



Engineering
GREAT Solutions

Acro PN200 Series Pneumatic Pinch Valves



Engineering GREAT solutions through people, products, innovation and service

IMI Precision Engineering is a world-leader in fluid and motion control. Building close, collaborative relationships with our customers, we gain a deep understanding of their engineering needs and then mobilise our resources and expertise to deliver distinctive products and solutions.

Wherever precision, speed and engineering reliability are essential, our global footprint, problem-solving capability and portfolio of high performance products enables us to deliver GREAT solutions which help customers tackle the world's most demanding engineering challenges.

> **Reliability**

We deliver and support our high quality products through our global service network.

> **High performance products**

Calling on a world-class portfolio of fluid and motion control products including IMI Norgren, IMI Buschjost, IMI FAS, IMI Herion and IMI Maxseal. We can supply these singly, or combined in powerful customised solutions to improve performance and productivity.

> **Partnership & Problem Solving**

We get closer to our customers to understand their exact challenges.

Contents

02 Introduction

03 PN200 Series
Pneumatic Pinch Valves

04 Product Features

05 How It Works

06 How It's Used

07 How To Specify

08 How to Accessorize

09 How to Order

PN200 Series Pneumatic Pinch Valves

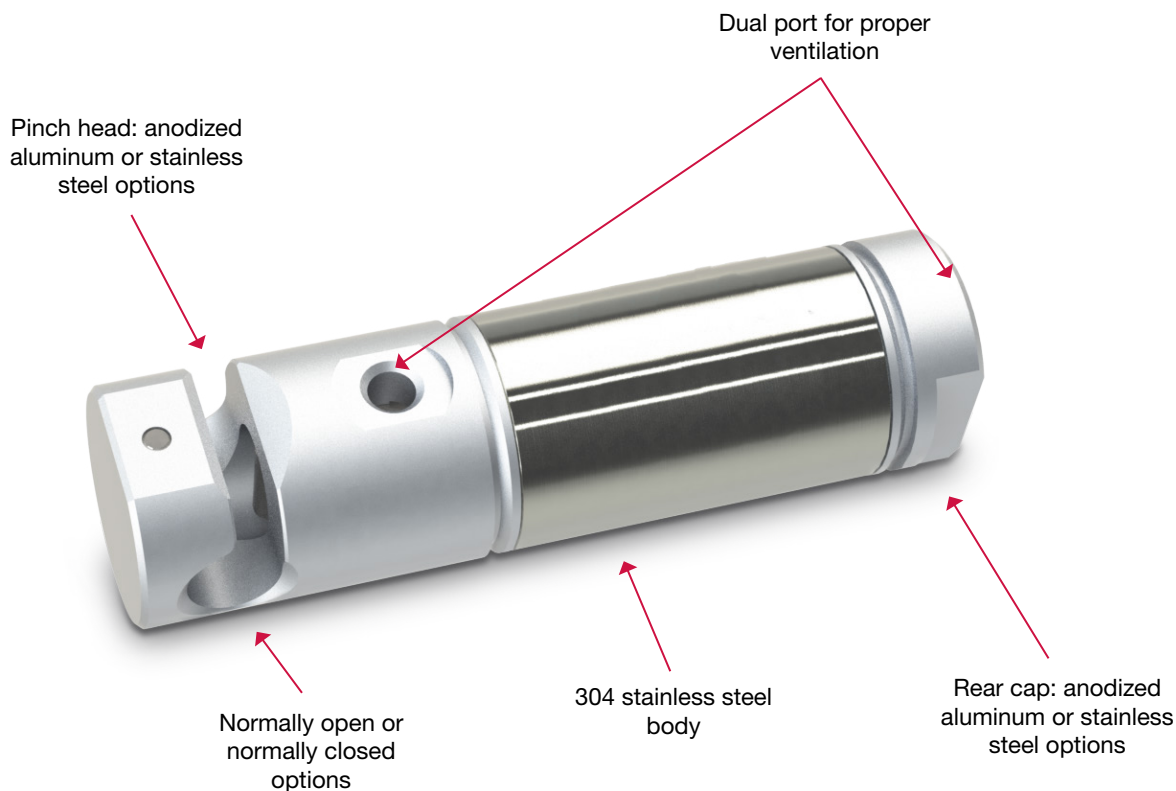
Get a more affordable option when controlling the flow of media within your application by using Acro's new PN200 Series Pneumatic Pinch Valves. This series of pinch valves was designed to open and close flexible tubing to get a more accurate control of media flow.

