






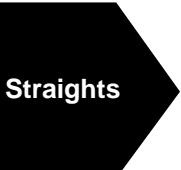
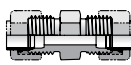

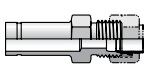
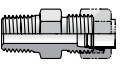
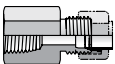

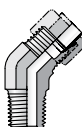

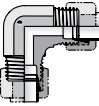
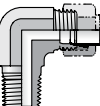
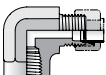

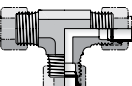
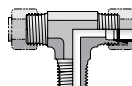
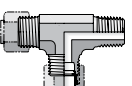
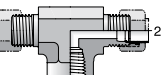
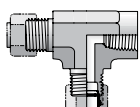
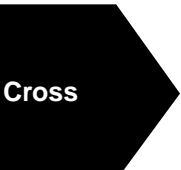
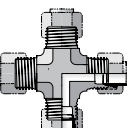



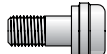




## **Intru-lok® Flareless Bite Type Fittings**

**D**

<p><b>Nuts, Ferrules, Inserts</b></p> 	<p><b>BIP</b> Knurled Nut</p>  <p>D5</p>	<p><b>BI2</b> Nut</p>  <p>D5</p>	<p><b>BTI2</b> Nut and Ferrule</p>  <p>D5</p>	<p><b>TI2</b> Ferrule</p>  <p>D5</p>	<p><b>TIP</b> Expander / Insert</p>  <p>D5</p>
<p><b>T23UI</b> Insert</p>  <p>D5</p>	<p><b>Straights</b></p> 	<p><b>HB12</b> Union</p>  <p>D6</p>	<p><b>WB12</b> Bulkhead Union</p>  <p>D6</p>	<p><b>TRB12</b> Tube End Reducer</p>  <p>D6</p>	<p><b>FB12</b> NPTF / Intru-Lok</p>  <p>D6</p>
<p><b>GB12</b> NPTF / Intru-Lok</p>  <p>D6</p>	<p><b>45° Elbow</b></p> 	<p><b>VB12</b> NPTF / Intru-Lok</p>  <p>D6</p>	<p><b>90° Elbows</b></p> 	<p><b>EB12</b> Union Elbow</p>  <p>D7</p>	<p><b>CB12</b> NPTF / Intru-Lok</p>  <p>D7</p>
<p><b>DB12</b> NPTF / Intru-Lok</p>  <p>D7</p>	<p><b>Tees</b></p> 	<p><b>JB12</b> Union Tee</p>  <p>D7</p>	<p><b>SB12</b> NPTF Branch Tee</p>  <p>D7</p>	<p><b>RB12</b> NPTF Run Tee</p>  <p>D7</p>	<p><b>OB12</b> NPTF Branch Tee</p>  <p>D8</p>
<p><b>MB12</b> NPTF Run Tee</p>  <p>D8</p>	<p><b>Cross</b></p> 	<p><b>KB12</b> Union Cross</p>  <p>D8</p>	<p><b>Plugs and Caps</b></p> 	<p><b>PNI</b> Plug</p>  <p>D8</p>	<p><b>FNI</b> Cap</p>  <p>D8</p>
<p><b>T22X</b> Mountie</p>  <p>B32</p>					

## Intru-Lok Flareless Bite Type Fittings

The Intru-Lok bite type fitting was developed by Parker Hannifin and introduced to the U.S. market in the late 1950's. This fitting addresses those applications that require a bite by the ferrule in brass, copper, aluminum and plastic tubing systems. The Intru-Lok fitting is a flareless fitting that consists of a body, a one-piece precision-machined ferrule, and a nut (Fig. D1). On assembly, the ferrule "bites" into the outer surface of the tube with sufficient strength to hold the tube against pressure. The ferrule also forms a pressure seal against the fitting body.

Intru-Lok fittings allow the fitting assembler to visually inspect the bite quality, thus significantly minimizing the risk of improper assembly and related service problems.

Intru-Lok fittings are routinely used in markets, such as: Machine tools, chemical, oil refineries, paper making, thermo-plastics processing, air and lube lines, pilot lines, panel boards, etc.

