



TITANIUM FINNED TUBES 钛翅片管

S/T TRUFIN® S/T TURBO-CHIL®

Titanium Type S/T Trufin and S/T Turbo-Chil are integral finned tubes from welded or seamless tube of Grade 1 or Grade 2 Titanium manufactured in accordance with ASTM B-338 or ASME SB-338. S/T Trufin is available in fin counts of 30, 32, 36, and 43 fins per inch (FPI). S/T Turbo-Chil is available in fin counts of 32, 36, and 40 FPI configurations. All of the S/T Turbo-Chil products provide external surface enhancements along with internal helical ridges. The 32 FPI S/T Turbo-Chil has 10 internal helical ridges, the 36 FPI has 20 internal helical ridges, and the 40 FPI has 28 internal helical ridges. The S/T Turbo-Chil products provide both shell-side and tube-side surface area enhancement. All Trufin and Turbo-Chil which meets the requirement of Paragraph UG-8(b), ASME Boiler and pressure Vessel Code, Section VIII, is made to an average wall in the fin area. When a minimum wall size is specified, the next larger average wall size should be ordered.

TESTING AFTER FINNING

Air Test at 250 PSI, Encircling Coil Eddy Current Test, per ASTM/ASME standards.

TEMPERS

Trufin and Turbo-Chil are supplied in the "as finned" Temper. Unfinned sections are supplied in the condition as described by the governing plain tube ASTM or ASME standard.

Plain tube mechanical properties per governing ASTM and/or ASME standard.

The Standard maximum length for shipment by truck is 44 feet (13.4 meters). For shipment of longer lengths, contact the Wieland Marketing Department.

PLAIN SECTION REQUIREMENTS

Plain end lengths 1" (25.4mm) and over are supplied as standard. If plain ends less than 1" (25.4 mm) are required, contact the Wieland Marketing Department.

Land Lengths 1" (25.4mm) and over are supplied as standard. If land lengths down to 5/8" (15.9mm) minimum are required, contact the Wieland Marketing Department.

Distances of 18" (457.2 mm) and over between lands are supplied as standard.

LENGTH

The standard maximum straight tube length is 82' (25 m). For shipment of longer lengths, contact the Wieland Marketing Department.

S/T Trufin® 和 Turbo-Chil® 钛翅片管

Wieland 研发了一系列采用焊接或者无缝钛管生产的整体外翅片管S/T Trufin和内外强化的高效换热翅片管Turbo-Chil.

材料为Gr1(R50250) 和Gr2(R50400), 按照ASTM B338 和ASME SB338标准。标准产品S/T Trufin的每英寸长度的外翅片数为30, 32, 36和43。Turbo-Chil每英寸长度上的外翅片数为32, 36和40。

所有的Turbo-Chil为双面强化高效换热管, 除了管外有翅片外, 该管型管内有强化里脊以增强管内换热。内强化的里脊数目分别为10 (管外32翅), 20 (管外36翅)和28 (管外40翅)。

翅片部分底部平均壁厚必须符合钢管标准UG-8(b), ASME 锅炉和压力容器代码, VIII部分的要求。翅片部分最小底壁厚也必须符合该要求。钢外翅片管S/T Trufin须符合ASTM A498的标准要求。

轧翅后的测试

根据ASTM和ASME 标准, 所有成品管需要逐根进行至少250PSI的气密性试验和涡流探伤试验。

交货状态

按照标准要求, 所有的翅片管S/T Trufin 和 Turbo-Chil的翅片部分的交货状态为"成翅状态"。所有光端和中间光段的状态按照ASTM和ASME标注规定的原料光管的状态。

光管的机械性能按照ASTM和ASME标准的规定。

光端和中间光段部分尺寸要求

标准产品的光端部分长度通常要求不小于25.4 mm, 如果光端长度小于25.4 mm, 请联系销售部。标准产品的中间光段的长度通常要求不小于25.4 mm。如果需要中间光段长度小于25.4 mm, 请联系销售部。

标准产品的中间光段之间的翅片段部分长度通常要求不宜小于18"(457.2 mm)。如果不按标准要求, 请联系销售部, 标准产品直管的最大长度为82'(25米)。如果需要更长的翅片管, 请联系我司销售部。

