



Crystal Pressure Fittings CPF

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 B31.3-2018, Chapter IX: High Pressure Piping.

*U.S. Patent No. 8,794,677

*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): **10 000 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 (Ⓔ or Ⓕ) 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 is not compatible with dioctyl sebacate fluid.*

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® 80 or 90 #3981**

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

O-ring Lubricant: **Molykote® 55**

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.



FITTINGS FOR LIFE

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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.

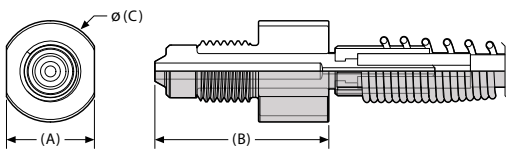
Molykote is a registered trademark of Dow Corning Corporation.

Viton is a registered trademark of DuPont Performance Elastomers.

Swagelok is a registered trademark of Swagelok Company.

CPF Fittings

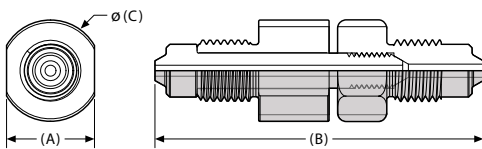
HOSES (10 000 psi)



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

Length	Part Number
50 cm	MPH-50CM
1 m	MPH-1
1.5 m	MPH-1.5
2 m	MPH-2
3 m	MPH-3
5 m	MPH-5
10 m	MPH-10
25 m	MPH-25
50 m	MPH-50
100 m	MPH-100

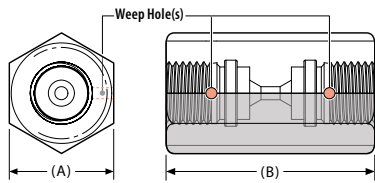
MALE CONNECTOR



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

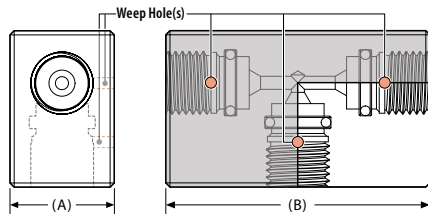
CPF Fittings

UNION



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

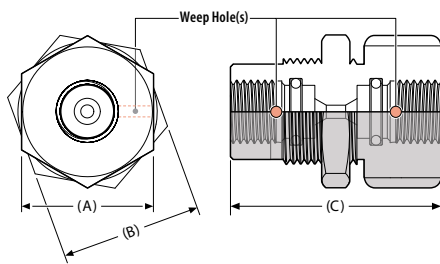
UNION TEE



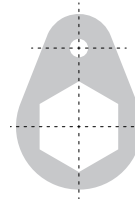
(A)	(B)	Part Number
0.75" (19 mm)	1.90" (48 mm)	MPF-MPFTU

CPF Fittings

BULKHEAD MOUNT

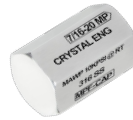
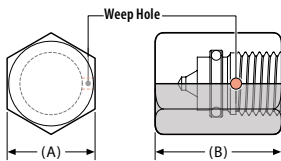


(A)	(B)	(C)	Part Number
0.938" (24 mm)	1.00" (26 mm)	1.50" (38 mm)	MPF-MPFBULK



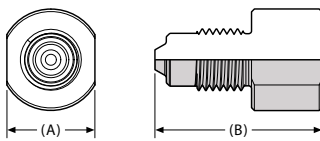
Note:
Includes bulkhead retainer (Part # 4417).

CAP



(A)	(B)	Part Number
0.63" (16 mm)	0.90" (23 mm)	MPF-CAP

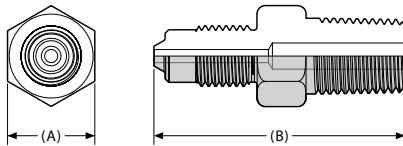
PLUG



(A)	(B)	Part Number
0.63" (16 mm)	1.19" (30 mm)	MPM-PLUG

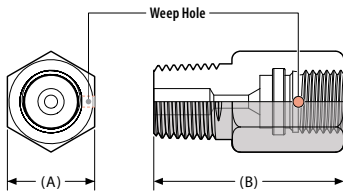
NPT Fittings

CPF MALE TO NPT MALE



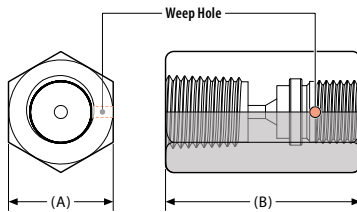
(A)	(B)	Part Number
0.63" (16 mm)	1.80" (46 mm)	MPM-1/4MPT
0.87" (22 mm)	2.02" (51 mm)	MPM-1/2MPT

