



TURBO-BIII®

ID/OD Enhanced Surface for Improved Boiling Heat Transfer

Turbo-BIII is designed for light hydrocarbon boiling. The tube is configured in variations for both high pressure and low pressure refrigerant applications. The integral helical fins on the outside of the tube are modified to enhance the initiation of nucleate boiling sites, thus improving the overall heat transfer coefficient. The inside heat transfer coefficient is improved because of increased surface area and turbulence induced by integral helical ridges on the inside surface. The availability of plain ends and intermediate lands makes Turbo-BIII suitable for shell and tube evaporators.



The ID ridges have been modified to improve the overall heat transfer efficiency of Turbo-BIII over Turbo-BII.

Alloys Available and Applicable Standards

UNS C12200 (DHP Copper) to ASME SB75 and ASME SB359

Product Formats

Straight Lengths to 20 feet, + 1/8 inch maximum variation

Straight Lengths over 20 feet, + 5/32 inch maximum variation

Ends are supplied either brush deburred or chamfered

Packaging

Packaging options include wooden boxes and shipping frames.

Tempers Available

As fabricated temper

Testing

All tubes are tested per the requirements of ASTM E243.

TURBO-BIII®

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 Per Inch	Finished Fin OD inch (mm)	Min. Wall Under Fins inch (mm)	Root Diameter inch (mm)

Turbo-BIII High Pressure - UNS 12200

75-6050025	3/4 (19.05)	0.025 (0.635)	0.743 (18.87)	0.047 (1.18)	60	0.745 (18.92)	0.022 (0.559)	0.696 (17.68)
75-6050028	3/4 (19.05)	0.028 (0.711)	0.743 (18.87)	0.050 (1.26)	60	0.744 (18.90)	0.025 (0.635)	0.696 (17.68)
75-6050035	3/4 (19.05)	0.035 (0.889)	0.743 (18.87)	0.056 (1.42)	60	0.744 (18.90)	0.031 (0.787)	0.696 (17.68)
75-6078025	1 (25.40)	0.025 (0.635)	0.995 (25.27)	0.050 (1.26)	60	0.986 (25.04)	0.022 (0.559)	0.937 (23.80)

Turbo-BIII Low Pressure - UNS 12200

75-6156025	3/4 (19.05)	0.025 (0.635)	0.743 (18.87)	0.049 (1.23)	62	0.744 (18.90)	0.022 (0.559)	0.697 (17.70)
75-6150028	3/4 (19.05)	0.028 (0.711)	0.743 (18.87)	0.050 (1.26)	62	0.741 (18.82)	0.025 (0.635)	0.698 (17.73)

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)

Turbo-BIII High Pressure - UNS 12200

75-6050025	0.371 (0.552)	0.645 (16.38)	0.015 (0.381)	0.169 (0.052)	0.262 (0.080)	0.192 (0.059)	0.315 (203.2)
75-6050028	0.422 (0.658)	0.639 (16.23)	0.015 (0.381)	0.167 (0.051)	0.260 (0.079)	0.192 (0.059)	0.309 (199.4)
75-6050035	0.448 (0.667)	0.625 (15.88)	0.013 (0.330)	0.164 (0.050)	0.239 (0.073)	0.192 (0.059)	0.297 (191.6)
75-6078025	0.505 (0.752)	0.887 (22.53)	0.017 (0.432)	0.232 (0.071)	0.374 (0.114)	0.260 (0.079)	0.374 (241.3)

Turbo-BIII Low Pressure - UNS 12200

75-6150028	0.391 (0.581)	0.639 (16.23)	0.015 (0.381)	0.167 (0.051)	0.260 (0.079)	0.192 (0.059)	0.309 (199.4)
75-6156025	N/A	0.647 (16.43)	0.015 (0.381)	0.169 (0.052)	0.256 (0.078)	0.192 (0.059)	0.318 (205.2)

TURBO-BIII®

Engineering Data

Catalog Number	Sieder and Tate ² Constant STC ⁱ	Constants used in Calculating Darcy Friction Factor ¹	
		C	D

Turbo-BIII High Pressure - UNS 12200

75-6050025	0.073	0.686	0.250
75-6050028	0.073	0.686	0.250
75-6050035	0.066	0.680	0.255
75-6078025	0.076	0.644	0.240

Turbo-BIII High Pressure - UNS 12200

75-6150028	0.073	0.759	0.254
75-6156025	0.073	0.686	0.250

1. Constants applicable to Reynolds numbers greater than 20,000. [$f_{\text{Darcy}} = C(\text{Re})^{-D}$]
2. To calculate inside heat transfer coefficient: $h_i = (k/D_{i,\text{nom}})(\text{STC}_i)\text{Re}^{0.8}\text{Pr}^{1/3}[\mu/\mu_{\text{wall}}]^{0.14}$