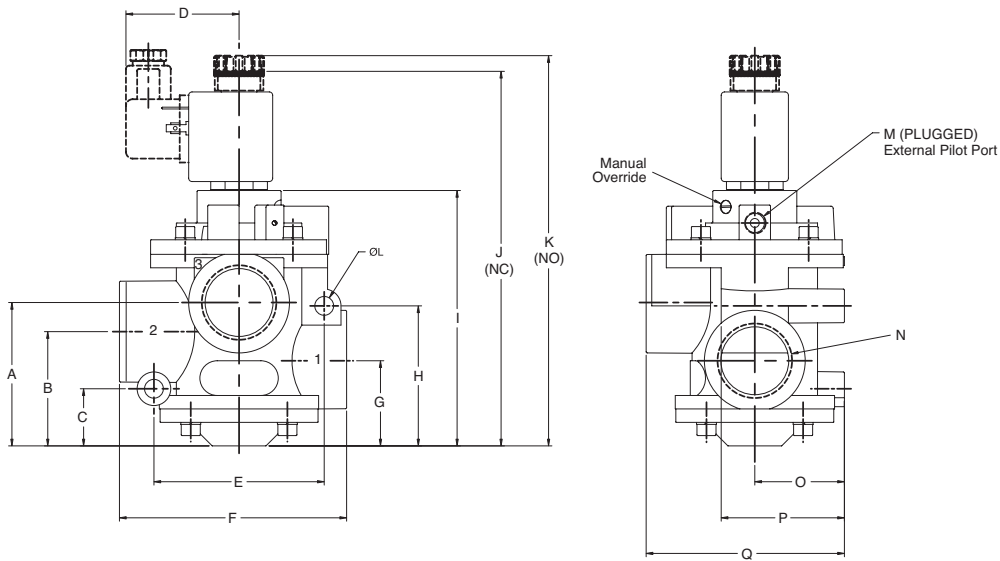


1/2" to 1" Dimensions for Solenoid Air Pilot Actuated



1/2" & 3/4" NPT Dimensions: inches (mm)

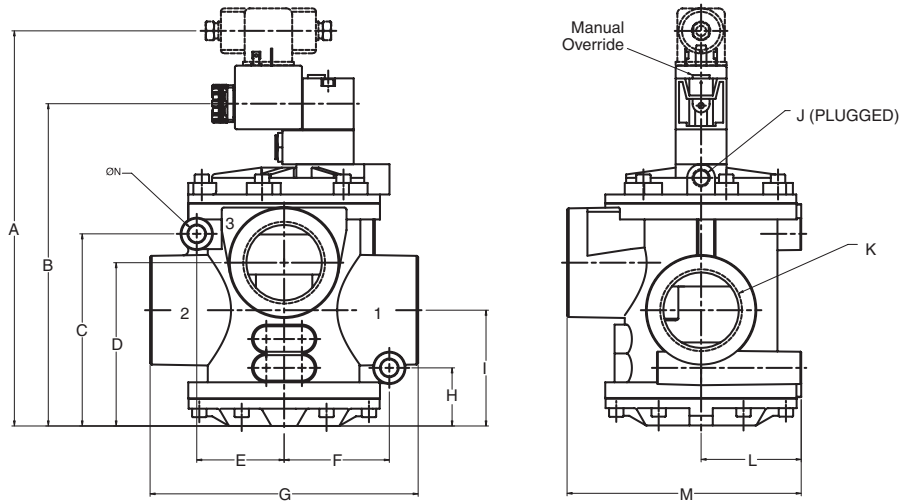
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|----------------|--------------|---------------------|-----------------|-----------------|-----------------|
| 1.988 (50.0) | 1.614 (41.0) | 0.827 (21.0) | 1.988 (50.5) | 2.480 (63.0) | 3.091 (78.5) | 1.181 (30.0) | 2.146 (54.5) | 3.996 (101.5) | 5.906 (150.0) | 6.063 (154.0) | 0.252 (6.4) | 1/8" GTAP | 1/2" to 3/4" NPT | 1.378 (35.0) | 1.850 (47.0) | 2.953 (75.0) |



1" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|------------------|------------------|----------------|--------------|-----------|-----------------|-----------------|-----------------|
| 2.520 (64.0) | 2.008 (51.0) | 1.004 (25.5) | 1.969 (50.0) | 2.992 (76.0) | 3.976 (101.0) | 1.496 (38.0) | 2.461 (62.5) | 4.528 (115.0) | 6.575 (167.0) | 6.850 (174.0) | 0.331 (8.4) | 1/8" GTAP | 1" NPT | 1.575 (40.0) | 2.165 (55.0) | 3.504 (89.0) |

1-1/2" Dimensions for Solenoid Air Pilot Actuated



1-1/2" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|------------------|------------------|------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|--------------|---------------|-----------------|------------------|-----------------|
| 9.173 (233.0) | 7.480 (190.0) | 4.449 (113.0) | 3.780 (96.0) | 2.028 (51.5) | 2.441 (62.0) | 6.220 (158.0) | 1.339 (34.0) | 2.677 (68.0) | 1/8" GTAP | 1-1/2" NPT | 2.323 (59.0) | 5.433 (138.0) | 0.394 (10.0) |

Air Pilot Actuated Valves - 1/8" to 1-1/2"

- 3-way & 2-way design
- Air pilot actuated
- Use with air or neutral gases
- For lubricated or non-lubricated service

NOTE: 3-ported, 2 position valve (1/8" to 3/8") can be converted to a 2 way valve by inserting a pipe plug into the exhaust port.

NOTE: 1/2" to 1-1/2" valves cannot be converted to a 2 ported (2-way), 2 position valve. If a 2-way valve is required, it must be ordered as a 2-way.



Technical Data

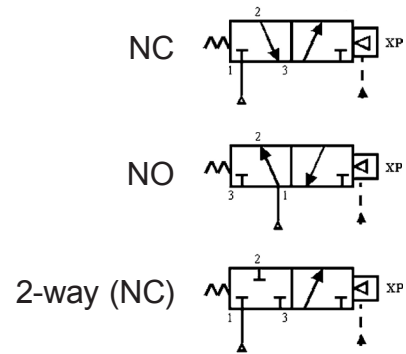
| Ports (NPTF) | 1/8" | 1/4" | 3/8" |
|--------------------------|---|-----------------------------------|-----------------------------|
| Cv | 0.5 | 1.8 | 2 |
| Flow Capacity | 23 SCFM* (492 NI/min)** | 83 SCFM* (1773 NI/min)** | 93 SCFM* (1970 NI/min)** |
| | *80 PSIG upstream pressure to atmosphere downstream | | |
| Operating Pressure Range | 24-145 PSIG (1.7 - 10 Bar) ¹ | | |
| Pilot Pressure | Minimum 58% of Operating Pressure | Minimum 67% of operating pressure | |
| Temperature Range | 23° to +122°F ambient (-5° to +50°C ambient) | | |

¹ If ΔP from P1 to P2 is near 1 bar or less external pilot is required.

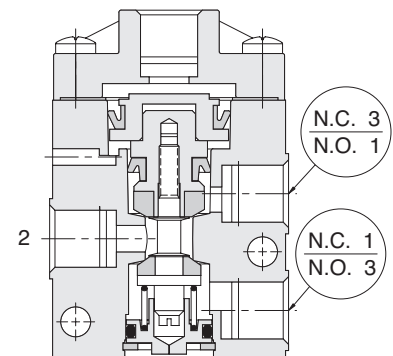
| Ports (NPTF) | 1/2" | 3/4" | 1" | 1-1/2" |
|--------------------------|---|----------------------------|-----------------------------|------------------------------|
| Cv | 5 | 5.6 | 8.8 | 24 |
| Flow Capacity | 232 SCFM* (4924 NI/min) | 260 SCFM* (5155 NI/min) | 407 SCFM** (8667 NI/min) | 407 SCFM*** (8667 NI/min) |
| | *80 PSIG upstream pressure to atmosphere downstream | | | |
| | **70 PSIG upstream pressure to atmosphere downstream | | | |
| | ***60 PSIG upstream pressure to atmosphere downstream | | | |
| Operating Pressure Range | 32-145 PSIG (2.2 - 10 Bar) | | 36-145 PSIG (2.5 - 10 Bar) | |
| Pilot Pressure | Minimum 67% of operating pressure ¹ | | | |
| Temperature Range | 23° to +122°F ambient (-5° to +50°C ambient) | | | |

| Response Time (Seconds) | Energize | De-Energize |
|-------------------------|----------|-------------|
| 1/8" (NC, NO) | 0.005 | 0.008 |
| 1/4" & 3/8" (NC, NO) | 0.005 | 0.007 |
| 1/2" & 3/4" (NC) | 0.007 | 0.010 |
| 1" (NC) | 0.010 | 0.012 |
| 1-1/2" (NC) | 0.036 | 0.015 |

