

High Pressure Gas Application

To run flow, the fluid system is pressurized. Gas needs to be highly compressed to fill smaller tanks or containers.

Pressure over 500 psig (34.5 bar) is considered high pressure.

M Tube Fittings provide gas leak-tight performance based on the working pressure of the selected tubing.

Tubing for Gas Application

Use the heavier wall tubing for gas applications. The heavier wall tubing that is recommended for gas service is identified in the non-shaded area of the tubing tables beginning on page 8. The thin wall tubes are shaded for identification. Heavier wall tubes are not shaded. Gases such as steam, air, oxygen, helium, nitrogen, methane, and propane have extremely small molecules that can escape through even the most minute leak path. Heavier wall tubing allows the ferrules to coin out minor defects on a tube surface whereas a thin wall provides less resistance to ferrule action, resulting in a lesser chance of coining out surface defects. Defects on the tubing surface should be considered to be leak paths.

Vacuum Application

The outstanding sealing system of M Tube Fitting eliminates air-ingress into the tubing system in vacuum conditions. With properly selected tubing, I-LOK Fittings are leak-tight up to the vacuum level of 10⁻⁹ Torr.

Cryogenic Application

Below -100°F (-37°C) is considered to be cryogenic temperature.

Stainless steel M Tube Fittings provide outstanding leak-tight performance up to -328°F (-200°C) (cryogenic application).

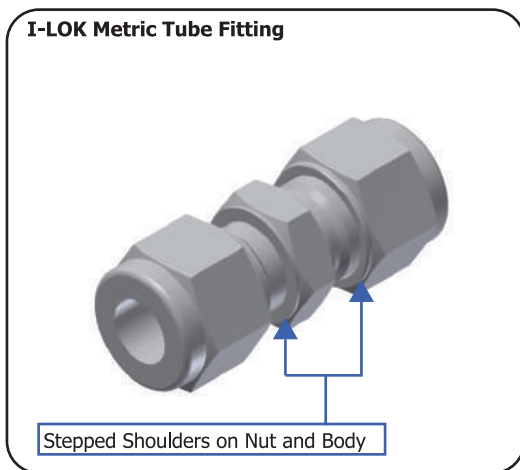
Make and Remake

Outstanding mechanical properties of I-LOK Fitting provide excellent make and remake performance.

Leak-Free

Following I-LOK Fitting's installation instructions leads to a leak-free tubing system.

Shape of I-LOK Tube Fittings (Metric Type & Fractional Type)



I-LOK Metric Tube Fittings are visually identifiable by the stepped shoulders on the nut and body. This includes the metric nut and straight body hexagonal bar stock. There are other shaped fittings such as the tee, elbow, and cross forging that have a similar step on the body as well.

Cleaning and Surface Protection

The Tube fittings are cleaned to remove surface contamination, loose particles, iron particles from machining tools, and oil from cutting fluid. Additional processing takes place to protect the tube fittings from corrosion and to improve performance.

Special cleaning in compliance with the requirements of ASTM G93 Level C is optional.

| Fitting Body Materials | Additional Processing |
|--|---|
| Stainless Steel, 6Mo | Passivation |
| Carbon Steel | White Zinc Electroplating with Chrome VI free |
| Brass | Acid Cleaning |
| Alloy 20, Monel 400, Alloy 600, Alloy 625, Alloy 825, C276, Duplex, Super Duplex | Hydrocarbon Film |
| Titanium Gr.4 | Anodizing |
| Aluminum | Anodizing, Hydrocarbon Film |
| PTFE | Cleaning |

INTRODUCE

High Quality Tubing Selection

Purchasing high quality tubing, maintaining the tubing quality on a good quality tubing rack, and proper handling of the tubing are the keys to a leak-tight tubing system.

Tubing Surface

The tube surface must be free from defects such as scratches, draw marks, and flat spots.

Tubing Hardness

- Tubing must be fully annealed.
- Tubing must be suitable for flaring and bending.

Oval

Tube OD may not fit into the fitting if it is not round.

Welded Tubing

A welded tube must not have a measurable bead on the outside diameter.

Tubing Wall Thickness

The wall thickness of tubing governs the working pressure of tubing. M Tube Fittings are designed to use with tubing walls, as listed in the tubing tables beginning on page 8.

Tubing for gas application must use the wall thicknesses outside of the shaded area in the tubing tables. Wall thickness not listed in the tubing tables is not recommended for use with M Tube Fittings.

Tube Handling

Tubing must be carefully handled to keep the tubing surface conditions as good as when they were delivered.

- Do not drag tubing out of tubing racks.
- Do not drag tubing across a rough surface (such as cement).

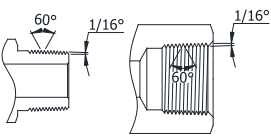
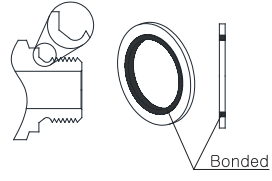
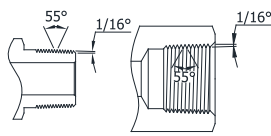
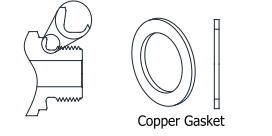
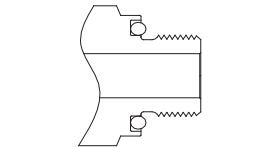
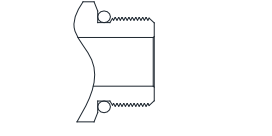
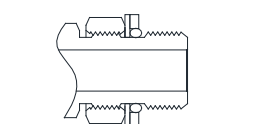
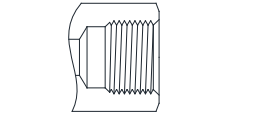
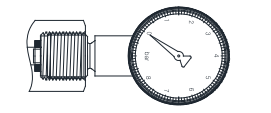
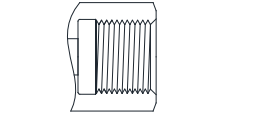
Tube Cutting

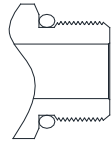
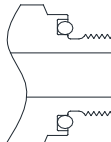

- Select the right tube cutter; a wrong cutter may result in excessive deformation on the tube end.
- Do not cut deep with each turn of cutter.
- Hacksaw blades should have at least 32 teeth per inch.
- Tube ends should be deburred on both the OD and ID before use with the tube fitting.

Thread Standards

The table below contains the thread designator and relevant information of the entire pipe thread constructed for I-LOK.

D*: Thread Designator

| D* | Configuration | Standards | D* | Configuration | Standards |
|------------------------------|---|--|------------------------------|--|---|
| Tapered Pipe Threads | | | Parallel Pipe Threads | | |
| N |  | ASME B1.20.1 (NPT) | G |  | ISO 228-1 BS 2779 (BSPP) DIN 3852 (FORM A) JIS B0202 (PF) Seal by Bonded Gasket or Copper Gasket |
| R |  | ISO 7-1 BS EN 10226 (BSPT) JIS B0203 (PF) | GB |  | ISO 228-1 BS 2779 (BSPP) DIN 3852 (FORM B) JIS B0202 (PF) Seal by Copper Gasket, Compression against Female flat face. |
| NO |  | ASME B1.20.1 SAE AS71051 SAE J514 O-Seal NPT Thread Seal by O-ring | GO |  | ISO 228-1 BS 2779 (BSPP) DIN 3852 JIS B0202 (PF) Non-Positionable Seal by O-ring Straight Thread Boss |
| Parallel Pipe Threads | | | Parallel Pipe Threads | | |
| GP |  | ISO 228-1 BS 2779 (BSPP) JIS B0202 (PF) Positionable Seal by O-ring | GR |  | ISO 228-1 BS 2779 (BSPP) DIN 3852 (FORM Z) JIS B0202 (PF) With G & GB Male Thread Seal by Copper Gasket Over the Flat Face of Female |
| GG |  | ISO 228-1, BS 2779 (BSPP) EN837-1, 837-3, JIS B0202 (PF) Gauge Port Seal by Copper Gasket at the Bottom of GG Female Port | GY |  | ISO 228-1, BS 2779 (BSPP) DIN 3852 (FORM Y) JIS B0202 (PF) With G & GB Male Thread Seal by PTFE Gasket at the Bottom of GY Port |

| D* | Configuration | Standards SAE Straight Threads |
|-----|---|--|
| UO |  | ASME B1.1, SAE J514 ISO R725, DIN 3852 (FORM F) Non-Positionable Seal by O-ring to SAE J1926/1 Straight Thread Boss |
| UEO |  | ASME B1.1 SAE J514, ISO R725 O-Seal SAE Straight Thread Seal by O-ring to SAE J1926/1 Straight Thread Boss |
| UP |  | ASME B1.1 SAE J514, ISO R725 Positionable Seal by O-ring to SAE J1926/1 Straight Thread Boss |

Pressure Rating

I-LOK Pressure Rating

The I-LOK End is rated to the working pressure of tubing as listed in the tubing tables.

Threaded/Butt Weld/Socket Weld/O-ring End/AN End Pressure Rating

When fitting is combined with threaded/butt weld/socket weld/O-ring End, the pressure rating of these ends may be the limiting factor on the fitting's pressure rating. Pressure ratings are based on ASME B31.3 Process Pipe Code at ambient temperature unless otherwise specified.

Tapered Pipe Thread End – N, and R

| Pipe Size in. | Stainless and Carbon Steel | | | | Brass | | | |
|---------------|----------------------------|-----|--------|-----|--------|-----|--------|-----|
| | Male | | Female | | Male | | Female | |
| | psi | bar | psi | bar | psi | bar | psi | bar |
| S Value | 20 ksi | | | | 10 ksi | | | |
| 1/16 | 14,000 | 965 | 6,600 | 455 | 7,400 | 510 | 3,300 | 227 |
| 1/8 | 10,000 | 689 | 6,400 | 441 | 5,000 | 345 | 3,200 | 220 |
| 1/4 | 8,300 | 572 | 6,500 | 448 | 4,100 | 282 | 3,200 | 220 |
| 3/8 | 8,000 | 551 | 5,200 | 358 | 4,000 | 275 | 2,600 | 179 |
| 1/2 | 7,800 | 537 | 4,800 | 331 | 3,900 | 269 | 2,400 | 165 |
| 3/4 | 7,500 | 517 | 4,600 | 317 | 3,700 | 255 | 2,300 | 158 |
| 1 | 5,300 | 365 | 4,400 | 303 | 2,600 | 179 | 2,200 | 152 |
| 1-1/4 | 6,200 | 427 | 5,000 | 345 | 3,100 | 214 | 2,500 | 172 |
| 1-1/2 | 5,100 | 351 | 4,500 | 310 | 2,500 | 172 | 2,200 | 152 |
| 2 | 4,000 | 276 | 3,900 | 269 | 2,000 | 138 | 1,900 | 131 |

Parallel Pipe Thread End – G, and GB

| Pipe Size, in. | Stainless and Carbon Steel | |
|----------------|----------------------------|------|
| | Male | |
| | Psi | bar |
| S Value | 20 ksi | |
| 1/8 | 16000 | 1103 |
| 1/4 | 12500 | 861 |
| 3/8 | 12000 | 827 |
| 1/2 | 11900 | 820 |
| 3/4 | 8000 | 551 |
| 1 | 5600 | 386 |
| 1 1/4 | 5400 | 372 |
| 1 1/2 | 5100 | 351 |

SAE Straight Thread End – UF, and UP

| Nominal SAE Dash Size | SAE Thread Size | Stainless and Carbon Steel | | | |
|-----------------------|-----------------|----------------------------|-----|-------------------|-----|
| | | Non-Positionable "UF" | | Positionable "UP" | |
| | | psi | bar | psi | bar |
| 2 | 5/16-24 | 4568 | 315 | 4568 | 315 |
| 4 | 7/16-20 | | | 3626 | 250 |
| 6 | 9/16-18 | | | 2900 | 200 |
| 8 | 3/4-16 | | | | |
| 10 | 7/8-14 | 2900 | 200 | 2320 | 160 |
| 12 | 1 1/16-12 | | | | |
| 14 | 1 3/16-12 | | | | |
| 16 | 1 5/16-12 | 2320 | 160 | 1813 | 125 |
| 20 | 1 5/8-12 | | | | |
| 24 | 1 7/8-12 | | | | |
| 32 | 2 1/2-12 | 1813 | 125 | 1450 | 100 |

Positionable ISO/BSPP Parallel Thread – GR

| ISO/BSPP Male Pipe Size in. | Stainless Steel and Carbon Steel | |
|-----------------------------|----------------------------------|------|
| | psi | bar |
| | 1/8 | 4568 |
| 1/4 | | |
| 3/8 | | |
| 1/2 | 2320 | 160 |
| 3/4 | | |
| 1 | | |

■ Pressure ratings are based on SAE J1926/3 at ambient temperature.

■ Pressure ratings are at ambient temperature.

INTRODUCE

SAE J514 37° Flare AN End

| Tube OD | | Stainless and Carbon Steel | |
|------------|-------|----------------------------|------|
| | | SAE J514, Table 1. | |
| Metric, mm | in. | psi | bar |
| 2 | 1/8 | 5000 | 344 |
| 6 | 1/4 | 5000 | 344 |
| 8 | 5/16 | 5000 | 344 |
| 10 | 3/8 | 4000 | 275 |
| 12 | 1/2 | 3000 | 206 |
| 16 | 5/8 | 3000 | 206 |
| 20 | 3/4 | 2500 | 172 |
| 25 | 1 | 2000 | 137 |
| 32 | 1 1/4 | 1150 | 79.2 |
| 38 | 1 1/2 | 1000 | 68.9 |
| 50 | 2 | 1000 | 68.9 |

Pressure ratings are extracted from SAE J514 Standard.

Pipe Butt Weld End – BW

| Nom. Pipe Size | Stainless and Carbon Steel | |
|----------------|----------------------------|-----|
| | Butt Weld End | |
| | psi | bar |
| S Value | 20 ksi | |
| 1/8 | 5300 | 365 |
| 1/4 | 5200 | 358 |
| 3/8 | 4400 | 303 |
| 1/2 | 4100 | 282 |
| 3/4 | 3200 | 220 |
| 1 | 3100 | 213 |
| 1 1/4 | 3000 | 206 |
| 1 1/2 | 2900 | 199 |
| 2 | 1900 | 131 |

Pressure ratings are at ambient temperature.

Tube Socket Weld End - SW

Pressure Equivalents

| BAR | Mpa | PSI |
|--------|-------|------|
| 1 | 0.1 | 14.5 |
| 100 | 10 | 1450 |
| 160 | 16 | 2321 |
| 210 | 21 | 3045 |
| 315 | 31.5 | 4569 |
| 350 | 35 | 5075 |
| 400 | 40 | 5801 |
| 413.68 | 41.36 | 6000 |

Socket Weld End is rated to the working pressure of the connected tubing.

O Seal Fitting "NO" and "UO" Ends Stainless and Carbon Steel "NO" & "UO" Ends up to 1 in. are rated to 3000 psig (206 bar) at ambient temperature.

Temperature Rating

When combined with the O-ring, the temperature rating of the O-ring may be the limiting factor on fitting's temperature rating. Brass and Carbon Steel O-ring fittings are supplied with a 70 durometer NBR O-ring. Stainless Steel O-ring fittings are supplied with a 90 durometer FKM O-ring.

| O-ring | Designator | Temperature Rating °F (°C) |
|----------------|------------|----------------------------|
| NBR | BN | -13 to 230 (-25 to 110) |
| FKM | VT | -20 to 400 (-28 to 204) |
| FFKM (Kalrez®) | KZ4 | -22 to 600 (-30 to 315) |

Fitting and Tubing Materials

The use of like tubing and fitting material is essential for a leak-tight tubing system. The use of unlike materials may affect the sealing integrity. Copper tubing with brass M Tube Fitting is the only exception.

Table A. Fractional Seamless Stainless Steel Tubing

The fully annealed seamless stainless steel tubing is ASTM A269 or A213 TP 316/316L, 304/304L or equivalent. The tubing is free from scratches, and suitable for bending and flaring. The hardness is 90 HRB or less.

| Tube OD in | Wall Thickness (in) | | | | | | | | | | | | | | |
|------------|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| | 0.012 | 0.014 | 0.016 | 0.02 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 | 0.109 | 0.12 | 0.134 | 0.156 | 0.188 |
| 1/16 | 6800 | 8100 | 9400 | 12000 | | | | | | | | | | | |
| 1/8 | | | | | 8500 | 10900 | | | | | | | | | |
| 3/16 | | | | | 5400 | 7000 | 10200 | | | | | | | | |
| 1/4 | | | | | 4000 | 5100 | 7500 | 10200 | | | | | | | |
| 5/16 | | | | | | 4000 | 5800 | 8000 | | | | | | | |
| 3/8 | | | | | | 3300 | 4800 | 6500 | 8600 | | | | | | |
| 1/2 | | | | | | 2600 | 3700 | 5100 | 6700 | | | | | | |
| 5/8 | | | | | | | 2900 | 4000 | 5200 | 6000 | | | | | |
| 3/4 | | | | | | | 2400 | 3300 | 4200 | 4900 | 5800 | 6400 | | | |
| 7/8 | | | | | | | 2000 | 2800 | 3600 | 4200 | 4800 | 5400 | 6100 | | |
| 1 | | | | | | | | 2400 | 3100 | 3600 | 4200 | 4700 | 5300 | 6200 | |
| 1 1/4 | | | | | | | | | 2400 | 2800 | 3300 | 3600 | 4100 | 4900 | |
| 1 1/2 | | | | | | | | | | 2300 | 2700 | 3000 | 3400 | 4000 | 4900 |
| 2 | | | | | | | | | | | 2000 | 2200 | 2500 | 2900 | 3600 |

Table B. Metric Seamless Stainless Steel Tubing

Allowable working pressures are calculated using an S value of 20,000 psi (1378 bar) for ASTM A269 tubing at -20 to 100°F (-28 to 37°C) as listed in the ASME B31.3 Process Piping Code and the ASME B31.1 Power Piping Code.

Pressure calculations are made with maximum O.D. and minimum wall thickness. No allowance is made for corrosion and erosion. Example: ASTM A 269 Type 316 Tubing, 1/2 in. OD x 0.065 in. WT. ASTM A269 standard specifies a permissible OD tolerance: +/- 0.005 in (+/- 0.13 mm), permissible WT tolerance: +/- 15%. The allowable working pressure is therefore calculated with a maximum OD of 0.505 in and a minimum WT of 0.0552 in. The Safety Factor is 3.75 to 1, with a specified ultimate tensile strength of 75,000 psi.

| Tube OD mm | Wall Thickness (mm) | | | | | | | | | | | | | | |
|------------|---------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 0.6 | 0.8 | 1 | 1.2 | 1.5 | 1.8 | 2 | 2.2 | 2.5 | 2.8 | 3 | 3.5 | 4 | 4.5 | 5.0 |
| 2 | 780 | 1050 | | | | | | | | | | | | | |
| 3 | 516 | 710 | | | | | | | | | | | | | |
| 4 | 520 | 660 | | | | | | | | | | | | | |
| 6 | | 330 | 420 | 520 | 670 | | | | | | | | | | |
| 8 | | | 310 | 380 | 490 | | | | | | | | | | |
| 10 | | | 240 | 300 | 380 | | | | | | | | | | |
| 12 | | | 200 | 240 | 310 | 380 | 430 | | | | | | | | |
| 14 | | | 180 | 220 | 280 | 340 | 390 | 430 | | | | | | | |
| 15 | | | 170 | 200 | 260 | 320 | 360 | 400 | | | | | | | |
| 16 | | | | 190 | 240 | 300 | 330 | 370 | | | | | | | |
| 18 | | | | 170 | 210 | 260 | 290 | 320 | 370 | | | | | | |
| 20 | | | | 150 | 190 | 230 | 260 | 290 | 330 | 380 | | | | | |
| 22 | | | | 130 | 170 | 210 | 230 | 260 | 300 | 340 | | | | | |
| 25 | | | | | 180 | 200 | 230 | 260 | 300 | 340 | 320 | | | | |
| 28 | | | | | | 180 | 200 | 230 | 260 | 280 | 330 | | | | |
| 30 | | | | | | 170 | 190 | 210 | 240 | 260 | 310 | | | | |
| 32 | | | | | | 160 | 170 | 200 | 230 | 240 | 290 | 330 | | | |
| 38 | | | | | | | 140 | 170 | 190 | 200 | 240 | 280 | 310 | | |
| 42 | | | | | | | | 170 | 180 | 210 | 250 | 280 | | | |
| 50 | | | | | | | | | 150 | 180 | 200 | 230 | 260 | | |

Welded Stainless Steel Tubing

ASME B31.3 Code requires that for welded tubing, a de-rating factor must be applied to the allowable working pressure.

For single welded tubing, the working pressure is multiplied by 0.80, and for double welded tubing, the working pressure is multiplied by 0.85.

Table C. Fractional Seamless Carbon Steel Tubing

Soft annealed seamless cold drawn carbon steel tubing (ASTM A179 or equivalent). The tubing is free from scratches, and suitable for bending and flaring. It has a hardness of 72 HRB or less.

| Tube OD in | Wall Thickness (in) | | | | | | | | | | | | |
|------------|-------------------------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|------|------|
| | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 | 0.109 | 0.12 | 0.134 | 0.148 | 0.165 | 0.18 | 0.22 |
| | Working Pressure (psig) | | | | | | | | | | | | |
| 1/8 | 8000 | 10200 | | | | | | | | | | | |
| 3/16 | 5100 | 6600 | 9600 | | | | | | | | | | |
| 1/4 | 3700 | 4800 | 7000 | 9600 | | | | | | | | | |
| 5/16 | | 3800 | 5500 | 7600 | | | | | | | | | |
| 3/8 | | 3100 | 4500 | 6200 | | | | | | | | | |
| 1/2 | | 2300 | 3300 | 4500 | 5900 | | | | | | | | |
| 5/8 | | 1800 | 2600 | 3500 | 4600 | 5300 | | | | | | | |
| 3/4 | | | 2100 | 2900 | 3700 | 4300 | 5100 | | | | | | |
| 7/8 | | | 1800 | 2400 | 3200 | 3700 | 4300 | | | | | | |
| 1 | | | 1500 | 2100 | 2700 | 3200 | 3700 | 4100 | | | | | |
| 1 1/4 | | | | 1600 | 2100 | 2500 | 2900 | 3200 | 3600 | 4000 | 4600 | 5000 | |
| 1 1/2 | | | | | 1800 | 2000 | 2400 | 2600 | 3000 | 3300 | 3700 | 4100 | 5100 |
| 2 | | | | | | 1500 | 1700 | 1900 | 2200 | 2400 | 2700 | 3000 | 3700 |

Table D. Metric Seamless Carbon Steel Tubing

| Tube OD mm | Wall Thickness (mm) | | | | | | | | | | | | |
|------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 0.8 | 1 | 1.2 | 1.5 | 1.8 | 2 | 2.2 | 2.5 | 2.8 | 3 | 3.5 | 4 | 4.5 |
| | Working Pressure (bar) | | | | | | | | | | | | |
| 3 | 670 | 830 | | | | | | | | | | | |
| 6 | 310 | 400 | 490 | 630 | | | | | | | | | |
| 8 | | 290 | 360 | 460 | | | | | | | | | |
| 10 | | 230 | 280 | 360 | | | | | | | | | |
| 12 | | 190 | 230 | 290 | 360 | 410 | 450 | | | | | | |
| 14 | | 160 | 190 | 250 | 300 | 340 | 380 | | | | | | |
| 15 | | 150 | 180 | 230 | 280 | 320 | 350 | | | | | | |
| 16 | | | 170 | 210 | 260 | 290 | 330 | 380 | | | | | |
| 18 | | | 150 | 190 | 230 | 260 | 290 | 330 | | | | | |
| 20 | | | 130 | 170 | 200 | 230 | 250 | 290 | 330 | | | | |
| 22 | | | 120 | 150 | 180 | 210 | 230 | 260 | 300 | | | | |
| 25 | | | | | 160 | 180 | 200 | 230 | 260 | 280 | | | |
| 28 | | | | | | 160 | 180 | 200 | 230 | 250 | 290 | | |
| 30 | | | | | | 150 | 160 | 190 | 210 | 230 | 270 | | |
| 32 | | | | | | 140 | 150 | 170 | 200 | 210 | 250 | 290 | |
| 38 | | | | | | | 130 | 140 | 160 | 180 | 210 | 240 | 280 |

Allowable working pressures are calculated using an S value of 15,700 psi for ASME A179 tubing at -20 to 100°F (-28 to 37°C), as listed in ASME B31.3 Process Piping Code.

☒ The Safety Factor is 3 to 1, with an ultimate tensile strength of 47,000 psi.

☒ To determine the working pressure of ASME B31.1 Power Piping Code, the ASME B31.3 rating is multiplied by 0.85.

Table E. Fractional Seamless Copper Tubing

The soft annealed seamless copper tubing is ASTM B75 or equivalent. In addition, the soft annealed seamless copper water tube is ASTM B88 Type K or L. The tubing is free from scratches, and suitable for bending and flaring. The hardness is 60 HRB or less.

| Tube OD in | Wall thickness (in) | | | | | | | | | | |
|------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| | 0.01 | 0.012 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 | 0.109 | 0.12 | 0.134 |
| | Working Pressure (psig) | | | | | | | | | | |
| 1/8 | | | 2700 | 3600 | | | | | | | |
| 3/16 | | | 1800 | 2300 | 3400 | | | | | | |
| 1/4 | | | 1300 | 1600 | 2500 | 3500 | | | | | |
| 5/16 | | | | 1300 | 1900 | 2700 | | | | | |
| 3/8 | | | | 1000 | 1600 | 2200 | | | | | |
| 1/2 | | | | 800 | 1100 | 1600 | 2100 | | | | |
| 5/8 | | | | | 900 | 1200 | 1600 | 1900 | | | |
| 3/4 | | | | | 700 | 1000 | 1300 | 1500 | 1800 | | |
| 7/8 | | | | | 600 | 800 | 1100 | 1300 | 1500 | | |
| 1 | | | | | 500 | 700 | 900 | 1100 | 1300 | 1500 | |
| 1 1/8 | | | | | | 600 | 800 | 1000 | 1100 | 1300 | 1400 |

Table F. Metric Seamless Copper Tubing

| Tube OD Mm | Wall Thickness (mm) | | | | | | | | | | | |
|------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 0.7 | 0.8 | 1.0 | 1.2 | 1.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.0 |
| | Working Pressure (bar) | | | | | | | | | | | |
| 3 | 220 | 250 | | | | | | | | | | |
| 4 | 160 | 190 | 240 | 290 | | | | | | | | |
| 6 | | 120 | 150 | 190 | 240 | 260 | | | | | | |
| 8 | | 80 | 110 | 130 | 170 | 190 | | | | | | |
| 10 | | 70 | 80 | 100 | 130 | 150 | 170 | 190 | | | | |
| 12 | | 50 | 70 | 80 | 110 | 120 | 130 | 150 | | | | |
| 14 | | | 60 | 70 | 90 | 100 | 110 | 130 | 140 | 170 | 190 | 200 |
| 16 | | | 50 | 60 | 80 | 80 | 100 | 110 | 120 | 140 | 160 | 180 |
| 18 | | | 40 | 50 | 70 | 70 | 80 | 100 | 110 | 120 | 140 | 150 |
| 22 | | | 30 | 40 | 50 | 60 | 70 | 80 | 80 | 100 | 110 | 120 |
| 25 | | | 30 | 40 | 50 | 50 | 60 | 70 | 70 | 80 | 100 | 100 |
| 28 | | | | | | | 50 | 60 | 60 | 70 | 80 | 90 |

The allowable working pressures are calculated using an S value of 6000 psi for ASTM B75 and B88 tubing at -20 to 100°F (-28 to 37°C), as listed in the ASME B31.3 Process Piping Code and the ASME B31.1 Power Piping Code.

☒ The Safety Factor is 5 to 1, with an ultimate tensile strength of 30,000 psi.

INTRODUCE

Alloy 400 Tubing

The fully annealed seamless Alloy 400 tubing is ASTM B165 or equivalent. The tubing is free from scratches, and suitable for bending and flaring. It has a hardness of 75 HRB or less. The OD tolerance is not to exceed +/- 0.005 in. or +/- 0.13 mm.

Table G. Fractional Seamless Alloy 400 Tubing

| Tube OD in | Wall Thickness (in) | | | | | | | |
|-------------------------|---------------------|-------|-------|-------|-------|-------|-------|------|
| | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 | 0.109 | 0.12 |
| Working Pressure (psig) | | | | | | | | |
| 1/8 | 7900 | 10200 | | | | | | |
| 1/4 | 3700 | 4800 | 7000 | 9600 | | | | |
| 3/8 | | 3100 | 4400 | 6100 | | | | |
| 1/2 | | 2300 | 3300 | 4400 | | | | |
| 3/4 | | | 2200 | 3000 | 4000 | 4600 | | |
| 1 | | | | 2200 | 2900 | 3400 | 3900 | 4300 |

Table H. Metric Seamless Alloy 400 Tubing

| Tube OD mm | Tube Wall Thickness (mm) | | | | | | | | | |
|------------------------|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 0.8 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.0 |
| Working Pressure (bar) | | | | | | | | | | |
| 6 | 370 | 480 | 590 | 750 | | | | | | |
| 8 | | 350 | 430 | 550 | | | | | | |
| 10 | | 270 | 330 | 430 | | | | | | |
| 12 | | 220 | 270 | 350 | | | | | | |
| 14 | | 190 | 230 | 290 | 360 | | | | | |
| 18 | | | 170 | 220 | 270 | 310 | 340 | | | |
| 20 | | | | 200 | 240 | 270 | 300 | 350 | | |
| 25 | | | | | 170 | 210 | 240 | 270 | 310 | 330 |

The allowable working pressures are calculated using an S value of 18,700 psi for ASTM B165 tubing at -20 to 100°F (-28 to 37°C), as listed in ASME B31.3 and ASME B31.1.

The safety Factor is 3.7 to 1, with an ultimate tensile strength of 70,000 psi.

Alloy C276 Tubing

The fully annealed seamless Alloy C276 tubing is ASTM B622 or equivalent. The tubing is free from scratches, and suitable for bending and flaring. The hardness is 100 HRB or less. The OD tolerance is not to exceed +/- 0.005 in. or +/- 0.13 mm.

Table H. Metric Seamless Alloy C276 Tubing

| Tube OD in | Tube Wall Thickness (in) | | | | | |
|-------------------------|--------------------------|--------|--------|--------|--------|-------|
| | 0.020 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 |
| Working Pressure (psig) | | | | | | |
| 1/8 | 8,200 | 12,000 | 15,300 | | | |
| 3/16 | 5,300 | 7,700 | 9,900 | 14,400 | | |
| 1/4 | | 5,600 | 7,200 | 10,600 | 14,400 | |
| 5/16 | | | 5,700 | 8,200 | 11,300 | |
| 3/8 | | | 4,700 | 6,700 | 9,200 | |
| 1/2 | | | 3,400 | 4,900 | 6,700 | 8,800 |

Table I. Metric Seamless Alloy C276 Tubing

| Tube OD mm | Tube Wall Thickness (mm) | | | | | |
|------------------------|--------------------------|-----|-----|-------|-----|-----|
| | 0.8 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 |
| Working Pressure (bar) | | | | | | |
| 6 | 450 | 600 | 760 | 1,000 | | |
| 8 | | 440 | 550 | 730 | | |
| 10 | | 340 | 430 | 570 | | |
| 12 | | 280 | 350 | 460 | 580 | 660 |

Allowable working pressures are calculated using an S value of 27,300 psi for ASTM B622 tubing at -20 to 100°F (-28 to 37°C), as listed in ASME B31.3 and ASME B31.1.

The Safety Factor is 3.6 to 1, with an ultimate tensile strength of 100,000 psi.

Alloy 825 Tubing

The fully annealed seamless Alloy 825 tubing is ASTM B423 or equivalent. The tubing is free from scratches, and suitable for bending and flaring. The hardness does not exceed 201 HV.

Table J. Fractional Seamless Alloy 825 Tubing

| Tube OD in | Tube Wall Thickness (in) | | | | | |
|-------------------------|--------------------------|--------|--------|--------|--------|-------|
| | 0.020 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 |
| Working Pressure (psig) | | | | | | |
| 1/8 | 7,300 | 10,700 | 13,700 | | | |
| 1/16 | 4,700 | 6,800 | 8,800 | 12,800 | | |
| 1/4 | | 5,000 | 6,400 | 9,300 | 12,700 | |
| 1/16 | | | 5,000 | 7,300 | 10,000 | |
| 3/8 | | | 4,100 | 5,900 | 8,200 | |
| 1/2 | | | 3,000 | 4,300 | 5,900 | 7,800 |

Table K. Metric Seamless Alloy 825 Tubing

| Tube OD mm | Tube Wall Thickness (mm) | | | | | |
|------------------------|--------------------------|-----|-----|-----|-----|-----|
| | 0.8 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 |
| Working Pressure (bar) | | | | | | |
| 6 | 460 | 600 | 730 | 930 | | |
| 8 | | 430 | 530 | 680 | | |
| 10 | | 340 | 410 | 530 | | |
| 12 | | 280 | 340 | 430 | 530 | 600 |

The allowable working pressures are calculated using an S value of 23,300 psi for ASTM B423 tubing at -20 to 100°F (-28 to 37°C), as listed in ASME B31.3 and ASME B31.1.

The Safety Factor is 3.65 to 1, with an ultimate tensile strength of 85,000 psi.

Table L. Fractional Seamless Super Duplex Tubing

The fully annealed seamless super duplex tubing is ASTM A789 S32750 or equivalent. The tubing is free from scratches, and suitable for bending and flaring. The hardness is 32 HRC or less

| Tube OD in. | Tube Wall Thickness (in) | | | | |
|-------------------------|--------------------------|-------|--------|--------|--------|
| | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 |
| Working Pressure (psig) | | | | | |
| 1/4 | 7,800 | 9,900 | 14,500 | | |
| 3/8 | | 6,400 | 9,200 | 12,700 | |
| 1/2 | | 4,700 | 6,800 | 9,200 | 12,100 |

Allowable working pressures are calculated using an S value of 38,700 psi for ASTM A789 tubing at -20 to 100°F (-28 to 37°C), as listed in ASME B31.3. The Safety Factor is 3 to 1, with an ultimate tensile strength of 116,000 psi.

Alloy 625 Tubing

The fully annealed seamless Alloy 625 tubing is ASTM B444 Grade 2 or equivalent. The tubing is free from scratches, and suitable for bending and flaring. The hardness does not exceed 25 HRC.

Table M. Fractional Seamless Alloy 625 Tubing

| Tube OD in. | Tube Wall Thickness (in) | | | | | |
|-------------------------|--------------------------|--------|--------|--------|--------|-------|
| | 0.020 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 |
| Working Pressure (psig) | | | | | | |
| 1/8 | 8,400 | 12,200 | 15,600 | | | |
| 3/16 | 5,400 | 7,800 | 10,100 | 14,600 | | |
| 1/4 | | 5,700 | 7,300 | 10,600 | 14,600 | |
| 5/16 | | | 5,700 | 8,300 | 11,400 | |
| 3/8 | | | 4,700 | 6,800 | 9,300 | |
| 1/2 | | | 3,400 | 5,000 | 6,800 | 8,900 |

Table N. Metric Seamless Alloy 625 Tubing

| Tube OD mm | Tube Wall Thickness (mm) | | | | | |
|------------------------|--------------------------|-----|-----|-----|-----|-----|
| | 0.8 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 |
| Working Pressure (bar) | | | | | | |
| 6 | 470 | 610 | 750 | 960 | | |
| 8 | | 440 | 540 | 700 | | |
| 10 | | 340 | 420 | 540 | | |
| 12 | | 280 | 350 | 440 | 540 | 620 |

Allowable working pressures are calculated using an S value of 26,700 psi for ASTM B444 Grade 2 tubing at -20 to 100°F (-28 to 37°C), as listed in ASME B31.1.

The Safety Factor is 3.75 to 1, with an ultimate tensile strength of 100,000 psi.

Alloy 20 Tubing

The fully annealed seamless Alloy 20 tubing ASTM B729 is a welded tubing of ASTM B468 or equivalent. The tubing is free from scratches, and suitable for bending and flaring. The hardness is 95 HRB or less. The OD Tolerance does not exceed +/-0.005 in. and +/-0.13 mm.

Table 18. Fractional Seamless Alloy 20 Tubing F9

| Tube OD in. | Tube Wall Thickness (in) | | | | | |
|-------------|--------------------------|-------|-------|-------|-------|-------|
| | 0.020 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 |
| | Working Pressure (psig) | | | | | |
| 1/8 | 6800 | 9900 | 12700 | | | |
| 3/16 | 4400 | 6300 | 8200 | 11900 | | |
| 1/4 | | 4700 | 5900 | 8700 | 11900 | |
| 5/16 | | | 4700 | 6800 | 9400 | |
| 3/8 | | | 3800 | 5500 | 7600 | |
| 1/2 | | | 2800 | 4100 | 5500 | 7300 |

Table 19. Metric Seamless Alloy 20 Tubing

| Tube OD mm | Tube Wall Thickness (mm) | | | | | |
|------------|--------------------------|-----|-----|-----|-----|-----|
| | 0.8 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 |
| | Working Pressure (bar) | | | | | |
| 6 | 390 | 500 | 610 | 780 | | |
| 8 | | 360 | 440 | 570 | | |
| 10 | | 280 | 350 | 440 | | |
| 12 | | 230 | 280 | 360 | 450 | 500 |

Allowable working pressures are calculated using an S value of 23,300 psi for ASTM B729 tubing at an ambient temperature, as listed in ASME B31.3.

To determine the working pressure of ASME B31.1, the ASME B31.3 rating is multiplied by 0.98.

The Safety Factor is 3.4 to 1, with an ultimate tensile strength of 80,000 psi.

Titanium Grade 2 Tubing

The fully annealed seamless and welded Titanium Grade 2 tubing is ASTM B338 or equivalent. The tubing is free from scratches, and suitable for bending. The OD tolerances does not exceed +/- 0.005 in. or +/-0.13 mm.

Table 20. Fractional Seamless Tubing

| Tube OD in. | Tube Wall Thickness (in) | | | |
|-------------|--------------------------|-------|-------|-------|
| | 0.028 | 0.035 | 0.049 | 0.065 |
| | Working Pressure (psig) | | | |
| 1/4 | 3000 | 3900 | 5700 | 7800 |
| 3/8 | | 2500 | 3600 | 5000 |
| 1/2 | | 1800 | 2600 | 3600 |

Table 21. Metric Seamless Tubing

| Tube OD mm | Tube Wall Thickness (mm) | | | |
|------------|--------------------------|-----|-----|-----|
| | 0.8 | 1.0 | 1.2 | 1.5 |
| | Working Pressure (bar) | | | |
| 6 | 330 | 430 | 520 | 670 |
| 10 | | 240 | 300 | 380 |
| 12 | | 200 | 240 | 310 |

The allowable working pressures are calculated using an S value of 14,300 psi for ASTM B338 tubing at -20 to 100°F (-28 to 37°C), as listed in ASME B31.1.

The Safety Factor is 2.8 to 1, with an ultimate tensile strength of 40,000 psi.

Aluminum Seamless Tubing

The high quality aluminum alloy seamless tubing is ASTM B210 Grade 6061-T6 or equivalent. The tubing is free from scratches.

Table 22. Fractional Aluminum Seamless Tubing

| Tube OD in. | Tube Wall Thickness (in) | | | | |
|-------------|--------------------------|-------|-------|-------|-------|
| | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 |
| | Working Pressure (psig) | | | | |
| 1/8 | 8600 | | | | |
| 3/16 | 5600 | 8000 | | | |
| 1/4 | 4000 | 5900 | | | |
| 5/16 | 3100 | 4600 | | | |
| 3/8 | 2600 | 3700 | | | |
| 1/2 | 1900 | 2700 | 3700 | | |
| 5/8 | 1500 | 2100 | 2900 | | |
| 3/4 | | 1700 | 2400 | 3200 | |
| 1 | | 1300 | 1700 | 2300 | 2700 |

Table 23. Metric Aluminum Seamless Tubing

| Tube OD mm | Tube Wall Thickness (mm) | | | | | | |
|------------|--------------------------|-----|-----|-----|-----|-----|-----|
| | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 | 2.2 | 2.5 |
| | Working Pressure (bar) | | | | | | |
| 6 | 340 | 420 | | | | | |
| 8 | 250 | 300 | | | | | |
| 10 | 190 | 240 | | | | | |
| 12 | 160 | 190 | 250 | 310 | | | |
| 14 | 130 | 160 | 210 | 260 | | | |
| 15 | 120 | 150 | 190 | 240 | | | |
| 16 | 120 | 140 | 180 | 220 | | | |
| 18 | | 120 | 160 | 190 | 220 | | |
| 20 | | | 140 | 170 | 190 | | |
| 22 | | | 130 | 150 | 170 | 190 | |
| 25 | | | 110 | 130 | 150 | 170 | 190 |

Allowable working pressures are calculated using an S value of 14,000 psi for ASTM B210 Grade 6061-T6 tubing at -20 to 100°F (-28 to 37°C), as listed in ASME 31.3.

The Safety Factor is 3 to 1, with an ultimate tensile strength of 42,000 psi.

To determine the working pressure of the ASME B31.1 Power Piping Code, the ASME B31.3 rating is multiplied by 0.85.

Elevated Temperature De-rating Factors

The I-LOK End is rated to the working pressure of tubing, as listed in the tubing tables. The working pressure is de-rated as the temperature is elevated. To determine the working pressure at an elevated temperature, the working pressure listed in Tables 1 through 23 is multiplied by the applicable factor shown in Table 24.

Table 24. Elevated Temperature De-rating Factors

| ASTM Standard | | A269 | B75 | A179 | B165 | B622 | B423 | B444 | B167 | A789 | B729 | B338 | B210 |
|---------------|-----|-------|--------|--------------|-----------|------|-----------|-----------|-----------|--------------|----------|---------------|----------|
| Temperature | | SS316 | Copper | Carbon Steel | Alloy 400 | C276 | Alloy 825 | Alloy 625 | Alloy 600 | Super Duplex | Alloy 20 | Titanium Gr.2 | Aluminum |
| F° | C° | | | | | | | | | | | | |
| 100 | 38 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 200 | 93 | 1 | 0.80 | 0.96 | 0.88 | 1 | 1 | 0.92 | 1 | 1 | 0.86 | 0.88 | 1 |
| 300 | 149 | 1 | 0.78 | 0.90 | 0.82 | 1 | 1 | 0.88 | 1 | 0.86 | 0.85 | 0.72 | 1 |
| 400 | 204 | 0.97 | 0.50 | 0.86 | 0.79 | 1 | 1 | 0.85 | 1 | 0.82 | 0.83 | 0.61 | 0.94 |
| 500 | 260 | 0.9 | 0.13 | 0.82 | 0.79 | 0.99 | 1 | 0.81 | 1 | 0.81 | 0.83 | 0.53 | 0.81 |
| 600 | 316 | 0.85 | | 0.77 | 0.79 | 0.93 | 1 | 0.79 | 1 | 0.81 | 0.83 | 0.45 | 0.56 |
| 650 | 343 | 0.84 | | 0.75 | 0.79 | 0.90 | 1 | 0.78 | 1 | | 0.82 | | 0.40 |
| 700 | 371 | 0.82 | | 0.73 | 0.79 | 0.88 | 1 | 0.77 | 1 | | 0.82 | | |
| 750 | 399 | 0.81 | | 0.68 | 0.78 | 0.86 | 1 | 0.76 | 1 | | 0.82 | | |
| 800 | 427 | 0.80 | | 0.59 | 0.76 | 0.84 | 0.99 | 0.75 | 1 | | 0.82 | | |
| 850 | 454 | 0.79 | | 0.50 | 0.59 | 0.83 | 0.98 | 0.74 | 0.98 | | | | |
| 900 | 482 | 0.78 | | 0.41 | 0.43 | 0.82 | 0.98 | 0.73 | 0.80 | | | | |
| 950 | 510 | 0.77 | | 0.29 | 0.81 | 0.97 | 0.73 | 0.53 | | | | | |
| 1000 | 538 | 0.77 | | 0.16 | 0.80 | 0.96 | 0.72 | 0.35 | | | | | |
| 1050 | 566 | 0.73 | | 0.10 | 0.68 | | 0.72 | 0.23 | | | | | |
| 1100 | 593 | 0.62 | | 0.06 | 0.55 | | 0.72 | 0.15 | | | | | |
| 1150 | 621 | 0.49 | | | 0.45 | | 0.72 | 0.11 | | | | | |
| 1200 | 649 | 0.37 | | | 0.36 | | 0.72 | 0.10 | | | | | |
| 1250 | 677 | 0.28 | | | 0.29 | | | | | | | | |

INTRODUCE

Ordering Information

Tube OD Designator

| Fractional OD | 1/16 | 1/8 | 3/16 | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 7/8 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|------|-----|------|-----|------|-----|-----|-----|-----|-----|----|-------|-------|----|
| Designator | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 20 | 24 | 32 |

| Metric OD(mm) | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 18 | 22 | 25 | 32 | 38 | 50 |
|---------------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Designator | 2M | 3M | 4M | 6M | 8M | 10M | 12M | 16M | 18M | 22M | 25M | 32M | 38M | 50M |

| Nominal Pipe Size, in. | 1/16 | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|------------------------|------|-----|-----|-----|-----|-----|-----|-------|-------|-----|
| Size Designator | 1 | 2 | 4 | 6 | 8 | 12 | 16 | 20 | 24 | 32 |
| N | 1N | 2N | 4N | 6N | 8N | 12N | 16N | 20N | 24N | 32N |
| R | 1R | 2R | 4R | 6R | 8R | 12R | 16R | 20R | 24R | 32R |
| G | - | 2G | 4G | 6G | 8G | 12G | 16G | 20G | 24G | 32G |

Material Designators

| Material | Designators | |
|--------------------------|-------------|-------------------|
| | Component | Complete Assembly |
| Stainless Steel 316/316L | S | 316L |
| Carbon Steel | C | CS |
| Brass | B | BS |
| 6Mo | 6MO | 6MOA |
| Alloy 20 | L20 | L20A |
| Monel 400 | L400 | L400A |
| Alloy 600 | L600 | L600A |
| Alloy 625 | L625 | L625A |
| Alloy 825 | L825 | L825A |
| Hastelloy | C276 | C276A |
| Duplex | D | DA |
| Super Duplex | SD | SDA |
| Titanium Gr.4 | TI4 | TI4A |
| Aluminum | AL | ALA |
| PTFE | PE | PEA |

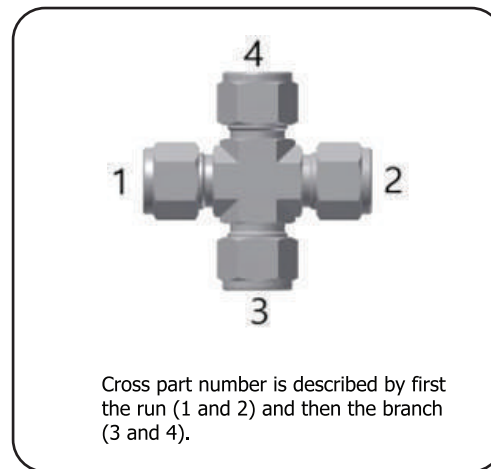
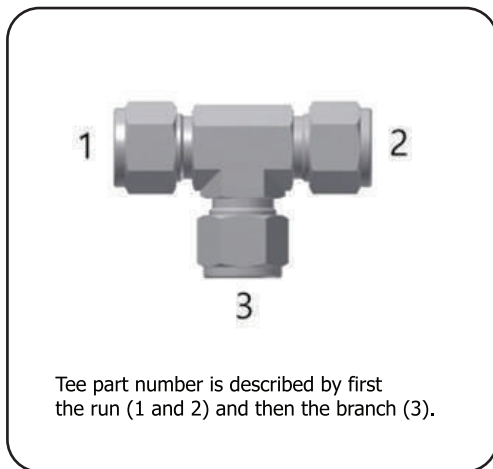
To order, select a part number and suffix of the applicable material designator to the part number.

