

# INSTRUMENTATION - TUBE FITTINGS



**INSTRUMENTATION**

**PIPE FITTINGS**

**PIPING SOLUTIONS**

**ADDITIONAL PRODUCTS**

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(Bulkhead Male Connector)

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(Bulkhead Female connector)

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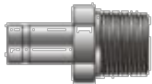
- Two FT Stub ..... pg.11
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### Reducer Port Connector - CRPC



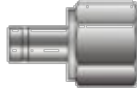
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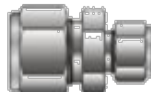
- FT Stub x NPT ..... pg.12
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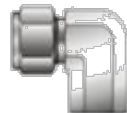
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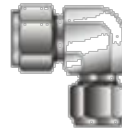
### Union Elbows-CUE



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## 45° Elbow Fittings

### Reducer Union Elbows - CRUE



- FT x FT ..... pg.16

### 45° Male Elbows-C45ME



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### Male Branch Tees - CMBT



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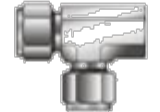
- FT x NPT ..... pg.17
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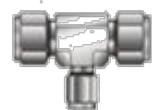
- FT x NPT ..... pg.18
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- FT x FT ..... pg.18
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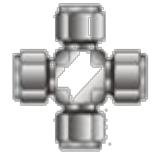
### Reducer Union Tees-CRUT



- FT x FT ..... pg.19

## Cross Fittings

### Union Cross-CUC



- FT x FT ..... pg.19
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## Components

### Double Ferrules - Front Ferrule CFF



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- FT ..... pg.20
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### Male Nuts (for female port)-CMN



- FT ..... pg.21
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### Tube Caps - CTC



- FT ..... pg.21
- MT ..... pg.21

### Tube Plugs - CTP



- FT ..... pg.21
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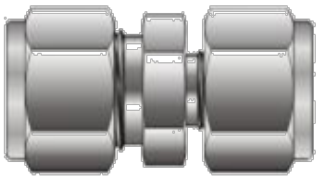
## Tube Fittings



Male connector



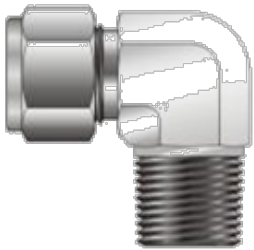
Bulkhead Male Connector



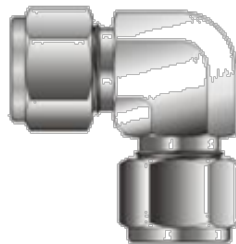
Union



Bulkhead Union



Male Elbow



- Available in tube sizes from, in fraction 1/16" to 1" & in metric 2mm to 25 mm.
- Consistent gaugeability upon initial make-up.
- Easy to disconnect and retighten.
- Wide variety of materials and configurations.
- Provide a reliable, leak-proof connection in instrumentation & process tubing systems.

## Proper Tube selection

- Always match same materials of Tube & its Fitting :- I.e SS Tubing Should only used with SS Fittings, Except for the Coper Tubing with brass Fitting
- Select Proper Tubing hardness :- KSC Instrumentation Tube Fitting are Design To work for hardness 85 HRB max
- Select proper tubing wall thickness:- Wall thickness should always be checked against our table no. 1 to 2 for minimum and maximum wall thickness limitations
- Tubing Surfaced Finish :- Tubing should be always free from draw marks & surface scratches
- Negative tolerance for the tube should be zero.

## Proper Tube preparation

- Tubing cutters are more commonly utilized on softer tubing such as copper, aluminum or even `soft` Steel tubing. If a tube cutter is utilized with stainless steel tubing, remember that a special cutting wheel, designed for use with stainless steel tubing should be employed. The use of dull or improper cutting wheels can work harden the cut area. This can adversely affect the fittings sealing ability.
- Cutting with a Hacksaw : When using a hacksaw to cut off tubing, it is essential to use a guide to assure square cutoffs. Further, to minimize the residual burrs, a hacksaw blade of 32 teeth per inch minimum is suggested.
- The burrs formed by either the tube cutter or hacksaw must be removed prior to assembly to prevent those burrs from eventually damaging the system. O.D. burrs can prevent tubing from seating properly in a fitting body. I.D. burrs can restrict flow, as well as possibly break loose and damage fine filtration elements. Note: Do not over deburr the O.D. of tubing.

After you deburr the tubing, it is essential to remove burrs from the tubing line. This can be accomplished by:

- Flushing with solvent or low pressure compressed air.
- Swab with lint-free cloth.

## Maximum allowable working pressure table

Table 1

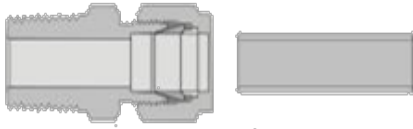
Size (Inch)	316 or 304 STAINLESS STEEL (seamless)															
	WALL THICKNESS															
	.010	.012	.014	.016	.020	.028	.035	.049	.065	.083	.095	.109	.120	.134	.156	.188
1/16"	5600	6900	8200	9500	12100	16800										
1/8"						8600	10900									
3/16"						5500	7000	10300								
1/4"						4000	5100	7500	10300							
5/16"							4100	5900	8100							
3/8"							3300	4800	6600							
1/2"							2600	3700	5100	6700						
5/8"								3000	4000	5200	6100					
3/4"								2400	3300	4300	5000	5800				
7/8"								2100	2800	3600	4200	4900				
1"									2400	3200	3700	4200	4700			
1-1/4"										3500	2900	3300	3700	4100	4900	
1-1/2"											2400	2700	3000	3400	4000	4500
2"												2000	2200	2500	2900	3200

Table 2

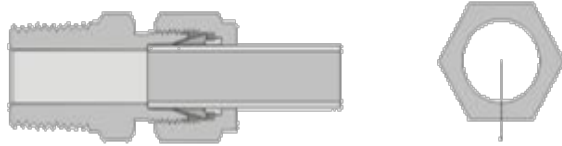
Size (Inch)	316 or 304 STAINLESS STEEL (seamless)															
	WALL THICKNESS															
	.010	.012	.014	.016	.020	.028	.035	.049	.065	.083	.095	.109	.120	.134	.156	.188
1/16"	4800	5900	7000	8100	10300	14300										
1/8"						7300	9300									
3/16"						4700	6000	8700								
1/4"						3400	4400	6400	8700							
5/16"							3400	5000	6900							
3/8"							2800	4100	5600							
1/2"							2200	3200	4300	5700						
5/8"								2500	3400	4500	5200					
3/4"								2100	2800	3700	4200	4900				
7/8"								1800	2400	3100	3600	4200				
1"									2100	2700	3100	3600	4000			
1-1/4"										2100	2400	2800	3100	3500	4200	
1-1/2"											2000	2300	2600	2900	3400	4200
2"												1700	1900	2100	2500	3000

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

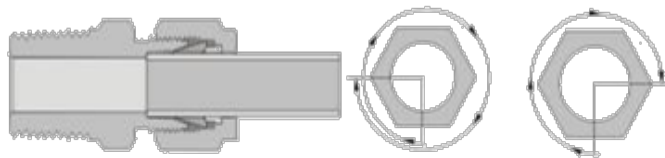
## Assembly Instructions



- 1) Insert the tube in OTFI tube fitting till the face of tube rest in the fitting body as shown.



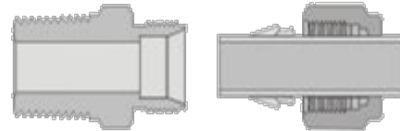
- 2) Tighten nut finger tight and scribe the nut at the 6° clock position as shown.



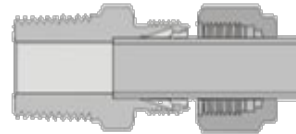
- 3) Hold fitting body steady, tighten the nut 1-1/4 turn from finger tight for fitting size in fraction 1/4" to 1", in Metric 6mm to 25mm and 3/4" turn from finger tight for fitting size in Fraction 1/16" to 3-1/6", in Metric 2mm to 4mm
- 4) Never turn the fitting body. Instead, hold the fitting body and turn the nut.

## Re-assembly Instructions

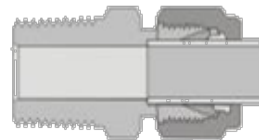
OTFI fittings can be dis-assembled and reassembled many times without Impairing the function and efficiency of the joints.



- 1) Prior to reassembly ensure that the fitting body and tube assembly are Free from any contaminant or damage.



- 2) Insert the tube assembly into the fitting body until the front ferrule seat firmly,



- 3) Tighten the nut by hand. Rotate the nut 1/4 of a turn with a spanner if necessary tighten the nut a further small amount to ensure the assembly is positively sealed.

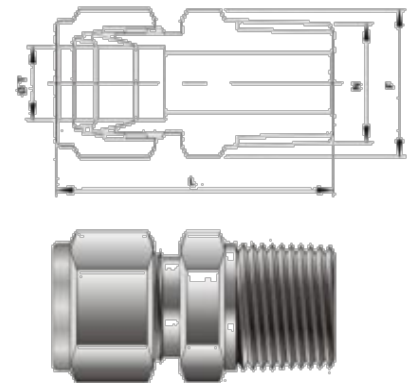
## Safety Precautions

- Do not bleed the system by loosening the fitting nut or fitting plug.
- Do not make up and tighten fittings when the system is pressurized.
- Never allow problems to go unreported.
- Always use proper thread sealants on tapered pipe threads.
- Do not mix materials or fitting components from various manufacturers-tubing, ferrules, nuts and fitting bodies.

