

## Cartridge Fittings



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- Combined retention barb and pressure ridge provides a fitting that can be used in both plastic and metal substrates
- External o-ring's location ahead of retention results in a positive bore seal before any deformation or bore scoring occurs
- Reduced assembly times, above and beyond the benefit delivered by FleetFit Push-In fittings alone
- Reduces costly rework from cross threading, over/under torquing, and clocking errors, while eliminating the spiral leakage associated with threaded ports on air brake and auxiliary system air components
- Virtually eliminates secondary port threading operations and the difficulties associated with threads in various substrates
- No tools required to install fittings or tubing into components incorporating cartridges
- Optional color coded collet caps substantially reduce assembly errors and rework
- Tubes may be reconnected numerous times without compromising sealing integrity between the tube to fitting connection



### Technical Data

Operating Medium:  
Compressed air

Maximum Working Pressure:  
0 to 150 psi (0-10 bar)

Working Temperature:  
-40°F to 212°F (-40°C to 100°C)

### Materials

Body, Collet and Tube Support: Brass BS 2874 CZ 121

Internal and external O-rings: Buna N (Low Nitrile)

### Applications

Gland dimensions and insertion forces differ slightly between metal and composite substrates.

For further details, please consult our Technical Services Department.

FleetFit full-bodied cartridges comply with the currently evolving SAE Cartridge Performance Specification as defined by the Push-to-connect Task Force of the FCCTC SC4 Committee.

### Tubing

Tube should be to the following standards.

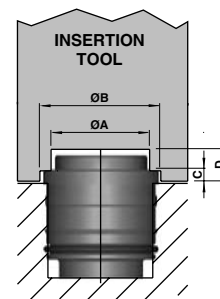
INCH SAE J844

METRIC DIN 74324, ISO 7628, NFR 12-632

### Installation Procedure

#### Assembly Instructions

1. Ensure all parts are clean.
2. Lubricate outer O-ring with appropriate medium grade grease (BP Energol LS2) is recommended.
3. Locate correct end of cartridge body in port form. Then, using a recessed form tool (see table for details) apply an axial load to press in cartridge body until flush with outside surface. Minimum loads should be used to avoid damage to cartridge flange and face of component.



Cartridge Size	A	B	C	D
5/32"	.33 (9)	.47 (12)	.06 (2)	.20 (5)
3/16"	.43 (11)	.51 (13)	.06 (2)	.22 (6)
1/4"	.47 (12)	.59 (15)	.05 (1)	.22 (6)
3/8"	.61 (16)	.75 (19)	.06 (2)	.24 (6)
1/2"	.75 (19)	.89 (23)	.09 (2)	.26 (7)
5/8"	.94 (24)	1.06 (27)	.13 (3)	.27 (7)
3/4"	1.04 (27)	1.22 (31)	.14 (4)	.31 (8)

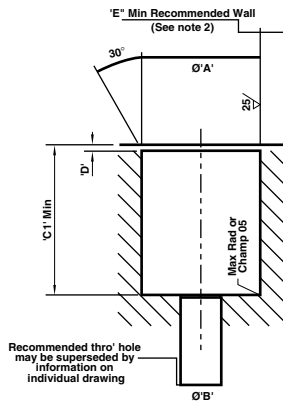
# D.O.T Cartridges for Industrial Applications

Dimensions in mm (inches)



NOTE: Inch equivalents are for reference only.