- To order a complete assembly fitting, apply the material designator of complete assembly (Example: IU-8-316L).
- To order a component only, apply the material designator of the component.

Examples:

Stainless steel Nut 1/2 in. OD: IN-8-316L

Stainless steel Front Ferrule 1/2 in. OD: IFF-8-316L



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TUBE TO TUBE

TUBE TO THREAD



IU
UNION

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IUR
REDUCING
UNION

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IL
UNION
ELBOW

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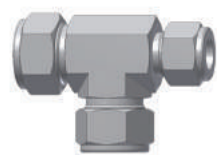
ILR
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Bulkhead
Male Connector
NPT Thread

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45° Male Elbow
NPT Thread

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ILM-N
Male Elbow
NPT Thread

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ILM-R
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PT Thread

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Male Run
Tee
NPT Thread

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ITRM-N
Male Run
Tee
PT Thread

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ITBM-N
Male Branch
Tee
NPT Thread

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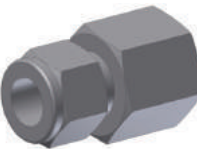
ITBM-R
Male Branch
Tee
PT Thread

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ICF-N
Female
Connector
NPT Thread

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ICF-R
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ILS-UP
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IC
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IP
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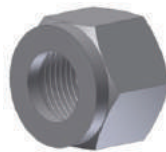
IFF
Front Ferrule

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IFB
Back Ferrule

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IN
Nut

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IFS
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IFSN
Nut-Ferrule
Set

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TUBE TO WELD END



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Weld Connector

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ILSW
Tube Socket
Weld Elbow

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ICBW
Pipe Butt Weld
Connector

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ILW
Pipe Butt Weld
Elbow

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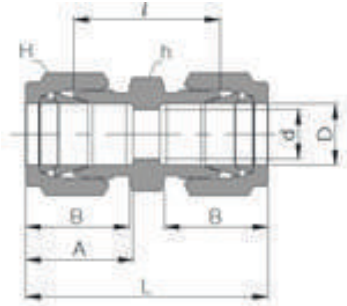


IBUW
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Union

66

TUBE TO TUBE

IU UNION



Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min. | Width across flat | | H | A | B | l | L | |
|----------|-----------|-------|-----------|-------------------|-------|-------|-------|-------|-------|-------|--------|
| | D in | mm | | h in | mm | | | | | | |
| IU-1 | 1/16 | 1.59 | 1.27 | 5/16 | 7.93 | 5/16 | 7.93 | 8.63 | 10.92 | 17.50 | 25.15 |
| IU-2 | 1/8 | 3.17 | 2.28 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 22.35 | 35.56 |
| IU-3 | 3/16 | 4.76 | 3.04 | 7/16 | 11.11 | 1/2 | 12.70 | 13.71 | 16.00 | 24.13 | 37.33 |
| IU-4 | 1/4 | 6.35 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 26.16 | 40.89 |
| IU-5 | 5/16 | 7.93 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 28.19 | 42.92 |
| IU-6 | 3/8 | 9.52 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 30.22 | 44.95 |
| IU-8 | 1/2 | 12.70 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 30.98 | 51.30 |
| IU-10 | 5/8 | 15.87 | 12.70 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 31.75 | 52.07 |
| IU-12 | 3/4 | 19.05 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 33.27 | 53.59 |
| IU-14 | 7/8 | 22.22 | 18.28 | 1-3/16 | 30.16 | 1-1/4 | 31.75 | 25.90 | 21.84 | 35.05 | 55.37 |
| IU-16 | 1 | 25.40 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 40.38 | 64.77 |
| IU-20 | 1-1/4 | 31.75 | 27.68 | 1-3/4 | 44.45 | 1-7/8 | 47.63 | 41.14 | 38.86 | 48.00 | 92.20 |
| IU-24 | 1-1/2 | 38.10 | 34.03 | 2-1/8 | 53.97 | 2-1/4 | 57.15 | 50.03 | 45.21 | 53.60 | 107.95 |
| IU-32 | 2 | 50.80 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 74.70 | 149.35 |

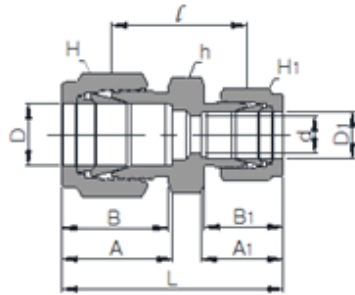
Connects Metric Tubes

| Part No. | Tube O.D. | | d Min. | Width across flat | | A | B | l | L |
|----------|-----------|------|-----------|-------------------|----|------|------|------|-------|
| | D | mm | | h | H | | | | |
| IU - 2M | 2 | 1.7 | 1.7 | 12 | 12 | 12.9 | 15.3 | 22.4 | 35.6 |
| IU - 3M | 3 | 2.4 | 2.4 | 12 | 12 | 12.9 | 15.3 | 22.1 | 35.3 |
| IU - 4M | 4 | 2.4 | 2.4 | 12 | 12 | 13.7 | 16.1 | 24.1 | 37.3 |
| IU - 6M | 6 | 4.8 | 4.8 | 14 | 14 | 15.3 | 17.7 | 26.2 | 41.0 |
| IU - 8M | 8 | 6.3 | 6.3 | 14 | 16 | 16.2 | 18.6 | 28.2 | 43.2 |
| IU - 10M | 10 | 7.9 | 7.9 | 17 | 19 | 17.2 | 19.5 | 31.0 | 46.2 |
| IU - 12M | 12 | 9.5 | 9.5 | 22 | 22 | 22.8 | 22.0 | 31.0 | 51.2 |
| IU - 15M | 15 | 11.9 | 11.9 | 24 | 25 | 24.4 | 22.0 | 31.8 | 52.0 |
| IU - 16M | 16 | 12.7 | 12.7 | 24 | 25 | 24.4 | 22.0 | 31.8 | 52.0 |
| IU - 18M | 18 | 15.1 | 15.1 | 27 | 30 | 24.4 | 22.0 | 33.3 | 53.5 |
| IU - 20M | 20 | 15.9 | 15.9 | 30 | 32 | 26.0 | 22.0 | 34.8 | 55.0 |
| IU - 22M | 22 | 18.3 | 18.3 | 30 | 32 | 26.0 | 22.0 | 34.8 | 55.0 |
| IU - 25M | 25 | 21.8 | 21.8 | 35 | 38 | 31.3 | 26.5 | 40.4 | 65.0 |
| IU - 28M | 28 | 21.8 | 21.8 | 41 | 46 | 36.6 | 36.6 | 43.4 | 85.0 |
| IU - 32M | 32 | 28.6 | 28.6 | 46 | 50 | 42.0 | 41.6 | 51.3 | 97.3 |
| IU - 38M | 38 | 33.7 | 33.7 | 55 | 60 | 49.4 | 47.9 | 58.4 | 113.6 |
| IU - 42M | 42 | 36.0 | 36.0 | 60 | 65 | 55.1 | 53.6 | 64.0 | 126.2 |

TUBE TO TUBE

IUR

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Connects fractional Tubes

| Part No. | Tube O.D. | | | | Width across flat | | | | | | | | L | | | | | |
|----------|-----------|-------|----------------|-------|-------------------|--------|-------|-------|-------|-------|----------------|-------|-------|-------|----------------|-------|----------------|---|
| | D | | D ₁ | | d | | h | | H | | H ₁ | | | A | A ₁ | B | B ₁ | ℓ |
| | in | mm | in | mm | Min. | in | mm | in | mm | in | mm | in | | mm | | | | |
| IUR2-1 | 1/8 | 3.17 | 1/16 | 1.59 | 1.27 | 7/16 | 11.11 | 7/16 | 11.11 | 5/16 | 7.93 | 12.70 | 8.63 | 15.24 | 10.92 | 20.60 | 30.91 | |
| IUR3-1 | 3/16 | 4.76 | 1/16 | 1.59 | 1.27 | 7/16 | 11.11 | 1/2 | 12.70 | 5/16 | 7.93 | 13.71 | 8.63 | 16.00 | 10.92 | 21.84 | 32.25 | |
| IUR3-2 | 3/16 | 4.76 | 1/8 | 3.17 | 2.28 | 7/16 | 11.11 | 1/2 | 12.70 | 7/16 | 11.11 | 13.71 | 12.70 | 16.00 | 15.24 | 23.36 | 36.57 | |
| IUR4-1 | 1/4 | 6.35 | 1/16 | 1.59 | 1.27 | 1/2 | 12.70 | 9/16 | 14.28 | 5/16 | 7.93 | 15.24 | 8.63 | 17.78 | 10.92 | 23.11 | 34.29 | |
| IUR4-2 | 1/4 | 6.35 | 1/8 | 3.17 | 2.28 | 1/2 | 12.70 | 9/16 | 14.28 | 7/16 | 11.11 | 15.24 | 12.70 | 17.78 | 15.24 | 24.63 | 38.60 | |
| IUR4-3 | 1/4 | 6.35 | 3/16 | 4.76 | 3.04 | 1/2 | 12.70 | 9/16 | 14.28 | 1/2 | 12.70 | 15.24 | 13.71 | 17.78 | 16.00 | 25.40 | 39.37 | |
| IUR5-2 | 5/16 | 7.93 | 1/8 | 3.17 | 2.28 | 9/16 | 14.28 | 5/8 | 15.87 | 7/16 | 11.11 | 16.25 | 12.70 | 18.54 | 15.24 | 25.90 | 39.87 | |
| IUR5-4 | 5/16 | 7.93 | 1/4 | 6.35 | 4.82 | 9/16 | 14.28 | 5/8 | 15.87 | 9/16 | 14.28 | 16.25 | 15.24 | 18.54 | 17.78 | 27.43 | 42.16 | |
| IUR6-1 | 3/8 | 9.52 | 1/16 | 1.59 | 1.27 | 5/8 | 15.87 | 11/16 | 17.46 | 5/16 | 7.93 | 16.76 | 8.63 | 19.30 | 10.92 | 25.40 | 36.57 | |
| IUR6-2 | 3/8 | 9.52 | 1/8 | 3.17 | 2.28 | 5/8 | 15.87 | 11/16 | 17.46 | 7/16 | 11.11 | 16.76 | 12.70 | 19.30 | 15.24 | 26.92 | 40.89 | |
| IUR6-4 | 3/8 | 9.52 | 1/4 | 6.35 | 4.82 | 5/8 | 15.87 | 11/16 | 17.46 | 9/16 | 14.28 | 16.76 | 15.24 | 19.30 | 17.78 | 28.44 | 43.18 | |
| IUR6-5 | 3/8 | 9.52 | 5/16 | 7.93 | 6.35 | 5/8 | 15.87 | 11/16 | 17.46 | 5/8 | 15.87 | 16.76 | 16.25 | 19.30 | 18.54 | 29.46 | 44.19 | |
| IUR8-2 | 1/2 | 12.70 | 1/8 | 3.17 | 2.28 | 13/16 | 20.64 | 7/8 | 22.22 | 7/16 | 11.11 | 22.86 | 12.70 | 21.84 | 15.24 | 28.44 | 45.21 | |
| IUR8-4 | 1/2 | 12.70 | 1/4 | 6.35 | 4.82 | 13/16 | 20.64 | 7/8 | 22.22 | 9/16 | 14.28 | 22.86 | 15.24 | 21.84 | 17.78 | 29.46 | 46.99 | |
| IUR8-6 | 1/2 | 12.70 | 3/8 | 9.52 | 7.11 | 13/16 | 20.64 | 7/8 | 22.22 | 11/16 | 17.46 | 22.86 | 16.76 | 21.84 | 19.30 | 30.98 | 48.51 | |
| IUR10-6 | 5/8 | 15.87 | 3/8 | 9.52 | 7.11 | 15/16 | 23.81 | 1 | 25.40 | 11/16 | 17.46 | 24.38 | 16.76 | 21.84 | 19.30 | 31.75 | 49.27 | |
| IUR10-8 | 5/8 | 15.87 | 1/2 | 12.70 | 10.41 | 15/16 | 23.81 | 1 | 25.40 | 7/8 | 22.22 | 24.38 | 22.86 | 21.84 | 21.84 | 31.75 | 52.07 | |
| IUR12-4 | 3/4 | 19.05 | 1/4 | 6.35 | 4.82 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 9/16 | 14.28 | 24.38 | 15.24 | 21.84 | 17.78 | 31.75 | 49.27 | |
| IUR12-6 | 3/4 | 19.05 | 3/8 | 9.52 | 7.11 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 11/16 | 17.46 | 24.38 | 16.76 | 21.84 | 19.30 | 33.27 | 50.80 | |
| IUR12-8 | 3/4 | 19.05 | 1/2 | 12.70 | 10.41 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 7/8 | 22.22 | 24.38 | 22.86 | 21.84 | 21.84 | 33.27 | 53.59 | |
| IUR12-10 | 3/4 | 19.05 | 5/8 | 15.87 | 12.70 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 1 | 25.40 | 24.38 | 24.38 | 21.84 | 21.84 | 33.27 | 53.59 | |
| IUR16-8 | 1 | 25.40 | 1/2 | 12.70 | 10.41 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 7/8 | 22.22 | 31.24 | 22.86 | 26.41 | 21.84 | 40.89 | 63.24 | |
| IUR16-12 | 1 | 25.40 | 3/4 | 19.05 | 15.74 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 1-1/8 | 28.58 | 31.24 | 24.38 | 26.41 | 21.84 | 40.38 | 62.73 | |

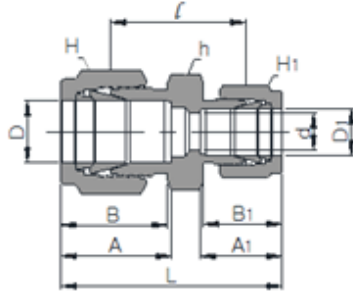
Connects Metric Tubes

| Part No. | Tube O.D. | | | Width across flat | | | A | A ₁ | B | B ₁ | ℓ | L |
|------------|-----------|----------------|--------|-------------------|----|----------------|------|----------------|------|----------------|------|------|
| | D | D ₁ | d Min. | h | H | H ₁ | | | | | | |
| IUR3M-2M | 3 | 2 | 1.7 | 12 | 12 | 12 | 12.9 | 12.9 | 15.3 | 15.3 | 22.1 | 35.3 |
| IUR6M-2M | 6 | 2 | 1.7 | 14 | 14 | 12 | 15.3 | 12.9 | 17.7 | 15.3 | 24.6 | 38.6 |
| IUR6M-3M | 6 | 3 | 2.4 | 14 | 14 | 12 | 15.3 | 12.9 | 17.7 | 15.3 | 24.6 | 38.6 |
| IUR6M-4M | 6 | 4 | 2.4 | 14 | 14 | 12 | 15.3 | 13.7 | 17.7 | 16.1 | 25.4 | 39.4 |
| IUR8M-6M | 8 | 6 | 4.8 | 14 | 16 | 14 | 16.2 | 15.3 | 18.6 | 17.7 | 27.4 | 42.3 |
| IUR10M-6M | 10 | 6 | 4.8 | 17 | 19 | 14 | 17.2 | 15.3 | 19.5 | 17.7 | 29.5 | 44.5 |
| IUR10M-8M | 10 | 8 | 6.3 | 17 | 19 | 16 | 17.2 | 16.2 | 19.5 | 18.6 | 30.0 | 45.1 |
| IUR12M-6M | 12 | 6 | 4.8 | 22 | 22 | 14 | 22.8 | 15.3 | 22.0 | 17.7 | 29.5 | 47.0 |
| IUR12M-8M | 12 | 8 | 6.3 | 22 | 22 | 16 | 22.8 | 16.2 | 22.0 | 18.6 | 30.2 | 47.8 |
| IUR12M-10M | 12 | 10 | 7.9 | 22 | 22 | 19 | 22.8 | 17.2 | 22.0 | 19.5 | 31.0 | 48.7 |
| IUR16M-10M | 16 | 10 | 7.9 | 24 | 25 | 19 | 24.4 | 17.2 | 22.0 | 19.5 | 31.8 | 49.5 |

TUBE TO TUBE

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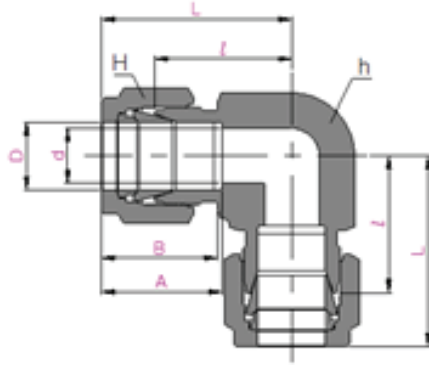


Connects Metric Tube To Fractional Tube

| Part No. | Tube O.D. | | | d mm Min. | Width across flat | | | | A | A1 | B | B1 | l | L |
|-----------|-----------|------|----------------------|-----------------|-------------------|----|----------------|------|------|------|------|------|------|---|
| | D mm | in | D ₁ mm | | h | H | H ₁ | | | | | | | |
| IUR3M-2 | 3 | 1/8 | 3.17 | 2.3 | 12.0 | 12 | 11.1 | 12.9 | 12.8 | 15.3 | 15.2 | 22.1 | 35.2 | |
| IUR4M-2 | 4 | 1/8 | 3.17 | 2.3 | 12.0 | 12 | 11.1 | 13.7 | 12.8 | 16.1 | 15.2 | 23.4 | 36.5 | |
| IUR4M-4 | 4 | 1/4 | 6.35 | 2.4 | 14.0 | 12 | 14.2 | 13.7 | 15.3 | 16.1 | 17.7 | 25.4 | 39.4 | |
| IUR6M-2 | 6 | 1/8 | 3.17 | 2.3 | 14.0 | 14 | 11.1 | 15.3 | 12.8 | 17.7 | 15.2 | 24.6 | 38.5 | |
| IUR6M-4 | 6 | 1/4 | 6.35 | 4.8 | 14.0 | 14 | 14.3 | 15.3 | 15.3 | 17.7 | 17.7 | 26.2 | 41.0 | |
| IUR6M-5 | 6 | 5/16 | 7.93 | 4.8 | 14.3 | 14 | 15.9 | 15.3 | 16.2 | 17.7 | 18.6 | 27.4 | 42.3 | |
| IUR8M-4 | 8 | 1/4 | 6.35 | 4/8 | 15.0 | 16 | 14.3 | 16.2 | 15.3 | 18.6 | 17.7 | 27.4 | 42.3 | |
| IUR10M-2 | 10 | 1/8 | 3.17 | 2.3 | 18.0 | 19 | 11.1 | 17.2 | 12.8 | 19.5 | 15.2 | 27.7 | 41.8 | |
| IUR10M-4 | 10 | 1/4 | 6.35 | 4.8 | 18.0 | 19 | 14.3 | 17.2 | 15.3 | 19.5 | 17.7 | 29.5 | 44.5 | |
| IUR10M-5 | 10 | 5/16 | 7.93 | 6.3 | 18.0 | 19 | 15.9 | 17.2 | 16.2 | 19.5 | 18.6 | 30.3 | 45.1 | |
| IUR10M-6 | 10 | 3/8 | 9.52 | 7.1 | 18.0 | 19 | 17.5 | 17.2 | 16.9 | 19.5 | 19.2 | 31.0 | 45.9 | |
| IUR12M-5 | 12 | 5/16 | 7.93 | 6.3 | 22.0 | 22 | 15.9 | 22.8 | 16.2 | 22.0 | 18.6 | 30.3 | 47.8 | |
| IUR12M-6 | 12 | 3/8 | 9.52 | 7.1 | 22.0 | 22 | 17.5 | 22.8 | 16.9 | 22.0 | 19.2 | 31.0 | 48.4 | |
| IUR12M-8 | 12 | 1/2 | 12.70 | 9.5 | 22.0 | 22 | 22.2 | 22.8 | 22.8 | 22.0 | 22.0 | 31.0 | 51.2 | |
| IUR15M-8 | 15 | 1/2 | 12.70 | 10.4 | 24.0 | 25 | 22.2 | 24.4 | 22.8 | 22.0 | 22.0 | 31.8 | 52.0 | |
| IUR16M-10 | 16 | 5/8 | 15.87 | 12.7 | 24.0 | 25 | 25.4 | 24.4 | 24.4 | 22.0 | 22.0 | 31.8 | 52.0 | |
| IUR18M-12 | 18 | 3/4 | 19.05 | 15.1 | 27.0 | 30 | 28.6 | 24.4 | 24.4 | 22.0 | 22.0 | 33.3 | 53.5 | |
| IUR20M-12 | 20 | 3/4 | 19.05 | 15.7 | 30.0 | 32 | 28.6 | 26.0 | 24.4 | 22.9 | 22.0 | 34.8 | 54.0 | |
| IUR20M-16 | 20 | 3/4 | 25.4 | 15.9 | 34.9 | 32 | 38.1 | 26.0 | 31.2 | 22.0 | 26.4 | 38.0 | 60.3 | |
| IUR22M-16 | 22 | 1 | 25.4 | 18.3 | 34.9 | 32 | 38.1 | 26.0 | 31.2 | 22.0 | 26.4 | 38.2 | 60.3 | |

TUBE TO TUBE

IL ELBOW



Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min. | Width across flat | | H | A | B | C | L | |
|----------|-----------|-------|-----------|-------------------|-------|-------|-------|-------|-------|-------|--------|
| | in | mm | | in | mm | | | | | | |
| IL-1 | 1/16 | 1.58 | 1.27 | 3/8 | 9.52 | 5/16 | 7.93 | 8.63 | 10.92 | 14.00 | 17.88 |
| IL-2 | 1/8 | 3.17 | 2.28 | 3/8 | 9.52 | 7/16 | 11.11 | 12.70 | 15.24 | 15.74 | 22.35 |
| IL-3 | 3/16 | 4.76 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.78 | 24.38 |
| IL-4 | 1/4 | 6.35 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.55 | 26.92 |
| IL-5 | 5/16 | 7.93 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.33 | 28.70 |
| IL-6 | 3/8 | 9.52 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 23.11 | 30.48 |
| IL-8 | 1/2 | 12.70 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 36.06 |
| IL-10 | 5/8 | 15.87 | 12.70 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 28.70 | 38.80 |
| IL-12 | 3/4 | 19.05 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.71 | 39.87 |
| IL-14 | 7/8 | 22.22 | 18.28 | 1-3/16 | 30.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.54 | 44.70 |
| IL-16 | 1 | 25.40 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.83 | 49.02 |
| IL-20 | 1-1/4 | 31.75 | 27.68 | 1-11/16 | 42.86 | 1-7/8 | 47.63 | 41.14 | 38.86 | 44.50 | 66.54 |
| IL-24 | 1-1/2 | 38.10 | 34.03 | 2 | 50.80 | 2-1/4 | 57.15 | 50.03 | 45.21 | 50.80 | 77.97 |
| IL-32 | 2 | 50.80 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 69.80 | 107.18 |

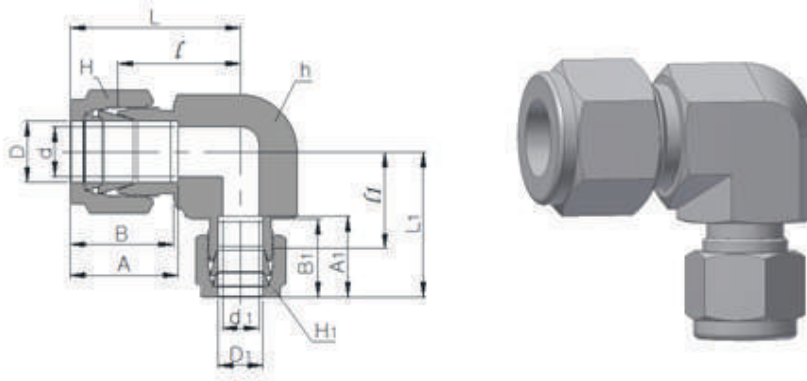
Connects Metric Tubes

| Part No. | Tube O.D. | | O Min. | Width across flat | | A | B | C | L |
|----------|-----------|------|-----------|-------------------|----|------|------|------|------|
| | D | mm | | h | H | | | | |
| IL-2M | 2 | 1.7 | 1.7 | 9.5 | 12 | 12.9 | 15.3 | 15.7 | 22.3 |
| IL-3M | 3 | 2.4 | 2.4 | 9.5 | 12 | 12.9 | 15.3 | 15.7 | 22.3 |
| IL-4M | 4 | 2.4 | 2.4 | 12.7 | 12 | 13.7 | 16.1 | 18.8 | 25.4 |
| IL-6M | 6 | 4.8 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 27.0 |
| IL-8M | 8 | 6.3 | 6.3 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.8 |
| IL-10M | 10 | 7.9 | 7.9 | 17.5 | 19 | 17.2 | 19.5 | 23.9 | 31.5 |
| IL-12M | 12 | 9.5 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 |
| IL-15M | 15 | 11.9 | 11.9 | 23.8 | 25 | 24.4 | 22.0 | 28.7 | 38.8 |
| IL-16M | 16 | 12.7 | 12.7 | 23.8 | 25 | 24.4 | 22.0 | 28.7 | 38.8 |
| IL-18M | 18 | 15.1 | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 |
| IL-20M | 20 | 15.9 | 15.9 | 30.0 | 32 | 26.0 | 22.0 | 32.5 | 42.6 |
| IL-22M | 22 | 18.3 | 18.3 | 30.0 | 32 | 26.0 | 22.0 | 32.5 | 42.6 |
| IL-25M | 25 | 21.8 | 21.8 | 34.92 | 38 | 31.3 | 26.5 | 36.8 | 49.1 |
| IL-28M | 28 | 21.8 | 21.8 | 41.0 | 46 | 36.6 | 36.6 | 43.2 | 64.0 |
| IL-32M | 32 | 28.6 | 28.6 | 46.0 | 50 | 42.0 | 41.6 | 49.3 | 72.3 |
| IL-38M | 38 | 33.7 | 33.7 | 55.0 | 60 | 49.4 | 47.9 | 56.4 | 84.0 |
| IL-42M | 42 | 36.0 | 36.0 | 55.0 | 65 | 55.1 | 53.6 | 58.0 | 89.1 |

TUBE TO TUBE

ILR

REDUCING ELBOW



Connects Fractional Tubes

| Part No. | Tube O.D. | | Width across flat | | | | | | | | d | d1 | A | A ₁ | B | B ₁ | α | α ₁ | L | L ₁ |
|----------|-----------|----------------|-------------------|-------|----------------|-------|-------|----------------|-------|-------|-------|------|-------|----------------|-------|----------------|------|----------------|-------|----------------|
| | D | D ₁ | h | H | H ₁ | h | H | H ₁ | | | | | | | | | | | | |
| ILR4-2 | 1/4 | 6.35 | 1/8 | 3.17 | 1/2 | 12.7 | 9/16 | 14.28 | 7/16 | 11.11 | 4.8 | 2.3 | 15.24 | 12.70 | 17.78 | 15.24 | 19.6 | 18.1 | 269 | 24.7 |
| ILR6-4 | 3/8 | 9.52 | 1/4 | 6.35 | | 17 | 11/16 | 17.46 | 9/16 | 14.28 | 7.1 | 4.8 | 16.76 | 15.24 | 19.30 | 17.78 | 23.1 | 21.5 | 30.4 | 28.8 |
| ILR8-4 | 1/2 | 12.7 | 1/4 | 6.35 | 13/16 | 20.64 | 7/8 | 22.22 | 9/16 | 14.28 | 10.4 | 4.8 | 22.86 | 15.24 | 21.84 | 17.78 | 25.9 | 24.3 | 36.0 | 31.6 |
| ILR8-6 | 1/2 | 12.7 | 3/8 | 9.52 | 13/16 | 20.64 | 7/8 | 22.22 | 11/16 | 17.46 | 10.4 | 7.1 | 22.86 | 16.76 | 21.84 | 19.30 | 25.9 | 25.9 | 36.0 | 33.2 |
| ILR10-6 | 5/8 | 15.87 | 3/8 | 9.52 | | 24.0 | 1 | 25.4 | 11/16 | 17.46 | 12.7 | 7.1 | 24.38 | 16.76 | 21.84 | 19.30 | 28.7 | 28.7 | 38.8 | 36.0 |
| ILR12-4 | 3/4 | 19.05 | 1/4 | 6.35 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 9/16 | 14.28 | 15.7 | 4.8 | 24.38 | 15.24 | 21.84 | 17.78 | 29.7 | 28.1 | 39.8 | 35.4 |
| ILR12-6 | 3/4 | 19.05 | 3/8 | 9.52 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 11/16 | 17.46 | 15.7 | 7.1 | 24.38 | 16.76 | 21.84 | 19.30 | 29.7 | 29.7 | 39.8 | 37.0 |
| ILR12-8 | 3/4 | 19.05 | 1/2 | 12.7 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 7/8 | 22.22 | 15.7 | 10.4 | 24.38 | 22.86 | 21.84 | 21.84 | 29.7 | 29.7 | 39.8 | 39.8 |
| ILR14-8 | 7/8 | 22.22 | 1/2 | 12.7 | | 36.0 | 1-1/4 | 31.75 | 7/8 | 22.22 | 18.3 | 10.4 | 25.90 | 22.86 | 21.84 | 21.84 | 34.5 | 34.5 | 44.6 | 44.6 |
| ILR16-4 | 1 | 25.4 | 1/4 | 6.35 | | 36.0 | 1-1/2 | 38.1 | 9/16 | 14.28 | 22.4 | 4.8 | 31.24 | 15.24 | 26.41 | 17.78 | 36.8 | 32.8 | 48.97 | 40.1 |
| ILR16-6 | 1 | 25.4 | 3/8 | 9.52 | | 36.0 | 1-1/2 | 38.1 | 11/16 | 17.46 | 22.4 | 7.1 | 31.24 | 16.76 | 26.41 | 19.30 | 36.8 | 34.4 | 48.97 | 41.7 |
| ILR16-8 | 1 | 25.4 | 1/2 | 12.7 | | 36.0 | 1-1/2 | 38.1 | 7/8 | 22.22 | 22.4 | 10.4 | 31.24 | 22.86 | 26.41 | 21.84 | 36.8 | 34.4 | 48.97 | 44.5 |
| ILR16-12 | 1 | 25.4 | 3/4 | 19.05 | | 36.0 | 1-1/2 | 38.1 | 1-1/8 | 28.48 | 22.4 | 15.7 | 31.24 | 24.38 | 26.41 | 21.84 | 36.8 | 34.4 | 48.97 | 44.5 |
| ILR20-12 | 1-1/4 | 31.75 | 3/4 | 19.05 | | 46.0 | 1-7/8 | 47.63 | 1-1/8 | 28.58 | 31.95 | 15.7 | 41.14 | 24.38 | 38.86 | 21.84 | 44.5 | 39.6 | 66.6 | 49.7 |
| ILR24-8 | 1-1/2 | 38.1 | 1/2 | 12.7 | 2 | 50.8 | 2-1/4 | 57.15 | 7/8 | 22.22 | 34.0 | 10.4 | 50.03 | 22.86 | 45.21 | 21.84 | 50.8 | 44.7 | 78.0 | 54.8 |
| ILR24-12 | 1-1/2 | 38.1 | 3/4 | 19.05 | 2 | 50.8 | 2-1/4 | 57.15 | 1-1/8 | 28.58 | 34.0 | 15.7 | 50.03 | 24.38 | 45.21 | 21.84 | 50.8 | 44.7 | 78.0 | 54.8 |
| ILR24-16 | 1-1/2 | 38.1 | 1 | 25.4 | 2 | 50.8 | 2-1/4 | 57.15 | 1-1/2 | 38.1 | 34.0 | 22.4 | 50.03 | 31.24 | 45.21 | 26.41 | 50.8 | 47.1 | 78.0 | 59.27 |

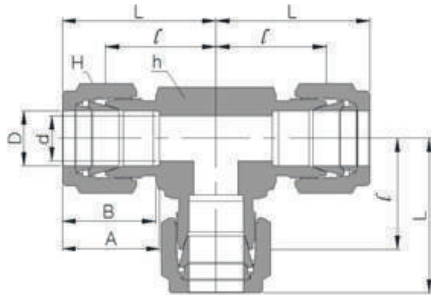
Connects metric tubes

| Part No. | Tube O.D. | | Width across flat | | | d | d1 | A | A ₁ | B | B ₁ | α | α ₁ | L | L ₁ |
|------------|-----------|----------------|-------------------|----|----------------|------|------|------|----------------|------|----------------|------|----------------|------|----------------|
| | D | D ₁ | h | H | H ₁ | | | | | | | | | | |
| ILR6M-3M | 6 | 3 | 12.7 | 14 | 12 | 4.8 | 2.4 | 15.3 | 12.9 | 17.7 | 15.3 | 19.6 | 18.1 | 26.9 | 24.7 |
| ILR8M-6M | 8 | 6 | 14.3 | 16 | 14 | 6.3 | 4.8 | 16.2 | 15.3 | 18.6 | 17.7 | 21.3 | 20.5 | 28.6 | 27.8 |
| ILR10M-6M | 10 | 6 | 17 | 19 | 14 | 7.9 | 4.8 | 17.2 | 15.3 | 19.5 | 17.7 | 23.9 | 22.3 | 31.5 | 29.6 |
| ILR12M-6M | 12 | 6 | 20.6 | 22 | 14 | 9.5 | 4.8 | 22.8 | 15.3 | 22.0 | 17.7 | 25.9 | 24.3 | 36.0 | 31.6 |
| ILR12M-10M | 12 | 10 | 20.6 | 22 | 19 | 9.5 | 7.9 | 22.8 | 17.2 | 22.0 | 19.5 | 25.9 | 25.9 | 36.0 | 33.5 |
| ILR15M-12M | 15 | 12 | 24 | 25 | 22 | 12 | 9.5 | 24.4 | 22.8 | 22.0 | 22.0 | 28.7 | 28.7 | 38.8 | 38.8 |
| ILR16M-12M | 16 | 12 | 24 | 25 | 22 | 12.7 | 9.5 | 24.4 | 22.8 | 22.0 | 22.0 | 28.7 | 28.7 | 38.8 | 38.8 |
| ILR18M-12M | 18 | 12 | 27 | 30 | 22 | 15.1 | 9.5 | 24.4 | 22.8 | 22.0 | 22.0 | 29.7 | 29.7 | 39.8 | 39.8 |
| ILR20M-6M | 20 | 6 | 32 | 32 | 14 | 15.9 | 4.8 | 26.0 | 15.3 | 22.0 | 17.7 | 32.5 | 30.9 | 42.6 | 38.2 |
| ILR20M-10M | 20 | 10 | 32 | 32 | 19 | 15.9 | 7.9 | 26.0 | 17.2 | 22.0 | 19.5 | 32.5 | 32.5 | 42.6 | 40.1 |
| ILR20M-12M | 20 | 12 | 32 | 30 | 22 | 15.9 | 9.5 | 26.0 | 22.8 | 22.0 | 22.0 | 32.5 | 32.5 | 42.6 | 42.6 |
| ILR22M-12M | 22 | 12 | 32 | 32 | 22 | 18.3 | 9.5 | 26.0 | 22.8 | 22.0 | 22.0 | 32.5 | 34.5 | 42.6 | 44.6 |
| ILR25M-10M | 25 | 10 | 36 | 41 | 19 | 21.8 | 7.9 | 31.3 | 17.2 | 26.5 | 19.5 | 36.8 | 34.4 | 49.0 | 42.0 |
| ILR25M-12M | 25 | 12 | 36 | 41 | 22 | 21.8 | 9.5 | 31.3 | 22.8 | 26.5 | 22.0 | 36.8 | 34.4 | 49.0 | 44.5 |
| ILR25M-20M | 25 | 20 | 36 | 41 | 32 | 21.8 | 15.9 | 31.3 | 26.0 | 26.5 | 22.0 | 36.8 | 34.4 | 49.0 | 44.5 |
| ILR38M-20M | 38 | 20 | 55 | 60 | 32 | 33.7 | 15.9 | 49.4 | 26.0 | 47.9 | 22.0 | 56.4 | 48.0 | 84.0 | 58.1 |
| ILR38M-25M | 38 | 25 | 55 | 60 | 41 | 33.7 | 21.8 | 49.4 | 31.3 | 47.9 | 26.5 | 56.4 | 50.4 | 84.0 | 50.9 |

TUBE TO TUBE



UNION TEE



Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min. | Width across flat | | H | A | B | ℓ | L | |
|----------|-----------|-------|-----------|-------------------|-------|-------|-------|-------|-------|-------|--------|
| | in | mm | | in | mm | | | | | | |
| IT-1 | 1/16 | 1.59 | 1.27 | 3/8 | 9.52 | 5/16 | 7.93 | 8.63 | 10.92 | 14.00 | 17.88 |
| IT-2 | 1/8 | 3.17 | 2.28 | 3/8 | 9.52 | 7/16 | 11.11 | 12.70 | 15.24 | 15.74 | 22.35 |
| IT-3 | 3/16 | 4.76 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.78 | 24.38 |
| IT-4 | 1/4 | 6.35 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.55 | 26.92 |
| IT-5 | 5/16 | 7.93 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.33 | 28.70 |
| IT-6 | 3/8 | 9.52 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.11 | 30.48 |
| IT-8 | 1/2 | 12.70 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 36.06 |
| IT-10 | 5/8 | 15.87 | 12.70 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.70 | 38.80 |
| IT-12 | 3/4 | 19.05 | 15.74 | | 27.0 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.71 | 39.87 |
| IT-14 | 7/8 | 22.22 | 18.28 | | 36.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.54 | 44.70 |
| IT-16 | 1 | 25.40 | 22.35 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.83 | 49.02 |
| IT-20 | 1-1/4 | 31.75 | 27.68 | | 46.0 | 1-7/8 | 47.63 | 41.14 | 38.86 | 44.50 | 66.54 |
| IT-24 | 1-1/2 | 38.10 | 34.03 | 2 | 50.80 | 2-1/4 | 57.15 | 50.03 | 45.21 | 50.80 | 77.97 |
| IT-32 | 2 | 50.80 | 45.97 | | 70.0 | 3 | 76.20 | 67.56 | 62.73 | 69.80 | 107.18 |

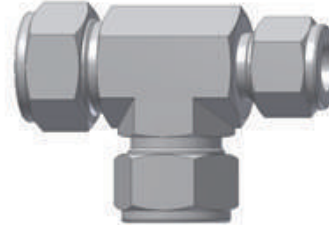
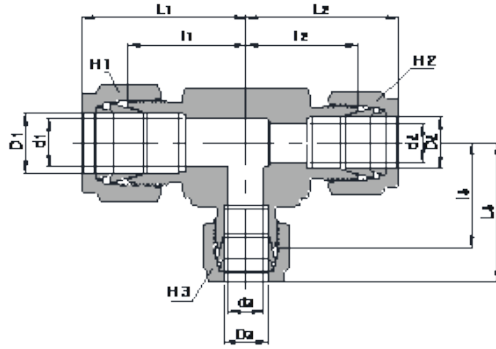
Connects Metric Tubes

| Part No. | Tube O.D. | | d Min. | Width across flat | | A | B | ℓ | L |
|----------|-----------|----|-----------|-------------------|----|------|------|------|------|
| | D | mm | | h | H | | | | |
| IT - 2M | 2 | | 1.7 | 9.5 | 12 | 12.9 | 15.3 | 15.7 | 22.3 |
| IT - 3M | 3 | | 2.4 | 9.5 | 12 | 12.9 | 15.3 | 15.7 | 22.3 |
| IT - 4M | 4 | | 2.4 | 12.7 | 12 | 13.7 | 16.4 | 18.8 | 25.4 |
| IT - 6M | 6 | | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 27.0 |
| IT - 8M | 8 | | 6.3 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.8 |
| IT - 10M | 10 | | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 |
| IT - 12M | 12 | | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 |
| IT - 14M | 14 | | 11.1 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 28.8 |
| IT - 15M | 15 | | 11.9 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 |
| IT - 16M | 16 | | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 |
| IT - 18M | 18 | | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 |
| IT - 20M | 20 | | 15.9 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 42.6 |
| IT - 22M | 22 | | 18.3 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 42.6 |
| IT - 25M | 25 | | 21.8 | 36.0 | 38 | 31.3 | 26.5 | 36.8 | 49.1 |
| IT - 28M | 28 | | 21.8 | 41.0 | 46 | 36.6 | 33.6 | 43.2 | 64.0 |
| IT - 30M | 30 | | 26.2 | 46.0 | 46 | 41.1 | 38.8 | 45.7 | 67.7 |
| IT - 32M | 32 | | 28.6 | 46.0 | 50 | 42.0 | 41.6 | 49.3 | 72.3 |
| IT - 38M | 38 | | 33.7 | 55.0 | 60 | 49.4 | 47.9 | 56.4 | 84.0 |
| IT - 42M | 42 | | 36.0 | 55.0 | 65 | 55.1 | 53.6 | 58.0 | 89.1 |

