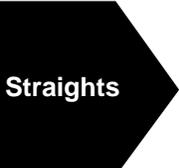
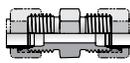
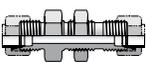
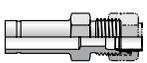
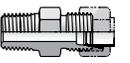
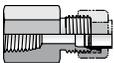
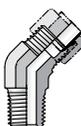
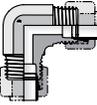
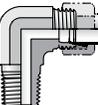
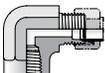
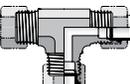
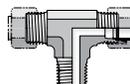
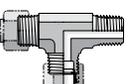
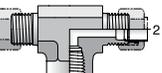
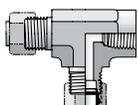
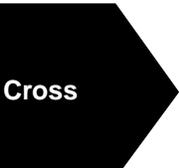
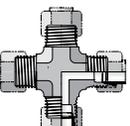




Intru-lok[®] Flareless Bite Type Fittings

D

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

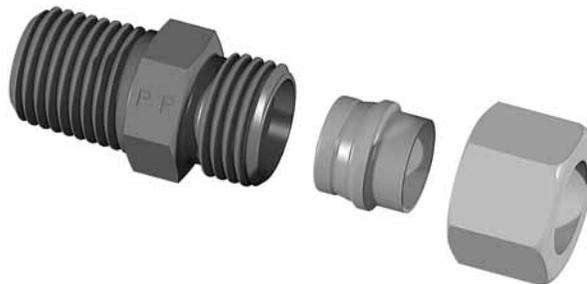


Fig. D1 – Intru-Lok Components: Body, Ferrule and Nut

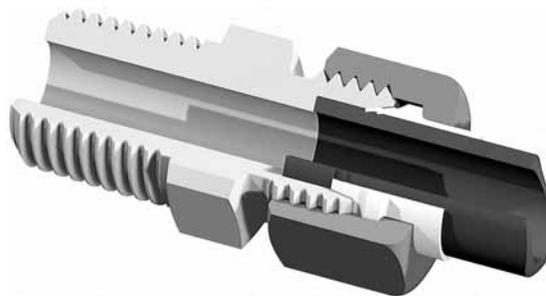


Fig. D2 – Assembled Intru-Lok Fitting

Reference locations

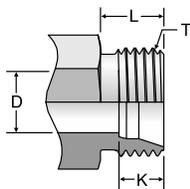
Dynamic Pressure Ratings: Please refer to the last column of the part number tables located on the following pages of this section for the appropriate dynamic pressure ratings.

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

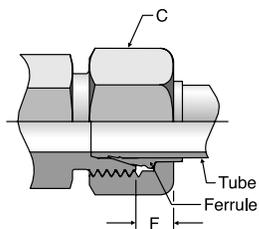
Standard material specifications: Please refer to Table U1 located in the Appendix section.

Dimensions and pressures for reference only, subject to change.

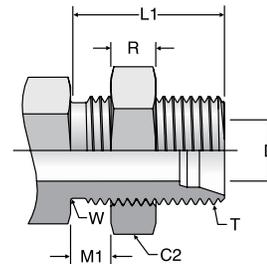
IntruLok Flareless Tube Ends



**IntruLok Male
Stud Tube End**



**IntruLok Tube End
Assembly**



**IntruLok Straight
Bulkhead**

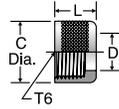
SAE Dash Size	Tube O.D. (in.)	T UN/UNF	C (in.)	C2 (in.)	D (in)	Allowance		Male Turn Back (in)	Bulkhead			Max Bulkhead Thickness (in)
						F (in)	K (in)		Length (in)	Locknut Thickness (in)	Pilot Dia (in)	
									L1 (in)	R (in)	W ¹⁾ (in)	M1 (in)
2	1/8	5/16-24	3/8	9/16	0.093	0.13	0.19	0.28	NA	NA	NA	NA
3	3/16	3/8-24	7/16	5/8	0.125	0.15	0.24	0.25	NA	NA	NA	NA
4	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
5	5/16	1/2-20	9/16	3/4	0.234	0.18	0.26	0.33	NA	NA	NA	NA
6	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
8	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

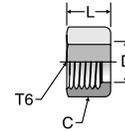


TUBE FITTING PART #	END SIZE (in.)	T6 TUBE END UN/UNF-2B	D2 DIA. (in.)	D (in.)	L (in.)
4 BIP	1/4	7/16 - 20	0.50	0.26	0.39
6 BIP	3/8	9/16 - 18	0.63	0.38	0.42

