

**Common Specifications** (applies to all CPF fittings in this datasheet)

**DESCRIPTION**

CPF is an improved cone type fitting system that adds a unique o-ring sealing system which permits leak free connections without tools. CPF fittings can be directly connected to 1/4" medium pressure cone type fittings from other manufacturers\*, provided that wrenches are used to complete the connection. The fittings of the CPF system have been designed and tested to comply with ASME B31.3-2008, Chapter IX: High Pressure Piping.

\* HiP: 1/4" Female and Male Medium Pressure (LF4 & LM4 series)

Autoclave Engineers: 1/4" Female and Male Medium Pressure (SF250CX series)

**PERFORMANCE**

Maximum Allowable Working Pressure (MAWP): **10000 psi / 700 bar / 70 MPa**  
 Finger-tight: **-20 to 50°C**  
 Wrench-tight: **-40 to 150°C**  
 Minimum Hose Bend Radius: **1.0" (25mm)**

*Most fittings throughout this document meet the MAWP specification of 10000 psi / 700 bar / 70 MPa. Exceptions are labeled with an icon (1, 5, 15) and a key to indicate the pressure rating.*

*Non-Crystal MP adapters require wrench tightening.*

**CONSTRUCTION**

Thread Type: **7/16-20 UNF 2B**  
 Cone Angle: **60°, nominal**  
 Fittings: **High Strength 316 Stainless Steel**  
 Hose: **Polyamide core with urethane jacket**  
 External Hose Diameter: **0.235" (6 mm)**  
 Internal Hose Diameter: **0.08" (2 mm)**  
 Hose Weight: **0.0179 lbs/ft (26.6 g/m)**  
 CPF Female O-rings: **AS568A-012, Viton® 90**  
 O-ring Lubricant: **Molykote® 55**

*Hose is not compatible with dioctyl sebacate fluid.*

**CAUTION:** To achieve CPF maximum allowable working pressures no o-ring substitutions are allowed.

**RECOMMENDATIONS**

Thread Lubricant: **Use a process compatible fluid**  
 Wrench Torque: **100–140 in-lbs (11.3–15.8 Nm)**

*If a torque wrench isn't practical to use, hand tighten then tighten an additional 20 degrees using a wrench.*



**Quick Links** Click a Category to Navigate to its Page

CPF Fittings	<b>2</b>	Transmitter Fittings	<b>10</b>
NPT Fittings	<b>5</b>	Tube Fitting	<b>10</b>
NPT Fitting Kits	<b>7</b>	AN4 Fittings	<b>11</b>
BSP Fittings	<b>8</b>	Pump Adapters	<b>11</b>
BSP Fitting Kits	<b>8</b>	Non-Crystal MP Adapters	<b>14</b>
M20 Fittings	<b>9</b>		

**Note Regarding CPF Hose (MPH-X)**

Due to the wide variety of operating conditions it may be subject to, Crystal Engineering, as well as Distributors and Representatives of Crystal products, do not warrant that this hose is suitable for any specific use. This hose is not for use with compressed natural gas (CNG).

When used with gases, fuels (liquid or gas) and refrigerants, permeation (i.e., seepage) will occur from inside the hose. In enclosed or unventilated spaces this permeation may result in high concentrations of vapors which are potentially flammable, explosive or toxic.

Care must be taken to protect hoses from snagging, kinking, bending smaller than the minimum bend radius, and cutting. Any hose that has been damaged in any way should be removed from service and discarded immediately.

Autoclave Engineers Fluid Components is a division of Snap-tite, Inc.

HiP is High Pressure Equipment Company.

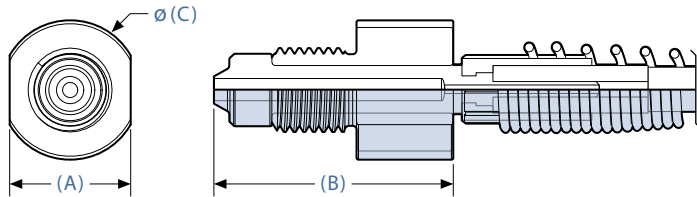
Molykote is a registered trademark of Dow Corning Corporation.

Viton is a registered trademark of DuPont Performance Elastomers.

Swagelok is a registered trademark of Swagelok Company.

**CPF Fittings**

**HOSES (10 000 PSI; FOS-4:1)**



Option: Integral CPF Hose Reels are portable, with an internal friction brake and a locking mechanism to prevent unspooling. CPF Hose Reels are available for hose lengths from 10 to 50 meters. Hoses must be permanently factory-installed to the Reel using a double-bulkhead fitting. The reel connection is CPF female.