TUBE TO TUBE

ITR

REDUCING TEE



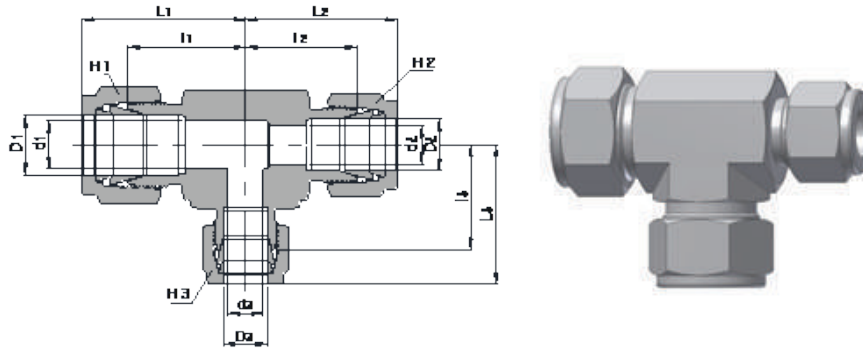
Connects Fractional Tubes

| Part No. | D | | Tube O.D. | | | | | | Width across flat | | | | | | d1 | d2 | d3 | a | b | c | L1 | L2 | L3 |
|-------------|-------|-------|----------------|----------------|-------|----------------|----------------|----------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-------|-------|-------|
| | in | mm | D ₁ | D ₂ | h | H ₁ | H ₂ | H ₃ | in | mm | in | mm | in | mm | | | | | | | | | |
| ITR4-4-2 | 1/4 | 6.35 | 1/4 | 6.35 | 1/8 | 3.17 | 1/2 | 12.7 | 9/16 | 14.28 | 7/16 | 14.28 | 7/16 | 11.11 | 4.8 | 4.8 | 2.3 | 19.6 | 19.6 | 18.1 | 26.9 | 26.9 | 24.7 |
| ITR4-4-6 | 1/4 | 6.35 | 1/4 | 6.35 | 3/8 | 9.52 | | 17 | 9/16 | 14.28 | 7/16 | 14.28 | 11/16 | 17.46 | 4.8 | 4.8 | 2.1 | 21.5 | 21.5 | 23.1 | 28.8 | 28.8 | 30.4 |
| ITR4-8-8 | 1/4 | 6.35 | 1/2 | 12.7 | 1/2 | 12.7 | 13/16 | 20.64 | 9/16 | 14.28 | 7/8 | 22.22 | 7/8 | 22.22 | 4.8 | 10.4 | 10.4 | 24.3 | 25.9 | 25.9 | 31.6 | 36.0 | 36.0 |
| ITR6-4-6 | 3/8 | 9.52 | 1/4 | 6.35 | 3/8 | 9.52 | | 17 | 11/16 | 17.46 | 7/16 | 14.28 | 11/16 | 17.46 | 7.1 | 4.8 | 7.1 | 23.1 | 21.5 | 23.1 | 30.4 | 28.8 | 30.4 |
| ITR6-6-4 | 3/8 | 9.52 | 3/8 | 9.52 | 1/4 | 6.35 | | 17 | 11/16 | 17.46 | 11/16 | 17.46 | 7/16 | 14.28 | 7.1 | 7.1 | 4.8 | 23.1 | 23.1 | 21.5 | 30.4 | 30.4 | 28.8 |
| ITR6-6-8 | 3/8 | 9.52 | 3/8 | 9.52 | 1/2 | 12.7 | 13/16 | 20.64 | 11/16 | 17.46 | 11/16 | 17.46 | 7/8 | 22.22 | 7.1 | 7.1 | 10.4 | 25.9 | 25.9 | 25.9 | 33.2 | 33.2 | 36.0 |
| ITR8-4-8 | 1/2 | 12.7 | 1/4 | 6.35 | 1/2 | 12.7 | 13/16 | 20.64 | 7/8 | 22.22 | 9/16 | 14.28 | 7/8 | 22.22 | 10.4 | 4.8 | 10.4 | 25.9 | 24.3 | 25.9 | 36.0 | 31.6 | 36.0 |
| ITR8-6-6 | 1/2 | 12.7 | 3/8 | 9.52 | 3/8 | 9.52 | 13/16 | 20.64 | 7/8 | 22.22 | 11/16 | 17.46 | 11/16 | 17.46 | 10.4 | 7.1 | 7.1 | 25.9 | 25.9 | 25.9 | 36.0 | 33.2 | 33.2 |
| ITR8-8-4 | 1/2 | 12.7 | 1/2 | 12.7 | 1/4 | 6.35 | 13/16 | 20.64 | 7/8 | 22.22 | 7/8 | 22.22 | 9/16 | 14.28 | 10.4 | 10.4 | 4.8 | 25.9 | 25.9 | 24.3 | 36.0 | 36.0 | 31.6 |
| ITR8-8-6 | 1/2 | 12.7 | 1/2 | 12.7 | 3/8 | 9.52 | 13/16 | 20.64 | 7/8 | 22.22 | 7/8 | 22.22 | 11/16 | 17.46 | 10.4 | 10.4 | 7.1 | 25.9 | 25.9 | 25.9 | 36.0 | 36.0 | 33.2 |
| ITR10-10-6 | 5/8 | 15.87 | 5/8 | 15.87 | 3/8 | 9.52 | | 24 | 1 | 25.4 | 1 | 25.4 | 11/16 | 17.46 | 12.7 | 12.7 | 7.1 | 28.7 | 28.7 | 28.7 | 38.8 | 38.8 | 36.0 |
| ITR12-8-12 | 3/4 | 19.05 | 1/2 | 12.7 | 3/4 | 19.05 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 7/8 | 22.22 | 1-1/8 | 28.58 | 15.7 | 10.4 | 15.7 | 29.7 | 29.7 | 29.7 | 39.8 | 39.8 | 39.8 |
| ITR12-12-4 | 3/4 | 19.05 | 3/4 | 19.05 | 1/4 | 6.35 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 9/16 | 14.28 | 15.7 | 15.7 | 4.8 | 29.7 | 29.7 | 28.1 | 39.8 | 39.8 | 35.4 |
| ITR12-12-6 | 3/4 | 19.05 | 3/4 | 19.05 | 3/8 | 9.52 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 11/16 | 17.46 | 15.7 | 15.7 | 7.1 | 29.7 | 29.7 | 29.7 | 39.8 | 39.8 | 37.0 |
| ITR12-12-8 | 3/4 | 19.05 | 3/4 | 19.05 | 1/2 | 12.7 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 7/8 | 22.22 | 15.7 | 15.7 | 10.4 | 29.7 | 29.7 | 29.7 | 39.8 | 39.8 | 39.8 |
| ITR12-12-16 | 3/4 | 19.05 | 3/4 | 19.05 | 1 | 25.4 | | 36 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 1-1/2 | 38.1 | 15.7 | 15.7 | 22.4 | 34.4 | 34.4 | 36.8 | 44.5 | 44.5 | 48.97 |
| ITR12-12-20 | 3/4 | 19.05 | 3/4 | 19.05 | 1-1/4 | 31.75 | | 46 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 1-7/8 | 47.63 | 15.7 | 15.7 | 27.7 | 39.6 | 39.6 | 44.5 | 49.7 | 49.7 | 66.6 |
| ITR14-14-8 | 7/8 | 22.22 | 7/8 | 22.22 | 1/2 | 12.7 | | 36 | 1-1/4 | 31.75 | 1-1/4 | 31.75 | 7/8 | 22.22 | 18.3 | 18.3 | 10.4 | 34.5 | 34.5 | 34.5 | 44.6 | 44.6 | 44.6 |
| ITR16-12-12 | 1 | 25.4 | 3/4 | 19.05 | 3/4 | 19.05 | | 36 | 1-1/2 | 38.1 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 22.4 | 15.7 | 15.7 | 36.8 | 34.4 | 34.4 | 48.97 | 44.5 | 44.5 |
| ITR16-16-4 | 1 | 25.4 | 1 | 25.4 | 1/4 | 6.35 | | 36 | 1-1/2 | 38.1 | 1-1/2 | 38.1 | 7/16 | 14.28 | 22.4 | 22.4 | 4.8 | 36.8 | 36.8 | 32.8 | 48.97 | 48.97 | 40.1 |
| ITR16-16-6 | 1 | 25.4 | 1 | 25.4 | 3/8 | 9.52 | | 36 | 1-1/2 | 38.1 | 1-1/2 | 38.1 | 11/16 | 17.46 | 22.4 | 22.4 | 7.1 | 36.8 | 36.8 | 34.4 | 48.97 | 48.97 | 41.7 |
| ITR16-16-8 | 1 | 25.4 | 1 | 25.4 | 1/2 | 12.7 | | 36 | 1-1/2 | 38.1 | 1-1/2 | 38.1 | 7/8 | 22.22 | 22.4 | 22.4 | 10.4 | 36.8 | 36.8 | 34.4 | 48.97 | 48.97 | 44.5 |
| ITR16-16-12 | 1 | 25.4 | 1 | 25.4 | 3/4 | 19.05 | | 36 | 1-1/2 | 38.1 | 1-1/2 | 38.1 | 1-1/8 | 28.58 | 22.4 | 22.4 | 15.7 | 36.8 | 36.8 | 34.4 | 48.97 | 48.97 | 44.5 |
| ITR20-12-12 | 1-1/4 | 31.75 | 3/4 | 19.05 | 3/4 | 19.05 | | 46 | 1-7/8 | 47.63 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 31.95 | 15.7 | 15.7 | 44.5 | 39.6 | 39.6 | 66.6 | 49.7 | 49.7 |
| ITR20-20-12 | 1-1/4 | 31.75 | 1-1/4 | 31.75 | 3/4 | 19.05 | | 46 | 1-7/8 | 47.63 | 1-7/8 | 47.63 | 1-1/8 | 28.58 | 31.95 | 31.95 | 15.7 | 44.5 | 44.5 | 39.6 | 66.6 | 66.6 | 49.7 |
| ITR24-20-20 | 1-1/2 | 38.1 | 1-1/4 | 31.75 | 1-1/4 | 31.75 | 2 | 50.8 | 2-1/4 | 57.15 | 1-7/8 | 47.63 | 1-7/8 | 47.63 | 34 | 31.95 | 31.95 | 50.8 | 49.6 | 49.6 | 78.0 | 71.7 | 71.7 |
| ITR24-24-8 | 1-1/2 | 38.1 | 1-1/2 | 38.1 | 1/2 | 12.7 | 2 | 50.8 | 2-1/4 | 57.15 | 2-1/4 | 57.15 | 7/8 | 22.22 | 34 | 34 | 10.4 | 50.8 | 50.8 | 44.7 | 78.0 | 78.0 | 54.8 |
| ITR24-24-12 | 1-1/2 | 38.1 | 1-1/2 | 38.1 | 3/4 | 19.05 | 2 | 50.8 | 2-1/4 | 57.15 | 2-1/4 | 57.15 | 1-1/8 | 28.58 | 34 | 34 | 15.7 | 50.8 | 50.8 | 44.7 | 78.0 | 78.0 | 54.8 |
| ITR24-24-16 | 1-1/2 | 38.1 | 1-1/2 | 38.1 | 1 | 25.4 | 2 | 50.8 | 2-1/4 | 57.15 | 2-1/4 | 57.15 | 1-1/2 | 38.1 | 34 | 34 | 22.4 | 50.8 | 50.8 | 47.1 | 78.0 | 78.0 | 59.27 |

TUBE TO TUBE

ITR

REDUCING TEE



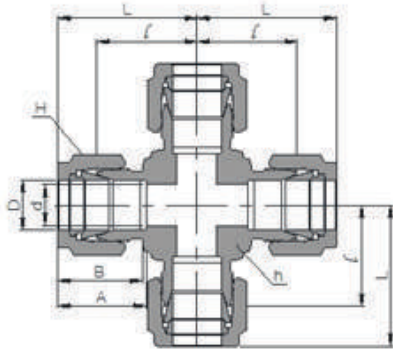
Connects Metric Tubes

| Part No. | Tube O.D | | | Width across flat | | | d | d1 | d2 | α | α1 | α2 | β | L1 | L2 | L3 |
|----------------|----------|----|----|-------------------|----|----|----|------|------|------|------|------|------|------|-------|------|
| | D1 | D2 | D3 | h | H1 | H2 | | | | | | | | | | |
| ITR3M-3M-6M | 3 | 3 | 6 | 12.7 | 12 | 12 | 14 | 2.4 | 2.4 | 4.8 | 18.1 | 18.1 | 19.6 | 24.7 | 24.7 | 26.9 |
| ITR8M-8M-6M | 8 | 8 | 6 | 14.3 | 16 | 16 | 14 | 6.3 | 6.3 | 4.8 | 21.3 | 21.3 | 20.5 | 28.6 | 28.6 | 27.8 |
| ITR10M-10M-6M | 10 | 10 | 6 | 17 | 19 | 19 | 14 | 7.9 | 7.9 | 4.8 | 23.9 | 23.9 | 22.3 | 31.5 | 31.5 | 29.6 |
| ITR10M-10M-12M | 10 | 10 | 12 | 20.6 | 19 | 19 | 22 | 7.9 | 7.9 | 9.5 | 25.9 | 25.9 | 25.9 | 33.5 | 33.5 | 36.0 |
| ITR12M-6M-12M | 12 | 6 | 12 | 20.6 | 22 | 14 | 22 | 9.5 | 4.8 | 9.5 | 25.9 | 24.3 | 25.9 | 36.0 | 31.63 | 36.0 |
| ITR12M-10M-10M | 12 | 10 | 10 | 20.6 | 22 | 19 | 19 | 9.5 | 7.9 | 7.9 | 25.9 | 25.9 | 25.9 | 36.0 | 33.5 | 33.5 |
| ITR12M-12M-10M | 12 | 12 | 10 | 20.6 | 22 | 22 | 19 | 9.5 | 9.5 | 7.9 | 25.9 | 25.9 | 25.9 | 36.0 | 36.0 | 33.5 |
| ITR12M-12M-6M | 12 | 12 | 6 | 20.6 | 22 | 22 | 14 | 9.5 | 9.5 | 4.8 | 25.9 | 25.9 | 24.3 | 36.0 | 36.0 | 31.6 |
| ITR15M-15M-12M | 15 | 15 | 12 | 24 | 25 | 25 | 22 | 12 | 12 | 9.5 | 28.7 | 28.7 | 28.7 | 38.8 | 38.8 | 38.8 |
| ITR16M-16M-12M | 16 | 16 | 12 | 24 | 25 | 25 | 22 | 12.7 | 12.7 | 9.5 | 28.7 | 28.7 | 28.7 | 38.8 | 38.8 | 38.8 |
| ITR18M-18M-12M | 18 | 18 | 12 | 27 | 30 | 30 | 22 | 15.1 | 15.1 | 9.5 | 29.7 | 29.7 | 29.7 | 39.8 | 39.8 | 39.8 |
| ITR20M-12M-20M | 20 | 12 | 20 | 32 | 32 | 22 | 32 | 15.9 | 9.5 | 15.9 | 32.5 | 32.5 | 32.5 | 42.6 | 42.6 | 42.6 |
| ITR20M-20M-6M | 20 | 20 | 6 | 32 | 32 | 32 | 14 | 15.9 | 15.9 | 4.8 | 32.5 | 32.5 | 30.9 | 42.6 | 42.6 | 38.2 |
| ITR20M-20M-10M | 20 | 20 | 10 | 32 | 32 | 32 | 19 | 15.9 | 15.9 | 7.9 | 32.5 | 32.5 | 32.5 | 42.6 | 42.6 | 40.1 |
| ITR20M-20M-12M | 20 | 20 | 12 | 32 | 32 | 32 | 22 | 15.9 | 15.9 | 9.5 | 32.5 | 32.5 | 32.5 | 42.6 | 42.6 | 42.6 |
| ITR20M-20M-25M | 20 | 20 | 25 | 36 | 32 | 32 | 41 | 15.9 | 15.9 | 21.8 | 34.4 | 34.4 | 36.8 | 44.5 | 44.5 | 49.0 |
| ITR22M-22M-12M | 22 | 22 | 12 | 32 | 32 | 32 | 22 | 18.3 | 18.3 | 9.5 | 32.5 | 32.5 | 34.5 | 42.6 | 42.6 | 44.6 |
| ITR25M-20M-20M | 25 | 20 | 20 | 36 | 41 | 32 | 32 | 21.8 | 15.9 | 15.9 | 36.8 | 34.4 | 34.4 | 49.0 | 44.5 | 44.5 |
| ITR25M-25M-10M | 25 | 25 | 10 | 36 | 41 | 41 | 19 | 21.8 | 21.8 | 7.9 | 36.8 | 36.8 | 34.4 | 49.0 | 49.0 | 42.0 |
| ITR25M-25M-12M | 25 | 25 | 12 | 36 | 41 | 41 | 22 | 21.8 | 21.8 | 9.5 | 36.8 | 36.8 | 34.4 | 49.0 | 49.0 | 44.5 |
| ITR25M-25M-20M | 25 | 25 | 20 | 36 | 41 | 41 | 32 | 21.8 | 21.8 | 15.9 | 36.8 | 36.8 | 34.4 | 49.0 | 49.0 | 44.5 |
| ITR38M-38M-20M | 38 | 38 | 20 | 55 | 60 | 60 | 32 | 33.7 | 33.7 | 15.9 | 56.4 | 56.4 | 48.0 | 84.0 | 84.0 | 58.1 |
| ITR38M-38M-25M | 38 | 38 | 25 | 55 | 60 | 60 | 41 | 33.7 | 33.7 | 21.8 | 56.4 | 56.4 | 50.4 | 84.0 | 84.0 | 50.9 |

TUBE TO TUBE

IX

UNION CROSS



Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min. | Width across flat | | | | A | B | l | L |
|----------|-----------|-------|-----------|-------------------|-------|-------|-------|-------|-------|-------|--------|
| | D | mm | | h | H | mm | in | | | | |
| IX -1 | 1/16 | 1.59 | 1.27 | 3/8 | 9.52 | 5/16 | 7.93 | 8.63 | 10.92 | 14.00 | 17.88 |
| IX -2 | 1/8 | 3.17 | 2.28 | 3/8 | 9.52 | 7/16 | 11.11 | 12.70 | 15.24 | 15.74 | 22.35 |
| IX -3 | 3/16 | 4.76 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.78 | 24.38 |
| IX -4 | 1/4 | 6.35 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.55 | 26.92 |
| IX -5 | 5/16 | 7.93 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.33 | 28.70 |
| IX -6 | 3/8 | 9.52 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.11 | 30.48 |
| IX -8 | 1/2 | 12.70 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 36.06 |
| IX -10 | 5/8 | 15.87 | 12.70 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.70 | 38.80 |
| IX -12 | 3/4 | 19.05 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.71 | 39.87 |
| IX -14 | 7/8 | 22.22 | 18.28 | | 36.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.54 | 44.70 |
| IX -16 | 1 | 25.40 | 22.35 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.83 | 49.02 |
| IX -20 | 1-1/4 | 31.75 | 27.68 | | 46.0 | 1-7/8 | 47.63 | 41.14 | 38.86 | 44.50 | 66.54 |
| IX -24 | 1-1/2 | 38.10 | 34.03 | 2 | 50.80 | 2-1/4 | 57.15 | 50.03 | 45.21 | 50.80 | 77.97 |
| IX -32 | 2 | 50.80 | 45.97 | | 70.0 | 3 | 76.20 | 67.56 | 62.73 | 69.80 | 107.18 |

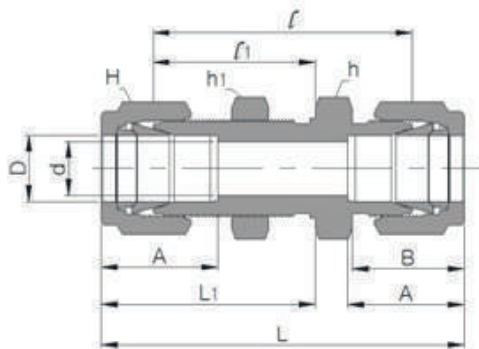
Connects Metric Tubes

| Part No. | Tube O.D. | | d Min. | Width across flat | | A | B | l | L |
|----------|-----------|----|-----------|-------------------|----|------|------|------|------|
| | D | mm | | h | H | | | | |
| IX - 2M | 2 | | 1.7 | 9.5 | 12 | 12.9 | 15.3 | 15.7 | 22.3 |
| IX - 3M | 3 | | 2.4 | 9.5 | 12 | 12.9 | 15.3 | 15.7 | 22.3 |
| IX - 4M | 4 | | 2.4 | 12.7 | 12 | 13.7 | 16.4 | 18.8 | 25.4 |
| IX - 6M | 6 | | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 27.0 |
| IX - 8M | 8 | | 6.3 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.8 |
| IX - 10M | 10 | | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 |
| IX - 12M | 12 | | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 |
| IX - 14M | 14 | | 11.1 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 |
| IX - 15M | 15 | | 11.9 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 |
| IX - 16M | 16 | | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 |
| IX - 18M | 18 | | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 |
| IX - 20M | 20 | | 15.9 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 42.6 |
| IX - 22M | 22 | | 18.3 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 42.6 |
| IX - 25M | 25 | | 21.8 | 36.0 | 38 | 31.3 | 26.5 | 36.8 | 49.1 |
| IX - 28M | 28 | | 21.8 | 41.0 | 46 | 36.6 | 44.7 | 43.2 | 64.0 |
| IX - 30M | 30 | | 26.2 | 46.0 | 46 | 41.1 | 38.8 | 45.7 | 67.7 |
| IX - 32M | 32 | | 28.6 | 46.0 | 50 | 42.0 | 41.6 | 49.3 | 72.3 |
| IX - 38M | 38 | | 33.7 | 55.0 | 60 | 49.4 | 47.9 | 56.4 | 84.0 |
| IX - 42M | 42 | | 36.0 | 55.0 | 65 | 55.1 | 53.6 | 58.0 | 89.1 |

TUBE TO TUBE

IBU

BULKHEAD UNION



Connects Fractional Tubes

| Part No. | Tube O.D. | | d | Width across flat | | | A | B | ℓ | ℓ | L | L ₁ | Panel Hole Drill size | Panel Max Thickness | |
|----------|-----------|-------|-------|-------------------|----------------|-------|-------|-------|-------|--------|-------|----------------|-----------------------|---------------------|-------|
| | D | D | | h | h ₁ | H | | | | | | | | | |
| IBU-1 | 1/16 | 1.59 | 1.27 | 5/16 | 7.93 | 5/16 | 7.93 | 8.63 | 10.92 | 23.87 | 13.46 | 31.50 | 17.27 | 5.16 | 3.05 |
| IBU-2 | 1/8 | 3.17 | 2.28 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 38.10 | 24.63 | 51.30 | 31.24 | 8.33 | 12.70 |
| IBU-3 | 3/16 | 4.76 | 3.04 | 9/16 | 14.28 | 1/2 | 12.70 | 13.71 | 16.00 | 40.38 | 25.40 | 53.59 | 32.00 | 9.92 | 12.70 |
| IBU-4 | 1/4 | 6.35 | 4.82 | 5/8 | 15.87 | 9/16 | 14.28 | 15.24 | 17.78 | 42.92 | 26.16 | 57.65 | 33.52 | 11.50 | 10.16 |
| IBU-5 | 5/16 | 7.93 | 6.35 | 11/16 | 17.46 | 5/8 | 15.87 | 16.25 | 18.54 | 45.97 | 28.44 | 60.70 | 35.81 | 13.09 | 11.17 |
| IBU-6 | 3/8 | 9.52 | 7.11 | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 19.30 | 47.49 | 29.46 | 62.23 | 36.83 | 14.68 | 11.17 |
| IBU-8 | 1/2 | 12.70 | 10.41 | 15/16 | 23.81 | 7/8 | 22.22 | 22.86 | 21.84 | 50.80 | 31.75 | 71.12 | 41.91 | 19.44 | 12.70 |
| IBU-10 | 5/8 | 15.87 | 12.70 | 1-1/16 | 26.98 | 1 | 25.40 | 24.38 | 21.84 | 52.32 | 32.51 | 72.64 | 42.67 | 22.62 | 12.70 |
| IBU-12 | 3/4 | 19.05 | 15.74 | 1-3/16 | 30.16 | 1-1/8 | 28.58 | 24.38 | 21.84 | 58.67 | 37.33 | 78.99 | 47.49 | 25.79 | 16.76 |
| IBU-14 | 7/8 | 22.22 | 18.28 | 1-3/8 | 34.92 | 1-1/4 | 31.75 | 25.90 | 21.84 | 64.26 | 42.92 | 84.58 | 53.08 | 28.97 | 19.05 |
| IBU-16 | 1 | 25.40 | 22.35 | 1-5/8 | 41.27 | 1-1/2 | 38.10 | 31.24 | 26.41 | 71.37 | 45.21 | 95.75 | 57.40 | 33.73 | 19.05 |
| IBU-20 | 1-1/4 | 31.75 | 27.68 | 1-7/8 | 47.63 | 1-7/8 | 47.63 | 41.14 | 38.86 | 78.99 | 47.75 | 123.19 | 69.85 | 41.67 | 19.05 |
| IBU-24 | 1-1/2 | 38.10 | 34.03 | 2-1/4 | 57.15 | 2-1/4 | 57.15 | 50.03 | 45.21 | 84.83 | 49.27 | 139.19 | 76.45 | 49.61 | 19.05 |
| IBU-32 | 2 | 50.80 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 105.66 | 56.38 | 180.34 | 93.72 | 57.94 | 19.05 |

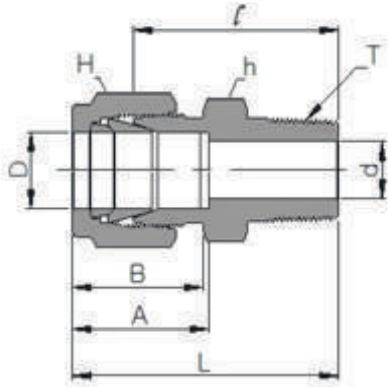
Connects Metric Tubes

| Part No. | Tube O.D. D | d Min. | Width across flat | | | A | B | ℓ | ℓ | L | L ₁ | Panel Hole Drill size | Panel Max Thickness |
|----------|----------------|-----------|-------------------|----------------|----|------|------|------|------|-------|----------------|-----------------------|---------------------|
| | | | h | h ₁ | H | | | | | | | | |
| IBU-3M | 3 | 2.4 | 14 | 12.7 | 12 | 12.9 | 15.3 | 38.1 | 24.6 | 51.3 | 31.2 | 8.3 | 12.7 |
| IBU-4M | 4 | 2.4 | 14 | 14.3 | 12 | 13.7 | 16.1 | 40.4 | 25.4 | 53.6 | 32.0 | 9.9 | 12.7 |
| IBU-6M | 6 | 4.8 | 15.8 | 15.9 | 14 | 15.3 | 17.7 | 42.9 | 26.2 | 57.7 | 33.6 | 11.5 | 10.2 |
| IBU-8M | 8 | 6.3 | 17 | 17.5 | 16 | 16.2 | 18.6 | 46.0 | 28.6 | 61.0 | 36.1 | 13.1 | 11.2 |
| IBU-10M | 10 | 7.9 | 22 | 22.0 | 19 | 17.2 | 19.5 | 48.5 | 29.4 | 63.7 | 37.0 | 16.2 | 11.2 |
| IBU-12M | 12 | 9.5 | 24 | 23.8 | 22 | 22.8 | 22.0 | 50.8 | 31.8 | 71.0 | 41.9 | 19.5 | 12.7 |
| IBU-15M | 15 | 11.9 | 27 | 27.0 | 25 | 24.4 | 22.0 | 52.3 | 32.5 | 72.5 | 42.6 | 22.8 | 12.7 |
| IBU-16M | 16 | 12.7 | 27 | 27.0 | 25 | 24.4 | 22.0 | 52.3 | 32.5 | 72.5 | 42.6 | 22.8 | 12.7 |
| IBU-18M | 18 | 15.1 | 30 | 30.0 | 30 | 24.4 | 22.0 | 58.7 | 37.3 | 78.9 | 47.4 | 26.0 | 16.8 |
| IBU-20M | 20 | 15.9 | 35 | 35.0 | 32 | 26.0 | 22.0 | 64.3 | 42.9 | 84.5 | 53.0 | 29.0 | 17.0 |
| IBU-22M | 22 | 18.3 | 35 | 35.0 | 32 | 26.0 | 22.0 | 64.3 | 42.9 | 84.5 | 53.0 | 29.0 | 19.1 |
| IBU-25M | 25 | 21.8 | 41.3 | 41.3 | 38 | 31.3 | 26.5 | 71.4 | 45.2 | 95.9 | 57.5 | 33.7 | 19.1 |
| IBU-32M | 32 | 28.6 | 50 | 50.0 | 50 | 42.0 | 41.6 | 82.3 | 49.5 | 128.3 | 72.5 | 42.5 | 19.0 |
| IBU-38M | 38 | 33.7 | 60 | 60.0 | 60 | 49.4 | 47.9 | 89.4 | 51.5 | 144.6 | 79.1 | 50.5 | 19.0 |

TUBE TO THREAD

IMC-N

MALE CONNECTOR



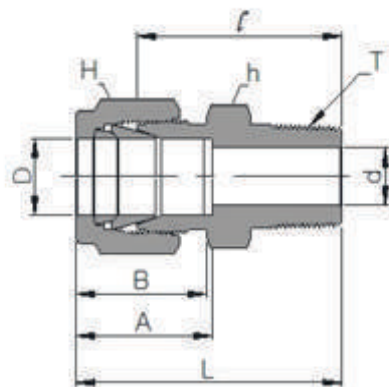
Connects Fractional Tube To Female NPT Thread

| Part No. | Tube O.D. | | T NPT | d Min. | Width across flat | | | | A | B | ℓ | L |
|-----------|-----------|-------|----------|-----------|-------------------|-------|-------|-------|-------|-------|-------|--------|
| | in | mm | | | in | h | mm | in | | | | |
| IMC1-1N | 1/16 | 1.59 | 1/16 | 1.27 | 5/16 | 7.93 | 5/16 | 7.93 | 8.63 | 10.92 | 20.00 | 23.83 |
| IMC1-2N | 1/16 | 1.59 | 1/8 | 1.27 | 7/16 | 11.11 | 7/16 | 11.11 | 8.63 | 10.92 | 22.35 | 26.23 |
| IMC1-4N | 1/16 | 1.59 | 1/4 | 1.27 | 9/16 | 14.28 | 5/16 | 7.93 | 8.63 | 10.92 | 27.17 | 30.98 |
| IMC2-1N | 1/8 | 3.17 | 1/16 | 2.28 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 23.11 | 29.71 |
| IMC2-2N | 1/8 | 3.17 | 1/8 | 2.28 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 23.87 | 30.48 |
| IMC2-4N | 1/8 | 3.17 | 1/4 | 2.28 | 9/16 | 14.28 | 7/16 | 11.11 | 12.70 | 15.24 | 28.95 | 35.56 |
| IMC2-6N | 1/8 | 3.17 | 3/8 | 2.28 | 11/16 | 17.46 | 7/16 | 11.11 | 12.70 | 15.24 | 29.21 | 35.81 |
| IMC2-8N | 1/8 | 3.17 | 1/2 | 2.28 | 7/8 | 22.22 | 7/16 | 11.11 | 12.70 | 15.24 | 35.56 | 42.16 |
| IMC3-2N | 3/16 | 4.76 | 1/8 | 3.04 | 7/16 | 11.11 | 1/2 | 12.70 | 13.71 | 16.00 | 24.63 | 31.24 |
| IMC3-4N | 3/16 | 4.76 | 1/4 | 3.04 | 9/16 | 14.28 | 1/2 | 12.70 | 13.71 | 16.00 | 29.71 | 36.32 |
| IMC4-1N | 1/4 | 6.35 | 1/16 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 25.40 | 32.76 |
| IMC4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 25.40 | 32.76 |
| IMC4-4N | 1/4 | 6.35 | 1/4 | 4.82 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 30.48 | 37.84 |
| IMC4-6N | 1/4 | 6.35 | 3/8 | 4.82 | 11/16 | 17.46 | 9/16 | 14.28 | 15.24 | 17.78 | 30.98 | 38.35 |
| IMC4-8N | 1/4 | 6.35 | 1/2 | 4.82 | 7/8 | 22.22 | 9/16 | 14.28 | 15.24 | 17.78 | 37.33 | 44.70 |
| IMC4-12N | 1/4 | 6.35 | 3/4 | 4.82 | 1-1/16 | 26.98 | 9/16 | 14.28 | 15.24 | 17.78 | 38.86 | 46.22 |
| IMC5-2N | 5/16 | 7.93 | 1/8 | 4.82 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 26.67 | 34.03 |
| IMC5-4N | 5/16 | 7.93 | 1/4 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 31.24 | 38.60 |
| IMC5-6N | 5/16 | 7.93 | 3/8 | 6.35 | 11/16 | 17.46 | 5/8 | 15.87 | 16.25 | 18.54 | 31.75 | 39.11 |
| IMC5-8N | 5/16 | 7.93 | 1/2 | 6.35 | 7/8 | 22.22 | 5/8 | 15.87 | 16.25 | 18.54 | 38.11 | 45.60 |
| IMC6-2N | 3/8 | 9.52 | 1/8 | 4.82 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 27.94 | 35.30 |
| IMC6-4N | 3/8 | 9.52 | 1/4 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 32.51 | 39.87 |
| IMC6-6N | 3/8 | 9.52 | 3/8 | 7.11 | 11/16 | 17.46 | 11/16 | 17.46 | 16.76 | 19.30 | 32.51 | 39.87 |
| IMC6-8N | 3/8 | 9.52 | 1/2 | 7.11 | 7/8 | 22.22 | 11/16 | 17.46 | 16.76 | 19.30 | 38.86 | 46.22 |
| IMC6-12N | 3/8 | 9.52 | 3/4 | 7.11 | 1-1/16 | 26.98 | 11/16 | 17.46 | 16.76 | 19.30 | 40.38 | 47.75 |
| IMC8-2N | 1/2 | 12.70 | 1/8 | 4.82 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 28.70 | 38.86 |
| IMC8-4N | 1/2 | 12.70 | 1/4 | 7.11 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 33.27 | 43.43 |
| IMC8-6N | 1/2 | 12.70 | 3/8 | 9.65 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 33.27 | 43.43 |
| IMC8-8N | 1/2 | 12.70 | 1/2 | 10.41 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 38.86 | 49.02 |
| IMC8-12N | 1/2 | 12.70 | 3/4 | 10.41 | 1-1/16 | 26.98 | 7/8 | 22.22 | 22.86 | 21.84 | 40.38 | 50.54 |
| IMC8-16N | 1/2 | 12.70 | 1 | 10.41 | 1-3/8 | 34.92 | 7/8 | 22.22 | 22.86 | 21.84 | 46.99 | 57.15 |
| IMC10-6N | 5/8 | 15.87 | 3/8 | 9.65 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 34.03 | 44.19 |
| IMC10-8N | 5/8 | 15.87 | 1/2 | 11.93 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 38.86 | 49.02 |
| IMC10-12N | 5/8 | 15.87 | 3/4 | 12.70 | 1-1/16 | 26.98 | 1 | 25.40 | 24.38 | 21.84 | 40.38 | 50.54 |
| IMC12-8N | 3/4 | 19.05 | 1/2 | 11.93 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 40.38 | 50.54 |
| IMC12-12N | 3/4 | 19.05 | 3/4 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 40.38 | 50.54 |
| IMC12-16N | 3/4 | 19.05 | 1 | 15.74 | 1-3/8 | 34.92 | 1-1/8 | 28.58 | 24.38 | 21.84 | 46.99 | 57.15 |
| IMC14-12N | 7/8 | 22.22 | 3/4 | 15.74 | 1-3/16 | 30.16 | 1-1/4 | 31.75 | 25.90 | 21.84 | 40.38 | 50.54 |
| IMC14-16N | 7/8 | 22.22 | 1 | 18.28 | 1-3/8 | 34.92 | 1-1/4 | 31.75 | 25.90 | 21.84 | 46.99 | 57.15 |
| IMC16-8N | 1 | 25.40 | 1/2 | 11.93 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 45.21 | 57.40 |
| IMC16-12N | 1 | 25.40 | 3/4 | 15.74 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 45.21 | 57.40 |
| IMC16-16N | 1 | 25.40 | 1 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 50.03 | 62.23 |
| IMC20-16N | 1-1/4 | 31.75 | 1 | 22.35 | 1-3/4 | 44.45 | 1-7/8 | 47.63 | 41.14 | 38.86 | 55.11 | 77.21 |
| IMC20-20N | 1-1/4 | 31.75 | 1-1/4 | 27.68 | 1-3/4 | 44.45 | 1-7/8 | 47.63 | 41.14 | 38.86 | 55.11 | 77.21 |
| IMC24-24N | 1-1/2 | 38.10 | 1-1/2 | 34.03 | 2-1/8 | 53.97 | 2-1/4 | 57.15 | 50.03 | 45.21 | 61.72 | 88.90 |
| IMC32-32N | 2 | 50.80 | 2 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 76.20 | 113.53 |

TUBE TO THREAD

IMC-R

MALE CONNECTOR



Connects Metric Tube To Female ISO Tapered Thread

| Part No. | Tube O.D. D | T R(PT) | d Min. | Width across flat | | A | B | ℓ | L |
|------------|----------------|------------|-----------|----------------------|----|------|------|------|------|
| | | | | h | H | | | | |
| IMC2M-2R | 2 | 1/8 | 1.7 | 12 | 12 | 12.9 | 15.3 | 23.9 | 30.5 |
| IMC3M-2R | 3 | 1/8 | 2.4 | 12 | 12 | 12.9 | 15.3 | 23.9 | 30.5 |
| IMC3M-4R | 3 | 1/4 | 2.4 | 14 | 12 | 12.9 | 15.3 | 29.0 | 35.6 |
| IMC4M-2R | 4 | 1/8 | 2.4 | 12 | 12 | 13.7 | 16.1 | 24.6 | 31.2 |
| IMC4M-4R | 4 | 1/4 | 2.4 | 14 | 12 | 13.7 | 16.1 | 29.7 | 36.3 |
| IMC6M-2R | 6 | 1/8 | 4.8 | 14 | 14 | 15.3 | 17.7 | 25.4 | 32.8 |
| IMC6M-4R | 6 | 1/4 | 4.8 | 14 | 14 | 15.3 | 17.7 | 30.5 | 37.9 |
| IMC6M-6R | 6 | 3/8 | 4.8 | 17 | 14 | 15.3 | 17.7 | 31.0 | 38.4 |
| IMC6M-8R | 6 | 1/2 | 4.8 | 22 | 14 | 15.3 | 17.7 | 37.3 | 44.7 |
| IMC8M-2R | 8 | 1/8 | 4.8 | 14 | 16 | 16.2 | 18.6 | 26.7 | 34.2 |
| IMC8M-4R | 8 | 1/4 | 6.3 | 14 | 16 | 16.2 | 18.6 | 31.2 | 38.7 |
| IMC8M-6R | 8 | 3/8 | 6.3 | 17 | 16 | 16.2 | 18.6 | 31.8 | 39.2 |
| IMC8M-8R | 8 | 1/2 | 6.3 | 22 | 16 | 16.2 | 18.6 | 38.1 | 46.5 |
| IMC10M-2R | 10 | 1/8 | 4.8 | 17 | 19 | 17.2 | 19.5 | 28.7 | 36.3 |
| IMC10M-4R | 10 | 1/4 | 7.1 | 17 | 19 | 17.2 | 19.5 | 33.3 | 40.9 |
| IMC10M-6R | 10 | 3/8 | 7.9 | 17 | 19 | 17.2 | 19.5 | 33.3 | 40.9 |
| IMC10M-8R | 10 | 1/2 | 7.9 | 22 | 19 | 17.2 | 19.5 | 38.9 | 45.7 |
| IMC12M-4R | 12 | 1/4 | 7.1 | 22 | 22 | 22.8 | 22.0 | 33.3 | 43.4 |
| IMC12M-6R | 12 | 3/8 | 9.5 | 22 | 22 | 22.8 | 22.0 | 33.3 | 43.4 |
| IMC12M-8R | 12 | 1/2 | 9.5 | 22 | 22 | 22.8 | 22.0 | 38.9 | 49.0 |
| IMC12M-12R | 12 | 3/4 | 9.5 | 27 | 22 | 22.8 | 22.0 | 40.4 | 50.5 |
| IMC15M-8R | 15 | 1/2 | 11.9 | 24 | 25 | 24.4 | 22.0 | 38.9 | 49.0 |
| IMC16M-4R | 16 | 1/4 | 7.1 | 24 | 25 | 24.4 | 22.0 | 34.0 | 44.1 |
| IMC16M-6R | 16 | 3/8 | 9.5 | 24 | 25 | 24.4 | 22.0 | 34.0 | 44.1 |
| IMC16M-8R | 16 | 1/2 | 11.9 | 24 | 25 | 24.4 | 22.0 | 38.9 | 49.0 |
| IMC16M-12R | 16 | 3/4 | 12.7 | 27 | 25 | 24.4 | 22.0 | 40.4 | 49.0 |
| IMC18M-8R | 18 | 1/2 | 11.9 | 27 | 30 | 24.4 | 22.0 | 40.4 | 50.5 |
| IMC18M-12R | 18 | 3/4 | 15.1 | 27 | 30 | 24.4 | 22.0 | 40.4 | 50.5 |
| IMC20M-8R | 20 | 1/2 | 11.9 | 30 | 32 | 26.0 | 22.0 | 42.2 | 52.3 |
| IMC20M-12R | 20 | 3/4 | 15.9 | 30 | 32 | 26.0 | 22.0 | 42.2 | 52.3 |
| IMC22M-12R | 22 | 3/4 | 15.9 | 30 | 32 | 26.0 | 22.0 | 42.2 | 52.3 |
| IMC22M-16R | 22 | 1 | 18.3 | 35 | 32 | 26.0 | 22.0 | 47.0 | 57.0 |
| IMC25M-12R | 25 | 3/4 | 15.9 | 35 | 38 | 31.3 | 26.5 | 45.2 | 57.5 |
| IMC25M-16R | 25 | 1 | 21.8 | 35 | 38 | 31.3 | 26.5 | 50.0 | 62.3 |
| IMC28M-16R | 28 | 1 | 21.8 | 41 | 46 | 36.6 | 36.6 | 51.6 | 72.4 |
| IMC28M-20R | 28 | 1-1/4 | 21.8 | 46 | 46 | 36.6 | 36.6 | 52.3 | 73.1 |
| IMC32M-20R | 32 | 1-1/4 | 28.6 | 46 | 50 | 42.0 | 41.6 | 56.6 | 79.6 |
| IMC32M-24R | 32 | 1-1/2 | 33.7 | 50 | 50 | 49.4 | 47.9 | 58.1 | 91.6 |

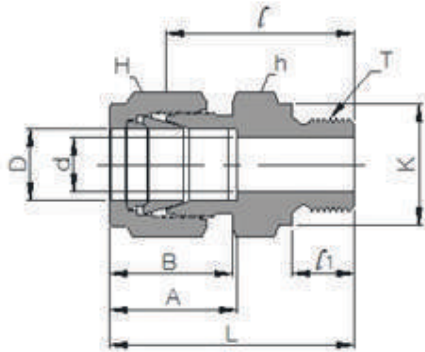
TUBE TO THREAD

IMC-G

MALE CONNECTOR

FOR BONDED WASHER SEAL DIN3852

FROM A



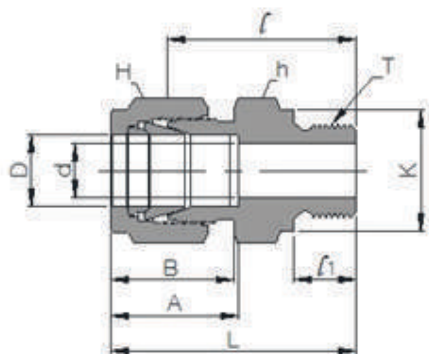
Connects Metric Tube To Female ISO Parallel Thread

| Part No. | Tube O.D. D | T G(PF) | d Min. | Width across flat | | A | B | l | d | L | K |
|------------|-------------------|------------|-----------|----------------------|----|------|------|------|------|------|------|
| | | | | h | H | | | | | | |
| IMC2M-2G | 2 | 1/8 | 1.7 | 14 | 12 | 12.9 | 15.3 | 23.4 | 7.1 | 30.0 | 13.8 |
| IMC3M-2G | 3 | 1/8 | 2.4 | 14 | 12 | 12.9 | 15.3 | 23.4 | 7.1 | 30.0 | 13.8 |
| IMC3M-4G | 3 | 1/4 | 2.4 | 19 | 12 | 12.9 | 15.3 | 28.7 | 11.2 | 35.3 | 18.0 |
| IMC4M-2G | 4 | 1/8 | 2.4 | 14 | 12 | 13.7 | 16.1 | 24.1 | 7.1 | 30.7 | 13.8 |
| IMC6M-2G | 6 | 1/8 | 4.0 | 14 | 14 | 15.3 | 17.7 | 24.9 | 7.1 | 32.3 | 13.8 |
| IMC6M-4G | 6 | 1/4 | 4.8 | 19 | 14 | 15.3 | 17.7 | 30.2 | 11.2 | 37.6 | 18.0 |
| IMC6M-6G | 6 | 3/8 | 4.8 | 22 | 14 | 15.3 | 17.7 | 31.5 | 11.2 | 38.9 | 21.8 |
| IMC6M-8G | 6 | 1/2 | 4.8 | 27 | 14 | 15.3 | 17.7 | 37.3 | 14.2 | 44.7 | 26.0 |
| IMC8M-2G | 8 | 1/8 | 4.0 | 14 | 16 | 16.2 | 18.6 | 25.7 | 7.1 | 33.2 | 13.8 |
| IMC8M-4G | 8 | 1/4 | 6.3 | 19 | 16 | 16.2 | 18.6 | 31.0 | 11.2 | 38.5 | 18.0 |
| IMC8M-6G | 8 | 3/8 | 6.3 | 22 | 16 | 16.2 | 18.6 | 32.3 | 11.2 | 39.8 | 21.8 |
| IMC8M-8G | 8 | 1/2 | 6.3 | 27 | 16 | 16.2 | 18.6 | 38.1 | 14.2 | 45.6 | 26.0 |
| IMC10M-4G | 10 | 1/4 | 5.8 | 19 | 19 | 17.2 | 19.5 | 31.8 | 11.2 | 39.4 | 18.0 |
| IMC10M-6G | 10 | 3/8 | 7.9 | 22 | 19 | 17.2 | 19.5 | 33.0 | 11.2 | 40.6 | 21.8 |
| IMC10M-8G | 10 | 1/2 | 7.9 | 27 | 19 | 17.2 | 19.5 | 38.9 | 14.2 | 46.5 | 26.0 |
| IMC12M-4G | 12 | 1/4 | 5.8 | 22 | 22 | 22.8 | 22.0 | 32.5 | 11.2 | 42.6 | 18.0 |
| IMC12M-6G | 12 | 3/8 | 7.9 | 22 | 22 | 22.8 | 22.0 | 33.0 | 11.2 | 43.1 | 21.8 |
| IMC12M-8G | 12 | 1/2 | 9.5 | 27 | 22 | 22.8 | 22.0 | 38.9 | 14.2 | 49.0 | 26.0 |
| IMC12M-12G | 12 | 3/4 | 9.5 | 35 | 22 | 22.8 | 22.0 | 42.7 | 15.2 | 52.8 | 32.0 |
| IMC16M-6G | 16 | 3/8 | 7.9 | 24 | 25 | 24.4 | 22.0 | 33.8 | 11.2 | 43.9 | 21.8 |
| IMC16M-8G | 16 | 1/2 | 11.9 | 27 | 25 | 24.4 | 22.0 | 38.9 | 14.2 | 49.0 | 26.0 |
| IMC18M-8G | 18 | 1/2 | 11.9 | 27 | 30 | 24.4 | 22.0 | 38.9 | 14.2 | 49.0 | 26.0 |
| IMC18M-12G | 18 | 3/4 | 15.1 | 35 | 30 | 24.4 | 22.0 | 42.7 | 15.7 | 52.8 | 32.0 |
| IMC20M-8G | 20 | 1/2 | 11.9 | 30 | 32 | 26.0 | 22.0 | 40.4 | 14.2 | 50.5 | 26.0 |
| IMC20M-12G | 20 | 3/4 | 15.7 | 35 | 32 | 26.0 | 22.0 | 42.7 | 15.7 | 52.8 | 32.0 |
| IMC22M-12G | 22 | 3/4 | 15.7 | 35 | 32 | 26.0 | 22.0 | 42.7 | 15.7 | 52.8 | 32.0 |
| IMC22M-16G | 22 | 1 | 18.3 | 41 | 32 | 26.0 | 22.0 | 45.2 | 18.3 | 55.3 | 39.0 |
| IMC25M-12G | 25 | 3/4 | 15.7 | 35 | 38 | 31.3 | 26.5 | 45.2 | 15.7 | 57.5 | 32.0 |
| IMC25M-16G | 25 | 1 | 19.8 | 41 | 38 | 31.3 | 26.5 | 47.8 | 18.3 | 60.1 | 39.0 |
| IMC28M-16G | 28 | 1 | 19.8 | 41 | 46 | 36.6 | 36.6 | 49.3 | 18.3 | 70.1 | 39.0 |
| IMC28M-20G | 28 | 1-1/4 | 21.8 | 50 | 46 | 36.6 | 36.6 | 53.1 | 19.8 | 73.9 | 49.0 |
| IMC32M-20G | 32 | 1-1/4 | 25.0 | 50 | 50 | 42.0 | 41.6 | 55.9 | 19.8 | 78.9 | 49.0 |
| IMC38M-24G | 38 | 1-1/2 | 31.8 | 55 | 60 | 49.4 | 47.9 | 63.2 | 22.1 | 90.8 | 54.7 |

