

VOL.112



Miniature Fluid Power Products

10-32 UNF-2B

2-56 ADJUSTMENT SCR

www.beswick.com

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Valves

Fittings

Regulators

Quick Disconnects

Vision

To be a pioneer in the miniature fluid power industry through innovation and design excellence.

Mission

Beswick Engineering is committed to offering innovative, high performance products backed by professional service and support. Beswick products support a wide-variety of industries, from industrial grade to high-tech applications for OEMs to educational research and development projects. Beswick takes pride in attention to detail. When it comes to innovation, engineering excellence, quality, custom design, and support, Beswick is unmatched in the industry.

History

Paul Beswick, a Registered Professional Engineer, founded Beswick engineering co., inc. in 1964. The company was incorporated in the state of Massachusetts and began as a small engineering consulting firm. While consulting, Paul continued to broaden his knowledge of manufacturing techniques through work with contract manufacturers. Eventually Paul bought his first automatic manufacturing machine. Over the years, more machines were added to the lot until he had a facility that could manufacture its own products. Among the first products designed by Beswick Engineering were cylinders, regulators and valves.

The Beswick fitting line got started in the early 1970's. Paul Beswick was visiting an account to discuss a valve application, when engineers shared their frustrations over the unreliable brass fittings they were using. Paul offered to look into their problem and design a fitting that would not leak or loosen over time. Paul's research lead to the design and development of the first 10-32 threaded o-ring face seal fitting. The o-ring fittings also incorporated another innovation, a single edge barb design, which proved to be easy to use and leak proof in the application.

Little by little Paul Beswick expanded the product line to include a variety of o-ring fitting configurations, regulators, valves, cylinders, and quick disconnects. In the late 1970's Beswick engineering introduced an MLAS series fitting. This innovative fitting is a miniature brass, adjustable position, elbow with a 10-32 thread. The fitting incorporates two o-ring seals, one o-ring on the stud and one o-ring to seal the 10-32 thread. The MLAS fitting is currently our most popular miniature fitting and has not been duplicated by any competitors to date.

In addition to manufacturing products in brass, the line was expanded to include 303 and 316 stainless steel. The stainless steel products began to take off in the 1980's and there was a large increase in stainless steel sales in the mid 1990's.

In 1996 Beswick engineering co., inc. moved from its location in Ipswich, Massachusetts to a plant in Greenland, New Hampshire. The move provided the company with additional office space to support its continuous growth, a brand new machine shop area, and a scenic location for the employees and their families.

Since 1996 Beswick has experienced years of record growth and profit. In January of 2000 the company celebrated the opening of a branch office in Singapore. The office in Singapore was opened to serve the growing customer population in the far east and provide Beswick with a larger international presence.

Today, Beswick engineering remains the leader in providing the largest range of 303 and 316 stainless steel fittings in the world. In addition to our expansive 10-32 threaded fitting line, Beswick offers pipe thread fittings, metric fittings, compression fittings, luer fittings and more. Beswick engineering has also expanded upon our miniature pressure regulators, cylinders, quick disconnects and valve options; some of which hold patents. The product line continues to grow through custom designed products for customers and through Beswick's own innovation and industrial research.



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GENERAL REFERENCE

Stop Leakage with Beswick's Captured O-ring Seal Design

In the 1960's, Paul Beswick (founder of Beswick Engineering) originated and perfected the captured O-ring face seal used in our miniature fittings. Over the years, Beswick has further optimized this design to produce the best performance in the industry.



The advantages of Beswick O-ring seal fittings:

- Superior leak-tight seal compared to flat gasket or pipe thread fittings.
- Compensation for rough surface finish and slight hole misalignments in mating parts.
- Fast installation; there is no gasket that must be positioned on the fittings or that is likely to fall off the fittings. No thread sealer is required.
- Reusable seal; there is no need to replace the O-rings of the fittings which are repeatedly installed/uninstalled.
- Metal to metal contact; fittings are less likely to loosen vs. gasketed fittings.
- Cleaner, more professional appearance.
- Variety of elastomeric compounds to suit most applications.

Optional O-ring Materials

Beswick fittings are supplied with Buna-N O-rings since Buna-N satisfies the requirements of most applications. We install the O-rings at our factory, saving you the assembly costs incurred with gasket style fittings. We also offer optional O-ring materials for applications involving temperature extremes and/or chemical reactivity. Optional O-rings include: Ethylene-Propylene (EPDM), Fluorocarbon (Viton®), Silicone, and Teflon®. [Other optional O-rings such as Fluorosilicone, Tetrafluoroethylene-propylene \(AFLAS®\), Perfluoroelastomer \(Chemraz® and Kalrez®\), and Neoprene are available on some products.](#) To specify an optional O-ring add the material code from the chart below as a suffix to the part number. For example; to order the popular Beswick MLAS-1012 elbow fitting with silicone O-rings, specify MLAS-1012-S. Consult a Beswick Applications Engineer for advice on O-ring materials.

Optional O-ring Material	Code
Ethylene-Propylene (EPDM)	E
Fluorocarbon (Viton®)	V
Fluorosilicone	FS
Perfluoroelastomer (Chemraz®)	C
Perfluoroelastomer (Kalrez®)	KZ
Neoprene	N
Silicone	S
Teflon®	T
AFLAS®	AF



Optional Finish

Brass items can be ordered with our optional Electroless Nickel Plated finish. Simply add “-ENP” as a suffix to the part number. A bright-dip finish is standard for brass products. Our aluminum products come standard with a clear anodized finish. Our 303 and 316 stainless steel products are passivated.

Suggested Tubing Size

Refer to the left hand column of each chart in the catalog, to select the proper Beswick fitting for use with a particular size of tubing. For our barbed fittings, this suggestion refers to the inside diameter of polyurethane or vinyl tubing. For our push to connect and compression fittings, this suggestion refers to the outside diameter of nylon, Teflon®, copper or stainless steel tubing. Consult the factory for advice if you plan to use a different tubing material. Beswick tubing is listed in the catalog and works well with our fittings.

Registered Trademarks used in this catalog: AFLAS® – Asahi Glass Co., Ltd.; Teflon® – E.I. DuPont De Nemours & Co.; Kalrez® and Viton® – DuPont Dow Elastomers; Chemraz® – Greene; Tweed & Co., Ryton® – Phillips Chemical Co.

FITTINGS

Push-To-Connect Fittings



Beswick Push-To-Connect style fittings permit easy tube connections and disconnections, and are an excellent choice for use with many types of plastic or metal tubing including Polyurethane, Polyethylene, Nylon, Teflon, Copper, and Stainless Steel. All components, including the release collar, are fabricated from stainless steel permitting use in corrosive or high temperature environments, as well as applications requiring clean components. This design offers convenience, leak-free connections, and corrosion resistance in a space saving package. The maximum pressure rating is 150 psig.

Pages 4-6

Barb fittings are best suited for use with soft flexible tubing such as Polyurethane or Vinyl at low pressure. All of the barb fittings within this catalog feature a proprietary single-edge "line contact" barb profile. This design allows the tubing to be pushed onto the fitting by hand and also ensures a leak-tight connection along the inner diameter of the tubing. These fittings can generally handle pressures from full vacuum up to 80-100 psig without a clamp, depending on tubing and application conditions. With a clamp installed, the tubing burst pressure typically becomes the limiting factor.

Barb Fittings



Pages 7-30

Compression Fittings



Beswick compression fittings are designed with either one or two internal ferrules, which swage onto the outer diameter of a stiff plastic or metal tube to create a reliable line contact seal. Beswick compression fittings can typically handle very high pressures, 1,000 psig or more, depending on the model. Configurations with redundant o-ring seals are available, specifically designed to seal against Teflon tubing. Some models are also offered with a larger through hole to accommodate a thermocouple.

Pages 31-45

Threaded and Adaptor Fittings

Beswick offers a wide range of adaptor fittings to facilitate connections between imperial, metric, and NPT threaded ports.



Pages 46-62

Studs

Assembled into Beswick adjustable position elbow, tee, cross, and manifold type fittings.



Pages 63-66

Plugs

Used to block unused tubing or threaded ports.



Pages 67-68

Bulkhead Fittings

Fittings designed to mount through a panel.



Pages 69-70

Luer Fittings

Luers are typically used in medical applications. Due to the metal to metal seal, luers work best with liquid media at pressures less than 40 psig. Stainless steel design allows for cleaning in applications where a disposable Luer is undesirable. Industry standard design ensures they are compatible with plastic mating halves if one side is disposable.



Pages 71-72

Filters, Mufflers & Breathers

These fittings contain either a sintered metal filter element (5, 20, or 40 micron) or a 43 micron wire mesh screen for reducing exhaust and inlet noise, or filtering in pneumatic circuits.



Pages 73-75

Orifice Fittings

Beswick offers precision drilled orifices in brass and stainless steel, with diameters as small as 0.004 inches for flow control applications. For more demanding applications, sapphire jewels, which are extremely hard and wear resistant, are available in diameters as small as 0.003 inches.



Pages 76-81

Tubing and Accessories

Beswick offers high performance polyurethane tubing, coiled polyurethane tubing, and high pressure tubing, for use with Beswick fittings, as well as tubing clamps, pliers, and tubing cutters.



Pages 82-85

Did you know? Many brass fittings are available with an optional electroless nickel plated (ENP) finish. This finish provides the appearance of stainless steel without the added cost. Consult the factory for details.

PUSH-TO-CONNECT FITTINGS

PUSH-TO-CONNECT
STRAIGHT

Spotlight: Beswick Push-to-Connect Fittings

Beswick PTC series push-to-connect fittings are designed for use in challenging applications. The PTC incorporates Beswick's captured o-ring face seal technology for leak tight performance, and all components, including the release collar, are fabricated from stainless steel.

Beswick PTC fittings can be used with tubing materials such as polyurethane, polyethylene, and copper. Additionally, if your application requires corrosion resistance and/or elevated temperatures, the 1/4 inch OD size PTC fittings also work with stainless steel tubing.¹

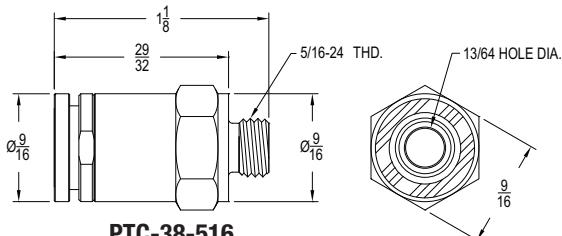


Straight Push-to-Connect Fittings - PTC

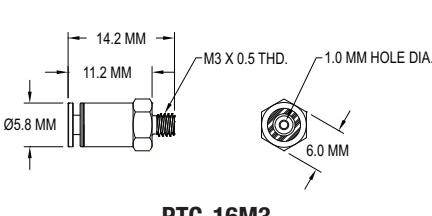
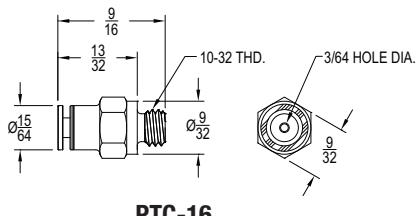
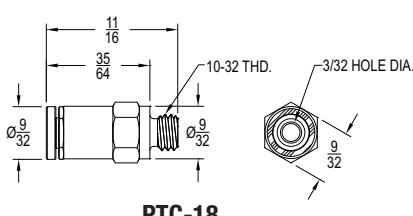
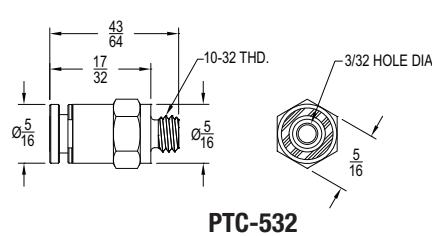
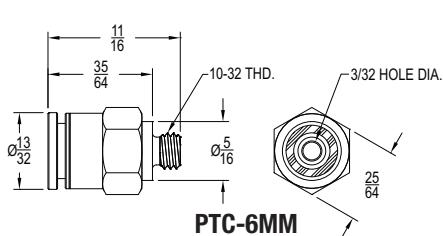
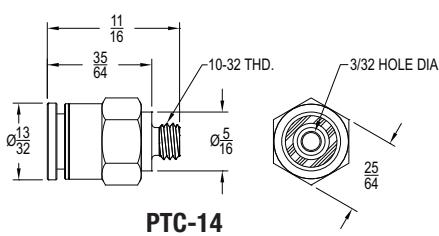
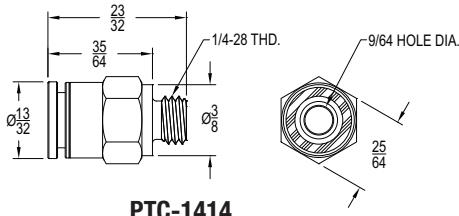
Description: Beswick PTC series all stainless steel push-to-connect fittings provide quick and simple tubing connection/disconnection and leak-tight performance in a space saving package.

Material: 303 or 316 stainless steel.

Seals: Buna-N O-rings. Optional materials: Viton®, Silicone, and EPDM. See page 1.



Part Number 303 Stainless	Part Number 316 Stainless	Suggested Tube OD	Thread Size	Installed Height	Through Hole
PTC-38-516-303		3/8"	5/16-24	29/32	13/64
PTC-1414-303		1/4"	1/4-28	35/64	9/64
PTC-14-303	PTC-14-316	1/4"	10-32	35/64	3/32
PTC-6MM-303		6 mm	10-32	35/64	3/32
PTC-532-303		5/32" (4 mm)	10-32	17/32	3/32
PTC-18-303		1/8"	10-32	35/64	3/32
PTC-16-303		1/16"	10-32	13/32	3/64
PTC-16M3-303		1/16"	M3	11.2 mm	1 mm



¹ Use of the **PTC** with stainless steel tubing requires a groove in the OD of the tube to allow the gripping ring to secure the tube.



PUSH-TO-CONNECT FITTINGS

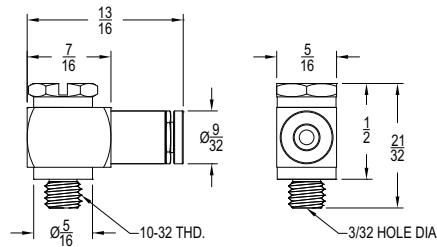


1/8" OD Tube – 10-32 Thread, Elbow, Adjustable Position

Description: 10-32 thread to 1/8" OD tube fitting, adjustable position.

Material: 303 or 316 stainless steel.

Seals: Three Buna-N O-rings. Optional materials: Viton®, Silicone, and EPDM. See page 1.



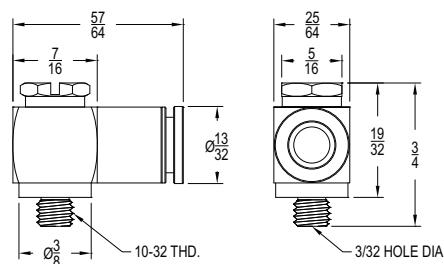
Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height
1/8	PTCSL-18-303	PTCSL-18-316	1/2

1/4" OD Tube – 10-32 Thread, Elbow, Adjustable Position

Description: 10-32 thread to 1/4" OD tube fitting, elbow, adjustable position.

Material: 303 or 316 stainless steel.

Seals: Three Buna-N O-rings. Optional materials: Viton®, Silicone, and EPDM. See page 1.



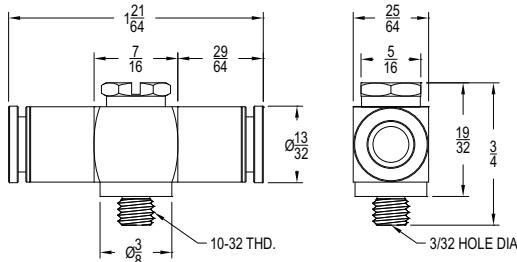
Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height
1/4	PTCSL-14-303	PTCSL-14-316	19/32

1/4" OD Tube – 10-32 Thread, Tee, Adjustable Position

Description: 10-32 thread to 1/4" OD tube fitting, tee, adjustable position.

Material: 303 or 316 stainless steel.

Seals: Four Buna-N O-rings. Optional materials: Viton®, Silicone, and EPDM. See page 1.



Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height
1/4	PTCST-14-303	PTCST-14-316	19/32

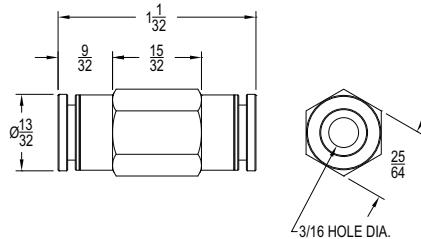
PUSH-TO-CONNECT FITTINGS

1/4" OD Tube – 1/4" OD Tube, Straight

Description: 1/4" OD tube to 1/4" OD tube fitting.

Material: 303 or 316 stainless steel.

Seals: Two Buna-N O-rings. Optional materials: Viton®, Silicone, and EPDM. See page 1.



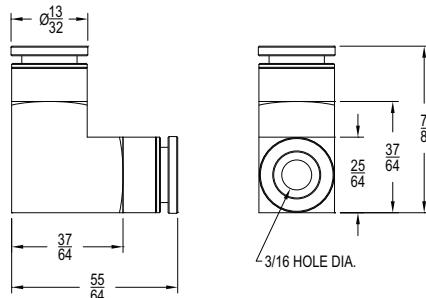
Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless
1/4	PTCU-14-303	PTCU-14-316

1/4" OD Tube – 1/4" OD Tube, Elbow, Fixed Position

Description: 1/4" OD tube to 1/4" OD tube fitting, elbow, fixed position.

Material: 303 or 316 stainless steel.

Seals: Two Buna-N O-rings. Optional materials: Viton®, Silicone, and EPDM. See page 1.



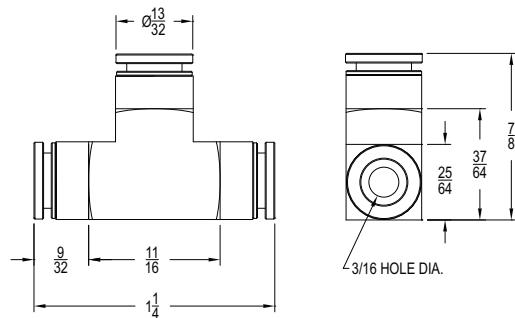
Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless
1/4	PTCUL-14-303	PTCUL-14-316

1/4" OD Tube, Tee, Fixed Position

Description: 1/4" OD tube to 1/4" OD tube fitting, tee, fixed position.

Material: 303 or 316 stainless steel.

Seals: Three Buna-N O-rings. Optional materials: Viton®, Silicone, and EPDM. See page 1.



Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless
1/4	PTCUT-14-303	PTCUT-14-316

BARBED FITTINGS

Barb Fitting – 10-32 External Thread

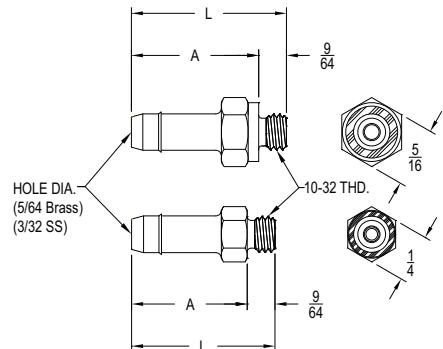
Description: 10-32 external threaded barb fitting.

Material: Brass, 303 or 316 stainless steel.

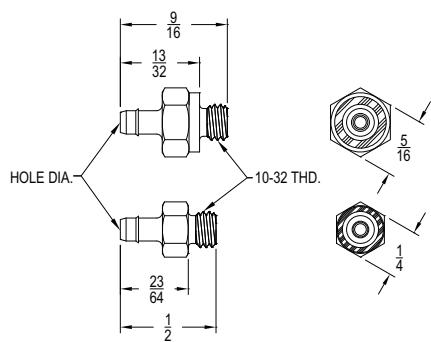
Seals: For 5/16 hex models: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone and Neoprene. For 1/4 hex models: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Note: Filters can be ordered in barb fittings (see page 73).



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hex Size	Installed Height A	L
1/4	MH-1004	MH-1004-303	MH-1004-316	5/16 hex	21/32	13/16
.170 to 3/16	MH-1008-1	MH-1008-1-303	MH-1008-1-316	5/16 hex	21/32	13/16
	MH-1008-1-1/4	MH-1008-1-1/4-303		1/4 hex	19/32	3/4
	MH-1008-2	MH-1008-2-303	MH-1008-2-316	5/16 hex	1/2	21/32
	MH-1008-2-1/4	MH-1008-2-1/4-303	MH-1008-2-1/4-316	1/4 hex	7/16	19/32
5/32 (4mm)	MH-1460	MH-1460-303		5/16 hex	1/2	21/32
1/8	MH-1332	MH-1332-303	MH-1332-316	5/16 hex	1/2	21/32
	MH-1332-1/4	MH-1332-1/4-303	MH-1332-1/4-316	1/4 hex	7/16	19/32



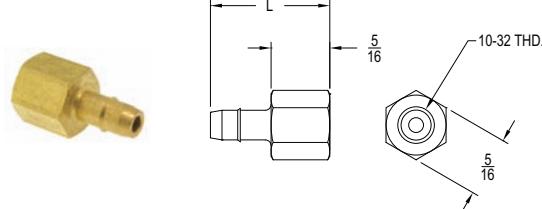
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hex Size	Hole Dia.
3/32	MH-1132	MH-1132-303	MH-1132-316	5/16 hex	1/16
	MH-1132-1/4	MH-1132-1/4-303	MH-1132-1/4-316	1/4 hex	1/16
5/64 (2mm)	MH-1016	MH-1016-303	MH-1016-316	5/16 hex	.052
	MH-1016-1/4	MH-1016-1/4-303		1/4 hex	.052
1/16	MH-1012	MH-1012-303	MH-1012-316	5/16 hex	3/64
	MH-1012-1/4	MH-1012-1/4-303	MH-1012-1/4-316	1/4 hex	3/64
3/64 (1.2mm)	MH-1046			5/16 hex	1/32
1/32		MH-1031-303		5/16 hex	1/32

Note: MH-1012 is also available in Titanium, the part number is: MH-1012-T2

Barb Fitting – 10-32 Internal Thread

Description: 10-32 internal threaded barb fitting.

Material: Brass or 316 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia.	L
.170 to 3/16			MHF-1008-1-316	3/32	49/64
.170 to 3/16			MHF-1008-2-316	3/32	5/8
1/8	MHF-1332	MHF-1332-303	MHF-1332-316	5/64 (in brass) 3/32 (in SS)	5/8
1/16	MHF-1012		MHF-1012-316	3/64	17/32

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

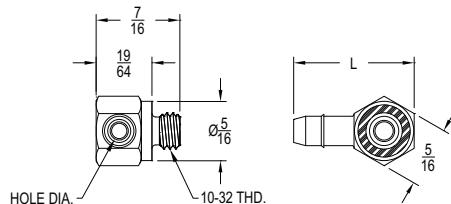
BARBED FITTINGS

Barb Fitting – 10-32 Thread, Elbow, Ultra Miniature, Fixed Position

Description: Ultra miniature, fixed position elbow with 10-32 thread and built-in barb.

Material: Brass.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Suggested Tube ID ¹	Part Number Brass	Hole Dia.	L
.170 to 3/16	MLA-1008-1	5/64	25/32
	MLA-1008-2	5/64	5/8
1/8	MLA-1332	5/64	5/8
3/32	MLA-1132	1/16	17/32
5/64 (2mm)	MLA-1016	.052	17/32
1/16	MLA-1012	3/64	17/32

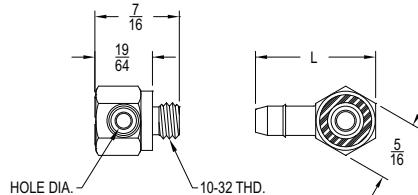
Barb Fitting – 10-32 Thread, Elbow, Ultra Miniature, Adjustable Position

Description: Ultra miniature, adjustable position elbow with 10-32 thread and built-in barb.

Material: Brass body with brass stud (MAS-1000).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.

Note: For best results use screwdriver size 6-8.



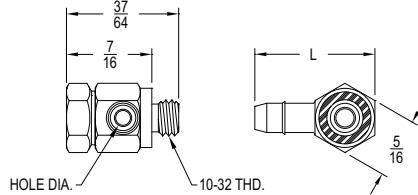
Suggested Tube ID ¹	Part Number Brass	Hole Dia.	L
1/8	MLAS-1332	5/64	5/8
3/32	MLAS-1132	1/16	17/32
5/64 (2mm)	MLAS-1016	.052	17/32
1/16	MLAS-1012	3/64	17/32

Barb Fitting – 10-32 Thread, Elbow, Hex Head Stud, Ultra Miniature, Adjustable Position

Description: Ultra miniature, adjustable position elbow with 10-32 thread and 5/16" hex head stud.

Material: Brass body with brass stud (MAS-1001).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Suggested Tube ID ¹	Part Number Brass	Hole Dia.	L
1/8	MLASH-1332	5/64	5/8
3/32	MLASH-1132	1/16	17/32
5/64 (2mm)	MLASH-1016	.052	17/32
1/16	MLASH-1012	3/64	17/32

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

BARBED FITTINGS

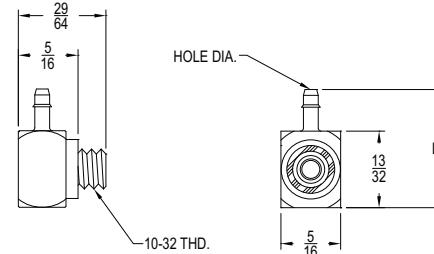
Barb Fitting – 10-32 Thread, Low Profile Elbow, Adjustable Position

Description: Low profile, adjustable position elbow with 10-32 thread and built-in barb.

Material: Brass, 303, or 316 stainless steel body and stud (MS-2000, MS-2000-303 or MS-2000-316).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.

Note: SMLS-1332 is also available in titanium; the part number is SMLS-1332-T2.



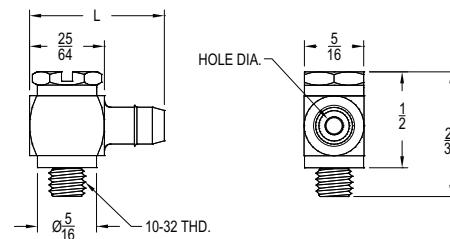
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Br	L
.170 to 3/16	SMLS-1008-2	SMLS-1008-2-303	SMLS-1008-2-316	3/32	5/64	23/32
1/8	SMLS-1332	SMLS-1332-303	SMLS-1332-316	3/32	5/64	23/32
3/32	SMLS-1132	SMLS-1132-303	SMLS-1132-316	1/16	1/16	5/8
5/64 (2mm)	SMLS-1016	SMLS-1016-303	SMLS-1016-316	.052	.052	5/8
1/16	SMLS-1012	SMLS-1012-303	SMLS-1012-316	3/64	3/64	5/8

Barb Fitting – 10-32 Thread, Elbow, Adjustable Position

Description: Adjustable position elbow with 10-32 thread and built-in barb.

Material: Brass, 303, or 316 stainless steel body and stud (MSB-1000, MS-1000-303, or MS-1000-316).

Seals: Two Buna-N O-rings, OR-516-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube ID ¹	Part Number Brass Body & Brass Stud ²	Part Number Brass Body & 303 Stud	Part Number 303 Body & 303 Stud	Part Number 316 Body & 316 Stud	Hole Dia. SS	Hole Dia. Br	L
.170 to 3/16	MLSB-1008-1	MLS-1008-1	MLS-1008-1-303	MLS-1008-1-316	3/32	5/64	55/64
	MLSB-1008-2	MLS-1008-2	MLS-1008-2-303	MLS-1008-2-316	3/32	5/64	45/64
1/8	MLSB-1332	MLS-1332	MLS-1332-303	MLS-1332-316	3/32	5/64	45/64
3/32	MLSB-1132	MLS-1132	MLS-1132-303	MLS-1132-316	1/16	1/16	39/64
5/64 (2mm)	MLSB-1016	MLS-1016	MLS-1016-303	MLS-1016-316	.052	.052	39/64
1/16	MLSB-1012	MLS-1012	MLS-1012-303	MLS-1012-316	3/64	3/64	39/64

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

² Brass stud does not have screwdriver slot.

BARBED FITTINGS

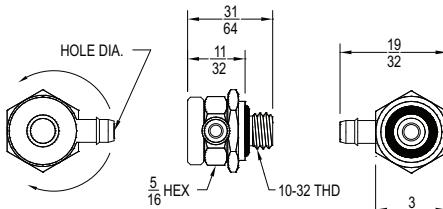
Barb Fitting – 10-32 Thread, 360° Swivel Elbow, Low Profile

Description: Low profile miniature swivel fitting with 10-32 thread and built-in barb. Designed to swivel freely 360 degrees in applications with low to moderate cycling.

Material: Brass body with 303 stainless steel stud.

Seals: Two Buna-N seals and one Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, and Silicone. See page 1.

Note: This fitting is not designed for continuous cycling. For moderate to high cycling or continuous rotary motion, the Beswick MSF series is recommended.



Suggested Tube ID ¹	Part Number Brass	Hole Dia.
3/32	MSL-1132	1/16
5/64 (2mm)	MSL-1016	.052
1/16	MSL-1012	3/64

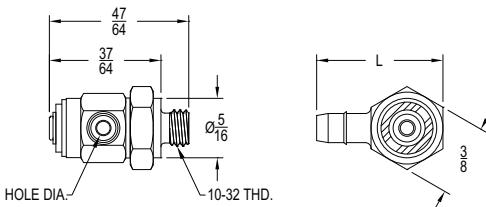
Barb Fitting – 10-32 Threads, 360° Swivel Elbow with Ball Bearings

Description: Miniature swivel fitting with 10-32 thread and built-in barb. Designed with ball bearings to swivel freely 360 degrees in applications with moderate to high cycling.

Material: Brass or 303 stainless steel body with 303 stainless steel stud and stainless steel ball bearings.

Seals: Two Buna-N seals and one Buna-N O-ring, OR-516-40-B. Optional material: EPDM and Viton®. See page 1.

Note: This fitting is not recommended for over 100 rpm. Please consult factory if your application is over 100 rpm.



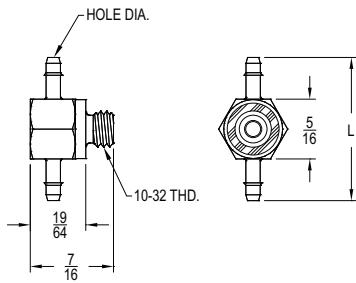
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia. SS	Hole Dia. Br	L
1/8	MSF-1332	MSF-1332-303	3/32	5/64	21/32
3/32	MSF-1132	MSF-1132-303	1/16	1/16	9/16
5/64 (2mm)	MSF-1016	MSF-1016-303	.052	.052	9/16
1/16	MSF-1012	MSF-1012-303	3/64	3/64	9/16

Barb Fitting – 10-32 Thread, Tee, Ultra Miniature, Fixed Position

Description: Ultra miniature, fixed position tee with 10-32 thread and built-in barbs.

Material: Brass.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Suggested Tube ID ¹	Part Number Brass	Hole Dia.	L
.170 to 3/16	MTA-1008-1	5/64	1 1/4
	MTA-1008-2	5/64	15/16
1/8	MTA-1332	5/64	15/16
3/32	MTA-1132	1/16	3/4
5/64 (2mm)	MTA-1016	.052	3/4
1/16	MTA-1012	3/64	3/4

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

BARBED FITTINGS

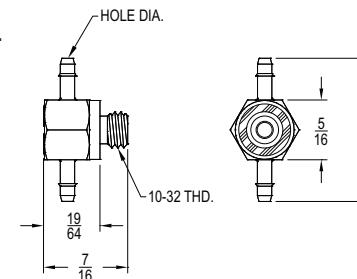
Barb Fitting – 10-32 Thread, Tee, Ultra Miniature, Adjustable Position

Description: Ultra miniature, adjustable position tee with 10-32 thread and built-in barbs.

Material: Brass body and stud (MAS-1000).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.

Note: For best results use screwdriver size 6-8.



Suggested Tube ID ¹	Part Number Brass	Hole Dia.	L
1/8	MTAS-1332	5/64	15/16
3/32	MTAS-1132	1/16	3/4
5/64 (2mm)	MTAS-1016	.052	3/4
1/16	MTAS-1012	3/64	3/4

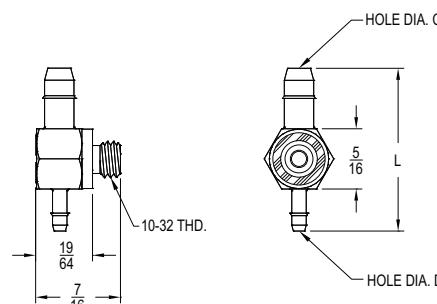
Barb Fitting – 10-32 Thread, Tee, Ultra Miniature, Reducer, Adjustable Position

Description: Ultra miniature, adjustable position tee with 10-32 thread and built-in reducing barbs.

Material: Brass body and stud (MAS-1000).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.

Note: For best results use screwdriver size 6-8.



Suggested Tube ID ¹ (Larger)	Suggested Tube ID ¹ (Smaller)	Part Number Brass	Hole Dia. C	Hole Dia. D	L
1/8	3/32	MTAS-1332-1132	5/64	1/16	27/32
1/8	5/64 (2 mm)	MTAS-1332-1016	5/64	.052	27/32
1/8	1/16	MTAS-1332-1012	5/64	3/64	27/32
3/32	5/64 (2 mm)	MTAS-1132-1016	1/16	.052	3/4
3/32	1/16	MTAS-1132-1012	1/16	3/64	3/4
5/64 (2 mm)	1/16	MTAS-1016-1012	.052	3/64	3/4

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

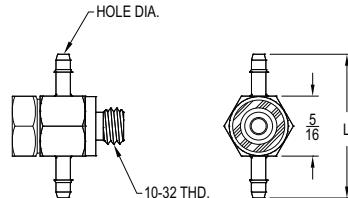
BARBED FITTINGS

Barb Fitting – 10-32 Thread, Tee, Ultra Miniature, Hex Head Stud, Adjustable Position

Description: Ultra miniature adjustable position tee with 10-32 thread, built-in barbs and 5/16" hex head stud.

Material: Brass body and stud (MAS-1001).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



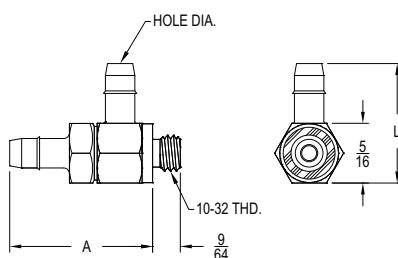
Suggested Tube ID ¹	Part Number Brass	Hole Dia.	L
1/8	MTASH-1332	5/64	15/16
3/32	MTASH-1132	1/16	3/4
5/64 (2mm)	MTASH-1016	.052	3/4
1/16	MTASH-1012	3/64	3/4

Barb Fitting – 10-32 Thread, Ultra Miniature Street Tee, Adjustable Position

Description: Ultra miniature, adjustable position tee with 10-32 thread and built-in barbs.

Material: Brass body and stud (MACS series).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Suggested Tube ID ¹	Part Number Brass	Installed Height A	Hole Dia.	L
1/8	MTACS-1332-1332	3/4	5/64	5/8
3/32	MTACS-1132-1132	21/32	1/16	17/32
5/64 (2mm)	MTACS-1016-1016	21/32	.052	17/32
1/16	MTACS-1012-1012	21/32	3/64	17/32

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

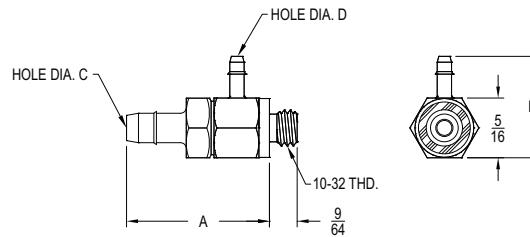
BARBED FITTINGS

Barb Fitting – 10-32 Thread, Ultra Miniature Street Tee, Reducer, Adjustable Position

Description: Ultra miniature, adjustable position tee with 10-32 thread and built-in reducing barbs.

Material: Brass body and stud (MACS series).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



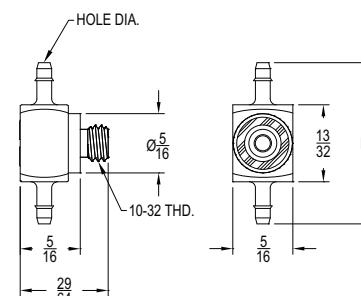
Suggested Tube ID ¹ Stud	Suggested Tube ID ¹ Body	Part Number Brass MTACS-Stud-Body	Installed Height A	Hole Dia. C	Hole Dia. D	L
1/8	3/32	MTACS-1332-1132	3/4	5/64	1/16	17/32
1/8	5/64 (2 mm)	MTACS-1332-1016	3/4	5/64	.052	17/32
1/8	1/16	MTACS-1332-1012	3/4	5/64	3/64	17/32
3/32	1/8	MTACS-1132-1332	21/32	1/16	5/64	5/8
3/32	5/64 (2 mm)	MTACS-1132-1016	21/32	1/16	.052	17/32
3/32	1/16	MTACS-1132-1012	21/32	1/16	3/64	17/32
5/64 (2 mm)	1/8	MTACS-1016-1332	21/32	.052	5/64	5/8
5/64 (2 mm)	3/32	MTACS-1016-1132	21/32	.052	1/16	17/32
5/64 (2 mm)	1/16	MTACS-1016-1012	21/32	.052	3/64	17/32
1/16	1/8	MTACS-1012-1332	21/32	3/64	5/64	5/8
1/16	3/32	MTACS-1012-1132	21/32	3/64	1/16	17/32
1/16	5/64 (2 mm)	MTACS-1012-1016	21/32	3/64	.052	17/32

Barb Fitting – 10-32 Thread, Tee, Low Profile, Adjustable Position

Description: Low profile, adjustable position tee with 10-32 thread and built-in barbs.

Material: Brass, 303, or 316 stainless steel body and stud (MS-2000, MS-2000-303, or MS-2000-316).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Br	L
.170 to 3/16	SMTS-1008-2		SMTS-1008-2-316	3/32	5/64	1 1/32
1/8		SMTS-1332-303	SMTS-1332-316	3/32		1 1/32
3/32		SMTS-1132-303		1/16		27/32
1/16	SMTS-1012		SMTS-1012-316	3/64	3/64	27/32

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

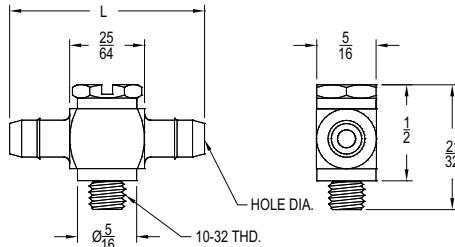
BARBED FITTINGS

Barb Fitting – 10-32 Thread, Tee, Adjustable Position

Description: Adjustable position tee with 10-32 thread and built-in barbs.

Material: Brass, 303, or 316 stainless steel body and stud (MSB-1000, MS-1000-303, or MS-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



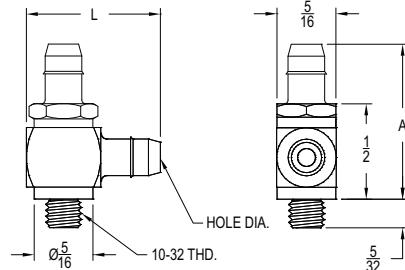
Suggested Tube ID ¹	Part Number Brass Body & Brass Stud ²	Part Number Brass Body & 303 Stud	Part Number 303 Body & 303 Stud	Part Number 316 Body & 316 Stud	Hole Dia. SS	Hole Dia. Br	L
.170 to 3/16	MTSB-1008-1	MTS-1008-1	MTS-1008-1-303	MTS-1008-1-316	3/32	5/64	1 5/16
	MTSB-1008-2	MTS-1008-2	MTS-1008-2-303	MTS-1008-2-316	3/32	5/64	1 1/64
1/8	MTSB-1332	MTS-1332	MTS-1332-303	MTS-1332-316	3/32	5/64	1 1/64
3/32	MTSB-1132	MTS-1132	MTS-1132-303	MTS-1132-316	1/16	1/16	53/64
5/64 (2mm)	MTSB-1016	MTS-1016	MTS-1016-303	MTS-1016-316	.052	.052	53/64
1/16	MTSB-1012	MTS-1012	MTS-1012-303	MTS-1012-316	3/64	3/64	53/64

Barb Fitting – 10-32 Thread, Street Tee, Adjustable Position

Description: Adjustable position tee with 10-32 thread, combination stud and built-in barb.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel combination stud (MCS-1008-1-303, MCS-1008-2-303, or MCS-1008-2-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube ID ¹ Stud	Suggested Tube ID ¹ Body	Part Number 303 Stud & Brass Body MTCS - Stud - Body	Part Number 303 Stud & 303 Body MTCS - Stud - Body	Part Number 316 Stud & 316 Body MTCS - Stud - Body	Hole Dia. SS	Hole Dia. Br	Installed Height A	L
.170 to 3/16	.170 to 3/16	MTCS-1008-1-1008-1	MTCS-1008-1-1008-1-303		3/32	5/64	31/32	55/64
.170 to 3/16	.170 to 3/16	MTCS-1008-1-1008-2	MTCS-1008-1-1008-2-303		3/32	5/64	31/32	45/64
.170 to 3/16	1/8	MTCS-1008-1-1332	MTCS-1008-1-1332-303		3/32	5/64	31/32	45/64
.170 to 3/16	3/32	MTCS-1008-1-1132	MTCS-1008-1-1132-303		1/16	1/16	31/32	39/64
.170 to 3/16	5/64 (2 mm)	MTCS-1008-1-1016	MTCS-1008-1-1016-303		.052	.052	31/32	39/64
.170 to 3/16	1/16	MTCS-1008-1-1012	MTCS-1008-1-1012-303		3/64	3/64	31/32	39/64
.170 to 3/16	.170 to 3/16	MTCS-1008-2-1008-1	MTCS-1008-2-1008-1-303	MTCS-1008-2-1008-1-316	3/32	5/64	13/16	55/64
.170 to 3/16	.170 to 3/16	MTCS-1008-2-1008-2	MTCS-1008-2-1008-2-303	MTCS-1008-2-1008-2-316	3/32	5/64	13/16	45/64
.170 to 3/16	1/8	MTCS-1008-2-1332	MTCS-1008-2-1332-303	MTCS-1008-2-1332-316	3/32	5/64	13/16	45/64
.170 to 3/16	3/32	MTCS-1008-2-1132	MTCS-1008-2-1132-303	MTCS-1008-2-1132-316	1/16	1/16	13/16	39/64
.170 to 3/16	5/64 (2 mm)	MTCS-1008-2-1016	MTCS-1008-2-1016-303	MTCS-1008-2-1016-316	.052	.052	13/16	39/64
.170 to 3/16	1/16	MTCS-1008-2-1012	MTCS-1008-2-1012-303	MTCS-1008-2-1012-316	3/64	3/64	13/16	39/64

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

² Brass stud does not have screwdriver slot.

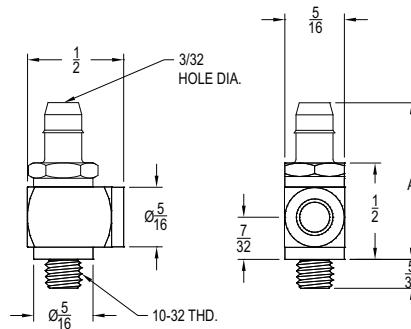
BARBED FITTINGS

Barb Fitting – 10-32 External Thread to 10-32 Internal Thread and Barb, Street Tee, Adjustable Position

Description: Adjustable position tee with 10-32 threads and combination stud.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel combination stud (MCS-1008-1-303, MCS-1008-2-303, or MCS-1008-2-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



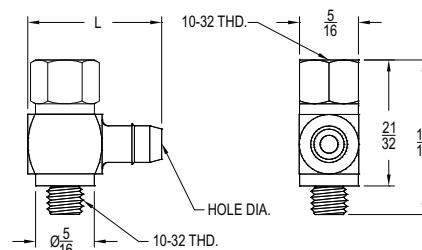
Suggested Tube ID ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height A
.170 to 3/16	MTCS-1008-1	MTCS-1008-1-303		31/32
.170 to 3/16	MTCS-1008-2	MTCS-1008-2-303	MTCS-1008-2-316	13/16

Barb Fitting – 10-32 External Thread to Barb and 10-32 Internal Thread, Street Tee, Adjustable Position

Description: Adjustable position tee with 10-32 threads, manifold stud and built-in barb.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel manifold stud (MS-1010-303 or MS-1010-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube ID ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Br	L
.170 to 3/16	MTM-1008-1	MTM-1008-1-303	MTM-1008-1-316	3/32	5/64	55/64
	MTM-1008-2	MTM-1008-2-303	MTM-1008-2-316	3/32	5/64	45/64
1/8	MTM-1332	MTM-1332-303	MTM-1332-316	3/32	5/64	45/64
3/32	MTM-1132	MTM-1132-303	MTM-1132-316	1/16	1/16	39/64
5/64 (2mm)	MTM-1016	MTM-1016-303	MTM-1016-316	.052	.052	39/64
1/16	MTM-1012	MTM-1012-303	MTM-1012-316	3/64	3/64	39/64

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

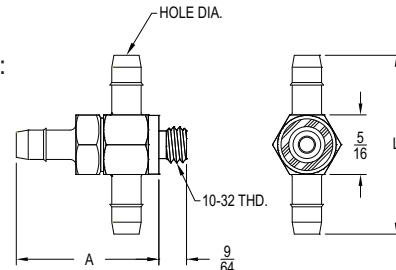
BARBED FITTINGS

Barb Fitting – 10-32 Thread, Ultra Miniature, Cross, Adjustable Position

Description: Adjustable position cross with built-in barbs and combination stud with 10-32 thread.

Material: Brass body and stud (MACS series).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



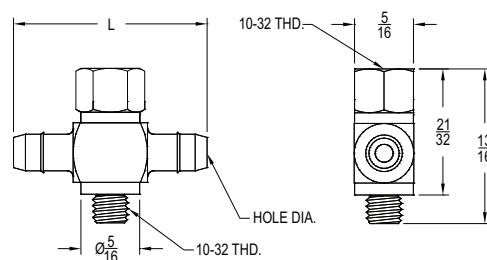
Suggested Tube ID ¹	Part Number Brass	Installed Height A	Hole Dia.	L
1/8	MCACS-1332-1332	3/4	5/64	15/16
3/32	MCACS-1132-1132	21/32	1/16	3/4
5/64 (2mm)	MCACS-1016-1016	21/32	.052	3/4
1/16	MCACS-1012-1012	21/32	3/64	3/4

Barb Fitting – 10-32 Threads and Barbs, Cross, Adjustable Position

Description: Adjustable position cross with 10-32 external thread, manifold stud with 10-32 internal thread and built-in barbs.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel manifold stud (MS-1010-303 or MS-1010-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube ID ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud	Hole Dia. SS	Hole Dia. Br	L
.170 to 3/16	MCM-1008-1	MCM-1008-1-303	MCM-1008-1-316	3/32	5/64	1 21/64
	MCM-1008-2	MCM-1008-2-303	MCM-1008-2-316	3/32	5/64	1 1/64
1/8	MCM-1332	MCM-1332-303	MCM-1332-316	3/32	5/64	1 1/64
3/32	MCM-1132	MCM-1132-303	MCM-1132-316	1/16	1/16	53/64
5/64 (2mm)	MCM-1016	MCM-1016-303	MCM-1016-316	.052	.052	53/64
1/16	MCM-1012	MCM-1012-303	MCM-1012-316	3/64	3/64	53/64

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

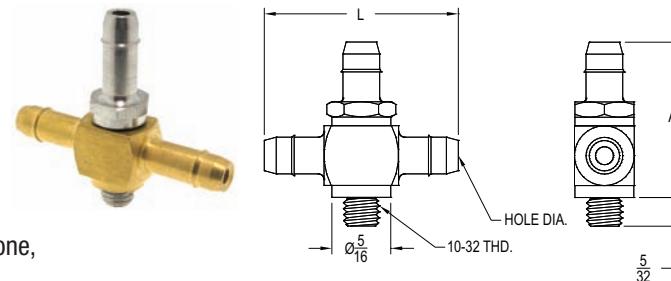
BARBED FITTINGS

Barb Fitting – 10-32 Thread and Barbs, Cross, Adjustable Position

Description: Adjustable position cross with 10-32 thread, combination stud and built-in barbs.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel combination stud (MCS-1008-1-303, MCS-1008-2-303, or MCS-1008-2-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



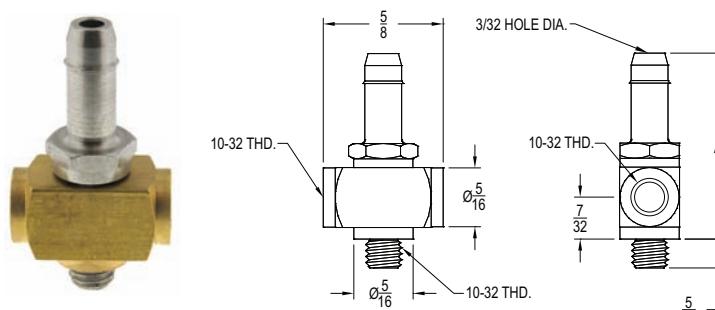
Suggested Tube ID ¹ Stud	Suggested Tube ID ¹ Body	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud	Hole Dia. SS	Hole Dia. Br	Installed Height A	L
.170 to 3/16	.170 to 3/16	MCCS-1008-1-1008-1	MCCS-1008-1-1008-1-303		3/32	5/64	31/32	1 21/64
.170 to 3/16	.170 to 3/16	MCCS-1008-1-1008-2	MCCS-1008-1-1008-2-303		3/32	5/64	31/32	1 1/64
.170 to 3/16	1/8	MCCS-1008-1-1332	MCCS-1008-1-1332-303		3/32	5/64	31/32	1 1/64
.170 to 3/16	3/32	MCCS-1008-1-1132	MCCS-1008-1-1132-303		1/16	1/16	31/32	53/64
.170 to 3/16	5/64 (2 mm)	MCCS-1008-1-1016	MCCS-1008-1-1016-303		.052	.052	31/32	53/64
.170 to 3/16	1/16	MCCS-1008-1-1012	MCCS-1008-1-1012-303		3/64	3/64	31/32	53/64
.170 to 3/16	.170 to 3/16	MCCS-1008-2-1008-1	MCCS-1008-2-1008-1-303	MCCS-1008-2-1008-1-316	3/32	5/64	13/16	1 21/64
.170 to 3/16	.170 to 3/16	MCCS-1008-2-1008-2	MCCS-1008-2-1008-2-303	MCCS-1008-2-1008-2-316	3/32	5/64	13/16	1 1/64
.170 to 3/16	1/8	MCCS-1008-2-1332	MCCS-1008-2-1332-303	MCCS-1008-2-1332-316	3/32	5/64	13/16	1 1/64
.170 to 3/16	3/32	MCCS-1008-2-1132	MCCS-1008-2-1132-303	MCCS-1008-2-1132-316	1/16	1/16	13/16	53/64
.170 to 3/16	5/64 (2 mm)	MCCS-1008-2-1016	MCCS-1008-2-1016-303	MCCS-1008-2-1016-316	.052	.052	13/16	53/64
.170 to 3/16	1/16	MCCS-1008-2-1012	MCCS-1008-2-1012-303	MCCS-1008-2-1012-316	3/64	3/64	13/16	53/64

Fitting – 10-32 Threads and Barb, Cross, Adjustable Position

Description: Adjustable position cross with 10-32 threads and combination stud with barb for .170 to 3/16 inch ID tube.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel combination stud (MCS-1008-1-303, MCS-1008-2-303, or MCS-1008-2-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud	Installed Height A
MCCS-1008-1	MCCS-1008-1-303		31/32
MCCS-1008-2	MCCS-1008-2-303	MCCS-1008-2-316	13/16

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

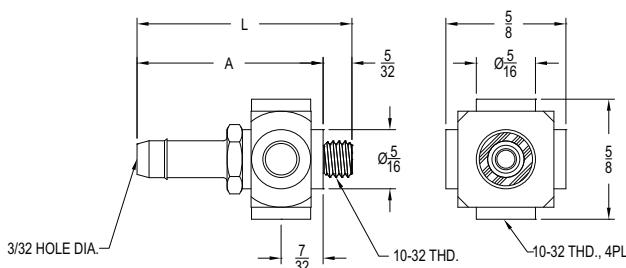
BARBED FITTINGS

6 Port Fitting – 10-32 Threads and Barb, Adjustable Position

Description: Adjustable position 6-port fitting with 10-32 threads and combination stud.

Material: Brass or 303 stainless steel body with 303 stainless steel combination stud (MCS-1008-1-303 or MCS-1008-2-303).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



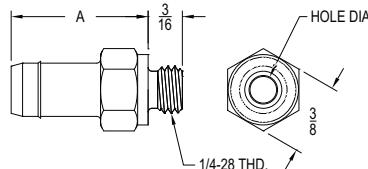
Suggested Tube ID ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless	Installed Height A	L
.170 to 3/16	MKCS-1008-1	MKCS-1008-1-303	31/32	1 1/8
.170 to 3/16	MKCS-1008-2	MKCS-1008-2-303	13/16	31/32

Barb Fitting – 1/4-28 External Thread

Description: 1/4-28 external threaded barb fitting.

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-1428-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Neoprene. See page 1.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height A	Hole Dia. Br	Hole Dia. SS
1/4	MH-1004-1428	MH-1004-1428-303	MH-1004-1428-316	23/32	9/64	9/64
.170 to 3/16	MH-1008-1-1428	MH-1008-1-1428-303	MH-1008-1-1428-316	23/32	9/64	9/64
1/8	MH-1332-1428	MH-1332-1428-303	MH-1332-1428-316	9/16	3/32	7/64

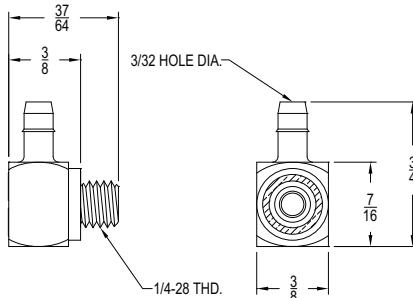


Barb Fitting - 1/4-28 Thread, Low Profile Elbow, Adjustable Position

Description: Low profile adjustable position elbow with 1/4-28 thread and built-in barb.

Material: ENP brass or 303 stainless steel body and stud.

Seals: Two Buna-N O-rings. Optional materials: EPDM, Viton®, and Silicone. See page 1.



Suggested Tube ID ¹	Part Number ENP Brass	Part Number 303 Stainless
.170 - 3/16		SMLS-1008-2-1428-303
1/8	SMLS-1332-1428-ENP	

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

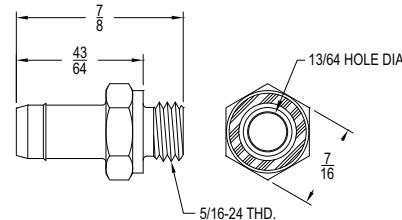
BARBED FITTINGS

Barb Fitting – 5/16-24 External Thread

Description: 5/16-24 external threaded barb fitting.

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-51624-B. Optional materials: Viton® and EPDM. See page 1.



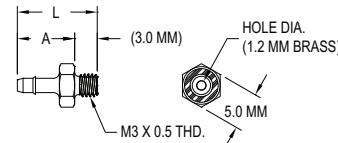
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
1/4	MH-1004-51624	MH-1004-51624-3	MH-1004-51624-6

Barb Fitting – M3 External Thread

Description: M3 external threaded barb fitting.

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



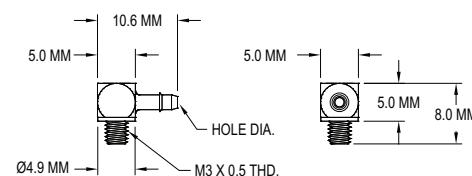
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height A	Hole Dia. Stainless	L
1/8" (3.2 mm)	M3H-1332	M3H-1332-303	M3H-1332-316	9.8 mm (25/64")	1.6 mm (1/16")	12.8 mm (1/2")
3/32" (2.4 mm)	M3H-1132	M3H-1132-303	M3H-1132-316	7.5 mm (19/64")	1.6 mm (1/16")	10.5 mm (27/64")
5/64" (2.0 mm)	M3H-1016	M3H-1016-303	M3H-1016-316	7.5 mm (19/64")	1.3 mm (.052")	10.5 mm (27/64")
1/16" (1.6 mm)	M3H-1012	M3H-1012-303	M3H-1012-316	7.5 mm (19/64")	1.2 mm (3/64")	10.5 mm (27/64")
3/64" (1.2 mm)		M3H-1046-303		7.5 mm (19/64")	0.8 mm (1/32")	10.5 mm (27/64")

Barb Fitting – M3 Thread, Elbow, Adjustable Position

Description: Adjustable position elbow with M3 thread and built-in barb.

Material: Brass, 303, or 316 stainless steel body and 303 or 316 stainless steel stud (M3S-1000-303 or M3S-1000-316).

Seals: Two Buna-N O-rings, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



Suggested Tube ID ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia.
3/32" (2.4 mm)	M3LS-1132	M3LS-1132-303		1.3 mm (.052")
5/64" (2.0 mm)	M3LS-1016	M3LS-1016-303	M3LS-1016-316	1.3 mm (.052")
1/16" (1.6 mm)	M3LS-1012	M3LS-1012-303	M3LS-1012-316	1.2 mm (3/64")
3/64" (1.2 mm)		M3LS-1046-303		0.8 mm (1/32")

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

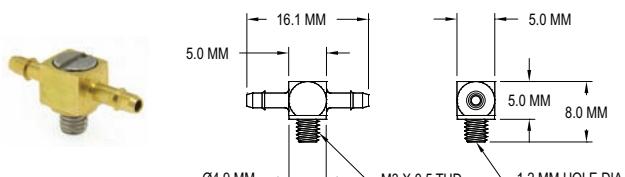
BARBED FITTINGS

Barb Fitting – M3 Thread, Tee, Ultra Miniature, Adjustable Position

Description: Ultra miniature, adjustable position tee with M3 thread and built-in barbs.

Material: Brass, 303, or 316 stainless steel body and 303 or 316 stainless steel stud (M3S-1000-303 or M3S-1000-316).

