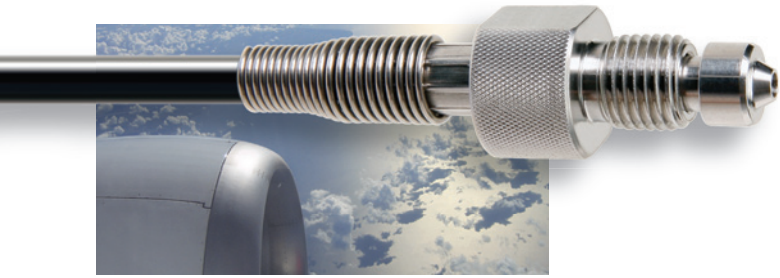


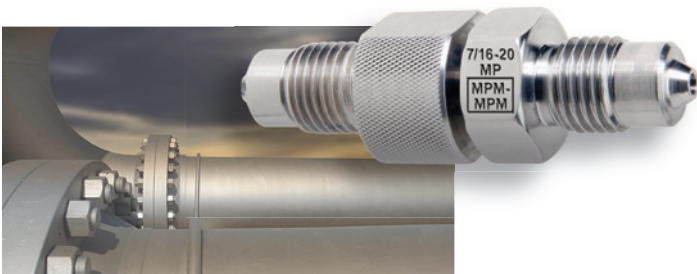
CRYSTAL  
engineering corporation



Crystal Pressure Fittings™



**Fast, Safe**  
**Leak Free**  
**Connections**



[www.crystalengineering.net](http://www.crystalengineering.net)

# Crystal Engineering's Revolutionary CPF System

Patent Pending

## Key Features and Benefits

■ ■ ■ **Introducing a revolutionary fitting system for fast, safe, and leak free connections.** When CPF fittings are connected together, no tools are required—only your fingers—for working pressure up to 10 000 PSI/700 bar/70 MPa. If you need a metal to metal seal (for media compatibility), just use a wrench! ■ Unlike other proprietary fitting systems, CPF can be used with standard, off-the-shelf medium pressure fittings from Autoclave, HiP and others - without the need for special conversion fittings.

### Fittings

- Finger-tight up to a working pressure of 10 000 PSI/700 bar/70 MPa (-20°C to 50°C).
- Wrench-tight up to a working pressure of 10 000 PSI/700 bar/70 MPa (-40°C to 150°C).
- Crystal's innovative interchangeable design allows wrench tight coupling to a working pressure of 10 000 PSI/700 bar/70 MPa with HiP\* and Autoclave Engineers† medium pressure (1/4") series fittings and adapters.
- Laser marked for clear fitting identification.
- Safety weep hole alerts you of a pressurized connection (a whistling noise or seeping of hydraulic fluid indicate that some manner of pressure still exists within the fitting).
- Cannot be mistaken for NPT.

\* HiP is High Pressure Equipment Company.

