



HIGH PERFORMANCE TUBE, INC.

Fine-Fin[®]

Heat Exchanger Tubing

Engineering Data























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Material	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8
	30 FPI FIN HEIGHT: .032 inch .813 mm	28 FPI FIN HEIGHT: .035 inch .889 mm	26 FPI FIN HEIGHT: .049 inch 1.245 mm	36 FPI FIN HEIGHT: .026 inch .660 mm	43 FPI FIN HEIGHT: .022 inch .559 mm	36 FPI WITH INTERNAL RIB	28 FPI WITH INTERNAL RIB	26 FPI WITH INTERNAL RIB
Titanium <i>Grades 1,2,16, 26</i>								
Zirconium								
High Nickel Alloys <i>C-276, G-30, B-2, C22, 20Cb-3</i>								
Austenitic Stainless Steel <i>Type 304, 316, 317, 321, 904L</i>								
High Nickel Alloys <i>600, 625, 800, 825</i>								
Duplex Stainless Steel <i>Alloy 2205, 7-MoPlus</i>								
6-Mo Stainless Steel Alloy <i>AL6XN</i>								
Monel Alloy 400								
Ferritic Stainless Steel <i>Type 405, 410, 430, 439</i>								
Carbon Steels <i>SA-214, 179, 334 Gr 1, 3, 6</i>								
Copper - Nickel <i>90/10, 70/30</i>								

Note: Other materials may be available upon request.

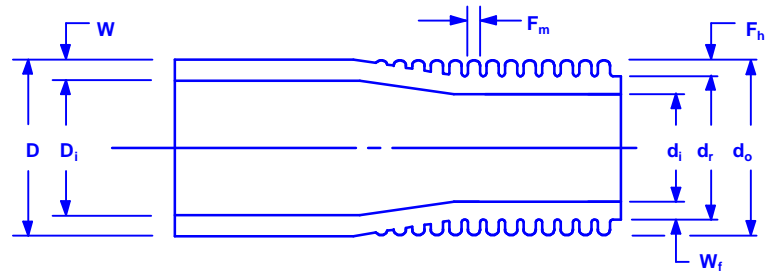
HPT Fine-Fin[®] Nomenclature

LEGEND

- D** = Outside Diameter of Plain End
- d_i** = Inside Diameter of Plain End
- d_r** = Root Diameter
- d_o** = Diameter Over Fins
- d_f** = Inside Diameter of Fin Section
- W** = Wall Thickness of Plain End
- W_f** = Wall Thickness Under Fin
- F_h** = Height of Fin
- F_m** = Mean Fin Thickness

SECTIONED DRAWING: Smooth Bore

(Applies to Type 1 - 5)

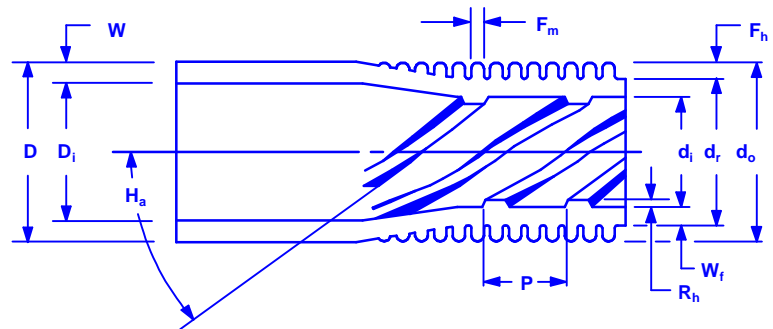


LEGEND

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- d_r** = Root Diameter
- d_o** = Diameter Over Fins
- d_f** = Inside Diameter of Fin Section
- W** = Wall Thickness of Plain End
- W_f** = Wall Thickness Under Fin
- F_h** = Height of Fin
- F_m** = Mean Fin Thickness
- P** = Mean Rib Pitch
- R_h** = Height of Rib
- H_a** = Helix Angle

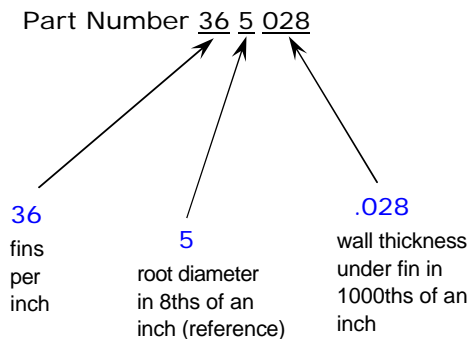
SECTIONED DRAWING: with Internal Rib

(Applies to Type 6 - 8)

