STANDARD SPECIFICATION

ALUMINUM L-FOOT FINNED TUBES
(SOLID & PERFORATED FIN)

(Effective October 15, 2013)

Vulcan Finned Tubes, L.P.
27951 Commercial Park Drive
Tomball, Texas 77375

Phone: 281-255-4775
877-466-0055 (toll free)
Fax: 281-516-7878

www.vulcanfinnedtubes.com
1.0 SCOPE

1.1 This specification governs materials, fabrication and tolerances (where required) applicable to aluminum L-foot finned tubes fabricated by Vulcan Finned Tubes, L.P. ("Vulcan").

2.0 ORDERING INFORMATION

2.1 The purchaser is responsible for specifying all information necessary for ordering the required materials.

2.2 Tube material information will include quantity, tube specification, OD and wall thickness and over-all tube length.

2.3 Fin material information will include fin specification, fin height, number of fins per inch, length of finned length and length of tube bare ends.

2.4 If tube supports are required, type and location must be specified.

3.0 TUBE SPECIFICATIONS

3.1 The tube may be supplied by the purchaser or by Vulcan, as agreed between the two parties. If purchaser supplies tubes, Vulcan will specify the lengths of tubes supplied and the number of spares required.

3.2 If purchaser supplies the tubes, they must send mill test reports with the tube material. Mill test reports or other acceptable manufacturer's certification shall be provided to the purchaser for all tubes supplied by Vulcan.

3.3 The tube's chemical and physical characteristics shall be per the specification chosen by the purchaser unless otherwise specified.

3.4 Standard OD's for aluminum L-foot finned tubes shall be 5/8", 3/4", 1", 1-1/4" or 1-1/2" as specified (+/- .003"). Tube ID and OD must be concentric and ovality shall be within .002".

3.5 To be suitable for finning, tubes must be straight, the OD must be free from any pitting, dents, surface defects or excessive grease or oil that would interfere with the application of the fin.
3.6 Length tolerance for tubes cut to length by Vulcan shall be as follows:

<table>
<thead>
<tr>
<th>Tube Length</th>
<th>Plus Tolerance</th>
<th>Minus Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 24 ft.</td>
<td>.125 in.</td>
<td>.125 in.</td>
</tr>
<tr>
<td>Greater than 24 ft.</td>
<td>.25 in.</td>
<td>.125 in.</td>
</tr>
</tbody>
</table>

3.7 Tube end preparation shall be square-cut and deburred on ID and OD.

4.0 FIN STRIP SPECIFICATIONS

4.1 Vulcan shall supply fin strip material.

4.2 The fin strip material shall be aluminum 1100-0 or aluminum 5005 as specified by purchaser.

4.3 If requested by customer at time of order, Vulcan shall furnish mill test reports or other acceptable manufacturer’s certification for fin strip materials.

4.4 Standard fin heights shall be 3/8", 7/16", 1/2" or 5/8" as specified by purchaser.

4.5 Fin strip thickness shall be .015 in. (+/- .001 in.) thick before being formed tension wound around tube.

4.6 Standard fin pitch is 8 to 12 fins per inch with 10 fins per inch being most commonly purchased.

5.0 FABRICATION

5.1 Tubes are not required to be cleaned prior to finning unless otherwise specified.

5.2 The base of the fin is formed into a L-foot shape and wound helically around the OD of the tube forming a mechanical bond between tube and fin. Two galvanized staples shall secure each finned end.

5.3 Fins shall be solid or perforated as specified by purchaser.

5.4 Fin attachment shall be secure over the entire tube length.

5.5 The cup of the fin shall be uniform throughout the entire tube length.

5.6 Fin splices are permissible, providing there are no splices within 10 ft. of another and tubes with splices do not account for more than 10 percent of the total order.

5.7 Fin OD dimensions shall be as specified +0, -.015".
5.8 Length of bare ends shall be +/- 1/4".

5.9 The number of fins per inch shall be as specified +/- 5 percent as determined on not less than 12 in. of finned length.

5.10 Finished finned tubes shall be straight with a maximum deviation of 1/4" in any 10 ft. section of tube.

6.0 INSPECTION

6.1 Upon receipt, tubes dimensions will be verified and a visual inspection will be performed to ensure there are no obvious defects. Tube materials that fail to meet standard specifications will not be used.

6.2 Prior to production, fin material dimensions will be verified and a visual inspection will be performed to ensure there are no obvious defects. Fin materials that fail to meet standard specifications will not be used.

6.3 All finned tubes shall be visually inspected during the finning process and once again prior to packaging and shipping. All finned tubes shall meet the standard specifications, have a workmanlike finish and be free from obvious defects.

7.0 PRODUCT PACKAGING

7.1 Standard packaging options are fully enclosed steel-banded wooden crates. Other options such as export quality crating and fumigation can be provided upon request.