



TURBO-Chil®

For Refrigeration, Petrochemical, Chemical, and LNG Applications

Turbo-Chil in Copper-Nickel Alloys

Turbo-Chil is manufactured from copper and its alloys. It is an integral finned tube with an internal surface enhancement of integral ridging. Normally, it is supplied in a 10 starts configuration. But with special request, it can also be supplied with other numbers of starts. The heat transfer process is aided by turbulence of the tube-side fluid that is induced by the ridged configuration.



External Standards

This product is produced in alloy C12200 to meet the mechanical, chemical, and testing requirements of ASTM B75/B359 and in alloy C70600 to meet the mechanical, chemical, and testing requirements of ASTM B111/B359. For applications to the ASME pressure vessel code, the product will be produced to meet the requirements of ASME SB75/SB359 for alloy C12200 and to SB111/SB359 for alloy C70600. Other applicable standards - DIN 1787, DIN 17671, DIN 17664, and ADW 6/2 WD TUV 420/5.

Plain Sections

Plain ends and lands of 1" (25.4 mm) and over are standard. For plain ends and lands down to 5/8" (15.9 mm), contact the Wolverine Marketing Department. Spacing between lands of 18" (457.2 mm) and over are supplied as standard.

Lengths

Overall lengths, with power brush deburred ends, are supplied from 4' (1.219 m) to 60' (18.288 m) as standard. Overall lengths, with chamfered ends, can be supplied from 3' (0.914 m) to 28' (8.534 m) as standard lengths.

Temper

Turbo-Chil is supplied as standard, in the "as finned" condition with plain ends and lands in the annealed condition. Material can be supplied in the annealed condition the entire length by special request.