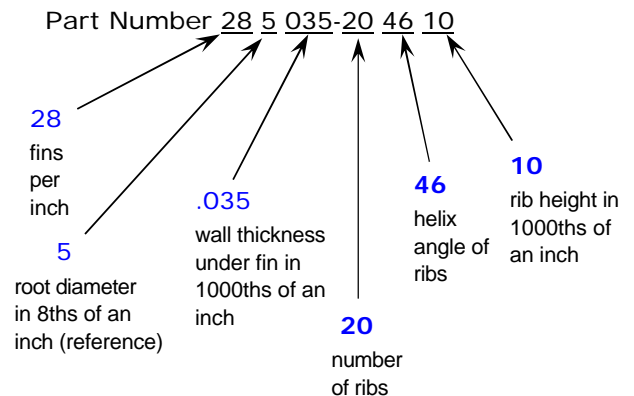


IDENTIFYING THE HPT Fine-Fin[®] PART NUMBER

Example 1: Smooth Bore (Type 1-5)



Example 2: with Internal Rib (Type 6-8)



Type 1
30 FPI
Fine-Fin®

30 fins per inch (1181 fins per meter)
.032 inches (.813 mm) average fin height
.011 inches (.279 mm) average fin thickness

Materials: Titanium Gd-1,2,16,26; Zirconium; C-276; G30; B-2; C-22; 20Cb-3; AL6XN.

Part Number	Plain Section Average Diameter	Plain Section Average Wall	Wall Under Fin Average	Wall Under Fin Minimum	Nominal Root Diameter	Fin Section I.D.	Outside Area Ao	Inside Area Ai	Area Ratio Ao/Ai	I.D. Cross Section Area
	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Ft ² /Ft) (m ² /m)	(Ft ² /Ft) (m ² /m)		(Inches ²) (cm ²)
304028	.625 15.875	.049 1.245	.028 .711	.025 .635	.561 14.249	.505 12.827	.411 .125	.132 .040	3.114 3.114	.200 1.292
304035	.625 15.875	.058 1.473	.035 .889	.031 .787	.561 14.249	.491 12.471	.411 .125	.129 .039	3.186 3.186	.189 1.222
304042	.625 15.875	.065 1.651	.042 1.067	.037 .940	.561 14.249	.477 12.116	.411 .125	.125 .038	3.288 3.288	.179 1.153
304049	.625 15.875	.072 1.829	.049 1.245	.044 1.118	.561 14.249	.463 11.760	.411 .125	.121 .037	3.397 3.397	.168 1.086
304065	.625 15.875	.083 2.108	.065 1.651	.058 1.473	.561 14.249	.431 10.947	.411 .125	.113 .034	3.637 3.637	.146 .941
305028	.750 19.050	.049 1.245	.028 .711	.025 .635	.686 17.424	.630 16.002	.500 .152	.165 .050	3.030 3.030	.312 2.011
305035	.750 19.050	.058 1.473	.035 .889	.031 .787	.686 17.424	.616 15.646	.500 .152	.161 .049	3.106 3.106	.298 1.923
305042	.750 19.050	.065 1.651	.042 1.067	.037 .940	.686 17.424	.602 15.291	.500 .152	.158 .048	3.165 3.165	.285 1.836
305049	.750 19.050	.072 1.829	.049 1.245	.044 1.118	.686 17.424	.588 14.935	.500 .152	.154 .047	3.247 3.247	.272 1.752
305065	.750 19.050	.083 2.108	.065 1.651	.058 1.473	.686 17.424	.556 14.122	.500 .152	.146 .045	3.425 3.425	.243 1.566
305083	.750 19.050	.109 2.769	.083 2.108	.074 1.880	.686 17.424	.520 13.208	.500 .152	.136 .041	3.676 3.676	.212 1.370
306028	.875 22.225	.049 1.245	.028 .711	.025 .635	.811 20.599	.755 19.177	.587 .179	.198 .060	2.965 2.965	.448 2.888
306035	.875 22.225	.058 1.473	.035 .889	.031 .787	.811 20.599	.741 18.821	.587 .179	.194 .059	3.026 3.026	.431 2.782
306042	.875 22.225	.065 1.651	.042 1.067	.037 .940	.811 20.599	.727 18.466	.587 .179	.190 .058	3.089 3.089	.415 2.678
306049	.875 22.225	.072 1.829	.049 1.245	.044 1.118	.811 20.599	.713 18.110	.587 .179	.187 .057	3.139 3.139	.399 2.576
306065	.875 22.225	.083 2.108	.065 1.651	.058 1.473	.811 20.599	.681 17.297	.587 .179	.178 .054	3.298 3.298	.364 2.350
306083	.875 22.225	.109 2.769	.083 2.108	.074 1.880	.811 20.599	.645 16.383	.587 .179	.169 .052	3.473 3.473	.327 2.108
307035	1.000 25.400	.058 1.473	.035 .889	.031 .787	.936 23.774	.866 21.996	.671 .205	.227 .069	2.956 2.956	.589 3.800
307042	1.000 25.400	.065 1.651	.042 1.067	.037 .940	.936 23.774	.852 21.641	.671 .205	.223 .068	3.009 3.009	.570 3.678
307049	1.000 25.400	.072 1.829	.049 1.245	.044 1.118	.936 23.774	.838 21.285	.671 .205	.219 .067	3.064 3.064	.552 3.558
307065	1.000 25.400	.083 2.108	.065 1.651	.058 1.473	.936 23.774	.806 20.472	.671 .205	.211 .064	3.180 3.180	.510 3.292
307083	1.000 25.400	.109 2.769	.083 2.108	.074 1.880	.936 23.774	.770 19.558	.671 .205	.202 .062	3.322 3.322	.466 3.004