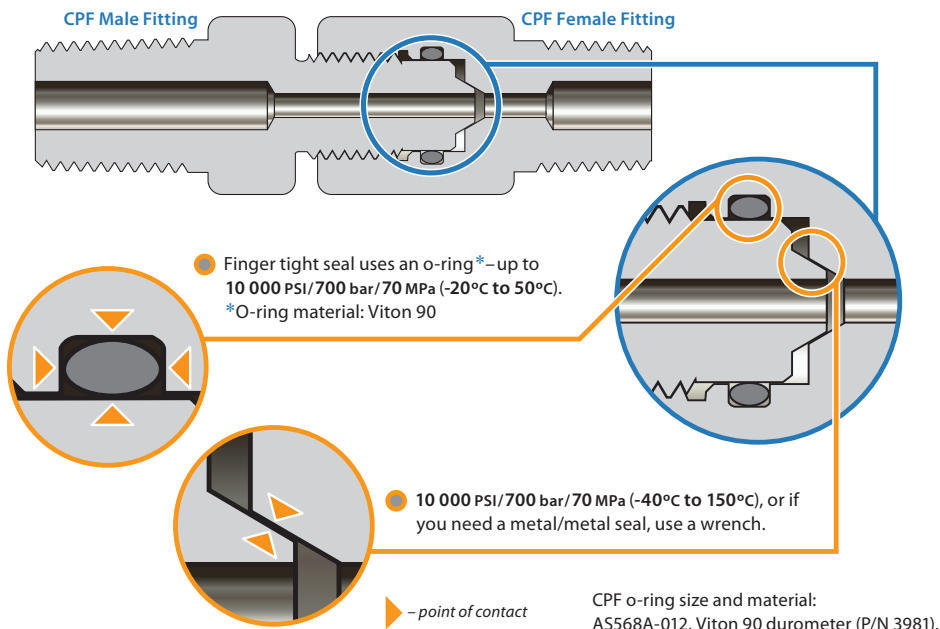
† Autoclave Engineers Fluid Components is a division of Snap-tite, Inc.

### Hoses

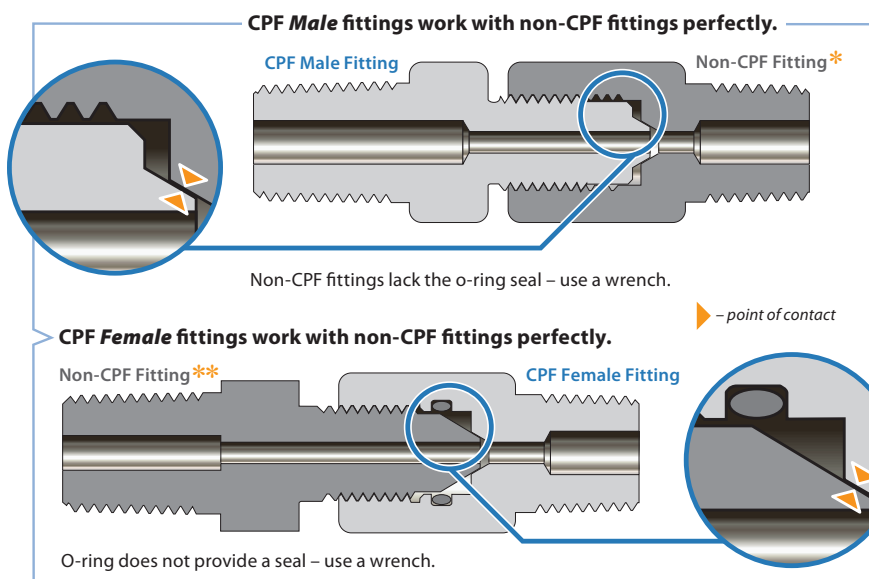
- Factor Of Safety (FOS) on 10 000 PSI/700 bar/70 MPa working pressure system is over 4:1 versus competitors FOS of 2.5:1.
- Quality construction using 316 Stainless Steel fittings on Polyamide core hose.
- Suitable for hydraulic and pneumatic applications.
- Flexible hose construction (minimum bend radius: 1.0" [25mm]).
- 0.08" (2mm) minimum internal diameter.
- Purpose-designed for calibration.
- Hose temperature rating is -40°C to 150°C.

■ **CRYSTAL Engineering's CPF System is engineered and designed in the USA.**

### CPF fittings work to create a hand-tight 10 000 PSI/700 bar/70 MPa seal!



### Non-CPF fittings



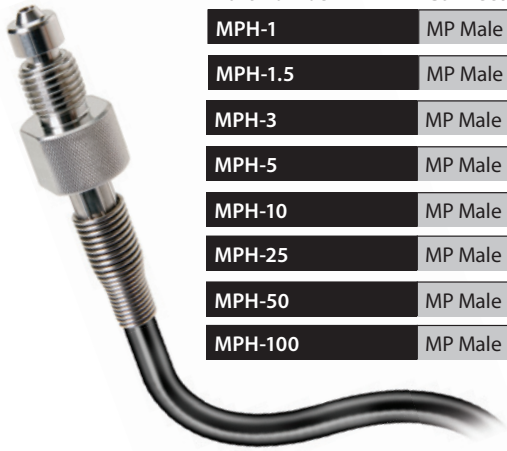
\* HiP: 1/4" Female Medium Pressure (LF4 series) ■ Autoclave Engr: 1/4" Female Medium Pressure (SF250CX female series)