Seals: Two Buna-N O-rings, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



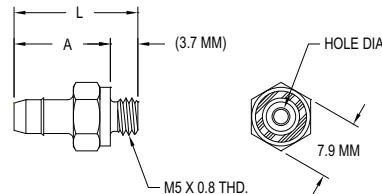
Suggested Tube ID ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud
1/16" (1.6mm)	M3TS-1012	M3TS-1012-303	M3TS-1012-316

Barb Fitting – M5 External Thread

Description: M5 external threaded barb fitting.

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



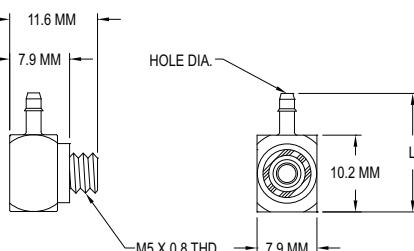
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height A	Hole Dia. Brass	Hole Dia. SS	L
.170" to 3/16" (4.5 mm)	M5H-1008-1		M5H-1008-1-316	16.7 mm (21/32")	2.0 mm (5/64")	2.4 mm (3/32")	20.4 mm (13/16")
	M5H-1008-2	M5H-1008-2-303	M5H-1008-2-316	12.7 mm (1/2")	2.0 mm (5/64")	2.4 mm (3/32")	16.4 mm (21/32")
5/32" (4.0 mm)	M5H-1460	M5H-1460-303	M5H-1460-316	12.7 mm (1/2")	2.0 mm (5/64")	2.4 mm (3/32")	16.4 mm (21/32")
1/8" (3.2 mm)	M5H-1332	M5H-1332-303	M5H-1332-316	12.7 mm (1/2")	2.0 mm (5/64")	2.4 mm (3/32")	16.4 mm (21/32")
3/32" (2.4 mm)	M5H-1132	M5H-1132-303	M5H-1132-316	10.3 mm (13/32")	1.6 mm (1/16")	1.6 mm (1/16")	14.0 mm (9/16")
5/64" (2.0 mm)	M5H-1016	M5H-1016-303		10.3 mm (13/32")	1.3 mm (.052")	1.3 mm (.052")	14.0 mm (9/16")
1/16" (1.6 mm)	M5H-1012	M5H-1012-303	M5H-1012-316	10.3 mm (13/32")	1.2 mm (3/64")	1.2 mm (3/64")	14.0 mm (9/16")

Barb Fitting – M5 Thread, Elbow, Low Profile, Adjustable Position

Description: Low profile, adjustable position elbow with M5 thread and built-in barb.

Material: Brass, 303, or 316 stainless steel body and stud (M5S-2000, M5S-2000-303, or M5S-2000-316).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. Brass	Hole Dia. SS	L
.170" to 3/16" (4.5 mm)	S5MLS-1008-2	S5MLS-1008-2-303	S5MLS-1008-2-316	2.0 mm (5/64")	2.4 mm (3/32")	18.3 mm (23/32")
1/8" (3.2 mm)	S5MLS-1332	S5MLS-1332-303	S5MLS-1332-316	2.0 mm (5/64")	2.4 mm (3/32")	18.3 mm (23/32")
3/32" (2.4 mm)	S5MLS-1132	S5MLS-1132-303	S5MLS-1132-316	1.6 mm (1/16")	1.6 mm (1/16")	15.8 mm (5/8")
5/64" (2.0 mm)	S5MLS-1016	S5MLS-1016-303	S5MLS-1016-316	1.3 mm (.052")	1.3 mm (.052")	15.8 mm (5/8")
1/16" (1.6 mm)	S5MLS-1012	S5MLS-1012-303	S5MLS-1012-316	1.2 mm (3/64")	1.2 mm (3/64")	15.8 mm (5/8")

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

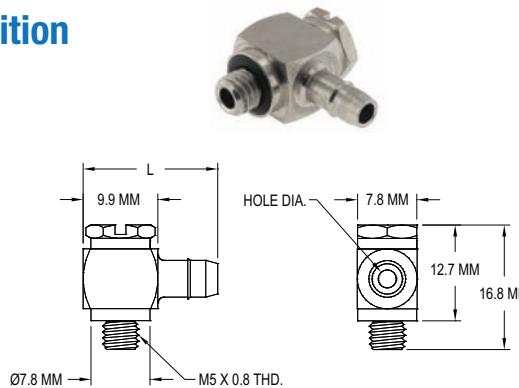
BARBED FITTINGS

Barb Fitting – M5 Thread, Elbow, Adjustable Position

Description: Adjustable position elbow with M5 thread and built-in barb.

Material: Brass, 303, or 316 stainless steel body with brass, 303, or 316 stainless steel stud (M5SB-1000, M5S-1000-303, or M5S-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



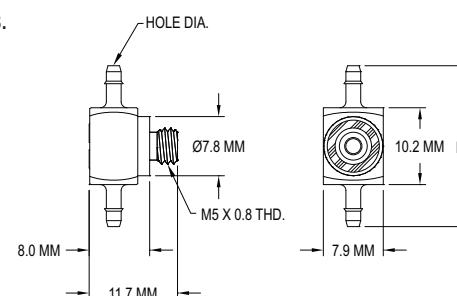
Suggested Tube ID ¹	Part Number Brass Body & Brass Stud ²	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud	Hole Dia. SS	Hole Dia. Br	L
.170" to 3/16" (4.5 mm)	M5LSB-1008-1	M5LS-1008-1	M5LS-1008-1-303	M5LS-1008-1-316	2.4 mm (3/32")	2.0 mm (5/64")	21.8 mm (55/64")
	M5LSB-1008-2	M5LS-1008-2	M5LS-1008-2-303	M5LS-1008-2-316	2.4 mm (3/32")	2.0 mm (5/64")	17.9 mm (45/64")
5/32" (4.0 mm)			M5LS-1460-303		2.8 mm (7/64")		17.9 mm (45/64")
1/8" (3.2 mm)	M5LSB-1332	M5LS-1332	M5LS-1332-303	M5LS-1332-316	2.4 mm (3/32")	2.0 mm (5/64")	17.9 mm (45/64")
3/32" (2.4 mm)	M5LSB-1132	M5LS-1132	M5LS-1132-303	M5LS-1132-316	1.6 mm (1/16")	1.6 mm (1/16")	15.5 mm (39/64")
5/64" (2.0 mm)	M5LSB-1016	M5LS-1016	M5LS-1016-303	M5LS-1016-316	1.3 mm (.052")	1.3 mm (.052")	15.5 mm (39/64")
1/16" (1.6 mm)	M5LSB-1012	M5LS-1012	M5LS-1012-303	M5LS-1012-316	1.2 mm (3/64")	1.2 mm (3/64")	15.5 mm (39/64")

Barb Fitting – M5 Thread, Tee, Low Profile, Adjustable Position

Description: Low profile, adjustable position tee with M5 thread and built-in barbs.

Material: Brass, 303, or 316 stainless steel body and stud (M5S-2000, M5S-2000-303, or M5S-2000-316).

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Br	L
.170" to 3/16" (4.5 mm)	S5MTS-1008-2				2.0 mm (5/64")	26.1 mm (1 1/32")
1/8" (3.2 mm)		S5MTS-1332-303	S5MTS-1332-316	2.4 mm (3/32")		26.1 mm (1 1/32")
3/32" (2.4 mm)		S5MTS-1132-303		1.6 mm (1/16")		21.3 mm (27/32")
1/16" (1.6 mm)	S5MTS-1012		S5MTS-1012-316	1.2 mm (3/64")	1.2 mm (3/64")	21.3 mm (27/32")

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

²Brass stud does not have a screwdriver slot.

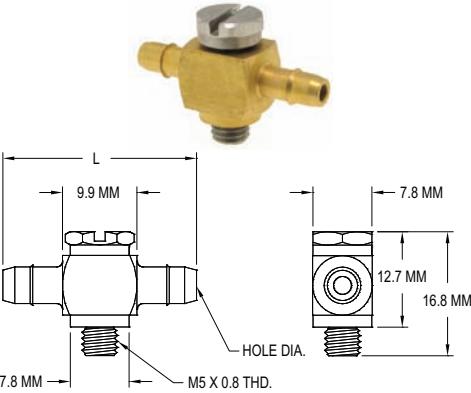
BARBED FITTINGS

Barb Fitting – M5 Thread, Tee, Adjustable Position

Description: Adjustable position tee with M5 thread and built-in barbs.

Material: Brass, 303, or 316 stainless steel body with brass, 303, or 316 stainless steel stud (M5SB-1000, M5S-1000-303, or M5S-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube ID ¹	Part Number Brass Body & Brass Stud ²	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud	Hole Dia. SS	Hole Dia. Brass	L
.170" to 3/16" (4.5 mm)	M5TSB-1008-1	M5TS-1008-1	M5TS-1008-1-303	M5TS-1008-1-316	2.4 mm (3/32")	2.0 mm (5/64")	33.3 mm (1 5/16")
	M5TSB-1008-2	M5TS-1008-2	M5TS-1008-2-303	M5TS-1008-2-316	2.4 mm (3/32")	2.0 mm (5/64")	25.8 mm (1 1/64")
1/8" (3.2 mm)	M5TSB-1332	M5TS-1332	M5TS-1332-303	M5TS-1332-316	2.4 mm (3/32")	2.0 mm (5/64")	25.8 mm (1 1/64")
3/32" (2.4 mm)	M5TSB-1132	M5TS-1132	M5TS-1132-303	M5TS-1132-316	1.6 mm (1/16")	1.6 mm (1/16")	21.0mm (53/64")
5/64" (2.0 mm)	M5TSB-1016	M5TS-1016	M5TS-1016-303	M5TS-1016-316	1.3 mm (.052")	1.3 mm (.052")	21.0mm (53/64")
1/16" (1.6 mm)	M5TSB-1012	M5TS-1012	M5TS-1012-303	M5TS-1012-316	1.2 mm (3/64")	1.2 mm (3/64")	21.0mm (53/64")

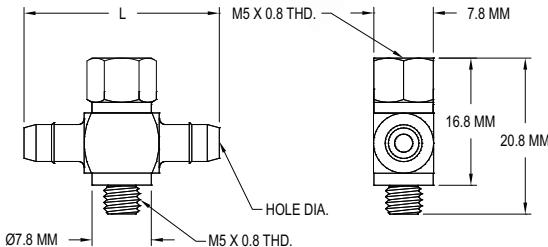
Barb Fitting – M5 Threads and Barbs, Cross, Adjustable Position

Description: Adjustable position cross with M5 external thread, manifold stud with M5 internal thread, and built-in barbs.



Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel manifold stud (M5S-M5-303 or M5S-M5-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube ID ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud	Hole Dia. SS	Hole Dia. Brass	L
.170" to 3/16" (4.5 mm)	M5CM-1008-1	M5CM-1008-1-303	M5CM-1008-1-316	2.4 mm (3/32")	2.0 mm (5/64")	33.3 mm (1 5/16")
	M5CM-1008-2	M5CM-1008-2-303	M5CM-1008-2-316	2.4 mm (3/32")	2.0 mm (5/64")	25.8 mm (1 1/64")
1/8" (3.2 mm)	M5CM-1332	M5CM-1332-303	M5CM-1332-316	2.4 mm (3/32")	2.0 mm (5/64")	25.8 mm (1 1/64")
3/32" (2.4 mm)	M5CM-1132	M5CM-1132-303	M5CM-1132-316	1.6 mm (1/16")	1.6 mm (1/16")	21.0mm (53/64")
5/64" (2.0 mm)	M5CM-1016	M5CM-1016-303	M5CM-1016-316	1.3 mm (.052")	1.3 mm (.052")	21.0mm (53/64")
1/16" (1.6 mm)	M5CM-1012	M5CM-1012-303	M5CM-1012-316	1.2 mm (3/64")	1.2 mm (3/64")	21.0mm (53/64")

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

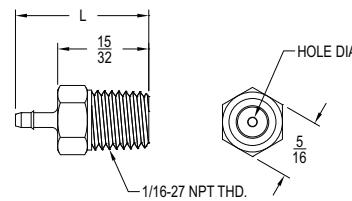
² Brass stud does not have screwdriver slot.

BARBED FITTINGS

Barb Fitting – 1/16" NPT External Pipe Thread

Description: 1/16" NPT external threaded barb fitting.

Material: Brass or 303 stainless steel.

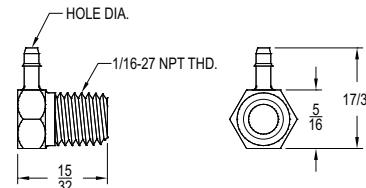


Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia. SS	Hole Dia. Br	L
.170 to 3/16	MPAH-6008-1	MPAH-6008-1-303	3/32	5/64	15/16
	MPAH-6008-2	MPAH-6008-2-303	3/32	5/64	51/64
1/8	MPAH-6332	MPAH-6332-303	3/32	5/64	51/64
3/32	MPAH-6132	MPAH-6132-303	1/16	1/16	11/16
5/64 (2mm)	MPAH-6016	MPAH-6016-303	.052	.052	11/16
1/16	MPAH-6012	MPAH-6012-303	3/64	3/64	11/16

Barb Fitting – 1/16" NPT External Pipe Thread, Elbow

Description: Elbow fitting with 1/16" NPT external thread and built-in barb.

Material: Brass or 303 stainless steel.



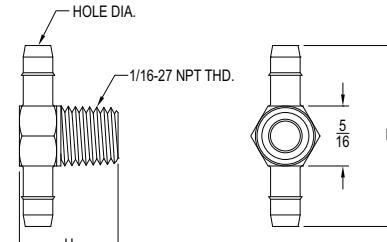
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia.
3/32	MPAL-6132	MPAL-6132-303	1/16
5/64 (2mm)	MPAL-6016	MPAL-6016-303	.052
1/16	MPAL-6012	MPAL-6012-303	3/64

Barb Fitting – 1/16" NPT External Pipe Thread, Tee



Description: Tee fitting with 1/16" NPT external thread and built-in barbs.

Material: 303 stainless steel.



Suggested Tube ID ¹	Part Number 303 Stainless	Hole Dia.	H	L
1/8	MPAT-6332-303	3/32	33/64	15/16
1/16	MPAT-6012-303	3/64	31/64	3/4

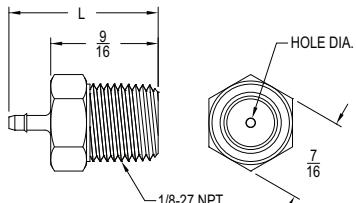
¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

BARBED FITTINGS

Barb Fitting – 1/8" NPT External Pipe Thread

Description: 1/8" NPT external threaded barb fitting.

Material: Brass or 303 stainless steel.

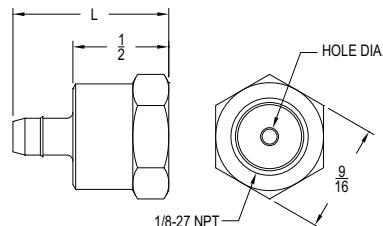


Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia. SS	Hole Dia. Br	L
1/4	MPAH-8004	MPAH-8004-303	3/16	3/16	1 1/32
.170 to 3/16	MPAH-8008-1	MPAH-8008-1-303	3/32	5/64	1 1/32
	MPAH-8008-2	MPAH-8008-2-303	3/32	5/64	7/8
1/8	MPAH-8332	MPAH-8332-303	3/32	5/64	7/8
3/32	MPAH-8132	MPAH-8132-303	1/16	1/16	25/32
5/64 (2mm)	MPAH-8016	MPAH-8016-303	.052	.052	25/32
1/16	MPAH-8012	MPAH-8012-303	3/64	3/64	25/32

Barb Fitting – 1/8" NPT Internal Pipe Thread

Description: 1/8" NPT internal threaded barb fitting.

Material: Brass or 303 stainless steel.

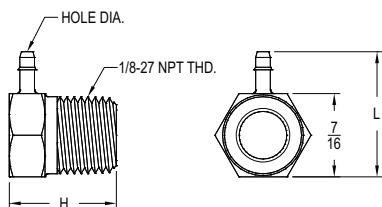


Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia.	L
.170 to 3/16	MPFAH-8008-1		5/64	31/32
	MPFAH-8008-2		5/64	13/16
1/8	MPFAH-8332	MPFAH-8332-303	5/64 (3/32 in SS)	13/16
3/32	MPFAH-8132		1/16	23/32
5/64 (2 mm)	MPFAH-8016		.052	23/32
1/16	MPFAH-8012		3/64	23/32

Barb Fitting – 1/8" NPT External Pipe Thread, Elbow

Description: Elbow fitting with 1/8" NPT external thread and built-in barb.

Material: Brass, 303, or 316 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Br	L	H
.170 to 3/16	MPAL-8008-1	MPAL-8008-1-303		3/32	5/64	29/32	3/4
	MPAL-8008-2	MPAL-8008-2-303		3/32	5/64	3/4	3/4
1/8	MPAL-8332	MPAL-8332-303	MPAL-8332-316	3/32	5/64	3/4	9/16
3/32	MPAL-8132	MPAL-8132-303		1/16	1/16	21/32	9/16
5/64 (2mm)	MPAL-8016	MPAL-8016-303		.052	.052	21/32	9/16
1/16	MPAL-8012	MPAL-8012-303		3/64	3/64	21/32	9/16

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

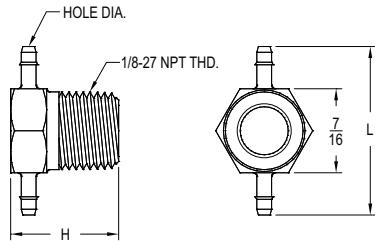


BARBED FITTINGS

Barb Fitting – 1/8" NPT External Pipe Thread, Tee

Description: Tee fitting with 1/8" NPT external thread and built-in barbs.

Material: Brass or 303 stainless steel.



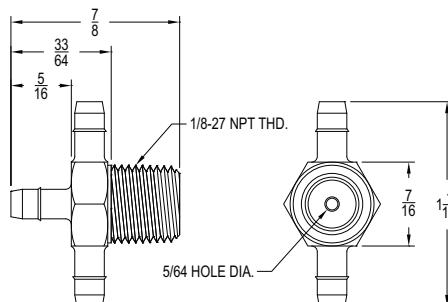
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia. SS	Hole Dia. Br	L	H
.170 to 3/16	MPAT-8008-1	MPAT-8008-1-303	3/32	5/64	1 3/8	3/4
	MPAT-8008-2	MPAT-8008-2-303	3/32	5/64	1 1/16	3/4
1/8	MPAT-8332	MPAT-8332-303	3/32	5/64	1 1/16	9/16
3/32	MPAT-8132	MPAT-8132-303	1/16	1/16	7/8	9/16
5/64 (2mm)	MPAT-8016	MPAT-8016-303	.052	.052	7/8	9/16
1/16	MPAT-8012	MPAT-8012-303	3/64	3/64	7/8	9/16

Barb Fitting – 1/8" NPT External Pipe Thread, Cross



Description: Cross fitting with 1/8" NPT external thread and built in barbs for 1/8" ID tubing.

Material: Brass.

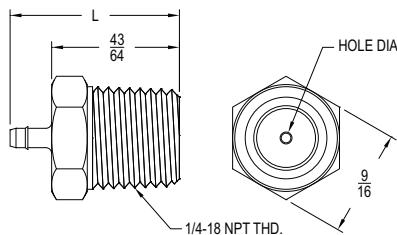


Suggested Tube ID ¹	Part Number Brass
1/8	MPAC-8332

Barb Fitting – 1/4" NPT External Pipe Thread

Description: 1/4" NPT external threaded barb fitting.

Material: Brass or 303 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia. SS	Hole Dia. Br	L
1/4	MPAH-4004			3/16	1 9/64
.170 to 3/16	MPAH-4008-1	MPAH-4008-1-303	3/32	5/64	1 9/64
	MPAH-4008-2	MPAH-4008-2-303	3/32	5/64	63/64
1/8	MPAH-4332	MPAH-4332-303	3/32	5/64	63/64
3/32	MPAH-4132	MPAH-4132-303	1/16	1/16	57/64
5/64 (2mm)	MPAH-4016	MPAH-4016-303	.052	.052	57/64
1/16	MPAH-4012	MPAH-4012-303	3/64	3/64	57/64

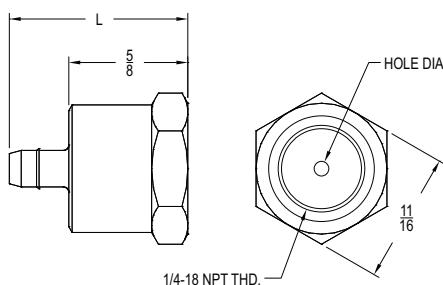
¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

BARBED FITTINGS

Barb Fitting – 1/4" NPT Internal Pipe Thread

Description: 1/4" NPT internal threaded barb fitting.

Material: Brass.

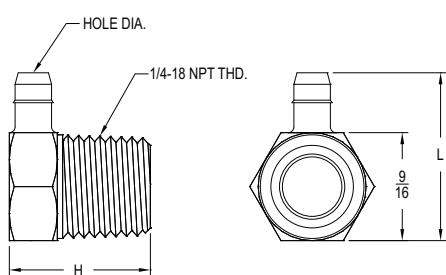


Suggested Tube ID ¹	Part Number Brass	Hole Dia.	L
.170 to 3/16	MPFAH-4008-1	5/64	1 3/32
	MPFAH-4008-2	5/64	15/16
1/8	MPFAH-4332	5/64	15/16
3/32	MPFAH-4132	1/16	27/32
5/64 (2mm)	MPFAH-4016	.052	27/32
1/16	MPFAH-4012	3/64	27/32

Barb Fitting – 1/4" NPT External Pipe Thread, Elbow

Description: Elbow fitting with 1/4" NPT external thread and built-in barb.

Material: Brass, 303, or 316 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Br	L	H
1/4		MPAL-4004-303		3/16		1 1/32	13/16
.170 to 3/16	MPAL-4008-1	MPAL-4008-1-303		3/32	5/64	1 1/32	47/64
	MPAL-4008-2	MPAL-4008-2-303		3/32	5/64	7/8	47/64
1/8	MPAL-4332	MPAL-4332-303	MPAL-4332-316	3/32	5/64	7/8	43/64
3/32	MPAL-4132	MPAL-4132-303		1/16	1/16	25/32	43/64
5/64 (2mm)	MPAL-4016	MPAL-4016-303		.052	.052	25/32	43/64
1/16	MPAL-4012	MPAL-4012-303		3/64	3/64	25/32	43/64

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

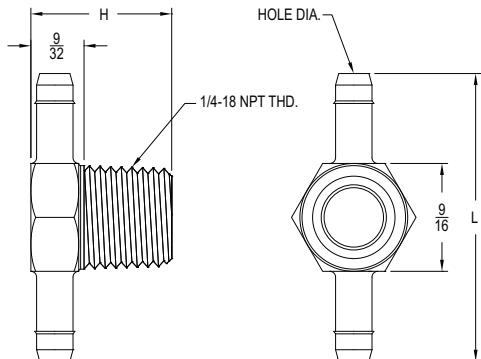
BARBED FITTINGS

BARB FITTINGS
 1/4" NPT THREAD, BARB INSERTS

Barb Fitting – 1/4" NPT External Pipe Thread, Tee

Description: Tee fitting with 1/4" NPT external thread and built-in barbs.

Material: Brass or 303 stainless steel.



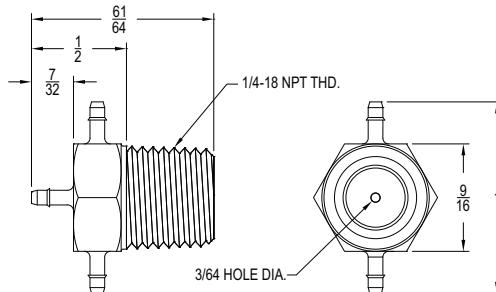
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia. SS	Hole Dia. Br	L	H
.170 to 3/16	MPAT-4008-1	MPAT-4008-1-303	3/32	5/64	1 1/2	47/64
	MPAT-4008-2	MPAT-4008-2-303	3/32	5/64	1 3/16	47/64
1/8	MPAT-4332	MPAT-4332-303	3/32	5/64	1 3/16	43/64
3/32	MPAT-4132	MPAT-4132-303	1/16	1/16	1	43/64
5/64 (2mm)	MPAT-4016	MPAT-4016-303	.052	.052	1	43/64
1/16	MPAT-4012	MPAT-4012-303	3/64	3/64	1	43/64

Barb Fitting – 1/4" NPT External Pipe Thread, Cross



Description: Cross fitting with 1/4" NPT external thread and built in barbs for 1/16" ID tubing.

Material: Brass.

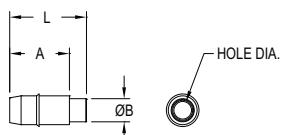


Suggested Tube ID ¹	Part Number Brass
1/16	MPAC-4012

Barb Fitting – Insert

Description: Miniature barbed inserts for installation by braze, solder, epoxy, anaerobic adhesive, or other methods.

Material: Brass or 303 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Installed Length A	Hole Dia.	Shoulder Dia. B	L
.170 to 3/16	MHPR-1008-1	MHPR-1008-1-303	15/32	5/64 (3/32 in SS)	.152/.154	19/32
	MHPR-1008-2		5/16	5/64	.152/.154	13/32
1/8	MHPR-1332	MHPR-1332-303	5/16	5/64 (3/32 in SS)	.121/.123	13/32
3/32	MHPR-1132	MHPR-1132-303	7/32	1/16	.088/.090	9/32
5/64 (2mm)	MHPR-1016	MHPR-1016-303	7/32	.052	.088/.090	9/32
1/16	MHPR-1012 ²	MHPR-1012-303 ²	7/32	3/64	.073/.077	9/32

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

² MHPR-1012 and MHPR-1012-303 are designed with a .100" diameter flange which is .020" wide.

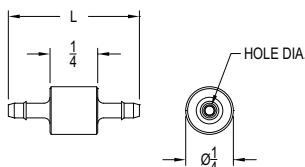
BARBED FITTINGS

Barb Fitting – Nipple, Tubing Supported

Description: Tubing supported in-line nipple is used to join two tubes or hoses of the same inside diameter.



Material: Brass or 303 stainless steel.



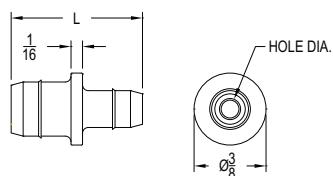
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia. SS	Hole Dia. Br	L
.170 to 3/16	MHU-1008-2	MHU-1008-2-303	1/8	1/8	7/8
1/8	MHU-1332	MHU-1332-303	3/32	5/64	7/8
3/32	MHU-1132	MHU-1132-303	1/16	1/16	11/16
5/64 (2mm)	MHU-1016	MHU-1016-303	.052	.052	11/16
1/16	MHU-1012	MHU-1012-303	3/64	3/64	11/16

Barb Fitting – Reducing Nipple, Tubing Supported

Description: Tubing supported in-line reducing nipple used to join two tubes or hoses of different inside diameters.

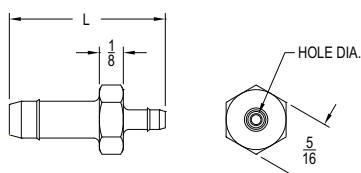


Material: Brass or 303 stainless steel.

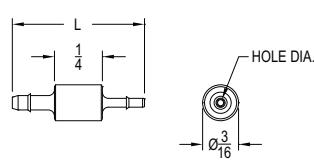


MHUR-1004 Models

Suggested Tube ID ¹ (Larger)	Suggested Tube ID ¹ (Smaller)	Part Number Brass	Part Number 303 Stainless	Hole Dia. ²	L
1/4	.170 to 3/16	MHUR-1004-1008-2		3/32	11/16
1/4	1/8	MHUR-1004-1332		3/32	11/16
1/4	3/32	MHUR-1004-1132		1/16	19/32
1/4	5/64 (2 mm)	MHUR-1004-1016		.052	19/32
1/4	1/16	MHUR-1004-1012		3/64	19/32
.170 to 3/16	1/8	MHUR-1008-1332		5/64	29/32
.170 to 3/16	3/32	MHUR-1008-1132		1/16	13/16
.170 to 3/16	5/64 (2 mm)	MHUR-1008-1016		.052	13/16
.170 to 3/16	1/16	MHUR-1008-1012	MHUR-1008-1012-303	3/64	13/16
.170 to 3/16	1/16	MHUR-1008-2-1012		3/64	21/32
1/8	3/32	MHUR-1332-1132	MHUR-1332-1132-303	1/16	21/32
1/8	5/64 (2 mm)	MHUR-1332-1016		.052	21/32
1/8	1/16	MHUR-1332-1012	MHUR-1332-1012-303	3/64	21/32
3/32	5/64 (2 mm)	MHUR-1132-1016		.052	9/16
3/32	1/16	MHUR-1132-1012	MHUR-1132-1012-303	3/64	9/16
5/64 (2 mm)	1/16	MHUR-1016-1012		3/64	9/16
1/16	3/64 (1.2 mm)		MHUR-1012-1046-303	1/32	11/16
1/16	1/32	MHUR-1012-1031		1/32	11/16



MHUR-1008, 1332, 1132, and 1016 Models



MHUR-1012 Model

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

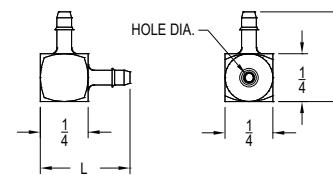
²Hole dia in chart refers to the hole in the smallest of the two barbs. The hole in the larger barb may be larger than the hole in the smaller barb.

BARBED FITTINGS

Barb Fitting – Tubing Supported, Elbow

Description: Tubing supported elbow used to join two tubes or hoses of the same inside diameter.

Material: Brass, 303, or 316 stainless steel.

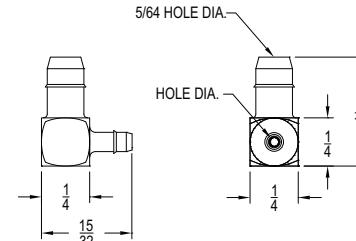


Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Bra	L
.170 to 3/16	MHL-2008-2	MHL-2008-2-303		1/8	1/8	9/16
1/8	MHL-2332		MHL-2332-316	3/32	5/64	9/16
3/32	MHL-2132				1/16	15/32
5/64 (2mm)	MHL-2016				.052	15/32
1/16	MHL-2012	MHL-2012-303	MHL-2012-316	3/64	3/64	15/32

Barb Fitting – Tubing Supported, Elbow, Reducing

Description: Tubing supported reducing elbow used to join two tubes or hoses of different inside diameters. Additional barb size combinations are available on special order.

Material: Brass.

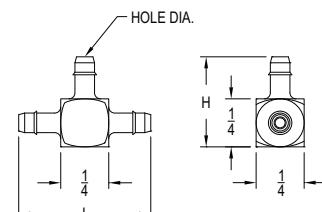


Suggested Tube ID ¹ (Larger)	Suggested Tube ID ¹ (Smaller)	Part Number Brass	Hole Dia.
.170 to 3/16	5/64 (2mm)	MHL-1008-2-1016	.052
.170 to 3/16	1/16	MHL-1008-2-1012	3/64
1/8	1/16	MHL-1332-1012	3/64

Barb Fitting – Tubing Supported, Tee

Description: Tubing supported tee used to join three tubes or hoses of the same inside diameter.

Material: Brass, 303 or 316 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Br	H	L
.170 to 3/16	MHT-3008-2	MHT-3008-2-303	MHT-3008-2-316	1/8	1/8	9/16	7/8
1/8	MHT-3332	MHT-3332-303	MHT-3332-316	3/32	5/64	9/16	7/8
3/32	MHT-3132	MHT-3132-303	MHT-3132-316	1/16	1/16	15/32	11/16
5/64 (2mm)	MHT-3016	MHT-3016-303		.052	.052	15/32	11/16
1/16	MHT-3012	MHT-3012-303	MHT-3012-316	3/64	3/64	15/32	11/16

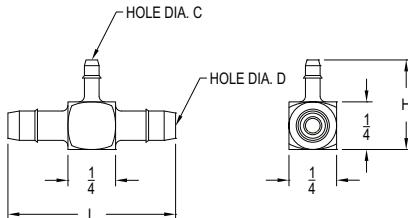
¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

BARBED FITTINGS

Barb Fitting – Tubing Supported, Tee, Reducer

Description: Tubing supported reducing tee used to join two tubes or hoses of different inside diameters. Additional barb size combinations are available on special order.

Material: Brass or 303 stainless steel.

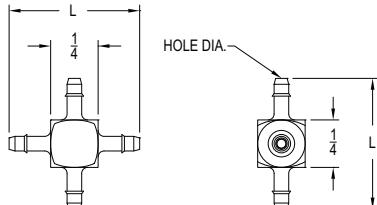


Suggested Tube ID ¹ (D)	Suggested Tube ID ¹ (C)	Part Number Brass	Part Number 303 Stainless	Hole Dia. C	Hole Dia. D (SS)	Hole Dia. D (Br)	H	L
1/8	5/64 (2mm)	MHT-2332-1016		.052		5/64	15/32	7/8
1/8	1/16	MHT-2332-1012	MHT-2332-1012-303	3/64	3/32	5/64	15/32	7/8
3/32	.170 to 3/16	MHT-2132-1008-2		3/32		1/16	9/16	11/16

Barb Fitting – Tubing Supported, Cross

Description: Tubing supported cross used to join four tubes or hoses of the same inside diameter. Cross is available with different barb size combinations on special order.

Material: Brass or 303 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hole Dia. SS	Hole Dia. Brass	L
.170 to 3/16	MHC-4008-2			1/8	7/8
1/8	MHC-4332	MHC-4332-303	1/8	5/64	7/8
3/32	MHC-4132			1/16	11/16
5/64 (2 mm)	MHC-4016			.052	11/16
1/16	MHC-4012			3/64	11/16

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

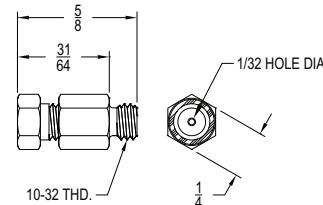
COMPRESSION FITTINGS

Fitting for 1/16" OD Tubing – 10-32 Thread - 1/4" Hex

Description: Miniature compression fitting with 10-32 thread for 1/16" OD plastic or metal tubing. It has a 1/4" hex body.

Material: 303 stainless steel body, screw, and ferrules.

Seals: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Chemraz®. See page 1.



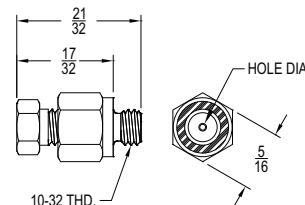
Suggested Tube OD	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	MCB-16-14-303	FA & FB	SC	TPSS-16

Fitting for 1/16" OD Tubing – 10-32 Thread - 5/16" Hex

Description: Miniature compression fitting with 10-32 thread for 1/16" OD plastic or metal tubing. It has a 5/16" hex body.

Material: Electroless nickel plated brass (ENP), 303, or 316 stainless steel body and screw. Brass, 303, or 316 stainless steel ferrules.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



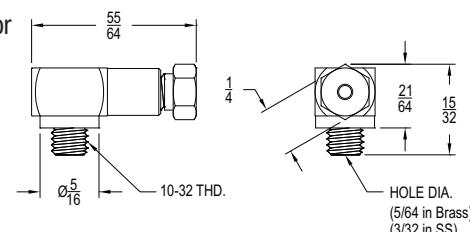
Suggested Tube OD	Part Number ENP Brass ¹	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia.	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	MCB-1016-ENP	MCB-1016-303	MCB-1016-316	1/32	FA & FB	SC	TPSS-16
1/16	MCB-1016-ENP-067	MCB-1016-303-067	MCB-1016-316-067	.067 ²	FA & FB	SC	TPSS-16

Fitting for 1/16" OD Tubing – 10-32 Thread, Low Profile Elbow, Adjustable Position

Description: Miniature compression fitting with 10-32 thread for 1/16" OD plastic or metal tubing. This adjustable position elbow has a recessed stud for a low profile configuration.

Material: Electroless nickel plated brass (ENP), 303, or 316 stainless steel body, stud, and screw. Brass, 303, or 316 stainless steel ferrules.

Seals: Two Buna-N O-rings, OR-14-B, and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Suggested Tube OD	Part Number ENP Brass ¹	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	SMCBL-1016-ENP	SMCBL-1016-303	SMCBL-1016-316	FA & FB	SC	TPSL-16

¹ Ferrules are supplied in brass. Body, screw, and stud (if applicable) are electroless nickel plated brass.

² Larger through hole is designed for use with a thermocouple.

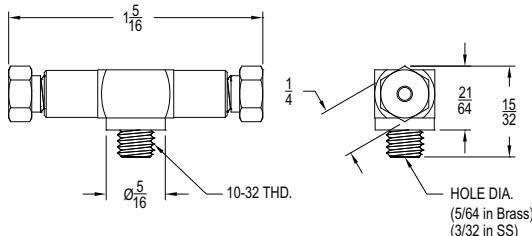
COMPRESSION FITTINGS

Fitting for 1/16" OD Tubing – 10-32 Thread, Tee, Adjustable Position

Description: Miniature tee compression fitting with 10-32 thread, for 1/16" OD plastic or metal tubing. This adjustable position tee has a recessed stud for a low profile configuration.

Material: Electroless nickel plated brass (ENP), 303, or 316 stainless steel body, stud, and screws. Brass, 303, or 316 stainless steel ferrules.

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



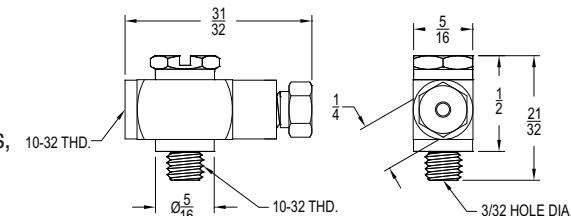
Suggested Tube OD	Part Number ENP Brass ¹	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	SMCBT-1016-ENP	SMCBT-1016-303	SMCBT-1016-316	FA & FB	SC	TPSL-16

Fitting for 1/16" OD Tubing – 10-32 Thread, Tee, Adjustable Position

Description: Adjustable position tee with one 10-32 external thread, one 10-32 internal thread, and one compression connection for 1/16" OD plastic or metal tubing.

Material: Electroless nickel plated brass (ENP), 303, or 316 stainless steel body and screw. 303 or 316 stainless steel stud. Brass, 303, or 316 stainless steel ferrules.

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



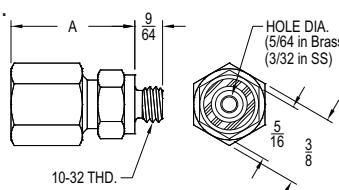
Suggested Tube OD	Part Number ENP Brass ² & 303 Stainless Stud	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	MCBT-16-10-ENP	MCBT-16-10-303	MCBT-16-10-316	FA & FB	SC	TPSL-16

Fitting for 1/8" OD Tubing – 10-32 Thread

Description: Miniature compression fitting with 10-32 thread for 1/8" OD plastic or metal tubing.

Material: Brass, 303, or 316 stainless steel body, nut, and ferrules (MCN-1018 consists of a brass body with a nylon nut and ferrule combined in one piece).

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Suggested Tube OD	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height A	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	MCB-1018			21/32	FC	SD	TPSB-18 (brass)
1/8 (metal or plastic)	MCB-1018-1	MCB-1018-1-303	MCB-1018-1-316	21/32	FD (brass) FE & FF (stainless)	SD	TPSB-18 (brass) TPSS-18-1 (SS)
1/8 (nylon)	MCN-1018			3/4	FG (ferrule & nut)	SE	N/A

¹Ferrules are supplied in brass. Body, stud, and screw are electroless nickel plated brass.

²Ferrules are supplied in brass. Body and screw are electroless nickel plated brass. Stud is 303 stainless steel.

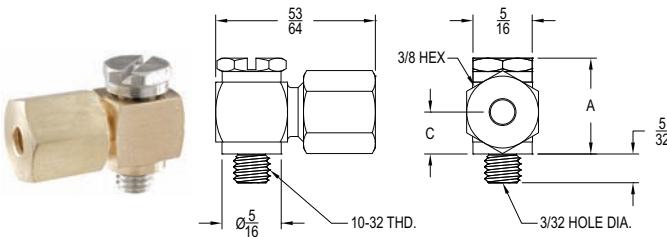
COMPRESSION FITTINGS

Fitting for 1/8" OD Tubing – 10-32 Thread, Elbow, Adjustable Position

Description: Miniature compression fitting elbow with 10-32 thread for 1/8" OD plastic or metal tubing. Adjustable position design.

Material: Brass, 303, or 316 stainless steel body, nut, and ferrule with a 303 or 316 stainless steel stud (MS-1000-303, MS-1000-316, or MS-1000-TALL).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



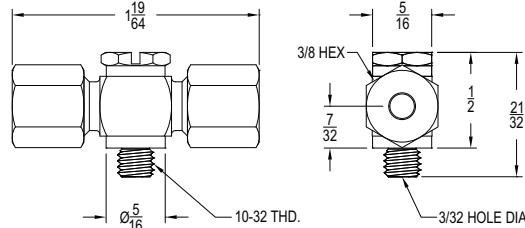
Suggested Tube OD	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud	Installed Height A	Outlet Height C	Replacement Ferrule Code (Pg 44)	Replacement Screw/Cap Code (Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	MCBL-1018			1/2	7/32	FC	SD	TPSB-18
1/8 (metal or plastic)	MCBL-1018-1	MCBL-1018-1-303	MCBL-1018-1-316	1/2	7/32	FD (brass) FE & FF (SS)	SD	TPSB-18 (brass) TPSS-18-1 (SS)
1/8 (metal)	MCBL-1018-TALL			19/32	5/16	FC	SD	TPSB-18
1/8 (metal or plastic)	MCBL-1018-1-TALL			19/32	5/16	FD	SD	TPSB-18

Fitting for 1/8" OD Tubing – 10-32 Thread, Tee, Adjustable Position

Description: Miniature compression fitting tee with 10-32 thread for 1/8" OD tubing. Adjustable position design.

Material: Brass or 303 stainless steel body, nut, and ferrules; 303 stainless steel stud (MS-1000-303).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



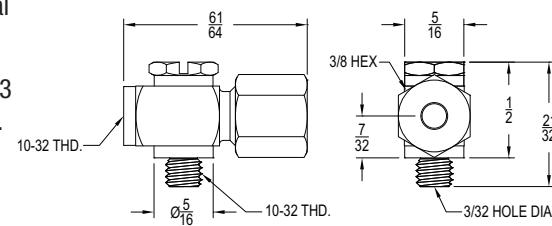
Suggested Tube OD	Part Number Brass Body & 303 SS Stud	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	MCBT-1018		FC	SD	TPSB-18
1/8 (metal or plastic)	MCBT-1018-1	MCBT-1018-1-303	FD (brass) FE & FF (SS)	SD	TPSB-18 (brass) TPSS-18-1 (SS)

Fitting for 1/8" OD Tubing – 10-32 Thread, Tee, Adjustable Position

Description: Miniature compression fitting tee for 1/8" OD plastic or metal tubing and 10-32 internal thread. Adjustable position design.

Material: Brass, 303, or 316 stainless steel body, nut, and ferrules; 303 or 316 stainless steel stud (MS-1000-303 or MS-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube OD	Part Number Brass Body & 303 SS Stud	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 4)	Pre-Swage Tool (Pg 45)
1/8 (metal)	MCBT-18-10			FC	SD	TPSB-18
1/8 (metal or plastic)	MCBT-18-1-10	MCBT-18-1-10-303	MCBT-18-1-10-316	FD (brass) FE & FF (SS)	SD	TPSB-18 (brass) TPSS-18-1 (SS)

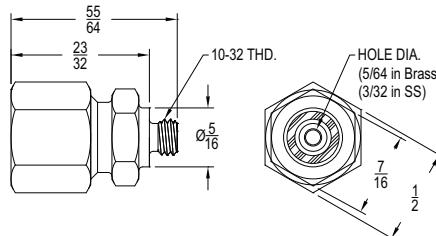
COMPRESSION FITTINGS

Fitting for 1/4" OD Tubing – 10-32 Thread

Description: Miniature compression fitting with 10-32 thread for 1/4" OD plastic or metal tubing.

Material: Brass, 303, or 316 stainless steel body, nut, and ferrule.

Seals: One Buna-N O-ring OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



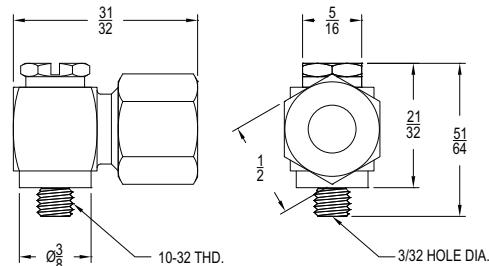
Suggested Tube OD	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/4	MCB-14	MCB-14-303	MCB-14-316	FJ (brass) FK & FL (SS)	SG	TPSS-14

Fitting for 1/4" OD Tubing – 10-32 Thread, Elbow, Adjustable Position

Description: Miniature compression fitting elbow with 10-32 thread for 1/4" OD plastic or metal tubing. Adjustable position.

Material: Brass, 303, or 316 stainless body, nut, and ferrules. 303 or 316 stainless steel stud.

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



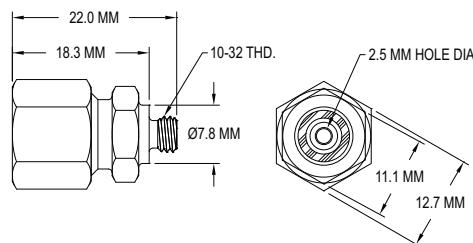
Suggested Tube OD	Part Number Brass Body 303 SS Stud	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/4	MCBL-14	MCBL-14-303	MCBL-14-316	FJ (brass) FK & FL (SS)	SG	TPSS-14

Fitting for 6 MM OD Tubing – 10-32 Thread

Description: Miniature compression fitting with 10-32 thread for 6 mm OD plastic or metal tubing.

Material: 303 stainless steel body, nut, and ferrules.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Suggested Tube OD	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
6 MM	MCB-6MM-303	FN & FO	SI	

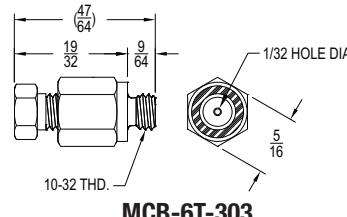
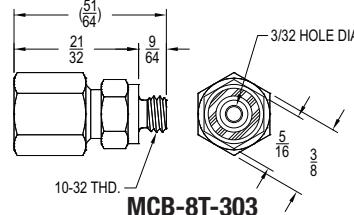
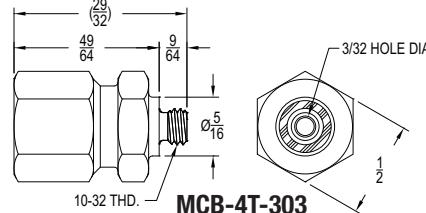
COMPRESSION FITTINGS

Fitting for 1/16", 1/8" or 1/4" OD Teflon Tubing – 10-32 Thread

Description: Miniature compression fitting with 10-32 thread for 1/16", 1/8", or 1/4" OD Teflon® tubing. Internal O-ring seals provide a redundant leak-tight connection for difficult to seal situations such as when using Teflon® tubing.

Material: 303 or 316 stainless steel body, nut and ferrules.

Seals: Three Buna-N O-rings, OR-516-40-B and two internal Buna-N O-rings. Optional materials: EPDM, Viton®, and Silicone. See page 1.



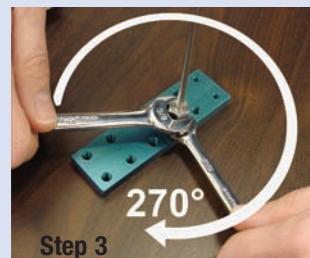
Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/4 (Teflon®)	MCB-4T-303		49/64	FK & FL		
1/8 (Teflon®)	MCB-8T-303	MCB-8T-316	21/32	FE & FF	SD	TPSS-18-1
1/16 (Teflon®)	MCB-6T-303		19/32	FA & FB	SC	TPSS-16

Spotlight: Installing A Compression Fitting

Step 1: Slide the top assembly of the compression fitting onto the plastic or metal tubing in the following order: compression fitting screw/nut, rear ferrule (if applicable), front ferrule.

Step 2: Press the end of the tubing into the fitting body, and finger tighten the compression fitting cap.

Step 3: With a wrench on both the screw/nut and the compression fitting body, tighten the cap approximately 1/2 to 3/4 turn, or 180 to 270 degrees of rotation past finger tight.



The front (conical) ferrule may spin even after swaging; however it should not be able to move up and down along the tubing. For future connections tighten the screw/nut 1/4 turn past finger tight.

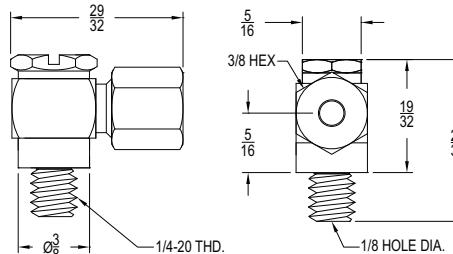
COMPRESSION FITTINGS

Fitting for 1/8" OD Tubing – 1/4-20 Thread, Elbow, Adjustable Position

Description: Miniature compression fitting with 1/4-20 thread for 1/8" OD plastic or metal tubing. Adjustable position.

Material: Brass or 303 stainless steel body, nut, and ferrules with a 303 stainless steel stud.

Seals: Two Buna-N O-rings. Optional materials: EPDM, Viton®, and Silicone. See page 1.



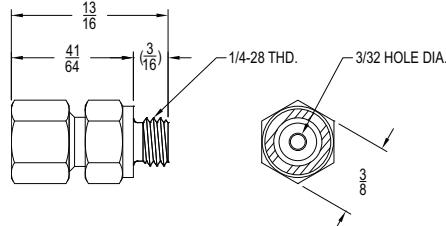
Suggested Tube OD	Part Number Brass Body 303 SS Stud	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	MCBL18-1420		FC	SD	TPSB-18
1/8 (metal or plastic)	MCBL181-1420	MCBL181-1420-3	FD (brass) FE & FF (SS)	SD	TPSB-18 (brass) TPSS-18-1 (SS)

Fitting for 1/8" OD Tubing – 1/4-28 Thread

Description: Miniature compression fitting with 1/4-28 thread for 1/8" OD plastic or metal tubing.

Material: Brass, 303, or 316 stainless steel body, nut, and ferrules.

Seals: One Buna-N O-ring, OR-1428-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Neoprene. See page 1.



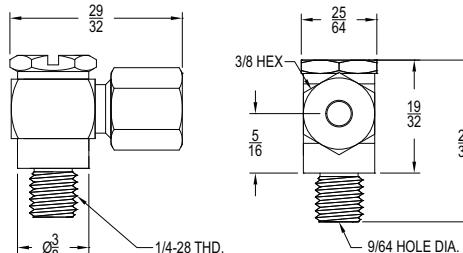
Suggested Tube OD	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal or plastic)	MCB-1018-1-1428	MCB-1018-1-1428-303	MCB-1018-1-1428-316	FD (brass) FE & FF (stainless)	SD	TPSB-18 (brass) TPSS-18-1 (SS)
1/8 (metal)	MCB-1018-1428			FC	SD	TPSB-18

Fitting for 1/8" OD Tubing – 1/4-28 Thread, Elbow, Adjustable Position

Description: Miniature compression fitting with 1/4-28 thread for 1/8" OD plastic or metal tubing. Adjustable position.

Material: Brass or 303 stainless steel body, nut, and ferrules with a 303 stainless steel stud.

Seals: Two Buna-N O-rings. Optional materials: EPDM, Viton®, and Silicone. See page 1.



Suggested Tube OD	Part Number Brass Body 303 SS Stud	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	MCBL18-1428		FC	SD	TPSB-18
1/8 (metal or plastic)	MCBL181-1428	MCBL181-1428-3	FD (brass) FE & FF (SS)	SD	TPSB-18 (brass) TPSS-18-1 (SS)

COMPRESSION FITTINGS

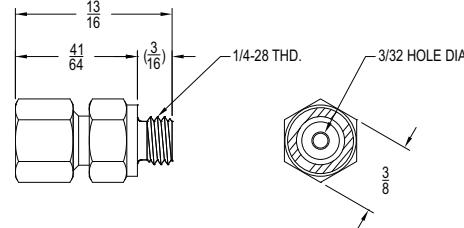


Fitting for 4 MM OD Tubing - 1/4-28 Thread

Description: Miniature compression fitting with 1/4-28 thread for 4 mm OD tubing.

Material: Brass body, nut, and ferrules.

Seals: One Buna-N O-ring, OR-1428-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Neoprene. See page 1.



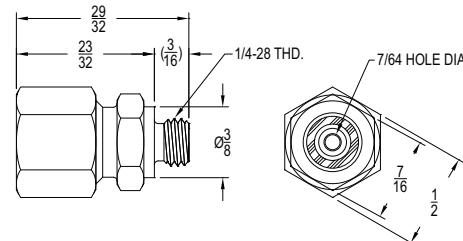
Suggested Tube OD	Part Number Brass	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
4 MM	MCB-4MM-1428	FM	SH	TPSS-4MM

Fitting for 1/4" OD Tubing – 1/4-28 Thread

Description: Miniature compression fitting with 1/4-28 thread for 1/4" OD plastic or metal tubing.

Material: Brass or 303 stainless steel body, nut, and ferrule.

Seals: One Buna-N O-ring, OR-1428-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Neoprene. See page 1.



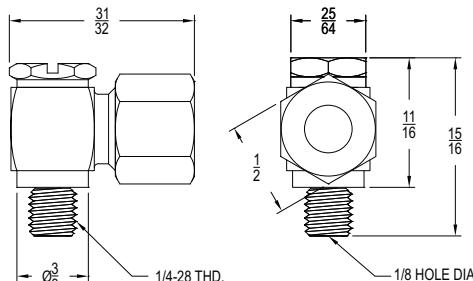
Suggested Tube OD	Part Number Brass	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/4	MCB-1414	MCB-1414-303	FJ (brass) FK & FL (SS)	SG	TPSS-14

Fitting for 1/4" OD Tubing – 1/4-28 Thread, Elbow, Adjustable Position

Description: Miniature compression fitting elbow with 1/4-28 thread for 1/4" OD plastic or metal tubing. Adjustable position.

Material: 303 stainless steel body, stud, nut, and ferrule.

Seals: Two Buna-N O-rings. Optional materials: EPDM, Viton®, and Silicone. See page 1.



Suggested Tube OD	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/4	MCBL-1414-303	FK & FL	SG	TPSS-14

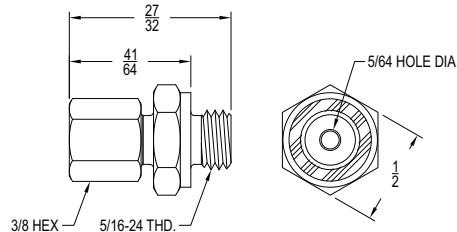
COMPRESSION FITTINGS

Fitting for 1/8" OD Tubing – 5/16-24 Thread

Description: Miniature compression fitting with 5/16-24 thread for 1/8" OD plastic or metal tubing.

Material: Brass body, nut, and ferrule.

Seals: One Buna-N O-ring, OR-51624-B. Optional materials: Viton® and EPDM. See page 1.



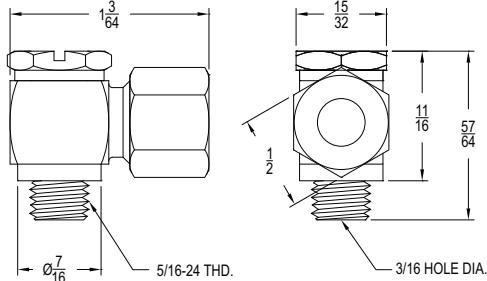
Suggested Tube OD	Part Number	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	MCB18-51624	FC	SD	TPSB-18
1/8 (metal or plastic)	MCB181-51624	FD	SD	TPSB-18

Fitting for 1/4" OD Tubing – 5/16-24 Thread, Elbow, Adjustable Position

Description: Miniature compression fitting elbow with 5/16-24 thread for 1/4" OD plastic or metal tubing. Adjustable position.

Material: Brass or 303 stainless steel body, nut, and ferrules with a 303 stainless steel stud.

Seals: Two Buna-N O-rings. Optional materials: Viton®. See page 1.



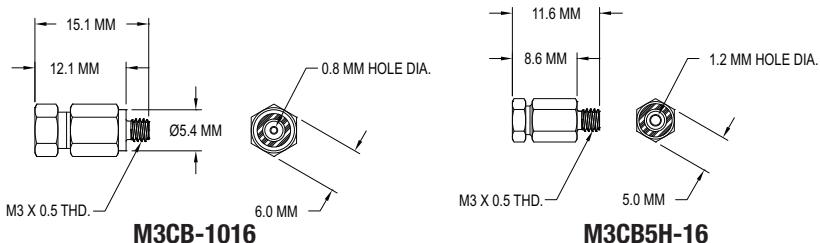
Suggested Tube OD	Part Number Brass Body 303 SS Stud	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/4	MCBL-14-51624	MCBL-14-51624-3	FJ (brass) FK & FL (SS)	SG	TPSS-14

Fitting for 1/16" OD Tubing – M3 Thread

Description: Miniature compression fitting with M3 thread for 1/16" OD plastic or metal tubing.

Material: 303 or 316 stainless steel body, screw, and ferrules.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless	Hex Size	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	M3CB-1016-303	M3CB-1016-316	6 mm	FA & FB	SB	TPSS-16-M5
1/16	M3CB5H-16-303		5 mm	FA & FB	SA	TPSS-16-M4.5

COMPRESSION FITTINGS

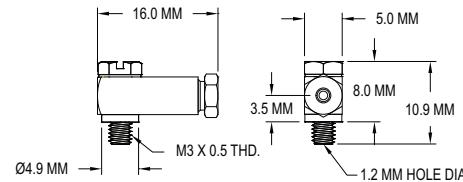


Fitting for 1/16" OD Tubing – M3 Thread, Low Profile Elbow, Adjustable Position

Description: Miniature compression fitting elbow with M3 thread for 1/16" OD plastic or metal tubing. Adjustable position.

Material: 303 stainless steel body, stud, screw, and ferrules.