长度要求

直管产品最大长度为82'(25米)。如果需要更长的翅片管, 请联系我司销售部。

TITANIUM FINNED TUBES 钛翅片管

RANGE OF AVAILABLE DIMENSIONS 标准产品尺寸表

S/T Trufin® ENHANCED SURFACE TUBES S/T Trufin® 外翅片管

Catalog Number 产品代码	Plain Ends 光端尺寸		Finned Section 翅片部分尺寸			Area 换热面积		Weight Per Unit Length 重量 lbs/ft (kg/m)
	Outside Diameter 外径 inch (mm)	Wall Thickness 壁厚 inch (mm)	Min Wall Under Fins 翅底最小壁厚 inch (mm)	Finned Section Nom.Root Diam. 翅根直径 inch (mm)	Nominal Inside Diameter 名义内径 inch (mm)	Actual Outside Surface 翅外表面积 ft ² /ft (m ² /m)	Ratio Actual Outside/ Nominal Inside 翅外表面积/ 光内表面积	
30 Fins per inch 30翅/英寸 Material 材料 : UNS R50400 & R50250								
70-304028	5/8 (15.88)	0.049 (1.245)	0.025 (0.635)	0.556 (14.12)	0.505 (12.83)	0.411 (0.125)	3.114	0.155 (0.231)
70-304035	5/8 (15.88)	0.058 (1.473)	0.031 (0.787)	0.556 (14.12)	0.491 (12.47)	0.411 (0.125)	3.186	0.188 (0.280)
70-304042	5/8 (15.88)	0.065 (1.651)	0.037 (0.940)	0.556 (14.12)	0.477 (12.12)	0.411 (0.125)	3.288	0.200 (0.298)
70-304049	5/8 (15.88)	0.072 (1.829)	0.044 (1.118)	0.556 (14.12)	0.463 (11.76)	0.411 (0.125)	3.397	0.219 (0.326)
70-305028	3/4 (19.05)	0.049 (1.245)	0.025 (0.635)	0.686 (17.42)	0.630 (16.00)	0.500 (0.152)	3.030	0.189 (0.281)
70-305035	3/4 (19.05)	0.058 (1.473)	0.031 (0.787)	0.686 (17.42)	0.616 (15.65)	0.500 (0.152)	3.106	0.221 (0.329)
70-305042	3/4 (19.05)	0.065 (1.651)	0.037 (0.940)	0.686 (17.42)	0.602 (15.29)	0.500 (0.152)	3.165	0.245 (0.365)
70-305049	3/4 (19.05)	0.072 (1.829)	0.044 (1.118)	0.686 (17.42)	0.552 (14.02)	0.500 (0.152)	3.247	0.269 (0.400)
70-306028	7/8 (22.23)	0.049 (1.245)	0.025 (0.635)	0.802 (20.37)	0.755 (19.18)	0.587 (0.178)	2.965	0.223 (0.332)
70-306035	7/8 (22.23)	0.058 (1.473)	0.031 (0.787)	0.802 (20.37)	0.741 (18.82)	0.587 (0.178)	3.026	0.261 (0.388)
70-306042	7/8 (22.23)	0.065 (1.651)	0.037 (0.940)	0.802 (20.37)	0.727 (18.47)	0.587 (0.178)	3.089	0.290 (0.432)
70-306049	7/8 (22.23)	0.072 (1.829)	0.044 (1.118)	0.802 (20.37)	0.713 (18.11)	0.587 (0.178)	3.139	0.318 (0.473)
70-307028	1 (25.40)	0.049 (1.245)	0.025 (0.635)	0.932 (23.67)	0.880 (22.35)	0.671 (0.204)	2.917	0.269 (0.400)
70-307035	1 (25.40)	0.058 (1.473)	0.031 (0.787)	0.932 (23.67)	0.866 (22.00)	0.671 (0.204)	2.956	0.301 (0.448)
70-307042	1 (25.40)	0.065 (1.651)	0.037 (0.940)	0.932 (23.67)	0.852 (21.64)	0.671 (0.204)	3.009	0.335 (0.499)
