

RAW MATERIALS / FERROUS

FNHA-2-A-603.00

HIGH STRENGTH ERW SHAPED STEEL TUBING**1. SCOPE**

This specification defines the requirements for High Strength Electric Resistance Welded Steel Tubing. Materials that meet this specification are Elyria tubing and ASTM A 500 Gr.C (50000 psi min. yield strength) tubing.

2. APPLICATION

This specification includes material requirements, ordering information and quality requirements to be used by Engineering, Purchasing and Manufacturing.

3. DRAWING SPECIFICATIONS

New drawings and revisions shall specify the following in the material block:

STD HS SQ/REC-ELYRIA 9842957

4. ORDERING INFORMATION

4.1 Elyria tube, or ASTM A 500 Gr.C (modified to meet mechanical property requirements).

4.2 ERW tubing

4.3 Shape

4.3.1 Square

4.3.2 Rectangular

4.4 Dimension

4.4.1 Outside Diameter - Width, inches

4.4.2 Outside Diameter - Depth, inches

4.4.3 Wall Thickness, inches

4.4.4 Length, feet

4.5 Flash Control, if required

5. CHEMICAL COMPOSITION

Carbon, %	0.35 maximum
Manganese, %	1.35 maximum
Phosphorus, %	0.05 maximum
Sulfur, %	0.05 maximum

6. MECHANICAL PROPERTIES

6.1 Shaped Tubing with equivalent circumference of 1 5/16" O.D. or larger round tube

50,000 psi minimum Yield Strength
62,000 psi minimum Tensile Strength
20 % minimum Elongation in 2 "

7. DIMENSIONAL TOLERANCES

7.1 Elyria Squares or Rectangles

Outside Diameter - Width or Depth	+/- 1/32"
Wall Thickness - All Shapes	+/- 10 %
Maximum Length	22'
Cut Length Tolerance:	

Under 3'	+/- 1/16"
3' to 12'	+/- 3/32"
Over 12'	+/- 1/8"

Straightness	1/16" in 3'
Allowance for Twist:	
1 1/2" and under on larger dimension	3/32" in 3'
Over 1 1/2 " on larger dimension	1/8 " in 3'

					NAME	STD HS SQ/REC-ELYRIA		
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I.D. Flash - Welding flash will not exceed wall thickness or 3/32", whichever is less. Closer flash control may be available on a mill inquiry basis. Radius of outside corners not to exceed 3 times wall thickness.

7.2 ASTM A 500 Gr.C Squares or Rectangles

Outside Diameter see Table 1.

Wall Thickness - All Shapes +/- 10 % ,
measured at center of flat.

Cut Length Tolerance

Under 3'	+/- 1/16"
3' to 12'	+/- 3/32"
Over 12'	+/- 1/8"

Straightness 1/16" in 3'

I.D. Flash - Welding flash will not exceed wall thickness or 3/32", whichever is less. Closer flash control may be available on a mill inquiry basis.

Allowance for Twist:

1 1/2" and under on large dimension: 3/32" in 3'

Over 1 1/2 " on larger dimension: 1/8 " in 3'

Radius of outside corners not to exceed 3 times wall thickness.

TABLE 1. Outside Dimension Tolerances for Square and Rectangle Structural Tubing

Largest Outside Dimension, across flats, inch (mm)	Tolerance, plus and minus, inch (mm)
2 1/2 (63.5) and under	0.020 (0.51)
Over 2 1/2 to 3 1/2 (63.5 to 88.9), incl.	0.025 (0.64)
Over 3 1/2 to 5 1/2 (88.9 to 139.7), incl.	0.030 (0.76)
Over 5 1/2 (139.7)	1 %

7.3 NOTE ON LENGTH TOLERANCE

Length tolerance is intended for tubing bought as raw material, to be cut to size by New Holland, or as blanks (no drawing). If material is purchased to print specifications, either as a semifinished part or a finished part, the print length tolerance supersedes the standard length tolerance.

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