TUBE TO THREAD

IMC-GB

MALE CONNECTOR FOR METAL GASKET SEAL DIN3852 FROM B



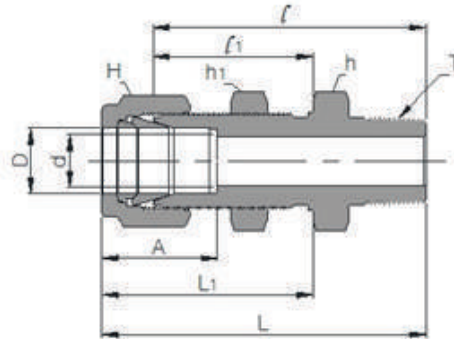
Connects Metric Tube To Female ISO Parallel Thread

| Part No. | Tube O.D. | T G(PF) | d Min. | Width across flat | | A | B | ℓ | α | L | K |
|-------------|-----------|------------|-----------|-------------------|----|------|------|------|------|------|------|
| | D | | | h | H | | | | | | |
| IMC3M-2GB | 3 | 1/8 | 2.4 | 14 | 12 | 12.9 | 15.3 | 23.4 | 7.1 | 30.0 | 13.8 |
| IMC3M-4GB | 3 | 1/4 | 2.4 | 19 | 12 | 12.9 | 15.3 | 28.7 | 11.2 | 35.3 | 18.0 |
| IMC4M-2GB | 4 | 1/8 | 2.4 | 14 | 12 | 13.7 | 16.1 | 24.1 | 7.1 | 30.7 | 13.8 |
| IMC6M-2GB | 6 | 1/8 | 4.0 | 14 | 14 | 15.3 | 17.7 | 24.9 | 7.1 | 32.3 | 13.8 |
| IMC6M-4GB | 6 | 1/4 | 4.8 | 19 | 14 | 15.3 | 17.7 | 30.2 | 11.2 | 37.6 | 18.0 |
| IMC6M-6GB | 6 | 3/8 | 4.8 | 22 | 14 | 15.3 | 17.7 | 31.5 | 11.2 | 38.9 | 21.8 |
| IMC6M-8GB | 6 | 1/2 | 4.8 | 27 | 14 | 15.3 | 17.7 | 37.3 | 14.2 | 44.7 | 26.0 |
| IMC8M-2GB | 8 | 1/8 | 4.0 | 14 | 16 | 16.2 | 18.6 | 25.7 | 7.1 | 33.2 | 13.8 |
| IMC8M-4GB | 8 | 1/4 | 5.8 | 19 | 16 | 16.2 | 18.6 | 31.0 | 11.2 | 38.5 | 13.8 |
| IMC8M-6GB | 8 | 3/8 | 6.3 | 22 | 16 | 16.2 | 18.6 | 32.3 | 11.2 | 39.8 | 21.8 |
| IMC8M-8GB | 8 | 1/2 | 6.3 | 27 | 16 | 16.2 | 18.6 | 38.1 | 14.2 | 45.6 | 26.0 |
| IMC10M-4GB | 10 | 1/4 | 5.8 | 19 | 19 | 17.2 | 19.5 | 31.8 | 11.2 | 39.4 | 18.0 |
| IMC10M-6GB | 10 | 3/8 | 7.9 | 22 | 19 | 17.2 | 19.5 | 33.0 | 11.2 | 40.6 | 21.8 |
| IMC10M-8GB | 10 | 1/2 | 7.9 | 27 | 19 | 17.2 | 19.5 | 38.9 | 14.2 | 46.5 | 26.0 |
| IMC12M-4GB | 12 | 1/4 | 5.8 | 22 | 22 | 22.8 | 22.0 | 32.5 | 11.2 | 42.6 | 18.0 |
| IMC12M-6GB | 12 | 3/8 | 7.9 | 22 | 22 | 22.8 | 22.0 | 33.0 | 11.2 | 43.1 | 21.8 |
| IMC12M-8GB | 12 | 1/2 | 9.5 | 27 | 22 | 22.8 | 22.0 | 38.9 | 14.2 | 49.0 | 26.0 |
| IMC12M-12GB | 12 | 3/4 | 9.5 | 35 | 22 | 22.8 | 22.0 | 42.7 | 15.2 | 52.8 | 32.0 |
| IMC15M-8GB | 15 | 1/2 | 11.9 | 27 | 25 | 24.4 | 22.0 | 38.9 | 14.2 | 49.0 | 26.0 |
| IMC16M-6GB | 16 | 3/8 | 7.9 | 24 | 25 | 24.4 | 22.0 | 33.8 | 11.2 | 43.9 | 21.8 |
| IMC18M-8GB | 18 | 1/2 | 11.9 | 27 | 30 | 24.4 | 22.0 | 38.9 | 14.2 | 49.0 | 26.0 |
| IMC18M-12GB | 18 | 3/4 | 15.1 | 35 | 30 | 24.4 | 22.0 | 42.7 | 15.7 | 52.8 | 32.0 |
| IMC20M-8GB | 20 | 1/2 | 11.9 | 30 | 32 | 26.0 | 22.0 | 40.4 | 14.2 | 50.5 | 26.0 |
| IMC20M-12GB | 20 | 3/4 | 15.7 | 35 | 32 | 26.0 | 22.0 | 42.7 | 15.7 | 52.8 | 32.0 |
| IMC22M-12GB | 22 | 3/4 | 15.7 | 35 | 32 | 26.0 | 22.0 | 42.7 | 15.7 | 52.8 | 32.0 |
| IMC22M-16GB | 22 | 1 | 18.3 | 41 | 32 | 26.0 | 22.0 | 45.2 | 18.3 | 55.3 | 39.0 |
| IMC25M-12GB | 25 | 3/4 | 15.7 | 35 | 38 | 31.3 | 26.5 | 45.2 | 15.7 | 57.5 | 32.0 |
| IMC25M-16GB | 25 | 1 | 19.8 | 41 | 38 | 31.3 | 26.5 | 47.8 | 18.3 | 60.1 | 39.0 |
| IMC28M-16GB | 28 | 1 | 19.8 | 41 | 46 | 36.6 | 36.6 | 49.3 | 18.3 | 70.1 | 39.0 |
| IMC28M-20GB | 28 | 1-1/4 | 21.8 | 50 | 46 | 36.6 | 36.6 | 53.1 | 19.8 | 73.9 | 49.0 |
| IMC32M-20GB | 32 | 1-1/4 | 25.0 | 50 | 50 | 42.0 | 41.6 | 55.9 | 19.8 | 78.9 | 49.0 |
| IMC38M-24GB | 38 | 1-1/2 | 31.8 | 55 | 60 | 49.4 | 47.9 | 63.2 | 22.1 | 90.8 | 54.7 |

TUBE TO THREAD

IMCB-N

BULKHEAD MALE CONNECTOR

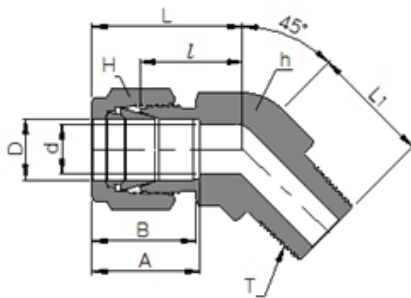


Connects Fractional Tube To Female NPT Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | | | | | Panel Hole Drill size | Panel Max Thickness | | | | |
|------------|-----------|-------|-----|-------|-------------------|-------|----------------|-------|-------|-------|-------|-----------------------|---------------------|-------|-------|----------------|-------|
| | D | | | | h | | h ₁ | | H | | A | | | l | L | L ₁ | |
| | in | mm | | | in | mm | in | mm | in | mm | in | | | mm | in | mm | |
| IMCB2-2N | 1/8 | 3.17 | 1/8 | 2.28 | 1/2 | 12.70 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 39.87 | 24.63 | 46.48 | 31.24 | 8.33 | 12.70 |
| IMCB4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 5/8 | 15.87 | 5/8 | 15.87 | 9/16 | 14.28 | 15.24 | 42.16 | 26.16 | 49.53 | 33.52 | 11.50 | 10.16 |
| IMCB4-4N | 1/4 | 6.35 | 1/4 | 4.82 | 5/8 | 15.87 | 5/8 | 15.87 | 9/16 | 14.28 | 15.24 | 45.97 | 26.16 | 53.34 | 33.52 | 11.50 | 10.16 |
| IMCB6-4N | 3/8 | 9.52 | 1/4 | 7.11 | 3/4 | 19.05 | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 50.03 | 29.46 | 57.40 | 36.83 | 14.68 | 11.17 |
| IMCB6-6N | 3/8 | 9.52 | 3/8 | 7.11 | 3/4 | 19.05 | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 50.03 | 29.46 | 57.40 | 36.83 | 14.68 | 11.17 |
| IMCB6-8N | 3/8 | 9.52 | 1/2 | 7.11 | 7/8 | 22.22 | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 56.38 | 29.46 | 63.75 | 36.83 | 14.68 | 11.17 |
| IMCB8-6N | 1/2 | 12.70 | 3/8 | 9.39 | 15/16 | 23.81 | 15/16 | 23.81 | 7/8 | 22.22 | 22.86 | 53.08 | 31.75 | 63.24 | 41.91 | 19.44 | 12.70 |
| IMCB8-8N | 1/2 | 12.70 | 1/2 | 10.41 | 15/16 | 23.81 | 15/16 | 23.81 | 7/8 | 22.22 | 22.86 | 58.67 | 31.75 | 68.83 | 41.91 | 19.44 | 12.70 |
| IMCB12-12N | 3/4 | 19.05 | 3/4 | 15.74 | 1-3/16 | 30.16 | 1-3/16 | 30.16 | 1-1/8 | 28.58 | 24.38 | 66.04 | 37.33 | 76.20 | 47.49 | 25.76 | 16.76 |
| IMCB16-16N | 1 | 25.40 | 1 | 22.35 | 1-5/8 | 41.28 | 1-5/8 | 41.28 | 1-1/2 | 38.10 | 31.24 | 81.02 | 45.21 | 93.21 | 57.40 | 33.73 | 19.05 |

ILBM-N

45° MALE ELBOW



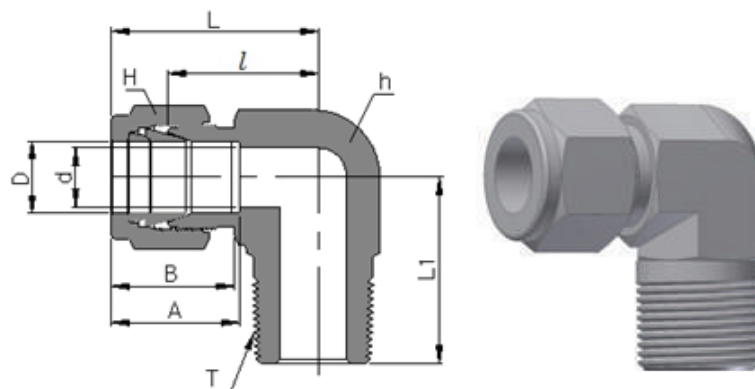
Connects Fractional Tube To Female NPT thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | | | | | | |
|-------------|-----------|-------|-----|-------|-------------------|-------|-------|-------|-------|-------|-------|-------|----------------|
| | D | | | | h | | H | | A | B | l | L | L ₁ |
| | in | mm | | | in | mm | in | mm | in | mm | in | mm | in |
| ILBM 4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 17.27 | 24.63 | 16.51 |
| ILBM 4-4N | 1/4 | 6.35 | 1/4 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 17.27 | 24.63 | 21.08 |
| ILBM 6-2N | 3/8 | 9.52 | 1/8 | 4.82 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 20.57 | 27.94 | 18.28 |
| ILBM 6-4N | 3/8 | 9.52 | 1/4 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 20.57 | 27.94 | 22.86 |
| ILBM 6-6N | 3/8 | 9.52 | 3/8 | 7.11 | 13/16 | 20.64 | 11/16 | 17.46 | 16.76 | 19.30 | 21.84 | 29.21 | 24.13 |
| ILBM 8-6N | 1/2 | 12.70 | 3/8 | 9.65 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 21.84 | 32.00 | 24.13 |
| ILBM 8-8N | 1/2 | 12.70 | 1/2 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 21.84 | 32.00 | 28.95 |
| ILBM 12-12N | 3/4 | 19.05 | 3/4 | 15.74 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 24.38 | 21.84 | 23.87 | 34.03 | 30.98 |
| ILBM 16-16N | 1 | 25.40 | 1 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 28.19 | 40.38 | 37.84 |

TUBE TO THREAD

ILM-N

MALE ELBOW



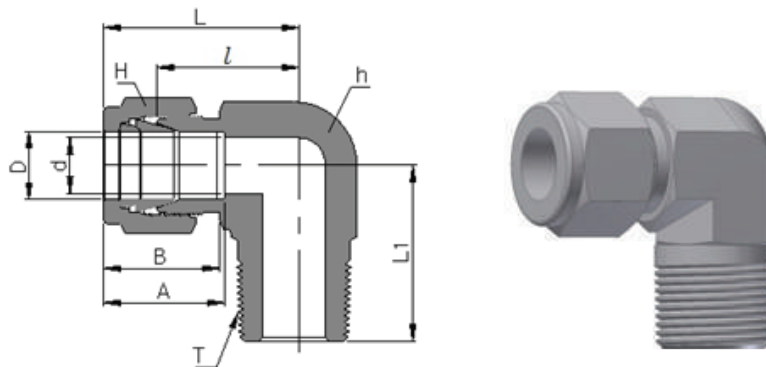
Connects Fractional Tube To Female NPT Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | | | A | B | ℓ | L | L ₁ |
|-----------|-----------|-------|-------|------|-------------------|-------|-------|-------|-------|-------|------|-------|------|----------------|
| | in | mm | | | NPT | Min. | in | mm | in | | | | | |
| ILM2-2N | 1/8 | 3.17 | 1/8 | 2.3 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.1 | 24.7 | 19.0 | |
| ILM2-4N | 1/8 | 3.17 | 1/4 | 2.3 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.1 | 24.7 | 23.5 | |
| ILM3-2N | 3/16 | 4.76 | 1/8 | 3 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.8 | 24.4 | 18.0 | |
| ILM3-4N | 3/16 | 4.76 | 1/4 | 3 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.8 | 24.4 | 22.5 | |
| ILM4-2N | 1/4 | 6.35 | 1/8 | 4.8 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.6 | 26.9 | 19.0 | |
| ILM4-4N | 1/4 | 6.35 | 1/4 | 4.8 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.6 | 26.9 | 23.5 | |
| ILM4-6N | 1/4 | 6.35 | 3/8 | 4.8 | | 17.0 | 9/16 | 14.28 | 15.24 | 17.78 | 21.5 | 28.8 | 26.2 | |
| ILM4-8N | 1/4 | 6.35 | 1/2 | 4.8 | 13/16 | 20.64 | 9/16 | 14.28 | 15.24 | 17.78 | 24.3 | 31.6 | 33.0 | |
| ILM5-2N | 5/16 | 7.93 | 1/8 | 6.4 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.3 | 28.6 | 19.9 | |
| ILM5-4N | 5/16 | 7.93 | 1/4 | 6.4 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.3 | 28.6 | 24.5 | |
| ILM5-6N | 5/16 | 7.93 | 3/8 | 6.4 | | 17.0 | 5/8 | 15.87 | 16.25 | 18.54 | 22.3 | 29.6 | 26.2 | |
| ILM6-2N | 3/8 | 9.52 | 1/8 | 7.1 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 20.9 | |
| ILM6-4N | 3/8 | 9.52 | 1/4 | 7.1 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 25.4 | |
| ILM6-6N | 3/8 | 9.52 | 3/8 | 7.1 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 26.2 | |
| ILM6-8N | 3/8 | 9.52 | 1/2 | 7.1 | 13/16 | 20.64 | 11/16 | 17.46 | 16.76 | 19.30 | 25.9 | 33.2 | 33.0 | |
| ILM6-12N | 3/8 | 9.52 | 3/4 | 7.1 | 1-1/16 | 26.98 | 11/16 | 17.46 | 16.76 | 19.30 | 29.7 | 37.0 | 36.8 | |
| ILM8-4N | 1/2 | 12.70 | 1/4 | 10.4 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 28.2 | |
| ILM8-6N | 1/2 | 12.70 | 3/8 | 10.4 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 28.2 | |
| ILM8-8N | 1/2 | 12.70 | 1/2 | 10.4 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 33.0 | |
| ILM8-12N | 1/2 | 12.70 | 3/4 | 10.4 | 1-1/16 | 26.98 | 7/8 | 22.22 | 22.86 | 21.84 | 29.7 | 39.8 | 36.8 | |
| ILM10-6N | 5/8 | 15.87 | 3/8 | 12.7 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.7 | 38.8 | 30.3 | |
| ILM10-8N | 5/8 | 15.87 | 1/2 | 12.7 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.7 | 38.8 | 35.1 | |
| ILM10-12N | 5/8 | 15.87 | 3/4 | 12.7 | 1-1/16 | 26.98 | 1 | 25.40 | 24.38 | 21.84 | 29.7 | 39.8 | 36.8 | |
| ILM12-8N | 3/4 | 19.05 | 1/2 | 15.7 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.7 | 39.8 | 36.8 | |
| ILM12-12N | 3/4 | 19.05 | 3/4 | 15.7 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.7 | 39.8 | 36.8 | |
| ILM14-12N | 7/8 | 22.22 | 3/4 | 18.3 | | 36.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.5 | 44.6 | 41.6 | |
| ILM16-12N | 1 | 25.40 | 3/4 | 22.4 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.8 | 48.97 | 41.5 | |
| ILM16-16N | 1 | 25.40 | 1 | 22.4 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.8 | 48.97 | 46.4 | |
| ILM20-20N | 1-1/4 | 31.75 | 1-1/4 | 27.7 | | 46.0 | 1-7/8 | 47.63 | 41.14 | 38.86 | 44.5 | 66.6 | 51.6 | |
| ILM24-24N | 1-1/2 | 38.10 | 1-1/2 | 34 | 2 | 50.80 | 2-1/4 | 57.15 | 50.03 | 45.21 | 50.8 | 78.0 | 59.0 | |
| ILM32-32N | 2 | 50.80 | 2 | 46 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 69.8 | 107.1 | 71.3 | |

TUBE TO THREAD

ILM-R

MALE ELBOW



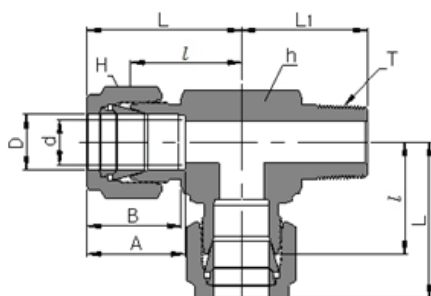
Connects Metric Tube To Female ISO Thread

| Part No. | Tube O.D. D | T R(PT) | d Min. | Width across flat h | H | A | B | ℓ | L | L ₁ |
|------------|----------------|------------|-----------|------------------------|----|------|------|------|------|----------------|
| ILM3M-2R | 3 | 1/8 | 2.4 | 12.7 | 12 | 12.9 | 15.3 | 18.1 | 24.7 | 16.6 |
| ILM3M-4R | 3 | 1/4 | 2.4 | 12.7 | 12 | 12.9 | 15.3 | 18.1 | 24.7 | 21.1 |
| ILM4M-2R | 4 | 1/8 | 2.4 | 12.7 | 12 | 13.7 | 16.1 | 18.8 | 25.4 | 18.7 |
| ILM4M-4R | 4 | 1/4 | 2.4 | 12.7 | 12 | 13.7 | 16.1 | 18.8 | 25.4 | 23.5 |
| ILM6M-2R | 6 | 1/8 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 19.0 |
| ILM6M-4R | 6 | 1/4 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 23.5 |
| ILM6M-6R | 6 | 3/8 | 4.8 | 17.0 | 14 | 15.3 | 17.7 | 22.3 | 29.6 | 23.5 |
| ILM6M-8R | 6 | 1/2 | 4.8 | 20.6 | 14 | 15.3 | 17.7 | 24.3 | 31.6 | 28.3 |
| ILM8M-2R | 8 | 1/8 | 6.4 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.6 | 19.9 |
| ILM8M-4R | 8 | 1/4 | 6.4 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.6 | 24.4 |
| ILM8M-6R | 8 | 3/8 | 6.4 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 30.4 | 24.4 |
| ILM8M-8R | 8 | 1/2 | 6.4 | 20.6 | 16 | 16.2 | 18.6 | 25.1 | 32.4 | 29.2 |
| ILM10M-2R | 10 | 1/8 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 21.7 |
| ILM10M-4R | 10 | 1/4 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 26.2 |
| ILM10M-6R | 10 | 3/8 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 26.2 |
| ILM10M-8R | 10 | 1/2 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 25.9 | 33.5 | 29.2 |
| ILM12M-4R | 12 | 1/4 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 28.2 |
| ILM12M-6R | 12 | 3/8 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 28.2 |
| ILM12M-8R | 12 | 1/2 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 33.0 |
| ILM12M-12R | 12 | 3/4 | 9.5 | 27.0 | 22 | 22.8 | 22.0 | 29.7 | 39.8 | 33.0 |
| ILM15M-6R | 15 | 3/8 | 11.9 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 31.0 |
| ILM15M-8R | 15 | 1/2 | 11.9 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ILM16M-6R | 16 | 3/8 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 31.0 |
| ILM16M-8R | 16 | 1/2 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ILM16M-12R | 16 | 3/4 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ILM18M-8R | 18 | 1/2 | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 | 36.8 |
| ILM18M-12R | 18 | 3/4 | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 | 36.8 |
| ILM20M-8R | 20 | 1/2 | 15.9 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ILM20M-12R | 20 | 3/4 | 15.9 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ILM22M-8R | 22 | 1/2 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ILM22M-12R | 22 | 3/4 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ILM22M-16R | 22 | 1 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 44.5 |
| ILM25M-12R | 25 | 3/4 | 21.8 | 36.0 | 38 | 31.3 | 26.5 | 36.8 | 49.0 | 41.5 |
| ILM25M-16R | 25 | 1 | 21.8 | 36.0 | 38 | 31.3 | 26.5 | 36.8 | 49.0 | 46.4 |
| ILM28M-16R | 28 | 1 | 24.0 | 41.0 | 46 | 40.0 | 36.6 | 44.7 | 65.6 | 52.8 |
| ILM30M-20R | 30 | 1-1/4 | 26.2 | 46.0 | 46 | 41.4 | 38.8 | 45.7 | 67.7 | 52.8 |
| ILM38M-20R | 38 | 1-1/4 | 33.7 | 55.0 | 60 | 49.4 | 47.9 | 56.4 | 84.0 | 60.0 |

TUBE TO THREAD

ITRM-N

MALE RUN TEE



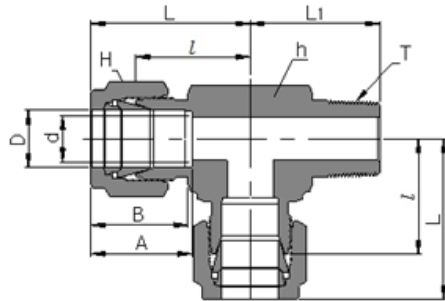
Connects Fractional Tube To Female NPT Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | | A | B | ℓ | L | L ₁ |
|------------|-----------|-------|-------|------|-------------------|-------|-------|-------|-------|-------|------|-------|----------------|
| | in | mm | | | in | mm | in | mm | | | | | |
| ITRM2-2N | 1/8 | 3.17 | 1/8 | 2.3 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.1 | 24.7 | 19.0 |
| ITRM2-4N | 1/8 | 3.17 | 1/4 | 2.3 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.1 | 24.7 | 23.5 |
| ITRM3-2N | 3/16 | 4.76 | 1/8 | 3 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.8 | 24.4 | 18.0 |
| ITRM3-4N | 3/16 | 4.76 | 1/4 | 3 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.8 | 24.4 | 22.5 |
| ITRM4-2N | 1/4 | 6.35 | 1/8 | 4.8 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.6 | 26.9 | 19.0 |
| ITRM4-4N | 1/4 | 6.35 | 1/4 | 4.8 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.6 | 26.9 | 23.5 |
| ITRM4-6N | 1/4 | 6.35 | 3/8 | 4.8 | | 17.0 | 9/16 | 14.28 | 15.24 | 17.78 | 21.5 | 28.8 | 26.2 |
| ITRM4-8N | 1/4 | 6.35 | 1/2 | 4.8 | 13/16 | 20.64 | 9/16 | 14.28 | 15.24 | 17.78 | 24.3 | 31.6 | 33.0 |
| ITRM5-2N | 5/16 | 7.93 | 1/8 | 6.4 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.3 | 28.6 | 19.9 |
| ITRM5-4N | 5/16 | 7.93 | 1/4 | 6.4 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.3 | 28.6 | 24.5 |
| ITRM5-6N | 5/16 | 7.93 | 3/8 | 6.4 | | 17.0 | 5/8 | 15.87 | 16.25 | 18.54 | 22.3 | 29.6 | 26.2 |
| ITRM6-2N | 3/8 | 9.52 | 1/8 | 7.1 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 20.9 |
| ITRM6-4N | 3/8 | 9.52 | 1/4 | 7.1 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 25.4 |
| ITRM6-6N | 3/8 | 9.52 | 3/8 | 7.1 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 26.2 |
| ITRM6-8N | 3/8 | 9.52 | 1/2 | 7.1 | 13/16 | 20.64 | 11/16 | 17.46 | 16.76 | 19.30 | 25.9 | 33.2 | 33.0 |
| ITRM6-12N | 3/8 | 9.52 | 3/4 | 7.1 | 1-1/16 | 26.98 | 11/16 | 17.46 | 16.76 | 19.30 | 29.7 | 37.0 | 36.8 |
| ITRM8-4N | 1/2 | 12.70 | 1/4 | 10.4 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 28.2 |
| ITRM8-6N | 1/2 | 12.70 | 3/8 | 10.4 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 28.2 |
| ITRM 8-8N | 1/2 | 12.70 | 1/2 | 10.4 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 33.0 |
| ITRM 8-12N | 1/2 | 12.70 | 3/4 | 10.4 | 1-1/16 | 26.98 | 7/8 | 22.22 | 22.86 | 21.84 | 29.7 | 39.8 | 36.8 |
| ITRM10-6N | 5/8 | 15.87 | 3/8 | 12.7 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.7 | 38.8 | 30.3 |
| ITRM10-8N | 5/8 | 15.87 | 1/2 | 12.7 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.7 | 38.8 | 35.1 |
| ITRM10-12N | 5/8 | 15.87 | 3/4 | 12.7 | 1-1/16 | 26.98 | 1 | 25.40 | 24.38 | 21.84 | 29.7 | 39.8 | 36.8 |
| ITRM12-8N | 3/4 | 19.05 | 1/2 | 15.7 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.7 | 39.8 | 36.8 |
| ITRM12-12N | 3/4 | 19.05 | 3/4 | 15.7 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.7 | 39.8 | 36.8 |
| ITRM14-12N | 7/8 | 22.22 | 3/4 | 18.3 | | 36.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.5 | 44.6 | 41.6 |
| ITRM16-12N | 1 | 25.40 | 3/4 | 22.4 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.8 | 48.97 | 41.5 |
| ITRM16-16N | 1 | 25.40 | 1 | 22.4 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.8 | 48.97 | 46.4 |
| ITRM20-20N | 1-1/4 | 31.75 | 1-1/4 | 27.7 | | 46.0 | 1-7/8 | 47.63 | 41.14 | 38.86 | 44.5 | 66.6 | 51.6 |
| ITRM24-24N | 1-1/2 | 38.10 | 1-1/2 | 34 | 2 | 50.80 | 2-1/4 | 57.15 | 50.03 | 45.21 | 50.8 | 78.0 | 59.0 |
| ITRM32-32N | 2 | 50.80 | 2 | 46 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 69.8 | 107.1 | 71.3 |

TUBE TO THREAD

ITRM-R

MALE RUN TEE



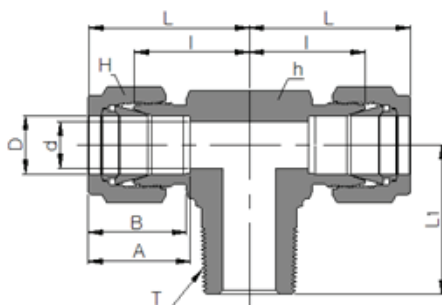
Connects Metric Tube To Female ISO Thread

| Part No. | Tube O.D. | | T R(PT) | d Min. | Width across flat | | A | B | l | L | L ₁ |
|-------------|-----------|--|------------|-----------|-------------------|----|------|------|------|------|----------------|
| | D | | | | h | H | | | | | |
| ITRM3M-2R | 3 | | 1/8 | 2.4 | 12.7 | 12 | 12.9 | 15.3 | 18.1 | 24.7 | 16.6 |
| ITRM3M-4R | 3 | | 1/4 | 2.4 | 12.7 | 12 | 12.9 | 15.3 | 18.1 | 24.7 | 21.1 |
| ITRM4M-2R | 4 | | 1/8 | 2.4 | 12.7 | 12 | 13.7 | 16.1 | 18.8 | 25.4 | 18.7 |
| ITRM4M-4R | 4 | | 1/4 | 2.4 | 12.7 | 12 | 13.7 | 16.1 | 18.8 | 25.4 | 23.5 |
| ITRM6M-2R | 6 | | 1/8 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 19.0 |
| ITRM6M-4R | 6 | | 1/4 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 23.5 |
| ITRM6M-6R | 6 | | 3/8 | 4.8 | 17.0 | 14 | 15.3 | 17.7 | 22.3 | 29.6 | 23.5 |
| ITRM6M-8R | 6 | | 1/2 | 4.8 | 20.6 | 14 | 15.3 | 17.7 | 24.3 | 31.6 | 28.3 |
| ITRM8M-2R | 8 | | 1/8 | 6.4 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.6 | 19.9 |
| ITRM8M-4R | 8 | | 1/4 | 6.4 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.6 | 24.4 |
| ITRM8M-6R | 8 | | 3/8 | 6.4 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 30.4 | 24.4 |
| ITRM8M-8R | 8 | | 1/2 | 6.4 | 20.6 | 16 | 16.2 | 18.6 | 25.1 | 32.4 | 29.2 |
| ITRM10M-2R | 10 | | 1/8 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 21.7 |
| ITRM10M-4R | 10 | | 1/4 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 26.2 |
| ITRM10M-6R | 10 | | 3/8 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 26.2 |
| ITRM10M-8R | 10 | | 1/2 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 25.9 | 33.5 | 29.2 |
| ITRM12M-4R | 12 | | 1/4 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 28.2 |
| ITRM12M-6R | 12 | | 3/8 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 28.2 |
| ITRM12M-8R | 12 | | 1/2 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 33.0 |
| ITRM12M-12R | 12 | | 3/4 | 9.5 | 27.0 | 22 | 22.8 | 22.0 | 29.7 | 39.8 | 33.0 |
| ITRM15M-6R | 15 | | 3/8 | 11.9 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 31.0 |
| ITRM15M-8R | 15 | | 1/2 | 11.9 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ITRM16M-6R | 16 | | 3/8 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 31.0 |
| ITRM16M-8R | 16 | | 1/2 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ITRM16M-12R | 16 | | 3/4 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ITRM18M-8R | 18 | | 1/2 | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 | 36.8 |
| ITRM18M-12R | 18 | | 3/4 | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 | 36.8 |
| ITRM20M-8R | 20 | | 1/2 | 15.9 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ITRM20M-12R | 20 | | 3/4 | 15.9 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ITRM22M-8R | 22 | | 1/2 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ITRM22M-12R | 22 | | 3/4 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ITRM22M-16R | 22 | | 1 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 44.5 |
| ITRM25M-12R | 25 | | 3/4 | 21.8 | 36.0 | 38 | 31.3 | 26.5 | 36.8 | 49.0 | 41.5 |
| ITRM25M-16R | 25 | | 1 | 21.8 | 36.0 | 38 | 31.3 | 26.5 | 36.8 | 49.0 | 46.4 |
| ITRM28M-16R | 28 | | 1 | 24.0 | 41.0 | 46 | 40.0 | 36.6 | 44.7 | 65.6 | 52.8 |
| ITRM30M-20R | 30 | | 1-1/4 | 26.2 | 46.0 | 46 | 41.4 | 38.8 | 45.7 | 67.7 | 52.8 |
| ITRM38M-20R | 38 | | 1-1/4 | 33.7 | 55.0 | 60 | 49.4 | 47.9 | 56.4 | 84.0 | 60.0 |

TUBE TO THREAD

ITBM-N

MALE BRANCH TEE



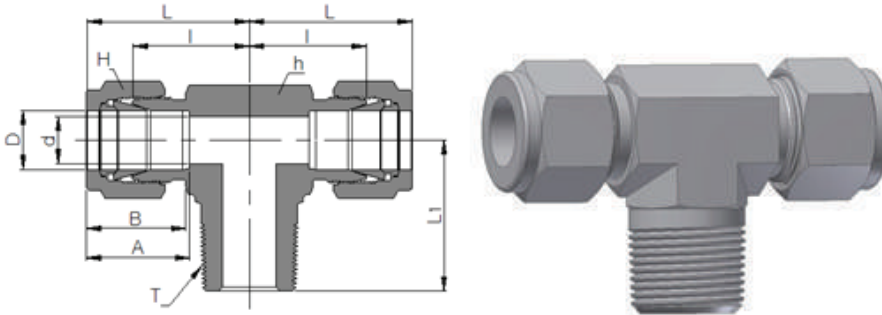
Connects Fractional Tube To Female NPT Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | | A | B | ℓ | L | L ₁ |
|------------|-----------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------|--------|----------------|
| | D | | | | in | h | H | | | | | | |
| | in | mm | NPT | Min. | in | mm | in | mm | | | | | |
| ITBM2-2N | 1/8 | 3.17 | 1/8 | 2.28 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.10 | 24.70 | 19.0 |
| ITBM2-4N | 1/8 | 3.17 | 1/4 | 2.28 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.10 | 24.70 | 23.50 |
| ITBM4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.60 | 26.90 | 19.0 |
| ITBM4-4N | 1/4 | 6.35 | 1/4 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.60 | 26.90 | 23.50 |
| ITBM4-6N | 1/4 | 6.35 | 3/8 | 4.82 | | 17.0 | 9/16 | 14.28 | 15.24 | 17.78 | 21.50 | 28.80 | 26.20 |
| ITBM4-8N | 1/4 | 6.35 | 1/2 | 4.82 | 7/8 | 22.22 | 9/16 | 14.28 | 15.24 | 17.78 | 24.30 | 31.60 | 33.0 |
| ITBM5-2N | 5/16 | 7.93 | 1/8 | 6.4 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.30 | 28.60 | 19.90 |
| ITBM5-4N | 5/16 | 7.93 | 1/4 | 6.4 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.30 | 28.60 | 24.50 |
| ITBM5-6N | 5/16 | 7.93 | 3/8 | 6.4 | | 17.0 | 5/8 | 15.87 | 16.25 | 18.54 | 22.30 | 29.60 | 26.20 |
| ITBM6-2N | 3/8 | 9.52 | 1/8 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.10 | 30.40 | 20.90 |
| ITBM6-4N | 3/8 | 9.52 | 1/4 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.10 | 30.40 | 25.40 |
| ITBM6-6N | 3/8 | 9.52 | 3/8 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.87 | 31.24 | 26.2 |
| ITBM6-8N | 3/8 | 9.52 | 1/2 | 7.11 | 7/8 | 22.22 | 11/16 | 17.46 | 16.76 | 19.30 | 25.90 | 33.20 | 33.0 |
| ITBM6-12N | 3/8 | 9.52 | 3/4 | 7.11 | 1-1/16 | 26.98 | 11/16 | 17.46 | 16.76 | 19.30 | 29.70 | 37.0 | 36.80 |
| ITBM8-4N | 1/2 | 12.70 | 1/4 | 10.4 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 36.0 | 28.20 |
| ITBM8-6N | 1/2 | 12.70 | 3/8 | 10.4 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 36.0 | 28.20 |
| ITBM8-8N | 1/2 | 12.70 | 1/2 | 10.41 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 36.0 | 33.0 |
| ITBM8-12N | 1/2 | 12.70 | 3/4 | 10.41 | 1-1/16 | 26.98 | 7/8 | 22.22 | 22.86 | 21.84 | 29.70 | 39.80 | 36.80 |
| ITBM10-6N | 5/8 | 15.87 | 3/8 | 12.70 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.70 | 38.80 | 30.30 |
| ITBM10-8N | 5/8 | 15.87 | 1/2 | 12.70 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.70 | 38.80 | 35.10 |
| ITBM10-12N | 5/8 | 15.87 | 3/4 | 12.70 | 1-1/16 | 26.98 | 1 | 25.40 | 24.38 | 21.84 | 29.70 | 39.80 | 36.80 |
| ITBM12-8N | 3/4 | 19.05 | 1/2 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.70 | 39.80 | 36.80 |
| ITBM12-12N | 3/4 | 19.05 | 3/4 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.70 | 39.80 | 36.80 |
| ITBM14-12N | 7/8 | 22.22 | 3/4 | 18.30 | | 36.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.50 | 44.60 | 41.60 |
| ITBM16-12N | 1 | 25.40 | 3/4 | 22.40 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.80 | 48.97 | 41.50 |
| ITBM16-16N | 1 | 25.40 | 1 | 22.35 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.80 | 48.97 | 46.40 |
| ITBM20-20N | 1-1/4 | 31.75 | 1-1/4 | 27.68 | | 46.0 | 1-7/8 | 47.63 | 41.14 | 38.86 | 44.50 | 66.60 | 51.60 |
| ITBM24-24N | 1-1/2 | 38.10 | 1-1/2 | 34.03 | 2 | 50.80 | 2-1/4 | 57.15 | 50.03 | 45.21 | 50.80 | 78.0 | 59.0 |
| ITBM32-32N | 2 | 50.80 | 2 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 62.73 | 63.73 | 69.80 | 107.10 | 71.30 |

TUBE TO THREAD

ITBM-R

MALE BRANCH TEE



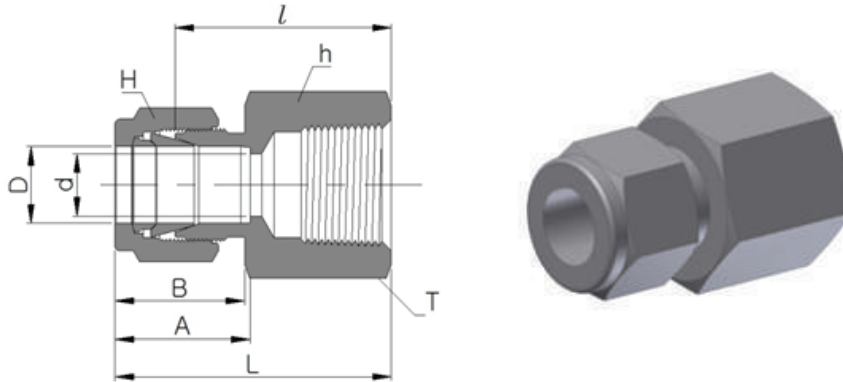
Connects Metric Tube To Female ISOThread

| Part No. | Tube O.D. | | T R(PT) | d Min. | Width across flat | | A | B | l | L | L ₁ |
|-------------|-----------|--|------------|-----------|-------------------|----|------|------|------|------|----------------|
| | D | | | | h | H | | | | | |
| ITBM3M-2R | 3 | | 1/8 | 2.4 | 12.7 | 12 | 12.9 | 15.3 | 18.1 | 24.7 | 16.6 |
| ITBM3M-4R | 3 | | 1/4 | 2.4 | 12.7 | 12 | 12.9 | 15.3 | 18.1 | 24.7 | 21.1 |
| ITBM4M-2R | 4 | | 1/8 | 2.4 | 12.7 | 12 | 13.7 | 16.1 | 18.8 | 25.4 | 18.7 |
| ITBM4M-4R | 4 | | 1/4 | 2.4 | 12.7 | 12 | 13.7 | 16.1 | 18.8 | 25.4 | 23.5 |
| ITBM6M-2R | 6 | | 1/8 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 19.0 |
| ITBM6M-4R | 6 | | 1/4 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 23.5 |
| ITBM6M-6R | 6 | | 3/8 | 4.8 | 17.0 | 14 | 15.3 | 17.7 | 22.3 | 29.6 | 23.5 |
| ITBM6M-8R | 6 | | 1/2 | 4.8 | 20.6 | 14 | 15.3 | 17.7 | 24.3 | 31.6 | 28.3 |
| ITBM8M-2R | 8 | | 1/8 | 6.4 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.6 | 19.9 |
| ITBM8M-4R | 8 | | 1/4 | 6.4 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 28.6 | 24.4 |
| ITBM8M-6R | 8 | | 3/8 | 6.4 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 30.4 | 24.4 |
| ITBM8M-8R | 8 | | 1/2 | 6.4 | 20.6 | 16 | 16.2 | 18.6 | 25.1 | 32.4 | 29.2 |
| ITBM10M-2R | 10 | | 1/8 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 21.7 |
| ITBM10M-4R | 10 | | 1/4 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 26.2 |
| ITBM10M-6R | 10 | | 3/8 | 7.9 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 31.5 | 26.2 |
| ITBM10M-8R | 10 | | 1/2 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 25.9 | 33.5 | 29.2 |
| ITBM12M-4R | 12 | | 1/4 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 28.2 |
| ITBM12M-6R | 12 | | 3/8 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 28.2 |
| ITBM12M-8R | 12 | | 1/2 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 36.0 | 33.0 |
| ITBM12M-12R | 12 | | 3/4 | 9.5 | 27.0 | 22 | 22.8 | 22.0 | 29.7 | 39.8 | 33.0 |
| ITBM15M-6R | 15 | | 3/8 | 11.9 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 31.0 |
| ITBM15M-8R | 15 | | 1/2 | 11.9 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ITBM16M-6R | 16 | | 3/8 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 31.0 |
| ITBM16M-8R | 16 | | 1/2 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ITBM16M-12R | 16 | | 3/4 | 12.7 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 38.8 | 35.8 |
| ITBM18M-8R | 18 | | 1/2 | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 | 36.8 |
| ITBM18M-12R | 18 | | 3/4 | 15.1 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 39.8 | 36.8 |
| ITBM20M-8R | 20 | | 1/2 | 15.9 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ITBM20M-12R | 20 | | 3/4 | 15.9 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ITBM22M-8R | 22 | | 1/2 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ITBM22M-12R | 22 | | 3/4 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 39.6 |
| ITBM22M-16R | 22 | | 1 | 18.3 | 36.0 | 32 | 26.0 | 22.0 | 34.4 | 44.5 | 44.5 |
| ITBM25M-12R | 25 | | 3/4 | 21.8 | 36.0 | 38 | 31.3 | 26.5 | 36.8 | 49.0 | 41.5 |
| ITBM25M-16R | 25 | | 1 | 21.8 | 36.0 | 38 | 31.3 | 26.5 | 36.8 | 49.0 | 46.4 |
| ITBM28M-16R | 28 | | 1 | 24.0 | 41.0 | 46 | 40.0 | 36.6 | 44.7 | 65.6 | 52.8 |
| ITBM30M-20R | 30 | | 1-1/4 | 26.2 | 46.0 | 46 | 41.4 | 38.8 | 45.7 | 67.7 | 52.8 |
| ITBM38M-20N | 38 | | 1-1/4 | 33.7 | 55.0 | 60 | 49.4 | 47.9 | 56.4 | 84.0 | 60.0 |