Swivels

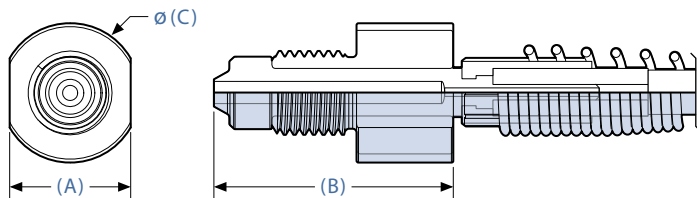
(A)	(B)	(C)
0.63" (16 mm)	1.29" (33 mm)	0.72" (18 mm)

Length	Part Number
1 m	MPH-1
1.5 m	MPH-1.5
3 m	MPH-3
5 m	MPH-5
10 m	MPH-10
25 m	MPH-25
50 m	MPH-50
100 m	MPH-100

MPH-10-HR	*
MPH-25-HR	*
MPH-50-HR	*

Includes hose reel option \*

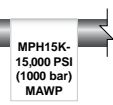
**HOSES (15 000 PSI; FOS-2.5:1)**



Swivels

(A)	(B)	(C)
0.63" (16 mm)	1.29" (33 mm)	0.72" (18 mm)

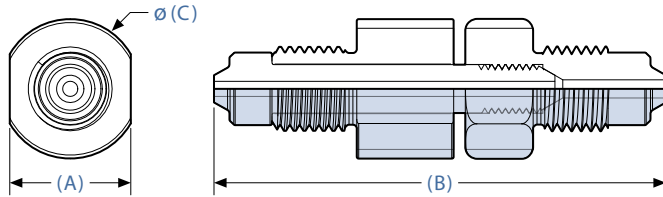
Length	Part Number
1 m	MPH15K-1
1.5 m	MPH15K-1.5
3 m	MPH15K-3
5 m	MPH15K-5
10 m	MPH15K-10
25 m	MPH15K-25
50 m	MPH15K-50
100 m	MPH15K-100



All CPF hoses are rated for hydraulic & pneumatic pressure to 10 000 psi with a 4:1 Factor of Safety. Hoses bearing the MPH15K- label are rated for hydraulic pressure only, to 15 000 psi with a 2.5:1 Factor of Safety (the fitting and hose are still marked MAWP 10 000 psi).

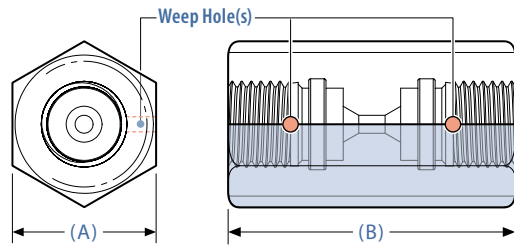
**CPF Fittings**

**MALE CONNECTOR**



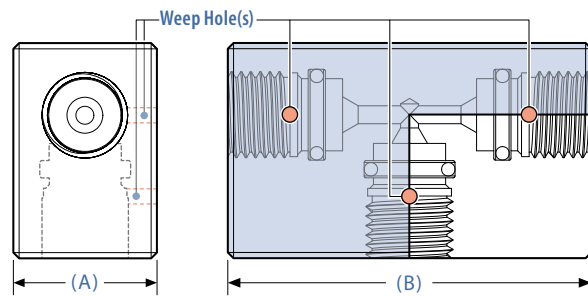
(A)	(B)	(C)	Part Number
0.63" (16 mm)	2.33" (59 mm)	0.72" (18 mm)	MPM-MPM

**UNION**



(A)	(B)	Part Number
0.75" (19 mm)	1.50" (38 mm)	MPF-MPF

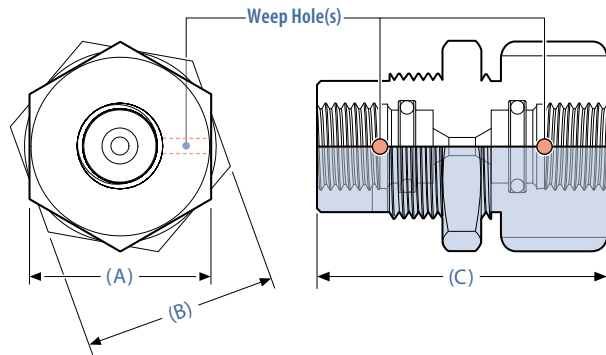
**UNION TEE**



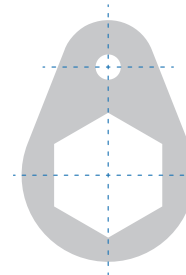
(A)	(B)	Part Number
0.75" (19 mm)	1.90" (48 mm)	MPF-MPFTU