Type 2 28 FPI Fine-Fin®

28 fins per inch (1102 fins per meter)
.035 inches (.889 mm) average fin height
.012 inches (.305 mm) average fin thickness

Materials: Austenitic Stainless Steel: 304, 316, 321; Nickel Alloys: 600, 625, 800, 825; Duplex Alloy 2205.

Part Number	Plain Section Average Diameter	Plain Section Average Wall	Wall Under Fin Average	Wall Under Fin Minimum	Nominal Root Diameter	Fin Section I.D.	Outside Area Ao	Inside Area Ai	Area Ratio Ao/Ai	I.D. Cross Section Area
	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Ft ² /Ft) (m ² /m)	(Ft ² /Ft) (m ² /m)		(Inches ²) (cm ²)
284028	.625 15.875	.049 1.245	.028 .711	.025 .635	.555 14.097	.499 12.675	.413 .126	.131 .040	3.153	.196 1.262
284035	.625 15.875	.058 1.473	.035 .889	.031 .787	.555 14.097	.485 12.319	.413 .126	.127 .039	3.252	.185 1.192
284042	.625 15.875	.065 1.651	.042 1.067	.037 .940	.555 14.097	.471 11.963	.413 .126	.123 .037	3.358	.174 1.124
284049	.625 15.875	.072 1.829	.049 1.245	.044 1.118	.555 14.097	.457 11.608	.413 .126	.120 .037	3.442	.164 1.058
284065	.625 15.875	.083 2.108	.065 1.651	.058 1.473	.555 14.097	.425 10.795	.413 .126	.111 .034	3.721	.142 .915
285028	.750 19.050	.049 1.245	.028 .711	.025 .635	.680 17.272	.624 15.850	.501 .153	.163 .050	3.074	.306 1.973
285035	.750 19.050	.058 1.473	.035 .889	.031 .787	.680 17.272	.610 15.494	.501 .153	.160 .049	3.131	.292 1.885
285042	.750 19.050	.065 1.651	.042 1.067	.037 .940	.680 17.272	.596 15.138	.501 .153	.156 .048	3.212	.279 1.800
285049	.750 19.050	.072 1.829	.049 1.245	.044 1.118	.680 17.272	.582 14.783	.501 .153	.152 .046	3.296	.266 1.716
285065	.750 19.050	.083 2.108	.065 1.651	.058 1.473	.680 17.272	.550 13.970	.501 .153	.144 .044	3.479	.238 1.533
285083	.750 19.050	.109 2.769	.083 2.108	.074 1.880	.680 17.272	.514 13.056	.501 .153	.135 .041	3.711	.207 1.339
286028	.875 22.225	.049 1.245	.028 .711	.025 .635	.805 20.447	.749 19.025	.588 .179	.196 .060	3.000	.441 2.843
286035	.875 22.225	.058 1.473	.035 .889	.031 .787	.805 20.447	.735 18.669	.588 .179	.192 .059	3.063	.424 2.737
286042	.875 22.225	.065 1.651	.042 1.067	.037 .940	.805 20.447	.721 18.313	.588 .179	.189 .058	3.111	.408 2.634
286049	.875 22.225	.072 1.829	.049 1.245	.044 1.118	.805 20.447	.707 17.958	.588 .179	.185 .056	3.178	.393 2.533
286065	.875 22.225	.083 2.108	.065 1.651	.058 1.473	.805 20.447	.675 17.145	.588 .179	.177 .054	3.322	.358 2.309
286083	.875 22.225	.109 2.769	.083 2.108	.074 1.880	.805 20.447	.639 16.231	.588 .179	.167 .051	3.521	.321 2.069
287035	1.000 25.400	.058 1.473	.035 .889	.031 .787	.930 23.622	.860 21.844	.676 .206	.225 .069	3.004	.581 3.748
287042	1.000 25.400	.065 1.651	.042 1.067	.037 .940	.930 23.622	.846 21.488	.676 .206	.221 .067	3.059	.562 3.627
287049	1.000 25.400	.072 1.829	.049 1.245	.044 1.118	.930 23.622	.832 21.133	.676 .206	.218 .066	3.101	.544 3.508
287065	1.000 25.400	.083 2.108	.065 1.651	.058 1.473	.930 23.622	.800 20.320	.676 .206	.209 .064	3.234	.503 3.243
287083	1.000 25.400	.109 2.769	.083 2.108	.074 1.880	.930 23.622	.764 19.406	.676 .206	.200 .061	3.380	.458 2.958

Type 3
26 FPI
Fine-Fin®

26 fins per inch (1023 fins per meter)
.049 inches (1.245 mm) average fin height
.013 inches (.330 mm) average fin thickness

Materials: Ferritic Stainless Steel, Carbon Steel, Copper-Nickel Alloys, Monel.