TUBE TO THREAD

ICF-N

FEMALE CONNECTOR



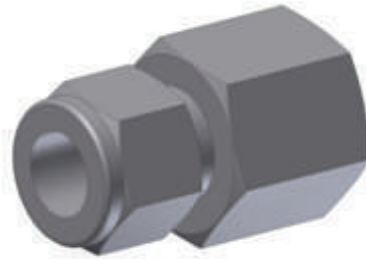
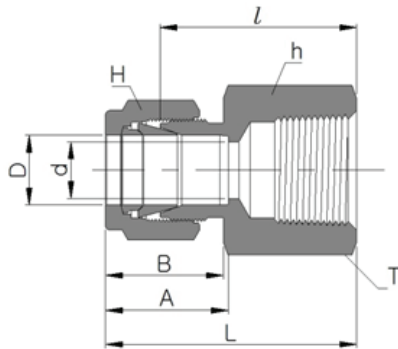
Connects Fractional Tube To Male NPT Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | | | | | |
|-----------|-----------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------|--------|
| | D | | | | h | H | A | B | l | L | | |
| | in | mm | NPT | Min. | in | mm | in | mm | | | | |
| ICF1-1N | 1/16 | 1.59 | 1/16 | 1.27 | 7/16 | 11.11 | 5/16 | 7.93 | 8.63 | 10.92 | 19.81 | 23.62 |
| ICF1-2N | 1/16 | 1.59 | 1/8 | 1.27 | 9/16 | 14.28 | 5/16 | 7.93 | 8.63 | 10.92 | 20.57 | 24.38 |
| ICF2-2N | 1/8 | 3.17 | 1.8 | 2.28 | 9/16 | 14.28 | 7/16 | 11.11 | 12.70 | 15.24 | 22.09 | 28.70 |
| ICF2-4N | 1/8 | 3.17 | 1/4 | 2.28 | 3/4 | 19.05 | 7/16 | 11.11 | 12.70 | 15.24 | 26.92 | 33.52 |
| ICF3-2N | 3/16 | 4.76 | 1/8 | 3.04 | 9/16 | 14.28 | 1/2 | 12.70 | 13.71 | 16.00 | 23.11 | 29.71 |
| ICF4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 23.87 | 31.24 |
| ICF4-4N | 1/4 | 6.35 | 1/4 | 4.82 | 3/4 | 19.05 | 9/16 | 14.28 | 15.24 | 17.78 | 28.44 | 35.81 |
| ICF4-6N | 1/4 | 6.35 | 3/8 | 4.82 | 7/8 | 22.22 | 9/16 | 14.28 | 15.24 | 17.78 | 30.22 | 37.59 |
| ICF4-8N | 1/4 | 6.35 | 1/2 | 4.82 | 1-1/16 | 26.98 | 9/16 | 14.28 | 15.24 | 17.78 | 35.05 | 42.41 |
| ICF5-2N | 5/16 | 7.93 | 1/8 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 24.63 | 32.00 |
| ICF5-4N | 5/16 | 7.93 | 1/4 | 6.35 | 3/4 | 19.05 | 5/8 | 15.87 | 16.25 | 18.54 | 29.46 | 36.83 |
| ICF6-2N | 3/8 | 9.52 | 1/8 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 25.40 | 32.76 |
| ICF6-4N | 3/8 | 9.52 | 1/4 | 7.11 | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 19.30 | 30.22 | 37.59 |
| ICF6-6N | 3/8 | 9.52 | 3/8 | 7.11 | 7/8 | 22.22 | 11/16 | 17.46 | 16.76 | 19.30 | 31.75 | 39.11 |
| ICF6-8N | 3/8 | 9.52 | 1/2 | 7.11 | 1-1/16 | 26.98 | 11/16 | 17.46 | 16.76 | 19.30 | 36.57 | 43.94 |
| ICF6-12N | 3/8 | 9.52 | 3/4 | 7.11 | 1-5/16 | 33.33 | 11/16 | 17.46 | 16.76 | 19.30 | 40.38 | 47.45 |
| ICF8-4N | 1/2 | 12.70 | 1/4 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 30.22 | 40.38 |
| ICF8-6N | 1/2 | 12.70 | 3/8 | 10.41 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 31.75 | 41.91 |
| ICF8-8N | 1/2 | 12.70 | 1/2 | 10.41 | 1-1/16 | 26.98 | 7/8 | 22.22 | 22.86 | 21.84 | 36.57 | 46.73 |
| ICF8-12N | 1/2 | 12.70 | 3/4 | 10.41 | 1-5/16 | 33.33 | 7/8 | 22.22 | 22.86 | 21.84 | 38.10 | 48.26 |
| ICF10-6N | 5/8 | 15.87 | 3/8 | 12.70 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 31.75 | 41.91 |
| ICF10-8N | 5/8 | 15.87 | 1/2 | 12.70 | 1-1/16 | 26.98 | 1 | 25.40 | 24.38 | 21.84 | 36.57 | 46.73 |
| ICF10-12N | 5/8 | 15.87 | 3/4 | 12.70 | 1-5/16 | 33.33 | 1 | 25.40 | 24.38 | 21.84 | 38.10 | 48.26 |
| ICF12-8N | 3/4 | 19.05 | 1/2 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 36.57 | 46.73 |
| ICF12-12N | 3/4 | 19.05 | 3/4 | 15.74 | 1-5/16 | 33.33 | 1-1/8 | 28.58 | 24.38 | 21.84 | 38.10 | 48.26 |
| ICF14-12N | 7/8 | 22.22 | 3/4 | 18.28 | 1-5/16 | 33.33 | 1-1/4 | 31.75 | 25.90 | 21.84 | 39.62 | 49.78 |
| ICF16-12N | 1 | 25.40 | 3/4 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 41.14 | 53.34 |
| ICF16-16N | 1 | 25.40 | 1 | 22.35 | 1-5/8 | 41.27 | 1-1/2 | 38.10 | 31.24 | 26.41 | 50.03 | 62.23 |
| ICF20-20N | 1-1/4 | 31.75 | 1-1/4 | 27.68 | 2-1/8 | 53.98 | 1-7/8 | 47.63 | 41.14 | 38.86 | 52.57 | 74.67 |
| ICF24-24N | 1-1/2 | 38.10 | 1-1/2 | 34.03 | 2-3/8 | 60.33 | 2-1/4 | 57.15 | 50.03 | 45.21 | 56.13 | 83.81 |
| ICF32-32N | 2 | 50.80 | 2 | 45.97 | 2-1/8 | 73.03 | 3 | 76.20 | 67.56 | 62.73 | 64.26 | 101.60 |

TUBE TO THREAD

ICFM-R

FEMALE CONNECTOR



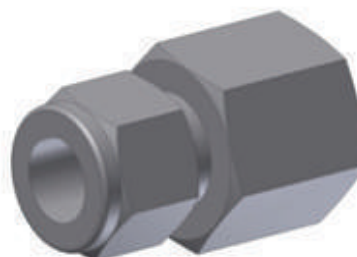
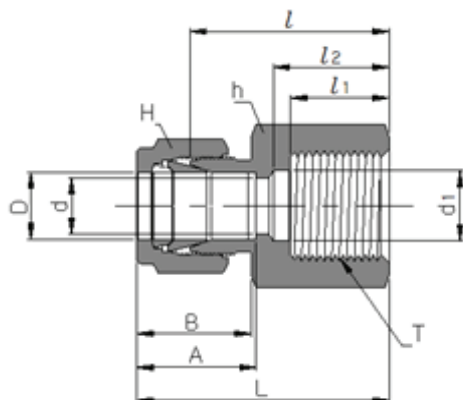
Connects Metric Tube To Male ISO Tapered Thread

| Part No. | Tube O.D. D | T R(PT) | d Min. | Width across flat | | A | B | l | L |
|------------|----------------|------------|-----------|----------------------|----|------|------|------|------|
| | | | | h | H | | | | |
| ICF3M-2R | 3 | 1/8 | 2.4 | 14 | 12 | 12.9 | 15.3 | 22.1 | 28.7 |
| ICF3M-4R | 3 | 1/4 | 2.4 | 19 | 12 | 12.9 | 15.3 | 26.9 | 33.5 |
| ICF4M-2R | 4 | 1/8 | 2.4 | 14 | 12 | 13.7 | 16.1 | 23.1 | 29.7 |
| ICF6M-2R | 6 | 1/8 | 4.8 | 14 | 14 | 15.3 | 17.7 | 23.9 | 31.3 |
| ICF6M-4R | 6 | 1/4 | 4.8 | 19 | 14 | 15.3 | 17.7 | 28.4 | 35.8 |
| ICF6M-6R | 6 | 3/8 | 4.8 | 22 | 14 | 15.3 | 17.7 | 29.5 | 36.9 |
| ICF6M-8R | 6 | 1/2 | 4.8 | 27 | 14 | 15.3 | 17.7 | 35.1 | 42.5 |
| ICF8M-2R | 8 | 1/8 | 6.3 | 14 | 16 | 16.2 | 18.6 | 24.6 | 32.1 |
| ICF8M-4R | 8 | 1/4 | 6.3 | 19 | 16 | 16.2 | 18.6 | 29.5 | 37.0 |
| ICF8M-6R | 8 | 3/8 | 6.3 | 22 | 16 | 16.2 | 18.6 | 30.2 | 37.7 |
| ICF8M-8R | 8 | 1/2 | 6.3 | 27 | 16 | 16.2 | 18.6 | 35.8 | 43.3 |
| ICF10M-2R | 10 | 1/8 | 7.9 | 18 | 19 | 17.2 | 19.5 | 25.4 | 33.0 |
| ICF10M-4R | 10 | 1/4 | 7.9 | 19 | 19 | 17.2 | 19.5 | 30.2 | 37.8 |
| ICF10M-6R | 10 | 3/8 | 7.9 | 22 | 19 | 17.2 | 19.5 | 31.0 | 38.6 |
| ICF10M-8R | 10 | 1/2 | 7.9 | 27 | 19 | 17.2 | 19.5 | 36.6 | 44.2 |
| ICF12M-2R | 12 | 1/8 | 9.5 | 22 | 22 | 22.8 | 22.0 | 28.4 | 38.5 |
| ICF12M-4R | 12 | 1/4 | 9.5 | 22 | 22 | 22.8 | 22.0 | 30.2 | 40.3 |
| ICF12M-6R | 12 | 3/8 | 9.5 | 22 | 22 | 22.8 | 22.0 | 31.0 | 41.1 |
| ICF12M-8R | 12 | 1/2 | 9.5 | 27 | 22 | 22.8 | 22.0 | 36.6 | 46.7 |
| ICF12M-12R | 12 | 3/4 | 9.5 | 35 | 22 | 22.8 | 22.0 | 38.9 | 49.0 |
| ICF15M-8R | 15 | 1/2 | 11.9 | 27 | 25 | 24.4 | 22.0 | 36.6 | 46.7 |
| ICF16M-8R | 16 | 1/2 | 12.7 | 27 | 25 | 24.4 | 22.0 | 36.8 | 46.9 |
| ICF20M-8R | 20 | 1/2 | 15.9 | 30 | 32 | 26.0 | 22.0 | 37.8 | 47.9 |
| ICF20M-12R | 20 | 3/4 | 15.9 | 35 | 32 | 26.0 | 22.0 | 39.6 | 49.7 |
| ICF22M-12R | 22 | 3/4 | 18.3 | 35 | 32 | 26.0 | 22.0 | 39.6 | 49.7 |
| ICF22M-16R | 22 | 1 | 18.3 | 41 | 32 | 26.0 | 22.0 | 47.8 | 57.9 |
| ICF25M-12R | 25 | 3/4 | 21.8 | 35 | 38 | 31.3 | 26.5 | 41.1 | 53.4 |
| ICF25M-16R | 25 | 1 | 21.8 | 41 | 38 | 31.3 | 26.5 | 50.0 | 62.3 |

TUBE TO THREAD

IGC-G

FEMALE GAUGE CONNECTOR



Connects Fractional Tube ToISO Parallel Thread (Gauge)

| Part No. | Tube O.D. | | T (PF) | d Min. | d1 | Width across flat | | | | A | B | l | a | ø | L |
|----------|-----------|---------|-----------|-----------|------|-------------------|---------|---------|---------|-------|-------|-------|-------|------|-------|
| | D in | D mm | | | | h in | h mm | H in | H mm | | | | | | |
| IGC4-2G | 1/4 | 6.35 | 1/8 | 4.82 | - | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 24.30 | 10.0 | - | 31.55 |
| IGC4-4G | 1/4 | 6.35 | 1/4 | 4.82 | 5.58 | 3/4 | 19.05 | 9/16 | 14.28 | 15.24 | 17.78 | 30.22 | 13.0 | 17.0 | 37.59 |
| IGC4-6G | 1/4 | 6.35 | 3/8 | 4.82 | 6.50 | 15/16 | 23.81 | 9/16 | 14.28 | 15.24 | 17.78 | 30.22 | 14.10 | 17.0 | 37.59 |
| IGC4-8G | 1/4 | 6.35 | 1/2 | 4.82 | 6.50 | 1-1/16 | 26.98 | 9/16 | 14.28 | 15.24 | 17.78 | 36.07 | 18.80 | 23.0 | 43.43 |
| IGC5-4G | 5/16 | 7.93 | 1/4 | 5.58 | - | 3/4 | 19.05 | 5/8 | 15.87 | 16.25 | 18.54 | 30.98 | 13.0 | - | 38.35 |
| IGC5-8G | 5/16 | 7.93 | 1/2 | 6.30 | - | 1-1/16 | 26.98 | 5/8 | 15.87 | 16.25 | 18.54 | 33.02 | 19.0 | - | 40.38 |
| IGC6-4G | 3/8 | 9.52 | 1/4 | 5.58 | - | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 19.30 | 31.75 | 12.95 | - | 39.12 |
| IGC6-6G | 3/8 | 9.52 | 3/8 | 6.50 | - | 15/16 | 23.81 | 11/16 | 17.46 | 16.76 | 19.30 | 31.24 | 14.0 | - | 38.61 |
| IGC6-8G | 3/8 | 9.52 | 1/2 | 7.11 | - | 1-1/16 | 26.98 | 11/16 | 17.46 | 16.76 | 19.30 | 34.54 | 18.80 | - | 41.91 |
| IGC8-4G | 1/2 | 12.70 | 1/4 | 5.50 | - | 13/16 | 20.74 | 7/8 | 22.22 | 22.86 | 21.84 | 31.80 | 12.90 | - | 41.95 |
| IGC8-6G | 1/2 | 12.70 | 3/8 | 6.50 | - | 15/16 | 23.81 | 7/8 | 22.22 | 22.86 | 21.84 | 34.29 | 14.24 | - | 44.45 |
| IGC8-8G | 1/2 | 12.70 | 1/2 | 7.11 | - | 1-1/16 | 26.98 | 7/8 | 22.22 | 22.86 | 21.84 | 38.10 | 18.80 | - | 48.26 |

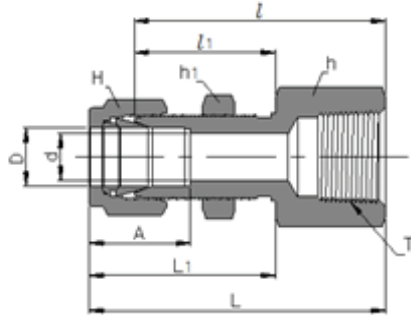
Connects Metric Tube ToISO Parallel Thread (Gauge)

| Part No. | Tube O.D. D | T (PF) | d Min. | d1 Min | Width across flat | | A | B | l | a | ø | L |
|-----------|-------------------|-----------|-----------|-----------|----------------------|----|------|------|------|------|----|------|
| | | | | | h | H | | | | | | |
| IGC3M-4G | 3 | 1/4 | 2.4 | 5.5 | 19 | 12 | 12.9 | 15.3 | 28.7 | 12.9 | 17 | 35.3 |
| IGC6M-4G | 6 | 1/4 | 4.8 | 5.5 | 19 | 14 | 15.3 | 17.7 | 30.2 | 12.9 | 17 | 37.6 |
| IGC6M-6G | 6 | 3/8 | 4.8 | 6.5 | 24 | 14 | 15.3 | 17.7 | 30.2 | 14.0 | 17 | 37.6 |
| IGC6M-8G | 6 | 1/2 | 4.8 | 7.0 | 27 | 14 | 15.3 | 17.7 | 36.3 | 18.8 | 23 | 43.0 |
| IGC8M-4G | 8 | 1/4 | 5.5 | - | 19 | 16 | 16.2 | 18.6 | 31.0 | 12.9 | - | 38.5 |
| IGC8M-6G | 8 | 3/8 | 6.3 | - | 24 | 16 | 16.2 | 18.6 | 28.7 | 14.0 | - | 36.2 |
| IGC8M-8G | 8 | 1/2 | 6.3 | - | 27 | 16 | 16.2 | 18.6 | 33.5 | 18.8 | - | 41.0 |
| IGC10M-4G | 10 | 1/4 | 5.5 | - | 19 | 19 | 17.2 | 19.5 | 31.8 | 12.9 | - | 39.4 |
| IGC10M-6G | 10 | 3/8 | 6.5 | - | 24 | 19 | 17.2 | 19.5 | 31.2 | 14.0 | - | 38.8 |
| IGC10M-8G | 10 | 1/2 | 7.0 | - | 27 | 19 | 17.2 | 19.5 | 34.5 | 18.8 | - | 41.4 |
| IGC12M-4G | 12 | 1/4 | 5.5 | - | 22 | 22 | 22.8 | 22.0 | 31.8 | 12.9 | - | 41.9 |
| IGC12M-6G | 12 | 3/8 | 6.5 | - | 24 | 22 | 22.8 | 22.0 | 34.3 | 14.0 | - | 44.4 |
| IGC12M-8G | 12 | 1/2 | 7.0 | - | 27 | 22 | 22.8 | 22.0 | 38.1 | 18.8 | - | 48.2 |
| IGC20M-8G | 20 | 1/2 | 7.0 | - | 30 | 32 | 26.0 | 22.0 | 44.2 | 18.8 | - | 54.3 |
| IGC22M-8G | 22 | 1/2 | 7.0 | - | 30 | 32 | 26.0 | 22.0 | 44.2 | 18.8 | - | 54.3 |

TUBE TO THREAD

ICBF-N

BULKHEAD FEMALE CONNECTOR



Connects Fractional Tube To Male NPT Thread

| Part No. | Tube O.D. | | T | Width across flat | | | | | | | Panel Hole Drill size | Panel Max Thickness | | | | | |
|------------|-----------|-------|-----|-------------------|--------|----------------|--------|-------|-------|-------|-----------------------|---------------------|-------|----------------|-------|-------|-------|
| | D | D | | d | h | h ₁ | H | A | ℓ | ℓ | | | L | L ₁ | | | |
| | in | mm | NPT | Min. | in | mm | in | mm | in | mm | | | | | | | |
| ICBF2-2N | 1/8 | 3.17 | 1/8 | 2.28 | 9/16 | 14.28 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 38.10 | 24.63 | 44.70 | 31.24 | 8.33 | 12.70 |
| ICBF4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 5/8 | 15.87 | 5/8 | 15.87 | 9/16 | 14.28 | 15.24 | 39.62 | 26.16 | 46.99 | 33.52 | 11.50 | 10.16 |
| ICBF4-4N | 1/4 | 6.35 | 1/4 | 4.82 | 3/4 | 19.05 | 5/8 | 15.87 | 9/16 | 14.28 | 15.24 | 44.45 | 26.16 | 51.81 | 33.52 | 11.50 | 10.16 |
| ICBF6-4N | 3/8 | 9.52 | 1/4 | 7.11 | 3/4 | 19.05 | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 47.75 | 29.46 | 55.11 | 36.83 | 14.68 | 11.17 |
| ICBF8-6N | 1/2 | 12.70 | 3/8 | 10.41 | 15/16 | 23.81 | 15/16 | 23.81 | 7/8 | 22.22 | 22.86 | 51.56 | 31.75 | 61.72 | 41.91 | 19.44 | 12.70 |
| ICBF8-8N | 1/2 | 12.70 | 1/2 | 10.41 | 1-1/16 | 26.98 | 15/16 | 23.81 | 7/8 | 22.22 | 22.86 | 56.38 | 31.75 | 66.54 | 41.91 | 19.44 | 12.70 |
| ICBF12-12N | 3/4 | 19.05 | 3/4 | 15.74 | 1-5/16 | 33.33 | 1-3/16 | 30.16 | 1-1/8 | 28.57 | 24.38 | 63.60 | 38.30 | 73.51 | 47.21 | 25.79 | 16.76 |

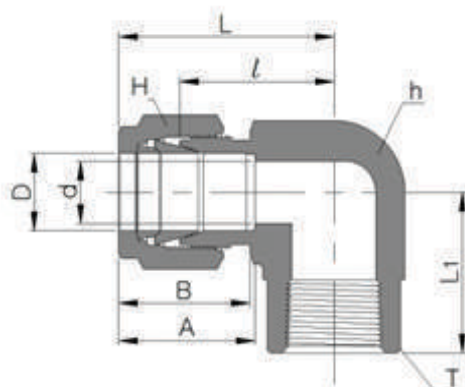
Connects Metric Tube To Male NPT Thread

| Part No. | Tube O.D. | | T (NPT) | Width across flat | | | | | | | Panel Hole Drill size | Panel Max Thickness | |
|------------|-----------|-----|---------|-------------------|------|----------------|------|------|------|-------|-----------------------|---------------------|------|
| | D | D | | d Min. | h | h ₁ | H | A | ℓ | ℓ | | | L |
| ICBF6M-2N | 6 | 1/8 | 4.8 | 16 | 15.8 | 14 | 15.3 | 39.6 | 26.2 | 46.90 | 35.00 | 11.5 | 10.2 |
| ICBF6M-4N | 6 | 1/4 | 4.8 | 19.0 | 16.0 | 14 | 15.3 | 44.4 | 26.2 | 51.80 | 33.60 | 11.5 | 10.2 |
| ICBF8M-4N | 8 | 1/4 | 6.3 | 19.0 | 17.4 | 16 | 16.2 | 46.7 | 28.6 | 53.85 | 35.55 | 13.1 | 11.2 |
| ICBF12M-8N | 12 | 1/2 | 9.5 | 27.0 | 24.0 | 22 | 22.8 | 56.4 | 31.8 | 66.50 | 41.90 | 19.5 | 12.7 |

TUBE TO THREAD

ILF-N

FEMALE ELBOW



Connects Fractional Tube To Male NPT thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | A | B | ℓ | L | L ₁ | |
|-----------|-----------|-------|-----|-------|-------------------|-------|-------|-------|-------|-------|------|----------------|------|
| | in | mm | | | in | h | H | | | | | | |
| ILF2-2N | 1/8 | 3.17 | 1/8 | 2.28 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.1 | 24.7 | 19.1 |
| ILF2-4N | 1/8 | 3.17 | 1/4 | 2.28 | | 17.0 | 7/16 | 11.11 | 12.70 | 15.24 | 20.8 | 27.4 | 22.4 |
| ILF3-2N | 3/16 | 4.76 | 1/8 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 18.8 | 25.4 | 19.1 |
| ILF4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.6 | 26.9 | 19.1 |
| ILF4-4N | 1/4 | 6.35 | 1/4 | 4.82 | | 17.0 | 9/16 | 14.28 | 15.24 | 17.78 | 22.3 | 29.6 | 22.4 |
| ILF4-6N | 1/4 | 6.35 | 3/8 | 4.82 | 13/16 | 20.64 | 9/16 | 14.28 | 15.24 | 17.78 | 24.3 | 31.6 | 22.4 |
| ILF4-8N | 1/4 | 6.35 | 1/2 | 4.82 | | 27.0 | 9/16 | 14.28 | 15.24 | 17.78 | 27.2 | 34.5 | 28.4 |
| ILF5-2N | 5/16 | 7.93 | 1/8 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.3 | 28.6 | 19.1 |
| ILF5-4N | 5/16 | 7.93 | 1/4 | 6.35 | | 17.0 | 5/8 | 15.87 | 16.25 | 18.54 | 23.1 | 30.4 | 22.4 |
| ILF6-2N | 3/8 | 9.52 | 1/8 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 19.1 |
| ILF6-4N | 3/8 | 9.52 | 1/4 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.9 | 31.2 | 22.4 |
| ILF6-6N | 3/8 | 9.52 | 3/8 | 7.11 | 13/16 | 20.64 | 11/16 | 17.46 | 16.76 | 19.30 | 25.9 | 33.2 | 22.4 |
| ILF6-8N | 3/8 | 9.52 | 1/2 | 7.11 | | 27.0 | 11/16 | 17.46 | 16.76 | 19.30 | 28.8 | 36.1 | 28.4 |
| ILF8-4N | 1/2 | 12.70 | 1/4 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 22.4 |
| ILF8-6N | 1/2 | 12.70 | 3/8 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 22.4 |
| ILF8-8N | 1/2 | 12.70 | 1/2 | 10.41 | | 27.0 | 7/8 | 22.22 | 22.86 | 21.84 | 28.8 | 38.9 | 28.4 |
| ILF10-6N | 5/8 | 15.87 | 3/8 | 12.70 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.0 | 38.1 | 22.4 |
| ILF10-8N | 5/8 | 15.87 | 1/2 | 12.70 | | 27.0 | 1 | 25.40 | 24.38 | 21.84 | 28.0 | 38.1 | 28.4 |
| ILF12-8N | 3/4 | 19.05 | 1/2 | 15.74 | | 27.0 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.7 | 39.8 | 28.4 |
| ILF12-12N | 3/4 | 19.05 | 3/4 | 15.74 | | 32.0 | 1-1/8 | 28.58 | 24.38 | 21.84 | 34.5 | 44.6 | 31.8 |
| ILF14-12N | 7/8 | 22.22 | 3/4 | 18.28 | | 32.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.5 | 44.6 | 34.5 |
| ILF16-12N | 1 | 25.40 | 3/4 | 22.35 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.8 | 49.0 | 36.8 |
| ILF16-16N | 1 | 25.40 | 1 | 22.35 | | 41.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 38.1 | 50.3 | 38.1 |

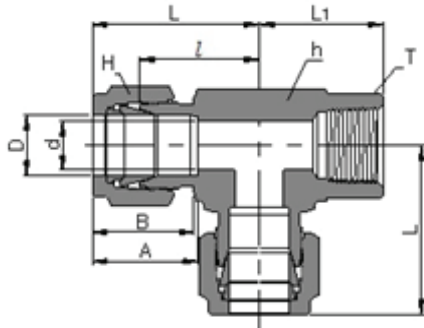
Connects Metric Tube To Male NPT Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | A | B | ℓ | L | L ₁ |
|-----------|-----------|-------|---|------|-------------------|----|------|------|------|------|-------|----------------|
| | D | (NPT) | | | Min. | h | H | | | | | |
| ILF6M-2N | 6 | 1/8 | | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 19.1 | |
| ILF6M-4N | 6 | 1/4 | | 4.8 | 17.0 | 14 | 15.3 | 17.7 | 22.3 | 29.6 | 22.40 | |
| ILF6M-6N | 6 | 3/8 | | 4.8 | 20.6 | 14 | 15.3 | 17.7 | 24.8 | 32.1 | 22.40 | |
| ILF6M-8N | 6 | 1/2 | | 4.8 | 27.0 | 14 | 15.3 | 17.7 | 27.8 | 35.1 | 28.40 | |
| ILF8M-2N | 8 | 1/8 | | 6.3 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 28.6 | 21.3 | |
| ILF8M-4N | 8 | 1/4 | | 6.3 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 28.6 | 22.40 | |
| ILF8M-8N | 8 | 1/2 | | 6.3 | 27.0 | 16 | 16.2 | 18.6 | 28.6 | 35.9 | 28.40 | |
| ILF10M-2N | 10 | 1/8 | | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.40 | |
| ILF10M-4N | 10 | 1/4 | | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.40 | |
| ILF10M-6N | 10 | 3/8 | | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.40 | |
| ILF10M-8N | 10 | 1/2 | | 7.9 | 27.0 | 19 | 17.2 | 19.5 | 29.4 | 37.0 | 28.4 | |
| ILF12M-4N | 12 | 1/4 | | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 26.4 | 36.5 | 22.40 | |
| ILF12M-6N | 12 | 3/8 | | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 26.4 | 39.5 | 28.4 | |
| ILF12M-8N | 12 | 1/2 | | 9.5 | 27.0 | 22 | 22.8 | 22.0 | 29.4 | 38.8 | 28.40 | |
| ILF16M-8N | 16 | 1/2 | | 12.7 | 27.0 | 25 | 24.4 | 22.0 | 29.4 | 39.5 | 28.40 | |

TUBE TO THREAD

ITRF-N

FEMALE RUN TEE



Connects Fractional Tube To Male NPT Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | | | | | | | |
|------------|-----------|-------|-----|-------|-------------------|-------|-------|-------|-------|-------|----------------|------|------|--|
| | D | | | | h | H | A | B | ℓ | L | L ₁ | | | |
| | in | mm | NPT | Min. | in | mm | in | mm | | | | | | |
| ITRF2-2N | 1/8 | 3.17 | 1/8 | 2.28 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.1 | 24.7 | 19.1 | |
| ITRF2-4N | 1/8 | 3.17 | 1/4 | 2.28 | | 17.0 | 7/16 | 11.11 | 12.70 | 15.24 | 20.8 | 27.4 | 22.4 | |
| ITRF3-2N | 3/16 | 4.76 | 1/8 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 18.8 | 25.4 | 19.1 | |
| ITRF4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.6 | 26.9 | 19.1 | |
| ITRF4-4N | 1/4 | 6.35 | 1/4 | 4.82 | | 17.0 | 9/16 | 14.28 | 15.24 | 17.78 | 22.3 | 29.6 | 22.4 | |
| ITRF4-6N | 1/4 | 6.35 | 3/8 | 4.82 | 13/16 | 20.64 | 9/16 | 14.28 | 15.24 | 17.78 | 24.3 | 31.6 | 22.4 | |
| ITRF4-8N | 1/4 | 6.35 | 1/2 | 4.82 | | 27.0 | 9/16 | 14.28 | 15.24 | 17.78 | 27.2 | 34.5 | 28.4 | |
| ITRF5-2N | 5/16 | 7.93 | 1/8 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.3 | 28.6 | 19.1 | |
| ITRF5-4N | 5/16 | 7.93 | 1/4 | 6.35 | | 17.0 | 5/8 | 15.87 | 16.25 | 18.54 | 23.1 | 30.4 | 22.4 | |
| ITRF6-2N | 3/8 | 9.52 | 1/8 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 19.1 | |
| ITRF6-4N | 3/8 | 9.52 | 1/4 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.9 | 31.2 | 22.4 | |
| ITRF6-6N | 3/8 | 9.52 | 3/8 | 7.11 | 13/16 | 20.64 | 11/16 | 17.46 | 16.76 | 19.30 | 25.9 | 33.2 | 22.4 | |
| ITRF6-8N | 3/8 | 9.52 | 1/2 | 7.11 | | 27.0 | 11/16 | 17.46 | 16.76 | 19.30 | 28.8 | 36.1 | 28.4 | |
| ITRF8-4N | 1/2 | 12.70 | 1/4 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 22.4 | |
| ITRF8-6N | 1/2 | 12.70 | 3/8 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 22.4 | |
| ITRF8-8N | 1/2 | 12.70 | 1/2 | 10.41 | | 27.0 | 7/8 | 22.22 | 22.86 | 21.84 | 28.8 | 38.9 | 28.4 | |
| ITRF10-6N | 5/8 | 15.87 | 3/8 | 12.70 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.0 | 38.1 | 22.4 | |
| ITRF10-8N | 5/8 | 15.87 | 1/2 | 12.70 | | 27.0 | 1 | 25.40 | 24.38 | 21.84 | 28.0 | 38.1 | 28.4 | |
| ITRF12-8N | 3/4 | 19.05 | 1/2 | 15.74 | | 27.0 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.7 | 39.8 | 28.4 | |
| ITRF12-12N | 3/4 | 19.05 | 3/4 | 15.74 | | 32.0 | 1-1/8 | 28.58 | 24.38 | 21.84 | 34.5 | 44.6 | 31.8 | |
| ITRF14-12N | 7/8 | 22.22 | 3/4 | 18.28 | | 32.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.5 | 44.6 | 34.5 | |
| ITRF16-12N | 1 | 25.40 | 3/4 | 22.35 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.8 | 49.0 | 36.8 | |
| ITRF16-16N | 1 | 25.40 | 1 | 22.35 | | 41.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 38.1 | 50.3 | 38.1 | |

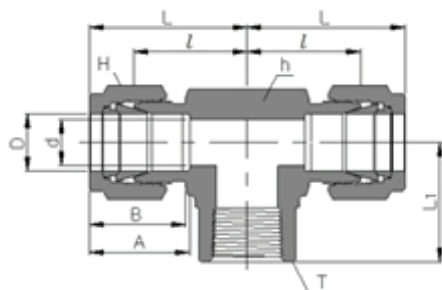
Connects Metric Tube To Male NPT Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | | A | B | ℓ | L | L ₁ |
|------------|-----------|--|-------|------|-------------------|----|------|------|------|------|------|----------------|
| | D | | | | h | H | | | | | | |
| | | | (NPT) | Min. | h | H | | | | | | |
| ITRF6M-2N | 6 | | 1/8 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 19.1 | |
| ITRF6M-4N | 6 | | 1/4 | 4.8 | 17.0 | 14 | 15.3 | 17.7 | 22.3 | 29.6 | 22.4 | |
| ITRF6M-6N | 6 | | 3/8 | 4.8 | 20.6 | 14 | 15.3 | 17.7 | 24.8 | 32.1 | 22.4 | |
| ITRF6M-8N | 6 | | 1/2 | 4.8 | 27.0 | 14 | 15.3 | 17.7 | 27.8 | 35.1 | 28.4 | |
| ITRF8M-2N | 8 | | 1/8 | 6.3 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 28.6 | 21.3 | |
| ITRF8M-4N | 8 | | 1/4 | 6.3 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 28.6 | 22.4 | |
| ITRF8M-8N | 8 | | 1/2 | 6.3 | 27.0 | 16 | 16.2 | 18.6 | 28.6 | 35.9 | 28.4 | |
| ITRF10M-2N | 10 | | 1/8 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.4 | |
| ITRF10M-4N | 10 | | 1/4 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.4 | |
| ITRF10M-6N | 10 | | 3/8 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.4 | |
| ITRF10M-8N | 10 | | 1/2 | 7.9 | 27.0 | 19 | 17.2 | 19.5 | 29.4 | 37.0 | 28.4 | |
| ITRF12M-4N | 12 | | 1/4 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 26.4 | 36.5 | 22.4 | |
| ITRF12M-6N | 12 | | 3/8 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 26.4 | 39.5 | 28.4 | |
| ITRF12M-8N | 12 | | 1/2 | 9.5 | 27.0 | 22 | 22.8 | 22.0 | 29.4 | 38.8 | 28.4 | |
| ITRF16M-8N | 16 | | 1/2 | 12.7 | 27.0 | 25 | 24.4 | 22.0 | 29.4 | 39.5 | 28.4 | |

TUBE TO THREAD

ITBF-N

FEMALE BRANCH TEE



Connects Fractional Tube To Male NPT Thread

| Part No. | Tube O.D. | | T NPT | d Min. | Width across flat | | | | A | B | ℓ | L | L ₁ |
|------------|-----------|-------|----------|-----------|-------------------|-------|-------|-------|-------|-------|------|------|----------------|
| | in | mm | | | h | in | mm | in | | | | | |
| ITBF2-2N | 1/8 | 3.17 | 1/8 | 2.28 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 18.1 | 24.7 | 19.1 |
| ITBF2-4N | 1/8 | 3.17 | 1/4 | 2.28 | | 17.0 | 7/16 | 11.11 | 12.70 | 15.24 | 20.8 | 27.4 | 22.4 |
| ITBF3-2N | 3/16 | 4.76 | 1/8 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 18.8 | 25.4 | 19.1 |
| ITBF4-2N | 1/4 | 6.35 | 1/8 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.6 | 26.9 | 19.1 |
| ITBF4-4N | 1/4 | 6.35 | 1/4 | 4.82 | | 17.0 | 9/16 | 14.28 | 15.24 | 17.78 | 22.3 | 29.6 | 22.4 |
| ITBF4-6N | 1/4 | 6.35 | 3/8 | 4.82 | 13/16 | 20.64 | 9/16 | 14.28 | 15.24 | 17.78 | 24.3 | 31.6 | 22.4 |
| ITBF4-8N | 1/4 | 6.35 | 1/2 | 4.82 | | 27.0 | 9/16 | 14.28 | 15.24 | 17.78 | 27.2 | 34.5 | 28.4 |
| ITBF5-2N | 5/16 | 7.93 | 1/8 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.3 | 28.6 | 19.1 |
| ITBF5-4N | 5/16 | 7.93 | 1/4 | 6.35 | | 17.0 | 5/8 | 15.87 | 16.25 | 18.54 | 23.1 | 30.4 | 22.4 |
| ITBF6-2N | 3/8 | 9.52 | 1/8 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 30.4 | 19.1 |
| ITBF6-4N | 3/8 | 9.52 | 1/4 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.9 | 31.2 | 22.4 |
| ITBF6-6N | 3/8 | 9.52 | 3/8 | 7.11 | 13/16 | 20.64 | 11/16 | 17.46 | 16.76 | 19.30 | 25.9 | 33.2 | 22.4 |
| ITBF6-8N | 3/8 | 9.52 | 1/2 | 7.11 | | 27.0 | 11/16 | 17.46 | 16.76 | 19.30 | 28.8 | 36.1 | 28.4 |
| ITBF8-4N | 1/2 | 12.70 | 1/4 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 22.4 |
| ITBF8-6N | 1/2 | 12.70 | 3/8 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.9 | 36.0 | 22.4 |
| ITBF8-8N | 1/2 | 12.70 | 1/2 | 10.41 | | 27.0 | 7/8 | 22.22 | 22.86 | 21.84 | 28.8 | 38.9 | 28.4 |
| ITBF10-6N | 5/8 | 15.87 | 3/8 | 12.70 | | 24.0 | 1 | 25.40 | 24.38 | 21.84 | 28.0 | 38.1 | 22.4 |
| ITBF10-8N | 5/8 | 15.87 | 1/2 | 12.70 | | 27.0 | 1 | 25.40 | 24.38 | 21.84 | 28.0 | 38.1 | 28.4 |
| ITBF12-8N | 3/4 | 19.05 | 1/2 | 15.74 | | 27.0 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.7 | 39.8 | 28.4 |
| ITBF12-12N | 3/4 | 19.05 | 3/4 | 15.74 | | 32.0 | 1-1/8 | 28.58 | 24.38 | 21.84 | 34.5 | 44.6 | 31.8 |
| ITBF14-12N | 7/8 | 22.22 | 3/4 | 18.28 | | 32.0 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.5 | 44.6 | 34.5 |
| ITBF16-12N | 1 | 25.40 | 3/4 | 22.35 | | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.8 | 49.0 | 36.8 |
| ITBF16-16N | 1 | 25.40 | 1 | 22.35 | | 41.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 38.1 | 50.3 | 38.1 |

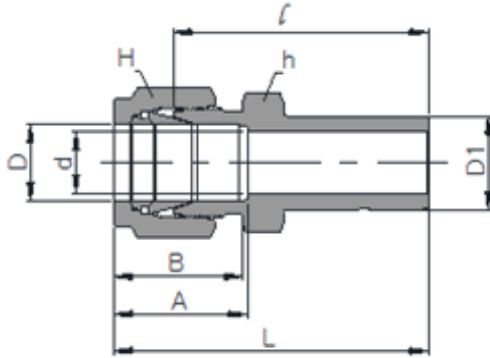
Connects Metric Tube To Male NPT Thread

| Part No. | Tube O.D. | | T NPT | d Min. | Width across flat | | A | B | ℓ | L | L ₁ |
|------------|-----------|--|----------|-----------|-------------------|----|------|------|------|------|----------------|
| | D | | | | h | H | | | | | |
| ITBF6M-2N | 6 | | 1/8 | 4.8 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 26.9 | 19.1 |
| ITBF6M-4N | 6 | | 1/4 | 4.8 | 17.0 | 14 | 15.3 | 17.7 | 22.3 | 29.6 | 22.40 |
| ITBF6M-6N | 6 | | 3/8 | 4.8 | 20.6 | 14 | 15.3 | 17.7 | 24.8 | 32.1 | 22.40 |
| ITBF6M-8N | 6 | | 1/2 | 4.8 | 27.0 | 14 | 15.3 | 17.7 | 27.8 | 35.1 | 28.40 |
| ITBF8M-2N | 8 | | 1/8 | 6.3 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 28.6 | 21.3 |
| ITBF8M-4N | 8 | | 1/4 | 6.3 | 17.0 | 16 | 16.2 | 18.6 | 23.1 | 28.6 | 22.40 |
| ITBF8M-8N | 8 | | 1/2 | 6.3 | 27.0 | 16 | 16.2 | 18.6 | 28.6 | 35.9 | 28.40 |
| ITBF10M-2N | 10 | | 1/8 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.40 |
| ITBF10M-4N | 10 | | 1/4 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.40 |
| ITBF10M-6N | 10 | | 3/8 | 7.9 | 20.6 | 19 | 17.2 | 19.5 | 26.4 | 34.0 | 22.40 |
| ITBF10M-8N | 10 | | 1/2 | 7.9 | 27.0 | 19 | 17.2 | 19.5 | 29.4 | 37.0 | 28.4 |
| ITBF12M-4N | 12 | | 1/4 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 26.4 | 36.5 | 22.40 |
| ITBF12M-6N | 12 | | 3/8 | 9.5 | 20.6 | 22 | 22.8 | 22.0 | 26.4 | 39.5 | 28.4 |
| ITBF12M-8N | 12 | | 1/2 | 9.5 | 27.0 | 22 | 22.8 | 22.0 | 29.4 | 38.8 | 28.40 |
| ITBF16M-8N | 16 | | 1/2 | 12.7 | 27.0 | 25 | 24.4 | 22.0 | 29.4 | 39.5 | 28.40 |

STUB TUBE CONNECTOR

IR

PORT REDUCER



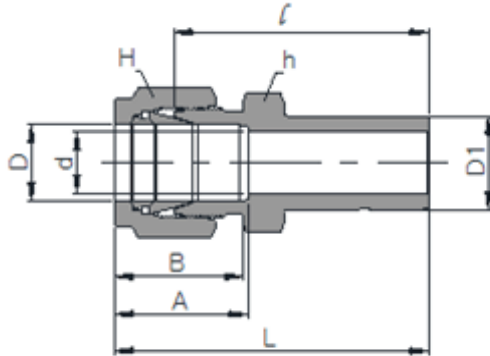
Connects Fractional Tube To Fractional I Tube Fitting Port

| Part No. | Tube O.D. | | | | Width across flat | | | | | | | | |
|----------|-----------|---------|----------------------|----------------------|-------------------|---------|---------|---------|---------|-------|-------|--------|--------|
| | D in | D mm | D ₁ in | D ₁ mm | d Min. | h in | h mm | H in | H mm | A | B | l | L |
| IR1-2 | 1/16 | 1.59 | 1/8 | 3.17 | 1.27 | 5/16 | 7.93 | 5/16 | 7.93 | 8.63 | 10.92 | 25.40 | 29.21 |
| IR1-4 | 1/16 | 1.59 | 1/4 | 6.35 | 1.27 | 5/16 | 7.93 | 5/16 | 7.93 | 8.63 | 10.92 | 27.68 | 31.49 |
| IR2-1 | 1/8 | 3.17 | 1/16 | 1.59 | 0.76 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 22.35 | 28.95 |
| IR2-2 | 1/8 | 3.17 | 1/8 | 3.17 | 2.03 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 26.92 | 33.52 |
| IR2-3 | 1/8 | 3.17 | 3/16 | 4.76 | 2.28 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 27.68 | 34.29 |
| IR2-4 | 1/8 | 3.17 | 1/4 | 6.35 | 2.28 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 29.46 | 36.06 |
| IR2-6 | 1/8 | 3.17 | 3/8 | 9.52 | 2.28 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 30.98 | 37.59 |
| IR2-8 | 1/8 | 3.17 | 1/2 | 12.70 | 2.28 | 9/16 | 14.28 | 7/16 | 11.11 | 12.70 | 15.24 | 37.59 | 44.19 |
| IR3-2 | 3/16 | 4.76 | 1/8 | 3.17 | 1.70 | 7/16 | 11.11 | 1/2 | 12.70 | 13.71 | 16.00 | 28.19 | 34.79 |
| IR3-4 | 3/16 | 4.76 | 1/4 | 6.35 | 3.04 | 7/16 | 11.11 | 1/2 | 12.70 | 13.71 | 16.00 | 30.48 | 37.08 |
| IR4-2 | 1/4 | 6.35 | 1/8 | 3.17 | 2.03 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 29.46 | 36.83 |
| IR4-3 | 1/4 | 6.35 | 3/16 | 4.76 | 3.04 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 30.22 | 37.59 |
| IR4-4 | 1/4 | 6.35 | 1/4 | 6.35 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 31.75 | 39.11 |
| IR4-5 | 1/4 | 6.35 | 5/16 | 7.93 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 32.51 | 39.87 |
| IR4-6 | 1/4 | 6.35 | 3/8 | 9.52 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 33.27 | 40.64 |
| IR4-8 | 1/4 | 6.35 | 1/2 | 12.70 | 4.82 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 38.86 | 46.22 |
| IR4-10 | 1/4 | 6.35 | 5/8 | 15.87 | 4.82 | 11/16 | 17.46 | 9/16 | 14.28 | 15.24 | 17.78 | 40.64 | 48.00 |
| IR4-12 | 1/4 | 6.35 | 3/4 | 19.05 | 4.82 | 13/16 | 20.64 | 9/16 | 14.28 | 15.24 | 17.78 | 40.38 | 47.75 |
| IR5-6 | 5/16 | 7.93 | 3/8 | 9.52 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 34.54 | 41.91 |
| IR5-8 | 5/16 | 7.93 | 1/2 | 12.70 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 40.13 | 47.49 |
| IR6-4 | 3/8 | 9.52 | 1/4 | 6.35 | 4.82 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 34.03 | 41.40 |
| IR6-6 | 3/8 | 9.52 | 3/8 | 9.52 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 35.81 | 43.18 |
| IR6-8 | 3/8 | 9.52 | 1/2 | 12.70 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 41.14 | 48.51 |
| IR6-10 | 3/8 | 9.52 | 5/8 | 15.87 | 7.11 | 11/16 | 17.46 | 11/16 | 17.46 | 16.76 | 19.30 | 42.92 | 50.29 |
| IR6-12 | 3/8 | 9.52 | 3/4 | 19.05 | 7.11 | 13/16 | 20.64 | 11/16 | 17.46 | 16.76 | 19.30 | 42.92 | 50.29 |
| IR8-4 | 1/2 | 12.70 | 1/4 | 6.35 | 4.82 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 34.79 | 44.95 |
| IR8-6 | 1/2 | 12.70 | 3/8 | 9.52 | 7.11 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 36.57 | 46.73 |
| IR8-8 | 1/2 | 12.70 | 1/2 | 12.70 | 9.40 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 42.16 | 52.32 |
| IR8-10 | 1/2 | 12.70 | 5/8 | 15.87 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 43.68 | 53.84 |
| IR8-12 | 1/2 | 12.70 | 3/4 | 19.05 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 43.68 | 53.84 |
| IR8-16 | 1/2 | 12.70 | 1 | 25.40 | 10.41 | 1-1/16 | 26.98 | 7/8 | 22.22 | 22.86 | 21.84 | 50.03 | 60.19 |
| IR10-12 | 5/8 | 15.87 | 3/4 | 19.05 | 12.70 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 44.45 | 54.61 |
| IR10-14 | 5/8 | 15.87 | 7/8 | 22.22 | 12.70 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 45.97 | 56.13 |
| IR10-16 | 5/8 | 15.87 | 1 | 25.40 | 12.70 | 1-1/16 | 26.98 | 1 | 25.40 | 24.38 | 21.84 | 50.80 | 60.96 |
| IR12-8 | 3/4 | 19.05 | 1/2 | 12.70 | 9.40 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 24.38 | 21.84 | 44.45 | 54.61 |
| IR12-16 | 3/4 | 19.05 | 1 | 25.40 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 24.38 | 21.84 | 52.32 | 62.48 |
| IR16-20 | 1 | 25.40 | 1-1/4 | 31.75 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 68.32 | 80.51 |
| IR16-24 | 1 | 25.40 | 1-1/2 | 38.10 | 22.35 | 1-5/8 | 41.28 | 1-1/2 | 38.10 | 31.24 | 26.41 | 76.96 | 89.15 |
| IR16-32 | 1 | 25.40 | 2 | 50.80 | 22.35 | 2-1/8 | 53.98 | 1-1/2 | 38.10 | 31.24 | 26.41 | 100.33 | 112.52 |
| IR20-24 | 1-1/4 | 31.75 | 1-1/2 | 38.10 | 27.68 | 1-3/4 | 44.45 | 1-7/8 | 47.62 | 41.14 | 38.86 | 82.04 | 104.14 |
| IR20-32 | 1-1/4 | 31.75 | 2 | 50.80 | 27.68 | 2-1/8 | 53.97 | 1-7/8 | 47.62 | 41.14 | 38.86 | 103.12 | 125.22 |
| IR24-32 | 1-1/2 | 38.10 | 2 | 50.80 | 34.03 | 2-1/4 | 57.15 | 2-1/4 | 57.15 | 50.03 | 45.21 | 104.14 | 131.31 |