**CPF Fittings**

**BULKHEAD MOUNT**

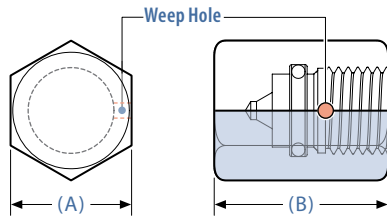


(A)	(B)	(C)	Part Number
0.938" (24 mm)	1.00" (26 mm)	1.50" (38 mm)	<b>MPF-MPFBULK</b>



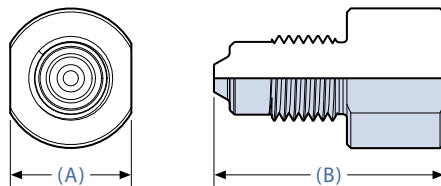
**Note:**  
Includes bulkhead retainer (Part # 4417).

**CAP**



(A)	(B)	Part Number
0.63" (16 mm)	0.90" (23 mm)	<b>MPF-CAP</b>

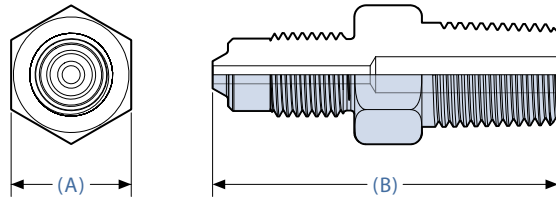
**PLUG**



(A)	(B)	Part Number
0.63" (16 mm)	1.19" (30 mm)	<b>MPM-PLUG</b>

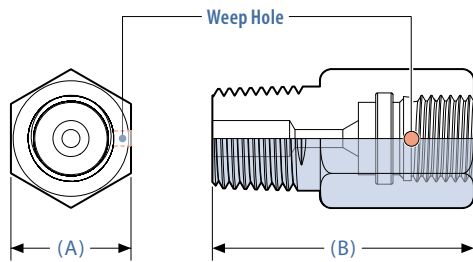
## NPT Fittings

### CPF MALE TO NPT MALE



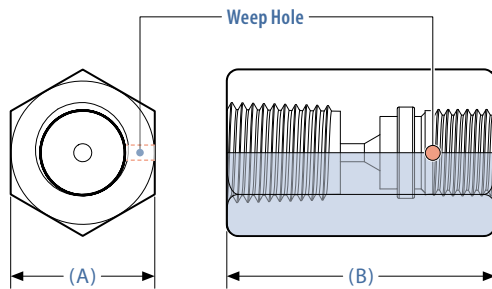
(A)	(B)	Part Number
0.63" (16 mm)	2.50" (64 mm)	<b>MPM-1/8MPT</b>
0.63" (16 mm)	1.80" (46 mm)	<b>MPM-1/4MPT</b>

### NPT MALE



(A)	(B)	Part Number
0.63" (16 mm)	1.12" (28 mm)	<b>MPF-1/8MPT</b>
0.63" (16 mm)	1.36" (35 mm)	<b>MPF-1/4MPT</b>