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

BI2

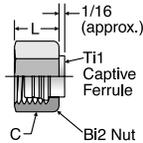
Nut
Intru-Lok



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

BTI2

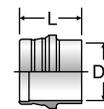
Nut and Ferrule
Intru-Lok



TUBE FITTING PART #	END SIZE (in.)	C HEX (in.)	L (in.)
2 BTI2	1/8	3/8	0.36
3 BTI2	3/16	7/16	0.34
4 BTI2	1/4	1/2	0.44
5 BTI2	5/16	9/16	0.45
6 BTI2	3/8	5/8	0.45
8 BTI2	1/2	7/8	0.58

TI2

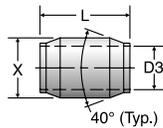
Ferrule
Intru-Lok



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

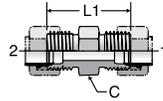


TUBE FITTING PART #	TUBE O.D. (in.)	TUBE WALL THICKNESS (in.)	L (in.)	X DIA (in.)
4 T23UI	1/4	0.040	0.53	0.23
5 T23UI	5/16	0.062	0.56	0.29
6 T23UI	3/8	0.062	0.56	0.35
8 T23UI	1/2	0.062	0.64	0.47

Dimensions and pressures for reference only, subject to change.

HBI2

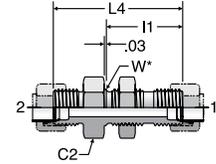
Union
 Intru-Lok / Intru-Lok



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

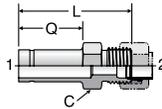


* W – Pilot drill diameter

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

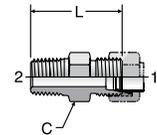
Tube End Reducer
 Intru-Lok



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

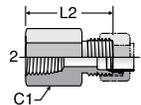
Male Connector
 Intru-Lok / NPTF



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

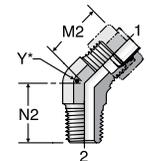
Female Connector
 Intru-Lok / NPTF



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



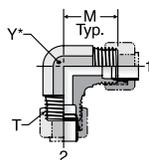
Y* – Across wrench flats

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

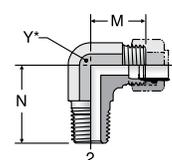


Y* – Across wrench flats

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

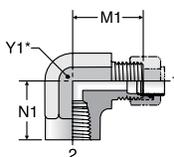


Y* – Across wrench flats

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

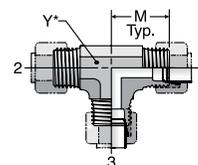


Y1* – Across wrench flats

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)

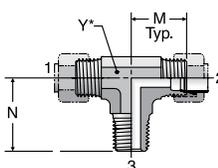


Y1* – Across wrench flats

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

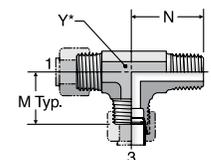


Y* – Across wrench flats

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



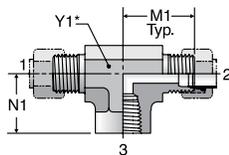
Y* – Across wrench flats

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

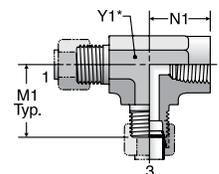
Female Branch Tee
 Intru-Lok / NPTF



Y* – Across wrench flats

MBI2

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



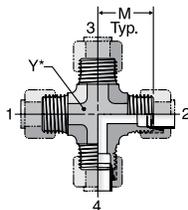
Y* – Across wrench flats

TUBE FITTING PART #	END SIZE			M1 (in.)	N1 (in.)	Y1 (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (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

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

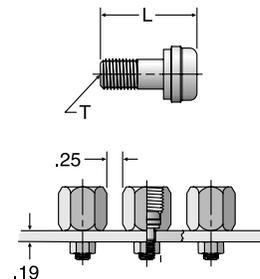
Union Cross
 Intru-Lok (all four ends)



Y* – Across wrench flats

T22I

Mountie



Typical application

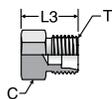
TUBE FITTING PART #	END SIZE				M (in.)	Y (in.)	Dynamic Pressure (x 1,000 PSI) -B
	1 (in.)	2 (in.)	3 (in.)	4 (in.)			
4 KBI2	1/4	1/4	1/4	1/4	0.66	7/16	1.5
6 KBI2	3/8	3/8	3/8	3/8	0.78	1/2	1.5

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

*Non standard

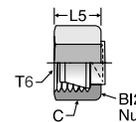
PNI

Plug
 Intru-Lok



FNI

Cap
 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
4 PNI	1/4	7/16 - 20	7/16	0.50	1.5
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

TUBE FITTING PART #	TUBE O.D. (in.)	C HEX (in.)	L5 (in.)	Dynamic Pressure (x 1,000 PSI) -B
2 FNI	1/8	3/8	0.36	1.5
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.