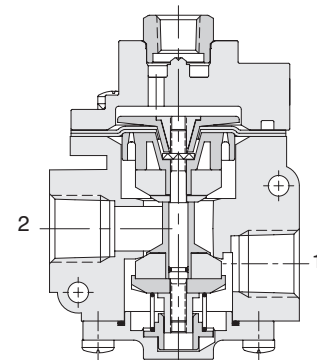
NC: normally closed NO: normally open



1/8" - 3/8"



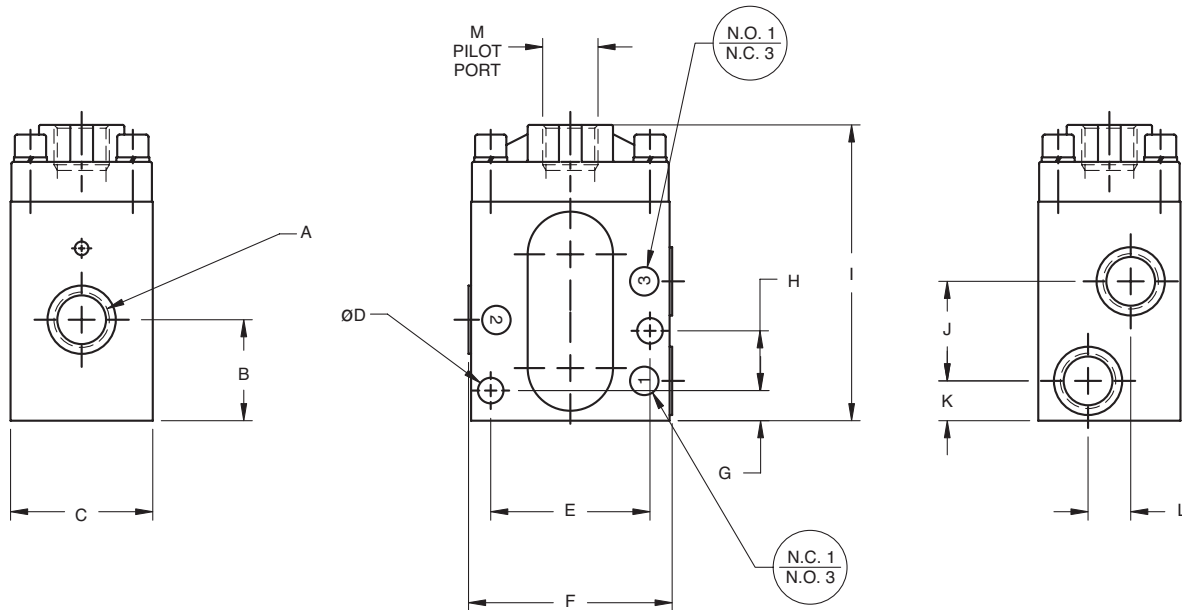
1/2" - 1-1/2"



NOTE: 1/2" to 1-1/2" not available in (NO).

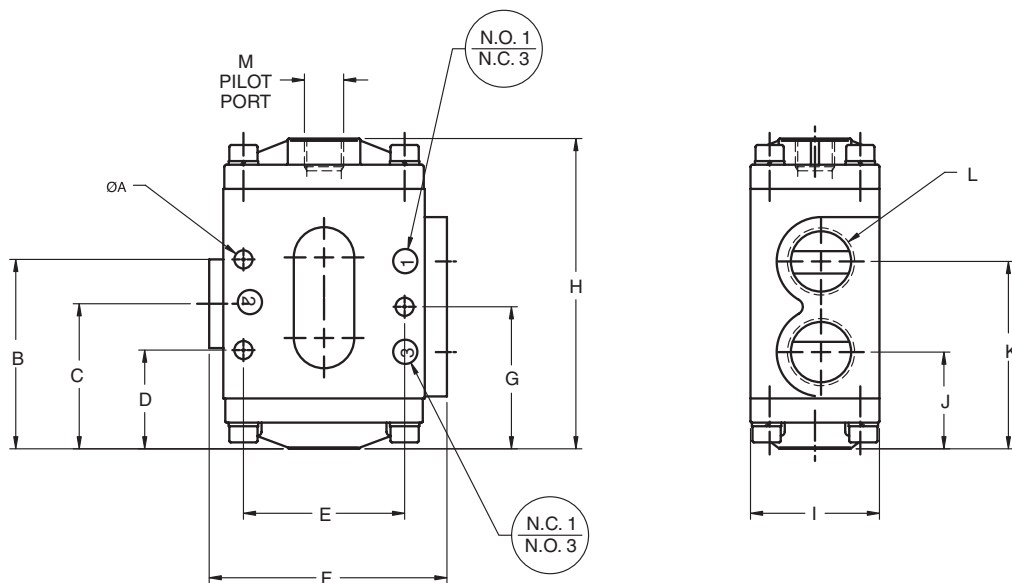
NOTE: Always supply Port 1.

1/8" to 3/8" Dimensions for Air Pilot Actuated



1/8" NPT Dimensions: inches (mm)

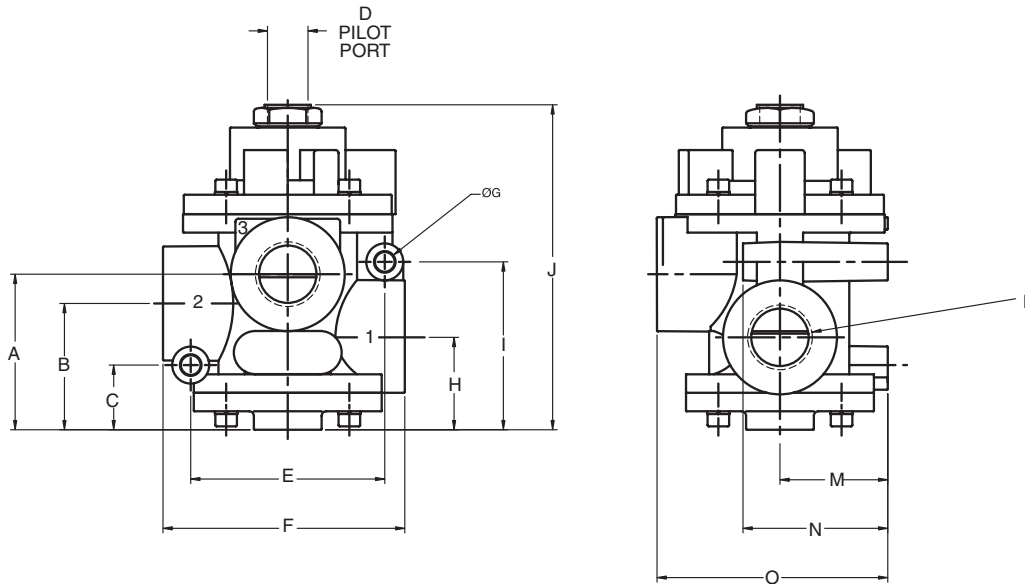
| A | B | C | D | E | F | G | H | I | J | K | L | M |
|-------------|-----------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|--------------|
| 1/8" NPT | 0.699 (17.8) | 0.984 (25.0) | 0.177 (4.5) | 1.102 (28.0) | 1.417 (36.0) | 0.209 (5.3) | 0.413 (10.5) | 1.988 (50.5) | 0.689 (17.5) | 0.276 (7.0) | 0.295 (7.5) | 1/8" GTAP |



1/4" & 3/8" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---------------------|---------------|
| 0.177 (4.5) | 1.850 (47.0) | 1.417 (36.0) | 0.945 (24.0) | 1.575 (40.0) | 2.362 (60.0) | 1.398 (35.5) | 3.031 (77.0) | 1.260 (32.0) | 0.945 (24.0) | 1.850 (47.0) | 1/4" or 3/8" NPT | 1/8" BSPP* |