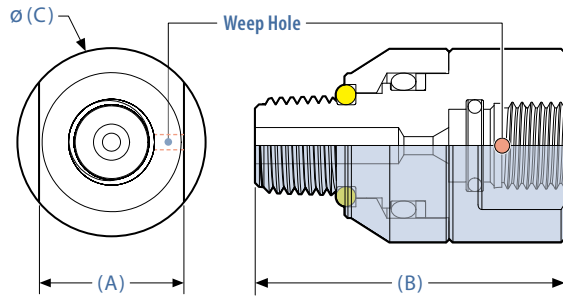
### NPT FEMALE



(A)	(B)	Part Number
0.75" (19 mm)	1.40" (36 mm)	<b>MPF-1/4FPT</b>

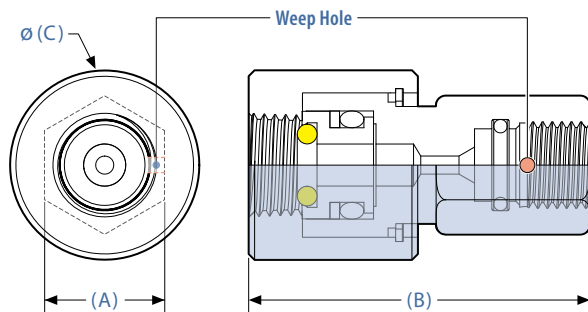
**NPT Fittings**

**NPT QUICK TEST MALE**



(A)	(B)	(C)	Part Number
0.63" (16 mm)	1.48" (38 mm)	1.00" (25 mm)	<b>MPF-1/8QTM</b> Neoprene 70 Replacement O-ring AS568A-109
0.75" (19 mm)	1.60" (41 mm)	0.82" (21 mm)	<b>MPF-1/4QTM</b> Neoprene 70 Replacement O-ring AS568A-111

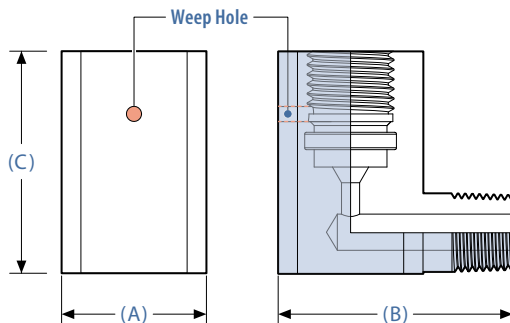
**NPT QUICK TEST FEMALE**



(A)	(B)	(C)	Part Number
0.63" (16 mm)	1.68" (38 mm)	0.85" (22 mm)	<b>MPF-1/8QTF</b> Neoprene 70 Replacement O-ring AS568A-105
0.63" (16 mm)	1.78" (45 mm)	1.00" (25 mm)	<b>MPF-1/4QTF</b> Neoprene 70 Replacement O-ring AS568A-108
0.63" (16 mm)	1.81" (46 mm)	1.37" (35 mm)	<b>MPF-1/2QTF</b> Neoprene 70 Replacement O-ring AS568A-112

Fitting rated to 5000 psi <sup>5</sup>

**90° NPT MALE**

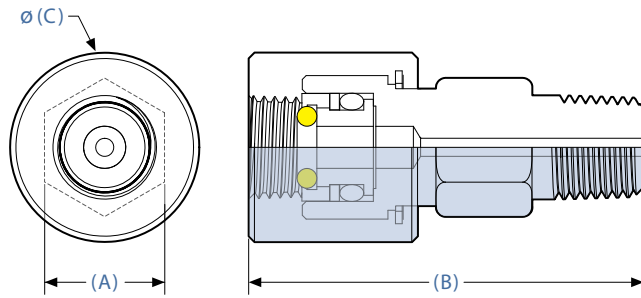


(Intended for use with ComboPump)

(A)	(B)	(C)	Part Number
0.75" (19 mm)	1.20" (31 mm)	1.15" (29 mm)	<b>MPF-1/8MPT90</b>

**NPT Fittings**

**NPT MALE TO NPT QUICK TEST FEMALE**



(1/8MPT fittings intended for use with ComboPump)  
(1/4MPT fittings intended for use with HydraulicPump)

(A)	(B)	(C)	Part Number
0.63" (16 mm)	1.90" (48 mm)	1.00" (25 mm)	<b>1/8MPT-1/4QTF</b> AS568A-108 Neoprene 70 Replacement O-ring
0.63" (16 mm)	2.06" (52 mm)	1.00" (25 mm)	<b>1/4MPT-1/4QTF</b> AS568A-108 Neoprene 70 Replacement O-ring

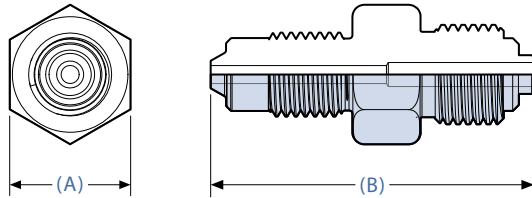
**NPT FITTING KITS**



		Part Number
<b>Complete NPT Hose and Fitting Kit</b>	Includes: 1/8 NPT [Male (2), Male 90°, Male Quick Test, and Female Quick Test], 1/4 NPT [Male (2), Female, Male Quick Test, and Female Quick Test], 1/2 NPT [Female Quick Test], Tube [1/4 Male, 3/8 Male, and 1/2 Male], AN4 Male, Transmitter [1/4 Male and 5/16 Male], CPF Connectors [Male-Male, T-Union, Plug, and Cap (2)], Hose [1 meter], and Custom Carrying Case.	<b>4016</b>
<b>Quick Test NPT Kit</b>	Includes: MPF-1/8QTF, MPF-1/4QTF, and MPF-1/2QTF	<b>4013</b>