## Port Forms

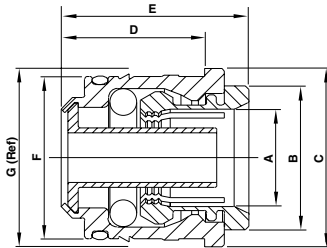


SAE Port Size	Ø 'A' Plastic	Ø 'A' Metal	Ø 'B'	'C'1' Min	'D' -0.2	'E' Plastic	'E' Metal
5/32"	.344 (8.8) .340 (8.7)	.348 (8.9) .344 (8.8)	.12 (3)	.45 (11)	.03 (.8)	.09 (2)	.06 (2)
3/16"	.380 (9.7) .337 (8.6)	.384 (9.8) .380 (9.7)	.12 (3)	.48 (12)	.03 (.8)	.12 (3)	.08 (2)
1/4"	.502 (12.8) .496 (12.6)	.486 (12.4) .502 (12.8)	.14 (4)	.47 (12)	.03 (.8)	.12 (3)	.08 (2)
3/8"	.648 (16.5) .642 (16.3)	.652 (16.6) .648 (16.5)	.28 (7)	.60 (15)	.03 (.8)	.12 (3)	.08 (2)
1/2"	.774 (19.7) .768 (19.5)	.778 (19.8) .774 (19.7)	.40 (10)	.64 (16)	.03 (.8)	.12 (3)	.08 (2)
5/8"	.921 (23.4) .915 (23.3)	.927 (23.6) .923 (23.5)	.47 (12)	.81 (21)	.03 (.8)	.14 (4)	.10 (3)
3/4"	1.063 (27.0) 1.057 (26.9)	1.069 (27.2) 1.065 (27.1)	.60 (15)	.94 (24)	.03 (.8)	.14 (4)	.10 (3)

### Notes:

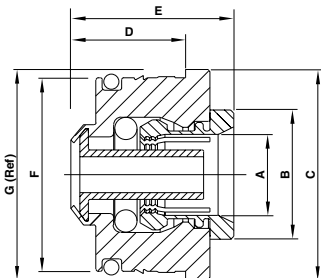
- These dimensions are recommended for the following materials:  
Metal - Aluminum, Zinc, Brass  
Plastic - Nylon, Nylon 66, Acetal (In filled or unfilled conditions)
- For use with thinner wall sections than "E" values given consult IMI Norgren
- Dimensions in millimeters

## DOT/SAE Standard Cartridge



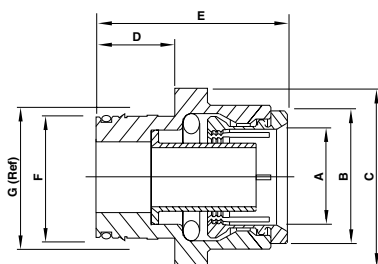
SAE Port Size	Part Number	Dimensions (mm)						
		Tube O/D A	B	C	D	E	F	G (REF)
5/32"	94 4026 02	5/32"	.3 (8)	.43 (11)	.43 (11)	.61 (15)	.338 (8.6)	(9)
							.334 (8.5)	
3/16"	94 4026 03	3/16"	.39 (10)	.47 (12)	.46 (12)	.64 (16)	.374 (9.5)	(10)
							.370 (9.4)	
1/4"	94 4026 04	1/4"	.43 (11)	.55 (14)	.45 (11)	.61 (16)	.494 (12.6)	(13)
							.490 (12.5)	
3/8"	94 4026 06	3/8"	.57 (15)	.71 (18)	.57 (15)	.76 (19)	.640 (16.3)	(17)
							.636 (16.2)	
1/2"	94 4026 07	1/2"	.71 (18)	.85 (22)	.64 (16)	.84 (21)	.766 (19.5)	(20)
							.762 (19.5)	
5/8"	94 4026 08	5/8"	.91 (23)	.98 (25)	.78 (20)	1.02 (26)	.913 (23.2)	(24)
							.909 (23.1)	
3/4"	94 4026 09	3/4"	1 (25)	1.18 (30)	.82 (21)	1.09 (28)	1.055 (26.8)	(28)
							1.051 (26.7)	

## DOT/SAE Reducing Cartridge



SAE Port Size	Part Number	Dimensions (mm)						
		Tube O/D A	B	C	D	E	F	G (REF)
3/8"	94 4027 48	1/4"	.43 (11)	.71 (18)	.43 (11)	.60 (15)	.646 (16.4)	.67 (17)
							.642 (16.3)	
1/2"	94 4027 64	3/8"	.57 (15)	.85 (22)	.55 (14)	.75 (19)	.764 (19.4)	.80 (20)
							.760 (19.3)	
5/8"	94 4027 71	1/2"	.71 (18)	.98 (25)	.59 (15)	.83 (21)	.921 (23.4)	.95 (24)
							.917 (23.3)	
3/4"	94 4027 79	5/8"	.91 (23)	1.18 (30)	.78 (20)	1.02 (26)	1.039 (26.4)	1.09 (28)
							1.035 (26.3)	