Part Number	Plain Section Average Diameter	Plain Section Average Wall	Wall Under Fin Average	Wall Under Fin Minimum	Nominal Root Diameter	Fin Section I.D.	Outside Area Ao	Inside Area Ai	Area Ratio Ao/Ai	I.D. Cross Section Area
	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Ft ² /Ft)	(Ft ² /Ft)		(Inches ²)
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ² /m)	(m ² /m)		(cm ²)
264028	.625 15.875	.049 1.245	.028 .711	.025 .635	.527 13.386	.471 11.963	.492 .150	.123 .037	4.000 4.000	.174 1.124
264035	.625 15.875	.058 1.473	.035 .889	.031 .787	.527 13.386	.457 11.608	.492 .150	.120 .037	4.100 4.100	.164 1.058
264042	.625 15.875	.065 1.651	.042 1.067	.037 .940	.527 13.386	.443 11.252	.492 .150	.116 .035	4.241 4.241	.154 .994
264049	.625 15.875	.072 1.829	.049 1.245	.044 1.118	.527 13.386	.429 10.897	.492 .150	.112 .034	4.393 4.393	.145 .933
264065	.625 15.875	.083 2.108	.065 1.651	.058 1.473	.527 13.386	.397 10.084	.492 .150	.104 .032	4.731 4.731	.124 .799
265028	.750 19.050	.049 1.245	.028 .711	.025 .635	.652 16.561	.596 15.138	.596 .182	.156 .048	3.821 3.821	.279 1.800
265035	.750 19.050	.058 1.473	.035 .889	.031 .787	.652 16.561	.582 14.783	.596 .182	.152 .046	3.921 3.921	.266 1.716
265042	.750 19.050	.065 1.651	.042 1.067	.037 .940	.652 16.561	.568 14.427	.596 .182	.149 .045	4.000 4.000	.253 1.635
265049	.750 19.050	.072 1.829	.049 1.245	.044 1.118	.652 16.561	.554 14.072	.596 .182	.145 .044	4.110 4.110	.241 1.555
265065	.750 19.050	.083 2.108	.065 1.651	.058 1.473	.652 16.561	.522 13.259	.596 .182	.137 .042	4.350 4.350	.214 1.381
265083	.750 19.050	.109 2.769	.083 2.108	.074 1.880	.652 16.561	.486 12.344	.596 .182	.127 .039	4.693 4.693	.186 1.197
266028	.875 22.225	.049 1.245	.028 .711	.025 .635	.777 19.736	.721 18.313	.704 .215	.189 .058	3.725 3.725	.408 2.634
266035	.875 22.225	.058 1.473	.035 .889	.031 .787	.777 19.736	.707 17.958	.704 .215	.185 .056	3.805 3.805	.393 2.533
266042	.875 22.225	.065 1.651	.042 1.067	.037 .940	.777 19.736	.693 17.602	.704 .215	.181 .055	3.890 3.890	.377 2.433
266049	.875 22.225	.072 1.829	.049 1.245	.044 1.118	.777 19.736	.679 17.247	.704 .215	.178 .054	3.955 3.955	.362 2.336
266065	.875 22.225	.083 2.108	.065 1.651	.058 1.473	.777 19.736	.647 16.434	.704 .215	.169 .052	4.166 4.166	.329 2.121
266083	.875 22.225	.109 2.769	.083 2.108	.074 1.880	.777 19.736	.611 15.519	.704 .215	.160 .049	4.400 4.400	.293 1.892
267035	1.000 25.400	.058 1.473	.035 .889	.031 .787	.902 22.911	.832 21.133	.811 .247	.218 .066	3.720 3.720	.544 3.508
267042	1.000 25.400	.065 1.651	.042 1.067	.037 .940	.902 22.911	.818 20.777	.811 .247	.214 .065	3.790 3.790	.526 3.391
267049	1.000 25.400	.072 1.829	.049 1.245	.044 1.118	.902 22.911	.804 20.422	.811 .247	.210 .064	3.862 3.862	.508 3.275
267065	1.000 25.400	.083 2.108	.065 1.651	.058 1.473	.902 22.911	.772 19.609	.811 .247	.202 .062	4.015 4.015	.468 3.020
267083	1.000 25.400	.109 2.769	.083 2.108	.074 1.880	.902 22.911	.736 18.694	.811 .247	.193 .059	4.202 4.202	.425 2.745