70-307049	1 (25.40)	0.072 (1.829)	0.044 (1.118)	0.932 (23.67)	0.838 (21.29)	0.671 (0.204)	3.064	0.368 (0.548)
For S/T Trufin® 30 FPI, the average fin height is 0.032" (0.813mm) S/T Trufin 30FPI 翅片高度 0.032" (0.813 mm)								
32 Fins per inch 32翅/英寸 Material 材料 : R50400 & R50250								
70-324028	5/8 (15.88)	0.049 (1.245)	0.025 (0.635)	0.557 (14.15)	0.501 (12.73)	0.415 (0.127)	3.130	0.156 (0.232)
70-324035	5/8 (15.88)	0.058 (1.473)	0.031 (0.787)	0.557 (14.15)	0.487 (12.37)	0.415 (0.127)	3.250	0.181 (0.269)
70-325028	3/4 (19.05)	0.049 (1.245)	0.025 (0.635)	0.675 (17.15)	0.624 (15.85)	0.503 (0.153)	3.070	0.192 (0.286)
70-325035	3/4 (19.05)	0.058 (1.473)	0.031 (0.787)	0.675 (17.15)	0.610 (15.49)	0.503 (0.153)	3.140	0.231 (0.344)
70-325049	3/4 (19.05)	0.072 (1.829)	0.044 (1.118)	0.675 (17.15)	0.582 (14.78)	0.503 (0.153)	3.290	0.275 (0.382)
70-326042	7/8 (22.23)	0.065 (1.651)	0.037 (0.940)	0.802 (20.37)	0.718 (18.24)	0.591 (0.180)	3.120	0.304 (0.452)
70-327028	1 (25.40)	0.049 (1.245)	0.025 (0.635)	0.925 (23.50)	0.870 (22.10)	0.679 (0.207)	2.960	0.260 (0.387)
70-327042	1 (25.40)	0.065 (1.651)	0.037 (0.940)	0.925 (23.50)	0.842 (21.39)	0.679 (0.207)	3.050	0.314 (0.467)
For S/T Trufin® 32 FPI, the average fin height is 0.032" (0.813mm) S/T Trufin 32FPI 翅片高度 0.032" (0.813 mm)								
36 Fins per inch 36翅/英寸 Material 材料 : R50400 & R50250								
70-365028	3/4 (19.05)	0.049 (1.245)	0.025 (0.635)	0.696 (17.68)	0.640 (16.26)	0.500 (0.152)	2.980	0.170 (0.253)
70-365035	3/4 (19.05)	0.049 min.	0.031 (0.787)	0.696 (17.68)	0.626 (15.90)	0.500 (0.152)	3.050	0.206 (0.307)
70-367042	1 (25.40)	0.065 (1.651)	0.037 (0.940)	0.943 (23.95)	0.859 (21.82)	0.684 (0.209)	3.040	0.341 (0.723)
70-367049	1 (25.40)	0.072 (1.829)	0.044 (1.118)	0.943 (23.95)	0.845 (21.46)	0.684 (0.209)	3.090	0.375 (0.558)
For S/T Trufin® 36 FPI, the average fin height is 0.026" (0.660mm) S/T Trufin 36FPI 翅片高度 0.026" (0.66 mm)								
43 Fins per inch 43翅/英寸 Material 材料 : R50400 & R50250								
70-435023	3/4 (19.05)	0.035 (0.889)	0.020 (0.508)	0.704 (17.88)	0.658 (16.71)	0.499 (0.152)	2.900	0.142 (0.211)
For S/T Trufin® 43 FPI, the average fin height is 0.021" (0.533mm) S/T Trufin 43FPI 翅片高度 0.021" (0.533 mm)								

