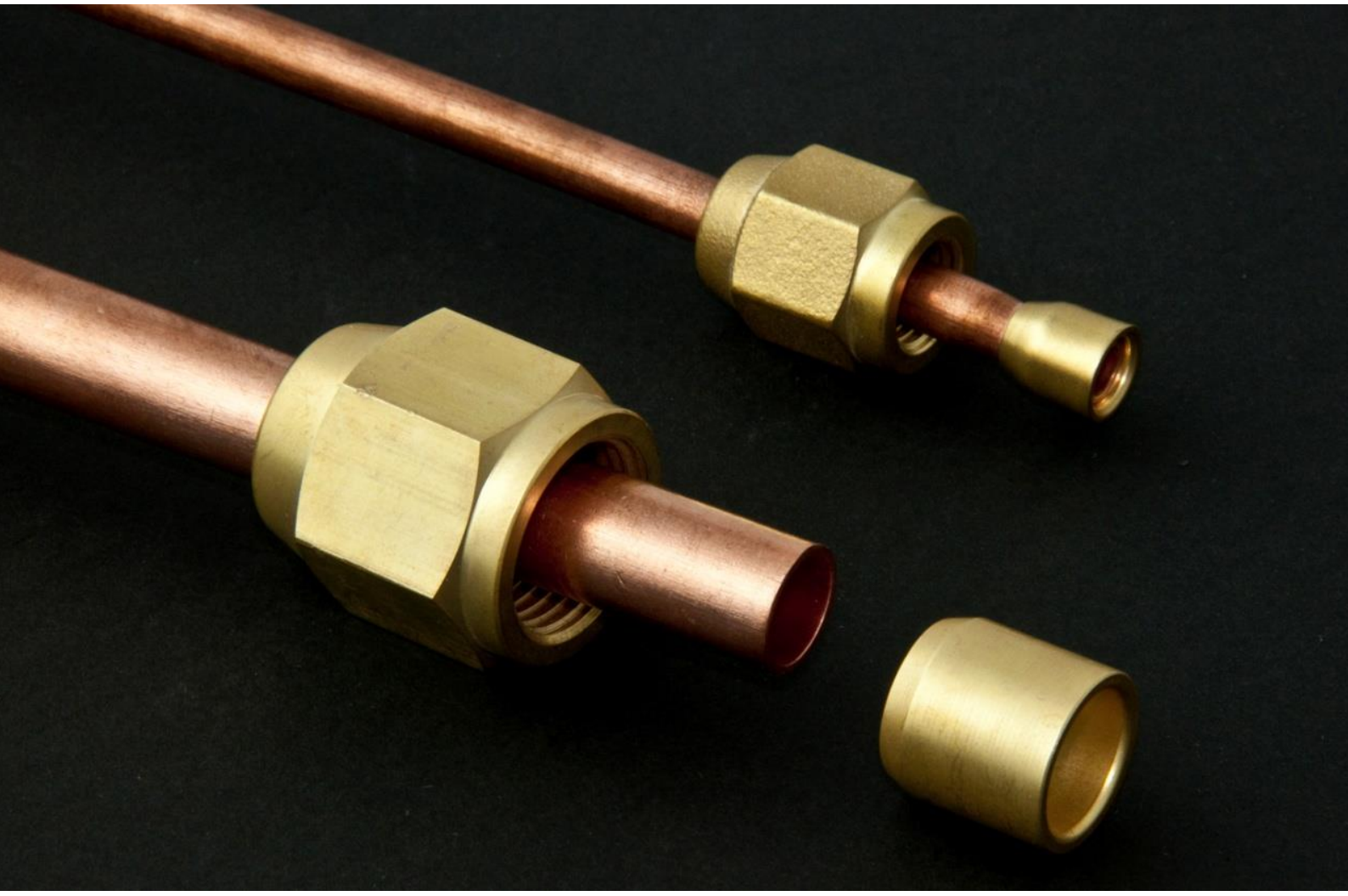
# Self flare nuts and fittings

## safer and faster than brazing



IGLOO QUICK nuts allow the union of tubes in a few seconds: just push-in the tube and screw 1 and ½ turn with a common wrench. Flaring tool and dinomometric wrench are not required.