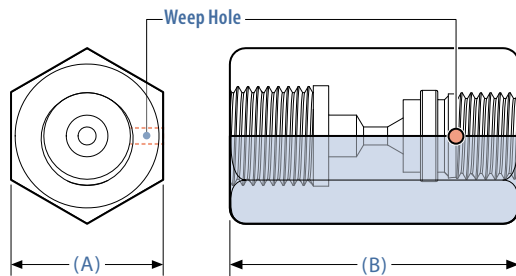
**BSP Fittings**

**CPF MALE TO BSP MALE**



(A)	(B)	Part Number
0.63" (16 mm)	1.68" (43 mm)	<b>MPM-1/4BSPM</b>

**BSP FEMALE**



(A)	(B)	Part Number
0.79" (20 mm)	1.50" (38 mm)	<b>MPF-1/8BSPF</b>
0.79" (20 mm)	1.50" (38 mm)	<b>MPF-1/4BSPF</b>
0.98" (25 mm)	1.75" (45 mm)	<b>MPF-3/8BSPF</b>
1.18" (30 mm)	2.05" (52 mm)	<b>MPF-1/2BSPF</b>

**BSP FITTING KITS**



**Complete BSP Hose and Fitting Kit**

Includes: BSP Female [1/8, 1/4 (2), 3/8, and 1/2], NPT [1/4 Quick Test Female and 1/8 Male (2)], Transmitter [1/4 Male and 5/16 Male], CPF Connectors [Male-Male, T-Union, Plug, and Cap (2)], Hose [1 meter], Custom Carrying Case.

Part Number

<b>4017</b>
<b>4015</b>

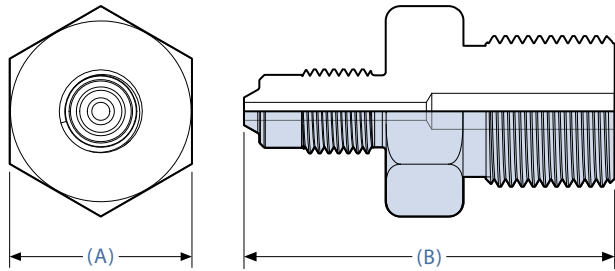
**BSP Test Kit**

Includes: MPF-1/8BSPF, MPF-1/4BSPF, MPF-3/8BSPF, and MPF-1/2BSPF



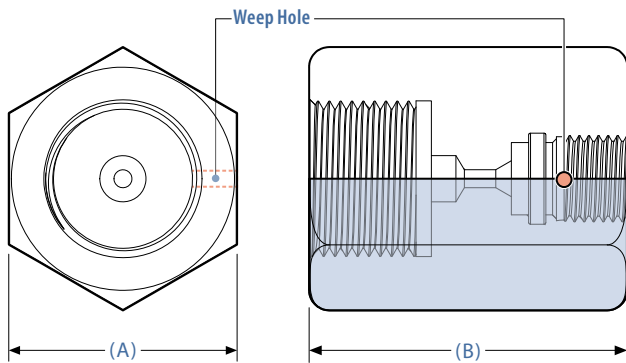
**M20 Fittings**

**CPF MALE TO M20 MALE**



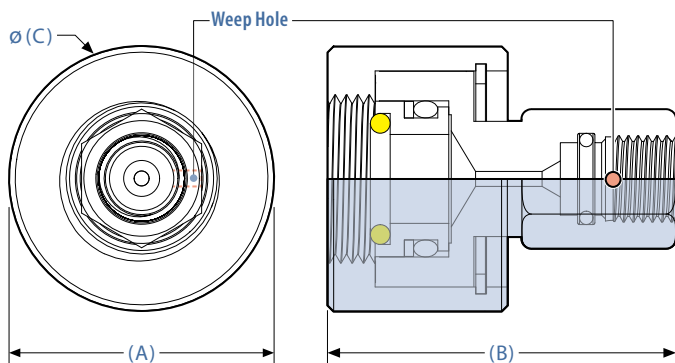
(A)	(B)	Part Number
0.95" (24 mm)	1.93" (49 mm)	<b>MPM-M20X1.5M</b>