## DOT/SAE Expanding Cartridge



SAE Port Size	Part Number	Dimensions (mm)						
		Tube O/D A	B	C	D	E	F	G (REF)
1/4"	94 4028 48	3/8"	.57 (15)	.75 (19)	.37 (9)	.98 (25)	.502 (12.8)	.52 (13)
							.498 (12.7)	
3/8"	94 4028 64	1/2"	.71 (18)	.94 (24)	.48 (12)	1.15 (29)	.646 (16.4)	.67 (17)
							.642 (16.3)	
1/2"	94 4028 71	5/8"	.91 (23)	1.10 (28)	.51 (13)	1.30 (33)	.764 (19.4)	.80 (20)
							.760 (19.3)	
5/8"	94 4028 79	3/4"	1 (25)	1.26 (32)	.65 (16)	1.52 (39)	.921 (23.4)	.95 (24)
							.917 (23.3)	

- Cartridge Fittings provide consistent port-to-port dimensions, a uniform “cutting technology” appearance to products, and promote sales by providing a visible technical advantage.
- The fitting becomes an integral part of the component, eliminating threaded connections and the possibility of spiral leakage along the thread joint.
- By eliminating the tightening of compression nuts, they allow for more compact assemblies, reduce worker fatigue and provide substantially reduced assembly times.
- Insertion gland configurations can be molded or machined directly into plastic or metal products (via a stepped core or form tool), eliminating the need for costly and troublesome secondary threading operations.
- One fitting can be used in both plastic or metal substrates reducing component part inventory requirements. Gland dimensions and insertion techniques differ slightly between plastic and metal substrates.



In addition to incorporating the standard features, benefits and specifications common to the Pneufit line, Cartridge Fittings allow Original Equipment Manufacturers to directly integrate a push-in connection into their product designs. Benefits include the elimination of threaded ports, reduced leakage, a cost effective method of tube connection, compactness, and improved product appearance. Cartridges are provided as a three piece “kit”, consisting of brass body, silicone free O-ring and a nickel plated brass collet, which serves to retain the tube upon assembly. They can be fitted into products made from ferrous or non-ferrous metals and most industrial plastics. In addition to the standard range of cartridges capable of meeting the majority of applications, specials can be produced to meet particular requirements provided quantities suffice. *Please consult the factory with any special requests.*

#### Specifications

Fluid: Compressed air, nitrogen, inert and non-combustible gases compatible with materials of construction.

**Note:** For other types of fluids or compressed gases, please consult factory.

Working Pressure: 29.5" Hg vacuum to 260 psig (750 mm Hg to 18 bar)

Working Temperature: 0° to 175°F (-20° to 80°C)

See Viton® Option for extended temperature range : 0° to 350°F (-20° to 180°C)

#### Materials

Body – Brass

Collet – Nickel plated brass

O-ring: Silicone free Nitrile

Tubing: Nylon 11 or 12, Polyurethane (95 durometer or above) and LDPE (Low Density Polyethylene).

**Note:** Lower durometer polyurethane may be used, however, an internal tube support is required to prevent internal collapse of the tube wall.

# Pneufit Inch Cartridges for Industrial Applications



Dimensions in Inches (mm)

NOTE: MM equivalents are for reference only.

## Assembly instructions for installing cartridges into metal components.

1. Ensure that all parts are clean.
2. Insert the correct end of the cartridge body into the port form (see illustration). Then, using an installation tool as shown in Fig.1, press the cartridge body in until it is flush with the surface while staking it into place (Fig. 3). Minimum loads should be used to avoid damage to the end faces of the cartridge body.
3. Lubricate the O-ring with appropriate medium grade mineral grease (BP Energol LS2). Locate as shown in port.
4. Insert the collet into the body using minimal force.