## Design and Construction

The three components of Intru-Lok fittings are designed and manufactured to produce a reliable, leak free joint upon assembly. The ferrules are precision machined with all dimensions and surfaces, particularly the critical bite edge, monitored on an ongoing basis.

## How Intru-Lok Fittings Work

In assembly, the ferrule is driven forward on the tube by the nut during pre-set. As the ferrule moves forward it contacts the tapered seat area of the body, which causes the ferrule to cam inward into the tube. The leading edge of the ferrule is thus able to make a clean 360 degree cut into the outside diameter of the tubing. This cut in the tubing is often referred to as a "Bite"; thus the term: **Bite Type Fitting**. As the ferrule makes its bite, a small ridge of tube material is raised up in front of the ferrule.

## The Parker Advantage - Intru-Lok

**Bite Type Connection:** The Intru-Lok design includes a precision machined ferrule to assure a safe, leak-free, and vibration resistant connection compared to compression fittings. This provides a more reliable fitting where proper assembly can be verified by a visible bite by the ferrule into the tubing.

**Ease of Assembly:** Intru-Lok products include a ferrule and nut that do not need to be removed prior to insertion of the associated tubing for final assembly. Along with the low assembly torque require, the overall installation process is reduced, saving time and money.

**Knurled Nut:** In areas where wrench clearance are not available Parker offers an alternative knurled BIP nut. This nut can be tightened by hand allowing for quick assembly and disassembly without the use of tools.



Fig. D1 – Intru-Lok Components: Body, Ferrule and Nut

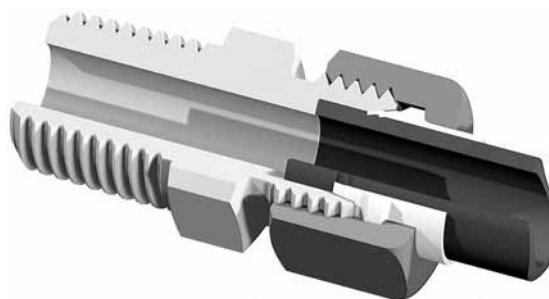


Fig. D2 – Assembled Intru-Lok Fitting

## Reference locations

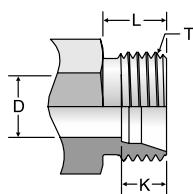
**Dynamic Pressure Ratings:** Please refer to the last column of the part number tables located on the following pages of this section for the appropriate dynamic pressure ratings.

**Assembly and Installation:** Please refer to Intru-Lok Assembly located within the Assembly/Installation section of this catalog.

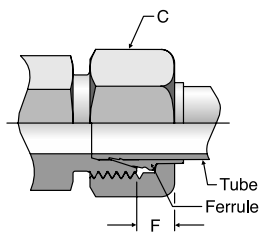
**Standard material specifications:** Please refer to Table U1 located in the Appendix section.

Dimensions and pressures for reference only, subject to change.

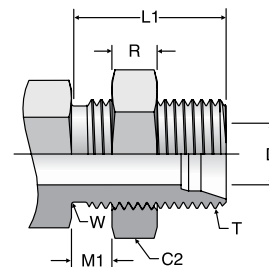
## Intrulok Flareless Tube Ends



**Intrulok Male  
Stud Tube End**



**Intrulok Tube End  
Assembly**



**Intrulok Straight  
Bulkhead**

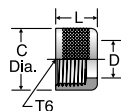
SAE Dash Size	Tube O.D. (in.)	T UN/UNF	C (in.)	C2 (in.)	D (in)	Allowance		Male Turn Back (in)	Bulkhead			Max Bulkhead Thickness (in)
						F (in)	K (in)		Length (in)	Locknut Thickness (in)	Pilot Dia (in)	
<b>2</b>	1/8	5/16-24	3/8	9/16	0.093	0.13	0.19	0.28	NA	NA	NA	NA
<b>3</b>	3/16	3/8-24	7/16	5/8	0.125	0.15	0.24	0.25	NA	NA	NA	NA
<b>4</b>	1/4	7/16-20	1/2	11/16	0.203	0.16	0.24	0.30	0.88	0.28	0.44	0.28
<b>5</b>	5/16	1/2-20	9/16	3/4	0.234	0.18	0.26	0.33	NA	NA	NA	NA
<b>6</b>	3/8	9/16-18	5/8	13/16	0.282	0.19	0.26	0.36	0.94	0.27	0.56	0.31
<b>8</b>	1/2	3/4-16	7/8	1	0.422	0.23	0.31	0.44	1.06	0.31	0.75	0.31

1) Recommended clearance hole +0.015 over W dia

Dimensions and pressures for reference only, subject to change.