\*\* HiP: 1/4" Male Medium Pressure (LM4 series) ■ Autoclave Engr: 1/4" Male Medium Pressure (SF250CX male series)

Finger-tight to a working pressure of 10 000 PSI/700 bar/70 MPa (-20°C to 50°C) Wrench-tight to a working pressure of 10 000 PSI/700 bar/70 MPa (-40°C to 150°C)

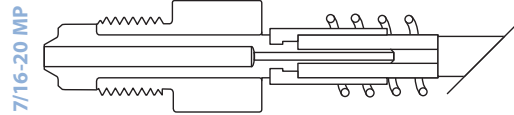
## Male – Male Hose System

Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)



5/8"  
16mm

Part Number	Connector Type	Special Attributes
MPH-1	MP Male	1 meter (3 ft.)   10 000 PSI working pressure
MPH-1.5	MP Male	1.5 meters (5 ft.)   10 000 PSI working pressure
MPH-3	MP Male	3 meters (10 ft.)   10 000 PSI working pressure
MPH-5	MP Male	5 meters (16 ft.)   10 000 PSI working pressure
MPH-10	MP Male	10 meters (33 ft.)   10 000 PSI working pressure
MPH-25	MP Male	25 meters (82 ft.)   10 000 PSI working pressure
MPH-50	MP Male	50 meters (164 ft.)   10 000 PSI working pressure
MPH-100	MP Male	100 meters (328 ft.)   10 000 PSI working pressure



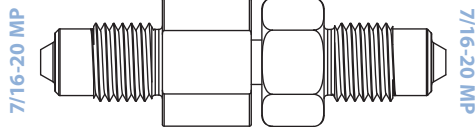
## Male – Male CPF to CPF Adapter

Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)



5/8"  
16mm

Part Number	Connector Type	Special Attributes
MPM-MPM	MP Male	Hose substitution; self supporting fitting for nVision



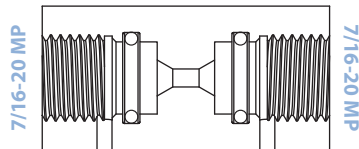
## Female - Female CPF to CPF Adapter

Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)



3/4"  
19mm

Part Number	Connector Type	Special Attributes
MPF-MPF	MP Female	Ideal for connecting two hoses or MPM (male CPF) fittings

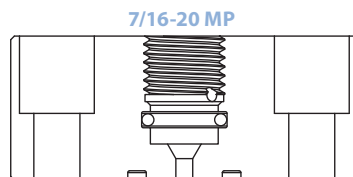


## GaugeCalXP Adapter Plate

Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)



Part Number	Connector Type	Special Attributes
MPF-GC	GaugeCalXP	Convert GaugeCalXP to CPF system



## CPF Fittings: Finger-tight to 10000 PSI

Finger-tight to a working pressure of 10 000 PSI/700 bar/70 MPa (-20°C to 50°C) Wrench-tight to a working pressure of 10 000 PSI/700 bar/70 MPa (-40°C to 150°C)

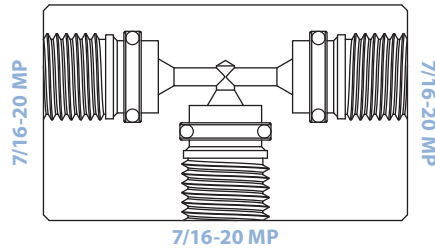
### Female Tee Union

Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)