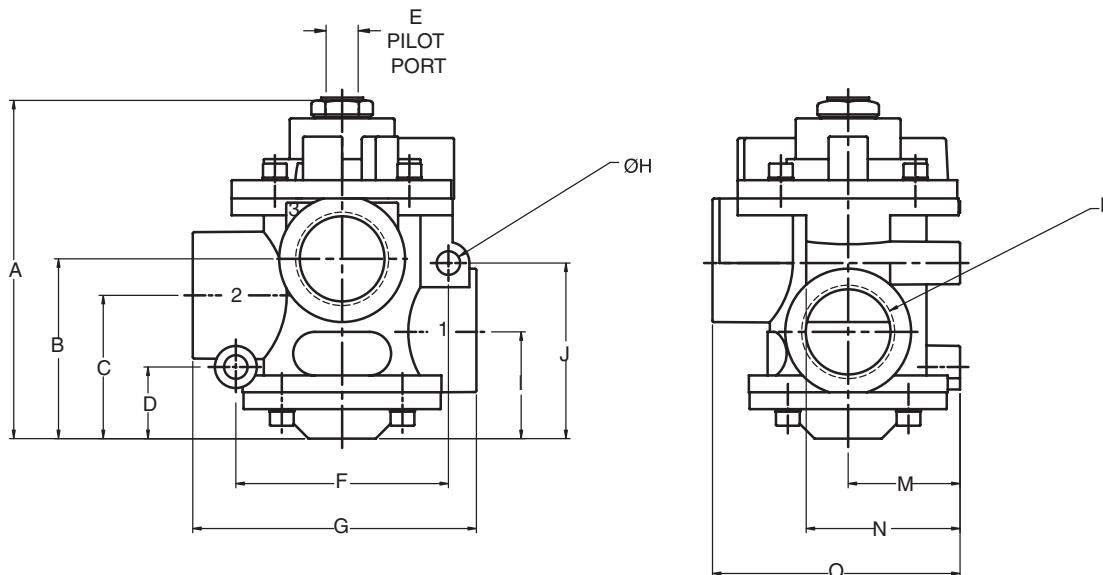
1/2" to 1" Dimensions for Air Pilot Actuated



1/2" & 3/4" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | L | M | N | O |
|-----------------|-----------------|-----------------|--------------|-----------------|-----------------|----------------|-----------------|-----------------|------------------|---------------------|-----------------|-----------------|-----------------|
| 1.988 (50.5) | 1.614 (41.0) | 0.827 (21.0) | 1/4" GTAP | 2.480 (63.0) | 3.091 (78.5) | 0.252 (6.4) | 1.181 (30.0) | 2.146 (54.5) | 4.134 (105.0) | 1/2" to 3/4" NPT | 1.378 (35.0) | 1.850 (47.0) | 2.953 (75.0) |

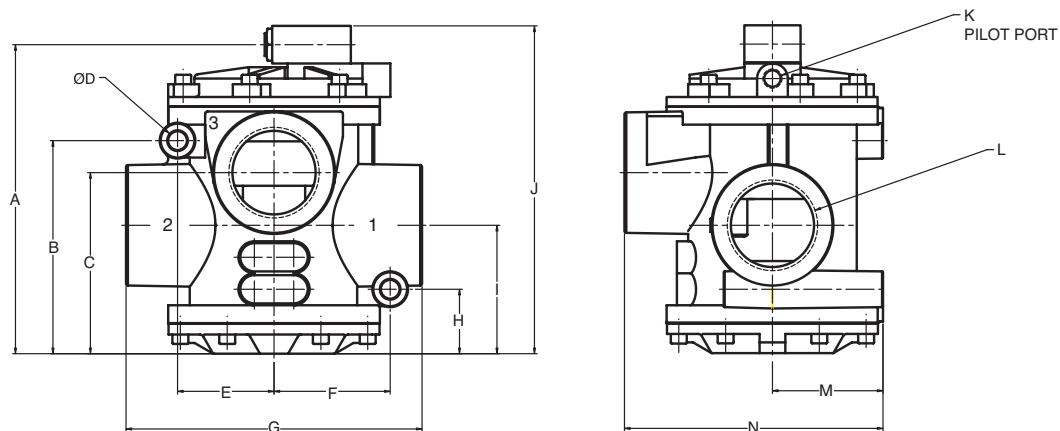
1" Dimensions for Air Pilot Actuated



1" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | L | M | N | O |
|------------------|-----------------|-----------------|-----------------|--------------|-----------------|------------------|----------------|-----------------|-----------------|-----------|-----------------|-----------------|-----------------|
| 4.744 (120.5) | 2.520 (64.0) | 2.008 (51.0) | 1.004 (25.5) | 1/4" GTAP | 2.992 (76.0) | 3.976 (101.0) | 0.331 (8.4) | 1.496 (38.0) | 2.461 (62.5) | 1" NPT | 1.575 (40.0) | 2.165 (55.0) | 3.484 (88.5) |

1-1/2" Dimensions for Air Pilot Actuated



1-1/2" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|------------------|------------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|----------|------------|-----------------|------------------|
| 6.467 (164.3) | 4.449 (113.0) | 3.780 (96.0) | 0.433 (11.0) | 2.028 (51.5) | 2.441 (62.0) | 6.220 (158.0) | 1.339 (34.0) | 2.677 (68.0) | 6.860 (174.3) | 1/8" NPT | 1-1/2" NPT | 2.323 (59.0) | 5.433 (138.0) |

Solenoid Air Pilot Actuated Vacuum Valves - 1/8" to 3/8"

- Solenoid External Air Pilot Actuated
- 3 ported, 2 position
- For lubricated or non lubricated service
- Diaphragm actuated
- Polyurethane diaphragm



Technical Data

| Ports (NPTF) | 1/8" | 1/4" | 3/8" |
|------------------------|--|------|------|
| Cv | 0.5 | 1.8 | 2 |
| Operating Vacuum Range | Maximum 29.9" of Hg (759.5 mm of Hg) | | |
| Pilot Range | 36 - 145 PSIG (2.5 - 10 Bar) | | |
| Temperature Range | 23°F to +122°F ambient (-5°C to +50°C ambient) | | |
| Coil Type | U1 Series Coil | | |

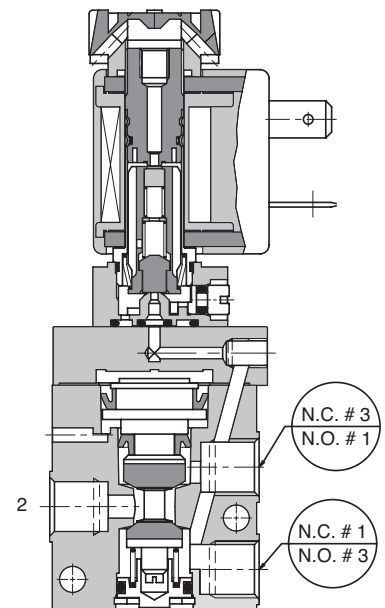
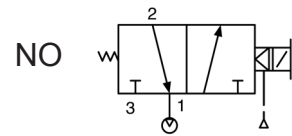
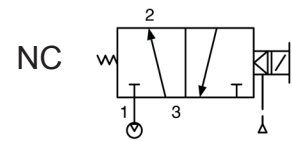
Operating Data

| Voltage | 12 VDC | 24 VDC | 110 VAC 50-60 Hz | 220 VAC 50-60 Hz |
|-------------------|--------|--------|------------------|------------------|
| Power Consumption | 3.5W | 3.5W | 0.04A | 0.04A |
| In-rush Current | 3.5W | 3.5W | 0.07A | 0.07A |