Type 4
36 FPI
Fine-Fin®

36 fins per inch (1417 fins per meter)
.026 inches (.660 mm) average fin height
.012 inches (.305 mm) average fin thickness

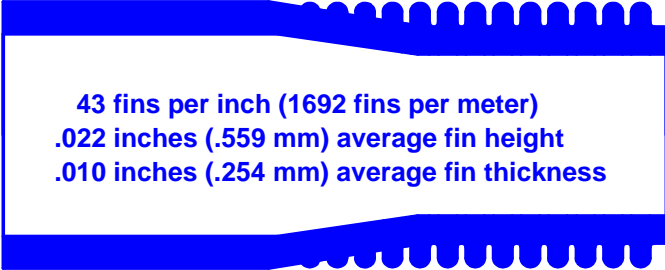
Materials: Titanium; Zirconium.

Part Number	Plain Section Average Diameter	Plain Section Average Wall	Wall Under Fin Average	Wall Under Fin Minimum	Nominal Root Diameter	Fin Section I.D.	Outside Area Ao	Inside Area Ai	Area Ratio Ao/Ai	I.D. Cross Section Area
	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Inches) (mm)	(Ft ² /Ft) (m ² /m)	(Ft ² /Ft) (m ² /m)		(Inches ²) (cm ²)
364028	.625	.049	.028	.025	.573	.517	.411	.135	3.044	.210
	15.875	1.245	.711	.635	14.554	13.132	.125	.041	3.044	1.354
364035	.625	.058	.035	.031	.573	.503	.411	.132	3.114	.199
	15.875	1.473	.889	.787	14.554	12.776	.125	.040	3.114	1.282
364042	.625	.065	.042	.037	.573	.489	.411	.128	3.211	.188
	15.875	1.651	1.067	.940	14.554	12.421	.125	.039	3.211	1.212
364049	.625	.072	.049	.044	.573	.475	.411	.124	3.315	.177
	15.875	1.829	1.245	1.118	14.554	12.065	.125	.038	3.315	1.143
364065	.625	.083	.065	.058	.573	.443	.411	.116	3.543	.154
	15.875	2.108	1.651	1.473	14.554	11.252	.125	.035	3.543	.994
365028	.750	.049	.028	.025	.698	.642	.500	.168	2.976	.324
	19.050	1.245	.711	.635	17.729	16.307	.152	.051	2.976	2.088
365035	.750	.058	.035	.031	.698	.628	.500	.164	3.049	.310
	19.050	1.473	.889	.787	17.729	15.951	.152	.050	3.049	1.998
365042	.750	.065	.042	.037	.698	.614	.500	.161	3.106	.296
	19.050	1.651	1.067	.940	17.729	15.596	.152	.049	3.106	1.910
365049	.750	.072	.049	.044	.698	.600	.500	.157	3.185	.283
	19.050	1.829	1.245	1.118	17.729	15.240	.152	.048	3.185	1.824
365065	.750	.083	.065	.058	.698	.568	.500	.149	3.356	.253
	19.050	2.108	1.651	1.473	17.729	14.427	.152	.045	3.356	1.635
365083	.750	.109	.083	.074	.698	.532	.500	.139	3.597	.222
	19.050	2.769	2.108	1.880	17.729	13.513	.152	.042	3.597	1.434
366028	.875	.049	.028	.025	.823	.767	.587	.201	2.920	.462
	22.225	1.245	.711	.635	20.904	19.482	.179	.061	2.920	2.981
366035	.875	.058	.035	.031	.823	.753	.587	.197	2.980	.445
	22.225	1.473	.889	.787	20.904	19.126	.179	.060	2.980	2.873
366042	.875	.065	.042	.037	.823	.739	.587	.193	3.041	.429
	22.225	1.651	1.067	.940	20.904	18.771	.179	.059	3.041	2.767
366049	.875	.072	.049	.044	.823	.725	.587	.190	3.089	.413
	22.225	1.829	1.245	1.118	20.904	18.415	.179	.058	3.089	2.663
366065	.875	.083	.065	.058	.823	.693	.587	.181	3.243	.377
	22.225	2.108	1.651	1.473	20.904	17.602	.179	.055	3.243	2.433
366083	.875	.109	.083	.074	.823	.657	.587	.172	3.413	.339
	22.225	2.769	2.108	1.880	20.904	16.688	.179	.052	3.413	2.187
367035	1.000	.058	.035	.031	.948	.878	.671	.230	2.917	.605
	25.400	1.473	.889	.787	24.079	22.301	.205	.070	2.917	3.906
367042	1.000	.065	.042	.037	.948	.864	.671	.226	2.969	.586
	25.400	1.651	1.067	.940	24.079	21.946	.205	.069	2.969	3.783
367049	1.000	.072	.049	.044	.948	.850	.671	.223	3.009	.567
	25.400	1.829	1.245	1.118	24.079	21.590	.205	.068	3.009	3.661
367065	1.000	.083	.065	.058	.948	.818	.671	.214	3.136	.526
	25.400	2.108	1.651	1.473	24.079	20.777	.205	.065	3.136	3.391
367083	1.000	.109	.083	.074	.948	.782	.671	.205	3.273	.480
	25.400	2.769	2.108	1.880	24.079	19.863	.205	.062	3.273	3.099

**HPT**

High Performance Tube, Inc.