This affordable yet compact pinch valve series is an ideal fit for the life sciences market segments such as, medical devices, biotechnology, diagnostics and pharmaceuticals. Designed for disposable tubing, these pinch valves provide a simple, easy changeout.

Acro offers four models with tube slot sizes starting at 3/32" up to 1/2". We even offer configurable mounting options and seal materials.



Product Features



● Features and Benefits

- > Compact in size allowing for placement in tight spaces
- > Easy cleaning (just throw away the tubing)
- > Simple and fast tube replacement
- > Long performance with a rated life expectancy of 3 million cycles
- > Eliminate potential contamination of media
- > Long performance and reliability
- > Specifically designed for disposable tubing
- > Valve body is not affected by the corrosiveness of the fluids
- > Linear flow
- > All stainless steel:
 - » Chemical resistance
 - » Washdown compatible
 - » Ideal for sterile environments
- > Affordable, cost-effective solution with the ability to be configured:
 - » Multiple tube slot sizes
 - » Optional mounting brackets
 - » Optional magnetic position sensing
 - » Aluminum or stainless steel options
 - » Viton seals, Buna, or FDA seals available

A pinch valve is a type of fluid control valve. It applies a pinching force to the outer surface of flexible tubing. While pinching it collapses and seals the tubing to control fluid flow or pressure. Pinch valves are considered non-wetted valves because there is no valve contact with the fluid. The mechanism consists of a tube holding pinch head attached to a linear actuator (electric or pneumatically powered).

● Why Use Pinch Valves

Industry leaders looking for a low-maintenance and more cost-effective solutions for controlling liquids, gases, slurries and powders (incl. corrosive media) in a pipeline are turning to pinch valves over traditional valves (diaphragm valves, ball valves, butterfly valves, needle valves, etc.) Unlike traditional valves, pinch valves feature a straight-through flow, very little pressure drop over the valve, and full shut-off of media in the tube, making it the most practical and efficient solution for various ON/OFF flow control applications.

● Materials of Construction

Pneumatic Pinch Valve	
Pinch Head	Anodized Aluminum or Stainless Steel
Rear Cap	Anodized Aluminum or Stainless Steel
Body	Anodized Aluminum or Stainless Steel
Seals	Buna-N, optional Viton or FDA



How It's Used

● Markets

- > Biotechnology
- > Pharmaceuticals
- > Medical devices
- > Diagnostics
- > Bioreactors
- > Bioprocessing single use technology
- > Process equipment
- > Food and Beverage
- > Filtration, TFF (Tangential Flow Filtration)
- > Chromatography - analysers
- > Chemical processing equipment



● Target Applications

The PN200 Pneumatic Pinch Valves are uniquely suited for a wide range of applications where the control of fluid from normally closed to normally open is critical. This pinch valve series is ideal for applications where high quantities are necessary and unit price is critical.

- > Cell Therapy
- > Bio Processing Systems
- > Water/Saline Dispensing
- > Centrifugation
- > Tangential Flow Filtration (TFF)
- > Chromatography - Analyzers
- > Bioreactors
- > Chemical Dosing
- > Sterile Liquid Filling/Packaging

● Advantages

Feature	Advantage	Benefit
Optional all stainless steel	Eliminates potential contamination of media	Ideal for sterile and washdown applications
Lightweight, compactness	Easily installs in confined spaces or where limited space is available	Easy access to install or replace unit as needed
Affordable	Reduce overall valve costs	Save money and time
Precision and accuracy	Instantly seals or opens	Controls the fluid whereas other solutions may take longer to act or retain dead volumes within
Easy snap-in tube slot	Avoid downtime and saves time	Quick unloading and loading procedures without the entire system going down

Specifications

Key specification information for the PN200 Series Pneumatic Pinch Valves is given below. For additional specification information, contact IMI Customer Service at Acro-Sales@IMI-Precision.com or (925)-676- 8828 (or 800-672-2276).