Tests made in conformity to European Safety and Environment Normative EN 378 demonstrate that can also be used as a reliable alternative to brazing, for instance for assembly in presence of explosive atmosphere, to connect domestic split systems (also with aluminium tubes), or by OEMs in the mass production of air-conditioners or refrigerating units for instance to assembly filter driers, expansion valves and components in the oil line (see the picture in the page before).

IGLOO QUICK nuts are very versatile and can be used with metric or inch tubes of any thickness made of aluminium or copper.

The metal seal and the maximum working pressure of 140 bar (2 030 bar) make this product suitable for air-conditioning and refrigeration systems charged with new refrigerants operating at higher pressures.

**Charateristics**

- Fluid temperature: from -40°C to +150°C
- Maximum working pressure: **140 bar** (2 030 psi)
- Suitable for all refrigerants HCFC, HFC e R744 ($CO_2$) and oils
- Metal sealing
- Universal compatibility with all the SAE threaded fittings, valves, vessels, etc.
- No need to calibrate, flare, braze the tube
- No need of dinamometric wrench or special tools: just a common wrench

**Approvals**

- CE (PED, RoHS, REACH), EAC
- Performances higher than requirements of UL 109, DIN 8912 and SAE J513
- Patented system

**Technical data**

Can be used with all refrigerants HCFC, HFC e R744 ($CO_2$) and oils. Not suitable with ammonia $NH_3$.
Guaranteed for a leakrate under 50 milligrams/year of refrigerant and can be used as sobstitute of brazed joints and flared fittings: are universally compatible with all the SAE components on the market, from any brand.

*For metric or inch tubes of any thickness made of aluminium or copper.*

| | | | |
|---|---|---|---|
| **SFC Series** | Self flare nuts | -40 ÷ +150 °C | 140 bar (2 030 psi) |
| **SFL Series** | Self flare straight unions | | |

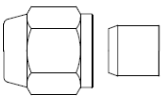
**Standard supply**

IGLOO QUICK nuts (SFC Series) are made of 2 parts supplied in 1 bag of 10 pcs/each. Bags are packaged into carton boxes of 100 pieces.
IGLOO QUICK unions (SFL Series) are made of 1 SAE Flare straight union + 2 IGLOO QUICK nuts and comes already assembled from the factory supplied in 1 bag of 10 pcs/each. Bagas are packaged into carton boxes of 100 pieces.

**Ordering**

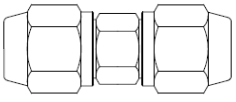
*Universally compatible with all the SAE components on the market, from any brand.*