STUB TUBE CONNECTOR

IR

PORT REDUCER



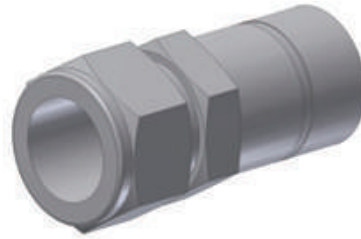
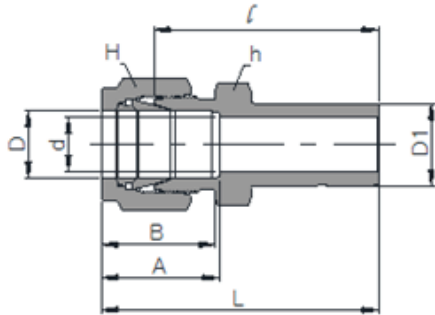
Connects Metric Tube To Metric I Tube FittingPort

| Part No. | Tube O.D. | | d Min. | Width across flat | | A | B | l | L |
|-----------|-----------|----------------|-----------|-------------------|----|------|------|------|------|
| | D | D ₁ | | h | H | | | | |
| IR2M-3M | 2 | 3 | 1.7 | 12 | 12 | 12.9 | 15.3 | 26.9 | 35.3 |
| IR3M-4M | 3 | 4 | 2.2 | 12 | 12 | 12.9 | 15.3 | 28.4 | 35.0 |
| IR3M-6M | 3 | 6 | 2.4 | 12 | 12 | 12.9 | 15.3 | 29.5 | 36.1 |
| IR3M-10M | 3 | 10 | 2.4 | 12 | 12 | 12.9 | 15.3 | 31.8 | 38.4 |
| IR4M-6M | 4 | 6 | 2.4 | 12 | 12 | 13.7 | 16.1 | 30.5 | 37.1 |
| IR6M-3M | 6 | 3 | 1.9 | 14 | 14 | 15.3 | 17.7 | 29.5 | 36.9 |
| IR6M-8M | 6 | 8 | 4.8 | 14 | 14 | 15.3 | 17.7 | 32.5 | 39.9 |
| IR6M-10M | 6 | 10 | 4.8 | 14 | 14 | 15.3 | 17.7 | 33.3 | 40.7 |
| IR6M-12M | 6 | 12 | 4.8 | 14 | 14 | 15.3 | 17.7 | 38.9 | 46.3 |
| IR8M-6M | 8 | 6 | 4.1 | 14 | 16 | 16.2 | 18.6 | 32.8 | 40.3 |
| IR8M-10M | 8 | 10 | 6.3 | 14 | 16 | 16.2 | 18.6 | 34.5 | 42.0 |
| IR8M-12M | 8 | 12 | 6.3 | 14 | 16 | 16.2 | 18.6 | 40.1 | 47.6 |
| IR10M-6M | 10 | 6 | 4.1 | 17 | 19 | 17.2 | 19.5 | 34.8 | 42.4 |
| IR10M-12M | 10 | 12 | 7.9 | 17 | 19 | 17.2 | 19.5 | 42.2 | 49.8 |
| IR10M-15M | 10 | 15 | 7.9 | 17 | 19 | 17.2 | 19.5 | 43.7 | 51.3 |
| IR10M-18M | 10 | 18 | 7.9 | 19 | 19 | 17.2 | 19.5 | 43.7 | 51.3 |
| IR12M-6M | 12 | 6 | 4.1 | 22 | 22 | 22.8 | 22.0 | 34.8 | 44.9 |
| IR12M-10M | 12 | 10 | 7.1 | 22 | 22 | 22.8 | 22.0 | 36.6 | 46.7 |
| IR12M-16M | 12 | 16 | 9.5 | 22 | 22 | 22.8 | 22.0 | 43.7 | 53.8 |
| IR12M-18M | 12 | 18 | 9.5 | 22 | 22 | 22.8 | 22.0 | 43.7 | 53.8 |
| IR12M-20M | 12 | 20 | 9.5 | 22 | 22 | 22.8 | 22.0 | 46.0 | 56.1 |
| IR12M-22M | 12 | 22 | 9.5 | 24 | 22 | 22.8 | 22.0 | 46.0 | 56.1 |
| IR12M-25M | 12 | 25 | 9.5 | 27 | 22 | 22.8 | 22.0 | 52.3 | 62.4 |
| IR16M-12M | 16 | 12 | 8.8 | 24 | 25 | 24.4 | 22.0 | 42.9 | 53.0 |
| IR18M-12M | 18 | 12 | 8.8 | 27 | 30 | 24.4 | 22.0 | 44.5 | 54.6 |
| IR18M-16M | 18 | 16 | 12.0 | 27 | 30 | 24.4 | 22.0 | 46.0 | 56.1 |
| IR18M-20M | 18 | 20 | 15.1 | 27 | 30 | 24.4 | 22.0 | 47.5 | 57.6 |
| IR18M-22M | 18 | 22 | 15.1 | 27 | 30 | 24.4 | 22.0 | 47.5 | 57.6 |
| IR18M-25M | 18 | 25 | 15.1 | 27 | 30 | 24.4 | 22.0 | 52.3 | 62.4 |
| IR20M-16M | 20 | 16 | 12.0 | 30 | 32 | 26.0 | 22.0 | 47.8 | 57.9 |
| IR20M-18M | 20 | 18 | 13.9 | 30 | 32 | 26.0 | 22.0 | 47.8 | 57.9 |
| IR20M-22M | 20 | 22 | 15.9 | 30 | 32 | 26.0 | 22.0 | 49.3 | 59.4 |
| IR20M-25M | 20 | 25 | 15.9 | 30 | 32 | 26.0 | 22.0 | 54.1 | 64.2 |
| IR22M-18M | 22 | 18 | 13.9 | 30 | 32 | 26.0 | 22.0 | 47.8 | 57.9 |
| IR22M-20M | 22 | 20 | 15.5 | 30 | 32 | 26.0 | 22.0 | 49.3 | 59.4 |
| IR22M-25M | 22 | 25 | 18.3 | 30 | 32 | 26.0 | 22.0 | 54.1 | 64.2 |
| IR25M-18M | 25 | 18 | 13.9 | 35 | 38 | 31.3 | 26.5 | 50.8 | 63.1 |
| IR25M-20M | 25 | 20 | 15.5 | 35 | 38 | 31.3 | 26.5 | 52.3 | 64.6 |

STUB TUBE CONNECTOR

IR

PORT REDUCER

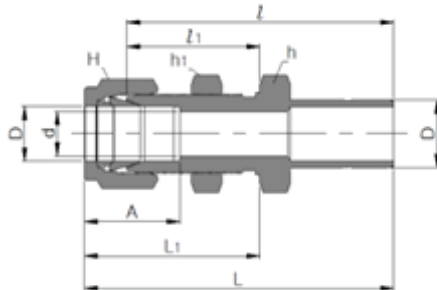


Connects Metric Tube To Fractional I Tube Fittingport

| Part No. | Tube O.D. | | d | Width across flat | | | A | B | l | L |
|----------|-----------|----------------|-------|-------------------|----|----|------|------|------|------|
| | D | D ₁ | | Min. | h | H | | | | |
| IR2M-2 | 2 | 1/8 | 3.17 | 1.7 | 12 | 12 | 12.9 | 15.3 | 26.9 | 33.5 |
| IR3M-2 | 3 | 1/8 | 3.17 | 2.0 | 12 | 12 | 12.9 | 15.3 | 26.9 | 33.5 |
| IR3M-4 | 3 | 1/4 | 6.35 | 2.4 | 12 | 12 | 12.9 | 15.3 | 29.5 | 36.1 |
| IR4M-4 | 4 | 1/4 | 6.35 | 2.4 | 12 | 12 | 13.7 | 16.1 | 30.5 | 37.1 |
| IR6M-2 | 6 | 1/8 | 3.18 | 2.0 | 14 | 14 | 15.3 | 17.7 | 29.5 | 36.9 |
| IR6M-4 | 6 | 1/4 | 6.35 | 4.3 | 14 | 14 | 15.3 | 17.7 | 31.8 | 39.2 |
| IR6M-5 | 6 | 5/16 | 7.93 | 4.8 | 14 | 14 | 15.3 | 17.7 | 32.5 | 39.9 |
| IR6M-6 | 6 | 3/8 | 9.52 | 4.8 | 14 | 14 | 15.3 | 17.7 | 33.3 | 40.7 |
| IR6M-8 | 6 | 1/2 | 12.70 | 4.8 | 14 | 14 | 15.3 | 17.7 | 38.9 | 46.3 |
| IR8M-6 | 8 | 3/8 | 9.52 | 6.3 | 14 | 16 | 16.2 | 18.6 | 34.5 | 42.0 |
| IR8M-8 | 8 | 1/2 | 12.70 | 6.3 | 14 | 16 | 16.2 | 18.6 | 40.1 | 47.6 |
| IR10M-6 | 10 | 3/8 | 9.52 | 6.9 | 17 | 19 | 17.2 | 19.5 | 36.6 | 44.2 |
| IR10M-8 | 10 | 1/2 | 12.70 | 7.9 | 17 | 19 | 17.2 | 19.5 | 42.2 | 49.8 |
| IR12M-8 | 12 | 1/2 | 12.70 | 9.4 | 22 | 22 | 22.8 | 22.0 | 42.2 | 52.3 |
| IR12M-12 | 12 | 3/4 | 19.05 | 9.4 | 22 | 22 | 22.8 | 22.0 | 43.7 | 53.8 |
| IR18M-12 | 18 | 3/4 | 19.05 | 14.7 | 27 | 30 | 24.4 | 22.0 | 46.0 | 56.1 |
| IR18M-16 | 18 | 1 | 25.40 | 15.1 | 27 | 30 | 24.4 | 22.0 | 52.3 | 62.4 |
| IR25M-16 | 25 | 1 | 25.40 | 20.0 | 35 | 38 | 31.3 | 26.5 | 57.2 | 69.5 |

IBR

BULKHEAD REDUCER



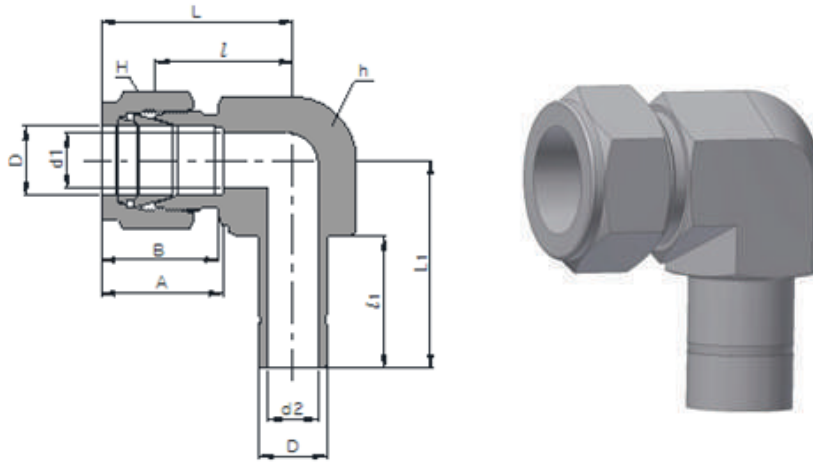
Connects Fractional Tube To Fractional I Tube FittingPort

| Part No. | Tube O.D. | | d | Width across flat | | | A | l | L | L ₁ | Panel Hole Drill size | Panel Max Thickness | | |
|----------|-----------|----------------|-------|-------------------|-------|----------------|-------|-------|-------|----------------|-----------------------|---------------------|-------|-------|
| | D | D ₁ | | Min. | h | h ₁ | | | | | | | | |
| IBR2-2 | 1/8 | 3.17 | 2.03 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 42.92 | 24.63 | 49.53 | 31.24 | 8.33 | 12.70 |
| IBR4-4 | 1/4 | 6.35 | 4.32 | 5/8 | 15.87 | 9/16 | 14.28 | 15.24 | 48.51 | 26.16 | 55.88 | 33.52 | 11.50 | 10.16 |
| IBR6-6 | 3/8 | 9.52 | 6.86 | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 53.84 | 29.64 | 61.21 | 36.83 | 14.68 | 11.17 |
| IBR8-8 | 1/2 | 12.70 | 9.40 | 15/16 | 23.81 | 7/8 | 22.22 | 22.86 | 62.73 | 31.75 | 72.89 | 41.91 | 19.44 | 12.70 |
| IBR10-10 | 5/8 | 15.87 | 11.94 | 1-1/16 | 26.98 | 1 | 25.4 | 24.38 | 65.02 | 32.51 | 75.18 | 42.67 | 22.62 | 12.70 |
| IBR16-16 | 1 | 25.4 | 20.32 | 1-5/8 | 41.27 | 1-1/2 | 38.1 | 31.24 | 88.13 | 45.21 | 100.33 | 57.40 | 33.73 | 19.05 |

STUB TUBE CONNECTOR

ILA

ELBOW TUBE ADAPTER



Connects Fractional Tube To Fractional I Tube Fittingport

| Part No. | Tube O.D. D | | d1 | d2 | Width across flat | | A | B | l | a | L | L1 | |
|----------|----------------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | in | mm | Min. | in | h | H | | | | | | | |
| ILA-1 | 1/16 | 1.58 | 1.27 | 0.76 | 3/8 | 9.52 | 5/16 | 7.93 | 8.63 | 10.92 | 14.00 | 22.30 | 16.00 |
| ILA-2 | 1/8 | 3.17 | 2.28 | 2.03 | 3/8 | 9.52 | 7/16 | 11.11 | 12.70 | 15.24 | 15.74 | 22.30 | 20.59 |
| ILA-3 | 3/16 | 4.76 | 3.04 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.78 | 25.40 | 22.48 |
| ILA-4 | 1/4 | 6.35 | 4.82 | 4.32 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.55 | 27.0 | 25.0 |
| ILA-5 | 5/16 | 7.93 | 6.35 | 5.59 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.33 | 28.80 | 27.08 |
| ILA-6 | 3/8 | 9.52 | 7.11 | 6.86 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 23.11 | 31.5 | 26.0 |
| ILA-8 | 1/2 | 12.70 | 10.41 | 9.40 | 13/16 | 20.63 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 36.0 | 37.3 |
| ILA-10 | 5/8 | 15.87 | 12.70 | 11.94 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 28.70 | 38.80 | 41.75 |
| ILA-12 | 3/4 | 19.05 | 15.74 | 14.73 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 24.38 | 21.84 | 29.71 | 42.60 | 42.60 |
| ILA-14 | 7/8 | 22.22 | 18.28 | 18.28 | 1-3/16 | 30.00 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.54 | 49.39 | 49.39 |
| ILA-16 | 1 | 25.40 | 22.35 | 20.32 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.83 | 55.60 | 55.60 |

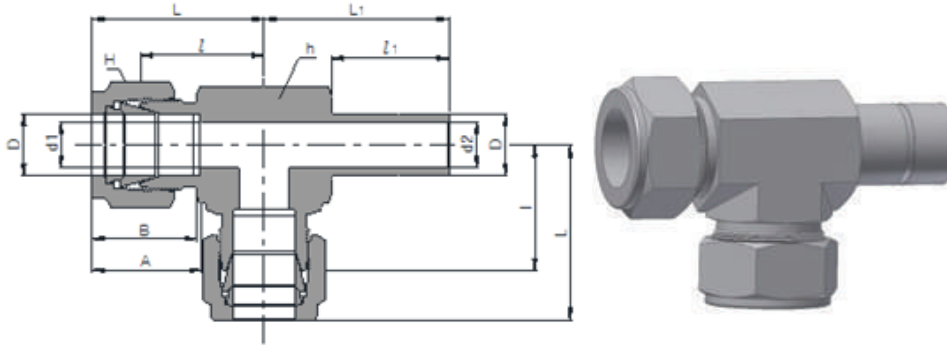
Connects Metric Tube To Metric I Tube Fittingport

| Part No. | Tube O.D. D | | d1 | d2 | Width across flat | | A | B | l | a | L | L1 |
|----------|----------------|------|------|------|-------------------|------|------|------|------|------|------|----|
| | Min. | h | H | | | | | | | | | |
| ILA-6M | 6 | 4.8 | 4.1 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 15.8 | 26.9 | 25.1 | |
| ILA-8M | 8 | 6.3 | 5.6 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 16.8 | 28.6 | 27.0 | |
| ILA-10M | 10 | 7.9 | 7.1 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 17.8 | 31.5 | 29.8 | |
| ILA-12M | 12 | 9.5 | 8.8 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 23.4 | 36.0 | 37.4 | |
| ILA-14M | 14 | 11.1 | 10.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25.1 | 38.8 | 41.9 | |
| ILA-15M | 15 | 12.0 | 11.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25.1 | 38.8 | 41.9 | |
| ILA-16M | 16 | 12.7 | 12.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25 | 38.8 | 41.9 | |
| ILA-18M | 18 | 15.1 | 13.9 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 25.1 | 39.8 | 42.9 | |
| ILA-20M | 20 | 15.9 | 15.2 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 26.6 | 42.6 | 47.2 | |
| ILA-22M | 22 | 18.3 | 17.0 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 26.7 | 42.6 | 47.3 | |
| ILA-25M | 25 | 21.8 | 20.0 | 36.0 | 41 | 31.3 | 26.5 | 36.8 | 31.7 | 49.0 | 54.2 | |
| ILA-28M | 28 | 24.0 | 22.5 | 41.0 | 46 | 36.6 | 36.6 | 44.7 | 39.1 | 65.6 | 68.0 | |

STUB TUBE CONNECTOR

ITRA

RUN TEE TUBE ADAPTER



Connects Fractional Tube To Fractional I Tube Fittingport

| Part No. | Tube O.D. D | | d1 Min. | d2 | Width across flat | | | | A | B | l | a | L | L1 |
|----------|----------------|-------|------------|-------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | in | mm | | | in | h | H | mm | | | | | | |
| ITRA-1 | 1/16 | 1.58 | 1.27 | 0.76 | 3/8 | 9.52 | 5/16 | 7.93 | 8.63 | 10.92 | 14.00 | | 22.30 | 16.00 |
| ITRA-2 | 1/8 | 3.17 | 2.28 | 2.03 | 3/8 | 9.52 | 7/16 | 11.11 | 12.70 | 15.24 | 15.74 | 13.45 | 22.30 | 20.59 |
| ITRA-3 | 3/16 | 4.76 | 3.04 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.78 | 14.20 | 25.40 | 22.48 |
| ITRA-4 | 1/4 | 6.35 | 4.82 | 4.32 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.55 | 15.75 | 27.0 | 25.0 |
| ITRA-5 | 5/16 | 7.93 | 6.35 | 5.59 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.33 | 16.80 | 28.80 | 27.08 |
| ITRA-6 | 3/8 | 9.52 | 7.11 | 6.86 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 23.11 | 17.50 | 31.5 | 26.0 |
| ITRA-8 | 1/2 | 12.70 | 10.41 | 9.40 | 13/16 | 20.63 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 23.20 | 36.0 | 37.3 |
| ITRA-10 | 5/8 | 15.87 | 12.70 | 11.94 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 28.70 | 24.70 | 38.80 | 41.75 |
| ITRA-12 | 3/4 | 19.05 | 15.74 | 14.73 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 24.38 | 21.84 | 29.71 | 24.70 | 38.80 | 42.60 |
| ITRA-14 | 7/8 | 22.22 | 18.28 | 18.28 | 1-3/16 | 30.00 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.54 | 26.70 | 39.80 | 49.39 |
| ITRA-16 | 1 | 25.40 | 22.35 | 20.32 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.83 | 31.70 | 49.02 | 55.60 |

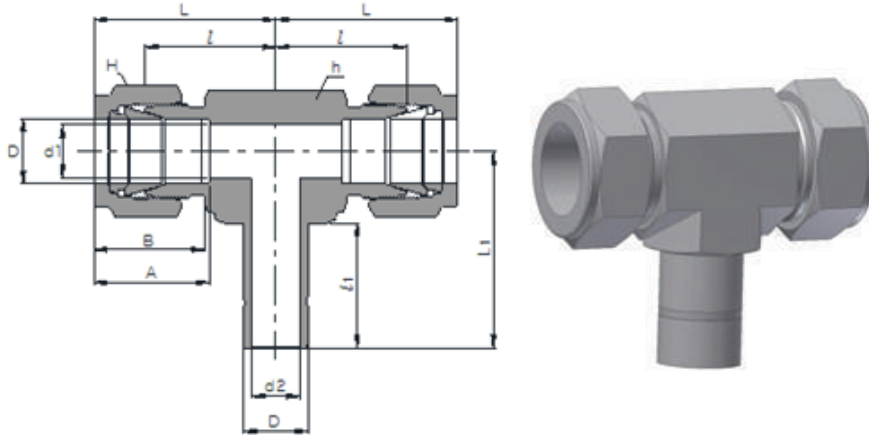
Connects Metric Tube To Metric I Tube Fittingport.

| Part No. | Tube O.D. D | d1 Min. | d2 | Width across flat | | A | B | l | a | L | L1 |
|----------|----------------|------------|------|-------------------|----|------|------|------|------|------|------|
| | | | | h | H | | | | | | |
| ITRA-6M | 6 | 4.8 | 4.1 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 15.8 | 26.9 | 25.1 |
| ITRA-8M | 8 | 6.3 | 5.6 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 16.8 | 28.6 | 27.0 |
| ITRA-10M | 10 | 7.9 | 7.1 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 17.8 | 31.5 | 29.8 |
| ITRA-12M | 12 | 9.5 | 8.8 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 23.4 | 36.0 | 37.4 |
| ITRA-14M | 14 | 11.1 | 10.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25.1 | 38.8 | 41.9 |
| ITRA-15M | 15 | 12.0 | 11.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25.1 | 38.8 | 41.9 |
| ITRA-16M | 16 | 12.7 | 12.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25 | 38.8 | 41.9 |
| ITRA-18M | 18 | 15.1 | 13.9 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 25.1 | 39.8 | 42.9 |
| ITRA-20M | 20 | 15.9 | 15.2 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 26.6 | 42.6 | 47.2 |
| ITRA-22M | 22 | 18.3 | 17.0 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 26.7 | 42.6 | 47.3 |
| ITRA-25M | 25 | 21.8 | 20.0 | 36.0 | 41 | 31.3 | 26.5 | 36.8 | 31.7 | 49.0 | 54.2 |
| ITRA-28M | 28 | 24.0 | 22.5 | 41.0 | 46 | 36.6 | 36.6 | 44.7 | 39.1 | 65.6 | 68.0 |

STUB TUBE CONNECTOR

ITBA

BRANCH TEE TUBE ADAPTER



Connects Fractional Tube To Fractional I Tube Fitting port.

| Part No. | Tube O.D. D | | d1 Min. | d2 | Width across flat | | H | A | B | l | α | L | L1 | |
|----------|----------------|-------|------------|-------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | in | mm | | | in | mm | | | | | | | | h |
| ITBA-1 | 1/16 | 1.58 | 1.27 | 0.76 | 3/8 | 9.52 | 5/16 | 7.93 | 8.63 | 10.92 | 14.00 | 22.30 | 16.00 | |
| ITBA-2 | 1/8 | 3.17 | 2.28 | 2.03 | 3/8 | 9.52 | 7/16 | 11.11 | 12.70 | 15.24 | 15.74 | 13.45 | 22.30 | 20.59 |
| ITBA-3 | 3/16 | 4.76 | 3.04 | 3.04 | 1/2 | 12.70 | 1/2 | 12.70 | 13.71 | 16.00 | 17.78 | 14.20 | 25.40 | 22.48 |
| ITBA-4 | 1/4 | 6.35 | 4.82 | 4.32 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.55 | 15.75 | 27.0 | 25.0 |
| ITBA-5 | 5/16 | 7.93 | 6.35 | 5.59 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 21.33 | 16.80 | 28.80 | 27.08 |
| ITBA-6 | 3/8 | 9.52 | 7.11 | 6.86 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 23.11 | 17.50 | 31.5 | 26.0 |
| ITBA-8 | 1/2 | 12.70 | 10.41 | 9.40 | 13/16 | 20.63 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 23.20 | 36.0 | 37.3 |
| ITBA-10 | 5/8 | 15.87 | 12.70 | 11.94 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 28.70 | 24.70 | 38.80 | 41.75 |
| ITBA-12 | 3/4 | 19.05 | 15.74 | 14.73 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 24.38 | 21.84 | 29.71 | 24.70 | 38.80 | 42.60 |
| ITBA-14 | 7/8 | 22.22 | 18.28 | 18.28 | 1-3/16 | 30.00 | 1-1/4 | 31.75 | 25.90 | 21.84 | 34.54 | 26.70 | 39.80 | 49.39 |
| ITBA-16 | 1 | 25.40 | 22.35 | 20.32 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.83 | 31.70 | 49.02 | 55.60 |

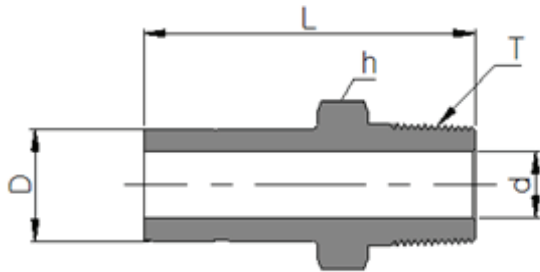
Connects Metric Tube To Metric I Tube Fitting port.

| Part No. | Tube O.D. D | | d1 Min. | d2 | Width across flat | | A | B | l | α | L | L1 |
|----------|----------------|------|------------|------|-------------------|----|------|------|------|------|------|------|
| | mm | mm | | | h | H | | | | | | |
| ITBA-6M | 6 | 4.8 | 4.1 | 4.1 | 12.7 | 14 | 15.3 | 17.7 | 19.6 | 15.8 | 26.9 | 25.1 |
| ITBA-8M | 8 | 6.3 | 5.6 | 5.6 | 14.3 | 16 | 16.2 | 18.6 | 21.3 | 16.8 | 28.6 | 27.0 |
| ITBA-10M | 10 | 7.9 | 7.1 | 7.1 | 17.0 | 19 | 17.2 | 19.5 | 23.9 | 17.8 | 31.5 | 29.8 |
| ITBA-12M | 12 | 9.5 | 8.8 | 8.8 | 20.6 | 22 | 22.8 | 22.0 | 25.9 | 23.4 | 36.0 | 37.4 |
| ITBA-14M | 14 | 11.1 | 10.0 | 10.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25.1 | 38.8 | 41.9 |
| ITBA-15M | 15 | 12.0 | 11.0 | 11.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25.1 | 38.8 | 41.9 |
| ITBA-16M | 16 | 12.7 | 12.0 | 12.0 | 24.0 | 25 | 24.4 | 22.0 | 28.7 | 25.1 | 38.8 | 41.9 |
| ITBA-18M | 18 | 15.1 | 13.9 | 13.9 | 27.0 | 30 | 24.4 | 22.0 | 29.7 | 25.1 | 39.8 | 42.9 |
| ITBA-20M | 20 | 15.9 | 15.2 | 15.2 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 26.6 | 42.6 | 47.2 |
| ITBA-22M | 22 | 18.3 | 17.0 | 17.0 | 32.0 | 32 | 26.0 | 22.0 | 32.5 | 26.7 | 42.6 | 47.3 |
| ITBA-25M | 25 | 21.8 | 20.0 | 20.0 | 36.0 | 41 | 31.3 | 26.5 | 36.8 | 31.7 | 49.0 | 54.2 |
| ITBA-28M | 28 | 24.0 | 22.5 | 22.5 | 41.0 | 46 | 36.6 | 36.6 | 44.7 | 39.1 | 65.6 | 68.0 |

STUB TUBE CONNECTOR

IAM-N

MALE TUBE ADAPTER



Connects Fractional I Tube port to Female NPT thread

| Part No. | Tube O.D. D | | T NPT | d Min. | Width across flat h | | L |
|-----------|----------------|-------|----------|-----------|------------------------|-------|--------|
| | in | mm | | | in | mm | |
| IAM2-2N | 1/8 | 3.17 | 1/8 | 2.03 | 7/16 | 11.11 | 29.50 |
| IAM2-4N | 1/8 | 3.17 | 1/4 | 2.03 | 9/16 | 14.28 | 34.80 |
| IAM3-2N | 3/16 | 4.76 | 1/8 | 3.04 | 7/16 | 11.11 | 30.22 |
| IAM3-4N | 3/16 | 4.76 | 1/4 | 3.04 | 9/16 | 14.28 | 35.56 |
| IAM4-2N | 1/4 | 6.35 | 1/8 | 4.32 | 7/16 | 11.11 | 31.80 |
| IAM4-4N | 1/4 | 6.35 | 1/4 | 4.32 | 9/16 | 14.28 | 37.08 |
| IAM4-6N | 1/4 | 6.35 | 3/8 | 4.32 | 11/16 | 17.46 | 37.84 |
| IAM4-8N | 1/4 | 6.35 | 1/2 | 4.32 | 7/8 | 22.22 | 43.43 |
| IAM5-2N | 5/16 | 7.93 | 1/8 | 4.57 | 7/16 | 11.11 | 32.76 |
| IAM5-4N | 5/16 | 7.93 | 1/4 | 5.59 | 9/16 | 14.28 | 38.10 |
| IAM6-2N | 3/8 | 9.52 | 1/8 | 4.83 | 7/16 | 11.11 | 33.50 |
| IAM6-4N | 3/8 | 9.52 | 1/4 | 6.86 | 9/16 | 14.28 | 38.90 |
| IAM6-6N | 3/8 | 9.52 | 3/8 | 6.86 | 11/16 | 17.46 | 39.60 |
| IAM6-8N | 3/8 | 9.52 | 1/2 | 6.86 | 7/8 | 22.22 | 45.20 |
| IAM8-4N | 1/2 | 12.70 | 1/4 | 7.11 | 9/16 | 14.28 | 44.50 |
| IAM8-6N | 1/2 | 12.70 | 3/8 | 9.4 | 11/16 | 17.46 | 45.20 |
| IAM8-8N | 1/2 | 12.70 | 1/2 | 9.4 | 7/8 | 22.22 | 50.80 |
| IAM10-6N | 5/8 | 15.87 | 3/8 | 9.5 | 11/16 | 17.46 | 47.40 |
| IAM10-8N | 5/8 | 15.87 | 1/2 | 11.94 | 7/8 | 22.22 | 52.30 |
| IAM10-12N | 5/8 | 15.87 | 3/4 | 12.7 | 1-1/16 | 26.98 | 52.30 |
| IAM12-8N | 3/4 | 19.05 | 1/2 | 11.94 | 7/8 | 22.22 | 52.30 |
| IAM12-12N | 3/4 | 19.05 | 3/4 | 14.73 | 1-1/16 | 26.98 | 52.30 |
| IAM12-16N | 3/4 | 19.05 | 1 | 14.73 | 1-3/8 | 34.92 | 57.91 |
| IAM14-12N | 7/8 | 22.22 | 3/4 | 15.75 | 1-1/16 | 26.98 | 54.80 |
| IAM16-12N | 1 | 25.40 | 3/4 | 15.75 | 1-1/16 | 26.98 | 58.70 |
| IAM16-16N | 1 | 25.40 | 1 | 20.32 | 1-3/8 | 34.92 | 66.00 |
| IAM20-20N | 1-1/4 | 31.75 | 1-1/4 | 25.91 | 1-3/4 | 44.45 | 80.26 |
| IAM24-24N | 1-1/2 | 38.10 | 1-1/2 | 31.75 | 2-1/8 | 53.98 | 94.48 |
| IAM32-32N | 2 | 50.80 | 2 | 43.69 | 2-3/4 | 69.85 | 119.38 |

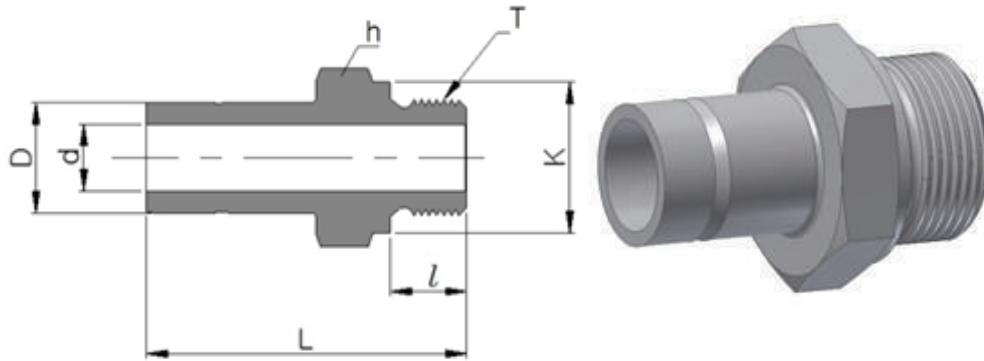
Connects metric I Tube Fittingport to female ISO thread

| Part No. | Tube O.D. D | | T PT | d Min. | Width across flat h | | L |
|------------|----------------|----|---------|-----------|------------------------|------|---|
| | mm | mm | | | mm | mm | |
| IAM6M-2R | 6 | 6 | 1/8 | 4.1 | 12 | 32.8 | |
| IAM6M-4R | 6 | 6 | 1/4 | 4.1 | 14 | 38.1 | |
| IAM8M-4R | 8 | 8 | 1/4 | 5.6 | 14 | 39.1 | |
| IAM10M-4R | 10 | 10 | 1/4 | 7.1 | 14 | 39.9 | |
| IAM10M-6R | 10 | 10 | 3/8 | 7.1 | 17 | 40.6 | |
| IAM10M-8R | 10 | 10 | 1/2 | 7.1 | 22 | 45.2 | |
| IAM12M-4R | 12 | 12 | 1/4 | 7.1 | 14 | 46.5 | |
| IAM12M-6R | 12 | 12 | 3/8 | 8.8 | 17 | 46.5 | |
| IAM12M-8R | 12 | 12 | 1/2 | 8.8 | 22 | 52.0 | |
| IAM18M-8R | 18 | 18 | 1/2 | 11.9 | 22 | 53.2 | |
| IAM18M-12R | 18 | 18 | 3/4 | 13.9 | 27 | 53.2 | |
| IAM28M-16R | 28 | 28 | 1 | 22.2 | 35 | 74.7 | |
| IAM28M-20R | 28 | 28 | 1-1/4 | 22.4 | 46 | 76.2 | |
| IAM32M-20R | 32 | 32 | 1-1/4 | 26.5 | 46 | 81.0 | |
| IAM38M-24R | 38 | 38 | 1-1/2 | 31.8 | 55 | 92.2 | |

STUB TUBE CONNECTOR

IAM-G

MALE ISO PARALLEL TUBE ADAPTER



Connects Fractional I Tubeport to Female ISO Parallel Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | l | L | K |
|-----------|-----------|-------|-----|-------|-------------------|-------|-------|-------|-------|
| | In | mm | | | h | mm | | | |
| IAM2-2G | 1/8 | 3.17 | 1/8 | 2.03 | 9/16 | 14.28 | 7.11 | 40.0 | 13.72 |
| IAM2-4G | 1/8 | 3.17 | 1/4 | 2.03 | 3/4 | 19.05 | 11.17 | 35.8 | 17.78 |
| IAM4-2G | 1/4 | 6.35 | 1/8 | 4.06 | 9/16 | 14.28 | 7.11 | 33.27 | 13.72 |
| IAM4-4G | 1/4 | 6.35 | 1/4 | 4.32 | 3/4 | 19.05 | 11.17 | 38.1 | 17.78 |
| IAM6-4G | 3/8 | 9.52 | 1/4 | 5.84 | 3/4 | 19.05 | 11.17 | 39.9 | 17.78 |
| IAM6-6G | 3/8 | 9.52 | 3/8 | 6.86 | 7/8 | 22.22 | 11.17 | 40.64 | 21.59 |
| IAM8-4G | 1/2 | 12.70 | 1/4 | 5.84 | 3/4 | 19.05 | 11.17 | 45.5 | 17.78 |
| IAM8-6G | 1/2 | 12.70 | 3/8 | 7.88 | 7/8 | 22.22 | 11.17 | 46.2 | 21.59 |
| IAM8-8G | 1/2 | 12.70 | 1/2 | 9.4 | 1-1/16 | 26.98 | 14.22 | 49.3 | 25.91 |
| IAM12-12G | 3/4 | 19.05 | 3/4 | 14.73 | 1-5/16 | 33.33 | 15.75 | 54.88 | 31.75 |
| IAM16-16G | 1 | 25.40 | 1 | 19.8 | 1-5/8 | 41.28 | 18.29 | 64.5 | 38.86 |

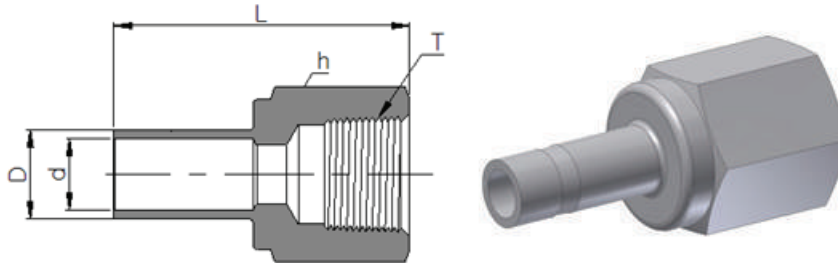
Connects Metric I Tube Port to Female ISO Tapered Thread

| Part No. | Tube O.D. | | T | d | Width across flat | | l | L | K |
|------------|-----------|----|-------|------|-------------------|----|------|------|------|
| | D | mm | | | h | mm | | | |
| IAM6M-2G | 6 | 6 | 1/8 | 4.0 | 14 | 14 | 7.1 | 34.3 | 13.7 |
| IAM6M-4G | 6 | 6 | 1/4 | 4.1 | 19 | 19 | 11.2 | 39.1 | 17.9 |
| IAM8M-4G | 8 | 8 | 1/4 | 5.6 | 19 | 19 | 11.2 | 40.1 | 17.9 |
| IAM10M-4G | 10 | 10 | 1/4 | 5.9 | 19 | 19 | 11.2 | 40.9 | 17.9 |
| IAM10M-6G | 10 | 10 | 3/8 | 7.1 | 22 | 22 | 11.2 | 41.7 | 21.7 |
| IAM10M-8G | 10 | 10 | 1/2 | 7.1 | 27 | 27 | 14.2 | 44.7 | 25.9 |
| IAM12M-4G | 12 | 12 | 1/4 | 5.9 | 19 | 19 | 11.2 | 46.7 | 17.9 |
| IAM12M-6G | 12 | 12 | 3/8 | 7.9 | 22 | 22 | 11.2 | 47.2 | 21.7 |
| IAM12M-8G | 12 | 12 | 1/2 | 8.8 | 27 | 27 | 14.2 | 50.5 | 25.9 |
| IAM18M-8G | 18 | 18 | 1/2 | 11.9 | 27 | 27 | 14.2 | 52.1 | 25.9 |
| IAM18M-12G | 18 | 18 | 3/4 | 13.9 | 35 | 35 | 15.7 | 56.1 | 31.9 |
| IAM28M-16G | 28 | 28 | 1 | 19.8 | 41 | 41 | 18.3 | 72.9 | 39.0 |
| IAM28M-20G | 28 | 28 | 1-1/4 | 22.5 | 50 | 50 | 19.8 | 77.0 | 49.0 |
| IAM30M-20G | 30 | 30 | 1-1/4 | 24.3 | 50 | 50 | 19.8 | 80.8 | 49.0 |
| IAM32M-20G | 32 | 32 | 1-1/4 | 26.5 | 50 | 50 | 19.8 | 81.8 | 49.0 |
| IAM38M-24G | 38 | 38 | 1-1/2 | 31.6 | 55 | 55 | 22.1 | 94.5 | 54.7 |

STUB TUBE CONNECTOR

IAF-N

FEMALE TUBE ADAPTER



Connects Fractional I Tube Fittingport To Male NPT Thread

| Part No. | Tube O.D. | | T (NPT) | d Min. | Width across flat h | | L |
|-----------|-----------|-------|------------|-----------|------------------------|-------|--------|
| | in | mm | | | in | mm | |
| IAF2-2N | 1/8 | 3.17 | 1/8 | 2.03 | 9/16 | 14.28 | 31.50 |
| IAF2-4N | 1/8 | 3.17 | 1/4 | 2.03 | 3/4 | 19.05 | 35.30 |
| IAF3-2N | 3/16 | 4.76 | 1/8 | 3.04 | 9/16 | 14.28 | 32.00 |
| IAF3-4N | 3/16 | 4.76 | 1/4 | 3.04 | 3/4 | 19.05 | 35.81 |
| IAF4-2N | 1/4 | 6.35 | 1/8 | 4.32 | 9/16 | 14.28 | 33.02 |
| IAF4-4N | 1/4 | 6.35 | 1/4 | 4.32 | 3/4 | 19.05 | 37.10 |
| IAF4-6N | 1/4 | 6.35 | 3/8 | 4.32 | 7/8 | 22.22 | 39.37 |
| IAF4-8N | 1/4 | 6.35 | 1/2 | 4.32 | 1-1/16 | 26.98 | 45.50 |
| IAF5-2N | 5/16 | 7.93 | 1/8 | 5.59 | 9/16 | 14.28 | 34.29 |
| IAF5-4N | 5/16 | 7.93 | 1/4 | 5.59 | 3/4 | 19.05 | 37.59 |
| IAF6-2N | 3/8 | 9.52 | 1/8 | 6.86 | 9/16 | 14.28 | 34.29 |
| IAF6-4N | 3/8 | 9.52 | 1/4 | 6.86 | 3/4 | 19.05 | 38.10 |
| IAF6-6N | 3/8 | 9.52 | 3/8 | 6.86 | 7/8 | 22.22 | 40.38 |
| IAF6-8N | 3/8 | 9.52 | 1/2 | 6.86 | 1-1/16 | 26.98 | 46.73 |
| IAF8-4N | 1/2 | 12.70 | 1/4 | 9.40 | 3/4 | 19.05 | 43.43 |
| IAF8-6N | 1/2 | 12.70 | 3/8 | 9.40 | 7/8 | 22.22 | 45.46 |
| IAF8-8N | 1/2 | 12.70 | 1/2 | 9.40 | 1-1/16 | 26.98 | 51.80 |
| IAF10-6N | 5/8 | 15.87 | 3/8 | 11.94 | 7/8 | 22.22 | 48.26 |
| IAF10-8N | 5/8 | 15.87 | 1/2 | 11.94 | 1-1/16 | 26.98 | 53.0 |
| IAF10-12N | 5/8 | 15.87 | 3/4 | 11.94 | 1-5/16 | 33.33 | 55.37 |
| IAF12-8N | 3/4 | 19.05 | 1/2 | 14.73 | 1-1/16 | 26.98 | 52.83 |
| IAF12-12N | 3/4 | 19.05 | 3/4 | 14.73 | 1-5/16 | 33.33 | 54.86 |
| IAF12-16N | 3/4 | 19.05 | 1 | 14.73 | 1-5/8 | 41.27 | 58.42 |
| IAF14-12N | 7/8 | 22.22 | 3/4 | 18.20 | 1-5/16 | 33.33 | 57.15 |
| IAF16-12N | 1 | 25.40 | 3/4 | 20.32 | 1-5/16 | 33.33 | 60.70 |
| IAF16-16N | 1 | 25.40 | 1 | 20.32 | 1-5/8 | 41.27 | 64.26 |
| IAF20-20N | 1-1/4 | 31.75 | 1-1/4 | 25.91 | 2-1/8 | 53.98 | 77.72 |
| IAF24-24N | 1-1/2 | 38.10 | 1-1/2 | 31.75 | 2-3/8 | 60.33 | 88.90 |
| IAF32-32N | 2 | 50.8 | 2 | 43.69 | 2-7/8 | 73.03 | 107.44 |

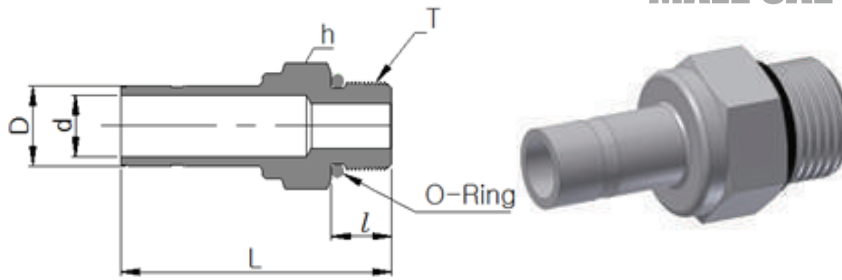
Connects metric I Tube Fitting port To Male ISO Tapered Thread

| Part No. | Tube O.D. | | T R(PT) | d Min. | Width across flat h | | L |
|------------|-----------|----|------------|-----------|------------------------|----|-------|
| | D | mm | | | in | mm | |
| IAF3M-2R | 3 | | 1/8 | 1.9 | 14 | | 31.15 |
| IAF6M-2R | 6 | | 1/8 | 4.1 | 14 | | 32.50 |
| IAF6M-4R | 6 | | 1/4 | 4.1 | 19 | | 37.10 |
| IAF8M-4R | 8 | | 1/4 | 5.6 | 19 | | 37.60 |
| IAF10M-4R | 10 | | 1/4 | 7.1 | 19 | | 38.10 |
| IAF10M-6R | 10 | | 3/8 | 7.1 | 22 | | 40.10 |
| IAF10M-8R | 10 | | 1/2 | 7.1 | 27 | | 46.50 |
| IAF12M-4R | 12 | | 1/4 | 8.8 | 19 | | 43.70 |
| IAF12M-6R | 12 | | 3/8 | 8.8 | 22 | | 46.00 |
| IAF12M-8R | 12 | | 1/2 | 8.8 | 27 | | 52.30 |
| IAF18M-12R | 18 | | 3/4 | 13.9 | 35 | | 54.82 |