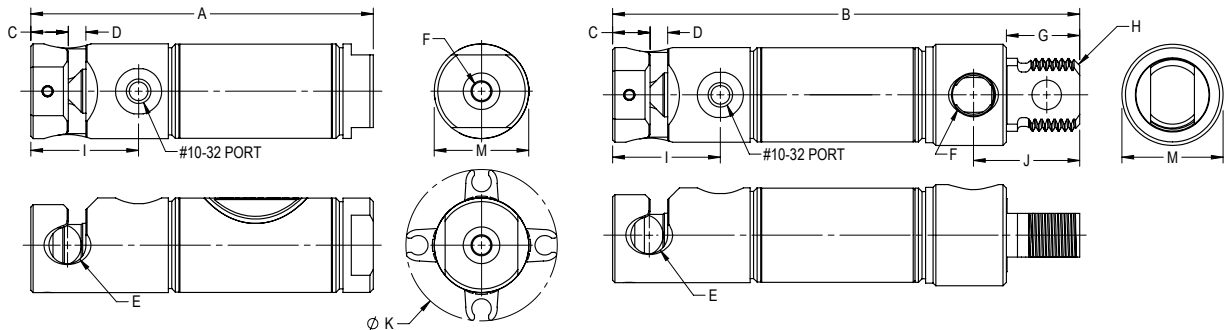
Detail Specifications	
Compliance	RoHS and Reach
Supply Pressure	50 psi minimum; 125 psi maximum
Noise Level	65 dB(A) maximum

Specifications				
Model Number	PN202	PN204	PN206	PN208
Tube Size, O.D. Supported - Inch (mm)*	0.094 to 0.125 (2.36 to 3.17)	0.156 to 0.250 (4.78 to 6.35)	0.250 to 0.375 (6.35 to 9.5)	0.375 to 0.500 (9.5 to 12.7)
Tube Wall Thickness Supported - Inch (mm)*	0.031 min. (0.78)	0.063 min. (1.6)	0.063 min. (1.6)	0.063 min. (1.6)
Media Pressure, Maximum - psig (barg)	30 (2.07)	30 (2.07)	30 (2.07)	30 (2.07)
Recommended Tubing Durometer**	Up to 65 Shore A	Up to 65 Shore A	Up to 65 Shore A	Up to 65 Shore A
Default (Normal) State	NC and NO	NC and NO	NC and NO	NC and NO
Pinch Gap - Inch (mm)	0.040 (1.016)	0.080 (2.032)	0.080 (2.032)	0.080 (2.032)
Total Opening Nominal - Inch (mm)	0.125 (3,2)	0.250 (6,4)	0.375 (9,5)	0.500 (12,7)
Pinching Force Nominal - LbF (kgF)	Up to 1.8 (0.82)	Up to 4.5 (2.04)	Up to 6.9 (3.13)	Up to 12.2 (5.53)
Min. to Max. Ambient Temperature - F° (C°)	-20° to 200°F (-29° to 90°C)	-20° to 200°F (-29° to 90°C)	-20° to 200°F (-29° to 90°C)	-20° to 200°F (-29° to 90°C)

*Other tubing wall thickness and diameters can potentially be used. Please contact factory with any questions.

**Tube material dependent

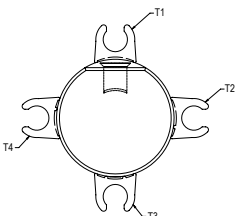
Dimensions



Model	A	B	C	D	E	F	G	H*	I	J	K	M
PN202 02	2.418	2.887	0.258	0.07	0.188	#10-32	0.437	7/16-20	0.73	0.563	1.06	0.62
PN204 04	2.920	3.983	0.320	0.15	0.315	1/8 NPT	0.625	5/8-18	0.92	0.906	1.26	0.86
PN206 06	3.685	4.560	0.528	0.19	0.438	1/8 NPT	0.625	5/8-18	1.32	0.906	1.60	1.12
PN208 08	4.498	5.622	0.625	0.25	0.625	1/8 NPT	0.812	3/4-16	1.59	1.187	1.79	1.33

*Intended for use as a stud mount, pivot is not recommended.

When ordering T1, T2, T3, and T4 use the drawing below for track locations:



How to Accessorize

Accessories such as switches and mounting brackets are available. When ordering a magnet option for position sensing, any version of a band mounted switches can be used, but we highly recommend using Acro's mini track mounted switches for a more low profile design.