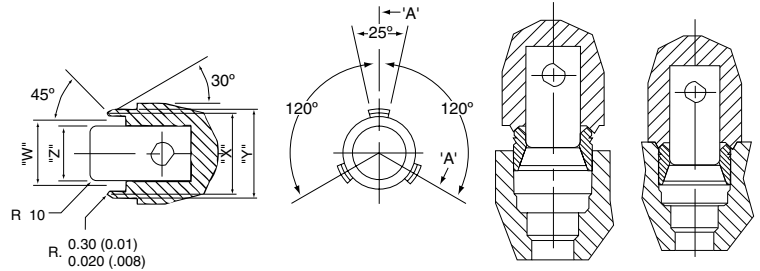


Fig. 1

Fig. 2

Fig. 3

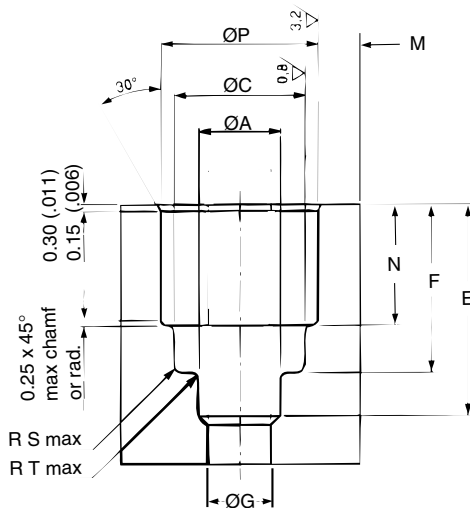
Tube Size	W		Y	
	+0.05 -0.0	X	+0.05 -0.0	Z
1/8"	0.305 (7.75)	0.346 (8.80)	0.400 (10.15)	0.163 (4.15)
5/32"	0.324 (8.25)	0.366 (9.30)	0.420 (10.65)	0.203 (5.15)
3/16"	0.364 (9.25)	0.406 (10.30)	0.459 (11.65)	0.250 (6.35)
1/4"	0.404 (10.25)	0.445 (11.30)	0.500 (12.65)	0.289 (7.35)
5/16"	0.482 (12.25)	0.524 (13.30)	0.577 (14.65)	0.356 (9.05)
3/8"	0.636 (16.15)	0.681 (17.30)	0.748 (19.00)	0.457 (11.62)
1/2"	0.726 (18.45)	0.768 (19.50)	0.835 (21.20)	0.572 (14.52)

## Port Form Dimensions

G Tube O.D.	A		E Depth ±0.004	F Depth ±0.004	G	N Depth +0.006 -0.00			M Rec Min Wall Thickness		M Rec Min Wall Thickness	
	+0.004 -0.0	C*** ±0.002				S Max	T Max	P*** +0.004 -0.002	P*** +0.002 -0			
1/8"	0.130 (3.30)	0.246 (6.25)	0.453 (11.50)	0.335 (8.50)	0.091 (2.30)	0.262 (6.65)	0.028 (0.70)	0.012 (0.30)	0.059 (1.50)	0.303 (7.70)	0.039 (1.00)	0.307 (7.80)
5/32" (4)	0.161 (4.08)	0.274 (6.95)	0.476 (12.10)	0.343 (8.70)	0.110 (2.80)	0.236 (6.00)	0.028 (0.70)	0.012 (0.30)	0.059 (1.50)	0.323 (8.20)	0.039 (1.00)	0.327 (8.30)
3/16"	0.191 (4.85)	0.321 (8.15)	0.508 (12.90)	0.382 (9.70)	0.134 (3.40)	0.268 (6.80)	0.028 (0.70)	0.020 (0.50)	0.059 (1.50)	0.362 (9.20)	0.039 (1.00)	0.366 (9.30)
1/4"	0.254 (6.45)	0.362 (9.20)	0.524 (13.30)	0.402 (10.20)	0.173 (4.40)	0.287 (7.30)	0.028 (0.70)	0.020 (0.50)	0.059 (1.50)	0.402 (10.20)	0.039 (1.00)	0.406 (10.30)
5/16" (8)	0.319 (8.10)	0.445 (11.30)	0.563 (14.30)	0.406 (10.30)	0.236 (6.00)	0.287 (7.30)	0.028 (0.70)	0.020 (0.50)	0.059 (1.50)	0.474 (12.05)	0.039 (1.00)	0.484 (12.30)
3/8"	0.379 (9.62)	0.549 (13.95)	0.740 (18.80)	0.579 (14.70)	0.299 (7.60)	0.378 (9.60)	0.028 (0.70)	0.020 (0.50)	0.079 (2.00)	0.628 (15.15)	0.059 (1.50)	0.642 (16.30)
1/2"	0.506 (12.85)	0.670 (17.02)	0.878 (22.30)	0.681 (17.30)	0.380 (9.65)	0.484 (12.30)	0.028 (0.70)	0.020 (0.50)	0.079 (2.00)	0.711 (18.05)	0.059 (1.50)	0.728 (18.50)