NPT MALE



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

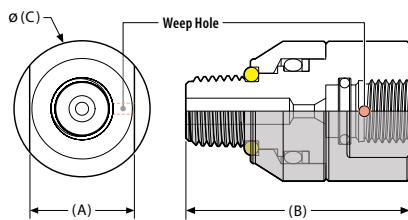
NPT FEMALE



(A)	(B)	Part Number
0.75" (19 mm)	1.40" (36 mm)	MPF-1/4FPT
0.75" (19 mm)	1.40" (36 mm)	MPF15K-1/4FPT

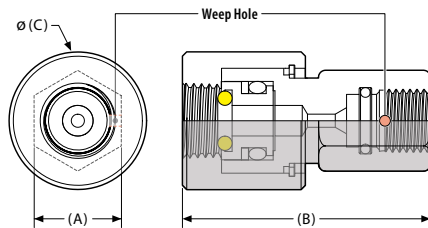
NPT Fittings

NPT QUICK TEST MALE



(A)	(B)	(C)	Part Number
0.63" (16 mm)	1.48" (38 mm)	1.00" (25 mm)	MPF-1/8QTM Neoprene 70 Replacement O-ring AS568A-109, #3998
0.75" (19 mm)	1.60" (41 mm)	0.82" (21 mm)	MPF-1/4QTM Neoprene 70 Replacement O-ring AS568A-111, #3996

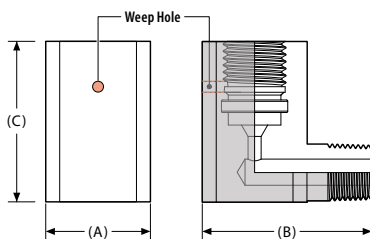
NPT QUICK TEST FEMALE



(A)	(B)	(C)	Part Number
0.63" (16 mm)	1.68" (38 mm)	0.85" (22 mm)	MPF-1/8QTF Neoprene 70 Replacement O-ring AS568A-105, #4038
0.63" (16 mm)	1.78" (45 mm)	1.00" (25 mm)	MPF-1/4QTF Neoprene 70 Replacement O-ring AS568A-108, #4007
0.63" (16 mm)	1.81" (46 mm)	1.37" (35 mm)	MPF-1/2QTF Neoprene 70 Replacement O-ring AS568A-112, #4042

Fitting rated to 5000 psi

90° NPT MALE



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

NPT Fittings

NPT FITTING KITS

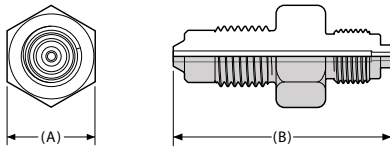
Part Number



Complete NPT Hose and Fitting Kit	Includes: 1/8 NPT [Male (2), 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 and 3/8 Male], Transmitter [5/16 Male], CPF Connectors [Male-Male, Plug, and Cap (2)], Hose [1 meter], and Custom Carrying Case .	4016
Quick Test NPT Kit	Includes: MPF-1/8QTF, MPF-1/4QTF, and MPF-1/2QTF.	4013

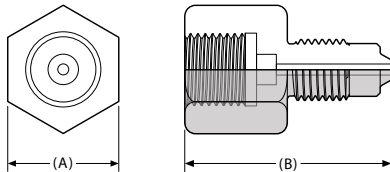
BSP Fittings

CPF MALE TO BSP MALE



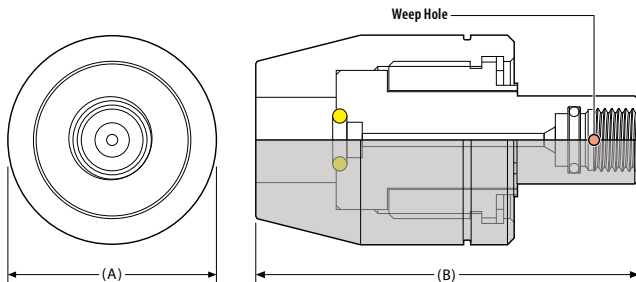
(A)	(B)	Part Number
0.63" (16 mm)	1.57" (40 mm)	MPM-1/8BSPM 15
0.83" (21 mm)	1.72" (44 mm)	MPM-1/4BSPM 15
0.95" (24 mm)	1.96" (50 mm)	MPM-3/8BSPM 15
1.14" (29 mm)	2.16" (55 mm)	MPM-1/2BSPM 15

