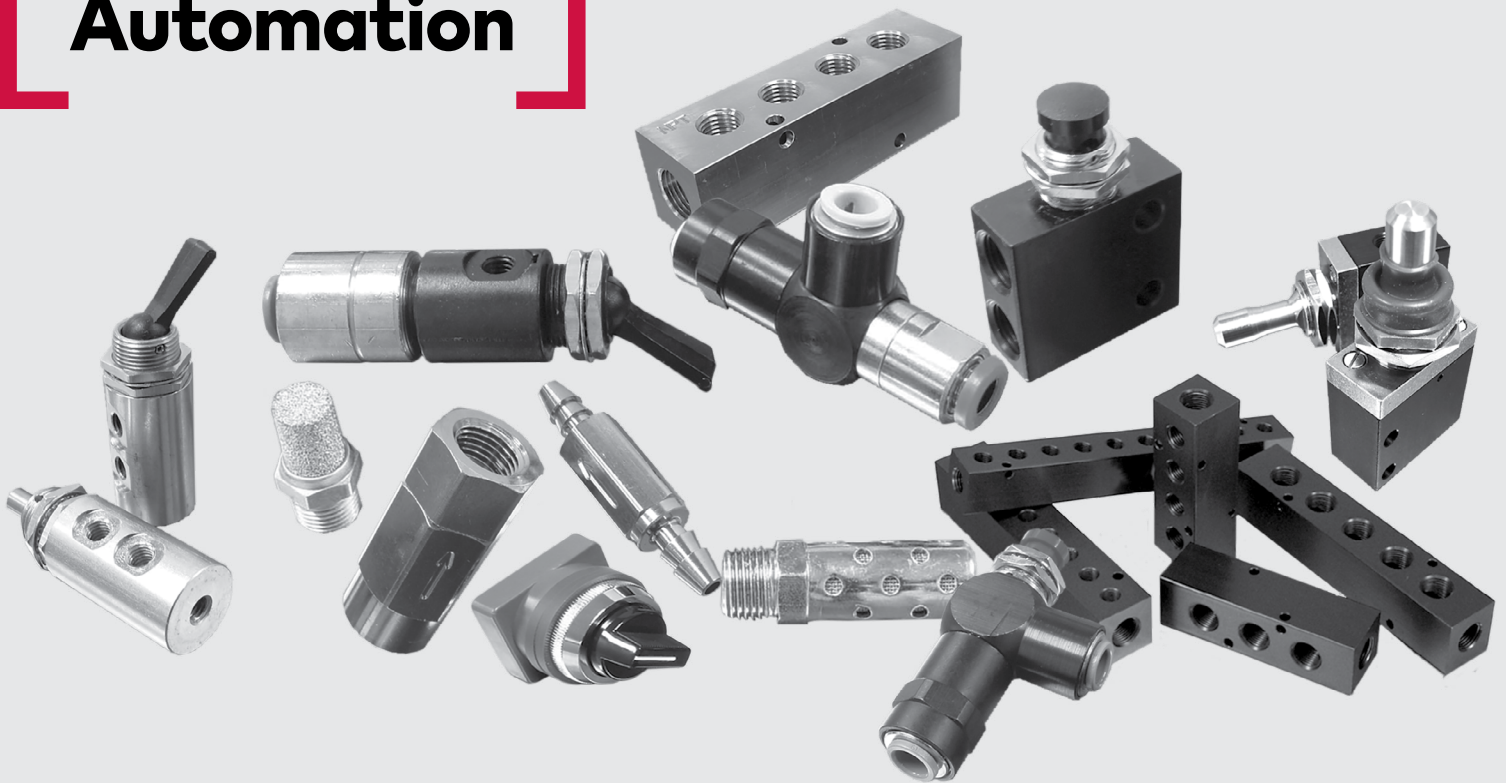


Factory Automation



Pneumadyne® Series Pneumatic Controls

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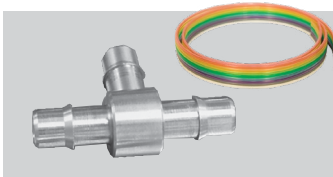
1



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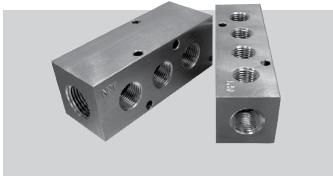
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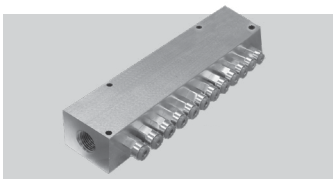
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Our dedicated team of experts is on hand with technical advice, support and recommendations to help you get the most effective products, in the shortest timescales, and with the best possible service.

In the unlikely event of an item being out of stock, we will ship your item as a priority.

Breakthrough Engineering for a Better World

Norgren is part of global engineering organisation IMI plc. IMI is at the forefront of delivering the solutions we need in a changing world and is focused on **creating tremendous value by solving key industry problems in attractive markets and employing the best.**

Norgren has a proud history of creating innovative engineering solutions in precise motion control and fluid technology, and we collaborate with our customers across more than 50 countries in critical areas such as Factory Automation, Material Handling, Rail, Energy, Process Control, Life Science and Commercial Vehicles.

From improving speed, productivity, reliability and efficiency of equipment, to generating significant energy and cost savings, or lowering total cost of ownership across many industries, Norgren's high-quality solutions are designed to help customers pursue progress, achieve new goals and overcome problems.

Our world-class portfolio of fluid and motion control products include Norgren, Bimba, Buschjost, FAS, Herion, Kloehn and Maxseal. Supplied either individually or combined into powerful customised solutions to meet customer needs.

With market-leading industry expertise, we offer the capability, resources, engineering intelligence and global support infrastructure to tackle the largest project demands.

Breakthrough engineering you can count on.



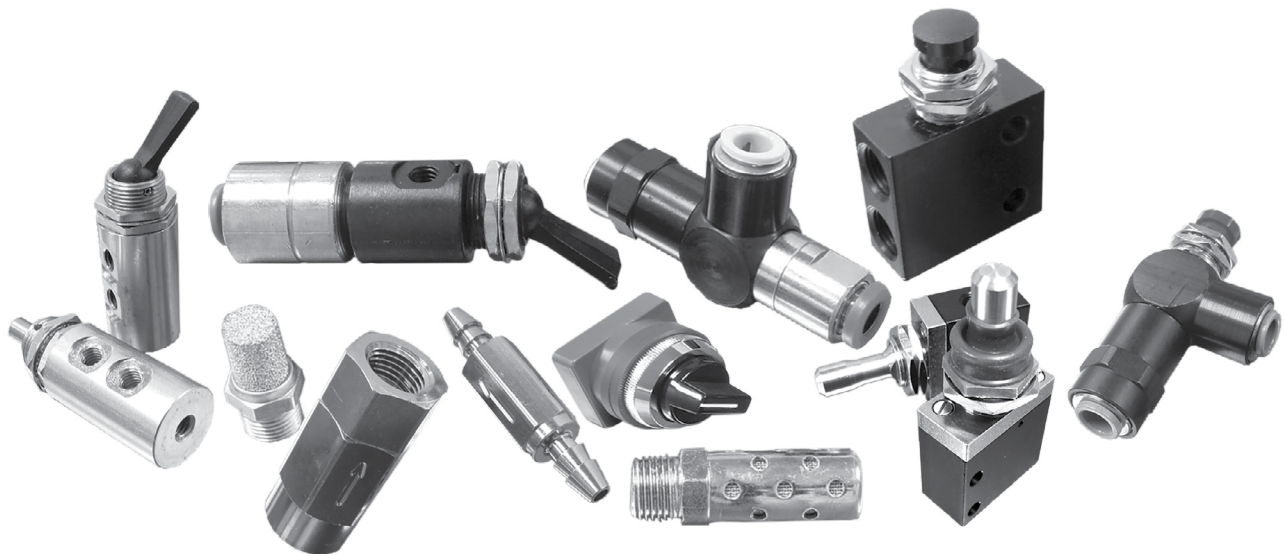
**We Make
Things Move®**

Valves & Accessories

1

Valves are an integral part of a pneumatic system, and encompass a wide variety of pneumatic valve options, including pressure regulators, flow controls, and needle valves.

Each valve is designed to integrate with your pneumatic circuit, and every model comes anodized or electroless nickel-plated to provide enhanced corrosion resistance.



Fast Find Guide

PAGE	PRODUCT	PAGE	PRODUCT
7	0 Series	60	Micro Gauge
11	3 Series	61	Shuttle ("OR") Valves
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O SERIES

2-Way or 3-Way Valves

- » Miniature size
- » Poppet design contributes to long product life
- » Seven input options
- » Swivel input port to accommodate critical alignment
- » Closed crossover (NC Only)
- » Non-threaded exhaust port

Technical Data

Switching function:

Normally closed

Material:

Aluminum/ Anodize or Brass/
Electroless Nickel, Acetal, Stainless
Steel, Nylon, Buna-N (optional
seals available - contact factory)



Closed Cross-Over

The normally closed "O" Series features a stem and poppet that work in conjunction with one another. The poppet seals the exhaust port before it opens to flow (normally closed). There is no transitional state from one function to the next providing the user precise control between positions.

Technical data

Performance Data

Temperature Range	Operating Pressure	C _v	Flow Rate (scfm)		Fill Time sec/ in ³ 0-90 psi	Exhaust Time sec/ in ³ 100-10 psi
			50 psi	125 psi		
-20° to +160°F	0 to 125 psi	.24	8.2	17.3	.02	.06

C_v per ANSI / (NFPA) T3.21.3

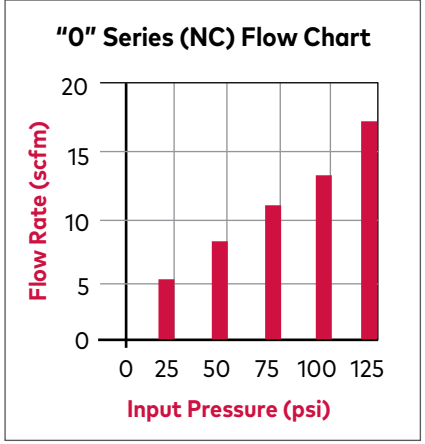
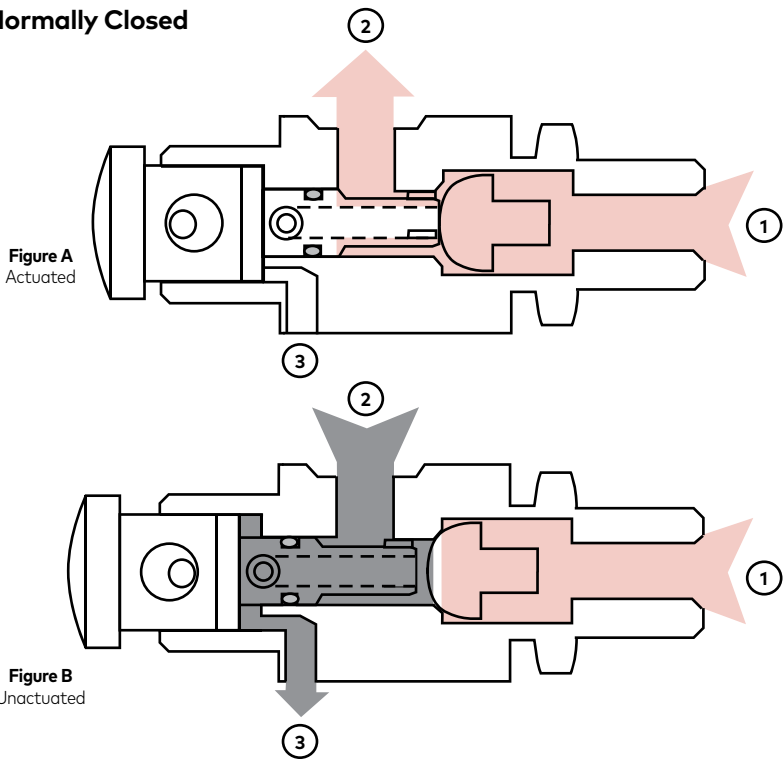
Actuation Force

Actuator Style	2-Way Valve		3-Way Valve	
	50 psi	125 psi	50 psi	125 psi
Nylon Toggle	4 oz	6 oz	4 oz	6 oz
Push Button	3 lbs	5 ½ lbs	3 lbs	5 ½ lbs

Actuation force for NC **ONLY**

"O" Series Cross Section

3-Way Normally Closed



Function

When a 3-Way normally closed valve is actuated (Figure A) the stem unseats the poppet allowing flow through port 1 around the poppet and stem and out port 2.

In the unactuated position (Figure B) the poppet is seated. When flow enters from port 2 it travels through the hollow stem and exhausts to atmosphere through port 3. The poppet design provides a large durable surface that can withstand millions of cycles.

The normally open "O" Series features a stem design with standard Buna-N O-rings.

SWIVEL INPUT IS NOT TO BE USED AS A ROTARY UNION.

Port Options

Definition	Options
Port 1 Swivel Input	1/8 NPT / 10-32 (F) 10-32 (F) Elbow 10-32 (F) Tee 1/8 NPT (F) 170 Barb* 1/4 Push-in 5/32 Push-in
Port 2 Output	10-32 (F)
Port 3 Exhaust	non-threaded, exhausts to atmosphere

*170 barb - recommended for use with .170 ID PUR or .170 ID PE

Mounting Method

Panel	Surface
Nominal mounting hole dimension 31/64"	MB-1 or MB-1F Mounting Bracket

(2) nuts and (1) lockwasher provided

Product Information

- » To order standard product refer to Product Information listing
- » Optional seals available - contact factory
- » Metal push button available - use an "M" as the second character to indicate metal
- » Nylon toggles and push buttons are available in seven colors with black as standard. To order colored actuator specify the color, by code, as a "-code#" suffix following the part number (see color code chart page 89)

2-Way Normally Closed

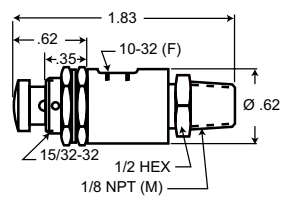
Actuator	Part Number	Input
Push Button	A0-20-1	1/8 NPT /10-32 (F)
	A0-20-2	10-32 (F) Elbow
	A0-20-3	10-32 (F) Tee
	A0-20-4	1/8 NPT (F)
	A0-20-5	170 Barb
	A0-20-6	1/4 Push-in
Detented Toggle	H0-20-1	1/8 NPT /10-32 (F)
	H0-20-2	10-32 (F) Elbow
	H0-20-3	10-32 (F) Tee
	H0-20-4	1/8 NPT (F)
	H0-20-5	170 Barb
	H0-20-6	1/4 Push-in
	H0-20-7	5/32 Push-in
Momentary Toggle	F0-20-1	1/8 NPT /10-32 (F)
	F0-20-2	10-32 (F) Elbow

3-Way Normally Closed

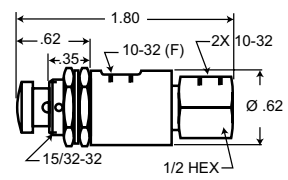
Actuator	Part Number	Input
Push Button	A0-30-1	1/8 NPT /10-32 (F)
	A0-30-2	10-32 (F) Elbow
	A0-30-3	10-32 (F) Tee
	A0-30-4	1/8 NPT (F)
	A0-30-5	170 Barb
	A0-30-6	1/4 Push-in
	A0-30-7	5/32 Push-in
Detented Toggle	H0-30-1	1/8 NPT /10-32 (F)
	H0-30-2	10-32 (F) Elbow
	H0-30-3	10-32 (F) Tee
	H0-30-4	1/8 NPT (F)
	H0-30-5	170 Barb
	H0-30-6	1/4 Push-in
	H0-30-7	5/32 Push-in
Momentary Toggle	F0-30-1	1/8 NPT /10-32 (F)
	F0-30-2	10-32 (F) Elbow

Specifications

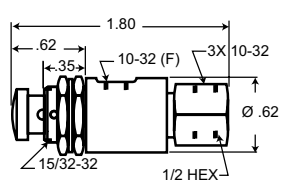
Push Button Actuator



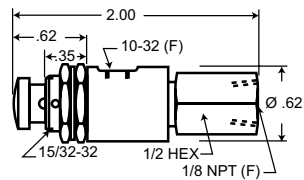
"-1" Input



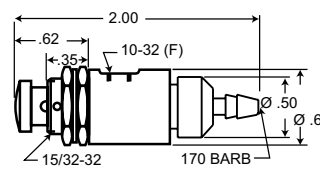
"-2" Input



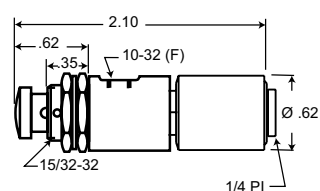
"-3" Input



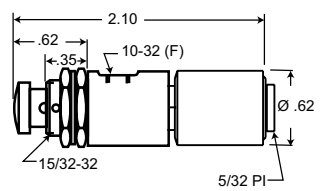
"-4" Input



"-5" Input

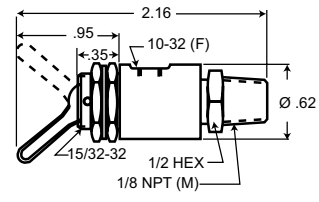


"-6" Input

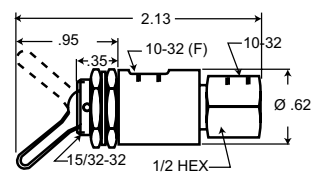


"-7" Input

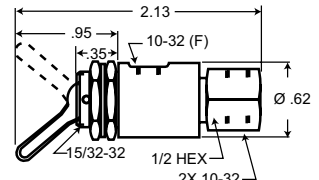
Toggle Actuator



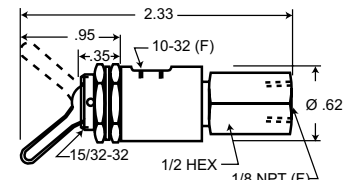
"-1" Input



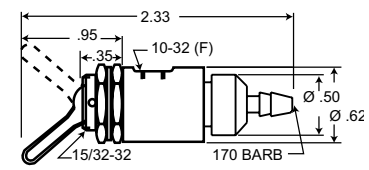
"-2" Input



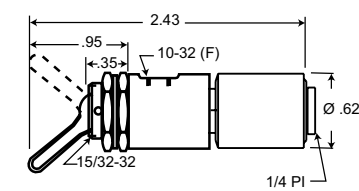
"-3" Input



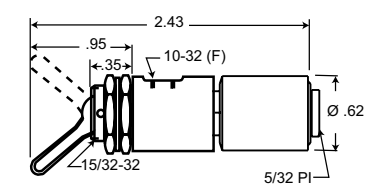
"-4" Input



"-5" Input



"-6" Input



"-7" Input

When design makes a dimension critical - contact factory for confirmation.
 All dimensions shown subject to change without notice.

3 SERIES

3-Way normally closed, fully ported valves

- » Fully ported
- » 3-Way normally closed
- » Poppet design contributes to long product life
- » Seven input options
- » Closed crossover
- » Swivel Input Port

Technical Data

Switching function:
Normally closed

Material:
Aluminum/ Anodize or Brass/
Electroless Nickel, Acetal, Stainless
Steel, Nylon, Buna-N (optional
seals available - contact factory)



Closed Cross-Over

The internal design of the "3" Series features a stem and poppet that work in conjunction with one another. The poppet seals the exhaust port before it opens to flow. There is no transitional state from one function to the next providing the operator precise control between positions. The addition of the threaded exhaust port makes it possible to direct and capture the exhaust flow in liquid, clean-room or lubricated air applications. Mufflers can also be threaded in the exhaust port for noise control.

Technical data

Performance Data

Temperature Range	Operating Pressure	Flow Path	C _v	Flow Rate (scfm)		Fill Time sec/ in ³		Exhaust Time sec/ in ³	
				50 psi	125 psi	0-90 psi	100-10 psi		
-20° to +160°F	0 to 125 psi	1-2	.23	7.2	15.4	.02	.04		
		3-4	.09	3.7	8.0	.07	n/a		

C_v per ANSI / (NFPA) T3.21.3

Actuation Force

Actuator Style	3-Way Valve	
	50 psi	125 psi
Nylon Toggle	8 oz	14 oz
Push Button	3 ½ lbs	6 lbs

"3" Series Cross Section

3-Way Normally Closed

Figure A Actuated

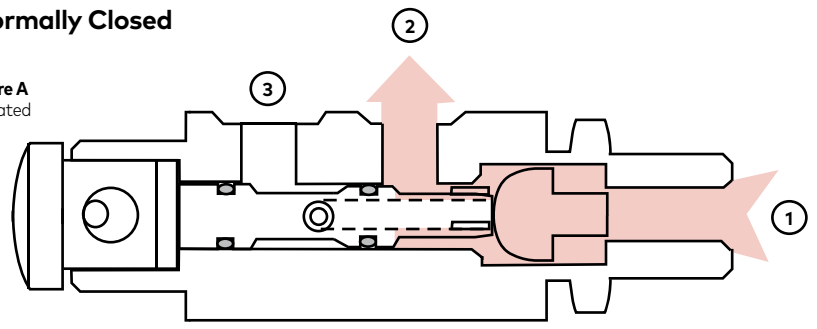
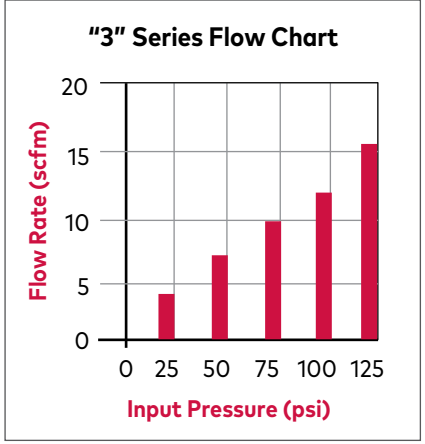
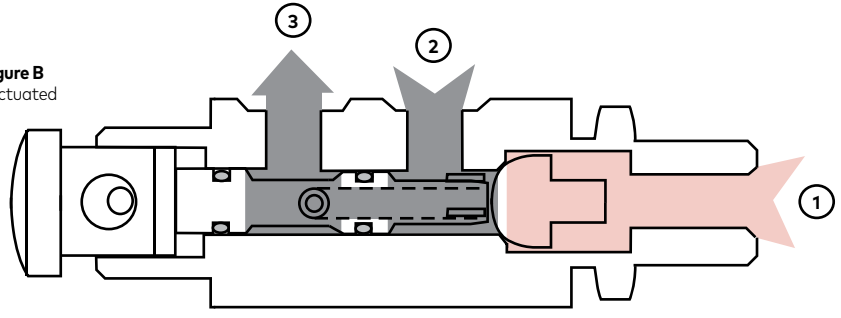


Figure B Unactuated



Function

When a 3-Way normally closed valve is actuated (Figure A) the stem unseats the poppet allowing flow through port 1 around the poppet and stem and out port 2.

In the unactuated position (Figure B) the poppet is seated. When flow enters from port 2 it travels through the hollow stem and exhausts to atmosphere through port 3. The poppet design provides a large durable surface that can withstand millions of cycles.

This versatile valve can be plumbed as a selector with pressure in port 1 and vacuum plumbed in port 3.

Pick-and-place applications use selector valves to pick up an object, often with a suction cup at port 2, and release the object by breaking the vacuum pressure at port 1.

The "3" Series cannot be plumbed as normally open, we recommend using our "300" Series 10-32 fully ported valve.

SWIVEL INPUT IS NOT TO BE USED AS A ROTARY UNION.

Port Options

Definition	Options
Port 1 Swivel Input	1/8 NPT / 10-32 (F) 10-32 (F) Elbow 10-32 (F) Tee 1/8 NPT (F) 170 Barb* 1/4 Push-in 5/32 Push-in
Port 2 Exhaust	10-32 (F)
Port 3 Exhaust	10-32 (F)

*170 barb - recommended for use with .170 ID PUR or .170 ID PE

Mounting Method

Panel	Surface
Nominal mounting hole dimension 31/64"	MB-1 or MB-1F Mounting Bracket

(2) nuts and (1) lockwasher provided

The input port swivels to accommodate critical alignment

Product Information

- » To order standard product refer to Product Information listing
- » Metal push button available - use "AM" as the prefix to indicate metal
- » Optional seals available - contact factory
- » Nylon toggles and push buttons are available in seven colors with black as standard. To order colored actuator specify the color, by code, as a "-code#" suffix following the part number (see color code chart page 89)

Example:

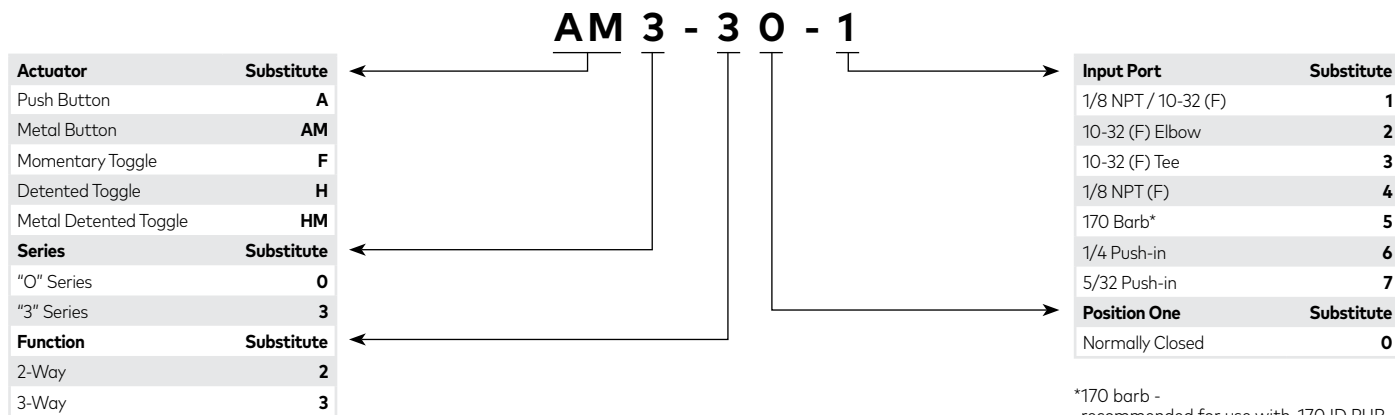
Metal push button, "3" Series, 3-Way, Normally Closed, 1/8 NPT/ 10-32 (F) Input Port

3-Way Normally Closed

Actuator	Part Number	Input
Push Button	A3-30-1	1/8 NPT/ 10-32 (F)
	A3-30-2	10-32 (F) Elbow
	A3-30-3	10-32 (F) Tee
	A3-30-4	1/8 NPT (F)
Detented Toggle	H3-30-1	1/8 NPT/ 10-32 (F)
	H3-30-2	10-32 (F) Elbow
	H3-30-3	10-32 (F) Tee
	H3-30-4	1/8 NPT (F)

Product Numbering Diagram

"0" & "3" Series



Specifications

Push Button Actuator

Technical drawings of Push Button Actuators for input sizes 1 through 7. Each drawing shows a side view with dimensions for length, diameter, and mounting features. The diameter is consistently 0.62 inches. Mounting features include 1/2 HEX, 1/8 NPT, 170 BARB, and 1/4 PI or 5/32 PI connections.

- "-1" Input: Length 2.27, 1/2 HEX, 1/8 NPT
- "-2" Input: Length 2.24, 1/2 HEX
- "-3" Input: Length 2.24, 1/2 HEX
- "-4" Input: Length 2.44, 1/2 HEX, 1/8 NPT (F)
- "-5" Input: Length 2.44, 170 BARB, Ø .50, Ø .62
- "-6" Input: Length 2.54, 1/4 PI
- "-7" Input: Length 2.54, 5/32 PI

Toggle Actuator

Technical drawings of Toggle Actuators for input sizes 1 through 7. Each drawing shows a side view with dimensions for length, diameter, and mounting features. The diameter is consistently 0.62 inches. Mounting features include 1/2 HEX, 1/8 NPT, and 170 BARB connections.

- "-1" Input: Length 2.60, 1/2 HEX, 1/8 NPT
- "-2" Input: Length 2.57, 1/2 HEX
- "-3" Input: Length 2.57, 1/2 HEX
- "-4" Input: Length 2.77, 1/2 HEX
- "-5" Input: Length 2.77, 170 BARB, Ø .50, Ø .62
- "-6" Input: Length 2.87, 1/4 PI
- "-7" Input: Length 2.87, 5/32 PI

When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

11 SERIES

1/8 NPT female and 1/4 push-to-connect connections

- » Four input options
- » Swivel output port
- » High flow
- » Poppet design contributes to long product life

Technical Data

Switching function:

Normally closed

Material:

Aluminum/ Anodize or Brass/ Electroless Nickel, Stainless Steel, Nylon, Acetal Copolymer, Buna-N (optional seals available - contact factory)



Closed Cross-Over

The normally closed "11" Series features a stem and poppet that work in conjunction with one another. The poppet seals the exhaust port before it opens to flow. There is no transitional state from one function to the next providing the operator precise control between positions.

Technical data

Performance Data

Temperature Range	Operating Pressure	Type	C _v	Flow Rate (scfm)		Fill Time sec/ in ³		Exhaust Time sec/ in ³	
				50 psi	125 psi	0-90 psi	100-10 psi		
-20° to +160°F	0 to 125 psi	Normally Closed	.23	8.6	19.0	.015	.035		
		Normally Closed	.29	10.2	222.1	.01	.05		

C_v per ANSI / (NFPA) T3.21.3

Actuation Force

Actuator Style	Normally Closed	
	50 psi	125 psi
Nylon Toggle	8 oz	14 oz
Push Button	3 ½ lbs	7 lbs

"11" Series Cross Section

3-Way Normally Closed

Figure A
Actuated

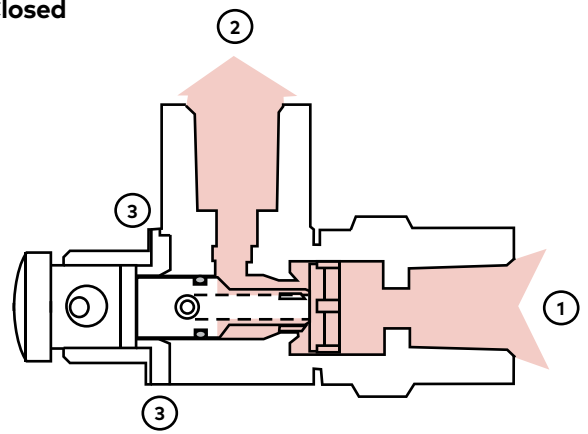
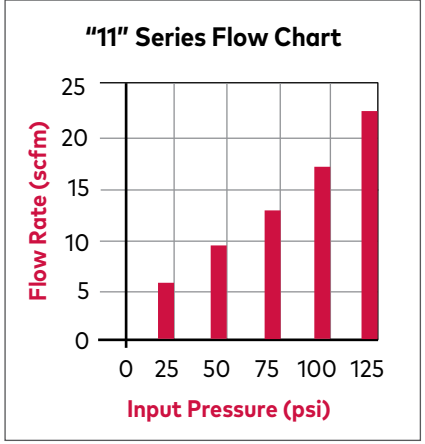
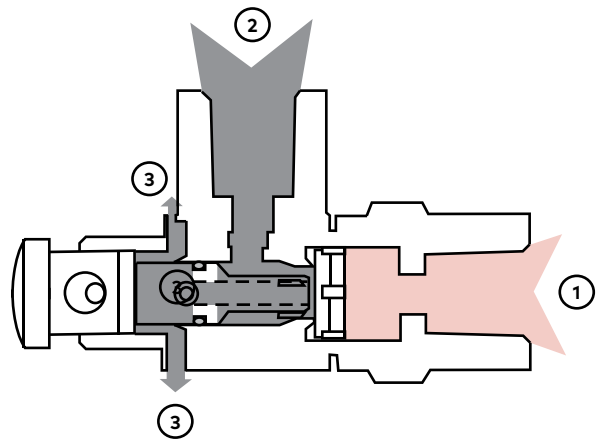


Figure B
Unactuated



Function

When a 3-Way normally closed valve is actuated (Figure A) the stem unseats the poppet allowing flow through port 1 around the poppet and stem and out port 2.

In the unactuated position (Figure B) the poppet is seated. When flow enters from port 2 it travels through the hollow stem and exhausts to atmosphere through port 3. The specially designed poppet has a Buna-N sealing surface which can withstand millions of cycles.

SWIVEL INPUT IS NOT TO BE USED AS A ROTARY UNION.

Port Options

Definition	Options
Port 1 Input	1/8 NPT / 10-32 (F) 1/8 NPT (F) 1/4 Push-in 5/32 Push-in
Port 2 Swivel Output	1/8 NPT (F) 1/4 Push-in 5/32 Push-in
Port 3 Exhaust	non-threaded, exhausts to atmosphere

Mounting Method

Panel	Surface
Nominal mounting hole dimension 31/64"	MB-1 or MB-1F Mounting Bracket

(2) nuts and (1) lockwasher provided

Product Information

The "11" Series specially designed poppet has a Buna-N sealing surface which can withstand millions of cycles.



2-Way Normally Closed

Actuator	Part Number	Input	Output	
Push Button	A11-20-14		1/8 NPT (F)	
	A11-20-16	1/8 NPT	1/4 Push-in	
	A11-20-17		5/32 Push-in	
	A11-20-44		1/8 NPT (F)	
	A11-20-46	1/8 NPT (F)	1/4 Push-in	
	A11-20-47		5/32 Push-in	
	A11-20-64		1/8 NPT (F)	
	A11-20-66	1/4 Push-in	1/4 Push-in	
	A11-20-67		5/32 Push-in	
	A11-20-74		1/8 NPT (F)	
	A11-20-76	5/32 Push-in	1/4 Push-in	
	A11-20-77		5/32 Push-in	
	Detented Toggle	H11-20-14		1/8 NPT (F)
		H11-20-16	1/8 NPT	1/4 Push-in
H11-20-17			5/32 Push-in	
H11-20-44			1/8 NPT (F)	
H11-20-46		1/8 NPT (F)	1/4 Push-in	
H11-20-47			5/32 Push-in	
H11-20-64			1/8 NPT (F)	
H11-20-66		1/4 Push-in	1/4 Push-in	
H11-20-67			5/32 Push-in	
H11-20-74			1/8 NPT (F)	
Momentary Toggle	F11-20-14		1/8 NPT (F)	
	F11-20-16	1/8 NPT	1/4 Push-in	
	F11-20-17		5/32 Push-in	
	F11-20-44		1/8 NPT (F)	
	F11-20-46	1/8 NPT (F)	1/4 Push-in	
	F11-20-47		5/32 Push-in	
	F11-20-64		1/8 NPT (F)	
	F11-20-66	1/4 Push-in	1/4 Push-in	
	F11-20-67		5/32 Push-in	
	F11-20-74		1/8 NPT (F)	
F11-20-76	5/32 Push-in	1/4 Push-in		
F11-20-77		5/32 Push-in		

3-Way Normally Closed

Actuator	Part Number	Input	Output	
Push Button	A11-30-14		1/8 NPT (F)	
	A11-30-16	1/8 NPT	1/4 Push-in	
	A11-30-17		5/32 Push-in	
	A11-30-44		1/8 NPT (F)	
	A11-30-46	1/8 NPT (F)	1/4 Push-in	
	A11-30-47		5/32 Push-in	
	A11-30-64		1/8 NPT (F)	
	A11-30-66	1/4 Push-in	1/4 Push-in	
	A11-30-67		5/32 Push-in	
	A11-30-74		1/8 NPT (F)	
	A11-30-76	5/32 Push-in	1/4 Push-in	
	A11-30-77		5/32 Push-in	
	Detented Toggle	H11-30-14		1/8 NPT (F)
		H11-30-16	1/8 NPT	1/4 Push-in
H11-30-17			5/32 Push-in	
H11-30-44			1/8 NPT (F)	
H11-30-46		1/8 NPT (F)	1/4 Push-in	
H11-30-47			5/32 Push-in	
H11-30-64			1/8 NPT (F)	
H11-30-66		1/4 Push-in	1/4 Push-in	
H11-30-67			5/32 Push-in	
H11-30-74			1/8 NPT (F)	
Momentary Toggle	F11-30-14		1/8 NPT (F)	
	F11-30-16	1/8 NPT	1/4 Push-in	
	F11-30-17		5/32 Push-in	
	F11-30-44		1/8 NPT (F)	
	F11-30-46	1/8 NPT (F)	1/4 Push-in	
	F11-30-47		5/32 Push-in	
	F11-30-64		1/8 NPT (F)	
	F11-30-66	1/4 Push-in	1/4 Push-in	
	F11-30-67		5/32 Push-in	
	F11-30-74		1/8 NPT (F)	
F11-30-76	5/32 Push-in	1/4 Push-in		
F11-30-77		5/32 Push-in		

Product Information

The standard "11" Series valve output port swivels to accommodate critical alignment.

- » To order standard product refer to Product Information listing
- » To order metal push button - use "AM" as the prefix to indicate metal
- » Optional seals available - contact factory
- » Nylon toggles and push buttons are available in seven colors with black as standard. To order colored actuator specify the color, by code, as a "-code#" suffix following the part number (see color code chart page 89)

Example:

Nylon push button, "11" Series, 2-Way, Normally Closed, 1/8 NPT /10-32 (F) Input Port, 1/8 (F) Output

Product Numbering Diagram

"11" Series

A11 - 2 0 - 1 4

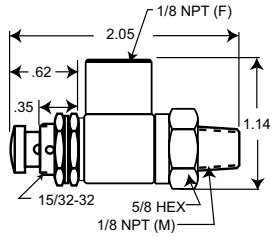
Actuator	Substitute
Push Button	A
Metal Button	AM
Momentary Toggle	F
Detented Toggle	H
Metal Detented Toggle	HM
Series	Substitute
"11" Series	11
Function	Substitute
2-Way	2
3-Way	3

Output Port	Substitute
1/8 NPT (F)	4
1/4 Push-in	6
5/32 Push-in	7
Input Port	Substitute
1/8 NPT / 10-32 (F)	1
10-32 (F) Elbow	2
10-32 (F) Tee	3
1/8 NPT (F)	4
170 Barb*	5
1/4 Push-in	6
5/32 Push-in	7
Position One	Substitute
Normally Closed	0

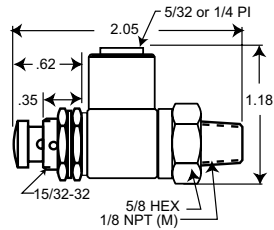
*170 barb - recommended for use with .170 ID PUR or .170 ID PE

Specifications

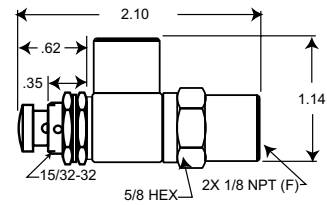
Push Button Actuator



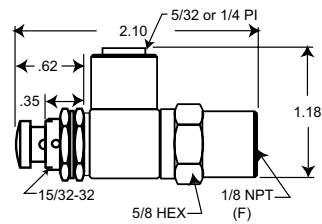
"-14" Porting



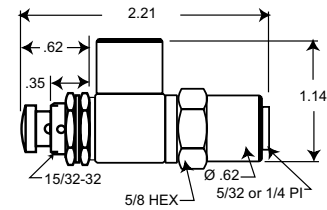
"-16" Porting
"-17" Porting



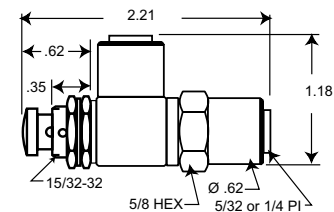
"-44" Porting



"-46" Porting
"-47" Porting

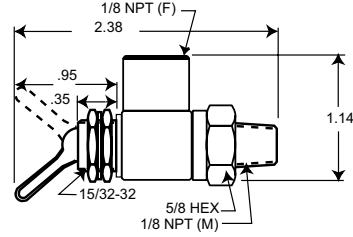


"-64" Porting
"-74" Porting

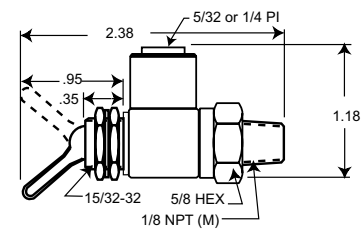


"-66" Porting
"-67" Porting
"-76" Porting
"-77" Porting

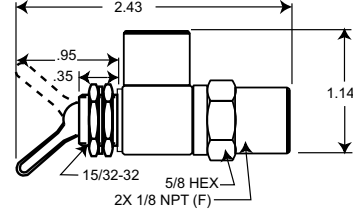
Toggle Actuator



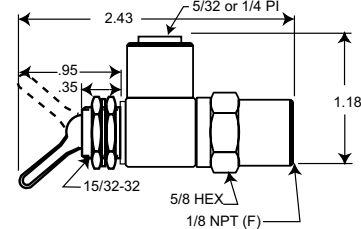
"-14" Porting



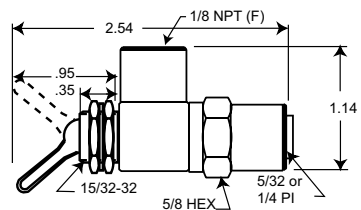
"-16" Porting
"-17" Porting



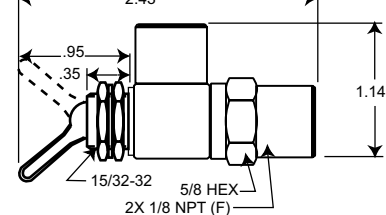
"-44" Porting



"-46" Porting
"-47" Porting



"-64" Porting
"-74" Porting



"-66" Porting
"-67" Porting
"-76" Porting
"-77" Porting

When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

300 SERIES

The "300" Series valves feature miniature size and a single stem design

- » Single stem design
- » Compact size
- » Four input options
- » Numerous porting configurations
- » Fully ported design offers plumbing versatility
- » Vacuum applications to 26" Hg

Technical Data

Material:
Brass/ Electroless Nickel,
Aluminum/ Anodize, Stainless
Steel, Buna-N (optional seals
available - contact factory)



Features

The "300" Series is available with five porting configurations offering the following:

- » 10-32 (F) Input/Output: Ideal for use as a pilot actuating device and for basic on/off functions
- » 1/8 NPT Input: Ideal for direct mounting in a manifold or other machine member
- » Cartridge: Ideal for use in manifold systems and custom applications where space is limited
- » 10-32 (F) Fully ported: Threaded exhaust port can be used in applications to direct and capture exhaust flow - see Plumbing Options for Fully Ported Valves, page 34, for alternative plumbing options.

Technical data

Performance Data

Temperature Range	Operating Pressure	Product	C _v		Flow Rate (scfm) Port 1-2		Fill Time sec/ in ³	Exhaust Time sec/ in ³
			Port 1-2	Port 2-3	50 psi	125 psi	0-90 psi	100-10 psi
-20° to 160°F	26" Hg to 125 psi	"300" Series 10-32 (F) Input/output	.20	n/a	7.2	15.5	.02	.04
		"300" Series 10-32 (F) Fully ported	.27	.25	9.0	20.0	.014	.035
		"300" Series 1/8 NPT Input	.24	n/a	8.3	17.8	.014	.039

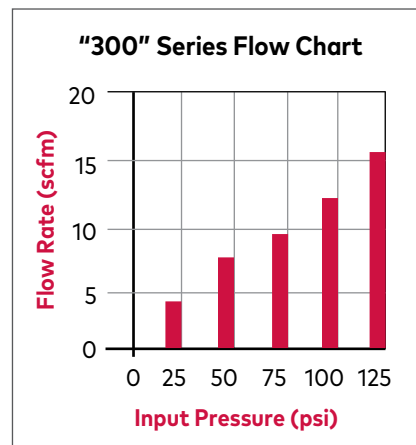
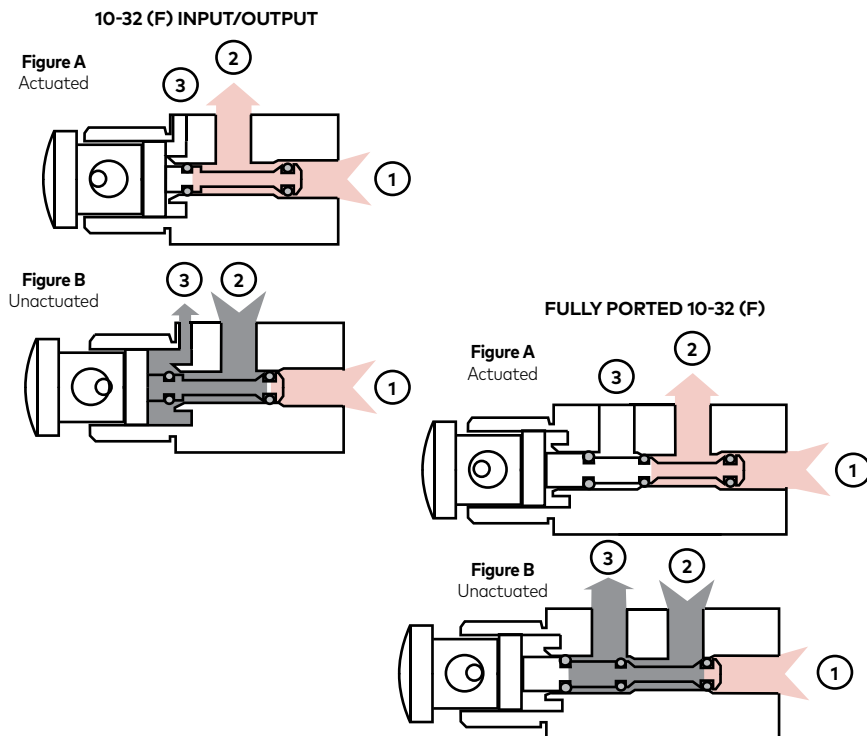
2-Way valves ideal for use in liquid applications compatible with materials of construction

C_v per ANSI / (NFPA) T3.21.3

Actuation Force

Actuator Style	"300" Series 10-32 Input		"300" Series Fully Ported 10-32 (F)	
	50 psi	125 psi	50 psi	125 psi
Toggle	6 oz	11 oz	6 oz	11 oz
Ball	29 oz	51 oz	29 oz	51 oz
Push Button	29 oz	51 oz	29 oz	51 oz
Integral Air Pilot	30 psi	40 psi	30 psi	40 psi

3-Way Normally Closed



Function

In the actuated position (Figure A) air flows through port 1 travels around the lower O-ring and flows out port 2 - the upper O-ring seals the passage preventing exhaust flow out of the valve.

In the unactuated position (Figure B) the lower O-ring seals the flow at port 1, allowing flow to enter port 2 travel around the upper seal and exhaust to atmosphere through port 3.

The 10-32 (F) fully ported valve allows the capture and removal of exhaust flow. (See Plumbing Options for Fully Ported Valves, page 27, for alternative plumbing methods.)

Port Options

Valve	Input 1	Input 1	Exhaust
10-32 (F) Input/Output	10-32 (F)	10-32 (F)	non-threaded
1/8 NPT Input	1/8 NPT	10-32 (F)	non-threaded
*Cartridge	non-threaded	non-threaded	non-threaded
10-32 (F) Fully Ported	10-32 (F)	10-32 (F)	10-32 (F)

*Cartridge valve mounting drawing on page 26

Mounting Method

Panel	Surface
Nominal mounting hole dimension 31/64"	MB-1 or MB-1F Mounting Bracket

(2) nuts and (1) lockwasher provided

Product Information

Stainless Steel 10-32 Fully Ported valve with M5 threads available - contact factory



"300" Series Standard 10-32 (F)

Type	Part Number	Operator
2-Way Normally Closed	C030201	Toggle Detented
	C030203	Toggle Momentary
	C030205	Nylon Button
	C030207	Nylon Ball
	C030209	O62 Barb Integral Air Pilot
	C030221	Metal Toggle Detented
	C030223	Metal Toggle Momentary
	C030225	Metal Button
	C030227	Stainless Steel Ball
3-Way Normally Closed	C030101	Toggle Detented
	C030103	Toggle Momentary
	C030105	Nylon Button
	C030107	Nylon Ball
	C030109	O62 Barb Integral Air Pilot
	C030121	Metal Toggle Detented
	C030123	Metal Toggle Momentary
	C030125	Metal Button
	C030127	Stainless Steel Ball

"300" Series Standard 10-32 (F)

Type	Part Number	Operator
2-Way Normally Closed	C030227	Stainless Steel Ball
3-Way Normally Closed	C030127	Stainless Steel Ball

Product Information

"300" Series 10-32 Fully Ported

Type	Part Number	Operator
3-Way Normally Closed	C030501	Toggle Detented
	C030503	Toggle Momentary
	C030505	Nylon Button
	C030507	Nylon Ball
	C030509	O62 Barb Integral Air Pilot
	C030510	Pin
	C030521	Metal Toggle Detented
	C030523	Metal Toggle Momentary
	C030525	Metal Button
C030527	Stainless Steel Ball	

"300" Series Standard Stainless Steel 10-32 (F)

Type	Part Number	Operator
2-Way Normally Closed	C032101	Toggle Detented
	C032103	Toggle Momentary
	C032105	Nylon Button
	C032107	Nylon Ball
	C032121	Metal Toggle Detented
	C032123	Metal Toggle Momentary
	C032125	Metal Button
3-Way Normally Closed	C032127	Stainless Steel Ball
	C032201	Toggle Detented
	C032203	Toggle Momentary
	C032205	Nylon Button
	C032207	Nylon Ball
	C032221	Metal Toggle Detented
	C032223	Metal Toggle Momentary
	C032225	Metal Button
C032227	Stainless Steel Ball	

"300" Series Standard Stainless Steel 10-32 (F)

Type	Part Number	Operator
3-Way Normally Closed	C032001	Toggle Detented
	C032003	Toggle Momentary
	C032005	Nylon Button
	C032007	Nylon Ball
	C032021	Metal Toggle Detented
	C032023	Metal Toggle Momentary
	C032025	Metal Button
	C032027	Stainless Steel Ball

"300" Series 1/8 NPT Input

Type	Part Number	Operator
2-Way Normally Closed	C030701	Toggle Detented
	C030703	Toggle Momentary
	C030705	Nylon Button
	C030707	Nylon Ball
	C030721	Metal Toggle Detented
	C030723	Metal Toggle Momentary
	C030725	Metal Button
3-Way Normally Closed	C030727	Stainless Steel Ball
	C030601	Toggle Detented
	C030603	Toggle Momentary
	C030605	Nylon Button
	C030607	Nylon Ball
	C030621	Metal Toggle Detented
	C030623	Metal Toggle Momentary
	C030625	Metal Button
	C030627	Stainless Steel Ball

"300" Series Cartridge

Type	Part Number	Operator
2-Way Normally Closed	C032401	Toggle Detented
	C032403	Toggle Momentary
	C032405	Nylon Button
	C032407	Nylon Ball
	C032421	Metal Toggle Detented
	C032423	Metal Toggle Momentary
	C032425	Metal Button
3-Way Normally Closed	C032427	Stainless Steel Ball
	C032301	Toggle Detented
	C032303	Toggle Momentary
	C032305	Nylon Button
	C032307	Nylon Ball
	C032321	Metal Toggle Detented
	C032323	Metal Toggle Momentary
	C032325	Metal Button
	C032327	Stainless Steel Ball



Look for this symbol next to the part number listing to easily locate stainless steel products.

Product Information

The threaded exhaust port can be used in applications to direct and capture exhaust flow.

"300" Series valves feature miniature size and a single stem design.