Seals: Two Buna-N O-rings, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



Suggested Tube OD	Part Number 303 Stainless	Hex Size	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	M3CBL-1016-303	5 mm	FA & FB	SA	TPSS-16-M4.5

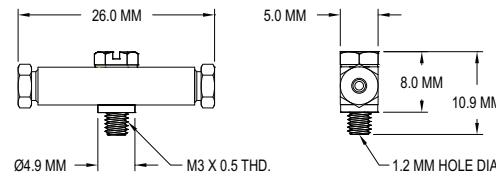


Fitting for 1/16" OD Tubing – M3 Thread, Low Profile Tee, Adjustable Position

Description: Miniature compression fitting tee with M3 thread for 1/16" OD plastic or metal tubing. Adjustable position.

Material: 303 stainless steel body, stud, screw, and ferrules.

Seals: Two Buna-N O-rings, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



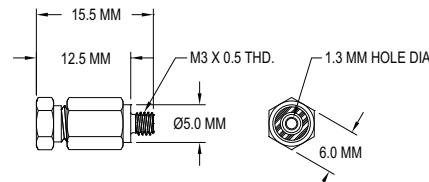
Suggested Tube OD	Part Number 303 Stainless	Hex Size	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	M3CBT-1016-303	5 mm	FA & FB	SA	TPSS-16-M4.5

Fitting for 1/8" OD Tubing – M3 Thread

Description: Miniature compression fitting with M3 thread for 1/8" OD plastic or metal tubing.

Material: 303 or 316 stainless steel body, screw, and ferrules.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal or plastic)	M3CB-1018-2-303	M3CB-1018-2-316	FH & FI	SF	TPSS-18-M5.5

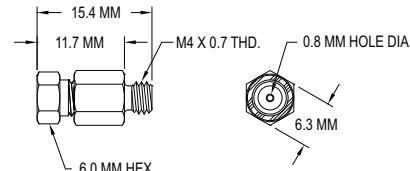
COMPRESSION FITTINGS

Fitting for 1/16" OD Tubing – M4 Thread

Description: Miniature compression fitting with M4 thread for 1/16" OD plastic or metal tubing.

Material: 303 stainless steel body, screw, and ferrules.

Seals: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Chemraz®. See page 1.



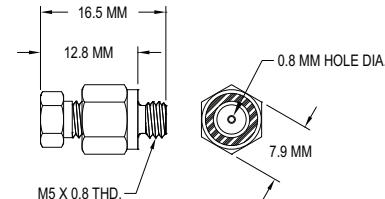
Suggested Tube OD	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	M4CB-1016-303	FA & FB	SB	TPSS-16-M5

Fitting for 1/16" OD Tubing – M5 Thread - 5/16" Hex

Description: Miniature compression fitting with M5 thread for 1/16" OD plastic or metal tubing. It has a 5/16" hex body.

Material: 303 stainless steel body, stud, and ferrules.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



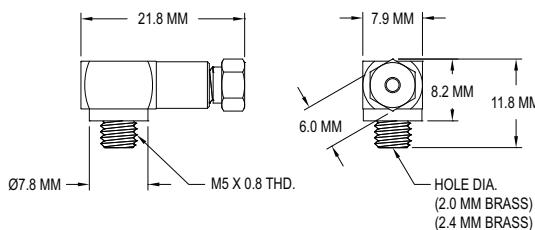
Suggested Tube OD	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	M5CB-1016-303	FA & FB	SB	TPSS-16-M5

Fitting for 1/16" OD Tubing – M5 Thread, Low Profile Elbow, Adjustable Position

Description: Miniature compression fitting with M5 thread for 1/16" OD plastic or metal tubing. Adjustable position.

Material: Electroless nickel plated brass (ENP), 303, or 316 stainless steel body, stud, and screw. Brass, 303, or 316 stainless steel ferrules.

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Suggested Tube OD	Part Number ENP Brass ¹	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	S5MCBL-16-ENP	S5MCBL-16-303	S5MCBL-16-316	FA & FB	SB	TPSL-16-M5

¹Ferrules are supplied in brass. Body, stud, and screw are electroless nickel plated brass.

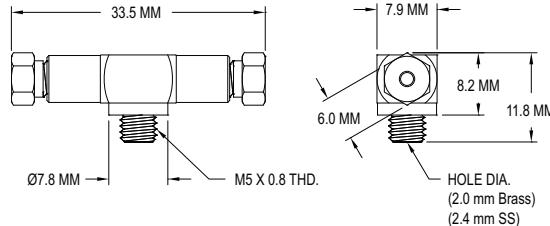
COMPRESSION FITTINGS

Fitting for 1/16" OD Tubing – M5 Thread, Tee, Adjustable Position

Description: Miniature compression fitting tee with M5 thread for 1/16" OD plastic or metal tubing. Adjustable position.

Material: Electroless nickel plated brass (ENP), 303, or 316 stainless steel body, stud, and screws. Brass, 303, or 316 stainless steel ferrules.

Seals: Two Buna-N O-rings, OR-14-B and OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



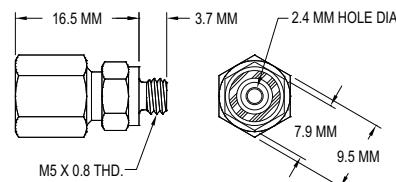
Suggested Tube OD	Part Number ENP Brass ¹	Part Number 303 Stainless	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/16	S5MCBT-16-ENP	S5MCBT-16-303	S5MCBT-16-316	FA & FB	SB	TPSL-16-M5

Fitting for 1/8" OD Tubing – M5 Thread

Description: Miniature compression fitting with M5 thread for 1/8" OD plastic or metal tubing.

Material: 303 or 316 stainless steel body, nut, and ferrules.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



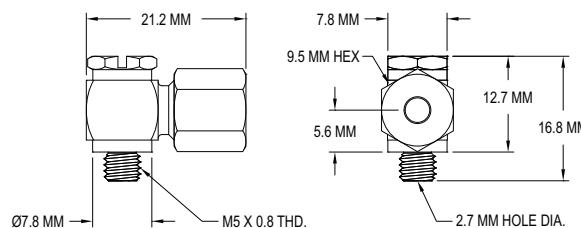
Suggested Tube OD	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height A	Hex Size B	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal or plastic)	M5CB-1018-1-303	M5CB-1018-1-316	16.5 mm	3/8	FE & FF	SD	TPSS-18-1 (SS)

Fitting for 1/8" OD Tubing – M5 Thread, Elbow, Adjustable Position

Description: Miniature compression fitting with M5 thread for 1/8" OD plastic or metal tubing. Adjustable position.

Material: Brass, 303, or 316 stainless steel body, nut and ferrules with a 303 or 316 stainless steel stud (M5S-1000-303 or M5S-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube OD	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	M5CBL-1018			FC	SD	TPSB-18
1/8 (metal or plastic)	M5CBL-1018-1	M5CBL-1018-1-303	M5CBL-1018-1-316	FD (brass) FE & FF (SS)	SD	TPSB-18 (brass) TPSS-18-1 (SS)

¹Ferrules are supplied in brass. Body, stud, and screws are electroless nickel plated brass.

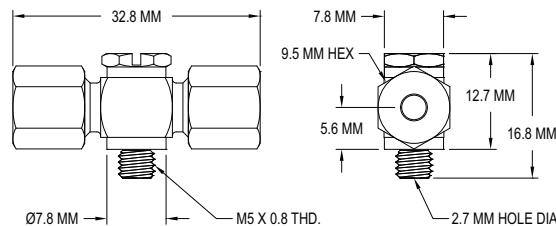
COMPRESSION FITTINGS

Fitting for 1/8" OD Tubing – M5 Thread, Tee, Adjustable Position

Description: Miniature compression fitting tee with M5 thread for 1/8" OD plastic or metal tubing. Adjustable position.

Material: Brass or 303 stainless steel body, nut, and ferrules; 303 stainless steel stud (M5S-1000-303).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Suggested Tube OD	Part Number Brass Body & 303 SS Stud	Part Number 303 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	M5CBT-1018		FC	SD	TPSB-18
1/8 (metal or plastic)	M5CBT-1018-1	M5CBT-1018-1-303	FD (brass) FE & FF (SS)	SD	TPSB-18 (brass) TPSS-18-1 (SS)

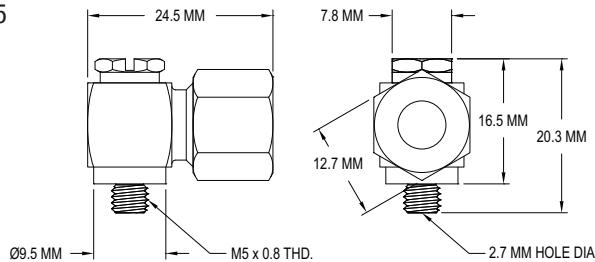
Fitting for 1/4" OD Tubing - M5 Thread, Elbow, Adjustable Position



Description: Miniature compression fitting elbow with M5 thread for 1/4" OD plastic or metal tubing. Adjustable position.

Material: 316 stainless steel body, stud, nut, and ferrules.

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



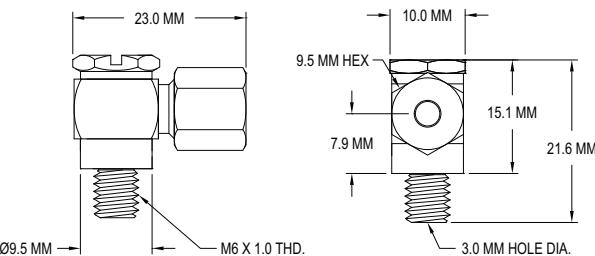
Suggested Tube OD	Part Number 316 Stainless	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/4	M5CBL-14-316	FK & FL	SG	TPSS-14

Fitting for 1/8" OD Tubing – M6 Thread, Elbow, Adjustable Position

Description: Miniature compression fitting with M6 thread for 1/8" OD plastic or metal tubing. Adjustable position.

Material: Brass or 303 body, nut, and ferrules with a 303 stainless steel stud.

Seals: Two Buna-N O-rings. Optional materials: EPDM, Viton®, and Silicone. See page 1.



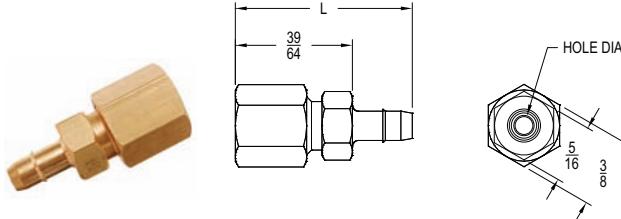
Suggested Tube OD	Part Number Brass Body 303 SS Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	M6CBL-1018		FC	SD	TPSB-18
1/8 (metal or plastic)	M6CBL-1018-1	M6CBL-1018-1-303	FD (brass) FE & FF (SS)	SD	TPSB-18 (brass) TPSS-18-1 (SS)

COMPRESSION FITTINGS

Fitting for 1/8" OD Tubing – Barb

Description: Miniature compression fitting for 1/8" OD copper, stainless steel, nylon, or polyethylene tubing, with built-in hose barb.

Material: Brass body, nut, and ferrule.



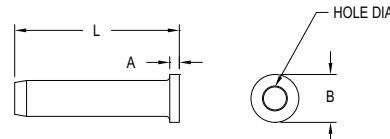
Suggested Tube OD	Part Number Brass	Suggested Tube ID ¹	Hole Dia.	L	Replacement Ferrule Code (see chart Pg 44)	Replacement Screw/Nut Code (see chart Pg 44)	Pre-Swage Tool (Pg 45)
1/8 (metal)	MCB-1018-1004	1/4	5/64	1 5/64	FC	SD	TPSB-18
1/8 (metal or plastic)	MCB-1018-1-1004	1/4	5/64	1 5/64	FD	SD	TPSB-18
1/8 (metal)	MCB-1018-1008-1	.170 to 3/16	5/64	1 5/64	FC	SD	TPSB-18
1/8 (metal or plastic)	MCB-1018-1-1008-1	.170 to 3/16	5/64	1 5/64	FD	SD	TPSB-18
1/8 (metal)	MCB-1018-1008-2	.170 to 3/16	5/64	59/64	FC	SD	TPSB-18
1/8 (metal or plastic)	MCB-1018-1-1008-2	.170 to 3/16	5/64	59/64	FD	SD	TPSB-18
1/8 (metal)	MCB-1018-1332	1/8	5/64	59/64	FC	SD	TPSB-18
1/8 (metal or plastic)	MCB-1018-1-1332	1/8	5/64	59/64	FD	SD	TPSB-18
1/8 (metal)	MCB-1018-1132	3/32	1/16	53/64	FC	SD	TPSB-18
1/8 (metal or plastic)	MCB-1018-1-1132	3/32	1/16	53/64	FD	SD	TPSB-18
1/8 (metal)	MCB-1018-1016	5/64 (2mm)	.052	53/64	FC	SD	TPSB-18
1/8 (metal or plastic)	MCB-1018-1-1016	5/64 (2mm)	.052	53/64	FD	SD	TPSB-18
1/8 (metal)	MCB-1018-1012	1/16	3/64	53/64	FC	SD	TPSB-18
1/8 (metal or plastic)	MCB-1018-1-1012	1/16	3/64	53/64	FD	SD	TPSB-18



Tubing Inserts

Description: Beswick tubing inserts are designed to facilitate connection of soft tubing, such as polyurethane, to a compression fitting. The tubing insert prevents the tube wall from collapsing and ensures a reliable seal between the tube OD and ferrule.

Material: 303 stainless steel.



Suggested Tube ID	Part Number 303 Stainless	Installed Height A	Length L	Dia. B	Hole Dia.
.170	CI-170-303	0.050	39/64	1/4	1/8
1/8	CI-125-303	0.050	39/64	1/4	5/64
1/16	CI-062-303	0.025	27/64	1/8	1/32

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

COMPRESSION FITTING ACCESSORIES

Replacement Ferrules for Compression Fittings

Description: Replacement ferrules for Beswick compression fittings. First, find the part number you are using and locate the "Ferrule Code(s)" in the chart for that particular compression fitting. Then, using the chart shown below, match the ferrule code with the material of the compression fitting (Brass, 303, or 316 Stainless). For example, if you are using our MCB-1018-1-316 compression fitting in 316 Stainless Steel you will find that the ferrule codes are "FE" and "FF". Then, match the "FE" and "FF" rows in the chart shown below with the "316 Stainless" column. This indicates the correct part numbers: "MCB-18-316-FF" and "MCB-18-316-FR".



Material:	Ferrule Code	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Description
Brass, Nylon, 303, or 316 stainless steel.	FA	MCB-16-FF	MCB-16-303-FF	MCB-16-316-FF	front ferrule for 1/16" fittings
	FB	MCB-16-FR	MCB-16-303-FR	MCB-16-316-FR	rear ferrule for 1/16" fittings
	FC	MCB-18-FS			one piece, symmetrical ferrule for 1/8" brass fittings
	FD	MCB-18-FA			one piece, asymmetrical ferrule for 1/8" brass fittings
	FE		MCB-18-303-FF	MCB-18-316-FF	front ferrule for 1/8" stainless steel fittings
	FF		MCB-18-303-FR	MCB-18-316-FR	rear ferrule for 1/8" stainless steel fittings
	FG	MCN-1018-NUT ¹			one piece, nylon nut and ferrule for 1/8" fittings
	FH		M3CB-182-303-FF	M3CB-182-316-FF	front ferrule for M3CB-1018-2 series fittings
	FI		M3CB-182-303-FR	M3CB-182-316-FR	rear ferrule for M3CB-1018-2 series fittings
	FJ	MCB-14-FA			one piece, asymmetrical ferrule for 1/4" brass fittings
	FK		MCB-14-303-FF	MCB-14-316-FF	front ferrule for 1/4" stainless steel fittings
	FL		MCB-14-303-FR	MCB-14-316-FR	rear ferrule for 1/4" stainless steel fittings
	FM	MCB-4MM-FA			one piece, asymmetrical ferrule for 4mm brass fittings
	FN		MCB-6MM-303-FF		front ferrule for 6mm fittings
	FO		MCB-6MM-303-FR		rear ferrule for 6mm fittings

Replacement Screws/Nuts for Compression Fittings

Description: Replacement screws/nuts for Beswick compression fittings. First, find the part number you are using and locate the "Screw/Nut Code" in the chart for that particular compression fitting. Then, using the chart shown below, match the screw/nut code with the material of the compression fitting (Brass, ENP Brass, Nylon, 303 or 316 Stainless). For example, if you are using our MCB-1018-1-316 compression fitting in 316 Stainless Steel you will find that the screw/nut code is "SD". Then, match the "SD" row in the chart shown below with the "316 Stainless" column. This indicates the correct part number: "MCB-18-316-NUT".



Material: Brass, Electroless Nickel Plated Brass, Nylon, 303, or 316 stainless steel.

Screw/Nut Code	Part Number Brass	Part Number ENP Brass	Part Number Nylon	Part Number 303 Stainless	Part Number 316 Stainless	Description
SA				M3CB5H-16-303-SCREW		screw for M3 threaded 1/16" fittings with 5mm hex
SB				M3CB-16-303-SCREW	M3CB-16-316-SCREW	screw for all other M3, M4 & M5 threaded 1/16" fittings
SC		MCB-16-ENP-SCREW		MCB-16-303-SCREW	MCB-16-316-SCREW	screw for 10-32 threaded 1/16" fittings
SD	MCB-18-NUT	MCB-18-ENP-NUT		MCB-18-303-NUT	MCB-18-316-NUT	nut for 1/8" fittings
SE			MCN-1018-NUT			one piece, nylon nut and ferrule for 1/8" MCN series fittings
SF				M3CB-182-3-SCREW	M3CB-182-6-SCREW	screw for M3CB-1018-2 series fittings
SG	MCB-14-NUT			MCB-14-303-NUT	MCB-14-316-NUT	nut for 1/4" fittings
SH	MCB-4MM-NUT					nut for 4mm fittings
SI				MCB-6MM-303-NUT		nut for 6mm fittings

¹ MCN series fitting has a brass body, with a one piece Nylon nut and ferrule.

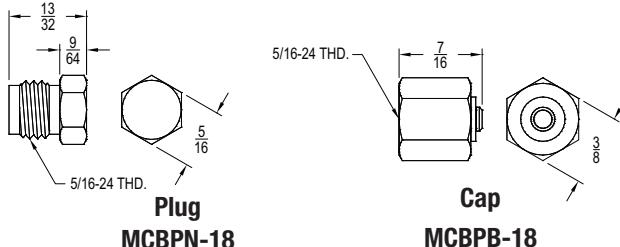


COMPRESSION FITTING ACCESSORIES

Caps/Plugs

Description: The cap can be used to seal the end of an 1/8" or 1/4" compression fitting body. The plug can be used to seal the end of an 1/8" compression fitting nut.

Material: Brass, 303, or 316 stainless steel. MCBPB has a 15-7 stainless steel retaining ring.



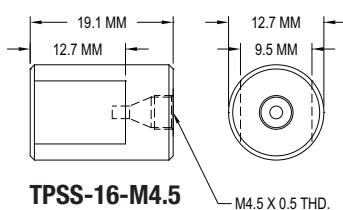
Description	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
Plug (1/8")	MCBPN-18	MCBPN-18-303	MCBPN-18-316
Cap (1/8" or 4mm)	MCBPB-18	MCBPB-18-303	MCBPB-18-316
Cap (1/4")		MCBPB-14-303	

Pre-Swage Tool

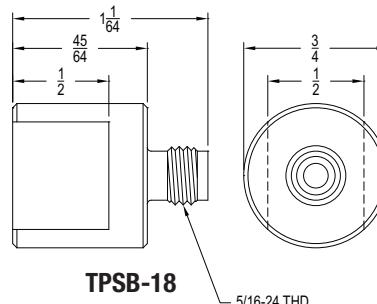
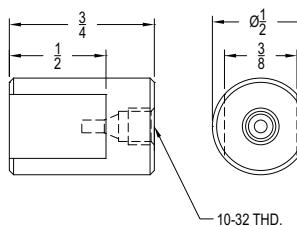
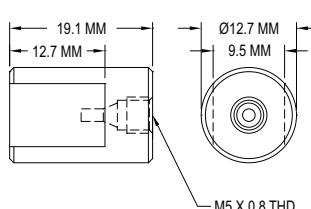
Description: The pre-swage tool is designed to swage the ferrule(s) onto the tube prior to installation of the tube/nut/ferrule assembly into the compression fitting body. Pre-swaging is especially helpful when the tube connection must be made in a tight space. In limited space applications it may be difficult to tighten the nut and ferrule assembly. Preswaging significantly reduces the effort needed to make these connections. Pre-swaging is also recommended to prevent accidental over-tightening of miniature threads and to increase efficiency during production.



Material: A6 tool steel.



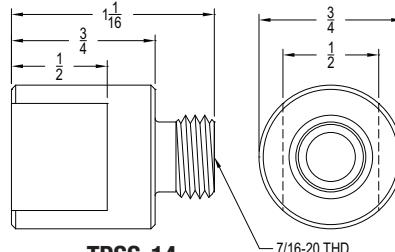
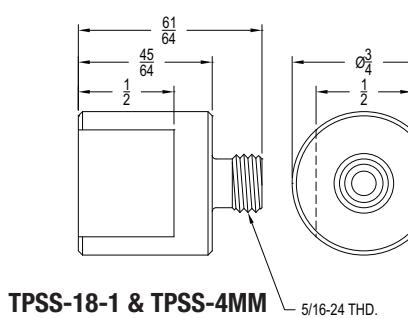
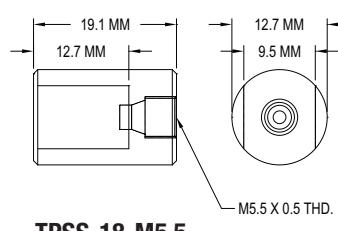
Part Number	Use With
TPSS-16-M4.5	M3CB5H, M3CBL, and M3CBT series 1/16" fittings
TPSL-16-M5	S5MCBL and S5MCBT series 1/16" fittings
TPSS-16-M5	All other M3, M4, and M5 1/16" fittings
TPSL-16	SMCBL, SMCBT, and MCBT-16-10 series 1/16" fittings
TPSS-16	All other 10-32 threaded 1/16" fittings
TPSB-18	1/8" brass and ENP brass fittings
TPSS-18-M5.5	M3 threaded 1/8" stainless steel fittings
TPSS-18-1	All other 1/8" stainless steel fittings
TPSS-14	All 1/4" fittings (brass & SS) except for MCB-4T-303 series
TPSS-4MM	Brass 4 mm fittings



TPSS-18-M5.5

TPSL-16 & TPSS-16

TPSB-18



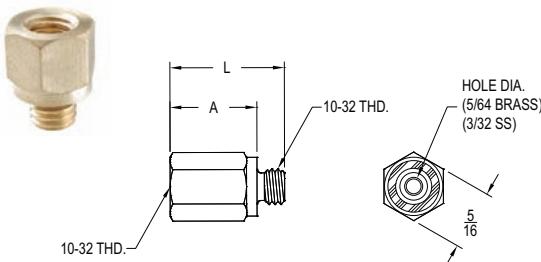
THREADED AND ADAPTOR FITTINGS

10-32 External to 10-32 Internal Extension Fitting

Description: 5/16" Hex extension fitting with 10-32 external to 10-32 internal threaded connections. Models are available with shouldered lengths ranging from 1/4" to 2".

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



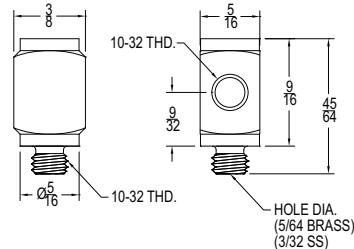
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Installed Height A	L
MEB-1010-0	MEB-1010-0-303		1/4	13/32
MEB-1010-1	MEB-1010-1-303	MEB-1010-1-316	9/32	7/16
MEB-1010-2	MEB-1010-2-303		3/8	17/32
MEB-1010-3	MEB-1010-3-303		1/2	21/32
MEB-1010-4	MEB-1010-4-303		5/8	25/32
MEB-1010-5		MEB-1010-5-316	3/4	29/32
MEB-1010-6			7/8	1 1/32
MEB-1010-7	MEB-1010-7-303		1	1 5/32
MEB-1010-8			1 1/8	1 9/32
MEB-1010-9			1 1/4	1 13/32
MEB-1010-10			1 3/8	1 17/32
MEB-1010-11	MEB-1010-11-303		1 1/2	1 21/32
MEB-1010-15			2	2 5/32

Fitting – 10-32 Threads, Elbow, Fixed Position

Description: Fixed position elbow with 10-32 threads.

Material: Brass or 303 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number Brass	Part Number 303 Stainless	Installed Height
ML-1010	ML-1010-303	9/16

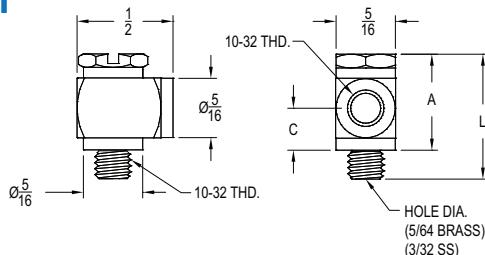
Fitting – 10-32 Threads, Elbow, Adjustable Position

Description: Adjustable position elbow with 10-32 threads.

Material: Brass, 303, or 316 stainless steel body and stud (MSB-1000, MS-1000-303, or MS-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, and Fluorosilicone. See page 1.

Note: See adaptor versions on page 59.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Stud Material	Installed Height A	Outlet Height C	L
MLSB-1010 ¹			brass ¹	1/2	7/32	21/32
MLS-1010	MLS-1010-303	MLS-1010-316	stainless steel	1/2	7/32	21/32
MLS-1010-TALL			stainless steel	19/32	5/16	3/4

¹Brass stud does not have a screwdriver slot.

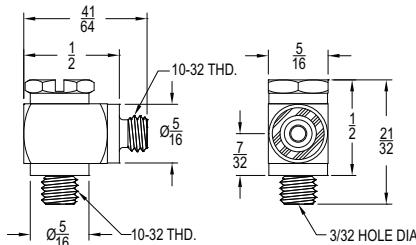
THREADED AND ADAPTOR FITTINGS

Fitting – 10-32 External Threads, Elbow, Adjustable Position

Description: Adjustable position elbow fitting with 10-32 external threads.

Material: 303 or 316 stainless steel body and 303 or 316 stainless steel stud (MS-1000-303 or MS-1000-316).

Seals: Three Buna-N O-rings, two OR-516-40-B, and one OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



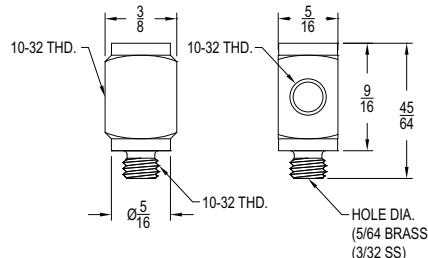
Part Number 303 Stainless	Part Number 316 Stainless
MLSN-1010-303	MLSN-1010-316

Fitting – 10-32 External Thread to 10-32 Internal Threads, Tee, Fixed Position

Description: Fixed position tee with 10-32 threads.

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



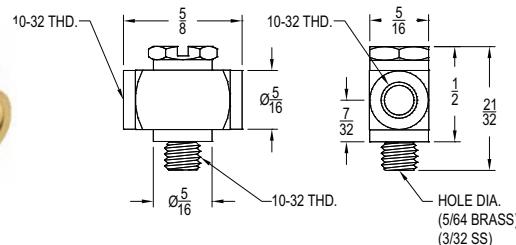
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
MT-1010	MT-1010-303	MT-1010-316

Fitting – 10-32 External Thread to 10-32 Internal Threads, Tee, Adjustable Position

Description: Adjustable position tee with 10-32 threads.

Material: Brass, 303, or 316 stainless steel body and stud (MSB-1000, MS-1000-303, or MS-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B, and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Stud Material
MTSB-1010 ¹			brass ¹
MTS-1010	MTS-1010-303	MTS-1010-316	stainless steel

¹Brass stud does not have a screwdriver slot.

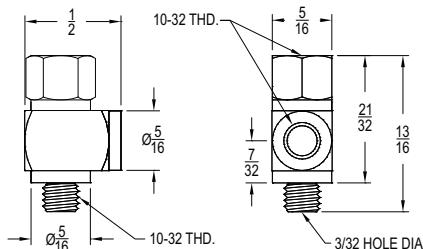
THREADED AND ADAPTOR FITTINGS

Fitting – 10-32 External Thread to 10-32 Internal Threads, Street Tee, Adjustable Position

Description: Adjustable position tee with 10-32 threads and manifold stud.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel manifold stud (MS-1010-303 or MS-1010-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.

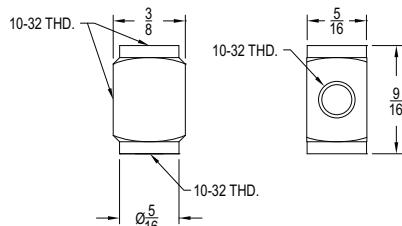


Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless	Part Number 316 Stainless	Stud Material
MTM-1010	MTM-1010-303	MTM-1010-316	stainless steel

Fitting – 10-32 Internal Threads, Cross, Fixed Position

Description: Fixed position cross with 10-32 internal threads.

Material: Brass, 303, or 316 stainless steel.



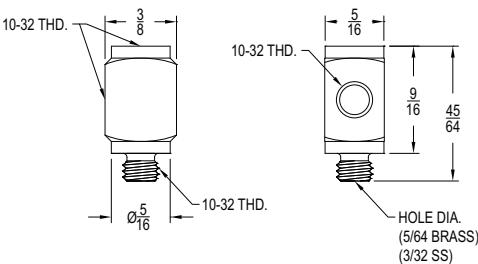
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
MX-1010	MX-1010-303	MX-1010-316

Fitting – 10-32 External Thread to 10-32 Internal Threads, Cross, Fixed Position

Description: Fixed position cross from external 10-32 thread to internal 10-32 threads.

Material: Brass or 303 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number Brass	Part Number 303 Stainless
MC-1010	MC-1010-303

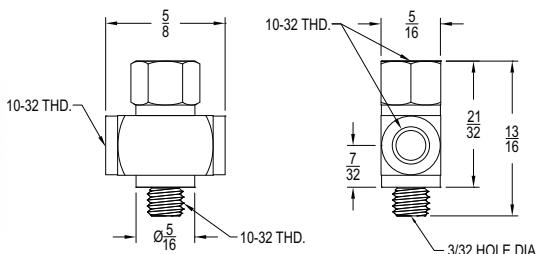
THREADED AND ADAPTOR FITTINGS

Fitting – 10-32 External Thread to 10-32 Internal Threads, Cross, Adjustable Position

Description: Adjustable position cross with 10-32 threads and manifold stud.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel manifold stud (MS-1010-303 or MS-1010-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



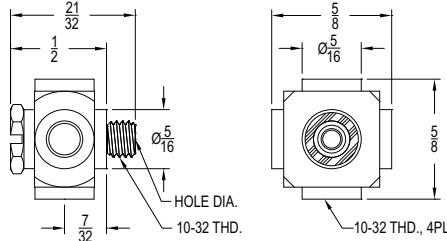
Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud
MCM-1010	MCM-1010-303	MCM-1010-316

5 Port Fitting – 10-32 Threads, Adjustable Position

Description: Adjustable position 5-port fitting with 10-32 threads used as a manifold or valve connection.

Material: Brass or 303 stainless steel body with brass or 303 stainless steel stud (MSB-1000 or MS-1000-303).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



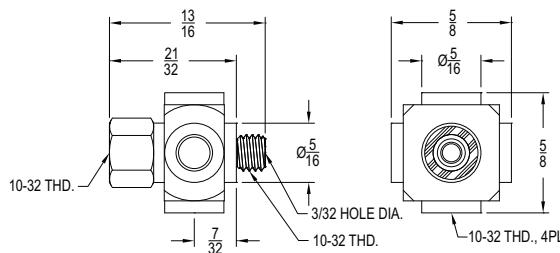
Part Number Brass	Part Number 303 Stainless	Stud Material	Hole Dia.
MKS-1010 ¹		brass	5/64
MKS-1010	MKS-1010-303	stainless steel	3/32

6 Port Fitting – 10-32 Threads, Adjustable Position

Description: Adjustable position 6-port fitting with 10-32 threads and manifold stud.

Material: Brass or 303 stainless steel body with 303 stainless steel manifold stud (MS-1010-303).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Part Number Brass	Part Number 303 Stainless	Stud Material
MKM-1010	MKM-1010-303	stainless steel

¹Brass stud does not have a screwdriver slot.

THREADED AND ADAPTOR FITTINGS

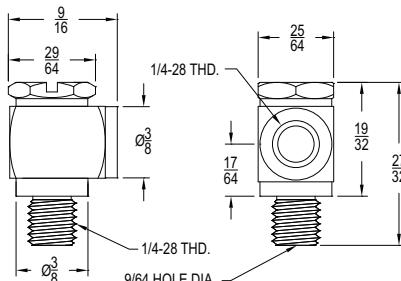


Fitting - 1/4-28 Threads, Elbow, Adjustable Position

Description: Adjustable Position elbow with 1/4-28 threads.

Material: Brass or 303 stainless steel body with 303 stainless steel stud.

Seals: Two Buna-N O-rings. Optional materials: EPDM, Viton®, and Silicone. See page 1.



Part Number Brass	Part Number 303 Stainless
MLS-1414	MLS-1414-303

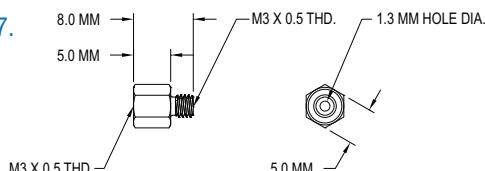
M3 External to M3 Internal Extension Fitting

Description: M3 external to M3 internal threaded extension fitting.

Material: 303 stainless steel.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.

Note: See also CC-M3M3-XXX-303 orifice fitting on page 77.



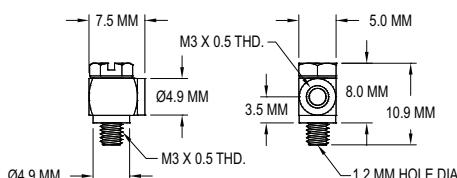
Part Number 303 Stainless
M3EB-303

Fitting – M3 Threads, Elbow, Adjustable Position

Description: Adjustable position elbow with M3 threads.

Material: Brass or 303 stainless steel body and stud (M3S-1001 or M3S-1001-303).

Seals: Two Buna-N O-rings, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



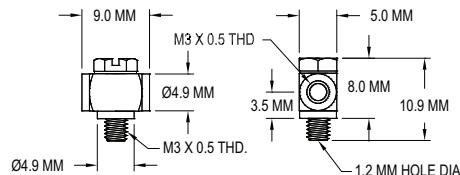
Part Number Brass	Part Number 303 Stainless
M3LS-M3I	M3LS-M3I-303

Fitting – M3 Threads, Tee, Adjustable Position

Description: Adjustable position tee with M3 threads.

Material: Brass or 303 stainless steel body and stud (M3S-1001 or M3S-1001-303).

Seals: Two Buna-N O-rings, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



Part Number Brass	Part Number 303 Stainless
M3TS-M3I	M3TS-M3I-303

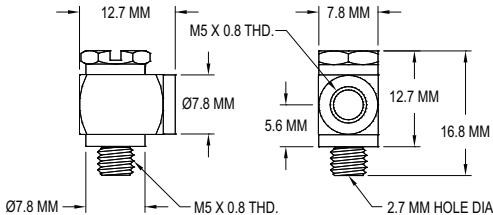
THREADED AND ADAPTOR FITTINGS

Fitting – M5 Threads, Elbow, Adjustable Position

Description: Adjustable position elbow with M5 threads.

Material: Brass, 303 or 316 stainless steel body with brass, 303, or 316 stainless steel stud (M5SB-1000, M5S-1000-303, or M5S-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



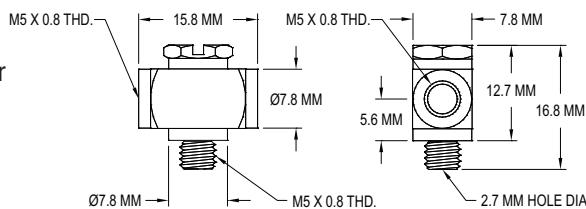
Part Number Brass Body & Brass Stud ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud
M5LSB-M5	M5LS-M5	M5LS-M5-303	M5LS-M5-316

Fitting – M5 Threads, Tee, Adjustable Position

Description: Adjustable position tee with M5 threads.

Material: Brass, 303, or 316 stainless steel body with brass, 303 or 316 stainless steel stud (M5SB-1000, M5S-1000-303, or M5S-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



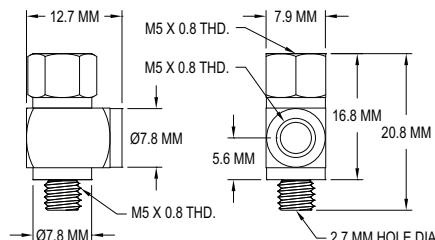
Part Number Brass Body & Brass Stud ¹	Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud
M5TSB-M5M5	M5TS-M5M5	M5TS-M5M5-303	M5TS-M5M5-316

Fitting – M5 Threads, Street Tee, Adjustable Position

Description: Adjustable position tee with M5 threads and manifold stud.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel manifold stud (M5S-M5-303 or M5S-M5-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud
M5TM-M5	M5TM-M5-303	M5TM-M5-316

¹Brass stud does not have screwdriver slot.

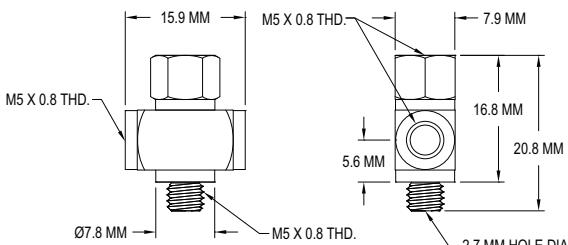
THREADED AND ADAPTOR FITTINGS

Fitting – M5 External Thread to M5 Internal Threads, Cross, Adjustable Position

Description: Adjustable position cross with M5 threads and manifold stud.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel manifold stud (M5S-M5-303 or M5S-M5-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



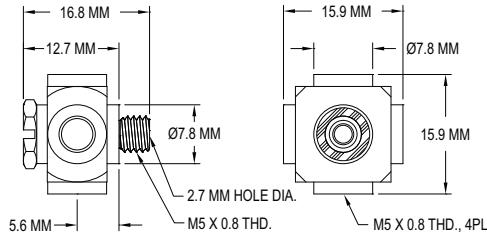
Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud
M5CM-M5M5	M5CM-M5M5-303	M5CM-M5M5-316

5 Port Fitting – M5 Threads, Adjustable Position

Description: Adjustable position 5-port fitting with M5 threads used as a manifold or valve connection.

Material: 316 stainless steel body with 316 stainless steel stud (M5S-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



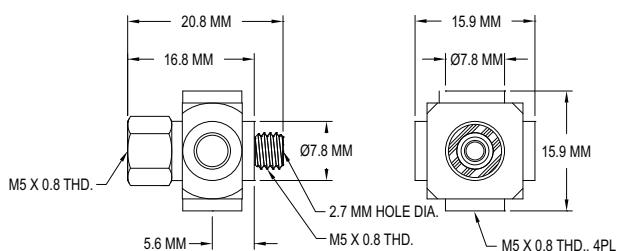
Part Number 316 Stainless	Stud Material
M5KS-M5M5-316	stainless steel

6 Port Fitting – M5 Threads, Adjustable Position

Description: Adjustable position 6-port fitting with M5 threads and manifold stud.

Material: 316 stainless steel body with 316 stainless steel manifold stud (M5S-M5-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



Part Number 316 Stainless	Stud Material
M5KM-M5M5-316	stainless steel

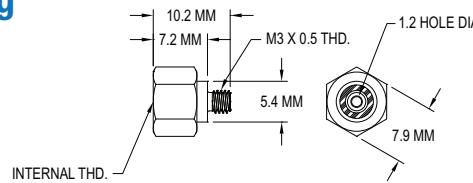
THREADED AND ADAPTOR FITTINGS

10-32 or M5 Internal to M3 External Threaded Fitting

Description: M3 external to 10-32 or M5 internal threaded straight adaptor.

Material: 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



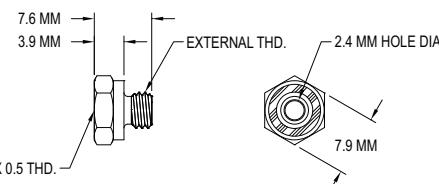
Part Number 303 Stainless	Part Number 316 Stainless	Internal Thread
MFA-M310-303	MFA-M310-316	10-32
MFA-M3M5-303		M5

M3 Internal to 10-32 or M5 External Threaded Fitting

Description: 10-32 or M5 external to M3 internal threaded straight adaptor.

Material: 303 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



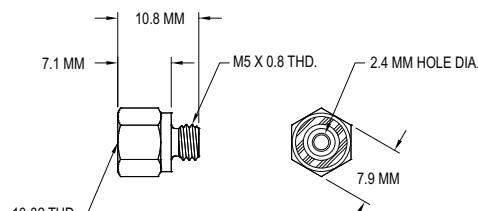
Part Number 303 Stainless	External Thread
MFA-10M3-303	10-32
MFA-M5M3-303	M5

NEW M5 External to 10-32 Internal Threaded Fitting

Description: M5 external to 10-32 internal threaded straight adaptor.

Material: 303 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



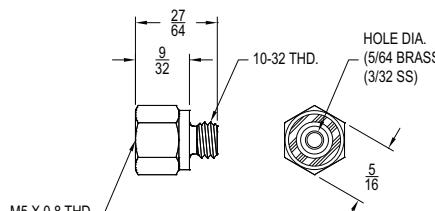
Part Number 303 Stainless
MFA-M510-303

10-32 External to M5 Internal Extension Fitting

Description: 10-32 external to M5 internal threaded straight adaptor.

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
MEB-10M5-1	MEB-10M5-1-303	MEB-10M5-1-316

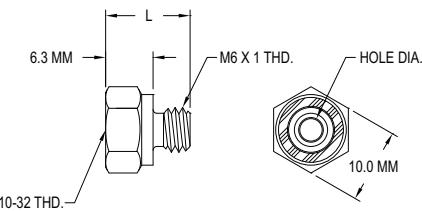
THREADED AND ADAPTOR FITTINGS

10-32 Internal to M6 External Threaded Fitting

Description: M6 external to 10-32 internal threaded straight adaptor.

Material: Brass or 303 stainless steel.

Seals: One Buna-N O-ring, OR-1428-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Neoprene. See page 1.



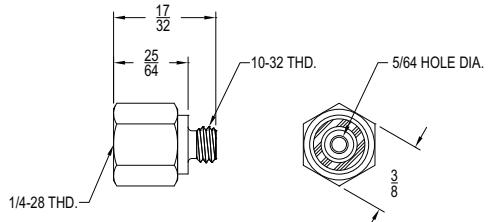
Part Number Brass	Part Number 303 Stainless	Hole Dia.	L
MFA-M610	MFA-M610-303	3.0 mm	11.3 mm
MFA-M610-032		0.8 mm	12.7 mm

1/4-28 Internal to 10-32 External Threaded Fitting

Description: 1/4-28 internal to 10-32 external threaded straight adaptor.

Material: Brass

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



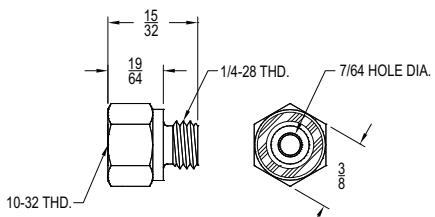
Part Number Brass	Internal Thread	External Thread
MFA-10-1428	1/4-28	10-32

10-32 Internal to 1/4-28 External Threaded Fitting

Description: 10-32 internal to 1/4-28 external threaded straight adaptor.

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-1428-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Neoprene. See page 1.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
MFA-1428-10	MFA-1428-10-303	MFA-1428-10-316

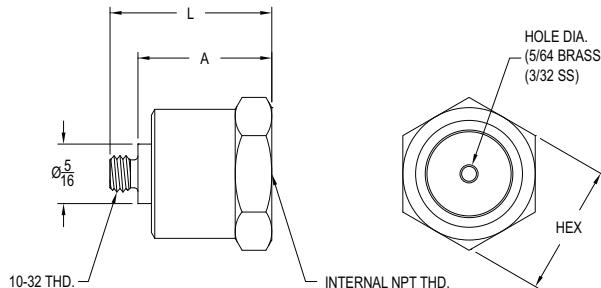
THREADED AND ADAPTOR FITTINGS

Internal Pipe Threaded Fitting to 10-32 External Thread

Description: 1/4" or 1/8" NPT internal to 10-32 external threaded straight adaptor.

Material: Brass, 303, or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.

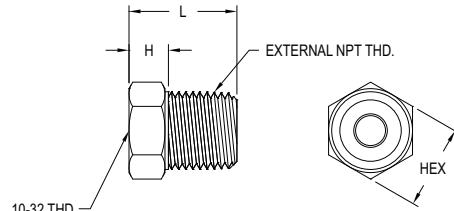


Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Internal Thread	A	Hex	L
MPFAE-1014	MPFAE-1014-303	MPFAE-1014-316	1/4-18 NPT	5/8	11/16	27/32
MPFAE-1018	MPFAE-1018-303	MPFAE-1018-316	1/8-27 NPT	1/2	9/16	23/32

External Pipe Threaded Fitting to 10-32 Internal Thread

Description: 1/4", 1/8", or 1/16" NPT external to 10-32 internal threaded straight adaptor fitting.

Material: Brass, 303, or 316 stainless steel.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	External Thread	Hex	H	L
MPA-1410	MPA-1410-303	MPA-1410-316	1/4 - 18 NPT	9/16	3/16	5/8
MPA-1810	MPA-1810-303	MPA-1810-316	1/8 - 27 NPT	7/16	3/16	9/16
MPA-1610	MPA-1610-303	MPA-1610-316	1/16 - 27 NPT	5/16	1/8	15/32

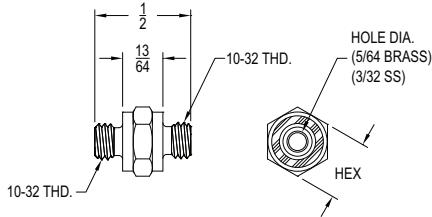
THREADED AND ADAPTOR FITTINGS

10-32 External Nipple Fitting

Description: Nipple fitting with 10-32 external threads. Used to connect two components with 10-32 internal threads that do not require orientation.

Material: Brass, 303, or 316 stainless steel.

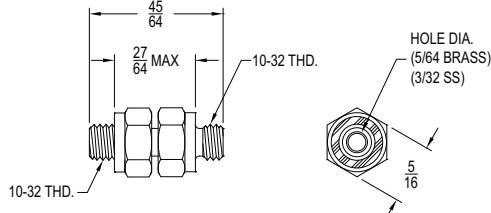
Seals: For 5/16 hex models: Two Buna-N O-rings, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone and Neoprene. For 1/4 hex models: Two Buna-N O-rings, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Chemraz®. See page 1.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hex
MN-1010	MN-1010-303	MN-1010-316	5/16
MN-1010-1/4			1/4

10-32 External Universal Nipple Fitting

Description: Universal nipple fitting with 10-32 external threads. Used to connect two components with 10-32 internal threads and permits any angular relationship of the connected components.



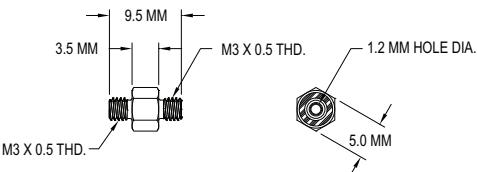
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
MUN-1010	MUN-1010-303	MUN-1010-316

M3 External Nipple Fitting

Description: Nipple fitting with M3 external threads. Used to connect two components with M3 internal threads that do not require orientation.

Material: 303 stainless steel.

Seals: Two Buna-N O-rings, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



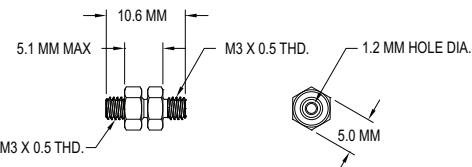
Part Number 303 Stainless
MN-M3M3-303

M3 External Universal Nipple Fitting

Description: Nipple fitting with M3 external threads. Used to connect two components with M3 internal threads and permits any angular relationship of the connected components.

Material: 303 stainless steel

Seals: Two Buna-N O-rings, OR-M3-B and OR-M3-40-B. Optional materials: EPDM, Viton® and Silicone. See page 1.



Part Number 303 Stainless
M3UN-303

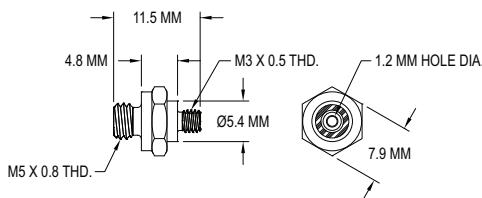
THREADED AND ADAPTOR FITTINGS

M3 External to M5 External Nipple Fitting

Description: Nipple fitting with M3 and M5 external threads. Used to connect two components with M5 internal and M3 internal threads that do not require orientation.

Material: 303 stainless steel

Seals: Two Buna-N O-rings, OR-516-40-B and OR-M3-B. Optional materials: EPDM, Viton®, and Silicone. See page 1.



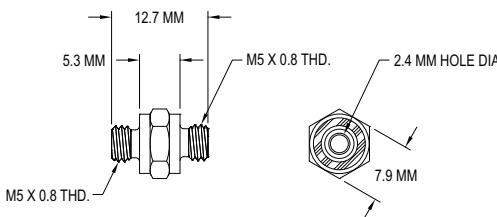
Part Number
303 Stainless
MN-M3M5-303

M5 External Nipple Fitting

Description: Nipple fitting with M5 external threads. Used to connect two components with M5 internal threads that do not require orientation.

Material: 316 stainless steel.

Seals: Two Buna-N O-rings, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.

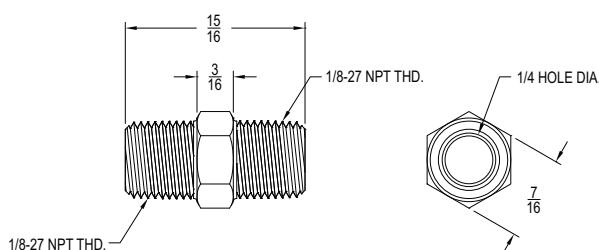


Part Number
316 Stainless
MN-M5M5-316

1/8" NPT Pipe Threaded Nipple Fitting

Description: Nipple fitting with 1/8" NPT external threads. Used to connect two components with 1/8" NPT internal threads.

Material: Brass.



Part Number
Brass
MPA-18M18M

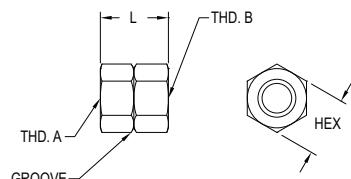
THREADED AND ADAPTOR FITTINGS

Internal Threaded Coupling

Description: Internal threaded coupling with M3, M5, or 10-32 threads.

Material: Brass, 303, or 316 stainless steel.

Note: Groove indicates M5 port. No groove on MF-1010, MF-M3M3, or MF-10M3-303.

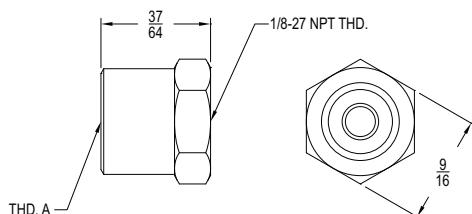


Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	THD A	THD B	HEX	L
MF-1010	MF-1010-303	MF-1010-316	10-32	10-32	5/16	23/64
	MF-10M3-303			10-32	M3 X 0.5	5/16
MF-10M5				10-32	M5 X 0.8	23/64
MF-M5M5	MF-M5M5-303			M5 X 0.8	M5 X 0.8	5/16
MF-M3M3	MF-M3M3-303			M3 X 0.5	M3 X 0.5	7.1 mm

1/8" Internal Pipe Threaded Fitting to 10-32 or M6 Internal Thread

Description: 1/8" NPT internal to 10-32 or M6 internal threaded straight adaptor.

Material: Brass or 303 stainless steel.



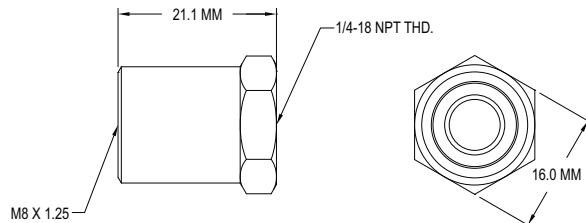
Part Number Brass	Part Number 303 Stainless	Thread A
MPFA-1810	MPFA-1810-303	10-32
	MPFA-18M6-303	M6 X 1

1/4" Internal Pipe Threaded Fitting to M8 Internal Thread



Description: 1/4" NPT internal to M8 internal threaded straight adaptor.

Material: 303 stainless steel.



Part Number 303 Stainless
MPFA-14M8-303

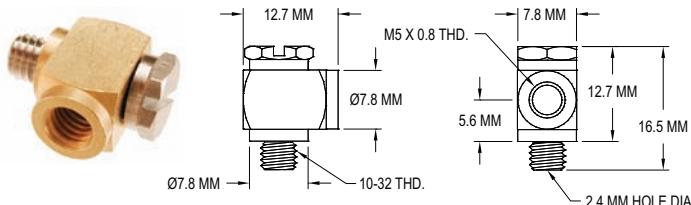
THREADED AND ADAPTOR FITTINGS

10-32 External to M5 Internal Threaded Elbow – Adjustable Position

Description: Adjustable position elbow with 10-32 external to M5 internal thread.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel stud (MS-1000-303 or MS-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



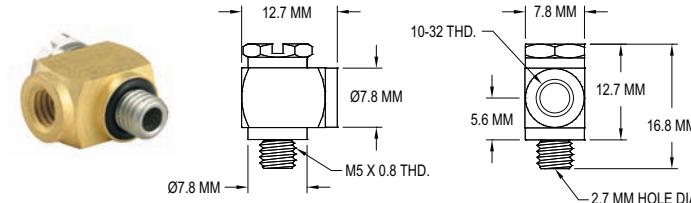
Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud
MLS-10M5	MLS-10M5-303	MLS-10M5-316

M5 External to 10-32 Internal Threaded Elbow – Adjustable Position

Description: Adjustable position elbow with M5 external to 10-32 internal thread.

Material: Brass, 303, or 316 stainless steel body with 303 or 316 stainless steel stud (M5S-1000-303 or M5S-1000-316).

Seals: Two Buna-N O-rings, OR-516-40-B and OR-516-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, and Chemraz®. See page 1.



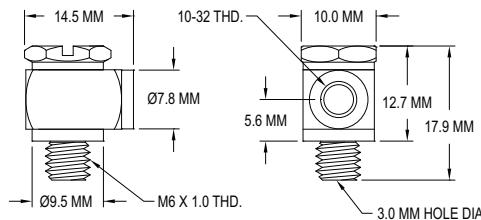
Part Number Brass Body & 303 Stainless Stud	Part Number 303 Stainless Body & 303 Stainless Stud	Part Number 316 Stainless Body & 316 Stainless Stud
M5LS-10	M5LS-10-303	M5LS-10-316

M6 External to 10-32 Internal Threaded Elbow – Adjustable Position

Description: Adjustable position elbow with M6 external to 10-32 internal thread.

Material: ENP Brass body with 303 stainless steel stud.

Seals: Two Buna-N O-rings, OR-1428-B and OR-1420-B. Optional materials: EPDM, Viton®, and Silicone. See page 1.



Part Number ENP Brass
M6LS-10-ENP

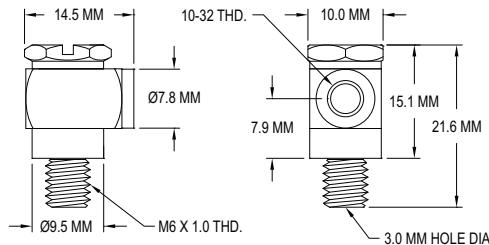
THREADED AND ADAPTOR FITTINGS

M6 External to 10-32 Internal Threaded Elbow – Adjustable Position

Description: Adjustable position elbow with M6 external to 10-32 internal thread.

Material: Brass body with 303 stainless steel stud.

Seals: Two Buna-N O-rings, OR-1428-B and OR-1420-B. Optional materials: EPDM, Viton®, and Silicone. See page 1.



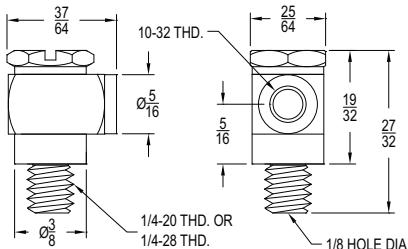
Part Number Brass
M6LS-10-TALL

1/4-20 or 1/4-28 External to 10-32 Internal Threaded Elbow – Adjustable Position

Description: Adjustable position elbow with 1/4-20 or 1/4-28 external to 10-32 internal thread.

Material: Brass body with 303 stainless steel stud.

Seals: Two Buna-N O-rings, OR-1428-B and OR-1420-B. Optional materials: EPDM, Viton®, and Silicone. See page 1.

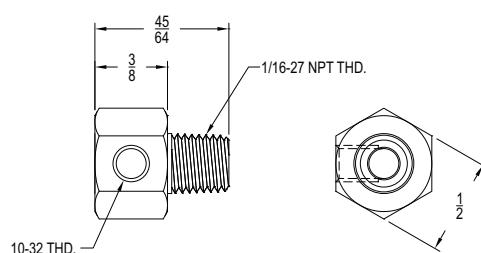


Part Number Brass	External Thread
MLS-1420-10-TALL	1/4-20
MLS-1428-10-TALL	1/4-28

1/16" NPT External Pipe Thread to 10-32 Internal Threaded Elbow

Description: 1/16" NPT external to 10-32 internal threaded elbow adaptor.

Material: 303 or 316 stainless steel.



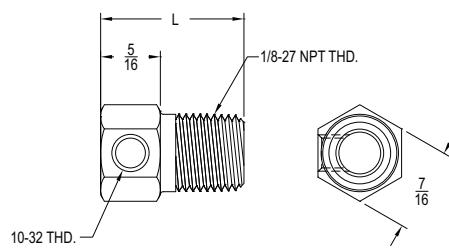
Part Number 303 Stainless	Part Number 316 Stainless
MPAL-1610-303	MPAL-1610-316

THREADED AND ADAPTOR FITTINGS

1/8" NPT External Pipe Thread to 10-32 Internal Threaded Elbow

Description: 1/8" NPT external to 10-32 internal elbow adaptor.

