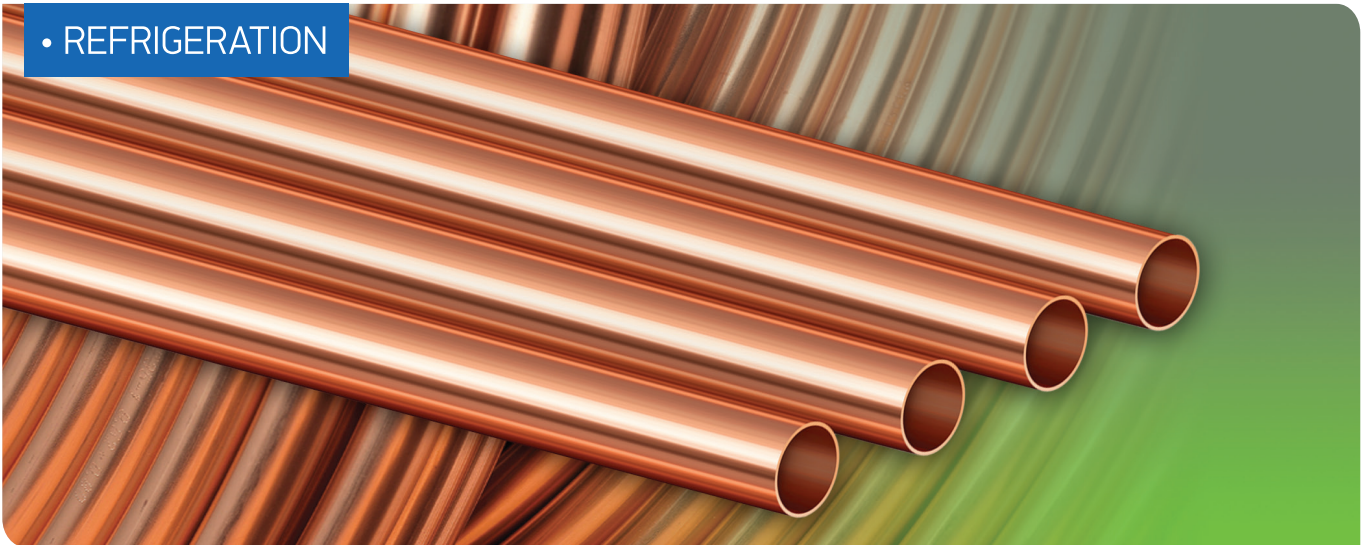




## • REFRIGERATION



### CO<sub>2</sub> Subcritical Systems

Carbon dioxide (CO<sub>2</sub>) is a naturally occurring substance in the atmosphere and it has been used as refrigerant since the early days of refrigeration. CO<sub>2</sub> has zero ODP and a GWP of 1, making it one of the best choices from an environmental perspective. Due to thermodynamic properties, CO<sub>2</sub> systems require high operating pressures in order to operate efficiently. CO<sub>2</sub> has a low critical temperature and high pressure 31°C and 73.8bar respectively.

CO<sub>2</sub> refrigeration cycles can be transcritical as well as subcritical. Transcritical and subcritical refers to the high-pressure side of the systems, as it operates above or below the critical point, respectively. Transcritical refers to the state of the refrigerant above the critical point.

The design pressure of CO<sub>2</sub> systems depends on the corresponding component refrigerant state. A design pressure of 80bar is sufficient for components in contact with non-transcritical CO<sub>2</sub> at working and standstill conditions.

### TALOS® S80

TALOS® S80 tubes are specifically designed for an operation pressure of up to 80bar. In order to meet the high-pressure CO<sub>2</sub> requirements TALOS® S80 tubes are manufactured with reinforced wall thicknesses in comparison with TALOS® ACR.

TALOS® S80 can be used where the system's design pressure does not exceed 80bar, i.e. where the CO<sub>2</sub> is not supercritical. In practice, this occurs at both high and low pressure sides in subcritical cycles and at the low pressure side of transcritical cycles.

The well-known installation practices of refrigeration copper tubes apply both in systems and in the field (see relative EN378 standard for guidelines).

### TALOS® S80 Product Features

- Tailored to meet subcritical CO<sub>2</sub> systems requirements
- Suitable for ACR systems with a design pressure up to 80bar
- Traditional processing techniques and equipment
- Excellent "cold formability"
- Smooth internal surface enhancing flow rate
- High purity of internal surface
- Stable mechanical properties covering an extensive temperature range
- Excellent brazing ability
- Compatible with standardized ACR fittings



## Specifications

TALOS®S80 tubes are made from Copper-DHP (CW024A, UNS 12200). They are produced according to EN 12735-1 and internal production specifications and are approved according to the European Pressure Equipment Directive (PED) 2014/68/EU.

## Form of supply

- Straight lengths, in bundles (hard copper tubes) and in wooden boxes (soft copper tubes).
- Pancakes-PNC in shrink-wrapped individual plastic bags. Depending on market requirements, products can be placed in cardboard boxes and pallets.

| TALOS® S80 for 80bar <sup>1</sup> |       |                |        |
|-----------------------------------|-------|----------------|--------|
| Outer Diameter                    |       | Wall Thickness |        |
| (inch)                            | (mm)  | (mm)           | (inch) |
| 5/16"                             | 7,94  | 0,70           | 0,028  |
| 3/8"                              | 9,53  | 0,80           | 0,031  |
| 1/2"                              | 12,70 | 0,90           | 0,035  |
| 5/8"                              | 15,88 | 1,05           | 0,041  |
| 3/4"                              | 19,05 | 1,30           | 0,051  |
| 7/8"                              | 22,23 | 1,50           | 0,059  |
| 1 1/8"                            | 28,58 | 1,90           | 0,075  |
| 1 3/8"                            | 34,93 | 2,30           | 0,091  |
| 1 5/8"                            | 41,28 | 2,70           | 0,106  |
| 2 1/8"                            | 53,98 | 3,60           | 0,142  |
| 2 5/8"                            | 66,68 | 4,50           | 0,177  |

<sup>1</sup> Maximum Allowable Pressure calculation acc. to EN 14276:2020. For service temperatures from -196°C up to 100°C.