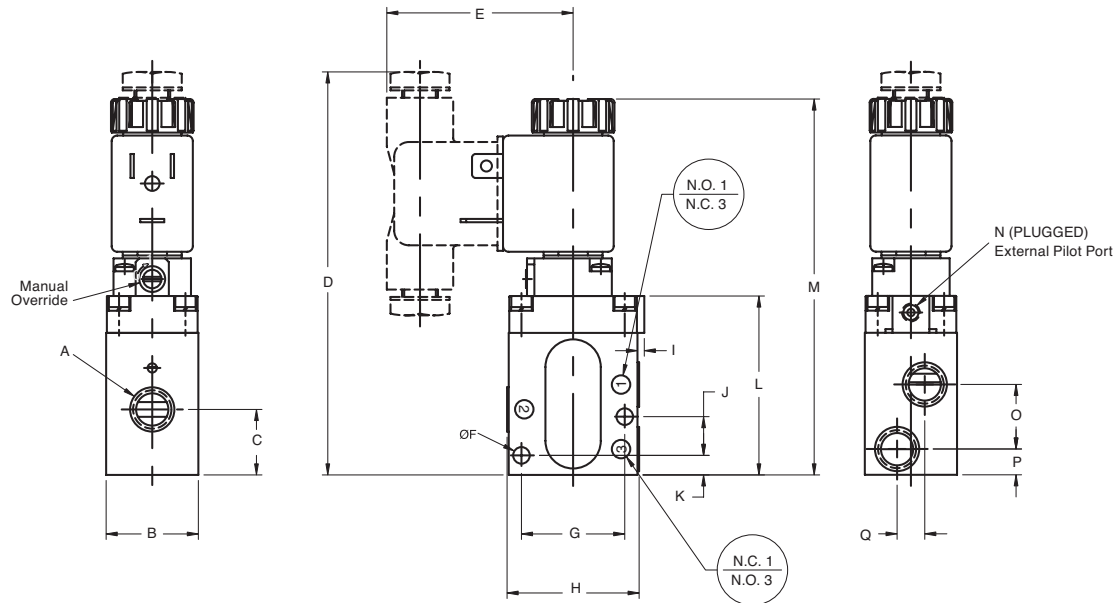
Plug Specifications: NEMA 4, IP 65 with plug-in connector
Solenoid Rating: Continuous Duty

| Response Time (Seconds) | Energize | De-Energize |
|-------------------------|----------|-------------|
| 1/8" (NC, NO) | 0.014 | 0.025 |
| 1/4" & 3/8" (NC, NO) | 0.016 | 0.027 |

NC: normally closed NO: normally open



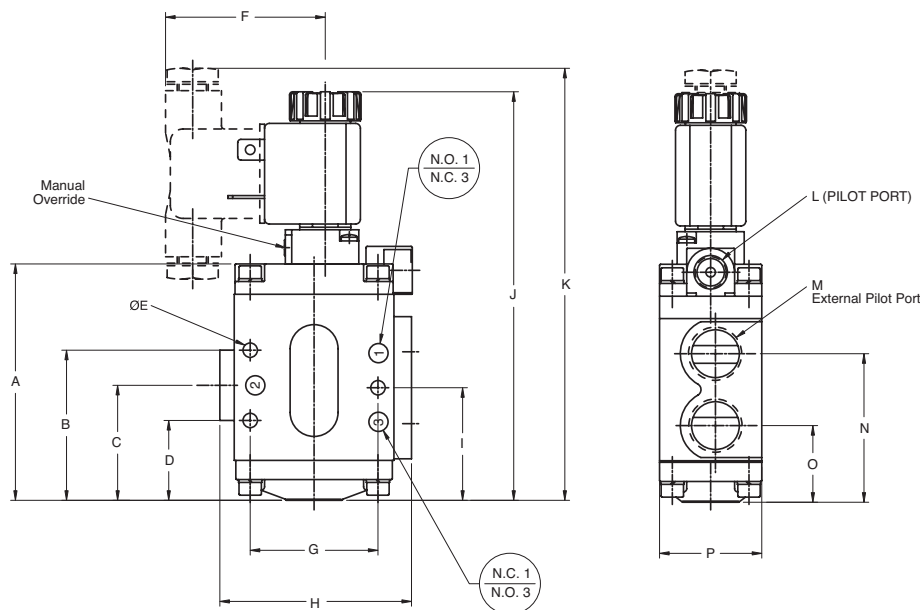
1/8" to 3/8" Dimensions for Solenoid Air Pilot Actuated Vacuum Valves



1/8" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|----------|--------------|--------------|---------------|--------------|-------------|--------------|--------------|-------------|--------------|-------------|--------------|---------------|------|--------------|-------------|-------------|
| 1/8" NPT | 0.984 (25.0) | 0.699 (17.8) | 4.488 (114.0) | 1.969 (50.0) | 0.177 (4.5) | 1.102 (28.0) | 1.417 (36.0) | 0.073 (1.9) | 0.413 (10.5) | 0.209 (5.3) | 1.909 (48.5) | 4.016 (102.0) | (M5) | 0.689 (17.5) | 0.276 (7.0) | 0.295 (7.5) |

1/4" to 3/8" Dimensions for Solenoid Air Pilot Actuated Vacuum Valves



1/4" & 3/8" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|---------------|---------------|-----------|------------------|--------------|--------------|--------------|
| 2.913 (74.0) | 1.850 (47.0) | 1.417 (36.0) | 0.984 (25.0) | 0.177 (4.5) | 1.969 (50.0) | 1.575 (40.0) | 2.362 (60.0) | 1.398 (35.5) | 5.079 (129.0) | 5.354 (136.0) | 1/8" GTAP | 1/4" or 3/8" NPT | 1.850 (47.0) | 0.945 (24.0) | 1.260 (32.0) |

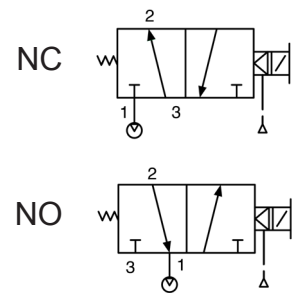
Solenoid Air Pilot Actuated Vacuum Valves - 1/2" to 1-1/2"

- Solenoid External Air Pilot Actuated
- 3 ported, 2 position
- For lubricated or non lubricated service
- Diaphragm actuated
- Polyurethane diaphragm



Technical Data

| Ports (NPTF) | 1/2" | 3/4" | 1" | 1-1/2" |
|------------------------|--|------|----------------------------|--------|
| Cv | 5.0 | 5.6 | 8.8 | 24.0 |
| Operating Vacuum Range | 10" - 29.9" of Hg (759.5 mm of Hg) | | | |
| Pilot Pressure | 43 - 145 PSIG (3 - 10 Bar) | | 58 - 145 PSIG (4 - 10 Bar) | |
| Temperature Range | 23°F to +122°F ambient (-5°C to +50°C ambient) | | | |
| Coil Type | U2 Series Coil | | | |



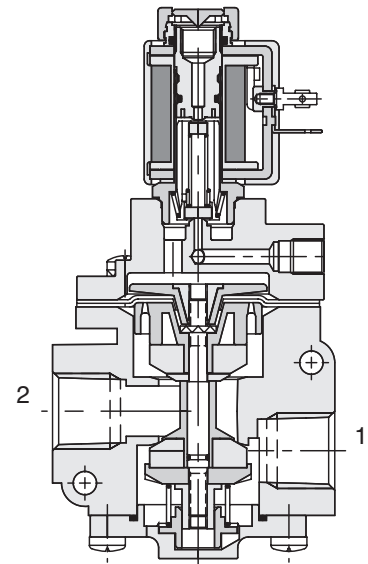
Operating Data

| Voltage | 12 VDC | 24 VDC | 110 VAC 50-60 Hz | 220 VAC 50-60 Hz |
|-------------------|--------|--------|------------------|------------------|
| Power Consumption | 11W | 11W | 0.08A | 0.08A |
| In-rush Current | 11W | 11W | 0.13A | 0.13A |

Plug Specifications: NEMA 4, IP 65 with plug-in connector
Solenoid Rating: Continuous Duty

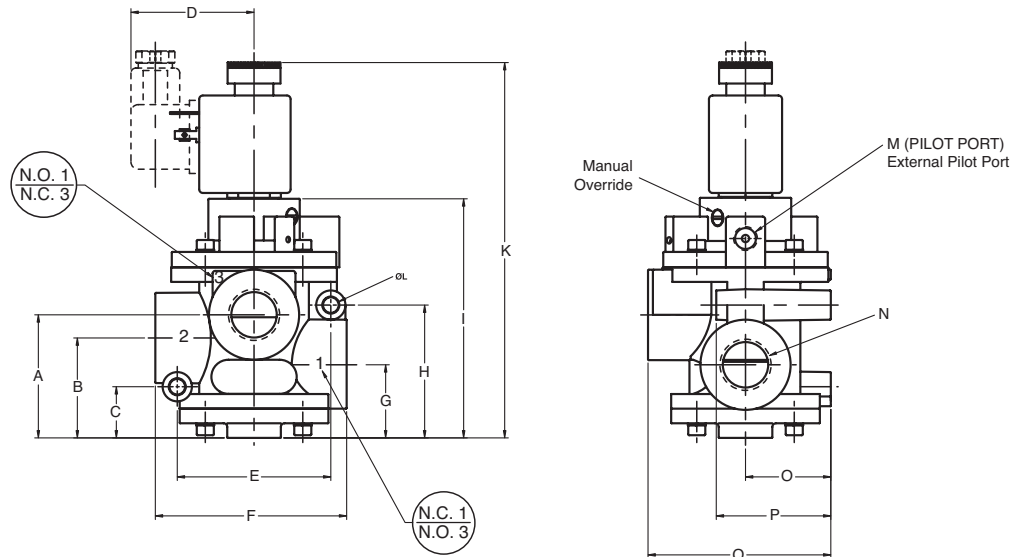
| Response Time (Seconds) | Energize | De-Energize |
|-------------------------|----------|-------------|
| 1/2" & 3/4" (NO) | 0.016 | 0.040 |
| 1" (NO) | 0.018 | 0.042 |
| 1-1/2" (NO) | 0.060 | 0.038 |