Material: Brass or 303 stainless steel.

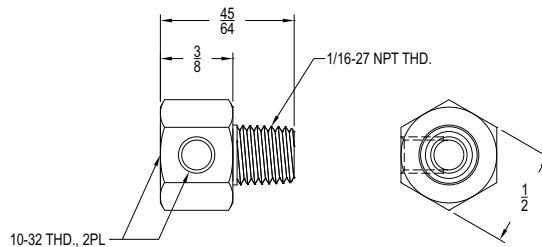


Part Number Brass	Part Number 303 Stainless	L Brass	L SS
MPAL-1810	MPAL-1810-303	3/4	11/16

1/16" NPT External Pipe Thread to 10-32 Internal Threaded Street Tee

Description: 1/16" NPT external to 10-32 internal tee adaptor.

Material: 303 Stainless steel.

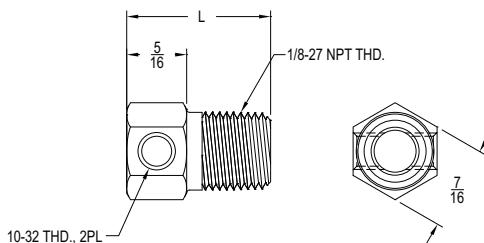


Part Number 303 Stainless
MPAHL-1610-303

1/8" NPT External Pipe Thread to 10-32 Internal Threaded Tee

Description: 1/8" NPT external to 10-32 internal tee adaptor.

Material: Brass or 303 stainless steel.



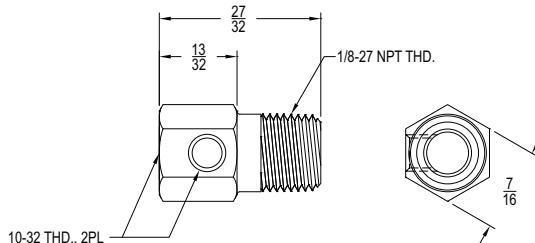
Part Number Brass	Part Number 303 Stainless	L Brass	L SS
MPAT-1810	MPAT-1810-303	3/4	11/16

THREADED AND ADAPTOR FITTINGS

1/8" NPT External Pipe Thread to 10-32 Internal Threaded Street Tee

Description: 1/8" NPT external to 10-32 internal tee adaptor.

Material: Brass.

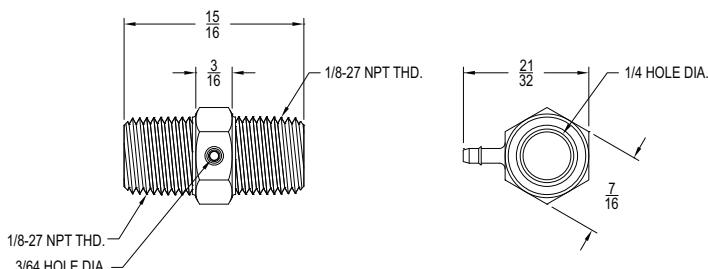


Part Number
Brass
MPAHL-1810

1/8" NPT Pipe Threaded Nipple Fitting with Barb

Description: Nipple fitting with 1/8" NPT external threads and built-in barb. Used to connect two 1/8" NPT internal threads and 1/16" ID tube.

Material: Brass.



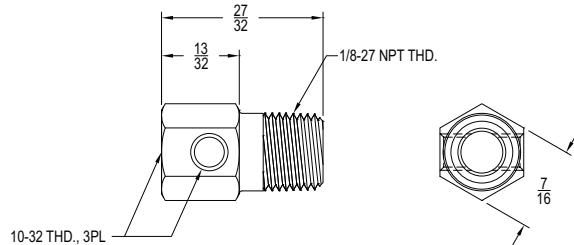
Suggested Tube ID ¹	Part Number
1/16	MPA-18M18M-1012



1/8" NPT External Pipe Thread to 10-32 Internal Threaded Cross

Description: 1/8" NPT external to 10-32 internal cross adaptor.

Material: Brass.



Part Number
Brass
MPAC-1810

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

STUDS

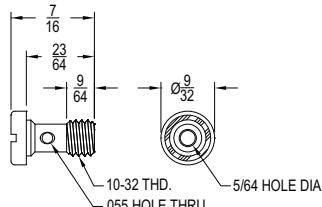
Round Head Stud – 10-32 Thread, Ultra Miniature

Description: 9/32" round head stud with screwdriver slot and 10-32 thread. Used in ultra-miniature series elbow and tee fittings (MLAS and MTAS series).

Material: Brass.

Seals: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.

Note: For best results use screwdriver size 6-8.



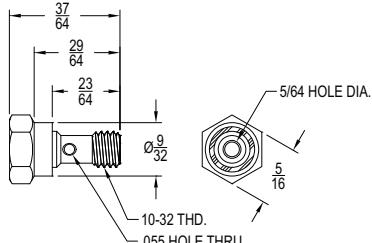
Part Number
Brass
MAS-1000

Hex Head Stud – 10-32 Thread, Ultra Miniature

Description: 5/16" hex head stud with 10-32 thread. Used in ultra-miniature series elbow and tee fittings (MLASH and MTASH series).

Material: Brass.

Seals: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



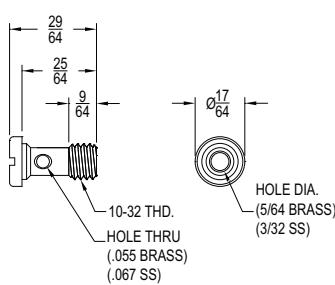
Part Number
Brass
MAS-1001

Round Head Stud – 10-32 Thread, Low Profile

Description: 17/64" round head stud with screwdriver slot and 10-32 thread. Used in low profile elbow and tee fittings (SMLS, SMTS, SMCLB, and SMCBT series).

Material: Brass, 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Part Number	Part Number	Part Number
Brass	303 Stainless	316 Stainless
MS-2000	MS-2000-303	MS-2000-316

STUDS

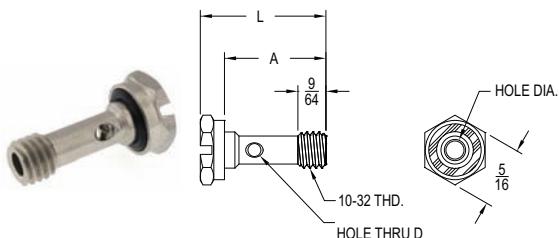
10-32 THREAD
STUDS

Hex Head Stud – 10-32 Thread

Description: 5/16" hex head stud with screwdriver slot and 10-32 thread. Used in elbow, tee, and 5-port fittings (MLS, MLSN, MTS, MKS, and 1/8" MCBL and MCBT series).

Material: Brass, 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



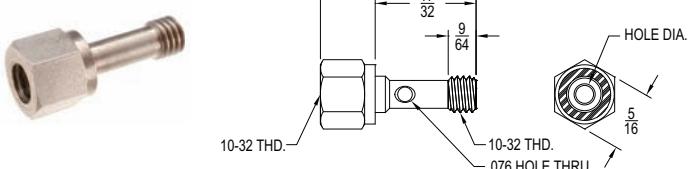
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	A	L	Hole Dia. C	Hole Thru D	
MSB-1000 ¹	MS-1000-303	MS-1000-316	17/32	21/32	5/64 (brass) 3/32 (SS)	.055 (brass) .067 (SS)	
	MS-1000-TALL			5/8	3/4	3/32	.067

Manifold Stud – 10-32 Threads

Description: 5/16" hex manifold stud with 10-32 threads. Used in tee, cross, and 6-port miniature fittings (MTM, MCM, and MKM series).

Material: 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



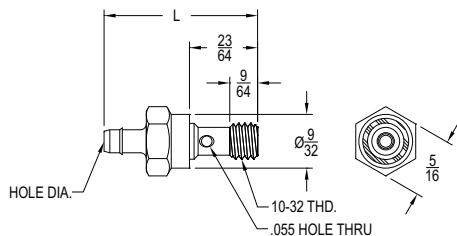
Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia.
MS-1010-303	MS-1010-316	3/32

Combination Stud – 10-32 Thread, Ultra Miniature

Description: 5/16" hex combination stud with 10-32 thread and built-in barb. Used in ultra-miniature tee and cross fittings (MTACS and MCACS series).

Material: Brass.

Seals: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



Suggested Tube ID ²	Part Number Brass	Hole Dia.	L
1/8	MACS-1332	5/64	57/64
3/32	MACS-1132	1/16	51/64
5/64 (2mm)	MACS-1016	.052	51/64
1/16	MACS-1012	3/64	51/64

¹Brass stud does not have a screwdriver slot.

²Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

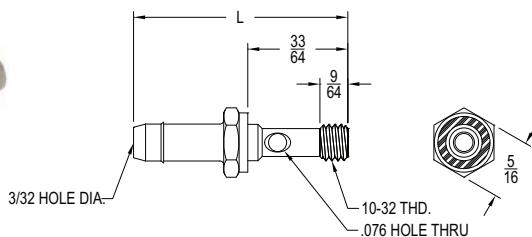
STUDS

Combination Stud – 10-32 Thread

Description: 5/16" hex combination stud with .170" to 3/16" ID tube barb and 10-32 thread. Used in tee, cross, and 6 port fittings (MTCS, MCCS, and MKCS series).

Material: 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Suggested Tube ID ¹	Part Number 303 Stainless	Part Number 316 Stainless	L
.170 to 3/16	MCS-1008-1-303		1 7/64
.170 to 3/16	MCS-1008-2-303	MCS-1008-2-316	61/64

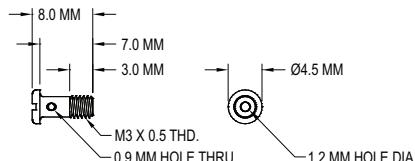
Round Head Stud – M3 Thread

Description: Round head stud with screwdriver slot and M3 thread. Used in M3 series elbow and tee fittings with built-in barb (M3LS and M3TS series).

Material: 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, and Silicone. See page 1.

Note: This part is not designed with an O-ring gland to capture the O-ring seal.



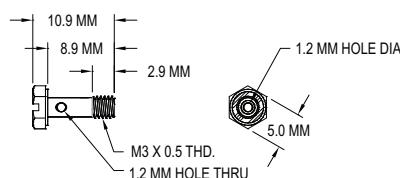
Part Number 303 Stainless	Part Number 316 Stainless
M3S-1000-303	M3S-1000-316

Hex Head Stud – M3 Thread

Description: Hexagonal head stud with screwdriver slot and M3 thread. Used in M3 series elbow and tee fittings with thread to thread configuration (M3LS-M3I and M3TS-M3I series) as well as M3 threaded compression fitting elbows and tees (M3CBL and M3CBT series).

Material: Brass or 303 stainless steel.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, and Silicone. See page 1.



Part Number Brass	Part Number 303 Stainless
M3S-1001	M3S-1001-303

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

STUDS

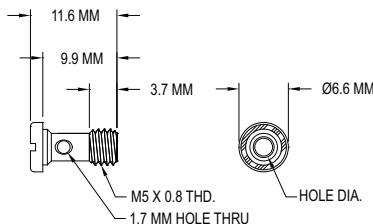
STUDS
M5 THREAD

Round Head Stud – M5 Thread, Low Profile

Description: 17/64" round head stud with screwdriver slot and M5 thread. Used in low profile series elbow and tee fittings (S5MLS, S5MTS, S5MCBL, and S5MCBT series).

Material: Brass, 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.



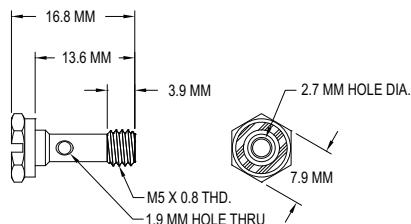
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia. SS	Hole Dia. Br
M5S-2000	M5S-2000-303	M5S-2000-316	2.4 mm (3/32")	2.0 mm (5/64")

Hex Head Stud – M5 Thread

Description: 5/16" hex head stud with screwdriver slot and M5 thread. Used in elbow, tee, and 5-port fittings (M5LS, M5TS, M5KS, and 1/8" M5CBL and M5CBT series).

Material: Brass, 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



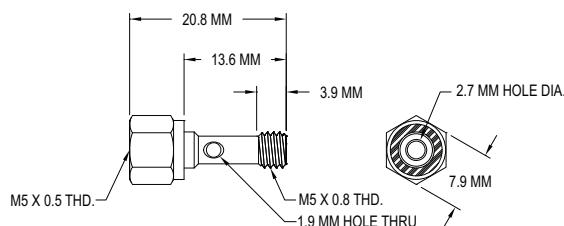
Part Number Brass ¹	Part Number 303 Stainless	Part Number 316 Stainless
M5SB-1000 ¹	M5S-1000-303	M5S-1000-316

Manifold Stud – M5 Threads

Description: 5/16" hex manifold stud with M5 threads. Used in tee, cross, and 6-port miniature fittings (M5TM, M5CM, and M5KM series).

Material: 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number 303 Stainless	Part Number 316 Stainless
M5S-M5-303	M5S-M5-316

¹Brass stud does not have a screwdriver slot.



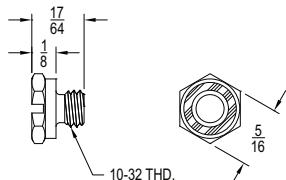
FITTING PLUGS

Screw Plug – 10-32 Thread

Description: Screw plug with 10-32 external thread. Used to block unused port.

Material: Brass, 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



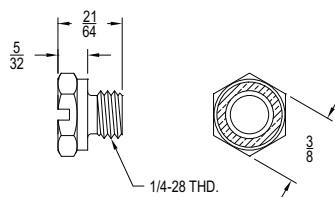
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
MSP-1000	MSP-1000-303	MSP-1000-316

Screw Plug – 1/4-28 Thread

Description: Screw plug with 1/4-28 external thread. Used to block unused port.

Material: Brass, 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-1428-B. Optional materials: EPDM, Viton®, Silicone, Neoprene, and Teflon®. See page 1.



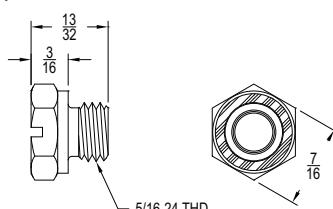
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
MSP-1428	MSP-1428-303	MSP-1428-316

Screw Plug – 5/16-24 Thread

Description: Screw plug with 5/16-24 external thread. Used to block unused port.

Material: Brass.

Seals: One Buna-N O-ring, OR-51624-B. Optional materials: EPDM and Viton®. See page 1.



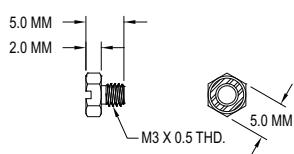
Part Number Brass
MSP-51624

Screw Plug – M3 Thread

Description: Screw plug with M3 external thread. Used to block unused port.

Material: Brass, 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
M3SP	M3SP-303	M3SP-316

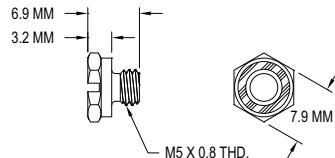
FITTING PLUGS

Screw Plug – M5 Thread

Description: Screw plug with M5 external thread. Used to block unused port.

Material: 303 or 316 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.

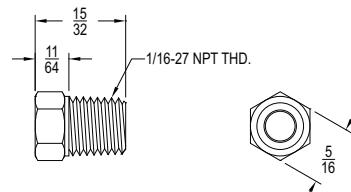


Part Number 303 Stainless	Part Number 316 Stainless
M5SP-303	M5SP-316

Pipe Plug – 1/16" NPT

Description: 1/16" NPT external pipe plug. Used to block unused port.

Material: Brass.

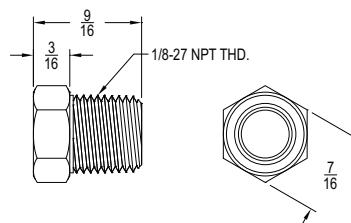


Part Number Brass
MP-16

Pipe Plug – 1/8" NPT

Description: 1/8" NPT external pipe plug. Used to block unused port.

Material: Brass, 303 or 316 stainless steel.

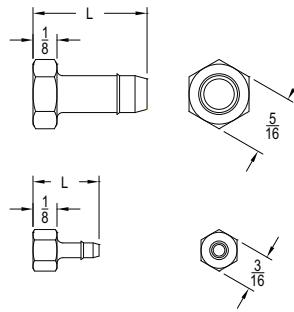


Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
MP-18	MP-18-303	MP-18-316

Tube Plug

Description: Tube plug fitting. Used to block unused tubing.

Material: Brass or 303 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Hex	L
.170 to 3/16	MHP-1008-1		5/16	19/32
	MHP-1008-2		5/16	7/16
1/8	MHP-1332	MHP-1332-303	5/16	7/16
3/32	MHP-1132		3/16	11/32
5/64 (2mm)	MHP-1016		3/16	11/32
1/16	MHP-1012		3/16	11/32

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

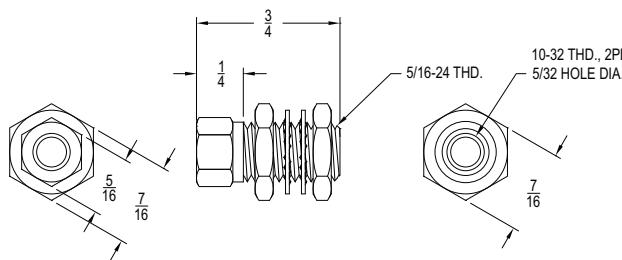
BULKHEAD FITTINGS

10-32 Threaded Bulkhead Fitting

Description: Miniature bulkhead fitting with an internal 10-32 thread and an external 5/16-24 thread. The MBH-1010-1 series is provided with one nut and one lock washer for use in threaded panels. The MBH-1010-2 series is supplied with two nuts and two lock washers for use in clearance holes.

Material: Brass, 303 or 316 stainless steel body, brass, or ENP brass nut(s), zinc plated steel washer(s).

Note: Fits bulkhead up to 7/16" thick.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hex Nut(s) Included	Lock Washer(s) Included
MBH-1010-1	MBH-1010-1-303	MBH-1010-1-316	1	1
MBH-1010-2	MBH-1010-2-303	MBH-1010-2-316	2	2

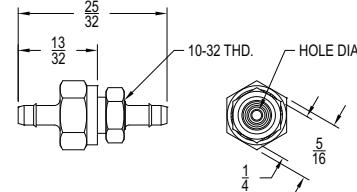
Barb to Barb Bulkhead Fitting with 5/16" Hex

Description: Bulkhead fitting with built-in barbed tubing connections. 5/16" hex body and O-ring seal.

Material: Brass, 303, or 316 stainless steel body. Brass or 303 stainless steel nut.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.

Note: Fits bulkhead up to 1/16" thick.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia.
3/32	MBHA-1132	MBHA-1132-303	MBHA-1132-316	1/16
5/64 (2 mm)	MBHA-1016	MBHA-1016-303	MBHA-1016-316	.052
1/16	MBHA-1012	MBHA-1012-303	MBHA-1012-316	3/64

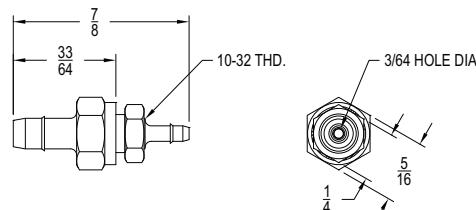
Barb to Barb Bulkhead Reducer with 5/16" Hex

Description: Bulkhead reducer fitting with built-in barbed tubing connections. Custom barb combinations are available upon request, please consult factory for information.

Material: Brass body and nut.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.

Note: Fits bulkhead up to 1/16" thick.



Suggested Tube ID ¹ (Large)	Suggested Tube ID ¹ (Small)	Part Number Brass
1/8	1/16	MBHAH-1332-1012

¹Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

BULKHEAD FITTINGS

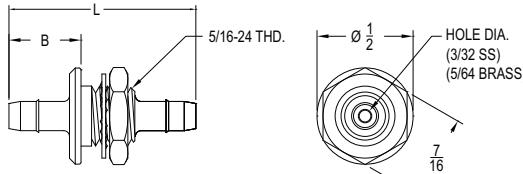
BULKHEAD FITTINGS BARB TO BARB

Barb to Barb Bulkhead Fitting with 1/2" Round Flange

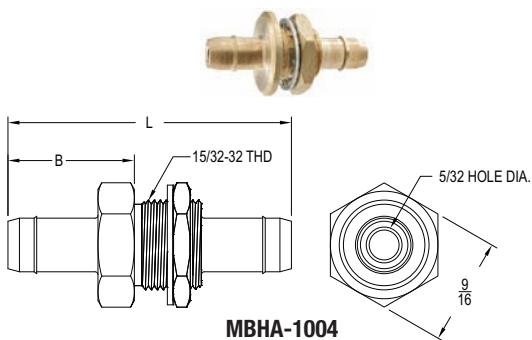
Description: Bulkhead fitting with built-in barbed tubing connections, round flange body.

Material: Brass, 303 or 316 stainless steel body, zinc plated steel washer, brass, or ENP brass nut.

Note: Fits bulkhead up to 7/32" thick.



MBHA-1008 & MBHA-1332



MBHA-1004

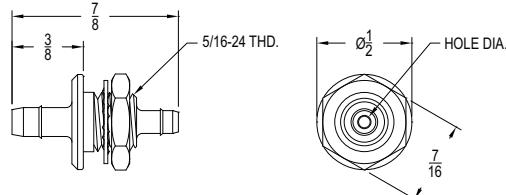
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	B	L
1/4	MBHA-1004			21/32	1 1/2
.170 to 3/16	MBHA-1008-1	MBHA-1008-1-303	MBHA-1008-1-316	17/32	1 9/32
	MBHA-1008-2	MBHA-1008-2-303	MBHA-1008-2-316	3/8	31/32
1/8	MBHA-1332	MBHA-1332-303	MBHA-1332-316	3/8	31/32

Barb to Barb Reducer with 1/2" Round Flange

Description: Bulkhead reducer fitting with built-in barbed tubing connections and round flange body. Custom barb combinations are available upon request, please consult factory for information.

Material: Brass or 303 stainless steel body, zinc plated steel washer, brass or ENP brass nut.

Note: Fits bulkhead up to 7/32" thick.



Suggested Tube ID ¹ (Large)	Suggested Tube ID ¹ (Small)	Part Number Brass	Part Number 303 Stainless	Hole Dia.
1/8	3/32		MBHAR-1332-1132-303	1/16
1/8	1/16	MBHAR-1332-1012		3/64
.170 to 3/16	1/8	MBHAR-1008-2-1332		5/64

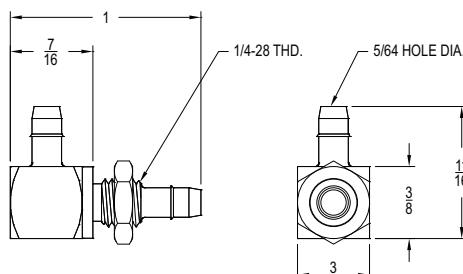
Barbed Elbow Bulkhead Fitting

Description: Bulkhead elbow fitting with built-in barb for 1/8" ID tubing connections.

Material: Brass.

Seals: One Buna-N O-ring, OR-1428-B, optional materials (EPDM, Viton®, Silicone, Teflon®, and Neoprene).

Note: Fits bulkhead up to 11/64" thick.



Suggested Tube ID ¹	Part Number Brass
1/8	MBLA-1332

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.



LUER LOCK FITTINGS



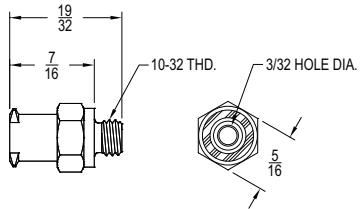
Internal Luer - 10-32 Thread

Description: Internal luer lock fitting with 10-32 thread. Also available with an integral barb or as a plug on special order. Contact the factory for more information regarding special orders.

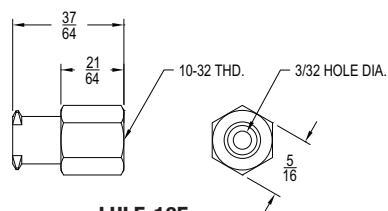
Material: 303 or 316 stainless steel.

Seals: Buna-N O-ring seals. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.

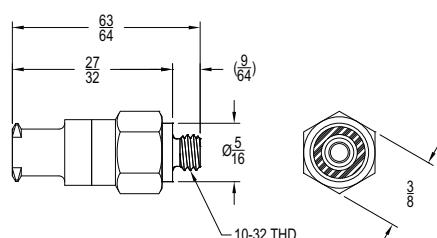
Note: Configurations with a built-in shut-off will close to prevent flow when disconnected. Internal luers with no shut-off or with single shut-off must be paired with an external luer with no shut-off. Double shut-off internal luers must be paired with double shut-off external luers. See page 72.



LULF-10M



LULF-10F



LULFS-10M

Part Designation LULFA-10B-CDE

(Replace each underlined letter with a code.)

B and C must be filled in. A, D, and E are extra available options.)

Shut Off Feature	Code	Description
A	M	No integrated shut-off feature (no designation) ¹
	S	Single shut-off
	D	Double shut-off ²

Connection

B	M	10-32 external thread
	F	10-32 internal thread

Body Material

C	3	303 Stainless Steel
	6	316 Stainless Steel

Seal Material³

D		Buna-N or No O-ring seal (no designation) ¹
E	E	EPDM
	V	Viton
	S	Silicone
	C	Chemraz
	FS	Fluorosilicone
	T	Teflon ⁴

Other Options

E	I	Instrument Cleaned
	X	No Lubrication
	IX	Instrument Cleaned & No Lubrication

¹ Standard configuration is no shut-off, and Buna-N or no o-ring seal. No code is necessary to specify these options.

² Must be specified with a double shut-off type external half to function properly.

³ No shut-off configurations with 10-32 internal thread do not come equipped with an o-ring seal.

⁴ Only available on configurations without shut-off.



LUER LOCK FITTINGS



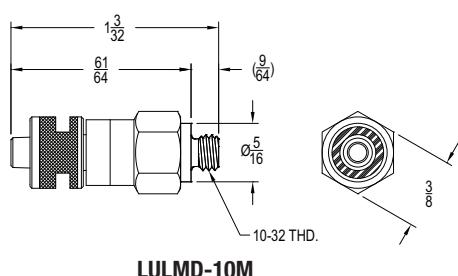
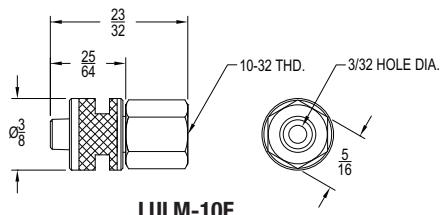
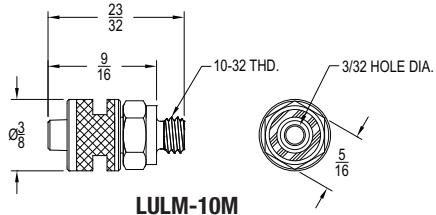
External Luer - 10-32 Thread

Description: External luer lock fitting with 10-32 thread. Also available with an integral barb or as a plug on special order. Contact the factory for more information regarding special orders.

Material: 303 or 316 stainless steel.

Seals: Buna-N O-ring seals. Optional materials: EPDM, Viton®, Silicone, Teflon®, Chemraz®, and Fluorosilicone. See page 1.

Note: Configurations with a built-in shut-off will close to prevent flow when disconnected. External luers with no shut-off may be paired with an internal luer with no shut-off or with single shut-off. Double shut-off external luers must be paired with double shut-off internal luers. See page 71.



Part Designation LULMAB-10C-DEF
(Replace each underlined letter with a code.
C and D must be filled in. A, B, E, and F are extra available options.)

Nut Material	Code	Description
A		ENP Brass (no designation) ¹
	3	303 Stainless Steel
	6	316 Stainless Steel

Shut Off Feature

B		No integrated shut-off feature (no designation) ¹
	D	Double shut-off ²

Connection

C	M	10-32 external thread
	F	10-32 internal thread

Body Material

D	3	303 Stainless Steel
	6	316 Stainless Steel

Seal Material³

E		Buna-N or No O-ring seal (no designation) ¹
	E	EPDM
	V	Viton
	S	Silicone
	C	Chemraz
	FS	Fluorosilicone
	T	Teflon ⁴

Other Options

F	I	Instrument Cleaned
	X	No Lubrication
	IX	Instrument Cleaned & No Lubrication

¹ Standard configuration is no shut-off, ENP brass nut, and Buna-N or no o-ring seal. No code is necessary to specify these options.

² Must be specified with a double shut-off type internal half to function properly.

³ No shut-off configurations with 10-32 internal thread do not come equipped with an o-ring seal.

⁴ Only available on configurations without shut-off.



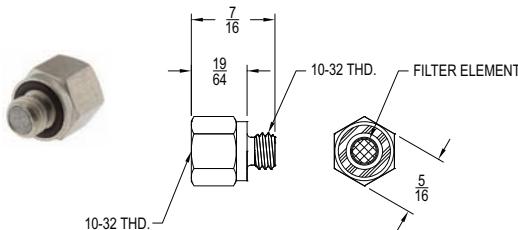
FILTERS/SCREENS/MUFFLERS/BREATHERS

Miniature Filter/Screen – 10-32 External to 10-32 Internal Thread

Description: The filter element is contained within a 10-32 external to 10-32 internal threaded fitting so that components may be stacked for maximum efficiency and compactness. The filter is pressed into the external threaded end of the fitting. The filter is used to keep foreign material out of the fluid stream where small orifices may get clogged by contaminants.

Material: Brass, 303 or 316 stainless steel body with bronze or 316 stainless steel filter element (1/8" diameter). Electroless nickel plated brass variations are available upon request.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number Brass body with bronze filter	Part Number 303 SS body with 316 SS filter	Part Number 316 SS body with 316 SS filter	Filter Size in Microns
CF-05	CF-303-05-316	CF-316-05-316	5 (porous metal disc)
CF-20	CF-303-20-316	CF-316-20-316	20 (porous metal disc)
CF-40	CF-303-40-316	CF-316-40-316	40 (porous metal disc)
CFS-43-316 ¹	CFS303-43-316	CFS316-43-316	43 (metal screen)

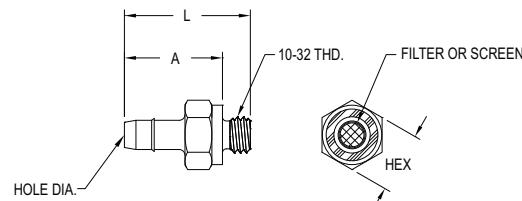
Miniature Filter/Screen - 10-32 External Thread to Barb

Description: 10-32 external thread to barb, with porous sintered filter or wire mesh screen pressed into the external threaded end of the fitting.

Material: Brass or 303 stainless steel body with bronze or 316 stainless steel filter element (1/8" diameter).

Seals: For 5/16 hex models: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene.

For 1/4 hex models: One Buna-N O-ring, OR-14-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, and Chemraz®. See page 1.



FMH-1332-303-05

Suggested Tube ID ²	Part Number Brass Body with Bronze Filter or 316 SS Screen	Part Number 303 SS Body with 316 SS Filter	Filter Size in Microns	Hex Size	Installed Height A	L
.170 to 3/16	FMH182-05	FMH182-3-05-6	5 (porous metal disc)	5/16 hex	33/64	21/32
	FMH182-20	FMH182-3-20-6	20 (porous metal disc)			
	FMH182-40	FMH182-3-40-6	40 (porous metal disc)			
	FMHS182-43	FMHS182-3-43-6	43 (metal screen)			
1/8	FMH332-05	FMH332-3-05-6	5 (porous metal disc)	5/16 hex	33/64	21/32
	FMH332-20	FMH332-3-20-6	20 (porous metal disc)			
	FMH332-40	FMH332-3-40-6	40 (porous metal disc)			
	FMHS332-43	FMHS332-3-43-6	43 (metal screen)			
5/64 (2 mm)	FMH164-05	FMH164-3-05-6	5 (porous metal disc)	1/4 hex	23/64	1/2
	FMH164-20	FMH164-3-20-6	20 (porous metal disc)			
	FMH164-40	FMH164-3-40-6	40 (porous metal disc)			
	FMHS164-43	FMHS164-3-43-6	43 (metal screen)			
1/16	FMH012-05	FMH012-3-05-6	5 (porous metal disc)	5/16 hex	27/64	9/16
	FMH012-20	FMH012-3-20-6	20 (porous metal disc)			
	FMH012-40	FMH012-3-40-6	40 (porous metal disc)			
	FMHS012-43	FMHS012-3-43-6	43 (metal screen)			

¹ Brass body with 316 stainless steel filter.

² Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

FILTERS/SCREENS/MUFFLERS/BREATHERS

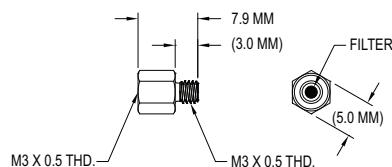


Miniature Filter/Screen - M3 External to M3 Internal Thread

Description: The filter element is contained within a M3 external to M3 internal threaded fitting so that components may be stacked for maximum efficiency and compactness. The filter is pressed into the external threaded end of the fitting. The filter is used to keep foreign material out of the fluid stream where small orifices may get clogged by contaminants.

Material: 303 or 316 stainless steel body with 316 stainless sintered filter.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, and Silicone. See page 1.



Part Number 303 SS body with 316 SS filter	Part Number 316 SS body with 316 SS filter	Filter Size in Microns
C3F-303-20-316	C3F-316-20-316	20 (porous metal disc)

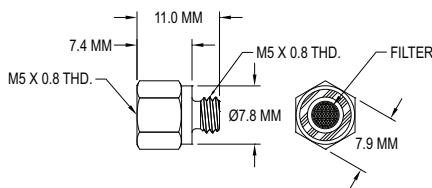


Miniature Filter/Screen – M5 External to M5 Internal Thread

Description: The filter element is contained within a M5 external to M5 internal threaded fitting so that components may be stacked for maximum efficiency and compactness. The filter is pressed into the external threaded end of the fitting. The filter is used to keep foreign material out of the fluid stream where small orifices may get clogged by contaminants.

Material: Brass, 303 or 316 stainless steel body with bronze or 316 stainless steel filter element (1/8" diameter). Electroless nickel plated brass variations are available upon request.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number Brass body with bronze filter	Part Number 303 SS body with 316 SS filter	Part Number 316 SS body with 316 SS filter	Filter Size in Microns
C5F-05	C5F-303-05-316	C5F-316-05-316	5 (porous metal disc)
C5F-20	C5F-303-20-316	C5F-316-20-316	20 (porous metal disc)
C5F-40	C5F-303-40-316	C5F-316-40-316	40 (porous metal disc)
C5FS-43-316 ¹	C5FS-303-43-316	C5FS-316-43-316	43 (metal screen)

¹Brass body with 316 stainless steel wire mesh screen.



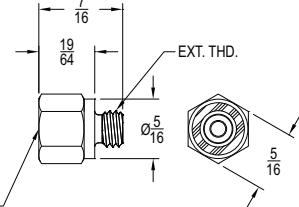
FILTERS/SCREENS/MUFFLERS/BREATHERS

Miniature Breather – 10-32 External Thread or M5 External Thread

Description: 5/16" hex head breather with a sintered filter element or screen (opposite to 10-32 or M5 external thread). The breather is used to keep foreign material from entering a fluid circuit.

Material: Brass, 303, or 316 stainless steel body with bronze or 316 stainless steel filter element.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number Brass Body with Bronze Filter	Part Number 303 SS Body with 316 SS Filter	Part Number 316 SS Body with 316 SS Filter	Filter Size in Microns	External Thread
MB-05	MB303-05-316	MB316-05-316	5 (porous metal disc)	10-32
MB-20	MB303-20-316	MB316-20-316	20 (porous metal disc)	10-32
MB-40	MB303-40-316	MB316-40-316	40 (porous metal disc)	10-32
MBS-43-316 ¹	MBS303-43-316	MBS316-43-316	43 (metal screen)	10-32
M5B-05		M5B316-05-316	5 (porous metal disc)	M5 x 0.8
M5B-20		M5B316-20-316	20 (porous metal disc)	M5 x 0.8
M5B-40		M5B316-40-316	40 (porous metal disc)	M5 x 0.8
M5BS-43-316 ¹		M5BS316-43-316	43 (metal screen)	M5 x 0.8

Miniature Muffler

Description: The muffler is used for reducing exhaust and inlet noise in pneumatic circuits.

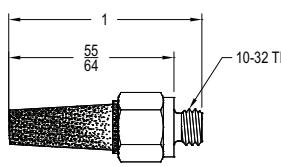
Material: Brass with sintered bronze element or 303 stainless steel with electroless nickel plated bronze or 316 stainless steel element.

Seals: One Buna-N O-ring, OR-516-40-B, used on 10-32 threaded mufflers only, not on pipe threaded versions. OR-14 used on MMPA-1040-1/4. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.

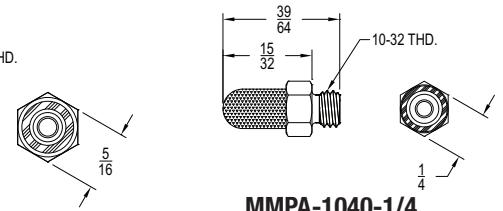


MMPA-1040

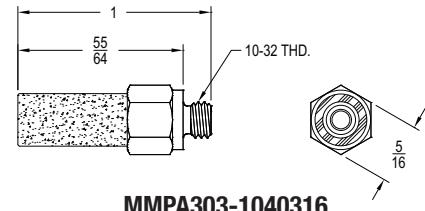
Part Number Brass Body with Bronze Muffler	Part Number 303 Stainless Body w/ENP Bronze Muffler	Part Number 303 Stainless Body w/316 Stainless Muffler	External Thread	Hex	L	Micron Grade
MMPA-1040-1/4			10-32	1/4	39/64	40
MMPA-1005	MMPA303-1005ENP		10-32	5/16	1	5
MMPA-1040	MMPA303-1040ENP	MMPA303-1040316	10-32	5/16	1	40
MMPA-1605			1/16 - 27 NPT	5/16	1 5/32	5
MMPA-1640			1/16 - 27 NPT	5/16	1 5/32	40
MMPA-1805			1/8 - 27 NPT	7/16	1 1/4	5
MMPA-1840	MMPA303-1840ENP		1/8 - 27 NPT	7/16	1 1/4	40
MMPA-1405			1/4 - 18 NPT	9/16	1 1/4	5
MMPA-1440	MMPA303-1440ENP		1/4 - 18 NPT	9/16	1 1/4	40



MMPA-1040



MMPA-1040-1/4



MMPA303-1040316

¹ Brass body with 316 stainless steel wire mesh screen.

MICRO DRILLED ORIFICE/CHOKE/RESTRICTOR

Orifice Selection Table

Description: Beswick micro-drilled orifice fittings can be ordered in a wide range of orifice diameter sizes. Select the orifice fitting body style (shown on pages 76, 77, and 78) and then select the orifice diameter from the table on the right. Replace the "XXX" at the end of the body style part number with an orifice part number suffix, such as "004", from the table on the right. For example, the part number for a brass M3 threaded barbed fitting for 1/16" ID tubing with a 0.004" diameter orifice is M3H-1012-004.

Beswick has developed specialized micro-drilling technology to produce precision orifices as small as 0.004" diameter in brass and stainless steel. Drilled orifice fittings are held to a tolerance of +/- 0.0005" and are an excellent choice for the majority of applications.

For more critical flow metering applications, you may want to consider Beswick sapphire jewel orifice fittings (shown on pages 80 and 81). Sapphire jewel orifice fittings are offered with hole diameters as small as 0.003".

Orifice fittings are typically used for controlling the speed of air cylinders, for delays in timing and sequencing circuits, and for other applications requiring precisely metered flow. Consult the Beswick factory if you need assistance selecting the appropriate orifice diameter for your application.

Note: Please allow sufficient time for delivery. We stock many models however same day delivery is not possible for all models in all orifice sizes.

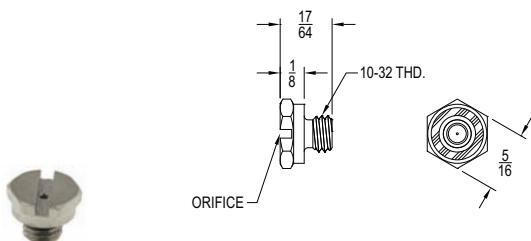
Part Number Suffix - Drilled	Orifice Dia. in Inches	Part Number Suffix - Drilled	Orifice Dia. in Inches
-004	.004	-032	.032
-005	.005	-033	.033
-006	.006	-035	.035
-007	.007	-036	.036
-0075	.0075	-037	.037
-008	.008	-038	.038
-009	.009	-039	.039
-010	.010	-040	.040
-011	.011	-041	.041
-012	.012	-042	.042
-013	.013	-043	.043
-0135	.0135	-0469	.047
-0145	.0145	-0492	.049
-0156	.0156	-052	.052
-016	.016	-0531	.053
-018	.018	-055	.055
-020	.020	-0595	.0595
-021	.021	-0625	.0625
-0225	.0225	-063	.063
-024	.024	-065	.065
-025	.025	-067	.067
-026	.026	-070	.070
-028	.028	-073	.073
-0292	.029	-0748	.075
-030	.030	-076	.076
-031	.031		

10-32 Threaded Orifice Plug – Drilled

Description: 10-32 external threaded fitting with micro-drilled orifice. Choose orifice size from orifice selection table on page 76.

Material: 303 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number	Maximum Orifice Size
MSP-303-XXX	N/A

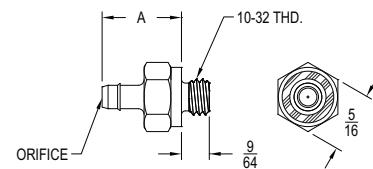
MICRO DRILLED ORIFICE/CHOKE/RESTRICTOR

10-32 Thread to Barb Orifice – Drilled

Description: 10-32 external threaded barb fitting with micro-drilled orifice. Choose orifice size from "Orifice Selection Table" on page 76.

Material: Brass or 303 stainless steel.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



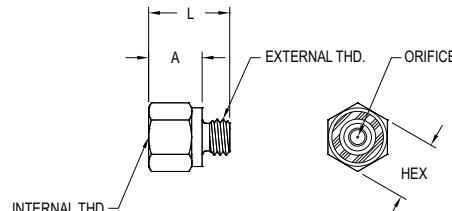
Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Installed Height A	Maximum Orifice Size
1/4	MH-1004-XXX	MH-1004-303-XXX	21/32	N/A
.170 to 3/16	MH-1008-1-XXX	MH-1008-1-303-XXX	21/32	N/A
	MH-1008-2-XXX	MH-1008-2-303-XXX	1/2	N/A
1/8	MH-1332-XXX	MH-1332-303-XXX	1/2	N/A
3/32	MH-1132-XXX	MH-1132-303-XXX	13/32	.0625
5/64 (2 mm)	MH-1016-XXX	MH-1016-303-XXX	13/32	.052
1/16	MH-1012-XXX	MH-1012-303-XXX	13/32	.047

10-32, M5 or M3 Threaded Orifice – Drilled

Description: 10-32, M5 or M3 internal to external threaded fitting with micro drilled orifice. Choose orifice size from "Orifice Selection Table" on page 76.

Material: Brass, 303 or 316 stainless steel.

Seals: For CC-1010- and CC-M5M5- : One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. For CC-M3M3- : One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Internal Thread	External Thread	Installed Height A	L	Hex Size	Maximum Orifice Size
CC-1010-XXX	CC-1010-XXX-303	CC-1010-XXX-316	10-32	10-32	9/32	7/16	5/16	N/A
CC-M5M5-XXX	CC-M5M5-XXX-303	CC-M5M5-XXX-316	M5 X 0.8	M5 X 0.8	9/32	7/16	5/16	N/A
	CC-M3M3-XXX-303		M3 X 0.5	M3 X 0.5	5 mm	8 mm	5 mm	0.0625

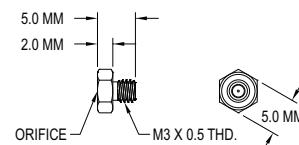
M3 Threaded Orifice Plug – Drilled

Description: M3 external threaded fitting with micro-drilled orifice. Choose orifice size from orifice selection table on page 76.

Material: Brass.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.

Note: There is no screw driver slot.



Part Number Brass	Maximum Orifice Size
M3SP-XXX	0.047

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

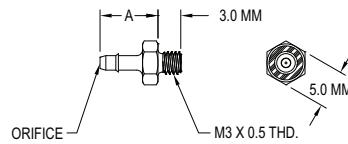
MICRO DRILLED ORIFICE/CHOKE/RESTRICTOR

M3 Thread to Barb Orifice – Drilled

Description: M3 external threaded barb fitting with micro drilled orifice. Choose orifice size from “Orifice Selection Table” on page 76.

Material: Brass or 303 stainless steel.

Seals: One Buna-N O-ring, OR-M3-B. Optional materials: EPDM, Viton®, Silicone, and Fluorosilicone. See page 1.

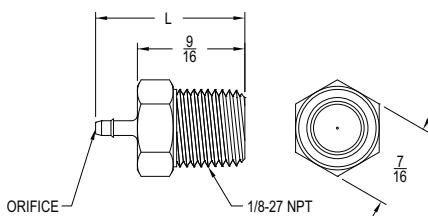


Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	Installed Height A	Maximum Orifice Size
1/8" (3.2 mm)	M3H-1332-XXX	M3H-1332-303-XXX	9.8 mm (25/64")	0.047 (0.0625 in SS)
3/32" (2.4 mm)	M3H-1132-XXX		7.5 mm (19/64")	0.047
5/64" (2.0 mm)	M3H-1016-XXX	M3H-1016-303-XXX	7.5 mm (19/64")	0.047 (0.052 in SS)
1/16" (1.6 mm)	M3H-1012-XXX	M3H-1012-303-XXX	7.5 mm (19/64")	0.047

1/8" NPT Thread to Barb Orifice – Drilled

Description: 1/8" NPT external thread to barb fitting with micro drilled orifice. Choose orifice size from “Orifice Selection Table” on page 76.

Material: Brass.

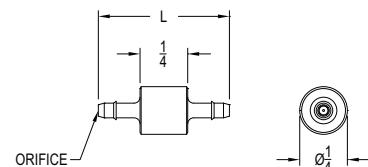


Suggested Tube ID ¹	Part Number Brass	L	Maximum Orifice Size
1/4	MPAH-8004-XXX	1 1/32	N/A
.170 to 3/16	MPAH-8008-1-XXX	1 1/32	N/A
	MPAH-8008-2-XXX	7/8	N/A
1/8	MPAH-8332-XXX	7/8	N/A
3/32	MPAH-8132-XXX	25/32	0.0625
5/64 (2mm)	MPAH-8016-XXX	25/32	0.052
1/16	MPAH-8012-XXX	25/32	0.047

Barb to Barb Orifice – Drilled

Description: Tubing supported in-line nipple fitting with micro drilled orifice. Choose orifice size from “Orifice Selection Table” on page 76.

Material: Brass or 303 stainless steel.



Suggested Tube ID ¹	Part Number Brass	Part Number 303 Stainless	L	Maximum Orifice Size
.170 to 3/16	MHU-1008-2-XXX	MHU-1008-2-XXX-303	7/8	N/A
1/8	MHU-1332-XXX	MHU-1332-XXX-303	7/8	N/A
3/32	MHU-1132-XXX	MHU-1132-XXX-303	11/16	.0625
5/64 (2mm)	MHU-1016-XXX	MHU-1016-XXX-303	11/16	.052
1/16	MHU-1012-XXX	MHU-1012-XXX-303	11/16	.047

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.



SAPPHIRE JEWEL ORIFICE/CHOKE¹

Jewel Orifice Selection Table

Description: Beswick sapphire orifice jewel fittings can be ordered in a wide range of orifice diameters. Select the orifice fitting body style (shown on pages 80 and 81) and then select the orifice diameter from the table on the right. Replace the "XXX" at the end of the body style part number with an orifice part number suffix, such as "003", from the table on the right. For example, the part number for a brass 10-32 threaded barbed fitting for 1/16" ID tubing with a 0.003" diameter sapphire orifice jewel is MHJ-1012-003.

Sapphire is an excellent orifice material for critical flow applications because of its extreme wear, heat and corrosion resistance. The sapphire orifice diameter is held to a very close tolerance: +/-0.0001". For less demanding applications, Beswick drilled orifice fittings (shown on pages 76, 77, and 78) provide the required metering at lower cost than Beswick sapphire orifice jewel fittings.

Orifice fittings are typically used for controlling the speed of air cylinders, for delays in timing and sequencing circuits, and for other applications requiring precisely metered flow. Consult the Beswick factory if you need assistance selecting the appropriate orifice diameter size for your application.

Part Number Suffix - Jewel	Orifice Dia. in Inches	Part Number Suffix - Jewel	Orifice Dia. in Inches
-003	.003	-028	.028
-004	.004	-029	.029
-005	.005	-030	.030
-006	.006	-031	.031
-007	.007	-032	.032
-008	.008	-033	.033
-009	.009	-034	.034
-010	.010	-035	.035
-011	.011	-036	.036
-012	.012	-037	.037
-013	.013	-038	.038
-014	.014	-039	.039
-015	.015	-040	.040
-016	.016	-041	.041
-017	.017	-042	.042
-018	.018	-043	.043
-019	.019	-044	.044
-020	.020	-045	.045
-021	.021	-046	.046
-022	.022	-047	.047
-023	.023	-048	.048
-024	.024	-049	.049
-025	.025	-050	.050
-026	.026	-051	.051
-027	.027	-052	.052

¹Assembled to order, not a stock item.



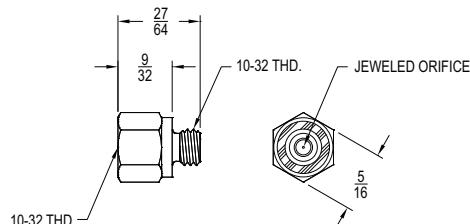
SAPPHIRE JEWEL ORIFICE/CHOKE¹

10-32 Threaded Orifice – Sapphire Jewel (Brass)

Description: 10-32 internal to 10-32 external fitting with a sapphire jewel orifice pressed in. Choose orifice size from “Jewel Orifice Selection Table” on page 79.

Material: Brass.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Part Number Brass	Description
CJ-1010-XXX	Preferred flow from 10-32 internal to 10-32 external
CJE-1010-XXX	Preferred flow from 10-32 external to 10-32 internal



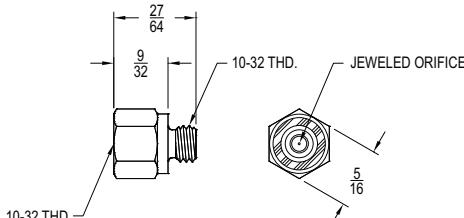
10-32 Threaded Orifice – Sapphire Jewel (Stainless Steel)

Description: 10-32 internal to 10-32 external fitting with sapphire jewel. Jewel is held in place with a stainless steel retaining screw. Choose orifice from “Jewel Orifice Selection Table” on page 79.

Material: 303 or 316 stainless steel.

Seals: Buna-N O-rings. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.

Note: Contact factory for availability.



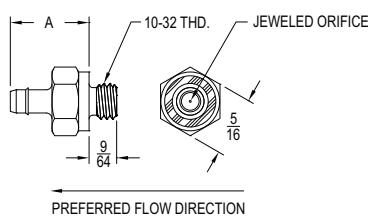
Part Number 303 Stainless	Part Number 316 Stainless	Description
CJ-1010-XXX-303	CJ-1010-XXX-316	Preferred flow from 10-32 internal to 10-32 external
CJE-1010-XXX-303	CJE-1010-XXX-316	Preferred flow from 10-32 external to 10-32 internal

10-32 Thread to Barb Orifice – Sapphire Jewel

Description: 10-32 external threaded barb fitting with a sapphire jewel orifice pressed in. Choose orifice size from “Jewel Orifice Selection Table” on page 79.

Material: Brass.

Seals: One Buna-N O-ring, OR-516-40-B. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone, and Neoprene. See page 1.



Suggested Tube ID ²	Part Number Brass	Installed Height A
1/4	MHJ-1004-XXX	21/32
.170 to 3/16	MHJ-1008-1-XXX	21/32
	MHJ-1008-2-XXX	1/2
1/8	MHJ-1332-XXX	1/2
3/32	MHJ-1132-XXX	13/32
5/64 (2mm)	MHJ-1016-XXX	13/32
1/16	MHJ-1012-XXX	13/32

¹ Assembled to order, not a stock item.

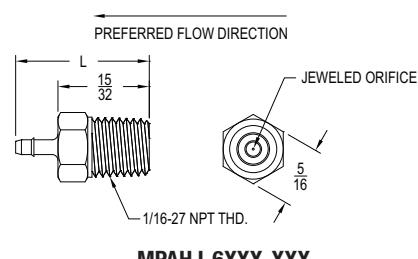
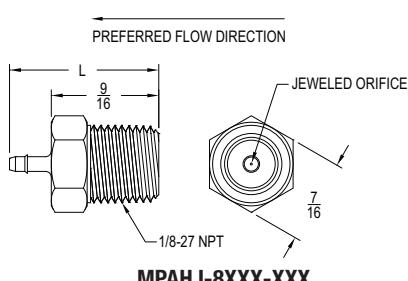
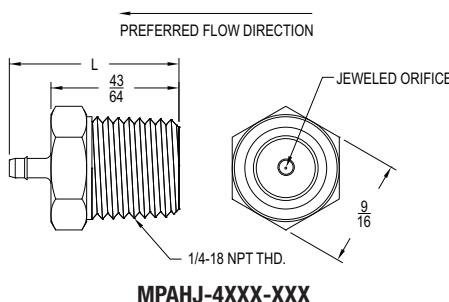
² Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

SAPPHIRE JEWEL ORIFICE/CHOKE¹

1/4" NPT, 1/8" NPT and 1/16" NPT Thread to Barb Orifice – Sapphire Jewel

Description: 1/4" NPT, 1/8" NPT & 1/16" NPT external thread to barb fitting with a sapphire jewel orifice pressed in. Choose orifice size from "Jewel Orifice Selection Table" on page 79.

Material: Brass.

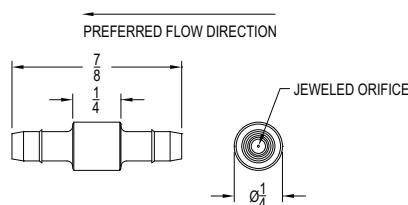


Suggested Tube ID ²	Part Number	L
1/4	MPAHJ-4004-XXX	1 9/16
.170 to 3/16	MPAHJ-4008-1-XXX	1 9/16
	MPAHJ-4008-2-XXX	1
1/8	MPAHJ-4332-XXX	1
3/32	MPAHJ-4132-XXX	57/64
5/64 (2mm)	MPAHJ-4016-XXX	57/64
1/16	MPAHJ-4012-XXX	57/64
1/4	MPAHJ-8004-XXX	1 1/32
.170 to 3/16	MPAHJ-8008-1-XXX	1 1/32
	MPAHJ-8008-2-XXX	7/8
1/8	MPAHJ-8332-XXX	7/8
3/32	MPAHJ-8132-XXX	25/32
5/64 (2mm)	MPAHJ-8016-XXX	25/32
1/16	MPAHJ-8012-XXX	25/32
1/4	MPAHJ-6004-XXX	15/16
.170 to 3/16	MPAHJ-6008-1-XXX	15/16
	MPAHJ-6008-2-XXX	51/64
1/8	MPAHJ-6332-XXX	51/64
3/32	MPAHJ-6132-XXX	11/16
5/64 (2mm)	MPAHJ-6016-XXX	11/16
1/16	MPAHJ-6012-XXX	11/16

Barb to Barb Orifice – Sapphire Jewel

Description: Tubing supported in-line nipple fitting with a sapphire jewel pressed in. Choose orifice size from "Jewel Orifice Selection Table" on page 79.

Material: Brass.



Suggested Tube ID ²	Part Number
.170 to 3/16	MHUJ-1008-2-XXX
1/8	MHUJ-1332-XXX

¹ Assembled to order, not a stock item.

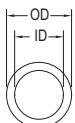
² Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

TUBING/CLAMPS/TOOLS

Polyurethane Tubing

Description: Polyurethane tubing for use with barbed or push to connect fittings. Provides excellent flexibility, resistance to kinking and abrasion, superior memory, elasticity, and resists attack by water, ozone, oil, and grease. Designed for application in medical, dental, and industrial fluid-power systems.

Material: Polyether based polyurethane.



Part Number	ID	OD	Colors ¹	Durometer (shore A)	Working PSI @ 75 F	Working PSI @ 150 F	Use with Beswick Barb Size
MUT-1004	1/4	3/8	clear, black, red, translucent red, yellow, blue	90	125	50	-1004
MUT-1008	.170	1/4	clear, black, red, yellow, blue	90	115	45	-1008-1/-1008-2
MUT-1332	1/8	1/4	clear, black, red, translucent red, yellow, translucent yellow, blue, translucent blue, green, translucent green	85	145	60	-1332
MUT-1132-1	3/32	5/32 (4mm)	clear	85	115	45	-1132
MUT-1132-1-COLOR	3/32	5/32 (4mm)	black, red, yellow, blue, purple, green, orange	95	210	85	-1132
MUT-1016	5/64 (2mm)	5/32 (4mm)	clear, black, white, red, yellow, blue, translucent blue	85	155	60	-1016
MUT-1012	1/16	1/8	clear, black, gray, white, red, translucent red, yellow, translucent yellow, blue, green, translucent blue, orange	85	135	55	-1012

Coiled Polyurethane Tubing

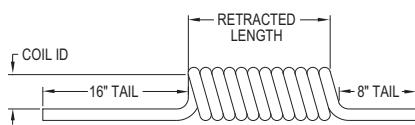
Description: Coiled polyurethane tubing, available with one 16" straight tail and one 8" tail on ends. The maximum extended length is 10', with 8' of working length.



Material: Polyether based polyurethane, 85 durometer (shore A).

Colors: Standard color is "clear". Please consult factory for other available colors.