- » To order standard product refer to Product Information listing
- » With Ethylene Propylene O-ring seal, change the "CO" in the part number to "CE"
- » With FKM O-ring seal, change the "CO" in the part number to "CV"
- » Nylon toggles and push buttons are available in seven colors with black as standard. To order colored actuator specify the color, by code, as a "-code#" suffix following the part number (see color code chart page 89)

Example:

300 Series - Buna-N O-rings, 3-Way Normally Closed, with Detented Toggle

Product Numbering Diagram

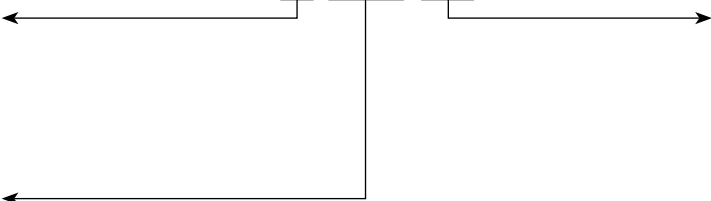
"300" Series

C O 301 01

Seals	Substitute
Buna-N	O
Ethylene Propylene	E
FKM	V

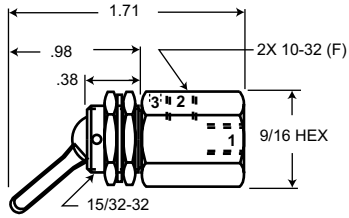
Style and Function	Substitute
Standard 3WNC	301
Standard 2WNC	302
Fully Ported 3WNC	305
1/8 NPT Input 3WNC	306
1/8 NPT Input 2WNC	307
Fully Ported SS 3WNC	320
Standard SS 2WNC	321
Standard SS 3WNC	322
Cartridge 3WNC	323
Cartridge 2WNC	324

Actuator	Substitute
Detented Nylon Toggle	01
Momentary Nylon Toggle	03
Nylon Button	05
Nylon Ball	07
O62 Barb Integral Air Pilot	09
Pin	10
Metal Detented Toggle	21
Metal Momentary Toggle	23
Metal Button	25
Stainless Steel Ball	27

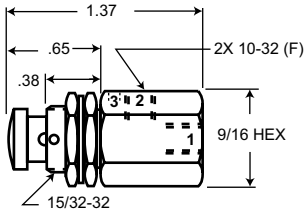


Specifications

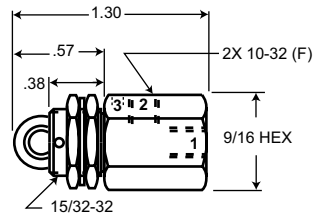
Standard



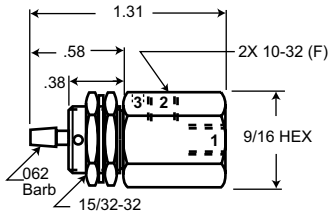
C030101
C030201
C030103
C030203



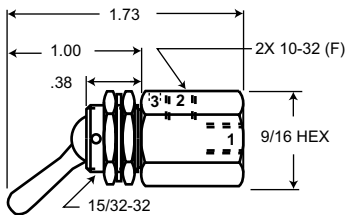
C030105
C030205
C030125
C030225



C030107
C030207
C030127
C030227



C030109
C030209

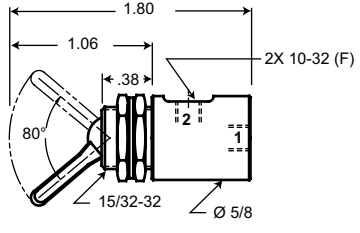


C030121
C030221
C030123
C030223

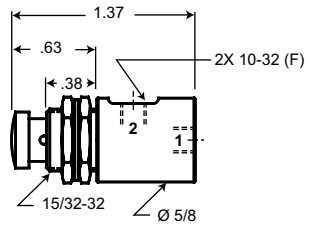
Refer to Product Number Diagram for part number description.
Port 3 is for 3-Way products only.
When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

Specifications

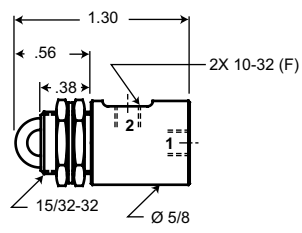
Standard (Stainless Steel)



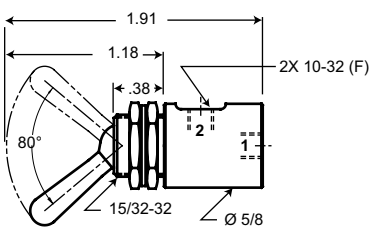
- C032101
- C032103
- C032201
- C032203



- C032105
- C032125
- C032205
- C032225

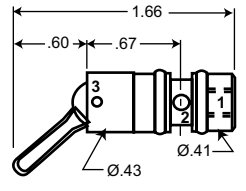


- C032107
- C032127
- C032207
- C032227

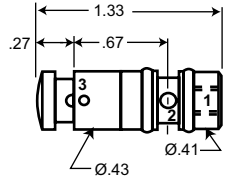


- C032121
- C032123
- C032221
- C032223

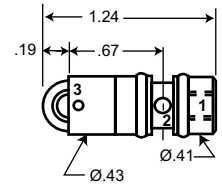
Cartridge



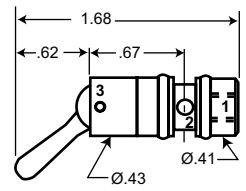
- C032301
- C032303
- C032401
- C032403



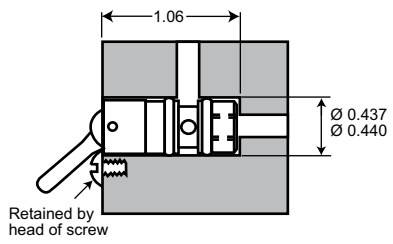
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- C032325
- C032405
- C032425



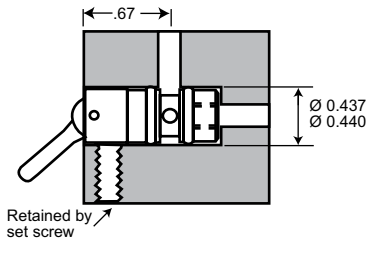
- C032307
- C032327
- C032407
- C032427



- C032321
- C032323
- C032421
- C032423



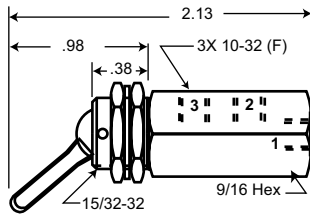
Mounting Options
Preferred Method



CAUTION -
do NOT over torque
retention screw

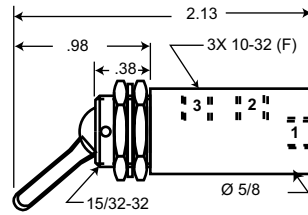
Specifications

Fully Ported



C030501
C030503

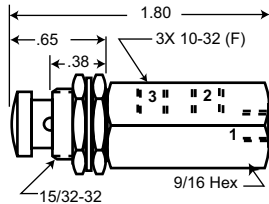
Fully Ported (Stainless Steel)



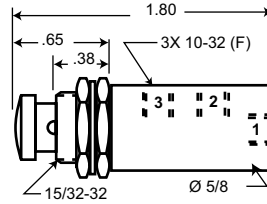
C032001



C032003



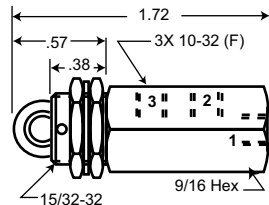
C030505
C030525



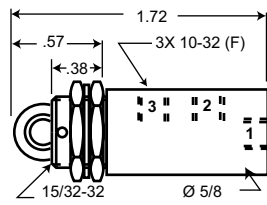
C032005



C032025



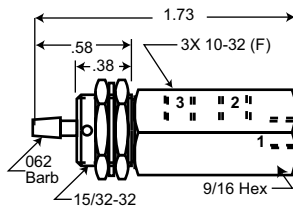
C030507
C030527



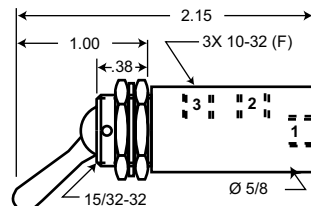
C032007



C032027



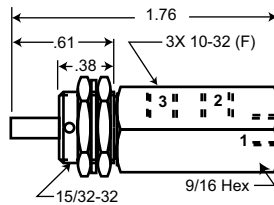
C030509



C032021

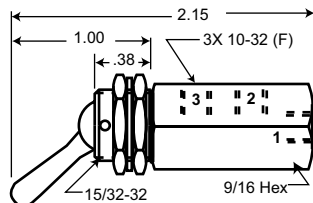


C032023



C030510

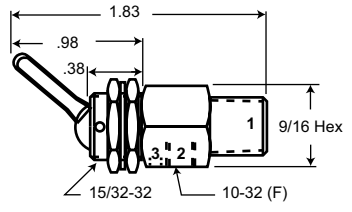
Refer to Product Number Diagram for part number description.
When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.



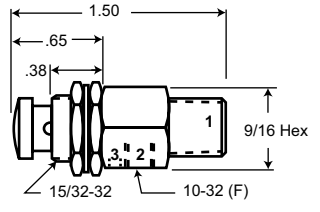
C030521
C030523

Specifications

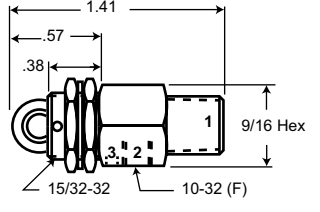
1/8 NPT Input



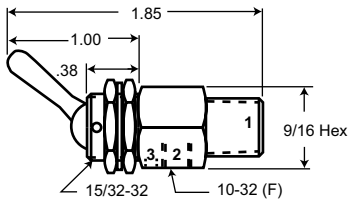
- C030601
- C030603
- C030701
- C030703



- C030605
- C030625
- C030705
- C030725



- C030607
- C030627
- C030707
- C030727



- C030621
- C030623
- C030721
- C030723

Refer to Product Number Diagram for part number description.
 Port 3 is for 3-Way products only.
 When design makes a dimension critical - contact factory for confirmation.
 All dimensions shown subject to change without notice.

400 SERIES

2-Way or 3-Way Valves

- » Compact size (1.5" OAL)
- » 4 Porting configurations
- » High flow
- » Single stem design
- » Plumbing versatility
- » Mounting versatility
- » Vacuum applications to 26" Hg

Technical Data

Switching function:
Normally closed

Material:
Aluminum/ Anodize, Brass/
Electroless Nickel, Acetal,
Stainless Steel, Nylon, Brass,
Buna-N (optional seals
available - contact factory)



Features

The "400" Series valves offer 2 and 3-Way Normally Closed functions and feature several configurations for plumbing convenience.

The 1/8 NPT (F) Standard Ported valve features 1/8 NPT female bottom input and side output ports. The exhaust port is non-threaded and is located opposite the output port.

The 1/8 NPT (F) Fully Ported and 1/8 NPT (F) Side Ported valves feature a threaded exhaust port that can be used in applications to direct and capture exhaust flow.

The cartridge valve is ideal for use in manifold systems and custom applications where space is limited.

The 1/8 NPT (F) Rear Ported valve features parallel bottom input and output porting with a streamlined design ideal for use in space constrained applications.

Technical data

Performance Data

Temperature Range	Operating Pressure	C _v	Flow Rate (scfm)		Fill Time sec/ in ³ 0-90 psi	Exhaust Time sec/ in ³ 100-10 psi
			50 psi	125 psi		
-20° to 160°F	26" Hg to 125 psi	.42	15.0	33.0	.01	.03

Flow information supplied for flow path 1-2.

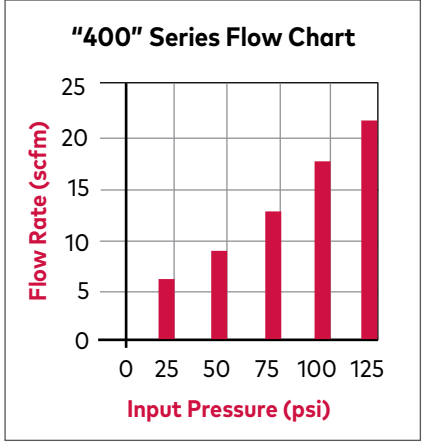
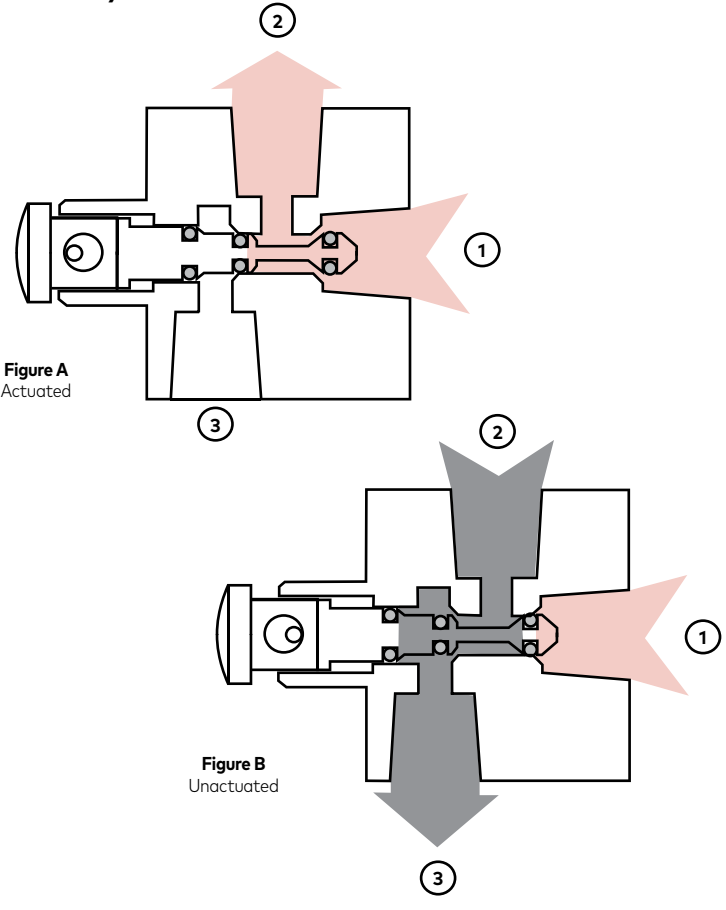
Plumbing Options for Fully Ported Valves

Function	Port 1	Port 2	Port 3
3-Way N.C.	Input	Output	Exhaust
3-Way N.O.	Exhaust	Output	Input
3-Way Vacuum	Input	Output	Exhaust
2-Way Diverter	Output	Input	Output
2-Way Selector	Input	Output	Input
2-Way Vacuum	Output	Input	N/A

NOTE: Alternative plumbing methods for fully ported valves only. C_v per ANSI / (NFPA) T3.21.3

"400" Series Cross Section

3-Way Normally Closed



"400" Series
1/8 NPT Side Ported Valves

Function

In the actuated position (Figure A) air flows through port 1 travels around the lower O-ring and out port 2. The center O-ring seals the passage blocking exhaust flow.

In the unactuated position (Figure B) the lower O-ring seals port 1 allowing return flow to enter port 2, travel around the center seal and exhaust to atmosphere through port 3.

Port Options

Definition	1/8 NPT Standard	1/8 NPT Rear Ported	1/8 NPT Fully Ported	1/8 NPT Side Ported
Port 1 Input	1/8 NPT (F)	1/8 NPT (F)	1/8 NPT (F)	1/8 NPT (F)
Port 2 Output	1/8 NPT (F)	1/8 NPT (F)	1/8 NPT (F)	1/8 NPT (F)
Port 3 Exhaust	*non-threaded	*non-threaded	1/8 NPT (F)	1/8 NPT (F)

*Exhausts to atmosphere

Actuation Force

Actuator Style	50 psi	125 psi
Toggle	13 oz	19 oz
Ball	3½ lbs	5½ lbs
Push Button	3½ lbs	5½ lbs

Product Information

The 1/8 NPT Rear Ported valve features parallel porting in a compact design



Eight standard operators options are available on the "400" Series valves



The cartridge valve is ideal for use in manifold systems and custom applications where space is limited

1/8 NPT Standard

Type	Part Number	Operator
2-Way Normally Closed	C040201	Toggle Detented
	C040203	Toggle Momentary
	C040205	Nylon Button
	C040207	Nylon Ball
	C040221	Metal Toggle Detented
	C040223	Metal Toggle Momentary
	C040225	Metal Button
	C040227	Stainless Steel Ball
3-Way Normally Closed	C040101	Toggle Detented
	C040103	Toggle Momentary
	C040105	Nylon Button
	C040107	Nylon Ball
	C040121	Metal Toggle Detented
	C040123	Metal Toggle Momentary
	C040125	Metal Button
	C040127	Stainless Steel Ball

1/8 NPT Side Ported

Type	Part Number	Operator
3-Way Normally Closed	C040401	Toggle Detented
	C040403	Toggle Momentary
	C040405	Nylon Button
	C040407	Nylon Ball
	C040421	Metal Toggle Detented
	C040423	Metal Toggle Momentary
	C040425	Metal Button
	C040427	Stainless Steel Ball

Mounting Method

Panel	Surface
Nominal mounting hole dimension 31/64"	(2) .20 diam. thru holes

(2) nuts and (1) lockwasher provided

Product Information



Panel mount or surface mount 1/8 NPT input valves



The "400" Series valves feature plumbing versatility

1/8 NPT Fully Ported

Type	Part Number	Operator
3-Way Normally Closed	C040501	Toggle Detented
	C040503	Toggle Momentary
	C040505	Nylon Button
	C040507	Nylon Ball
	C040521	Metal Toggle Detented
	C040523	Metal Toggle Momentary
	C040525	Metal Button
	C040527	Stainless Steel Ball

Cartridge

Type	Part Number	Operator
2-Way Normally Closed	C040701	Toggle Detented
	C040703	Toggle Momentary
	C040705	Nylon Button
	C040721	Metal Toggle Detented
	C040723	Metal Toggle Momentary
	C040725	Metal Button
	3-Way Normally Closed	C040601
C040603		Toggle Momentary
C040605		Nylon Button
C040621		Metal Toggle Detented
C040623		Metal Toggle Momentary
C040625		Metal Button

1/8 NPT Rear Ported

Type	Part Number	Operator
2-Way Normally Closed	C041001	Toggle Detented
	C041003	Toggle Momentary
	C041005	Nylon Button
	C041007	Nylon Ball
	C041021	Metal Toggle Detented
	C041023	Metal Toggle Momentary
	C041025	Metal Button
	C041027	Stainless Steel Ball
3-Way Normally Closed	C040901	Toggle Detented
	C040903	Toggle Momentary
	C040905	Nylon Button
	C040907	Nylon Ball
	C040921	Metal Toggle Detented
	C040923	Metal Toggle Momentary
	C040925	Metal Button
	C040927	Stainless Steel Ball

Product Information

The "400" Series valves are available in a 2-Way function featuring several configurations for plumbing convenience.

The 1/8 NPT Side Ported Valve is able to accommodate reverse flow applications - contact factory

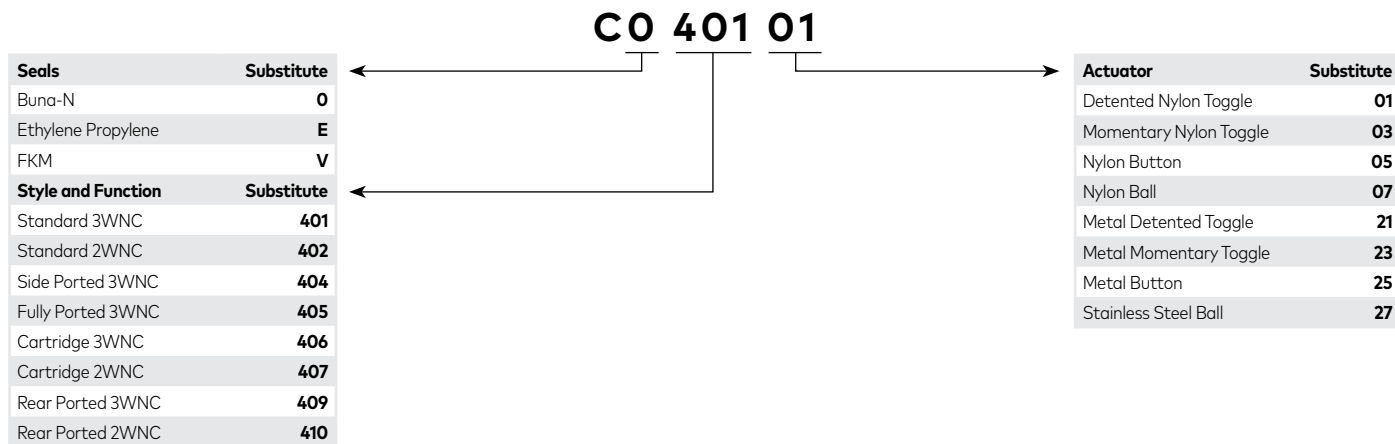
- » To order standard product refer to Product Information listing
- » With Ethylene Propylene O-ring seal, change the "CO" in the part number to "CE"
- » With FKM O-ring seal, change the "CO" in the part number to "CV"
- » Nylon toggles and push buttons are available in seven colors with black as standard. To order colored actuator specify the color, by code, as a "-code#" suffix following the part number (see color code chart page 89)

Example:

400 Series - Buna-N O-rings, Standard 3-Way Normally Closed, with Detented Nylon Toggle

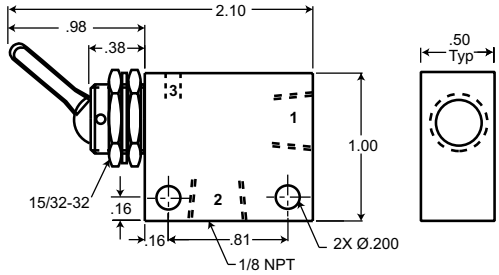
Product Numbering Diagram

"400" Series



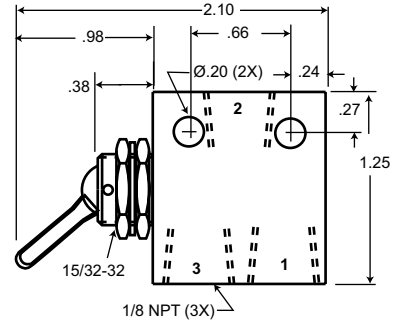
Specifications

Standard

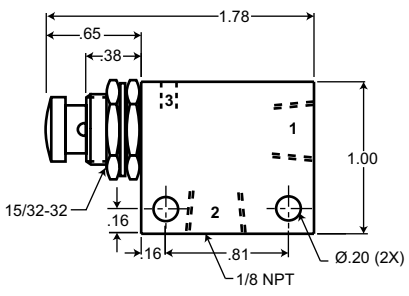


C040101
C040103
C040201
C040203

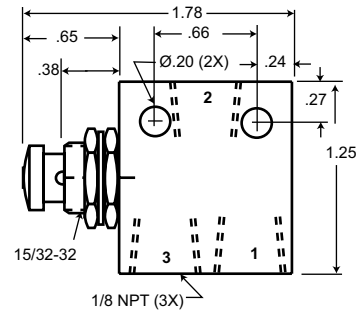
Side Ported



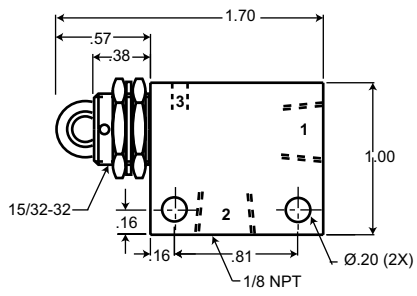
C040401
C040403



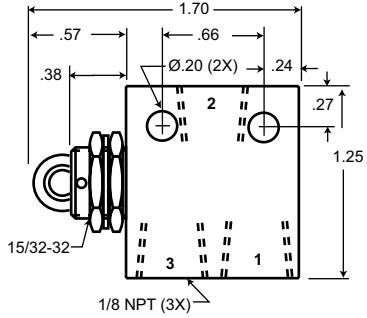
C040105
C040125
C040205
C040225



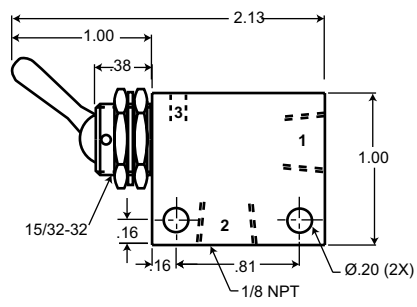
C040405
C040425



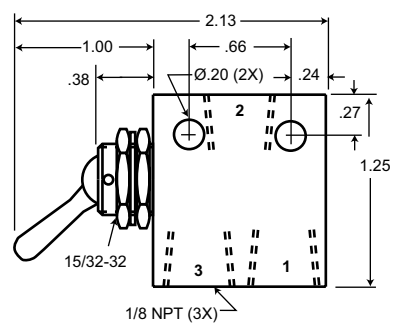
C040107
C040127
C040207
C040227



C040407
C040427



C040121
C040123
C040221
C040223

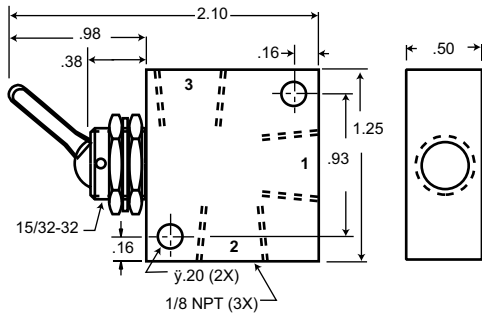


C040421
C040423

Refer to Product Number Diagram for part number description.
When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

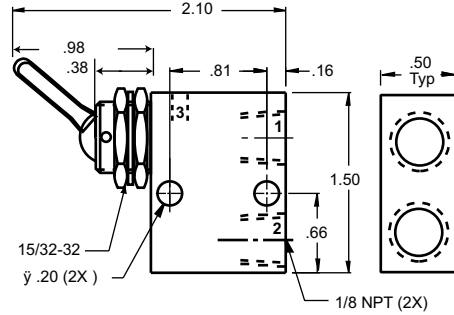
Specifications

Fully Ported

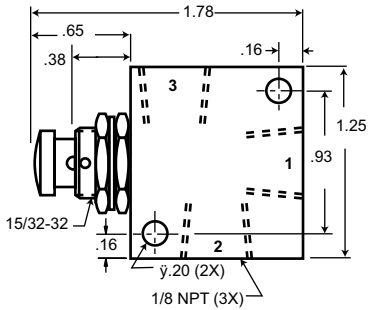


C040501
C040503

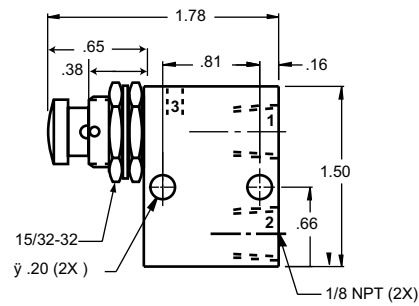
Rear Ported



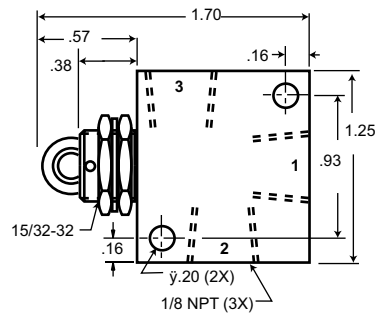
C040901
C040903
C041001
C041003



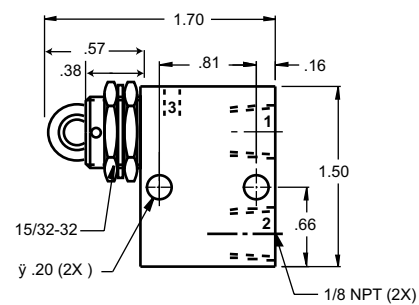
C040505
C040525



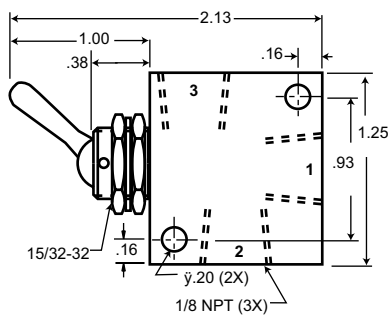
C040905
C040925
C041005
C041025



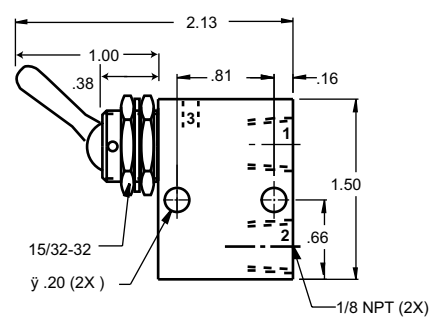
C040507
C040527



C040907
C040927
C041007
C041027



C040521
C040523

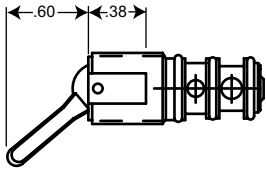


C040921
C040923
C041021
C041023

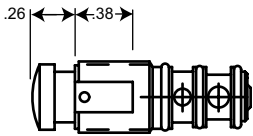
Port 3 is for 3-Way products only.
When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

Specifications

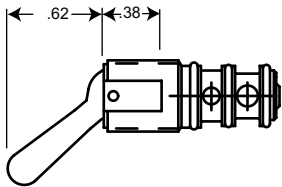
3-Way Cartridge



C040601
C040603

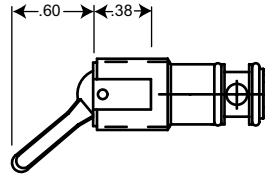


C040605
C040625

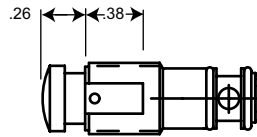


C040621
C040623

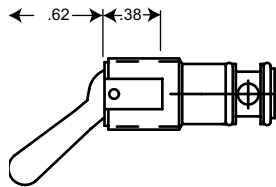
2-Way Cartridge



C040701
C040703



C040705
C040725



C040721
C040723

Contact factory for cavity dimension drawing.
When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

SUB-MICRO VALVES

3-Way Valves

- » Plumbing versatility
- » Metal actuators
- » 1/16 barbs
- » Precision machined
- » Robust design

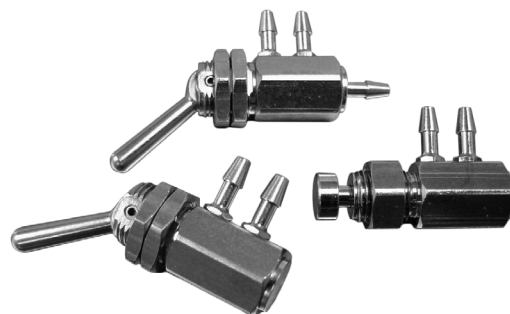
Technical Data

Switching function:

Normally closed/ normally open

Material:

Brass/ Electroless Nickel,
Stainless Steel, Buna-N, Phosphate



Features

Norgren's Sub-Micro valves offer a higher flow rate than similar subminiature valves in the marketplace. An impressive flow rate of 2.9 scfm at 125 psi produces a C_v of .04. In addition to accommodating vacuum applications, the versatile design allows these 3-Way valves to be plumbed as normally closed or normally open.

Metal actuators enhance the robust design of Norgren's sub-micro valves. The unique design of the detented toggle offers roller ball-like actuation resulting in less wear and longer product life. Flats on the threaded neck ensure that the valve will not rotate when panel mounted. Electroless nickel plating provides corrosion resistance and a pleasing appearance.

Technical data

Performance Data

Temperature Range	Operating Pressure	C_v	Flow Rate (scfm)		Fill Time sec/ in ³ 0-90 psi	Exhaust Time sec/ in ³ 100-10 psi
			50 psi	125 psi		
-20° to 160°F	26" Hg to 125 psi	.04	1.27	2.90	.11	.19

C_v per ANSI / (NFPA) T3.21.3

Actuation Force

Actuator Style	2-Way Valve		3-Way Valve	
	50 psi	125 psi	50 psi	125 psi
Push Button	24 oz	41 oz	24 oz	41 oz
Toggle	7 oz	11 oz	7 oz	11 oz

Plumbing Options for Fully Ported Valves

Function	Port 1	Port 2	Port 3
3-Way N.C.	Exhaust	Output	Input
3-Way N.O.	Input	Output	Exhaust
2-Way Diverter	Output	Input	Output
2-Way Selector	Input	Output	Input

NOTE: For vacuum application, plumb vacuum source at port 3. C_v per ANSI / (NFPA) T3.21.3

Product Information

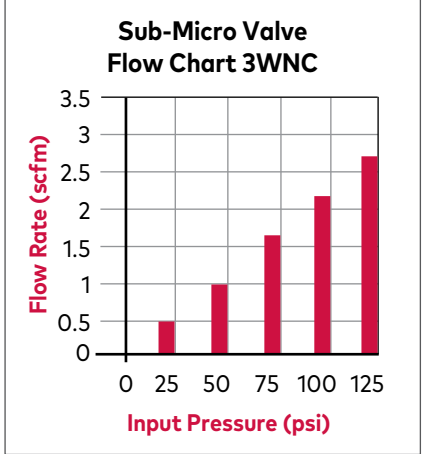
Sub-Micro Valve

The Sub-Micro valve features an impressive flow rate of 2.9 scfm at 125 psi producing a C_v of .04

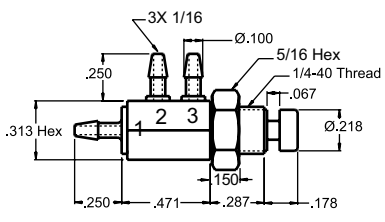
- » To order standard product refer to Product Information listing.
- » Mounting nuts provided.

1/16 barbs recommended for use with 1/16 ID PUR tubing

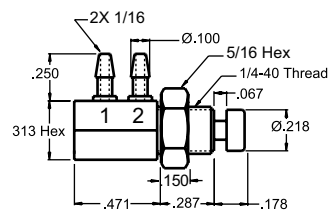
Type	Part Number	Operator
2-Way Normally Closed	AMM-20-1616	Metal Button
	HMM-20-1616	Toggle Detented
3-Way Normally Closed	AMM-30-1616	Metal Button
	HMM-30-1616	Toggle Detented



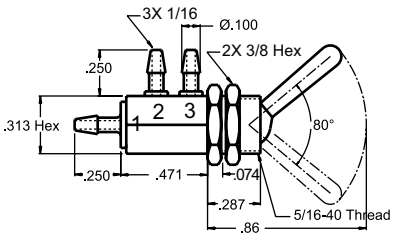
AMM-30-1616



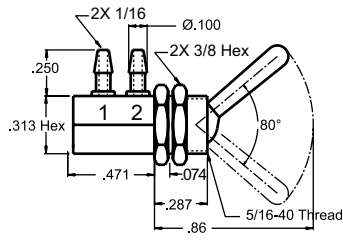
AMM-20-1616



HMM-30-1616



HMM-20-1616



Mounting Method

Nominal Panel Mounting Hole Dimension		
AMM-*O-1616	Ø 17/64"	(1) nut provided
HMM-*O-1616	Ø 21/64"	(2) nuts provided

2-POSITION TOGGLE VALVE

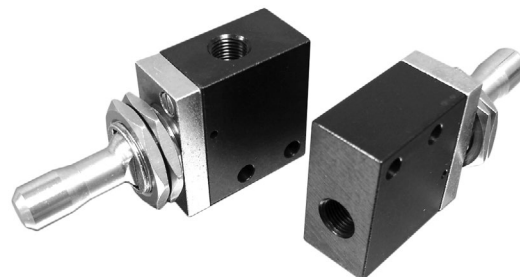
2-Way and 3-Way valves feature 1/8 NPT (F) ports

- » 1/8 NPT (F) ports
- » Heavy duty toggle available
- » 2-Way or 3-Way function
- » Detented & Momentary actuation
- » Panel or surface mount
- » Anodized for corrosion resistance

Technical Data

Material:

Aluminum/ Anodize, Brass/
Electroless Nickel, Stainless
Steel, Buna-N (other seals
available - contact factory)



Features

2-Position Toggle valves shown with Heavy Duty actuator for use in extreme environments. Standard detented and momentary toggles differ in appearance.

The new 2-Position Valves are ideal for use in rugged applications. The combination of the solid aluminum body and stainless steel toggle provides the strength needed to withstand harsh conditions. These 2-Way and 3-Way valves feature 1/8 NPT (F) ports and provide a flow rate of 41 scfm at 125 psi. Both detented and momentary toggles are offered to fit actuation requirements. For extreme environments, heavy duty toggles are also available (-HD option).

Technical data

Performance Data

Temperature Range	Operating Pressure	Media	Product	C _v	Flow Rate (scfm)		Fill Time sec/ in ³		Exhaust Time sec/ in ³
					50 psi	125 psi	0-90 psi	100-10 psi	
-20° to 160°F	0 to 125 psi	Compatible w/ seals	C04220X C04230X	.47	19	41	.006	.030	

Actuation Force

Pressure	2-Way Valve	3-Way Valve
50 psi	72 oz	72 oz
125 psi	7½ lbs	7½ lbs

Mounting Method

Panel	Surface
Nominal hole dimension 25/32" (2) nuts provided	(2) .19 diam. thru holes

Product Information

2-Position Toggle Valve

- » To order standard product refer to Product Information listing
- » With Buna-N O-ring seal, part number listed in chart.
- » With Ethylene Propylene O-ring seal, change the "CO" in the part number to "CE"
- » With FKM O-ring seal, change the "CO" in the part number to "CV"

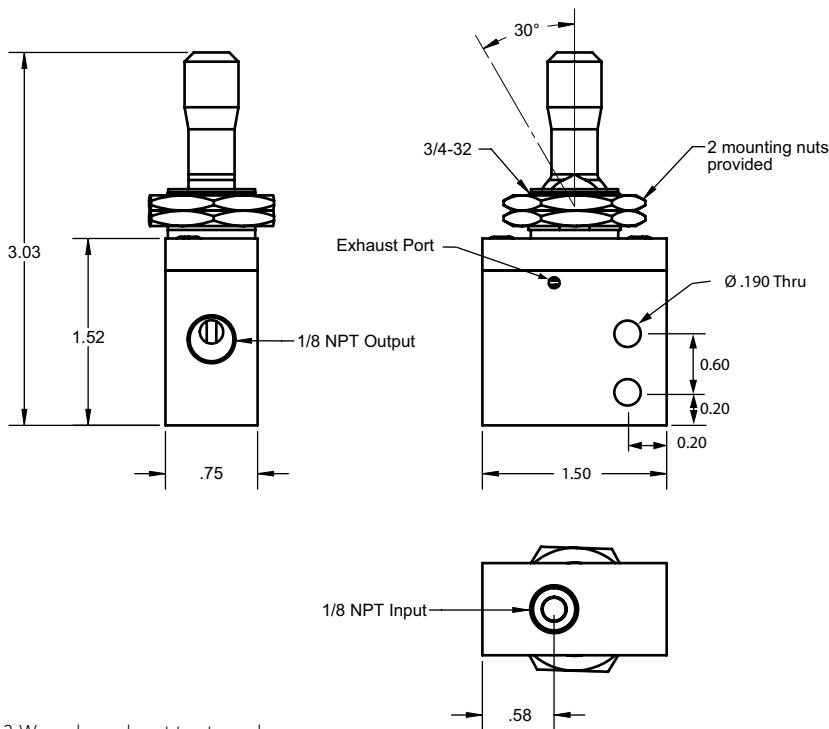
When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

Type	Part Number	Porting	Actuation*
2-Way Normally Closed	C042201	1/8 NPT (F)	Det
	C042203	1/8 NPT (F)	Mom
Heavy Duty Toggle	C042201-HD	1/8 NPT (F)	Det
	C042203-HD	1/8 NPT (F)	Mom
3-Way Normally Closed	C042301	1/8 NPT (F)	Det
	C042303	1/8 NPT (F)	Mom
Heavy Duty Toggle	C042301-HD	1/8 NPT (F)	Det
	C042303-HD	1/8 NPT (F)	Mom



*2-Position toggle valve shown with Heavy Duty toggle style (at left) and with Silicone Protective Boot (sold separately) installed (at right)

C04230x-HD



3-Way valves exhaust to atmosphere

Accessory

Part Number	Description
PPB-3/4	Silicone protective boot for use with momentary style 2-Position Toggle Valves Only

3-POSITION TOGGLE VALVE

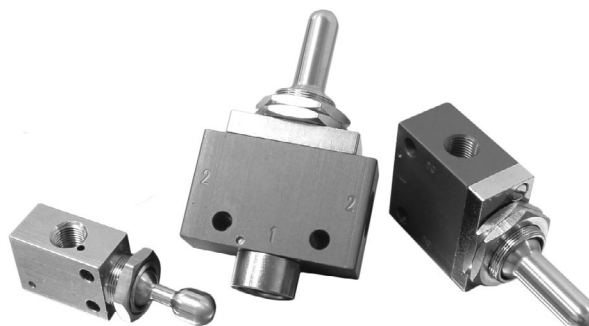
2-Way high flow dual function valves

- » Maximum flow rate for miniature valve line
- » Dual function
- » Mounting versatility
- » Available with 1/8 NPT or 1/4 NPT porting

Technical Data

Material:

Aluminum/ Anodize, Brass/ Electroless Nickel, Stainless Steel, Buna-N (other seals available - contact factory)



Features

The 3-Position Toggle Valve offers the highest flow rate of the Norgren valve line. This dual function product contains two valves in one body with a common input and common exhaust. The 2-Way high flow valves (C042803 & C042903) feature a red anodized body for easy identification.

The smaller electroless nickel version (C04240X) is ideal in limited space applications.

Technical data

Performance Data

Product	Temperature Range	Flow Path	Operating Pressure	C _v	Flow Rate (scfm)		Fill Time sec/ in ³	Exhaust Time sec/ in ³
					50 psi	125 psi	0-90 psi	100-10 psi
C04240X		1-2	0 to 125 psi	.14	5	11	.03	.05
C04250X		1-2	0 to 125 psi	.54	23	50	.006	.02
C04260X	-20° to 160°F	1-2	0 to 125 psi	.54	23	50	.006	.02
C04280X		1-2/2-1	0 to 150 psi	.70	27	57	.005	.009
C04290X		1-2/2-1	0 to 150 psi	.70	27	57	.005	.009

CAUTION: ONLY High Flow version can be plumbed with input at Port 2.

C_v per ANSI / (NFPA) T3.21.3

Actuation Force

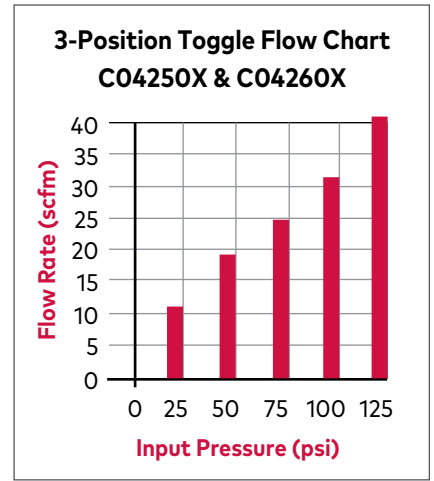
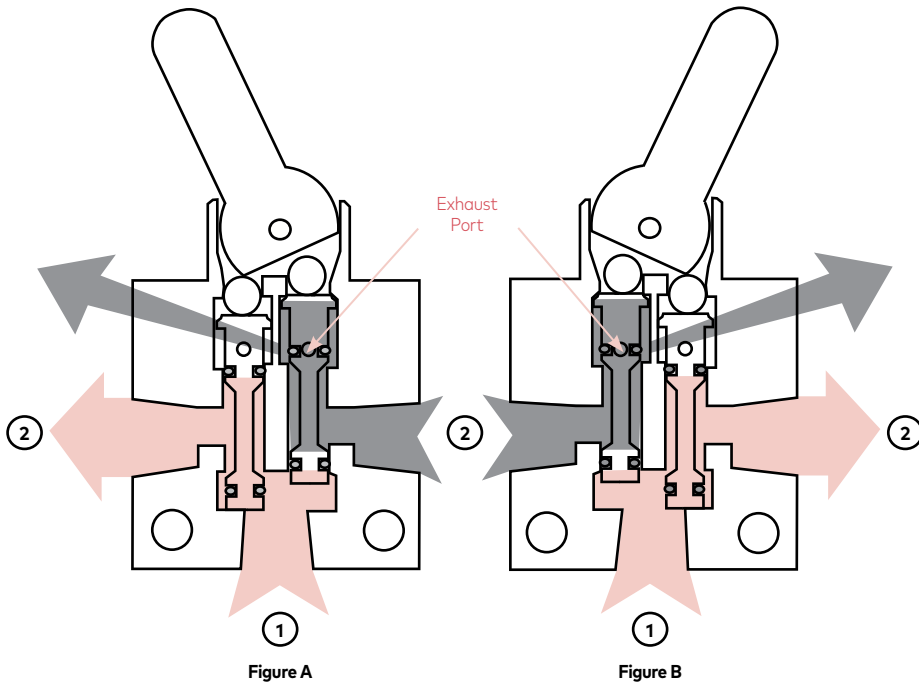
Product	2-Way Valve		3-Way Valve	
	50 psi	125 psi	50 psi	125 psi
C04240X	N/A	N/A	56 oz	72 oz
C04250X & C04260X	72 oz	7-1/2 lbs	72 oz	7-1/2 lbs
C04280X & C04290X	64 oz	84 oz	N/A	N/A



3-Position toggle valve shown with Heavy Duty Toggle style (at left) and with Silicone Protective Boot (sold separately) installed (at right)

3-Position Toggle Cross Section

3-Way Normally Closed



3-Position toggle valve (C042403) features a black anodized body for corrosion and wear resistance

Function

When the toggle is centered in the 2-Way configuration all ports are blocked, in the 3-Way configuration both output ports are open to exhaust.

Port Options

Port 1 Input	1/8 NPT (F) 1/4 NPT (F)
Port 2 Output	1/8 NPT (F) 1/4 NPT (F)
Exhaust	Non-threaded (3-Way Exhausts to Atmosphere)

Mounting Method

Product	Panel	Surface	Hardware
C04240X	Nominal hole dimension 21/32"	(2) .20 diam. thru holes	(1) nuts provided
C04250X C04260X C04280X C04290X	Nominal hole dimension 25/32"	(2) .20 diam. thru holes	(2) nuts provided

Product Information

3-Position Toggle Valve

- » With Buna-N O-ring seal, part number listed in chart.
- » With Ethylene Propylene O-ring seal, change the "CO" in the part number to "CE"
- » With FKM O-ring seal, change the "CO" in the part number to "CV"

Type	Part Number	Porting	Actuation*
2-Way (Standard)	C042601	1/8 NPT (F)	Det/ Det
	C042602	1/8 NPT (F)	Det/ Mom
	C042603	1/8 NPT (F)	Mom/ Mom
2-Way (High Flow)	C042801	1/8 NPT (F)	Det/ Det
	C042802	1/8 NPT (F)	Det/ Mom
	C042803	1/8 NPT (F)	Mom/ Mom
	C042901	1/4 NPT (F)	Det/ Det
	C042903	1/4 NPT (F)	Mom/ Mom
2-Way (Heavy Duty Toggle)	C042601-HD	1/8 NPT (F)	Det/ Det
	C042602-HD	1/8 NPT (F)	Det/ Mom
	C042603-HD	1/8 NPT (F)	Mom/ Mom
3-Way (Mini)	C042401	1/8 NPT (F)	Det/ Det
	C042402	1/8 NPT (F)	Det/ Mom
	C042403	1/8 NPT (F)	Mom/ Mom
3-Way (Standard)	C042501	1/8 NPT (F)	Det/ Det
	C042502	1/8 NPT (F)	Det/ Mom
	C042503	1/8 NPT (F)	Mom/ Mom
3-Way (Heavy Duty Toggle)	C042501-HD	1/8 NPT (F)	Det/ Det
	C042502-HD	1/8 NPT (F)	Det/ Mom
	C042503-HD	1/8 NPT (F)	Mom/ Mom

Dual Function Use

2-Way High Flow C042803 & C042903

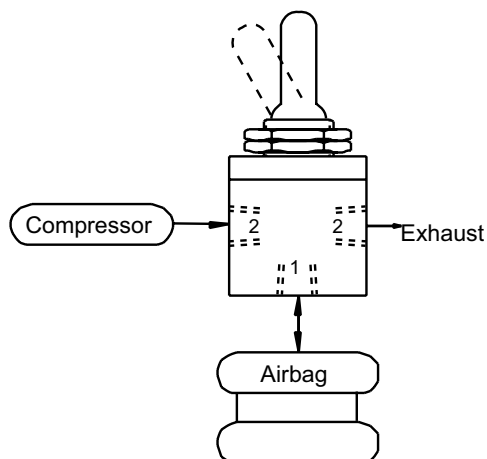
Flow Path 2-1

Inflate and deflate an air bag lift device (shown below)
Dual pressure selector

3-Way Standard C04250X

Flow Path 1-2 (not shown)

Can be used in 4-W applications (open center) to extend and retract cylinders
Pneumatic pilot control on a hydraulic valve

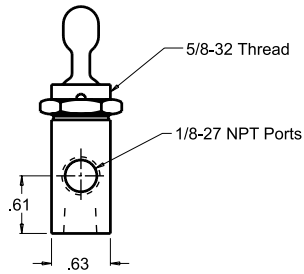
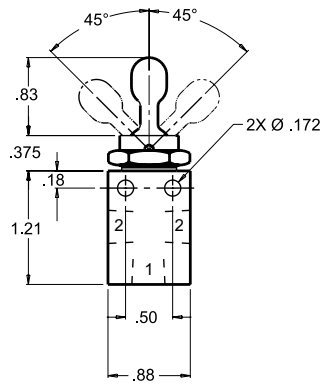


Accessory

Part Number	Description
PPB-3/4	Silicone protective boot for use with momentary style 3-Position Toggle Valves Only

Product Information

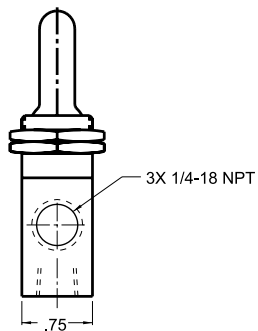
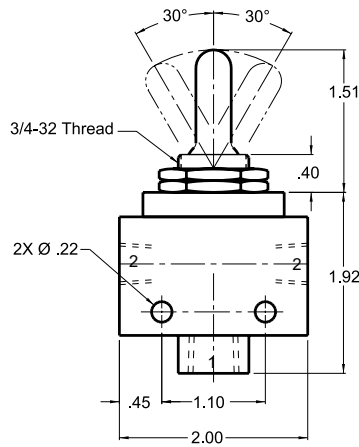
3-Position Toggle Valve



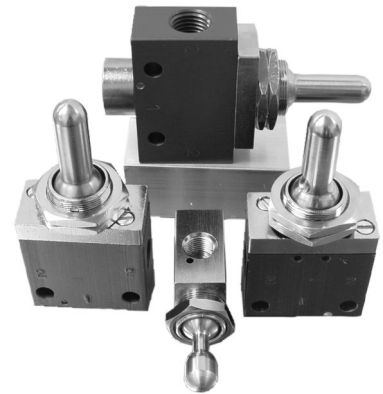
Mini
C04240X



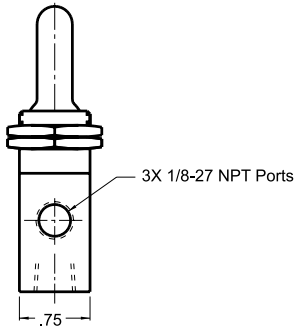
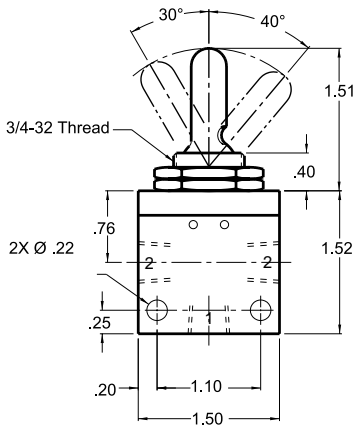
The smaller electroless nickel version (C04240X) is ideal in limited space applications.



1/4 NPT
C04290X



1/8", 5/32", and 1/4" push-to-connect fittings available - see page 131



1/8 NPT
C04250X
C04260X
C04280X

When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice.

SELECTOR VALVES

Two styles of valves, Standard and Shut-off

- » 6-positions, allowing actuation of up to 6 individual circuits
- » Common input
- » Detented knob
- » Two styles of actuation
- » Black anodized for corrosion resistance
- » Panel mount
- » 10-32 (F) ports

Technical Data

Material:

Aluminum/ Anodize, Brass/
Electroless Nickel, Stainless
Steel, Buna-N, Acetal
Copolymer, PTFE, Phenolic



Features

Selector Valves allow the actuation of up to six individual circuits from a common input port. Two styles of valves, Standard and Shut-off, are available to accommodate application requirements.