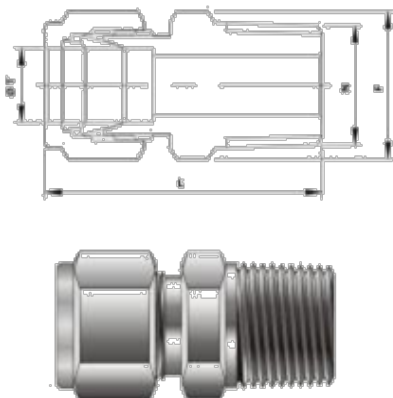
DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

PRODUCT CODE	TUBE OD (ØT)	NPT Male Pipe Size (N)	LENGTH (L)	HEX (F)
	(Inches)			
OTF-2MC1N	1/8	1/16	1.17	7/16
OTF-2MC2N	1/8	1/8	1.20	7/16
OTF-2MC4N	1/8	1/4	1.40	9/16
OTF-2MC6N	1/8	3/8	1.41	11/16
OTF-2MC8N	1/8	1/2	1.66	7/8
OTF-4MC1N	1/4	1/16	1.29	9/16
OTF-4MC2N	1/4	1/8	1.29	9/16
OTF-4MC4N	1/4	1/4	1.49	9/16
OTF-4MC6N	1/4	3/8	1.51	11/16
OTF-4MC8N	1/4	1/2	1.76	7/8
OTF-4MC12N	1/4	3/4	1.82	1-1/16
OTF-5MC2N	5/16	1/8	1.34	9/16
OTF-5MC4N	5/16	1/4	1.52	9/16
OTF-5MC6N	5/16	3/8	1.54	11/16
OTF-5MC8N	5/16	1/2	1.79	7/8
OTF-6MC2N	3/8	1/8	1.39	5/8
OTF-6MC4N	3/8	1/4	1.57	5/8
OTF-6MC6N	3/8	3/8	1.57	11/16
OTF-6MC8N	3/8	1/2	1.82	7/8
OTF-6MC12N	3/8	3/4	1.88	1-1/16
OTF-8MC2N	1/2	1/8	1.53	7/8
OTF-8MC4N	1/2	1/4	1.71	7/8
OTF-8MC6N	1/2	3/8	1.71	7/8
OTF-8MC8N	1/2	1/2	1.93	7/8
OTF-8MC12N	1/2	3/4	1.99	1-1/16
OTF-8MC16N	1/2	1	2.25	1-3/8
OTF-10MC12N	5/8	3/4	1.99	1-1/16
OTF-12MC8N	3/4	1/2	1.99	1-1/16
OTF-12MC12N	3/4	3/4	1.99	1-1/16
OTF-12MC16N	3/4	1	2.25	1-3/8
OTF-16MC8N	1	1/2	2.26	1-3/8
OTF-16MC12N	1	3/4	2.26	1-3/8
OTF-16MC16N	1	1	2.45	1-3/8

MALE CONNECTOR.....FT X NPT (M)



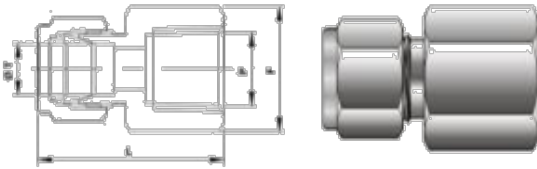
MALE CONNECTOR\_\_MT X NPT(M)



DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

PRODUCT CODE	TUBE OD (ØT)	NPT Male Pipe Size (N)	LENGTH (L)	HEX (F)
	(Inches)			
OTF-3MMC1/8N	3	1/8	29.7	11
OTF-3MMC1/4N	3	1/4	35.6	14
OTF-4MMC1/8N	4	1/8	31.2	11
OTF-4MMC1/4N	4	1/4	36.3	14
OTF-6MMC1/8N	6	1/8	32.8	14
OTF-6MMC1/4N	6	1/4	37.9	14
OTF-6MMC3/8N	6	3/8	38.4	17.4
OTF-6MMC1/2N	6	1/2	44.7	22
OTF-8MMC1/8N	8	1/8	34.2	16
OTF-8MMC1/4N	8	1/4	38.7	16
OTF-8MMC3/8N	8	3/8	39.3	17.4
OTF-8MMC1/2N	8	1/2	45.6	22
OTF-10MMC1/8N	10	1/8	36.3	19
OTF-10MMC1/4N	10	1/4	40.9	19
OTF-10MMC3/8N	10	3/8	40.9	19
OTF-10MMC1/2N	10	1/2	46.5	22
OTF-10MMC3/4N	10	3/4	48.0	27
OTF-10MMC1N	10	1	55.0	35
OTF-12MMC1/8N	12	1/8	38.8	22
OTF-12MMC1/4N	12	1/4	43.4	22
OTF-12MMC3/8N	12	3/8	43.4	22
OTF-12MMC1/2N	12	1/2	49.0	22
OTF-12MMC3/4N	12	3/4	50.5	27
OTF-15MMC1/2N	15	1/2	49.0	25
OTF-16MMC3/8N	16	3/8	44.1	25
OTF-16MMC1/2N	16	1/2	49.0	25
OTF-16MMC3/4N	16	3/4	50.5	27
OTF-20MMC1/2N	20	1/2	52.3	30
OTF-25MMC1/2N	25	1/2	57.5	35
OTF-25MMC3/4N	25	3/4	57.5	35
OTF-25MMC1N	25	1	62.3	35

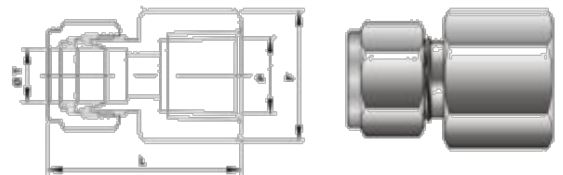
**Female Connector\_FT x NPT(F)**



PRODUCT CODE	TUBE OD (ØT)	NPT Female Pipe Size (P)	LENGTH (L)	HEX (F)
	(Inches)			
OTF1-2FC2N	1/8	1/8	1.13	9/16
OTF1-2FC4N	1/8	1/4	1.32	3/4
OTF1-4FC2N	1/4	1/8	1.23	9/16
OTF1-4FC4N	1/4	1/4	1.41	3/4
OTF1-4FC6N	1/4	3/8	1.48	7/8
OTF1-4FC8N	1/4	1/2	1.67	1-1/16
OTF1-5FC2N	5/16	1/8	1.26	9/16
OTF1-5FC4N	5/16	1/4	1.45	3/4
OTF1-5FC6N	5/16	3/8	1.51	7/8
OTF1-6FC2N	3/8	1/8	1.29	5/8
OTF1-6FC4N	3/8	1/4	1.48	3/4
OTF1-6FC6N	3/8	3/8	1.54	7/8
OTF1-6FC8N	3/8	1/2	1.73	1-1/16
OTF1-6FC12N	3/8	3/4	1.88	1-1/4
OTF1-8FC4N	1/2	1/4	1.59	7/8
OTF1-8FC6N	1/2	3/8	1.65	7/8
OTF1-8FC8N	1/2	1/2	1.84	1-1/16
OTF1-8FC12N	1/2	3/4	1.90	1-1/4
OTF1-12FC8N	3/4	1/2	1.84	1-1/16
OTF1-12FC12N	3/4	3/4	1.90	1-3/8
OTF1-16FC12N	1	3/4	2.10	1-5/8
OTF1-16FC16N	1	1	2.45	1-5/8

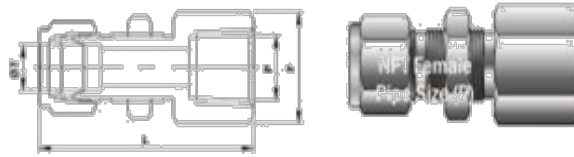
PRODUCT CODE	TUBE OD (ØT)	NPT Female Pipe Size (P)	LENGTH (L)	HEX (F)
	(mm)	(Inches)	(mm)	
OTF1-3MFC1/8N	3	1/8	28.7	14
OTF1-3MFC1/4N	3	1/4	33.5	19
OTF1-4MFC1/8N	4	1/8	29.7	14
OTF1-4MFC1/4N	4	1/4	31.3	14
OTF1-6MFC1/8N	6	1/8	35.8	19
OTF1-6MFC1/4N	6	1/4	37.6	19
OTF1-6MFC3/8N	6	3/8	37.6	22
OTF1-6MFC1/2N	6	1/2	42.5	27
OTF1-8MFC1/8N	8	1/8	32.1	16
OTF1-8MFC1/4N	8	1/4	37.0	19
OTF1-8MFC3/8N	8	3/8	38.5	22
OTF1-8MFC1/2N	8	1/2	43.3	27
OTF1-10MFC1/4N	10	1/4	37.8	19
OTF1-10MFC3/8N	10	3/8	39.4	22
OTF1-10MFC1/2N	10	1/2	44.2	27
OTF1-12MFC1/4N	12	1/4	40.5	22
OTF1-12MFC3/8N	12	3/8	41.9	22
OTF1-12MFC1/2N	12	1/2	46.7	27
OTF1-15MFC1/2N	15	1/2	46.7	27
OTF1-16MFC3/8N	16	3/8	41.9	27
OTF1-16MFC1/2N	16	1/2	46.9	27
OTF1-25MFC3/4N	25	3/4	53.4	35
OTF1-25MFC1N	25	1	62.3	41

**Female Connector\_MT x NPT(F)**



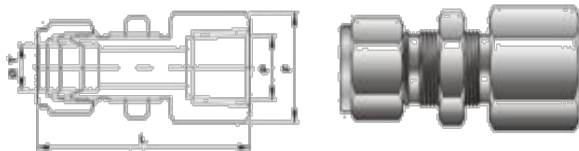
DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

### Bulkhead Female Connector\_FT x NPT(F)



PRODUCT CODE	TUBE OD (ØT)	NPT Female Pipe Size (P)	LENGTH (L)	HEX (F)
	(Inches)			
QTFI-2BC2N	1/8	1/8	1.76	9/16
QTFI-4BC2N	1/4	1/8	1.85	5/8
QTFI-4BC4N	1/4	1/4	2.04	3/4
QTFI-5BC2N	5/16	1/8	1.96	11/16
QTFI-5BC8N	5/16	1/2	2.38	1-1/16
QTFI-6BC4N	3/8	1/4	2.17	3/4
QTFI-6BC6N	1/2	3/8	2.43	7/8
QTFI-6BC8N	1/2	1/2	2.42	1
QTFI-12BC12N	3/4	3/4	2.90	1-1/4
QTFI-16BC16N	1	1	3.68	1-5/8

### Bulkhead Female Connector\_MT x NPT(F)



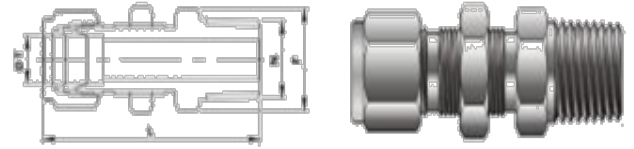
PRODUCT CODE	TUBE OD (ØT)	NPT Female Pipe Size (P)	LENGTH (L)	HEX (F)
	(mm)			
QTFI-6MFBC1/8N	6	1/8	47.2	16
QTFI-6MFBC1/4N	6	1/4	51.8	19
QTFI-8MFBC1/8N	8	1/8	49.6	17.4
QTFI-10MFBC1/4N	10	1/4	55.2	19
QTFI-12MFBC3/8N	12	3/8	60.9	25
QTFI-12MFBC1/2N	12	1/2	66.5	27