Note: Custom configurations are available.



Part Number	ID	OD	Approx. ID of Coiled Section	Retracted Length	Working PSI @ 75 F	Working PSI @ 150 F
MUT-1332-C	1/8	1/4	3/4	8.0	125	50
MUT-1012-C	1/16	1/8	3/8	8.0	115	45

¹Please consult factory for additional color options.

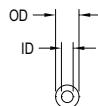


TUBING/CLAMPS/TOOLS

High Pressure Tubing

Description: High pressure tubing for use with compression fittings or push to connects.

Material: Copper, Nylon, or Teflon®.

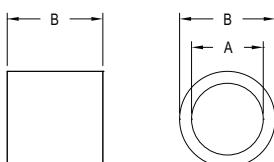


Part Number	ID	OD	Material	Working PSI @ 75 F	Working PSI @ 150 F	Use with Beswick Fitting Number(s)
MCT-1018	1/16	1/8	copper	2400	2400	MCB-1018
MNT-1018	5/64	1/8	nylon	420	250	MCB-1018-1, MCN-1018
MTT-31-62	1/32	1/16	Teflon®, PTFE	400	350	MCB-1016
MTT-1018	1/16	1/8	Teflon®, PTFE	400	350	MCB-1018-1
MTT-14	1/8	1/4	Teflon®, PTFE	400	350	MCB-14

Plastic Sleeve Tubing Clamp

Description: Plastic sleeve tubing clamp is designed to secure tubing to our barb fittings as well as provide color coding. Installation: place clamp over tubing, push tubing onto fitting and then slide clamp into position to secure tubing.

Material: Polyethylene.



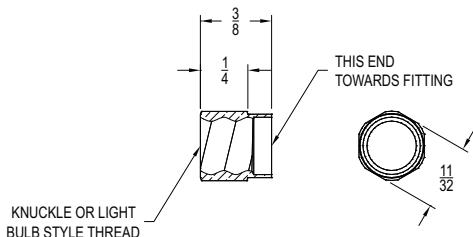
Use with Tubing OD	Part Number	A (Clamp ID)	B (Clamp OD)	Colors	Use with Beswick Tubing Number(s)
3/8	MPC-380	3/8	1/2	natural, red	MUT-1004
1/4	MPC-140	1/4	3/8	natural, black, red, yellow, blue, green, orange	MUT-1008, MUT-1332
3/16	MPC-316	3/16	5/16	black	
5/32	MPC-532	11/64	1/4	natural, black, red, yellow, blue, green, orange	MUT-1132-1, MUT-1016
4 mm	MPC-6MM	4 mm	6 mm	natural	MUT-1132-1, MUT-1016
1/8	MPC-180	1/8	3/16	natural, black	MUT-1012

TUBING/CLAMPS/TOOLS

Knuckle Thread Tubing Clamp

Description: Reusable knuckle or light bulb threaded tubing clamp.
Installation: place clamp over 1/4" OD tubing, push tubing onto fitting and then screw clamp into position to secure tubing.

Material: Brass or 303 stainless steel.



Use with Tubing OD	Part Number Brass	Part Number 303 Stainless	ID	Use with Beswick Tubing Number(s)
1/4	MKC-140	MKC-140-303	9/32	MUT-1008, MUT-1332

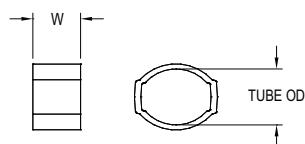
Two-Ear Style Clamp

Description: Two-ear style clamp. Installation: place clamp over tubing, push tubing onto fitting, slide clamp into position and crimp "ears" to secure tubing.



Material: Zinc plated steel or 304 stainless steel.

Note: See crimping pliers on page 85.



Use with Tubing OD	Part Number Plated Steel	Part Number 304 Stainless	W	Use with Beswick Tubing Number(s)
5/16	MHC-516		9/32	
1/4	MHC-140	MHC-140-304	1/4	MUT-1008, MUT-1332
1/8 to 5/32	MHC-532		5/32	MUT-1012, MUT-1016

Spotlight: Beswick's Custom Design and Engineering Support

The unique advantages of Beswick products are the result of over 45 years experience designing innovative products. Beswick's Application/Sales personnel are degreed mechanical engineers who are trained to assist you with your application needs. All Beswick employees are committed to the design and manufacture of innovative

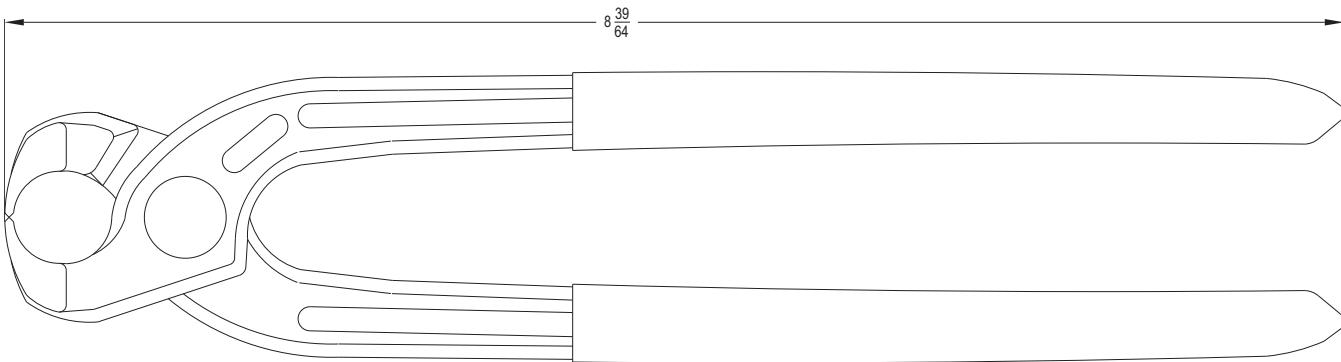
products that will provide outstanding value to our customers. Beswick Engineering has experience with a wide variety of technical applications throughout the world and can customize our products to meet your specific requirements.

TUBING/CLAMPS/TOOLS

Pliers

Description: Pliers simplify crimping of the MHC series two ear style tubing clamps.

Part Number
TPSD

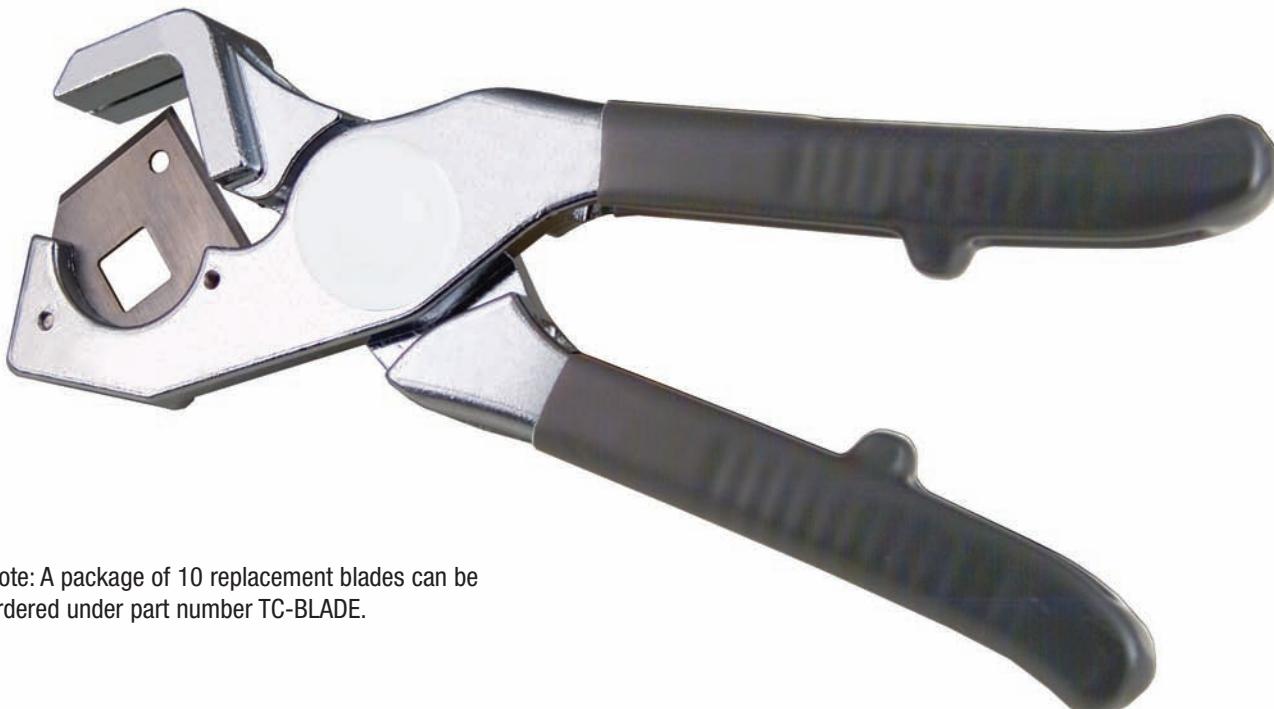


Tubing Cutter

Description: Precision cutting of tubing; deluxe chrome model with plastic coated handles.

- Cuts many types of plastic tubing and hose.
- V-shaped cutting block ensures straight cut and prevents jagged edges.
- Cuts tubing up to nearly 1" OD.
- Blade indexes to provide two cutting edges.
- Saves time and money.

Part Number
TC-1



Note: A package of 10 replacement blades can be ordered under part number TC-BLADE.

TOOLS
PLIERS, TUBE CUTTERS

QUICK DISCONNECTS

Beswick Engineering offers a wide selection of miniature quick disconnect fittings. A general overview of the various options that are available to you is provided below. Contact the factory if you do not see what you are looking for, or if you need assistance selecting the right fit for your project.

Snap Type or Screw Type

Snap Type – The snap type quick disconnects can be connected simply by pushing the two halves together. To disconnect, slide the knurled sleeve on the internal half back to release the disconnect.

Screw Type – The two halves of a screw type quick disconnect thread together via a 5/16-24 thread on either end.

Other Options

High Pressure – Beswick's 1/4 turn high pressure bayonet quick disconnects are rated for pressures up to 3,000 psig while connected.

High Flow – Designed to allow maximum flow, while still ensuring a very small outer envelope.

Multi-line – 4, 6, and 8 line configurations are available for simultaneous connection and disconnection of multiple lines.

No Shut-Off – As the name implies, this type of quick disconnect will not shut off to prevent flow on either side when disconnected. This option is typically used where more flow is desired, and a shut-off feature is not required.

Non-Latching – Planning to mount multiple quick disconnects within your own manifold or panel, and don't need each individual line to latch on its own? Beswick can provide non-latching versions of many quick disconnects on a custom or special order basis.

Some of the options above are special order or may have extended lead times. Please consult the factory for more details.

Quick Disconnect Pressure Ratings:

Unless otherwise noted, all quick disconnects are rated to a maximum pressure of 500 psig while connected, however Beswick Engineering does NOT recommend connecting or disconnecting any QDC at pressures greater than 200 psig.

The external half of Beswick double shut-off type quick disconnects can handle light vacuum, but is not intended for use under full vacuum. If you require a double shut-off quick disconnect that will seal under full vacuum, please contact the factory.

Single Shut-Off, Double Shut-Off, Dry Break

Single Shut-Off – Single shut-off quick disconnects have a shut-off on the internal side only. This will prevent flow from this half when the fitting is disconnected. The external side does not contain a shut-off feature, and will not prevent flow when the two halves are disconnected.

Double Shut-Off – Double shut-off quick disconnects have shut-off valves within both the internal and external half. These prevent fluid from passing through either side of the fitting while disconnected. There is a fraction of a second during disconnection, when the shut-off mechanism in the external end is still open, but the fittings are no longer sealed to atmosphere. This can result in a slight amount of fluid spray or leakage from the external end, but only if disconnected under pressure.

Dry Break – These are similar to double shut-off models, except they are designed with a smaller dead volume, and an improved level of sealing, which eliminates the possibility of external leakage during disconnection and minimizes the introduction of air into the system when the two halves are re-connected. These are ideal for applications where leakage cannot be tolerated (e.g. liquid cooling lines around electronic components).

Important Note: An internal AND external half of the same type is necessary for the QDC assembly to work properly (see above). **Single shut-off, double shut-off, and dry break pins cannot be mixed on the same assembly.**



QUICK DISCONNECTS

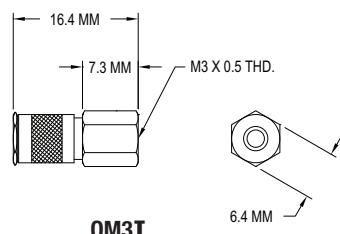
Single Line, Single Shut-off, M3 Thread, Quick Disconnects

Description: Ultra miniature M3 quick disconnect with shut-off mechanism in the internal end. No shut off mechanism is provided in the external end. Assembly locks together. It releases when the sleeve is pulled back. Max pressure is 250 psig.

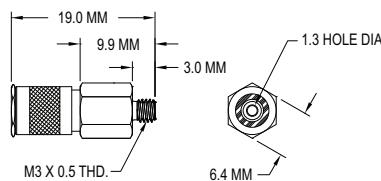
Material: Brass or 303 stainless steel internal end, 303 stainless steel external end.

Seals: Three Buna-N O-rings. Optional materials: EPDM and Viton®, See page 1.

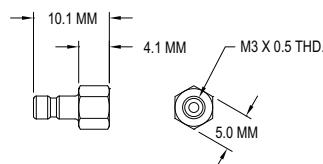
Part Number Brass	Part Number 303 Stainless	Mating Half	Connection
QM3I	QM3I-303	internal end	M3 internal thread
	QM3I-M3E-303	internal end	M3 external thread
	QM3E	external end	M3 internal threads
	QM3E-M3E	external end	M3 external threads
	QM3E-1012	external end	Barb for 1/16" ID tube
	QM3E-1332	external end	Barb for 1/8" ID tube



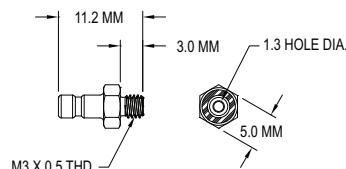
QM3I



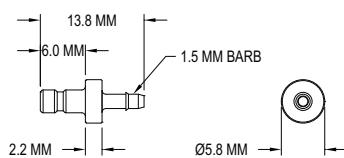
QM3I-M3E-303



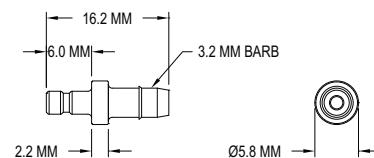
QM3E



QM3E-M3E



QM3E-1012



QM3E-1332

QUICK DISCONNECTS

Single Line, Single and Double Shut-off, M5 Thread, Quick Disconnects

Description: M5 quick disconnect with either a single or double shut-off. Features a locking sleeve that permits one hand connecting or disconnecting. This allows for rapid set up and break down of fluid lines and simplifies component replacement.

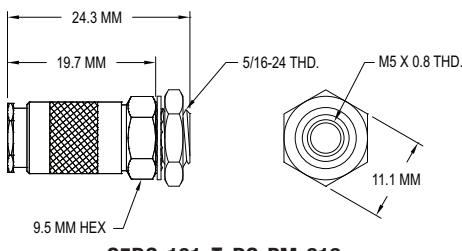
Material: 316 stainless steel.

Seals: Buna-N O-rings. Optional materials: EPDM, Viton®, Silicone, Chemraz® and Fluorosilicone. See page 1.

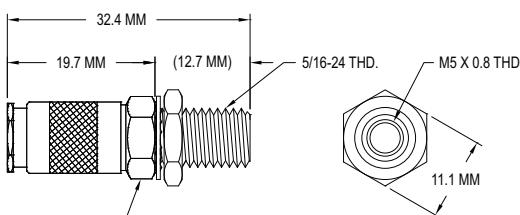
Part Number Single Shut-off 316 SS ¹	Part Number Double Shut-off 316 SS ²	Mating Half	Connection
Q5DC-101-I-PM-316	Q5DC-101-I-DS-PM-316	internal half	M5 int & short panel mount (11/64") thread
Q5DC-101-I-2PM-6	Q5DC-101-I-DS-2PM-6	internal half	M5 int & long panel mount (1/2") thread
	Q5DC-101-I-DS-316	internal half	M5 internal thread
	Q5EDS-MNM5M5-6	external half	external M5 thread
	Q5EDS-EB10M5-1-6	external half	internal M5 thread

¹ Compatible with any of the single shut-off external pins on page 90.

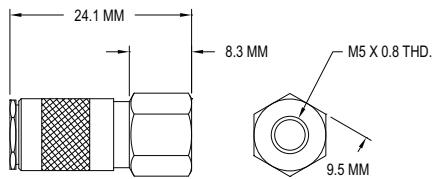
² All double shut-off Q5DC on page 88 are also compatible with double shut-off matching halves found on pages 91 and 92.



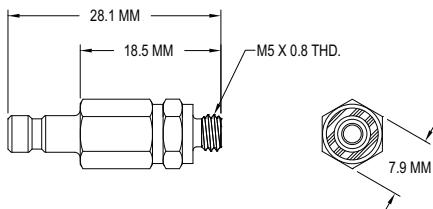
Q5DC-101-I-DS-PM-316



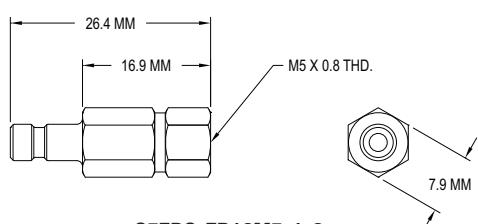
Q5DC-101-I-DS-2PM-6



Q5DC-101-I-DS-316



Q5EDS-MNM5M5-6



Q5EDS-EB10M5-1-6

QUICK DISCONNECTS

Single Line, Single Shut-off, Internal Quick Disconnect

(for use with single line single shut-off externals on page 90)

Description: Internal end of a snap-type quick disconnect assembly with an automatic shut-off.

Material: Brass, 303 or 316 stainless steel body, 316 stainless steel ball bearings and 304 or 316 stainless steel springs. ENP brass nut, zinc plated steel washers on panel mount configurations.

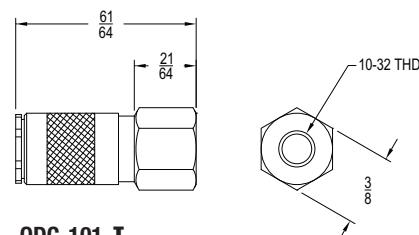
Seals: Buna-N O-rings. Optional materials: EPDM, Viton®, Silicone, Chemraz® and Fluorosilicone. See page 1.

Part Designation QDC-101-I-A-B-C-D		
(Replace each underlined letter with a code if required. A must be filled in. B, C, and D are extra available options.)		
Connection Style	Code	Description
A		10-32 internal thread (No Designation)
	10	10-32 external thread
	1810	1/8" NPT ext. thread, 10-32 int. thread
	1012	1/16" ID tubing barb ¹
	1016	5/64" (2mm) ID tubing barb ¹
	1132	3/32" ID tubing barb ¹
	1332	1/8" ID tubing barb ¹
	PM	Panel mount thread (11/64" long)
	2PM	Long panel mount thread (1/2" long)
	2PMS	Long panel mount thread w/ o-ring seal
Body Material		
B		Brass (No Designation) ²
	303	303 Stainless Steel
	316	316 Stainless Steel ³
Seal Material		
C		Buna-N (No designation) ²
	V	Viton
	E	EPDM
	S	Silicone
	FS	Fluorosilicone
	C	Chemraz
Special Options		
D	I	Instrument Cleaned
	K	Krytox
	IK	Instrument Cleaned with Krytox

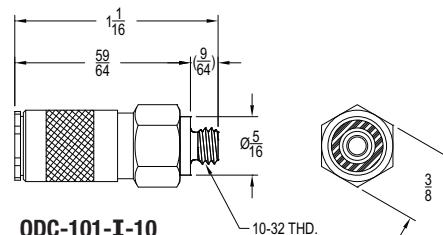
¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

² Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.

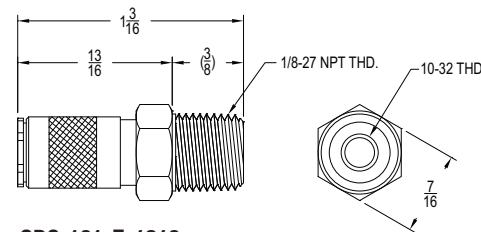
³ Not all body styles are stocked in 316 SS. Consult factory for availability.



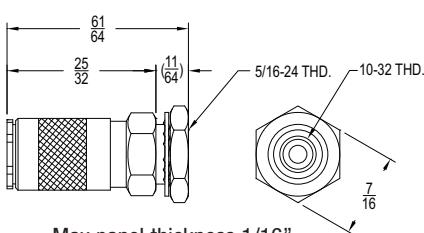
QDC-101-I



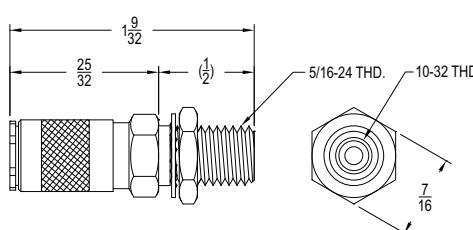
QDC-101-I-10



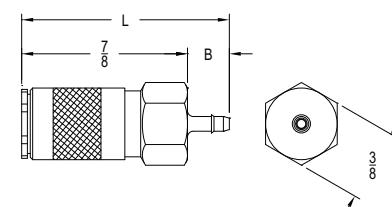
QDC-101-I-1810



QDC-101-I-PM



QDC-101-I-2PM



QDC-101-I-1012, L=1 3/32, B=7/32
QDC-101-I-1016, L=1 3/32, B=7/32
QDC-101-I-1132, L=1 3/32, B=7/32
QDC-101-I-1332, L=1 3/16, B=5/16

QUICK DISCONNECTS

Single Line, Single Shut-off, External Quick Disconnect

(for use with single line single shut-off internals on page 89)

Description: External end of snap-type quick disconnect for use with single shut-off internal end. No shut-off provided in external end. Specify double-shut-off quick disconnects if shut-off is required on both ends. (See page 92)

Material: 303 or 316 stainless steel. ENP brass nut, zinc plated steel washers on panel mount configurations.

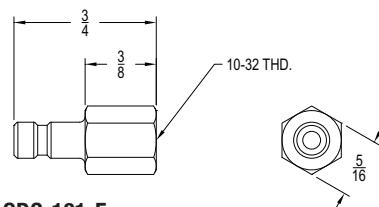
Seals: QDC-101-E-10 and QDC-101-E-2PMS models only: One Buna-N O-ring. Optional materials: EPDM, Viton®, Silicone, Teflon®, AFLAS®, Chemraz®, Fluorosilicone and Neoprene. See page 1. Other models do not have O-rings.

Part Designation QDC-10A-B-C-D		
(Replace each underlined letter with a code if required. A must be filled in. B, C and D are extra available options.)		
Connection Style	Code	Description
A	1-E	10-32 internal thread
	1-E-10	10-32 external thread
	1-E-1810	1/8" NPT ext. thread, 10-32 int. thread
	2-E-1012	1/16" ID tubing barb ¹
	2-E-1016	5/64" (2mm) ID tubing barb ¹
	2-E-1132	3/32" ID tubing barb ¹
	2-E-1332	1/8" ID tubing barb ¹
	2-E-1008-2	(.17-3/16)" ID tubing barb ¹
	1-E-PM	Panel mount thread (11/64" long)
	1-E-2PM	Long panel mount thread (1/2" long)
	1-E-2PMS	Long panel mount thread w/o-ring seal
	2-E-CB18	1/8" OD tube compression fitting
Body Material		
B		303 Stainless Steel (No Designation) ²
	316	316 Stainless Steel ³
Seal Material		
C		Buna-N or no O-ring (No designation) ²
	V	Viton
	E	EPDM
	S	Silicone
	FS	Fluorosilicone
	C	Chemraz
Special Options		
D	I	Instrument Cleaned

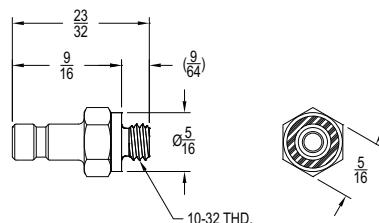
¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

² Standard body material is 303 SS and standard seal material is Buna-N or no O-ring. No code is needed to specify these options.

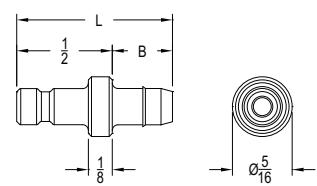
³ Not all body styles are stocked in 316 SS. Consult factory for availability.



QDC-101-E



QDC-101-E-10



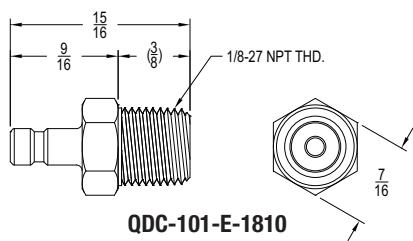
QDC-102-E-1012, L=23/32, B=7/32

QDC-102-E-1016, L=23/32, B=7/32

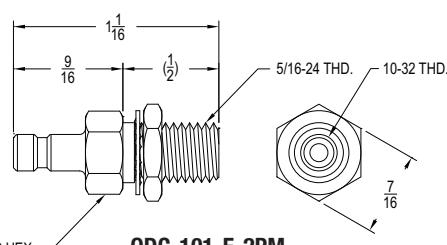
QDC-102-E-1132, L=23/32, B=7/32

QDC-102-E-1332, L=13/16, B=5/16

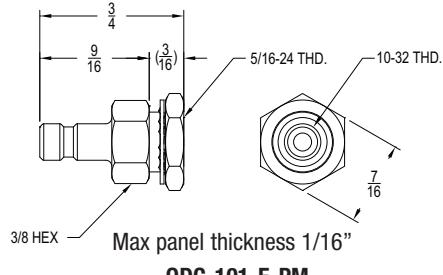
QDC-102-E-1008-2, L=13/16, B=5/16



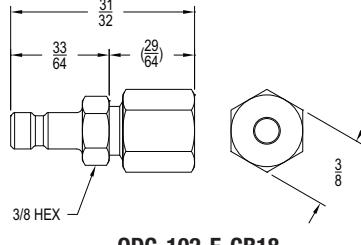
QDC-101-E-1810



QDC-101-E-2PM



QDC-101-E-PM



QDC-102-E-CB18

QUICK DISCONNECTS

Single Line, Double Shut-off, Internal Quick Disconnect

(for use with single line double shut-off externals on page 92)

Description: Internal end of a snap-type quick disconnect assembly with an automatic shut-off.

Material: Brass, 303 or 316 stainless steel body, 316 stainless steel ball bearings and 304 or 316 stainless steel springs. ENP brass nut, zinc plated steel washers on panel mount configurations.

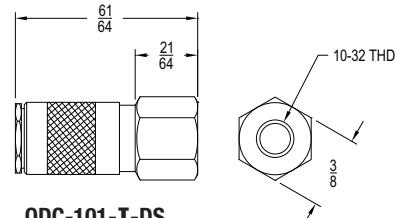
Seals: Buna-N O-rings. Optional materials: EPDM, Viton®, Silicone, Chemraz® and Fluorosilicone. See page 1.

Part Designation QDC-101-I-DS-A-B-C-D		
(Replace each underlined letter with a code if required. A must be filled in. B, C, and D are extra available options.)		
Connection Style	Code	Description
A		10-32 internal thread (No Designation)
	10	10-32 external thread
	1810	1/8" NPT ext. thread, 10-32 int. thread
	1012	1/16" ID tubing barb ¹
	1016	5/64" (2mm) ID tubing barb ¹
	1132	3/32" ID tubing barb ¹
	1332	1/8" ID tubing barb ¹
	PM	Panel mount thread (11/64" long)
	2PM	Long panel mount thread (1/2" long)
	2PMS	Long panel mount thread w/ o-ring seal
Body Material		
B		Brass (No Designation) ²
	303	303 Stainless Steel
	316	316 Stainless Steel ³
Seal Material		
C		Buna-N (No designation) ²
	V	Viton
	E	EPDM
	S	Silicone
	FS	Fluorosilicone
	C	Chemraz
Special Options		
D	I	Instrument Cleaned
	K	Krytox
	IK	Instrument Cleaned with Krytox

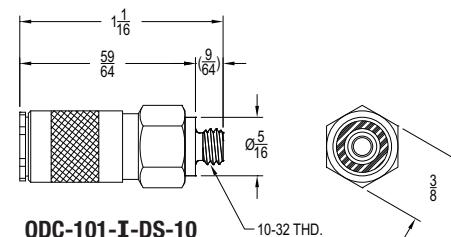
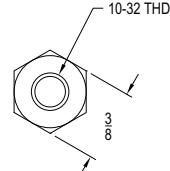
¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

² Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.

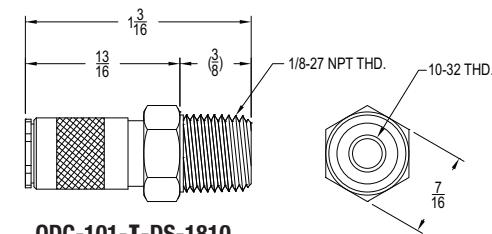
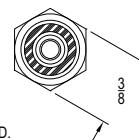
³ Not all body styles are stocked in 316 SS. Consult factory for availability.



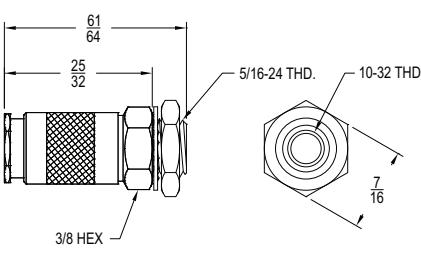
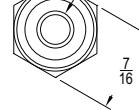
QDC-101-I-DS



QDC-101-I-DS-10

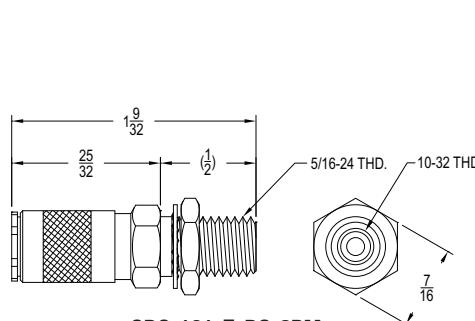


QDC-101-I-DS-1810

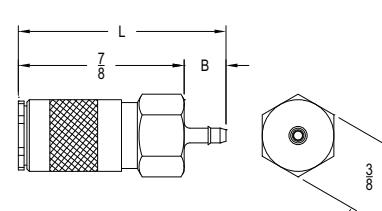


Max panel thickness 1/16"

QDC-101-I-DS-PM



QDC-101-I-DS-2PM



QDC-101-I-DS-1012, L=1 3/32, B=7/32
QDC-101-I-DS-1016, L=1 3/32, B=7/32
QDC-101-I-DS-1132, L=1 3/32, B=7/32
QDC-101-I-DS-1332, L=1 3/16, B=5/16

QUICK DISCONNECTS

Single Line, Double Shut-off, External Quick Disconnects

(for use with single line double shut-off internals on page 91)

Description: External end of a snap-type quick disconnect assembly with an automatic shut-off.

Material: 303 or 316 stainless steel body. ENP brass nut, zinc plated steel washers on panel mount configurations.

Seals: Buna-N O-ring in external end. Optional materials: EPDM, Viton®, Silicone, Chemraz®, and Fluorosilicone. See page 1.

Note: Additional fittings can be made with the double shut-off feature. Consult factory for details.

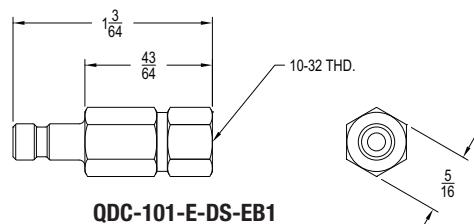


QDC-101-E-DS-EB1-303

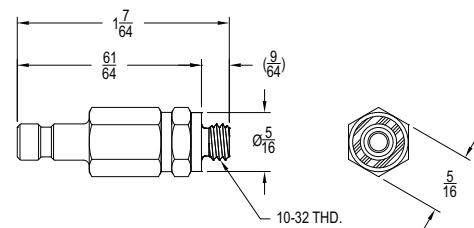
Part Designation QDC-101-E-DS-A-B-C-D		
(Replace each underlined letter with a code.)		
A and B must be filled in C and D are extra available options.)		
Connection Style	Code	Description
A	EB1	10-32 internal thread
	MN10	10-32 external thread
	1810	1/8" NPT external thread, 10-32 internal thread
	1012	1/16" ID tubing barb ¹
	1016	5/64" (2mm) ID tubing barb ¹
	1132	3/32" ID tubing barb ¹
	1332	1/8" ID tubing barb ¹
	1008-1	3/16" ID tubing barb ¹
	2PM	Long panel mount thread (1/2" long)
	2PMS	Long panel mount thread w/ o-ring seal
Body Material		
B		303 SS QDC and brass fitting or no fitting ²
	303	303 SS QDC and fitting
	316	316 SS QDC and fitting
Seal Material		
C		Buna-N (No designation) ²
	V	Viton
	E	EPDM
	S	Silicone
	FS	Fluorosilicone
	C	Chemraz
Special Options		
D	I	Instrument Cleaned
	K	Krytox
	IK	Instrument Cleaned with Krytox

¹ Suggested tube ID is for polyurethane or vinyl tubing. Consult factory if you plan to use a different tubing material.

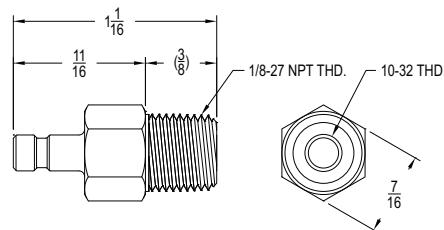
² Standard body material is 303 SS QDC with brass fitting (where applicable), and standard seal material is Buna-N. No code is needed to specify these options.



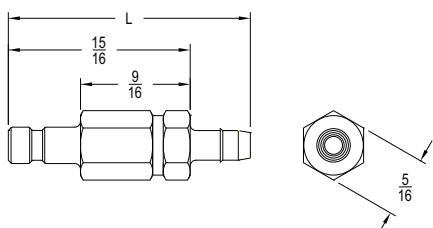
QDC-101-E-DS-EB1



QDC-101-E-DS-MN10



QDC-101-E-DS-1810



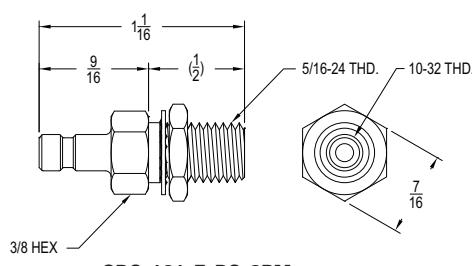
QDC-101-E-DS-1012, L=1 5/32

QDC-101-E-DS-1016, L=1 5/32

QDC-101-E-DS-1132, L=1 5/32

QDC-101-E-DS-1332, L=1 1/4

QDC-101-E-DS-1008-1, L=1 13/32



QDC-101-E-DS-2PM

QUICK DISCONNECTS

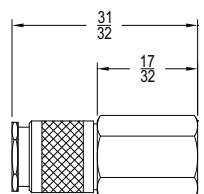
Single Line, Dry Break, Double Shut-off Quick Disconnects

Description: The dry break quick disconnect functions similar to a double shut-off quick disconnect, however it provides a higher level of sealing during connection and disconnection. The dry break connects without leakage or fluid spray. Additionally, the design minimizes dead volume (the space between the internal and external ends when connected) to essentially eliminate any leakage when disconnecting.

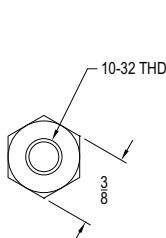
Material: 303 stainless steel. ENP brass nut, zinc plated steel washers on panel mount configurations.

Seals: Four Buna-N O-rings in internal end. Two Buna-N O-rings in external end. Optional materials: EPDM and Viton®. See page 1.

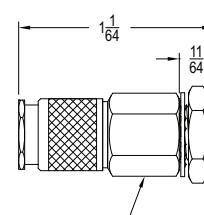
Note: Dry break external pins are available with any of Beswick standard quick disconnect internal pin caps.



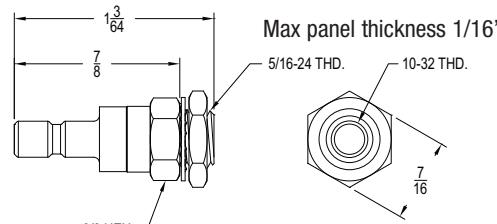
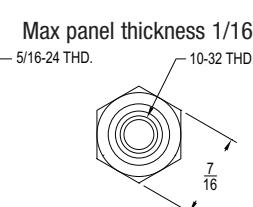
QDI-303



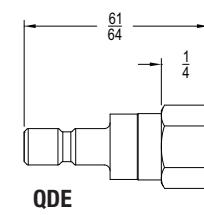
Part Number 303 SS	Mating Half	Connection
QDI-303	internal end	10-32 internal thread
QDI-10-303	internal end	10-32 external thread
QDI-PM-303	internal end	10-32 internal thread, with 5/16-24 panel mount thread (11/16" long) for use with panels up to 1/16" thick.
QDE	external end	10-32 internal thread
QDE-10	external end	10-32 external thread
QDE-PM	external end	10-32 internal thread, with 5/16-24 panel mount thread (11/16" long) for use with panels up to 1/16" thick.
QDE-2PM	external end	10-32 internal thread, with extra long 5/16-24 panel mount thread (1/2" long).
QDE-1810	external end	1/8" NPT external thread



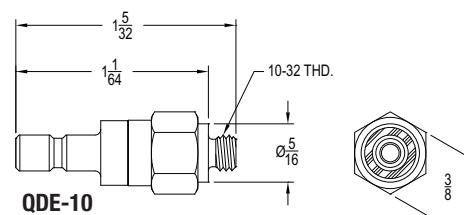
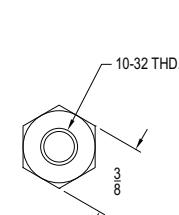
QDI-PM-303



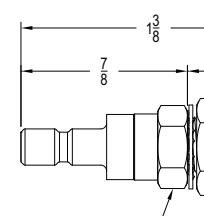
QDE-PM



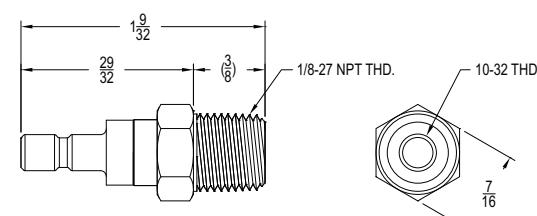
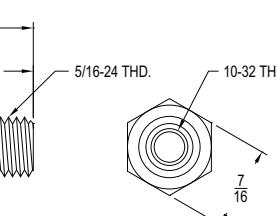
QDE



QDE-10



QDE-2PM



QDE-1810

QUICK DISCONNECTS

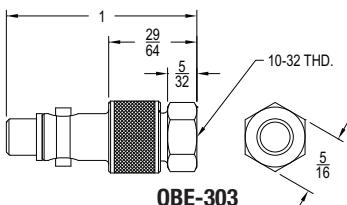
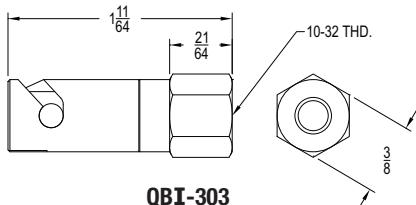
High Pressure Bayonet Quick Disconnects, Single Shut-off

Description: Bayonet quick disconnects rated for use up to 3,000 psig. Internal end will shut off when disconnected. Quarter turn to connect and disconnect.

Material: 303 stainless steel internal end, 303 stainless steel external end.

Seals: Buna-N O-rings. Optional materials: EPDM and Viton®. See page 1.

Note: Do not connect or disconnect under pressure over 200 psig.



Part Number 303 Stainless	Mating Half	Connection
QBI-303	internal end	10-32 internal thread
QBE-303	external end	10-32 internal thread

High Pressure Bayonet Quick Disconnects, Dry Break

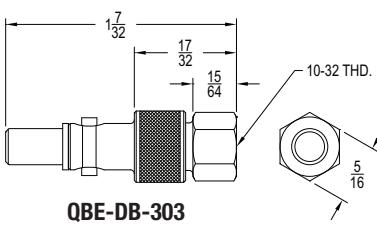
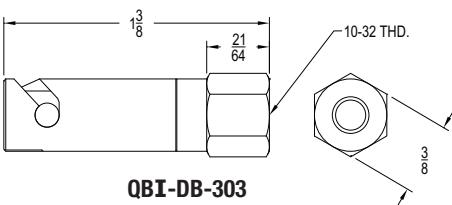


Description: Bayonet quick disconnects rated for use up to 3,000 psig. Internal end and external end will shut off when disconnected. Additionally, the design minimizes dead volume to essentially eliminate leakage when disconnecting. Quarter turn to connect and disconnect.

Material: 303 stainless steel internal end, 303 stainless steel external end.

Seals: Buna-N O-rings. See page 1.

Note: Do not connect or disconnect under pressure over 200 psig.



Part Number 303 Stainless	Mating Half	Connection
QBI-DB-303	internal end	10-32 internal thread
QBE-DB-303	external end	10-32 internal thread

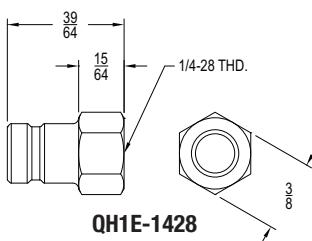
High Flow Quick Disconnects, Single Shut-off

Description: High flow quick disconnects.

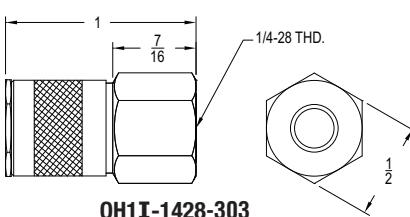
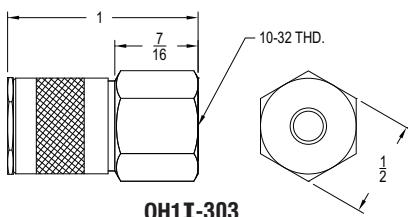
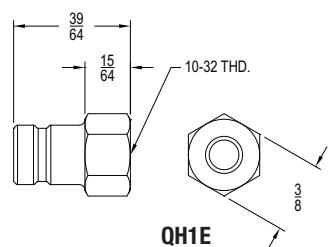
Internal end will shut off when disconnected.

Material: 303 stainless steel internal end, 303 stainless steel external end.

Seals: Buna-N O-rings. Optional materials: Viton®. See page 1.



Part Number 303 Stainless	Mating Half	Connection
QH1E-1428	internal end	10-32 internal thread
QH1I-1428-303	internal end	1/4-28 internal thread
QH1E-1428	external end	1/4-28 internal thread



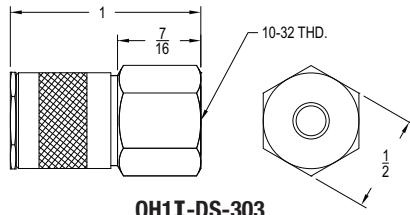
QUICK DISCONNECTS

High Flow Quick Disconnects, Double Shut-off

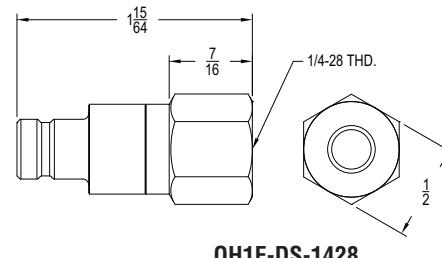
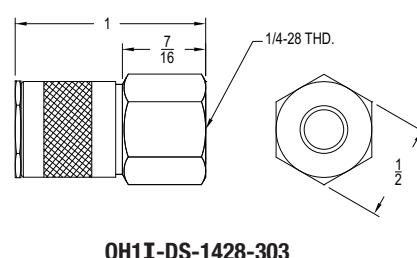
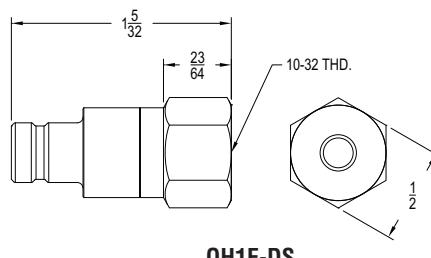
Description: High flow quick disconnects. Internal and external ends will shut off when disconnected.

Material: 303 stainless steel internal end, 303 stainless steel external end.

Seals: Buna-N O-rings. Optional materials: Viton®. See page 1.



Part Number 303 Stainless	Mounting Half	Connection
QH1I-DS-303	internal end	10-32 internal thread
QH1E-DS	external end	10-32 internal thread
QH1I-DS-1428-303	internal end	1/4-28 internal thread
QH1E-DS-1428	external end	1/4-28 internal thread

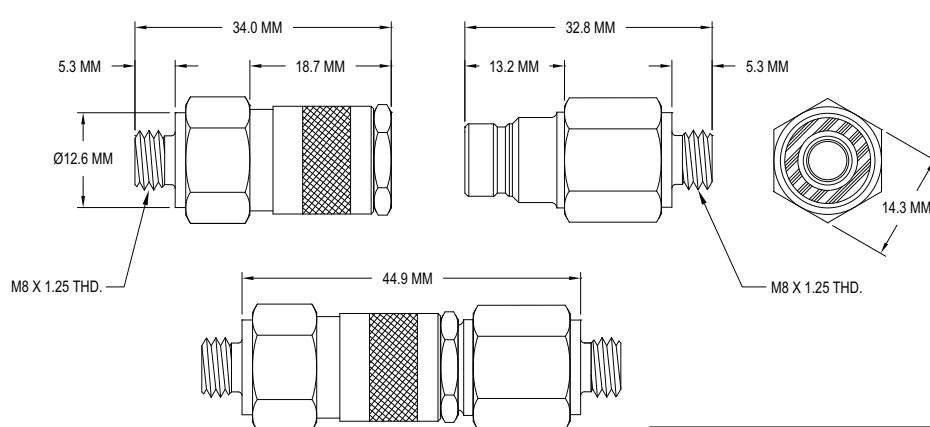


High Flow Quick Disconnects, Dry Break



Description: High flow quick disconnects. Internal and external ends will shut off when disconnected. The design minimizes dead volume (the space between the internal and external ends when connected) to essentially eliminate any leakage when disconnecting. The fitting allows for a substantial amount of flow [0.180 inch (4.6 mm) effective orifice] while maintaining a small envelope 9/16" (14.3 mm) hex body.

Material: 303 stainless steel internal end, 303 stainless steel external end.
Seals: EPDM or Viton® O-ring seals. See page 1.



Part Number 303 SS & EPDM Seals	Part Number 303 SS & Viton Seals	Mating Half	Connection
QDI3L-8E-3E	QDI3L-8E-3V	internal end	M8 external thread
QDE3L-8E-3E	QDE3L-8E-3V	external end	M8 external thread

QUICK DISCONNECTS

Multiple Line Quick Disconnects

Description: The snap-type multiple line quick disconnect features a releasing sleeve that permits one-hand connecting or disconnecting of several fluid lines simultaneously. Simply push the sleeve in to disconnect the fluid lines and push the internal and external ends together to connect the lines. The design incorporates a keyed location pin to ensure correct orientation of the fluid lines during connection. The internal end is designed with an automatic shut-off valve.

Material: Internal: brass or 303 stainless steel components; acetal releasing sleeve; stainless steel mounting plate, springs, ball bearings, set screw, crescent "C" rings and steel "E" ring.

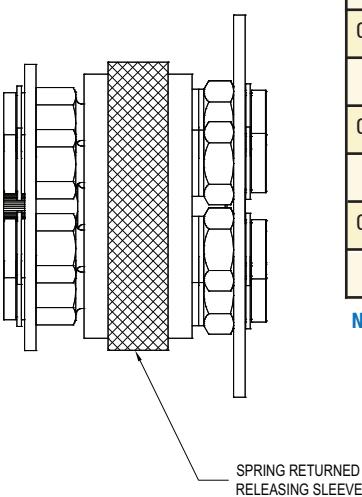
External: 303 or 316 stainless steel components; stainless steel backing plate, set screw, orientation pin and crescent "C" rings.

Seals: Internal: three Buna-N O-rings, OR-QDC-B (3 O-rings), for each line. Optional materials: EPDM, Viton®, Silicone, Chemraz® and Fluorosilicone. See page 1.

Note: Multiple line quick disconnects can also be ordered in double shut off configuration. Consult the factory for details.



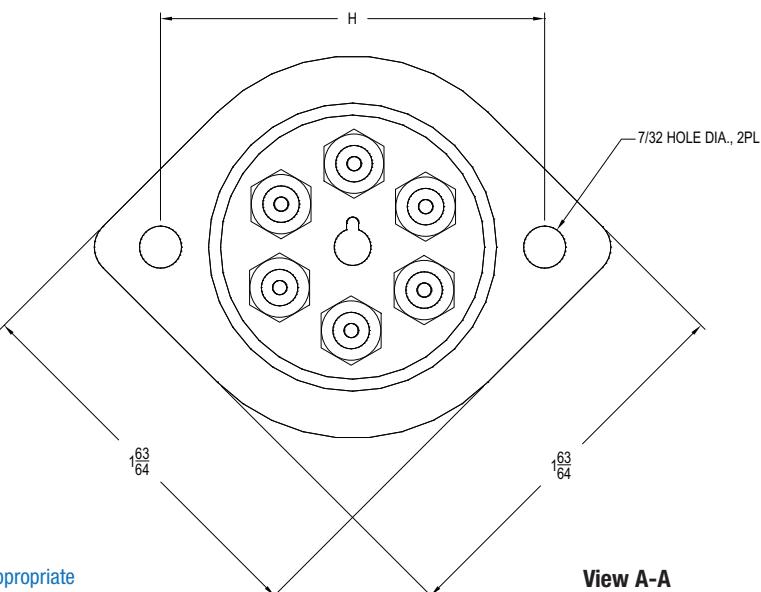
Connected View – Six Line



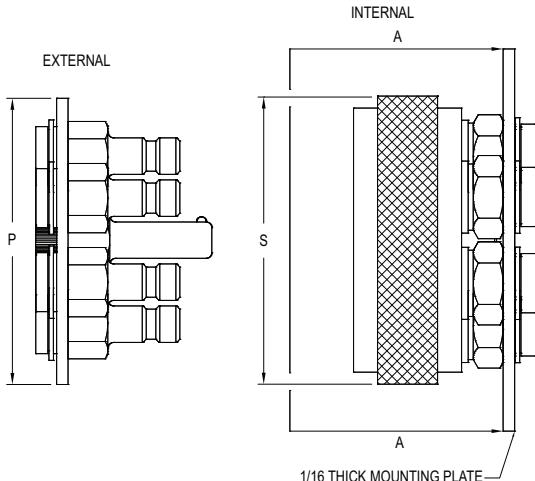
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Description	Bolt Circle Diameter (inches)	P (Dia.)	S (Dia.)	H (Length)
QDC4L-101-I	QDC4L-101-I-303	QDC4L-101-I-316	4 line, internal end	3/4		1 3/8	2
	QDC4L-101-E	QDC4L-101-E-316	4 line, external end	3/4	1 3/8		
QDC6L-101-I	QDC6L-101-I-303	QDC6L-101-I-316	6 line, internal end	7/8		1 1/2	2
	QDC6L-101-E	QDC6L-101-E-316	6 line, external end	7/8	1 1/2		
QDC8L-101-I	QDC8L-101-I-303	QDC8L-101-I-316	8 line, internal end	1 3/16		1 3/4	2 1/4
	QDC8L-101-E	QDC8L-101-E-316	8 line, external end	1 3/16	2		

Note: Multiple line quick disconnects are supplied with 10-32 internal threads. Barb fittings can be specified and installed on the QDC by specifying barb size at the end of the part number. To specify the multiple line quick disconnect with tube ("barb") fittings see page 7 of the catalog and add the tube fitting part number to the end of the multiple line quick disconnect part number. For example, the QDC4L-101-I-1332 fits 1/8" ID tubing.

Mounting Plate
for Internal End



Disconnected View – Six Line



Note: The releasing sleeve diameters can be used to determine an appropriate clearance hole for mounting the internal side of the quick disconnect.

View A-A

QUICK DISCONNECTS

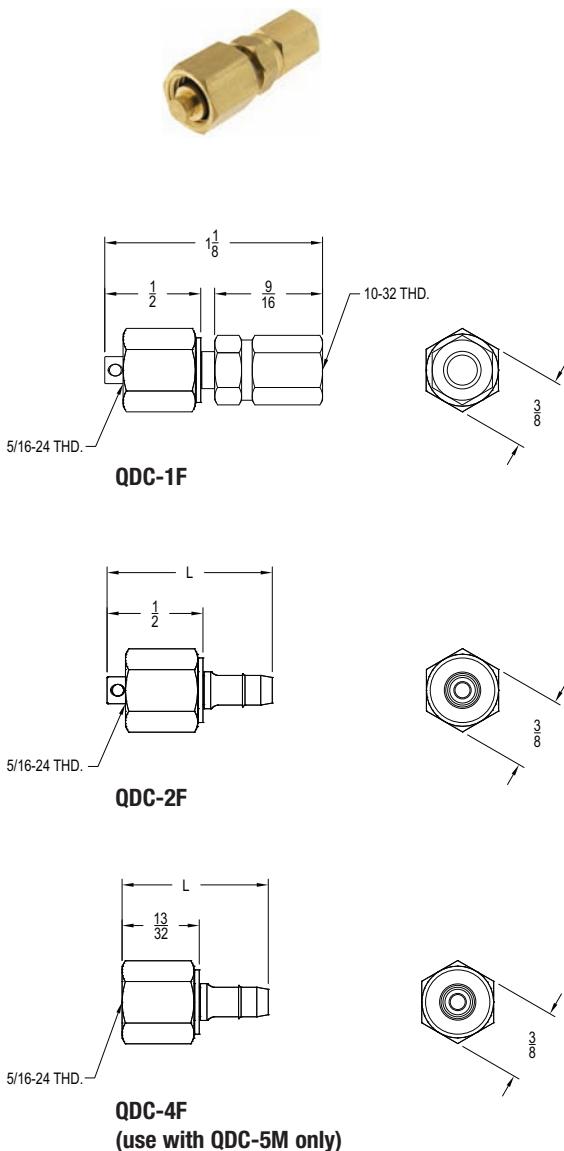
Internal, Screw Type Quick Disconnect

Description: Internal end of the Beswick miniature screw-type quick disconnect. The screw-type quick disconnect allows for fast set-up and break-down of fluid lines and facilitates easy component replacement. When the internal end (QDC-1F, QDC-2F or QDC-5F) and the external end (QDC-1M, QDC-2M or QDC-3M) are screwed together, a valve in the external end opens to permit flow. When the external end and internal end are disconnected, the valve in the external end closes to prevent fluid from exiting. The QDC-4F and QDC-5M can be used when no shut-off valve is needed. The screw-type quick disconnects are economical and a good choice when connects/disconnects are infrequent. Beswick snap-type quick disconnects may be a better choice for more frequent connects/disconnects or greater convenience is desired.

Material: Brass body & nut with one steel E-ring.

Seals: Two Buna-N O-rings, OR-QDC4F-B. Optional material: Viton®. See page 1.

Note: To order with 3/8" diameter knurled sleeve instead of 3/8" hexagonal sleeve add "K" after the "F" in the part number. For example, QDC-1FK specifies the QDC-1F with a 3/8" diameter knurled sleeve.

QUICK DISCONNECTS
 SCREW TYPE


Suggested Tube ID / Thread Size	Part Number Brass	L	Use With Beswick Fitting Number(s)
10-32 internal	QDC-1F	1 1/8	QDC-1M, QDC-2M or QDC-3M
.170 to 3/16	QDC-2F-1008-1	29/32	QDC-1M, QDC-2M or QDC-3M
	QDC-4F-1008-1		QDC-5M (no shut-off)
1/8	QDC-2F-1332	51/64	QDC-1M, QDC-2M or QDC-3M
	QDC-4F-1332		QDC-5M (no shut-off)
3/32	QDC-2F-1132	43/64	QDC-1M, QDC-2M or QDC-3M
	QDC-4F-1132		QDC-5M (no shut-off)
5/64 (2mm)	QDC-2F-1016	43/64	QDC-1M, QDC-2M or QDC-3M
	QDC-4F-1016		QDC-5M (no shut-off)
1/16	QDC-2F-1012	43/64	QDC-1M, QDC-2M or QDC-3M
	QDC-4F-1012		QDC-5M (no shut-off)
1/8-27 NPT external	QDC-5F	1 1/8	QDC-1M, QDC-2M or QDC-3M



QUICK DISCONNECTS

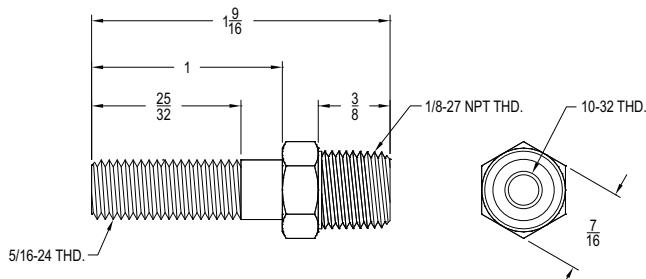
External, Screw Type Quick Disconnect

Description: External end of miniature screw-type quick disconnect. This end, except for QDC-5M, is equipped with a shut-off valve to prevent air or fluid from exiting when disconnected.

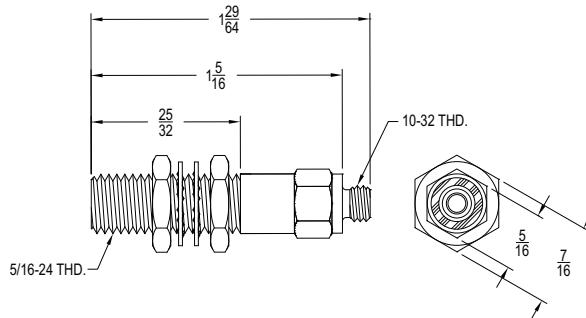
Material: Brass body with plated brass valve mechanism with zinc plated steel washers and brass lock nuts on panel mount configurations.