NC: normally closed NO: normally open



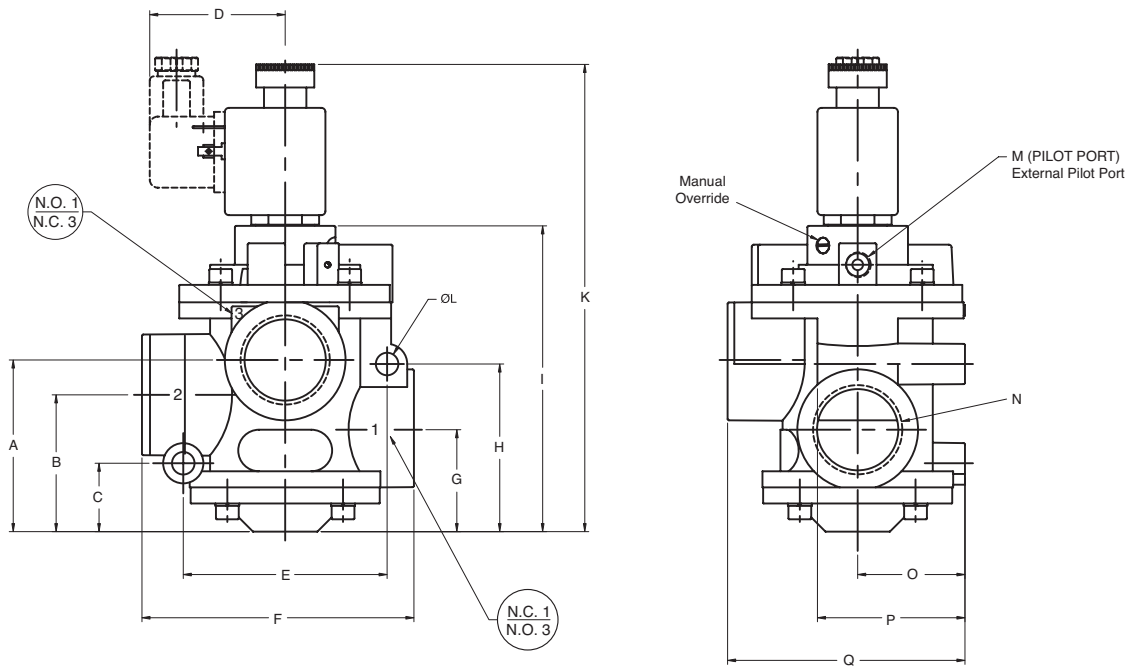
NOTE: Port 3 Cv must not be restricted

1/2" to 1" Dimensions for Solenoid Air Pilot Actuated Vacuum Valves



1/2" & 3/4" NPT Dimensions: inches (mm)

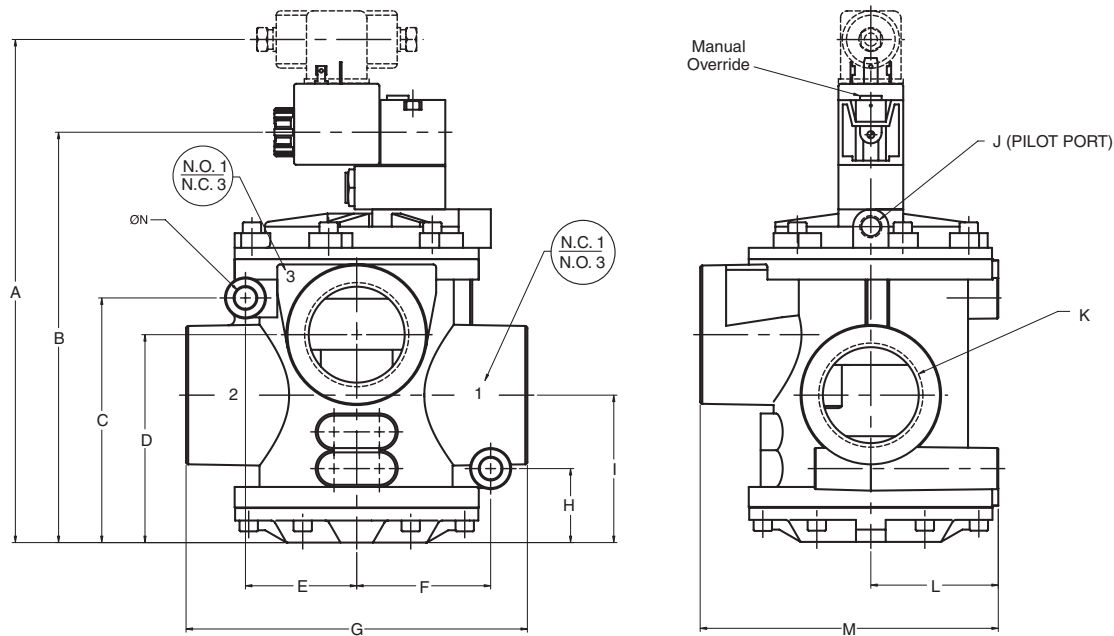
| A | B | C | D | E | F | G | H | I | K | L | M | N | O | P | Q |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|----------------|--------------|---------------------|-----------------|-----------------|-----------------|
| 1.988 (50.5) | 1.614 (41.0) | 0.827 (21.0) | 1.988 (50.5) | 2.480 (63.0) | 3.091 (78.5) | 1.181 (30.0) | 2.146 (54.5) | 3.996 (101.5) | 6.063 (154.0) | 0.252 (6.4) | 1/8" GTAP | 1/2" or 3/4" NPT | 1.378 (35.0) | 1.850 (47.0) | 2.953 (75.0) |



1" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | K | L | M | N | O | P | Q |
|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|------------------|---------------|--------------|-----------|-----------------|-----------------|-----------------|
| 2.520 (64.0) | 2.008 (51.0) | 1.004 (25.5) | 1.969 (50.0) | 2.992 (76.0) | 3.976 (101.0) | 1.496 (38.0) | 2.461 (62.5) | 4.528 (115.0) | 6.850 (174.0) | .331 (8.4) | 1/8" GTAP | 1" NPT | 1.575 (40.0) | 2.165 (55.0) | 3.504 (89.0) |

1-1/2" Dimensions for Solenoid Air Pilot Actuated Vacuum Valves



1-1/2" NPT Dimensions: inches (mm)

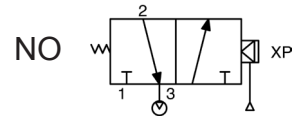
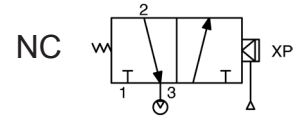
| A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|------------------|------------------|------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|--------------|---------------|-----------------|------------------|-----------------|
| 9.173 (233.0) | 7.480 (190.0) | 4.449 (113.0) | 3.780 (96.0) | 2.028 (51.5) | 2.441 (62.0) | 6.220 (158.0) | 1.339 (34.0) | 2.677 (68.0) | 1/8" GTAP | 1-1/2" NPT | 2.323 (59.0) | 5.433 (138.0) | 0.394 (10.0) |

Air Pilot Actuated Vacuum Valves - 1/8" to 1-1/2"

- 3-way & 2-way design
- Air pilot actuated
- Diaphragm actuated
- Polyurethane diaphragm
- For lubricated or non-lubricated service

NOTE: 3-ported, 2 position valve (1/8" to 3/8") can be converted to a 2 way valve by inserting a pipe plug into the exhaust port.