\*A

\*\*B



\*A The dimensions given are suitable for Nylon 6, Nylon 66 and acetal components. For use in other types of plastic consult the factory.

\*\*B Instructions refer to the use of cartridges in Brass, Aluminum or Zinc components. For use in other materials consult the factory.

\*\*\* Diameter limits for "C" and "P" include ovality. Diameters to be concentric within 0.005".



# Pneufit Inch Cartridges for Industrial Applications

Dimensions in Inches (mm)

**NOTE:** MM equivalents are for reference only.

## Materials of Construction:

- Collet: Nickel plated Brass
- Cartridge body (insert): Brass
- O-ring: Nitrile (silicone free)

## Specifications and Options

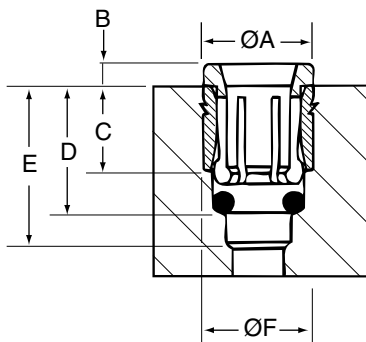
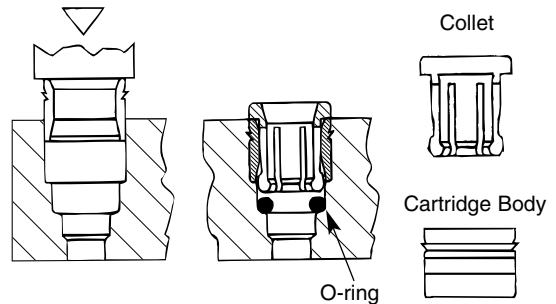
Same as Standard Pneufit line, however, cartridges are packaged 100 "kits" per box, with bodies, collets and O-rings packaged separately.

## Assembly instructions for installing cartridges into plastic components.

1. Ensure that all parts are clean.
2. Insert the correct end of the cartridge body into the port form (see illustration). Then, using a flat faced tool, press in the cartridge body until it is flush with the surface of the body. Minimum loads should be used to avoid damage to the end faces of the cartridge body.
3. Lubricate the O-ring with appropriate medium grade mineral grease (BP Energol LS2). Locate as shown in port.
4. Insert the collet into the body using minimal force.