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Standard Sizes			Plain End Dimensions		Finned Section Dimensions			
Catalog Number	Outside Diameter inch (mm)	Nominal Wall inch (mm)	Outside Diameter inch (mm)	Wall inch (mm)	Fin Height inch (mm)	Finished Fin OD inch (mm)	Min. Wall Under Fins inch (mm)	Root Diameter inch (mm)
UNS C12000, C12200, C70600 - 19 Fins per Inch								
56-1950225	3/4 (19.05)	0.025 (0.635)	0.750 (19.05)	0.050 (1.27)	0.056 (1.422)	0.743 (18.87)	0.022 (0.559)	0.625 (15.88)
56-1950228	3/4 (19.05)	0.028 (0.711)	0.748 (19.00)	0.052 (1.32)	0.056 (1.422)	0.743 (18.87)	0.025 (0.635)	0.625 (15.88)
56-1950235	3/4 (19.05)	0.035 (0.889)	0.748 (19.00)	0.055 (1.40)	0.056 (1.422)	0.743 (18.87)	0.031 (0.787)	0.625 (15.88)
56-1950828	3/4 (19.05)	0.028 (0.711)	0.748 (19.00)	0.057 (1.45)	0.060 (1.524)	0.743 (18.87)	0.025 (0.635)	0.625 (15.88)
56-1960958	7/8 (22.23)	0.058 (1.473)	0.873 (22.17)	0.072 (1.83)	0.058 (1.473)	0.868 (22.05)	0.049 (1.245)	0.755 (19.18)
UNS C12000, C12200, C70600 - 26 Fins per Inch								
56-2640228	5/8 (15.88)	0.028 (0.711)	0.623 (15.82)	0.053 (1.35)	0.060 (1.524)	0.620 (15.75)	0.025 (0.635)	0.500 (12.70)
56-2640235	5/8 (15.88)	0.035 (0.889)	0.623 (15.82)	0.059 (1.50)	0.060 (1.524)	0.621 (15.77)	0.031 (0.787)	0.500 (12.70)
56-2650128	3/4 (19.05)	0.028 (0.711)	0.748 (19.00)	0.057 (1.45)	0.056 (1.422)	0.745 (18.92)	0.025 (0.635)	0.625 (15.88)
56-2650225	3/4 (19.05)	0.025 (0.635)	0.748 (19.00)	0.051 (1.30)	0.056 (1.422)	0.745 (18.92)	0.022 (0.559)	0.625 (15.88)
56-2650228	3/4 (19.05)	0.028 (0.711)	0.748 (19.00)	0.055 (1.40)	0.056 (1.422)	0.745 (18.92)	0.025 (0.635)	0.625 (15.88)
56-2650233	3/4 (19.05)	0.033 (0.838)	0.748 (19.00)	0.056 (1.42)	0.056 (1.422)	0.746 (18.95)	0.029 (0.737)	0.625 (15.88)
56-2650235	3/4 (19.05)	0.035 (0.889)	0.748 (19.00)	0.059 (1.50)	0.056 (1.422)	0.745 (18.92)	0.031 (0.787)	0.625 (15.88)
56-2650342	3/4 (19.05)	0.042 (1.067)	0.748 (19.00)	0.065 (1.65)	0.060 (1.524)	0.745 (18.92)	0.037 (0.940)	0.625 (15.88)
56-2650349	3/4 (19.05)	0.049 (1.245)	0.748 (19.00)	0.072 (1.83)	0.060 (1.524)	0.745 (18.92)	0.044 (1.118)	0.625 (15.88)
56-2660228	7/8 (22.23)	0.028 (0.711)	0.873 (22.17)	0.054 (1.37)	0.058 (1.473)	0.870 (22.10)	0.025 (0.635)	0.750 (19.05)
56-2670228	1 (25.40)	0.028 (0.711)	1.000 (25.40)	0.053 (1.35)	0.058 (1.473)	0.996 (25.30)	0.025 (0.635)	0.875 (22.23)
UNS C71500 - 26 Fins per Inch								
56-2650335	3/4 (19.05)	0.035 (0.889)	0.748 (19.00)	0.059 (1.50)	0.060 (1.524)	0.745 (18.92)	0.031 (0.787)	0.625 (15.88)
56-2650349	3/4 (19.05)	0.049 (1.245)	0.748 (19.00)	0.073 (1.85)	0.060 (1.524)	0.745 (18.92)	0.044 (1.118)	0.625 (15.88)
UNS C12000, C12200, C70600 - 40 Fins per Inch								
56-4050228	3/4 (19.05)	0.028 (0.711)	0.748 (19.00)	0.055 (1.40)	0.058 (1.473)	0.743 (18.87)	0.025 (0.635)	0.625 (15.88)
56-4050235	3/4 (19.05)	0.035 (0.889)	0.748 (19.00)	0.059 (1.50)	0.058 (1.473)	0.743 (18.87)	0.031 (0.787)	0.625 (15.88)
56-4050425	3/4 (19.05)	0.025 (0.635)	0.748 (19.00)	0.043 (1.09)	0.034 (0.864)	0.744 (18.90)	0.022 (0.559)	0.675 (17.15)
56-4050428	3/4 (19.05)	0.028 (0.711)	0.748 (19.00)	0.045 (1.14)	0.034 (0.864)	0.744 (18.90)	0.025 (0.635)	0.675 (17.15)
56-4050435	3/4 (19.05)	0.035 (0.889)	0.748 (19.00)	0.052 (1.32)	0.034 (0.864)	0.744 (18.90)	0.031 (0.787)	0.675 (17.15)
56-4052028	3/4 (19.05)	0.028 (0.711)	0.748 (19.00)	0.059 (1.50)	0.058 (1.473)	0.743 (18.87)	0.025 (0.635)	0.625 (15.88)
56-4052035	3/4 (19.05)	0.035 (0.889)	0.748 (19.00)	0.063 (1.60)	0.058 (1.473)	0.743 (18.87)	0.031 (0.787)	0.625 (15.88)