TITANIUM FINNED TUBES 钛翅片管

RANGE OF AVAILABLE DIMENSIONS 标准产品尺寸表

S/T TURBO-CHIL® DOUBLE ENHANCED SURFACE TUBES – S/T TURBO-CHIL® 双面强化翅片管

Catalog Number 产品代码	Plain Ends 光端尺寸		Finned Section 翅片部分尺寸			Area 换热面积			Weight Per Unit Length 重量 lbs/ft (kg/m)
	Outside Diameter 外径 inch (mm)	Wall Thickness 壁厚 inch (mm)	Min Wall Under Fins 翅底最小壁厚 inch (mm)	Finned Section Nom. Root Diam. 翅根直径 inch (mm)	Nominal Inside Diameter 名义内径 inch (mm)	Actual Outside Surface 翅外表面积 ft²/ft (m²/m)	Ratio Actual Outside/ Nominal Inside 翅外表面积/ 光内表面积		
32 Fins per inch 32翅/英寸 Material 材料 : R50400 & R50250									
56-3250525	3/4 (19.05)	0.052 (1.321)	0.022 (0.559)	0.684 (17.37)	0.634 (16.10)	0.503 (0.153)	2.790	0.200 (0.298)	
56-3250528	3/4 (19.05)	0.053 (1.345)	0.025 (0.635)	0.684 (17.37)	0.628 (15.95)	0.503 (0.153)	2.820	0.204 (0.304)	
For S/T TurboChil® 32 FPI, the average fin height is 0.032" (0.813mm) Turbo-Chil 32FPI, 翅片高度 0.032" (0.813 mm)									
36 Fins per inch 36翅/英寸 Material 材料 : R50400 & R50250									
56-3652025	3/4 (19.05)	0.049 (1.245)	0.022 (0.559)	0.698 (17.73)	0.648 (16.46)	0.500 (0.152)	2.940	0.189 (0.281)	
56-3652028	3/4 (19.05)	0.053 (1.280)	0.025 (0.635)	0.698 (17.73)	0.642 (16.31)	0.500 (0.152)	2.980	0.203 (0.302)	
For S/T TurboChil® 36 FPI, the average fin height is 0.026" (0.660mm) Turbo-Chil 36FPI, 翅片高度 0.026" (0.66 mm)									
40 Fins per inch 40翅/英寸 Material 材料 : R50400 & R50250									
56-4052825	3/4 (19.05)	0.049 (1.245)	0.022 (0.559)	0.696 (17.68)	0.646 (16.41)	0.529 (0.161)	3.130	0.160 (0.238)	
56-4052828	3/4 (19.05)	0.053 (1.346)	0.025 (0.635)	0.696 (17.68)	0.640 (16.26)	0.529 (0.161)	3.160	0.176 (0.262)	
For S/T TurboChil® 40 FPI, the average fin height is 0.026" (0.660mm) Turbo-Chil 40FPI, 翅片高度 0.026" (0.66 mm)									

ENGINEERING DATA 工程数据

	Wall in Finned Portion 翅底壁厚 inch (mm)	Number of (Starts) Internal Ridges 管内里脊数 (头数)	Sieder and Tate ² Constant 西德塔特数 ² STC _i	Constans used in Calculating Darcy Friction Factor ¹ 达西摩阻常数 ¹	
				C	D
56-3250525	0.025 (0.635)	10	0.041	0.701	0.269
56-3250528	0.028 (0.711)	10	0.042	0.559	0.245
56-3652025	0.025 (0.635)	20	0.053	1.182	0.306
56-3652028	0.028 (0.711)	20	0.049	0.994	0.304
56-4052825	0.025 (0.635)	28	0.053	0.806	0.264
56-4052828	0.028 (0.711)	28	0.051	1.028	0.293

1. Constants applicable to Reynolds numbers greater than 20,000. [$f_{Darcy} = C(Re)^{-2}$] 常数应用与雷诺数大于20000的工况. [$f_{Darcy} = C(Re)^{-2}$]

2. To calculate inside heat transfer coefficient: $hi = (k/D_{nom})(STC_i)Re^{0.8}Pr^{0.4}[\mu/\mu_{wall}]^{0.14}$ 计算管内传热系数: $hi = (k/D_{nom})(STC_i)Re^{0.8}Pr^{0.4}[\mu/\mu_{wall}]^{0.14}$

材料组

UNS Nomenclature 标准代号	Common Industry Name 金属代号	*ASTM Spec Number Welded (Seamless) *ASTM 标准号 焊接管 (无缝管)	Tensile Strength Minimum 最小抗拉强度 ksi (MPa)	Yield Strength Minimum 最小屈服强度 ksi (MPa)	Hardness Maximum Rockwell B 最大洛氏硬度 Rockwell B
R50250	SB338 Grade 1	B338	35 (240)	25 (170)	
R50400	SB338 Grade 2	B338	50 (345)	40 (275)	

*For equivalent ASME specification, mechanical property data is identical. 对于等同的ASME标准, 机械性能完全一致。

For further information, please contact our sales department. 需要更多信息, 请联系销售部

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in out

INNOVATIVE SPIRIT.

OUTSTANDING RESULTS.

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