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

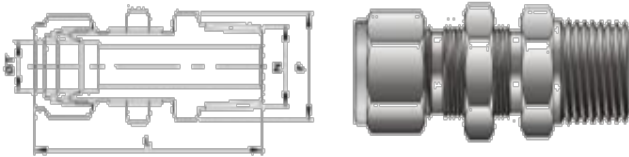


PRODUCT CODE	TUBE OD (ØT)	NPT Male Pipe Size (N)	LENGTH (L)	HEX (F)
	(Inches)			
OTF-2MBC2N	1/8	1/8	1.83	1/2
OTF-4MBC2N	1/4	1/8	1.95	5/8
OTF-4MBC4N	1/4	1/4	2.13	5/8
OTF-4MBC6N	1/4	3/8	2.16	11/16
OTF-4MBC8N	1/4	1/2	2.37	7/8
OTF-5MBC2N	5/16	1/8	2.08	11/16
OTF-5MBC4N	5/16	1/4	2.27	11/16
OTF-6MBC2N	3/8	1/8	2.09	3/4
OTF-6MBC4N	3/8	1/4	2.26	3/4
OTF-6MBC6N	3/8	3/8	2.48	3/4
OTF-6MBC8N	3/8	1/2	2.51	7/8
OTF-8MBC4N	1/2	1/4	2.49	1
OTF-8MBC6N	1/2	3/8	2.49	1
OTF-8MBC8N	1/2	1/2	2.71	1
OTF-8MBC12N	1/2	3/4	2.72	1-1/8
OTF-12MBC8N	3/4	1/2	3.00	1-3/16
OTF-12MBC12N	3/4	3/4	3.00	1-3/16
OTF-16MBC12N	1	3/4	3.54	1-5/8
OTF-16MBC16N	1	1	3.67	1-5/8

### BULKHEAD MALE CONNECTOR\_FT X NPT(M)



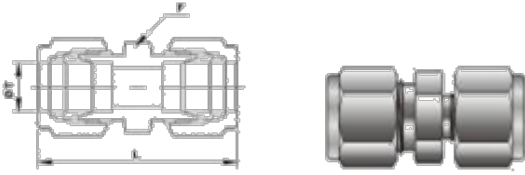
### Bulkhead Male Connector\_\_MT x NPT(M)



PRODUCT CODE	TUBE OD (ØT)	NPT Male Pipe Size (N)	LENGTH (L)	HEX (F)
	(Inches)	(Inches)	(mm)	
OTF-6MBC1/8N	6	1/8	49.6	10
OTF-6MBC1/4N	6	1/4	53.6	10
OTF-8MBC1/8N	8	1/8	52.3	10
OTF-8MBC1/4N	8	1/4	57.5	10
OTF-10MBC1/4N	10	1/4	58.4	22
OTF-10MBC3/8N	10	3/8	58.4	22
OTF-10MBC1/2N	10	1/2	63.1	22
OTF-12MBC1/4N	12	1/4	63.3	25
OTF-12MBC3/8N	12	3/8	64.5	25
OTF-12MBC1/2N	12	1/2	68.8	25

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

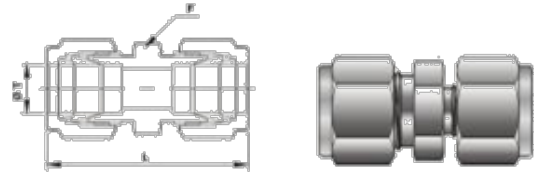
### Union\_FT X FT



PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)	HEX (F)
	(Inches)		
OTFI-2U2	1/8	1.40	7/16
OTFI-4U4	1/4	1.61	1/2
OTFI-5U5	5/16	1.69	9/16
OTFI-6U6	3/8	1.77	5/8
OTFI-8U8	1/2	2.02	7/8
OTFI-12U12	3/4	2.11	1-1/16
OTFI-16U16	1	2.55	1-3/8

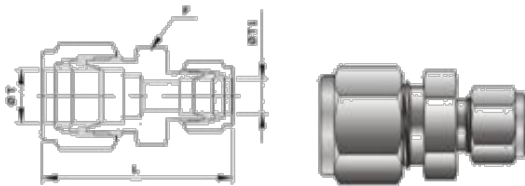
PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)	HEX (F)
	(mm)		
OTFI-2MU	2	35.6	12
OTFI-3MU	3	35.3	12
OTFI-4MU	4	37.3	12
OTFI-6MU	6	41.0	14
OTFI-8MU	8	43.2	16
OTFI-10MU	10	46.2	19
OTFI-12MU	12	51.2	22
OTFI-15MU	15	52.0	25
OTFI-16MU	16	52.0	25
OTFI-25MU	25	65.0	35

### Union\_MT X MT



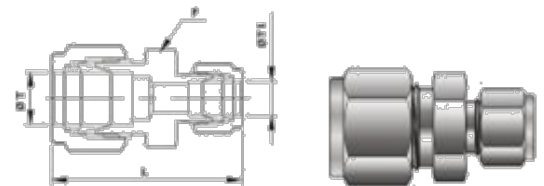
PRODUCT CODE	TUBE OD (ØT)	TUBE OD (ØT1)	LENGTH (L)	HEX (F)
	(Inches)			
OTFI-2RU1	1/8	1/16	1.22	7/16
OTFI-4RU1	1/4	1/16	1.35	1/2
OTFI-4RU2	1/4	1/8	1.52	1/2
OTFI-4RU3	1/4	3/16	1.55	1/2
OTFI-5RU2	5/16	1/8	1.56	9/16
OTFI-5RU4	5/16	1/4	1.66	9/16
OTFI-6RU1	3/8	1/16	1.44	5/8
OTFI-6RU2	3/8	1/8	1.61	5/8
OTFI-6RU4	3/8	1/4	1.70	5/8
OTFI-6RU5	3/8	5/16	1.74	5/8
OTFI-8RU2	1/2	1/8	1.78	7/8
OTFI-8RU4	1/2	1/4	1.85	7/8
OTFI-8RU6	1/2	3/8	1.91	7/8
OTFI-12RU4	3/4	1/4	1.94	1-1/16
OTFI-12RU6	3/4	3/8	2.00	1-1/16
OTFI-12RU8	3/4	1/2	2.11	1-1/16
OTFI-12RU10	3/4	5/8	2.11	1-1/16
OTFI-16RU8	1	1/2	2.38	1-3/8
OTFI-16RU12	1	3/4	2.38	1-3/8

### Reducer Union\_FT X FT

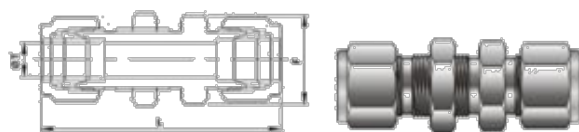


PRODUCT CODE	TUBE OD (ØT)	TUBE OD (ØT1)	LENGTH (L)	HEX (F)
	(mm)			
OTFI-3MRU2M	3	2	35.3	12
OTFI-6MRU2M	6	2	38.6	14
OTFI-6MRU3M	6	3	38.6	14
OTFI-6MRU4M	6	4	39.4	14
OTFI-8MRU6M	8	6	42.3	16
OTFI-10MRU6M	10	6	44.5	19
OTFI-10MRU8M	10	8	45.1	19
OTFI-12MRU6M	12	6	47.0	22
OTFI-12MRU8M	12	8	47.8	22
OTFI-12MRU10M	12	10	48.7	22
OTFI-16MRU10M	16	10	49.5	25
OTFI-16MRU12M	16	12	52.0	25
OTFI-25MRU18	25	18	61.0	35
OTFI-25MRU25M	25	25	62.3	35

### Reducer Union\_MT X MT



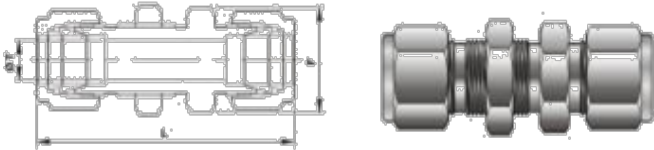
### Bulkhead Union\_FT X FT



PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)	HEX (F)
	(Inches)		
OTFI-2BU2	1/8	2.02	1/2
OTFI-4BU4	1/4	2.27	5/8
OTFI-5BU5	5/16	2.39	11/16
OTFI-6BU6	3/8	2.45	3/4
OTFI-8BU8	1/2	2.80	1
OTFI-12BU12	3/4	3.11	1-3/16
OTFI-16BU16	1	3.77	1-5/8

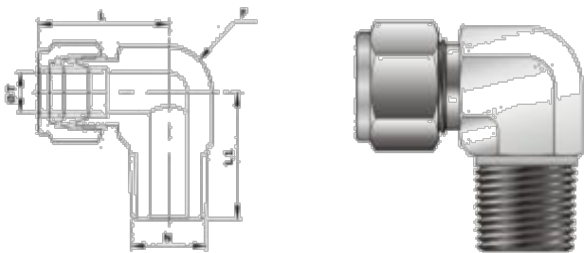
DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

### Bulkhead Union\_MT X MT



COMFIT PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)	HEX (F)
	(mm)		
OTFI-3MBU	3	51.3	14
OTFI-4MBU	4	53.6	14
OTFI-6MBU	6	57.7	16
OTFI-8MBU	8	61.0	19
OTFI-10MBU	10	63.7	22
OTFI-12MBU	12	71.0	25
OTFI-15MBU	15	72.5	27
OTFI-16MBU	16	72.5	27
OTFI-25MBU	25	95.8	41

### Male Elbow\_FT X NPT(M)

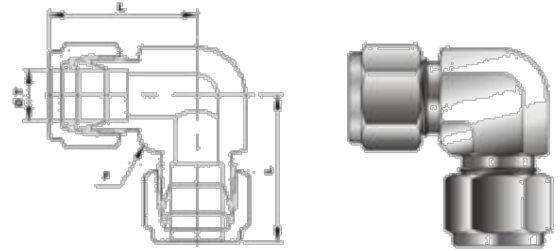


COMFIT PRODUCT CODE	TUBE OD (ØT)	NPT MALE PIPE (N)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(Inch)				
OTFI-2ME1N	1/8	1/16	0.93	0.70	7/16
OTFI-2ME2N	1/8	1/8	0.93	0.70	7/16
OTFI-2ME4N	1/8	1/4	0.97	0.92	9/16
OTFI-4ME1N	1/4	1/16	1.06	0.74	1/2
OTFI-4ME2N	1/4	1/8	1.06	0.74	1/2
OTFI-4ME4N	1/4	1/4	1.06	0.92	9/16
OTFI-4ME6N	1/4	3/8	1.17	1.03	11/16
OTFI-4ME8N	1/4	1/2	1.25	1.30	7/8
OTFI-5ME2N	5/16	1/8	1.13	0.78	5/8
OTFI-5ME4N	5/16	1/4	1.13	0.96	6/8
OTFI-5ME6N	5/16	3/8	1.20	1.03	11/16
OTFI-6ME2N	3/8	1/8	1.20	0.82	5/8
OTFI-6ME4N	3/8	1/4	1.20	1.00	5/8
OTFI-6ME6N	3/8	3/8	1.23	1.03	11/16
OTFI-6ME8N	3/8	1/2	1.31	1.30	7/8
OTFI-6ME12N	3/8	3/4	1.46	1.45	1-1/16
OTFI-8ME4N	1/2	1/4	1.42	1.11	13/16
OTFI-8ME6N	1/2	3/8	1.42	1.11	13/16
OTFI-8ME8N	1/2	1/2	1.42	1.30	7/8
OTFI-8ME12N	1/2	3/4	1.57	1.45	1-1/16
OTFI-12ME8N	3/4	1/2	1.57	1.45	1-1/16
OTFI-12ME12N	3/4	3/4	1.57	1.45	1-1/16
OTFI-16ME12N	1	3/4	1.93	1.64	1-3/8
OTFI-16ME16N	1	1	1.93	1.83	1-3/8

