

ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

STEEL, HIGH STRENGTH, SEAMLESS TUBING

WSB-M1A326-A1

1. SCOPE

The materials defined by these specifications are fully killed, fine grained, high strength alloyed steels supplied in tubular form.

2. APPLICATION

These specifications were released originally for materials used in door intrusion beams where a high strength to weight ratio is required.

Caution: Due to the hardenability response of these materials, individual welding schedules must be developed for each application.

3. REQUIREMENTS

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.2 CHEMICAL COMPOSITION (weight percent)

The percentages given are heat or cast (ladle) analysis:

Grade	800	1000 L	1000 W	1100
C	.14 - .18	.24 - .26	.18 - .21	.20 - .30
Mn	1.60 - 1.80	2.0 - 2.4	1.10 - 1.40	1.50 - 1.80
P	.025 max	.030 max	.030 max	.025 max
S	.025 max	.030 max	.020 max	.025 max
Si	.15 - .30	.060 - .070	----	.15 - .25
Cr	1.90 - 2.10	.060 - .080	----	1.90 - 2.10
Mo	.45 - .60	.25 - .30	----	.45 - .60
Al	.020 - .040	.020 - .050	.020 - .050	.020 - .040
Ni	----	----	----	.50 - 1.50

Date	Action	Revisions
2002 09 26	Revised	Updated and renumbered
92/09/17	NB00I10043054200	Released, J. Nelson NAAO, J.P. Lines EAO

Printed copies are uncontrolled

Page 1 of 3



Documents

Document Sharing Hub

Copyright © 2002, Ford Global Technologies, Inc.

3.3 MECHANICAL PROPERTIES
(ASTM A 370/ISO 6892)

Grade	800	1000 L	1000 W	1100
Yield Strength, MPA, min	800	1000	1000	1100
Tensile Strength, MPa, min	1100	1400	1200	1300
Elongation, %, min	10	10	8	6

Note: Tension specimens shall be taken longitudinally and conform to the type shown in ASTM A 370, ISO 6892.

3.4 NONDESTRUCTIVE TESTING

Each tube shall pass nondestructive testing to assure wall soundness. Supplier inspection method must be submitted prior to source approval.

3.5 PAINTABILITY

Material supplied to this specification must have prior approval for paintability by the responsible Materials Engineering Activity. This approval shall be based on samples prepared to the local process and resistance requirements appropriate to the country of Ford vehicle manufacture, or to the relevant Engineering Performance specification (see para 4.2).

4. GENERAL INFORMATION

The information below is provided for clarification and assistance in meeting the requirements of this specification.

4.1 INITIAL SUPPLIER APPROVAL

For initial approval, the supplier must furnish the following information for each grade:

- . A plan detailing how each requirement of para 3 will be controlled on a continuing production bases.
- . Test results from a typical production sample for the requirements outlined in para 3.
- . Tensile strength, yield strength and elongation histograms including mean and standard deviation values. Data shall consist of a minimum of 40 measurements for each property taken from a minimum of 20 coils while the process is operating in statistical control.
- . NDT inspection method outlined in para 3.4.
- . Paintability test results from typical production samples as outlined in para 4.2.