The Standard Selector Valve directs flow through each output port as the knob is turned.

The Shut-off Selector Valve requires the knob to be pushed-in and turned, blocking flow to the output ports until a position is selected.

These 3-Way valves exhaust to atmosphere upon selection of a new output port.

A spring-loaded "wear compensating seat" retains a tight fit ensuring that the valve will not leak with wear. Norgren's Pneumadyne® Series O-ring style fittings are ideal for use in the 10-32 (F) input and output ports.

Technical data

Performance Data

Product	Temperature Range	Operating Pressure	C _v	Flow Rate (scfm)		Fill Time sec/ in ³		Exhaust Time sec/ in ³	
				50 psi	125 psi	0-90 psi	100-10 psi		
MPS-6-100	-20° to 160°F	0 to 125 psi	.11	4.0	8.8	.0313	.0313		
MPS-6-100-S			.09	3.2	6.7	.0428	.0428		

C_v per ANSI / (NFPA) T3.21.3

Mounting Method

Panel

Nominal mounting hole dimension 41/64"

(2) nuts provided

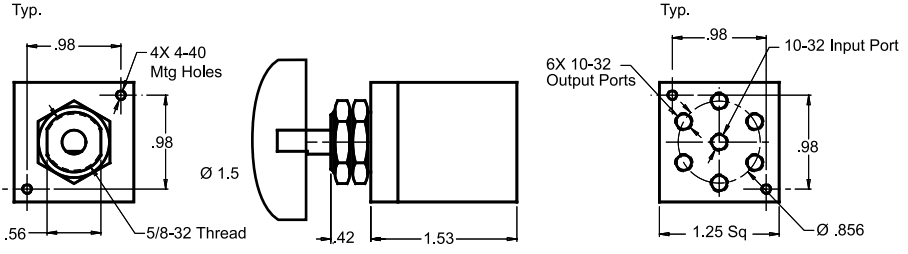
Product Information

6-Position Selector

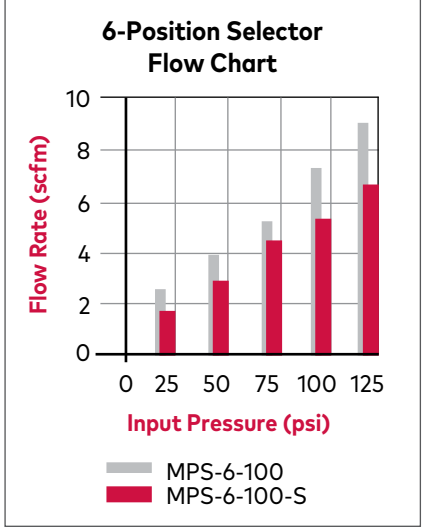
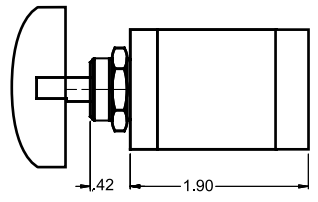
Part Number	Description
MPS-6-100	Standard Actuation
MPS-6-100-S	Shut-off Actuation

- » To order standard product refer to Product Information listing.
- » Contact factory for custom configurations.

MPS-6-100

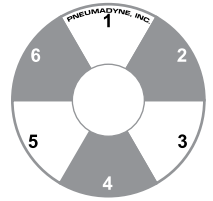


MPS-6-100-S



Standard Products Ideal for use with Selector Valves

6-Position Selector Label (included)



2" dial label is included for use as a visual guide on a panel.
Knob alignment: the set screw must be aligned with the flat on the stem.

O-ring Barb Fittings & Plugs (sold separately)



Unused output ports can be plugged with SPG-10
Reliability of a metal-to-metal mechanical fit
Captured O-ring for superior seal
Precision machined barb design
Electroless nickel plated brass

4-WAY VALVES

4-Way 2 position function

- » 4-Way 2 position function
- » Balanced spool design (45 Series)
- » Heavy duty toggle available
- » Panel or surface mount
- » Push-to-connect fittings available

Technical Data

Material:

Aluminum/ Anodize, Brass/
Electroless Nickel, Acetal, Stainless
Steel, Nylon, Nickel, Buna-N (other
seals available - contact factory)



Features

4-Way valves are one of the most commonly used pneumatic components for directional control. A 4-Way has four distinct flow paths within the valve and is commonly used to cause reversible motion of a cylinder or motor. Norgren manufactures two complete series of 4-Way valves featuring multiple actuator and porting options.

The "4" Series valves feature five actuator options including a specially designed Heavy Duty Toggle for use in rugged applications.

The "45" Series valves feature higher flow rates and a balanced spool allowing the use of threaded exhaust ports to direct and capture exhaust flow. In addition to the standard toggles and buttons, a Double Push Button (-DP) has been added to accommodate circuitry requirements. The Double Push Button is most commonly used in conjunction with air pilot operators. This combination allows two different pneumatic signals to actuate the valve and direct air flow. For plumbing convenience, push-to-connect fittings are also available.

Technical data

Performance Data

Temperature Range	Operating Pressure	Media	Product	C _v	Flow Rate (scfm)		Fill Time sec/ in ³		Exhaust Time sec/ in ³	
					50 psi	125 psi	0-90 psi	100-10 psi		
-20° to 160°F	0 to 125 psi	Compatible w/ seals	"45" Series 10-32 (F)	.23	7.8	17.3	.02		.03	
			"45" Series 1/8 NPT (F)	.37	12.1	27.2	.01		.02	
			"4" Series	.13	5.1	10.9	.03		.05	

C_v per ANSI / (NFPA) T3.21.3

Port Options

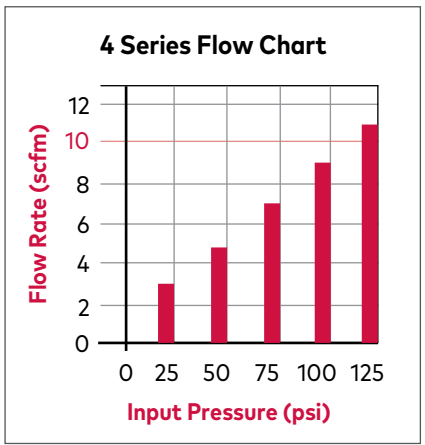
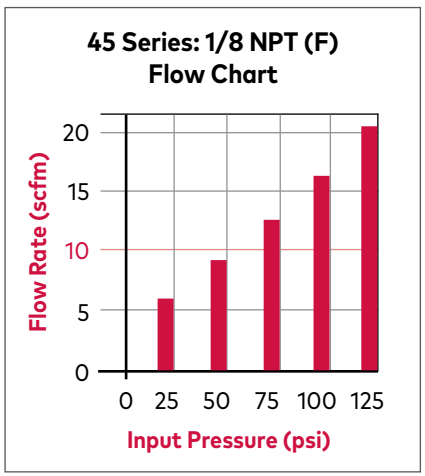
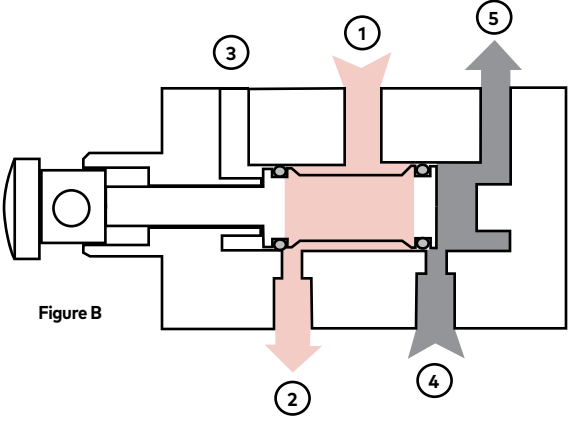
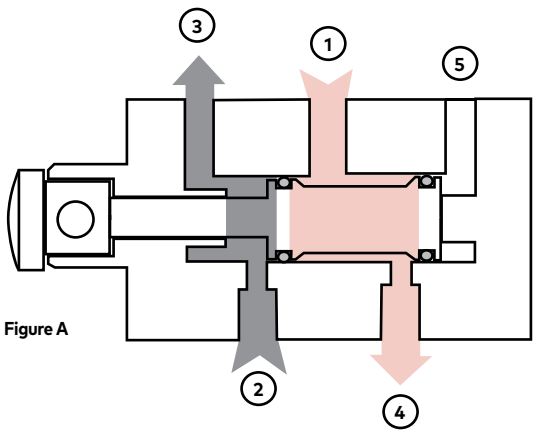
Panel	Port 1, Input	Port 2, 4 Output	Port 3, 5 Exhaust
"45" Series 10-32 (F)	10-32 (F)	10-32 (F)	10-32 (F)
"45" Series 1/8 NPT (F)	1/8 NPT (F)	1/8 NPT (F)	1/8 NPT (F)
"4" Series	10-32 (F)	10-32 (F)	non-threaded

NOTE:

If the valve is used to select between two different pressures, the higher pressure must flow between ports 4 and 5, the lower pressure between port 2 and 3.

"4" Series Cross Section

4-Way 2-Position



Function

In the example above (Figure A) flow is directed through port 1 to port 4 as port 2 exhausts to atmosphere through port 3.

In Figure B the spool is reversed and the flow is directed through port 1 to 2 as port 4 exhausts to atmosphere through port 5.

Actuation Force

Actuator Style	"45" Series: 10-32 (F)		"45" Series: 1/8 NPT (F)		"4" Series	
	50 psi	125 psi	50 psi	125 psi	50 psi	125 psi
Nylon Toggle	16 oz	16 oz	16 oz	20 oz	N/A	N/A
Metal Toggle	13 oz	13 oz	13 oz	16 oz	16 oz	16 oz
Push Button	5 lbs	8 lbs	5 lbs	8 lbs	3 lbs	3 lbs
Double Push	16 oz	3 lbs	16 oz	3 lbs	12 oz	12 oz

Mounting Method

Series	Panel	Surface
"45" Series 10-32 (F)	31/64"	MB-1 or MB-1F
"45" Series 1/8 NPT (F)	31/64"	(3) .14 diam. thru holes
"4" Series	31/64"	(2) .20 diam. thru holes
"4" Series Heavy Duty Toggle	21/32"	(2) .20 diam. thru holes

Product Information

Please use Product Number Diagram to interpret part numbers (do not attempt to build part numbers) see Product Information for part number listing.

- » To order standard product refer to Product Information listing.
- » Optional seals - contact factory.
- » Spring Bias function available to custom orders.
- » Nylon toggles and push buttons are available in seven colors with black as standard. To order colored actuators specify the color, by code, as a "-code# " suffix following the part number (see color code chart - page 89).



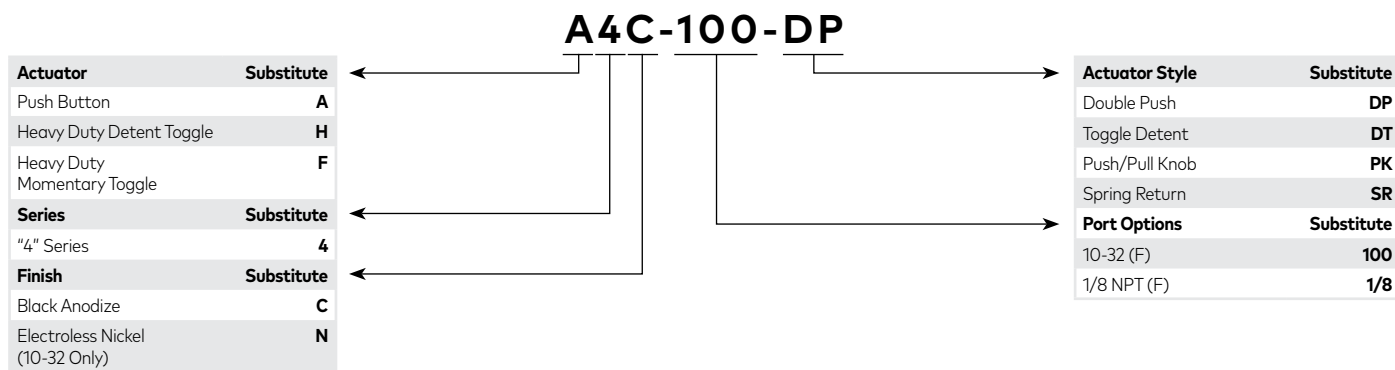
"4" Series valves with Heavy Duty Toggle

Example:

"4" Series - Aluminum/ Black Anodize, 10-32 (F) ports, Double Push Button

Product Numbering Diagram

"4" Series

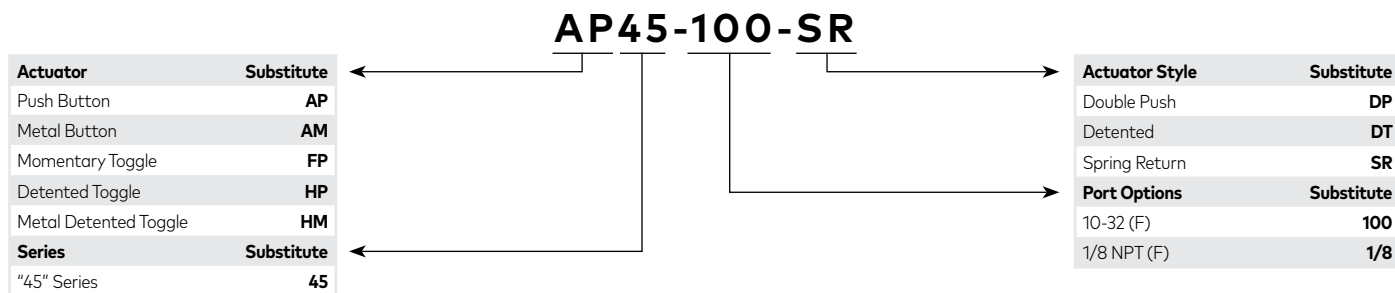


Example:

"45" Series - Nylon Button, 10-32 Fully Ported, Spring Return

Product Numbering Diagram

"45" Series



Product Information

"4" Series Standard 4-Way 3 Port 2 Position

Porting	Part Number	Actuator
10-32 (F)	A4C-100-DP	Double Push Button
	A4C-100-PK	Push/Pull Knob
	A4C-100-SR	Button w/ Spring Return
	H4C-100-DT	Heavy Duty Toggle-Det
1/8 NPT (F)	A4C-1/8-DP	Double Push Button
	A4C-1/8-PK	Push/Pull Knob
	A4C-1/8-SR	Button w/ Spring Return
	H4C-1/8-DT	Heavy Duty Toggle-Det

"45" Series 10-32 (F) Fully Ported 4-Way 5 Port 2 Positions

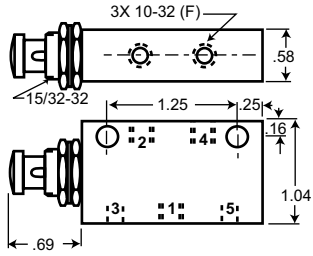
Porting	Part Number	Actuator
10-32 (F)	AP45-100-DP	Double Push Button
	AP45-100-SR	Nylon Button
	AM45-100-SR	Metal Button
	FP45-100-SR	Nylon Tog Mom
	HP45-100-DT	Nylon Tog Det
	HM45-100-DT	Metal Tog Det

"45" Series 1/8 NPT (F) Fully Ported 4-Way 5 Port 2 Positions

Porting	Part Number	Actuator
1/8 NPT (F)	AP45-1/8-DP	Double Push Button
	AP45-1/8-SR	Nylon Button
	AM45-1/8-SR	Metal Button
	FP45-1/8-SR	Nylon Tog Mom
	HP45-1/8-DT	Nylon Tog Det
	HM45-1/8-DT	Metal Tog Det

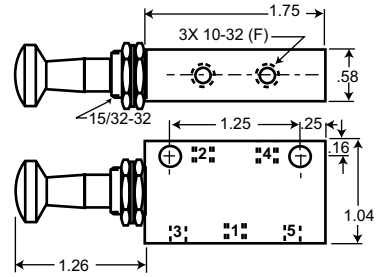
Specifications "4" Series

Spring Return



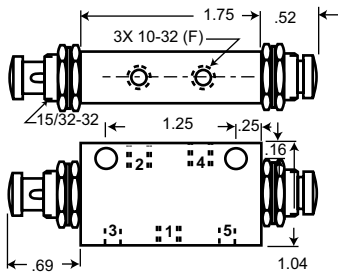
A4C-100-SR

Push/Pull Knob



A4C-100-PK

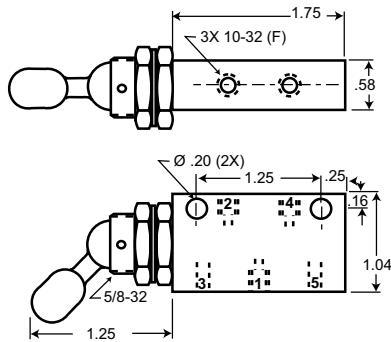
Double Push Button



A4C-100-DP

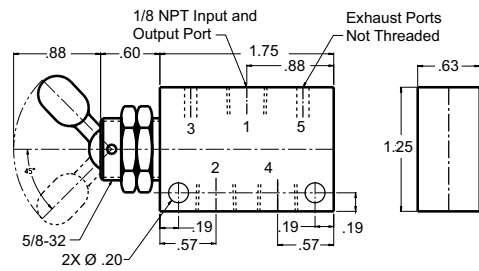
Specifications "4" Series

Heavy Duty Toggle



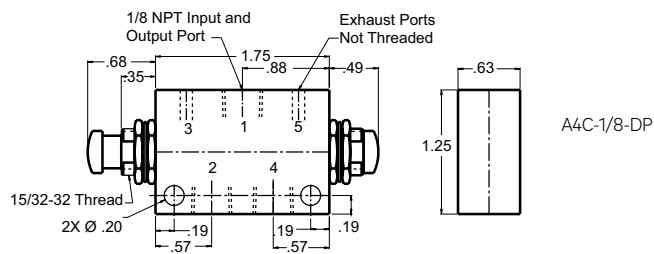
H4C-100-DT

Heavy Duty Toggle



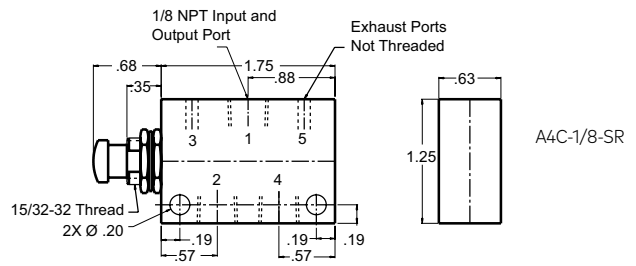
H4C-1/8-DT

Double Push Button



A4C-1/8-DP

Spring Return

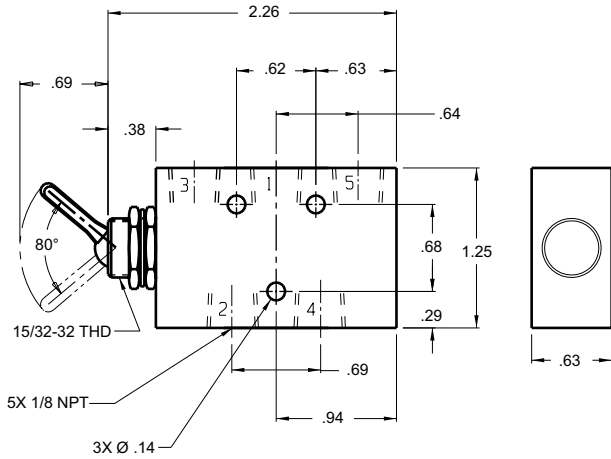


A4C-1/8-SR

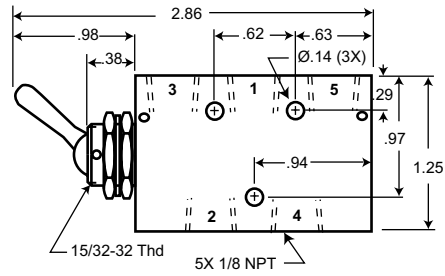
When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

Specifications "45" Series

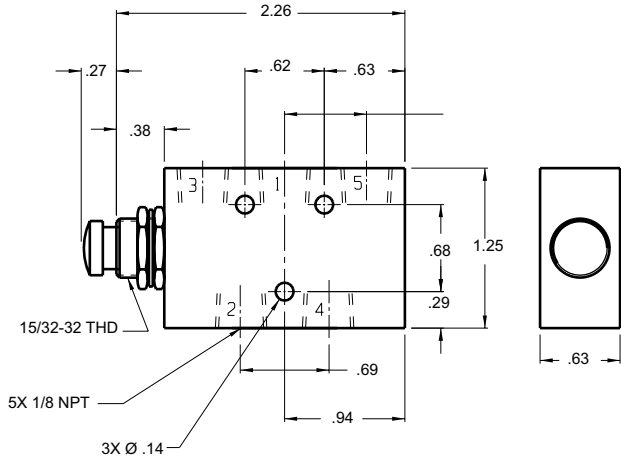
FP45-1/8-SR, HP45-1/8-DT



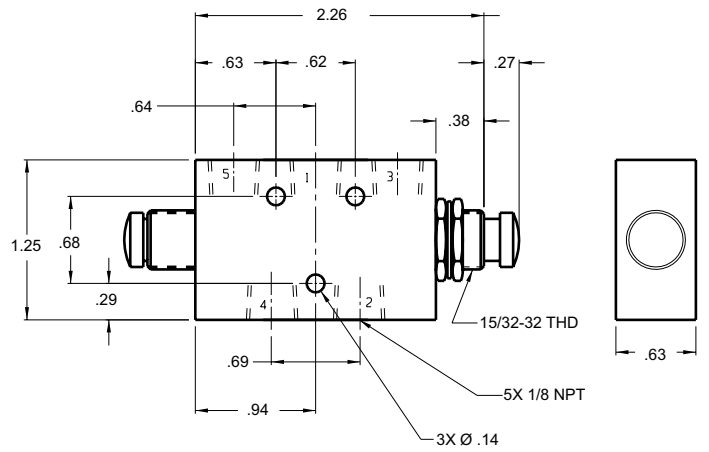
HM45-1/8-DT



AP45-1/8-SR



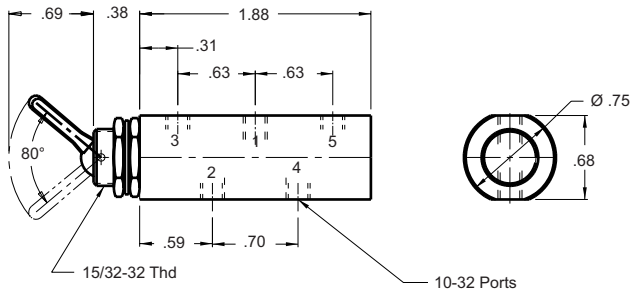
AP45-1/8-DP



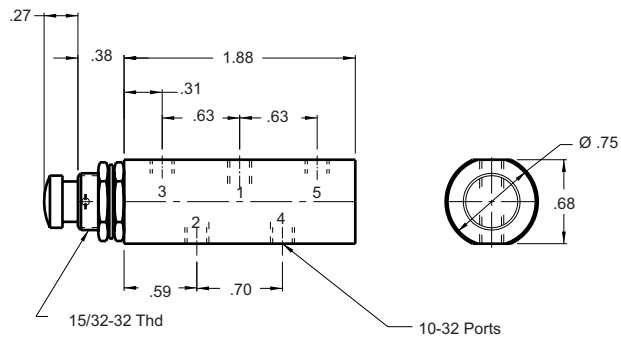
When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

Specifications "45" Series

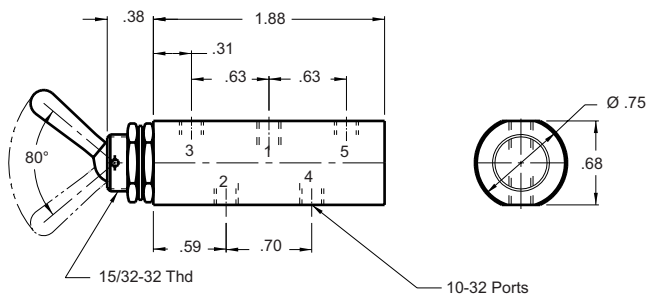
FP45-100-SR, HP45-100-DT



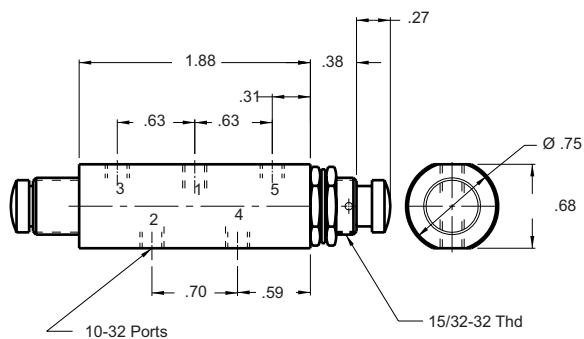
AP45-100-SR, AM45-100-SR



HM45-100-DT

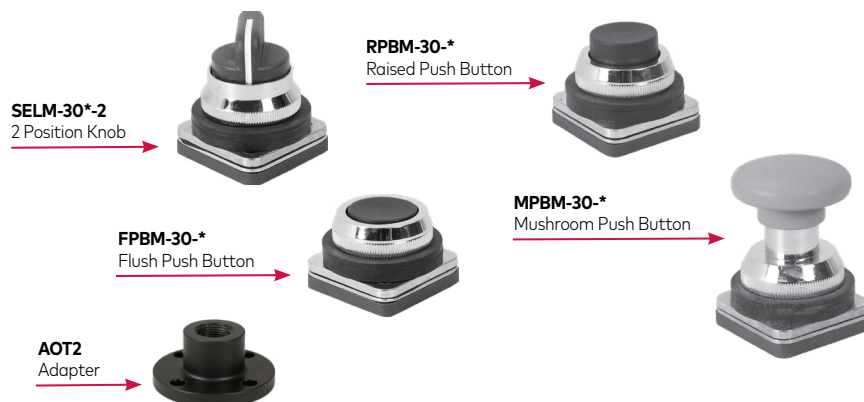


AP45-100-DP



OIL-TIGHT OPERATORS

- » Rugged design
- » Several styles in an assortment of colors
- » Oil and water tight
- » 30 mm diameter
- » Panel mount
- » Matches electrical controls
- » For use with Pneumadyne® Series push button valves



Features

Norgren's offering of Oil Tight Operators provides a selection of push buttons in flush, raised and mushroom styles as well as knob operators. All operators offer easy actuation and several are available in assorted colors, useful in coding control panels.

The rugged design is oil and water tight, ensuring that liquids will not leak behind the operator and into your panel.

Oil Tight Operators can be used with Norgren's push button style valves. The AOT2 Adapter is required to install the operator on to the valve.

Technical data

Performance Data

Size 30 Part Number	Description	Available Color	Valve Lock Washer Req.
FPBM-30-*	Flush Push Button	2, 3, 5, 6	
MPBM-30-*	Mushroom Push Button	2, 3, 5	
RPBM-30-*	Raised Push Button	2, 3, 5	
SELM-301-2	2 Position Knob Selector-Det	2	•
SELM-302-2	2 Position Knob Selector-Mom	2	•
AOT2	Oil Tight Adapter	2	

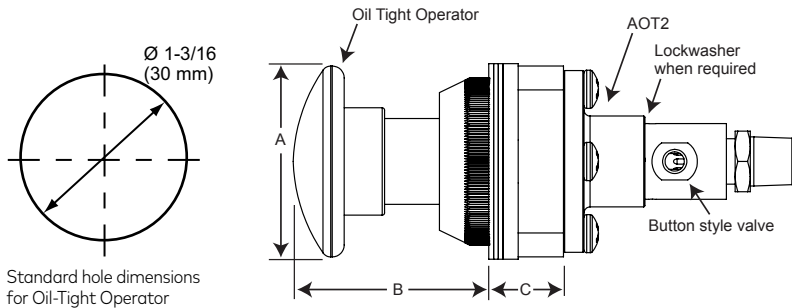
*Use color code to indicate color selection not all colors are available to all actuators see "Available Color" for possible selections
2= Black 3= Red 5= Green 6=Yellow

These styles require installation of a lockwasher on the valve neck before fixing the valve to the oil tight adapter.

Product Information

Oil-Tight Operators

- » To order standard product refer to Product Information listing.
- » All parts sold separately.

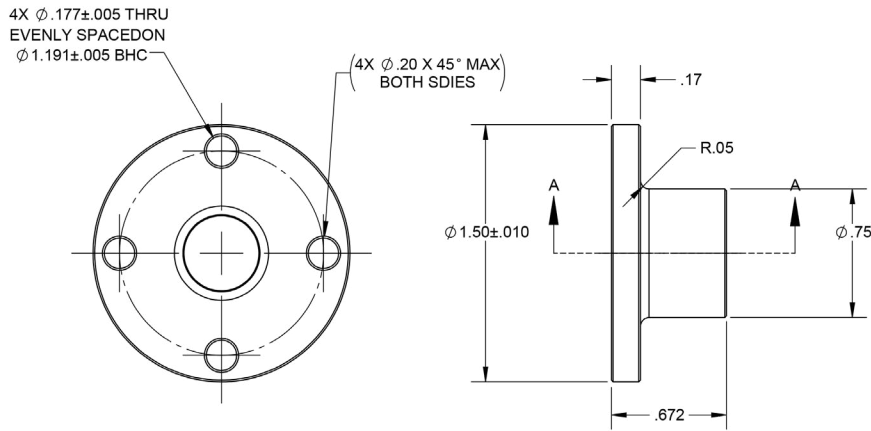


Size 30	Dimensions		
Part Number	A	B	C
FPBM-30-*	1.37	.44	.65
MPBM-30-*	1.56	1.6	.65
RPBM-30-*	1.37	.71	.65
SELM-30*-2	1.37	1.25	.65

Typical Oil-Tight Operator with Valve installed

When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

Oil-Tight Adapter



Part Number: **AOT2**

Mounting screws included (2 each)

Valve Accessories



Accessories including gauges, operators, dress plates and mounting brackets are used for the installation and operation of pneumatic control valves. It is important to choose accessories that are compatible with your pneumatic valves to ensure safety and accuracy, and to increase efficiency and productivity.

The combination of Pneumadyne® Series control valves and valve accessories ensures the pneumatic functionality you need while providing the appearance you desire. Request a quote for control valve accessories or contact us to learn more.

- » Accessories to customize and enhance our standard product line are sold separately
- » Operators:
Shrouded Button Operator, Heavy Duty Operator, Cam Operators, Thumb Operator
- » Dress Plates
- » Mounting Brackets
- » Micro Gauge

SHROUDED BUTTON OPERATOR

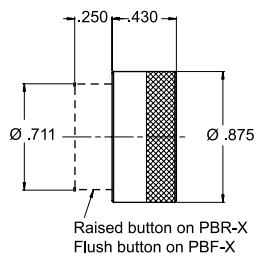
Designed for use with Norgren push button valves, the Shrouded Button provides a larger tactile surface for actuation. Available in three colors. Replace the "X" in the part number with the desired color code number.

Technical Data

Material:
Aluminum/ Anodize, Aluminum/
Electroless Nickel, Brass

Part Number	Mounting	Description	Standard Available Color
PBF-X	15/32-32 (F)	Flush	2= Black, 3= Red, 5= Green
PBR-X	15/32-32 (F)	Raised	

Refer to Force to Actuate chart, page 92, for actuation information.



NOTE:
One 5/64" thick locknut (provided) is required when installed without a mounting bracket.
When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice.

HEAVY DUTY OPERATOR

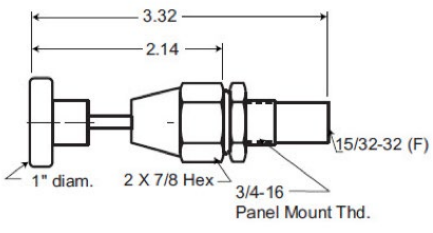
The heavy duty operator is designed for use on Norgren's push button valves. Ideal for heavy-duty industrial use.

Technical Data

Material:
Aluminum/ Anodize, Brass, Steel,
Buna-N, Stainless Steel/ Zinc

Part Number	Style	Max. Stroke	Mounting Holes
HDO	Push	.35	3/4"

Refer to Force to Actuate chart, page 92, for actuation information.



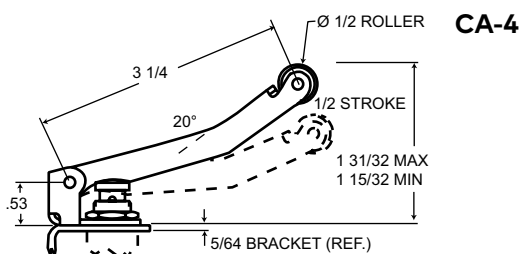
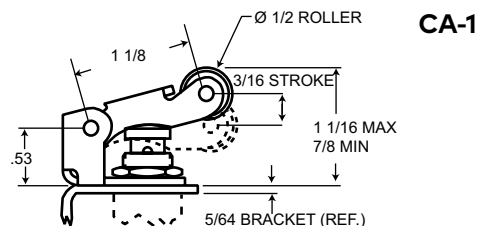
CAM OPERATORS

Designed for use on Norgren push button valves and available in three styles. All are manufactured from steel with electro nickel plating. The roller is manufactured from durable acetal plastic. All cams feature a unique acetal pad which minimizes side load and virtually eliminates wear.

(Not for use on "4" Series valves)

Part Number	Stroke	Mounting Holes
CA-1	2.1	31/64"
CA-4	6	31/64"

Refer to Force to Actuate chart, page 92, for actuation information.



Technical Data

Material:

Steel/ Electroless Nickel, Acetal, Stainless Steel

Stroke ratio:

defined in glossary (page 157). Must be installed with a mounting bracket MB-1 or MB-1F, or 5/64" thick nut (supplied with valve).

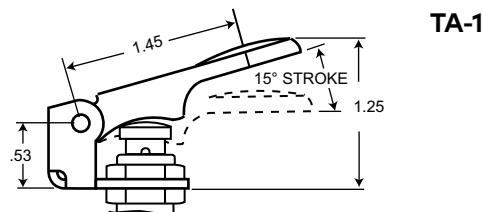
THUMB OPERATORS

Designed for use on Norgren push button valves to provide greater tactile surface and reduce operator fatigue. Features a unique acetal pad which minimizes side load and virtually eliminates wear.

(Not for use on "4" Series valves)

Part Number	Stroke	Mounting Holes
TA-1	2.7	31/64"

Refer to Force to Actuate chart, page 92, for actuation information.



When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice.

Technical Data

Material:

Steel/ Electroless Nickel, Acetal, Stainless Steel

Stroke ratio:

defined in glossary (page 157). To prevent pre-stroking: All cam operators must be installed with a mounting bracket, MB-1 or MB-1F or 5/64" thick nut (supplied with the valve).

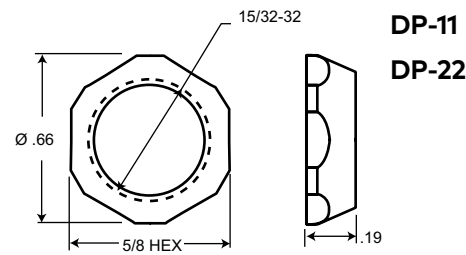
DRESS PLATE

Dress plates are manufactured from aluminum and are either black anodized or electroless nickel plated for appearance and corrosion resistance. To provide a finished look first install the dress plate on the valve then tighten from behind the control panel.

Part Number	Thread	Finish
DP-11	15/32-32	Black Anodize
DP-22	15/32-32	Electroless Nickel

Technical Data

Material:
Aluminum/ Black Anodize or
Aluminum/ Electroless Nickel



MOUNTING BRACKETS

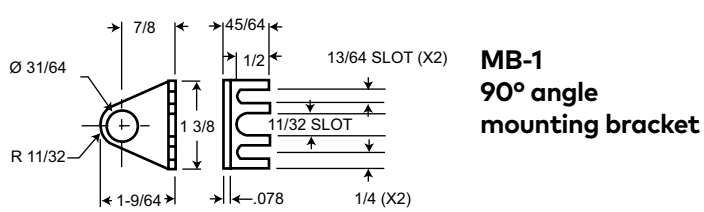
The flat and angled mounting brackets are manufactured from steel and provide a convenient method for mounting valves to a machine member.

Part Number	Description
MB-1	90° angle bracket
MB-1F	Flat bracket

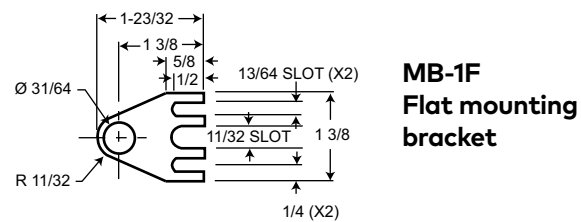
Technical Data

Material:
Steel/ ElectroNickel

*One locknut and washer required to secure mounting bracket against valve shoulder.



MB-1
90° angle
mounting bracket



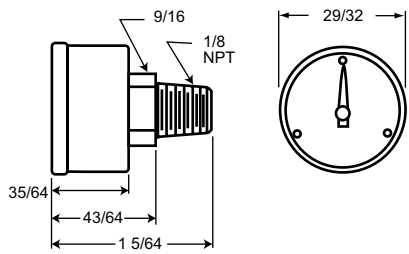
MB-1F
Flat mounting
bracket

MICRO GAUGE

Ideal for space constrained applications that require separate pressure readings. The micro gauge is easily installed using the 1/8 NPT male thread. The micro gauge can be mounted on the Norgren "11" Series regulators with an extended gauge port, providing a point of use pressure indicator.



Part Number	Pressure Range	Temperature Range	Repeatability	Accuracy	Mounting	Hex
PMG-60	0-60 psi					
PMG-100	0-100 psi	-40 to 150°F	+/-1%	+/- 5% Full Scale	1/8 NPT (M)	9/16
PMG-160	0-160 psi					



When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

Technical Data

Material:
Bourdon Tube: Spiral Beryllium copper, soft soldered to socket
Pointer: Red painted brass
Dial: White/ Aluminum with black scale
Window: Polycarbonate
Fill: Dry
Case: Black ABS plastic

SHUTTLE ("OR") VALVES

Select the higher of two pressures automatically

- » Multiple porting options including push-to-connect fittings
- » Space saving
- » Long service life
- » Low cracking pressure
- » Porting versatility-eliminates excess fitting requirements

Technical Data

Material:
SV11 Aluminum/ Anodize,
Buna-N, Acetal, Brass/
Electroless Nickel



Features

Shuttle valves, also known as "OR" valves, automatically select the higher of two pressures allowing flow from one input to the output port.

Norgren offers a large variety of porting options for plumbing convenience. The SV11 Series shuttle valves feature 1/8 NPT (F) threads and push-to-connect ports which contribute to higher flow rates. Push-to-connect ports also reduce installation time by a minimum of 40% and eliminate the need for additional fittings.

Technical data

Performance Data

Product	Temperature Range	Operating Pressure	C _v	Flow Rate (scfm)		Cracking Pressure
				50 psi	125 psi	
SV11	-20° to 160°F	0 to 125 psi	.48	15.0	33	less than 1.0 psi

C_v per ANSI / (NFPA) T3.21.3

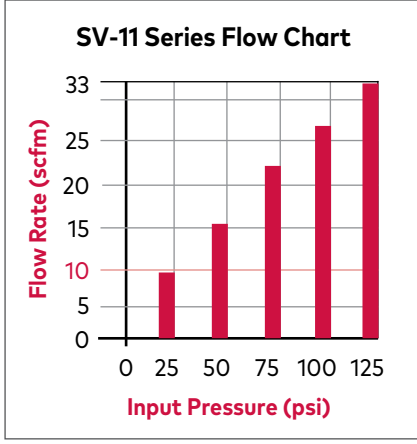
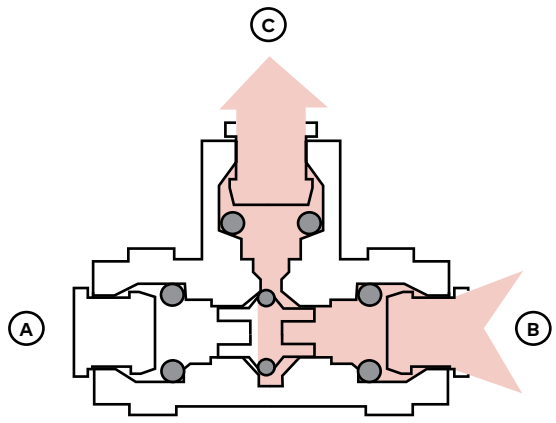
Port Options

Valve	SV11-xxx-xx
Port A Input	1/8 NPT (F) 1/4 Push-in 5/32 Push-in
Port B Input	1/8 NPT (F) 1/4 Push-in 5/32 Push-in
Port C Output	1/8 NPT (F) 1/8 NPT 1/4 Push-in 5/32 Push-in

See Product Number Diagram

Shuttle Valve Cross Section

SV11-1/4PI-66



Function

As pressure is applied to ports A & B, the higher of the two input pressures shifts the metal core blocking the other input port and allowing flow out port C.



Built-in port connectors, including push-to-connect fittings, reduce installation time by a minimum of 40%

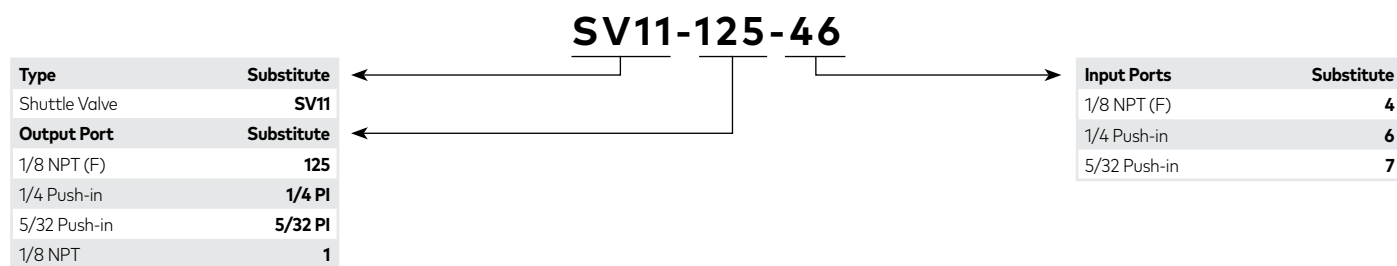
Product Information

SV11-xxx-xx

Part Number	Output x Input / Input
SV11-1/4 PI-66	1/4 PI x 1/4 PI/ 1/4 PI
SV11-125-44	1/8 F x 1/8 F/ 1/8 F
SV11-125-66	1/8 F x 1/4 PI/ 1/4 PI
SV11-5/32 PI-47	5/32 PI x 1/8 F/ 5/32 PI
SV11-5/32 PI-77	5/32 PI x 5/32PI/ 5/32 PI
SV11-1-66	1/8 x 1/4 PI/ 1/4 PI

Product Numbering Diagram

Shuttle Valve



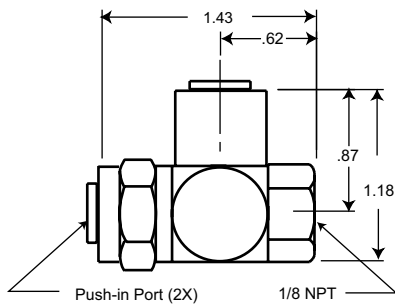
Product Information

- » To order standard product refer to Product Information listing.
- » Optional seals available - contact factory.

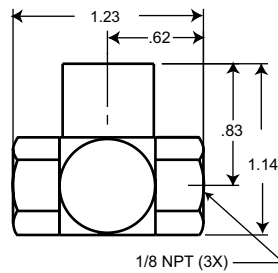


1/8 NPT male output ports
available - contact factory

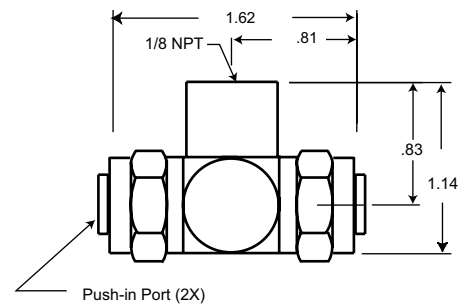
SV11-xxx-xx



SV11-5/32 PI-47



SV11-125-44



SV11-125-66

CHECK VALVES

Used in pneumatic circuits – free flow and no flow directions

- » Multiple porting options
- » Durable brass construction
- » Low cracking pressure
- » Compact in-line or port mounting styles

Technical Data

Material:
Brass/ Electroless Nickel,
Buna-N, Stainless Steel



Application

Check valves are generally used in systems as a bypass valve, allowing flow around components like needle valves which otherwise restrict flow in both directions.

Technical data

Performance Data

Temperature Range	Operating Pressure	Porting Option In/ Out	C _v	Flow Rate (scfm)		Cracking Pressure	Fill sec/ in ³ 0-90 psi
				50 psi	125 psi		
-20° to 160°F	0 to 125 psi	062 Barb/ 062 (min. flow option)	.03	1.09	2.5	0.1	.13
		10-32 Thd/ 10-32 Thd (max. flow option)	.09	4.5	9.5	0.1	.03
		1/8 NPT (F)/ 1/8 NPT (F)*	.41	14.3	31.5	0.5	.01
		1/8 NPT / 1/4 PI*	.32	9.7	24.5	0.5	.012
		1/4 PI / 1/4 PI*	.26	9.0	19.5	0.5	.014

*Other cracking pressures available - contact factory

C_v per ANSI / (NFPA) T3.21.3

*062 barb recommended for use with 1/16 ID PUR tubing

*110 barb recommended for use with 5/64 ID PUR tubing

*170 barb recommended for use with .170 ID PUR tubing



Twenty-One check valve configurations available

Check Valve Cross Section

- » To order standard product refer to Product Information listing.
- » Optional batwing materials available- contact factory.
- » Custom barbs available - contact factory.

Figure A

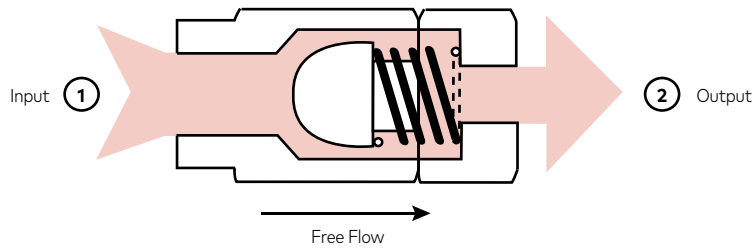
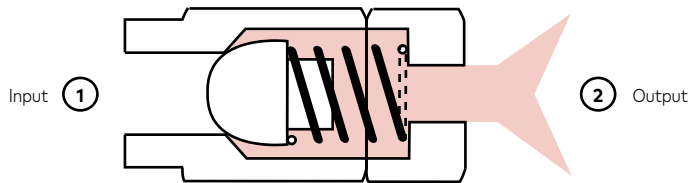


Figure B



1/8 NPT (F) style utilizes a poppet and spring design

Function

Two internal designs were developed to ensure a low cracking pressure. The 1/8 NPT style utilizes a poppet and spring, whereas, the 10-32 / barb styles feature a batwing.

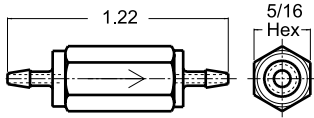
When system pressure at the check valve input 1 is high enough to overcome the low spring force (1/2 psi) the poppet is moved off its seat allowing flow out port 2. The flow of a fluid through the check valve is defined as "free flow". When fluid flow reverses the poppet is pushed into its seat, blocking or "checking" the system flow (Figure B).

In comparison, the batwing in the 10-32 / barb styles flexes to allow flow through the output port when system pressure exceeds cracking pressure. When fluid flow reverses the batwing straightens, "checking" the system flow.

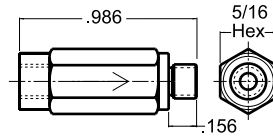
Part Number	Input	Output
C050101	1/16 Barb	1/16 Barb
C050102	110 Barb	110 Barb
C050104	170 Barb	170 Barb
C050201	10-32 (M)	1/16 Barb
C050202	10-32 (M)	110 Barb
C050204	10-32 (M)	170 Barb
C050205	10-32 (M)	10-32 (M)
C050206	1/16 Barb	10-32 (M)
C050210	170 Barb	10-32 (M)
C050301	10-32 (M)	10-32 (F)
C050302	10-32 (F)	10-32 (M)
C050401	10-32 (F)	10-32 (F)
C050401-SS	10-32 (F)	10-32 (M)
C050501	1/8 NPT (F)	1/8 NPT (F)
C050501-SS	1/8 NPT (F)	1/8 NPT (F)
C050502	1/8 NPT (F)	1/8 NPT
C050503	1/8 NPT	1/8 NPT (F)
C050504	1/8 NPT	1/8 NPT
C050601	1/8 NPT (F)	1/4 PI
C050602	1/8 NPT	1/4 PI
C050603	1/4 PI	1/8 NPT (F)
C050604	1/4 PI	1/8 NPT
C050605	1/4 PI	1/4 PI

*-SS used to indicate stainless steel

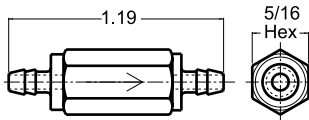
Product Information



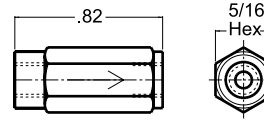
C050101



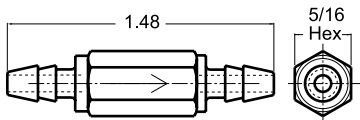
C050302



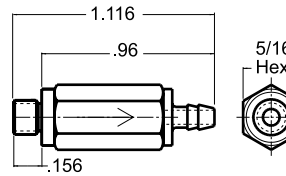
C050102



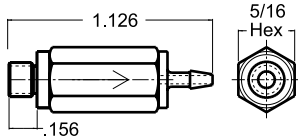
C050401



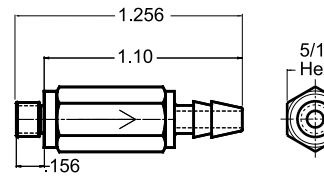
C050104



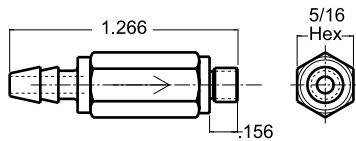
C050202



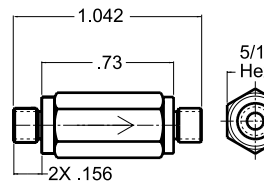
C050201



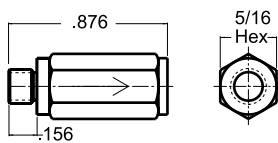
C050204



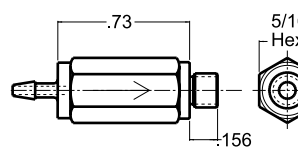
C050210



C050205

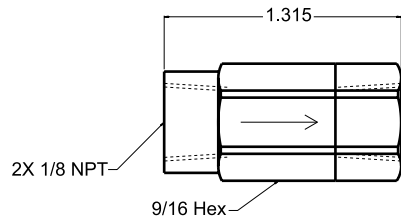


C050301

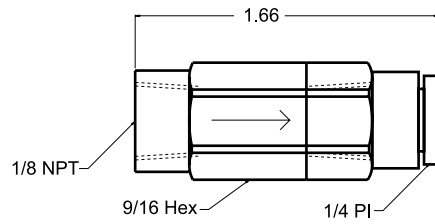


C050206

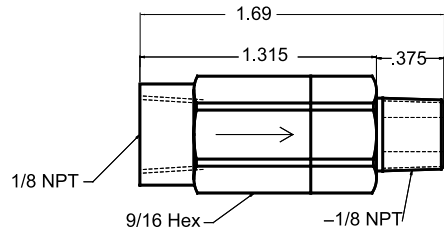
Product Information



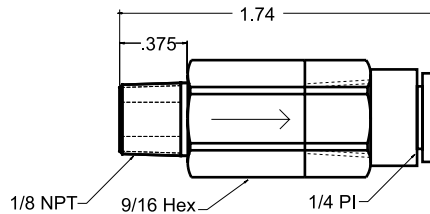
C050501



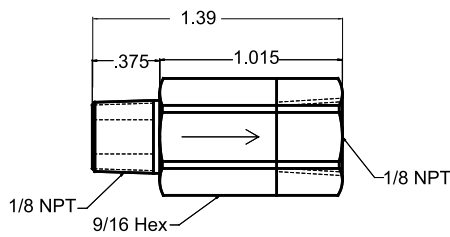
C050601



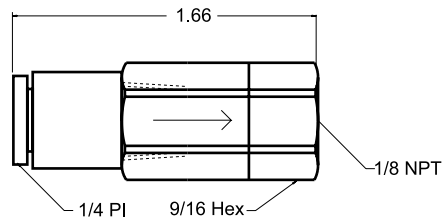
C050502



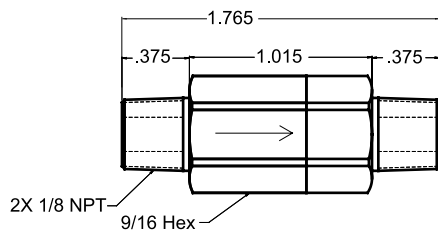
C050602



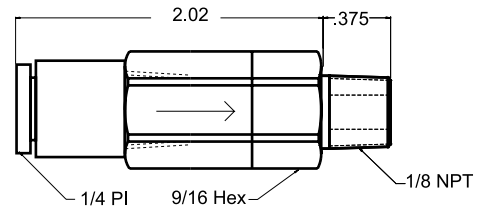
C050503



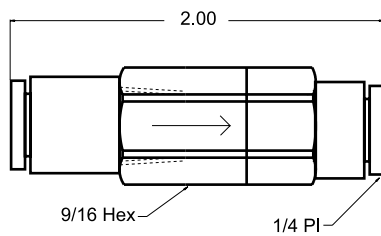
C050603



C050504



C050604



C050605

PILOT-OPERATED CHECK VALVES

1/4 or 1/8 NPT output port

- » Swivel input port
- » Direct cylinder mount
- » 10-32 (F) or 1/4 push-in pilot ports
- » Plated for corrosion resistance
- » Low cracking pressure
- » Thread sealant standard on output ports

Technical Data

Material:

POC-41-F & POC-61-F
 Body: Zinc Plated Brass & Anodized Aluminum
 Internal Components: Brass, Stainless Steel & Polyamide
 Seals: Buna-N
 Spring: Stainless Steel

POC-68-F & POC-68-6
 Body: Anodized Aluminum & Electroless Nickel Plated Brass
 Stem: Brass
 Seals: Buna-N
 Spring: Stainless Steel

Media:

Lubricated and non-lubricated air



Features

Designed for use in applications requiring an actuator to be locked in position, Pilot Operated Check Valves allow free flow from the input port through the output port. Supplying a pilot pressure to the valve allows flow in the opposite direction.