STUB TUBE CONNECTOR

IAM-U

MALE SAE TUBE ADAPTER

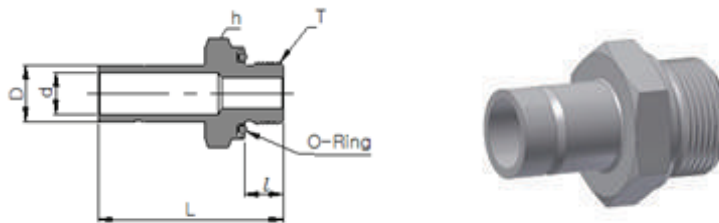


Connects fractional I Tube Fitting port to SAE straight thread boss

| Part No. | Tube O.D. D | | Straight Thread | | d Min. | Width across flat h | | L | O-Ring Uniform Size Number | |
|-----------|----------------|-------|-----------------|--|-----------|------------------------|-------|-------|-------------------------------------|------|
| | In | T(U) | U | | | in | mm | | | |
| IAM2-2U | 1/8 | 3.17 | 5/16-24 | | 2.03 | 7/16 | 11.11 | 7.62 | 30.48 | -902 |
| IAM4-4U | 1/4 | 6.35 | 7/16-20 | | 4.31 | 9/16 | 14.28 | 9.14 | 35.30 | -904 |
| IAM6-4U | 3/8 | 9.52 | 7/16-20 | | 5.08 | 9/16 | 14.28 | 9.14 | 37.08 | -904 |
| IAM6-6U | 3/8 | 9.52 | 9/16-18 | | 6.85 | 11/16 | 17.46 | 9.90 | 38.60 | -906 |
| IAM6-8U | 3/8 | 9.52 | 3/4-16 | | 6.85 | 7/8 | 22.22 | 11.17 | 40.64 | -908 |
| IAM8-6U | 1/2 | 12.70 | 9/16-18 | | 7.11 | 11/16 | 17.46 | 9.90 | 44.20 | -906 |
| IAM8-8U | 1/2 | 12.70 | 3/4-16 | | 9.40 | 7/8 | 22.22 | 11.17 | 46.22 | -908 |
| IAM12-12U | 3/4 | 19.05 | 1-1/16-12 | | 14.73 | 1-1/4 | 31.75 | 14.98 | 53.34 | -912 |
| IAM16-16U | 1 | 25.40 | 1-5/16-12 | | 20.31 | 1-1/2 | 38.1 | 14.98 | 61.21 | -916 |

IAM-UO

MALE O-SAE TUBE ADAPTER

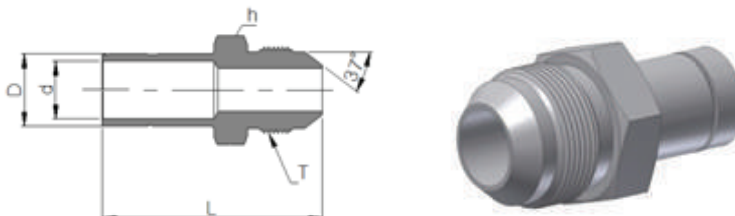


Connects fractional I Tube Fitting port to SAE straight thread boss

| Part No. | Tube O.D. D | | Straight Thread | | d Min. | Width across flat h | | L | O-Ring Uniform Size Number |
|----------|----------------|-------|-----------------|--|-----------|------------------------|-------|-------|-------------------------------------|
| | in | Mm | T(U) | | | in | mm | | |
| IAM2-2UO | 1/8 | 3.17 | 5/16-24 | | 2.03 | 9/16 | 14.28 | 32.51 | -011 |
| IAM3-3UO | 3/16 | 4.76 | 3/8-24 | | 3.05 | 5/8 | 15.87 | 35.05 | -013 |
| IAM4-4UO | 1/4 | 6.35 | 7/16-20 | | 4.32 | 3/4 | 19.05 | 39.11 | -013 |
| IAM5-5UO | 5/16 | 7.93 | 1/2-20 | | 5.59 | 7/8 | 22.22 | 41.65 | -112 |
| IAM6-6UO | 3/8 | 9.52 | 9/16-18 | | 6.85 | 15/16 | 23.81 | 43.18 | -113 |
| IAM8-8UO | 1/2 | 12.70 | 3/4-16 | | 9.40 | 1-1/8 | 28.57 | 49.53 | -116 |

IMAA

MALE AN TUBE ADAPTER



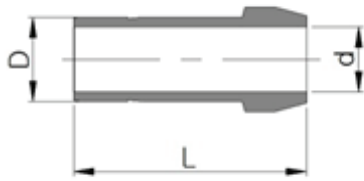
Connects fractional I Tube Fitting port to AN flare tube

| Part No. | Tube O.D. D | | AN Tube Flare Size | | Straight Thread T(U) | d Min. | Width across flat h | | L |
|-----------|----------------|-------|-----------------------|-------|----------------------------|-----------|------------------------|-------|-------|
| | in | mm | in | mm | | | in | mm | |
| IMAA4-4 | 1/4 | 6.35 | 1/4 | 6.35 | 7/16-20 | 4.32 | 1/2 | 12.70 | 37.08 |
| IMAA6-4 | 3/8 | 9.52 | 1/4 | 6.35 | 7/16-20 | 4.32 | | | 38.86 |
| IMAA6-6 | 3/8 | 9.52 | 3/8 | 9.52 | 9/16-18 | 6.86 | 5/8 | 15.87 | 39.62 |
| IMAA8-8 | 1/2 | 12.70 | 1/2 | 12.70 | 3/4-16 | 9.40 | 13/16 | 20.64 | 48.51 |
| IMAA12-12 | 3/4 | 19.05 | 3/4 | 19.05 | 1-1/16-12 | 14.73 | 1-1/8 | 28.58 | 56.13 |
| IMAA16-16 | 1 | 25.40 | 1 | 25.40 | 1-5/16-12 | 20.32 | 1-3/8 | 34.92 | 65.53 |

STUB TUBE CONNECTOR

ICP

PORT CONNECTOR



Connects fractional I Tube Fittingsports

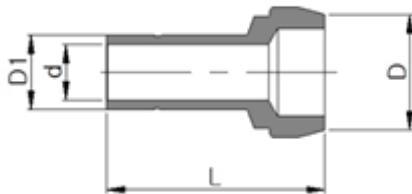
| Part No. | Tube O.D. | | d | L |
|----------|-----------|-------|-------|-------|
| | in | mm | | |
| ICP-1 | 1/16 | 1.59 | 0.76 | 13.72 |
| ICP-2 | 1/8 | 3.17 | 2.03 | 22.35 |
| ICP-4 | 1/4 | 6.35 | 4.32 | 24.89 |
| ICP-5 | 5/16 | 7.93 | 5.59 | 25.91 |
| ICP-6 | 3/8 | 9.52 | 6.86 | 26.67 |
| ICP-8 | 1/2 | 12.70 | 9.40 | 36.32 |
| ICP-12 | 3/4 | 19.05 | 14.73 | 37.85 |
| ICP-16 | 1 | 25.40 | 20.32 | 49.28 |

Connects metric I Tube Fittingsports

| Part No. | Tube O.D. | | d | L |
|----------|-----------|------|-------|---|
| | D | mm | | |
| ICP-3M | 3 | 1.9 | 22.2 | |
| ICP-4M | 4 | 2.2 | 23.21 | |
| ICP-6M | 6 | 4.1 | 25.0 | |
| ICP-8M | 8 | 5.6 | 26.0 | |
| ICP-10M | 10 | 7.1 | 27.1 | |
| ICP-12M | 12 | 8.8 | 36.2 | |
| ICP-15M | 15 | 11.2 | 37.8 | |
| ICP-16M | 16 | 12.0 | 37.8 | |
| ICP-18M | 18 | 13.9 | 37.8 | |
| ICP-20M | 20 | 15.5 | 39.4 | |
| ICP-22M | 22 | 16.1 | 38.97 | |
| ICP-25M | 25 | 19.9 | 49.3 | |
| ICP-28M | 28 | 22.5 | 63.5 | |
| ICP-32M | 32 | 26.5 | 69.7 | |
| ICP-38M | 38 | 31.6 | 81.9 | |

ICPR

REDUCING PORT CONNECTOR



Connects two fractional I Tube Fittingsports

| Part No. | D ₁ | | Tube O.D. | | D | d | L |
|-----------|----------------|-------|-----------|-------|-------|-------|---|
| | in | mm | in | mm | | | |
| ICPR2-1 | 1/8 | 3.17 | 1/16 | 1.59 | 0.76 | 18.3 | |
| ICPR4-1 | 1/4 | 6.35 | 1/16 | 3.17 | 0.76 | 19.05 | |
| ICPR4-2 | 1/4 | 6.35 | 1/8 | 3.17 | 2.03 | 22.86 | |
| ICPR6-2 | 3/8 | 9.52 | 1/8 | 3.17 | 2.03 | 23.37 | |
| ICPR6-4 | 3/8 | 9.52 | 1/4 | 6.35 | 4.32 | 25.4 | |
| ICPR8-4 | 1/2 | 12.70 | 1/4 | 6.35 | 4.32 | 29.72 | |
| ICPR8-6 | 1/2 | 12.70 | 3/8 | 9.52 | 6.86 | 30.73 | |
| ICPR12-8 | 3/4 | 19.05 | 1/2 | 12.70 | 9.4 | 37.85 | |
| ICPR16-8 | 1 | 25.40 | 1/2 | 12.70 | 9.4 | 42.93 | |
| ICPR16-12 | 1 | 25.40 | 3/4 | 19.05 | 14.73 | 43.69 | |

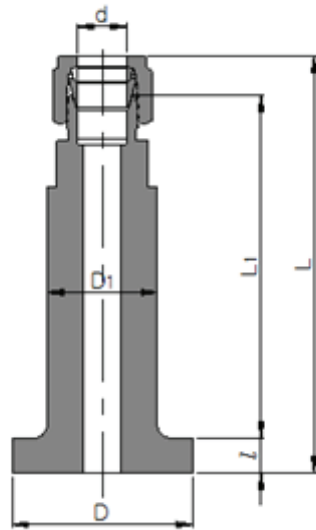
Connects two metric I Tube Fittingsports

| Part No. | D ₁ | | Tube O.D. | | D | d | L |
|-------------|----------------|----|-----------|------|-------|---|---|
| | mm | mm | mm | mm | | | |
| ICPR6M-3M | 6 | 3 | 3 | 1.9 | 22.9 | | |
| ICPR8M-6M | 8 | 6 | 6 | 4.1 | 25.4 | | |
| ICPR10M-6M | 10 | 6 | 6 | 4.1 | 25.8 | | |
| ICPR10M-8M | 10 | 8 | 8 | 5.6 | 26.3 | | |
| ICPR12M-6M | 12 | 6 | 6 | 4.1 | 29.6 | | |
| ICPR12M-8M | 12 | 8 | 8 | 5.6 | 30.1 | | |
| ICPR12M-10M | 12 | 10 | 10 | 7.1 | 30.6 | | |
| ICPR16M-6M | 16 | 6 | 6 | 4.1 | 29.37 | | |
| ICPR16M-12M | 16 | 12 | 12 | 8.8 | 37.5 | | |
| ICPR28M-25M | 28 | 25 | 25 | 19.9 | 56.5 | | |
| ICPR32M-25M | 32 | 25 | 25 | 19.9 | 60.3 | | |
| ICPR38M-25M | 38 | 25 | 25 | 19.9 | 65.8 | | |

FLANGE CONNECTOR

IFTC

LAPPED FLANGE CONNECTOR



| Part No | Tube Size | Flange Seal | t | L1 | L | Dimension | | | dmin | Flange Surface Finish |
|-----------|-----------|-------------|------|-----|-------|-----------|------|------|------|-----------------------|
| | | | | | | L1 | D | D1 | | |
| IFTC4-IM | 1/4 | IM | 74.9 | 6.5 | 80.77 | 56.5 | 34.5 | 21.1 | 4.8 | 3.2-6.3Micrometer |
| IFTC-4-IE | 1/4 | IE | 74.9 | 6.5 | 80.77 | 56.5 | 34.5 | 21.1 | 4.8 | 6.3-12.5Micrometer |
| IFTC-6-IM | 3/8 | IM | 74.9 | 6.5 | 82.30 | 56.5 | 34.5 | 21.1 | 7.1 | 3.2-6.3Micrometer |
| IFTC-6-IE | 3/8 | IE | 74.9 | 6.5 | 82.30 | 56.5 | 34.5 | 21.1 | 7.1 | 6.3-12.5Micrometer |
| IFTC-8-IM | 1/2 | IM | 74.9 | 6.5 | 85.09 | 56.5 | 34.5 | 21.1 | 10.4 | 3.2-6.3Micrometer |
| IFTC-8-IE | 1/2 | IE | 74.9 | 6.5 | 85.09 | 56.5 | 34.5 | 21.1 | 10.4 | 6.3-12.5Micrometer |

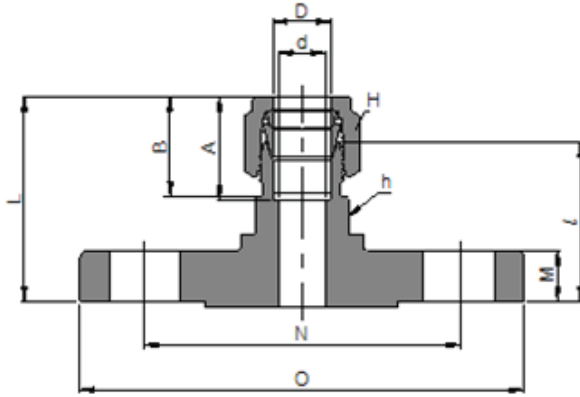
Gasket Face of Flange

| Designator | |
|------------------------|---------------|
| IE | IM |
| <p>External Groove</p> | |
| Finish, um | |
| Ra 6.3 to 12.5 | Ra 3.2 to 6.3 |

FLANGE CONNECTOR

IFTC

INTEGRAL ANSI FLANGE CONNECTOR



Connects Fractional Tubes

| Part No. Raised Face Flange | Tube OD D in. | Flange NPS | ANSI Class | d | Wrench Flat h | | A | B | M | N | l | L | O |
|-----------------------------------|------------------------|---------------|---------------|-------|---------------------|-------|-------|-------|------|-------|------|-------|-------|
| | | | | | in | mm | | | | | | | |
| IF8TF8-150 | 1/2 | 1/2 | 150 | 10.41 | 7/8 | 22.22 | 22.86 | 21.84 | 15.7 | 60.5 | 52.7 | 62.72 | 88.9 |
| IF8TF8-300 | 1/2 | 1/2 | 300 | 10.41 | 7/8 | 22.22 | 22.86 | 21.84 | 22.4 | 66.5 | 62.2 | 72.22 | 95.3 |
| IF12TF8-150 | 3/4 | 1/2 | 150 | 15.74 | 1-1/8 | 28.57 | 24.38 | 21.84 | 15.7 | 60.5 | 62.2 | 72.22 | 88.9 |
| IF12TF8-300 | 3/4 | 1/2 | 300 | 15.00 | 1-1/8 | 28.57 | 24.38 | 21.84 | 22.4 | 66.5 | 62.2 | 72.22 | 95.3 |
| IF12TF12-150 | 3/4 | 3/4 | 150 | 15.74 | 1-1/8 | 28.57 | 24.38 | 21.84 | 15.7 | 69.9 | 53.0 | 62.99 | 98.6 |
| IF12TF12-300 | 3/4 | 3/4 | 300 | 15.74 | 1-1/8 | 28.57 | 24.38 | 21.84 | 25.4 | 82.6 | 62.2 | 72.22 | 117.3 |
| IF12TF12-600 | 3/4 | 3/4 | 600 | 15.74 | 1-1/8 | 28.57 | 24.38 | 21.84 | 25.4 | 82.6 | 67.5 | 77.72 | 117.3 |
| IF12TF16-150 | 3/4 | 1 | 150 | 15.74 | 1-1/8 | 28.57 | 24.38 | 21.84 | 17.5 | 79.2 | 54.3 | 64.29 | 108.0 |
| IF12TF16-300 | 3/4 | 1 | 300 | 15.74 | 1-1/8 | 28.57 | 24.38 | 21.84 | 26.9 | 88.9 | 63.8 | 73.82 | 124.0 |
| IF16TF12-150 | 1 | 3/4 | 150 | 20.00 | 1-1/2 | 38.1 | 31.24 | 26.41 | 15.7 | 69.9 | 54.9 | 69.07 | 98.6 |
| IF16TF16-150 | 1 | 1 | 150 | 22.35 | 1-1/2 | 38.1 | 31.24 | 26.41 | 17.5 | 79.2 | 56.5 | 68.76 | 108.0 |
| IF16TF16-300 | 1 | 1 | 300 | 22.35 | 1-1/2 | 38.1 | 31.24 | 26.41 | 26.9 | 88.9 | 66.0 | 78.26 | 124.0 |
| IF16TF16-600 | 1 | 1 | 600 | 22.35 | 1-1/2 | 38.1 | 31.24 | 26.41 | 26.9 | 88.9 | 73.5 | 85.76 | 124.0 |
| IF16TF24-300 | 1 | 1-1/2 | 300 | 22.35 | 1-1/2 | 38.1 | 31.24 | 26.41 | 30.2 | 114.3 | 73.0 | 85.26 | 155.4 |

Pressure-Temperature Ratings

Stainless Steel ANSI Flange Ratings as per ASME B16.5 Group 2.2 Material.

Working Pressure by classes, PSI

| Temp. °F | ASME Class | | | | | | |
|-------------|------------|-----|-----|------|------|------|------|
| | 150 | 300 | 400 | 600 | 900 | 1500 | 2500 |
| -20 to 100 | 275 | 720 | 960 | 1440 | 2160 | 3600 | 6000 |
| 200 | 235 | 620 | 825 | 1240 | 1860 | 3095 | 5160 |
| 300 | 215 | 560 | 745 | 1120 | 1680 | 2795 | 4660 |
| 400 | 195 | 515 | 685 | 1025 | 1540 | 2570 | 4280 |
| 500 | 170 | 480 | 635 | 955 | 1435 | 2390 | 3980 |
| 600 | 140 | 450 | 600 | 900 | 1355 | 2255 | 3760 |
| 650 | 125 | 440 | 590 | 885 | 1325 | 2210 | 3680 |
| 700 | 110 | 435 | 580 | 870 | 1305 | 2170 | 3620 |
| 750 | 95 | 425 | 570 | 855 | 1280 | 2135 | 3560 |
| 800 | 80 | 420 | 565 | 845 | 1265 | 2110 | 3520 |
| 850 | 65 | 420 | 555 | 835 | 1255 | 2090 | 3480 |
| 900 | 50 | 415 | 555 | 830 | 1245 | 2075 | 3460 |
| 950 | 35 | 385 | 515 | 775 | 1160 | 1930 | 3220 |
| 1000 | 20 | 365 | 485 | 725 | 1090 | 1820 | 3030 |
| 1100 | - | 305 | 405 | 610 | 915 | 1525 | 2545 |

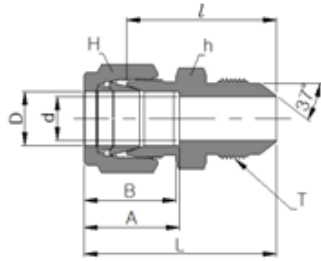
Working Pressure by classes, BAR

| Temp. °C | ASME Class | | | | | | |
|-------------|------------|------|------|------|-------|-------|-------|
| | 150 | 300 | 400 | 600 | 900 | 1500 | 2500 |
| -29 to 38 | 19.0 | 49.6 | 66.2 | 99.3 | 148.9 | 248.2 | 413.7 |
| 50 | 18.4 | 48.1 | 64.2 | 96.2 | 144.3 | 240.6 | 400.9 |
| 100 | 16.2 | 42.2 | 56.3 | 84.4 | 126.6 | 211.0 | 351.6 |
| 150 | 14.8 | 38.5 | 51.3 | 77.0 | 115.5 | 192.5 | 320.8 |
| 200 | 13.7 | 35.7 | 47.6 | 71.3 | 107.0 | 178.3 | 297.2 |
| 250 | 12.1 | 33.4 | 44.5 | 66.8 | 100.1 | 166.9 | 278.1 |
| 300 | 10.2 | 31.6 | 42.2 | 63.2 | 94.9 | 158.1 | 263.5 |
| 325 | 9.3 | 30.9 | 41.2 | 61.8 | 92.7 | 154.4 | 257.4 |
| 350 | 8.4 | 30.3 | 40.4 | 60.7 | 91.0 | 151.6 | 252.7 |
| 375 | 7.4 | 29.9 | 39.8 | 59.8 | 89.6 | 149.4 | 249.0 |
| 400 | 6.5 | 29.4 | 39.3 | 58.9 | 88.3 | 147.2 | 245.3 |
| 425 | 5.5 | 29.1 | 38.9 | 58.3 | 87.4 | 145.7 | 242.9 |
| 450 | 4.6 | 28.8 | 38.5 | 57.7 | 86.5 | 144.2 | 240.4 |
| 475 | 3.7 | 28.7 | 38.2 | 57.3 | 86.0 | 143.4 | 238.9 |
| 500 | 2.8 | 28.2 | 37.6 | 56.5 | 84.7 | 140.9 | 235.0 |
| 538 | 1.4 | 25.2 | 33.4 | 50.0 | 75.2 | 125.5 | 208.9 |
| 600 | - | 20.3 | 27.0 | 40.5 | 60.8 | 101.3 | 168.9 |

AN-TUBE & SAE O-RING

IUA

AN UNION

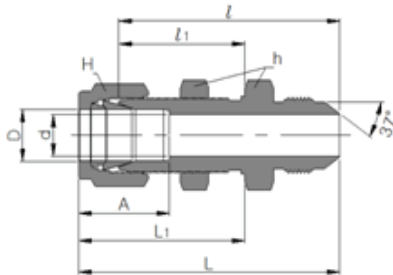


Connects Fractional Tube To AN Flare Tube

| Part No. | Tube O.D. | | AN Tube Flare Size | | Straight Thread T(U) | d Min. | Width across flat | | | | A | B | ℓ | L |
|-----------|-----------|-------|--------------------|-------|----------------------|--------|-------------------|-------|-------|-------|-------|-------|-------|--------|
| | in | mm | in | mm | | | h | mm | in | mm | | | | |
| IUA 1-2 | 1/16 | 3.17 | 1/8 | 3.17 | 5/16-24 | 1.27 | 7/16 | 11.11 | 5/16 | 7.93 | 8.63 | 10.92 | 23.36 | 27.17 |
| IUA 2-2 | 1/8 | 3.17 | 1/8 | 3.17 | 5/16-24 | 1.52 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 24.89 | 31.49 |
| IUA 2-4 | 1/8 | 3.17 | 1/4 | 6.35 | 7/16-20 | 2.28 | 1/2 | 12.70 | 7/16 | 11.11 | 12.70 | 15.24 | 28.44 | 35.05 |
| IUA 4-4 | 1/4 | 6.35 | 1/4 | 6.35 | 7/16-20 | 4.31 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 30.22 | 37.59 |
| IUA 5-5 | 5/16 | 7.93 | 5/16 | 7.93 | 1/2-20 | 5.84 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 30.98 | 38.35 |
| IUA 6-4 | 3/8 | 9.52 | 1/4 | 6.35 | 7/16-20 | 4.31 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 32.25 | 39.62 |
| IUA 6-6 | 3/8 | 9.52 | 3/8 | 9.52 | 9/16-18 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 32.25 | 39.62 |
| IUA 8-8 | 1/2 | 12.70 | 1/2 | 12.70 | 3/4-16 | 9.90 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 35.81 | 45.97 |
| IUA 12-12 | 3/4 | 19.05 | 3/4 | 19.05 | 1-1/16-12 | 15.49 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 24.38 | 21.84 | 43.18 | 53.34 |
| IUA 16-16 | 1 | 25.40 | 1 | 25.40 | 1-5/16-12 | 21.33 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 49.27 | 61.46 |
| IUA 20-20 | 1-1/4 | 31.75 | 1-1/4 | 31.75 | 1-5/8-12 | 27.68 | 1-3/4 | 44.45 | 1-7/8 | 47.63 | 41.14 | 38.86 | 55.46 | 77.56 |
| IUA 24-24 | 1-1/2 | 38.10 | 1-1/2 | 38.10 | 1-7/8-12 | 34.03 | 2-1/8 | 53.97 | 2-1/4 | 57.15 | 50.03 | 45.21 | 63.07 | 90.25 |
| IUA 32-32 | 2 | 50.80 | 2 | 50.80 | 2-1/2-12 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 83.24 | 120.57 |

IUBA

AN BULKHEAD UNION

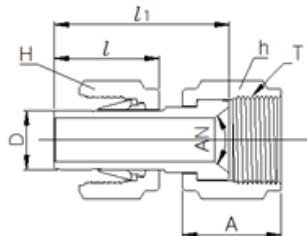


Connects fractional tube to AN flare tube

| Part No. | Tube O.D. | | AN Tube Flare Size | | Straight Thread T(U) | d Min. | Width across flat | | | | A | ℓ | ℓ ₁ | L | L ₁ | Panel Hole Drill size | Panel Max Thickness |
|------------|-----------|-------|--------------------|-------|----------------------|--------|-------------------|-------|-------|-------|-------|--------|----------------|--------|----------------|-----------------------|---------------------|
| | in | mm | in | mm | | | h | mm | in | mm | | | | | | | |
| IUBA 2-2 | 5 | 3.17 | 1/8 | 3.17 | 5/16-24 | 1.77 | 1/2 | 12.70 | 7/16 | 11.11 | 13.71 | 40.85 | 24.63 | 47.45 | 31.23 | 8.33 | 12.70 |
| IUBA 4-4 | 1/4 | 6.35 | 1/4 | 6.35 | 7/16-20 | 4.31 | 5/8 | 15.87 | 9/16 | 14.28 | 15.24 | 46.48 | 26.16 | 53.84 | 33.52 | 11.50 | 10.16 |
| IUBA 6-6 | 3/8 | 9.52 | 3/8 | 9.52 | 9/16-18 | 7.11 | 3/4 | 19.05 | 11/16 | 17.46 | 16.76 | 49.78 | 29.46 | 57.15 | 36.83 | 14.68 | 11.17 |
| IUBA 8-8 | 1/2 | 12.70 | 1/2 | 12.70 | 3/4-16 | 9.90 | 15/16 | 23.81 | 7/8 | 22.22 | 22.86 | 55.62 | 31.75 | 65.78 | 41.91 | 19.44 | 12.70 |
| IUBA 12-12 | 3/4 | 19.05 | 3/4 | 19.05 | 1-1/16-12 | 15.49 | 1-3/16 | 30.16 | 1-1/8 | 28.58 | 24.38 | 68.83 | 37.33 | 78.99 | 47.49 | 25.79 | 16.76 |
| IUBA 16-16 | 1 | 25.40 | 1 | 25.40 | 1-5/16-12 | 21.33 | 1-5/8 | 41.27 | 1-1/2 | 38.10 | 31.24 | 80.26 | 45.21 | 92.45 | 57.40 | 33.73 | 19.05 |
| IUBA 20-20 | 1-1/4 | 31.75 | 1-1/4 | 31.75 | 1-5/8-12 | 27.68 | 1-7/8 | 47.63 | 1-7/8 | 47.63 | 41.14 | 86.37 | 47.75 | 108.47 | 69.85 | 41.67 | 19.05 |
| IUBA 24-24 | 1-1/2 | 38.10 | 1-1/2 | 38.10 | 1-7/8-12 | 34.03 | 2-1/4 | 57.15 | 2-1/4 | 57.15 | 50.03 | 94.33 | 49.27 | 121.51 | 76.45 | 49.61 | 19.05 |
| IUBA 32-32 | 2 | 50.80 | 2 | 50.80 | 2-1/2-12 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 114.29 | 56.38 | 151.62 | 93.71 | 16.27 | 19.05 |

IAA

AN ADAPTER



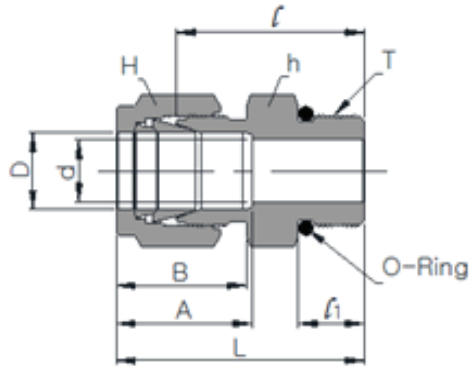
Connects Fractional I Tube Fitting port to AN male

| Part No. | Tube O.D. | | AN Tube Flare Size | | Straight Thread T(U) | Width across flat | | | | A | ℓ | ℓ ₁ |
|----------|-----------|-------|--------------------|-------|----------------------|-------------------|-------|-------|-------|-------|-------|----------------|
| | in | mm | in | mm | | h | mm | in | mm | | | |
| IAA2-2 | 1/8 | 3.17 | 1/8 | 3.17 | 5/16-24 | 3/8 | 9.52 | 7/16 | 11.11 | 13.71 | 13.46 | 18.54 |
| IAA2-4 | 1/8 | 3.17 | 1/4 | 6.35 | 7/16-20 | 9/16 | 14.28 | 7/16 | 11.11 | 15.74 | 13.46 | 19.05 |
| IAA4-4 | 1/4 | 6.35 | 1/4 | 6.35 | 7/16-20 | 9/16 | 14.28 | 9/16 | 14.28 | 15.74 | 15.74 | 21.33 |
| IAA6-6 | 3/8 | 9.52 | 3/8 | 9.52 | 9/16-18 | 11/16 | 17.46 | 11/16 | 17.46 | 18.28 | 17.52 | 24.89 |
| IAA8-8 | 1/2 | 12.70 | 1/2 | 12.70 | 3/4-16 | 7/8 | 22.22 | 7/8 | 22.22 | 21.59 | 23.11 | 31.75 |

AN TUBE & SAE O-RING

IMC-U

NON-POSITIONABLE SAE MALE CONNECTOR



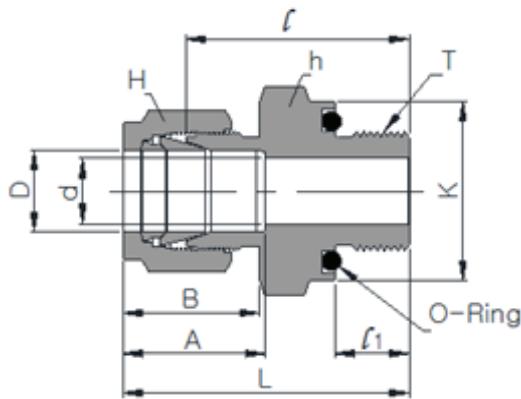
Connects Fractional Tube to SAE straight thread boss

| Part No. | Tube O.D. D | | Straight Thread T(U) | d Min. | Width across flat h | | | | A | B | f | L | O-Ring Uniform Size Number | |
|-----------|----------------|-------|----------------------------|-----------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------------|------|
| | in | mm | | | in | mm | in | mm | | | | | | |
| IMC2-2U | 1/8 | 3.17 | 5/16-24 | 2.28 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 23.26 | 7.62 | 29.97 | -902 |
| IMC2-4U | 1/8 | 3.17 | 7/16-20 | 2.28 | 9/16 | 14.28 | 7/16 | 11.11 | 12.70 | 15.24 | 24.89 | 9.14 | 31.49 | -904 |
| IMC4-4U | 1/4 | 6.35 | 7/16-20 | 4.82 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 26.67 | 9.14 | 34.03 | -904 |
| IMC4-6U | 1/4 | 6.35 | 9/16-18 | 4.82 | 11/16 | 17.46 | 9/16 | 14.28 | 15.24 | 17.78 | 28.19 | 9.90 | 35.56 | -906 |
| IMC4-8U | 1/4 | 6.35 | 3/4-16 | 4.82 | 7/8 | 22.22 | 9/16 | 14.28 | 15.24 | 17.78 | 30.22 | 11.17 | 37.59 | -908 |
| IMC4-10U | 1/4 | 6.35 | 7/8-14 | 4.82 | 1 | 25.40 | 9/16 | 14.28 | 15.24 | 17.78 | 33.27 | 12.70 | 40.64 | -910 |
| IMC5-5U | 5/16 | 7.93 | 1/2-20 | 5.84 | 5/8 | 15.87 | 5/8 | 15.87 | 16.25 | 18.54 | 27.43 | 9.14 | 34.79 | -905 |
| IMC6-4U | 3/8 | 9.52 | 7/16-20 | 5.08 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 28.19 | 9.14 | 35.56 | -904 |
| IMC6-6U | 3/8 | 9.52 | 9/16-18 | 7.11 | 11/16 | 17.46 | 11/16 | 17.46 | 16.76 | 19.30 | 29.71 | 9.90 | 37.08 | -906 |
| IMC6-8U | 3/8 | 9.52 | 3/4-16 | 7.11 | 7/8 | 22.22 | 11/16 | 17.46 | 16.76 | 19.30 | 31.75 | 11.17 | 39.11 | -908 |
| IMC6-10U | 3/8 | 9.52 | 7/8-14 | 7.11 | 1 | 25.40 | 11/16 | 17.46 | 16.76 | 19.30 | 34.79 | 12.70 | 42.16 | -910 |
| IMC8-6U | 1/2 | 12.70 | 9/16-18 | 7.11 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 28.95 | 9.90 | 39.11 | -906 |
| IMC8-8U | 1/2 | 12.70 | 3/4-16 | 10.41 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 31.75 | 11.17 | 41.91 | -908 |
| IMC8-10U | 1/2 | 12.70 | 7/8-14 | 10.41 | 1 | 25.40 | 7/8 | 22.22 | 22.86 | 21.84 | 34.79 | 12.70 | 44.95 | -910 |
| IMC8-12U | 1/2 | 12.70 | 1-1/16-12 | 10.41 | 1-1/4 | 31.75 | 7/8 | 22.22 | 22.86 | 21.84 | 38.86 | 14.98 | 49.02 | -912 |
| IMC10-8U | 5/8 | 15.87 | 3/4-16 | 10.66 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 31.75 | 11.17 | 41.91 | -908 |
| IMC10-10U | 5/8 | 15.87 | 7/8-14 | 12.70 | 1 | 25.40 | 1 | 25.40 | 24.38 | 21.84 | 35.05 | 12.70 | 45.21 | -910 |
| IMC12-8U | 3/4 | 19.05 | 3/4-16 | 10.66 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 24.38 | 21.84 | 35.81 | 11.17 | 45.97 | -908 |
| IMC12-12U | 3/4 | 19.05 | 1-1/16-12 | 15.74 | 1-1/4 | 31.75 | 1-1/8 | 28.57 | 24.38 | 21.84 | 38.86 | 14.98 | 49.02 | -912 |
| IMC14-14U | 7/8 | 22.22 | 1-3/16-12 | 18.28 | 1-3/8 | 34.92 | 1-1/4 | 31.75 | 25.90 | 21.84 | 38.86 | 14.98 | 49.02 | -914 |
| IMC16-12U | 1 | 25.40 | 1-1/16-12 | 16.76 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 41.14 | 14.98 | 53.54 | -912 |
| IMC16-16U | 1 | 25.40 | 1-5/16-12 | 22.35 | 1-1/2 | 38.10 | 1-1/2 | 38.10 | 31.24 | 26.41 | 42.16 | 14.98 | 54.35 | -916 |
| IMC20-20U | 1-1/4 | 31.75 | 1-5/8-12 | 27.68 | 1-7/8 | 47.63 | 1-7/8 | 47.63 | 41.14 | 38.86 | 46.22 | 14.98 | 68.32 | -920 |
| IMC24-24U | 1-1/2 | 38.10 | 1-7/8-12 | 34.03 | 2-1/8 | 53.98 | 2-1/4 | 57.15 | 50.03 | 45.21 | 50.54 | 14.98 | 77.72 | -924 |
| IMC32-32U | 2 | 50.80 | 2-1/2-12 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 64.26 | 14.98 | 101.60 | -932 |

AN-TUBE & SAE O-RING

IMC-UO

O-SEAL SAEMALE CONNECTOR



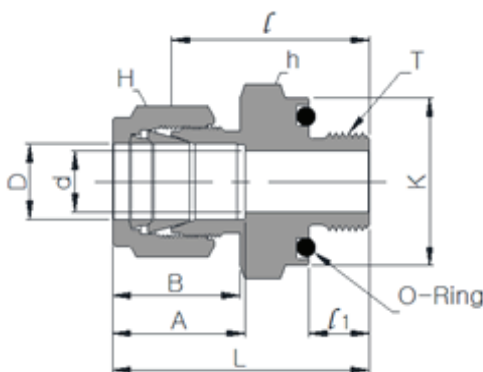
Connects fractional tube to female straight thread

| Part No. | Tube O.D. D | | Straight Thread T(U) | d Min. | Width across flat h | | | | A | B | l | h | L | K | O-Ring Uniform Size Number |
|-------------|----------------|-------|-------------------------|-----------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------------------|
| | in | mm | | | in | mm | in | mm | | | | | | | |
| IMC 2-2UO | 1/8 | 3.17 | 5/16-20 | 2.28 | 9/16 | 14.28 | 7/16 | 11.11 | 12.70 | 15.24 | 26.16 | 8.63 | 32.76 | 13.97 | -011 |
| IMC 3-3UO | 3/16 | 4.76 | 3/8-24 | 3.04 | 5/8 | 15.87 | 1/2 | 12.70 | 13.71 | 16.00 | 27.68 | 9.65 | 34.29 | 15.73 | -012 |
| IMC 4-4UO | 1/4 | 6.35 | 7/16-20 | 4.82 | 3/4 | 19.05 | 9/16 | 14.28 | 15.24 | 17.78 | 30.98 | 10.41 | 38.35 | 18.80 | -111 |
| IMC 5-5UO | 5/16 | 7.93 | 1/2-20 | 6.35 | 7/8 | 22.22 | 5/8 | 15.87 | 16.25 | 18.54 | 33.27 | 11.17 | 40.64 | 21.84 | -112 |
| IMC 6-6UO | 3/8 | 9.52 | 9/16-18 | 7.11 | 15/16 | 23.81 | 11/16 | 17.46 | 16.76 | 19.30 | 35.05 | 11.93 | 42.41 | 23.62 | -113 |
| IMC 8-8UO | 1/2 | 12.70 | 3/4-16 | 10.41 | 1-1/8 | 28.57 | 7/8 | 22.22 | 22.86 | 21.84 | 35.81 | 11.93 | 45.97 | 28.45 | -116 |
| IMC 12-12UO | 3/4 | 19.05 | 1-1/16-12 | 15.74 | 1-1/2 | 38.10 | 1-1/8 | 28.58 | 24.38 | 21.84 | 42.16 | 14.22 | 52.32 | 37.85 | -215 |
| IMC 16-16UO | 1 | 25.40 | 1-5/16-12 | 22.35 | 1-3/4 | 44.45 | 1-1/2 | 38.10 | 31.24 | 26.41 | 45.97 | 14.22 | 58.16 | 44.20 | -219 |

IMC-NO

O-SEAL NPT

MALE CONNECTOR



Connects Fractional Tube To Female Straight Thread

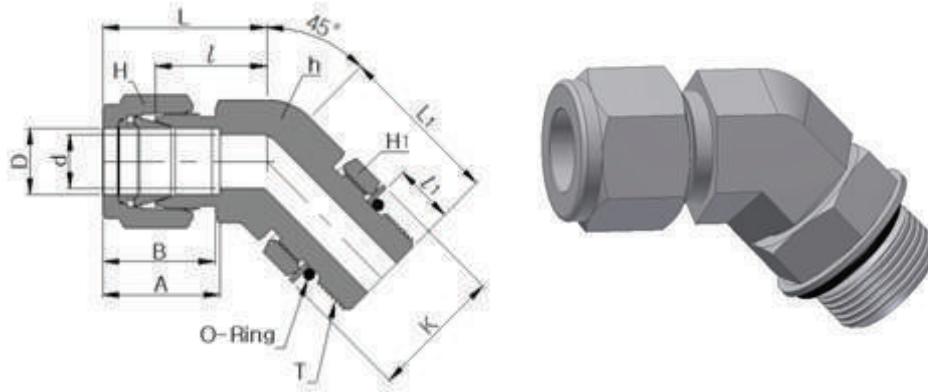
| Part No. | Tube O.D. D | | T *(NPT) | d Min. | Width across flat h | | | | A | B | l | h | L | K | O-Ring Uniform Size Number |
|-----------|----------------|-------|-------------|-----------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------------------|
| | in | mm | | | in | mm | in | mm | | | | | | | |
| IMC 2-2NO | 1/8 | 3.17 | 1/8 | 2.28 | 3/4 | 19.05 | 7/16 | 11.11 | 12.70 | 15.24 | 26.16 | 7.11 | 32.76 | 18.80 | -111 |
| IMC 4-2NO | 1/4 | 6.35 | 1/8 | 4.82 | 3/4 | 19.05 | 9/16 | 14.28 | 15.24 | 17.78 | 27.68 | 7.11 | 35.05 | 18.80 | -111 |
| IMC 4-4NO | 1/4 | 6.35 | 1/4 | 4.82 | 15/16 | 23.81 | 9/16 | 14.28 | 15.24 | 17.78 | 30.98 | 9.65 | 38.35 | 23.62 | -113 |
| IMC 6-4NO | 3/8 | 9.52 | 1/4 | 7.11 | 15/16 | 23.81 | 11/16 | 17.46 | 16.76 | 19.30 | 32.51 | 9.65 | 39.87 | 23.62 | -113 |
| IMC 6-6NO | 3/8 | 9.52 | 3/8 | 7.11 | 1-1/8 | 28.58 | 11/16 | 17.46 | 16.76 | 19.30 | 34.03 | 10.41 | 41.40 | 28.45 | -116 |
| IMC 6-8NO | 3/8 | 9.52 | 1/2 | 7.11 | 1-5/16 | 33.33 | 11/16 | 17.46 | 16.76 | 19.30 | 39.62 | 13.46 | 46.99 | 33.02 | -212 |
| IMC 8-8NO | 1/2 | 12.70 | 1/2 | 10.41 | 1-5/16 | 33.33 | 7/8 | 22.22 | 22.86 | 21.84 | 39.62 | 13.46 | 49.78 | 33.02 | -212 |

AN TUBE & SAE O-RING

ILBS-UP

POSITIONABLE

45° SAE MALE ELBOW



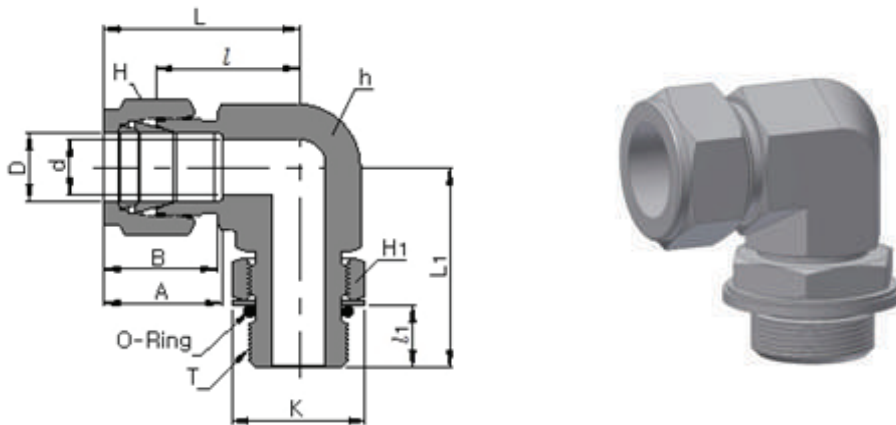
Connects Fractional Tube To SAE Straight Thread

| Part No. | Tube O.D. D | | Straight Thread T(U) | d Min. | h | | Width across flat H | | H ₁ | A | B | ℓ | ℓ ₁ | L | L ₁ | K | O-Ring Uniform Size Number | |
|-------------|-------------|-------|----------------------|--------|-------|-------|---------------------|-------|----------------|-------|-------|-------|----------------|-------|----------------|-------|----------------------------|------|
| | in | mm | | | in | mm | in | mm | | | | | | | | | | in |
| ILBS 4-4UP | 1/4 | 6.35 | 7/16-20 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 18.28 | 9.90 | 25.65 | 25.65 | 16.51 | -904 |
| ILBS 6-6UP | 3/8 | 9.52 | 9/16-18 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 11/16 | 17.46 | 16.76 | 19.30 | 20.57 | 11.17 | 27.94 | 28.19 | 20.06 | -906 |
| ILBS 8-8UP | 1/2 | 12.70 | 3/4-16 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 21.84 | 12.70 | 32.00 | 32.25 | 25.65 | -908 |
| ILBS12-12UP | 3/4 | 19.05 | 1-1/16-12 | 15.74 | 1-1/8 | 28.58 | 1-1/8 | 28.58 | 1-1/4 | 31.75 | 24.38 | 21.84 | 29.71 | 16.76 | 39.87 | 47.24 | 36.57 | -912 |
| ILBS16-16UP | 1 | 25.40 | 1-5/16-12 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 1-1/2 | 38.10 | 31.24 | 26.41 | 35.30 | 16.76 | 47.49 | 50.54 | 43.94 | -916 |