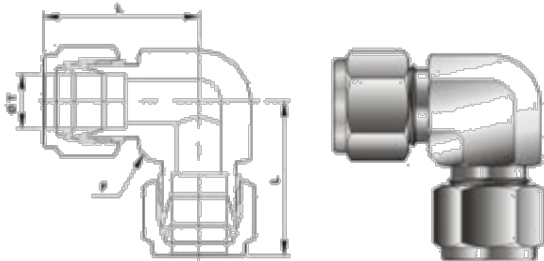
DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)	HEX (F)
	(Inch)		
OTFI-2UE2	1/8	0.88	7/16
OTFI-4UE4	1/4	1.06	9/16
OTFI-5UE5	5/16	1.13	9/16
OTFI-6UE6	3/8	1.20	5/8
OTFI-8UE8	1/2	1.42	13/16
OTFI-12UE12	3/4	1.57	1-1/16
OTFI-16UE16	1	1.93	1-3/8

### Union Elbow\_FT X FT



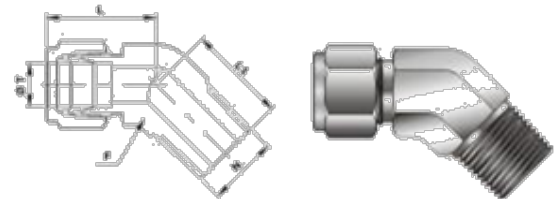
### Union Elbow\_MT X MT



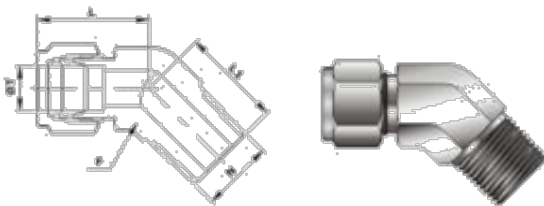
PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)	HEX (F)
	(mm)		(Inch)
OTFI-3MUE	3	22.3	7/16
OTFI-4MUE	4	25.4	7/16
OTFI-6MUE	6	27.0	9/16
OTFI-8MUE	8	28.8	9/16
OTFI-10MUE	10	31.5	11/16
OTFI-12MUE	12	36.0	13/16
OTFI-14MUE	14	38.0	1
OTFI-15MUE	15	38.8	1
OTFI-16MUE	16	38.0	1
OTFI-25MUE	25	49.1	1-3/8

PRODUCT CODE	TUBE OD (ØT)	NPT MALE PIPE (N)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(Inch)				
OTFI-2MET2N	1/8	1/8	0.88	0.66	7/16
OTFI-4MET2N	1/4	1/8	0.97	0.65	9/16
OTFI-4MET4N	1/4	1/4	0.97	0.83	9/16
OTFI-5MET2N	5/16	1/8	1.01	0.66	9/16
OTFI-6MET2N	3/8	1/8	1.10	0.72	5/8
OTFI-6MET4N	3/8	1/4	1.10	0.90	5/8
OTFI-6MET6N	3/8	3/8	1.15	0.95	13/16
OTFI-8MET6N	1/2	3/8	1.26	0.95	13/16
OTFI8MET8N	1/2	1/2	1.26	1.14	7/8
OTFI-12MET12N	3/4	3/4	1.34	1.22	1-1/16
OTFI-16MET16N	1	1	1.59	1.49	1-3/8

### 45° Male Elbow\_FT X NPT (M)



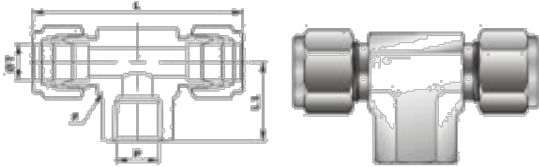
### 45° Male Elbow\_MT X NPT (M)



PRODUCT CODE	TUBE OD (ØT)	NPT MALE PIPE (N)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(mm)	(Inch)	(mm)		
OTFI-6MMET1/8N	6	1/8	16.0	10.6	14.0
OTFI-6MMET1/4N	6	1/4	21.8	21.8	14.0
OTFI-8MMET1/8N	8	1/8	16.8	16.8	14.0
OTFI-10MMET1/4N	10	1/4	19.0	24.1	19.0
OTFI-12MMET3/8N	12	3/8	19.0	24.1	19.0
OTFI-12MMET1/2N	12	1/2	20.6	29.7	22.0
OTFI-16MMET1/2N	16	1/2	20.6	29.7	22.0

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

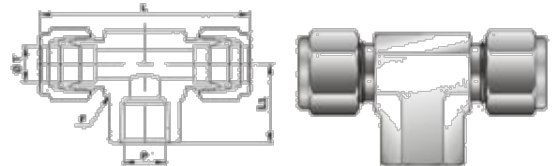
### Female Branch Tee\_FT X NPT (F)



PRODUCT CODE	TUBE OD (ØT)	NPT FEMALE PIPE Sizes (N)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(Inch)				
OTFI-2FBT2N	1/8	1/8	1.94	0.75	9/16
OTFI-4FBT2N	1/4	1/8	2.12	0.75	9/16
OTFI-4FBT4N	1/4	1/4	2.34	0.88	3/4
OTFI-5FBT2N	5/16	1/8	2.34	0.75	5/8
OTFI-6FBT4N	3/8	1/4	2.46	0.88	11/16
OTFI-6FBT6N	3/8	3/8	2.62	0.88	7/8
OTFI-6FBT8N	3/8	1/2	2.84	1.12	1-1/16
OTFI-8FBT4N	1/2	1/4	2.84	0.88	13/16
OTFI-8FBT6N	1/2	3/8	2.84	0.88	7/8
OTFI-8FBT8N	1/2	1/2	3.06	1.12	1-1/16
OTFI-12FBT12N	3/4	3/4	3.52	1.25	1-1/4
OTFI-16FBT12N	1	3/4	3.86	1.25	1-1/4
OTFI-16FBT16N	1	1	4.22	1.50	1-11/16

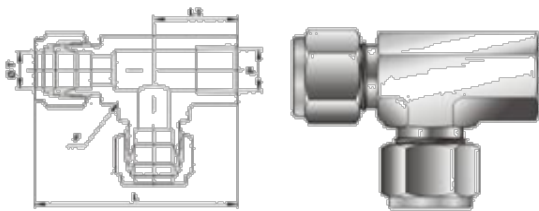
PRODUCT CODE	TUBE OD (ØT)	NPT FEMALE PIPE Sizes (N)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(mm)	(Inch)	(mm)		(Inch)
OTFI-6MFBT1/8N	6	1/8	59.9	19.0	9/16
OTFI-6MFBT1/4N	6	1/4	59.5	22.4	3/4
OTFI-8MFBT1/8N	8	1/8	59.7	19.0	5/8
OTFI-8MFBT1/4N	8	1/4	61.2	22.4	3/4
OTFI-10MFBT1/4N	10	1/4	67.0	22.4	3/4
OTFI-12MFBT1/8N	12	1/8	72.0	22.3	7/8
OTFI-12MFBT1/4N	12	1/4	72.0	22.4	7/8
OTFI-12MFBT3/8N	12	3/8	72.0	22.4	7/8
OTFI-12MFBT1/2N	12	1/2	77.6	28.5	1-1/16
OTFI-16MFBT1/2N	16	1/2	77.6	28.4	1-1/16

### Female Branch Tee\_MT X NPT (F)



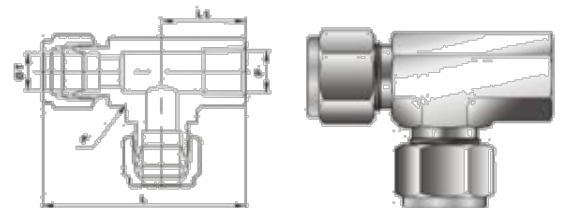
PRODUCT CODE	TUBE OD (ØT)	NPT FEMALE PIPE Sizes (N)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(mm)	(Inch)	(mm)		
OTFI-2FRT2N	1/8	1/8	1.72	0.75	9/16
OTFI-4FRT2N	1/4	1/8	1.81	0.75	9/16
OTFI-4FRT4N	1/4	1/4	2.05	0.88	3/4
OTFI-5FRT2N	5/16	1/8	1.92	0.75	5/8
OTFI-6FRT4N	3/8	1/4	2.11	0.88	3/4
OTFI-8FRT4N	1/2	1/4	2.56	1.13	7/8
OTFI-8FRT6N	1/2	3/8	2.30	0.88	7/8
OTFI-8FRT8N	1/2	1/2	2.69	1.12	1-1/16
OTFI-12FRT12N	3/4	3/4	3.01	1.25	1-1/4
OTFI-16FRT12N	1	3/4	3.88	1.25	1-1/4
OTFI-16FRT16N	1	1	3.61	1.50	1-11/16

### Female Run Tee\_FT X NPT (F)



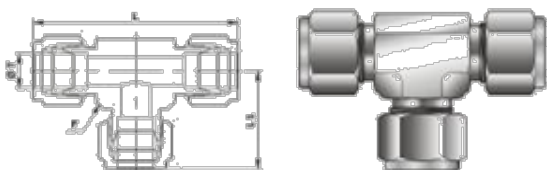
PRODUCT CODE	TUBE OD (ØT)	NPT Female Pipe Sizes (P)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(mm)	(Inch)	(mm)		(Inch)
OTFI-6MFRT1/8N	6	1/8	46.0	19.0	9/16
OTFI-6MFRT1/4N	6	1/4	52.1	22.4	3/4
OTFI-8MFRT1/8N	8	1/8	48.9	19.0	5/8
OTFI-8MFRT1/4N	8	1/4	53.0	22.4	3/4
OTFI-10MFRT1/4N	10	1/4	55.9	22.4	3/4
OTFI-12MFRT1/4N	12	1/4	58.4	22.4	7/8
OTFI-12MFRT3/8N	12	3/8	58.4	22.4	7/8
OTFI-12MFRT1/2N	12	1/2	67.3	28.5	1-1/16
OTFI-16MFRT1/2N	16	1/2	28.4	28.4	1-1/16

### Female Run Tee\_MT X NPT (F)



PRODUCT CODE	TUBE OD (ØT)	Length (L)	LENGTH (L1)	HEX (F)
	(Inch)			
OTFI-2UT2	1/8	1.76	0.88	7/16
OTFI-3UT3	3/16	1.92	0.96	7/16
OTFI-4UT4	1/4	2.12	1.06	9/16
OTFI-5UT5	5/16	2.34	1.17	5/8
OTFI-6UT6	3/8	2.40	1.20	11/16
OTFI-8UT8	1/2	2.84	1.42	13/16
OTFI-12UT12	3/4	3.14	1.57	1-1/16
OTFI-16UT16	1	3.86	1.93	1-3/8

