

Mr. Andreas Eisenbarth
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TALOS®ACR copper tubes – Max. Allowable Pressure

Dear Mr. Eisenbarth,

HALCOR manufactures TALOS®ACR seamless copper tubes according to the requirements of the European Norm EN12735-1 “Copper and copper alloys. Seamless, round tubes for air conditioning and refrigeration. Tubes for piping systems”.

TALOS®ACR are suitable for conveying compatible synthetic refrigerants, such as HFCs (e.g. R32, R410A, R134A, R404A, R407C, etc.), HFOs (e.g. R1234yf, R1234ze, R1234zd, R452A, etc.), as well as, natural refrigerants (e.g. R290, R600, R744, etc.).

The Design Pressure of the applicable air-conditioning or refrigeration system should always be respected. In particular, please see below calculated pressure ratings of TALOS®ACR copper tubes.

Outer Diameter [in]	Outer Diameter [mm]	Nominal Wall Thickness [mm]	Max. Allowable Pressure (bar)
1/4"	6,35	0,75	159
1/4"	6,35	0,80	171
5/16"	7,94	0,80	133
3/8"	9,53	0,80	109
1/2"	12,70	0,80	80
5/8"	15,88	0,80	63
3/4"	19,05	0,90	59
3/4"	19,05	1,00	62
7/8"	22,22	1,00	53
Calculation notes:			

- The Maximum Allowable Pressure (MAP) is calculated according to the DBF (Design by Formula) method of EN14276-2:2020 which complies with the European Pressure Equipment Directive (PED) 2014/68/EU.
- The minus tolerance of the wall thickness is considered, according to EN12735-1 specification.
- For Cu-DHP material the design temper is R200 irrespective of the supplied temper (i.e. R220, R290) acc. to EN14276-1:2020.
- For Cu-DHP material, the design stress is determined as $R_m/t/3.0=200/3.0$, where R_m/t is the tensile strength of the design temper (R200) at temperature $t(^{\circ}\text{C})$ and "3.0" is the safety factor acc. to EN14276-1:2020.
- For Cu-DHP material, MAP ratings do not alter for operating temperatures from -196°C up to 100°C according to EN14276-1:2020.
- No corrosion allowance is taken into account.
- No further processing is taken into account (e.g. swaging, expansion, joining, flaring, bending).
- The Burst Pressure Estimation (BPE) values are calculated using the EN14276-1: 2020 design formula without a safety factor (i.e. $\text{BPE}=3.0 \cdot \text{MAP}$). This is a theoretical approach and it is not specified in EN14276, thus it cannot be formally declared.

We remain for any further information and/or clarifications.



George Hinopoulos
Deputy CMO