● Track Mounted Switches

**MHF-90, MHC-90, MHK-90, MR, MR-90,
MS, MS-90, MSC, MSC-90, MSK, MSK-90**

EdgeSwitch™ Solid-State Switch Features:

- > Solid-State construction
- > Precise Edge Detection technology senses magnet edges/thickness
- > Smaller operating window
- > Improved repeatability
- > Longer life
- > Low leakage current, 0.1 mA at 28VDC

4mm Round (C-Slot) Features:

- > Reed, GMR or Edge switch sending technology
- > CE, RoHS compliant
- > Stock units
- > 90° versions now available



90° Switch

● Mini EdgeSwitch™ Track Mounted Switches

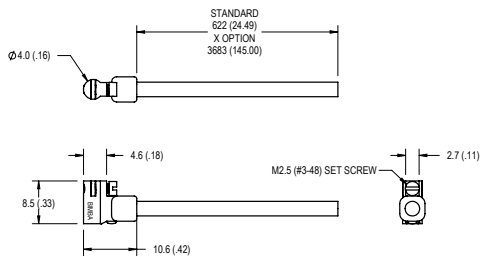
Part Number	Description
MHF-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, 24" Pigtail Leads, 90° version
MHFX-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, 144" Pigtail Leads, 90° version
MHFQS-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector, 90° version
MHFQCS-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector and 2m Mating Cable, 90° version
MHFQCXS-90	Mini EdgeSwitch™, 2-wire, Solid-State Type, LED, 10-28VDC, 50mA, with M8 Male Swivel Connector and 5m Mating Cable, 90° version
MHC-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 24" Pigtail Leads, 90° version
MHCX-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 144" Pigtail Leads, 90° version
MHCQS-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector, 90° version
MHCQCS-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 2m Mating Cable, 90° version
MHCQCXS-90	Mini EdgeSwitch™ Sourcing Switch (PNP), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 5m Mating Cable, 90° version
MHK-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 24" Pigtail Leads, 90° version
MHKX-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, 144" Pigtail Leads, 90° version
MHKQS-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector, 90° version
MHKQCS-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 2m Mating Cable, 90° version
MHKQCXS-90	Mini EdgeSwitch™ Sinking Switch (NPN), 3-wire, Solid-State Type, LED, 5-28VDC, 100mA, with M8 Male Swivel Connector and 5m Mating Cable, 90° version

● Mini 4mm Round (C-Slot) Track Mounted Switches

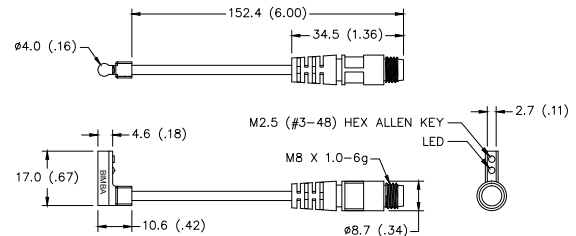
Part Number	Description
MR	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, 1m Pigtail Leads
MR-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, 1m Pigtail Leads, 90° version
MRQ	Reed Switch, 2 wire, LED, 5-120VAC/VDC, with M8 Male Connector
MRQ-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, with M8 Male Connector, 90° version
MRQC	Reed Switch, 2 wire, LED, 5-120VAC/VDC, with M8 Male Connector and 2m Mating Cable
MRQC-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, with M8 Male Connector and 2m Mating Cable, 90° version
MRQCX	Reed Switch, 2 wire, LED, 5-120VAC/VDC, with M8 Male Connector and 5m Mating Cable
MRQCX-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, with M8 Male Connector and 5m Mating Cable, 90° version
MRX	Reed Switch, 2 wire, LED, 5-120VAC/VDC, with 144" Pigtail Leads
MRX-90	Reed Switch, 2 wire, LED, 5-120VAC/VDC, 30mA, with 144" Pigtail Leads, 90° version
MS	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with 24" Pigtail Leads
MS-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with 24" Pigtail Leads, 90° version
MSQ	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector
MSQ-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector, 90° version
MSQC	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector and 2m Mating Cable
MSQC-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector and 2m Mating Cable, 90° version
MSQCX	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector and 5m Mating Cable
MSQCX-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with M8 Male Connector and 5m Mating Cable, 90° version
MSX	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with 144" Pigtail Leads
MSX-90	Auto Configure, PNP or NPN, 3 wire, LED, 30VDC, 100mA, with 144" Pigtail Leads, 90° version
MSC	Sourcing Switch (PNP), LED, 30VDC, 50mA, with 24" Pigtail Leads
MSC-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with 24" Pigtail Leads, 90° version
MSCQ	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector
MSCQ-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector, 90° version
MSCQC	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector and 2m Mating Cable
MSCQC-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector and 2m Mating Cable, 90° version
MSCQCX	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector and 5m Mating Cable
MSCQCX-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with M8 Male Connector and 5m Mating Cable, 90° version
MSCX	Sourcing Switch (PNP), LED, 30VDC, 200mA, with 144" Pigtail Leads
MSCX-90	Sourcing Switch (PNP), LED, 30VDC, 200mA, with 144" Pigtail Leads, 90° version
MSK	Sinking Switch (NPN), LED, 30VDC, 200mA, with 24" Pigtail Leads
MSK-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with 24" Pigtail Leads, 90° version
MSKQ	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Male Connector
MSKQ-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Cable Connector, 90° version
MSKQC	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Male Connector and 2m Mating Cable
MSKQC-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Cable Connector and 2m Mating Cable, 90° version
MSKQCX	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Male Connector and 5m Mating Cable
MSKQCX-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with M8 Cable Connector and 5m Mating Cable, 90° version
MSKX	Sinking Switch (NPN), LED, 30VDC, 200mA, with 144" Pigtail Leads
MSKX-90	Sinking Switch (NPN), LED, 30VDC, 200mA, with 144" Pigtail Leads, 90° version