**M20 FEMALE**



(A)	(B)	Part Number
1.18" (30 mm)	1.65" (42 mm)	<b>MPF-M20X1.5F</b>

**M20 QUICK TEST FEMALE**



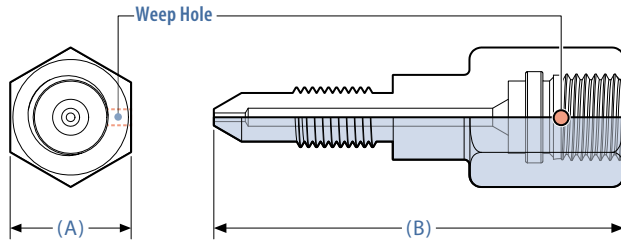
(A)	(B)	(C)	Part Number
0.63" (16 mm)	1.81" (46 mm)	1.375" (35 mm)	<b>MPF-M20QTF</b>
Neoprene 70 Replacement O-ring			<b>AS568A-112</b>

Fitting rated to 5000 psi

Swivels

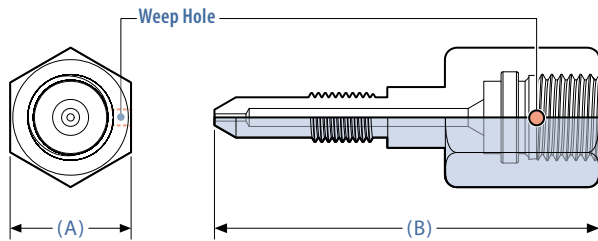
**Transmitter Fittings**

**FOR FOXBORO, ROSEMOUNT, & YOKOGAWA**



(A)	(B)	Part Number
0.63" (16 mm)	2.13" (54 mm)	<b>MPF-5/16TRM</b>

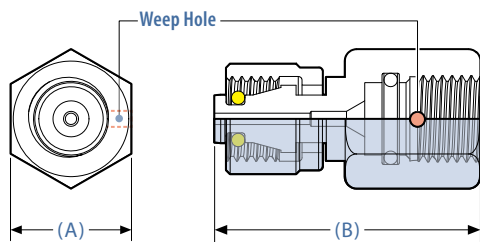
**FOR HONEYWELL**



(A)	(B)	Part Number
1.18" (30 mm)	1.65" (42 mm)	<b>MPF-1/4TRM</b>

**Tube Fitting**

**TUBE MALE**

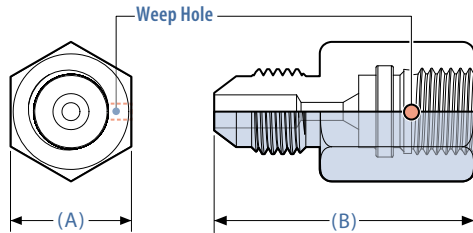


(A)	(B)	Part Number
0.63" (16 mm)	1.38" (35 mm)	<b>MPF-1/4TBM</b>
	VITON 90 Replacement O-ring	AS568A-007
0.63" (16 mm)	1.50" (38 mm)	<b>MPF-3/8TBM</b>
	VITON 90 Replacement O-ring	AS568A-010
0.63" (16 mm)	1.74" (44 mm)	<b>MPF-1/2TBM</b>
	VITON 90 Replacement O-ring	AS568A-012

Fittings rated to 5000 psi

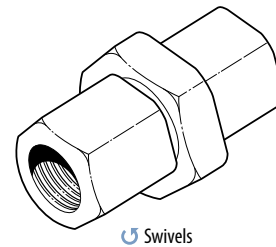
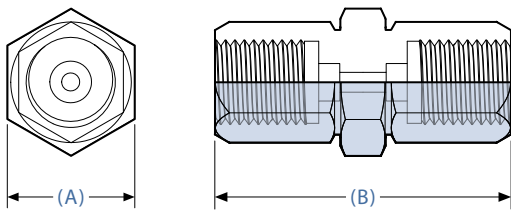
**AN4 Fittings**