ILM-GP

POSITIONABLE

MALE ELBOW



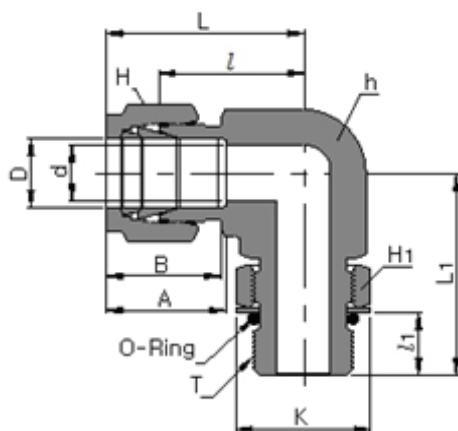
Connects Metric Tube To Female ISO Parallel Thread

| Part No. | Tube O.D. D | T G(PF) | d Min. | h | | H ₁ | H | A | B | ℓ | ℓ ₁ | L | L ₁ | K | O-Ring Uniform Size Number |
|-------------|-------------|---------|--------|------|------|----------------|------|------|------|------|----------------|------|----------------|------|----------------------------|
| | | | | in | mm | | | | | | | | | | |
| ILM6M-2GP | 6 | 1/8 | 4.0 | 12.7 | 14.2 | 14 | 15.3 | 17.7 | 19.6 | 8.1 | 27.0 | 26.4 | 15.0 | P8 | |
| ILM6M-4GP | 6 | 1/4 | 4.8 | 15.8 | 19.1 | 15 | 15.3 | 17.7 | 21.6 | 9.1 | 29.0 | 32.3 | 20.2 | -111 | |
| ILM8M-2GP | 8 | 1/8 | 4.0 | 14.2 | 14.2 | 16 | 16.2 | 18.6 | 21.3 | 8.1 | 28.8 | 27.4 | 15.0 | P8 | |
| ILM8M-4GP | 8 | 1/4 | 5.9 | 15.8 | 19.1 | 16 | 16.2 | 18.6 | 22.4 | 9.1 | 29.9 | 32.2 | 20.2 | -111 | |
| ILM10M-4GP | 10 | 1/4 | 5.9 | 20.6 | 19.1 | 19 | 17.2 | 19.5 | 25.9 | 9.1 | 33.5 | 35.0 | 20.2 | -113 | |
| ILM10M-6GP | 10 | 3/8 | 7.9 | 20.6 | 22.2 | 19 | 17.2 | 19.5 | 25.9 | 9.4 | 33.5 | 37.1 | 23.5 | -111 | |
| ILM12M-4GP | 12 | 1/4 | 5.9 | 20.6 | 19.1 | 22 | 22.8 | 22.0 | 25.9 | 9.1 | 36.0 | 35.0 | 20.2 | -113 | |
| ILM12M-6GP | 12 | 3/8 | 7.9 | 20.6 | 22.2 | 22 | 22.8 | 22.0 | 25.9 | 9.4 | 36.0 | 37.1 | 23.5 | -113 | |
| ILM12M-8GP | 12 | 1/2 | 9.5 | 23.8 | 26.9 | 22 | 22.8 | 22.0 | 27.9 | 13.0 | 38.0 | 43.4 | 34.5 | P18 | |
| ILM12M-12GP | 12 | 3/4 | 9.5 | 26.9 | 34.9 | 22 | 22.8 | 22.0 | 29.7 | 13.0 | 39.8 | 48.8 | 43.5 | -119 | |

AN-TUBE & SAE O-RING

ILS-UP

POSITIONABLE SAE MALE ELBOW

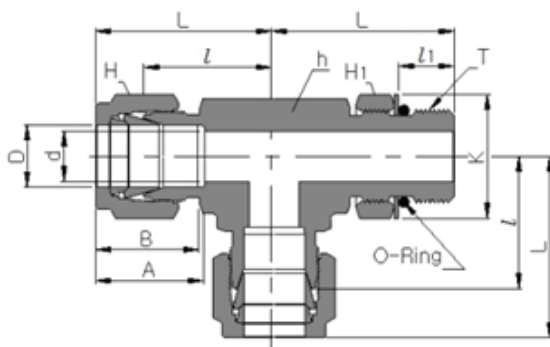


Connects Fractional Tube To SAE Straight Thread

| Part No. | Tube O.D. | | Straight Thread T(U) | d Min. | Width across flat | | | | | | | | O-Ring Uniform Size Number | | | | | |
|-------------|-----------|-------|----------------------|--------|-------------------|-------|-------|-------|-------------------|-------------------|-------|-------|----------------------------|-------|----------------|-------|----------------|------|
| | D in | D mm | | | h in | h mm | H in | H mm | H ₁ in | H ₁ mm | A | B | | ℓ | ℓ ₁ | L | L ₁ | K |
| ILS 4-4UP | 1/4 | 6.35 | 7/16-20 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 21.08 | 9.90 | 28.44 | 28.44 | 16.51 | -904 |
| ILS 5-5UP | 5/16 | 7.93 | 1/2-20 | 5.84 | 9/16 | 14.28 | 5/8 | 15.87 | 5/8 | 15.87 | 16.25 | 18.54 | 22.86 | 9.90 | 30.22 | 29.46 | 18.28 | -905 |
| ILS 6-6UP | 3/8 | 9.52 | 9/16-18 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 11/16 | 17.46 | 16.76 | 19.30 | 24.63 | 11.17 | 32.00 | 32.25 | 20.06 | -906 |
| ILS 6-8UP | 3/8 | 9.52 | 3/4-16 | 7.11 | 13/16 | 20.64 | 11/16 | 17.46 | 7/8 | 22.22 | 16.76 | 19.30 | 27.43 | 12.70 | 34.79 | 37.84 | 25.65 | -908 |
| ILS 8-8UP | 1/2 | 12.70 | 3/4-16 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 27.43 | 12.70 | 37.59 | 37.84 | 25.65 | -908 |
| ILS 10-10UP | 5/8 | 15.87 | 7/8-14 | 12.70 | 1 | 25.40 | 1 | 25.40 | 1 | 25.40 | 24.38 | 21.84 | 29.46 | 14.22 | 39.62 | 43.43 | 29.46 | -910 |
| ILS 12-12UP | 3/4 | 19.05 | 1-1/16-12 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 1-1/4 | 31.75 | 24.38 | 21.84 | 31.24 | 16.76 | 41.40 | 48.76 | 36.57 | -912 |
| ILS 14-14UP | 7/8 | 22.22 | 1-3/16-12 | 18.28 | 1-1/4 | 31.75 | 1-1/4 | 31.75 | 1-3/8 | 34.92 | 25.90 | 21.84 | 33.02 | 16.76 | 43.18 | 50.54 | 40.38 | -914 |
| ILS 16-16UP | 1 | 25.40 | 1-5/16-12 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 1-1/2 | 38.10 | 31.24 | 26.41 | 38.35 | 16.76 | 50.54 | 53.59 | 43.94 | -916 |
| ILS 20-20UP | 1-1/4 | 31.75 | 1-5/8-12 | 27.68 | 1-11/16 | 42.76 | 1-7/8 | 47.63 | 1-7/8 | 47.63 | 41.14 | 38.86 | 45.72 | 16.76 | 67.81 | 58.16 | 54.86 | -920 |
| ILS 24-24UP | 1-1/2 | 38.10 | 1-7/8-12 | 34.03 | 2 | 50.80 | 2-1/4 | 57.15 | 2-1/8 | 53.98 | 50.03 | 45.21 | 50.80 | 16.76 | 77.97 | 60.45 | 62.23 | -924 |
| ILS 32-32UP | 2 | 50.80 | 2-1/2-12 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 2-3/4 | 69.85 | 67.56 | 62.73 | 69.85 | 16.76 | 107.18 | 71.62 | 80.26 | -932 |

ITRS-UP

POSITIONABLE SAE MALE RUN TEE



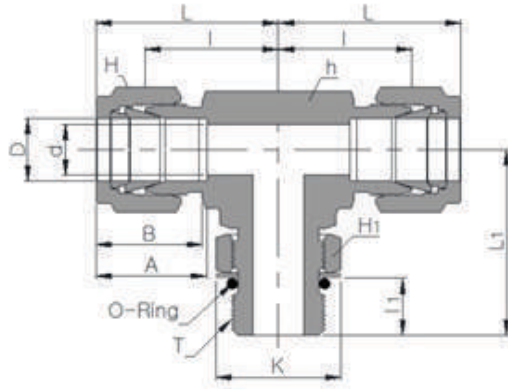
Connects Fractional Tube To SAE Straight Thread

| Part No. | Tube O.D. | | Straight Thread T(U) | d Min. | Width across flat | | | | | | | | O-Ring Uniform Size Number | | | | | |
|-------------|-----------|-------|----------------------|--------|-------------------|-------|-------|-------|-------------------|-------------------|-------|-------|----------------------------|-------|----------------|-------|----------------|------|
| | D in | D mm | | | h in | h mm | H in | H mm | H ₁ in | H ₁ mm | A | B | | ℓ | ℓ ₁ | L | L ₁ | K |
| ITRS4-4UP | 1/4 | 6.35 | 7/16-20 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 21.08 | 9.90 | 28.44 | 28.44 | 16.51 | -904 |
| ITRS6-6UP | 3/8 | 9.52 | 9/16-18 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 11/16 | 17.46 | 16.76 | 19.30 | 24.63 | 11.17 | 32.00 | 32.25 | 20.06 | -906 |
| ITRS8-8UP | 1/2 | 12.70 | 3/4-16 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 27.43 | 12.70 | 37.59 | 37.84 | 25.65 | -908 |
| ITRS12-12UP | 3/4 | 19.05 | 1-1/16-12 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 1-1/4 | 31.75 | 24.38 | 21.84 | 31.24 | 16.76 | 41.40 | 45.50 | 36.57 | -912 |
| ITRS16-16UP | 1 | 25.40 | 1-5/16-12 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 1-1/2 | 38.10 | 31.24 | 26.41 | 38.35 | 16.76 | 50.54 | 53.59 | 43.94 | -916 |
| ITRS20-20UP | 1-1/4 | 31.75 | 1-5/8-12 | 27.68 | 1-11/16 | 42.86 | 1-7/8 | 47.63 | 1-7/8 | 47.63 | 41.14 | 38.86 | 45.72 | 16.76 | 67.81 | 58.16 | 54.86 | -920 |
| ITRS24-24UP | 1-1/2 | 38.10 | 1-7/8-12 | 34.03 | 2 | 50.80 | 2-1/4 | 57.15 | 2-1/8 | 53.98 | 50.03 | 45.21 | 50.80 | 16.76 | 77.97 | 60.45 | 62.23 | -924 |
| ITRS32-32UP | 2 | 50.80 | 2-1/2-12 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 2-3/4 | 69.85 | 67.56 | 62.73 | 69.85 | 16.76 | 107.18 | 71.62 | 80.26 | -932 |

AN TUBE & SAE O-RING

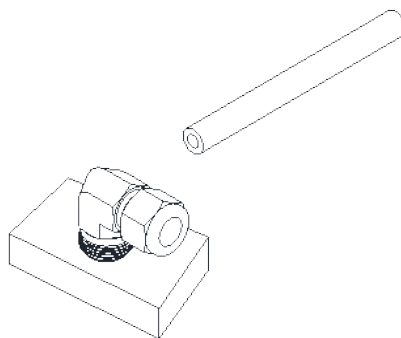
ITBS-UP

POSITIONABLE SAE MALE BRANCH TEE

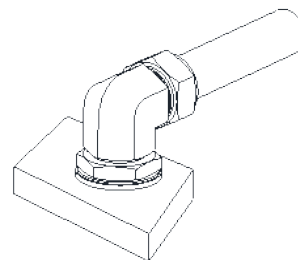


Connects Fractional Tube To SAE straight Thread Boss

| Part No. | Tube O.D. D | | Straight Thread T(U) | d Min. | h | | Width across flat H | | | A | B | ℓ | ℓ | L | L ₁ | K | O-Ring Uniform Size Number | |
|-------------|----------------|-------|----------------------------|-----------|---------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|----------------|-------|-------------------------------------|------|
| | in | mm | | | in | mm | in | mm | in | | | | | | | | | mm |
| ITBS4-4UP | 1/4 | 6.35 | 7/16-20 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 21.08 | 9.90 | 28.44 | 28.44 | 16.51 | -904 |
| ITBS6-6UP | 3/8 | 9.52 | 9/16-18 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 11/16 | 17.46 | 16.76 | 19.30 | 24.63 | 11.17 | 32.00 | 32.25 | 20.06 | -906 |
| ITBS8-8UP | 1/2 | 12.70 | 3/4-16 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 27.43 | 12.70 | 37.59 | 37.84 | 25.65 | -908 |
| ITBS12-12UP | 3/4 | 19.05 | 1-1/16-12 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 1-1/4 | 31.75 | 24.38 | 21.84 | 31.24 | 16.76 | 41.40 | 48.76 | 36.57 | -912 |
| ITBS16-16UP | 1 | 25.40 | 1-5/16-12 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 1-1/2 | 38.10 | 31.24 | 26.41 | 38.35 | 16.76 | 50.54 | 53.59 | 43.94 | -916 |
| ITBS20-20UP | 1-1/4 | 31.75 | 1-5/8-12 | 27.68 | 1-11/16 | 42.86 | 1-7/8 | 47.63 | 1-7/8 | 47.63 | 41.14 | 38.86 | 45.72 | 16.76 | 67.81 | 58.16 | 54.86 | -920 |
| ITBS24-24UP | 1-1/2 | 38.10 | 1-7/8-12 | 34.03 | 2 | 50.80 | 2-1/4 | 57.15 | 2-1/8 | 53.98 | 50.03 | 45.21 | 50.80 | 16.76 | 77.97 | 60.45 | 62.23 | -924 |
| ITBS32-32UP | 2 | 50.80 | 2-12-12 | 45.97 | 2-3/4 | 69.85 | 3 | 76.20 | 2-3/4 | 69.85 | 67.56 | 62.73 | 69.85 | 16.76 | 107.18 | 71.62 | 80.26 | -932 |



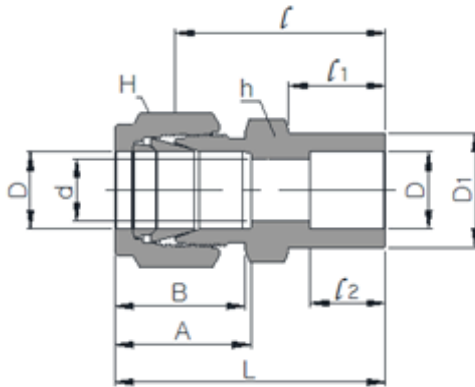
Male elbow is tightened
in the wrong direction



Connector union elbow to the male
adapter, and set the direction. Follow
I-LOK standard installation instruction

TUBE TO TUBE ICSW

TUBE SOCKET WELD CONNECTOR

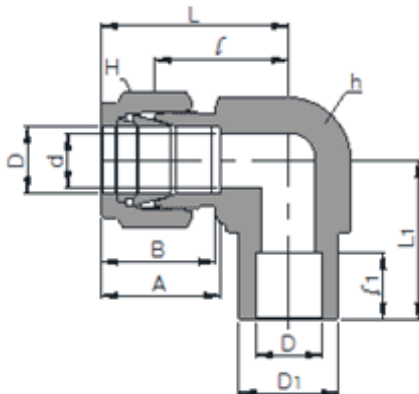


Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min. | D ₁ | Width across flat | | | | A | B | l | h | l ₂ | L |
|-----------|-----------|---------|-----------|----------------|-------------------|-------|-------|-------|-------|-------|-------|-------|----------------|-------|
| | in | D mm | | | in | h | mm | in | | | | | | |
| ICSW2-2 | 1/8 | 3.17 | 2.28 | 7.87 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 22.35 | 8.63 | 6.35 | 28.95 |
| ICSW4-4 | 1/4 | 6.35 | 4.82 | 11.17 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 26.16 | 10.41 | 7.87 | 33.52 |
| ICSW6-6 | 3/8 | 9.52 | 7.11 | 15.74 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 30.22 | 11.93 | 9.65 | 37.59 |
| ICSW8-8 | 1/2 | 12.70 | 10.41 | 19.05 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 30.98 | 11.93 | 12.70 | 41.14 |
| ICSW12-12 | 3/4 | 19.05 | 15.74 | 26.67 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 33.27 | 11.93 | 14.22 | 43.43 |
| ICSW16-16 | 1 | 25.40 | 22.35 | 33.27 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 40.38 | 14.22 | 19.05 | 52.57 |

ILSW

TUBE SOCKET WELD ELBOW



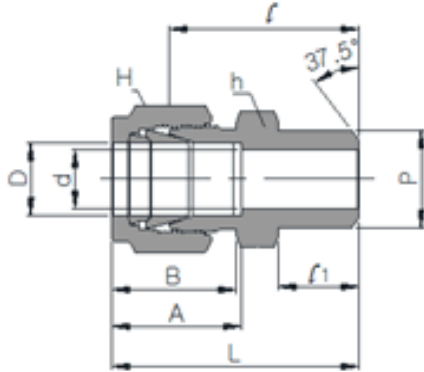
Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min. | D ₁ | Width across flat | | | | A | B | l | h | L | L1 |
|-----------|-----------|---------|-----------|----------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | in | D mm | | | in | h | mm | in | | | | | | |
| ILSW4-4 | 1/4 | 6.35 | 4.82 | 12.70 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.60 | 7.87 | 26.90 | 19.60 |
| ILSW6-6 | 3/8 | 9.52 | 7.11 | 15.74 | 5/8 | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.10 | 9.65 | 30.40 | 23.10 |
| ILSW8-8 | 1/2 | 12.70 | 10.41 | 20.57 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 12.70 | 36.0 | 25.90 |
| ILSW12-12 | 3/4 | 19.05 | 15.74 | 26.92 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.70 | 14.22 | 39.80 | 29.70 |
| ILSW16-16 | 1 | 25.40 | 22.35 | 35.05 | 1-3/8 | 36.0 | 1-1/2 | 38.10 | 31.24 | 26.41 | 36.80 | 19.05 | 48.97 | 36.80 |

TUBE TO WELD END

ICBW

PIPE BUTT WELD CONNECTOR



Connects Fractional Tube To Pipe

| Part No. | Tube O.D. D | | Male Pipe Size P | | d Min. | Width across flat h | | H | A | B | l | L | | |
|------------|----------------|-------|---------------------|-------|-----------|------------------------|-------|-------|-------|-------|-------|-------|-------|--------|
| | in | mm | Nom | O.D | | in | mm | | | | | | in | mm |
| ICBW2-2P | 1/8 | 3.17 | 1/8 | 10.29 | 2.28 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.24 | 23.87 | 9.65 | 31.24 |
| ICBW3-2P | 3/16 | 4.76 | 1/8 | 10.29 | 3.04 | 7/16 | 11.11 | 1/2 | 12.70 | 13.71 | 16.00 | 24.63 | 9.65 | 31.24 |
| ICBW4-2P | 1/4 | 6.35 | 1/8 | 10.29 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 25.40 | 9.65 | 32.76 |
| ICBW4-4P | 1/4 | 6.35 | 1/4 | 13.72 | 4.82 | 9/16 | 14.28 | 9/16 | 14.28 | 15.24 | 17.78 | 30.48 | 14.22 | 37.84 |
| ICBW5-2P | 5/16 | 7.93 | 1/8 | 10.29 | 5.08 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 26.67 | 9.65 | 34.03 |
| ICBW5-4P | 5/16 | 7.93 | 1/4 | 13.72 | 6.35 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 31.24 | 14.22 | 38.60 |
| ICBW6-4P | 3/8 | 9.52 | 1/4 | 13.72 | 7.11 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 32.51 | 14.22 | 39.87 |
| ICBW6-6P | 3/8 | 9.52 | 3/8 | 17.15 | 7.11 | 11/16 | 17.46 | 11/16 | 17.46 | 16.76 | 19.30 | 32.51 | 14.22 | 39.87 |
| ICBW6-8P | 3/8 | 9.52 | 1/2 | 21.34 | 7.11 | 7/8 | 22.22 | 11/16 | 17.46 | 16.76 | 19.30 | 38.86 | 11.05 | 43.23 |
| ICBW6-12P | 3/8 | 9.52 | 3/4 | 26.67 | 7.11 | 1-1/16 | 26.98 | 11/16 | 17.26 | 16.76 | 19.30 | 40.38 | 19.05 | 47.75 |
| ICBW8-6P | 1/2 | 12.70 | 3/8 | 17.15 | 10.41 | 13/16 | 20.64 | 7/8 | 22.22 | 22.86 | 21.84 | 33.27 | 14.22 | 43.43 |
| ICBW8-8P | 1/2 | 12.70 | 1/2 | 21.34 | 10.41 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 38.86 | 19.05 | 49.02 |
| ICBW8-12P | 1/2 | 12.70 | 3/4 | 26.67 | 10.41 | 1-1/16 | 26.98 | 7/8 | 22.22 | 22.86 | 21.84 | 40.38 | 19.05 | 50.54 |
| ICBW10-8P | 5/8 | 15.87 | 1/2 | 21.34 | 12.70 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 38.86 | 19.05 | 49.02 |
| ICBW12-12P | 3/4 | 19.05 | 3/4 | 26.67 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 40.38 | 19.05 | 50.54 |
| ICBW16-16P | 1 | 25.40 | 1 | 33.40 | 22.35 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 50.03 | 23.87 | 62.23 |
| ICBW20-20P | 1-1/4 | 31.75 | 1-1/4 | 42.16 | 27.68 | 1-3/4 | 44.45 | 1-7/8 | 47.62 | 41.14 | 38.86 | 55.11 | 23.87 | 77.21 |
| ICBW24-24P | 1-1/2 | 38.10 | 1-1/2 | 48.26 | 34.03 | 2-1/8 | 53.98 | 2-1/4 | 57.15 | 50.03 | 45.21 | 61.72 | 26.16 | 88.90 |
| ICBW32-32P | 2 | 50.80 | 2 | 60.33 | 47.75 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 76.20 | 26.92 | 113.53 |

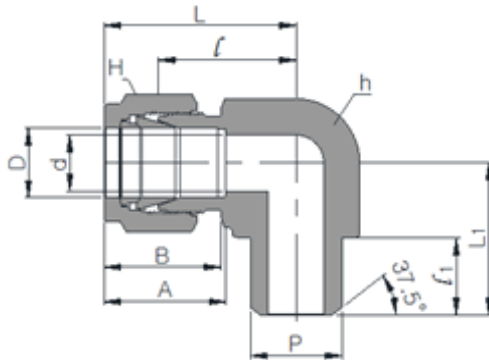
Connects Metric Tube To Pipe

| Part No. | Tube O.D. D | | Male Pipe Size P | | d Min. | Width across flat h | | A | B | l | L |
|-------------|----------------|-------|---------------------|------|-----------|------------------------|------|------|------|------|------|
| | Nom | O.D | in | mm | | in | mm | | | | |
| ICBW3M-2P | 3 | 1/8 | 10.29 | 2.4 | 12 | 12 | 12.9 | 15.3 | 23.9 | 9.7 | 29.7 |
| ICBW4M-2P | 4 | 1/8 | 10.29 | 2.4 | 12 | 12 | 13.7 | 16.1 | 24.6 | 9.7 | 30.7 |
| ICBW6M-2P | 6 | 1/8 | 10.29 | 4.8 | 14 | 14 | 15.3 | 17.7 | 25.4 | 9.7 | 32.8 |
| ICBW6M-4P | 6 | 1/4 | 13.72 | 4.8 | 14 | 14 | 15.3 | 17.7 | 30.2 | 14.2 | 37.6 |
| ICBW8M-2P | 8 | 1/8 | 10.29 | 5.1 | 14 | 16 | 16.2 | 18.6 | 26.7 | 9.7 | 34.2 |
| ICBW8M-4P | 8 | 1/4 | 13.72 | 6.3 | 14 | 16 | 16.2 | 18.6 | 31.2 | 14.2 | 38.7 |
| ICBW8M-8P | 8 | 1/2 | 21.34 | 6.3 | 22 | 16 | 16.2 | 18.6 | 38.1 | 19.0 | 44.8 |
| ICBW10M-4P | 10 | 1/4 | 13.72 | 7.1 | 17 | 19 | 17.2 | 19.5 | 33.3 | 14.2 | 40.9 |
| ICBW10M-6P | 10 | 3/8 | 17.15 | 7.9 | 19 | 19 | 17.2 | 19.5 | 33.3 | 14.2 | 40.1 |
| ICBW10M-8P | 10 | 1/2 | 21.34 | 7.9 | 22 | 19 | 17.2 | 19.5 | 38.1 | 19.0 | 45.7 |
| ICBW12M-4P | 12 | 1/4 | 13.72 | 7.1 | 22 | 22 | 22.8 | 22.0 | 33.3 | 14.2 | 43.4 |
| ICBW12M-6P | 12 | 3/8 | 17.15 | 9.5 | 22 | 22 | 22.8 | 22.0 | 33.3 | 14.2 | 43.4 |
| ICBW12M-8P | 12 | 1/2 | 21.34 | 9.5 | 22 | 22 | 22.8 | 22.0 | 38.1 | 19.0 | 48.2 |
| ICBW14M-6P | 14 | 3/8 | 17.15 | 10.3 | 24 | 25 | 24.4 | 22.0 | 34.0 | 14.2 | 44.1 |
| ICBW15M-8P | 15 | 1/2 | 21.34 | 11.9 | 24 | 25 | 24.4 | 22.0 | 38.9 | 19.0 | 49.0 |
| ICBW16M-8P | 16 | 1/2 | 21.34 | 12.7 | 24 | 25 | 24.4 | 22.0 | 38.9 | 19.0 | 49.0 |
| ICBW18M-8P | 18 | 1/2 | 21.34 | 13.5 | 27 | 30 | 24.4 | 22.0 | 40.4 | 19.0 | 50.5 |
| ICBW32M-20P | 32 | 1-1/4 | 42.16 | 28.6 | 46 | 50 | 42.0 | 41.6 | 56.6 | 23.9 | 79.6 |
| ICBW38M-24P | 38 | 1-1/2 | 48.26 | 33.7 | 55 | 60 | 49.4 | 47.9 | 64.0 | 26.2 | 91.6 |

TUBE TO WELD END

ILW

PIPE BUTT WELD ELBOW

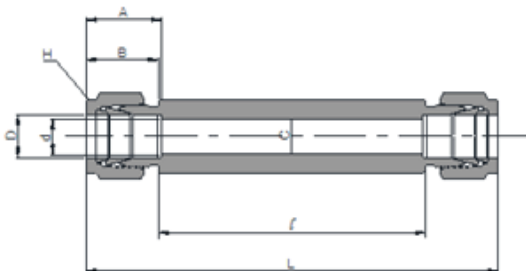


Connects Fractional Tube To Pipe

| Part No. | Tube O.D. D | | Male Pipe Size P | | d Min. | Width across flat h | | | | A | B | l | h | L | L ₁ |
|------------|----------------|-------|------------------------|-------|-----------|------------------------|-------|-------|-------|-------|-------|-------|-------|------|----------------|
| | in | mm | Nom | O.D | | in | mm | in | mm | | | | | | |
| ILW 2-2P | 1/8 | 3.17 | 1/8 | 10.29 | 2.28 | 1/2 | 12.70 | 7/16 | 11.11 | 15.24 | 17.78 | 18.1 | 9.65 | 24.7 | 19.0 |
| ILW 4-4P | 1/4 | 6.35 | 1/4 | 13.72 | 4.82 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 19.60 | 14.22 | 26.9 | 23.5 |
| ILW 6-4P | 3/8 | 9.52 | 1/4 | 13.72 | 7.11 | | 17.0 | 11/16 | 17.46 | 16.76 | 19.30 | 23.1 | 14.22 | 30.4 | 25.40 |
| ILW 8-8P | 1/2 | 12.70 | 1/2 | 21.34 | 10.41 | 7/8 | 22.22 | 7/8 | 22.22 | 22.86 | 21.84 | 25.90 | 19.05 | 36.0 | 33.0 |
| ILW 12-12P | 3/4 | 19.05 | 3/4 | 26.67 | 15.74 | 1-1/16 | 26.98 | 1-1/8 | 28.58 | 24.38 | 21.84 | 29.7 | 19.05 | 39.8 | 36.8 |

IBUW

BULKHEAD WELD UNION



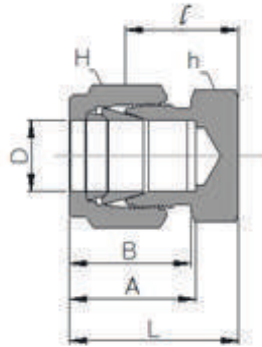
Connects Fractional Tubes

| Part No. | Tube O.D. D | | d Min. | O Diameter | Width across flat H | | A | B | l | L |
|----------|----------------|-------|-----------|---------------|------------------------|-------|-------|-------|------|-------|
| | in | mm | | | in | mm | | | | |
| IBUW-4 | 1/4 | 6.35 | 4.82 | 14.0 | 9/16 | 14.28 | 15.24 | 17.78 | 80.0 | 115.4 |
| IBUW-6 | 3/8 | 9.52 | 7.11 | 19.0 | 11/16 | 17.46 | 16.76 | 19.30 | 80.0 | 118.4 |
| IBUW-8 | 1/2 | 12.70 | 10.41 | 23.0 | 7/8 | 22.22 | 22.86 | 21.84 | 80.0 | 124.0 |

PLUG & CAP

IC

CAP FOR TUBE END



Cap Fractional Tube End

| Part No. | Tube O.D. | | Width across flat | | H | A | B | ℓ | L | |
|----------|-----------|-------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| | in | mm | in | mm | | | | | | |
| IC-1 | 1/16 | 1.59 | 5/16 | 7.93 | 5/16 | 7.93 | 8.63 | 10.92 | 11.20 | 14.18 |
| IC-2 | 1/8 | 3.17 | 7/16 | 11.11 | 7/16 | 11.11 | 12.70 | 15.14 | 13.46 | 20.06 |
| IC-3 | 3/16 | 4.76 | 7/16 | 11.11 | 1/2 | 12.70 | 13.71 | 16.00 | 14.73 | 21.33 |
| IC-4 | 1/4 | 6.35 | 1/2 | 12.70 | 9/16 | 14.28 | 15.24 | 17.78 | 16.00 | 23.26 |
| IC-5 | 5/16 | 7.93 | 9/16 | 14.28 | 5/8 | 15.87 | 16.25 | 18.54 | 17.01 | 24.38 |
| IC-6 | 3/8 | 9.52 | 5/8 | 15.87 | 11/16 | 17.46 | 16.76 | 19.30 | 18.28 | 25.65 |
| IC-8 | 1/2 | 12.70 | 13/16 | 20.63 | 7/8 | 22.22 | 22.86 | 21.84 | 19.05 | 29.21 |
| IC-10 | 5/8 | 15.87 | 15/16 | 23.81 | 1 | 25.40 | 24.38 | 21.84 | 19.81 | 29.97 |
| IC-12 | 3/4 | 19.05 | 1-1/16 | 26.98 | 1-1/8 | 28.57 | 24.38 | 21.84 | 21.33 | 31.49 |
| IC-14 | 7/8 | 22.22 | 1-3/16 | 30.16 | 1-1/4 | 31.75 | 25.90 | 21.84 | 23.87 | 34.03 |
| IC-16 | 1 | 25.40 | 1-3/8 | 34.92 | 1-1/2 | 38.10 | 31.24 | 26.41 | 26.16 | 38.35 |
| IC-20 | 1-1/4 | 31.75 | 1-3/4 | 44.45 | 1-7/8 | 47.63 | 41.14 | 38.86 | 31.24 | 53.34 |
| IC-24 | 1-1/2 | 38.10 | 2-1/8 | 53.98 | 2-1/4 | 57.15 | 50.15 | 45.21 | 37.33 | 64.51 |
| IC-32 | 2 | 50.80 | 2-3/4 | 69.85 | 3 | 76.20 | 67.56 | 62.73 | 49.27 | 86.61 |

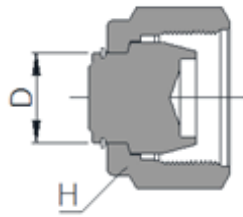
CapMetric Tube End

| Part No. | Tube O.D. | Width across flat | | A | B | ℓ | L |
|----------|-----------|-------------------|----|------|------|------|------|
| | D | h | H | | | | |
| IC-2M | 2 | 12 | 12 | 12.9 | 15.3 | 13.5 | 20.1 |
| IC-3M | 3 | 12 | 12 | 12.9 | 15.3 | 13.5 | 20.1 |
| IC-4M | 4 | 12 | 12 | 13.7 | 16.1 | 14.7 | 21.3 |
| IC-6M | 6 | 14 | 14 | 15.3 | 17.7 | 15.7 | 23.1 |
| IC-8M | 8 | 14 | 16 | 16.2 | 18.6 | 17.0 | 24.5 |
| IC-10M | 10 | 17 | 19 | 17.2 | 19.5 | 19.0 | 26.6 |
| IC-12M | 12 | 22 | 22 | 22.8 | 22.0 | 19.0 | 29.1 |
| IC-15M | 15 | 24 | 25 | 24.4 | 22.0 | 19.8 | 29.9 |
| IC-16M | 16 | 24 | 25 | 24.4 | 22.0 | 19.8 | 29.9 |
| IC-18M | 18 | 27 | 30 | 24.4 | 22.0 | 21.3 | 31.4 |
| IC-20M | 20 | 30 | 32 | 26.0 | 22.0 | 23.9 | 34.0 |
| IC-22M | 22 | 30 | 32 | 26.0 | 22.0 | 23.9 | 34.0 |
| IC-25M | 25 | 35 | 38 | 31.3 | 26.5 | 26.2 | 38.5 |
| IC-28M | 28 | 41 | 46 | 36.6 | 36.6 | 27.7 | 48.5 |
| IC-32M | 32 | 46 | 50 | 42.0 | 41.6 | 32.8 | 55.8 |
| IC-38M | 38 | 55 | 60 | 49.4 | 47.9 | 37.8 | 65.4 |

PLUG & CAP

IP

PORT PLUG



Plugs fractional I Tube Fitting Port

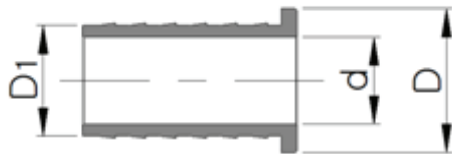
| Part No. | Tube O.D. D | | Width across flat H | |
|----------|----------------|-------|------------------------|-------|
| | in | mm | in | mm |
| IP-1 | 1/16 | 1.59 | 5/16 | 7.93 |
| IP-2 | 1/8 | 3.17 | 7/16 | 11.11 |
| IP-3 | 3/16 | 4.76 | 1/2 | 12.70 |
| IP-4 | 1/4 | 6.35 | 9/16 | 14.28 |
| IP-5 | 5/16 | 7.93 | 5/8 | 15.87 |
| IP-6 | 3/8 | 9.52 | 11/16 | 17.46 |
| IP-8 | 1/2 | 12.70 | 7/8 | 22.22 |
| IP-10 | 5/8 | 15.87 | 1 | 25.40 |
| IP-12 | 3/4 | 19.05 | 1-1/8 | 28.58 |
| IP-14 | 7/8 | 22.22 | 1-1/4 | 31.75 |
| IP-16 | 1 | 25.40 | 1-1/2 | 38.10 |
| IP-20 | 1-1/4 | 31.75 | 1-7/8 | 47.63 |
| IP-24 | 1-1/2 | 38.10 | 2-1/4 | 57.15 |
| IP-32 | 2 | 50.80 | 3 | 76.20 |

Plugs Metric I Tube Fitting Port

| Part No. | Tube O.D. D | | Width across flat H | |
|----------|----------------|----|------------------------|----|
| | in | mm | in | mm |
| IP-2M | | 2 | | 12 |
| IP-3M | | 3 | | 12 |
| IP-4M | | 4 | | 12 |
| IP-6M | | 6 | | 14 |
| IP-8M | | 8 | | 16 |
| IP-10M | | 10 | | 19 |
| IP-12M | | 12 | | 22 |
| IP-15M | | 15 | | 25 |
| IP-16M | | 16 | | 25 |
| IP-18M | | 18 | | 30 |
| IP-20M | | 20 | | 32 |
| IP-22M | | 22 | | 32 |
| IP-25M | | 25 | | 38 |
| IP-28M | | 28 | | 46 |
| IP-32M | | 32 | | 50 |
| IP-38M | | 38 | | 60 |



TUBE INSERT



Fractional Nylon or Soft Plastic Tubing

| Part No. | Tube O.D. D | | Tube I.D. D1 | | Bore I.D. d |
|----------|----------------|-------|-----------------|-------|----------------|
| | in | mm | in | mm | |
| II 3-2 | 3/16 | 4.76 | 1/8 | 3.17 | 1.70 |
| II 4-2 | 1/4 | 6.35 | 1/8 | 3.17 | 1.70 |
| II4-4.3M | 1/4 | 6.35 | 0.17 | 4.32 | 3.10 |
| II 4-3 | 1/4 | 6.35 | 3/16 | 4.76 | 3.56 |
| II 5-2 | 5/16 | 7.93 | 1/8 | 3.17 | 2.29 |
| II 5-3 | 5/16 | 7.93 | 3/16 | 4.76 | 3.50 |
| II 5-4 | 5/16 | 7.93 | 1/4 | 6.35 | 4.83 |
| II 6-3 | 3/8 | 9.52 | 3/16 | 4.76 | 3.05 |
| II 6-4 | 3/8 | 9.52 | 1/4 | 6.35 | 4.83 |
| II 8-4 | 1/2 | 12.7 | 1/4 | 6.35 | 4.83 |
| II 8-6 | 1/2 | 12.7 | 3/8 | 9.52 | 7.87 |
| II 10-6 | 5/8 | 15.87 | 3/8 | 9.52 | 7.87 |
| II 10-8 | 5/8 | 15.87 | 1/2 | 12.70 | 11.0 |
| II 12-8 | 3/4 | 19.05 | 1/2 | 12.70 | 11.0 |
| II12-10 | 3/4 | 19.05 | 5/8 | 15.87 | 14.22 |
| II 16-12 | 1 | 25.4 | 3/4 | 19.05 | 17.53 |

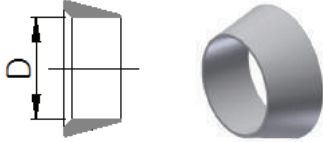
Metric Nylon or Soft Plastic Tubing

| Part No. | Tube O.D. | | Bore I.D. d |
|-----------|----------------|----|----------------|
| | Tube I.D. D | D1 | |
| II 6M-4M | 6 | 4 | 2.4 |
| II 8M-6M | 8 | 6 | 4.8 |
| II 10M-8M | 10 | 8 | 6.4 |
| II 12M-8M | 12 | 8 | 6.4 |
| II12M-10M | 12 | 10 | 8.3 |

SPARE PARTS

IFF

FRONT FERRULE



Fractional

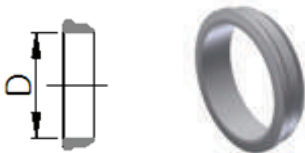
| Part No. | Tube O.D. D | |
|----------|----------------|-------|
| | in | mm |
| IFF-1 | 1/16 | 1.59 |
| IFF-2 | 1/8 | 3.17 |
| IFF-3 | 3/16 | 4.76 |
| IFF-4 | 1/4 | 6.35 |
| IFF-5 | 5/16 | 7.93 |
| IFF-6 | 3/8 | 9.52 |
| IFF-8 | 1/2 | 12.70 |
| IFF-10 | 5/8 | 15.87 |
| IFF-12 | 3/4 | 19.05 |
| IFF-14 | 7/8 | 22.22 |
| IFF-16 | 1 | 25.40 |
| IFF-20 | 1-1/4 | 31.75 |
| IFF-24 | 1-1/2 | 38.10 |
| IFF-32 | 2 | 50.80 |

Metric

| Part No. | Tube O.D. D |
|----------|----------------|
| IFF-2M | 2 |
| IFF-3M | 3 |
| IFF-4M | 4 |
| IFF-6M | 6 |
| IFF-8M | 8 |
| IFF-10M | 10 |
| IFF-12M | 12 |
| IFF-15M | 15 |
| IFF-16M | 16 |
| IFF-18M | 18 |
| IFF-20M | 20 |
| IFF-22M | 22 |
| IFF-25M | 25 |
| IFF-28M | 28 |
| IFF-32M | 32 |
| IFF-38M | 38 |
| IFF-42M | 42 |

IFB

BACK FERRULE



Fractional

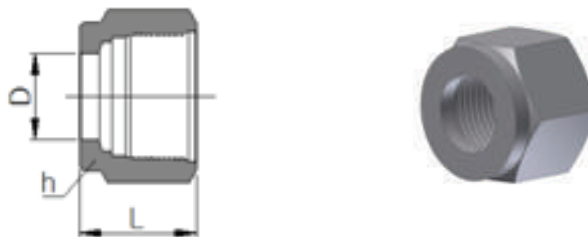
| Part No. | Tube O.D. D | |
|----------|----------------|-------|
| | in | mm |
| IFB-1 | 1/16 | 1.59 |
| IFB-2 | 1/8 | 3.17 |
| IFB-3 | 3/16 | 4.76 |
| IFB-4 | 1/4 | 6.35 |
| IFB-5 | 5/16 | 7.93 |
| IFB-6 | 3/8 | 9.52 |
| IFB-8 | 1/2 | 12.70 |
| IFB-10 | 5/8 | 15.87 |
| IFB-12 | 3/4 | 19.05 |
| IFB-14 | 7/8 | 22.22 |
| IFB-16 | 1 | 25.40 |
| IFB-20 | 1-1/4 | 31.75 |
| IFB-24 | 1-1/2 | 38.10 |
| IFB-32 | 2 | 50.80 |

Metric

| Part No. | Tube O.D. D |
|----------|----------------|
| IFB-2M | 2 |
| IFB-3M | 3 |
| IFB-4M | 4 |
| IFB-6M | 6 |
| IFB-8M | 8 |
| IFB-10M | 10 |
| IFB-12M | 12 |
| IFB-15M | 15 |
| IFB-16M | 16 |
| IFB-18M | 18 |
| IFB-20M | 20 |
| IFB-22M | 22 |
| IFB-25M | 25 |
| IFB-28M | 28 |
| IFB-32M | 32 |
| IFB-38M | 38 |
| IFB-42M | 42 |

IN

NUT



| Part No. | Tube O.D. | With across flat | | L |
|----------|-----------|------------------|---------|---|
| | D in | H in | H in | |
| IN-1 | 1/16 | 5/16 | 7.90 | |
| IN-2 | 1/8 | 7/16 | 11.93 | |
| IN-3 | 3/16 | 1/2 | 11.93 | |
| IN-4 | 1/4 | 9/16 | 12.70 | |
| IN-5 | 5/16 | 5/8 | 13.46 | |
| IN-6 | 3/8 | 11/16 | 14.22 | |
| IN-8 | 1/2 | 7/8 | 17.52 | |
| IN-10 | 5/8 | 1 | 17.52 | |
| IN-12 | 3/4 | 1-1/8 | 17.52 | |
| IN-14 | 7/8 | 1-1/4 | 17.52 | |
| IN-16 | 1 | 1-1/2 | 20.57 | |
| IN-20 | 1-1/4 | 1-7/8 | 31.75 | |
| IN-24 | 1-1/2 | 2-1/4 | 38.10 | |
| IN-32 | 2 | 3 | 52.32 | |

| Part No. | Tube O.D. | With across flat | | L |
|----------|-----------|------------------|-------|---|
| | D | H | H | |
| IN-2M | 2 | 12 | 11.90 | |
| IN-3M | 3 | 12 | 11.90 | |
| IN-4M | 4 | 12 | 11.90 | |
| IN-6M | 6 | 14 | 12.70 | |
| IN-8M | 8 | 16 | 13.50 | |
| IN-10M | 10 | 19 | 15.10 | |
| IN-12M | 12 | 22 | 17.40 | |
| IN-15M | 15 | 25 | 17.40 | |
| IN-16M | 16 | 25 | 17.40 | |
| IN-18M | 18 | 30 | 17.40 | |
| IN-20M | 20 | 32 | 17.40 | |
| IN-22M | 22 | 32 | 17.40 | |
| IN-25M | 25 | 38 | 20.60 | |
| IN-28M | 28 | 46 | 30.60 | |
| IN-32M | 32 | 50 | 34.40 | |
| IN-38M | 38 | 60 | 40.60 | |
| IN-42M | 42 | 65 | 44.70 | |

IFS

FERRULE SET



IFSN

NUT-FERRULE SET



| Fractional | | Metric | |
|------------|-----------------|----------|-----------|
| Part No. | Tube O.D. in | Part No. | Tube O.D. |
| IFS-1 | 1/16 | IFS-2M | 2 |
| IFS-2 | 1/8 | IFS-3M | 3 |
| IFS-3 | 3/16 | IFS-4M | 4 |
| IFS-4 | 1/4 | IFS-6M | 6 |
| IFS-5 | 5/16 | IFS-8M | 8 |
| IFS-6 | 3/8 | IFS-10M | 10 |
| IFS-8 | 1/2 | IFS-12M | 12 |
| IFS-10 | 5/8 | IFS-15M | 15 |
| IFS-12 | 3/4 | IFS-16M | 16 |
| IFS-14 | 7/8 | IFS-18M | 18 |
| IFS-16 | 1 | IFS-20M | 20 |
| IFS-20 | 1-1/4 | IFS-25M | 22 |
| IFS-24 | 1-1/2 | IFS-28M | 25 |
| IFS-32 | 2 | IFS-30M | 28 |
| | | IFS-32M | 30 |
| | | IFS-38M | 32 |
| | | | 38 |

| Fractional | | Metric | |
|------------|-----------------|----------|-----------|
| Part No. | Tube O.D. in | Part No. | Tube O.D. |
| IFSN-1 | 1/16 | IFSN-2M | 2 |
| IFSN-2 | 1/8 | IFSN-3M | 3 |
| IFSN-3 | 3/16 | IFSN-4M | 4 |
| IFSN-4 | 1/4 | IFSN-6M | 6 |
| IFSN-5 | 5/16 | IFSN-8M | 8 |
| IFSN-6 | 3/8 | IFSN-10M | 10 |
| IFSN-8 | 1/2 | IFSN-12M | 12 |
| IFSN-10 | 5/8 | IFSN-15M | 15 |
| IFSN-12 | 3/4 | IFSN-16M | 16 |
| IFSN-14 | 7/8 | IFSN-18M | 18 |
| IFSN-16 | 1 | IFSN-20M | 20 |
| IFSN-20 | 1-1/4 | IFSN-25M | 22 |
| IFSN-24 | 1-1/2 | IFSN-28M | 25 |
| IFSN-32 | 2 | IFSN-30M | 28 |
| | | IFSN-32M | 30 |
| | | IFSN-38M | 32 |
| | | | 38 |