

ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

STEEL, BAR

WSE-M1A332-A1

1. SCOPE

The material defined by this specification is a machinable modified SAE 1144 cold drawn, heavy drafted steel bar, which has been specially steel mill processed to attain 690 MPa minimum yield strength.

2. APPLICATION

This specification was released originally for materials used to manufacture parts possessing the desired mechanical properties without subsequent heat treatments. This specification replaces ESW-M1A143-A.

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

Carbon	0.40 - 0.48
Manganese	1.35 - 1.65
Phosphorus	0.040 max
Sulphur	0.24 - 0.33
Silicon	0.15 - 0.30
Nitrogen	0.006 - 0.013

Composition shall be selected from within the above range in order to provide a material which will respond well to heat treatment and will meet the microstructural, machinability, hardenability and strength requirements, as specified on the Engineering drawing.

Date	Action	Revisions
2002 09 30	Revised	Updated and renumbered
1994 05 25	NEO1E10127076130	Revised para 3.2 P.Lee, C.Sales
1994 04 27	NEO1E10127076127	Released P.Lee, C.Sales

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Page 1 of 4

3.3 MECHANICAL PROPERTIES

- | | | |
|-------|---|---------|
| 3.3.1 | Yield Strength, min
(ASTM E 8, longitudinal direction) | 690 MPa |
| 3.3.2 | Hardness, Rockwell "C"
(ASTM E 18) | 22 - 30 |

Hardness shall be measured as shown below, at center diameter and at half radius. Both readings shall be within the range 22 - 30 HRC, but shall not differ by more than two Rockwell points. As an example, if the center reading is 22 HRC, the mid-radius reading must be no greater than 24 HRC. If the center is 24 HRC, then the mid-radius must be 24 +/- 2 HRC.