How to Accessorize

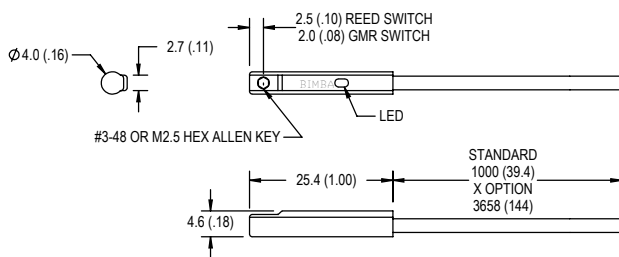
Dimensions



MHF-90, MHFX-90, MHC-90, MHCX-90, MHK-90, MKX-90

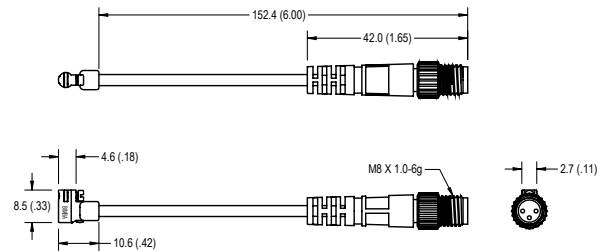


MSCR-90, MSCRC-90, MSCRCX-90,
MSKR-90, MSKRC-90, MSKRCX-90

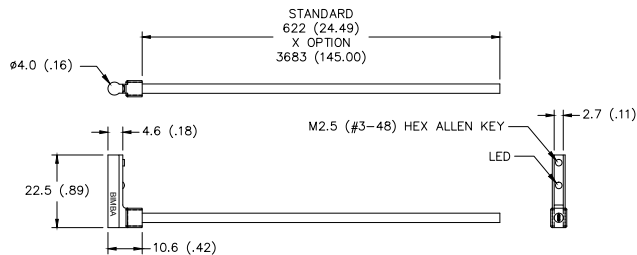


MR, MRX, MS*, MSX, MSC*, MSCX, MSK*, MSKX

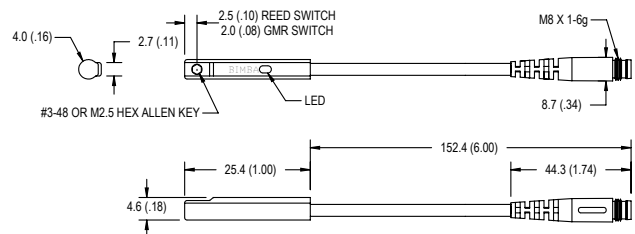
*Standard pigtail length for MS, MSC, and MSK switches is 622 (24.49)