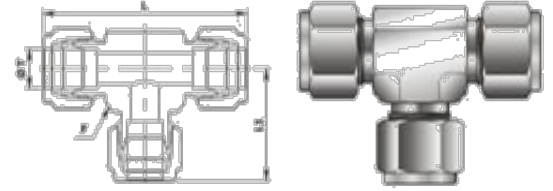
### Union Tee\_FT X FT



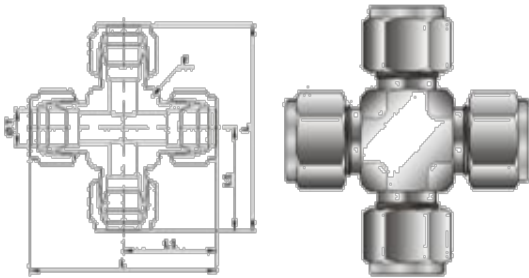
DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

PRODUCT CODE	TUBE OD (ØT)	LENGHT (L)	LENGTH (L1)	HEX (F)
	(mm)			(Inch)
OTFI-3MUT	3	44.7	22.3	7/16
OTFI-4MUT	4	50.8	25.4	1/2
OTFI-6MUT	6	53.9	27.0	9/16
OTFI-8MUT	8	59.7	29.9	5/8
OTFI-10MUT	10	63.0	31.5	11/16
OTFI-12MUT	12	72.0	36.0	13/16
OTFI-15MUT	15	77.6	38.8	1
OTFI-16MUT	16	77.6	38.8	1
OTFI-25MUT	25	98.3	49.1	1-3/8

### Union Tee\_MT X MT



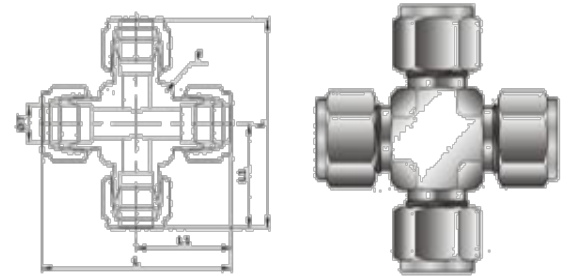
### Union Cross\_FT X FT



PRODUCT CODE	TUBE OD (ØT)	LENGHT (L)	LENGTH (L1)	HEX (F)
	(Inch)			
OTFI-2UC2	1/8	1.76	0.88	3/8
OTFI-4UC4	1/4	2.12	1.06	9/16
OTFI-5UC5	5/16	2.94	1.17	5/8
OTFI-6UC6	3/8	2.40	1.20	5/8
OTFI-8UC8	1/2	2.84	1.42	13/16
OTFI-12UC12	3/4	3.14	1.57	1-1/16
OTFI-16UC16	1	3.86	1.93	1-3/8

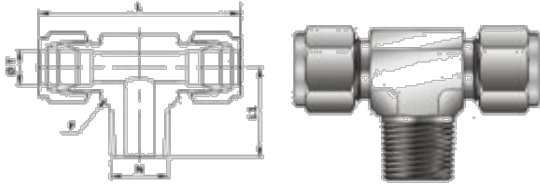
PRODUCT CODE	TUBE OD (ØT)	LENGHT (L)	LENGTH (L1)	HEX (F)
	(mm)			(Inch)
OTFI-3MUC	3	44.7	22.3	7/16
OTFI-4MUC	4	50.8	25.4	7/16
OTFI-6MUC	6	53.9	27.0	9/16
OTFI-8MUC	8	59.7	29.9	5/8
OTFI-10MUC	10	67.0	33.5	13/16
OTFI-12MUC	12	72.0	36.0	13/16
OTFI-16MUC	16	74.0	37.0	1
OTFI-25MUC	25	98.3	49.1	1-3/8

### Union Cross\_MT X MT



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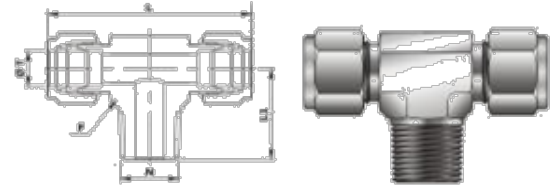
### Male Branch Tee\_FT X NPT (M)



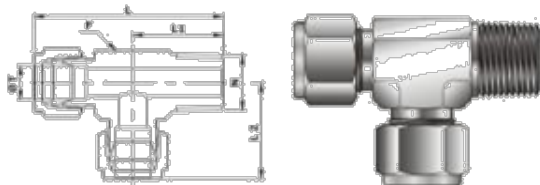
PRODUCT CODE	TUBE OD (ØT)	NPT MALE PIPE (N)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(Inch)				
OTFI-2MBT2N	1/8	1/8	1.86	0.70	7/16
OTFI-2MBT4N	1/8	1/4	1.94	0.92	9/16
OTFI-4MBT2N	1/4	1/8	2.12	0.74	9/16
OTFI-4MBT4N	1/4	1/4	2.12	0.92	9/16
OTFI-5MBT2N	5/16	1/8	2.34	0.82	5/8
OTFI-5MBT4N	5/16	1/4	2.34	1.01	5/8
OTFI-6MBT4N	3/8	1/4	2.40	1.00	5/8
OTFI-6MBT6N	3/8	3/8	2.62	0.11	1 1/16
OTFI-8MBT6N	1/2	3/8	2.84	1.11	1 3/16
OTFI-8MBT8N	1/2	1/2	2.84	1.30	7/8
OTFI-12MBT12N	3/4	3/4	3.14	1.45	1-1/16
OTFI-16MBT12N	1	3/4	3.88	1.66	1-3/8
OTFI-16MBT16N	1	1	3.88	1.84	1-3/8

PRODUCT CODE	TUBE OD (ØT)	NPT MALE PIPE (N)	LENGTH (L)	LENGTH (L1)	HEX (F)
	(mm)	(Inch)	(mm)	(mm)	(Inch)
OTFI-6MMBT1/8N	6	1/8	53.9	27.0	9/16
OTFI-6MMBT1/4N	6	1/4	53.9	27.0	9/16
OTFI-8MMBT1/8N	8	1/8	59.7	29.9	5/8
OTFI-8MMBT1/4N	8	1/4	59.7	29.9	5/8
OTFI-10MMBT1/4N	10	1/4	67.0	33.5	13/16
OTFI-10MMBT3/8N	10	3/8	67.0	33.5	13/16
OTFI-12MMBT1/4N	12	1/4	72.0	36.0	13/16
OTFI-12MMBT3/8N	12	3/8	72.0	36.0	13/16
OTFI-12MMBT1/2N	12	1/2	72.0	36.0	7/8
OTFI-16MMBT1/2N	16	1/2	77.6	38.8	1 5/16

### Male Branch Tee\_MT X NPT (M)



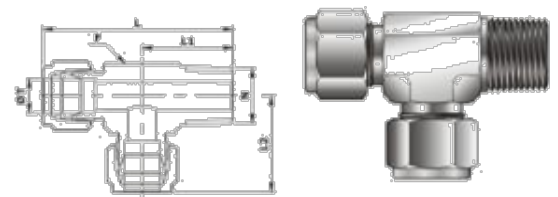
### Male Run Tee\_FT X NPT (M)



PRODUCT CODE	TUBE OD (ØT)	NPT MALE PIPE (N)	LENGTH (L)	LENGTH (L1)	LENGTH (L2)	HEX (F)
	(Inch)					
OTFI-2MET2N	1/8	1/8	1.63	0.70	0.93	7/16
OTFI-2MET4N	1/8	1/4	1.89	0.92	0.97	9/16
OTFI-4MET2N	1/4	1/8	1.80	0.74	1.06	9/16
OTFI-4MET4N	1/4	1/4	1.98	0.92	1.06	9/16
OTFI-5MET2N	5/16	1/8	1.99	0.82	1.17	5/8
OTFI-5MET4N	5/16	1/4	2.18	1.00	1.17	5/8
OTFI-6MET4N	3/8	1/4	2.20	1.00	1.20	5/8
OTFI-6MET6N	3/8	3/8	2.42	1.11	1.31	1 1/16
OTFI-8MET6N	1/2	3/8	2.53	1.11	1.42	1 3/16
OTFI-8MET8N	1/2	1/2	2.72	1.30	1.44	7/8
OTFI-12MET12N	3/4	3/4	3.02	1.45	1.57	1-1/16
OTFI-16MET12N	1	3/4	3.60	1.66	1.94	1-3/8
OTFI-16MET16N	1	1	3.78	1.84	1.94	1-3/8

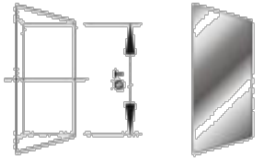
PRODUCT CODE	TUBE OD (ØT)	NPT MALE PIPE (N)	LENGTH (L)	LENGTH (L1)	LENGTH (L2)	HEX (F)
	(mm)	(Inch)	(mm)			
OTFI-6MMET1/8N	6	1/8	45.8	18.0	27.0	9/16
OTFI-6MMET1/4N	6	1/4	50.3	23.4	27.0	9/16
OTFI-8MMET1/8N	8	1/8	50.7	20.8	29.9	5/8
OTFI-8MMET1/4N	8	1/4	55.3	25.4	29.9	5/8
OTFI-10MMET1/4N	10	1/4	61.7	28.2	33.5	13/16
OTFI-10MMET1/2N	10	1/2	66.5	33.0	33.5	7/8
OTFI-12MMET1/4N	12	1/4	64.2	28.2	36.0	13/16
OTFI-12MMET3/8N	12	3/8	64.2	28.2	36.0	13/16
OTFI-12MMET1/2N	12	1/2	69.0	33.0	36.0	7/8
OTFI-16MMET1/2N	16	1/2	73.1	35.0	38.0	1 5/16
OTFI-16MMET1N	16	1	93.1	46.5	46.5	1-3/8

### Male Run Tee\_MT X NPT (M)

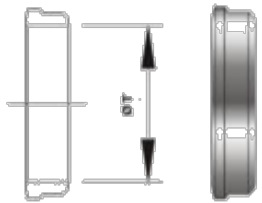


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## DOUBLE FERRULE

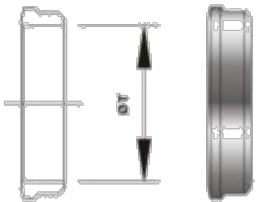


Front Ferrule

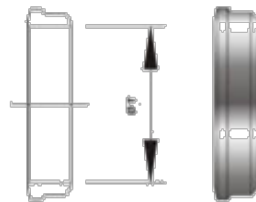


Back Ferrule

## SINGLE FERRULE

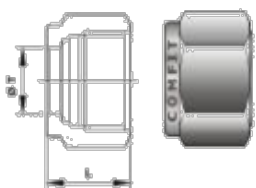


Size UPTO 3/8" & 8 mm



Size ABOVE 1/2" & 10 mm

## NUT



## Front Ferrule\_FT

PRODUCT CODE	TUBE OD (ØT)
	(Inch)
OTFI-2FF2	1/8
OTFI-4FF4	1/4
OTFI-5FF5	5/16
OTFI-6FF6	3/8
OTFI-8FF8	1/2
OTFI-12FF12	3/4
OTFI-16FF16	1