**AN4 MALE**



(A)	(B)	Part Number
0.63" (16 mm)	1.35" (34 mm)	<b>MPF-AN4M</b>

**AN4 UNION SWIVEL (NON CRYSTAL)**



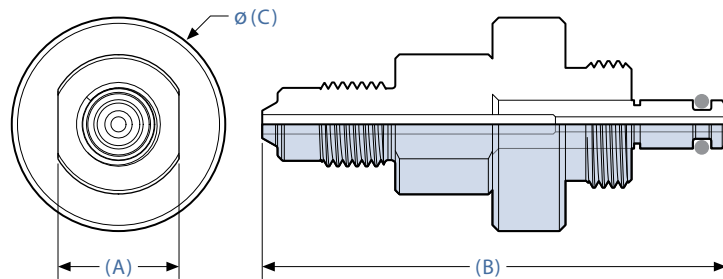
Swivels

(A)	(B)	(C)	Part Number
0.56" (14 mm)	1.60" (41 mm)	0.69" (17 mm)	<b>4377</b>

Fittings rated to 5000 psi

**Pump Adapters**

**CPF MALE TO T-975-CPF PNEUMATIC HAND PUMP**

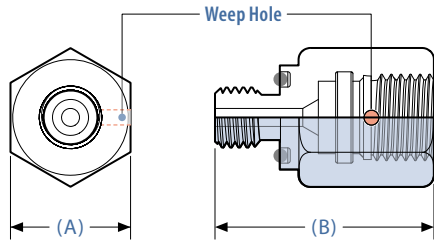


(A)	(B)	(C)	Part Number
0.63" (16 mm)	2.39" (61 mm)	1.10" (28 mm)	<b>MPM-3/8BSPM</b>
BUNA 70A Replacement O-ring			<b>AS568A-006</b>

Fitting rated to 1000 psi

**Pump Adapters**

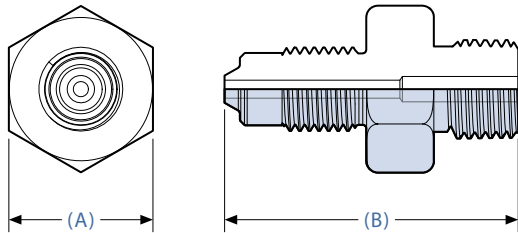
**CPF FEMALE TO T-975-CPF PNEUMATIC HAND PUMP**



(A)	(B)	Part Number
0.63" (16 mm)	1.13" (29 mm)	<b>MPF-5/16SAEM</b> 1
BUNA 70A Replacement O-ring		AS568A-011

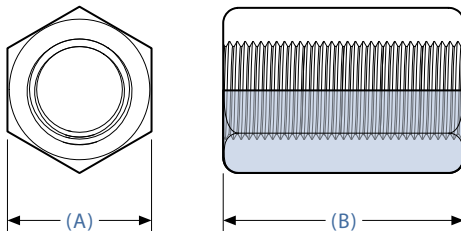
Fitting rated to 1000 psi 1

**CPF MALE TO P-018-CPF HYDRAULIC SCREW PUMP**



(A)	(B)	Part Number
0.75" (19 mm)	1.53" (39 mm)	<b>MPM-BSPP</b> 5

**BSP FEMALE TO P-018-CPF HYDRAULIC SCREW PUMP**

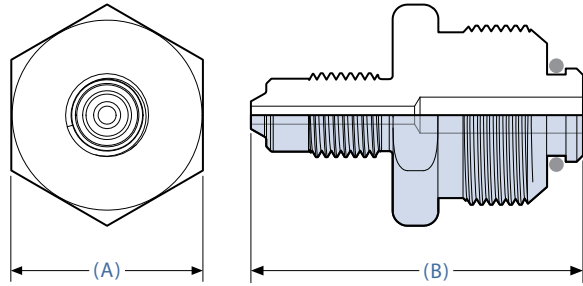


(A)	(B)	Part Number
0.75" (19 mm)	1.25" (32 mm)	<b>1/4BSPF-1/4BSPF</b> 5

Fittings rated to 5000 psi 5

**Pump Adapters**

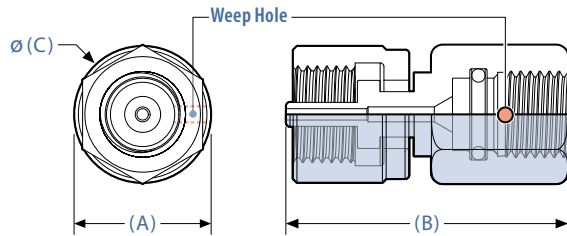
**CPF MALE TO T-1-CPF HYDRAULIC COMPARATOR**



(A)	(B)	Part Number
1.00" (25 mm)	1.73" (44 mm)	<b>MPM-15/16-20</b> 5
VITON 75 Replacement O-ring		AS568A-905