NOTE: 1/2" to 1-1/2" valves cannot be converted to a 2 ported (2-way), 2 position valve. If a 2-way valve is required, it must be ordered as a 2-way.



Technical Data

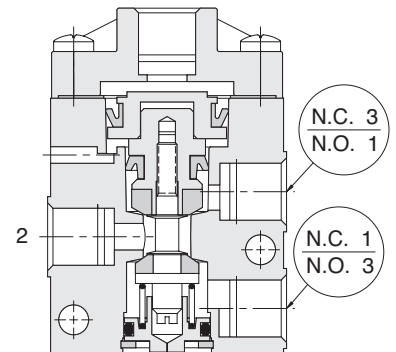
| Ports (NPTF) | 1/8" | 1/4" | 3/8" |
|------------------------|--|------|------|
| Cv | 0.5 | 1.8 | 2 |
| Operating Vacuum Range | Maximum 29.9" of Hg (759.5 mm of Hg) | | |
| Pilot Range | 36 - 145 PSIG (2.5 - 10 Bar) | | |
| Temperature Range | 23°F to +122°F ambient (-5°C to +50°C ambient) | | |

| Ports (NPTF) | 1/2" | 3/4" | 1" | 1-1/2" |
|------------------------|---|------|--------------------------|--------|
| Cv | 5 | 5.6 | 8.8 | 24 |
| Operating Vacuum Range | 10" - 29.9" of Hg (759.5 mm of Hg) | | | |
| Pilot Pressure | 43 - 145 PSIG (3 - 10 Bar) | | 58 - 145 PSIG (4-10 Bar) | |
| Temperature Range | 23°F to + 122°F ambient (-5°C to +50°C ambient) | | | |

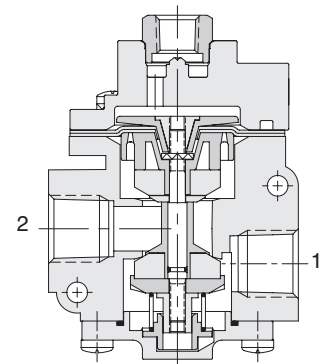
| Response Time (Seconds) | Energize | De-Energize |
|-------------------------|----------|-------------|
| 1/8" (NC, NO) | 0.003 | 0.006 |
| 1/4" & 3/8" (NC, NO) | 0.004 | 0.008 |
| 1/2" & 3/4" (NC) | 0.006 | 0.015 |
| 1" (NC) | 0.007 | 0.016 |
| 1-1/2" (NC) | 0.065 | 0.025 |

NC: normally closed NO: normally open

1/8" - 3/8"

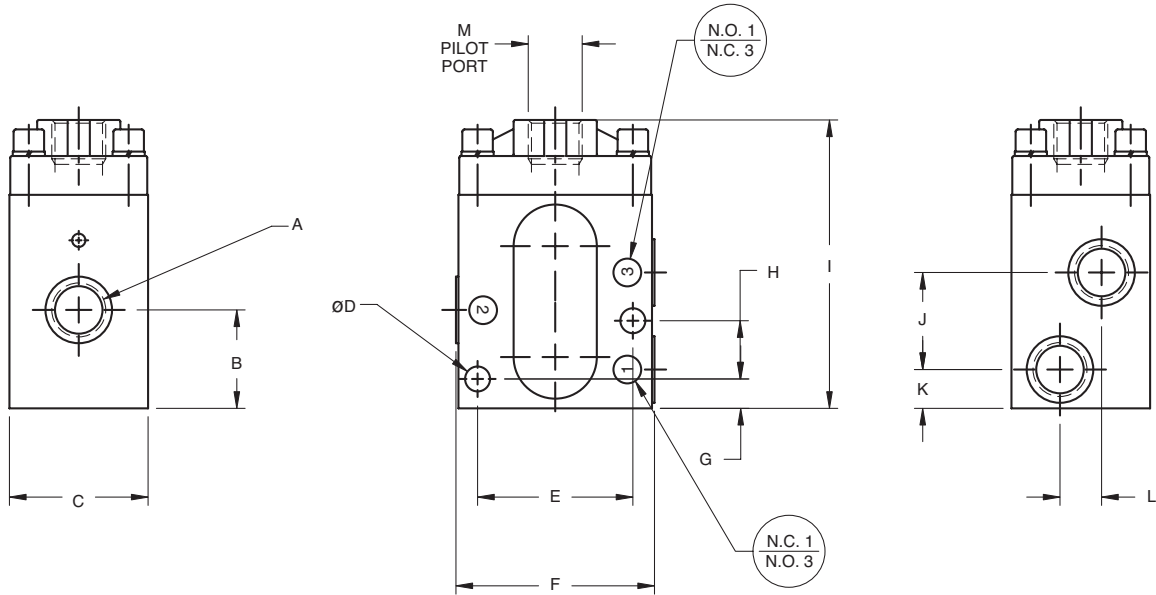


1/2" - 1-1/2"



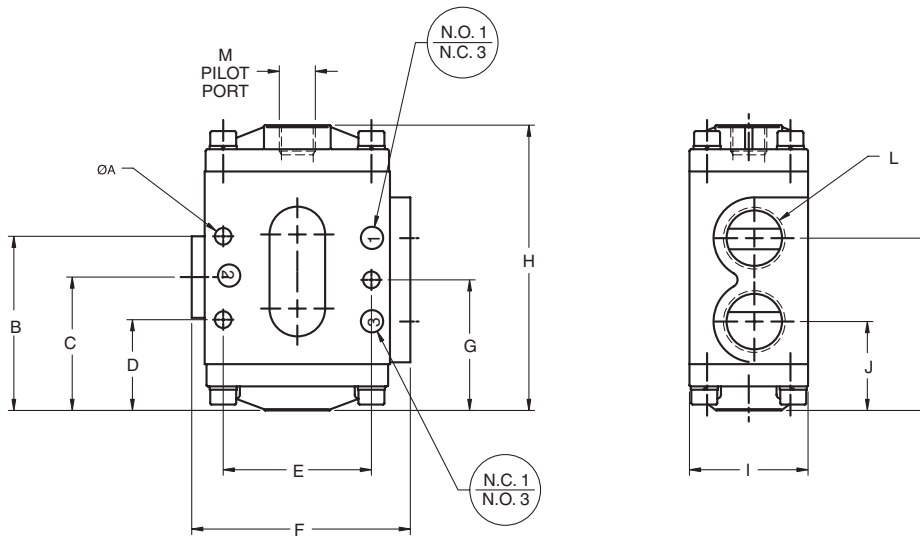
NOTE: Port 3 Cv must not be restricted.

1/8" to 3/8" Dimensions for Air Pilot Actuated Vacuum Valves



1/8" NPT Dimensions: inches (mm)

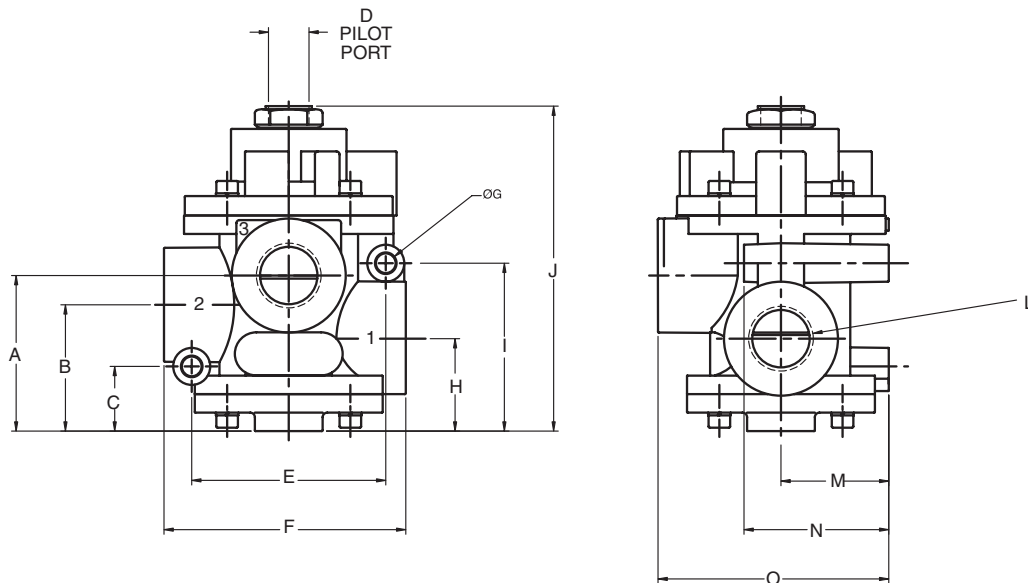
| A | B | C | D | E | F | G | H | I | J | K | L | M |
|-------------|-----------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----|
| 1/8" NPT | 0.699 (17.8) | 0.984 (25.0) | 0.177 (4.5) | 1.102 (28.0) | 1.417 (36.0) | 0.209 (5.3) | 0.413 (10.5) | 1.909 (48.5) | 0.689 (17.5) | 0.276 (7.0) | 0.295 (7.5) | M5 |