Seals: Two seals on valve mechanism; and one Buna-N O-ring, OR-516-40-B, on QDC-2M and QDC-5M. See Page 1.

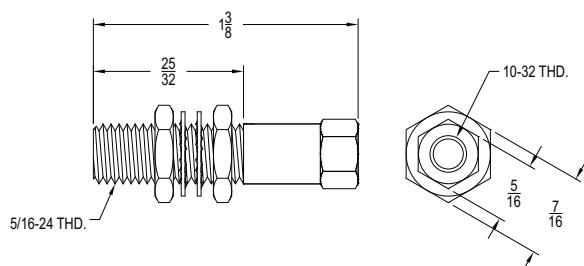
Part Number Brass	Thread	Shut-off Valve	Panel- Mount	Use With
QDC-1M	1/8 NPT external	yes	no	QDC-1F, QDC-2F, or QDC-5F
QDC-2M	10-32 external	yes	yes up to 1/4 thick	
QDC-3M	10-32 internal	yes		
QDC-5M	10-32 external	no	no	QDC-4F



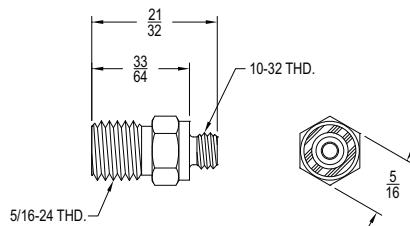
QDC-1M



QDC-2M



QDC-3M

QDC-5M
(use with QDC-4F only)

PRESSURE REGULATORS

Beswick's ever growing line of award winning pressure regulators sets an industry standard for miniaturization, light weight, and reliable performance. The following pages highlight the various options available when selecting a Beswick regulator and for which type of application condition each would be best suited.



Piston vs. Diaphragm Regulators

Piston Regulators - Beswick Engineering introduced its first piston style pressure regulator over 40 years ago. These regulators are inexpensive and relatively accurate. They are an excellent choice for applications requiring higher outlet pressures in the range of 30-450 psig.

Diaphragm Regulators - Beswick's diaphragm regulators offer a large valve to sensing area ratio and a near frictionless design. These features reduce hysteresis and improve accuracy over a piston style regulator. This style of regulator is an ideal choice for applications with very low outlet pressures (<1 to 30 psig) or flows.



Single-Stage vs. Multi-Stage Regulators

Single-Stage - Single stage regulators are best suited for applications where the inlet pressures and flows will remain relatively consistent at all times.

Multi-Stage - A multi-stage regulator is best suited for applications where supply pressures will be fluctuating or decaying over time (e.g. when coming from a tank of compressed gas). The multi-stage design is able to hold outlet pressures steady with minimal droop or rise, even with very wide swings in supply pressure or flow.

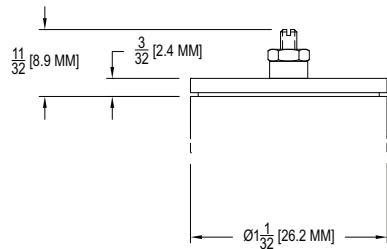


New Option - High Resolution Diaphragm Cap:

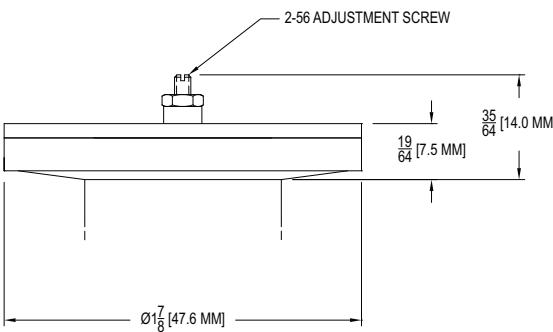
One of the major factors affecting a regulator's performance is the ratio of valve area to sensing area. With this in mind, Beswick now offers a larger high resolution diaphragm cap for the most demanding applications. This cap greatly increases the sensing area of any regulator it is installed onto, providing a higher degree of accuracy and resolution at very low outlet pressures and flows. This cap is available on almost all standard diaphragm style regulators. Dimensional information is provided below. See pages 101-111 for information on how to specify this new option, or contact a Beswick Applications Engineer for more information.

New Item – Gas Cylinder Pierce Fitting

Beswick's new GCP series fittings allow you to adapt from a 3/8-24 or 1/2-20 threaded gas cylinder directly to one of our multi-stage regulators. The fitting has a built in pin to pierce the cylinder, and two o-ring seals to ensure a leak tight connection every time. See page 124 for more details.



Standard Cap



High Resolution Cap



PRESSURE REGULATORS

Page	Family	Type	# Stages	Max Inlet (psig)	Outlet Range (psig)	Body Material Options	Seal Options	Features
101	PRD	Diaphragm	1	500	0-30	BR, AL, 303, 316	B, E, V	Miniature
102	PRDB	Diaphragm	1	500	0-30	BR, 303, 316	B, E, V	High Accuracy
103	PRDB8	Diaphragm	1	500	0-30	303, 316	B, E, V	Manifold Mount
104	PRDB-18MM	Diaphragm	1	500	0-20	BR	B, E, V	Sub-Miniature
105	PRDHF	Diaphragm	1	500	0-30	BR, AL, 303, 316	B, E, V	High Flow
106	PRDHF8	Diaphragm	1	500	0-30	BR, 303, 316	B, E, V	High Flow, Manifold Mount
107	PRD2	Diaphragm	2	500	0-20	BR, AL, 303, 316	B, E, V	M3 Ports
108	PRD28	Piston 1st, Diaphragm 2nd	2	500	0-20	BR	B, E, V	Manifold Mount
109	PRD3	Diaphragm	2	500	0-30	BR, AL, 303, 316	B, E, V	10-32 Ports, improved valve over PRD2
110	PRD3HP	Piston 1st, Diaphragm 2nd & 3rd	3	3000	0-30	BR, 303, 316	B, E, V	High Inlet Pressures
111	PR-MLS	Piston	1	500	5-45	BR, 303	B, E, V	Ultra Miniature
112	PR	Piston	1	500	10-450	BR, AL, 303, 316	B, E, V, S, N	Low Cost, High outlet pressures
114	PR2	Piston	2	500	10-450	BR, AL, 303	B, E, V	High outlet pressures, 1st stage take-off port
115	PR2HP	Piston	2	3000	10-200	BR	B, E, V	High Inlet Pressure and Outlet Pressure
116	PCFC	Piston	1	500	20 (differential)	BR, 303	B, E, V, S, N	Pressure Compensated Flow Control
117	PCFCD	Diaphragm	1	500	10 (differential)	BR	B, E, V	Pressure Compensated Flow Control
118	BPR	Piston	1	500	0-450	BR, AL, 303, 316	B, E, V, S, N	Back Pressure Regulator
120	VRD	Diaphragm	1	-14.7	-12.7 to 0	BR, AL, 303, 316	B, E, V	Vacuum Regulator
121	VRD8	Diaphragm	1	-14.7	-12.7 to 0	BR, 303	B, E, V	Vacuum Regulator, Manifold Mount
122	VRV	Diaphragm	1	500	-12.7 to 0	303	B, E, V	Vacuum Relief Valve
Legend: BR = Brass, AL = Aluminum, 303 = 303 Stainless Steel, 316 = 316 Stainless Steel B = Buna-N, E = EPDM, V = Viton, N = Neoprene, S = Silicone								



DIAPHRAGM PRESSURE REGULATORS - SINGLE STAGE

Ultra-Miniature Single-Stage Diaphragm Pressure Regulator

PRD-ANB-C-DEF

Description: The PRD is a miniature, single stage, diaphragm style, pressure regulator. It is an excellent choice for applications with consistent inlet pressures and low outlet pressures.

- **Inlet Range:** This is a single stage regulator, and is ideal for applications with steady inlet pressures up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-30 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as ½ psig.
- **Approximate Weight:** 25g in brass and stainless steel (303 & 316), 15g in aluminum. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet ports.
- **Non-Relieving** regulator. A **relieving** version is available upon request. Consult factory for details.

Material: Brass, aluminum, 303 & 316 stainless steel.

Seals: Buna-N. Optional materials: EPDM and Viton®.



PRD-1N1-C
PATENTED

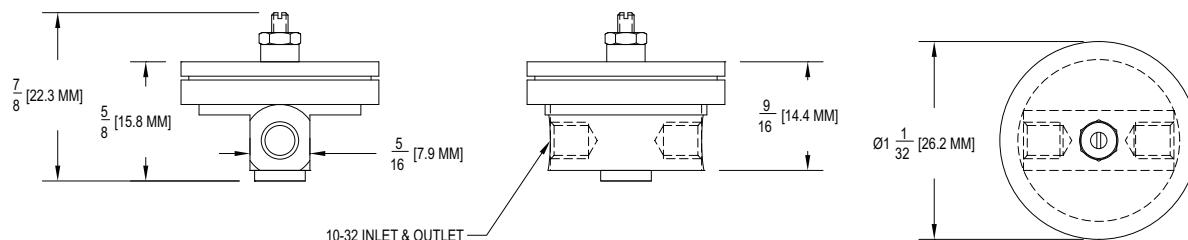
PRD-2N2-C
PATENTED

Part Designation PRD-ANB-C-DEF (Replace each underlined letter with a code. A, B and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	High Resolution Diaphragm
	7	High Resolution Diaphragm with 15/32-32 panel mount
Outlet Pressure Range		
C	0	0-5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
Body Material		
D		Brass (No Designation) ³
	A	Aluminum
	3	303 Stainless Steel
	6	316 Stainless Steel
Seals and Diaphragm Material		
E		Buna-N (No designation) ³
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² 3mm hexagonal lock nut on 2N2 configuration.

³ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



DIAPHRAGM PRESSURE REGULATORS - SINGLE STAGE

Ultra-Miniature High Accuracy Diaphragm Pressure Regulator

PRDB-ANB-C-DEF

Description: The PRDB series regulator features a patented valve mechanism designed to provide improved seal reliability and precision at very low outlet pressures, pressure differentials, and flows.

- **Inlet Range:** This is a single stage regulator and is ideal for applications with steady inlet pressures up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-30 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as ½ psig.
- **Approximate Weight:** 25g in brass and stainless steel (303 & 316). Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet ports.
- **Non-Relieving** regulator.

Material: Brass, 303 & 316 stainless steel.

Seals: Buna-N. Optional materials: EPDM and Viton®.



PRDB-3N1-C

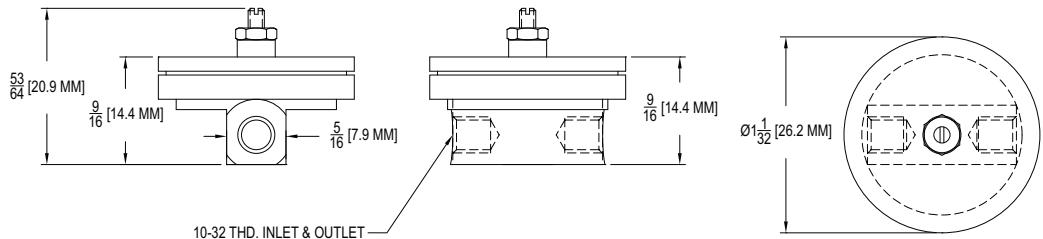
PATENTED

Part Designation PRDB-ANB-C-DEF (Replace each underlined letter with a code. A, B and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	High Resolution Diaphragm
	7	High Resolution Diaphragm with 15/32-32 panel mount
Outlet Pressure Range		
C	0	0- 5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
Body Material		
D		Brass (No Designation) ³
	3	303 Stainless Steel
	6	316 Stainless Steel
Seal and Diaphragm Material		
E		Buna-N (No designation) ³
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² 3mm hexagonal lock nut on 2N2 configuration.

³ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



DIAPHRAGM PRESSURE REGULATORS - SINGLE STAGE

Ultra-Miniature, Manifold Mount, High Accuracy Diaphragm Pressure Regulator

PRDB8-ANB-C-DEF

Description: The PRDB8 features performance similar to the PRDB, but in a convenient manifold mount configuration.

- **Inlet Range:** This is a single stage regulator and is ideal for applications with steady inlet pressures up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-30 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as ½ psig.
- **Approximate Weight:** 24g in stainless steel (303 & 316). Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 external threaded inlet port. 0.050" (1.27mm) diameter outlet ports.
- **Non-Relieving** regulator.

Material: 303 or 316 stainless steel.

Seals: Buna-N. Optional materials: EPDM and Viton®.

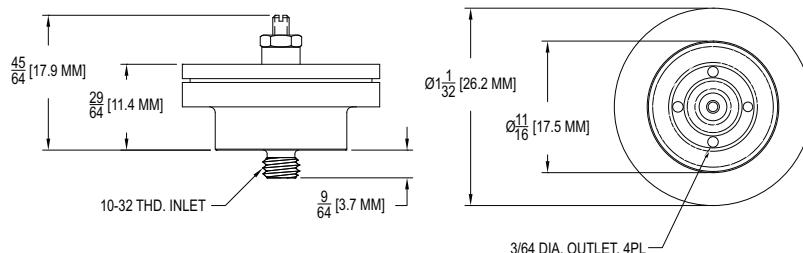


PRDB8-1N1-C
PATENTED

Part Designation PRDB8-ANB-C-DEF		
(Replace each underlined letter with a code. A, B, C and D must be filled in. E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	6	High Resolution Diaphragm
Outlet Pressure Range		
C	0	0-5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
Body Material		
D	3	303 Stainless Steel
	6	316 Stainless Steel
Seal and Diaphragm Material		
E		Buna-N (No designation) ²
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² Standard seal material is Buna-N. No code is needed to specify Buna-N seals.



DIAPHRAGM PRESSURE REGULATORS - SINGLE STAGE

Sub-Miniature Diaphragm Pressure Regulator

PRDB-18MM-A-B-C

Description: The PRDB-18MM series regulator is our smallest diaphragm style regulator, ideal for applications where space and weight are critical. It offers some of the performance benefits of our larger diaphragm style regulators, like the PRDB, while setting an industry standard for miniaturization and light weight.

- **Inlet Range:** This is a single stage regulator and is ideal for applications with steady inlet pressures up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-20 psig.
- **Approximate Weight:** 15g in brass. Weight will vary slightly, depending on configuration.
- **Porting:** Two M3 x 0.5 internal threaded inlet and outlet ports.
- **Non-Relieving** regulator.

Material: Brass.

Seals: Buna-N. Optional materials: EPDM and Viton®.

Part Designation PRDB-18 MM-A-B-C (Replace each underlined letter with a code. A and B must be filled in. C is an extra available option.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3mm hexagonal lock nut
	3	Knurled Knob with 3/4" dia. knurled lock disc
Outlet Pressure Range		
B	1	0-10 psig
	2	0-20 psig
Seal and Diaphragm Material		
C	Buna-N (No designation) ²	
	V	Viton
	E	EPDM

¹ Supplied with a 3/16" hexagonal lock nut.

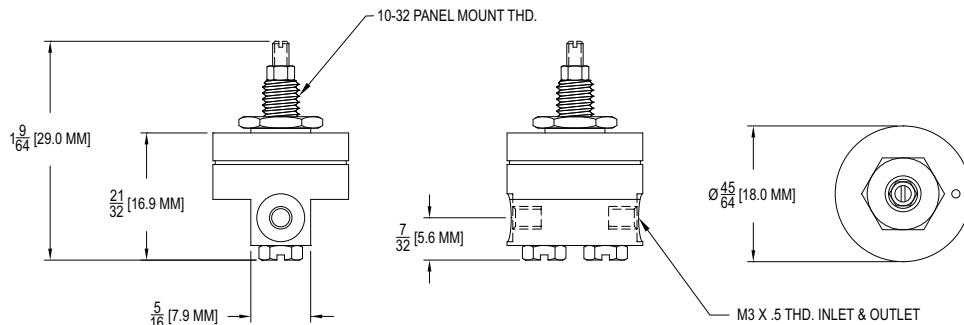
² Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



PRDB-18MM-2-B
PATENTED

Beswick Advantage: 100% Testing

We take the time to functionally test 100% of our regulators before shipping to ensure that you receive the highest quality product.



DIAPHRAGM PRESSURE REGULATORS - SINGLE STAGE

Ultra Miniature Single-stage Diaphragm High Flow Pressure Regulator

PRDHF-ANB-C-DEF

Description: The PRDHF series regulator allows for significantly higher flow when compared to the PRD and PRDB series pressure regulators.

- **Inlet Range:** This is a single stage regulator and is ideal for applications with steady inlet pressures up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-30 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as $\frac{1}{2}$ psig.
- **Approximate Weight:** 35g in brass and stainless steel (303 & 316), 18g in aluminum. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet ports.
- **Non-Relieving** regulator.

Material: Brass, aluminum, 303 & 316 stainless steel.

Seals: Buna-N. Optional materials: EPDM and Viton®.



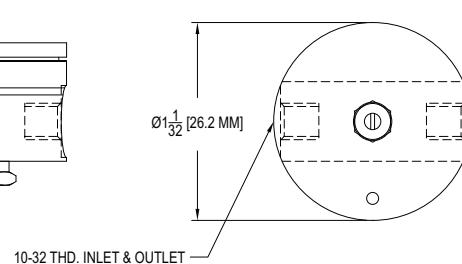
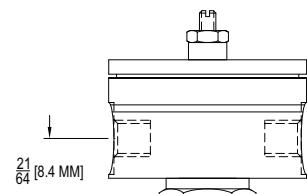
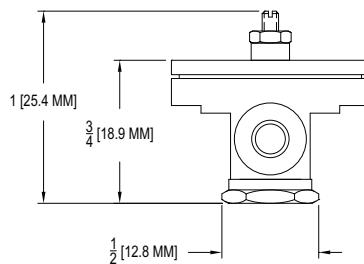
PRDHF-3N1-C

Part Designation PRDHF-ANB-C-DEF (Replace each underlined letter with a code. A, B and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	High Resolution Diaphragm
	7	High Resolution Diaphragm with 15/32-32 panel mount
Outlet Pressure Range		
C	0	0- 5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
Body Material		
D	Brass (No Designation) ³	
	A	Aluminum
	3	303 Stainless Steel
	6	316 Stainless Steel
Seal and Diaphragm Material		
E	Buna-N (No designation) ³	
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² 3mm hexagonal lock nut on 2N2 configuration.

³ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



DIAPHRAGM PRESSURE REGULATORS - SINGLE STAGE

Ultra Miniature Single-stage Diaphragm Manifold Mount High Flow Pressure Regulator

PRDHF8-ANB-C-DEF

Description: The PRDHF8 series regulator is a single stage regulator that features performance similar to the PRDHF series regulator, but in a convenient manifold mount configuration. It allows for significantly higher flow when compared to the PRD and PRDB series pressure regulators.

- **Inlet Range:** This is a single stage regulator and is ideal for applications with steady inlet pressures up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-30 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as $\frac{1}{2}$ psig.
- **Approximate Weight:** 52g in brass and stainless (303 & 316). Weight will vary slightly, depending on configuration.
- **Porting:** 5/16-24 external threaded inlet port & 3/32" (2.4mm) diameter outlet ports.
- **Non-Relieving** regulator.

Material: Brass, 303 & 316 stainless steel.

Seals: Buna-N. Optional materials: EPDM and Viton®.

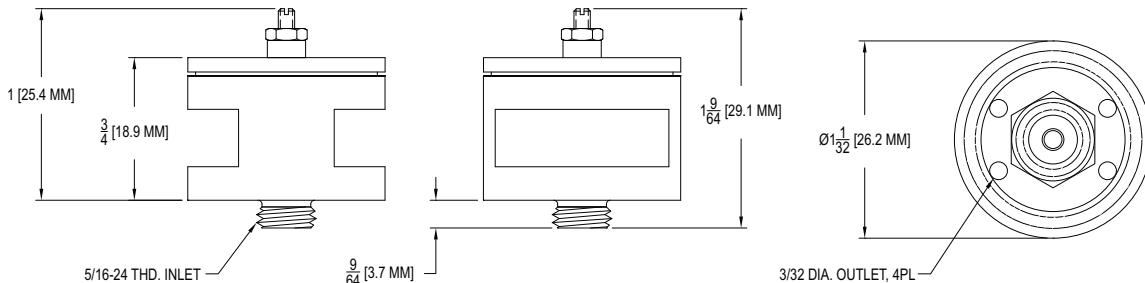


PRDHF8-2N1-C

Part Designation PRDHF8- <u>ANB</u> -C- <u>DEF</u>		
(Replace each underlined letter with a code. A, B and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	6	High Resolution Diaphragm
Outlet Pressure Range		
C	0	0- 5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
Body Material		
D		Brass (No Designation) ²
	3	303 Stainless Steel
	6	316 Stainless Steel
Seal and Diaphragm Material		
E		Buna-N (No designation) ²
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



DIAPHRAGM PRESSURE REGULATORS - MULTI-STAGE

Ultra Miniature Two-stage Diaphragm Pressure Regulator

PRD2-ANB-C-DEF

Winner of Product Design & Development Engineering Award



- Description:**
- **Inlet Range:** This is a two stage regulator and is ideal for applications with fluctuating or decaying inlet pressures, up to a maximum of 500 psig.
 - **Outlet Range:** Maximum outlet range 0-20 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as ½ psig. The two stage design allows the regulator to maintain a consistent outlet pressure despite wide swings in the inlet/source pressure.
 - **Approximate Weight:** 50g in brass and stainless steel (303 & 316), 23g in aluminum. Weight will vary slightly, depending on configuration.
 - **Porting:** M3 x 0.5 internal threaded inlet and outlet ports.
 - **Non-Relieving** regulator.

Material: Brass, aluminum, 303 & 316 stainless steel.

Seals: Buna-N. Optional materials: EPDM and Viton®.

Note: The PRD2 pressure regulators have won Product Design & Development magazine's Engineering Award for the best new product in 2005.

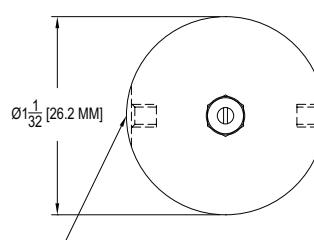
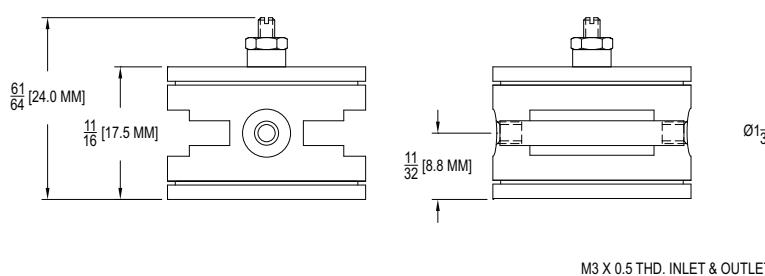


Part Designation PRD2-ANB-C-DEF		
(Replace each underlined letter with a code.)		
A , B and C must be filled in. D , E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	High Resolution Diaphragm
	7	High Resolution Diaphragm with 15/32-32 panel mount
Outlet Pressure Range		
C	0	0- 5 psig
	1	0-10 psig
	2	0-20 psig
Body Material		
D		Brass (No Designation) ³
A		Aluminum
3		303 Stainless Steel
6		316 Stainless Steel
Seal and Diaphragm Material		
E		Buna-N (No designation) ³
V		Viton
E		EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² 3mm hexagonal lock nut on 2N2 configuration.

³ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



PRESSURE REGULATORS - MULTI-STAGE

Ultra Miniature Manifold Mount Two-stage Pressure Regulator

PRD28-ANB-C-DEF

Description: The PRD28 series regulator is a two stage manifold mount regulator. The first stage is a piston stage and the second is a diaphragm stage.

- **Inlet Range:** This is a two stage regulator and is ideal for applications with fluctuating or decaying inlet pressures, up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-20 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as ½ psig. The two stage design allows the regulator to maintain a consistent outlet pressure despite wide swings in the inlet/source pressure.
- **Approximate Weight:** 52g in brass. Weight will vary slightly, depending on configuration.
- **Porting:** 5/16-24 external threaded inlet port & 3/32" (2.4mm) diameter outlet port.
- **Non-Relieving** regulator.

Material: Brass.

Seals: Buna-N. Optional materials: EPDM and Viton®.

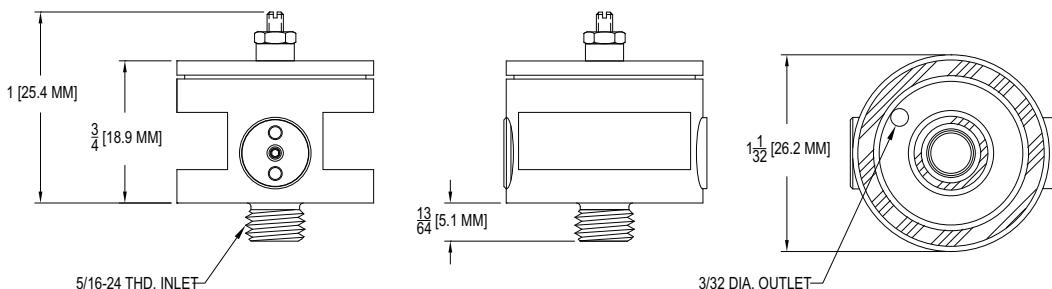


PRD28-1N1-C

Part Designation PRD28-ANB-C-DEF		
(Replace each underlined letter with a code. A, B, and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	6	High Resolution Diaphragm
Outlet Pressure Range		
C	0	0- 5 psig
	1	0-10 psig
	2	0-20 psig
Body Material		
D		Brass (No Designation) ²
Seal and Diaphragm Material		
E		Buna-N (No designation) ²
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	K	Krytox
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



DIAPHRAGM PRESSURE REGULATORS - MULTI-STAGE

Ultra Miniature Two-stage Diaphragm Pressure Regulator

PRD3-ANB-C-DEF

Description: The PRD3 is the next generation of our award winning PRD2 family of regulators, featuring larger 10-32 threaded inlet and outlet ports and an improved valve design.

- **Inlet Range:** This is a two stage regulator and is ideal for applications with fluctuating or decaying inlet pressures, up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-30 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as $\frac{1}{2}$ psig. The two stage design allows the regulator to maintain a consistent outlet pressure despite wide swings in the inlet/source pressure.
- **Approximate Weight:** 66g in brass and stainless steel (303 & 316), 25g in aluminum. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet ports.
- **Non-Relieving** regulator.

Material: Brass, aluminum, 303 & 316 stainless steel.

Seals: Buna-N. Optional materials: EPDM and Viton®.



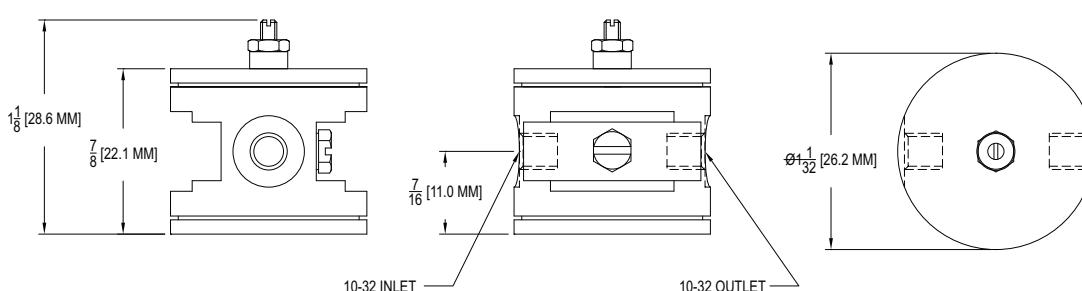
PRD3-2N2-C
PATENTED

Part Designation PRD3-ANB-C-DEF (Replace each underlined letter with a code. A, B and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	High Resolution Diaphragm
	7	High Resolution Diaphragm with 15/32-32 panel mount
Outlet Pressure Range		
C	0	0- 5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
Body Material		
D		Brass (No Designation) ³
	A	Aluminum
	3	303 Stainless Steel
	6	316 Stainless Steel
Seal and Diaphragm Material		
E		Buna-N (No designation) ³
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² 3mm hexagonal lock nut on 2N2 configuration.

³ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



DIAPHRAGM PRESSURE REGULATORS - MULTI-STAGE

Ultra Miniature Three-stage High Pressure Diaphragm Regulator

PRD3HP-ANB-C-DEF

Description: Beswick's award winning PRD3HP is a compact three stage regulator, ideal for applications requiring accurate regulation of high pressure fluids down to very low pressures and flows.

- **Inlet Range:** The PRD3HP is a three stage regulator capable of accurately reducing very high inlet pressures, up to 3,000 psig. It is ideal for applications where the source fluid will be coming from a cylinder of high pressure compressed gas.
- **Outlet Range:** Maximum outlet range 0-30 psig. The large valve to sensing area ratio and frictionless design of Beswick's diaphragm style regulators make them especially well suited for low pressure regulation, such as ½ psig. The three stage design allows the regulator to maintain a consistent outlet pressure despite wide swings in the inlet/source pressure.
- **Approximate Weight:** 76g in brass and stainless steel (303 & 316). Weight will vary slightly, depending on configuration.
- **Porting:** ¼-28 internal threaded inlet port, 10-32 internal threaded outlet port.
- **Non-Relieving** regulator.

Material: Brass, 303 & 316 stainless steel.

Seals: Buna-N. Optional materials: EPDM and Viton®.



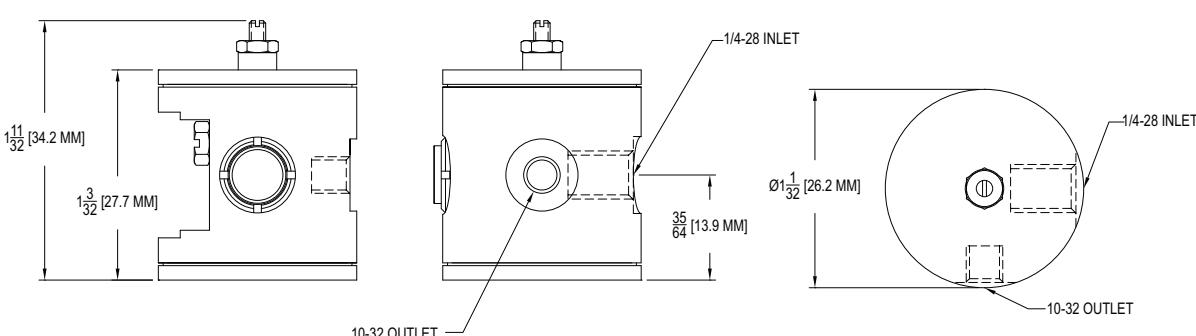
PRD3HP-3N2-C
PATENTED

Part Designation PRD3HP-ANB-C-DEF		
(Replace each underlined letter with a code. A, B and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	High Resolution Diaphragm
	7	High Resolution Diaphragm with 15/32-32 panel mount
Outlet Pressure Range		
C	0	0-5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
Body Material		
D		Brass (No Designation) ³
	3	303 Stainless Steel
	6	316 Stainless Steel
Seal and Diaphragm Material		
E		Buna-N (No designation) ³
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	K	Krytox
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² 3mm hexagonal lock nut on 2N2 configuration.

³ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



PISTON PRESSURE REGULATORS - SINGLE STAGE

Sub-Miniature Single Stage Piston Pressure Regulator

PR-MLS-AA-BC-DE

Description: Beswick's PR-MLS series single stage piston style pressure regulators offer relatively precise pressure regulation in an extremely compact package. The PR-MLS is the smallest regulator that we currently offer and is primarily intended for applications where space saving is critical.

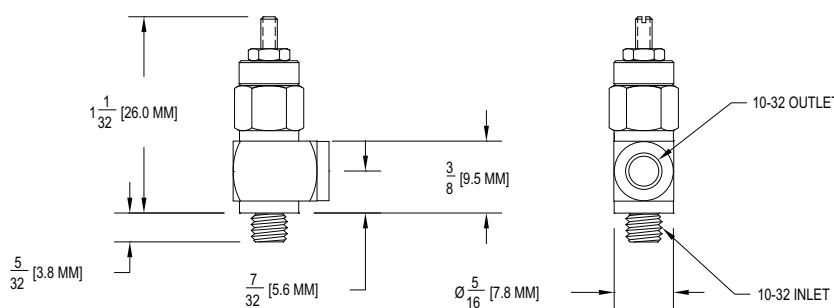
- **Inlet Range:** This is a single stage regulator and is ideal for applications with steady inlet pressures up to a maximum of 500 psig.
- **Outlet Range:** 5-45 psig.
- **Approximate Weight:** 6.2g in brass and 303 stainless steel. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 external threaded inlet port and barbed or 10-32 internal threaded outlet port. A cartridge/manifold mount version is also available with 10-32 external threaded inlet port and two 1/16" (1.6mm) diameter outlet ports.
- **Non-Relieving** regulator.

Material: Brass or 303 stainless steel body. 303 stainless steel stud and internals. 303 or 316 stainless steel adjustment screw. ENP brass nut on panel mount configurations, and ENP brass or 303 stainless steel knob on configurations with knob adjustment.

Seals: Buna-N. Optional materials: EPDM and Viton®.



PR-MLS
PATENTED



Part Designation PR-MLS-AA-BC-DE

(Replace each underlined letter with a code.

AA and B must be filled in. C, D and E are extra available options)

Elbow Outlet	Code	Description
AA	10	Internal 10-32 Thread
	12	1/16" ID barb
	16	5/64" (2mm) ID Barb
	11	3/32" ID Barb
	13	1/8" ID Barb
	82	0.170"-3/16" ID Barb
	C8	Cartridge mount ¹

Adjustment Style on Cap

B	1	Slotted Screw - screw driver adjustment ²
	2	Knurled knob with 5/16" hexagonal lock nut ³
	3	Knurled Knob with 3/4" dia. knurled lock disc
	4	Slotted screw with 3/4" dia. knurled lock disc

Mounting Style

C		No Panel Mount (No Designation) ⁴
	P	10-32 Panel Mount Thread

Body Material

D		Brass (No Designation) ⁴
	3	303 Stainless Steel

Seal Material

E		Buna-N (No designation) ⁴
	E	EPDM
	V	Viton

¹ Cartridge mount available with 303 stainless steel body material only.

² Supplied with a 3/16" hexagonal lock nut.

³ 3 mm hexagonal lock nut on panel mount configurations.

⁴ Standard mount is No panel mount thread, standard body material is brass and standard seal material is Buna-N. No code is needed to specify No panel mount, brass body or Buna-N seals.

NOTE: This part is also available with an elbow style compression fitting for 1/8" OD tubing on the outlet. Contact the Factory for ordering information.



PISTON PRESSURE REGULATORS - SINGLE STAGE

Single Stage Piston Pressure Regulator - PR-ABC-DD-EFG

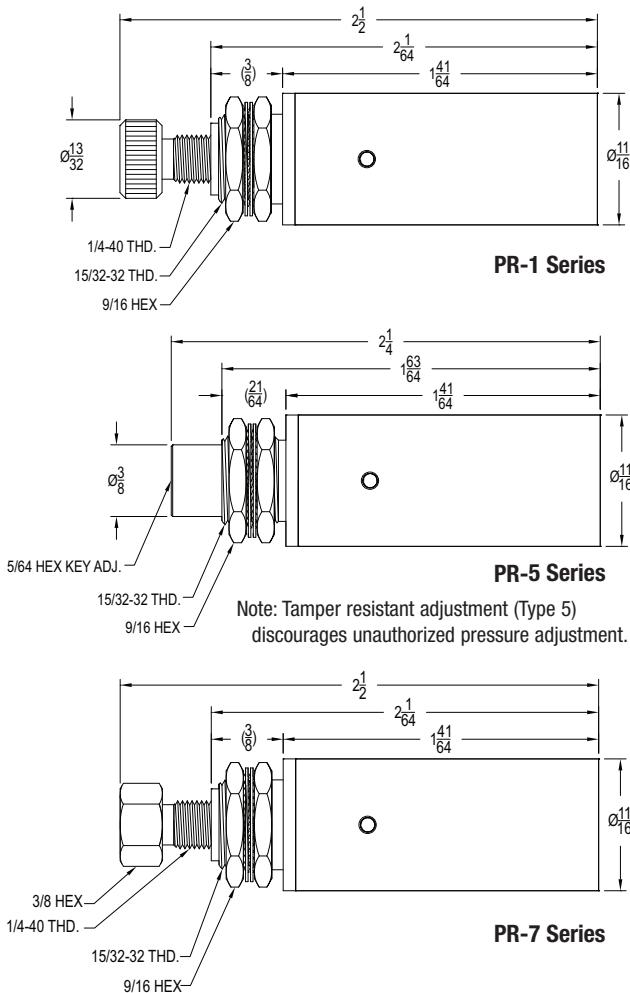
Description: The PR family of regulators offers relatively precise pressure regulation in a versatile, economical, miniature package. A wide selection of porting configurations and adjustment styles are available, offering design freedom.

- **Inlet Range:** This is a single stage regulator and is ideal for applications with steady inlet pressures up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-450 psig. Piston style regulators contain coil springs and are especially well suited for applications requiring higher outlet pressures (> 10 psig).
- **Approximate Weight:** 72g in brass and stainless steel (303 & 316), and 33g in aluminum. Weight will vary slightly, depending on configuration.
- **Porting:** Eight different porting configurations are available. See opposite page for more details.
- Both **Relieving** and **Non-Relieving** configurations are available.

Material: Brass, Aluminum, 303, or 316 stainless steel body and head, with stainless steel adjustment shaft, springs, hex nuts, valve seat, and zinc plated steel washers.

Seals: Buna-N O-rings. Optional materials: EPDM, Viton® and Neoprene.

Adjustment Types:



Part Designation PR-ABC-DD-EFG		
(Replace each underlined letter with a code.)		
A, B and C must be filled in. DD, E, F and G are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Micro Adjustment Knob
	5	Internal 5/64" Hex Key Adjustment
	7	3/8" Hex Adjustment Knob ¹
Relieving or Non Relieving		
B	N	Non-Relieving
	R	Relieving
Port Configuration / Body Style		
C	1	Type 1
	2	Type 2 ²
	3	Type 3
	4	Type 4
	5	Type 5
	6	Type 6
	7	Type 7
	8	Type 8 ³
Outlet Pressure Range		
DD		0- 50 psig (No Designation)
	LP	0-25 psig
	HP	0-100 psig
	XP	0-450 psig ¹
Body Material		
E		Brass (No Designation) ⁴
	A	Aluminum ⁵
	3	303 Stainless Steel ⁵
	6	316 Stainless Steel ⁵
Seal Material		
F		Buna-N (No designation) ⁴
	E	EPDM
	N	Neoprene
	V	Viton
Special Options		
G	I	Instrument Cleaned
	K	Krytox
	IK	Instrument Cleaned with Krytox

¹ Adjustment Cap #7 must be used when the XP spring is selected.

² Type 2 Body Style is ONLY available in Brass.

³ Type 8 Body Style is ONLY available in 303 Stainless Steel.

⁴ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.

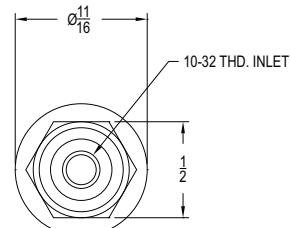
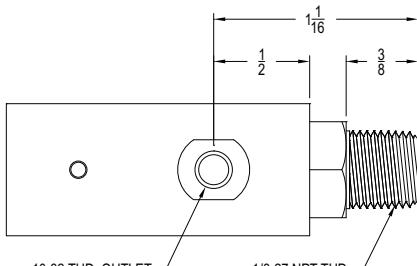
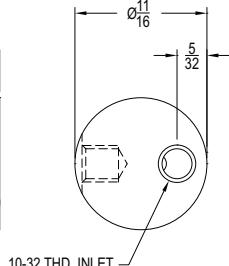
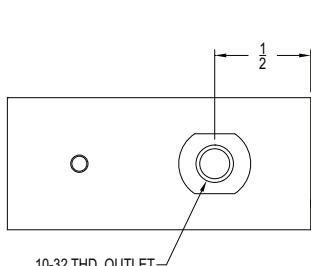
⁵ Not all Body styles are stocked in Aluminum, 303 SS or 316 SS. Consult the factory for availability.

Note: All models are supplied with a 15/32-32 thread with 2 nuts and 2 washers for panel mounting.

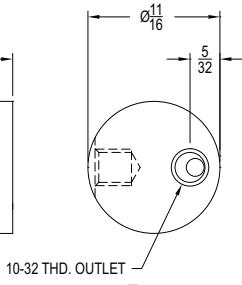
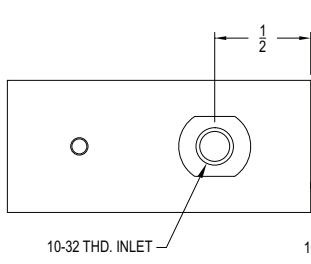
PISTON PRESSURE REGULATORS - SINGLE STAGE

Pressure Regulator

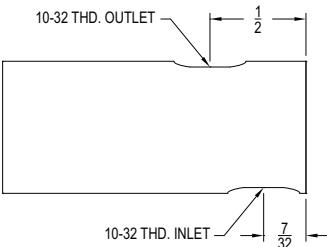
Port Locations:



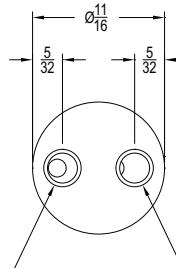
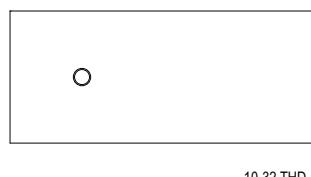
Type 1

Type 2
(available in brass only)

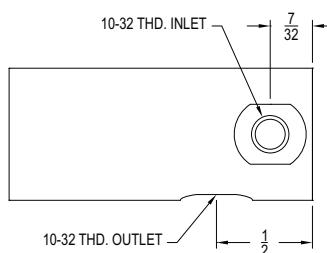
Type 3



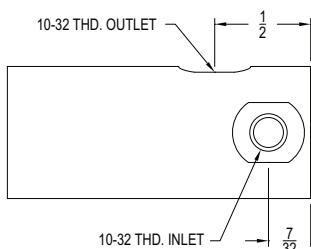
Type 4



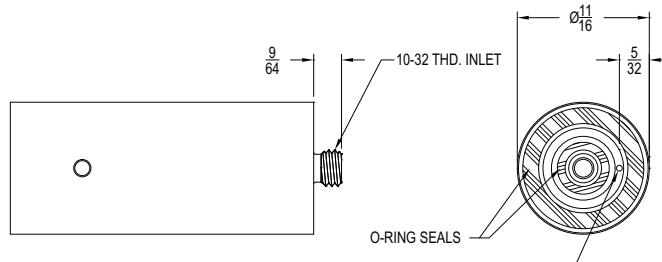
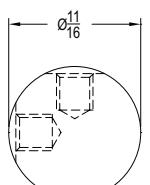
Type 5



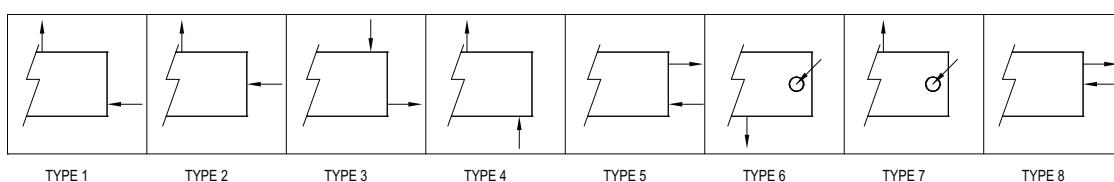
Type 6



Type 7

Type 8
(available in 303 stainless steel only.)PISTON REGULATORS
SINGLE STAGE

Port Configuration Schematics:



PISTON PRESSURE REGULATORS - MULTI-STAGE

Two Stage Piston Style Pressure Regulator

PR2-ABC-DEF-GH

Description: The PR2 features adjustments for both the high and low pressure stage and a high pressure stage take-off port, for added versatility.

- **Inlet Range:** This is a two stage regulator and is ideal for applications with fluctuating or decaying inlet pressures, up to a maximum of 500 psig.
- **Outlet Range:** Maximum outlet range 0-450 psig. Piston style regulators contain coil springs, and are especially well suited for applications requiring higher outlet pressures (> 10 psig).
- **Approximate Weight:** 133g in brass and 303 stainless steel, and 63g in aluminum. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet ports.
- Both **Relieving** and **Non-Relieving** configurations are available.

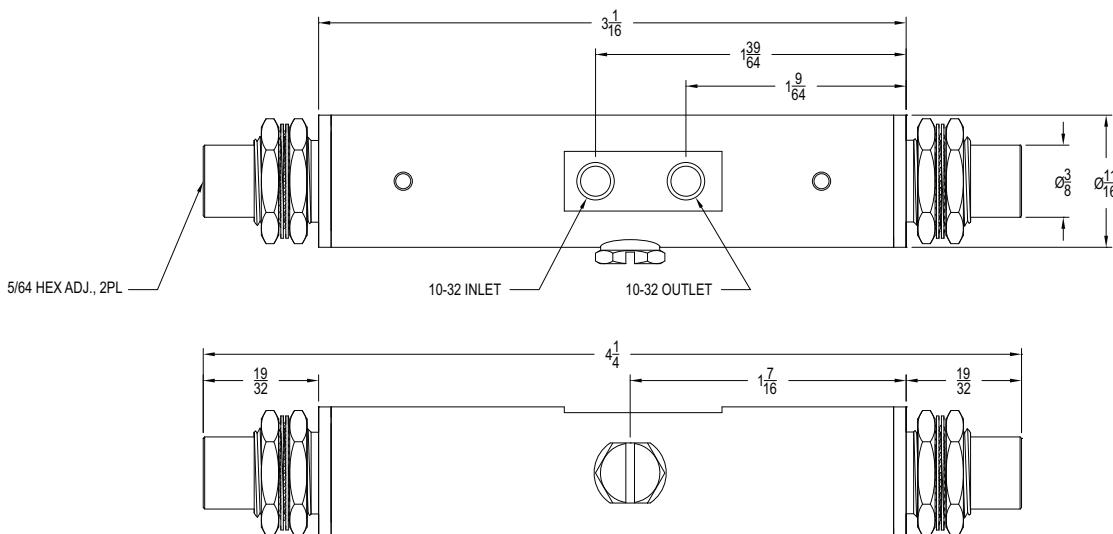
Material: Brass, aluminum, or 303 stainless steel body.

Seals: Buna-N O-rings. Optional materials: EPDM and Viton®.



Part Designation PR2-ABC-DEF-GH		
1 st Stage 2 nd Stage		
(Replace each underlined letter with a code. A, B, D and E must be filled in. C, F, G and H are extra available options.)		
Adjustment Style on Cap		
A and D	1	Adjustment Knob
	5	Internal 5/64" Hex Key Adjustment
	7	3/8" Hex Adjustment ¹
Relieving or Non-relieving		
B and E	N	Non-Relieving
	R	Relieving
Pressure Range		
C and F		Standard Pressure (0-50 psig)- No designation
	L	Low Pressure (0-25 psig)
	H	High Pressure (0-100 psig)
	X	Extra High Pressure (0-450 psig) ¹
Body Material		
G		Brass (No Designation)
	A	Aluminum
	3	303 Stainless Steel
Seal Material		
H		Buna-N (No designation)
	V	Viton
	E	EPDM

¹ Adjustment cap #7 must be used when the XP spring is selected.



PR2-5 Shown

PISTON PRESSURE REGULATORS - MULTI-STAGE



Two Stage High Pressure Piston Style Pressure Regulator

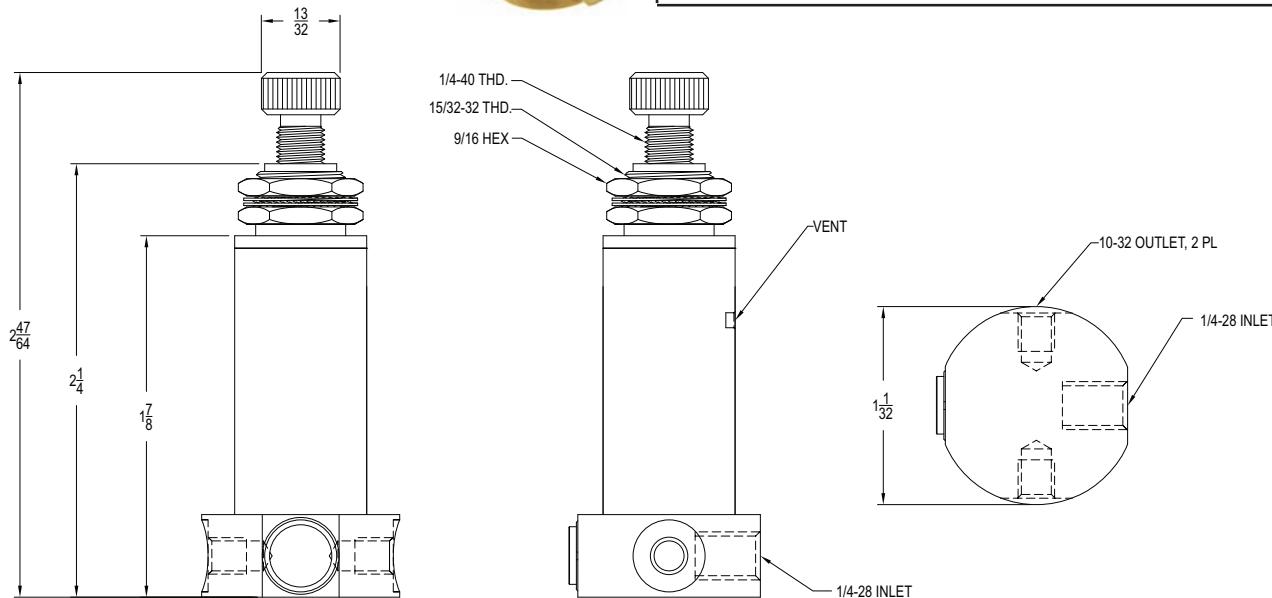
PR2HP-AB1-CC-DEF

Description: The regulator combines technology from our high pressure PRD3HP regulator with the higher outlet pressures of our PR series coil spring regulators. The result is a regulator that can handle high inlet pressures while having an adjustable outlet range up to 200 psig.

- **Inlet Range:** The PR2HP is a two stage regulator, capable of accurately reducing very high inlet pressures, up to 3,000 psi. It is ideal for applications where the source fluid will be coming directly from a cylinder of high pressure compressed gas.
- **Outlet Range:** Maximum outlet range 0-200 psi. Piston style regulators contain coil springs, and are especially well suited for applications requiring higher outlet pressures (minimum 10 psig).
- **Approximate Weight:** 108g in brass. Weight will vary slightly, depending on configuration.
- **Porting:** One 1/4-28 internal threaded inlet port, and two 10-32 internal threaded outlet ports.
- This regulator is available in both **Relieving** and **Non-Relieving** configurations.

Material: Brass

Seals: Buna-N O-rings. Optional materials: EPDM and Viton®. See page 1.



Part Designation PR2HP-AB1-CC-DEF

(Replace each underlined letter with a code.
A and B must be filled in. CC, D, E, and F are extra available options.)

Adjustment Style on Cap	Code	Description
A	1	3/8" Adjustment Knob
	5	Internal 5/64" Hex Key Adjustment
	7	3/8" Hex Adjustment Knob ¹
Relieving or Non-relieving		
B	N	Non-Relieving
	R	Relieving
Outlet Pressure Range		
CC		0-50 psig (No Designation)
	LP	0-25 psig
	HP	0-100 psig
	XP	0-200 psig ¹
Body Material		
D		Brass (No Designation)
Seal Material		
E		Buna-N (No designation) ²
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	K	Krytox
	IK	Instrument Cleaned with Krytox

¹ Adjustment Cap #7 must be used when the XP spring is selected.

² Standard body material is Brass and standard seal material is Buna-N. No code is needed to specify Brass body or Buna-N seals.

Note: All models are supplied with a 15/32-32 thread with 2 nuts and 2 washers for panel mounting.

PRESSURE COMPENSATED FLOW CONTROLS

Pressure Compensated Flow Control

PCFC-1-1

Description: The patented Beswick pressure compensated flow control maintains a constant flow rate (adjustable) regardless of upstream or downstream pressure variations.

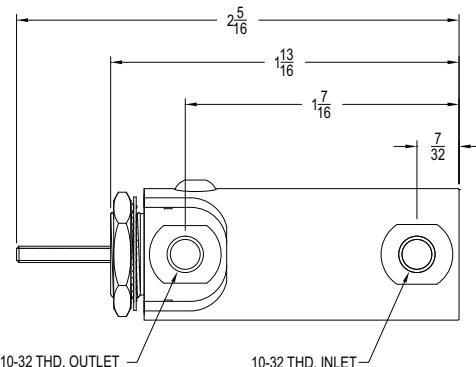
- **Inlet Range:** The PCFC is rated for a maximum inlet pressure of 500 psig and a minimum pressure of 20 psig. ΔP is required for this valve to regulate properly.
- **Flow Control Range:** 0-1.6 gph (0-100 sccm) of water.
- **Approximate Weight:** 66g in brass and stainless steel.
- **Porting:** 10-32 internal threaded inlet and outlet port.

Material: Brass or 303 stainless steel.

Seals: Buna-N O-rings. Optional materials: EPDM and Viton®. See page 1.



Part Number Brass	Part Number 303 Stainless	Adjustment
PCFC-1-1	PCFC-1-1-303	micro adjustment screw



Spotlight: Tips For Properly Setting Your New Regulator

1. We recommend that you initially set your new regulator dead ended (no flow downstream) by slowly turning the adjustment screw in the clockwise direction to the set point.

2. If this is a normally flowing application, then we would recommend opening up flow downstream after step 1. The outlet pressure will drop, and further adjustment may be necessary.

3. Outlet pressure should always be set on the rise. If you need to decrease outlet pressure, it is recommended that you reduce the outlet pressure below the set point, by turning the adjustment counterclockwise, and then slowly bring it back

up. In applications that are normally dead ended (no flow) you must vent the pressure downstream of the regulator after turning the adjustment counterclockwise and then let the regulator come back up to the new lower set point.

4. Once the desired outlet pressure is reached we recommend venting/dumping the downstream pressure a few times to make certain the pressure regulator returns the desired outlet pressure. If it doesn't, make the necessary adjustments until the regulator consistently returns to the desired set point. This method helps to break in the regulator and take slack out of the system that might cause the outlet pressure to vary from the desired set point.

PRESSURE COMPENSATED FLOW CONTROLS

Pressure Compensated Flow Control Valve with Low Friction Diaphragm

PCFCD-1N1

Description: The PCFCD-1N1 is designed to maintain a constant flow rate, which the customer can adjust, regardless of upstream or downstream pressure variations. It works with both liquids (incompressible fluids) and gases (compressible fluids) but is primarily intended for the control of liquids. The pressure regulation is accomplished with a low friction diaphragm mechanism.

- **Inlet Range:** The PCFCD is rated for a maximum inlet pressure of 500 psig and a minimum pressure of 20 psig ΔP is required for this valve to regulate properly.
- **Pressure Differential Setting:** Factory preset to maintain a 10 psig differential across the adjustable orifice.
- **Effective Orifice:** 0" to 0.032" (0-0.8 mm) with standard needle.
- **Flow Control Range:**
 - Especially well suited for control of low flow rates.
 - 0 to 4.2 gallons per hour (0-265 sccm) of water.
 - 0-20 scfh (0-9.4 slpm) of air.
 - High flow and high resolution needles available. Consult factory for details.
- **Approximate Weight:** 45g in brass.
- **Porting:** 10-32 internal threaded inlet and outlet port.

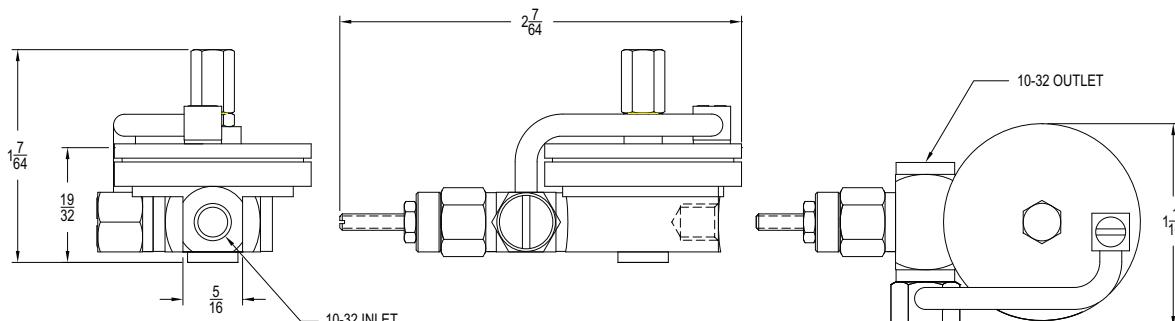
Material: Brass body, carbon steel spring in flow path.

Seals: Buna-N O-rings. Optional materials: EPDM and Viton®. See page 1.

Part Number Brass	Adjustment
PCFCD-1N1	micro adjustment screw



PCFCD-1N1
PATENTED



Application Tip: Reference Pressure

Most regulators are referenced to ambient pressure conditions, however in special applications a customer may wish to reference the regulator to a pressure that is different from the ambient pressure. Beswick offers a special regulator cap (PCFCD cap) with an M3 internal thread tapped into the reference port instead of a non-threaded hole. This provides a

way for the customer to reference the regulator to a unique pressure source. The PCFCD cap can be installed on many of our diaphragm pressure regulators. Consult a Beswick Applications Engineer for more details.