## Front Ferrule\_MT

PRODUCT CODE	TUBE OD (ØT)
	(mm)
OTFI-2MFF	2
OTFI-3MFF	3
OTFI-4MFF	4
OTFI-6MFF	6
OTFI-8MFF	8
OTFI-10MFF	10
OTFI-12MFF	12
OTFI-15MFF	15
OTFI-16MFF	16
OTFI-25MFF	25

## Back Ferrule\_FT

PRODUCT CODE	TUBE OD (ØT)
	(Inch)
OTFI-2BF2	1/8
OTFI-4BF4	1/4
OTFI-5BF5	5/16
OTFI-6BF6	3/8
OTFI-8BF8	1/2
OTFI-12BF12	3/4
OTFI-16BF16	1

## Back Ferrule\_MT

PRODUCT CODE	TUBE OD (ØT)
	(mm)
OTFI-3MBF	3
OTFI-4MBF	4
OTFI-6MBF	6
OTFI-8MBF	8
OTFI-10MBF	10
OTFI-12MBF	12
OTFI-15MBF	15
OTFI-16MBF	16
OTFI-25MBF	25

## Single Ferrule\_FT

PRODUCT CODE	TUBE OD (ØT)
	(Inch)
OTFI-2SF2	1/8
OTFI-4SF4	1/4
OTFI-5SF5	5/16
OTFI-6SF6	3/8
OTFI-8SF8	1/2
OTFI-12SF12	3/4
OTFI-16SF16	1

## Single Ferrule\_MT

PRODUCT CODE	TUBE OD (ØT)
	(mm)
OTFI-2MSF	2
OTFI-3MSF	3
OTFI-4MSF	4
OTFI-6MSF	6
OTFI-8MSF	8
OTFI-10MSF	10
OTFI-12MSF	12
OTFI-15MSF	15
OTFI-16MSF	16
OTFI-25MSF	25

## Nut\_FT

PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)
	(Inches)	
OTFI-2SNU2	1/8	0.47
OTFI-4SNU4	1/4	0.50
OTFI-5SNU5	5/16	0.53
OTFI-6SNU6	3/8	0.56
OTFI-8SNU8	1/2	0.69
OTFI-12SNU12	3/4	0.69
OTFI-16SNU16	1	0.81

## Nut\_MT

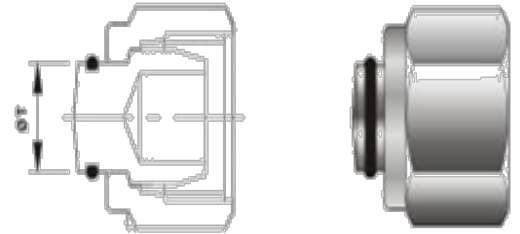
PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)
	(mm)	
OTFI-3MNU	3	11.9
OTFI-4MNU	4	11.9
OTFI-6MNU	6	12.7
OTFI-8MNU	8	13.5
OTFI-10MNU	10	15.1
OTFI-12MNU	12	17.4
OTFI-15MNU	15	17.4
OTFI-16MNU	16	17.4
OTFI-25MNU	25	20.6

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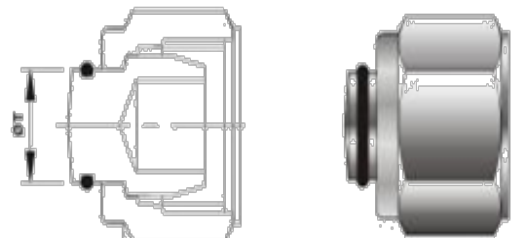
PRODUCT CODE	TUBE OD (ØT)
	(Inch)
0TFI-2BP2	1/8
0TFI-4BP4	1/4
0TFI-5BP5	5/16
0TFI-6BP6	3/8
0TFI-8BP8	1/2
0TFI-12BP12	3/4
0TFI-16BP16	1

### Blanking Plug\_FT



PRODUCT CODE	TUBE OD (ØT)
	(mm)
3M-CTPD	3
4M-CTPD	4
6M-CTPD	6
8M-CTPD	8
10M-CTPD	10
12M-CTPD	12
15M-CTPD	15
16M-CTPD	16
25M-CTPD	25

### Blanking Plug\_MT



**Pipe Fittings**



Screwed Nipple



Adaptor



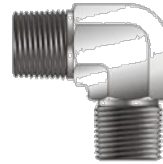
Hex Nipple



Male Hex Club



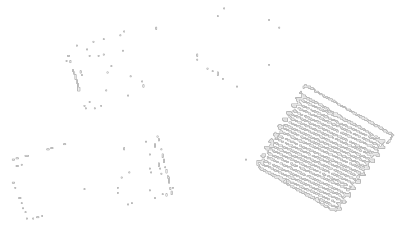
Female Elbow



Male Elbow

- o Available in 1/16" to 2"
- o Material - SS 316, Carbon Steel, Brass
- o Thread - NPT, ISO/BSP, SAE

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.



Contents for Pipe Fittings.....pg.23

Ordering Codes of Pipe Fittings.....pg.24

## Straight Fittings

### Nipples



### Close Nipples-CPCN

- NPT(M) x NPT(M).....pg. 25

### Hex Nipples-CPHN

- NPT(M) x NPT(M).....pg. 25
- NPT(M) x ISOP(M).....pg. 25

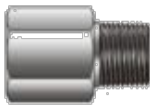
### Hex Reducing Nipple - CPHRN

- NPT(M) x NPT(M).....pg. 25

### Hex Long Nipples - CPHLN

- NPT(M) x NPT(M).....pg. 26

### Adapters



### Adapters-CPA

- NPT(M) x NPT(F).....pg. 26
- NPT(F) x ISOP(M).....pg. 26

### Reducing Adapters - CPRA

- NPT(F) x NPT(M).....pg. 26

### Gauge Adapter

- ISOP(F) x NPT(M).....pg. 26

### Bushings



### Reducing Bushings - CPRB

- NPT(M) x NPT(F).....pg. 27

## CONTENTS

### Couplings



### Hex Couplings-CPHC

- NPT(F) x NPT(F).....pg. 27
- Hex Reducing Couplings
- NPT(F) x NPT(F).....pg. 27

### Connectors



### Male Connectors-CPMC

- FT SW x NPT(M).....pg. 27

### Female Connectors-CPFC

- FT SW x NPT(F).....pg. 28

### Unions



### Pipe Unions-CPPU

- Pipe SW.....pg.26

## 90° Elbow fittings

### Elbows



### Female Elbow-CPFE

- NPT(F) x NPT(F).....pg. 28

### Street Elbow

- NPT(M) x NPT(F).....pg. 28

### Reducing Street Elbow

- NPT(M) x NPT(F).....pg. 28

### Male Elbow

- NPT(M) x NPT(M).....pg. 29
- FT SW x NPT(M).....pg. 29

### Union Elbow

- Fractional SW.....pg. 29

## 45° Elbow Fittings

### 45° Elbows



### 45° Female Elbow

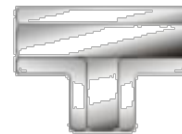
- NPT(F) x NPT(F).....pg. 29

### 45° Street Elbow

- NPT(M) x NPT(F).....pg. 29

## Tee Fittings

### Tees



### Female Tees

- NPT(F).....pg. 29

### Street Tees

- NPT(F) x NPT(M) x NPT(F).....pg. 30

### Branch Tees

- NPT(F) x NPT(F) x NPT(M).....pg. 30

### Male Tees

- NPT(M) x NPT(M) x NPT(M).....pg. 30

### Union Tees

- FT SW.....pg. 30

## Cross Fittings

### Female Cross



### Female Cross

- NPT(F) x 4sides.....pg. 30

### Union Cross

- FT SW ends.....pg. 31

## Accessories

### Caps



### Hex Female Pipe Cap

- NPT(F).....pg. 31

### Plugs



### Hex Male plug

- NPT(M).....pg. 31

### Hex Pipe Plug - RS

- ISOP (M).....pg. 31

### Gasket

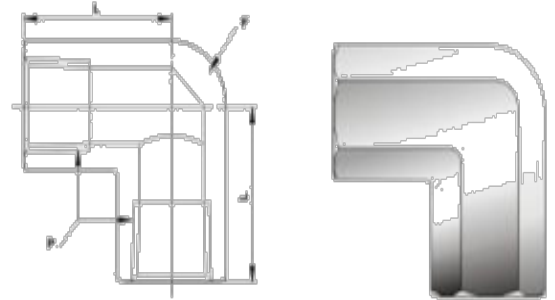


- Gasket-RS.....pg. 31
- Gasket-RP.....pg. 32
- Gasket-RG.....pg. 32

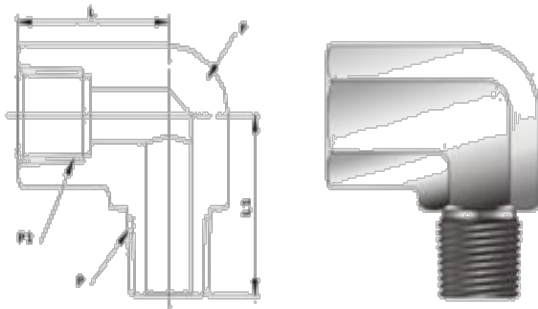
Pipe Fittings

### Female Elbow\_NPT(F) x NPT(F)

PRODUCT CODE	NPT Female (P)	LENGTH (L)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)			
OTFI-FEL1	1/16	0.50	7/16	7000
OTFI-FEL2	3/8	1.04	9/16	5500
OTFI-FEL4	1/4	1.17	3/4	5600
OTFI-FEL6	3/8	1.42	7/8	5000
OTFI-FEL8	1/2	1.56	1-1/16	4500
OTFI-FEL12	3/4	1.92	1-5/16	3500
OTFI-FEL16	1	1.91	1-5/8	3900
OTFI-FEL20	1-1/4	1.70	1-7/8	3100
OTFI-FEL24	1-1/2	2.08	2-1/2	2500



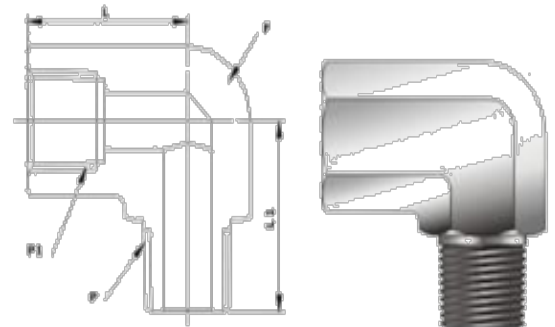
### Street Elbow\_NPT(M) x NPT(F)