1/4" & 3/8" NPT Dimensions: inches (mm)

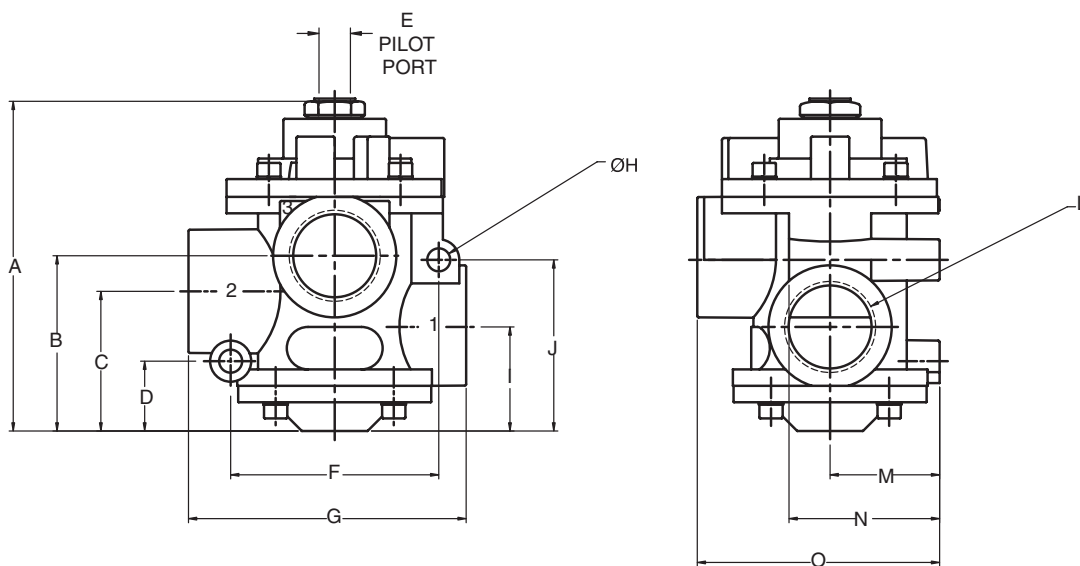
| A | B | C | D | E | F | G | H | I | J | K | L | M |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---------------------|--------------|
| 0.177 (4.5) | 1.850 (47.0) | 1.417 (36.0) | 0.945 (24.0) | 1.575 (40.0) | 2.362 (60.0) | 1.398 (35.5) | 3.031 (77.0) | 1.260 (32.0) | 0.945 (24.0) | 1.850 (47.0) | 1/4" or 3/8" NPT | 1/8" GTAP |

1/2" to 1" Dimensions for Air Pilot Actuated Vacuum Valves



1/2" & 3/4" NPT Dimensions: inches (mm)

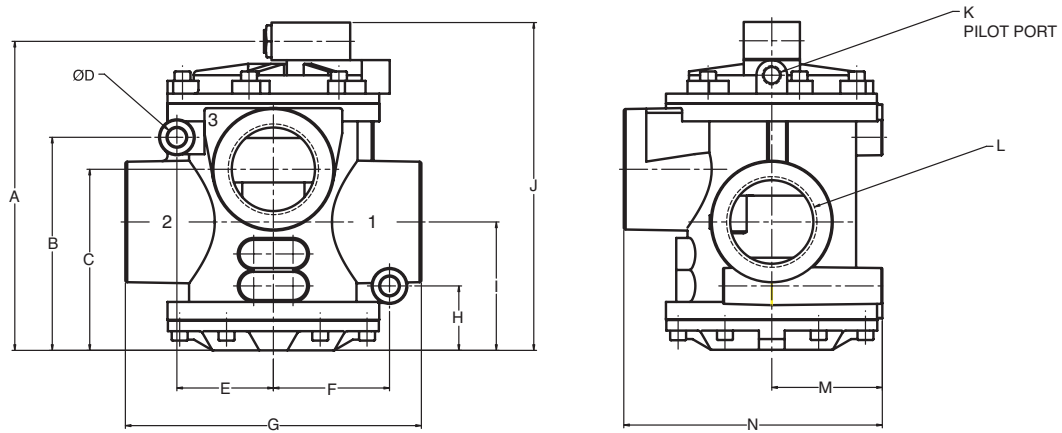
| A | B | C | D | E | F | G | H | I | J | L | M | N | O |
|-----------------|-----------------|-----------------|-------------|-----------------|-----------------|----------------|-----------------|-----------------|------------------|---------------------|-----------------|-----------------|-----------------|
| 1.988 (50.5) | 1.614 (41.0) | 0.827 (21.0) | 1/4" NPT | 2.480 (63.0) | 3.091 (78.5) | 0.252 (6.4) | 1.181 (30.0) | 2.146 (54.5) | 4.134 (105.0) | 1/2" or 3/4" NPT | 1.378 (35.0) | 1.850 (47.0) | 2.953 (75.0) |



1" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | L | M | N | O |
|------------------|-----------------|-----------------|-----------------|-------------|-----------------|------------------|----------------|-----------------|-----------------|-----------|-----------------|-----------------|-----------------|
| 4.744 (120.5) | 2.520 (64.0) | 2.008 (51.0) | 1.004 (25.5) | 1/4" NPT | 2.992 (76.0) | 3.976 (101.0) | 0.331 (8.4) | 1.496 (38.0) | 2.461 (62.5) | 1" NPT | 1.575 (40.0) | 2.165 (55.0) | 3.484 (88.5) |


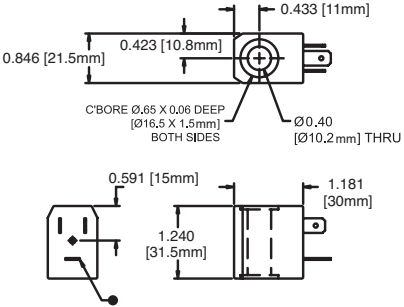
1-1/2" Dimensions for Air Pilot Actuated Vacuum Valves



1-1/2" NPT Dimensions: inches (mm)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|------------------|------------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|-------------|---------------|-----------------|------------------|
| 6.467 (164.3) | 4.449 (113.0) | 3.780 (96.0) | 0.433 (11.0) | 2.028 (51.5) | 2.441 (62.0) | 6.220 (158.0) | 1.339 (34.0) | 2.677 (68.0) | 6.860 (174.3) | 1/8" NPT | 1-1/2" NPT | 2.323 (59.0) | 5.433 (138.0) |

U1 Coil (for 1/8", 1/4" & 3/8" sizes)

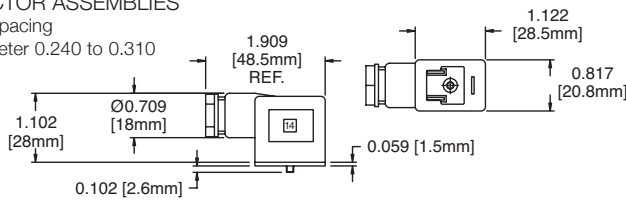
| Type | Overall Dimensions | *Duty Cycle | Consumption | | Tolerance | | Mass Kg | Rated Voltage | Part Number |
|---|---|-------------|-------------|---------|-----------|---------|---------|---------------|-------------|
| | | | Continuous | In-Rush | Frequency | Voltage | | | |
|  Coil Nut AM-5211A |  | 100% | 3.5W | 3.5W | — | ±10% | 0.10 | 12VDC | DA-0050 |
| | | | | | | | | 24VDC | DA-0051 |
| | | 100% | 0.04A | 0.07A | ±5% | ±10% | 0.10 | 110V/50-60HZ | DA-0108 |
| | | | | | | | | 220V/50-60HZ | DA-0124 |

*Under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated.