### BIP\*

Knurled Nut  
Intru-Lok

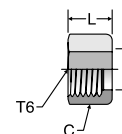


TUBE FITTING PART #	END SIZE (in.)	T6 TUBE END UN/UNF-2B	D2 DIA. (in.)	D (in.)	L (in.)
4 BIP	1/4	7/16 - 20	0.50	0.26	0.39
6 BIP	3/8	9/16 - 18	0.63	0.38	0.42

\* For use with thermoplastic tube and TIP expander / insert.

### BI2

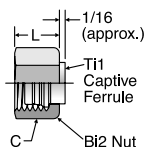
Nut  
Intru-Lok



TUBE FITTING PART #	END SIZE (in.)	T6 TUBE END UN/UNF-2B	C HEX (in.)	D (in.)	L (in.)
2 BI2	1/8	5/16 - 24	3/8	0.17	0.36
3 BI2	3/16	3/8 - 24	7/16	0.23	0.34
4 BI2	1/4	7/16 - 20	1/2	0.30	0.44
5 BI2	5/16	1/2 - 20	9/16	0.36	0.45
6 BI2	3/8	9/16 - 18	5/8	0.42	0.45
8 BI2	1/2	3/4 - 16	7/8	0.56	0.58

### BT12

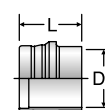
Nut and Ferrule  
Intru-Lok



TUBE FITTING PART #	END SIZE (in.)	C HEX (in.)	L (in.)
2 BT12	1/8	3/8	0.36
3 BT12	3/16	7/16	0.34
4 BT12	1/4	1/2	0.44
5 BT12	5/16	9/16	0.45
6 BT12	3/8	5/8	0.45
8 BT12	1/2	7/8	0.58

### TI2

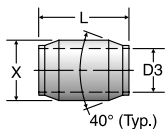
Ferrule  
Intru-Lok



TUBE FITTING PART #	TUBE O.D. (in.)	D3 (in.)	L (in.)
2 TI2	1/8	0.13	0.35
3 TI2	3/16	0.19	0.39
4 TI2	1/4	0.26	0.40
5 TI2	5/16	0.32	0.42
6 TI2	3/8	0.38	0.41
8 TI2	1/2	0.51	0.52

### TIP\*

Expander / Insert

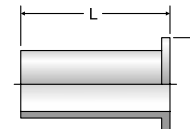


TUBE FITTING PART #	TUBE O.D. (in.)	D3 (in.)	L (in.)	X DIA (in.)
4 TIP	1/4	0.14	0.45	0.22
6 TIP	3/8	0.22	0.45	0.30

\* For use with thermoplastic tube and BIP nut.

### T23UI

Insert

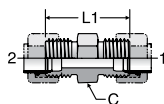


TUBE FITTING PART #	TUBE O.D. (in.)	TUBE WALL THICKNESS (in.)	L (in.)	X DIA (in.)
4 T23UI	1/4	0.040	0.53	0.23
5 T23UI	5/16	0.062	0.56	0.29
6 T23UI	3/8	0.062	0.56	0.35
8 T23UI	1/2	0.062	0.64	0.47

Dimensions and pressures for reference only, subject to change.

## HBI2

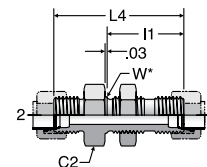
Union  
 Intru-Lok / Intru-Lok



TUBE FITTING PART #	END SIZE		C HEX (in.)	L1 (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)			
2 HBI2	1/8	1/8	3/8	0.81	1.5
3 HBI2	3/16	3/16	3/8	0.75	1.5
4 HBI2	1/4	1/4	7/16	0.84	1.5
5 HBI2	5/16	5/16	1/2	0.91	1.5
6 HBI2	3/8	3/8	9/16	1.03	1.5
8 HBI2	1/2	1/2	3/4	1.19	1.5