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Standard Sizes		Inside Dimensions		Areas			
Catalog Number	Weight Per Unit Length lb/ft (kg/m)	Nominal Inside Diameter inch (mm)	Nominal Ridge Height inch (mm)	Nominal Inside Surface Area ft ² /ft (m ² /m)	Actual Inside Surface Area ft ² /ft (m ² /m)	Nominal Outside Surface Area ft ² /ft (m ² /m)	Actual Outside Surface Area ft ² /ft (m ² /m)
UNS C12000, C12200, C70600 - 19 Fins per Inch							
56-1950225	0.391 (0.582)	0.566 (14.38)	0.015 (0.381)	0.152 (0.046)	0.173 (0.053)	0.192 (0.059)	0.445 (0.136)
56-1950228	0.405 (0.602)	0.566 (14.38)	0.015 (0.381)	0.150 (0.046)	0.171 (0.052)	0.192 (0.059)	0.445 (0.136)
56-1950235	0.431 (0.641)	0.555 (14.10)	0.015 (0.381)	0.146 (0.045)	0.167 (0.051)	0.192 (0.059)	0.445 (0.136)
56-1950828	0.440 (0.655)	0.572 (14.53)	0.025 (0.635)	0.150 (0.046)	0.204 (0.062)	0.192 (0.059)	0.491 (0.150)
56-1960958	0.673 (1.002)	0.634 (16.10)	0.011 (0.279)	0.166 (0.051)	0.219 (0.067)	0.196 (0.060)	0.578 (0.176)
UNS C12000, C12200, C70600 - 26 Fins per Inch							
56-2640228	0.345 (0.514)	0.444 (11.28)	0.015 (0.381)	0.116 (0.035)	0.130 (0.040)	0.164 (0.050)	0.514 (0.157)
56-2640235	0.380 (0.566)	0.430 (10.92)	0.015 (0.381)	0.113 (0.034)	0.125 (0.038)	0.164 (0.050)	0.515 (0.157)
56-2650128	0.447 (0.665)	0.569 (14.45)	0.025 (0.635)	0.149 (0.045)	0.188 (0.057)	0.196 (0.060)	0.655 (0.200)
56-2650225	0.403 (0.600)	0.575 (14.61)	0.015 (0.381)	0.151 (0.046)	0.166 (0.051)	0.196 (0.060)	0.634 (0.193)
56-2650228	0.423 (0.629)	0.569 (14.45)	0.015 (0.381)	0.149 (0.045)	0.165 (0.050)	0.196 (0.060)	0.634 (0.193)
56-2650233	0.433 (0.644)	0.559 (14.20)	0.015 (0.381)	0.146 (0.045)	0.162 (0.049)	0.196 (0.060)	0.634 (0.193)
56-2650235	0.451 (0.671)	0.557 (14.15)	0.015 (0.381)	0.146 (0.045)	0.161 (0.049)	0.196 (0.060)	0.634 (0.193)
56-2650342	0.507 (0.755)	0.541 (13.74)	0.010 (0.254)	0.142 (0.043)	0.149 (0.045)	0.196 (0.060)	0.634 (0.193)
56-2650349	0.552 (0.821)	0.537 (13.64)	0.010 (0.254)	0.138 (0.042)	0.146 (0.045)	0.196 (0.060)	0.634 (0.193)
56-2660228	0.500 (0.744)	0.694 (17.63)	0.017 (0.432)	0.182 (0.055)	0.196 (0.060)	0.229 (0.070)	0.775 (0.236)
56-2670228	0.573 (0.853)	0.819 (20.80)	0.015 (0.381)	0.214 (0.065)	0.229 (0.070)	0.260 (0.079)	0.895 (0.273)
UNS C71500 - 26 Fins per Inch							
56-2650335	0.464 (0.691)	0.557 (14.15)	0.010 (0.254)	0.146 (0.045)	0.161 (0.049)	0.196 (0.060)	0.634 (0.193)
56-2650349	0.563 (0.838)	0.537 (13.64)	0.010 (0.254)	0.138 (0.042)	0.146 (0.045)	0.196 (0.060)	0.634 (0.193)
UNS C12000, C12200, C70600 - 40 Fins per Inch							
56-4050228	0.426 (0.634)	0.569 (14.45)	0.015 (0.381)	0.150 (0.046)	0.166 (0.051)	0.196 (0.060)	0.864 (0.263)
56-4050235	0.459 (0.683)	0.559 (14.20)	0.015 (0.381)	0.146 (0.045)	0.152 (0.046)	0.196 (0.060)	0.864 (0.263)
56-4050425	0.343 (0.510)	0.625 (15.88)	0.015 (0.381)	0.164 (0.050)	0.177 (0.054)	0.196 (0.060)	0.586 (0.179)
56-4050428	0.358 (0.532)	0.619 (15.72)	0.015 (0.381)	0.162 (0.049)	0.176 (0.054)	0.196 (0.060)	0.864 (0.263)
56-4050435	0.414 (0.615)	0.605 (15.37)	0.015 (0.381)	0.158 (0.048)	0.172 (0.052)	0.196 (0.060)	0.586 (0.179)
56-4052028	0.454 (0.676)	0.566 (14.38)	0.020 (0.508)	0.149 (0.045)	0.215 (0.066)	0.196 (0.060)	0.924 (0.282)
56-4052035	0.482 (0.718)	0.557 (14.15)	0.018 (0.457)	0.145 (0.044)	0.205 (0.062)	0.196 (0.060)	0.924 (0.282)