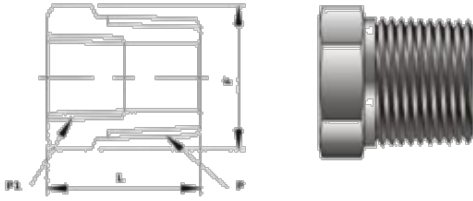
PRODUCT CODE	NPT Male (P)	NPT Female (P1)	LENGTH (L)	LENGTH (L1)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)					
OTFI-EM/F11	1/16	1/16	0.86	0.88	9/16	7000
OTFI-EM/F22	1/8	1/8	1.04	0.87	9/16	5500
OTFI-EM/F44	1/4	1/4	1.17	1.17	3/4	5600
OTFI-EM/F66	3/8	3/8	1.42	1.26	7/8	5600
OTFI-EM/F88	1/2	1/2	1.56	1.56	1-1/16	4500
OTFI-EM/F1212	3/4	3/4	1.92	1.67	1-5/16	3500
OTFI-EM/F1616	1	1	1.91	1.94	1-5/8	3900
OTFI-EM/F2020	1-1/4	1-1/4	1.91	2.38	1-7/8	3100

### Reducing Street Elbow\_NPT(M) x NPT(F)

PRODUCT CODE	NPT Male (P)	NPT Female (P1)	LENGTH (L)	LENGTH (L1)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)					
OTFI-REMF21	1/8	1/16	1.04	0.87	9/16	7000
OTFI-REMF41	1/4	1/16	0.66	1.09	9/16	7000
OTFI-REMF42	1/4	1/8	1.17	1.00	9/16	5500
OTFI-REMF61	3/8	1/16	0.88	1.09	3/4	7000
OTFI-REMF62	3/8	1/8	0.88	1.22	3/4	5500
OTFI-REMF64	3/8	1/4	1.42	1.26	3/4	5500
OTFI-REMF82	1/2	1/8	0.95	1.47	7/8	5000
OTFI-REMF84	1/2	1/4	1.56	1.38	7/8	5600
OTFI-REMF86	1/2	3/8	1.56	1.38	7/8	5000
OTFI-REMF122	3/4	1/8	1.00	1.59	1-1/16	5500
OTFI-REMF124	3/4	1/4	1.00	1.59	1-1/16	5600
OTFI-REMF126	3/4	3/8	1.23	1.59	1-1/16	5000
OTFI-REMF128	3/4	1/2	1.23	1.59	1-1/16	4500
OTFI-REMF162	1	1/8	1.63	1.97	1-5/16	5500
OTFI-REMF164	1	1/4	1.63	1.97	1-5/16	5600
OTFI-REMF166	1	3/8	1.50	1.97	1-5/16	5000
OTFI-REMF168	1	1/2	1.63	1.97	1-5/16	4500
OTFI-REMF1612	1	3/4	1.36	1.97	1-5/16	3500



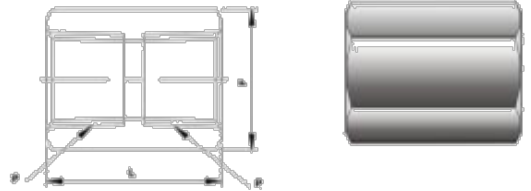
### Reducing Bushing\_\_NPT(M) x NPT(F)



PRODUCT CODE	NPT MALE (N)	NPT FEMALE (N1)	LENGTH (L)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)				
QTFI-BUSH21	1/8	1/16	1.03	7/16	6400
QTFI-BUSH41	1/4	1/16	1.03	9/16	7500
QTFI-BUSH42	1/4	1/8	1.06	5/8	6000
QTFI-BUSH61	3/8	1/16	0.86	3/4	7200
QTFI-BUSH62	3/8	1/8	0.86	3/4	6400
QTFI-BUSH64	3/8	1/4	1.19	3/4	5300
QTFI-BUSH82	1/2	1/8	1.08	7/8	6600
QTFI-BUSH84	1/2	1/4	1.08	7/8	6400
QTFI-BUSH86	1/2	3/8	1.41	7/8	4600
QTFI-BUSH122	3/4	1/8	1.17	1-1/8	6400
QTFI-BUSH124	3/4	1/4	1.08	1-1/8	6400
QTFI-BUSH126	3/4	3/8	1.08	1-1/8	5300
QTFI-BUSH128	3/4	1/2	1.03	1-1/8	4900
QTFI-BUSH162	1	1/8	1.30	1-3/8	4600
QTFI-BUSH164	1	1/4	1.37	1-3/8	4600
QTFI-BUSH166	1	3/8	1.37	1-3/8	4600
QTFI-BUSH168	1	1/2	1.37	1-3/8	4600
QTFI-BUSH1612	1	3/4	1.85	1-3/8	4200
QTFI-BUSH208	1-1/4	1/2	1.46	1-3/4	
QTFI-BUSH2012	1-1/4	3/4	1.47	1-3/4	3500
QTFI-BUSH2016	1-1/4	1	1.94	1-3/4	3500
QTFI-BUSH248	1-1/2	1/2	1.61	2-1/8	
QTFI-BUSH2412	1-1/2	3/4	1.61	2-1/8	
QTFI-BUSH2416	1-1/2	1	1.61	2	2900
QTFI-BUSH2420	1-1/2	1-1/4	2.31	2	2700
QTFI-BUSH328	2	1/2	1.83	2-3/4	
QTFI-BUSH3212	2	3/4	1.83	2-3/4	
QTFI-BUSH3216	2	1	1.83	2-3/4	
QTFI-BUSH3220	2	1-1/4	1.83	2-3/4	
QTFI-BUSH3224	2	1-1/2	1.83	2-3/4	

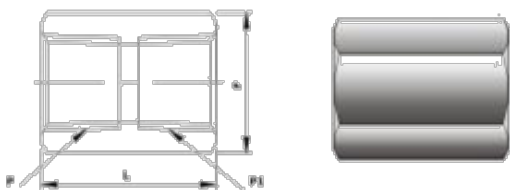
### Hex Coupling\_\_NPT(F) x NPT(F)

PRODUCT CODE	NPT FEMALE (P)	LENGTH (L)	HEX (F)	Working Pressure (PSIG) STAINLESS STEEL
	(Inch)			
QTFI-COPL1	1/16	0.75	1/2	7500
QTFI-COPL2	1/8	0.81	5/8	6400
QTFI-COPL4	1/4	1.19	3/4	6000
QTFI-COPL6	3/8	1.31	7/8	5300
QTFI-COPL8	1/2	1.50	1-1/8	5200
QTFI-COPL12	3/4	1.62	1-3/8	4300
QTFI-COPL16	1	2.00	1-5/8	4500
QTFI-COPL20	1-1/4	2.38	2	3500
QTFI-COPL24	1-1/2	2.62	2-3/8	3200
QTFI-COPL32	2	2.62	2-7/8	

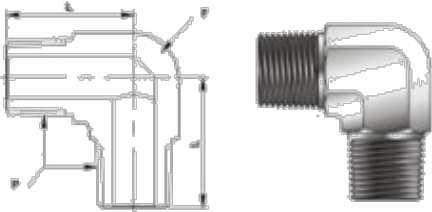


### Hex Reducing Coupling\_\_NPT(F) x NPT(F)

PRODUCT CODE	NPT Female (P)	NPT Female (P1)	LENGTH (L)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)				
QTFI-R-COPL21	1/8	1/16	0.75	5/8	6400
QTFI-R-COPL24	1/8	1/4	1.22	3/4	6600
QTFI-R-COPL41	1/4	1/16	0.92	3/4	6600
QTFI-R-COPL61	3/8	1/16	0.95	7/8	5300
QTFI-R-COPL62	3/8	1/8	1.03	7/8	5300
QTFI-R-COPL64	3/8	1/4	1.38	7/8	5300
QTFI-R-COPL82	1/2	1/8	1.56	1-1/8	5200
QTFI-R-COPL84	1/2	1/4	1.75	1-1/8	5200
QTFI-R-COPL86	1/2	3/8	1.78	1-1/8	5200
QTFI-R-COPL122	3/4	1/8	1.99	1-5/8	4300
QTFI-R-COPL124	3/4	1/4	1.81	1-5/8	4300
QTFI-R-COPL126	3/4	3/8	1.69	1-5/8	4300
QTFI-R-COPL128	3/4	1/2	2.06	1-5/8	4300
QTFI-R-COPL162	1	1/8	1.44	1-5/8	4500
QTFI-R-COPL164	1	1/4	1.63	1-5/8	4500
QTFI-R-COPL1612	1	3/8	1.63	1-5/8	4500
QTFI-R-COPL168	1	1/2	2.19	1-5/8	4500
QTFI-R-COPL1612	1	3/4	2.25	1-5/8	4500
QTFI-R-COPL2016	1-1/4	1	2.41	2	3500
QTFI-R-COPL2416	1-1/2	1	2.58	2-3/8	3200
QTFI-R-COPL3216	2	1	2.58	2-7/8	



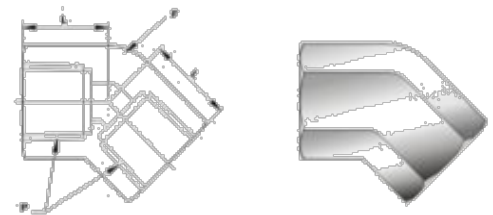
### Male Elbow\_NPT(M) x NPT(M)



PRODUCT CODE	NPT male (P)	LENGTH (L)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)			
OTFI-EM/M11	1/16	0.66	3/8	9500
OTFI-EM/M22	1/8	0.88	7/16	9100
OTFI-EM/M44	1/4	1.05	9/16	7500
OTFI-EM/M66	3/8	1.17	3/4	7200
OTFI-EM/M88	1/2	1.45	7/8	5800
OTFI-EM/M1212	3/4	1.59	1-1/16	6400
OTFI-EM/M1616	1	1.97	1-5/16	4600

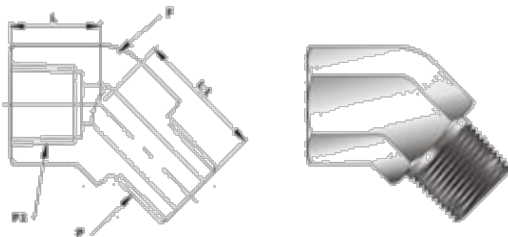
### 45° Female Elbow\_NPT(F) x NPT(F)

PRODUCT CODE	NPT Female (P)	LENGTH (L)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)			
OTFI-45FEL1	1/16	0.47	7/16	7000
OTFI-45FEL2	1/8	0.47	9/16	5500
OTFI-45FEL4	1/4	0.69	3/4	5600
OTFI-45FEL6	3/8	0.75	7/8	5000
OTFI-45FEL8	1/2	0.94	1-1/16	4500
OTFI-45FEL12	3/4	1.00	1-5/16	3500
OTFI-45FEL16	1	1.19	1-5/8	3900