Type 5

43 FPI
Fine-Fin®

43 fins per inch (1692 fins per meter)
 .022 inches (.559 mm) average fin height
 .010 inches (.254 mm) average fin thickness

Materials: Titanium Grades 1, 2, 16 & 26

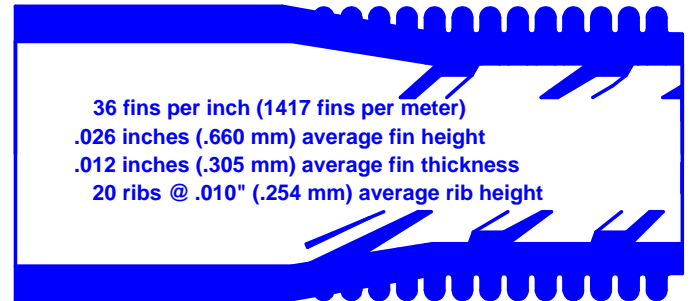
Part Number	Plain Section Average Diameter	Plain Section Average Wall	Wall Under Fin Average	Wall Under Fin Minimum	Nominal Root Diameter	Fin Section I.D.	Outside Area Ao	Inside Area Ai	Area Ratio Ao/Ai	I.D. Cross Section Area
	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Ft ² /Ft)	(Ft ² /Ft)		(Inches ²)
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ² /m)	(m ² /m)		(cm ²)
435023	.750	0.035*	.023	.020	.706	.660	.500	.173	2.890	.342
	19.050	0.889*	.584	.508	17.932	16.764	.152	.053	2.890	2.207

* Minimum Wall

**HPT**

High Performance Tube, Inc.

Type 6

36 FPI
Fine-Fin®*with*
Internal rib

36 fins per inch (1417 fins per meter)
 .026 inches (.660 mm) average fin height
 .012 inches (.305 mm) average fin thickness
 20 ribs @ .010" (.254 mm) average rib height

Materials: Titanium, Zirconium

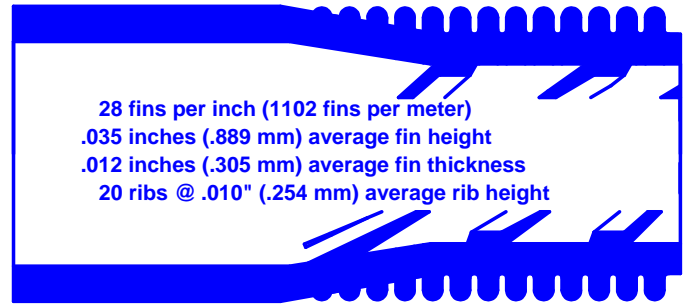
Part Number	Plain Section Average Diameter	Plain Section Average Wall	Wall Under Fin Average	Wall Under Fin Minimum	Nominal Root Diameter	Fin Section I.D.	Outside Area Ao	Inside Area Ai	Area Ratio Ao/Ai	I.D. Cross Section Area
	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Ft ² /Ft)	(Ft ² /Ft)		(Inches ²)
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ² /m)	(m ² /m)		(cm ²)
365025-	.750	.049	.025	.022	.698	.648	.500	.203	2.463	.328
204610	19.050	1.245	.635	.559	17.729	16.459	.152	.062	2.463	2.116
365028-	.750	.049*	.028	.025	.698	.642	.500	.201	2.488	.322
204610	19.050	1.245*	.711	.635	17.729	16.307	.152	.061	2.488	2.077

* Minimum Wall

**HPT**

High Performance Tube, Inc.

Type 7

28 FPI
Fine-Fin®*with*
Internal rib

28 fins per inch (1102 fins per meter)
 .035 inches (.889 mm) average fin height
 .012 inches (.305 mm) average fin thickness
 20 ribs @ .010" (.254 mm) average rib height

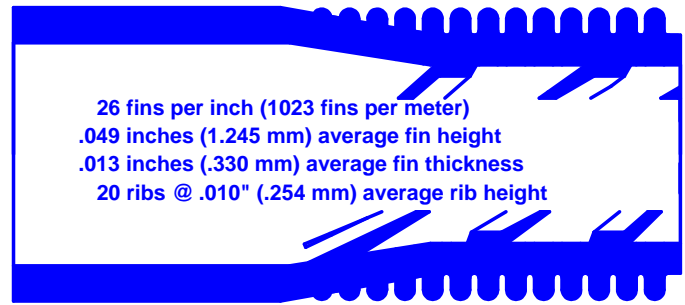
Materials: Austenitic Stainless Steel: 304, 316, 321.