Part Number	Connector Type	Special Attributes
MPF-MPFTU	MP Female	Connect multiple MPM (male CPF) fittings



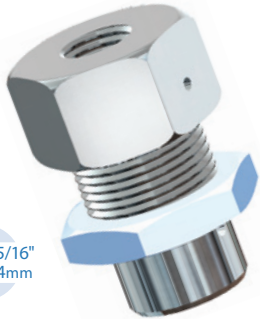
3/4"  
19mm



### Female - Female Bulkhead Mount

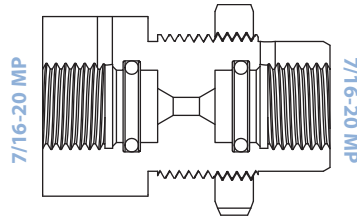
Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)

Part Number	Connector Type	Special Attributes
MPF-MPFBULK	MP Female	Bulkhead mount the CPF fitting system. Works with Swagelok Bulkhead Retainers if counter rotation needed. 20mm thru hole required.



15/16"  
24mm

1"  
26mm



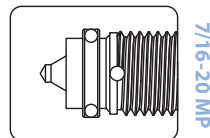
### Cap

Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)

Part Number	Connector Type	Special Attributes
MPF-CAP	Cap	Ideal for capping hoses and MPM (male CPF) fittings



5/8"  
16mm



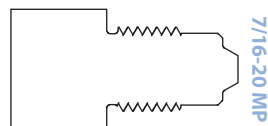
### Male Plug

Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)

Part Number	Connector Type	Special Attributes
MPM-PLUG	MP Male Plug	Plug any MPF (female CPF) fitting



5/8"  
16mm



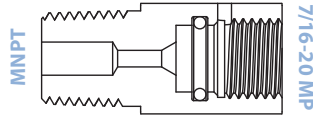
CPF Side finger-tight to a working pressure of 10 000 PSI/700 bar/70 MPa (-20°C to 50°C) NPT/BSP Side wrench-tight to a working pressure of 10 000 PSI/700 bar/70MPa (-40°C to 150°C)

**Female-Male CPF to NPT**

Wrench-tight to 10000 PSI/700 bar/70 MPa (-40°C to 150°C)



Part Number	Connector Type	Special Attributes
MPF-1/8MPT	1/8" MNPT	Connect quickly to 30 Series & ComboPump products
MPF-1/4MPT	1/4" MNPT	Connect quickly with Transmitters, GaugeCalXP (NPT), and HydraulicPump products

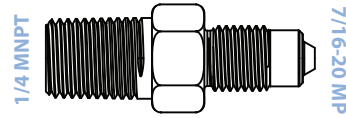


**Male-Male CPF to NPT**

Wrench-tight to 10000 PSI/700 bar/70 MPa (-40°C to 150°C)



Part Number	Connector Type	Special Attributes
MPM-1/4MPT	1/4" MNPT	Connect your nVision to a GaugeCalXP (NPT)

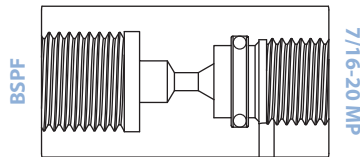


**Female - Female CPF to BSP Adapters**

Wrench-tight to 10000 PSI/700 bar/70 MPa (-40°C to 150°C)



Part Number	Connector Type	*Wrench Size	Special Attributes
MPF-1/8BSPF	G 1/8	20mm Hex	Designed to conform to EN 837-1 and utilizes parallel threads per ISO 228
MPF-1/4BSPF	G 1/4	20mm Hex	
MPF-3/8BSPF	G 3/8	25mm Hex	
MPF-1/2BSPF	G 1/2	30mm Hex	

