

RAW MATERIALS / FERROUS

FNHA-2-A-826.00

HOT-ROLLED STRUCTURAL ANGLE A36**1. SCOPE**

1.1 This standard covers carbon steel shapes, plates, and bars of structural quality for use in riveted, bolted, or welded construction for general structural purposes.

1.1.1 When the steel is used in welded construction, welding procedure shall be suitable for the steel and the intended service.

1.2 Supplemental requirements are provided where improved notch toughness is important. These shall apply only when specified by the purchaser in the order.

2. DRAWING SPECIFICATION

2.1 Versatile only - Material Codes 201, 210, 230, 240, & 250.

2.2 NH only - HR Structural Angle ASTM A36

3. RELATED SPECIFICATIONS**3.1 REFERENCE STANDARDS**

ASTM A36 - Standard Specification for Structural Steel.

ASTM A6 - General Requirements for Rolled Steel Plates, Shapes, and Bars for Structural Use.

3.2 This standard replaces the following company standard:

Versatile MS - 607.

4. CHEMICAL REQUIREMENTS

4.1 The heat analysis shall conform to the requirements in Table 1.

4.2 The steel shall conform on product analysis to the requirements prescribed in ASTM A36 and ASTM A6 Standards.

5. MECHANICAL REQUIREMENTS

5.1 **TENSILE REQUIREMENT** - The material as represented by the test specimen, shall conform to the requirements as to the tensile properties prescribed in Appendix No. 1, Table 2. For material under 5/16 in. (8 mm) in thickness or diameter, a deduction from the percentage of elongation in 8 in. (203 mm), specified in Appendix No. 1, Table 2, of 1.25% shall be made for each decrease of 1/32 in. (0.8 mm) of the specified thickness or diameter below 5/16 in. (8 mm).

5.2 **BEND TEST REQUIREMENTS** - The bend test specimens shall withstand cold bending through 180 degrees without cracking on the outside of the bent portion, to an inside diameter which shall have a relation to the thickness of the specimen as prescribed in Appendix No. 1, Table 3.

6. GENERAL REQUIREMENTS FOR DELIVERY

6.1 Refer to FNHA Engineering Standard 86050092 (FNHA 2-A-001.00)

6.1.1 For Tolerances see FNHA Engineering Standard 86050123 (FNHA 2-A-028.00).

					NAME	STD A36 STRUCT ANGLE					
					 NEW HOLLAND			ENGINEERING SPECIFICATION			
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TABLE 1 CHEMICAL REQUIREMENTS

Product Shapes Thickness In.	Plates						Bars			
	All	To .75	Over .75 to 1.75	Over 1.75 to 2.5	Over 2.5 to 4	Over 4	To .75	Over .75 to 1.5	Over 1.5 to 4	Over 4
Carbon, Max %	.26	.25	.25	.26	.27	.29	.26	.27	.28	.29
Manganese %			.80-1.20	.80-1.20	.85-1.20	.85-1.20		.60-.90	.60-.90	.60-.90
Phosphorus, Max %	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Sulfur, Max %	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
Silicon			.15-.30	.15-.30	.15-.30					
Copper, Max %*	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20

* When copper steel is specified

TABLE 2 TENSILE REQUIREMENTS

Plates, Shapes, and Bars	Tensile Strength Psi (MPa)	58,000 - 80,000 (400 - 550)
	Yield Point, psi (MPa)	36,000 (250)
Plates and Bars	Elongation in 8 in. (200 mm), min %	20
	Elongation in 2 in. (50 mm), min %	23
Shapes	Elongation in 8 in. (200 mm), min %	20
	Elongation in 2 in. (50 mm), min %	21

TABLE 3 BEND TEST REQUIREMENTS

Thickness of Material, in. (mm)	Ratio of Bend Diameter to Thickness of Specimen for Plates, Shapes, and Bars*
3/4 (19) and under	1/2
Over 3/4 - 1 (19 - 25)	1
Over 1 - 1 1/2 (25 - 38)	1 1/2
Over 1 1/2 - 2 (38 - 51)	2 1/2
Over 2 (51)	3

* These ratios apply to the bending performance of a test specimen only. This specimen is always taken in the longitudinal direction and usually has some edge preparation. Where plates are to be bent in a fabricating operation, more liberal bend ratio must be used, particularly if the bend axis is in the unfavorable (longitudinal) direction.

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