CPF MALE TO BSP FEMALE



(A)	(B)	Part Number
0.63" (16 mm)	1.28" (33 mm)	MPM-1/8BSPF 15
0.79" (20 mm)	1.47" (37 mm)	MPM-1/4BSPF 15
0.98" (25 mm)	1.61" (41 mm)	MPM-3/8BSPF 15
1.18" (30 mm)	1.74" (44 mm)	MPM-1/2BSPF 15

BSP QUICK TEST FEMALE

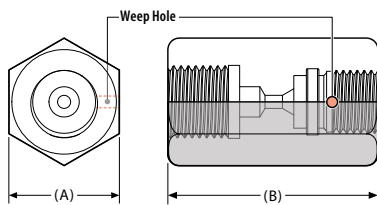


(A)	(B)	Part Number
1.50" (38 mm)	2.75" (70 mm)	MPF-1/8QTFB 15
VITON 90 Replacement O-ring		AS568-008, #5804
1.50" (38 mm)	2.75" (70 mm)	MPF-1/4QTFB 15
VITON 75 Replacement O-ring		AS568-009, #5786
1.50" (38 mm)	2.75" (70 mm)	MPF-3/8QTFB 15
VITON 75 Replacement O-ring		AS568-108, #5783
1.50" (38 mm)	2.75" (70 mm)	MPF-1/2QTFB 15
VITON 75 Replacement O-ring		AS568-109, #5784

Fittings rated to 15000 psi 15

BSP Fittings

BSP FEMALE



(A)	(B)	Part Number
0.79" (20 mm)	1.50" (38 mm)	MPF-1/4BSPF

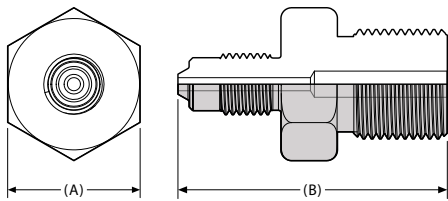
BSP FITTING KITS



		Part Number
Complete BSP Hose and Fitting Kit	Includes: 1/8 BSP [Female, Male, and Female Quick Test], 1/4 BSP [Female, Male, and Female Quick Test (2)], 3/8 BSP [Female, Male, and Female Quick Test], 1/2 BSP [Female, Male, and Female Quick Test], Transmitter [5/16 Male], CPF Connectors [Male-Male, Plug, and Cap (2)], Hose [1 meter], and Custom Carrying Case.	5634
BSP Test Kit	Includes: MPF-1/8QTFB, MPF-1/4QTFB, MPF-3/8QTFB, and MPF-1/2QTFB	4015

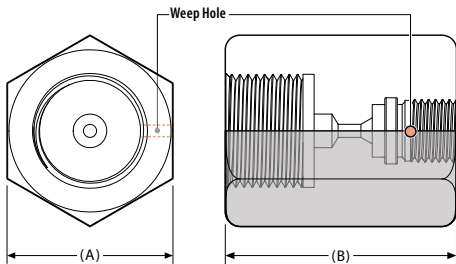
M20 Fittings

CPF MALE TO M20 MALE



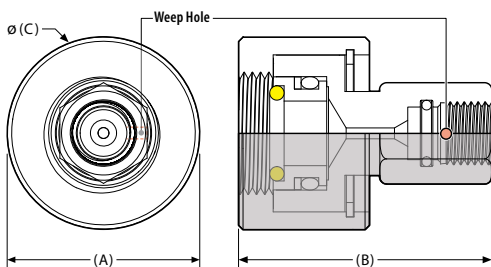
(A)	(B)	Part Number
0.95" (24 mm)	1.93" (49 mm)	MPM-M20X1.5M

M20 FEMALE



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

M20 QUICK TEST FEMALE

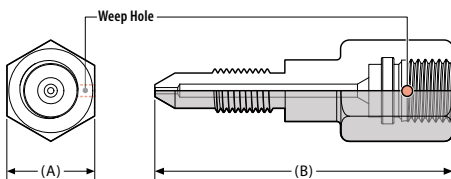


(A)	(B)	(C)	Part Number
0.63" (16 mm)	1.81" (46 mm)	1.375" (35 mm)	MPF-M20QTF
Neoprene 70 Replacement O-ring			AS568A-112, #4042