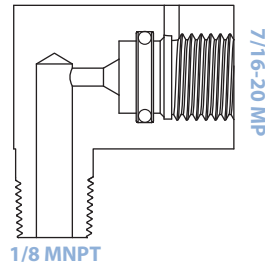


**ComboPump 90° CPF to NPT Adapter**

Wrench-tight to 10000 PSI/700 bar/70 MPa (-40°C to 150°C)



Part Number	Connector Type	Special Attributes
MPF-1/8MPT90	1/8" MNPT	Use this for easier connections in tight spaces such as on the ComboPump

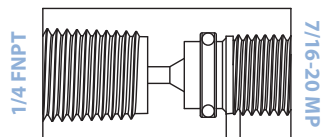


**Female- Female CPF to NPT**

Wrench-tight to 10000 PSI/700 bar/70 MPa (-40°C to 150°C)



Part Number	Connector Type	Special Attributes
MPF-1/4FPT	1/4" FNPT	Connect with M1, XP2i Series products





## Quick Test Fittings: Finger-tight to 5 000 PSI

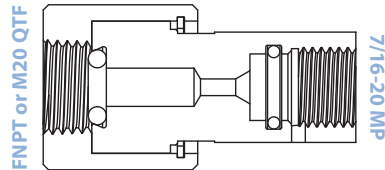
Finger-tight to a working pressure of 5 000 PSI/350 bar/35 MPa (-20°C to 50°C)

### Quick Test Female (to interface with Male NPT fittings)



5/8"  
16mm

Part Number	Connector Type	Special Attributes
MPF-1/8QTF	1/8" FNPT QT	Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)
MPF-1/4QTF	1/4" FNPT QT	Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)
MPF-1/2QTF	1/2" FNPT QT	Finger-tight to 5 000 PSI/350 bar/35 MPa (-20°C to 50°C)
MPF-M20QTF	M20X1.5 QT Female	Finger-tight to 5 000 PSI/350 bar/35 MPa (-20°C to 50°C)



### Quick Test NPT Kit Quickly connect to an array of NPT fittings

Part Number

4013

Kit contains: [MPF-1/8QTF](#) (Qty 1), [MPF-1/4QTF](#) (Qty 1), [MPF-1/2QTF](#) (Qty 1)

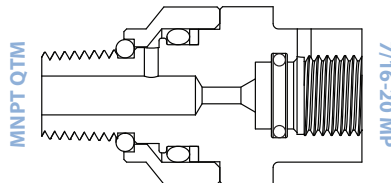
### Quick Test Male (to interface with Female NPT)

Finger-tight to 10 000 PSI/700 bar/70 MPa (-20°C to 50°C)



See  
Table\*

Part Number	Connector Type	*Wrench Size	Special Attributes
MPF-1/8QTM	1/8" MNPT QT	5/8" (16mm)	Connect to 30 Series & ComboPump products
MPF-1/4QTM	1/4" MNPT QT	3/4" (19mm)	Connect with Transmitters, GaugeCalXP (NPT), and HydraulicPump products



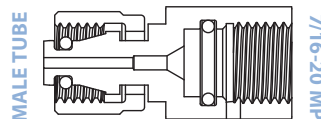
### Tube Adapters

Finger-tight to 5 000 PSI/350 bar/35 MPa (-20°C to 50°C)



5/8"  
16mm

Part Number	Connector Type	Special Attributes
MPF-1/4TBM	1/4" M Tube	CPF for Swagelok*-type tube systems
MPF-3/8TBM	3/8" M Tube	CPF for Swagelok*-type tube systems
MPF-1/2TBM	1/2" M Tube	CPF for Swagelok*-type tube systems



\* Swagelok is a registered trademark of the Swagelok Company

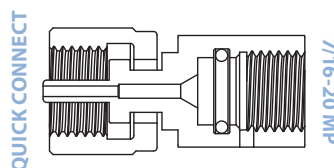
### Quick Connect Adapter

Finger-tight to 5 000 PSI/350 bar/35 MPa (-20°C to 50°C)