Norgren's new Pilot Operated Check Valves are ideal for reliably holding an actuator position in a variety of applications. These rugged valves feature a 1/4 or 1/8 NPT output port which mounts directly on a cylinder, minimizing space requirements and easing installation. The input port swivels to accommodate valve alignment and contains a 1/4 push-in connection to speed tubing installation. 10-32 (F) and 1/4 push-in pilot ports are available to fit plumbing specifications.

Ideal for reliably holding an actuator position in a variety of applications.

Mounting Method

Part Number	Direct Cylinder Mount	Max. Installation Torque
POC-41-F	1/8 NPT	5.1 ft-lbs
POC-61-F	1/8 NPT	5.1 ft-lbs
POC-68-F	1/4 NPT	12 ft-lbs
POC-68-6	1/4 NPT	12 ft-lbs

Technical data

Performance Data

Part Number	Temperature Range	Operating Pressure (psi)	Maximum Supply Pressure (psi)	C _v	Cracking Pressure (psi)
POC-41-F POC-61-F	0° to 160°F	15 to 150	150	.23	10
POC-68-F POC-68-6	-40° to 240°F	0 to 150	150	.35	less than .1

Part Number	Flow Rate (scfm) 1-2		Flow Rate (scfm) 2-1	
	50 psi	100 psi	50 psi	100 psi
POC-41-F POC-61-F	2.8	5.2	3.1	5.7
POC-68-F POC-68-6	13	22	13	22

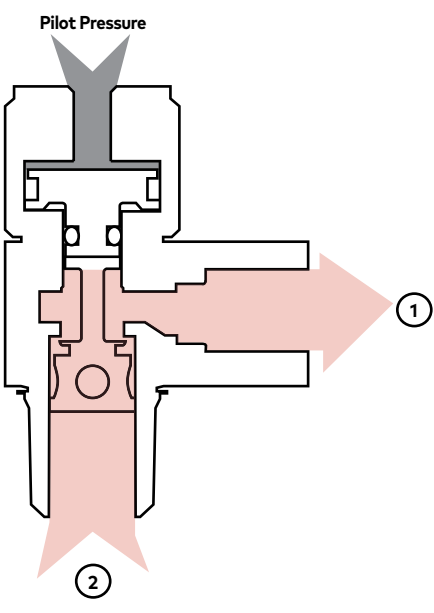
C_v per ANSI / (NFPA) T3.21.3

Pilot-Operated Check Valves Cross Section

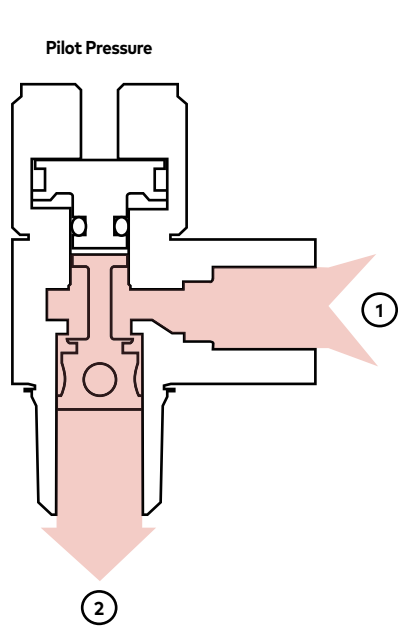
Part Number	Input	Output	Pilot
POC-41-F	1/8 NPT (F)	1/8 NPT	10-32 (F)
POC-61-F	1/4 PI	1/8 NPT	10-32 (F)
POC-68-F	1/4 PI	1/4 NPT	10-32 (F)
POC-68-6	1/4 PI	1/4 NPT	1/4 PI

» To order standard product refer to Product Information listing.
 » Optional seals available - contact factory.

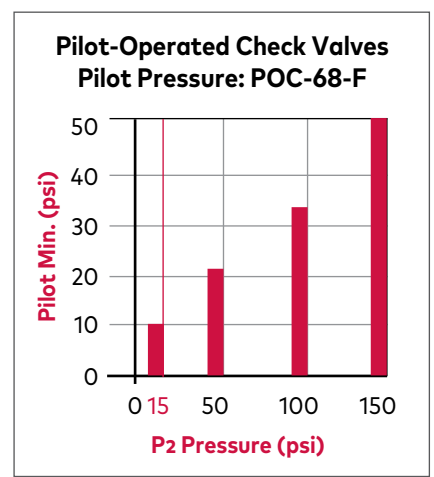
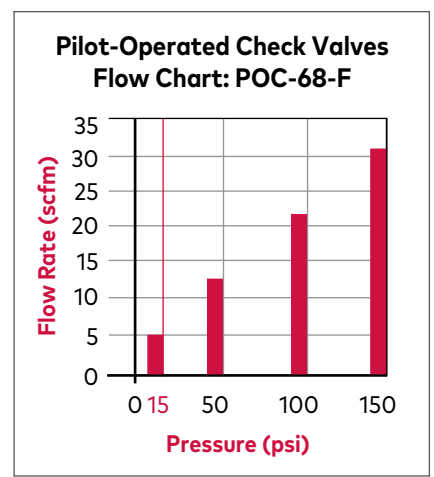
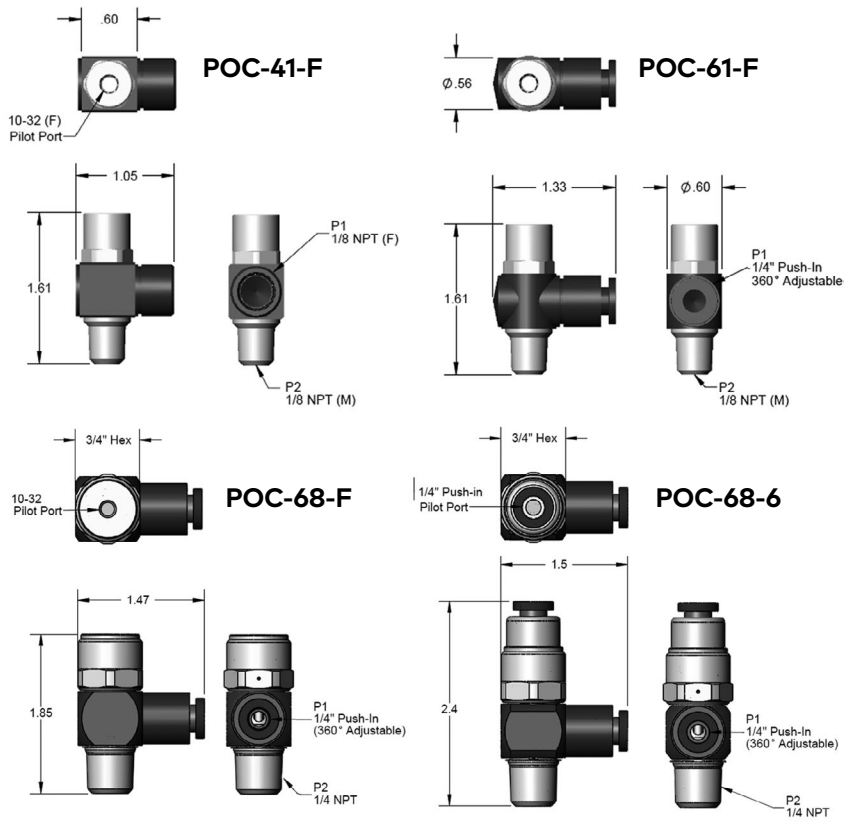
Pilot Pressure Applied



Free Flow



Pilot-Operated Check Valve



FLOW CONTROLS & NEEDLE VALVES

Reduce the rate of flow in a leg of a system

- » Multiple porting options- including push-to-connect fittings
- » Flow controls available in reverse flow
- » Compact size
- » Panel mountable
- » Instrument quality collet knob

Technical Data

Material:

"0" Series:

Brass/ Black Dichromate, Brass/ Electroless Nickel, Stainless Steel, Nylon, Buna-N, Acetal collets

"11" Series:

Aluminum/ Black Anodize, or Brass/ Electroless Nickel, Stainless Steel, Nylon, Buna-N, Acetal collets

"700" Series:

Brass/ Electroless Nickel, Stainless Steel, Buna-N

Mini (non-mount):

Brass, Acetal, Stainless Steel, Buna-N Banjo: Brass/ Electroless Nickel, Buna-N, Stainless Steel, PA6 (plastic)

Optional seals available - contact factory.

Flow Controls and Needle Valves are not leak tight.

Not to be used as a shut-off device.



Features

Flow controls and Needle valves are used to reduce the rate of flow in a leg of a system, consequently the restriction slows cylinder speed.

Finely threaded stems allow gradual adjustment of controlled flow to match system requirements.

Although the **basic function** is flow restriction, the fundamental difference between the two is the **needle valve** controls flow in both directions (bi-directional) and the **flow control valve** controls flow in only one direction (allowing free flow in the opposite direction).

Mini Flow Controls and Needle Valves are ideal for use with miniature cylinders.

Technical data

Performance Data

Temperature Range	Operating Pressure
-20° to 160°F	26" Hg to 125 psi

Identification

"0" Series	Flow Control: Red Cap	Needle Valve: Yellow Cap
"11" Series		
"700" Series Knob	Low Flow: Brass	2 to 1
Mini	Contact factory	

Mounting Method

Product Group	Panel Nominal Mounting Hole Dimension	Surface
"0"	31/64"	MB-1 or MB-1F
"11"	31/64"	MB-1 or MB-1F
"700" FC	11/32"	(3) .14 diam. holes
"700" NV	11/32"	N/A
Mini	N/A	Inline/ direct port mount
Banjo	N/A	Inline/ direct port mount

Banjo flow control mounting requirements:

ø 3/8 min. x .10 max. deep counter-bore required when mounting to a cylindrical surface.

Nut(s) and lockwasher provided

Port Options

Type	Def.	Options
"0" Series	Port 1 Swivel Input	10-32 (F), 5/32 Push-in, 5/32 Push-in, 1/8 NPT, 1/4 Push-in, 170 Barb*
	Port 2 Output	10-32 (F)
"11" Series	Port 1 Input	5/32 Push-in, 1/8 NPT, 1/4 Push-in, 1/8 NPT (F)
	Port 2 Swivel Output	5/32 Push-in, 1/4 Push-in, 1/8 NPT (F) Additional options available - contact factory
"700" Series FC	Port 1 Input	10-32 (M)
	Port 2 Output	10-32 (F)
"700" Series NV	Port 1 Input	10-32 (M), 1/8 NPT
	Port 2 Output	10-32 (F)
Mini	Port 1 Input	10-32 (M), 1/8 NP
	Port 2 Output	10-32 (F)
Banjo	Port 1 Input	10-32 (M)
	Port 2 Output	10-32 (F), 5/32 Push-in

*170 Barb recommended for use with .170 ID PUR or .170 ID PE

Function

In both the flow control and needle valve a finely threaded stem allows gradual adjustment of the amount of **controlled flow** passing through the valve. Flow enters port 1, travels through an orifice sized by the tapered stem and out port 2. The flow control features a by-pass check which allows rapid free flow out port 1.

Norgren offers a **variety of configurations** with several flow rate options. Choose from twenty-five needle valves and thirty-nine flow controls - the multiple porting options virtually eliminate the need for additional fittings.

Flow Control & Needle Valve

Product	Flow Rate (scfm)		C _v	Cracking Pressure (FC Only)	Function Code
	50 psi	125 psi			
"11" Series	12.0	27.0	.29	.1 psi	MO, BI
"700" Series	3.2	6.2	.09	.1 psi	MO, BI
Mini	3.3	6.8	.10	.1 psi	MO, BI
Banjo Flow Control	4.0	8.7	.11	.1 psi	MO

Performance data operating full open at 125 psi

Flow Control: Reverse Control Flow (from 2-1)

Product	Flow Rate (scfm)		C _v	Cracking Pressure (FC Only)	Function Code
	50 psi	125 psi			
Banjo	5.1	11.3	.13	.1 psi	MI

C_v per ANSI / (NFPA) T3.21.3

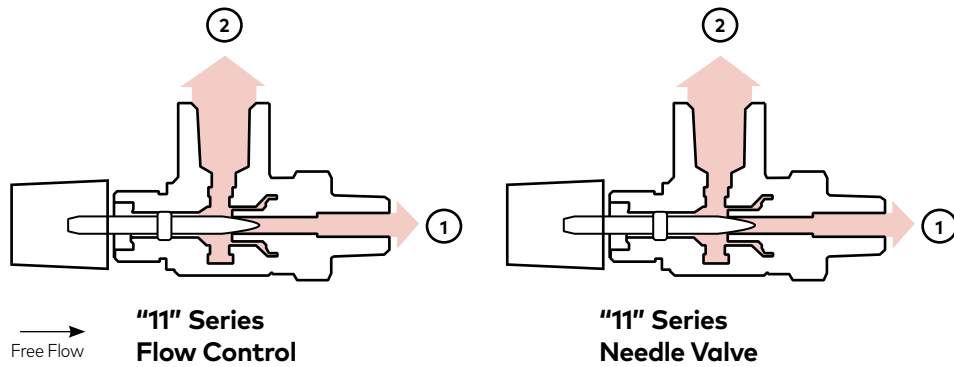
Function Code Flow (from 2-1)

Code	Function	Controlled Flow	Free Flow
MO	*Meter Out	1 to 2	2 to 1
MI	Meter In	2 to 1	1 to 2
BI	Meter Bi-Directional	metered flow in both directions	N/A

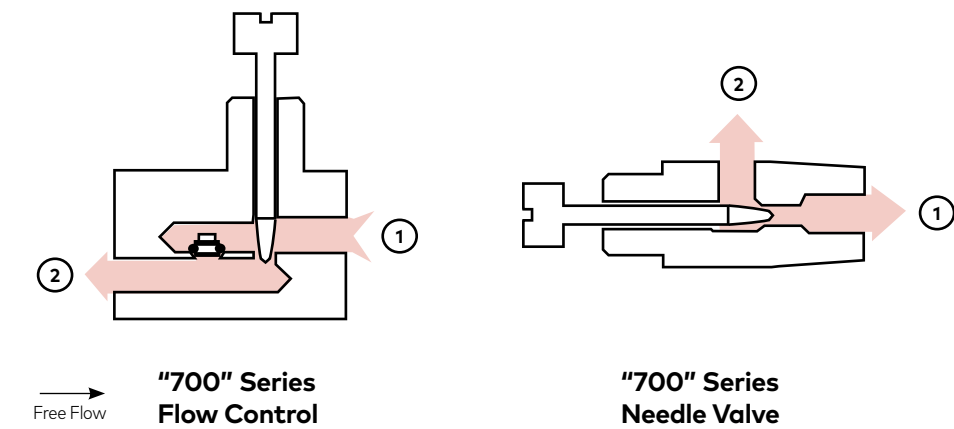
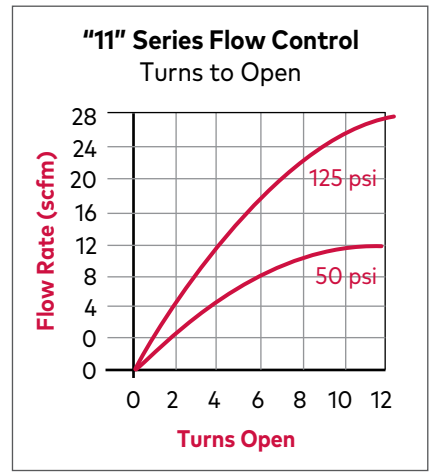
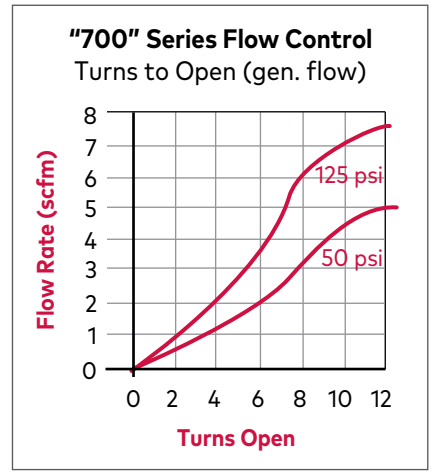
*Standard product

Flow Control & Needle Valve Cross Section

- » Flow Control Valve illustrations represent the controlled flow path; free flow is 2 to 1.
- » Standard Flow Control Valves meter out, flowing from 1 to 2.
- » **NOTE:** Needle Valves control flow in both directions.



Free Flow



Free Flow



Instrument quality panel knob now available for all "700" Series Valves - prevents excess seat stress

Product Information

- » To order standard product refer to Product Information listing.
- » To order "700" Series valves with instrument quality panel knob - add a -PK suffix to the part number.
- » Optional seals available - contact factory.
- » Contact factory for reverse flow applications.

Flow Controls

"11" Series

Part Number	Input	Output
PFC11-14	1/8 NPT (F) 10-32(F)	1/8 NPT (F)
PFC11-44	1/8 NPT (F)	10-32(F)
PFC11-66	1/8 NPT (F)	1/4 Push-in

"700" Series - panel knob available

Part Number	Input	Output
C070501	10-32 (F)	10-32 (F)
C070503	10-32 (F)	10-32 (F)

Needle Valves

"0" Series

Part Number	Input	Output
PNV0-0	10-32 (F)	10-32 (F)
PNV0-1	1/8 NPT / 10-32(F)	10-32 (F)
PNV0-2	10-32 (F) Elbow	10-32 (F)
PNV0-3	10-32 (F) Tee	10-32 (F)
PNV0-4	1/8 NPT (F)	10-32 (F)
PNV0-5	170 Barb	10-32 (F)
PNV0-6	1/4 Push-in	10-32 (F)
PNV0-7	5/32 Push-in	10-32 (F)
PNV0-1/8	1/8 NPT / 10-32 (F)	10-32 (F)

"11" Series

Part Number	Input	Output
PNV11-14	1/8 NPT (F) / 10-32 (F)	1/8 NPT (F)
PNV11-16		1/4 Push-in
PNV11-17		5/32 Push-in
PNV11-44	1/8 NPT (F)	1/8 NPT (F)
PNV11-46		1/4 Push-in
PNV11-47		5/32 Push-in
PNV11-64	1/4 Push-in	1/8 NPT (F)
PNV11-66		1/4 Push-in
PNV11-67		5/32 Push-in
PNV11-74	5/32 Push-in	1/8 NPT (F)
PNV11-76		1/4 Push-in
PNV11-77		5/32 Push-in

"700" Series - panel knob available

Part Number	Input	Output
C070601	1/8 NPT	10-32 (F)
C070603	1/8 NPT	10-32 (F)

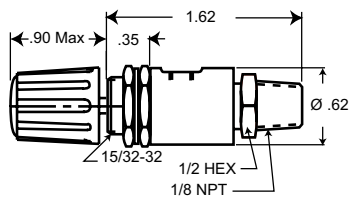
Note: The Low Flow option flows 1.2 scfm at 5 turns and 125 psi.
 The General Flow option provides increased flow with fewer needle turns: 3.4 scfm at 5 turns and 125 psi.
 Full open, both valves offer the same flow rate.

Mini

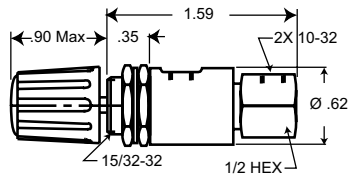
Part Number	Input	Output
NV-32	10-32 (M)	10-32 (F)
NV-52	1/8 NPT	10-32 (F)

Specifications

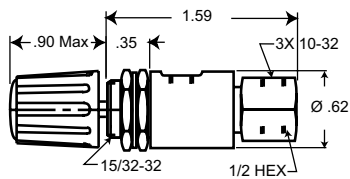
"0" Series



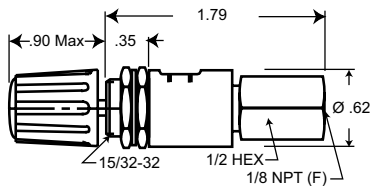
"-1" Input



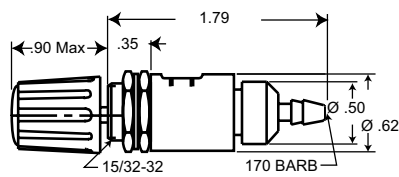
"-2" Input



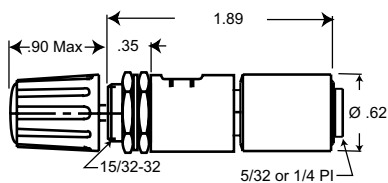
"-3" Input



"-4" Input

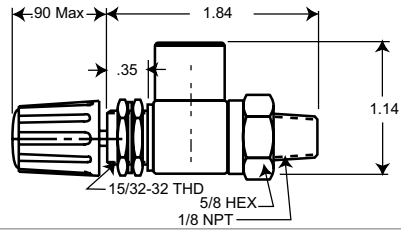


"-5" Input

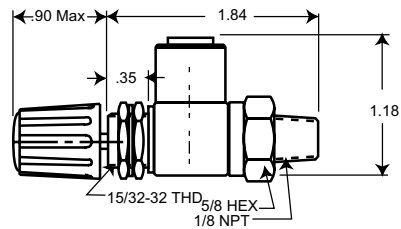


"-6" Input
"-7" Input

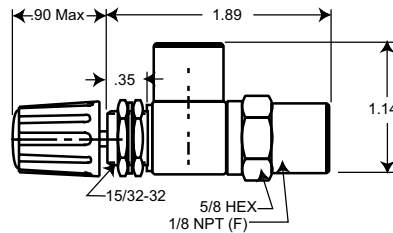
"11" Series



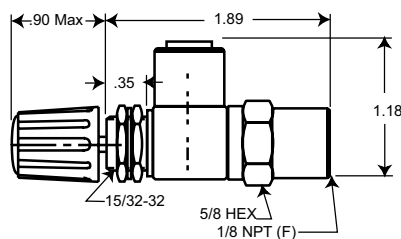
"-14" Porting



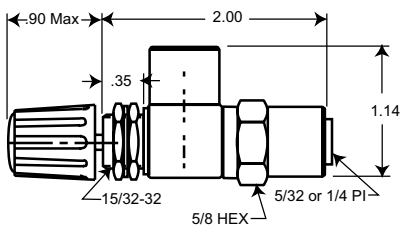
"-16" Porting
"-17" Porting



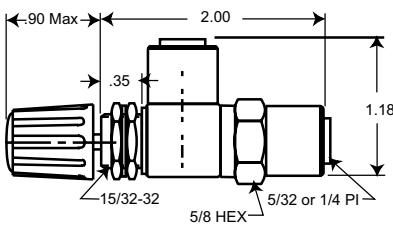
"-44" Porting



"-46" Porting
"-47" Porting



"-64" Porting
"-74" Porting



"-66" Porting
"-67" Porting
"-76" Porting
"-77" Porting

When design makes a dimension critical - contact factory for confirmation.
All dimensions shown subject to change without notice.

Specifications

"700" Series - Flow Control	Product Number
	<p>C070501 C070503</p>

Mini - Needle Valves	Product Number
	NV-32
	NV-52

Banjo - Flow Control	Product Number
	<p>BFC-32 BFCR-32</p>
	BFC-32P

"O" Series - Needle Valves	Product Number
	PNVO-O
	PNVO-1/8

11 SERIES PRESSURE REGULATORS

Include 10-32 UNF, 1/8 NPT, barbs and push-in connections

- » Mounting versatility
- » Knurled knob or Instrument quality knob
- » Push-to-connect fittings available
- » Output port rotates 360°
- » Direct gauge mount to output optional

Technical Data

Material:

Aluminum/ Black Anodize,
Brass and Steel/ Electroless
Nickel, Brass/ Black Dichromate,
Buna-N, Stainless Steel, Acetal



Features

Norgren's "11" Series Pressure Regulators are used to maintain a preset downstream pressure. Relieving and non-relieving styles are available to accommodate application requirements.

To ease regulator installation, porting options include 10-32 UNF, 1/8 NPT, barbs and push-in connections. For alignment purposes, the "11" Series features a swivel output port.

The "11" Series can be mounted on a manifold allowing the consolidation of components with varying output pressures on a common pressure source. Norgren's micro gauge can be mounted on the "11" Series regulator with an extended gauge port providing an on-site pressure indicator.

Choose from a knurled knob or an Acetal panel knob for precision adjustment. Regulator components are anodized or Electroless nickel plated for corrosion and wear resistance.

Technical data

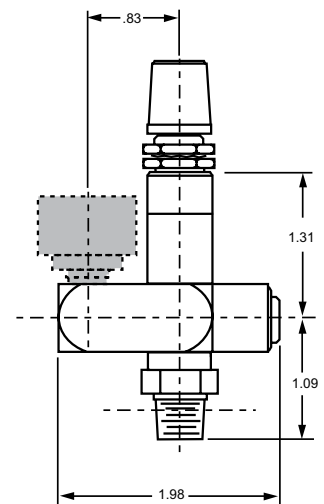
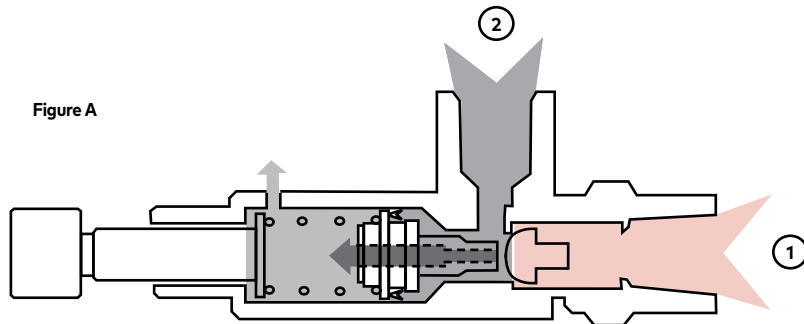
Performance Data

Temperature Range	Operating Pressure	Max. Input Pressure	C _v Full Open	Flow Rate (scfm)	
				50 psi	125 psi
-20° to 160°F	30 psi to 125 psi	125 psi	.27	9.8	22

C_v per ANSI / (NFPA) T3.21.3

Pressure Regulator Cross Section

"11" Series Regulator



The "11" Series Regulator with extended gauge port housing and micro gauge installed (to prevent damage the gauge is packaged and sold separately). Gauge data can be found on page 60

Function

Relieving Regulator

Figure A -

When downstream pressure exceeds the set level the poppet is seated -blocking input flow 1. The back pressure flows in output 2 lifting the Buna-N cup seal and piston allowing air to pass through the hollow stem and out the exhaust port 3.

Non-relieving Regulator

The non-relieving regulator flow path- input 1 to output 2- is the same as the relieving regulator, however the non-relieving regulator contains a solid piston that does not permit backflow at output port 2 to be exhausted.

WARNING: for safety reasons only non-relieving regulators are recommended for use with liquids and with adequate means of downstream relief.

Product Information

"11" Series Regulators

- » To order Pressure Regulators use the Product Information listing to select part number.
- » To order a gauge ready regulator, add a -G suffix to the part number.
- » Custom Products: Contact factory for applications requiring 1/8 NPT male or 1/4 NPT male output port

Accessories

Part Number	Input	Output
RLN-40	Locking Nut	-
PMG-100	Micro Gauge	0-100 psi
PMG-160	Micro Gauge	0-160 psi
PMG-60	Micro Gauge	0-60 psi

Example:

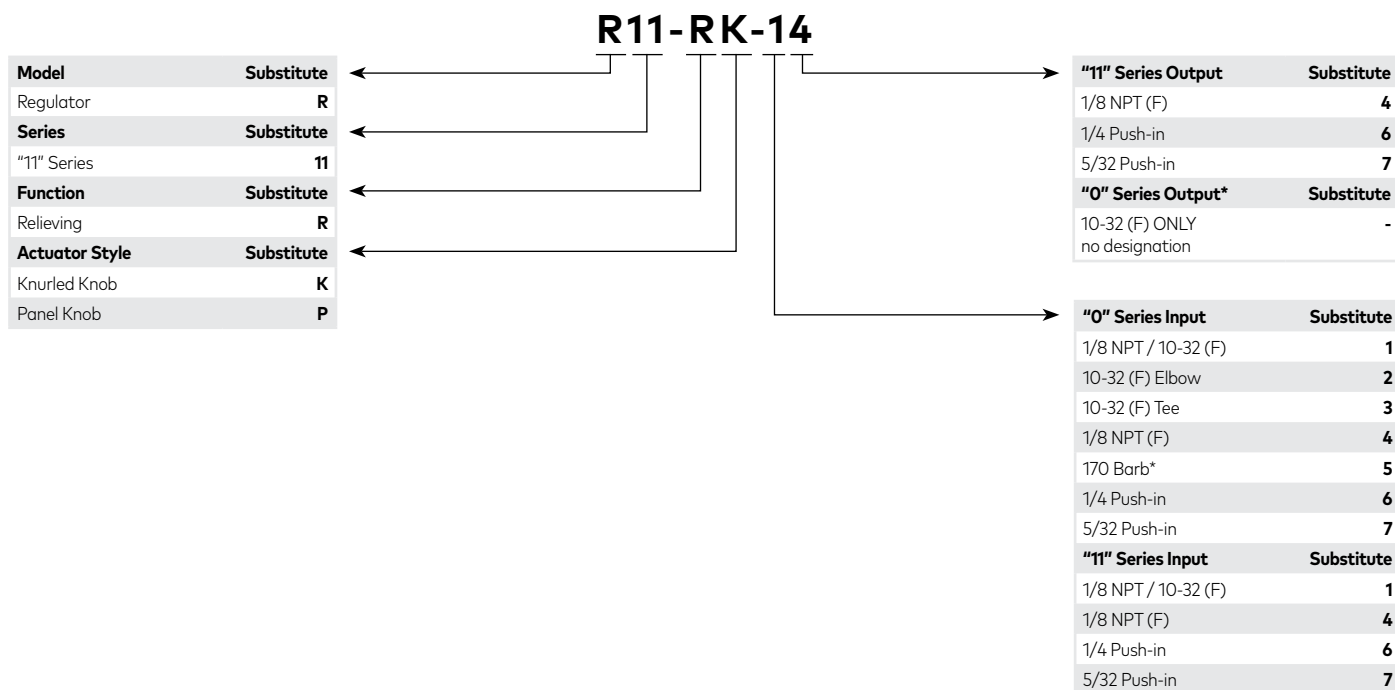
Regulator "11" Series, Relieving with Knurled Knob, 1/8 NPT / 10-32 (F) Input x 1/8 NPT (F) Output

Relieving

Type	Part Number	Input	Output	
Knurled Knob	R11-RK-14	1/8 NPT	1/8 NPT (F)	
	R11-RK-16		1/4 Push-in	
	R11-RK-17		5/32 Push-in	
	R11-RK-44	1/8 NPT (F)	1/8 NPT (F)	
	R11-RK-46		1/4 Push-in	
	R11-RK-47		5/32 Push-in	
	R11-RK-64	1/4 Push-in	1/8 NPT (F)	
	R11-RK-66		1/4 Push-in	
	R11-RK-67		5/32 Push-in	
	R11-RK-74	5/32 Push-in	1/8 NPT (F)	
	R11-RK-76		1/4 Push-in	
	R11-RK-77		5/32 Push-in	
	Panel Knob	R11-RP-14	1/8 NPT	1/8 NPT (F)
		R11-RP-16		1/4 Push-in
R11-RP-17			5/32 Push-in	
R11-RP-44		1/8 NPT (F)	1/8 NPT (F)	
R11-RP-46			1/4 Push-in	
R11-RP-47			5/32 Push-in	
R11-RP-64		1/4 Push-in	1/8 NPT (F)	
R11-RP-66			1/4 Push-in	
R11-RP-67			5/32 Push-in	
R11-RP-74		5/32 Push-in	1/8 NPT (F)	
R11-RP-76			1/4 Push-in	
R11-RP-77			5/32 Push-in	

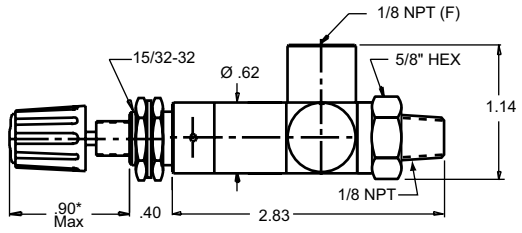
Product Numbering Diagram

"11" Series

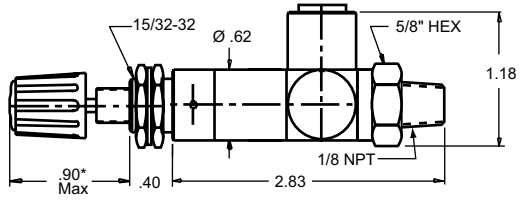


Specifications

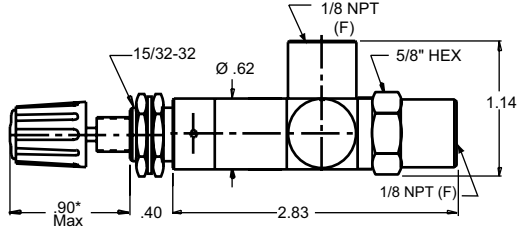
"11" Series - Shown with Panel Knob



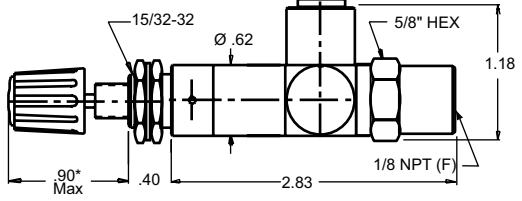
"-14" Porting



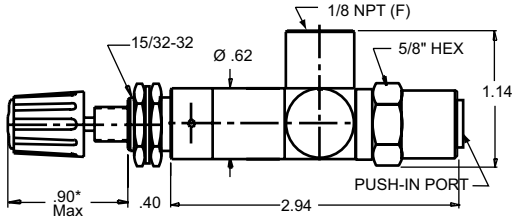
"-16" Porting
"-17" Porting



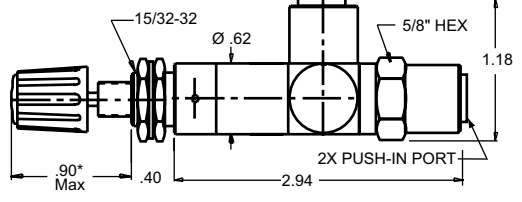
"-44" Porting



"-46" Porting
"-47" Porting



"-64" Porting
"-74" Porting



"-66" Porting
"-67" Porting
"-76" Porting
"-77" Porting

QUICK EXHAUST VALVES

1/4 NPT male and 1/8 NPT male output ports

- » In-line or Right Angle
- » Allows rapid cylinder return
- » Multiple porting options
- » Relieve 100 in³ in 2 seconds
- » Male pipe thread for direct cylinder mount
- » Threaded or controllable exhaust port
- » Swivel cylinder port
- » 1/4" push-to-connect exhaust port is specially designed with a captive collet that is retained even when tubing is disconnected

Technical Data

Material:

In-line:

Brass/ Electroless Nickel, Buna-N

Right Angle:

Aluminum/ Black Anodize,
Brass/ Black Dichromate,
Buna-N, Acetal, Stainless Steel,
Brass/ Electroless Nickel



Features

"11" Series - Right Angle

Norgren's "11" Series Quick Exhaust Valve allows rapid cylinder return without permitting air to travel back through the system. There are sixty possible porting configurations incorporating the standard Norgren "11" Series design with the addition of the 1/4 NPT male and 1/8 NPT male output ports. The exhaust port options include the 1/8 NPT female for use with a sintered bronze or industrial muffler, the 1/4-28 UNF female for use with a speed control needle (at right), and the 1/4" push-to-connect fitting that is specially designed with a captive collet that is retained even when tubing is disconnected (recommended for use with 1/4 OD Polyurethane (95A) tubing).

Technical data

Performance Data

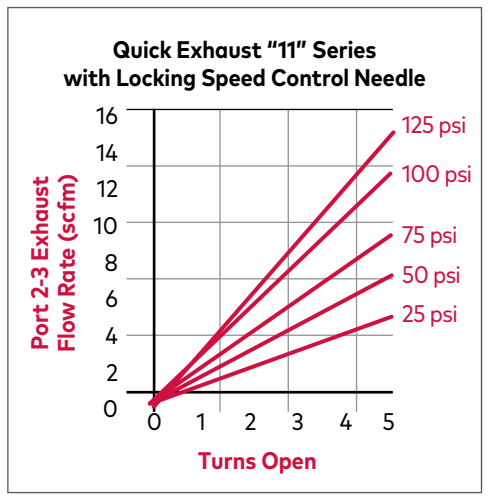
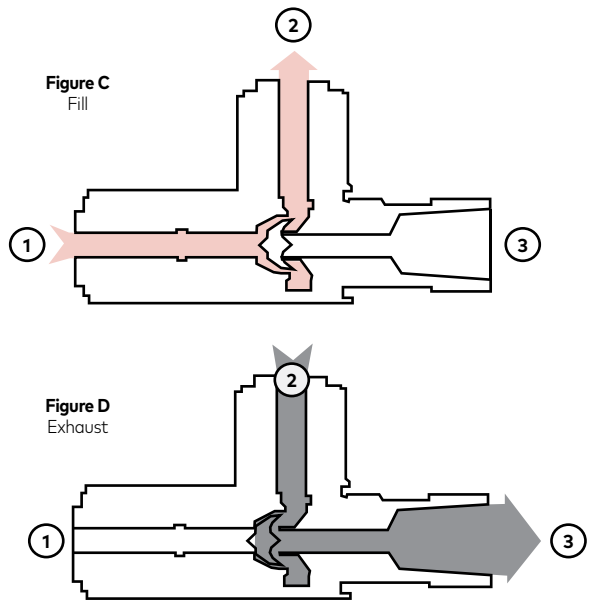
Part Number	Temperature Range	Operating Pressure	C _v	Flow Rate (scfm)		Fill Time sec/ in ³	Exhaust Time sec/ in ³
				50 psi	125 psi	0-90 psi	100-10 psi
QE11-*-**	-20° to 160°F	0-125 psi	.20	8.2	20.2	.02	.02

*Not recommended for use with cylinders larger than 1" diameter; stroke up to 12".

Flow information supplied for flow path 1-2.

C_v per ANSI / (NFPA) T3.21.3

Quick Exhaust Cross Section



Function

"11" Series Function

As pressure is applied through input port 1 (Figure C) the poppet shifts forward blocking the exhaust port and allowing flow through output port 2.

When pressure is removed from input port 1 (Figure D) back flow at port 2 unseats the poppet and allows flow through exhaust port 3.

Type	Port Options	Options
Right Angle	Port 1 Input	10-32 (F) 1/8 NPT / 10-32 (F) 1/8 NPT (F) 1/4 Push-in 5/32 Push-in
	Port 2 Swivel Output	10-32 (M) 1/8 NPT 1/8 NPT (F) 1/4 Push-in 5/32 Push-in 1/4 NPT
	Port 3 Exhaust	10-32 (F) 1/8 NPT (F) 1/4-28 UNF 1/4 Push-in

Product Information

- » To order "11" Series Quick Exhaust select product number from Product Information listing or use Product Number Diagram to develop required component configuration.
- » QE-MS Sintered Bronze Muffler 1/8 NPT for use with QE-M-xx.
- » QE-MI Industrial Muffler 1/8 NPT for use with QE-M-xx.
- » Contact factory for custom porting configurations.

1. Replace the "*" in the Product Information listing with one of the exhaust port codes listed below: -M- for 1/8 NPT (F)
2. Select from the Additional Accessories (sold separately)

"11" Series Right Angle

Part Number	Input	Output
QE11-*-11	1/8 NPT	1/8 NPT
QE11-*-14	1/8 NPT	1/8 NPT (F)
QE11-*-16	1/8 NPT	1/4 Push-in
QE11-*-17	1/8 NPT	5/32 Push-in
QE11-*-18	1/8 NPT	1/4 NPT
QE11-*-41	1/8 NPT (F)	1/8 NPT

"11" Series Right Angle (cont'd)

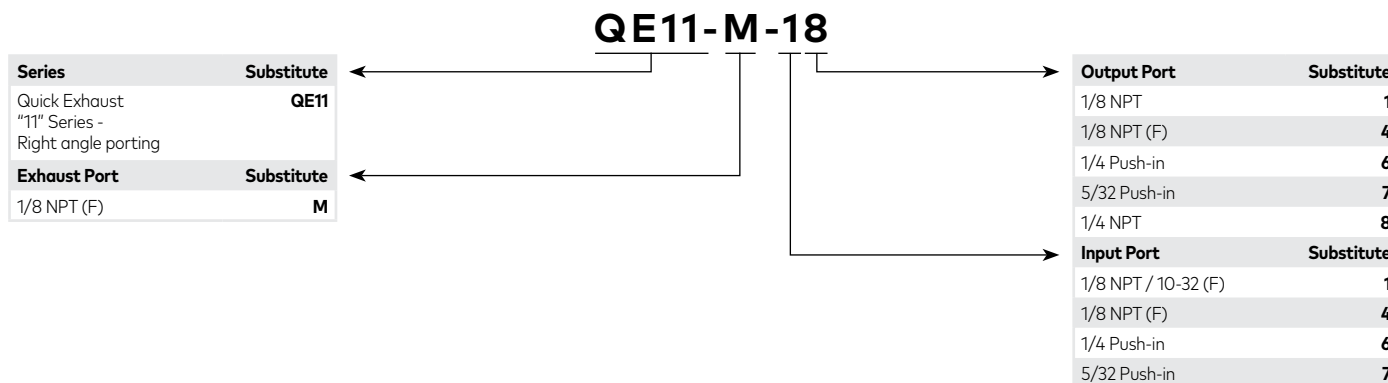
Part Number	Input	Output
QE11-*-44	1/8 NPT (F)	1/8 NPT (F)
QE11-*-46	1/8 NPT (F)	1/4 Push-in
QE11-*-47	1/8 NPT (F)	5/32 Push-in
QE11-*-48	1/8 NPT (F)	1/4 NPT
QE11-*-61	1/4 Push-in	1/8 NPT
QE11-*-64	1/4 Push-in	1/8 NPT (F)
QE11-*-66	1/4 Push-in	1/4 Push-in
QE11-*-67	1/4 Push-in	5/32 Push-in
QE11-*-68	1/4 Push-in	1/4 NPT
QE11-*-71	5/32 Push-in	1/8 NPT
QE11-*-74	5/32 Push-in	1/8 NPT (F)
QE11-*-76	5/32 Push-in	1/4 Push-in
QE11-*-77	5/32 Push-in	5/32 Push-in
QE11-*-78	5/32 Push-in	1/4 NPT

Example:

Quick Exhaust, "11" Series, 1/8 NPT (F) exhaust, 1/8 NPT / 10-32 (F) input, 1/4 NPT output.

Product Numbering Diagram

"11" Series



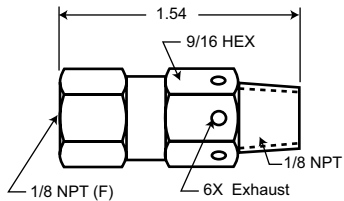
Port Designation

Typical drawings illustrate the overall package size of the Quick Exhaust "11" Series valve. There are sixty (60) possible configurations- contact factory for additional drawings.

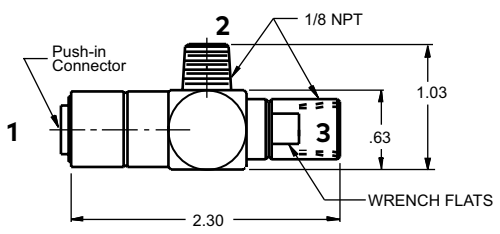
1	Input
2	Cylinder Port
3	Exhaust

C570501

In-Line



Right Angle



When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice.

Additional Accessories

Part Number	Input
QE-MS	1/8 NPT Sintered Bronze Muffler
QE-MI	1/8 NPT Industrial Muffler

In-Line

Part Number	Input	Output
C570501	1/8 NPT (F)	1/8 NPT

"11" Series Right Angle

Part Number	Input	Output
QE11-*-11	1/8 NPT	1/8 NPT
QE11-*-14	1/8 NPT	1/8 NPT (F)
QE11-*-16	1/8 NPT	1/4 Push-in
QE11-*-17	1/8 NPT	5/32 Push-in
QE11-*-18	1/8 NPT	1/4 NPT
QE11-*-41	1/8 NPT (F)	1/8 NPT
QE11-*-44	1/8 NPT (F)	1/8 NPT (F)
QE11-*-46	1/8 NPT (F)	1/4 Push-in
QE11-*-47	1/8 NPT (F)	5/32 Push-in
QE11-*-48	1/8 NPT (F)	1/4 NPT
QE11-*-61	1/4 Push-in	1/8 NPT
QE11-*-64	1/4 Push-in	1/8 NPT (F)
QE11-*-66	1/4 Push-in	1/4 Push-in
QE11-*-67	1/4 Push-in	5/32 Push-in
QE11-*-68	1/4 Push-in	1/4 NPT
QE11-*-71	5/32 Push-in	1/8 NPT
QE11-*-74	5/32 Push-in	1/8 NPT (F)
QE11-*-76	5/32 Push-in	1/4 Push-in
QE11-*-77	5/32 Push-in	5/32 Push-in
QE11-*-78	5/32 Push-in	1/4 NPT

BLEED VALVES

Compact and durable valve with dependability and maximum flow

- » Release 100 in³ in 4 seconds
- » Durable construction - available with standard pipe thread and 10-32 thread

Technical Data

Material:
Brass/ Electroless Nickel,
Buna-N, Stainless Steel



Features

The Bleed Valve offers an easy solution for the release of excess pressure from a system. This compact and durable valve has been Norgren tested to assure dependability and maximum flow.

Technical data

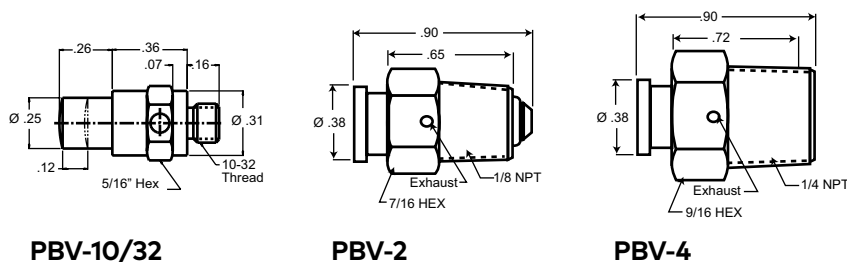
Performance Data

Temperature Range	Operating Pressure	Part Number	Mount	Force to Actuate		Exhaust Time sec/ in ³ 100-10 psi
				50 psi	125 psi	
-20° to 160°F	Range: 0 to 125 psi	PBV-10/32	10-32 UNF (5/16" hex)	3 lbs	3 3/4 lbs	.06
		PBV-2	1/8 NPT (7/16" hex)	3 lbs	6 1/2 lbs	.04
		PBV-4	1/4 NPT (9/16" hex)			

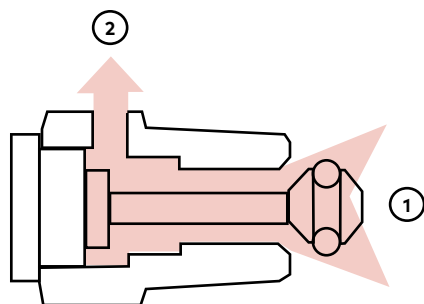
C_v per ANSI / (NFPA) T3.21.3

Function

When the button is actuated the stem slides forward and air flow is vented through a non-threaded exhaust port located near the actuator. This valve makes it possible to release pressurized air at a rate of 100 in³ in 4 seconds.



Bleed Valve Cross Section



All dimensions and specifications are subject to change.

How to Order

- » To order standard product refer to Performance Data listing (sold separately).

AIR JET SYSTEM

Modular Design - adaptable to an unlimited number of applications

- » Nozzle (12 options)
- » Nut
- » Base (3 options)
- » Holder
- » Manifold
- » Needle Valve

Technical Data

Material:
 Brass, Electroless Nickel
 Plating, Cold Rolled Steel,
 Aluminum, Black Anodizing



Features

What is an Air Jet?

When air is directed through a tube that has a length at least three (3) times its ID a laminar air flow is created. This narrow stream of air is directable and its length is controllable by the input pressure. The application of this concept to our specially designed product, Air Jet, has proven to be very unique.

The introduction of a brass manifold to the Air Jet assembly provides an innovative method which allows the use of up to six (6) Air Jets. In this situation a needle valve is threaded into the manifold and tubing connects to the Air Jet base, via a barb fitting. The advantage of the manifold is the ability to control remote Air Jets at one location (to plug unused ports use an SPG-10 plug). In a typical application the needle valve is threaded into the base and the air pressure is controlled at that location.

Applications

Imaginations at work. Though simple in operation, the Air Jet has some very creative applications. The Air Jet was originally developed to enhance the productivity of vibratory feeder bowls. Since that first application, Air Jets have been used in a broad range of systems such as:

Cooling Applications

A jet of air is directed at a drill bit to reduce heat from friction.

Moving Applications

A jet of air used as a static breaker to keep dust off optical lens or to move parts off a production line.

Coolant/ Lubricant Applications

Lubrication via Air Jets onto the gears in overhead conveyors.