**Self flare nuts. SFC Series**



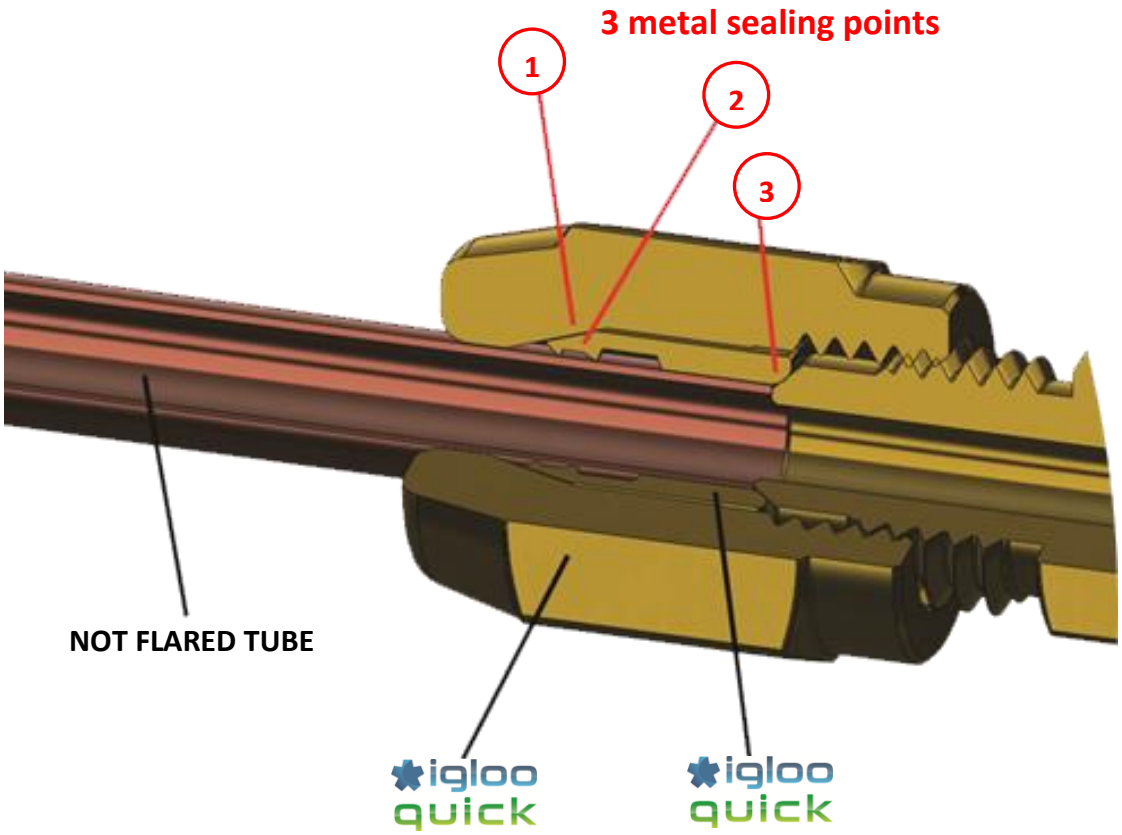
| Part number | Thread ANSI/ASME B1.1 int thread (female) | Flare connection SAE J513 | Tube diameter mm | Tube diameter inch |
|---|---|---|---|---|
| **SFC-4** | 7/16" - 20 UNF | 1/4" | 6 | 1/4" |
| **SFC-6** | 5/8" - 18 UNF | 3/8" | 10 | 3/8" |
| **SFC-8** | 3/4" - 16 UNF | 1/2" | 12 | 1/2" |
| **SFC-10** | 7/8" - 14 UNF | 5/8” | 16 | 5/8” |

**Self flare straight unions. SFL Series**



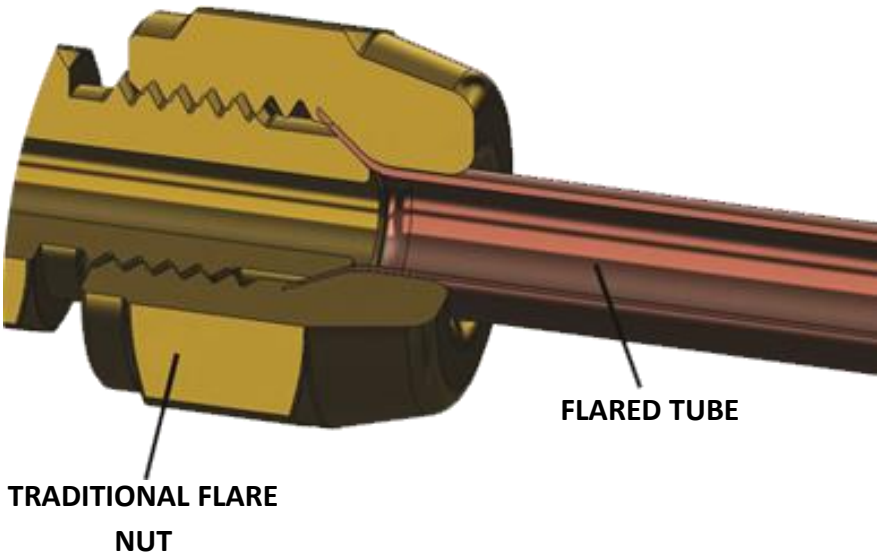
| Part number | Flare connection SAE J513 | Tube diameter mm | Tube diameter inch |
|---|---|---|---|
| **SFL-4** | 1/4" | 6 | 1/4" |
| **SFL-6** | 3/8" | 10 | 3/8" |
| **SFL-8** | 1/2" | 12 | 1/2" |
| **SFL-10** | 5/8” | 16 | 5/8” |