PLUG-IN CONNECTOR ASSEMBLIES


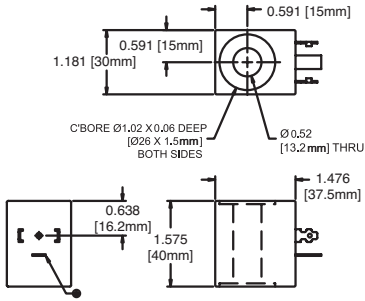
Mini-Din: 11mm pin spacing

*Accepts Cable Diameter 0.240 to 0.310



| Plug Connector Description | Part No. |
|-------------------------------|----------|
| Black Plug Assembly | 230-364 |
| Plug with 12 VDC Light | 230-385 |
| Plug assembly with 24V Light | 230-365 |
| Plug assembly with 110V Light | 230-366 |
| Plug assembly with 220V Light | 230-367 |

U2 Coil (for 1/2", 3/4", 1" & 1-1/2" sizes)

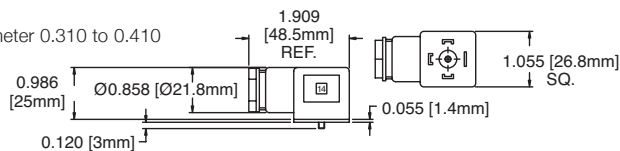
| Type | Overall Dimensions | *Duty Cycle | Consumption | | Tolerance | | Mass Kg | Rated Voltage | Part Number |
|---|---|-------------|-------------|---------|-----------|---------|---------|---------------|-------------|
| | | | Continuous | In-Rush | Frequency | Voltage | | | |
|  Coil Nut AM-5212A |  | 100% | 11W | 11W | — | ±10% | 0.10 | 12VDC | DB-0501 |
| | | | | | | | | 24VDC | DB-0502 |
| | | 100% | 0.08A | 0.13A | ±5% | ±10% | 0.10 | 110V/50-60HZ | DB-0509 |
| | | | | | | | | 220V/50-60HZ | DB-0510 |

*Under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated.

PLUG-IN CONNECTOR ASSEMBLIES

18mm pin spacing

*Accepts Cable Diameter 0.310 to 0.410



| Plug Connector Description | Part No. |
|---------------------------------|----------|
| Black Plug Assembly | 230-370 |
| Plug assembly with 12-24V Light | 230-371 |
| Plug assembly with 110V Light | 230-372 |
| Plug assembly with 220V Light | 230-373 |

Repair Kits - NF & NG Series

| Port Size | NF Series Sol & Air Pilot | NG Series Ext. Air Pilot |
|-------------|---------------------------|--------------------------|
| 1/8" | AF-9655 | N/A |
| 1/4" - 3/8" | AF-9660 | AG-9660 |
| 1/2" - 3/4" | AF-9665 | AG-9665 |
| 1" | AF-9670 | AG-9670 |
| 1-1/2" | AF-9675 | AG-9675 |

| Pipe Plug - NAF Series | Part No. |
|------------------------|----------|
| 1/8" | 129-100 |
| 1/4" | 129-101 |
| 3/8" | 129-102 |

Standard Poppet Valve Weight Requirements

Solenoid Pilot (Internal) for Air

| Port (NPT) | Function | Weight | |
|------------|------------|--------|------|
| | | Lbs | Kg |
| 1/8" | 3/2 NC, NO | 0.70 | 0.32 |
| 1/4" | 3/2 NC, NO | 1.50 | 0.68 |
| 3/8" | 3/2 NC, NO | 1.45 | 0.66 |
| 1/2" | 3/2 NC | 3.10 | 1.41 |
| 1/2" | 3/2 NO | 3.05 | 1.38 |
| 3/4" | 3/2 NC | 2.85 | 1.29 |
| 3/4" | 3/2 NO | 2.55 | 1.16 |
| 1" | 3/2 NC | 4.20 | 1.91 |
| 1" | 3/2 NO | 4.25 | 1.93 |
| 1" | 2/2 NC | 3.90 | 1.77 |
| 1-1/2" | 3/2 NC | 6.25 | 2.83 |
| 1-1/2" | 3/2 NO | 6.10 | 2.77 |
| 1-1/2" | 2/2 NC | 5.65 | 2.56 |

Solenoid Pilot (External) for Vacuum

| Port (NPT) | Function | Weight | |
|------------|------------|--------|------|
| | | Lbs | Kg |
| 1/8" | 3/2 NC, NO | 0.70 | 0.32 |
| 1/4" | 3/2 NC, NO | 1.80 | 0.82 |
| 3/8" | 3/2 NC, NO | 1.80 | 0.82 |
| 1/2" | 3/2 NC | 3.10 | 1.41 |
| 1/2" | 3/2 NO | 3.05 | 1.38 |
| 3/4" | 3/2 NC, NO | 2.85 | 1.29 |
| 1" | 3/2 NC | 4.20 | 1.91 |
| 1" | 3/2 NO | 4.25 | 1.93 |
| 1-1/2" | 3/2 NC | 6.25 | 2.83 |
| 1-1/2" | 3/2 NO | 6.10 | 2.77 |

Air Pilot (External) for Air

| Port (NPT) | Function | Weight | |
|------------|------------|--------|------|
| | | Lbs | Kg |
| 1/8" | 3/2 NC, NO | 0.45 | 0.20 |
| 1/4" | 3/2 NC, NO | 1.25 | 0.57 |
| 3/8" | 3/2 NC | 1.20 | 0.54 |
| 1/2" | 3/2 NC | 2.70 | 1.22 |
| 1/2" | 2/2 NC | 3.15 | 1.43 |
| 3/4" | 3/2 NC | 2.55 | 1.16 |
| 3/4" | 2/2 NC | 2.90 | 1.32 |
| 1" | 3/2 NC | 3.90 | 1.77 |
| 1" | 3/2 NO | 3.50 | 1.59 |
| 1" | 2/2 NC | 4.25 | 1.93 |
| 1-1/2" | 3/2 NC | 5.45 | 2.47 |
| 1-1/2" | 3/2 NO | 4.80 | 2.19 |
| 1-1/2" | 2/2 NC | 6.35 | 2.63 |

Air Pilot (External) for Vacuum

| Port (NPT) | Function | Weight | |
|------------|------------|--------|------|
| | | Lbs | Kg |
| 1/8" | 3/2 NC, NO | 0.45 | 0.20 |
| 1/4" | 3/2 NC, NO | 1.25 | 0.57 |
| 3/8" | 3/2 NC | 1.20 | 0.54 |
| 1/2" | 3/2 NC | 2.70 | 1.22 |
| 1/2" | 2/2 NC | 3.15 | 1.43 |
| 3/4" | 3/2 NC | 2.55 | 1.16 |
| 3/4" | 2/2 NC | 2.90 | 1.32 |
| 1" | 3/2 NC | 3.90 | 1.77 |
| 1" | 3/2 NO | 3.50 | 1.59 |
| 1" | 2/2 NC | 4.25 | 1.93 |
| 1-1/2" | 3/2 NC | 5.45 | 2.47 |
| 1-1/2" | 3/2 NO | 4.80 | 2.19 |
| 1-1/2" | 2/2 NC | 6.35 | 2.63 |

Poppet Valve FAQs

1. Are different coils available on the smaller sized poppet valves?
Yes, but a special part number is required.
2. Is the manual override held captive in place?
Yes, the solenoid stem itself locates and holds this brass manual override in place. There is a slot (or groove) on the manual override.
3. Is there an option code for external piloting solenoid air valves?
The option code is 14A.
4. What are these valves best suited for?
These valves are particularly suitable for applications where high flow and cycle rates are required.
5. Is a lower watt solenoid operator available?
Yes, for U1 solenoid stems a 2.5 watt is available.
6. Is field conversion from internal to external pilot supply possible?
Yes, in certain cases. Please consult factory.
8. Is it possible to convert NC to NO?
No, it is not.
9. What is the cycle life of the poppet valves?
Recent tests have recorded 9 million cycles.
10. Are FKM seals available with the poppet valve?
No, they are not available.
11. Are poppet valves strictly used for air?
Inert gases can be used with these valves.
12. Can the internally piloted vacuum valve operate in an "open" circuit?
No, as stated, 5.9" of Hg is the minimum required.



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LT-PoppetSeries Rev 10/16
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