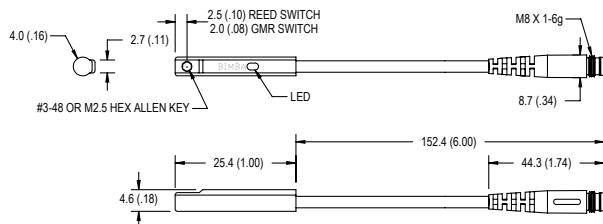
MHFQS-90, MHFQCS-90, MHFQCXS-90,
MHCQS-90, MHCQCS-90, MHCQCXS-90
MHKQS-90, MHKQCS-90, MHKQCXS-90



MR-90, MRX-90, MS-90, MSX-90



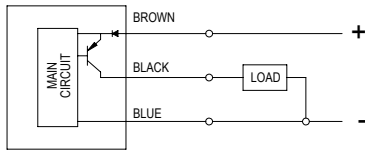
MRQ, MRQC, MRQCX, MSQ, MSQC,
MSQCX, MSCQ, MSCQC, MSCQCX,
MSKQ, MSKQC, MSKQCX



MRQ-90, MRQC-90, MRQCX-90,
MSQ-90, MSQC-90, MSQCX-90

● Wiring Diagrams

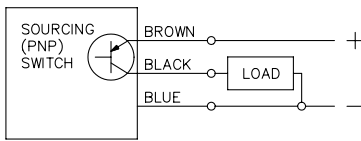
MHF (All types)



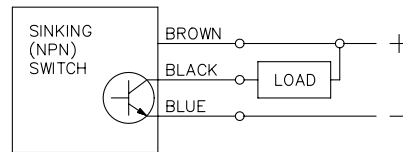
Reverse Polarity Not Protected

On Quick Connect switch models, connect only the Blue and Brown wires on the mating cable and cut back the Black wire. Do not connect switch to a mating cable that has been previously wired for a three-wire solid state switch as it will short the MDFQ switch.

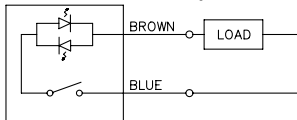
MHC, MSC (All types) (PNP, Sourcing, Solid State)



MHK, MSK (All types) (NPN, Sinking, Solid State)



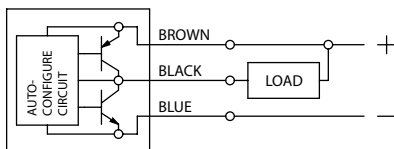
MR (All types) (Reed Switch)



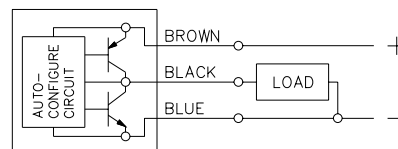
Reverse Polarity Not Protected

On Quick Connect switch models, connect only the Blue and Brown wires on the mating cable and cut back the Black wire. Do not connect switch to a mating cable that has been previously wired for a three-wire solid state switch as it will short the MRQ switch.

MS (All types) (Auto Configure PNP, Sourcing)



MS (All types) (Auto Configure NPN, Sinking)



Color Codes

Brown	(+) Positive
Black	Output
Blue	(-) Negative

● Dimensions

Technical drawings of two types of shielded cables, Type A and Type B, showing dimensions and components.

Type A Cable:

- Total length: 2000
- Shielded wire diameter: 4.5
- Shield wire diameter: 7
- Dimensions: 28.2, 23.5, 50, 16.5, 12, 9

Type B Cable:

- Total length: 2000
- Shielded wire diameter: 4
- Shield wire diameter: 7
- Dimensions: 35, 50, 9

The drawings include side views with dimensions and a cross-sectional view of the shield.