- » 36 possible Air Jet combinations
- » Several component options
- » Manifold for multiple use applications

Technical data

Performance Data

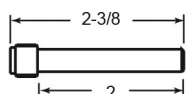
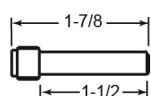
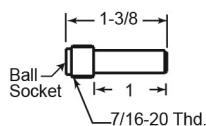
Product	Temperature Range	Operating Pressure	Orifice Size	C _v	Flow Rate (scfm)	
					50 psi	125 psi
HAN	-20° to +160°F	0 to 125 psi	1/16	.10	3.2	6.5
AN			1/32	.02	.72	1.5

When design makes a dimension critical - contact factory for confirmation.
 All dimensions are in inches, unless otherwise specified and are subject to change without notice.

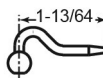
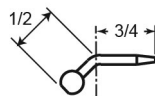
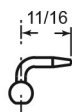
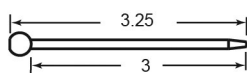
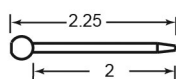
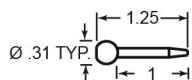
Product Information

- » Use Product Information listing to select air jet components.
- » All parts are sold separately.
- » Air Jet Kits available.

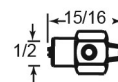
Bases



Nozzles



Needle Valve



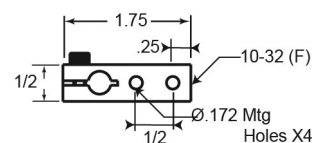
NV-32

Air Jet Nut



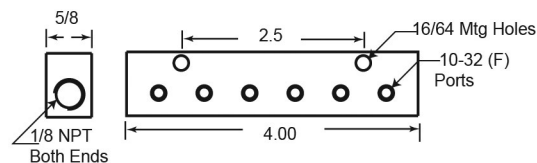
N2-2

Air Jet Holder



AJH

Manifold



6-24-M2

Part Number	Description
AJB-1	1" Base
AJB-15	1.5" Base
AJB-2	2" Base
AJH	Air Jet Holder
AN-1	Nozzle, 1/32 ID x 1" Straight
AN-2	Nozzle, 1/32 ID x 2" Straight
AN-3	Nozzle, 1/32 ID x 1" 450
AN-4	Nozzle, 1/32 ID x 1" 900
AN-5	Nozzle, 1/32 ID x 1" Compound
AN-6	Nozzle, 1/32 ID x 3" Straight
HAN-1	Nozzle, 1/16 ID x 1" Straight
HAN-2	Nozzle, 1/16 ID x 2" Straight
HAN-3	Nozzle, 1/16 ID x 1" 450
HAN-4	Nozzle, 1/16 ID x 1" 900
HAN-5	Nozzle, 1/16 ID x 1" Compound
HAN-6	Nozzle, 1/16 ID x 3" Straight
6-24-M2	Manifold
N2-2	Assembly Nut (Air Jets)
NV-32	Needle Valve

Air Jet Kit

Pneumadyne® Series Air Jet Kits are available for either 1/16" or 1/32" orifice nozzles.

The kit includes:

- » (12) Nozzles (2 ea. style nozzle)
- » (9) Brass Nuts
- » (2) 10-32 (M) Needle Valves
- » (3) Air Jet Holders
- » (9) Bases (3 of ea. size)
- » (1) Carrying Case

Part Number	Description
AJK-AN	Air Jet Kit, 1/32 ID nozzles
AJK-HAN	Air Jet Kit, 1/16 ID nozzles

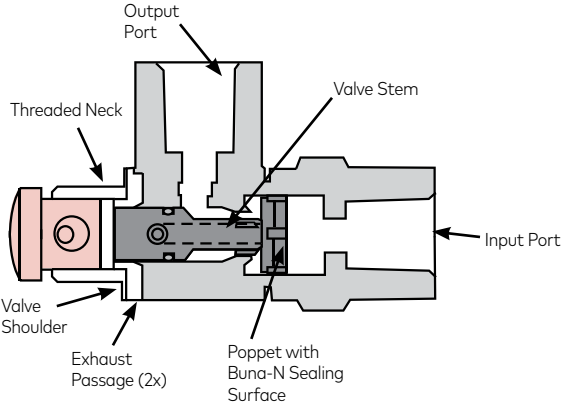
The brass manifold is available to enhance the Air Jet System but is not included with the Air Jet Kit.

CONTROL VALVES

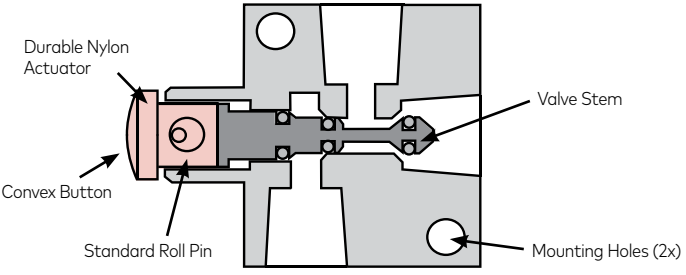
The basic pneumatic valve is a mechanical device consisting of a body and a moving part (poppet and/or stem) which connects or disconnects passages within the body.

Norgren's complete line of miniature manually operated 2-Way, 3-Way & 4-Way pneumatic valves offer a superior design constructed from high quality materials which result in an extremely long cycle life.

Poppet Valve



Stem Valve



Directional Control Valve Profile

	"0" Series	"3" Series	"11" Series
2-Way	•		•
3-Way	•	•	•
4-Way 3 Port 2 Position			
4-Way 5 Port 2 Position			
4-Way 5 Port 3 Position			
Normally Closed	•	•	•
Open Crossover			
Closed Crossover	•	•	•
Ported Exhaust		•	
Actuator Options	•	•	•
Porting Options	•	•	•

	"300" Series			"400" Series				"45" Series		
	10-32	1/8 NPT	Fully Ported	Standard	Rear	Fully Ported	Side	3-Position	10-32	1/8 NPT
2-Way	•	•		•	•			•		
3-Way	•	•	•	•	•	•	•	•		
4-Way 3 Port 2 Position									•	•
4-Way 5 Port 2 Position										
4-Way 5 Port 3 Position										
Normally Closed	•	•	•	•	•	•	•			
Open Crossover	•	•	•	•	•	•	•		•	•
Closed Crossover										
Ported Exhaust			•			•	•		•	•
Actuator Options	•	•	•	•	•	•	•		•	•
Porting Options								•	•	•

PUSH BUTTON AND TOGGLE ACTUATOR

Actuators

Norgren push button and toggle actuators are specially designed and molded from a high quality nylon material with a long service life (all actuators are included with the valve).

Norgren buttons ("A" Style) are convex rather than concave, a shape with many advantages. Ideal for medical and dental applications, convex buttons are easier to keep clean- no well to trap liquids or debris. The convex shape also ensures a full contact fit for smooth actuation when used with cam operators. A slip resistant texture on the surface of the button provides grip for manual operation and guide ribs on the stem of the button ensure proper alignment. This prevents it from disrupting the exhaust path while absorbing moderate side loads.

Norgren toggles are available for momentary ("F" Style) or detented ("H" Style) actuation.

Norgren actuators are retained by a specially designed stainless steel roll pin which expands to the diameter of the pin hole and holds the actuator in place. The service life of our actuator is extended by the use of the roll pin producing a fit that will not come out of place.

PUSH BUTTON

- » Part number designation "A" Style
- » Nylon - seven colors (black as standard)

MOMENTARY TOGGLE

- » Part number designation "F" Style
- » Nylon - seven colors (black as standard)

DETENTED TOGGLE

- » Part number designation "H" Style
- » Nylon - seven colors (black as standard)

CONTROL KNOB (PANEL KNOB)

- » Flow Control - Black acetal knob with red cap
- » Needle Valve - Black acetal knob with yellow cap
- » Regulator - Black acetal knob with black cap

CONTROL KNOB (KNURLED KNOB)

- » Regulator - Brass with Electroless Nickel plating
- » "700" Series Low Flow - Brass
- » "700" Series General Flow - Brass with Electroless Nickel plating

Color Code Information

To order colored actuators simply specify the color, by code, as a "-code#" suffix following the part number. No code number is required for standard black actuators.

- 2 = Black
- 3 = Red
- 4 = Blue
- 5 = Green
- 6 = Yellow
- 8 = Gray

FLOW RATE DETERMINATION

All Norgren Cv and flow rates are determined in accordance with ANSI / (NFPA) T3.21.3, Pneumatic fluid power - Flow rating procedure and reporting method - For fixed orifice components.

Norgren has developed data to support system designs, designate operating pressures and determine response times, by using Cv (flow coefficient), flow rates, and fill times. Cv is useful for system sizing and as a component comparison standard, particularly when all Cv's are provided by the same manufacturer. Flow rates are determined for input pressure up to 125 psi and output pressures from atmospheric to the input pressure.

Fill / exhaust times provide a fast, accurate means of establishing cylinder response times.

Time to fill or exhaust a given volume through an orifice or pneumatic device is an exponential function. However, times to fill or exhaust various volumes, through a given system, have a linear relationship; i.e. time to fill 10 in³ x time to fill 1 in³ etc.

Norgren uses relatively large tank volumes to measure fill/ exhaust times and measures from 0-90 psi with 100 psi input pressure and 100-10 psi exhaust to atmosphere. A per in³ time is easily and accurately determined and the 90% parameter simulates a reasonable cylinder reaction without waiting for the infinite (theoretical) 100% fill or exhaust times.

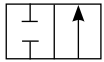
All Norgren components are designed and tested for use with air - for use with other media, consider materials of construction.

Mounting Hole Dimension

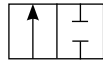
Description	Nominal Hole Diameter	Description	Nominal Hole Diameter
"0" Series	31/64"	Flow Control	31/64"
"3" Series	31/64"	Needle Valves	31/64"
11" Series	31/64"	"0" & "11" Series	31/64"
"300" Series	31/64"	"700" Series 11/32"	11/32"
"400" Series	31/64"	Pressure Regulators	31/64"
Sub-Micro Valve		Quick Exhaust "11" Series	31/64"
Button	17/64"	Oil Tight Actuators	
Toggle	21/64"	30mm	1-3/16"
3 Position Toggle Valve	3/4"		
6 Position Selector Valve	41/64"		
Heavy Duty Toggle Valve	5/8"		
"4" & "45" Series	31/64"		

Fluid Power Graphic Symbols

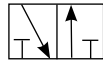
Directional Control



2WNC



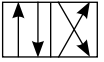
2WNO



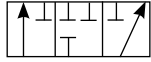
3WNC



3WNO



4-Way
2-Position



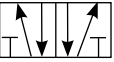
2-Way
3-Position
Closed center



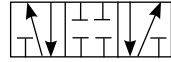
3-Way
3-Position
Open center



3WNC
Solenoid
Actuator



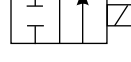
4-Way
5 Ports 2-Position
Exhaust center



4-Way
5 Ports 3-Position
Closed center

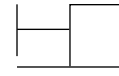


4-Way
5 Ports 3-Position
Exhaust center

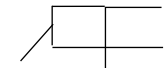


2WNC
Solenoid
Actuator

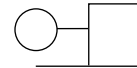
Actuators



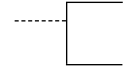
Push Button



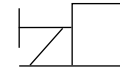
Toggle



Cam Operated



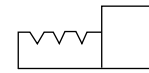
Pilot Operated



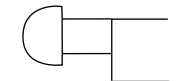
Solenoid Operated
"10" Series



Pilot and Solenoid
"20" Series

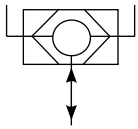


3-Position Detent



Palm Button

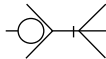
Circuit Control



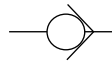
Shuttle Valve



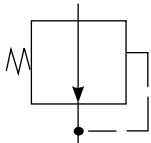
Needle Valve



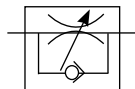
Quick Disconnect



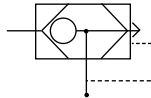
Check Valve



Regulator



Flow Control



Quick Exhaust

FORCE TO ACTUATE CHART

Valve Accessory Part Number

	CA-1	CA-4	HDO	PBF-X PBR-X	TA-1
	Lbs	Lbs	Lbs	Lbs	Lbs
"0" Series; NC					
50 psi	1.50	.75	6.25	3.20	1.25
125 psi	2.75	1.00	9.25	5.70	2.25
"3" Series					
50 psi	1.75	.75	6.50	3.50	1.50
125 psi	3.00	1.00	9.50	6.10	2.50
"11" Series; NC					
50 psi	2.00	.75	6.75	3.80	1.50
125 psi	3.50	1.25	10.75	7.20	3.00
"300" Series					
50 psi	1.25	.50	5.50	2.50	1.00
125 psi	1.50	.75	6.75	3.20	1.25
"400" Series					
50 psi	1.75	.75	6.50	3.40	1.50
125 psi	2.50	1.00	8.75	5.30	2.25
"4" Series					
50 psi			6.00	3.00	
125 psi			6.00	3.00	
"45" Series					
50 psi	2.50	1.00	8.00	5.00	2.00
125 psi	4.00	1.50	11.50	8.00	3.25

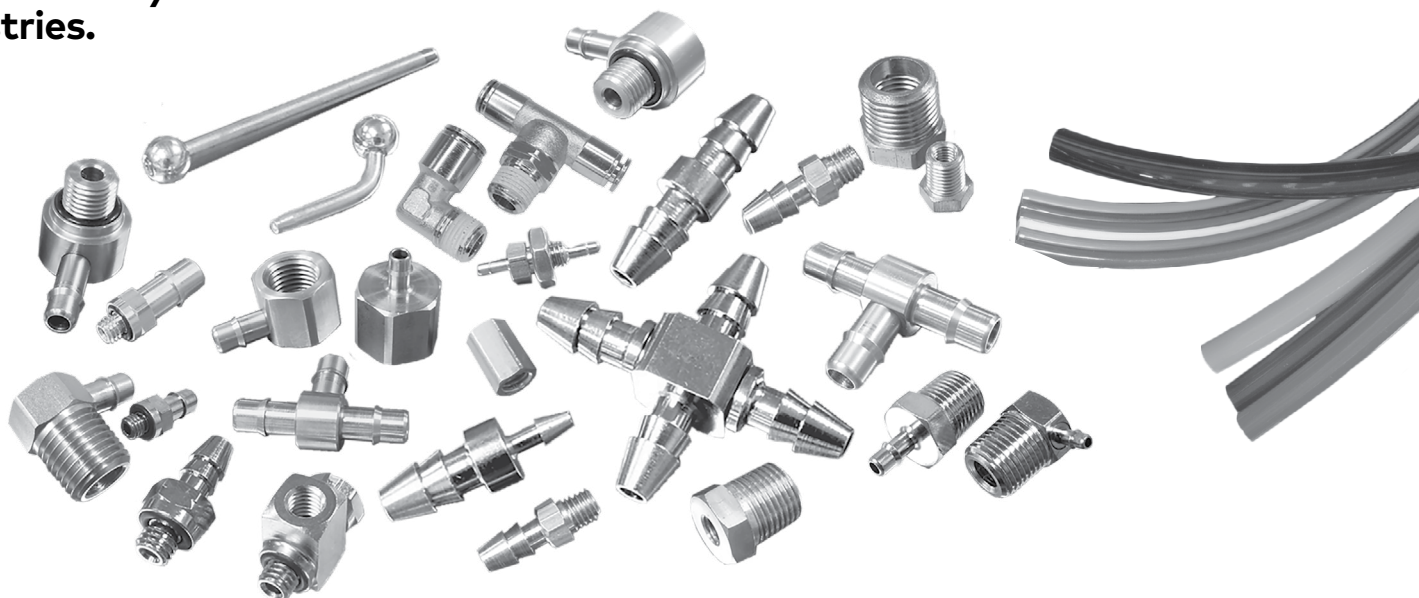
[Fittings & Tubing]

2

Norgren is a leading manufacturer of pneumatic components and pneumatic control systems. Designed and manufactured in the USA, our directional control valves, fittings, manifolds, air nozzles and custom products are relied upon for fluid control throughout a wide-variety of industries.

We have the fluid power expertise, design experience and manufacturing capabilities necessary to support your fluid handling applications. Whether you need standard or custom pneumatic products, you can rely on us for innovative, quality solutions that meet your expectations.

Tubing is a necessary component in pneumatic fluid systems. It helps deliver compressed air, a key element in pneumatics, to the actuators, valves, filters, and other products that constitute a full pneumatic motion system.



2 Fast Find Guide

PAGE	PRODUCT
95	Pneu-Edge Fittings
115	O-Ring Fittings
120	10-32 Tapered Thread Fittings
123	Barb-To-Barb Fittings
126	Polyurethane Single Tubing

PNEU-EDGE FITTINGS

Precision machined fittings: 10-32, 1/4-28 and 1/16 NPT to 3/8 NPT

- » Twelve barb sizes:
Accommodates a variety of tubing requirements
- » Ten thread sizes:
Ranging from 10-32, 1/4-28 and 1/16 NPT to 3/8 NPT, including metric M3, M5 and M6
- » Captured O-ring design:
Provides a superior seal ensuring a leak resistant fitting
- » Smaller shank behind the barb:
Allows Polyurethane tubing to relax, providing a tighter grip and seal
- » Smoother tubing approach angle:
Eases tubing installation
- » Solderless joint technology:
Eliminates solder voids, potential leaks and heat discoloration or distortion of materials. components are threaded together and sealed with NSF approved Loctite® sealant to eliminate pull-out potential and ensure straight barb alignment
- » Larger thru-hole:
Maximizes flow path

Technical Data

Material:
Brass/ Electroless Nickel,
Buna-N O-rings

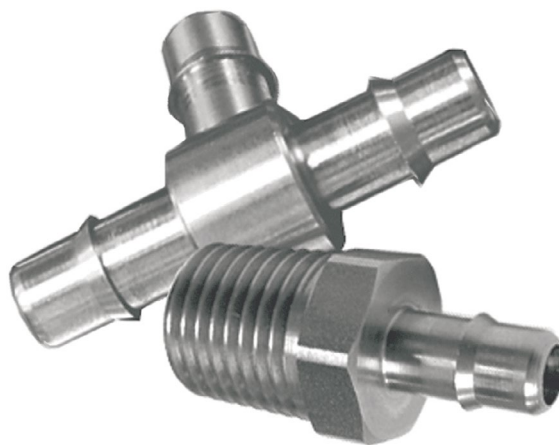


Features

Pneu-Edge® fittings feature a consistently sharp, single-barb design which provides a tighter grip and seal than standard multiple barbs. These precision machined fittings ensure permanent polyurethane tubing installation without the need for clamps. Straight connectors, tees, elbows, crosses and couplings are available in a wide variety of sizes and materials to accommodate numerous fluid handling circuits.

Norgren's Stainless Steel Pneu-Edge fittings are suitable for use in industries such as:

- » Food & Beverage
- » Medical & Dental
- » Semi-Conductor
- » Pharmaceutical
- » Agriculture
- » Chemical processing



Product Information

Pneu-Edge barbs are assigned a two digit code as defined on the Product Number Diagram (lower left). There are twelve barb sizes for use with Polyurethane tubing ranging from 1/16 ID to 1/2 ID. Ten thread sizes include metric, UNF, and NPT.

Pneu-Edge fittings ensure permanent polyurethane tubing installation without the need for clamps. However, we recommend the use of clamps in applications over 80 psi which also involve heat or vibration.

- » To order standard Electroless Nickel Brass plated product use part number listing.
- » For 303 Stainless Steel add a -303 suffix to the part number - lead times and minimum quantities may apply.
- » Optional O-rings available - contact factory.
- » Standard package quantities:
25 pcs per bag
100 pcs per box

Product Numbering Diagram

Pneu-Edge Fittings

ERC30-10-250

Product Line	Substitute
Pneu-Edge	E
Fitting Configuration (Threaded)	Substitute
Adjustable Tee	A
Adjustable EL Barb	A-LB
Male Connector	B
Bulkhead	BK
Female Connector	FB
EL Female Thread	FLB
Female Tee	FT
Elbow	LB
Reducer Bushing	RB
Tee 1/4-28 thru 3/8	T
10-32 Tee	TB
(Barb-to-Barb)	Substitute
Coupling	C
Elbow	L
Tee	T
Reducing Coupling	RC
Reducing Tee	RT
Reducing Cross	RX
Cross	X
Barb Size	Substitute

refer to "Connector Options" for code

Suffix	Substitute
250= 1/4" Hex	4
S= Short	6

Connector Options:

Barb Size	Thread Size	
Code Tube ID	"no code" = 10-32 UNF	
10=	1/16	4-28= 1/4-28 UNF
20=	5/64	1/16= 1/16 NPT
25=	3/32	1/8= 1/8 NPT
30=	1/8	1/4= 1/4 NPT
35=	5/32	3/8= 3/8 NPT
40=	.170	1/2= 1/2 NPT
50=	3/16	M3= M3 x 0.5
55=	7/32	M5= M5 x 0.8
60=	1/4	M6= M6 x 1.0
70=	5/16	-
80=	3/8	-

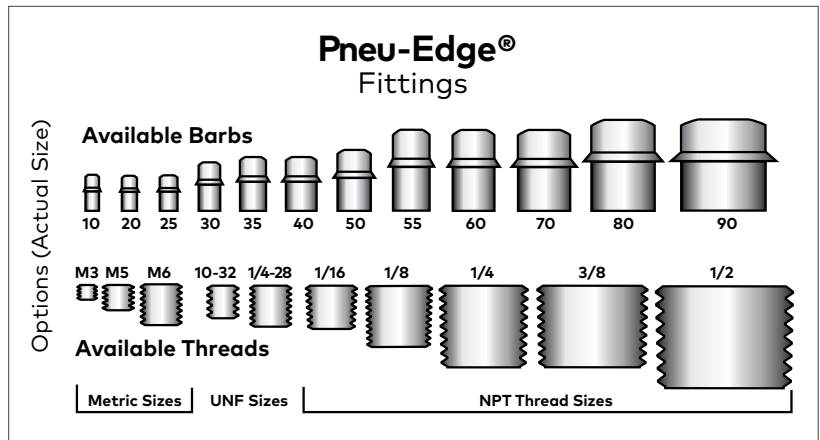
Flow Rates for Pneu-Edge Fittings can be found on page 137-138.

Please use Part Number Listing to verify part number - not all configurations are possible.

NOTE: Please refer to drawings for location and size of barbs on reducer fittings.

When design makes a dimension critical - contact factory for confirmation.

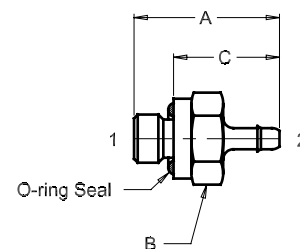
All dimensions are in inches, unless otherwise specified and are subject to change without notice.



Specifications

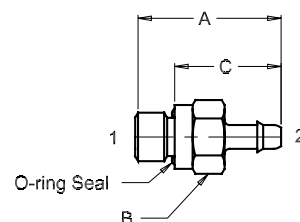
Straight 10-32

Part Number	A	B Hex	C	1	2 Tubing ID
EB10	0.571	5/16	0.416	10-32 (M)	1/16
EB20	0.571	5/16	0.416	10-32 (M)	5/64
EB25	0.574	5/16	0.419	10-32 (M)	3/32
EB30	0.665	5/16	0.510	10-32 (M)	1/8
EB35	0.689	5/16	0.534	10-32 (M)	5/32
EB40	0.689	5/16	0.534	10-32 (M)	.170
EB50	0.723	5/16	0.568	10-32 (M)	3/16
EB60	0.846	5/16	0.691	10-32 (M)	1/4



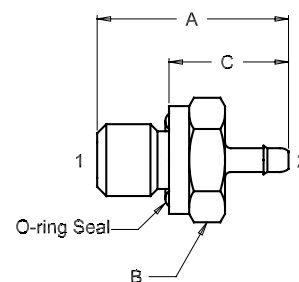
Straight 1/4 Hex

Part Number	A	B Hex	C	1	2 Tubing ID
EB10-250	0.571	1/4	0.416	10-32 (M)	1/16
EB20-250	0.571	1/4	0.416	10-32 (M)	5/64
EB25-250	0.574	1/4	0.419	10-32 (M)	3/32
EB30-250	0.665	1/4	0.510	10-32 (M)	1/8
EB40-250	0.689	1/4	0.534	10-32 (M)	.170



Straight 1/4-28

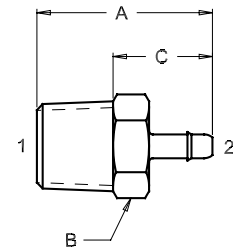
Part Number	A	B Hex	C	1	2 Tubing ID
EB10-4-28	0.666	3/8	0.416	1/4-28 (M)	1/16
EB30-4-28	0.760	3/8	0.510	1/4-28 (M)	1/8
EB40-4-28	0.784	3/8	0.534	1/4-28 (M)	.170
EB50-4-28	0.818	3/8	0.568	1/4-28 (M)	3/16
EB60-4-28	0.941	3/8	0.691	1/4-28 (M)	1/4



When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

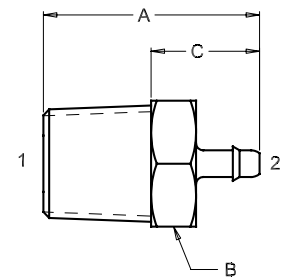
Straight 1/16 NPT

Part Number	A	B Hex	C	1	2 Tubing ID
EB10-1/16	0.611	5/16	0.346	1/16 (M)	1/16
EB25-1/16	0.614	5/16	0.349	1/16 (M)	3/32
EB30-1/16	0.705	5/16	0.440	1/16 (M)	1/8
EB40-1/16	0.729	5/16	0.464	1/16 (M)	.170
EB50-1/16	0.763	5/16	0.498	1/16 (M)	3/16
EB60-1/16	0.886	5/16	0.621	1/16 (M)	1/4



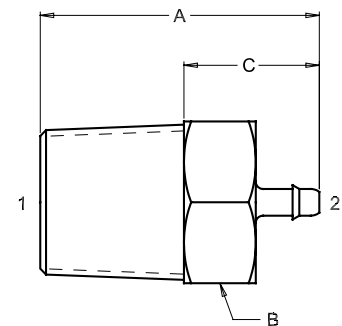
Straight 1/8 NPT

Part Number	A	B Hex	C	1	2 Tubing ID
EB10-1/8	0.752	7/16	0.377	1/8 (M)	1/16
EB20-1/8	0.752	7/16	0.377	1/8 (M)	5/64
EB25-1/8	0.755	7/16	0.380	1/8 (M)	3/32
EB30-1/8	0.846	7/16	0.471	1/8 (M)	1/8
EB40-1/8	0.870	7/16	0.495	1/8 (M)	.170
EB50-1/8	0.904	7/16	0.529	1/8 (M)	3/16
EB60-1/8	1.027	7/16	0.652	1/8 (M)	1/4
EB70-1/8	1.027	7/16	0.652	1/8 (M)	5/16
EB80-1/8	1.090	7/16	0.715	1/8 (M)	3/8



Straight 1/4 NPT

Part Number	A	B Hex	C	1	2 Tubing ID
EB10-1/4	0.971	9/16	0.471	1/4 (M)	1/16
EB30-1/4	1.065	9/16	0.565	1/4 (M)	1/8
EB35-1/4	1.089	9/16	0.589	1/4 (M)	5/32
EB50-1/4	1.123	9/16	0.623	1/4 (M)	3/16
EB60-1/4	1.246	9/16	0.746	1/4 (M)	1/4
EB70-1/4	1.246	9/16	0.746	1/4 (M)	5/16
EB80-1/4	1.309	9/16	0.809	1/4 (M)	3/8

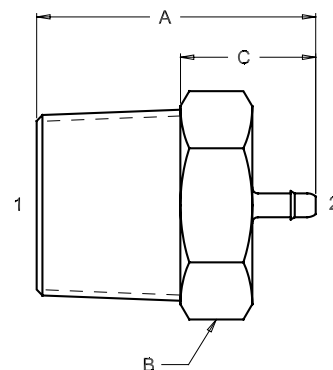


When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

Specifications

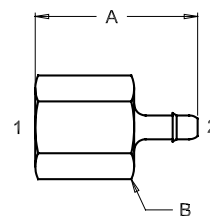
Straight 3/8 NPT

Part Number	A	B Hex	C	1	2 Tubing ID
EB60-3/8	1.246	11/16	0.746	3/8 (M)	1/4
EB80-3/8	1.309	11/16	0.809	3/8 (M)	3/8



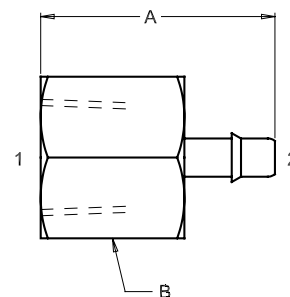
Straight 10-32 (Female)

Part Number	A	B Hex	1	2 Tubing ID
EFB10	0.565	1/4	10-32 (F)	1/16
EFB30	0.659	1/4	10-32 (F)	1/8
EFB40	0.683	1/4	10-32 (F)	.170



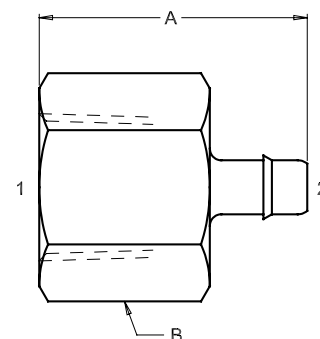
Straight 1/8 NPT (Female)

Part Number	A	B Hex	1	2 Tubing ID
EFB10-1/8	0.721	7/16	1/8 (F)	1/16
EFB25-1/8	0.724	7/16	1/8 (F)	3/32
EFB30-1/8	0.815	7/16	1/8 (F)	1/8
EFB35-1/8	0.839	7/16	1/8 (F)	5/32
EFB40-1/8	0.839	7/16	1/8 (F)	.170
EFB50-1/8	0.873	7/16	1/8 (F)	3/16
EFB60-1/8	0.995	7/16	1/8 (F)	1/4



Straight 1/8 NPT (Female)

Part Number	A	B Hex	1	2 Tubing ID
EFB10-1/4	0.815	11/16	1/4 (F)	1/16
EFB30-1/4	0.909	11/16	1/4 (F)	1/8
EFB40-1/4	0.933	11/16	1/4 (F)	.170
EFB60-1/4	1.090	11/16	1/4 (F)	1/4

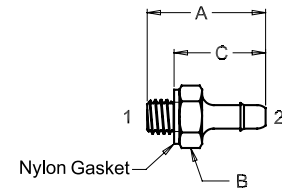


When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

Straight M3

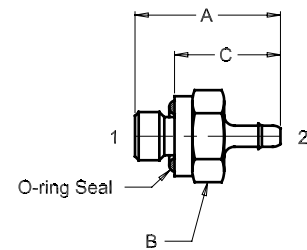
Part Number	A	B Hex	C	1	2 Tubing ID
EB10-M3*	0.412	3/16	0.300	M3 (M)	1/16
EB20-M3	0.412	3/16	0.300	M3 (M)	5/64
EB25-M3	0.415	3/16	0.303	M3 (M)	3/32
EB30-M3	0.506	3/16	0.394	M3 (M)	1/8
EB40-M3	0.563	1/4	0.471	M3 (M)	.170

*Thru hole: 0.047



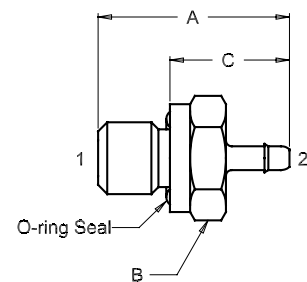
Straight M5

Part Number	A	B Hex	C	1	2 Tubing ID
EB10-M5	0.571	5/16	0.416	M5 (M)	1/16
EB20-M5	0.571	5/16	0.416	M5 (M)	5/64
EB25-M5	0.574	5/16	0.419	M5 (M)	3/32
EB30-M5	0.665	5/16	0.510	M5 (M)	1/8
EB40-M5	0.689	5/16	0.534	M5 (M)	.170



Straight M6

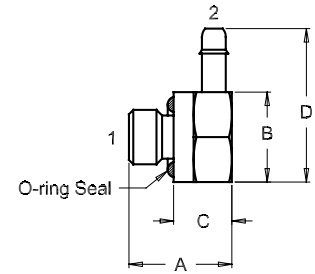
Part Number	A	B Hex	C	1	2 Tubing ID
EB10-M6	0.666	3/8	0.416	M6 (M)	1/16
EB20-M6	0.666	3/8	0.416	M6 (M)	5/64
EB25-M6	0.669	3/8	0.419	M6 (M)	3/32
EB30-M6	0.760	3/8	0.510	M6 (M)	1/8
EB40-M6	0.784	3/8	0.534	M6 (M)	.170



When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

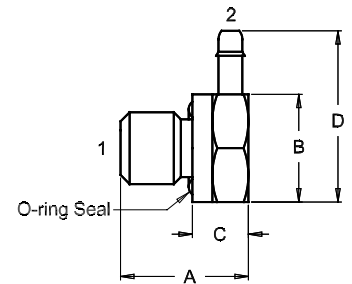
Elbow Fixed 10-32

Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB10	0.358	5/16	0.203	0.534	10-32 (M)	1/16
ELB20	0.358	5/16	0.203	0.534	10-32 (M)	5/64
ELB25	0.358	5/16	0.203	0.537	10-32 (M)	3/32
ELB30	0.436	5/16	0.281	0.628	10-32 (M)	1/8
ELB35	0.488	5/16	0.333	0.652	10-32 (M)	5/32
ELB40	0.488	5/16	0.333	0.652	10-32 (M)	.170



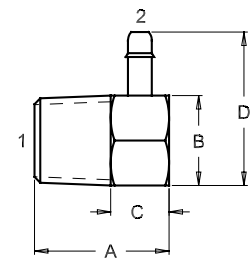
Elbow Fixed 1/4-28

Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB25-4-28	0.445	3/8	0.195	0.599	1/4-28 (M)	3/32
ELB30-4-28	0.523	3/8	0.273	0.690	1/4-28 (M)	1/8
ELB40-4-28	0.575	3/8	0.325	0.714	1/4-28 (M)	.170
ELB50-4-28	0.575	3/8	0.325	0.748	1/4-28 (M)	3/16



Elbow Fixed 1/16 NPT

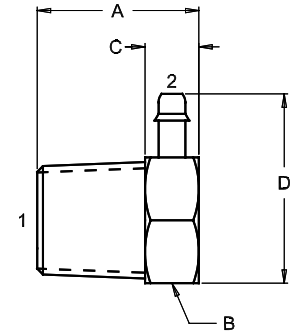
Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB30-1/16	0.468	5/16	0.203	0.628	1/16 (M)	1/8
ELB40-1/16	0.531	3/8	0.266	0.714	1/16 (M)	.170
ELB50-1/16	0.531	3/8	0.266	0.748	1/16 (M)	3/16
ELB60-1/16	0.578	3/8	0.313	0.871	1/16 (M)	1/4



When design makes a dimension critical - contact factory for confirmation.
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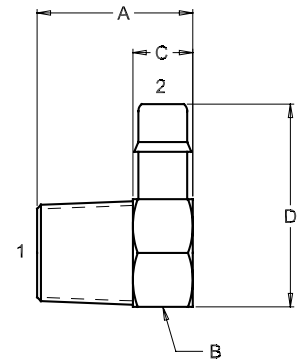
Elbow Fixed 1/8 NPT

Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB10-1/8	0.625	7/16	0.300	0.659	1/8 (M)	1/16
ELB25-1/8	0.625	7/16	0.300	0.662	1/8 (M)	3/32
ELB30-1/8	0.625	7/16	0.300	0.753	1/8 (M)	1/8
ELB35-1/8	0.625	7/16	0.300	0.777	1/8 (M)	5/32
ELB40-1/8	0.688	7/16	0.355	0.777	1/8 (M)	.170
ELB50-1/8	0.688	7/16	0.355	0.811	1/8 (M)	3/16
ELB60-1/8	0.688	7/16	0.375	0.934	1/8 (M)	1/4
ELB80-1/8	0.984	5/8	0.609	1.184	1/8 (M)	3/8



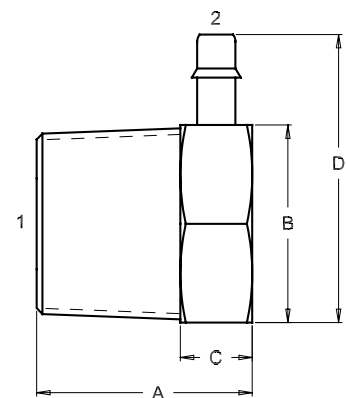
Elbow Fixed 1/4 NPT

Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB10-1/4	0.750	9/16	0.250	0.784	1/4 (M)	1/16
ELB30-1/4	0.750	9/16	0.250	0.878	1/4 (M)	1/8
ELB40-1/4	0.825	9/16	0.325	0.902	1/4 (M)	.170
ELB50-1/4	0.825	9/16	0.325	0.936	1/4 (M)	3/16
ELB60-1/4	0.850	9/16	0.350	1.059	1/4 (M)	1/4
ELB80-1/4	1.109	3/4	0.609	1.309	1/4 (M)	3/8



Elbow Fixed 3/8 NPT

Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB30-3/8	0.780	11/16	0.280	1.003	3/8 (M)	1/8
ELB50-3/8	0.780	11/16	0.280	1.061	3/8 (M)	3/16
ELB80-3/8	1.109	0.750	0.609	1.309	3/8 (M)	3/8

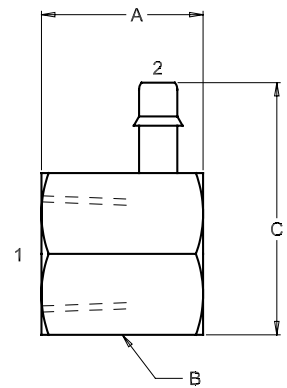


When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

Specifications

Elbow Fixed 1/8 NPT (Female)

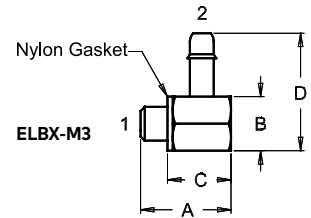
Part Number	A	B Hex	C	1	2 Tubing ID
EFLB30-1/8	0.500	9/16	0.878	1/8 (F)	1/8
EFLB40-1/8	0.563	9/16	0.902	1/8 (F)	.170
EFLB50-1/8	0.563	9/16	0.936	1/8 (F)	3/16



When design makes a dimension critical - contact factory for confirmation.
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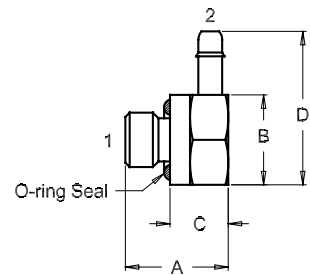
Elbow Fixed M3

Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB10-M3	0.315	3/16	0.223	0.409	M3 (M)	1/16
ELB25-M3	0.315	3/16	0.223	0.412	M3 (M)	3/32
ELB30-M3	0.393	5/16	0.301	0.628	M3 (M)	1/8



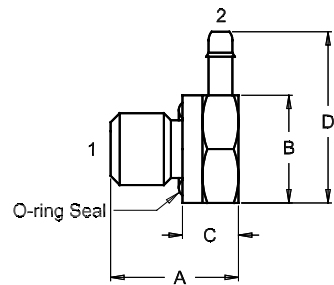
Elbow Fixed M5

Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB10-M5	0.358	5/16	0.203	0.534	M5 (M)	1/16
ELB25-M5	0.358	5/16	0.203	0.537	M5 (M)	3/32
ELB30-M5	0.436	5/16	0.281	0.628	M5 (M)	1/8
ELB40-M5	0.488	5/16	0.333	0.652	M5 (M)	.170



Elbow Fixed M6

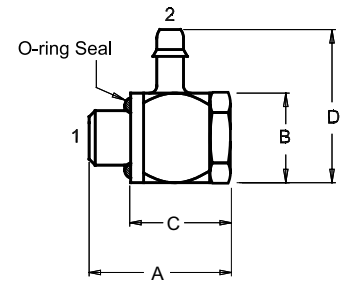
Part Number	A	B Hex	C	D	1	2 Tubing ID
ELB10-M6	0.445	3/8	0.195	0.596	M6 (M)	1/16
ELB25-M6	0.445	3/8	0.195	0.599	M6 (M)	3/32
ELB30-M6	0.523	3/8	0.273	0.690	M6 (M)	1/8
ELB40-M6	0.575	3/8	0.325	0.714	M6 (M)	.170
ELB50-M6	0.575	3/8	0.325	0.748	M6 (M)	3/16



When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

Elbow Adjustable

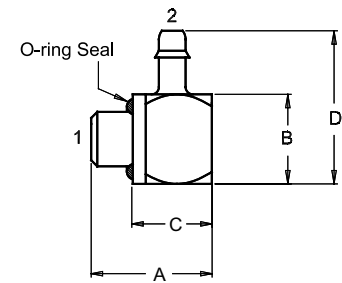
Part Number	A	B Square	C	D	1	2 Tubing ID
EA-LB10	0.496	5/16	0.351	0.533	10-32 (M)	1/16
EA-LB20	0.496	5/16	0.351	0.533	10-32 (M)	5/64
EA-LB25	0.496	5/16	0.351	0.536	10-32 (M)	3/32
EA-LB30	0.496	5/16	0.351	0.627	10-32 (M)	1/8
EA-LB40	0.596	5/16	0.424	0.619	10-32 (M)	.170
EA-LB50	0.596	5/16	0.424	0.686	10-32 (M)	3/16



Elbow Adjustable (Slotted)

Part Number	A	B Square	C	D	1	2 Tubing ID
EA-LB10-SLOT	0.419	5/16	0.275	0.533	10-32 (M)	1/16
EA-LB20-SLOT	0.419	5/16	0.275	0.533	10-32 (M)	5/64
EA-LB25-SLOT	0.419	5/16	0.275	0.536	10-32 (M)	3/32
EA-LB30-SLOT	0.419	5/16	0.275	0.627	10-32 (M)	1/8
EA-LB40-SLOT	0.492	5/16	0.348	0.651	10-32 (M)	.170
EA-LB50-SLOT	0.492	5/16	0.348	0.685	10-32 (M)	3/16

Features a screwdriver slot for fitting alignment

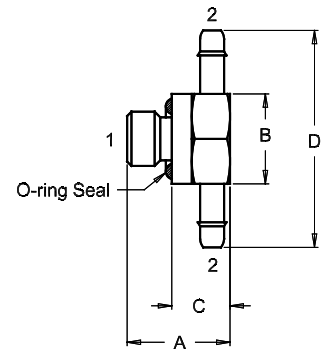


Pneu-Edge fittings feature a consistently sharp, single-barb design which provides a tighter grip and seal than standard multiple barbs

When design makes a dimension critical - contact factory for confirmation.
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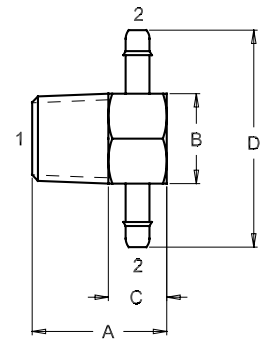
Tee Fixed 10-32

Part Number	A	B Hex	C	D	1	2 Tubing ID
ETB30	0.436	5/16	0.281	0.943	10-32 (M)	1/8
ETB40	0.488	5/16	0.333	0.991	10-32 (M)	.170



Tee Fixed 1/16 NPT

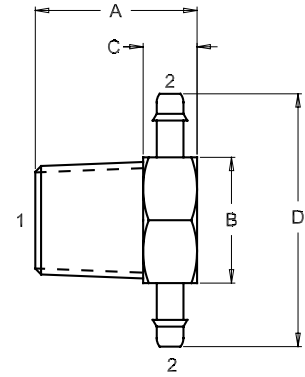
Part Number	A	B Hex	C	D	1	2 Tubing ID
ET10-1/16	0.468	5/16	0.203	0.755	1/16 (M)	1/16



When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

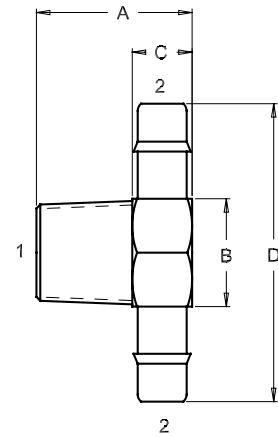
Tee Fixed 1/8 NPT

Part Number	A	B Hex	C	D	1	2 Tubing ID
ET10-1/8	0.625	7/16	0.250	0.880	1/8 (M)	1/16
ET25-1/8	0.625	7/16	0.250	0.886	1/8 (M)	3/32
ET30-1/8	0.625	7/16	0.250	1.068	1/8 (M)	1/8
ET40-1/8	0.687	7/16	0.313	1.116	1/8 (M)	.170
ET50-1/8	0.625	7/16	0.250	1.184	1/8 (M)	3/16
ET60-1/8	0.688	7/16	0.313	1.430	1/8 (M)	1/4



Tee Fixed 1/4 NPT

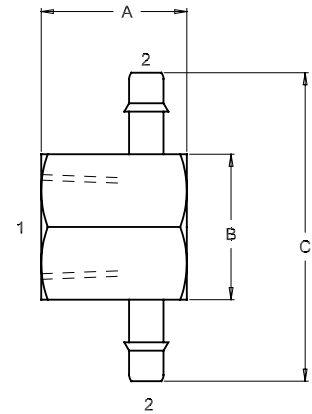
Part Number	A	B Hex	C	D	1	2 Tubing ID
ET60-1/4	0.850	9/16	0.350	1.555	1/4 (M)	1/4
ET80-1/4	1.109	3/4	0.609	1.868	1/4 (M)	3/8



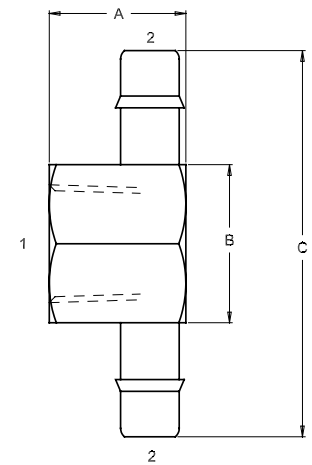
When design makes a dimension critical - contact factory for confirmation.
 All dimensions are in inches, unless otherwise specified and are subject to change without notice.

Tee Fixed 1/8 NPT (Female)

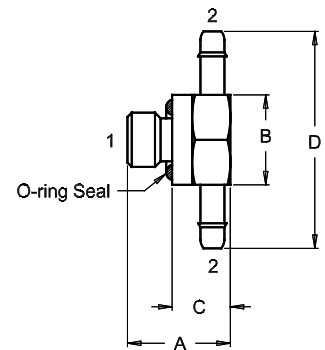
Part Number	A	B Hex	C	1	2 Tubing ID
EFT10-1/8	0.500	9/16	1.005	1/8 (F)	1/16
EFT30-1/8	0.500	9/16	1.193	1/8 (F)	1/8
EFT40-1/8	0.563	9/16	1.241	1/8 (F)	.170

**Tee Fixed 1/4 NPT (Female)**

Part Number	A	B Hex	C	1	2 Tubing ID
EFT30-1/4	0.594	11/16	1.318	1/4 (F)	1/8
EFT40-1/4	0.594	11/16	1.366	1/4 (F)	.170

**Tee Fixed M5**

Part Number	A	B Hex	C	D	1	2 Tubing ID
ET40-M5	0.488	5/16	0.333	0.991	M5 (M)	.170

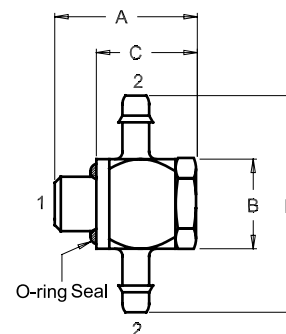


When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

Specifications

Tee Fixed 10-32

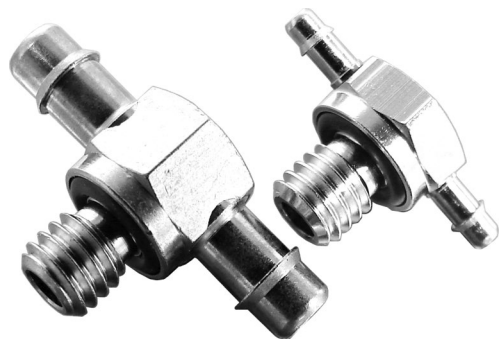
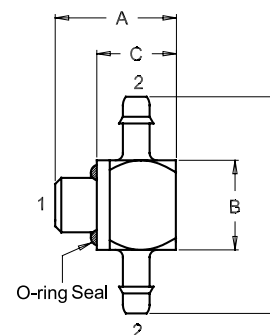
Part Number	A	B Square	C	D	1	2 Tubing ID
EA-T10	0.496	5/16	0.351	0.754	10-32 (M)	1/16
EA-T25	0.496	5/16	0.351	0.760	10-32 (M)	3/32
EA-T30	0.496	5/16	0.351	0.942	10-32 (M)	1/8
EA-T40	0.596	5/16	0.424	0.991	10-32 (M)	.170



Tee Fixed 10-32 (Slotted)

Part Number	A	B Square	C	D	1	2 Tubing ID
EA-T10-SLOT	0.419	5/16	0.275	0.754	10-32 (M)	1/16
EA-T25-SLOT	0.419	5/16	0.275	0.760	10-32 (M)	3/32
EA-T30-SLOT	0.419	5/16	0.275	0.942	10-32 (M)	1/8
EA-T40-SLOT	0.492	5/16	0.348	0.990	10-32 (M)	.170

Features a screwdriver slot for fitting alignment

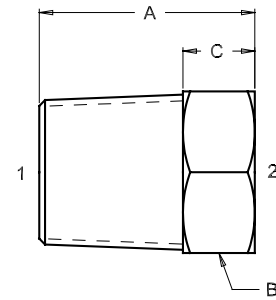


Swiss precision machining ensures consistently sharp barbs for more permanent tubing installation

When design makes a dimension critical - contact factory for confirmation.
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Plugs

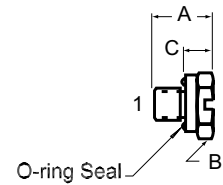
Part Number	A	B Hex	C	1
SPG-1/8	0.531	7/16	0.156	1/8 (M)
SPG-1/4	0.750	9/16	0.250	1/4 (M)
SPG-3/8	0.750	11/16	0.250	3/8 (M)
SPG-1/2	0.875	7/8	0.250	1/2 (M)



Plugs (Slotted)

Part Number	A	B Hex	C	1
SPG-4-28	0.445	3/8	0.195	1/4-28 (M)
SPG-10	0.310	5/16	0.160	10-32 (M)
SPG-10-1/4	0.310	1/4	0.160	10-32 (M)
SPG-M3*	0.191	3/16	0.099	M3 (M)
SPG-M5	0.310	5/16	0.195	M5 (M)
SPG-M6	0.445	3/8	0.195	M6 (M)

*Nylon Gasket

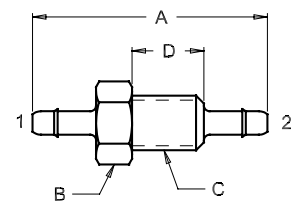


Bulkheads

Part Number	A	B Hex	C	D	1 Tubing ID	2 Tubing ID
EBK-10	0.817	1/4	10-32 (M)	0.250	1/16	1/16
EBK-20	0.817	1/4	10-32 (M)	0.250	5/64	5/64
EBK-25	0.823	1/4	10-32 (M)	0.250	3/32	3/32
EBK-30-4-28	1.068	5/16	1/4-28 (M)	0.313	1/8	1/8
EBK-40-20	0.935	1/4	10-32 (M)	0.250	.170	5/64
EBK-40-25	0.938	1/4	10-32 (M)	0.250	.170	3/32
EBK-40-5/16	1.209	3/8	5/16-24 (M)	0.406	.170	.170
EBK-60-3/8	1.523	1/2	3/8-24 (M)	0.406	1/4	1/4
EBK-60-1/8	1.523	1/2	*1/8 (M)	0.375	1/4	1/4

NOTE: Locking nut included

***NPT pipe thread:** locking nut not included

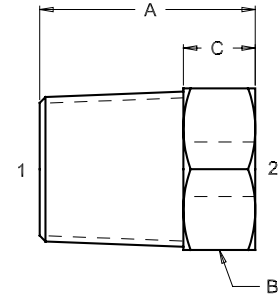


When design makes a dimension critical - contact factory for confirmation.
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Specifications

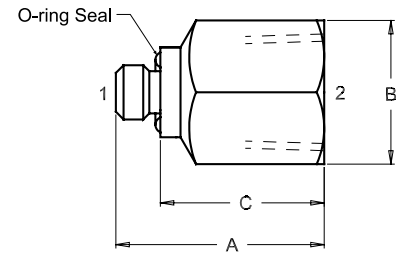
Bushings (Reducer)

Part Number	A	B Hex	C	1	2
26	0.680	9/16	0.180	1/4 (M)	10-32 (F)
25	0.530	7/16	0.160	1/8 (M)	10-32 (F)
27	0.410	3/8	0.140	1/16 (M)	10-32 (F)



Adapters

Part Number	A	B Hex	C	1	2
E10-1/8	0.724	1/2	0.500	10-32 (M)	1/8 (F)
E1/8-1/4	0.969	11/16	0.594	1/8 (M)	1/4 (F)



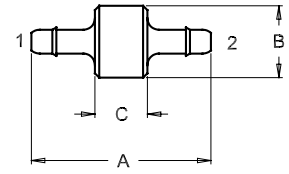
Norgren's Pneu-Edge® fittings ensure a lasting tubing connection and leak-proof fit

When design makes a dimension critical - contact factory for confirmation.
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Barb-to-Barb (Couplings)

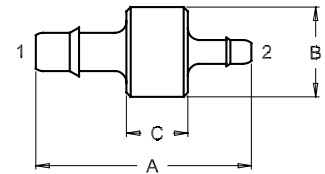
Part Number	A	B Diameter	C	1 Tubing ID	2 Tubing ID
EC10	0.625	1/4	0.183	1/16	1/16
EC20-SL	0.500	5/32	0.058	5/64	5/64
EC25	0.641	5/16	0.193	3/32	3/32
EC35	0.879	5/16	0.214	5/32	5/32
EC40	0.938	5/16	0.245	.170	.170
EC50	1.000	3/8	0.254	3/16	3/16
EC60	1.313	7/16	0.321	1/4	1/4

NOTE: SL= Slim Line



Barb-to-Barb (Couplings)

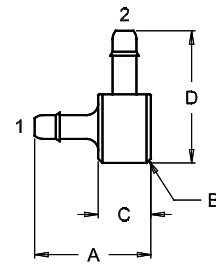
Part Number	A	B Diameter	C	1 Tubing ID	2 Tubing ID
ERC20-10	0.625	1/4	0.183	5/64	1/16
ERC30-10	0.750	5/16	0.214	1/8	1/16
ERC50-30	0.942	3/8	0.254	3/16	1/8
ERC60-20	1.038	7/16	0.348	1/4	5/64
ERC60-30	1.132	7/16	0.348	1/4	1/8
ERC60-40	1.156	7/16	0.348	1/4	.170



When design makes a dimension critical - contact factory for confirmation.
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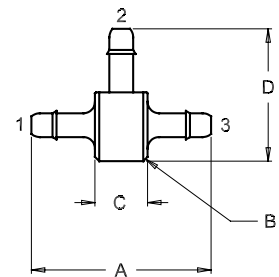
Barb-to-Barb (Elbows)

Part Number	A	B Diameter	C	D	1 Tubing ID	2 Tubing ID
EL10	0.404	1/4	0.183	0.448	1/16	1/16
EL20	0.404	1/4	0.183	0.448	5/64	5/64
EL30	0.529	3/8	0.214	0.675	1/8	1/8
EL40	0.599	7/16	0.260	0.739	.170	.170
EL60	0.817	1/2	0.321	0.954	1/4	1/4
EL80	1.059	11/16	0.500	1.185	3/8	3/8



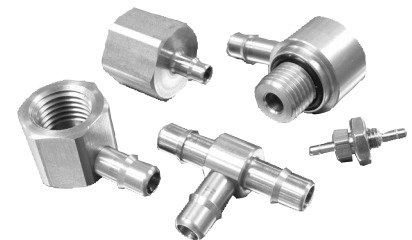
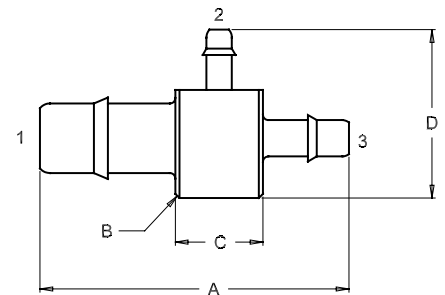
Barb-to-Barb (Tees)

Part Number	A	B Diameter	C	D	1, 2, 3 Tubing ID
ET10	0.625	1/4	0.183	0.448	1/16
ET20	0.625	1/4	0.183	0.448	5/64
ET25	0.631	1/4	0.183	0.451	3/32
ET30	0.844	3/8	0.214	0.665	1/8
ET35	0.938	7/16	0.260	0.739	5/32
ET40	0.938	7/16	0.260	0.739	.170
ET50	1.006	7/16	0.260	0.773	3/16
ET60	1.313	1/2	0.321	0.954	1/4
ET70	1.492	11/16	0.500	1.122	5/16
ET80	1.618	11/16	0.500	1.185	3/8



Barb-to-Barb (Tees-Reducing)

Part Number	A	B Diameter	C	D	1 Tubing ID	2 Tubing ID	3 Tubing ID
ERT30-10-30	0.844	5/16	0.214	0.510	1/8	1/16	1/8
ERT40-10-40	0.892	5/16	0.214	0.510	.170	1/16	.170
ERT40-30-40	0.892	5/16	0.214	0.604	.170	1/8	.170
ERT50-30-50	1.000	3/8	0.254	0.656	3/16	1/8	3/16

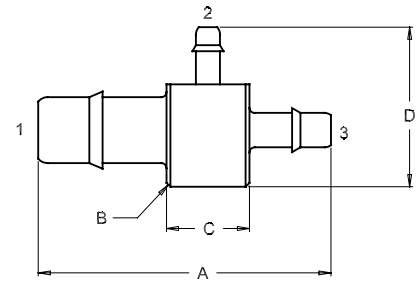


When design makes a dimension critical - contact factory for confirmation.
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Straight connectors, tees, elbows, crosses and couplings are available in a wide variety of sizes and materials to accommodate numerous fluid handling circuits.