5/8"  
16mm

Part Number	Connector Type	Special Attributes
MPF-QCN	Quick Connect Nut	Connect quickly to Quick Connect threaded fittings



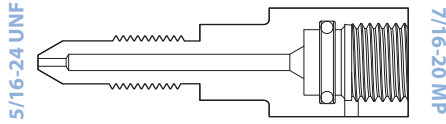
**Transmitter Bleed Valve Adapter (5/16"-24 UNF)**

Wrench-tight to 5 000 PSI/350 bar/35 MPa (-20°C to 50°C)

Part Number	Connector Type	Special Attributes
MPF-5/16TRM	5/16"-24 UNF Transmitter Male	CPF for Foxboro, Rosemount & Yokogawa transmitters



5/8"  
16mm



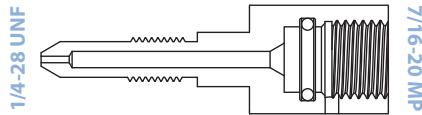
**Transmitter Bleed Valve Adapter (1/4"-28 UNF)**

Wrench-tight to 5 000 PSI/350 bar/35 MPa (-20°C to 50°C)

Part Number	Connector Type	Special Attributes
MPF-1/4TRM	1/4"-28 UNF Transmitter Male	CPF for Honeywell Transmitters



5/8"  
16mm



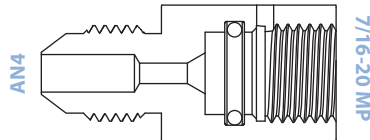
**Female - Male AN4 Adapter**

Wrench-tight to 5 000 PSI/350 bar/35 MPa (-20°C to 50°C)

Part Number	Connector Type	Special Attributes
MPF-AN4M	AN4	37° flared tube fitting made to exact AS (formerly AN) specifications. Not for in-flight use.



5/8"  
16mm



**Fitting Kits** ■■■

**GaugeCalXP Conversion Kit** Used to convert GaugeCalXPs to use the CPF fitting system

Part Number	Connects to
4012	Connects to nVision, XP2i, and M1 Kit contains: MPF-GC (Qty 2), MPF-1/4FPT (Qty 2), MPM-MPM (Qty 2)

**Quick Test NPT Kit** Quickly connect to an array of NPT fittings

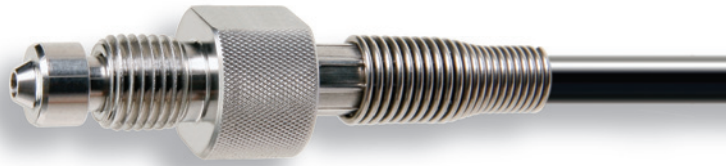
Part Number	Kit contains:
4013	MPF-1/8QTF (Qty 1), MPF-1/4QTF (Qty 1), MPF-1/2QTF (Qty 1)

**Combo Pump Fitting Kits** Includes hose and fittings to connect the Combo Pump to the appropriate gauge or calibrator

Part Number	Connects to the
4018	nVision Kit contains: MPH-1 (Qty 1), MPM-MPM (Qty 1), MPF-1/8MPT (Qty 2), MPF-1/4MPT (Qty 1), MPF-1/8MPT90 (Qty 1)

Part Number	Connects to the
4019	XP2i or M1 Gauge Kit contains: MPH-1 (Qty 1), MPM-MPM (Qty 1), MPF-1/8MPT (Qty 2), MPF-1/4MPT (Qty 1), MPF-1/8MPT90 (Qty 1), MPF-1/4FPT (Qty 1)

Part Number	Connects to the
4020	30 Series Calibrator Kit contains: MPH-1 (Qty 1), MPM-MPM (Qty 1), MPF-1/8MPT (Qty 3), MPF-1/4MPT (Qty 1), MPF-1/8MPT90 (Qty 1)



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