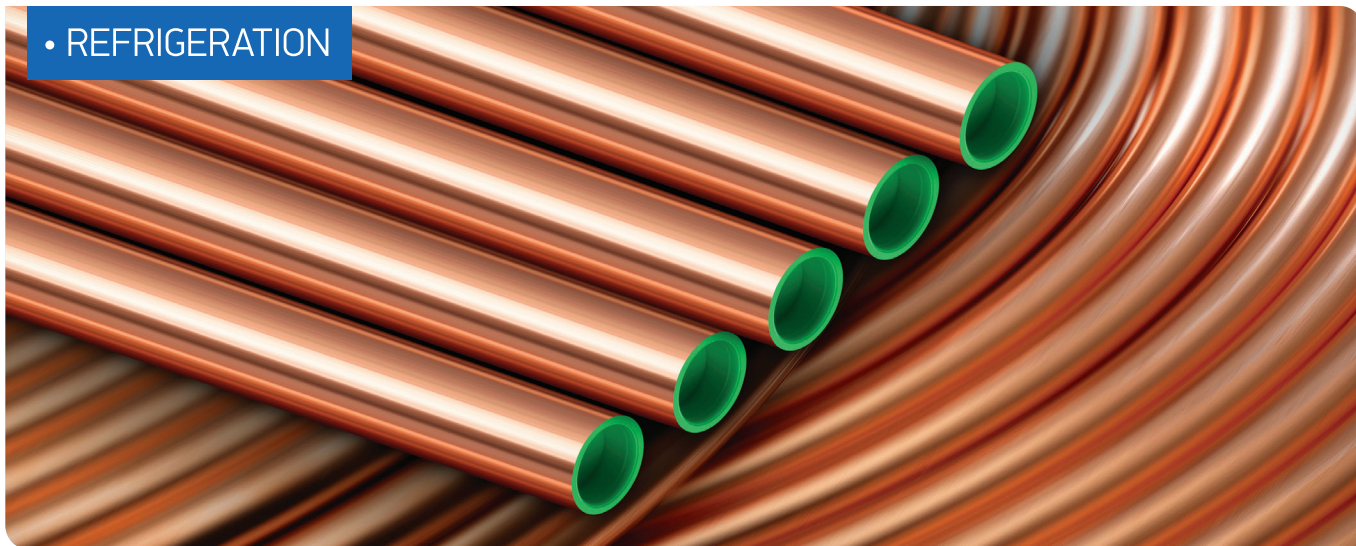


• REFRIGERATION



Green Refrigeration

The increasing concern of the environmental impact of hydro-fluorocarbon (HFC) refrigerants, as well as the more stringent environmental regulations, have prompted a re-emergence of carbon dioxide (CO₂) based refrigeration systems. CO₂ refrigerant is used as a working fluid in many climate control systems, in applications such as commercial refrigeration, residential air conditioning, hot water pumps, vending machines, etc. The supermarket industry in particular, implemented an ecological and efficient store concept by successfully embracing advanced CO₂ refrigeration technologies developed by refrigeration system manufacturers.

CO₂ as a refrigerant

CO₂ (R-744) refrigerant is termed a “natural” refrigerant because it exists in the natural environment. Released from refrigeration systems into the atmosphere has a negligible effect to global warming, thus CO₂ has no regulatory liability, as is the case of CFC, HCFC and HFC refrigerants. In addition to its environmental-friendly character, CO₂ is currently viewed as a viable solution for low-temperature refrigeration applications because it is non-ozone depleting, non-toxic, non-flammable and has a high volumetric cooling capacity. However due to its physical properties, CO₂ based refrigeration systems request much higher pressure, compared to conventional systems. The operating pressure of such systems can reach up to 120/130 bar in the transcritical cycle. CO₂ meets the demand for a low-global warming potential (GWP) refrigerant but presents challenges in both its application and handling. The higher operating pressure and broad temperature fluctuations require that all the system components, including piping, should be designed accordingly.

Extra-Strong TALOS® XS tubes for high-pressure systems

TALOS® XS tubes were specifically developed from a high strength copper-alloy (CuFe2P) to satisfy the demands of today's high-pressure CO₂ systems in refrigeration, as well as, other high-pressure HVAC&R applications. TALOS® XS tubes possess the extra strength to withstand operating pressures of up to 130bar. At the same time, TALOS® XS tubes are manufactured with comparatively thinner walls and thus achieve an economical advantage that meets the pressure equipment design. The well-known installation practices of refrigeration copper tubes are followed also for the installation of TALOS® XS tubes in systems and in the field (see also EN378 for guidelines). Since the processing methodology remains essentially the same, existing tooling and handling equipment is made of use. This includes brazing with standardized silver braze alloy (min. silver content of 2%), bending with traditional tools and joining with standardized fittings made from copper or copper-alloy (CuFe2P).





TALOS® XS Product Features

- Ideally suited for CO₂ refrigeration applications
- Made from Extra-Strong copper-iron (CuFe2P) alloy
- Cost-effective and lightweight, manufactured with comparatively thinner walls
- Traditional processing techniques and equipment
- Compatible with existing fittings made of the same alloy
- Clearly marked and easily identified

Material

Copper-iron alloy (CuFe2P), with chemical composition according to EN 12735-1 (CW107C) and UNS C19400

Specifications

Dimensional Tolerances: Internal production specifications, EN 12735-1

Internal Cleanliness: EN 12735-1

Mechanical Properties: R300 acc. to EN 12735-1 and VdTÜV WB567, R420 acc. to EN12735-1 upon request

Form of supply: Straight lengths with end-caps, in bundles or wooden cases

Marking: e.g. HALCOR TALOS-XS 9.52x0.65 CuFe2P R300 130bar/1885psi EN 12735-1

TALOS® XS for 120 & 130 bar								
Outside Diameter		Wall Thickness				Temper	Length²	
		120bar¹		130bar¹				
(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		(meters)	(feet)
9.52	3 / 8"	0.56	0.022	0.65	0.026	R300	5	16.4
12.7	1 / 2"	0.75	0.030	0.85	0.033	R300	5	16.4
15.87	5 / 8"	0.93	0.037	1.05	0.041	R300	5	16.4
19.05	3 / 4"	1.19	0.046	1.30	0.051	R300	5	16.4
22.23	7 / 8"	1.38	0.054	1.50	0.059	R300	5	16.4
28.57	1 1 / 8"	1.78	0.070	1.90	0.075	R300	5	16.4
34.92	1 3 / 8"	2.17	0.085	2.30	0.091	R300	5	16.4
41.27	1 5 / 8"	2.56	0.100	2.70	0.106	R300	5	16.4
53.97	2 1 / 8"	3.35	0.131	3.55	0.140	R300	5	16.4
66,67	2 5/8	4,14	0,163	4,45	0,175	R300	5	16.4

¹ Maximum Allowable Pressure of 120bar (1740psi) and 130bar (1885psi) up to 150°C (302°F) and down to -196°C (-320°F) calculated acc. to EN14276:2020.

² Additional lengths are available upon request.