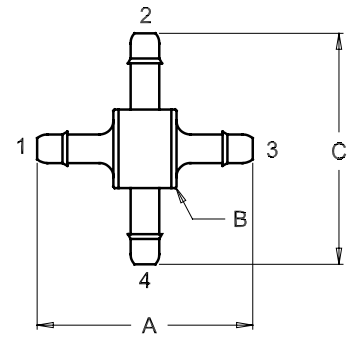
Barb-to-Barb (Tees-Reducing)

Part Number	A	B Diameter	C	D	1 Tubing ID	2 Tubing ID	3 Tubing ID
ERT60-30-60	1.313	7/16	0.321	0.711	1/4	1/8	1/4
ERT60-40-60	1.313	7/16	0.321	0.735	1/4	.170	1/4
ERT60-30-30	1.132	7/16	0.321	0.711	1/4	1/8	1/8
ERT80-60-80	1.618	5/8	0.500	1.031	3/8	1/4	3/8



Barb-to-Barb (Crosses)

Part Number	A	B Diameter	C	1, 2, 3, 4 Tubing ID
EX10	0.625	1/4	0.646	1/16
EX60	1.313	7/16	1.408	1/4



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O-RING FITTINGS

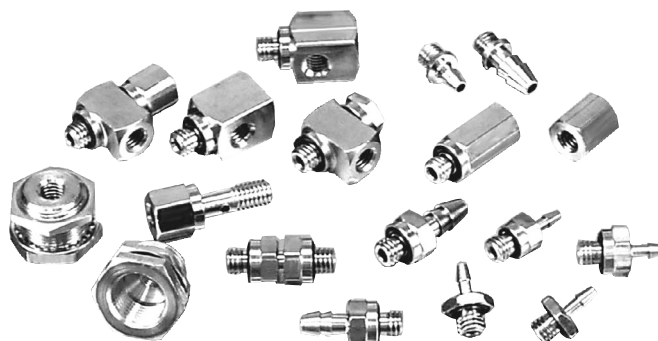
Superior sealing power

- » Reliability of a metal-to-metal mechanical fit
- » Captured O-ring for superior seal
- » Precision machined barb design
- » Electroless Nickel plated

Technical Data

Material:

Brass, Electroless Nickel, Stainless Steel 303, Buna-N O-Rings (standard) optional seals available - contact factory



Features

The Pneumadyne® Series O-ring fitting design was perfected in the early 1980's. This unique fitting created a standard for industry and today numerous competitors have attempted to replicate our design. The Pneumadyne® Series O-ring fitting was designed with the superior static sealing qualities of an O-ring plus the reliability of a metal-to-metal mechanical fit.

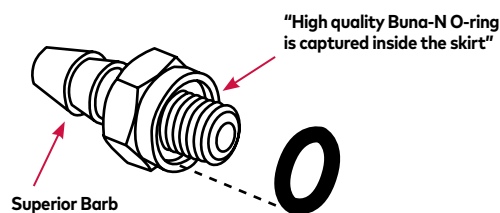
When properly installed the skirt around the O-ring allows the fitting to mechanically seat on the rim of the female thread and hold the fitting tight. The high quality Buna-N O-ring is captured inside the fitting, concealing it from view and providing a clean looking connection. The result is superior sealing power - the Buna-N O-ring is not pinched but rather compressed within the fitting skirt which ensures a leakproof fit even when mated with a less than perfect sealing surface. When torqued down the mechanical fit keeps the fittings tight and retains its position even under constant vibration.

Our captured O-ring design also eases installation, there is no need to replace or reposition the seal - we have eliminated the need for replacement gaskets or washers.

CUSTOM DESIGNS ARE WELCOME

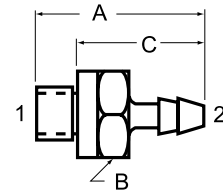
How to Order

- » To order standard product use part number listing.
- » For 303 Stainless Steel add a -SS suffix to the part number - lead times may apply.
- » Optional O-rings available - contact factory.
- » Standard package quantities: 25 pcs per bag, 100 pcs per box



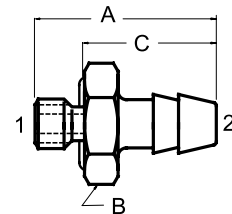
Straight Connector

Part Number	A	B Hex	C	1	2 Tubing ID
SBF-062	.60	5/16	.44	10-32 (M)	1/16
SBF-062-LP	.49	5/16	.33	10-32 (M)	1/16
SBF-062-1/4	.59	1/4	.44	10-32 (M)	1/16
SBF-110	.58	5/16	.42	10-32 (M)	5/64
SBF-110-1/4	.58	1/4	.42	10-32 (M)	5/64
SBF-140	.66	5/16	.50	10-32 (M)	1/8
SBF-140-1/4	.66	1/4	.50	10-32 (M)	1/8
SBF-170	.72	5/16	.56	10-32 (M)	.170
SBF-170-1/4	.72	1/4	.56	10-32 (M)	.170



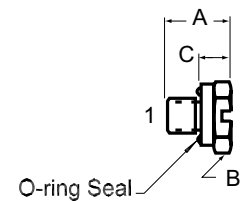
Straight M3

Part Number	A	B Hex	C	1	2 Tubing ID
SBF-062-1/4-M3	.45	1/4	.33	M3	1/16
SBF-110-1/4-M3	.45	1/4	.31	M3	5/64



Plug (Slotted)

Part Number	A	B Hex	C	1
SPG-10	.31	5/16	.16	10-32 (M)
SPG-10-1/4	.31	1/4	.16	10-32 (M)

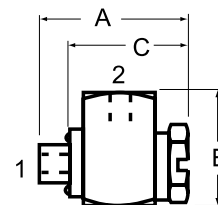


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Specifications

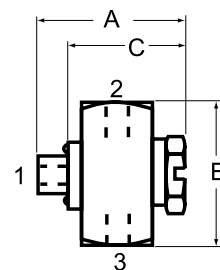
Elbow Adjustable

Part Number	A	B	C	1	2	Hex
STL-10	.67	.50	.54	10-32 (M)	10-32 (F)	5/16
STL-10-SS	.67	.50	.54	10-32 (M)	10-32 (F)	5/16



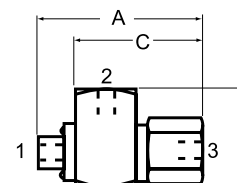
Tee Adjustable

Part Number	A	B	C	1	2,3	Hex
STT-10	.67	.63	.54	10-32 (M)	10-32 (F)	5/16



Tee Adjustable

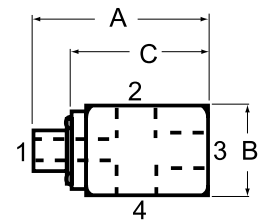
Part Number	A	B	C	1	2,3	Hex
SFL-10	.85	.50	.72	10-32 (M)	10-32 (F)	5/16



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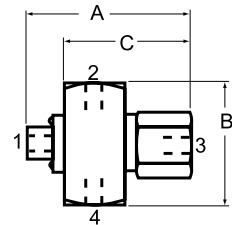
Cross Fixed

Part Number	A	B Square	C	1	2, 3, 4
SBF-32-3	.72	3/8	.57	10-32 (M)	10-32 (F)



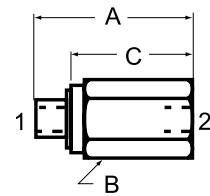
Cross Adjustable

Part Number	A	B	C	1	2, 3, 4	Hex
SFT-10	.85	.63	.72	10-32 (M)	10-32 (F)	5/16



Cross Fixed

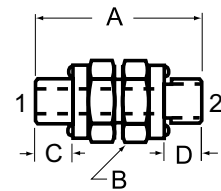
Part Number	A	B Hex	C	1	2
SSP-10	.72	5/16	.56	10-32 (M)	10-32 (F)



Nipple (Universal Adjustable)

Part Number	A	B Hex	C Adjust	D Fixed	1, 2
SFU-22	.72	5/16	.185	.16	10-32 (F)

C = adjustable nut tightened to fixed nut



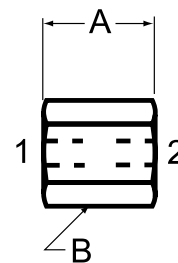
When design makes a dimension critical - contact factory for confirmation.
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Specifications

Coupling

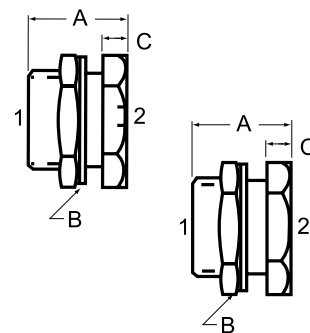
Part Number	A	B Square	1, 2 Thru
*22	.38	1/4	10-32 (F)
SF-22	.38	5/16	10-32 (F)

*Standard product is brass, contact factory for Electroless Nickel finish



Tee Swivel

Part Number	A	B	Bulkhead		
			C	1	2
SBH-10	.45	9/16	.11	15/32-32 x10-32 (F)	10-32 (F)
SBH-125	.45	9/16	.11	15/32-32 x10-32 (F)	1/8 (F)

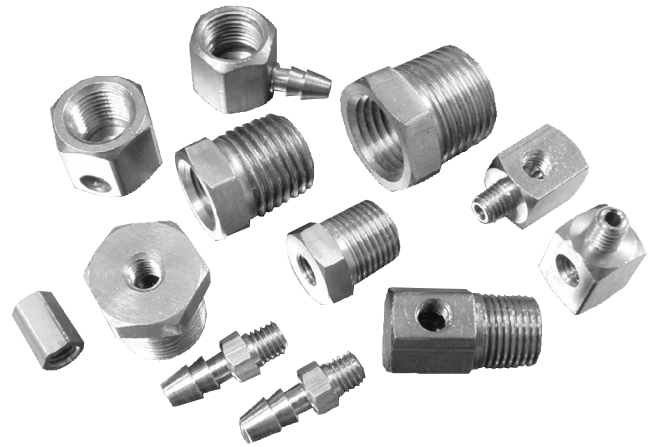


When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

10-32 TAPERED THREAD FITTINGS

Without a soft seal undercut at the base of the fitting

- » Tapered thread
(No gasket required)
- » Larger orifice
- » Thick thread wall
- » Precision machined barbs
- » Brass

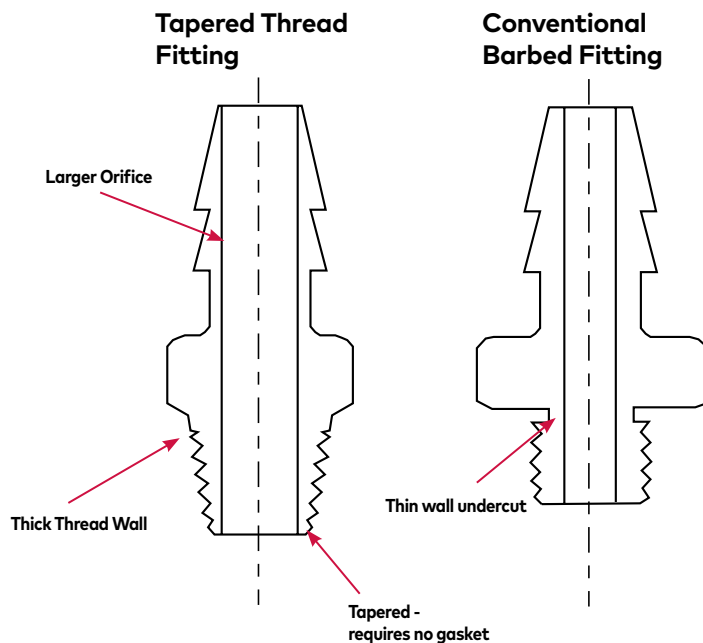


Features

Engineers at Norgren pioneered the 10-32 tapered thread design and have incorporated it in a 10-32 fitting. This unique design eliminates the need for a soft seal undercut at the base of the fitting and produces a seal similar to pipe thread. The absence of the undercut also allows for a larger than normal hole permitting more flow. Tapered threads are sturdier than thin walled 10-32 fittings and can be used in conventional straight female threads as well.

Tape or Thread Sealant recommended.

Product Information



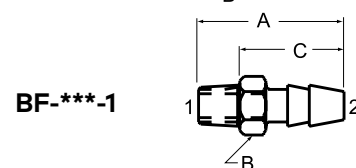
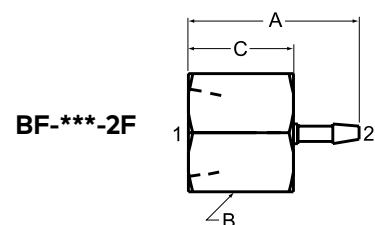
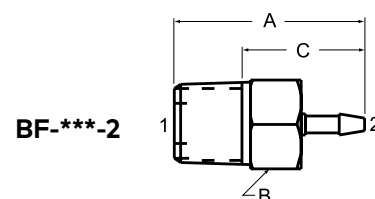
How to Order

- » To order standard brass product use part number listing.
- » All tapered thread fittings are available in brass as standard; For Electroless Nickel add an "N" as a last digit to the standard part number.
- » Standard package quantities:
25 pcs per bag
100 pcs per box

Specifications

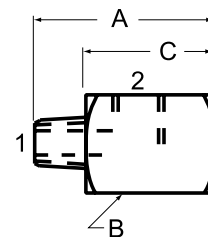
Straight Connector

Part Number	A	B Hex	C	1	2 Tubing ID
BF-062	.57	1/4	.370	10-32 (M)	1/16
BF-062-2	.94	7/16	.565	1/8 (M)	1/16
BF-140	.70	1/4	.500	10-32 (M)	1/8
BF-170-1	.70	1/4	.500	10-32 (M)	.170
BF-170-2	.90	7/16	.530	1/8 (M)	.170



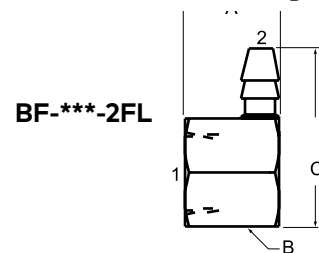
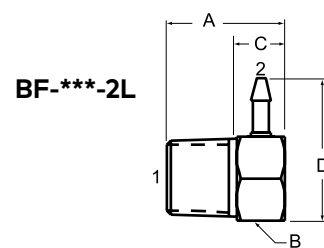
Elbow Fixed

Part Number	A	B Square	C	1	2
32-1	.70	3/8	.50	10-32 (M)	10-32 (F)



Elbow Tapered to Barb

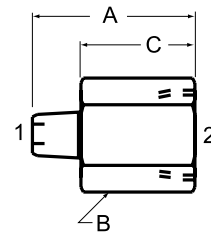
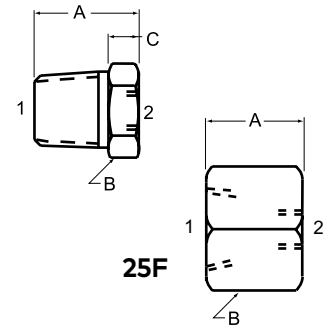
Part Number	A	B Hex	C	D	1	2 Tubing ID
BF-062-2L	.62	7/16	.25	.752	1/8 (M)	1/16
BF-140-2L	.625	7/16	.25	.815	1/8 (M)	1/8
BF-170-2FL	.50	9/16	.50	-	1/8 (F)	.170
BF-170-2L	.62	7/16	.25	.938	1/8 (M)	.170



When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

Reducer Bushing

Part Number	A	B Hex	C	1	2
25	.53	7/16	.16	1/8 (M)	10-32 (F)
25F	.50	7/16	.50	1/8 (F)	10-32 (F)
26	.68	9/16	.18	1/4 (M)	10-32 (F)
27	.41	3/8	.14	1/16 (M)	10-32 (F)

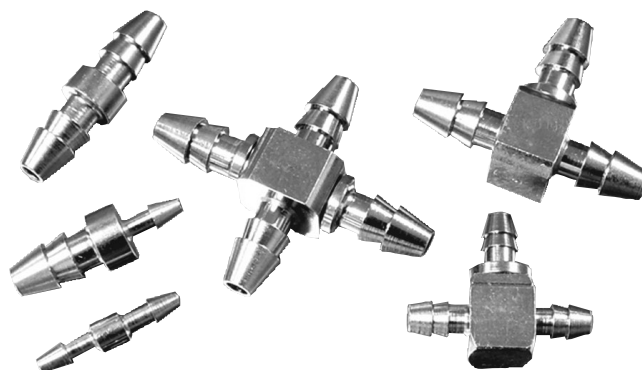


When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

BARB-TO-BARB FITTINGS

Electroless nickel plated barbed fittings

- » Precision machined for 1/8", 5/32", 1/4" tubing
- » Eliminates the need for sleeves
- » Electroless Nickel plated

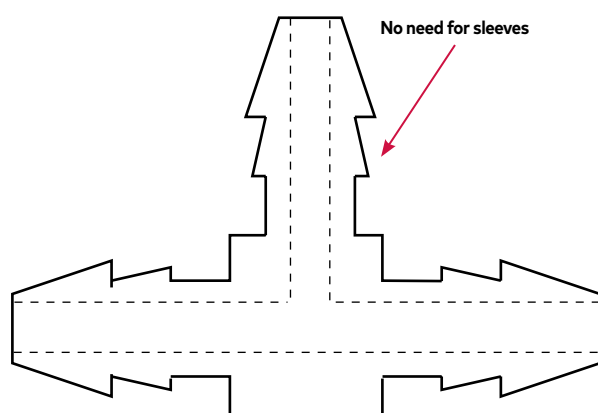


Features

Norgren's Barb-to-Barb fittings are high quality, durable brass bars with the sharpness required to maintain connection even in high pressure and vibration applications. The electroless nickel plated barbed fittings are offered in a variety of sizes and configurations.

We design custom products to meet your application needs.

Product Information



Electroless Nickel plated for corrosion resistance

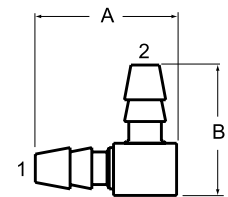
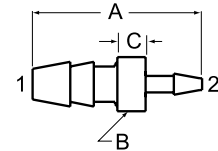
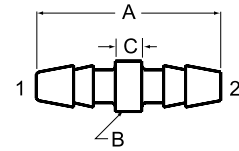
How to Order

- » To order standard product use part number listing.
- » Standard package quantities:
25 pcs per bag
100 pcs per box

Please refer to Fitting Specifications and Flow Rate information on page 137.

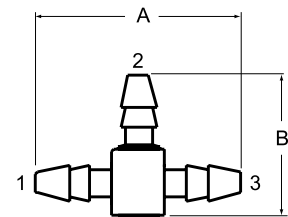
Barb-to-Barb (Couplings)

Part Number	A	B Diam.	C	1 Tubing ID	2 Tubing ID
SBF-1616	.63	.125	.125	1/16	1/16
SBF-1816	.75	.25	.125	.170	1/16
SBF-1818	.88	.25	.125	.170	.170



Barb-to-Barb (Elbow)

Part Number	A	B	1 Tubing ID	2 Tubing ID
SBF-18L	.78	.63	.170	.170



Barb-to-Barb (Tee)

Part Number	A	B Diam.	C	1 Tubing ID	2 Tubing ID
SBF-10T	.72	.78	5/64	5/64	5/64
SBF-14T	.876	.721	1/8	1/8	1/8
SBF-16T	.79	.47	1/16	1/16	1/16
SBF-18T	1.00	.78	.170	.170	.170
SBF-1810T	1.00	.64	.170	5/64	.170
SBF-1816T	1.00	.66	.170	1/16	.170

When design makes a dimension critical - contact factory for confirmation.
All dimensions are in inches, unless otherwise specified and are subject to change without notice.

Specifications

Standard Double Barb

Flow Rate (Typical)

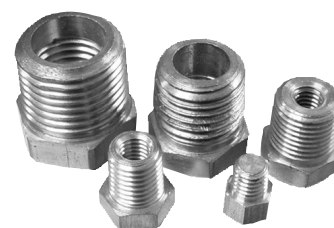
Barb Size	Tube ID (PUR)	C _v	Flow Rate (scfm)	
			50 psi	125 psi
062	1/16	0.06	1.8	4.0
110	5/64 or 2.4mm	0.20	5.2	12.0
140	1/8	0.20	5.2	12.0
170 O-ring	.170	0.28	7.3	16.5
170 Tapered	.170	0.40	10.5	23.5

Flow Rate (Typical)

Barb Size	Tube ID (PUR)	C _v	Flow Rate (scfm)	
			50 psi	125 psi
10	1/16	0.08	2.4	5.5
20	5/64	0.09	2.8	6.8
25	3/32	0.18	5.0	12.0
30	1/8	0.24	6.0	14.5
35	5/32	0.31	7.8	19.0
40	.170	0.48	11.5	27.0
50	3/16	0.60	14.0	33.0
60	1/4	1.07	22.0	52.0
70	5/16	1.62	35.0	82.0
80	3/8	3.40	59.0	140.0



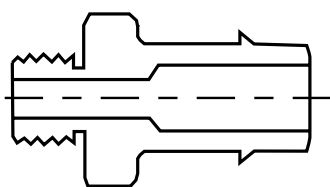
Captured O-ring



Standard Tapered Thread sizes available

Flow Rate (Typical)

Pneu-Edge® fittings ease installation by offering larger barbs on miniature threads. This configuration lowers the rate of flow. Please refer to the listing below for atypical dimensions and data.



Barb ID does not necessarily determine flow rate

Additional Recommendation:

Pneu-Edge fittings ensure permanent polyurethane tubing installation without the need for clamps. However, we recommend the use of clamps in applications over 80 psi which also involve heat or vibration.

All Flow Rates are approximate

Barb Size	Tube ID (PUR)	C _v	Flow Rate (scfm)	
			50 psi	125 psi
EB35	5/32	.28	7.3	16.5
EB40	.170	.28	7.3	16.5
EB50	3/16	.28	7.3	16.5
EB60	1/4	.28	7.3	16.5
EB40-250	.170	.28	7.3	16.5
EB40-4-28	.170	.48	11.5	27.0
EB50-4-28	3/16	.48	11.5	27.0
EB60-4-28	1/4	.48	11.5	27.0
EB10-M3	1/16	.06	1.8	4.0
EB20-M3	5/64	.06	1.8	4.0
EB25-M3	3/32	.06	1.8	4.0
EB30-M3	1/8	.06	1.8	4.0
EB40-M3	.170	.06	1.8	4.0
EB40-M5	.170	.28	7.3	16.5
ELB35	5/32	.28	7.3	16.5
ELB40	.170	.28	7.3	16.5
ELB50-4-28	3/16	.48	11.5	27.0
ELB10-M3	1/16	.06	1.8	4.0
ELB25-M3	3/32	.06	1.8	4.0
ELB30-M3	1/8	.06	1.8	4.0
ELB40-M5	.170	.28	7.3	16.5
ELB50-M6	3/16	.48	11.5	27.0

Barb Size	Tube ID (PUR)	C _v	Flow Rate (scfm)	
			50 psi	125 psi
EA-LB40	.170	.40	10.5	23.5
EA-LB50	3/16	.40	10.5	23.5
EA-LB40-SLOT	.170	.40	10.5	23.5
EA-LB50-SLOT	3/16	.40	10.5	23.5
ETB40	.170	.28	7.3	16.5
ET40-M5	.170	.28	7.3	16.5
EA-T40	.170	.40	10.5	23.5
EA-T40-SLOT	.170	.40	10.5	23.5

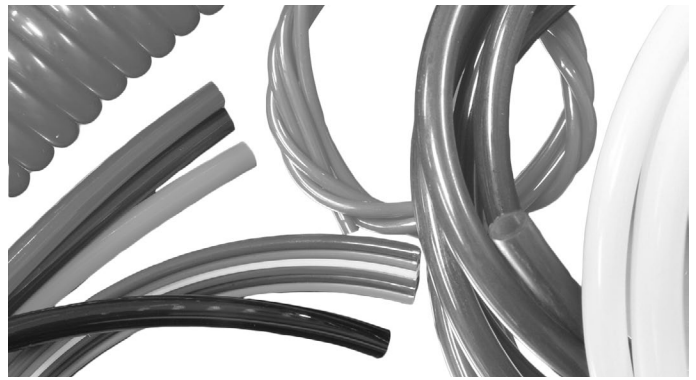
When design makes a dimension critical - contact factory for confirmation.

All dimensions are in inches, unless otherwise specified and are subject to change without notice.

POLYURETHANE SINGLE TUBING

Ether based Polyurethane (PU) Tubing

- » Single and multiple tube
- » Variety of colors
- » Coil tubing available
- » Several sizes to accommodate
Pneumadyne® Series fittings



Features

Norgren offers Ether based Polyurethane (PU) Tubing. Material characteristics include minimal water absorption, high flexibility and opaque color pigments. The extrusion process and exclusive formulation produces a high quality tubing and eliminates surface stickiness.

Technical data

Performance Data

Temperature Range	Vacuum	Media	Diameter Tolernaces
-40° to 160°F (-28° to 71°C)	to 28" Hg	Fluids Compatible w/ Materials	±.005

Product Group	OD/ID	Package	*Duro	Working Pressure psi @ 75°F	**Standard Colors
PU-125-*	1/8 x 1/16	250' box	85A	135	
PU-125*-R	1/8 x 1/16	500' reel	85A	135	0, 2, 3, 4, 5, 6,
PU-125*-LR	1/8 x 1/16	1000' reel	85A	135	7, 8, 9, 11
PU-125*-XR	1/8 x 1/16	2500' reel	85A	135	
PU-125F-*	1/8 x 1/16	250' box	95A	255	0, 2, 3, 4, 5, 6, 7
PU-156-*	5/32 x 5/64	100' box	85A	155	0, 2, 3, 4,
PU-156*-R	5/32 x 5/64	500' reel	85A	155	5, 6, 7
PU-156*-LR	5/32 x 5/64	1000' reel	85A	155	
PU-156F-*	5/32 x 3/32	100' box	95A	210	0, 2, 3, 4, 5, 6, 7
PU-250R-*	1/4 x 1/8	100' bag	70A	60	0, 2, 14, 25, 26
PU-250-*	1/4 x 1/8	100' box	85A	145	0, 2, 3, 4, 5,
PU-250*-R	1/4 x 1/8	500' reel	85A	145	6, 7, 8, 9
PU-250*-LR	1/4 x 1/8	1000' reel	85A	145	
PU-250PB-*	1/4 x .170	100' bag	90A	115	0, 2, 3, 4, 6, 27
PU-250F-*	1/4 x 1/8	100' box	95A	265	0, 2, 3, 4, 5, 6, 7, 27
PU-312-*	5/16 x 3/16	100' bag	85A	110	0, 2, 4
PU-312*-R	5/16 x 3/16	500' reel	85A	110	
PU-375R-*	3/8 x 1/4	100' bag	70A	50	3, 4
PU-375-*	3/8 x 1/4	100' bag	85A	100	0
PU-375*-R	3/8 x 1/4	500' reel	85A	100	
PU-375PB-*	3/8 x .245	100' bag	90A	125	0, 2, 3, 4, 5, 6, 7, 8, 9, 14, 25, 26, 27, 28
PU-375F-*	3/8 x .245	100' bag	95A	170	0, 2, 3, 4, 5, 6, 8, 9, 27, 28
PU-468F-*	15/32 x 5/16	50' bag	95A	155	0, 2, 3, 4, 6, 9, 27
PU-562F-*	9/16 x 3/8	50' bag	95A	155	0, 2, 3, 4, 6, 9, 27, 28
PU-750F-*	3/4 x .467	150' reel	95A	175	0, 3, 4, 6, 27

*Duro= Durometer

Working Pressure: 3 to 1 Safety Factor




** See Product Number Diagram for Color Code information

All dimensions and specifications are subject to change without notice

Product Information

Multi-Bore Tubing Extruded Polyurethane







Multi-bore tubing is two or more tubes that are extruded as a single piece. The tubes are joined with a tough connecting web. This tubing is ideal for applications that encounter severe or constant flexing which might separate the bond on MCR tubing assemblies. A small rib runs the length of one of the tubes for easy identification. All Multi-Bore tubing is mono-colored and is recommended for use with barbed fittings. Push-to-connect fittings are not recommended, the slightly flat surface resulting from stripping may affect the fittings sealing abilities.

Product Group	OD/ID	Package	Durometer	Working Pressure psi @ 75°F	**Standard Colors
PU2-125-*-C	 1/8 X 1/16	100' box	90A	190	0,2
PU2-250-*-C	1/4 X 1/8	100' box	85A	150	
PU3-125-*-C	 1/8 X 1/16	100' box	85A	125	0,2
PU3-250-*-L	1/4 X 1/8	50' box	85A	150	
PU4-125-*-C	 1/8 X 1/16	100' box	85A	125	0
PU4-250-*-L	1/4 X 1/8	50' box	85A	150	0,2

*See Product Number Diagram for Color Code information
Working Pressure: 3 to 1 Safety Factor

Multi-Color Ribbon (MCR) 85A Durometer Bonded Polyurethane

Multiple Color Ribbon (MCR) color codes your tubing lines. Great for identification, tracing or trouble shooting, this tubing will withstand the rigors of flexing and rough handling. A unique heat bonding process allows you to easily hand separate the tubing for routing.


Product Group	OD/ID	Package	Working Pressure psi @ 75°F	**Standard Colors
PUMC4-125-M		100' box		26, 28, 29, 25
PUMC4-125-2	1/8 X 1/16	100' box	135	2, 2, 2, 2
PUMC4-125-8		100' box		8, 8, 8, 8
PUMC4-125-0		100' box		0, 0, 0, 0
PUMC6-125-M		100' box		5, 4, 3, 6, 7, 11
PUMC6-125-2	1/8 X 1/16	100' box	135	2, 2, 2, 2, 2, 2
PUMC6-125-0		100' box		0, 0, 0, 0, 0, 0
PUMC8-125-M		100' box		9, 8, 32, 27, 26, 28, 29, 25
PUMC8-125-2	1/8 X 1/16	100' box	135	2, 2, 2, 2
PUMC8-125-0		100' box		0, 0, 0, 0
PUMC4-250-M		100' box		26, 28, 29, 25
PUMC4-250-2	1/4 X 1/8	100' box	145	2, 2, 2, 2
PUMC4-250-0		100' box		0, 0, 0, 0
PUMC6-250-M		100' box		5, 4, 3, 6, 7, 11
PUMC6-250-2	1/4 X 1/8	100' box	145	2, 2, 2, 2, 2, 2
PUMC6-250-0		100' box		0, 0, 0, 0, 0, 0
PUMC8-250-M	1/4 X 1/8	100' box	145	9, 8, 32, 27, 26, 28, 29, 25

*See Product Number Diagram for Color Code information
Working Pressure: 3 to 1 Safety Factor

Product Information

Polyurethane Coils

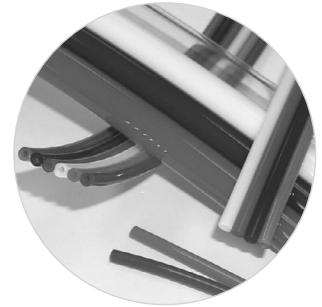
Polyurethane has outstanding memory and flexibility which make it the ideal material for processing into self-storing coiled tubing. These coils are extraordinarily tough and resistant to abrasion, overstretching and kink damage. Pneumadyne® Series coils are available in every size and configuration of polyurethane in single, multi-tube and even jacketed bundles (contact factory for styles not listed).

Product Group	OD/ID/ Material Length	Package	Durometer	Working Pressure psi @ 75°F	Standard Colors*
PUC-125-*	1/8 X 1/16 x 10'	1	85A	115	0, 2, 4, 27
PUC-250-*	1/4 X 1/8 X 10'	1	85A	125	0, 2, 4, 5, 6, 8
PUC2-125-*	 1/8 X 1/16 x 7'	1	90A	160	2
PUC2-250-*	1/4 X 1/8 X 10'	1	85A	130	0, 2

*See Product Number Diagram for Color Code information
Working Pressure: 3 to 1 Safety Factor



Polyurethane coils are extraordinarily tough and resistant to abrasion, overstretching and kink damage



Multiple Color Ribbon (MCR) is great for identification, tracing or trouble shooting

Product Numbering Diagram

Polyurethane Coils

PU6-250-8-L

Tubing Material	Substitute
Single Polyurethane	PU
Multi-Bore Polyurethane	PU#
Multi-Color Polyurethane	PUMC
Polyurethane Recoil	PUC
Configuration	Substitute
two channels	2
four channels	4
six channels	6
eight channels	8
3/4 NPT (F)	35
Tube Size (85A)	Substitute
1/8 x 1/16	125
5/32 x 5/64	156
1/4 x 1/8	250
5/16 x 3/16	312
3/8 x 1/4	375
15/32 x 5/16	468
9/16 x 3/8	562
3/4 x .467	750

Package Size	Substitute
100 Ft	C
50 Ft	L
500 Ft	R
1000 Ft	LR
2500 Ft	XR

Opaque	Substitute
Multi-Color	M
Natural	0
Black	2
Red	3
Blue	4
Green	5
Yellow	6
Orange	7
Gray	8
White	9
Purple	11
Light Gray	14
Transparent	Substitute
Red	25
Green	26
Blue	27
Yellow	28
Orange	29
Purple	32

85A durometer tubing is not indicated in the part number - however the following letters are used immediately after the tube size to indicate alternative tubing durometers. Tube ID will vary - refer to part number listing for tubing dimensions.

F= 95A PB= 90A R= 70A

Please use Product Diagram to interpret part numbers - (do not attempt to build part numbers) see product information for part number listing.

[Manifolds]

Manifolds the perfect addition to your valving solutions. They allow you to consolidate a messy array of valves, tubing, and other accessories into a neat block, making installation and maintenance easy.

Manifolds can be constructed from a variety of materials, including aluminum, brass, and nylon, to accommodate whatever your application requires.



PAGE	PRODUCT
131	Multiple Connection Manifolds
133	Inline Manifolds
140	Inline Manifolds (Alternative Materials)
141	Inline Manifolds (1.5" Spacing)
143	90° Inline Manifolds (1.5" Spacing)
145	90° Manifolds
146	90° Manifolds (1.5" Spacing)

MULTIPLE CONNECTION MANIFOLDS

- » 2 to 10 stations
- » Inline Manifolds, 90° Manifolds and Junction Blocks
- » Custom designs
- » 1.5" center-to-center spacing available
- » Variety of port sizes

Technical Data

Material:

Brass, Aluminum/ Black Anodize, 303 Stainless Steel, Polypropylene, Nylon



Features

Norgren has been an innovator in the design and manufacture of pneumatic and hydraulic manifolds since 1976.

Manifolds provide a convenient junction point for the distribution of fluids or gases. Simply thread fittings into the ports to produce an organized method of supplying multiple lines from a single source.

Our aluminum manifolds go through a controlled oxidation process called anodizing which produces a non-conductive coating that provides corrosion and wear resistance. A black dye is added to the anodize solution to create our signature appearance however there are over thirty colors of anodic coatings available.

Port Options

Definition	Options
Input	1/8 NPT (F) 1/4 NPT (F) 3/8 NPT (F) 3/4 NPT (F) 1/2 NPT (F)
Output	10-32 (F) 1/8 NPT (F) 1/4 NPT (F) 3/8 NPT (F)

Technical data

Performance Data

Operating Pressure	Material	Operating Pressure at 72°F	Temperature Range	Corrosion Resistance	Chemical Resistance	Durability	For Use With
1000 psi non-shock-air, 3000 psi non-shock-hydraulic	Aluminum 6061	1000 psi Non-Shock Air, 3000 PS Non-Shock Hydraulic	-10° to 200°F	Good	Fair	Good	Air, Water, Hydraulic Gas, Hydraulic Oils, Gasoline
	Brass	2000 psi	-65° to 250°F	Good	Good	Excellent	Air, Water, Hydraulic Oils
	Stainless Steel 303	3500 psi	-100° to 500°F	Excellent	Good	Excellent	Air, Water, Hydraulic Oils
	Polypropylene	150 psi	32° to 230°F	Fair	Poor	Fair	Air, Water
	Nylon	200 psi	-60° to 200°F	Good	Fair	Fair	Air, Water

Product Information

Please use Product Information Listings to verify part number - not all configurations are possible.

- » To order standard product use part number listing.
- » 1/8" and 5/32" push-to-connect fittings are available for use with standard 10-32 manifolds.
- » To order New Material Manifolds replace the "*" in the part number listing with the desired material abbreviation.
 - SS = 303 Stainless Steel
 - BRS = Brass
 - NYN = Nylon
 - PPN = Polypropylene

Example:

Manifold with 3/8 Input and 1/8 Output Ports at 90° with 1.5" spacing



Numerous styles and configurations available - customs welcome

Product Numbering Diagram

M20-125-5-90W

Product Line	Substitute
Junction Block	JB
Manifold	M
Manifold with porting on two sides	MS
Manifold with porting on three sides	MT
Input	Substitute
10-32 (F)	32
1/4 NPT (F)	10
3/8 NPT (F)	20
1/2 NPT (F)	30
3/4 NPT (F)	35
Output	Substitute
1/8 NPT (F)	125
1/4 NPT (F)	250
3/8 NPT (F)	375

Suffix	Substitute
Output ports at 90°/1" standard spacing	90
Output ports at 90°/1.5" spacing	90W
Material: Brass	BRS
Material: 303 Stainless Steel	SS
Material: Polypropylene Natural	PPN
Material: Nylon Natural	NYN
Number of Stations	Substitute
(Digit indicates number of stations)	
Select 1-10 /1" standard spacing	#
Select 1-10 /1.5" output spacing eg: 5W	#W

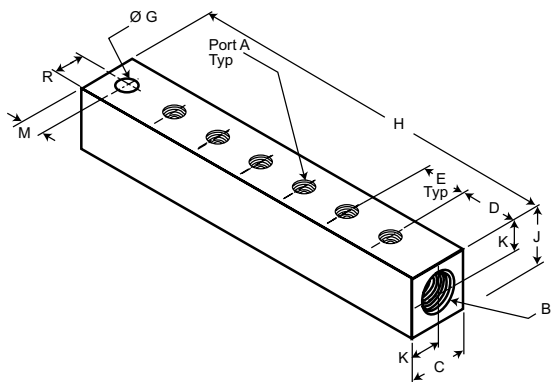
INLINE MANIFOLDS

- » 10-32 output ports
- » 3 Porting configurations
- » Convenient junction point
- » Multiple branches
- » One input

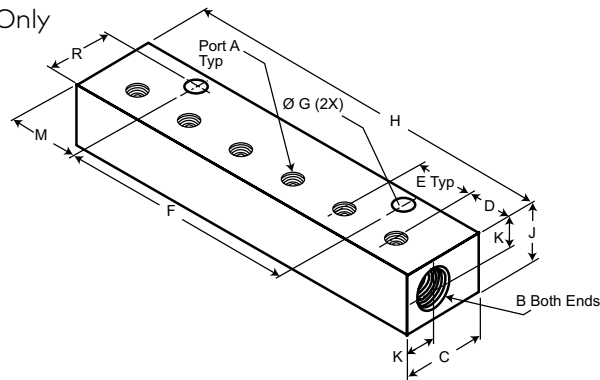


Product Information

M32-6



6-24-M2 Brass Only

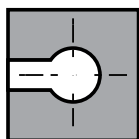


1/8 NPT (F) Input x 10-32 (F) Output													
Part Number	No. of Stations	A	NPT B	C	D	E	F	G	H	J	K	M	R
Porting on One Side													
M32-4	4	10-32	1/8	.625	.75	.50	-	.22	3.00	.62	.31	.25	.31
M32-6	6	10-32	1/8	.625	.75	.50	-	.22	4.00	.62	.31	.25	.31
M32-8	8	10-32	1/8	.625	.75	.50	-	.22	5.00	.62	.31	.25	.31
M32-10	10	10-32	1/8	.625	.75	.50	-	.22	6.00	.62	.31	.25	.31
Porting on Two Sides													
MS32-4	8	10-32	1/8	.625	.75	.50	-	.22	3.00	.62	.31	.25	.31
MS32-6	12	10-32	1/8	.625	.75	.50	-	.22	4.00	.62	.31	.25	.31
MS32-8	16	10-32	1/8	.625	.75	.50	-	.22	5.00	.62	.31	.25	.31
MS32-10	20	10-32	1/8	.625	.75	.50	-	.22	6.00	.62	.31	.25	.31
Porting on Three Sides													
MT32-4	12	10-32	1/8	.625	.75	.50	-	.22	3.00	.62	.31	.25	.31
MT32-6	18	10-32	1/8	.625	.75	.50	-	.22	4.00	.62	.31	.25	.31
MT32-8	24	10-32	1/8	.625	.75	.50	-	.22	5.00	.62	.31	.25	.31
MT32-10	30	10-32	1/8	.625	.75	.50	-	.22	6.00	.62	.31	.25	.31

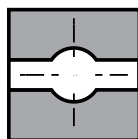
Port Options	
Input	1/8 NPT (F)
Output	10-32 UNF(F)

Port Configuration Cross Section

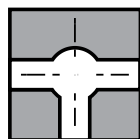
M32-*



MS32-*



MT32-*

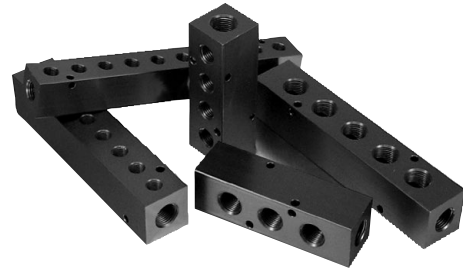


All measurements are given in inches unless otherwise.

*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

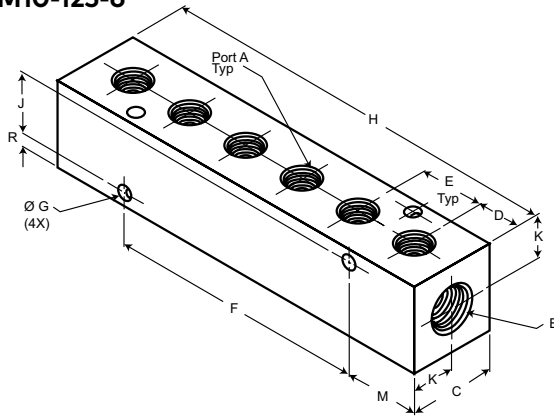
Specifications - Inline Manifolds

- » Convenient junction point
- » Multiple branches
- » Two input ports
- » Aluminum with black anodizing for corrosion resistance and appearance
- » Mounting versatility



Product Information

M10-125-6



1/4 NPT (F) Input x 1/8 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M10-125-2	2	1/8	1/4	1.00	.50	.75	N/A	.17	1.75	.70	.50	.88	.15
M10-125-3	3	1/8	1/4	1.00	.50	.75	.75	.17	2.50	.70	.50	.88	.15
M10-125-4	4	1/8	1/4	1.00	.50	.75	1.50	.17	3.25	.70	.50	.88	.15
M10-125-5	5	1/8	1/4	1.00	.50	.75	2.25	.17	4.00	.70	.50	.88	.15
M10-125-6	6	1/8	1/4	1.00	.50	.75	3.00	.17	4.75	.70	.50	.88	.15
M10-125-7	7	1/8	1/4	1.00	.50	.75	3.75	.17	5.50	.70	.50	.88	.15
M10-125-8	8	1/8	1/4	1.00	.50	.75	4.50	.17	6.25	.70	.50	.88	.15
M10-125-9	9	1/8	1/4	1.00	.50	.75	5.25	.17	7.00	.70	.50	.88	.15
M10-125-10	10	1/8	1/4	1.00	.50	.75	6.00	.17	7.75	.70	.50	.88	.15

Port Options

Input	1/4 NPT (F), 3/8 NPT (F)
Output	1/8 NPT (F)

3/8 NPT (F) Input x 1/8 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-125-2	2	1/8	3/8	1.25	.50	.75	3.00	.20	1.75	.89	.63	.88	.18
M20-125-3	3	1/8	3/8	1.25	.50	.75	3.00	.20	2.50	.89	.63	.88	.18
M20-125-4	4	1/8	3/8	1.25	.50	.75	1.50	.20	3.25	.89	.63	.88	.18
M20-125-5	5	1/8	3/8	1.25	.50	.75	3.00	.20	4.00	.89	.63	.88	.18
M20-125-6	6	1/8	3/8	1.25	.50	.75	3.00	.20	4.75	.89	.63	.88	.18
M20-125-7	7	1/8	3/8	1.25	.50	.75	3.00	.20	5.50	.89	.63	.88	.18
M20-125-8	8	1/8	3/8	1.25	.50	.75	4.50	.20	6.25	.89	.63	.88	.18
M20-125-9	9	1/8	3/8	1.25	.50	.75	3.00	.20	7.00	.89	.63	.88	.18
M20-125-10	10	1/8	3/8	1.25	.50	.75	6.00	.20	7.75	.89	.63	.88	.18

Push-to-Connect fittings (sold separately) simplify tube installation

All measurements are given in inches unless otherwise.

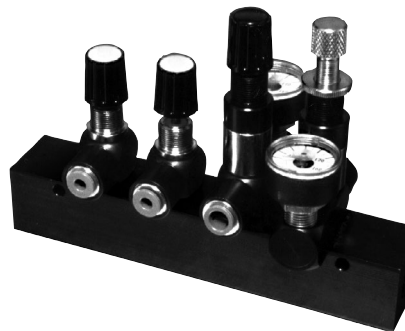
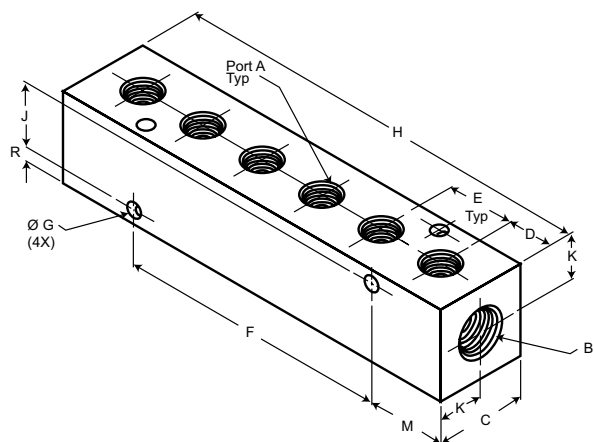
*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

Specifications - Inline Manifolds

Norgren offers a wide selection of pneumatic components ideal for use on our multiple connection manifolds.