BACK PRESSURE REGULATORS

Back Pressure Regulator - BPR-ANB-CC-DEF

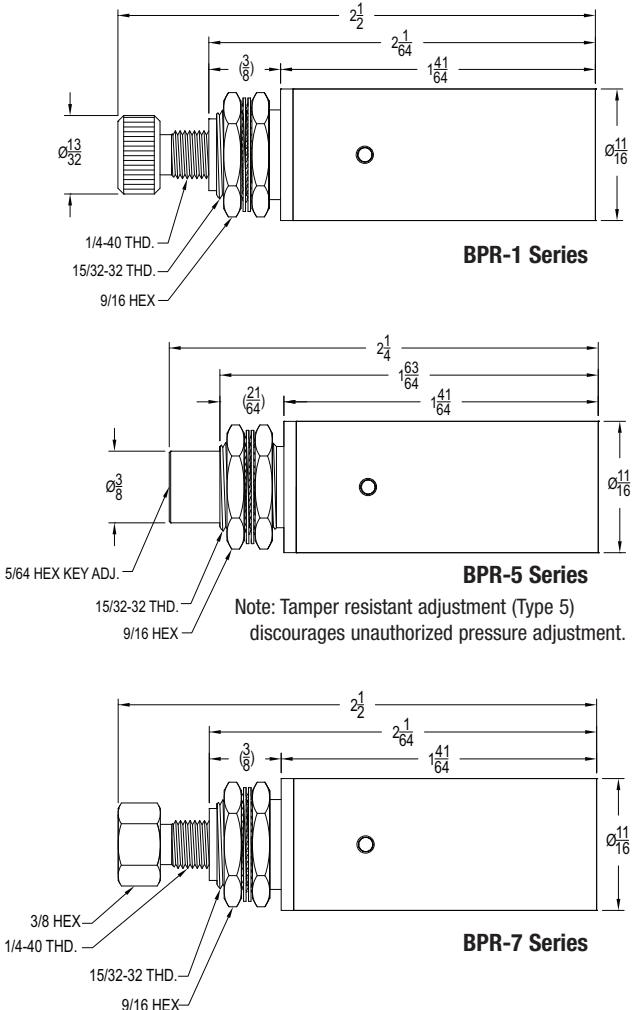
Description: The BPR series back pressure regulator functions much like a relief valve. It contains a normally closed valve element and is typically placed at the end of the fluid line. The regulator will crack open when pressures upstream reach the set pressure (adjustable), allowing excess pressure to vent from the outlet port. When pressures drop down below the set pressure again, the regulator will close.

- **Inlet Range:** The BPR can handle a maximum inlet pressure of 500 psig.
- **Cracking Pressure Range:** Maximum cracking pressure range 0- 450 psig. Piston style regulators contain coil springs and are especially well suited for applications requiring higher outlet pressures (>10 psig).
- **Approximate Weight:** 72g in brass and stainless steel (303 & 316), and 33g in aluminum. Weight will vary slightly, depending on configuration.
- **Porting:** Eight different porting configurations are available. See opposite page for more details.

Material: Brass, Aluminum, 303, or 316 stainless steel body and head, with stainless steel adjustment shaft, springs, hex nuts, valve seat, and zinc plated steel washers.

Seals: Four Buna-N O-rings except for type 8 which has six Buna- N O-rings. Optional materials: EPDM, Viton® and Neoprene. See page 1.

Adjustment Types:



Part Designation BPR-<u>ANB</u>-CC-<u>DEF</u>		
(Replace each underlined letter with a code. A, B and CC must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Micro Adjustment Knob
	5	Internal 5/64" Hex Key Adjustment
	7	3/8" Hex Adjustment Knob ¹
Port Configuration / Body Style		
B	1	Type 1
	2	Type 2 ²
	3	Type 3
	4	Type 4
	5	Type 5
	6	Type 6
	7	Type 7
	8	Type 8 ³
Cracking Pressure Range		
CC	O	0- 50 psig - No Designation
	LP	0-25 psig
	HP	0-100 psig
	XP	0-450 psig ¹
Body Material		
D		Brass (No Designation) ⁴
	A	Aluminum ⁵
	3	303 Stainless Steel ⁵
	6	316 Stainless Steel ⁵
Seal Material		
E		Buna-N (No designation) ⁴
	E	EPDM
	N	Neoprene
	V	Viton
Special Options		
F	I	Instrument Cleaned
	K	Krytox
	IK	Instrument Cleaned with Krytox

¹ Adjustment Cap #7 must be used when the XP spring is selected.

² Type 2 Body Style is ONLY available in Brass.

³ Type 8 Body Style is ONLY available in 303 Stainless Steel.

⁴ Standard body material is Brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.

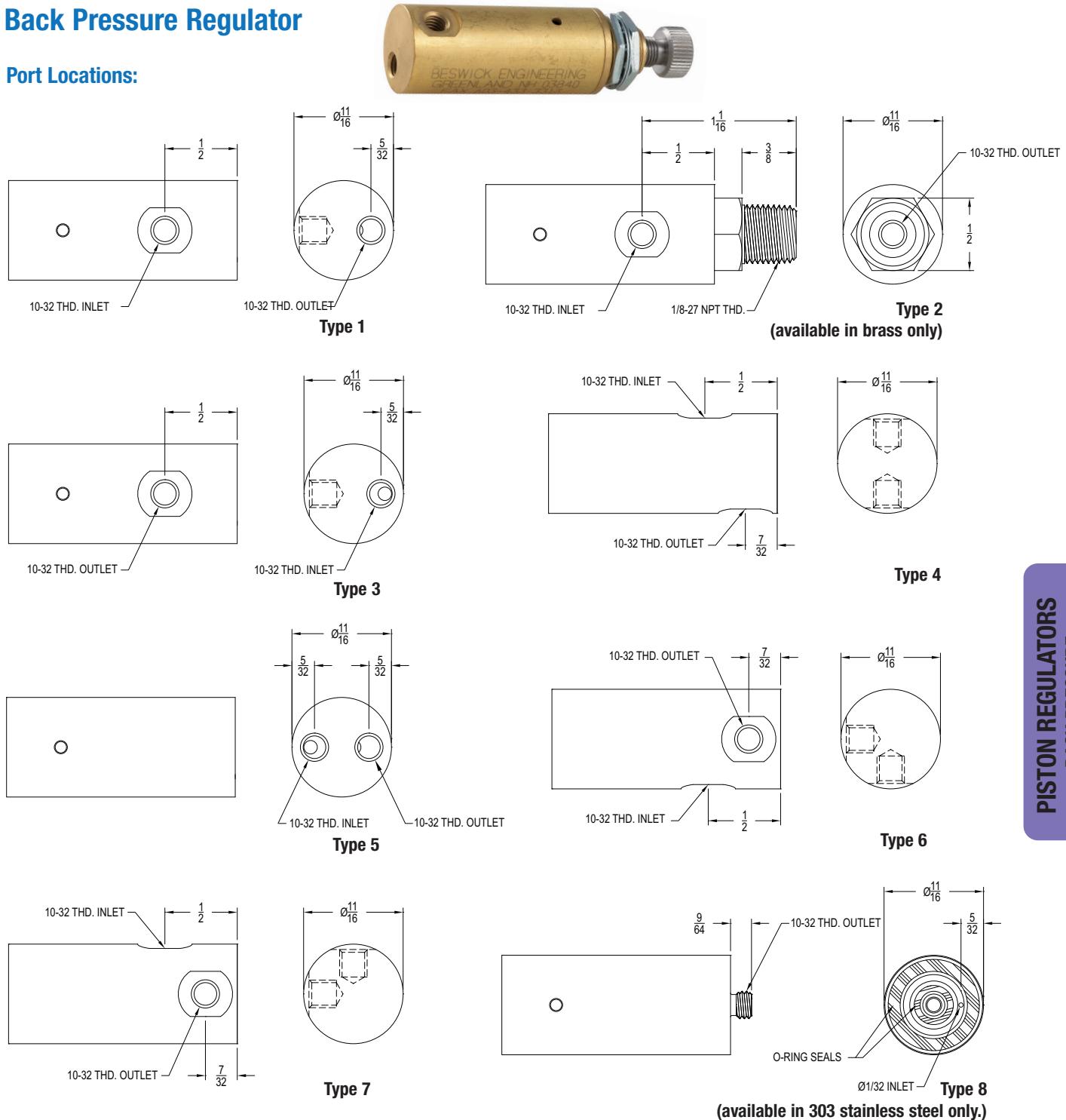
⁵ Not all Body styles are stocked in Aluminum, 303 SS, or 316 SS. Consult the factory for availability.

Note: All models are supplied with a 15/32-32 thread with 2 nuts and 2 washers for panel mounting.

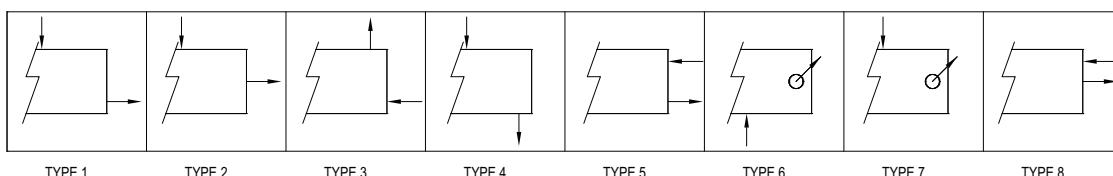
BACK PRESSURE REGULATORS

Back Pressure Regulator

Port Locations:


PISTON REGULATORS
BACK PRESSURE

Port Configuration Schematics:



VACUUM REGULATORS

Ultra Miniature Diaphragm Vacuum Regulator

VRD-ANB-CD

Description: The VRD is a single stage vacuum regulator.

- **Vacuum Control Range:** When placed in line after a vacuum source, it will control vacuum from 0 psig (29.5 in-Hg) down to -12.7 psig (4 in-Hg).
- **Approximate Weight:** 25g in brass and stainless (303 & 316), 15g in aluminum. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet port. Vacuum source should be connected to the inlet (deeper) port.
- **Non-Relieving** regulator. You can increase the vacuum setting (greater vacuum) by turning the knob clockwise. You cannot decrease the vacuum setting (less vacuum) from the initial setting unless you vent the downstream line to atmosphere.

Material: Brass, aluminum, 303 or 316 stainless steel body. Carbon steel spring in flow path.

Seals: Buna-N. Optional materials: EPDM and Viton®.

Part Designation VRD-ANB-CD		
(Replace each underlined letter with a code.)		
A and B must be filled in. C and D are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	High Resolution Diaphragm
	7	High Resolution Diaphragm with 15/32-32 panel mount
Body Material		
C		Brass (No Designation) ³
	A	Aluminum
	3	303 Stainless Steel
	6	316 Stainless Steel
Seal and Diaphragm Material		
D		Buna-N (No designation) ³
	V	Viton
	E	EPDM

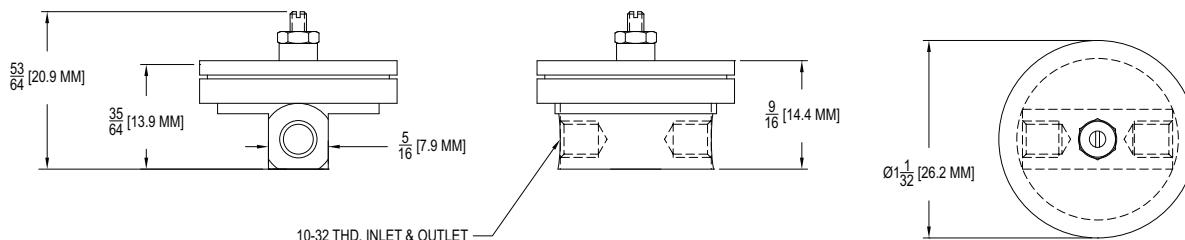
¹ Supplied with a 3/16" hexagonal lock nut.

² 3 mm hexagonal lock nut on 2N2 configuration.

³ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



VRD-3N1-3



VACUUM REGULATORS



Ultra-Miniature Manifold Mount Diaphragm Vacuum Regulator VRD8-ANB-CD

Description: The VRD8 is a manifold mount configuration of the VRD single stage vacuum regulator.

- **Vacuum Control Range:** When placed in line after a vacuum source, it will control vacuum from 0 psig (29.5 in-Hg) down to -12.7 psig (4 in-Hg).
- **Approximate Weight:** 25g in brass and 303 stainless steel. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 external threaded inlet port. 0.050"(1.27 mm) diameter outlet port. Vacuum source should be connected to the inlet port.
- **Non-Relieving** regulator. You can increase the vacuum setting (greater vacuum) by turning the knob clockwise. You cannot decrease the vacuum setting (less vacuum) from the initial setting unless you vent the downstream line to atmosphere.

Material: Brass or 303 stainless steel body. Carbon steel spring in flow path.

Seals: Buna-N O-rings. Optional materials: Viton® and EPDM.

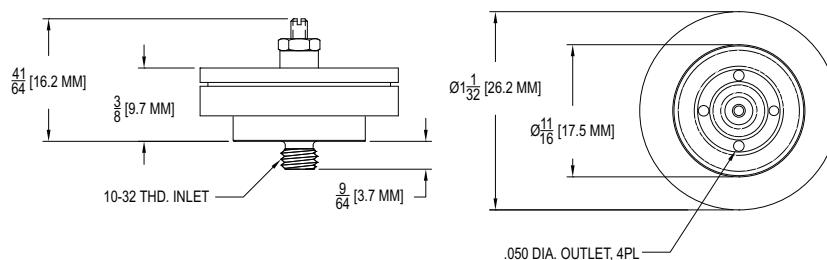
Note: Care must be taken during installation to avoid shearing the manifold mount thread recommended torque spec is 7-9 in lbs.



VRD8-1N1-3

Part Designation VRD8-ANB-CD (Replace each underlined letter with a code. A and B must be filled in. C and D are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	6	High Resolution Diaphragm
Body Material		
C		Brass (No designation) ²
	3	303 Stainless Steel
Seal and Diaphragm Material		
D		Buna-N (No designation) ²
	V	Viton
	E	EPDM

¹ Supplied with a 3/16" hexagonal lock nut.
² Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



VACUUM REGULATORS



Ultra-Miniature Diaphragm Vacuum Relief Valve VRV-ANB-CD

Description: The VRV functions very much like a single stage pressure regulator, except this modified design allows the user to set the outlet pressure below atmospheric pressure. The VRV would be placed in between a vacuum line and a positive pressure source. When the vacuum source downstream draws pressure in the line below a desired set pressure, the VRV will crack open, allowing positive pressure to enter the system.

- **Vacuum Control Range:** The VRV will control vacuum from 0 psig (29.5 in-Hg) down to -12.7 psig (4 in-Hg).
- **Approximate Weight:** 25g in 303 stainless steel. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet port. Positive pressure source should be connected to the inlet (deeper) port.

Material: 303 stainless steel body. Carbon steel spring in flow path.

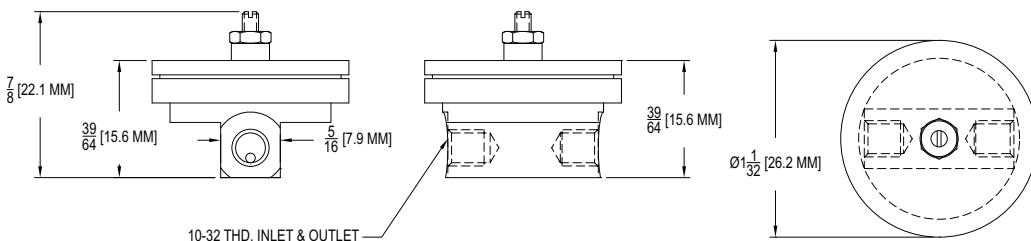
Seals: Buna-N. Optional materials: EPDM and Viton®.



VRV-3N1-3

Part Designation VRV-ANB-CD (Replace each underlined letter with a code. A and B must be filled in. C and D are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	2" Diaphragm
	7	2" Diaphragm with 15/32-32 panel mount
Body Material		
C	3	303 Stainless Steel
Seal and Diaphragm Material		
D		Buna-N (No designation) ³
	V	Viton
	E	EPDM

¹ Supplied with a 3/16" hexagonal lock nut.
² 3 mm hexagonal lock nut on 2N2 configuration.
³ Standard seal material is Buna-N. No code is needed to specify Buna-N seals.



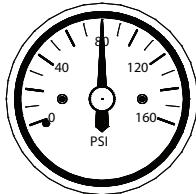
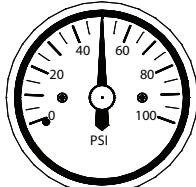
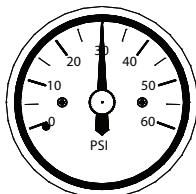
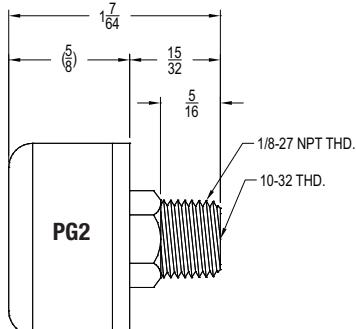
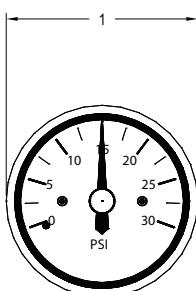
REGULATOR ACCESSORIES

Pressure and Vacuum Gauges

Description: Miniature pressure & vacuum gauges save space. Ideal for use with Beswick pressure & vacuum regulators, valves, and fittings. The gauges employ a brass-gear movement which contributes to an accuracy specification of 3%. Two threads are provided, allowing the user choice for fitting connections.

Material: Brass threads with plastic gauge dial and cover.

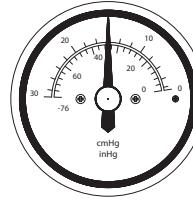
Note: Not recommended for use at temperatures greater than 150 °F.



PG2-100



VG



VG

Part Number	Pressure Scale
VG	0 to -30 inHG 0 to -76 cmHG
PG2-15	0-15 psig / 0-1 bar
PG2-30	0-30 psig / 0-2 bar
PG2-60	0-60 psig
PG2-100	0-100 psig / 0-7 bar
PG2-160	0-160 psig
PG2-200	0-200 psig

Application Tips: Outlet Range Selection

Springs are most effective in the middle of their intended range. For example, it is better to select a 0 to 20 psi output range than a 0 to 10 psi output range if you plan to set the regulator output to 9 psig.

The outlet pressure ranges published in this catalog are an indication of the regulator's ability while dead ended. Maximum pressures will be lower at higher flows.

Pressure regulators are force balance devices. We recommend a pressure differential of at least 10 psig across each regulator stage to ensure peak performance.

Application Tips: Relieving Vs. Non-Relieving Regulators

Non-relieving pressure regulators can be used with both gaseous and liquid media (with proper selection of body and seal materials).

Relieving regulators are only recommended for use with non-hazardous and non-flammable gaseous media such as compressed air and nitrogen.

REGULATOR ACCESSORIES



Gas Cylinder Pierce Fittings GCP-AABB-CD

Description: The GCP series fittings are designed to allow easy connection from 3/8-24 or 1/2-20 threaded compressed gas cylinders directly to the inlet port of a Beswick multi-stage regulator, like the PRD3 or PRD3HP. The fitting contains a pin, which pierces the gas cylinder upon connection, and two o-ring seals, to ensure a leak tight link.

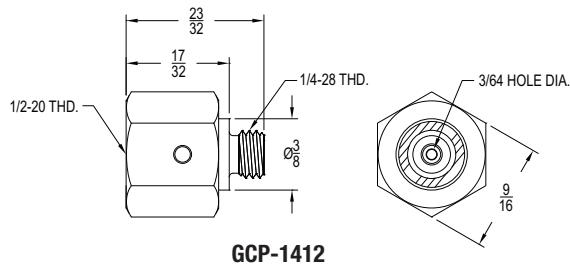
Material: 303 or 316 stainless steel.

Seals: Two Buna-N O-ring seals. Optional materials: EPDM and Viton®.

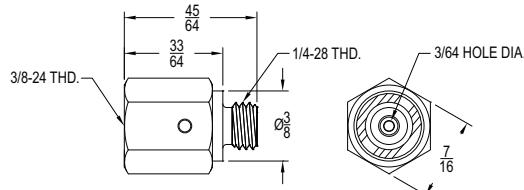


Part Designation GCP-AABB-CD (Replace each underlined letter with a code. AA, BB, and C must be filled in. D is optional.)		
External Thread	Code	Description
AA	14	1/4-28
	10	10-32
Internal Thread		
BB	38	3/8-24
	12	1/2-20
Body Material		
C	3	303 Stainless Steel
	6	316 Stainless Steel
Seal Material		
D		Buna-N (No designation) ¹
	V	Viton
	E	EPDM

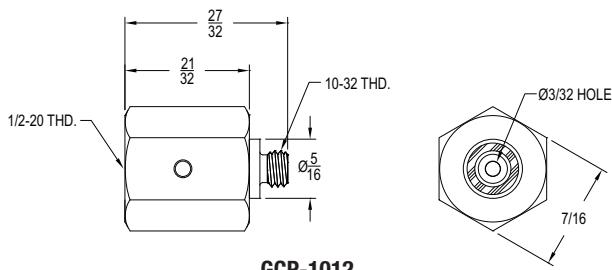
¹ Standard seal material is Buna-N. No code is needed to specify Buna-N seals.



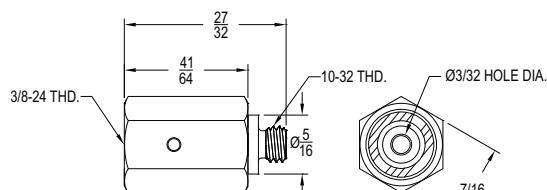
GCP-1412



GCP-1438



GCP-1012



GCP-1038

VALVES

Needle Valves

Beswick's needle valves are an excellent choice for applications requiring precision or variable flow control. High flow and high resolution models are available.

Pages 126-128



Check Valves

Beswick's miniature Check valves allow free flow in one direction and no flow (checked) in the other. Low cracking pressure and new adjustable cracking pressure configurations are available.



Pages 129-133

Metering & Flow Control Valves

A unique in-line flow control valve, which is adjusted by rotating the knurled sleeve on the body. Some versions contain integral check valves for free return flow.

Pages 134-136



Relief Valves



Beswick's RVD and RV2 series miniature relief valves are normally closed valves, which crack open on rising pressure. Factory preset and field adjustable configurations are available.

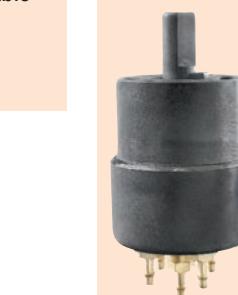
Pages 138-140

Ball Valves



Beswick's award winning stainless steel ball valve design is one of the smallest true ball valves available on the market. It is available in on/off, selector, and mixing and diverting configurations.

Pages 143



Multiport Rotary Selector Valve

This valve has a single input port and anywhere from two to six output ports. Available with detents for manual operation, or no detents to operate from a servo motor (not supplied).

Pages 142



Stem Actuated Valves

The SAV is available as a normally open, normally closed, or three way valve. The valve is actuated by depressing the stem. Push button and pilot actuators are available.

Pages 144-145

VALVES- NEEDLE

Needle Valve - 10-32 Thread

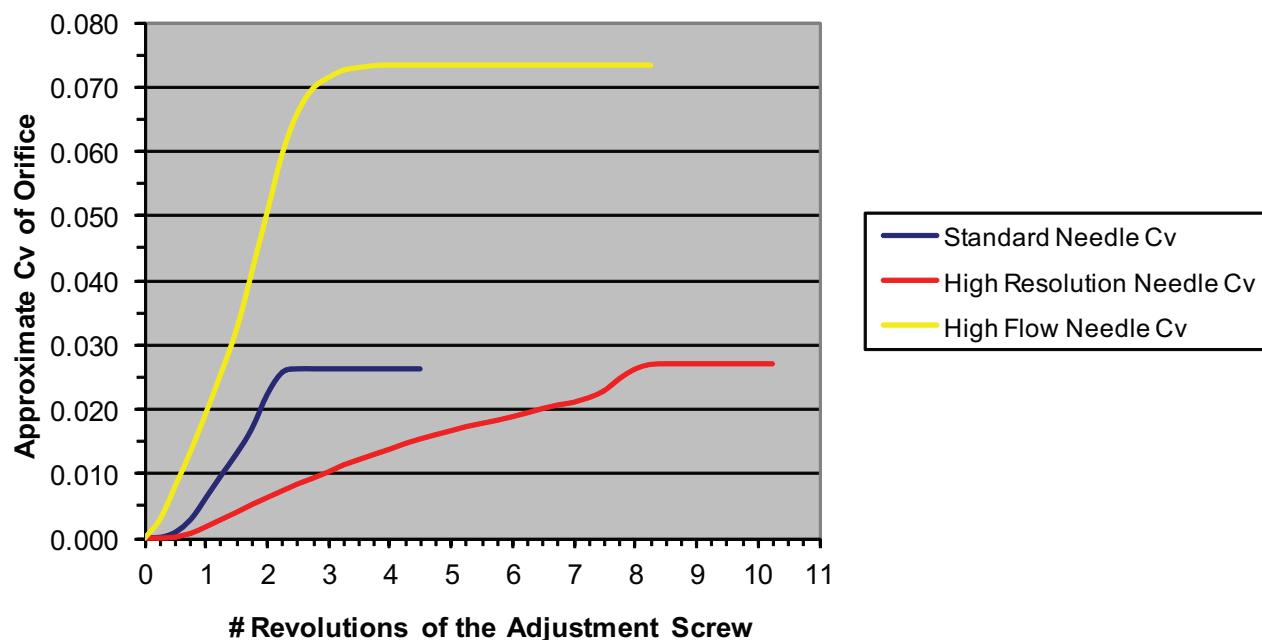
Description: The needle valve is an adjustable orifice which can be used to control flow rates, mini-cylinders, nozzles, timing circuits, filling heads, bleed vents, and in many other applications. The adjusted flow remains stable even during temperature fluctuations as the needle and valve seat are both manufactured from stainless steel.

- **Working Pressure Range:** The NV is rated for a maximum inlet pressure of 500 psig. The metal to metal seal provides positive shut-off down to 25 in Hg (vacuum).
- **Effective Orifice:**
 - Standard Needle: 0" to 0.032" (0-0.8 mm). About 0-1 SCFM air flow at 50 psig.
 - High Resolution Needle: 0" to 0.032" (0-0.8 mm). About 0-1 SCFM air flow at 50 psig. Especially well suited for control of low flow rates.
 - High Flow Needle: 0" – 0.059" (0-1.5 mm). About 0-3 SCFM air flow at 50 psig.
- **Adjustment:** All versions come equipped with a 2-56 threaded adjustment screw.
 - About 2.25 revolutions of the adjustment screw from fully opened to fully closed with standard needle specified.
 - About 8.25 revolutions of the adjustment screw from fully opened to fully closed with high resolution needle specified.
 - About 3.25 revolutions of the adjustment screw from fully opened to fully closed with high flow needle specified.
- **Approximate Weight:** 10g in brass and 303 stainless. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 external threaded inlet port. Many outlet configurations available. The valve body (elbow or tee) swivels 360 degrees to facilitate installation and orientation.

Material: Brass, 303 or 316 stainless steel body; all models have 316 stainless steel needle, 303 or 316 stainless steel stud and cap, stainless steel lock nut and optional brass knob.

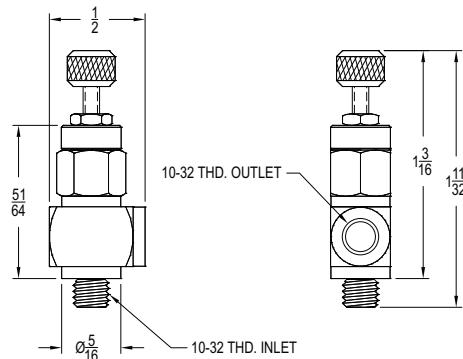
Seals: Three Buna-N O-rings, OR-NV-B (3 O-rings). Optional materials: EPDM, Viton® and Silicone.
See page 1.

Flow Characteristics of Beswick's 10-32 Threaded Needle Valves

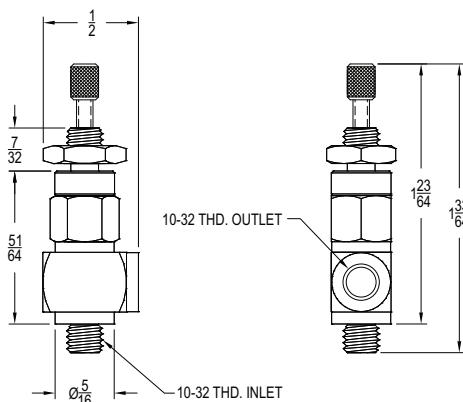


VALVES - NEEDLE

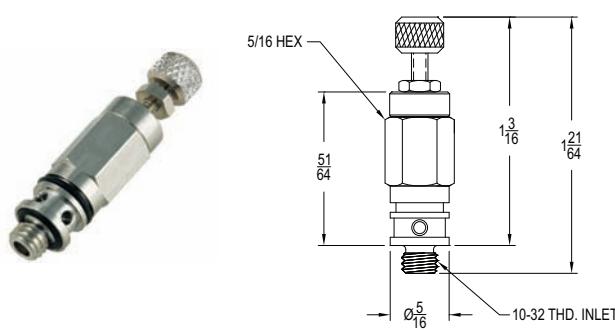
Needle Valve - 10-32 Thread



NVL-10-2-3



NVL-10-2P



NVC-10-2-3

Part Designation NVAB-CC-DE-GFH

(Replace each underlined letter with a code.

A, CC and D must be filled in. B, D, E, F, G and H are extra available options.)

Valve Configuration	Code	Description
A	L	Elbow Style
	T	Tee Style
	C	Cartridge Style ¹
Needle Type		
B		Standard Needle (No Designation) ²
	H	High Resolution Needle
	F	High Flow Stud/Body & Needle
Elbow Outlet		
CC	10	Internal 10-32 Thread ¹ (Standard)
	1E	External 10-32 Thread
	12	1/16" ID Barb
	16	5/64" (2mm) ID Barb
	11	3/32" ID Barb
	13	1/8" ID Barb
	81	0.170"-3/16" ID Long Barb
	82	0.170"-3/16" ID Short Barb
	8S	1/8" OD Symmetrical Brass Compression
	8A	1/8" OD Assymetrical Brass or Stainless Compression
Adjustment Style on Cap		
D	1	Slotted Screw - screw driver adjustment
	2	Knurled Knob with 3/16" Hex Lock Nut
	3	Knurled Knob with 3/4" dia. Knurled Lock Nut
	4	3/4" dia. Knurled Lock Nut
Mounting Style		
E		No Special Mount (No Designation) ²
	P	10-32 Panel Mount Thread
Body Material		
F		Brass (No Designation) ²
	N	ENP Brass
	3	303 Stainless Steel
	6	316 Stainless Steel
Seal Material		
G		Buna-N (No designation) ²
	V	Viton
	E	EPDM
	S	Silicone
Special Options		
H	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IK	Instrument Cleaned with Krytox

¹ Cartridge needle valve always utilizes "10" designator for elbow outlet. Cartridge body is only available in 303 stainless steel.² Standard body material is brass and standard seal material is Buna-N. No code is needed to specify standard needle, no mounting, brass body, or Buna-N seals.

VALVES- NEEDLE

Needle Valve – M3 Thread

Description: Beswick's smallest needle valve. The NV3 is a great choice for applications where space and/or weight savings is critical.

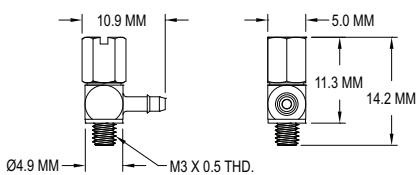
- **Working Pressure Range:** The NV3 is rated for a maximum inlet pressure of 300 psig. The metal to metal seal provides positive shut-off down to 25 in Hg(vacuum).
- **Effective Orifice:** 0" to 0.032" (0-0.8 mm) for both the standard and high resolution needles. About 0-1 SCFM air flow at 50 psig. The high resolution is especially well suited for control of low flow rates.
- **Adjustment:** All versions come equipped with a 1-72 threaded adjustment screw. About 4 revolutions of the adjustment screw from fully opened to fully closed with standard needle specified. About 9 revolutions with high resolution needle specified.
- **Approximate Weight:** 1.5-2g in brass and 303 stainless. Weight will vary slightly, depending on configuration.
- **Porting:** M3 external threaded inlet port. Many outlet configurations available. The valve body (elbow) swivels 360 degrees to facilitate installation and orientation.

Material: Brass or 303 stainless steel body with 303 stainless steel stud.

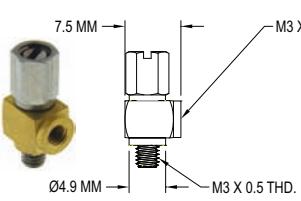
Seals: Three Buna-N O-rings. Optional materials: EPDM, Viton® and Silicone.



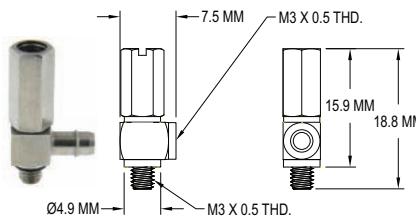
NV3-1132



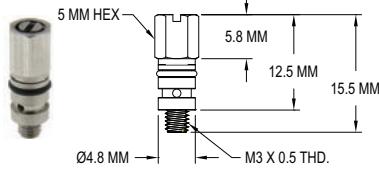
NV3-1132, NV3-1016, NV3-1012



NV3-M3I



NV3H



NV3C

Part Designation NV3AB- <u>CCCC</u> -DEF		
(Replace each underlined letter with a code. CCCC must be filled in. A, B, D, E and F are extra available options.)		
Body Configuration	Code	Description
A		Elbow Style (No Designation) ¹
	T	Tee Style ²
	C	Cartridge Style ³
Needle Type		
B		Standard Needle (No Designation) ¹
	H	High Resolution Needle
Elbow Outlet		
CCCC	1132	3/32" ID Barb
	1016	5/64" (2mm) ID Barb
	1012	1/16" ID Barb
	M3I	M3 Internal Thread
	M3 ³	For Use with Cartridge Style Body Configuration Only
Body Material		
D		Brass (No Designation) ¹
	3	303 Stainless Steel
Seal Material		
E		Buna-N (No designation) ¹
	V	Viton
	E	EPDM
	S	Silicone
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Standard body material is brass and standard seal material is Buna-N. No designation is required for the standard brass body, Buna-N seals, or standard needle.

² At this time the tee style is only available with the 1012 or M3I threaded outlet configuration.

³ Cartridge needle valve always utilizes "M3" designator for elbow outlet. Cartridge body is only available in 303 stainless steel.

VALVES - CHECK



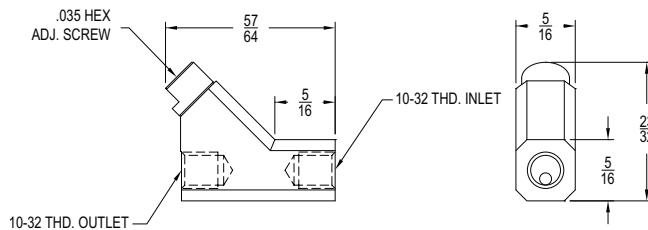
Adjustable Cracking Pressure Check Valve – 10-32 Thread

Description: The Beswick CKVA is a poppet style check valve with adjustable cracking pressure. The cracking pressure can be adjusted from 1 psig to 40 psig.

- **Working Pressure Range:** The CKVA is rated for a maximum pressure of 250 psig.
- **Adjustment:** All configurations come equipped with a 0.035" hex key adjustment.
- **Approximate Weight:** 12.2g in brass and stainless steel (303 & 316).
- **Porting:** 10-32 internal threaded inlet and outlet ports.

Material: Brass, 303 or 316 stainless steel.

Seals: Buna-N. Optional Materials: EPDM and Viton®



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless
CKVA-10-1	CKVA-10-1-303	CKVA-10-1-316

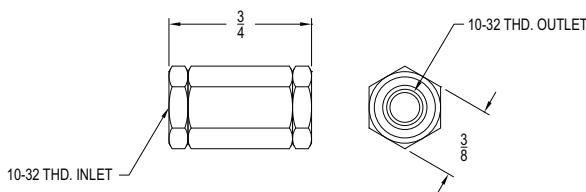
Check Valve – Low Cracking Pressure – High Flow – 10-32 Thread

Description: The CKVU series high flow check valve permits free flow in one direction and no flow (checked) in the opposite direction. This valve is specified in many applications because of its very low cracking pressure (typically less than 0.5 psig), its excellent repeatability, and leak-tight operation. This valve also provides significantly higher flow than the CKV series check valves.

- **Working Pressure Range:** The unique design of the check valve housing permits the valve to handle a back pressure of up to 250 psig.
- **Approximate Weight:** 8g in brass and 303 stainless.
- **Porting:** 10-32 internal threaded inlet and outlet ports.

Materials: Brass or 303 stainless steel

Seals: Silicone. Optional Material: EPDM.



Part Number Brass	Part Number 303 Stainless
CKVU-10F	CKVU-10F-303

VALVES- CHECK

Check Valve - Low Cracking Pressure - 10-32 Thread/Barb

Description: The CKV series check valve permits free flow in one direction and no (checked) flow in the opposite direction. This valve is specified in many applications because of its very low cracking pressure (typically less than 0.5 psig), its excellent repeatability, and leak-tight operation.

- **Working Pressure Range:** The unique design of the check valve housing permits the valve to handle a back pressure of up to 250 psig¹.

- **Approximate Weight:** 6-8g in brass and 303 stainless. Weight will vary slightly, depending on configuration.

- **Porting:** 10-32 internal thread, 10-32 external thread, or barbed ports. Many configurations available. Custom variations of barbed and threaded bodies are available, as well as variations with built-in screen filters or sintered metal filters. Contact the factory for details.

- **Note:** Check valve elements are typically actuated by reverse pressure and are best suited for applications with over 5 psig of back pressure. If the valve is required to check with minimal back pressure, contact a Beswick applications engineer to discuss available options.

Material: Brass, 303 or 316 stainless steel. Optional bronze or 316 stainless steel filter element.

Seals: Buna-N. Optional materials: Silicone, EPDM and Viton®



CKV-10M10M

Part Designation CKVAAA-B-CC-DD-EEE-F-GGGHI		
(Replace each underlined letter with a code.)		
CC and DD must be filled in. All others are extra available options.)		
Inlet Filter ¹	Code	Description
AAA		No inlet filter (No Designation) ²
	F05	5 micron sintered filter
	F20	20 micron sintered filter
	F40	40 micron sintered filter
	S43	43 micron screen filter ³
Inlet Filter Material		
B		Bronze, or no filter (No Designation) ²
	6	316 Stainless Steel
Inlet Porting		
CC	10F	10-32 internal thread
	10M	10-32 external thread
	81	Barb for 0.170"-3/16" (4.5mm) ID Tubing
	13	Barb for 1/8" (3.2mm) ID tubing
	11	Barb for 5/64" (2.4mm) ID tubing
	16	Barb for 3/32" (2.0 mm) ID tubing
	12	Barb for 1/16" (1.6mm) ID tubing
Outlet Porting		
DD	10F	10-32 internal thread
	10M	10-32 external thread
	81	Barb for .170"-3/16" ID Tubing
	13	Barb for 1/8" (3.2mm) ID tubing
Outlet Filter		
EEE		No outlet filter (No Designation) ²
	F05	5 micron sintered filter
	F20	20 micron sintered filter
	F40	40 micron sintered filter
	S43	43 micron screen filter ³
Outlet Filter Material		
F		Bronze, or no filter (No Designation) ²
	6	316 Stainless Steel
Body Material		
GGG		Brass (No Designation) ²
	303	303 Stainless Steel
	316	316 Stainless Steel
Duckbill & Seal Material		
H		Buna-N (No designation) ²
	V	Viton
	E	EPDM
	S	Silicone
Special Options		
I	I	Instrument Cleaned
	L	Low Back Pressure Tested ⁴
	IL	Instrument Cleaned & Low Back Pressure Tested

¹ Barbed configurations with inlet filter are not recommended for back pressures above 50psig.

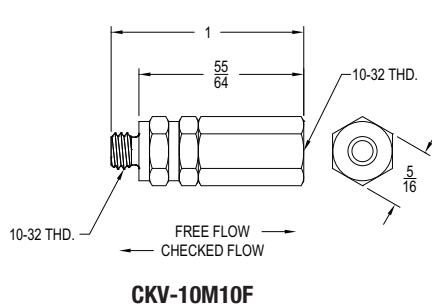
² Standard configuration is no filter, brass body, Buna-N duckbill & seals. No code required to specify these options.

³ 43 Micron Screen is only available in 316 SS.

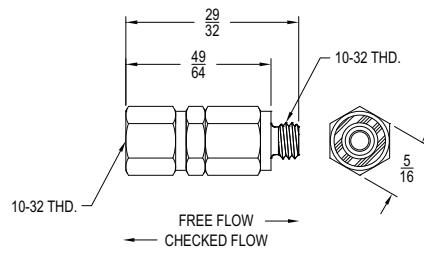
⁴ 100% Leak tested at <1psig back pressure.

VALVES - CHECK

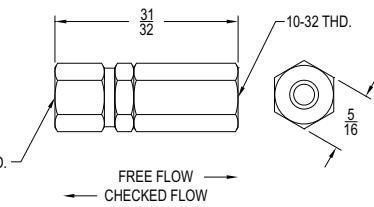
Check Valve - Low Cracking Pressure - 10-32 Thread/Barb



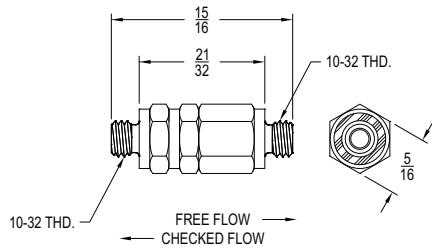
CKV-10M10F



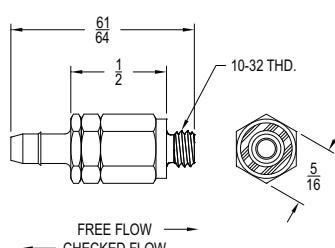
CKV-10F10M



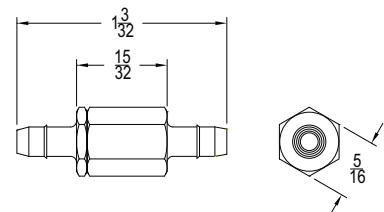
CKV-10F10F



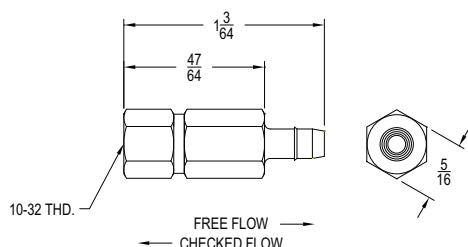
CKV-10M10M



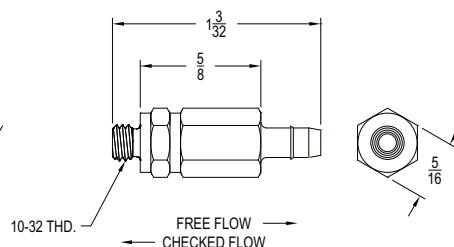
CKV-13-10M-303



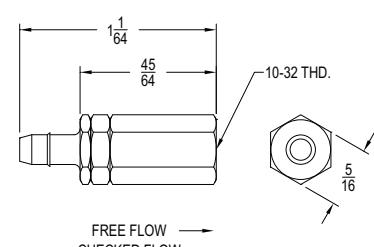
CKV-13-13-303



CKV-10F-13-303



CKV-10M-13-303



CKV-13-10F-303

VALVES
CHECK

VALVES- CHECK

Check Valve - Low Cracking Pressure - M3 Thread/Barb

Description: This Ultra Miniature low cracking pressure check valve permits free flow in one direction and no (checked) flow in the opposite direction. This valve is specified in many applications because of its very low cracking pressure (typically less than 0.5 psig), its excellent repeatability, and leak-tight operation.

- **Working Pressure Range:** The unique design of the check valve housing permits the valve to handle a back pressure of up to 250 psig.
- **Approximate Weight:** 1.5-2g in brass and 303 stainless. Weight will vary slightly, depending on configuration.
- **Porting:** M3 internal thread, M3 external thread, or barbed ports. Many configurations available. Custom variations of barbed and threaded bodies are available, as well as variations with built-in screen filters or sintered metal filters. Contact the factory for details.
- **Note:** Check valve elements are typically actuated by reverse pressure and are best suited for applications with over 5 psig of back pressure. If the valve is required to check with minimal back pressure, contact a Beswick applications engineer to discuss available options.



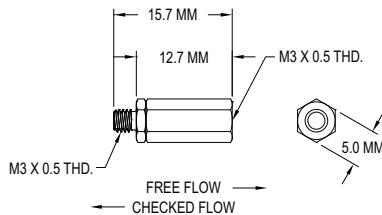
Material: Brass, 303 stainless steel, or 316 stainless steel.

Seals: Silicone. Optional materials: EPDM, Viton®, and FFKM (Perfluoroelastomer). FFKM available only for CKV-M3FM3F, CKV-M3FM3F-303, CKV-XX-M3F-303, CKV-M3F-XX-303, and CKV-M3-XX-XX-303.

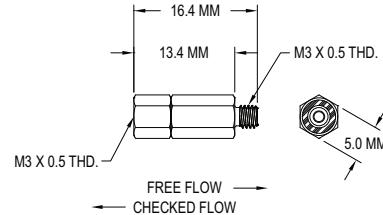
Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Inlet Connection	Outlet Connection
CKV-M3MM3M	CKV-M3MM3M-303		M3 external thd.	M3 external thd.
CKV-M3MM3F	CKV-M3MM3F-303	CKV-M3MM3F-316	M3 external thd.	M3 internal thd.
CKV-M3FM3M	CKV-M3FM3M-303		M3 internal thd.	M3 external thd.
CKV-M3FM3F	CKV-M3FM3F-303		M3 internal thd.	M3 internal thd.
	CKV-M3M-12-303		M3 external thd.	1/16" (1.6mm) ID barb
	CKV-M3F-12-303		M3 internal thd.	1/16" (1.6mm) ID barb
	CKV-M3M-16-303		M3 external thd.	5/64" (2mm) ID barb
	CKV-M3F-16-303		M3 internal thd.	5/64" (2mm) ID barb
	CKV-M3M-11-303		M3 external thd.	3/32" (2.4mm) ID barb
	CKV-M3F-11-303		M3 internal thd.	3/32" (2.4mm) ID barb
	CKV-M3M-13-303		M3 external thd.	1/8" (3.2mm) ID barb
	CKV-M3F-13-303		M3 internal thd.	1/8" (3.2mm) ID barb
	CKV-12-M3M-303		1/16" (1.6mm) ID barb	M3 external thd.
	CKV-12-M3F-303		1/16" (1.6mm) ID barb	M3 internal thd.
	CKV-16-M3M-303		5/64" (2mm) ID barb	M3 external thd.
	CKV-16-M3F-303		5/64" (2mm) ID barb	M3 internal thd.
	CKV-11-M3M-303		3/32" (2.4mm) ID barb	M3 external thd.
	CKV-11-M3F-303		3/32" (2.4mm) ID barb	M3 internal thd.
	CKV-13-M3M-303		1/8" (3.2mm) ID barb	M3 external thd.
	CKV-13-M3F-303		1/8" (3.2mm) ID barb	M3 internal thd.
	CKV-M3-12-12-303		1/16" (1.6mm) ID barb	1/16" (1.6mm) ID barb
	CKV-M3-16-16-303		5/64" (2mm) ID barb	5/64" (2mm) ID barb
	CKV-M3-11-11-303		3/32" (2.4mm) ID barb	3/32" (2.4mm) ID barb
	CKV-M3-13-13-303		1/8" (3.2mm) ID barb	1/8" (3.2mm) ID barb

VALVES - CHECK

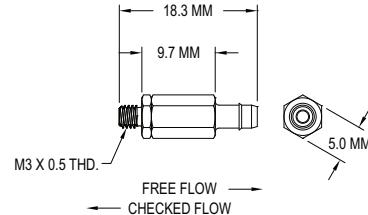
Check Valve - Low Cracking Pressure - M3 Thread/Barb



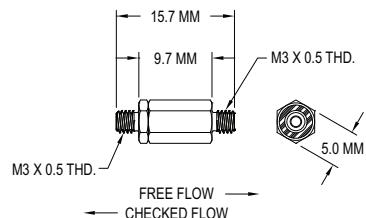
CKV-M3MM3F



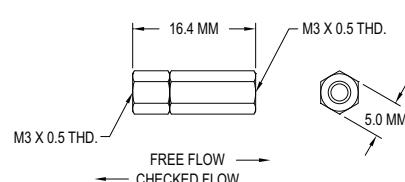
CKV-M3FM3M



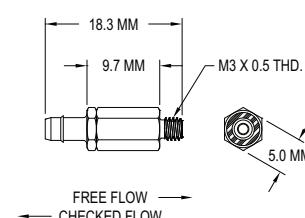
CKV-M3M-11-303



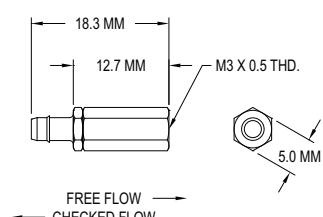
CKV-M3MM3M



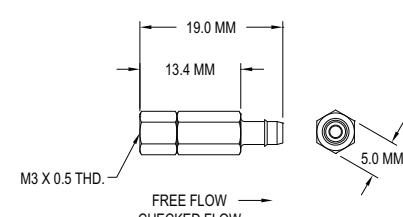
CKV-M3FM3F



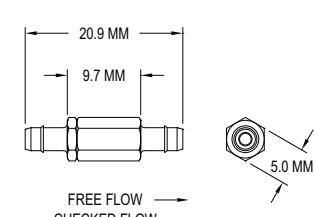
CKV-11-M3M-303



CKV-11-M3F-303



CKV-M3F-11-303



CKV-M3-11-11-303

VALVES
CHECK

VALVES - METERING

Metering Valve

Description: The Beswick MIL-MV series metering valve contains an adjustable orifice. The orifice meters fluid flow, regardless of flow direction through the valve. The o-ring seals fit to make the valve insensitive to vibration, preventing inadvertent changes to the setting.

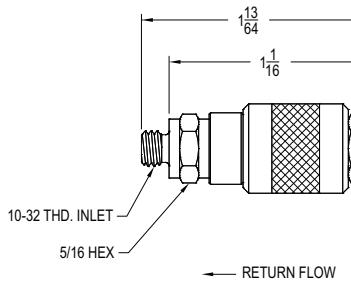
- **Working Pressure Range:** The MIL-MV is rated for a maximum pressure of 200 psig.
- **Effective Orifice:** The maximum effective orifice should be selected from the options below (0.011"-0.055", or 0.28-1.4mm), based on the approximate maximum flow needed in the application. All configurations are adjustable down to a fully closed bubble-tight shut off.
- **Adjustment:** The knurled sleeve rotates 360 degrees and is restricted from sliding axially. An O-ring is fitted into an eccentric cavity within the valve, in the same plane as the radial inlet orifice. This O-ring is pressed against the radial inlet orifice when the valve is closed and becomes free of the hole as the sleeve rotates.
- **Approximate Weight:** 16g in brass and 303 stainless. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 threaded inlet and outlet ports.

Material: Brass or 303 stainless steel.

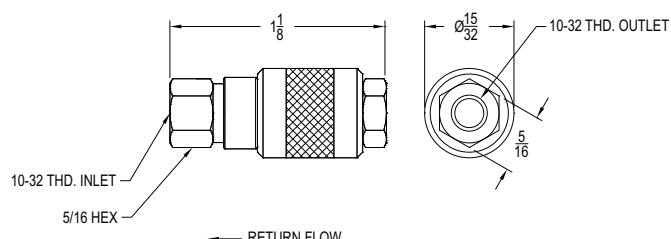
Seals: Five Buna-N O-rings for MIL-MV-XX models. Four Buna-N O-rings for MIL-MV-XX-10 models. Optional material: Viton®. See page 1.



Part Number Brass	Part Number 303 Stainless	Nominal Orifice Dia. (at max flow setting)	Inlet fitting
MIL-MV-11	MIL-MV-11-303	.011	10-32 external
MIL-MV-11-10	MIL-MV-11-10-303	.011	10-32 internal
MIL-MV-22	MIL-MV-22-303	.022	10-32 external
MIL-MV-22-10	MIL-MV-22-10-303	.022	10-32 internal
MIL-MV-33	MIL-MV-33-303	.033	10-32 external
MIL-MV-33-10	MIL-MV-33-10-303	.033	10-32 internal
MIL-MV-44	MIL-MV-44-303	.044	10-32 external
MIL-MV-44-10	MIL-MV-44-10-303	.044	10-32 internal
MIL-MV-55	MIL-MV-55-303	.055	10-32 external
MIL-MV-55-10	MIL-MV-55-10-303	.055	10-32 internal



MIL-MV-XX



MIL-MV-XX-10



VALVES - FLOW CONTROL

Flow Control Valve

Description: The Beswick MIL-FC contains an adjustable orifice and poppet check valve. The orifice meters flow in the forward direction, while the check valve permits free return flow. Check valve cracks at < 15 psig. This valve is particularly well suited for control of small bore air cylinders. The o-ring seals fit to make the valve insensitive to vibration, preventing inadvertent changes to the setting.

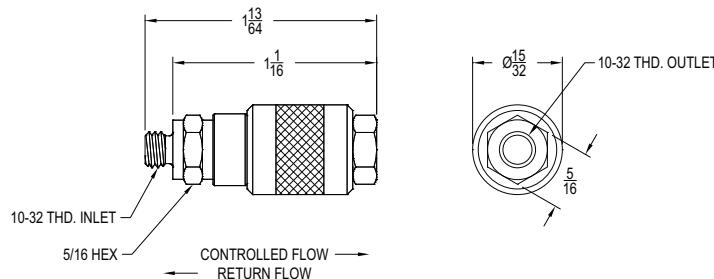
- **Working Pressure Range:** The MIL-FC is rated for a maximum pressure of 200 psig.
- **Effective Orifice:** The maximum effective orifice should be selected from the options below (.011"-0.055", or 0.28-1.4mm), based on the approximate maximum metered flow needed in the application. All configurations are adjustable down to a fully closed bubble-tight shut off.
- **Adjustment:** The knurled sleeve rotates 360 degrees and is restricted from sliding axially. An O-ring is fitted into an eccentric cavity within the valve, in the same plane as the radial inlet orifice. This O-ring is pressed against the radial inlet orifice when the valve is closed and becomes free of the hole as the sleeve rotates.
- **Approximate Weight:** 16g in brass and 303 stainless. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 external threaded inlet and 10-32 internal threaded outlet ports.

Material: Brass or 303 stainless steel.

Seals: Five Buna-N O-rings and one Buna-N ball. Optional Materials: No options in stock.
See page 1.



Part Number Brass	Part Number 303 Stainless	Nominal Orifice Diameter (at max flow setting)
MIL-FC-11	MIL-FC-11-303	.011
MIL-FC-22	MIL-FC-22-303	.022
MIL-FC-33	MIL-FC-33-303	.033
MIL-FC-44	MIL-FC-44-303	.044
MIL-FC-55	MIL-FC-55-303	.055



VALVES - FIXED ORIFICE FLOW CONTROL & SLIDE SLEEVE

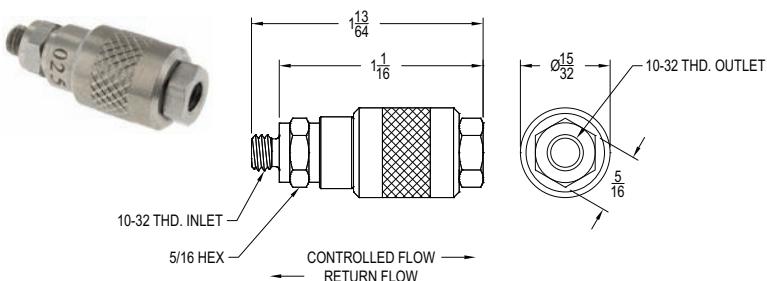
Fixed Orifice Flow Control Valve - Tamper Proof

Description: The Beswick MIL-FOFC contains a factory pre-set orifice and poppet check valve. The orifice meters flow in the forward direction, while the check valve permits free return flow. Check valve cracks at < 15 psig. This valve is ideal for applications where improper adjustment of a flow setting could damage the machine or process.

- **Working Pressure Range:** The MIL-FOFC is rated for a maximum pressure of 200 psig.
- **Effective Orifice:** Standard orifice sizes available from 0.004" to 0.0292" (0.1-0.74 mm). Other orifice sizes also available upon request.
- **Adjustment:** The orifice within this valve is factory pre-set. Rotation of the knurled sleeve will not change the orifice setting.
- **Approximate Weight:** 16g in brass and 303 stainless. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 external threaded inlet and 10-32 internal threaded outlet ports.

Material: Brass or 303 stainless steel.

Seals: Four Buna-N O-rings and one Buna-N ball. Optional Materials: No options in stock. See page 1.



Part Number Brass	Part Number 303 Stainless	Orifice Dia. in Inches ¹
MIL-FOFC-004	MIL-FOFC-004-303	.004
MIL-FOFC-005	MIL-FOFC-005-303	.005
MIL-FOFC-006	MIL-FOFC-006-303	.006
MIL-FOFC-007	MIL-FOFC-007-303	.007
MIL-FOFC-008	MIL-FOFC-008-303	.008
MIL-FOFC-009	MIL-FOFC-009-303	.009
MIL-FOFC-010	MIL-FOFC-010-303	.010
MIL-FOFC-011	MIL-FOFC-011-303	.011
MIL-FOFC-012	MIL-FOFC-012-303	.012
MIL-FOFC-014	MIL-FOFC-014-303	.014
MIL-FOFC-016	MIL-FOFC-016-303	.016
MIL-FOFC-018	MIL-FOFC-018-303	.018
MIL-FOFC-020	MIL-FOFC-020-303	.020
MIL-FOFC-025	MIL-FOFC-025-303	.025
MIL-FOFC-0292	MIL-FOFC-0292-303	.029

Slide Sleeve Valve – M3 Thread

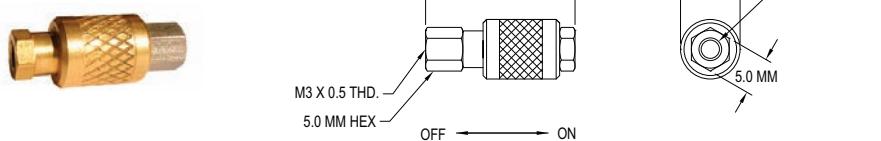
Description: The M3SV series ultra miniature M3 threaded non-venting slide sleeve valve is another addition to Beswick's growing M3 product line. It provides efficient control (on/off) of gas or liquid in an in-line configuration. The valve can be attached directly in a fluid circuit and does not require panel mounting. The valve is a 2-way (non-venting) device. There is no preferred flow direction. The inlet can be through either M3 internal threaded port.

- **Working Pressure Range:** The M3SV is rated for a maximum pressure of 250 psig.
- **Effective Orifice:** Approximately 0.024"-0.028" (0.6mm to 0.7mm).
- **Approximate Weight:** 4.25g in brass and 303 stainless.
- **Porting:** M3 internal threaded inlet and outlet ports.