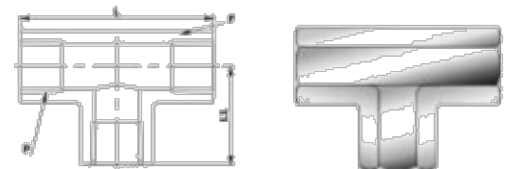
### 45° Street Elbow\_NPT(M) x NPT(F)

PRODUCT CODE	NPT Male (P)	NPT Female (P1)	LENGTH (L)	LENGTH (L1)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)					
OTFI-45S.EL1	1/16	1/16	0.47	0.66	7/16	7000
OTFI-45S.EL2	1/8	1/8	0.47	0.72	9/16	5500
OTFI-45S.EL4	1/4	1/4	0.63	1.05	3/4	5600
OTFI-45S.EL6	3/8	3/8	0.72	1.06	7/8	5000
OTFI-45S.EL8	1/2	1/2	0.91	1.34	1-1/16	4500
OTFI-45S.EL12	3/4	3/4	0.97	1.38	1-5/16	3500
OTFI-45S.EL16	1	1	1.13	1.72	1-5/8	3900



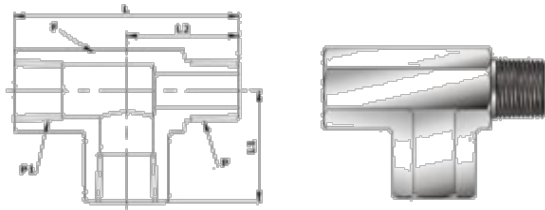
### Female Tee\_NPT(F) x NPT(F) x NPT(F)

PRODUCT CODE	NPT Female(P)	LENGTH (L)	LENGTH (L1)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)				
OTFI-F.TEE1	1/16	1.00	0.50	7/16	7000
OTFI-F.TEE2	1/8	2.08	1.04	9/16	5500
OTFI-F.TEE4	1/4	2.34	1.17	3/4	5600
OTFI-F.TEE6	3/8	2.84	1.42	7/8	5000
OTFI-F.TEE8	1/2	3.12	1.66	1-1/16	4500
OTFI-F.TEE12	3/4	3.84	1.92	1-5/16	3500
OTFI-F.TEE16	1	3.82	1.91	1-5/8	3900
OTFI-F.TEE20	1-1/4	3.40	1.70	1-7/8	3100
OTFI-F.TEE24	1-1/2	4.16	2.08	2-1/2	2500



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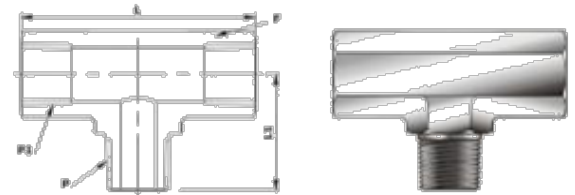
### Street Tee\_NPT(F) x NPT(M) x NPT(F)



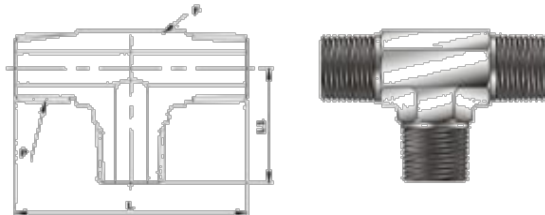
PRODUCT CODE	NPT Male (P)	NPT Female (P1)	LENGTH (L)	LENGTH (L1)	LENGTH (L2)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)						
OTFI-S.TEE1	1/16	1/16	1.22	0.50	0.72	7/16	7000
OTFI-S.TEE2	1/8	1/8	1.91	1.04	0.87	9/16	5500
OTFI-S.TEE4	1/4	1/4	2.34	1.17	1.17	3/4	5600
OTFI-S.TEE6	3/8	3/8	2.68	1.42	1.26	7/8	5000
OTFI-S.TEE8	1/2	1/2	3.12	1.56	1.56	1-1/16	4500
OTFI-S.TEE12	3/4	3/4	2.95	1.36	1.59	1-5/16	3500
OTFI-S.TEE16	1	1	3.60	1.63	1.97	1-5/8	3900

### Branch Tee\_NPT(F) x NPT(F) x NPT(M)

PRODUCT CODE	NPT Male (P)	NPT Female (P1)	LENGTH (L)	LENGTH (L1)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)					
OTFI-TFM/F11	1/16	1/16	1.00	0.72	7/16	7000
OTFI-TFM/F22	1/8	1/8	2.08	0.87	9/16	5500
OTFI-TFM/F44	1/4	1/4	2.34	1.17	3/4	5600
OTFI-TFM/F66	3/8	3/8	2.84	1.26	7/8	5000
OTFI-TFM/F88	1/2	1/2	3.12	1.56	1-1/16	4500
OTFI-TFM/F1212	3/4	3/4	2.72	1.59	1-5/16	3500
OTFI-TFM/F1616	1	1	3.26	1.97	1-5/8	3900



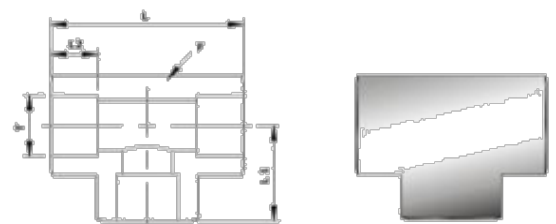
### Male Tee\_NPT(M) x NPT(M) x NPT(M)



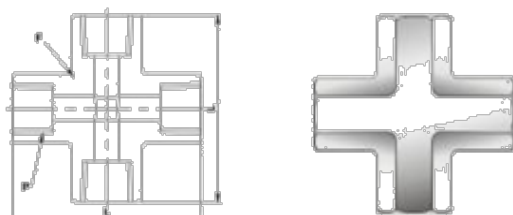
PRODUCT CODE	NPT Male (P)	LENGTH (L)	LENGTH (L1)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)				
OTFI-M.TEE1	1/16	1.44	0.72	5/16	9500
OTFI-M.TEE2	1/8	1.76	0.88	7/16	9100
OTFI-M.TEE4	1/4	2.10	1.05	9/16	7500
OTFI-M.TEE6	3/8	2.34	1.17	3/4	7200
OTFI-M.TEE8	1/2	2.50	1.45	7/8	5800
OTFI-M.TEE12	3/4	3.18	1.59	1-1/16	6400
OTFI-M.TEE16	1	3.94	1.97	1-5/16	4600
OTFI-M.TEE20	1-1/4	4.44	2.22	1-5/8	3500
OTFI-M.TEE24	1-1/2	5.28	2.64	1-7/8	2900

### Union Tee\_FT SW Ends

PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)	LENGTH (L1)	LENGTH (L2)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)					
OTFI-U.TEE2	1/8	1.18	0.56	0.10	7/16	11800
OTFI-U.TEE4	1/4	1.72	0.86	0.28	9/16	11300
OTFI-U.TEE6	3/8	2.08	1.04	0.31	9/16	8400
OTFI-U.TEE8	1/2	2.34	1.17	0.38	11/16	7800
OTFI-U.TEE10	5/8	2.84	1.42	0.41	13/16	6700
OTFI-U.TEE12	3/4	3.12	1.56	0.44	1	6700
OTFI-U.TEE16	1	3.84	1.92	0.62	1-1/4	6100



### Female Cross\_NPT(F) x 4 Sides

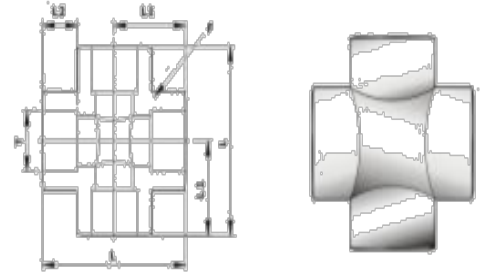


PRODUCT CODE	NPT Female (P)	LENGTH (L)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)			
OTFI-FCR1	1/16	1.00	7/16	7000
OTFI-FCR2	1/8	2.08	9/16	5500
OTFI-FCR4	1/4	2.34	3/4	5600
OTFI-FCR6	3/8	2.84	7/8	5000
OTFI-FCR8	1/2	3.12	1-1/16	4500
OTFI-FCR12	3/4	3.84	1-5/16	3500
OTFI-FCR16	1	3.82	1-5/8	3800

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

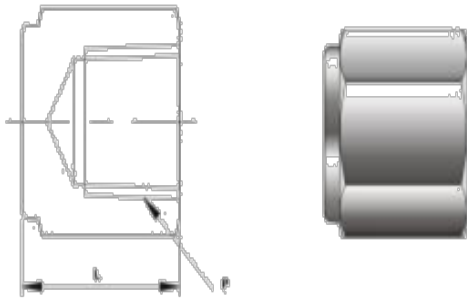
### Union Cross\_FT SW Ends

PRODUCT CODE	TUBE OD (ØT)	LENGTH (L)	LENGTH (L1)	LENGTH (L2)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)					
OTFI-U.CR4	1/4	1.72	0.86	0.28	7/16	11300
OTFI-U.CR6	3/8	2.08	1.04	0.31	9/16	8400
OTFI-U.CR8	1/2	2.34	1.17	0.38	11/16	7800
OTFI-U.CR12	3/4	3.12	1.56	0.44	1	6700
OTFI-U.CR16	1	3.84	1.92	0.62	1-1/4	6100



### Hex Female Pipe Cap\_NPT(F)

PRODUCT CODE	NPT Female (P)	LENGTH (L)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)			
OTFI-CAP1	1/16	0.50	7/16	7500
OTFI-CAP2	1/8	0.75	9/16	6400
OTFI-CAP4	1/4	0.91	3/4	6600
OTFI-CAP6	3/8	1.03	7/8	5300
OTFI-CAP8	1/2	1.34	1-1/16	5200
OTFI-CAP12	3/4	1.44	1-1/4	4300
OTFI-CAP16	1	1.62	1-5/8	4500
OTFI-CAP20	1-1/4	2.00		
OTFI-CAP24	1-1/2	2.06		
OTFI-CAP32	2	2.17		



### Hex Male Plug\_NPT(M)

PRODUCT CODE	NPT Male (P)	LENGTH (L)	HEX (F)	WORKING PRESSURE (PSIG) STAINLESS STEEL
	(Inch)			
OTFI-PLUG1	1/16	0.75	3/8	10000
OTFI-PLUG2	1/8	0.75	7/16	9100
OTFI-PLUG4	1/4	0.96	9/16	7500
OTFI-PLUG6	3/8	0.99	11/16	7200
OTFI-PLUG8	1/2	1.21	7/8	6600
OTFI-PLUG12	3/4	1.21	1-1/16	6400
OTFI-PLUG16	1	1.50	1-5/16	4600
OTFI-PLUG20	1-1/4	1.59	1-3/4	
OTFI-PLUG24	1-1/2	1.74	2-1/8	
OTFI-PLUG32	2	1.96	2-3/4	