## WBI2

Bulkhead Union  
 Intru-Lok / Intru-Lok

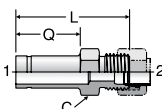


\* W – Pilot drill diameter

TUBE FITTING PART #	END SIZE		C2 HEX (in.)	I1 (in.)	L4 (in.)	W DIA (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)					
4 WBI2	1/4	1/4	9/16	0.88	1.34	0.44	1.5
6 WBI2	3/8	3/8	11/16	0.94	1.56	0.56	1.5
8 WBI2	1/2	1/2	7/8	1.06	1.75	0.75	1.5

## TRBI2

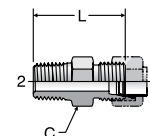
Tube End Reducer  
 Intru-Lok



TUBE FITTING PART #	END SIZE		C HEX (in.)	L (in.)	Q (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)				
4-3 TRBI2	1/4	3/16	7/16	1.00	0.56	1.5
6-4 TRBI2	3/8	1/4	7/16	1.06	0.59	1.5
8-4 TRBI2	1/2	1/4	9/16	1.30	0.75	1.5

## FBI2

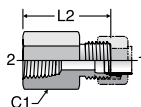
Male Connector  
 Intru-Lok / NPTF



TUBE FITTING PART #	END SIZE		C HEX (in.)	L (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 NPTF			
2 FBI2	1/8	1/8 - 27	7/16	0.86	1.5
3 FBI2	3/16	1/8 - 27	7/16	0.81	1.5
4 FBI2	1/4	1/8 - 27	7/16	0.88	1.5
4-4 FBI2	1/4	1/4 - 18	9/16	1.08	1.5
4-8 FBI2	1/4	1/2 - 14	7/8	1.31	1.5
5 FBI2	5/16	1/8 - 27	1/2	0.94	1.5
5-4 FBI2	5/16	1/4 - 18	9/16	1.14	1.5
6 FBI2	3/8	1/4 - 18	9/16	1.17	1.5
6-2 FBI2	3/8	1/8 - 27	9/16	0.97	1.5
6-6 FBI2	3/8	3/8 - 18	11/16	1.19	1.5
6-8 FBI2	3/8	1/2 - 14	7/8	1.42	1.5
8 FBI2	1/2	3/8 - 18	3/4	1.28	1.5
8-4 FBI2	1/2	1/4 - 18	3/4	1.27	1.5
8-8 FBI2	1/2	1/2 - 14	7/8	1.50	1.5

## GBI2

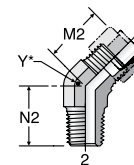
Female Connector  
 Intru-Lok / NPTF



TUBE FITTING PART #	END SIZE		C1 HEX (in.)	L2 (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 NPTF			
2 GBI2	1/8	1/8 - 27	9/16	0.78	1.5
3 GBI2	3/16	1/8 - 27	9/16	0.75	1.5
4 GBI2	1/4	1/8 - 27	9/16	0.80	1.5
4-4 GBI2	1/4	1/4 - 18	3/4	0.97	1.5
6 GBI2	3/8	1/4 - 18	3/4	0.98	1.5
6-2 GBI2	3/8	1/8 - 27	9/16	0.86	1.5
6-6 GBI2	3/8	3/8 - 18	7/8	1.08	1.5
6-8 GBI2	3/8	1/2 - 14	1 1/8	1.23	1.5
8 GBI2	1/2	3/8 - 18	7/8	1.16	1.5
8-4 GBI2	1/2	1/4 - 18	13/16	1.16	1.5
8-8 GBI2	1/2	1/2 - 14	1 1/8	1.31	1.5

## VBI2

45° Male Elbow  
 Intru-Lok / NPTF



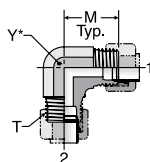
Y\* – Across wrench flats

TUBE FITTING PART #	END SIZE		M2 (in.)	N2 (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 NPTF				
4 VBI2	1/4	1/8 - 27	0.50	0.63	7/16	1.5
5 VBI2	5/16	1/8 - 27	0.59	0.63	9/16	1.5
6 VBI2	3/8	1/4 - 18	0.69	0.84	9/16	1.5

Dimensions and pressures for reference only, subject to change.