Part Number	Plain Section	Plain Section	Wall	Wall	Nominal	Fin	Outside	Inside	Area	I.D.
	Average Diameter	Average Wall	Under Fin Average	Under Fin Minimum	Root Diameter	Section I.D.	Area Ao	Area Ai	Ratio Ao/Ai	Cross Section Area
	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Ft ² /Ft)	(Ft ² /Ft)		(Inches ²)
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ² /m)	(m ² /m)		(cm ²)
285028-	.750	.049	.028	.025	.680	.624	.501	.195	2.569	.304
204610	19.050	1.245	.711	.635	17.272	15.850	.153	.059	2.569	1.961
285035-	.750	.058	.035	.031	.680	.610	.501	.191	2.623	.290
204610	19.050	1.473	.889	.787	17.272	15.494	.153	.058	2.623	1.871

**HPT**

High Performance Tube, Inc.

Type 8

26 FPI
Fine-Fin®*with*
Internal rib

26 fins per inch (1023 fins per meter)
 .049 inches (1.245 mm) average fin height
 .013 inches (.330 mm) average fin thickness
 20 ribs @ .010" (.254 mm) average rib height

Materials: Carbon Steel, Copper-Nickel, Ferritic SS

Part Number	Plain Section	Plain Section	Wall	Wall	Nominal	Fin	Outside	Inside	Area	I.D.
	Average Diameter	Average Wall	Under Fin Average	Under Fin Minimum	Root Diameter	Section I.D.	Area Ao	Area Ai	Ratio Ao/Ai	Cross Section Area
	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Ft ² /Ft)	(Ft ² /Ft)		(Inches ²)
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ² /m)	(m ² /m)		(cm ²)
265028-	.750	.049	.028	.025	.652	.596	.596	.187	3.187	.277
204610	19.050	1.245	.711	.635	16.561	15.138	.182	.057	3.187	1.787
265035-	.750	.058	.035	.031	.652	.582	.596	.182	3.275	.264
204610	19.050	1.473	.889	.787	16.561	14.783	.182	.055	3.275	1.703

Fins/Inch	28	26	28	28	26	30	30 / 36	26	26	26	
Part Number	Stainless 304, 316, 321, Alloy 800, 825		Duplex Stainless 2205, 2207		Nickel Alloy 600, Alloy 625		Nickel C-276 C-22	Titanium Grades 1,2,16,26	Copper Nickel 90/10	Copper Nickel 70/30	Carbon Steel
	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)	(lb/ft) (kg/m)
XX4028	.250	.242	.247	.259	.274	.269	.141	.276	.276	.242	
	.372	.361	.368	.386	.408	.400	.209	.411	.411	.361	
XX4035	.296	.287	.293	.307	.324	.319	.166	.327	.327	.287	
	.440	.427	.436	.457	.483	.474	.248	.487	.487	.427	
XX4042	.336	.326	.332	.349	.368	.362	.189	.372	.372	.326	
	.500	.485	.495	.519	.548	.538	.281	.553	.553	.485	
XX4049	.376	.366	.373	.391	.413	.406	.212	.417	.417	.366	
	.560	.544	.555	.582	.615	.604	.315	.620	.620	.544	
XX4065	.434	.422	.430	.451	.476	.468	.244	.481	.481	.422	
	.646	.627	.640	.671	.709	.696	.364	.715	.715	.627	
XX4083	.558	.542	.553	.580	.612	.601	.314	.618	.618	.542	
	.830	.806	.822	.863	.911	.895	.468	.919	.919	.806	
XX5028	.302	.294	.299	.314	.332	.326	.170	.335	.335	.294	
	.450	.437	.446	.467	.494	.485	.253	.498	.498	.437	
XX5035	.361	.351	.358	.376	.397	.390	.204	.400	.400	.351	
	.538	.522	.533	.559	.590	.580	.303	.595	.595	.522	
XX5042	.412	.400	.408	.428	.452	.444	.232	.456	.456	.400	
	.613	.595	.607	.637	.672	.660	.345	.678	.678	.595	
XX5049	.461	.447	.456	.479	.505	.496	.259	.510	.510	.447	
	.685	.665	.679	.712	.752	.739	.386	.759	.759	.665	
XX5065	.537	.521	.531	.557	.589	.578	.302	.594	.594	.521	
	.798	.775	.791	.829	.876	.860	.450	.884	.884	.775	
XX5083	.693	.673	.687	.720	.761	.747	.390	.767	.767	.673	
	1.032	1.002	1.022	1.072	1.132	1.112	.581	1.142	1.142	1.002	
XX6028	.356	.346	.353	.370	.391	.384	.200	.394	.394	.346	
	.530	.514	.525	.550	.581	.571	.298	.586	.586	.514	
XX6035	.427	.415	.423	.444	.469	.461	.241	.473	.473	.415	
	.636	.617	.630	.661	.698	.685	.358	.704	.704	.617	
XX6042	.486	.472	.482	.505	.533	.524	.274	.538	.538	.472	
	.724	.702	.717	.752	.794	.780	.407	.801	.801	.702	
XX6049	.547	.531	.541	.568	.600	.589	.308	.605	.605	.531	
	.813	.790	.805	.845	.892	.876	.458	.900	.900	.790	
XX6065	.636	.618	.630	.661	.698	.686	.358	.704	.704	.618	
	.947	.919	.938	.984	1.039	1.020	.533	1.048	1.048	.919	
XX6083	.827	.803	.819	.859	.907	.891	.466	.915	.915	.803	
	1.230	1.195	1.218	1.278	1.350	1.326	.693	1.362	1.362	1.195	
XX7035	.493	.479	.488	.512	.541	.532	.278	.546	.546	.479	
	.734	.713	.727	.762	.805	.791	.413	.812	.812	.713	
XX7042	.562	.545	.556	.583	.616	.605	.316	.621	.621	.545	
	.836	.811	.827	.868	.917	.900	.470	.925	.925	.811	
XX7049	.632	.614	.626	.657	.694	.682	.356	.700	.700	.614	
	.941	.914	.932	.978	1.032	1.014	.530	1.042	1.042	.914	
XX7065	.737	.715	.730	.766	.808	.794	.415	.816	.816	.715	
	1.097	1.065	1.086	1.139	1.203	1.182	.617	1.214	1.214	1.065	
XX7083	.961	.933	.952	.999	1.055	1.036	.541	1.064	1.064	.933	
	1.430	1.389	1.417	1.486	1.569	1.542	.805	1.583	1.583	1.389	