## Installed Cartridge Fitting Dimensions

Tube O.D.	Part Number	A	B	C	D	E	F
1/8"	12 008 0100	0.26 (6.5)	0.08 (2.0)	0.26 (6.7)	0.33 (8.4)	0.45 (11.4)	0.30 (7.6)
5/32"	12 008 0200	0.30 (7.5)	0.08 (2.0)	0.24 (6.0)	0.34 (8.6)	0.47 (12.0)	0.32 (8.1)
3/16"	12 008 0300	0.39 (10.0)	0.09 (2.2)	0.27 (6.8)	0.38 (9.6)	0.50 (12.8)	0.36 (9.1)
1/4"	12 008 0400	0.43 (11.0)	0.09 (2.2)	0.29 (7.3)	0.40 (10.1)	0.52 (13.2)	0.40 (10.1)
5/16"	12 008 0500	0.51 (13.0)	0.09 (2.2)	0.29 (7.3)	0.40 (10.1)	0.56 (14.2)	0.48 (12.1)
3/8"	12 008 0600	0.57 (14.5)	0.09 (2.2)	0.38 (9.6)	0.57 (14.6)	0.74 (18.7)	0.63 (16.1)
1/2"	12 008 0700	0.71 (18.0)	0.09 (2.2)	0.48 (12.3)	0.68 (17.2)	0.87 (22.2)	0.72 (18.3)





**NOTE:** Inch equivalents are for reference only.

## Assembly instructions for installing cartridges into metal components.

1. Ensure that all parts are clean.
2. Insert the correct end of the cartridge body into the port form (see illustration). Then, using an installation tool as shown in Fig.1, press the cartridge body in until it is flush with the surface while staking it into place (Fig. 3). Minimum loads should be used to avoid damage to the end faces of the cartridge body.
3. Lubricate the O-ring with appropriate medium grade mineral grease (BP Energol LS2). Locate as shown in port.
4. Insert the collet into the body using minimal force.

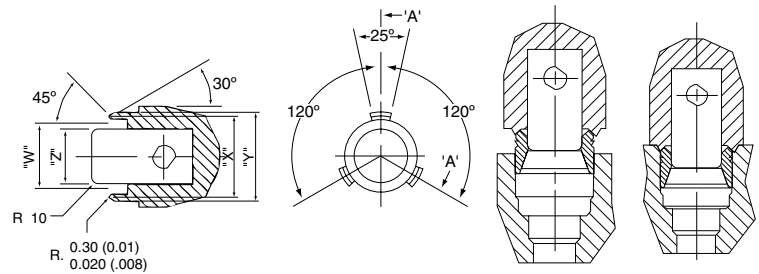


Fig. 1

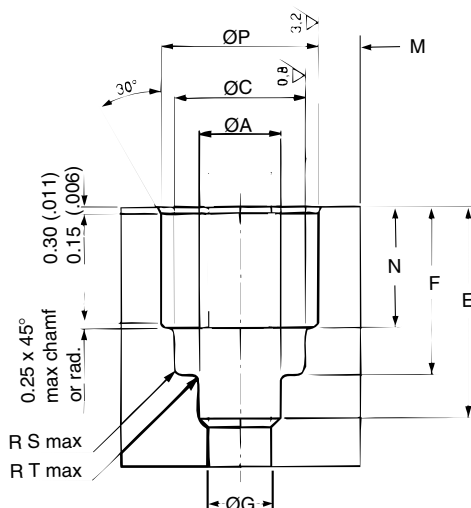
Fig. 2

Fig. 3

Tube Size	W		Y	
	+0.002 -0.0	X	+0.002 -0.0	Z
4 mm	8.25 (0.324)	9.30 (0.366)	10.65 (0.420)	5.15 (0.203)
5 mm	9.25 (0.364)	10.30 (0.406)	11.65 (0.459)	6.35 (0.250)
6 mm	10.25 (0.404)	11.30 (0.445)	12.65 (0.500)	7.35 (0.289)
8 mm	12.25 (0.482)	13.30 (0.524)	14.65 (0.577)	9.050 (.356)
10 mm	16.15 (0.636)	17.30 (0.681)	19.00 (0.748)	11.62 (0.457)
12 mm	18.45 (0.726)	19.50 (0.768)	21.20 (0.835)	14.52 (0.572)