**IGLOO QUICK fittings are suitable for metric/inch tubes of any thickness made of copper or aluminium.**




2 pieces self flare fittings

**Traditional flare fittings need a flared tube made of copper and can't be used with aluminium tubes.**



## Triple metal sealing:

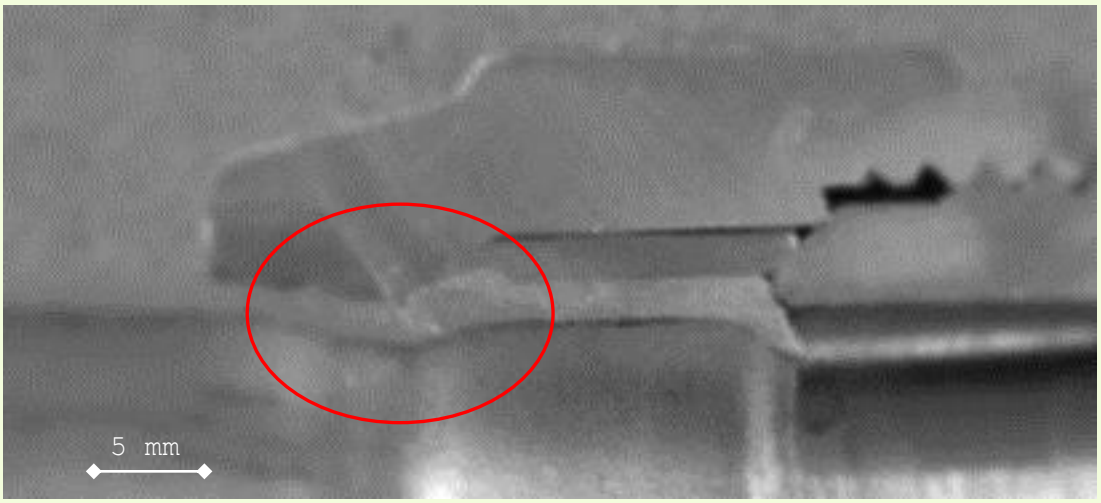
**Sealing point 1** The bonding action of the IGLOO QUICK fitting impresses on the external circular surface of the tube a radial force that creates a **metal sealing** surface between the fitting and the tube, independently from the thickness of the tube. When the IGLOO QUICK fitting is tightened on the tube the risk to bit excessively and crack the tube is avoided by the internal geometry of the biting ring, that presents 2 small teeths with rounded edges that clamp the tube jointly deformating it radially in the typical cross-section shown in the picture below.

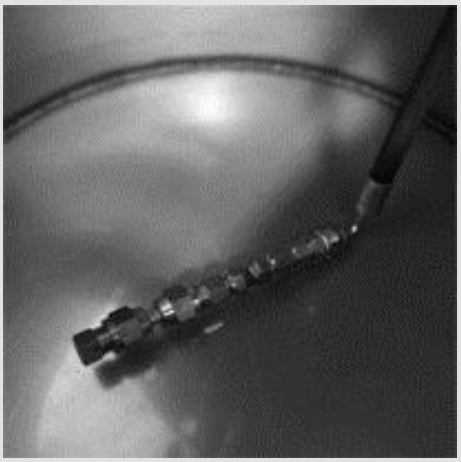
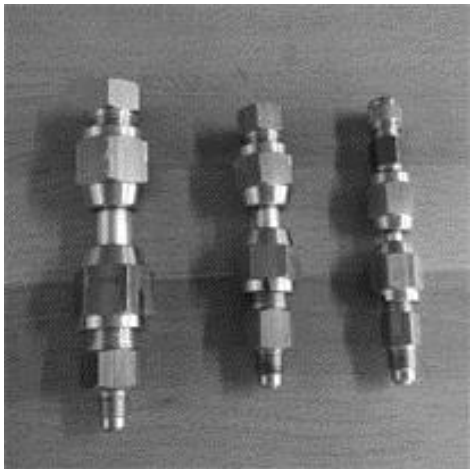
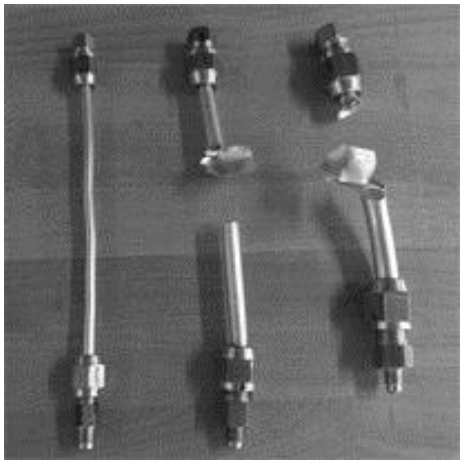
**The maximum working pressure is 140 bar (2 030 psi) and it has been burst tested from 450 up to 200 bar (6 500 psi up to 11 600 psi), depending on the size.**