Standards Tolerances Specifications

HPT FINE-FIN® TUBE MEETS THE FOLLOWING QUALITY STANDARDS:

ASME Sec. 8, Div 1, UG-8 (and Appendix 23 for external pressure rating where necessary).

ASTM A-1012 Seamless and Welded Ferritic, Austenitic and Duplex Alloy Steel Condenser and Heat Exchanger Tubes with Integral Fins.

ASTM B-891 Seamless and Welded Titanium and Titanium Alloy Condenser and Heat Exchanger Tubes With Integral Fins

ASTM B-924 Seamless and Welded Nickel Alloy Condenser and Heat Exchanger Tubes with Integral Fins.

ASTM B-359 / ASME SB-359 Copper and Copper Alloy Seamless Condenser and Heat Exchanger Tubes with Integral Fins.

TOLERANCES

FINS PER INCH:	+3 / -1
FIN HEIGHT:	± .003" (.076 mm)
OVERALL LENGTH:	+ 1/8" (3.175 mm) up to 24' (7.3 m) incl; + 1/4" (6.35 mm) over 24' (7.3 m) up to 34' (10.4 m) incl; + 3/8" (9.525 mm) over 34' (10.4 m) up to 44' (13.4 m) incl; + 1/2" (12.7 mm) over 44' (13.4 m).
PLAIN END LENGTH: (Straight)	+ 1/4" (6.35 mm) / - 0" (0.0 mm)
PLAIN END LENGTH: (U-Bends)	+ 1/2" (12.7 mm) / - 0" (0.0 mm)
LAND LENGTH:	+ 1/4" (6.35 mm) / - 0" (0.0 mm)
LAND LOCATION:	+ 1/4" (6.35 mm) / - 0" (0.0 mm) from start end of tube.
LAND AT TANGENT: (U-Bends)	± 1/4" (6.35 mm)
WALL THICKNESS:	See data sheet.
FINNED SECTION DIAMETER:	O.D. tolerances per material spec.
FINNED SECTION TRANSITION:	1/2" (12.7 mm) minimum total transition, 4" (101.6 mm) maximum total transition.

SPECIFICATIONS

ALL STRAIGHT LENGTH TUBES:	Air test at 250 psi (1.72 Mpa) after finning, standard. Hydro-test, optional.
ALL U-BEND TUBES:	Hydro-test after bending, standard.
ALL TUBES:	Eddy current test after finning, standard.
STANDARD BOXING:	Tri-wall corrugated board.
WOOD BOXES:	Available at nominal price extra.
LAND LENGTH:	1.0" (25.4 mm) minimum (for shorter lengths, consult HPT).
DISTANCE BETWEEN LANDS:	18" (457.2 mm) minimum.

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