Product Information



3/8 NPT (F) Input x 1/4 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-250-2	2	1/4	3/8	1.25	.63	.88	N/A	.20	2.13	.89	.63	1.06	.18
M20-250-3	3	1/4	3/8	1.25	.63	.88	.88	.20	3.00	.89	.63	1.06	.18
M20-250-4	4	1/4	3/8	1.25	.63	.88	1.75	.20	3.88	.89	.63	1.06	.18
M20-250-5	5	1/4	3/8	1.25	.63	.88	2.63	.20	4.75	.89	.63	1.06	.18
M20-250-6	6	1/4	3/8	1.25	.63	.88	3.50	.20	5.63	.89	.63	1.06	.18
M20-250-7	7	1/4	3/8	1.25	.63	.88	4.38	.20	6.50	.89	.63	1.06	.18
M20-250-8	8	1/4	3/8	1.25	.63	.88	5.25	.20	7.38	.89	.63	1.06	.18
M20-250-9	9	1/4	3/8	1.25	.63	.88	6.13	.20	8.25	.89	.63	1.06	.18
M20-250-10	10	1/4	3/8	1.25	.63	.88	7.00	.20	9.13	.89	.63	1.06	.18

Port Options	
Input	3/8 NPT (F)
Output	1/4 NPT (F), 3/8 NPT (F)

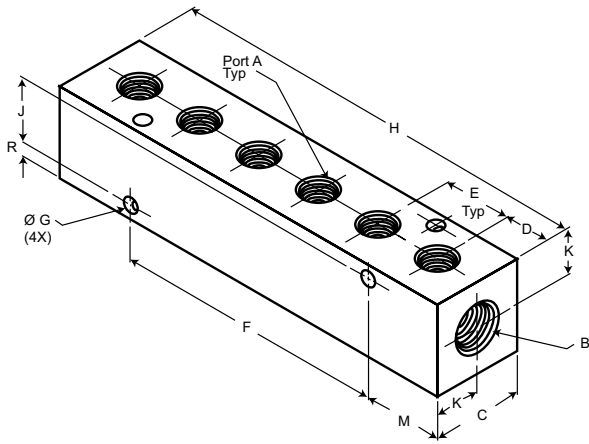
3/8 NPT (F) Input x 3/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-375-2	2	3/8	3/8	1.25	1.00	1.13	N/A	.20	3.13	.89	.63	1.56	.18
M20-375-3	3	3/8	3/8	1.25	1.00	1.13	1.13	.20	4.25	.89	.63	1.56	.18
M20-375-4	4	3/8	3/8	1.25	1.00	1.13	2.25	.20	5.38	.89	.63	1.56	.18
M20-375-5	5	3/8	3/8	1.25	1.00	1.13	3.38	.20	6.50	.89	.63	1.56	.18
M20-375-6	6	3/8	3/8	1.25	1.00	1.13	4.50	.20	7.63	.89	.63	1.56	.18
M20-375-7	7	3/8	3/8	1.25	1.00	1.13	5.63	.20	8.75	.89	.63	1.56	.18
M20-375-8	8	3/8	3/8	1.25	1.00	1.13	6.75	.20	9.88	.89	.63	1.56	.18
M20-375-9	9	3/8	3/8	1.25	1.00	1.13	7.88	.20	11.00	.89	.63	1.56	.18
M20-375-10	10	3/8	3/8	1.25	1.00	1.13	9.00	.20	12.13	.89	.63	1.56	.18

**Measurements in inches

All measurements are given in inches unless otherwise.

*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

Specifications - Inline Manifolds



1/2 NPT (F) Input x 1/4 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M30-250-2	2	1/4	1/2	1.50	.88	1.00	N/A	.20	2.75	1.12	.75	1.38	.19
M30-250-3	3	1/4	1/2	1.50	.88	1.00	1.00	.20	3.75	1.12	.75	1.38	.19
M30-250-4	4	1/4	1/2	1.50	.88	1.00	2.00	.20	4.75	1.12	.75	1.38	.19
M30-250-5	5	1/4	1/2	1.50	.88	1.00	3.00	.20	5.75	1.12	.75	1.38	.19
M30-250-6	6	1/4	1/2	1.50	.88	1.00	4.00	.20	6.75	1.12	.75	1.38	.19
M30-250-7	7	1/4	1/2	1.50	.88	1.00	5.00	.20	7.75	1.12	.75	1.38	.19
M30-250-8	8	1/4	1/2	1.50	.88	1.00	6.00	.20	8.75	1.12	.75	1.38	.19
M30-250-9	9	1/4	1/2	1.50	.88	1.00	7.00	.20	9.75	1.12	.75	1.38	.19
M30-250-10	10	1/4	1/2	1.50	.88	1.00	8.00	.20	10.75	1.12	.75	1.38	.19

Port Options	
Input	1/2 NPT (F)
Output	1/4 NPT (F), 3/8 NPT (F)

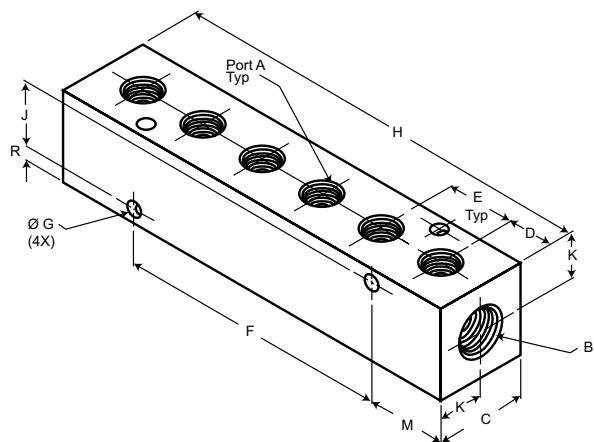
1/2 NPT (F) Input x 3/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M30-375-2	2	3/8	1/2	1.50	.88	1.00	N/A	.20	2.75	1.12	.75	1.38	.19
M30-375-3	3	3/8	1/2	1.50	.88	1.00	1.00	.20	3.75	1.12	.75	1.38	.19
M30-375-4	4	3/8	1/2	1.50	.88	1.00	2.00	.20	4.75	1.12	.75	1.38	.19
M30-375-5	5	3/8	1/2	1.50	.88	1.00	3.00	.20	5.75	1.12	.75	1.38	.19
M30-375-6	6	3/8	1/2	1.50	.88	1.00	4.00	.20	6.75	1.12	.75	1.38	.19
M30-375-7	7	3/8	1/2	1.50	.88	1.00	5.00	.20	7.75	1.12	.75	1.38	.19
M30-375-8	8	3/8	1/2	1.50	.88	1.00	6.00	.20	8.75	1.12	.75	1.38	.19
M30-375-9	9	3/8	1/2	1.50	.88	1.00	7.00	.20	9.75	1.12	.75	1.38	.19
M30-375-10	10	3/8	1/2	1.50	.88	1.00	8.00	.20	10.75	1.12	.75	1.38	.19

**Measurements in inches

All measurements are given in inches unless otherwise.

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Specifications - Inline Manifolds (New Materials)



3/4 NPT (F) Input x 1/4 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M35-250-2	2	1/4	3/4	1.50	1.75	0.88	1.88	.20	4.38	1.14	.75	1.25	.18
M35-250-3	3	1/4	3/4	1.50	1.75	0.88	2.75	.20	5.25	1.14	.75	1.25	.18
M35-250-4	4	1/4	3/4	1.50	1.75	0.88	3.63	.20	6.13	1.14	.75	1.25	.18
M35-250-5	5	1/4	3/4	1.50	1.75	0.88	4.50	.20	7.00	1.14	.75	1.25	.18
M35-250-6	6	1/4	3/4	1.50	1.75	0.88	5.38	.20	7.88	1.14	.75	1.25	.18
M35-250-7	7	1/4	3/4	1.50	1.75	0.88	6.25	.20	8.75	1.14	.75	1.25	.18
M35-250-8	8	1/4	3/4	1.50	1.75	0.88	7.13	.20	9.63	1.14	.75	1.25	.18
M35-250-9	9	1/4	3/4	1.50	1.75	0.88	8.00	.20	10.50	1.14	.75	1.25	.18
M35-250-10	10	1/4	3/4	1.50	1.75	0.88	8.88	.20	11.38	1.14	.75	1.25	.18

Port Options

Input	3/4 NPT (F)
Output	1/4 NPT (F), 3/8 NPT (F)

3/4 NPT (F) Input x 3/8 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M35-375-2	2	3/8	3/4	1.50	1.75	1.13	2.13	.20	4.63	1.14	.75	1.25	.18
M35-375-3	3	3/8	3/4	1.50	1.75	1.13	3.25	.20	5.75	1.14	.75	1.25	.18
M35-375-4	4	3/8	3/4	1.50	1.75	1.13	4.38	.20	6.88	1.14	.75	1.25	.18
M35-375-5	5	3/8	3/4	1.50	1.75	1.13	5.50	.20	8.00	1.14	.75	1.25	.18
M35-375-6	6	3/8	3/4	1.50	1.75	1.13	6.63	.20	9.13	1.14	.75	1.25	.18
M35-375-7	7	3/8	3/4	1.50	1.75	1.13	7.75	.20	10.25	1.14	.75	1.25	.18
M35-375-8	8	3/8	3/4	1.50	1.75	1.13	8.88	.20	11.38	1.14	.75	1.25	.18
M35-375-9	9	3/8	3/4	1.50	1.75	1.13	10.00	.20	12.50	1.14	.75	1.25	.18
M35-375-10	10	3/8	3/4	1.50	1.75	0.88	11.13	.20	13.63	1.14	.75	1.25	.18

**Measurements in inches

Specifications - Inline Manifolds

Norgren's inline and 90° aluminum manifolds are now available with 1" NPT input ports and output ports ranging from 1/4 NPT to 3/4 NPT. These 2 to 8-station manifolds provide a convenient junction point for distributing fluids or gases in an application. Simply thread fittings into the ports to product an organized method of supplying multiple lines from a single source.

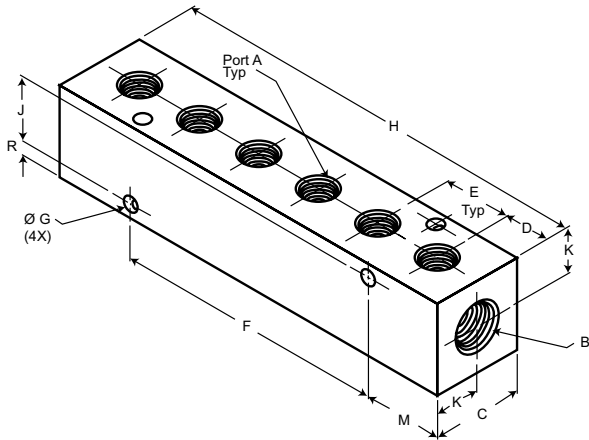
- » Input port: 1" NPT
- » Output ports: 1/4, 3/8, 1/2, and 3/4 NPT
- » Inline and 90° porting configurations
- » 2 to 8 stations
- » Aluminum



Material	Operating Pressure at 72°F	Temperature Range	Corrosion Resistance	Chemical Resistance	Durability	For Use With
Aluminum 6061	1000 PSI Non-Shock Air, 3000 PS Non-Shock Hydraulic	-10° to 200°F	Good	Fair	Good	Air, Water, Natural Gas, Hydraulic Oils, Gasoline

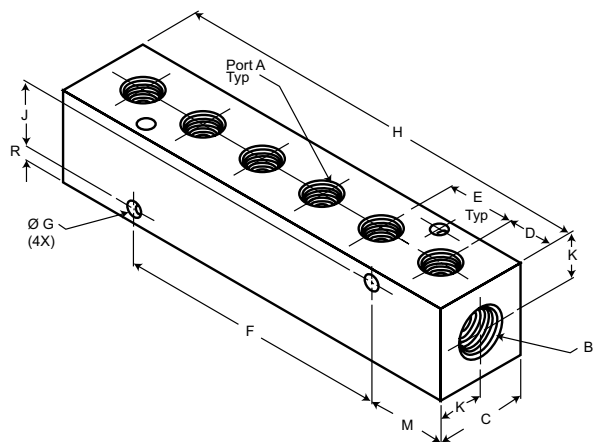
Port Options	
Input	1" NPT
Output	1/4" NPT 3/8" NPT 1/2" NPT 3/4" NPT

Product Information



1" NPT (F) Input x 1/4 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M40-250-2	2	1/4	1	2.25	1.50	2.25	N/A	0.26	5.35	1.63	1.13	2.63	0.31
M40-250-3	3	1/4	1	2.25	1.50	2.25	2.25	0.26	7.50	1.63	1.13	2.63	0.31
M40-250-4	4	1/4	1	2.25	1.50	2.25	4.50	0.26	9.75	1.63	1.13	2.63	0.31
M40-250-5	5	1/4	1	2.25	1.50	2.25	6.75	0.26	12.00	1.63	1.13	2.63	0.31
M40-250-6	6	1/4	1	2.25	1.50	2.25	9.00	0.26	14.25	1.63	1.13	2.63	0.31
M40-250-7	7	1/4	1	2.25	1.50	2.25	11.25	0.26	16.50	1.63	1.13	2.63	0.31
M40-250-8	8	1/4	1	2.25	1.50	2.25	13.50	0.26	18.75	1.63	1.13	2.63	0.31

Specifications - Inline Manifolds



1/4 NPT (F) Input x 1/8 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M40-375-2	2	3/8	1	2.25	1.50	2.25	N/A	0.26	5.25	1.63	1.13	2.63	0.31
M40-375-3	3	3/8	1	2.25	1.50	2.25	2.25	0.26	7.50	1.63	1.13	2.63	0.31
M40-375-4	4	3/8	1	2.25	1.50	2.25	4.50	0.26	9.75	1.63	1.13	2.63	0.31
M40-375-5	5	3/8	1	2.25	1.50	2.25	6.75	0.26	12.00	1.63	1.13	2.63	0.31
M40-375-6	6	3/8	1	2.25	1.50	2.25	9.00	0.26	14.25	1.63	1.13	2.63	0.31
M40-375-7	7	3/8	1	2.25	1.50	2.25	11.25	0.26	16.50	1.63	1.13	2.63	0.31
M40-375-8	8	3/8	1	2.25	1.50	2.25	13.50	0.26	18.75	1.63	1.13	2.63	0.31

3/8 NPT (F) Input x 1/4 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M40-500-2	2	1/2	1	2.25	1.50	2.25	N/A	0.26	5.25	1.63	1.13	2.63	0.31
M40-500-3	3	1/2	1	2.25	1.50	2.25	2.25	0.26	7.50	1.63	1.13	2.63	0.31
M40-500-4	4	1/2	1	2.25	1.50	2.25	4.50	0.26	9.75	1.63	1.13	2.63	0.31
M40-500-5	5	1/2	1	2.25	1.50	2.25	6.75	0.26	12.00	1.63	1.13	2.63	0.31
M40-500-6	6	1/2	1	2.25	1.50	2.25	9.00	0.26	14.25	1.63	1.13	2.63	0.31
M40-500-7	7	1/2	1	2.25	1.50	2.25	11.25	0.26	16.50	1.63	1.13	2.63	0.31
M40-500-8	8	1/2	1	2.25	1.50	2.25	13.50	0.26	18.75	1.63	1.13	2.63	0.31

3/8 NPT (F) Input x 1/4 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M40-750-2	2	3/4	1	2.25	1.50	3.00	N/A	0.26	6.00	1.63	1.13	3.00	0.31
M40-750-3	3	3/4	1	2.25	1.50	3.00	3.00	0.26	9.00	1.63	1.13	3.00	0.31
M40-750-4	4	3/4	1	2.25	1.50	3.00	6.00	0.26	12.00	1.63	1.13	3.00	0.31
M40-750-5	5	3/4	1	2.25	1.50	3.00	9.00	0.26	15.00	1.63	1.13	3.00	0.31
M40-750-6	6	3/4	1	2.25	1.50	3.00	12.00	0.26	18.00	1.63	1.13	3.00	0.31
M40-750-7	7	3/4	1	2.25	1.50	3.00	15.00	0.26	21.00	1.63	1.13	3.00	0.31
M40-750-8	8	3/4	1	2.25	1.50	3.00	18.00	0.26	24.00	1.63	1.13	3.00	0.31

INLINE MANIFOLDS (ALTERNATIVE MATERIALS)

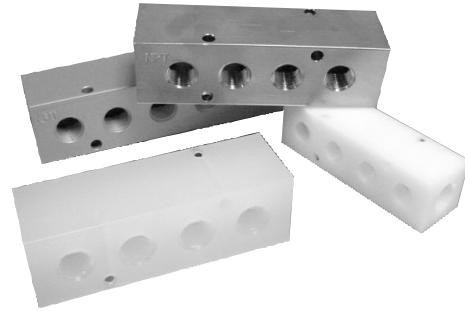
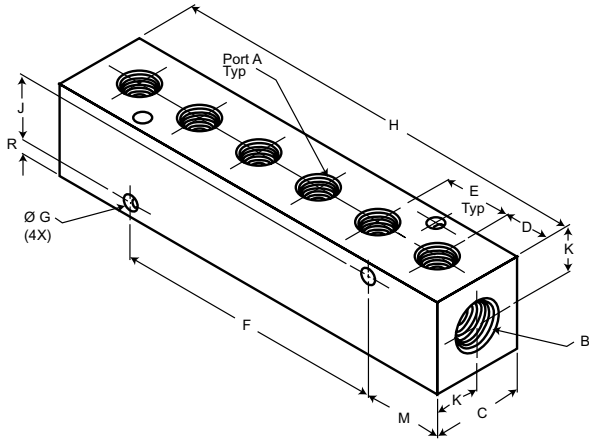
Norgren's Inline Manifolds are available in 303 Stainless Steel, Brass, Polypropylene and Nylon. The brass and stainless steel manifolds are extremely durable and offered for use with air, water and hydraulic oils. Stainless steel is also ideal for highly corrosive environments. Choose polypropylene or nylon when using air, water or other compatible media in lower pressure applications.

Stainless steel manifolds are ideal for use in highly corrosive environments.

Two to 10 station manifolds are available with 1/4 or 3/8 NPT (F) input ports and 1/8 or 1/4 NPT (F) output ports. Simply thread fittings into the ports to produce an organized method of supplying multiple lines from a single source.

- » 2 to 10 stations
- » Two input ports
- » Convenient junction point
- » Variety of port sizes

Product Information



1/4 NPT (F) Input x 1/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	R	
		A	B										
M10-125-2-*	2	1/8	1/4	1.00	.50	.75	N/A	.17	1.75	.70	.50	.88	.15
M10-125-3-*	3	1/8	1/4	1.00	.50	.75	.75	.17	2.50	.70	.50	.88	.15
M10-125-4-*	4	1/8	1/4	1.00	.50	.75	1.50	.17	3.25	.70	.50	.88	.15
M10-125-5-*	5	1/8	1/4	1.00	.50	.75	2.25	.17	4.00	.70	.50	.88	.15
M10-125-6-*	6	1/8	1/4	1.00	.50	.75	3.00	.17	4.75	.70	.50	.88	.15
M10-125-7-*	7	1/8	1/4	1.00	.50	.75	3.75	.17	5.50	.70	.50	.88	.15
M10-125-8-*	8	1/8	1/4	1.00	.50	.75	4.50	.17	6.25	.70	.50	.88	.15
M10-125-9-*	9	1/8	1/4	1.00	.50	.75	5.25	.17	7.00	.70	.50	.88	.15
M10-125-10-*	10	1/8	1/4	1.00	.50	.75	6.00	.17	7.75	.70	.50	.88	.15

3/8 NPT (F) Input x 1/4 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	R	
		A	B										
M20-250-2-*	2	1/4	3/8	1.25	.63	.88	N/A	.20	2.13	.89	.63	1.06	.18
M20-250-3-*	3	1/4	3/8	1.25	.63	.88	.88	.20	3.00	.89	.63	1.06	.18
M20-250-4-*	4	1/4	3/8	1.25	.63	.88	1.75	.20	3.88	.89	.63	1.06	.18
M20-250-5-*	5	1/4	3/8	1.25	.63	.88	2.63	.20	4.75	.89	.63	1.06	.18
M20-250-6-*	6	1/4	3/8	1.25	.63	.88	3.50	.20	5.63	.89	.63	1.06	.18
M20-250-7-*	7	1/4	3/8	1.25	.63	.88	4.38	.20	6.50	.89	.63	1.06	.18
M20-250-8-*	8	1/4	3/8	1.25	.63	.88	5.25	.20	7.38	.89	.63	1.06	.18
M20-250-9-*	9	1/4	3/8	1.25	.63	.88	6.13	.20	8.25	.89	.63	1.06	.18
M20-250-10-*	10	1/4	3/8	1.25	.63	.88	7.00	.20	9.13	.89	.63	1.06	.18

**Measurements in inches

Port Options	
Input	1/4 NPT (F) 3/8 NPT (F)
Output	1/8 NPT (F) 1/4 NPT (F)

- » To order New Material Manifolds replace the "*" in the Product Information listing with the desired material abbreviation.
 SS = 303 Stainless Steel
 BRS = Brass
 NYN = Nylon
 PPN = Polypropylene

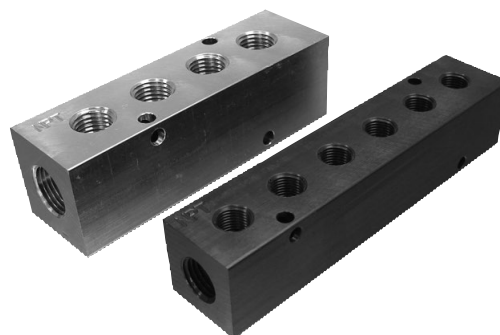
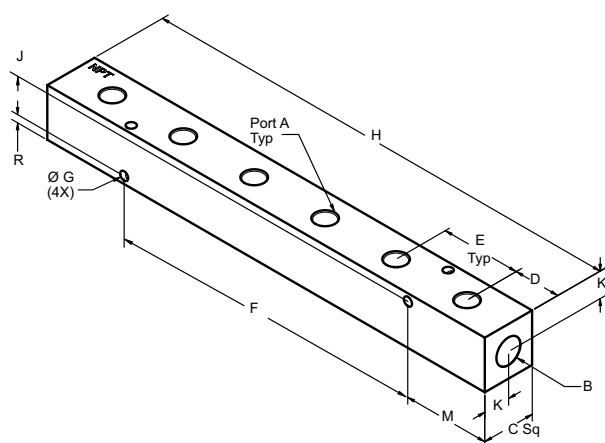
All measurements are given in inches unless otherwise. *When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

INLINE MANIFOLDS (1.5" SPACING)

Received in 2004, ISO 9001:2008 certification demonstrates Norgren's commitment to quality.

- » Input port: 1" NPT
- » Output ports: 1/4, 3/8, 1/2, and 3/4 NPT
- » Inline and 90° porting configurations
- » 2 to 8 stations
- » Aluminum

Product Information



1/4 NPT (F) Input x 1/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M10-125-2W	2	1/8	1/4	1.00	.88	1.50	N/A	.17	3.25	.70	.50	1.63	.15
M10-125-3W	3	1/8	1/4	1.00	.88	1.50	1.50	.17	4.75	.70	.50	1.63	.15
M10-125-4W	4	1/8	1/4	1.00	.88	1.50	3.00	.17	6.25	.70	.50	1.63	.15
M10-125-5W	5	1/8	1/4	1.00	.88	1.50	4.50	.17	7.75	.70	.50	1.63	.15
M10-125-6W	6	1/8	1/4	1.00	.88	1.50	6.00	.17	9.25	.70	.50	1.63	.15
M10-125-7W	7	1/8	1/4	1.00	.88	1.50	7.50	.17	10.75	.70	.50	1.63	.15
M10-125-8W	8	1/8	1/4	1.00	.88	1.50	9.00	.17	12.25	.70	.50	1.63	.15
M10-125-9W	9	1/8	1/4	1.00	.88	1.50	10.50	.17	13.75	.70	.50	1.63	.15
M10-125-10W	10	1/8	1/4	1.00	.88	1.50	12.00	.17	15.25	.70	.50	1.63	.15

Port Options	
Input	1/4 NPT (F) 3/8 NPT (F) 1/2 NPT (F)
Output	1/8 NPT (F) 1/4 NPT (F) 3/8 NPT (F)

3/8 NPT (F) Input x 1/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-125-2W	2	1/8	3/8	1.25	.88	1.50	N/A	.20	3.25	.89	.63	1.63	.18
M20-125-3W	3	1/8	3/8	1.25	.88	1.50	1.50	.20	4.75	.89	.63	1.63	.18
M20-125-4W	4	1/8	3/8	1.25	.88	1.50	3.00	.20	6.25	.89	.63	1.63	.18
M20-125-5W	5	1/8	3/8	1.25	.88	1.50	4.50	.20	7.75	.89	.63	1.63	.18
M20-125-6W	6	1/8	3/8	1.25	.88	1.50	6.00	.20	9.25	.89	.63	1.63	.18
M20-125-7W	7	1/8	3/8	1.25	.88	1.50	7.50	.20	10.75	.89	.63	1.63	.18
M20-125-8W	8	1/8	3/8	1.25	.88	1.50	9.00	.20	12.25	.89	.63	1.63	.18
M20-125-9W	9	1/8	3/8	1.25	.88	1.50	10.50	.20	13.75	.89	.63	1.63	.18
M20-125-10W	10	1/8	3/8	1.25	.88	1.50	12.00	.20	15.25	.89	.63	1.63	.18

**Measurements in inches

All measurements are given in inches unless otherwise.

*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

Specifications - Inline Manifolds (1.5" Spacing)

1/4 NPT (F) Input x 1/8 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M10-125-2W	2	1/8	1/4	1.00	.88	1.50	N/A	.17	3.25	.70	.50	1.63	.15
M10-125-3W	3	1/8	1/4	1.00	.88	1.50	1.50	.17	4.75	.70	.50	1.63	.15
M10-125-4W	4	1/8	1/4	1.00	.88	1.50	3.00	.17	6.25	.70	.50	1.63	.15
M10-125-5W	5	1/8	1/4	1.00	.88	1.50	4.50	.17	7.75	.70	.50	1.63	.15
M10-125-6W	6	1/8	1/4	1.00	.88	1.50	6.00	.17	9.25	.70	.50	1.63	.15
M10-125-7W	7	1/8	1/4	1.00	.88	1.50	7.50	.17	10.75	.70	.50	1.63	.15
M10-125-8W	8	1/8	1/4	1.00	.88	1.50	9.00	.17	12.25	.70	.50	1.63	.15
M10-125-9W	9	1/8	1/4	1.00	.88	1.50	10.50	.17	13.75	.70	.50	1.63	.15
M10-125-10W	10	1/8	1/4	1.00	.88	1.50	12.00	.17	15.25	.70	.50	1.63	.15

3/8 NPT (F) Input x 1/8 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-125-2W	2	1/8	3/8	1.25	.88	1.50	N/A	.20	3.25	.89	.63	1.63	.18
M20-125-3W	3	1/8	3/8	1.25	.88	1.50	1.50	.20	4.75	.89	.63	1.63	.18
M20-125-4W	4	1/8	3/8	1.25	.88	1.50	3.00	.20	6.25	.89	.63	1.63	.18
M20-125-5W	5	1/8	3/8	1.25	.88	1.50	4.50	.20	7.75	.89	.63	1.63	.18
M20-125-6W	6	1/8	3/8	1.25	.88	1.50	6.00	.20	9.25	.89	.63	1.63	.18
M20-125-7W	7	1/8	3/8	1.25	.88	1.50	7.50	.20	10.75	.89	.63	1.63	.18
M20-125-8W	8	1/8	3/8	1.25	.88	1.50	9.00	.20	12.25	.89	.63	1.63	.18
M20-125-9W	9	1/8	3/8	1.25	.88	1.50	10.50	.20	13.75	.89	.63	1.63	.18
M20-125-10W	10	1/8	3/8	1.25	.88	1.50	12.00	.20	15.25	.89	.63	1.63	.18

3/8 NPT (F) Input x 1/4 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-250-2W	2	1/4	3/8	1.25	.88	1.50	N/A	.20	3.25	.89	.63	1.63	.18
M20-250-3W	3	1/4	3/8	1.25	.88	1.50	1.50	.20	4.75	.89	.63	1.63	.18
M20-250-4W	4	1/4	3/8	1.25	.88	1.50	3.00	.20	6.25	.89	.63	1.63	.18
M20-250-5W	5	1/4	3/8	1.25	.88	1.50	4.50	.20	7.75	.89	.63	1.63	.18
M20-250-6W	6	1/4	3/8	1.25	.88	1.50	6.00	.20	9.25	.89	.63	1.63	.18
M20-250-7W	7	1/4	3/8	1.25	.88	1.50	7.50	.20	10.75	.89	.63	1.63	.18
M20-250-8W	8	1/4	3/8	1.25	.88	1.50	9.00	.20	12.25	.89	.63	1.63	.18
M20-250-9W	9	1/4	3/8	1.25	.88	1.50	10.50	.20	13.75	.89	.63	1.63	.18
M20-250-10W	10	1/4	3/8	1.25	.88	1.50	12.00	.20	15.25	.89	.63	1.63	.18

**Measurements in inches



1/2 NPT (F) input porting available to allow for greater flow

All measurements are given in inches unless otherwise.

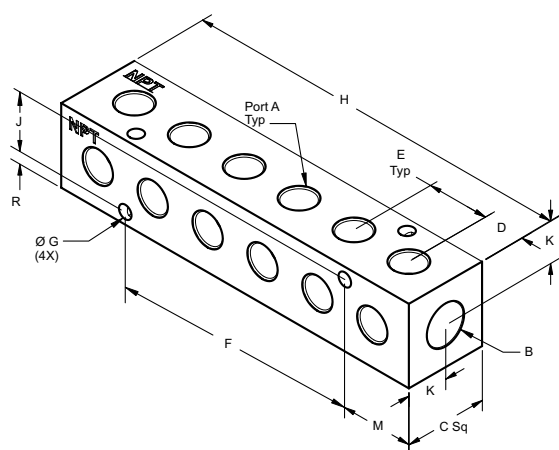
*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

90° INLINE MANIFOLDS (1.5" SPACING)

Received in 2004, ISO 9001:2008 certification demonstrates Norgren's commitment to quality.

- » Output ports at 90° for plumbing convenience
- » 2 to 10 Stations
- » Two input ports
- » Aluminum with black anodize for corrosion and wear resistance
- » Several patents have been issued for our robust and unique designs

Product Information



1/4 NPT (F) Input x 1/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M10-125-2-90	2	1/8	1/4	1.00	.50	.75	N/A	.17	1.75	.70	.50	0.88	.15
M10-125-3-90	3	1/8	1/4	1.00	.50	.75	.75	.17	2.50	.70	.50	0.88	.15
M10-125-4-90	4	1/8	1/4	1.00	.50	.75	1.50	.17	3.25	.70	.50	0.88	.15
M10-125-5-90	5	1/8	1/4	1.00	.50	.75	2.25	.17	4.00	.70	.50	0.88	.15
M10-125-6-90	6	1/8	1/4	1.00	.50	.75	3.00	.17	4.75	.70	.50	0.88	.15
M10-125-7-90	7	1/8	1/4	1.00	.50	.75	3.75	.17	5.50	.70	.50	0.88	.15
M10-125-8-90	8	1/8	1/4	1.00	.50	.75	4.50	.17	6.25	.70	.50	0.88	.15
M10-125-9-90	9	1/8	1/4	1.00	.50	.75	5.25	.17	7.00	.70	.50	0.88	.15
M10-125-10-90	10	1/8	1/4	1.00	.50	.75	6.00	.17	7.75	.70	.50	0.88	.15

Port Options	
Input	1/4 NPT (F) 3/8 NPT (F) 1/2 NPT (F)
Output	1/8 NPT (F) 1/4 NPT (F) 3/8 NPT (F)

3/8 NPT (F) Input x 1/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-125-2-90	2	1/8	3/8	1.25	.50	.75	N/A	.20	1.75	.89	.63	0.88	.18
M20-125-3-90	3	1/8	3/8	1.25	.50	.75	.75	.20	2.50	.89	.63	0.88	.18
M20-125-4-90	4	1/8	3/8	1.25	.50	.75	1.50	.20	3.25	.89	.63	0.88	.18
M20-125-5-90	5	1/8	3/8	1.25	.50	.75	2.25	.20	4.00	.89	.63	0.88	.18
M20-125-6-90	6	1/8	3/8	1.25	.50	.75	3.00	.20	4.75	.89	.63	0.88	.18
M20-125-7-90	7	1/8	3/8	1.25	.50	.75	3.75	.20	5.50	.89	.63	0.88	.18
M20-125-8-90	8	1/8	3/8	1.25	.50	.75	4.50	.20	6.25	.89	.63	0.88	.18
M20-125-9-90	9	1/8	3/8	1.25	.50	.75	5.25	.20	7.00	.89	.63	0.88	.18
M20-125-10-90	10	1/8	3/8	1.25	.50	.75	6.00	.20	7.75	.89	.63	0.88	.18

**Measurements in inches

All measurements are given in inches unless otherwise.

*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

Specifications - Inline Manifolds (90° Manifolds)

3/8 NPT (F) Input x 1/4 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-250-2-90	2	1/4	3/8	1.25	.63	.88	N/A	.20	2.13	.89	.63	1.06	.18
M20-250-3-90	3	1/4	3/8	1.25	.63	.88	.87	.20	3.00	.89	.63	1.06	.18
M20-250-4-90	4	1/4	3/8	1.25	.63	.88	1.75	.20	3.88	.89	.63	1.06	.18
M20-250-5-90	5	1/4	3/8	1.25	.63	.88	2.62	.20	4.75	.89	.63	1.06	.18
M20-250-6-90	6	1/4	3/8	1.25	.63	.88	3.50	.20	5.63	.89	.63	1.06	.18
M20-250-7-90	7	1/4	3/8	1.25	.63	.88	4.37	.20	6.50	.89	.63	1.06	.18
M20-250-8-90	8	1/4	3/8	1.25	.63	.88	5.25	.20	7.38	.89	.63	1.06	.18
M20-250-9-90	9	1/4	3/8	1.25	.63	.88	6.12	.20	8.25	.89	.63	1.06	.18
M20-250-10-90	10	1/4	3/8	1.25	.63	.88	7.00	.20	9.13	.89	.63	1.06	.18

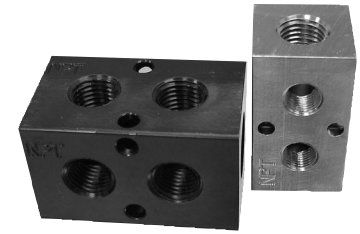
1/2 NPT (F) Input x 1/4 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M30-250-2-90	2	1/4	1/2	1.50	.88	1.00	N/A	.20	2.75	1.12	.75	1.38	.19
M30-250-3-90	3	1/4	1/2	1.50	.88	1.00	1.00	.20	3.75	1.12	.75	1.38	.19
M30-250-4-90	4	1/4	1/2	1.50	.88	1.00	2.00	.20	4.75	1.12	.75	1.38	.19
M30-250-5-90	5	1/4	1/2	1.50	.88	1.00	3.00	.20	5.75	1.12	.75	1.38	.19
M30-250-6-90	6	1/4	1/2	1.50	.88	1.00	4.00	.20	6.75	1.12	.75	1.38	.19
M30-250-7-90	7	1/4	1/2	1.50	.88	1.00	5.00	.20	7.75	1.12	.75	1.38	.19
M30-250-8-90	8	1/4	1/2	1.50	.88	1.00	6.00	.20	8.75	1.12	.75	1.38	.19
M30-250-9-90	9	1/4	1/2	1.50	.88	1.00	7.00	.20	9.75	1.12	.75	1.38	.19
M30-250-10-90	10	1/4	1/2	1.50	.88	1.00	8.00	.20	10.75	1.12	.75	1.38	.19

1/2 NPT (F) Input x 3/8 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M30-375-2-90	2	3/8	1/2	1.50	.88	1.00	N/A	.20	2.75	1.12	.75	1.38	.19
M30-375-3-90	3	3/8	1/2	1.50	.88	1.00	1.00	.20	3.75	1.12	.75	1.38	.19
M30-375-4-90	4	3/8	1/2	1.50	.88	1.00	2.00	.20	4.75	1.12	.75	1.38	.19
M30-375-5-90	5	3/8	1/2	1.50	.88	1.00	3.00	.20	5.75	1.12	.75	1.38	.19
M30-375-6-90	6	3/8	1/2	1.50	.88	1.00	4.00	.20	6.75	1.12	.75	1.38	.19
M30-375-7-90	7	3/8	1/2	1.50	.88	1.00	5.00	.20	7.75	1.12	.75	1.38	.19
M30-375-8-90	8	3/8	1/2	1.50	.88	1.00	6.00	.20	8.75	1.12	.75	1.38	.19
M30-375-9-90	9	3/8	1/2	1.50	.88	1.00	7.00	.20	9.75	1.12	.75	1.38	.19
M30-375-10-90	10	3/8	1/2	1.50	.88	1.00	8.00	.20	10.75	1.12	.75	1.38	.19

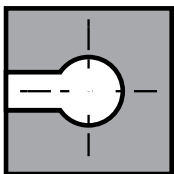
**Measurements in inches



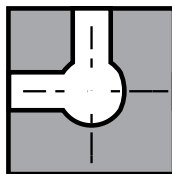
Contact factory for more information on custom plating or finishes

Port Configuration Cross Section

Inline Manifold



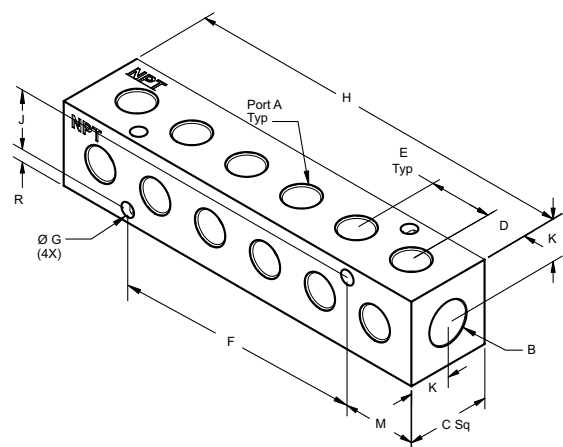
90° Manifold



All measurements are given in inches unless otherwise.

*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice, specified.

90° MANIFOLDS



1" NPT (F) Input x 1/4" NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M40-250-2-90	2	1/4	1	2.25	1.50	2.25	N/A	0.26	5.25	1.63	1.13	2.63	0.31
M40-250-3-90	3	1/4	1	2.25	1.50	2.25	2.25	0.26	7.50	1.63	1.13	2.63	0.31
M40-250-4-90	4	1/4	1	2.25	1.50	2.25	4.50	0.26	9.75	1.63	1.13	2.63	0.31
M40-250-5-90	5	1/4	1	2.25	1.50	2.25	6.75	0.26	12.00	1.63	1.13	2.63	0.31
M40-250-6-90	6	1/4	1	2.25	1.50	2.25	9.00	0.26	14.25	1.63	1.13	2.63	0.31
M40-250-7-90	7	1/4	1	2.25	1.50	2.25	11.25	0.26	16.50	1.63	1.13	2.63	0.31
M40-250-8-90	8	1/4	1	2.25	1.50	2.25	13.50	0.26	18.75	1.63	1.13	2.63	0.31

Port Options

Input	1" NPT
Output	1/4" NPT 3/8" NPT 1/2" NPT 3/4" NPT

1" NPT (F) Input x 3/8" NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M40-375-2-90	2	3/8	1	2.25	1.50	2.25	N/A	0.26	5.25	1.63	1.13	2.63	0.31
M40-375-3-90	3	3/8	1	2.25	1.50	2.25	2.25	0.26	7.50	1.63	1.13	2.63	0.31
M40-375-4-90	4	3/8	1	2.25	1.50	2.25	4.50	0.26	9.75	1.63	1.13	2.63	0.31
M40-375-5-90	5	3/8	1	2.25	1.50	2.25	6.75	0.26	12.00	1.63	1.13	2.63	0.31
M40-375-6-90	6	3/8	1	2.25	1.50	2.25	9.00	0.26	14.25	1.63	1.13	2.63	0.31
M40-375-7-90	7	3/8	1	2.25	1.50	2.25	11.25	0.26	16.50	1.63	1.13	2.63	0.31
M40-375-8-90	8	3/8	1	2.25	1.50	2.25	13.50	0.26	18.75	1.63	1.13	2.63	0.31

1" NPT (F) Input x 1/2" NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M40-500-2-90	2	1/2	1	2.25	1.50	2.25	N/A	0.26	5.25	1.63	1.13	2.63	0.31
M40-500-3-90	3	1/2	1	2.25	1.50	2.25	2.25	0.26	7.50	1.63	1.13	2.63	0.31
M40-500-4-90	4	1/2	1	2.25	1.50	2.25	4.50	0.26	9.75	1.63	1.13	2.63	0.31
M40-500-5-90	5	1/2	1	2.25	1.50	2.25	6.75	0.26	12.00	1.63	1.13	2.63	0.31
M40-500-6-90	6	1/2	1	2.25	1.50	2.25	9.00	0.26	14.25	1.63	1.13	2.63	0.31
M40-500-7-90	7	1/2	1	2.25	1.50	2.25	11.25	0.26	16.50	1.63	1.13	2.63	0.31
M40-500-8-90	8	1/2	1	2.25	1.50	2.25	13.50	0.26	18.75	1.63	1.13	2.63	0.31

1" NPT (F) Input x 3/4" NPT (F) Output

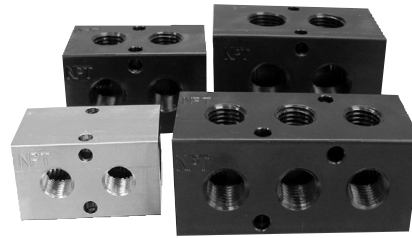
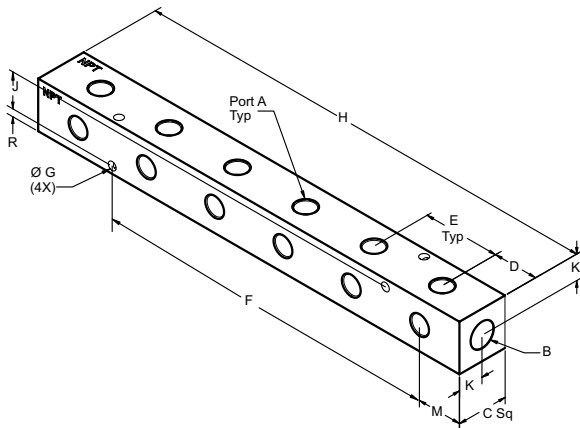
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M40-750-2-90	2	3/4	1	2.25	1.50	3.00	N/A	0.26	6.00	1.63	1.13	3.00	0.31
M40-750-3-90	3	3/4	1	2.25	1.50	3.00	3.00	0.26	9.00	1.63	1.13	3.00	0.31
M40-750-4-90	4	3/4	1	2.25	1.50	3.00	6.00	0.26	12.00	1.63	1.13	3.00	0.31
M40-750-5-90	5	3/4	1	2.25	1.50	3.00	9.00	0.26	15.00	1.63	1.13	3.00	0.31
M40-750-6-90	6	3/4	1	2.25	1.50	3.00	12.00	0.26	18.00	1.63	1.13	3.00	0.31
M40-750-7-90	7	3/4	1	2.25	1.50	3.00	15.00	0.26	21.00	1.63	1.13	3.00	0.31
M40-750-8-90	8	3/4	1	2.25	1.50	3.00	18.00	0.26	24.00	1.63	1.13	3.00	0.31

90° MANIFOLDS (1.5" SPACING)

Norgren - recognized around the world for designing and manufacturing high quality products.

- » Output port spacing is 1.5" center-to-center
- » 2 to 10 stations
- » 1/8, 1/4, 3/8, and 1/2 NPT (F) porting options

Product Information



1/4 NPT (F) Input x 1/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M10-125-2-90W	2	1/8	1/4	1.00	.88	1.50	N/A	.17	3.25	0.70	.50	1.63	.15
M10-125-3-90W	3	1/8	1/4	1.00	.88	1.50	1.50	.17	4.75	0.70	.50	1.63	.15
M10-125-4-90W	4	1/8	1/4	1.00	.88	1.50	3.00	.17	6.25	0.70	.50	1.63	.15
M10-125-5-90W	5	1/8	1/4	1.00	.88	1.50	4.50	.17	7.75	0.70	.50	1.63	.15
M10-125-6-90W	6	1/8	1/4	1.00	.88	1.50	6.00	.17	9.25	0.70	.50	1.63	.15
M10-125-7-90W	7	1/8	1/4	1.00	.88	1.50	7.50	.17	10.75	0.70	.50	1.63	.15
M10-125-8-90W	8	1/8	1/4	1.00	.88	1.50	9.00	.17	12.25	0.70	.50	1.63	.15
M10-125-9-90W	9	1/8	1/4	1.00	.88	1.50	10.50	.17	13.75	0.70	.50	1.63	.15
M10-125-10-90W	10	1/8	1/4	1.00	.88	1.50	12.00	.17	15.25	0.70	.50	1.63	.15

Port Options	
Input	1/4 NPT (F) 3/8 NPT (F) 1/2 NPT (F)
Output	1/8 NPT (F) 1/4 NPT (F) 3/8 NPT (F)

3/8 NPT (F) Input x 1/8 NPT (F) Output													
Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-125-2-90W	2	1/8	3/8	1.25	.88	1.50	N/A	.20	3.25	0.89	.63	1.63	.18
M20-125-3-90W	3	1/8	3/8	1.25	.88	1.50	1.50	.20	4.75	0.89	.63	1.63	.18
M20-125-4-90W	4	1/8	3/8	1.25	.88	1.50	3.00	.20	6.25	0.89	.63	1.63	.18
M20-125-5-90W	5	1/8	3/8	1.25	.88	1.50	4.50	.20	7.75	0.89	.63	1.63	.18
M20-125-6-90W	6	1/8	3/8	1.25	.88	1.50	6.00	.20	9.25	0.89	.63	1.63	.18
M20-125-7-90W	7	1/8	3/8	1.25	.88	1.50	7.50	.20	10.75	0.89	.63	1.63	.18
M20-125-8-90W	8	1/8	3/8	1.25	.88	1.50	9.00	.20	12.25	0.89	.63	1.63	.18
M20-125-9-90W	9	1/8	3/8	1.25	.88	1.50	10.50	.20	13.75	0.89	.63	1.63	.18
M20-125-10-90W	10	1/8	3/8	1.25	.88	1.50	12.00	.20	15.25	0.89	.63	1.63	.18

**Measurements in inches

All measurements are given in inches unless otherwise.

*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

Specifications - 90° Manifolds (1.5" Spacing)

3/8 NPT (F) Input x 1/4 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M20-250-2-90W	2	1/4	3/8	1.25	.88	1.50	N/A	.20	3.25	0.89	.63	1.63	.18
M20-250-3-90W	3	1/4	3/8	1.25	.88	1.50	1.50	.20	4.75	0.89	.63	1.63	.18
M20-250-4-90W	4	1/4	3/8	1.25	.88	1.50	3.00	.20	6.25	0.89	.63	1.63	.18
M20-250-5-90W	5	1/4	3/8	1.25	.88	1.50	4.50	.20	7.75	0.89	.63	1.63	.18
M20-250-6-90W	6	1/4	3/8	1.25	.88	1.50	6.00	.20	9.25	0.89	.63	1.63	.18
M20-250-7-90W	7	1/4	3/8	1.25	.88	1.50	7.50	.20	10.75	0.89	.63	1.63	.18
M20-250-8-90W	8	1/4	3/8	1.25	.88	1.50	9.00	.20	12.25	0.89	.63	1.63	.18
M20-250-9-90W	9	1/4	3/8	1.25	.88	1.50	10.50	.20	13.75	0.89	.63	1.63	.18
M20-250-10-90W	10	1/4	3/8	1.25	.88	1.50	12.00	.20	15.25	0.89	.63	1.63	.18

1/2 NPT (F) Input x 1/4 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M30-250-2-90W	2	1/4	1/2	1.50	.88	1.50	N/A	.20	3.25	1.12	.75	1.63	.19
M30-250-3-90W	3	1/4	1/2	1.50	.88	1.50	1.50	.20	4.75	1.12	.75	1.63	.19
M30-250-4-90W	4	1/4	1/2	1.50	.88	1.50	3.00	.20	6.25	1.12	.75	1.63	.19
M30-250-5-90W	5	1/4	1/2	1.50	.88	1.50	4.50	.20	7.75	1.12	.75	1.63	.19
M30-250-6-90W	6	1/4	1/2	1.50	.88	1.50	6.00	.20	9.25	1.12	.75	1.63	.19
M30-250-7-90W	7	1/4	1/2	1.50	.88	1.50	7.50	.20	10.75	1.12	.75	1.63	.19
M30-250-8-90W	8	1/4	1/2	1.50	.88	1.50	9.00	.20	12.25	1.12	.75	1.63	.19
M30-250-9-90W	9	1/4	1/2	1.50	.88	1.50	10.50	.20	13.75	1.12	.75	1.63	.19
M30-250-10-90W	10	1/4	1/2	1.50	.88	1.50	12.00	.20	15.25	1.12	.75	1.63	.19

1/2 NPT (F) Input x 3/8 NPT (F) Output

Part Number	No. of Stations	NPT		C	D	E	F	G	H	J	K	M	R
		A	B										
M30-375-2-90W	2	3/8	1/2	1.50	.88	1.50	N/A	.20	2.75	1.12	.75	1.63	.19
M30-375-3-90W	3	3/8	1/2	1.50	.88	1.50	1.50	.20	4.75	1.12	.75	1.63	.19
M30-375-4-90W	4	3/8	1/2	1.50	.88	1.50	3.00	.20	6.25	1.12	.75	1.63	.19
M30-375-5-90W	5	3/8	1/2	1.50	.88	1.50	4.50	.20	7.75	1.12	.75	1.63	.19
M30-375-6-90W	6	3/8	1/2	1.50	.88	1.50	6.00	.20	9.25	1.12	.75	1.63	.19
M30-375-7-90W	7	3/8	1/2	1.50	.88	1.50	7.50	.20	10.75	1.12	.75	1.63	.19
M30-375-8-90W	8	3/8	1/2	1.50	.88	1.50	9.00	.20	12.25	1.12	.75	1.63	.19
M30-375-9-90W	9	3/8	1/2	1.50	.88	1.50	10.50	.20	13.75	1.12	.75	1.63	.19
M30-375-10-90W	10	3/8	1/2	1.50	.88	1.50	12.00	.20	15.25	1.12	.75	1.63	.19

**Measurements in inches



90° manifolds with 1.5" spacing provide plumbing convenience and allow for larger control valve installation

All measurements are given in inches unless otherwise.

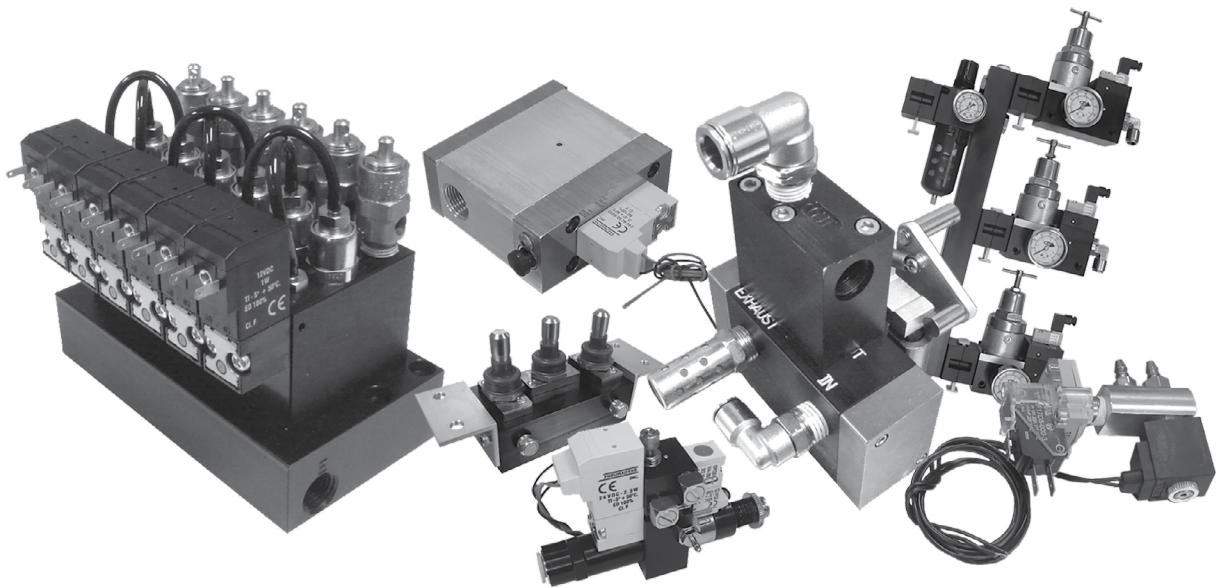
*When design makes a dimension critical - contact factory for confirmation. All dimensions shown subject to change without notice. specified.