Fitting rated to 5000 psi

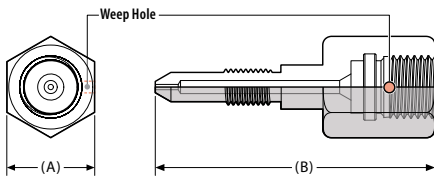
Transmitter Fittings

FOR FOXBORO, ROSEMOUNT, & YOKOGAWA



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

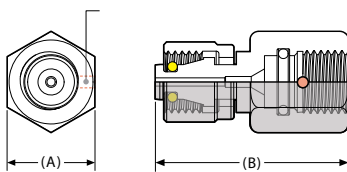
FOR HONEYWELL



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

Tube Fitting

TUBE MALE



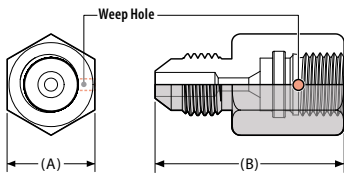
(A)	(B)	Part Number
0.63" (16 mm)	1.38" (35 mm)	MPF-1/4TBM
		VITON 90 Replacement O-ring AS568A-007, #4104
0.63" (16 mm)	1.50" (38 mm)	MPF-3/8TBM
		VITON 90 Replacement O-ring AS568A-010, #4051
0.63" (16 mm)	1.74" (44 mm)	MPF-1/2TBM
		VITON 90 Replacement O-ring AS568A-012, #3981

Swivels

Fittings rated to 5000 psi

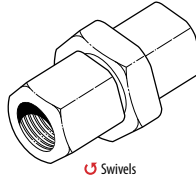
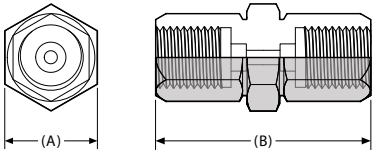
AN4 Fittings

AN4 MALE



(A)	(B)	Part Number
0.63" (16 mm)	1.35" (34 mm)	MPF-AN4M

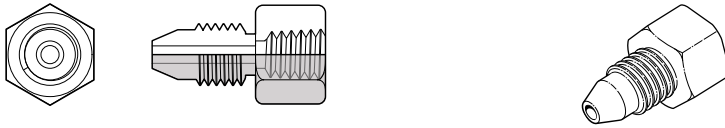
AN4 UNION SWIVEL (NON CRYSTAL)



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

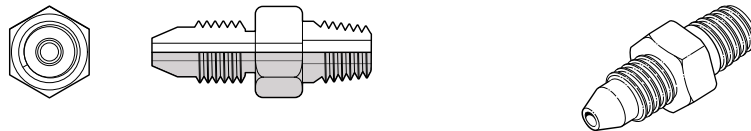
Non-Crystal MP Adapters

MEDIUM PRESSURE MALE TO NPT FEMALE



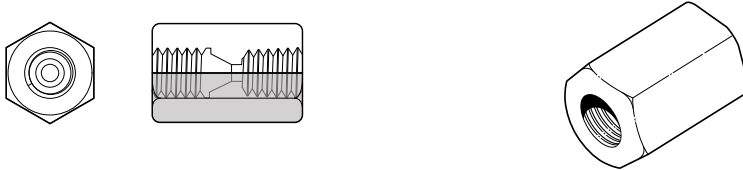
Size	Product Marking	Part Number
1/8 NPT	2NF04M15	4497
1/4 NPT	4NF04M15	4498
3/8 NPT	6NF04M15	4499
1/2 NPT	8NF04M15	4500

MEDIUM PRESSURE MALE TO NPT MALE



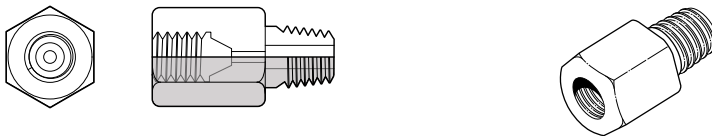
Size	Product Marking	Part Number
1/8 NPT	2N04M15	4696
1/4 NPT	4N04M15	4698
3/8 NPT	6N04M15	4492
1/2 NPT	8N04M15	4493

MEDIUM PRESSURE FEMALE TO NPT FEMALE



Size	Product Marking	Part Number
1/8 NPT	2NF04MF15	4501
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.