## EBI2

Union Elbow  
 Intru-Lok / Intru-Lok

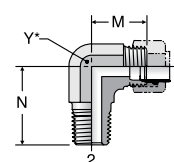


Y\* – Across wrench flats

TUBE FITTING PART #	END SIZE		M (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)			
4 EBI2	1/4	1/4	0.67	7/16	1.5
6 EBI2	3/8	3/8	0.72	9/16	1.5
8 EBI2	1/2	1/2	0.89	3/4	1.5

## CBI2

Male Elbow  
 Intru-Lok / NPTF

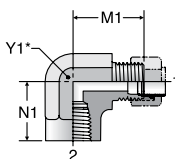


Y\* – Across wrench flats

TUBE FITTING PART #	END SIZE		M (in.)	N (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 NPTF				
2 CBI2	1/8	1/8 - 27	0.59	0.69	5/16	1.5
3 CBI2	3/16	1/8 - 27	0.61	0.69	3/8	1.5
4 CBI2	1/4	1/8 - 27	0.63	0.69	3/8	1.5
4-4 CBI2	1/4	1/4 - 18	0.73	0.92	9/16	1.5
5 CBI2	5/16	1/8 - 27	0.66	0.72	9/16	1.5
5-4 CBI2	5/16	1/4 - 18	0.75	0.97	9/16	1.5
6 CBI2	3/8	1/4 - 18	0.78	0.97	9/16	1.5
6-2 CBI2	3/8	1/8 - 27	0.72	0.81	9/16	1.5
6-6 CBI2	3/8	3/8 - 18	0.86	1.00	3/4	1.5
6-8 CBI2	3/8	1/2 - 14	1.00	1.38	5/8	1.5
8 CBI2	1/2	3/8 - 18	0.88	1.00	3/4	1.5
8-4 CBI2	1/2	1/4 - 18	0.88	1.06	3/4	1.5
8-8 CBI2	1/2	1/2 - 14	1.09	1.38	7/8	1.5

## DBI2

Female Elbow  
 Intru-Lok / NPTF

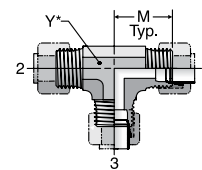


Y1\* – Across wrench flats

TUBE FITTING PART #	END SIZE		M1 (in.)	N1 (in.)	Y1 (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	1 NPTF				
2 DBI2	1/8	1/8 - 27	0.69	0.53	9/16	1.5
3 DBI2	3/16	1/8 - 27	0.66	0.53	9/16	1.5
4 DBI2	1/4	1/8 - 27	0.72	0.55	9/16	1.5
4-4 DBI2	1/4	1/4 - 18	0.84	0.69	3/4	1.5
6 DBI2	3/8	1/4 - 18	0.92	0.69	3/4	1.5
6-6 DBI2	3/8	3/8 - 18	1.00	0.81	7/8	1.5
8-8 DBI2	1/2	1/2 - 14	1.13	0.94	1	1.5

## JB12

Union Tee  
 Intru-Lok (all three ends)

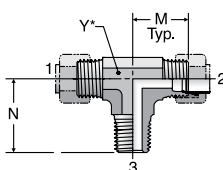


Y1\* – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)	3 (in.)			
2 JB12	1/8	1/8	1/8	0.63	5/16	1.5
3 JB12	3/16	3/16	3/16	0.59	3/8	1.5
4 JB12	1/4	1/4	1/4	0.59	3/8	1.5
5 JB12	5/16	5/16	5/16	0.66	9/16	1.5
6 JB12	3/8	3/8	3/8	0.72	9/16	1.5
8 JB12	1/2	1/2	1/2	0.88	3/4	1.5

## SBI2

Male Branch Tee  
 Intru-Lok / Intru-Lok / NPTF

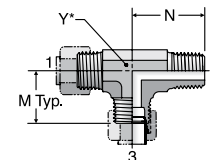


Y\* – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	N (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)	3 NPTF				
2 SBI2	1/8	1/8	1/8 - 27	0.63	0.69	11/32	1.5
4 SBI2	1/4	1/4	1/8 - 27	0.63	0.69	3/8	1.5
4-4-4 SBI2	1/4	1/4	1/4 - 18	0.73	0.97	9/16	1.5
6 SBI2	3/8	3/8	1/4 - 18	0.72	0.91	9/16	1.5