[Custom]

4

We have over 60 years experience as a company creating custom solutions to your unique needs. No challenge is too great!

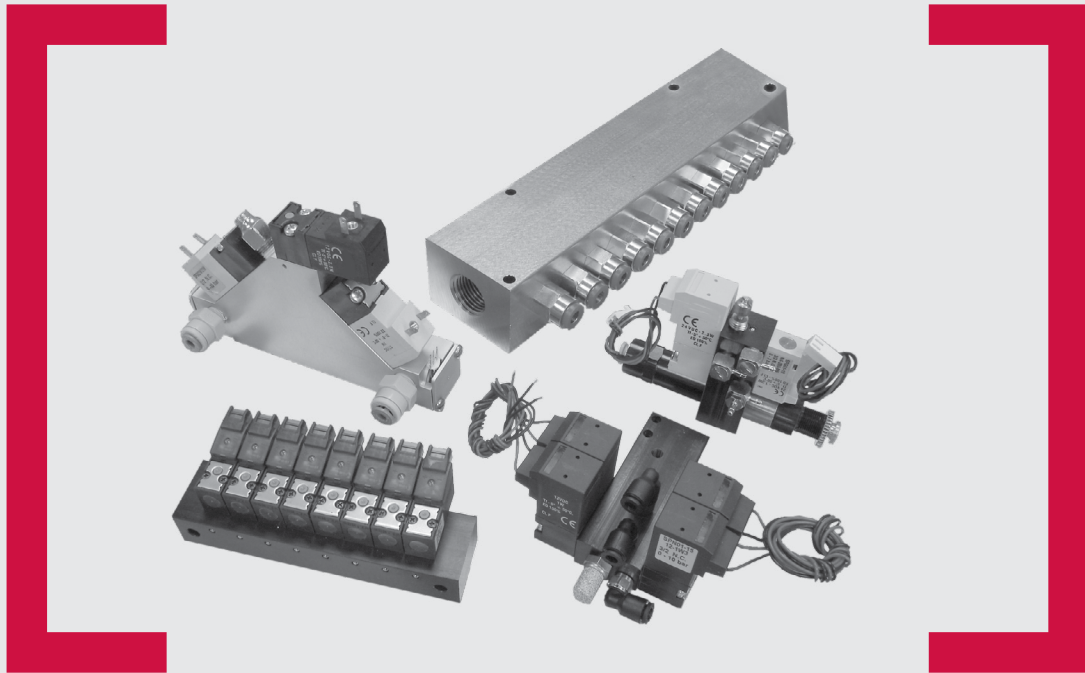
Custom valve solutions are no problem. Our experienced team of engineers, designers, and machinists are ready to dig into the details of any valving challenge. They work directly with you to develop a solution for your exact situation, from concept to installation.



Fast Find Guide

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Capabilities

Providing solutions that meet our customer's defined performance requirements has been a priority since Norgren's inception, setting us apart in the miniature pneumatics industry. Our experienced engineers welcome the opportunity to assist in the design and manufacture of pneumatic control systems and custom directional control valves, fittings or manifolds.

Rely on Norgren's fluid power expertise, design experience and manufacturing capabilities when developing fluid handling applications. Contact Norgren the next time your specific application requires a custom component.

Norgren is recognized around the world for designing and manufacturing high quality products for use in a wide variety of industries. Our products touch lives in many ways:

- » Abrasive Dental Equipment
- » Textile Machines
- » Assembly Fixtures
- » Testing Devices
- » CPR Devices
- » Medical Gas Delivery
- » Process Controls
- » Blood Pressure Testing
- » Computer Chip Manufacturing & Testing
- » Fuel Management Systems
- » Water Purification Systems
- » Off Road & Recreational Equipment
- » Farm & Livestock Management & Control
- » Temperature & Ventilating Devices
- » Food Processing Equipment
- » Labeling Devices
- » Liquid & Glue Dispensing

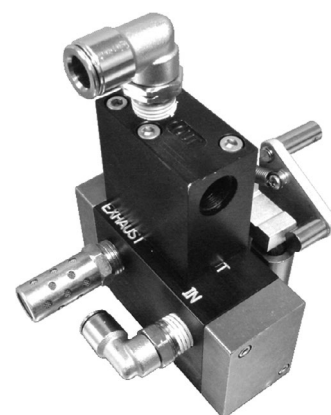
Dental Industry

- » Dental abrasion application
- » Pre-set precision pressure regulator
- » Two solenoid valves
- » Fittings with precision orifices
- » Needle valve
- » System is 100% pre-set for flow & pressure, ready for installation



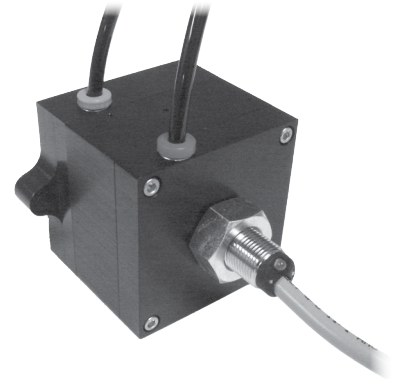
Energy Industry

- » Gas pump control application
- » PneuTef™ plating for use with raw gas
- » Adjustable speed control
- » Configuration allows for overstroke of the diaphragm pump
- » Push-to-connect fittings to speed tubing installation
- » Large internal passages for fast action

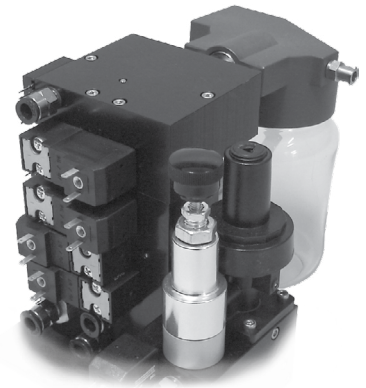


Medical Industry

- » Fluid infusion application
- » Double Acting Rolling Diaphragm Cylinder
- » Features position feedback
- » Functions at 1.5 psi

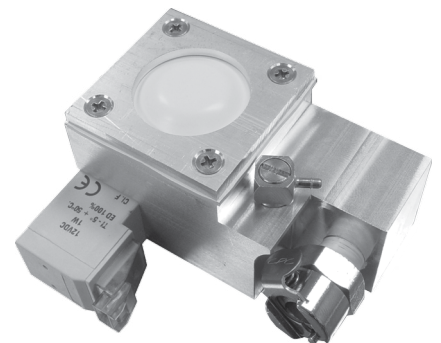


- » Operatory application
- » Integrated manifold block contains three separate circuits
- » Two pre-set regulators: one at 7.5 psi, the other at 2 psi
- » Four Pressure Transducers
- » Five Oxygen cleaned solenoid valves
- » Two Relief valves

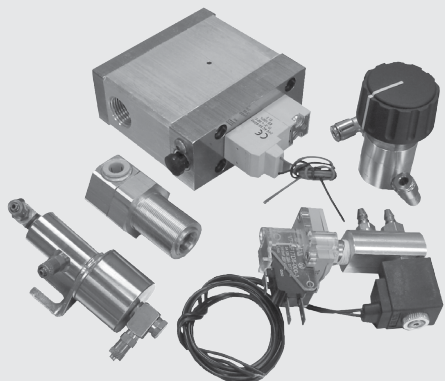


Printing Industry

- » Ink dispensing application
- » Valve block features an integrated vacuum signal, primer pump, shut-off valve, screen, orifice & check valve
- » Lightweight aluminum body
- » Pneu-Edge® fittings ensure permanent tubing installation
- » Quick coupling for ink bag connection & disconnection



Value Added Service & Technology (V.A.S.T.)



Our experienced engineers are always available to assist in the design and development of custom products. We take pride in our ability to partner with customers and develop successful solutions for custom applications. Dedication to quality and customer satisfaction are always paramount at Norgren. Our knowledge and expertise in fluid power and precision machining are an advantage when designing complimentary components. Our engineers welcome the opportunity to assist with the component requirements of value added assemblies. Contact Norgren the next time you are sourcing machining support. 24-hour "lights out" machining, increases our ability to provide custom products and fulfill low volume orders, setting us apart in the miniature pneumatics industry.

More of the ways in which our high quality products touch lives:

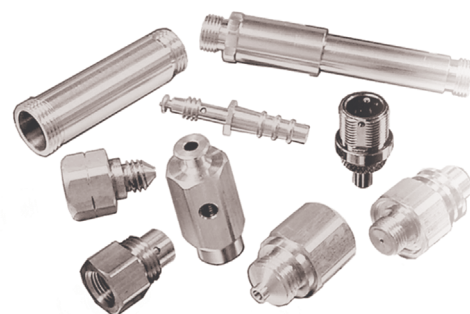
- » Sporting Goods
- » Therapy Equipment
- » Beverage Dispensing
- » High Speed Conveyors
- » Automotive Equipment
- » Animatronics
- » Energy Production Devices
- » Exercise Equipment
- » Medical Instruments
- » Insect Control
- » Water Sensing Devices
- » Thermal Analysis Components
- » DNA Archiving Equipment
- » Chemical Control Systems
- » Gas Sampling Devices
- » Emissions Testing Systems
- » Optical Grinding Equipment



Food & Beverage Industry



- » Wine preservation application
- » Computerized control system monitors system performance
- » 10-gallon vacuum tank
- » Quiet vacuum pump
- » Reduced overall size



Material Handling Industry

- » Pneumatic lift application
- » Manifold assembly features a common input port which feeds three valve blocks
- » Each valve block contains two solenoid valves, two relief valves & two pilot-operated check valves
- » Liquid pump application
- » Valve block features two of our Pilot Operated Cartridge Valves
- » Shut-off blocks are included to isolate the circuitry
- » A single input port supplies pressure to all three circuits
- » Inline pressure gauges provide constant input and output readings
- » A surface mount Regulator is integrated in the valve block & controls



Automotive Industry

- » Trailer shock control application
- » Rugged design with mounting brackets
- » One input port and two output ports for two handed control
- » Protective silicone boot on each toggle
- » Heavy duty momentary toggles
- » Air suspension application
- » 300 psi solenoid valves
- » Epoxy sealed connectors for moisture resistance
- » Compact & rugged designs
- » Built-in check valves to hold system pressure



[Appendix]



Fast Find Guide

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REFERENCE GLOSSARY

Glossary

Acetal plastic tough, stable engineering thermoplastic with a high modulus of elasticity, high strength, good rigidity, dimensional stability, resistance to moisture, solvents, and other chemicals.

Active device A device that has an input(s) which controls a power supply to the device.

Actuator An integral part of a device that transmits force causing the device to act in the intended manner.

Air motor A device which converts pneumatic fluid power into mechanical torque and motion. It usually provides rotary mechanical motion.

Air, compressed (pressure) Air at any pressure greater than atmospheric.

Air, dried Air with moisture content lower than the maximum allowable for a given applications.

Air, free Air at ambient temperature, pressure, relative humidity, and density.

Air, saturated Air at 100% relative humidity, with a dew point equal to temperature.

Air standard Air at a temperature of 68.8°F, a pressure of 14.70 pounds per square inch absolute, and a relative humidity of 36% (0.0750 pounds per cubic foot). In gas industries the temperature of "standard air" is usually given as 60.8°F.

Air (see fluid) A gas mixture consisting of nitrogen, oxygen, argon, carbon dioxide, hydrogen, and small quantities of neon, helium and other gases.

AND Device A control device which has its output in the logical 1 state if and only if all the control signals assume the logical 1 state.

Boyle's Law The absolute pressure of a fixed mass of gas varies inversely as the volume, provided the temperature remains constant.

Break-out Force necessary to inaugurate sliding. Expressed in same terms as friction. An excessive break-out valve indicates the development of adhesion.

Charles' Law The volume of a fixed mass of gas varies directly with absolute temperature, provided the pressure remains constant.

Circuit, metered-in A speed control circuit in which the control is achieved by regulating the supply flow to the actuator.

Circuit, metered-out A speed control circuit in which the control is achieved by regulating the exhaust flow from the actuator.

Circuit, sequence A circuit which established the order in which two or more phases of a circuit occur.

Compression set The amount by which a rubber specimen fails to return to original shape after release of the compressive load.

Compressor A device which converts mechanical force and motion into pneumatic fluid power.

Condensation The process of changing a vapor into a liquid condensate by the extraction of heat.

Conductor A component whose primary function is to contain and direct fluid.

Contaminant Any material of substance which is unwanted or adversely affects the fluid power system or components, or both.

Creep The progressive relaxation of a given rubber material while it is under stress. This relaxation eventually results in permanent deformation or "set".

Cushion A device which provides controlled resistance to motion.

Cv Flow coefficient or pneumatic conductance expresses the flow capability of any fixed orifice pneumatic device for a given fluid.

Cylinder cap A cylinder end closure which completely covers the bore area.

Cylinder capacity, extending Volume required for one full extension of a cylinder.

Cylinder, double acting A cylinder in which fluid force can be applied to the moveable element in either direction.

Cylinder, single acting A cylinder in which the fluid force can be applied to the movable element in only one direction.

Cylinder A device which converts fluid power into linear mechanical force and motion. It usually consists of a movable element such as a piston and a piston rod, plunger or ram, operating within a cylindrical bore.

Detented (maintained) The design intention of a device to maintain the state of its last actuation after the operator force is removed.

Diverter (Valve) A device whose power source at one input port is diverted to one of two or more output ports.

Durometer 1. An instrument for measuring the hardness of rubber. Measures the resistance to the penetration of an indenter point into the surface of rubber. 2. Numerical scale of rubber hardness.

Filter 1. A device whose primary function is the removal by porous media of insoluble contaminants from a liquid or a gas. 2. Chemically inert, finely divided material added to the elastomer to aid in process and improve physical properties.

Fitting a connector or closure for fluid power lines and passages.

Flip flop A digital component or circuit with two stable states and sufficient hysteresis so that it has "memory". Its state is changed with a control pulse; a continuous control signal is not necessary for it to remain in a given state.

Flow rate The volume, mass or weight of a fluid passing through any conductor per unit of time.

Fluid A substance which tends to conform to the outline of its container and capable of flowing as a liquid or a gas.

Fluid logic A branch of fluid power associated with digital signal sensing and information processing, using components with or without moving parts.

Fluid power Energy transmitted and controlled through use of a pressurized fluid.

Fluid, pneumatic A fluid suitable for use in a pneumatic system, usually air.

Gauge damper (snubber) A device employing a fixed or variable restrictor inserted in the pipeline to a pressure gauge to prevent damage to the gauge mechanism caused by rapid fluctuations of fluid pressure.

Gauge, pressure A gauge which indicates the pressure in the system to which it is connected.

Inhibitor Any substance which, when present in very small proportions, slows, prevents or modifies chemical reactions such as corrosion or oxidation.

Lubricator A device which adds controlled or metered amounts of lubricants into a fluid power system.

Manifold A conductor which provides multiple connection ports.

Maximum inlet pressure The maximum rated gauge pressure applied to the inlet port of the regulator.

Memory Tendency of a material to return to original shape after deformation.

Momentary The design intention of a device to return to the normal unactuated state after the operator force is removed.

Muffler A device for reducing gas flow noise. Noise is decreased by back pressure control of gas expansion.

Non-threaded A term applied to exhaust ports without internal threads to prevent connection.

NOR device A control device which has its output in the logical 1 state if and only if all the control signals assume the logical 0 state.

Normally closed (electrical) The state of the output or switch is ON (passing current) with no external influence.

Normally open (electrical) The state of the output or switch is OFF (not passing current) with no external influence.

Normally closed (fluid power) often referred to as normally not passing The state of the output or valve is OFF with no external influence.

Normally open (fluid power) often referred to as normally passing The state of the output or valve is ON with no external influence.

NOT device A control device which has its output in the logical 1 state if and only if the control signal assume the logical 0 state. The NOT device is a single input NOR device.

OR device A control device which has its output in the logical 0 state if and only if all the control signals assume the logical 0 state.

Operator A device that attaches to another assembly and applies force to the actuator of that assembly allowing it to act in the intended manner.

Packing A sealing device consisting of bulk deformable material of one or more mating deformable elements, reshaped by manually adjustable compression to obtain and maintain effectiveness. It usually uses axial compression to obtain radial sealing.

Pascal's Law A pressure applied to a confined fluid at rest is transmitted with equal intensity throughout the fluid.

Passive Device A device that does not have a dedicated supply source and operates solely on the input(s) alone.

Permanent set The deformation remaining after a specimen has been stressed in tension for a definite period and released for a defined period.

Pneumatics Engineering science pertaining to gaseous pressure and flow.

Poppet A component of a valve that seals or opens an internal passage across its full area to allow or prevent flow.

Port A terminus of a passage in a component to which conductors can be connected.

Pressure Force per unit area, usually expressed in pounds per square inch (bar).

Pressure, absolute The pressure above zero, i.e., the sum of atmospheric and gauge pressure. In vacuum related work it is usually expressed in millimeters of mercury (mm-Hg).

Pressure, atmospheric Pressure exerted by the atmosphere at any specific location. (Sea level pressure is approximately 14.7 pounds per square inch absolute. 1 bar=14.7 psi)

Pressure, back The pressure encountered on the return side of a system.

Pressure, breakloose (breakout) The minimum pressure which initiates movement.

Pressure, burst The pressure which causes failure of and consequential loss of fluid through the product envelope.

Pressure, cracking The pressure at which a pressure-operated valve begins to pass fluid.

Pressure, differential (pressure drop) The difference in pressure between any two points of a system or a component

Pressure, proof The non-destructive test pressure, in excess of the maximum rated operating pressure, which causes non permanent deformation, excessive external leakage, or other resulting malfunction.

Pressure, rated The qualified operating pressure which is recommended for a component or system by the manufacturer.

Quick disconnect coupling A component which can quickly join or separate a fluid line without the use of tools or special devices.

Ring, O A ring which has a round cross-section.

Seal, cup A sealing device with a radial base integral with an axial cylindrical projection at its out diameter.

Seal, dynamic A sealing device used between parts that have relative motion.

Seal, elastomer A material having rubber-like properties; i.e., having the capacity for large deformation and rapid, substantially complete, recovery on release from the deforming force.

Selector (Valve) A device which selects from separate power sources at two input ports and directs the selected source to a single output port.

Silencer A device for reducing gas flow noise. Noise is decreased by tuned resonant control of gas expansion.

Squeeze Cross section diametral compression of O-ring between surface of the groove bottom and surface of the other mating metal part in the gland assembly.

Stroke Ratio Each push-button valve selected has a given actuation stroke and force. The Thumb and Cam Operators will provide an increased stroke and decreased force in the ratios noted while providing a correct ergonomic or machine interface for various system applications.

Vacuum Pressure less than ambient atmospheric pressure measured in inches of mercury (Hg").

Valve A device which controls fluid flow direction, pressure or flow rate.

Valve, air A valve for controlling air.

Valve, directional control A valve whose primary function is to direct or prevent flow through selected passages.

Valve, directional control, 3-way A directional control valve whose primary function is to pressurize and exhaust a port.

Valve, directional control, 4-way A directional control valve whose primary function is to pressurize and exhaust two ports.

Valve, flow control (flow metering) A valve whose primary function is to control flow rate.

Valve, needle A flow control valve in which the adjustable control element is a tapered needle. Its usual purpose is the bidirectional control of flow.

Valve, pilot operate (indirect) A valve in which a relatively small flow through an integral flowpath (pilot) controls the movement of the main elements.

Valve, Pilot A valve applied to operate another valve.

CATALOG TERMS

Chemical Resistance Information (Tubing Information)

	N	PUR	PE	PVC
Acetic Acid, Glacial	-	4	1	4
Acetic Acid, 30%	-	4	1	4
Acetone	-	4	2	4
Acetylene	-	4	1	1
Alkazene	-	4	-	-
Aluminum Chloride (aq)	-	3	2	1
Aluminum Nitrate (aq)	-	3	-	-
Ammonia Anhydrous	-	4	2	1
Ammonia Gas (cold)	-	3	-	-
Ammonia Gas (hot)	-	4	-	-
Ammonia Chloride (aq)	-	1	1	1
Ammonium Sulfate (aq)	-	1	1	1
Amyl Alcohol	-	4	2	1
Amyl Naphthalene	-	4	-	-
Animal Fats	-	1	-	-
Aqua Regia	-	4	2	3
Arsenic Acid	-	3	2	1
Asphalt	-	2	1	1
ASTM Fuel A	-	2	-	-
ASTM Fuel B	-	3	-	-
ASTM Fuel C	-	3	1	1
Barium Chloride (aq)	-	1	1	1
Beer	1	2	1	1
Beet Sugar Liquors	-	4	1	1
Benzene	1	3	3	3
Benzine	-	2	-	-
Blast Furnace Gas	-	4	-	-
Bleach Solutions	-	4	-	1
Borax	-	1	1	2
Boric Acid	-	1	1	1
Brake Fluid	-	4	-	-
Brine	-	2	4	3
Bromine Water	4	4	-	-
Bunker Oil	-	2	-	-
Butane	1	1	3	3
Butter	-	1	-	-
Butyl Alcohol	3	4	1	2
Butylene	-	4	1	1
Calcium Chloride (aq)	1	1	2	1
Calcium Hydroxide (aq)	-	1	2	1
Calcium Nitrate (aq)	1	1	-	-
Calcium Sulfide (aq)	-	1	-	-
Cane Sugar Liquors	-	4	-	1
Carbolic Acid	-	3	2	3
Carbon Dioxide	-	1	3	1
Carbon Acid	-	1	2	1

	N	PUR	PE	PVC
Carbon Monoxide	-	1	2	1
Carbon Tetrachloride	3	4	2	2
Castor Oil	-	1	-	1
Chlorine (dry)	4	4	2	1
Chlorine (wet)	4	4	-	-
Chloroform	3	4	3	4
Chlorox	-	4	-	-
Chromic Acid	4	4	1	1
Citric Acid	1	1	1	2
Coal Tar	-	3	-	-
Coconut Oil	-	2	-	1
Cod Liver Oil	-	1	-	1
Coke Oven Gas	-	4	-	-
Copper Chloride (aq)	-	1	2	1
Copper Cyanide (aq)	-	1	2	1
Corn Oil	-	1	3	2
Cotton Seed Oil	-	1	2	2
Creosol	4	4	3	4
Cyclohexane	1	1	2	4
Denatured Alcohol	-	4	-	-
Detergent Solution	-	4	1	1
Diesel Oil	-	3	3	1
Dioxane	-	4	-	-
Dowtherm Oil	-	3	-	-
Dry Cleaning Fluids	-	4	-	-
Ethane	-	3	-	4
Ethyl Acrylate	-	4	-	-
Ethyl Alcohol	3	4	-	-
Ethyl Benzene	-	4	-	-
Ethyl Cellulose	-	2	-	-
Ethyl Chloride	-	2	-	-
Ethyl Ether	-	3	-	-
Ethylene Chloride	-	4	3	4
Ethylene Glycol	2	4	1	1
Ethylene Oxide	1	4	3	3
Ethylene Trichloride	-	4	-	-
Ferric Chloride (aq)	-	1	1	1
Ferric Nitrate (aq)	-	1	2	1
Ferric Sulfate (aq)	-	1	1	1
Fluorine (Liquid)	4	4	3	4
Formaldehyde (RT)	-	4	2	1
Formic Acid	3	3	2	1
Freon 11	-	4	3	1
Freon 12	1	1	3	1
Freon 22	1	4	-	2

	N	PUR	PE	PVC
Fuel Oil	-	2	3	1
Futural Glucose	-	4	1	1
Glue	-	1	1	3
Glycerin	1	1	1	1
Glycols	1	4	-	-
Green Sulfate Liquor	-	1	-	-
Hexane	-	2	3	2
Hydraulic Oil	-	1	1	1
Hydrochloric Acid (cold) 37%	-	4	2	2
Hydrochloric Acid (hot) 37%	-	4	-	-
Hydrofluoric Acid (Conc.) Cold	-	3	-	-
Hydrochloric Acid (Conc.) Hot	-	4	-	-
Hydrogen Gas	1	1	1	1
Isobutyl Alcohol	-	4	-	-
Isooctane	-	2	-	-
Isopropyl Acetate	-	4	2	4
Isopropyl Alcohol	1	3	-	-
Isopropyl Ether	-	2	1	2
Kerosene	1	1	3	4
Lacquers	-	4	2	3
Lacquer Solvents	-	4	2	3
Lard	-	1	2	1
Lavender Oil	-	4	-	-
Lead Acetate (aq)	-	4	1	1
Linseed Oil	1	2	3	1
Liquid Petroleum Gas	-	-	-	-
Lubricating Oils	-	2	4	2
Lye	-	4	-	-
Magnesium Chloride (aq)	1	1	1	1
Magnesium Hydroxide (aq)	-	4	1	1
Mercury	1	1	1	2
Methane	1	3	-	-
Methyl Acetate	1	4	2	4
Methyl Acrylate	-	4	-	-
Methyl Alcohol	1	4	1	1
Methyl Butyl Ketone	-	4	-	1
Methyl Chloride	3	4	3	4
Methylene Chloride	-	4	3	4
Methyl Ethyl Ketone	1	4	2	4
Methyl Isobutyl Ketone	1	4	-	-
Milk	1	4	1	1
Mineral Oil	1	1	2	1
Naphtha	1	2	1	3
Naphthalene	1	2	1	4
Natural Gas	-	2	-	-
Neatsfoot Oil	-	1	-	-

CATALOG TERMS

	N	PUR	PE	PVC
Nitric Acid (Conc.)	4	4	3	4
Nitric Acid (Delute.)	4	3	-	4
Nitroethane	-	4	-	-
Nitrogen	-	1	-	-
N-Octane	-	4	-	-
Oleic Acid	1	2	3	3
Oleum Spirits	-	3	4	4
Olive Oil	-	1	1	3
Oxygen-Cold	1	1	-	-
Oxygen (200-4000F)	-	4	-	-
Paint Thinner,Duco	-	4	-	-
Perchloric Acid	-	4	-	-
Perchloroethylene	3	4	4	3
Petroleum- Below 2500F	-	2	-	-
Petroleum- Above 2500F	4	4	-	-
Phenol	4	3	2	3
Phenyl Ethyl Ether	-	4	-	-
Phosphoric Acid 45%	2	1	2	2
Pickling Solution	-	4	-	-
Picric Acid	3	2	-	4
Potassium Acetate (aq)	-	4	-	-
Potassium Chloride (aq)	-	1	1	1
Potassium Cyanide (aq)	-	1	1	1
Potassium Hydroxide (aq)	3	4	1	1
Producer Gas	-	1	1	1
Propane	1	3	3	1
Propyl Alcohol	-	4	-	-
Propylene	-	4	-	-
Propylene Oxide	-	4	-	-
Pydraul, 10E, 29 ELT	-	4	-	-
Pydraul, 30E, 50E, 65 E	-	4	-	-
Pydraul, 115E	-	4	-	-
Pydraul, 230E, 312C, 540C	-	4	-	-
Rapeseed Oil	-	2	-	-
Red Oil (MIL-H-5606)	-	1	-	-
RJ-1 (MIL-F-23338 B)	-	1	-	-
RP-1 (MIL-F-25576 C)	-	1	-	-
Salt Water	1	2	1	1
Sewage	-	4	-	-
Silicate Esters	-	1	-	-
Silicone Oils	-	1	1	1
Silver Nitrate	-	1	2	1
Skydrol 500	-	4	-	-
Skydrol 700	-	4	-	-
Soap Solutions	1	3	3	1

	N	PUR	PE	PVC
Sodium Chloride (aq)	1	1	1	1
Sodium Hydroxide (aq)	2	4	2	1
Sodium Peroxide (aq)	-	4	1	2
Sodium Phosphate (aq)	-	1	-	-
Sodium Sulfate (aq)	-	1	1	1
Soy Bean Oil	-	2	1	1
Steam Under 3000F	4	4	-	-
Steam Over 3000F	4	4	-	-
Stoddard Solvent	-	1	3	3
Styrene	-	3	-	4
Sucrose Solution	-	4	-	-
Sulfuric Acid (Dilute)	-	3	1	1
Sulfuric Acid (Conc.)	-	4	3	4
Sulfuric Acid (20% Oleum)	-	4	-	-
Sulfurous Acid	-	3	2	1
Tannic Acid	-	1	2	1
Tetrochloroethylene	-	4	2	4
Toluene	1	4	3	4
Transformer Oil	-	1	-	-
Transmission Fluid Type A	-	1	-	-
Trichloroethane	3	4	-	3
Trichloroethylene	3	4	3	4
Turbine Oil	-	1	3	1
Turpentine	1	4	3	2
Varnish	-	3	3	4
Vinegar	1	4	2	1
Vinyl Chloride	-	4	-	-
Water	1	1	1	1
Whiskey, Wines	1	2	3	1
White Oil	-	1	-	-
Wood Oil	-	3	-	-
Xylene	2	4	3	4
Zinc Acetate (aq)	-	4	-	-
Zinc Chloride (aq)	1	1	1	1

NOTE:

The ratings provided are very general guidelines to be referred to only for initial screening purposes. Specific tubing compounds can be positively or negatively affected by varying temperatures, chemical mixtures and/or static vs. dynamic applications.

CAREFUL TESTING UNDER ACTUAL CONDITIONS IS ESSENTIAL. **Accuracy for these ratings is not given or implied.**

- N** = Nylon
- PUR** = Polyurethane
- PE** = Polyethylene
- PVC** = Polyvinyl Chloride

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A11-20-46	17	BF-062-2L	121	C030623	23,28	C032401	23,26	C040621	32,36
A11-20-47	17	BF-140	121	C030625	23,28	C032403	23,26	C040623	32,36
A11-20-64	17	BF-170-1	121	C030627	23,28	C032405	23,26	C040625	32,36
A11-20-66	17	BF-170-2	121	C030701	23,28	C032407	23,26	C040701	32,36
A11-20-67	17	BF-170-2FL	121	C030703	23,28	C032421	23,26	C040703	32,36
A11-20-74	17	BF-170-2L	121	C030705	23,28	C032423	23,26	C040705	32,36
A11-20-76	17	BFC-32	76	C030707	23,28	C032425	23,26	C040721	32,36
A11-20-77	17	BFC-32P	76	C030721	23,28	C032427	23,26	C040723	32,36

C040725	32,36	C050102	66,67	EA-LB50	105,125	EB40-4-28	97,125	EFB40	99
C040901	32,35	C050104	66,67	EA-LB50-SLOT	105	EB40-250	97,125	EFB40-1/4	99
C040903	32,35	C050201	66,67	EA-T10	109	EB40-M3	100,125	EFB40-1/8	99
C040905	32,35	C050202	66,67	EA-T10-SLOT	109	EB40-M5	100,125	EFB50-1/8	99
C040907	32,35	C050204	66,67	EA-T25	109	EB40-M6	100	EFB60-1/4	99
C040921	32,35	C050205	66,67	EA-T25-SLOT	109	EB50	97	EFB60-1/8	99
C040923	32,35	C050206	66,67	EA-T30	109	EB50-1/4	98	EFLB30-1/8	103
C040925	32,35	C050210	66,67	EA-T30-SLOT	109	EB50-1/8	98	EFLB40-1/8	103
C040927	32,35	C050301	66,67	EA-T40	109,125	EB50-1/16	98	EFLB50-1/8	103
C041001	32,35	C050302	66,67	EA-T40-SLOT	109	EB50-4-28	97,125	EFT10-1/8	108
C041003	32,35	C050401	66,67	EB10	97	EB60	97	EFT30-1/4	108
C041005	32,35	C050401-SS	66	EB10-1/4	98	EB60-1/4	98	EFT30-1/8	108
C041007	32,35	C050501	66,68	EB10-1/8	98	EB60-1/8	98	EFT40-1/4	108
C041021	32,35	C050501-SS	66	EB10-1/16	98	EB60-1/16	98	EFT40-1/8	108
C041023	32,35	C050502	66,68	EB10-4-28	97	EB60-3/8	99	EL10	113
C041025	32,35	C050503	66,68	EB10-250	97	EB60-4-28	97,125	EL20	113
C041027	32,35	C050504	66,68	EB10-M3	100,125	EB70-1/4	98	EL30	113
C042201	40	C050601	66,68	EB10-M5	100	EB70-1/8	98	EL40	113
C042201-HD	40	C050602	66,68	EB10-M6	100	EB80-1/4	98	EL60	113
C042203	40	C050603	66,68	EB20	97	EB80-1/8	98	EL80	113
C042203-HD	40	C050604	66,68	EB20-1/8	98	EB80-3/8	99	ELB10	101
C042301	40	C050605	66,68	EB20-250	97	EBK-10	110	ELB10-1/4	102
C042301-HD	40	C070501	74,76	EB20-M3	100,125	EBK-20	110	ELB10-1/8	102
C042303	40	C070503	74,76	EB20-M5	100	EBK-25	110	ELB10-M3	104,125
C042303-HD	40	C070601	74	EB20-M6	100	EBK-30	110	ELB10-M5	104
C042401	43	C070603	74	EB25	97	EBK-30-4-28	110	ELB10-M6	104
C042402	43	C570501	84	EB25-1/8	98	EBK-40-5/16	110	ELB20	101
C042403	42,43	CA-1	59,92	EB25-1/16	98	EBK-40-20	110	ELB25	101
C042501	43	CA-4	59,92	EB25-250	97	EBK-40-25	110	ELB25-1/8	102
C042501-HD	43			EB25-M3	100,125	EBK-60-1/8	110	ELB25-4-28	101
C042502	43	D		EB25-M5	100	EBK-60-3/8	110	ELB25-M3	104,125
C042502-HD	43	DP-11	60	EB25-M6	100	EC10	112	ELB25-M5	104
C042503	43	DP-22	60	EB30	97	EC20-SL	112	ELB25-M6	104
C042503-HD	43	E		EB30-1/4	98	EC25	112	ELB30	101
C042601	43	E1/8-1/4	111	EB30-1/8	98	EC35	112	ELB30-1/4	102
C042601-HD	43	E10-1/8	111	EB30-1/16	98	EC40	112	ELB30-1/8	102
C042602	43	EA-LB10	105	EB30-4-28	97	EC50	112	ELB30-1/16	101
C042602-HD	43	EA-LB10-SLOT	105	EB30-250	97	EC60	112	ELB30-3/8	102
C042603	43	EA-LB20	105	EB30-M3	100,125	EFB10	99	ELB30-4-28	101
C042603-HD	43	EA-LB20-SLOT	105	EB30-M5	100	EFB10-1/4	99	ELB30-M3	104,125
C042801	43	EA-LB25	105	EB30-M6	100	EFB10-1/8	99	ELB30-M5	104
C042802	43	EA-LB25-SLOT	105	EB35	97	EFB25-1/8	99	ELB30-M6	104
C042803	41,43	EA-LB30	105	EB35-1/4	98	EFB30	99	ELB35	101
C042901	43	EA-LB30-SLOT	105	EB40	97	EFB30-1/4	99	ELB35-1/8	102
C042903	41,43	EA-LB40	105,125	EB40-1/8	98	EFB30-1/8	99	ELB40	101
C050101	66,67	EA-LB40-SLOT	105	EB40-1/16	98	EFB35-1/8	99	ELB40-1/4	102

ELB40-1/8	102	ET60-1/4	107	H0-20-5	9	HDO	58,92	M20-125-2-90	143
ELB40-1/16	101	ET60-1/8	107	H0-20-6	9	HM45-1/8-DT	50,53	M20-125-2-90W	146
ELB40-4-28	101	ET70	113	H0-20-7	9	HM45-100-DT	50,54	M20-125-2W	141,142
ELB40-M5	104,125	ET80	113	H0-30-1	9	HMM-20-1616	38	M20-125-3	134
ELB40-M6	104	ET80-1/4	107	H0-30-2	9	HMM-30-1616	38	M20-125-3-90	143
ELB50-1/4	102	ETB30	106	H0-30-3	9	HP45-1/8-DT	50,53	M20-125-3-90W	146
ELB50-1/8	102	ETB40	106,125	H0-30-4	9	HP45-100-DT	50,54	M20-125-3W	141,142
ELB50-1/16	101	EX10	114	H0-30-5	9			M20-125-4	134
ELB50-3/8	102	EX60	114	H0-30-6	9	M		M20-125-4-90	143
ELB50-4-28	101,125			H0-30-7	9	M10-125-2	134	M20-125-4-90W	146
ELB50-M6	104,125	F		H3-30-1	13	M10-125-2-90	143	M20-125-4W	141,142
ELB60-1/4	102	FO-20-1	9	H3-30-2	13	M10-125-2-90W	146	M20-125-5	134
ELB60-1/8	102	FO-20-2	9	H3-30-3	13	M10-125-2W	141,142	M20-125-5-90	143
ELB60-1/16	101	FO-30-1	9	H3-30-4	13	M10-125-3	134	M20-125-5-90W	143
ELB80-1/4	102	FO-30-2	9	H4C-1/8-DT	50,52	M10-125-3-90	143	132,146	
ELB80-1/8	102	F11-20-14	17	H4C-100-DT	50,52	M10-125-3-90W	146	M20-125-5W	141,142
ELB80-3/8	102	F11-20-16	17	H11-20-14	17	M10-125-3W	141,142	M20-125-6	134
ERC20-10	112	F11-20-17	17	H11-20-16	17	M10-125-4	134	M20-125-6-90	143
ERC30-10	112	F11-20-44	17	H11-20-17	17	M10-125-4-90	143	M20-125-6-90W	146
ERC50-30	112	F11-20-46	17	H11-20-44	17	M10-125-4-90W	146	M20-125-6W	141,142
ERC60-20	112	F11-20-47	17	H11-20-46	17	M10-125-4W	141,142	M20-125-7	134
ERC60-30	112	F11-20-64	17	H11-20-47	17	M10-125-5	134	M20-125-7-90	143
ERC60-40	112	F11-20-66	17	H11-20-47	17	M10-125-5-90	143	M20-125-7-90W	146
ERT30-10-30	113	F11-20-67	17	H11-20-64	17	M10-125-5-90W	146	M20-125-7W	141,142
ERT40-10-40	113	F11-20-74	17	H11-20-66	17	M10-125-5W	141,142	M20-125-8	134
ERT40-30-40	113	F11-20-76	17	H11-20-67	17	M10-125-6	134	M20-125-8-90	143
ERT50-30-50	113	F11-20-77	17	H11-20-74	17	M10-125-6-90	143	M20-125-8-90W	146
ERT60-30-30	114	F11-30-14	17	H11-20-76	17	M10-125-6-90W	146	M20-125-8W	141,142
ERT60-30-60	114	F11-30-16	17	H11-20-77	17	M10-125-6W	141,142	M20-125-9	134
ERT60-40-60	114	F11-30-17	17	H11-30-14	17	M10-125-7	134	M20-125-9-90	143
ERT80-60-80	114	F11-30-44	17	H11-30-16	17	M10-125-7-90	143	M20-125-9-90W	146
ET10	113	F11-30-46	17	H11-30-17	17	M10-125-7-90W	146	M20-125-9W	141,142
ET10-1/8	107	F11-30-47	17	H11-30-44	17	M10-125-7W	141,142	M20-125-10	134
ET10-1/16	106	F11-30-64	17	H11-30-46	17	M10-125-7W	141,142	M20-125-10-90	143
ET20	113	F11-30-66	17	H11-30-47	17	M10-125-8	134	M20-125-10-90W	146
ET25	113	F11-30-67	17	H11-30-64	17	M10-125-8-90	143	M20-125-10W	141,142
ET25-1/8	107	F11-30-74	17	H11-30-66	17	M10-125-8-90W	146	M20-250-2	135
ET30	113	F11-30-76	17	H11-30-67	17	M10-125-8W	141,142	M20-250-2-90	144
ET30-1/8	107	F11-30-77	17	H11-30-74	17	M10-125-9	134	M20-250-2-90W	147
ET35	113	F11-30-77	17	H11-30-76	17	M10-125-9-90	143	M20-250-2W	142
ET40	113	FP45-1/8-SR	50,53	H11-30-77	17	M10-125-9-90W	146	M20-250-3	135
ET40-1/8	107	FP45-100-SR	50,54	HAN-1	87	M10-125-9W	141,142	M20-250-3-90	144
ET40-M5	108,125	H		HAN-2	87	M10-125-10	134	M20-250-3-90W	147
ET50	113	H0-20-1	9	HAN-3	87	M10-125-10-90	143	M20-250-3W	142
ET50-1/8	107	H0-20-2	9	HAN-4	87	M10-125-10-90W	146	M20-250-4	135
ET60	113	H0-20-3	9	HAN-5	87	M10-125-10W	141,142	M20-250-4-90	144
		H0-20-4	9	HAN-6	87	M20-125-2	134		

M20-250-4-90W	147	M30-250-5-90W	147	M32-10	133	M40-375-8-90	145	NV-52	74,76
M20-250-4W	142	M30-250-6	136	M35-250-2	137	M40-500-2	139	P	
M20-250-5	135	M30-250-6-90	144	M35-250-3	137	M40-500-2-90	145	PBF-*	58,92
M20-250-5-90	144	M30-250-6-90W	147	M35-250-4	137	M40-500-3	139	PBR-*	58,92
M20-250-5-90W	147	M30-250-7	136	M35-250-5	137	M40-500-3-90	145	PBV-2	85
M20-250-5W	142	M30-250-7-90	144	M35-250-6	137	M40-500-4	139	PBV-4	85
M20-250-6	135	M30-250-7-90W	147	M35-250-7	137	M40-500-4-90	145	PBV-10/32	85
M20-250-6-90	144	M30-250-8	136	M35-250-8	137	M40-500-5	139	PFC11-14	74
M20-250-6-90W	147	M30-250-8-90	144	M35-250-9	137	M40-500-5-90	145	PFC11-44	74
M20-250-6W	142	M30-250-8-90W	147	M35-250-10	137	M40-500-6	139	PFC11-66	74
M20-250-7	135	M30-250-9	136	M35-375-2	137	M40-500-6-90	145	PMG-60	60,79
M20-250-7-90	144	M30-250-9-90	144	M35-375-3	137	M40-500-7	139	PMG-100	60,79
M20-250-7-90W	147	M30-250-9-90W	147	M35-375-4	137	M40-500-7-90	145	PMG-160	60,79
M20-250-7W	142	M30-250-10	136	M35-375-5	137	M40-500-8	139	PNVO-0	74
M20-250-8	135	M30-250-10-90	144	M35-375-6	137	M40-500-8-90	145	PNVO-1	74
M20-250-8-90	144	M30-250-10-90W	147	M35-375-7	137	M40-750-2	139	PNVO-1/8	74
M20-250-8-90W	147	M30-375-2	136	M35-375-8	137	M40-750-2-90	145	PNVO-2	74
M20-250-8W	142	M30-375-2-90	144	M35-375-9	137	M40-750-3	139	PNVO-3	74
M20-250-9	135	M30-375-2-90W	147	M35-375-10	137	M40-750-3-90	145	PNVO-4	74
M20-250-9-90	144	M30-375-3	136	M40-250-2	138	M40-750-4	139	PNVO-5	74
M20-250-9-90W	147	M30-375-3-90	144	M40-250-2-90	145	M40-750-4-90	145	PNVO-6	74
M20-250-9W	142	M30-375-3-90W	147	M40-250-3	138	M40-750-5	139	PNVO-7	74
M20-250-10	135	M30-375-4	136	M40-250-3-90	145	M40-750-5-90	145	PNV11-14	74
M20-250-10-90	144	M30-375-4-90	144	M40-250-4	138	M40-750-6	139	PNV11-16	74
M20-250-10-90W	147	M30-375-4-90W	147	M40-250-4-90	145	M40-750-6-90	145	PNV11-17	74
M20-250-10W	142	M30-375-5	136	M40-250-5	138	M40-750-7	139	PNV11-44	74
M20-375-2	135	M30-375-5-90	144	M40-250-5-90	145	M40-750-7-90	145	PNV11-46	74
M20-375-3	135	M30-375-5-90W	147	M40-250-6	138	M40-750-8	139	PNV11-47	74
M20-375-4	135	M30-375-6	136	M40-250-6-90	145	M40-750-8-90	145	PNV11-64	74
M20-375-5	135	M30-375-6-90	144	M40-250-7	138	MB-1		PNV11-66	74
M20-375-6	135	M30-375-6-90W	147	M40-250-7-90	145	8,12,16,21,48,59,60,71		PNV11-67	74
M20-375-7	135	M30-375-7	136	M40-250-8	138	MB-1F		PNV11-74	74
M20-375-8	135	M30-375-7-90	144	M40-250-8-90	145	8,12,16,21,48,59,60,71		PNV11-76	74
M20-375-9	135	M30-375-7-90W	147	M40-375-2	139	MPS-6-100	45,46	PNV11-77	74
M20-375-10	135	M30-375-8	136	M40-375-2-90	145	MPS-6-100-S	45,46	PPB-3/4	40,43
M30-250-2	136	M30-375-8-90	144	M40-375-3	139	MS32-4	133	PU2-125-*-C	127
M30-250-2-90	144	M30-375-8-90W	147	M40-375-3-90	145	MS32-6	133	PU2-250-*-C	127
M30-250-2-90W	147	M30-375-9	136	M40-375-4	139	MS32-8	133	PU3-125-*-C	127
M30-250-3	136	M30-375-9-90	144	M40-375-4-90	145	MS32-10	133	PU3-250-*-L	127
M30-250-3-90	144	M30-375-9-90W	147	M40-375-5	139	MT32-4	133	PU4-125-*-C	127
M30-250-3-90W	147	M30-375-10	136	M40-375-5-90	145	MT32-6	133	PU4-250-*-L	127
M30-250-4	136	M30-375-10-90	144	M40-375-6	139	MT32-8	133	PU-125-*	126
M30-250-4-90	144	M30-375-10-90W	147	M40-375-6-90	145	MT32-10	133	PU-125F-*	126
M30-250-4-90W	147	M32-4	133	M40-375-7	139	N		PU-125-*-LR	126
M30-250-5	136	M32-6	133	M40-375-7-90	145	N2-2	87	PU-125-*-R	126
M30-250-5-90	144	M32-8	133	M40-375-8	139	NV-32	74,76,87		

PU-125-*-XR	126	R11-RP-14	79	SPG-4-28	110
PU-156-*	126	R11-RP-16	79	SPG-10	46,86,110,116
PU-156F-*	126	R11-RP-17	79	SPG-10-1/4	110,116
PU-156-*-LR	126	R11-RP-44	79	SPG-M3	110
PU-156-*-R	126	R11-RP-46	79	SPG-M5	110
PU-250-*	126	R11-RP-47	79	SPG-M6	110
PU-250F-*	126	R11-RP-64	79	SSP-10	118
PU-250-*-LR	126	R11-RP-66	79	STL-10	117
PU-250PB-*	126	R11-RP-67	79	STL-10-SS	117
PU-250-*-R	126	R11-RP-74	79	STT-10	117
PU-250R-*	126	R11-RP-76	79	SV11-1/4 PI-66	62,63
PU-312-*	126	R11-RP-77	79	SV11-1-66	63
PU-375-*	126	RLN-40	79	SV11-5/32 PI-47	63,64
PU-375F-*	126			SV11-5/32 PI-77	63
PU-375PB-*	126	S		SV11-125-44	63,64
PU-375-*-R	126	SBF-10T	124	SV11-125-66	63,64
PU-375R-*	126	SBF-14T	124		
PU-468F-*	126	SBF-16T	124	T	
PU-562F-*	126	SBF-18L	124	TA-1	59,92
PU-750F-*	126	SBF-18T	124		
PUC2-125-*	128	SBF-32-3	118		
PUC2-250-*	128	SBF-062	116		
PUC-125-*	128	SBF-062-1/4	116	Custom Designed Products	
PUC-250-*	128	SBF-062-1/4-M3	116	Our experienced engineers are always available to assist in the design and development of custom products. We take pride in our ability to partner with customers and develop successful solutions for custom applications. Dedication to quality and customer satisfaction are always paramount at Norgren.	
PUMC4-125-*	127	SBF-062-LP	116		
PUMC4-250-*	127	SBF-110	116		
PUMC6-125-*	127	SBF-110-1/4	116		
PUMC8-250-*	127	SBF-110-1/4-M3	116		
		SBF-140	116		
Q		SBF-140-1/4	116		
QE11-M-18	83	SBF-170	116		
QE-MI	84	SBF-170-1/4	116		
QE-MS	84	SBF-1616	124		
		SBF-1810T	124		
R		SBF-1816	124		
R11-RK-14	79	SBF-1818	124		
R11-RK-16	79	SBH-10	119		
R11-RK-17	79	SBH-125	119		
R11-RK-44	79	SF-22	119		
R11-RK-46	79	SFL-10	117		
R11-RK-47	79	SFT-10	118		
R11-RK-64	79	SFU-22	118		
R11-RK-66	79	SPG-1/2	110		
R11-RK-67	79	SPG-1/4	110		
R11-RK-74	79	SPG-1/8	110		
R11-RK-76	79	SPG-3/8	110		
R11-RK-77	79				

Warning

Improper selection, misuse, age or malfunction of components used in systems can cause failure in various modes. The system designer is warned to consider the failure modes of all component parts and to provide adequate safeguards to prevent personal injury or damage to equipment or property in the event of such failure modes. System designers and end users are cautioned to consult instruction sheets and specifications available from the factory.

The system designer/end user is responsible for verifying that all requirements for the application are met.

Warranty

The products described herein are warranted subject to seller's Standard Terms and Condition of Sale, available at seller's website.



WARNING: Cancer and Reproductive Harm www.p65warnings.ca.gov



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VALVES & ACCESSORIES

2-WAY OR 3-WAY VALVES
SELECTOR VALVES
4-WAY VALVES
OPERATORS
DRESS PLATE
MOUNTING BRACKETS
MICRO GAUGE
SHUTTLE ("OR") VALVES
CHECK VALVES
PILOT-OPERATED CHECK VALVES
FLOW CONTROLS/NEEDLE VALVES
11 SERIES PRESSURE REGULATORS
QUICK EXHAUST VALVES
BLEED VALVES
AIR JET SYSTEM



2

FITTINGS & TUBING

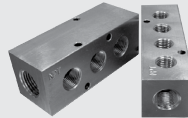
PNEU-EDGE FITTINGS
O-RING FITTINGS
10-32 TAPERED THREAD FITTINGS
BARB-TO-BARB FITTINGS
POLYURETHANE SINGLE TUBING



3

MANIFOLDS

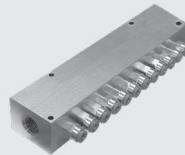
MULTIPLE CONNECTION MANIFOLDS
INLINE MANIFOLDS
INLINE MANIFOLDS (ALTERNATE MATERIALS)
INLINE MANIFOLDS (1.5" SPACING)
90° INLINE MANIFOLDS (1.5" SPACING)
90° MANIFOLDS
90° MANIFOLDS (1.5" SPACING)



4

CUSTOM PRODUCTS

DENTAL INDUSTRY
ENERGY INDUSTRY
MEDICAL INDUSTRY
PRINTING INDUSTRY
VALUE ADDED SERVICE & TECHNOLOGY (V.A.S.T.)
FOOD & BEVERAGE INDUSTRY
MATERIAL HANDLING INDUSTRY
AUTOMOTIVE INDUSTRY



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Incorporating



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