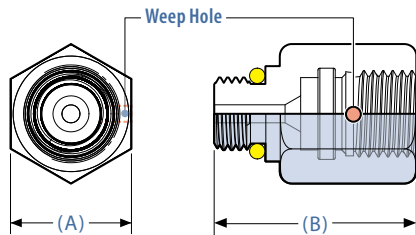
Fitting rated to 15 000 PSI 5

**QUICK CONNECT NUT**



(A)	(B)	Part Number
0.63" (16 mm)	1.47" (37 mm)	<b>MPF-QCN</b> 5

**CPF FEMALE TO (DISCONTINUED) HYDROPUMP**

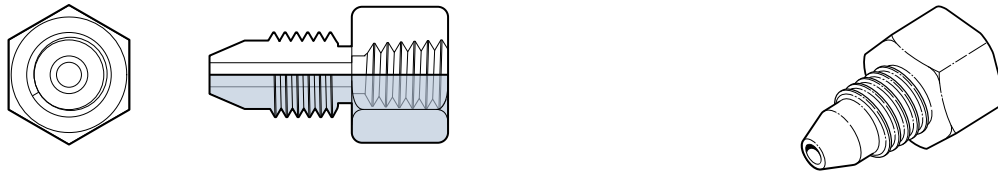


(A)	(B)	Part Number
0.63" (16 mm)	1.05" (27 mm)	<b>MPF-3/8SAEM</b> 5
VITON 90 Replacement O-ring		AS568A-011

Fittings rated to 5000 PSI 5

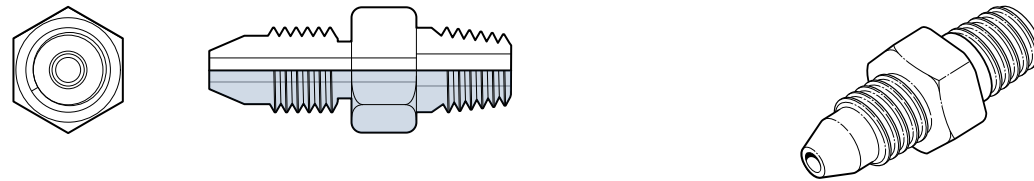
**Non-Crystal MP Adapters**

**MEDIUM PRESSURE MALE TO NPT FEMALE**



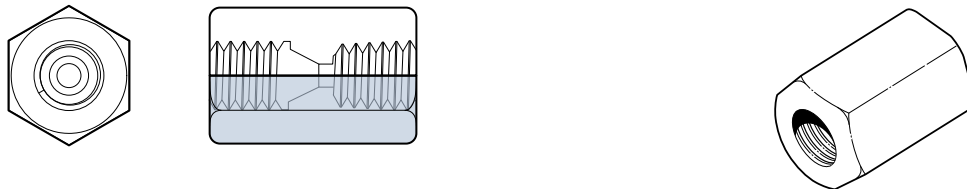
Size	Product Marking	Part Number
1/8 NPT	2NF04M15	4497
1/4 NPT	4NF04M15	4498
3/8 NPT	6NF04M15	4499
1/2 NPT	8NF04M15	4500

**MEDIUM PRESSURE MALE TO NPT MALE**



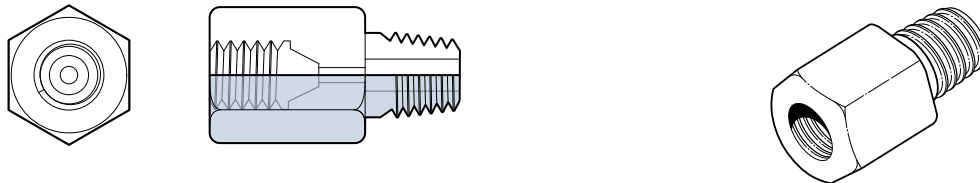
Size	Product Marking	Part Number
1/4 NPT	4N04M15	4698
3/8 NPT	6N04M15	4492
1/2 NPT	8N04M15	4493

**MEDIUM PRESSURE FEMALE TO NPT FEMALE**



Size	Product Marking	Part Number
1/8 NPT	2NF04MF15	4501
1/4 NPT	4NF04MF15	4715
3/8 NPT	6NF04MF15	4502
1/2 NPT	8NF04MF15	4503

**MEDIUM PRESSURE FEMALE TO NPT MALE**



Size	Product Marking	Part Number
1/4 NPT	4N04MF15	4714
3/8 NPT	6N04MF15	4494
1/2 NPT	8N04MF15	4495
3/4 NPT	12N04MF10	4496

Fittings rated to 15000 PSI

Non-Crystal MP adapters require wrench tightening.