## RB12

Male Run Tee  
 Intru-Lok / NPTF / Intru-Lok



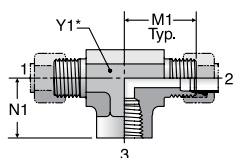
Y\* – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	N (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 NPTF	3 (in.)				
2 RB12	1/8	1/8 - 27	1/8	0.63	0.69	5/16	1.5
3 RB12	3/16	1/8 - 27	3/16	0.59	0.69	3/8	1.5
4 RB12	1/4	1/8 - 27	1/4	0.59	0.69	3/8	1.5
4-4-4 RB12	1/4	1/4 - 18	1/4	0.75	0.98	9/16	1.5
6 RB12	3/8	1/4 - 18	3/8	1.05	1.07	9/16	1.5

Dimensions and pressures for reference only, subject to change.

## OBI2

Female Branch Tee  
 Intru-Lok / NPTF

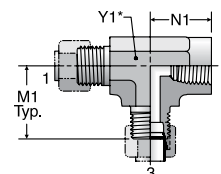


Y\* – Across wrench flats

TUBE FITTING PART #	END SIZE			M1 (in.)	N1 (in.)	Y1 (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)	3 NPTF				
4 OBI2	1/4	1/4	1/8 - 27	0.72	0.53	9/16	1.5
4-4-4 OBI2	1/4	1/4	1/4 - 18	0.86	0.69	3/4	1.5
6 OBI2	3/8	3/8	1/4 - 18	0.92	0.69	3/4	1.5
8 OBI2	1/2	1/2	3/8 - 18	1.09	0.81	7/8	1.5

## MBI2

Female Run Tee  
 Intru-Lok / NPTF / Intru-Lok

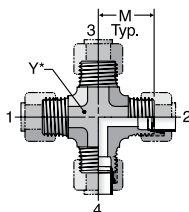


Y\* – Across wrench flats

TUBE FITTING PART #	END SIZE			M1 (in.)	N1 (in.)	Y1 (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 NPTF	3 (in.)				
4 MBI2	1/4	1/8 - 27	1/4	0.72	0.53	9/16	1.5
6 MBI2	3/8	1/4 - 18	3/8	0.92	0.69	3/4	1.5

## KBI2

Union Cross  
 Intru-Lok (all four ends)

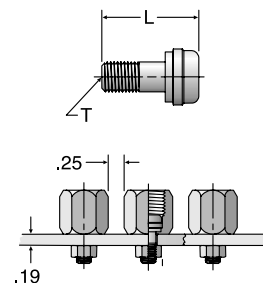


Y\* – Across wrench flats

TUBE FITTING PART #	END SIZE				M (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)	3 (in.)	4 (in.)			
4 KBI2	1/4	1/4	1/4	1/4	0.66	7/16	1.5
6 KBI2	3/8	3/8	3/8	3/8	0.78	1/2	1.5

## T22I

Mountie



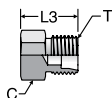
Typical application

TUBE FITTING PART #	TUBE O.D. (in.)	T TUBE END UN/UNF-2A	L (in.)	Dynamic Pressure (x 1,000 PSI) -B
6 T22I*	3/8	1/4 - 20	0.81	1.5

\*Non standard

## PNI

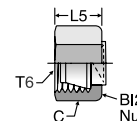
Plug  
 Intru-Lok



TUBE FITTING PART #	TUBE O.D. (in.)	T TUBE END UN/UNF-2A	C HEX (in.)	L3 (in.)	Dynamic Pressure (x 1,000 PSI) -B
5 PNI	5/16	1/2 - 20	1/2	0.52	1.5
6 PNI	3/8	9/16 - 18	9/16	0.59	1.5
8 PNI	1/2	3/4 - 16	3/4	0.67	1.5

## FNI

Cap  
 Intru-Lok



TUBE FITTING PART #	TUBE O.D. (in.)	C HEX (in.)	L5 (in.)	Dynamic Pressure (x 1,000 PSI) -B
3 FNI	3/16	7/16	0.34	1.5
4 FNI	1/4	1/2	0.44	1.5
5 FNI	5/16	9/16	0.45	1.5
6 FNI	3/8	5/8	0.45	1.5
8 FNI	1/2	7/8	0.58	1.5

Dimensions and pressures for reference only, subject to change.