● M8 Female Quick Connect Cables (C4 and C5)

Part Number	Description
C4	Straight M8 Female Connector, Threaded Connection with 2 Meter Cable
C4-S	Straight M8 Female Connector, Threaded Connection with 2 Meter Shielded Cable
C4X	Straight M8 Female Connector, Threaded Connection with 5 Meter Cable
C4X-S	Straight M8 Female Connector, Threaded Connection with 5 Meter Shielded Cable
C5-S	Right Angle M8 Female Connector, Threaded Connection with 2 Meter Shielded Cable
C5X-S	Right Angle M8 Female Connector, Threaded Connection with 5 Meter Shielded Cable



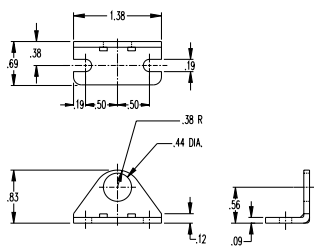
How to Accessorize

● Mounting Bracket Options

For mounting options, our stud mount offers the ability to use a foot bracket and mounting nut to mount the pinch valve from the rear.

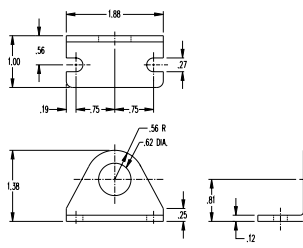
Model Number	PN202	PN204	PN206	PN208
Mounting Bracket, Zinc	D-770		D-129	D-241
Mounting Nut, Plated Steel	D-154		D-9	D-3556
Mounting Bracket, Stainless Steel	D-770-SS		D-129-SS	D-241-SS
Mounting Nut, Stainless Steel	D-154-SS		D-9-SS	D-3556-SS

**D-770
D-770-SS**



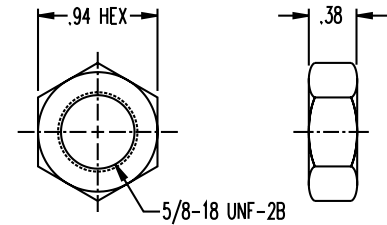
Mounting Bracket

**D-129
D-129-SS**



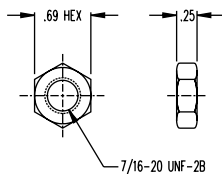
Mounting Bracket

**D-9
D-9-SS**



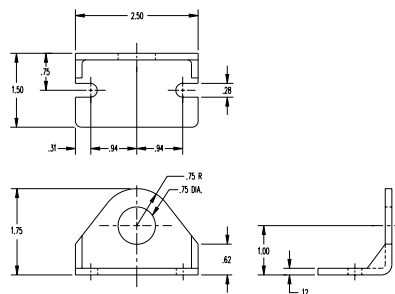
Mounting Nut

**D-154
D-154-SS**



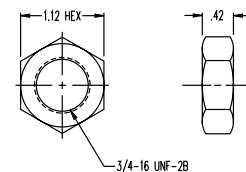
Mounting Nut

**D-241
D-241-SS**



Mounting Bracket

**D-3556
D-3556-SS**



Mounting Nut

The model numbers of the PN200 Series Pneumatic Pinch Valves consist of an alphanumeric cluster designating series, type, tube slot size, mounting, end cap material, and additional options that together make up the complete model description to use when ordering. Use the ordering information below to build a valid part number.

An example of a PN200 Series Pneumatic Pinch Valve that is normally open, 0.125" OD tube slot, threaded rear stud mounting, aluminum end cap with a magnet is shown below in the model description configurator.

PN202 - S02 - X_M

Pneumatic Pinch Valve Series		Options	
PN202	0.125" Tube OD	F	FDA Seals and Lube ²
PN204	0.250" Tube OD	M	Magnet
PN206	0.375" Tube OD	T1	Switch Track, position 1 ⁴
PN208	0.500" Tube OD	T2	Switch Track, position 2 ⁴
Type		T3	Switch Track, position 3 ⁴
S	Normally Open	T4	Switch Track, position 4 ⁴
R	Normally Closed	V	Viton Seals ³
Tube Slot Size		End Cap Material	
02	0.125" OD	Blank	Aluminum
04	0.250" OD	S	Stainless Steel ¹
06	0.375" OD	End Cap Material	
08	0.500" OD	Blank	Basic, no mount
		X	Threaded Rear Stud

¹ Stainless steel end cap option is not compatible with T1, T2, T3, or T4 switch track

² Cannot be ordered with Viton Seals

³ Cannot be ordered with FDA Seals and Lube. If ordered with "M" option, magnet is not reliable above 200°F

⁴ A maximum of two track options can be ordered together

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