**Sealing point 2** When IGLOO QUICK fitting is tightened the biting ring is pushed against the external threaded (male) connection: just 1 turn and 1/2 is enough to create a leak-proof **metal sealing**.

**Sealing point 3** During the locking of the IGLOO QUICK fitting the biting ring is pressed by the nut against the fitting and, due to its elasticity, the reaction force created guarantees a very strong **metal sealing** and gives to the joint an important property that you can't find in traditional fittings: the resistance to loose. This unscrewing resistance due to biting ring's elasticity makes the fitting resistant even to the harder working conditions such as vibrations, hammer effect, temperature cycles, etc..

## Cross section magnification:



| | Leak test | Burst test (pressure) |
|---|---|---|
| **Normative** | EN 1779.B6 | EN 378-2 |
| **Description** | During this test it is measured the leakrate of the joint expressed in gram/year of refrigerant. The recommended mixiumum leakrate is of 1 gram/year of refrigerant. | This test measure the pressure resistance of the joints, that shall resist - without loose the tube - at least at 3 times (from 450 up to 800 bar / from 6 500 up to 11 600 psi, depending on the size) the maximum working pressure (140 bar). |
| **Machinery** | Leak testing machine that uses Helium as tracing gas, with a mass spectrometer sniffer operating in a high vacuum chamber.<br><br>The sensibility of the sniffer used is of about 1 milligram/year of refrigerant.<br><br>  | High pressure hydraulic jack (over 800 bar) and sealed stainless steel box to cointain the specimens and protect the personnel from an eventual burst of the parts under pressure.<br><br>  |
| **Results** | ✔ It has been measured a leakrate under 50 milligrams/year of refrigerant, equivalent to 1 gram of refrigerant in over 20 years.<br><br>  | ✔ The fittings resisted to the burst of the tubes remaining perfectly intact up to the maximum testing pressure (from 450 up to 800 bar / from 6 500 up to 11 600 psi, depending on the size) without loosing the tube.<br><br>  |

**Assembly instructions (part 1 of 2)**

1. **Cut the tube to lenght.**
   ***Note:*** *Accurate calibration of the tube diameter is not stricly necessary.*

2. **Push-in the 2 pieces of IGLOO QUICK fitting on the tube.**

3. **Hand tighten the IGLOO QUICK fitting without using tools.**
   ***Note:*** *Lubricating the contact surfaces of the 2 pieces of IGLOO QUICK fitting results in a stronger joint.*

**Assembly instructions (part 2 of 2)**

**4.** **Mark with a pen the initial position of the IGLOO QUICK fitting.**

**5.** **Tighten the IGLOO QUICK fitting for 1 and 1/2 turn with a common wrench.**
***Note:*** *Don't use a dinamometric wrench.*

***Attention:*** *To avoid leaks or failure is important tighten the IGLOO QUICK fitting as indicated:* ***1 turn and 1/2***

**6.** **Inspect the joint: unscrew the IGLOO QUICK fitting and repeat the steps from 3 to 5: at step 5 tighten the joint with a common wrench for not more than 1/4 of turn (90°).** ***Note:*** *Don't use a dinamometric wrench.*

***Attention:*** *To avoid leaks or failure is important tighten the IGLOO QUICK fitting as indicated:* ***1/4 of turn***