## Port Form Dimensions

G Tube O.D.	A +0.10 -0.0	C ±0.05	E Depth ±0.10	F Depth ±0.10	G	N Depth +0.15 -0.00	S Max	T Max	For Plastic Components		For Metal Components	
									M Rec Min Wall Thickness	P +0.10 -0	M Rec Min Wall Thickness	P +0.05 -0
4	4.08 (.16)	6.95 (.27)	12.10 (.48)	8.70 (.34)	2.80 (.11)	6.00 (.24)	0.7 (.03)	0.30 (.01)	1.5 (.06)	8.20 (.32)	1.0 (.04)	8.30 (.33)
5	5.08 (.20)	8.15 (.32)	12.90 (.51)	9.70 (.38)	3.40 (.13)	6.80 (.27)	0.7 (.03)	0.50 (.02)	1.5 (.06)	9.20 (.36)	1.0 (.04)	9.30 (.37)
6	6.08 (.24)	9.20 (.36)	13.30 (.52)	10.20 (.40)	4.40 (.17)	7.30 (.29)	0.7 (.03)	0.50 (.02)	1.5 (.06)	10.20 (.40)	1.0 (.04)	10.30 (.41)
8	8.10 (.32)	11.30 (.44)	14.30 (.56)	10.30 (.41)	6.00 (.24)	7.30 (.29)	0.7 (.03)	0.50 (.02)	1.5 (.06)	12.05 (.48)	1.0 (.04)	12.30 (.48)
10	10.10 (.40)	13.95 (.55)	18.80 (.74)	14.70 (.58)	7.60 (.30)	9.60 (.38)	0.7 (.03)	0.50 (.02)	2.0 (.08)	15.15 (.63)	1.5 (.06)	16.30 (.64)
12	12.20 (.48)	17.02 (.67)	22.30 (.88)	17.30 (.68)	9.65 (.38)	12.30 (.48)	0.7 (.03)	0.50 (.02)	2.0 (.08)	18.05 (.72)	1.5 (.06)	18.50 (.73)



A\*

B\*\*

\*A The dimensions given are suitable for Nylon 6, Nylon 66 and acetal components. For use in other types of plastic consult the factory.

\*\*B Instructions refer to the use of cartridges in Brass, Aluminum or Zinc components. For use in other materials consult the factory.

\*\*\*C Diameter limits for "C" and "P" include ovality. Diameters to be concentric within 0.005".



# Pneufit Metric Cartridges for Industrial Applications

Dimensions in MM (inches)

**NOTE:** Inch equivalents are for reference only.

## Assembly instructions for installing cartridges into plastic components.

1. Ensure that all parts are clean.
2. Insert the correct end of the cartridge body into the port form (see illustration). Then, using a flat faced tool, press in the cartridge body until it is flush with the surface of the body. Minimum loads should be used to avoid damage to the end faces of the cartridge body.
3. Lubricate the O-ring with appropriate medium grade mineral grease (BP Energol LS2). Locate as shown in port.
4. Insert the collet into the body using minimal force.

## Materials of Construction:

Collet: Nickel plated Brass

Cartridge body (insert): Brass

O-ring: Nitrile (silicone free)

## Specifications and Options

Same as Standard Pneufit line, however, cartridges are packaged 100 "kits" per box, with bodies, collets and O-rings packaged separately.

## Installed Cartridge Fitting Dimensions

Tube O.D.	Part Number	A	B	C	D	E	F
4	10 008 0400	7.5 (.30)	2.0 (.08)	6.0 (.24)	8.6 (.34)	12.0 (.47)	8.1 (.32)
5	10 008 0500	10.0 (.39)	2.2 (0.9)	6.8 (.27)	9.6 (.38)	12.8 (.50)	9.1 (.36)
6	10 008 0600	11.0 (.43)	2.2 (0.9)	7.3 (.29)	10.1 (.40)	13.2 (.52)	10.1 (.40)
8	10 008 0800	13.0 (.51)	2.2 (0.9)	7.3 (.29)	10.1 (.40)	14.2 (.56)	12.1 (.48)
10	10 008 1000	14.5 (.57)	2.2 (0.9)	9.6 (.38)	14.6 (.57)	18.7 (.74)	16.1 (.63)
12	10 008 1200	18.0 (.71)	2.2 (0.9)	12.3 (.48)	17.2 (.68)	22.2 (.87)	18.3 (.72)