Material: Brass or 303 stainless steel.

Seals: Four Buna-N O-rings. Optional materials: EPDM, Viton® and Silicone. See page 1.

Note: A barbed inlet is available upon request. Consult the factory for more information.



Part Number Brass	Part Number 303 Stainless
M3SV-N	M3SV-N-303

¹Other orifice sizes are available upon request.

VALVES - SLIDE SLEEVE

Slide Sleeve Valve

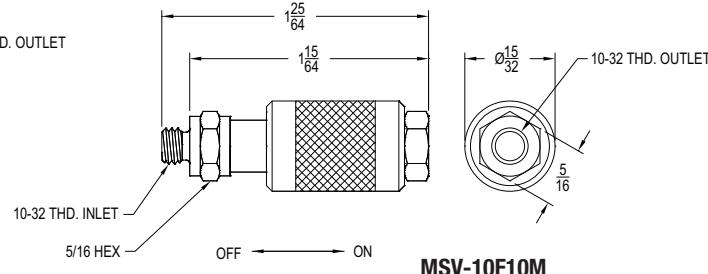
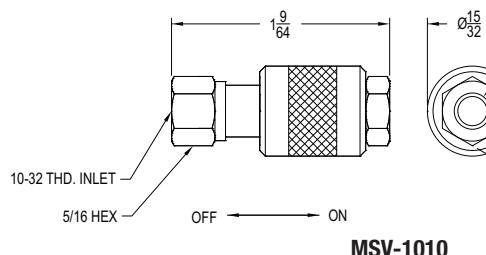
Description: The MSV series slide sleeve valve provides an efficient in-line three-way valve. When the sleeve is moved to the "ON" position, fluid is allowed to pass through the valve. When the sleeve is moved to the "OFF" position, the outlet is exhausted to the atmosphere and fluid is prevented from exiting the inlet port. The valve can be attached directly on a device to be isolated and does not require mounting.

- **Working Pressure Range:** The MSV is rated for a maximum pressure of 200 psig.
- **Effective Orifice:** Approximately 0.039"-0.042" (1.0mm to 1.1mm).
- **Approximate Weight:** 15g in brass and 303 stainless. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal, 10-32 external, or barbed inlet port, 10-32 internal threaded outlet port.

Material: Brass or 303 stainless steel.

Seals: Three Buna-N o-rings. Optional Materials: EPDM, Viton®, Silicone, Chemraz®, and Fluorosilicone. See page 1.

Part Number Brass	Part Number 303 Stainless	Inlet Port	Outlet Port
MSV-1008		Barb Fitting (for .170 to 3/16 tubing)	10-32 internal
MSV-1010	MSV-1010-303	10-32 internal	10-32 internal
MSV-10F10M	MSV-10F10M-303	10-32 external	10-32 internal



Slide Sleeve Valve - Non-Venting

Description: The non-venting slide sleeve valve provides an efficient in-line on/off valve. When the sleeve is moved to the "ON" position, fluid is allowed to pass through the valve. When the sleeve is moved to the "OFF" position, fluid is prevented from exiting the outlet port. The valve can be attached directly on a device to be isolated and does not require mounting. The valve is a 2-way (non-venting) device. There is no preferred flow direction. The inlet can be through either 10-32 threaded port.

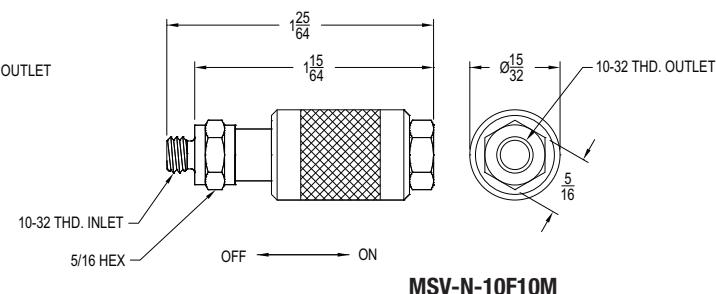
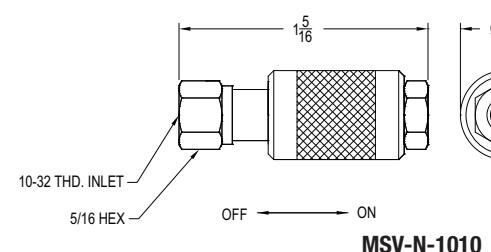
Part Number Brass	Part Number 303 Stainless	Inlet Port	Outlet Port
MSV-N-1010	MSV-N-1010-303	10-32 internal	10-32 internal
MSV-N-10F10M	MSV-N-10F10M-303	10-32 external	10-32 internal



- **Working Pressure Range:** The MSV-N is rated for a maximum pressure of 500 psig.
- **Effective Orifice:** Approximately 0.039"-0.042" (1.0mm to 1.1mm).
- **Approximate Weight:** 17g in brass and 303 stainless. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal, or 10-32 external threaded inlet port, 10-32 internal threaded outlet port.

Material: Brass or 303 stainless steel.

Seals: Four Buna-N o-rings. Optional Materials: EPDM, Viton®, Silicone, Chemraz®, and Fluorosilicone. See page 1.



VALVES - RELIEF

Diaphragm Relief Valve – RVD-ANB-C-DEF

Description: Beswick's miniature diaphragm relief valve is an excellent choice for applications requiring a valve which opens on rising pressure. Design offers compactness, light weight and high accuracy.

- **Maximum Source Pressure:** 80 psig
- **Cracking Pressure Range:** Recommended for cracking pressures in the 3-80 psig range.
- **Approximate Weight:** 25g in brass and stainless steel (303 & 316), 15g in aluminum. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet ports.

Material: Brass, aluminum, 303 or 316 stainless steel body. Carbon steel spring in flow path.

Seals: Buna-N. Optional materials: EPDM and Viton®. See page 1.



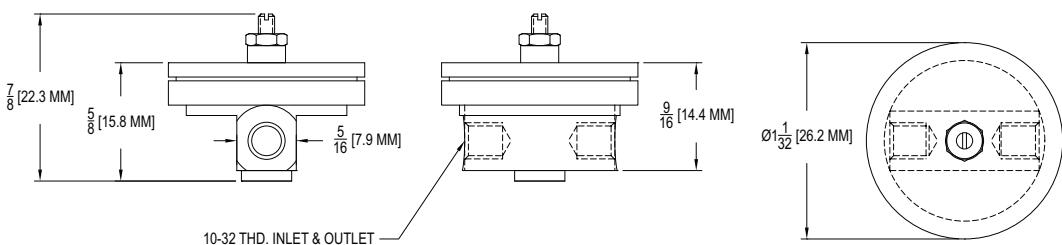
RVD-3N1-C

Part Designation RVD-ANB-C-DEF		
(Replace each underlined letter with a code. A, B and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut ²
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	2	10-32 Panel Mount Version
	6	High Resolution Diaphragm
	7	High Resolution Diaphragm w/ 15/32 -32 Panel Mount
Relief Pressure Range		
C	0	0-5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
	10	0-80 psig
Body Material		
D		Brass (No Designation) ³
	A	Aluminum
	3	303 Stainless Steel
	6	316 Stainless Steel
Seals and Diaphragm Material		
E		Buna-N (No Designation) ³
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² 3mm hexagonal lock nut on 2N2 configuration.

³ Standard body material is brass and standard seal material is Buna-N. No code is needed to specify brass body or Buna-N seals.



VALVES - RELIEF

Manifold Mount Diaphragm Relief Valve – RVD8-ANB-C-DEF

Description: Beswick's RVD8 series miniature diaphragm relief valve is an excellent choice for applications requiring a valve which opens on rising pressure. Design offers compactness, light weight and high accuracy. Performance is similar to the RVD series.

- **Features:** Manifold mount configuration.
- **Maximum Source Pressure:** 80 psig
- **Cracking Pressure Range:** Recommended for cracking pressures in the 3-80 psig range. The large diaphragm sealing area and frictionless design make it especially well suited for low cracking pressures below 30 psig.
- **Approximate Weight:** 25g in brass and 303 stainless steel. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 external threaded inlet port. 0.050" (1.27mm) diameter outlet ports.

Material: Brass or 303 stainless steel body. Carbon steel spring in flow path.

Seals: Buna-N. Optional materials: EPDM and Viton®.

Note: Care must be taken during installation to avoid shearing the manifold mount thread. Recommended torque spec is 7-9 in lbs.

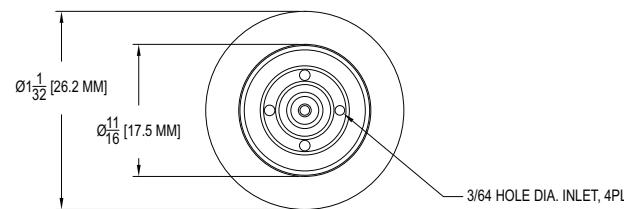
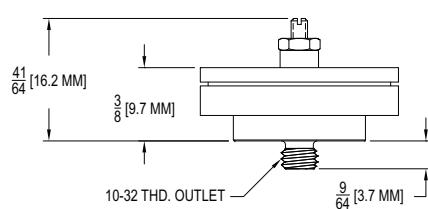


RVD8-1N1-C-3

Part Designation RVD8- <u>ANB</u> -C- <u>DEF</u> (Replace each underlined letter with a code. A, B and C must be filled in. D, E and F are extra available options.)		
Adjustment Style on Cap	Code	Description
A	1	Slotted Screw - screwdriver adjustment ¹
	2	Knurled Knob with 3/16" hexagonal lock nut
	3	Knurled Knob with 3/4" dia. knurled lock disc
Body Style		
B	1	Standard Body
	6	High Resolution Diaphragm
Relief Pressure Range		
C	0	0- 5 psig
	1	0-10 psig
	2	0-20 psig
	3	0-30 psig
	10	0-80 psig
Body Material		
D		Brass (No Designation) ²
	3	303 Stainless Steel
Seals and Diaphragm Material		
E		Buna-N (No Designation) ²
	V	Viton
	E	EPDM
Special Options		
F	I	Instrument Cleaned
	X	No Lubrication
	K	Krytox
	IX	Instrument Cleaned & No Lubrication
	IK	Instrument Cleaned with Krytox

¹ Supplied with a 3/16" hexagonal lock nut.

² Standard seal material is Buna-N. No code is needed to specify Buna-N seals.



VALVES - RELIEF

Relief Valve – Factory Pre-set

Description: Beswick's RV2 series miniature piston relief valve is an excellent choice for applications requiring a tamper proof valve which opens on rising pressure. The RV2 is factory set to your desired relief pressure. Design offers compactness, and is an outstanding choice for pressure relieving applications from 3 to 30 psig.

- **Maximum Source Pressure:** Maximum supply pressure is 500 psig
- **Cracking Pressure Range:** Factory pre-set cracking pressures from 3 to 30 psig.
- **Approximate Weight:** 41g in brass and stainless steel (303 & 316). Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded inlet and outlet ports.

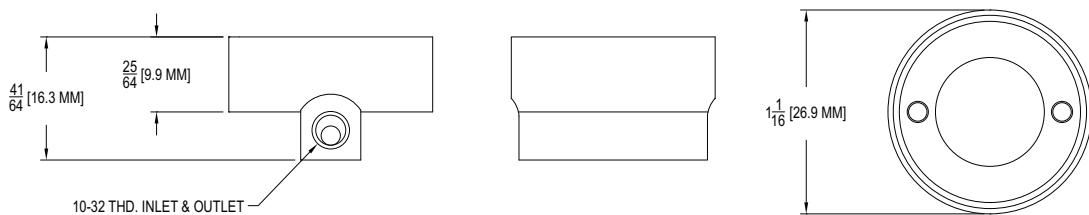
Material: Brass, 303 or 316 stainless steel, with steel spring. (Note: Spring is not in flow path).

Seals: Buna-N. Optional materials: EPDM and Viton®. See page 1.

Note: Ask about higher pressure settings.



RV2-1010-PP



Part Number Brass	Part Number 303 Stainless	Part Number 316 Stainless	Set Pressure Range (in PSIG)
RV2-1010-PP ¹	RV2-1010-PP-3 ¹	RV2-1010-PP-6 ¹	3 to 30

¹ PP specifies factory pre-set relief pressure in psig (3 to 30 psig). For example, to specify a relief pressure of 9 psig use part number RV2-1010-09.

Beswick Advantage: Material Options

We stock multiple body and seal material options for nearly all of our products, and are always open to exploring the feasibility of offering new options on special order basis. Whether your application involves corrosive environments, extreme temperatures, or requires clean materials, we most likely offer a solution that will work for you.

Additionally, all standard Beswick products in production at

the time of this catalog's release are compliant with Directive 2011/65/EU (also known as "ROHS Recast"). Current ROHS and REACH SVCH compliance documentation can be found on our website: www.beswick.com/compliance-documents

If you are unsure which body or seal material would be best suited for your project, a Beswick Applications Engineer would be happy to assist you, at no cost.

Fill Valve

Description: Miniature push to fill valve with conical shaped input designed to accept rubber tipped shop nozzle. This valve is designed for use with non-hazardous, non-corrosive gases only. It is not designed for use with liquids.

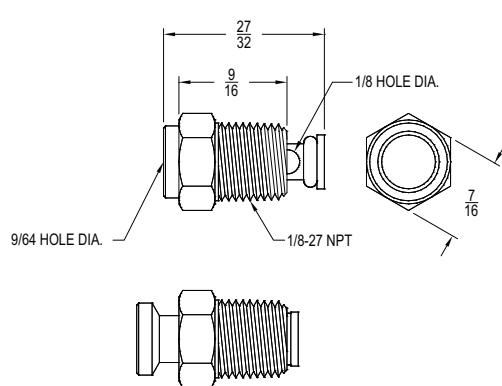
- **Maximum Pressure:** Maximum supply pressure is 200 psig
- **Cracking Pressure Range:** Force to crack the valve is approximately 1 lb, and force to fully open the valve is approximately 3 lb at atmospheric pressure.
- **Approximate Weight:**
 - MFV-18: 9.5g in brass and stainless steel.
 - MFV-14: 20g in brass.
- **Porting:**
 - MFV-18: 9/64" input and 1/8" output hole diameter. 1/8" external NPT connection.
 - MFV-14: 11/64" input and 9/64" output hole diameter. 1/4" external NPT connection.

Material: Brass or 303 stainless steel with plated steel spring.

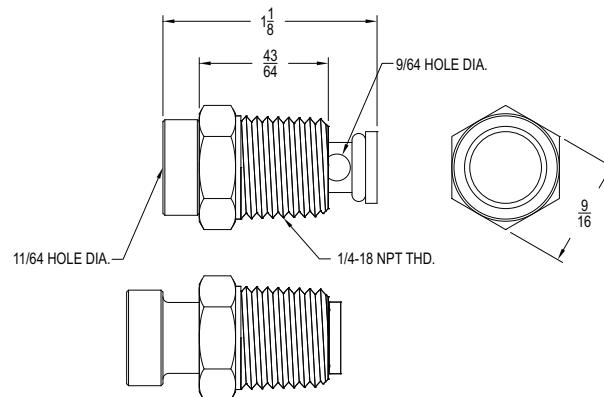
Seals: One Buna-N O-ring. For MFV-18: Optional materials: Silicone and Viton®.
For MFV-14: No options in stock. See page 1.



Part Number Brass	Part Number 303 Stainless	Type	Pipe Thread A
MFV-18	MFV-18-303	two way, normally closed	1/8 NPT
MFV-14		two way, normally closed	1/4 NPT



MFV-18



MFV-14

VALVES - MULTIPORT ROTARY SELECTOR

Multiport Rotary Selector Valve

Description: The Beswick selector valve has a patented design which can be used as a quiet replacement for solenoid valves in many applications, and has the ability to operate from a servo motor.

- **Maximum Pressure:** Maximum supply pressure is 100 psig.
- **Approximate Weight:** About 40g. Weight will vary slightly, depending on configuration.
- **Actuation:** Available with detents for manual or no detents for automatic operation.
- **Porting:** This valve has a single input port and anywhere from two to six output ports. Choice of internal M3 threaded or barbed ports. Consult Factory for other available options.

Material: Brass and Ryton® Polyphenylene Sulfide (PPS) body, acetal ball bearings.
Seals: Buna-N and Viton® seals. Optional Material: Viton®. See page 1.

Note: The standard selector valve is designed with one central input port feeding multiple outputs. A variation of this valve, part number SVPC-X-X-XXXX, with integral check valves is designed with multiple inputs feeding one central output port.

This valve is designed for non-hazardous, non-corrosive gases only. It is not designed for use with liquids. Unselected ports vent to atmosphere.

Part Number ¹	Number of Ports (out)	Detents Included
SV1-2-XXXX ²	2	yes
SV2-2-XXXX ²	2	no
SV1-3-XXXX ²	3	yes
SV2-3-XXXX ²	3	no
SV1-4-XXXX	4	yes
SV2-4-XXXX	4	no
SV1-5-XXXX ³	5	yes
SV2-5-XXXX ³	5	no
SV1-6-XXXX	6	yes
SV2-6-XXXX	6	no

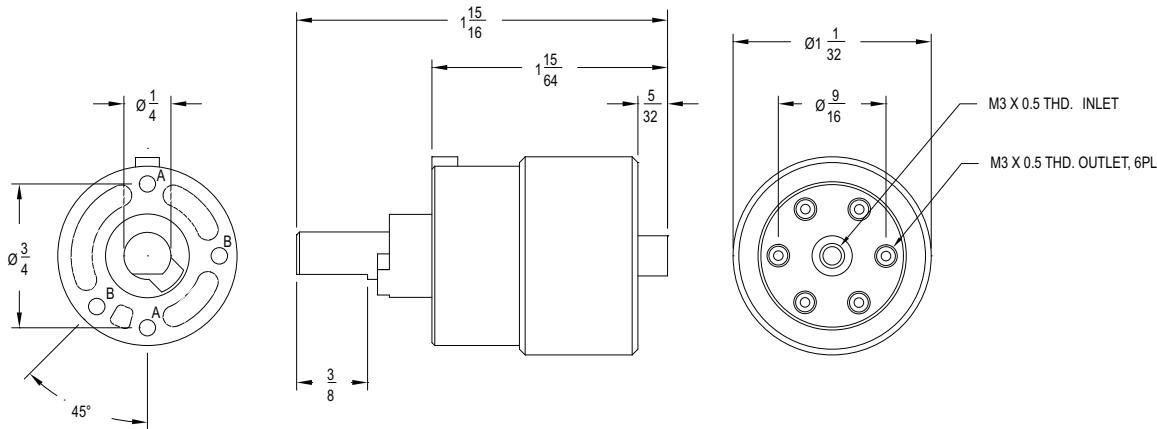
¹ XXXX refers to the barb size. Refer to Page 19 for M3H barb sizes available.

² 4 port body with screw plug(s) in unused port(s).

³ 6 port body with screw plug in unused port.



SV1-6-1012
PATENTED



VALVES - BALL

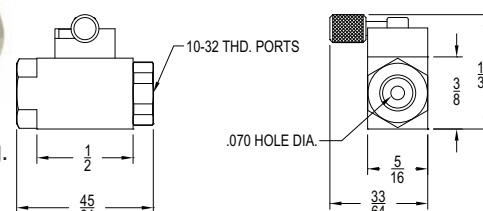
Ball Valve

Description: Beswick's miniature ball valve is an excellent choice for applications requiring a compact on/off valve. This design offers small size, light weight, and non-restricted flow.

- **Working Pressure Range:** Maximum supply pressure is 250 psig.
- **Approximate Weight:** 9g in stainless steel.
- **Porting:** Both the inlet and outlet ports are tapped 10-32 UNF.

Material: 303 or 316 stainless steel body. All configurations contain a 316 stainless steel ball.

Seals: Buna-N and Teflon. All configurations contain a Teflon seal. Buna-N can be replaced with EPDM or Viton®.



Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia.
MBV-1010-303	MBV-1010-316	.070

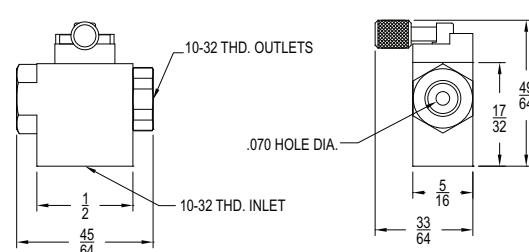
Selector Ball Valve

Description: Beswick's miniature selector ball valve is an excellent choice for applications requiring a port selection valve. The MBVT allows for selection of port A or B as well as an off position. The design also offers compact size, light weight and non-restricted flow.

- **Working Pressure Range:** Maximum supply pressure is 250 psig.
- **Approximate Weight:** 12g in stainless steel.
- **Porting:** Both the inlet and outlet ports are tapped 10-32 UNF.

Material: 303 or 316 stainless steel body. All configurations contain a 316 stainless steel ball.

Seals: Buna-N and Teflon. All configurations contain a Teflon seal. Buna-N can be replaced with EPDM or Viton®.



Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia.
MBVT-1010-303	MBVT-1010-316	.070

Mixing Diverting Ball Valve

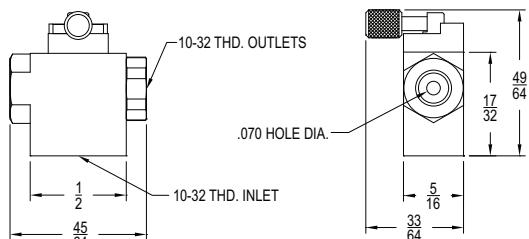


Description: Beswick's miniature mixing/diverting ball valve is an excellent choice for applications requiring a port selection valve. The valve features one common inlet port, and two outlet ports, allowing flow to be diverted to outlet port A only, outlet port B only, or both A and B simultaneously. Alternatively, for mixing applications, flow can directed into ports A and B and out through the common port at the bottom. This design also offers compact size, light weight and non-restricted flow.

- **Working Pressure Range:** Maximum supply pressure is 250 psig.
- **Approximate Weight:** 12g in stainless steel.
- **Porting:** Both the inlet and outlet ports are tapped 10-32 UNF.

Material: 303 or 316 stainless steel body. All configurations contain a 316 stainless steel ball.

Seals: Buna-N and Teflon. All configurations contain a Teflon seal. Buna-N can be replaced with EPDM or Viton®.



Part Number 303 Stainless	Part Number 316 Stainless	Hole Dia.
MBVMD-1010-303	MBVMD-1010-316	.070

VALVES - STEM ACTUATED

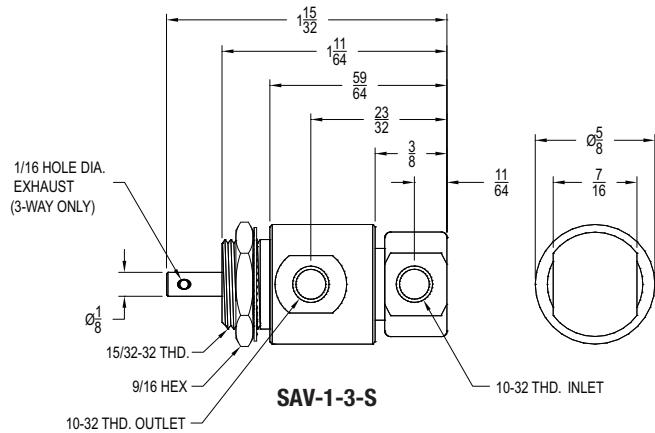
Stem Actuated Valve

Description: Beswick's stem actuated valve is available in 2-way normally opened, 2-way normally closed, and 3-way normally closed configurations. The Beswick miniature stem actuated valve is unique in that the end with the inlet port swivels to provide the flexibility of a universal elbow. This rotating end is held in place by a snap ring and encloses a Buna-N O-ring seal. Other enhancing features of the valve include internal stops on the plunger to prevent override of the stainless steel plunger assembly and a heavy duty return spring.

- **Working Pressure Range:** The pressure range of the valve is 0 to 250 psig with a maximum supply pressure of 300 psig.
- **Approximate Weight:** 33g in brass or stainless steel. Weight will vary slightly, depending on configuration.
- **Actuation:** Actuating force is 28oz. with no differential pressure (add 9.5 oz. for every 100 psig). Full stroke of the plunger is 1/8" of which 1/16" is active. See following page for push button, ball, and pilot actuator accessories.
- **Porting:** 10-32 internal or 1/8" NPT external threaded inlet port. All configurations come with a 10-32 internal threaded outlet port. 3-way configurations exhaust to atmosphere through a 1/16" diameter port in the stem.

Material: Brass or 303 stainless steel body with stainless steel plunger and steel springs.

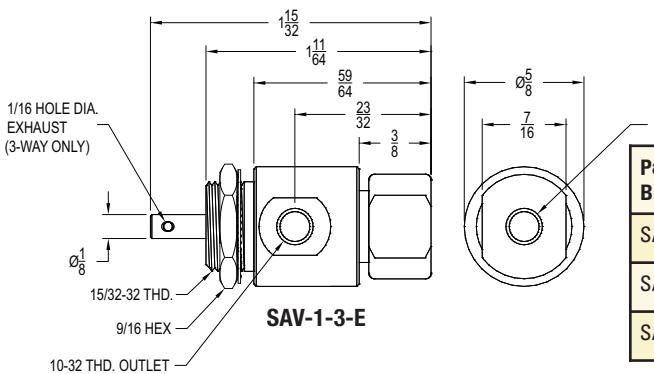
Seals: Buna-N seals. Optional Material: Viton®. See page 1.



SAV-2-3

SAV-1-2-S

Part Number	Type	Inlet
Brass		
SAV-1-2-S	2-way normally closed	swivel elbow w/ 10-32 internal thd
SAV-1-2A-S	2-way normally open	swivel elbow w/ 10-32 internal thd
SAV-1-3-S	3-way normally closed	swivel elbow w/ 10-32 internal thd



Part Number	Part Number 303 Stainless	Type	Inlet
Brass	SAV-1-2-E-303	2-way normally closed	swivel w/ 10-32 internal thd
SAV-1-2A-E		2-way normally open	swivel w/ 10-32 internal thd
SAV-1-3-E	SAV-1-3-E-303	3-way normally closed	swivel w/ 10-32 internal thd



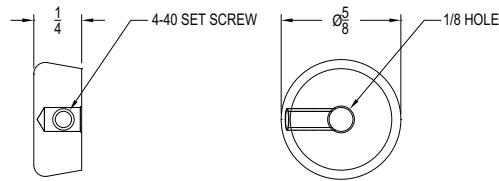
Part Number	Type	Inlet
Brass		
SAV-2-2	2-way normally closed	swivel w/ 1/8" NPT external and 10-32 internal
SAV-2-2A	2-way normally open	swivel w/ 1/8" NPT external and 10-32 internal
SAV-2-3	3-way normally closed	swivel w/ 1/8" NPT external and 10-32 internal

VALVES - ACTUATORS

Push Button Actuator

Description: The push-button actuator attaches to the stem of Beswick's two and three-way stem actuated valves. It is designed to permit manual operation of the valve or mechanical actuation where a large target area is required.

Material: Brass with steel set screw.

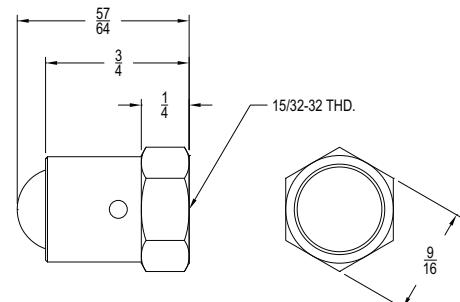


Part Number
Brass
PBA-1

Ball Actuator

Description: The ball actuator screws onto the panel mount threads of Beswick's two and three-way stem actuated valves and permits actuation of the valve from any direction. A 1/16" thick mounting bracket can be used to mount the stem actuated valve when using the ball actuator.

Material: Brass body with stainless steel ball.



Part Number
Brass
SBA-716

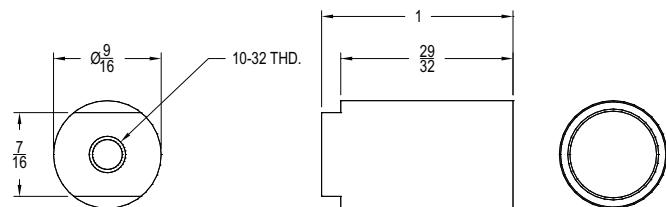
Pilot Actuator

Description: The pressure actuator screws onto the panel mount threads of Beswick's two and three-way stem actuated valves and can be used with a 1/16" thick mounting bracket. It transforms the stem actuated valve into a pressure operated valve which responds to a 15-60 psig input to the actuator. The pressure actuator may be used with other nose threaded valves and electric switches.

Material: Brass body with steel spring.

Seals: One Buna-N U-cup.

Note: Consult the factory for customized pilot actuators with adjustable input pressure.



Part Number	Actuation Pressure
Brass	
PAV-45-20	15-20 psi.
PAV-45-30	30 psi.
PAV-45-60	60 psi.

SHOCK ABSORBERS

Hydraulic Shock Absorbers – 9/16 Inch Bore

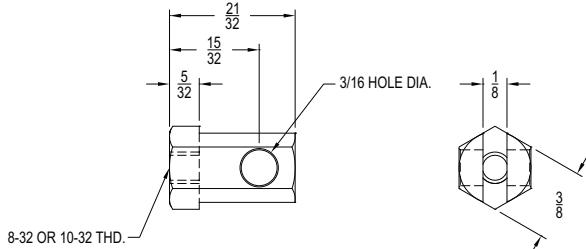
Description: The 9/16 inch bore hydraulic shock absorber is available in different stroke lengths and with different dampening rates. The piston can be supplied with an orifice and check valve for dampening in one direction or with an orifice only for dampening in both directions. A clevis nose mount and a clevis tail mount are available.

Material: Brass body, stainless steel rod and synthetic hydraulic fluid.

Seals: Nine Buna-N O-rings.

Clevis Nose Mount Accessory

Part Number	Description
CLV-8	8-32 threaded clevis nose mount
CLV-10	10-32 threaded clevis nose mount

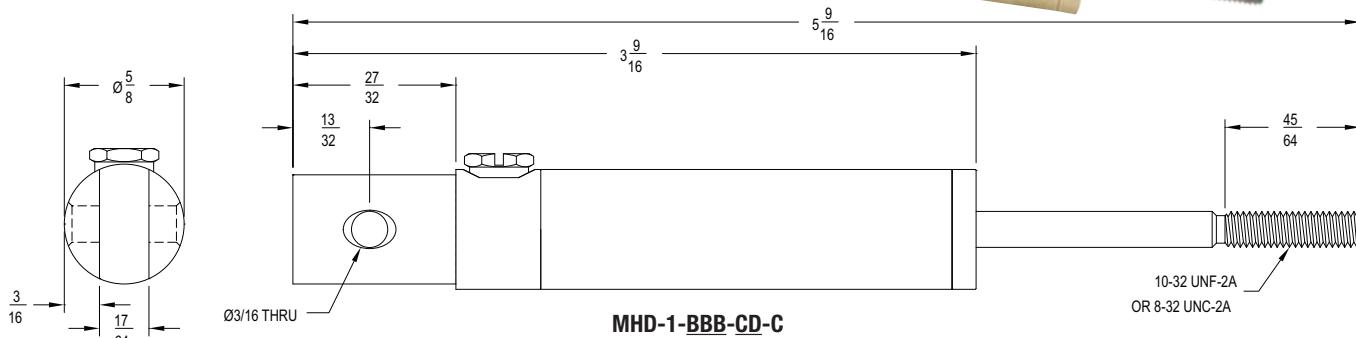


Part Number Brass
MHD-A-BBB-C-D-E

Part Number Key:

Designator	Code	Description
A	1	1" stroke length
	2	2" stroke length
	3	3" stroke length
BBB ¹	018	.018" orifice in piston
C	0	no thread on piston rod
	8	8-32 thread on piston rod
	10	10-32 thread on piston rod
D	B	dampening in extension and retraction
	E	dampening in extension
	R	dampening in retraction
E	C	clevice tail with a 3/16" through hole
	S	standard tail: 1/2" x 1/2" flat with a 1/4" through hole

¹ Typical piston orifice is 0.018" diameter. Other orifice sizes can be specified for different dampening rates. The smallest orifice is 0.010".



MHD-1-BBB-CD-C



MHD-1-BBB-CD-S



CYLINDERS - AIR

7/16" Bore Air Cylinder

Description: The 7/16" bore air cylinder is available with 5/32" stroke and features a spring return option.

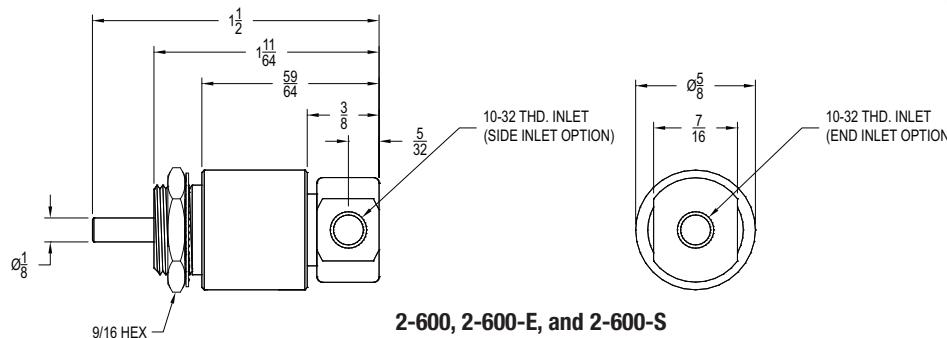
- **Force Factor:** 0.150
- **Maximum Pressure Range:** 250 psig.
- **Approximate Weight:** 31g in brass. Weight will vary slightly, depending on configuration.
- **Porting:** 10-32 internal threaded side inlet, 10-32 internal threaded end inlet, or 1/8" external NPT end inlet.

Material: Brass

Seals: One Buna-N O-ring and one Buna-N U-cup.



2-600-P



Part Number Brass	Description	Spring Return
2-600	10-32 side inlet	no
2-600-E	10-32 end inlet	yes
2-600-S	10-32 side inlet	yes
2-600-P	1/8 NPT end inlet	yes

Spotlight: Custom Products

Don't see exactly what you are looking for in our catalog? We are capable of modifying or customizing designs in order to better suit your unique application conditions. Call one of our degreed mechanical engineers in the applications engineering department today to discuss your requirements.



AIR CYLINDERS
7/16" BORE

CYLINDERS - AIR

1" Bore Air Cylinder

Description: The 2-640 series 1" bore cylinders are machined from brass or stainless steel with a clevis style tail. This novel design has the piston rod supported with two composite bushings. One is in the nose and the other is in the tail assembly. These separated bushings adequately support most couples induced by side loads and/or stress reversals and thus minimize stress raisers, a major source of early failure in cylinders. Dynamic lip seals have a U-shaped cross section. These Beswick cylinders are rebuildable, fit most standard mountings, are ideal for long life service applications and do not require a lubricated air supply. They function exceptionally well in linkage applications and can essentially serve as an "extendible link".

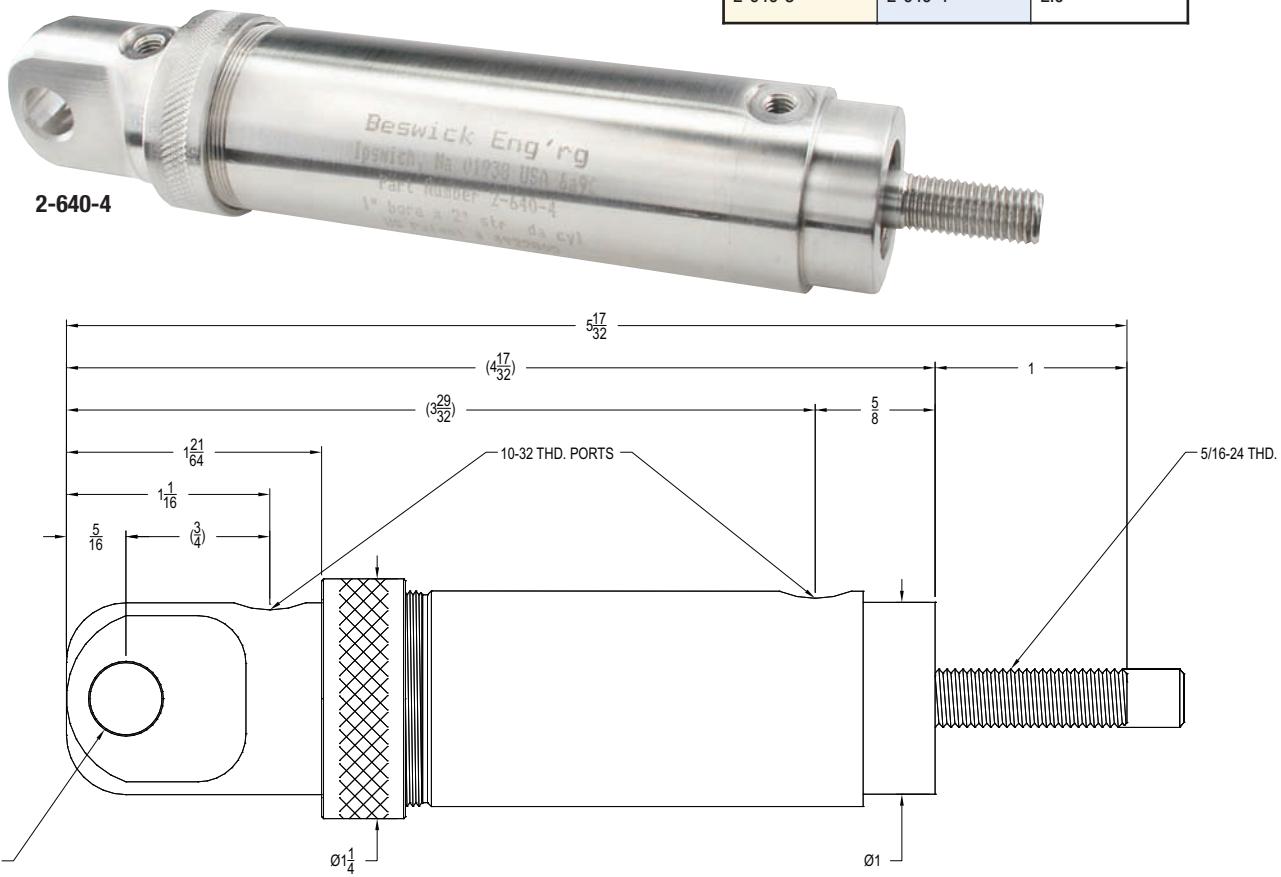
- **Force Factor:** 0.785 in extension, 0.709 in retraction.
- **Maximum Pressure Range:** 250 psig.
- **Approximate Weight:** 370g for 1" stroke length, 443g for 2" stroke length.
- **Porting:** Two 10-32 internal threaded ports.

Material: 2-640-2 and 2-640-3: Brass body, nose, tail, closure ring, piston, 300 series stainless steel centerless ground piston rod. 2-640-1 and 2-640-4: 300 series stainless steel body, nose, tail, closure ring, centerless ground piston rod and brass piston. All have composite (self lubricating) bushings.

Seals: Buna-N O-ring and three moly filled Buna-N U-cups.

Note: Replacement seal kit: 2-640-SEAL KIT (customer replaces seals). Factory Repair Service: 2-640-REPAIR (return cylinder to Beswick factory for replacement of seals and bushings.) Factory Overhaul Service: 2-640-OVERHAUL (return cylinder to Beswick factory for replacement of seals, bushings and rod/piston assembly).

Part Number Brass	Part Number 303 Stainless	Stroke Length
2-640-2	2-640-1	1.0
2-640-3	2-640-4	2.0



CYLINDERS - HYDRAULIC

Hydraulic Cylinder - 1 7/8" Bore

Description: A rugged hydraulic cylinder with 1 7/8" bore. It features multiple nose seals to prevent leakage and prolong life. Additionally this cylinder reduces operating expenses as it is fully rebuildable.

- **Force Factor:** 2.761 in extension, 2.454 in retraction.
- **Maximum Pressure Range:** 350 psig.
- **Approximate Weight:** 1.481 kg.
- **Porting:** Two 1/8" internal NPT threaded ports.

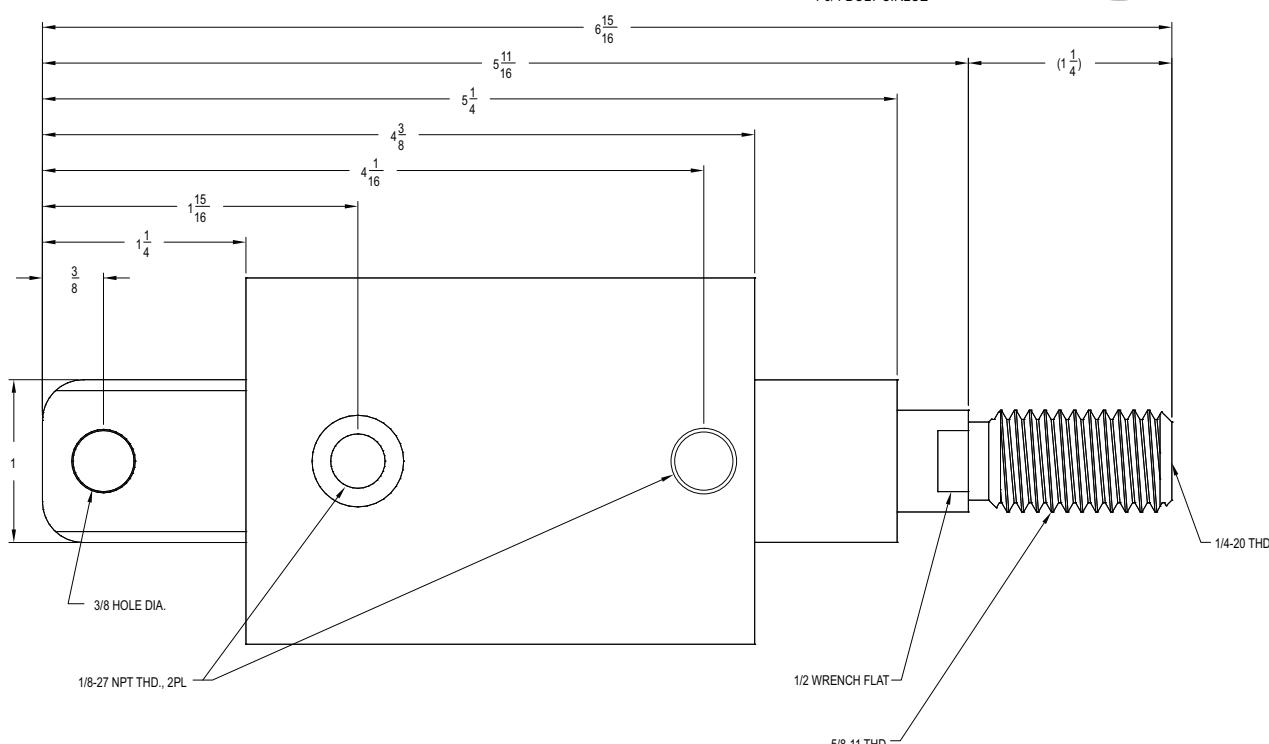
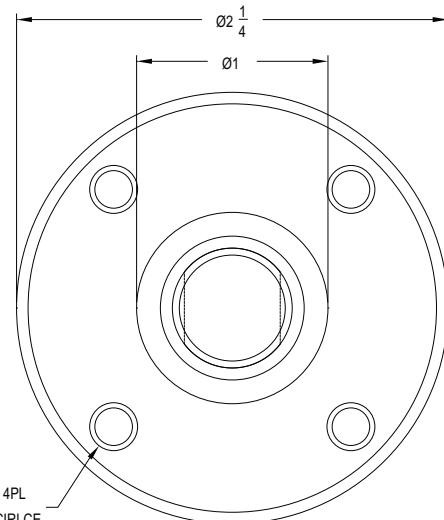
Material: Ledloy.

Seals: Buna-N.

Note: Replacement seal kit: ZK-SEAL-KIT (customer replaces seals).

Replacement bushing kit: ZK-BUSHING-KIT (customer replaces bushings). Replacement seal/bushing kit: ZK-SEAL-BUS-KIT (customer replaces seals & bushings). Replacement bushing/rod kit: ZK-BUSHING/ROD (customer replaces bushings & piston rod)

Part Number	Stroke Length
ZK-1715	1/2



PRESSURE ELECTRIC SWITCHES

Pressure Electric Switch

Description: The PPE-20 consists of the SPDT-1 (standard size) snap acting switch and the PAV-45-20 pilot actuator. This is a snap acting single pole, double throw switch with three screw type wire attachments. The switch rating is 0.25 amps 250 volts DC, 0.50 amps 125 volts DC, 20 amps 125, 250, 480 volts AC. The air inlet port is a 10-32 internal thread and the pressure rating is 125 psig. The pilot actuator incorporates an adjustment mechanism which can be used to set the pressure at which the switch will operate.

Material for Pilot Actuator: Brass with steel spring.

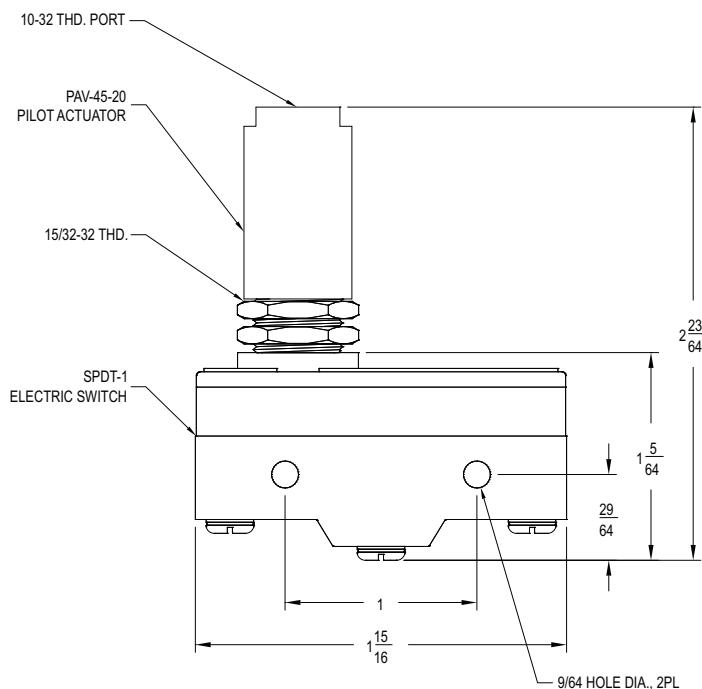
Seals: Buna-N U-cup

Note: Switch is $11/16$ " thick.



Part Number	Actuation ¹ Pressure
PPE-20	18 to 22 psig
PPE-30	28 to 32 psig
PPE-60	58 to 62 psig

¹ Actuation pressure can be reduced by removing spring.



PRESSURE ELECTRIC SWITCHES

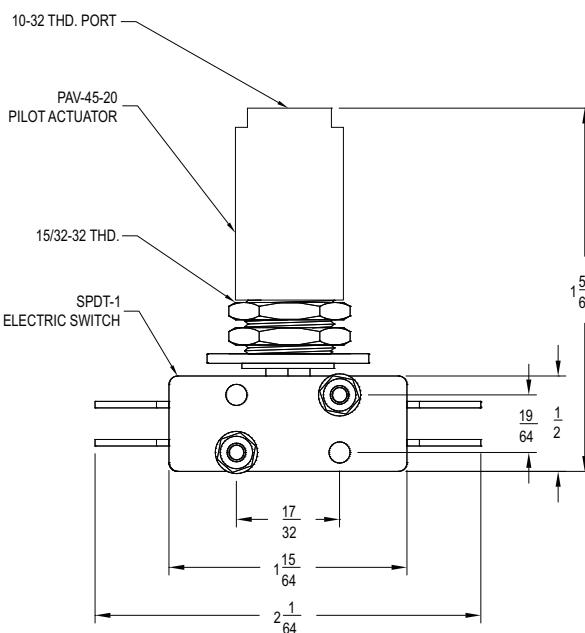
Miniature Pressure Electric Switch

Description: The SPE-20 consists of the SPDT-DB (miniature size) snap acting switch and the PAV-45-20 pilot actuator. This is a snap acting single pole, double throw, double break switch. The switch rating is 10 amps up to 250 volts AC. The switch also has four quick connect, tab type wire attachments. The air inlet port is a 10-32 internal thread and the pressure rating is 125 psig. The pilot actuator incorporates an adjustment mechanism which can be used to set the pressure at which the switch will operate.

Material for Pilot Actuator: Brass with steel spring.

Seals: Buna-N U-cup

Note: Switch is 1/2" thick.



Part Number	Actuation ¹ Pressure
SPE-20	18 to 22 psig
SPE-30	28 to 32 psig
SPE-60	58 to 62 psig

¹ Actuation pressure can be reduced below 20 psig by removing spring from pilot actuation.

Spotlight: Beswick's website offers:

- 3D Models
- Photos and Specification Drawings
- Pricing
- Order On-line Submissions
- Real time Web Chat for Technical Assistance
- E-mail a Beswick Applications Engineer
- Part Number Configuration
- Add to Favorites Feature
- Technical Articles

The screenshot shows the main website interface for Beswick Engineering. At the top is a blue header with the company logo and navigation links for ONLINE CATALOG, CUSTOM PRODUCTS, WHY CHOOSE BESWICK?, NEWS, and TECHNICAL RESOURCES. Below the header is a large banner for 'Miniature Fluid Power Products' featuring a magnifying glass over a globe and various industrial components. To the left, there's a sidebar with links for 'Regulators', 'Fittings', 'Valves', 'Connectors', and 'And More!'. The central area has a search bar and a 'Contact Us' button. The right side features a 'Featured Products' section with a link to 'View Full Specs'.

CUSTOM ITEM OR SAMPLE REQUEST

Copy and fax this form to +1 603.433.3313 to request a custom item or sample.

Date: _____

QUOTATION request

SAMPLE request

Name: _____

Title: _____

Company: _____

Address: _____ City: _____

State/Province/Country: _____ Zip/Postal Code: _____

Phone: () _____ Fax: () _____ E-mail: _____

Describe your application: _____

Estimated yearly usage: _____ Price desired: _____

Part number: _____ Similar to part number: _____

Thread size: M3 x 0.5____ M5 x 0.8____ M6 x 1____ 10-32____ 5/16-24____ 1/4-28____ 1/16 NPT____ 1/8 NPT____ 1/4 NPT____

Other _____

Material: Brass____ Electroless Nickel Plated Brass____ 303 SS____ 316 SS____ Other_____

O-ring: Buna-N____ EPDM____ Viton®____ Silicone____ Teflon®____ Other_____

Pressure range _____ Temperature range _____

Fluid _____ Flow rate _____ Tubing material _____ ID _____ OD _____

Special notes _____

SKETCH Engineering Request



PRESSURE CONVERSION CHART

Pressure Conversion Chart

To Multiply By From	= psi	= in H ₂ O	= in Hg	= bar	= mm Hg (torr)	= cm H ₂ O	= kgm/cm ²	= kPa (kN/m ²)	= atm
atmosphere X	14.70	406.8	29.92	1.013	760	1033	1.033	101.3	
kPa (kN/m²) X	0.145	4.01	0.295	0.0100	7.5	10.20	10.2 $\times 10^{-3}$		9.87 $\times 10^{-3}$
kgm/cm² X	14.22	393.7	28.95	0.981	735.3	1000		98.1	0.968
cm H₂O X	1.42 $\times 10^{-2}$	0.394	2.89 $\times 10^{-2}$	9.81 $\times 10^{-4}$	0.736		1.0 $\times 10^{-3}$	9.81 $\times 10^{-2}$	9.7 $\times 10^{-4}$
mm Hg (torr) X	1.934 $\times 10^{-2}$	0.535	3.937 $\times 10^{-2}$	1.33 $\times 10^{-3}$		1.36	1.36 $\times 10^{-3}$	0.133	1.316 $\times 10^{-3}$
bar X	14.5	401.4	29.53		750	1020	1.02	100	0.987
in Hg X	0.491	13.6		3.39 $\times 10^{-2}$	25.4	34.5	3.45 $\times 10^{-2}$	3.39	3.34 $\times 10^{-2}$
in H₂O X	3.61 $\times 10^{-2}$		7.36 $\times 10^{-2}$	2.49 $\times 10^{-3}$	1.87	2.54	2.54 $\times 10^{-3}$	0.249	2.46 $\times 10^{-3}$
psi X		27.68	2.04	6.89 $\times 10^{-2}$	51.7	70.3	7.03 $\times 10^{-2}$	6.90	6.80 $\times 10^{-2}$

Note: All conversions are based on water at 16 °C (60 °F) and mercury (Hg) at 0 °C(32 °F).

Spotlight: Why Should You Specify Beswick Engineering?

Beswick Engineering is uniquely qualified to serve your requirements for miniature fluid power products in brass, stainless steel and other high performance materials.

Leader in the Miniature Fluid Power Industry: Beswick pioneered the captured O-ring design for use in miniature fluid power products and was also the first company to design and manufacture miniature fluid power products in stainless steel.

Depth of Experience: Beswick Engineering has been in the business since 1964. The proprietary single-edge barb design provides reliable, leak-free tubing connections. Beswick offers the widest selection of miniature barbed fittings as well as the most compact designs. Beswick Engineering's products can be found in many demanding applications including: hydrogen fuel cells, medical and dental equipment, instruments, laboratory equipment, ink jet print engines, semiconductor manufacturing equipment, toxic gas detectors, aerospace equipment, packaging machinery, industrial robots and many more.

Custom Design and Engineering Support: The unique advantages of Beswick products are the result of careful attention to fundamental engineering design concepts. Beswick is renowned for solving customers' difficult machine design problems. Beswick's Application/Sales personnel are degreed mechanical engineers and trained to assist you with your application needs. All Beswick employees are committed to the design and manufacture of innovative products that will provide outstanding value to our customers. Beswick Engineering speaks your language and can customize our products to meet your demanding requirements.

Commitment to Customer Service: Beswick Factory Applications Engineers are ready to answer your questions. The bottom line at Beswick is total commitment to customer satisfaction. We are willing to "go the extra mile" to solve our customers' problems.



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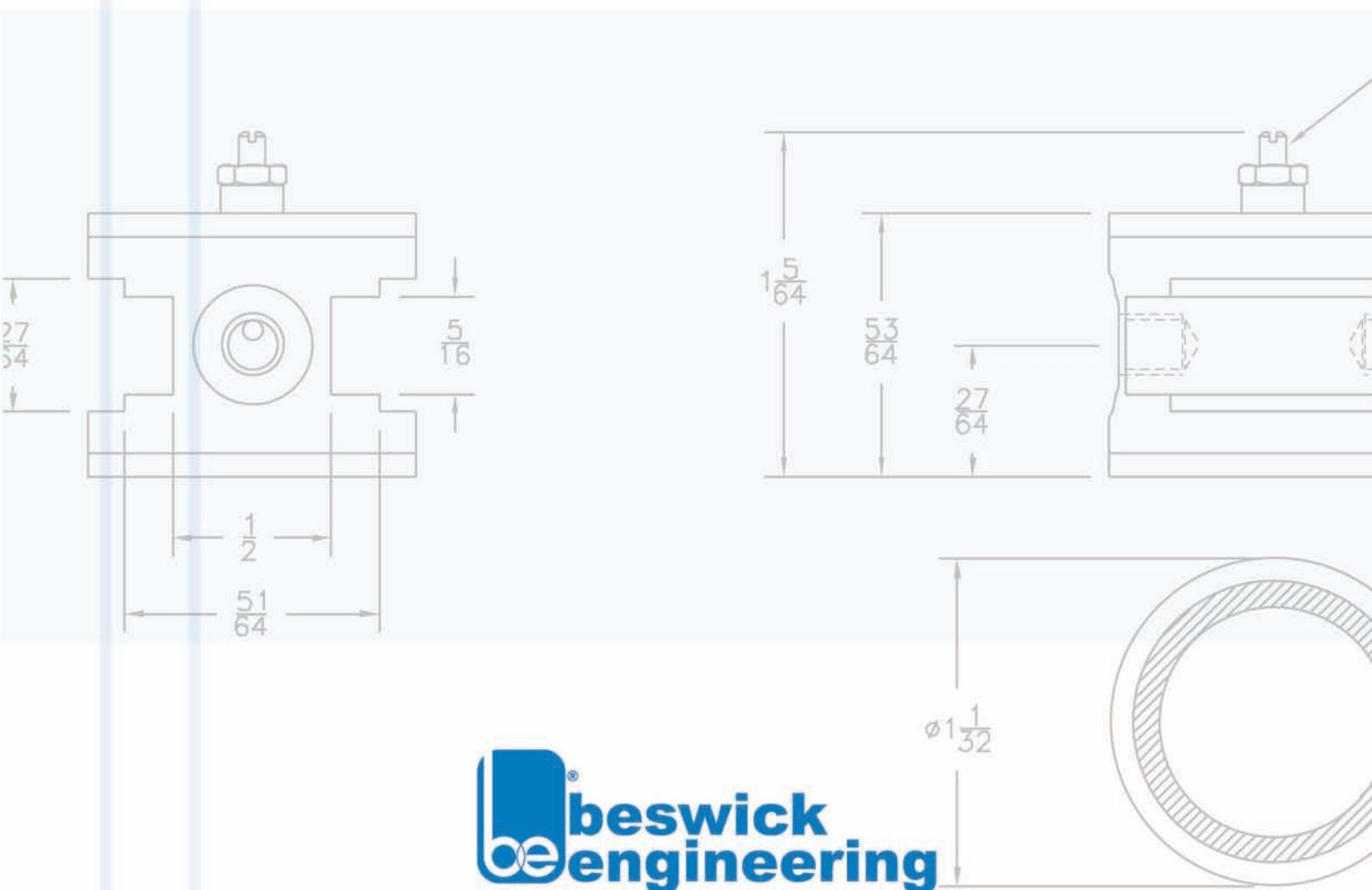
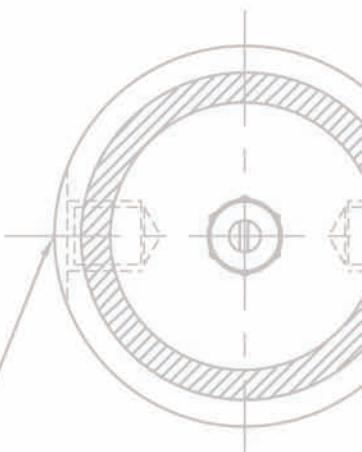
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