

**MERITOR®**2135 West Maple Road
Troy, MI 48084-7121

Material Specification

Specification: B-46-1
Revision Date: 03/17/2016
Revision Level: E

ALLOY STEEL - CARBURIZING GRADE

- 1.0 GENERAL SPECIFICATION: Material Specification B-1. All the requirements for the general specifications apply unless superseded by the requirements within this specification.
- 2.0 SCOPE: This specification covers a high grade alloy steel suitable for use in the manufacture of gearing and other carburized parts. It shall be comparable in composition with Italian grade 21NiCrMo5H steel.
- 3.0 CHEMISTRY:

Chemical Property	Range (wt.%)
Carbon	0.19-0.23
Manganese	0.60-0.90
Silicon	0.20-0.35
Nickel	1.20-1.50
Chromium	0.70-1.00
Molybdenum	0.15-0.30
Phosphorus	0.035 max
Sulfur*	0.025-0.040
Aluminum	0.020-0.050
Copper	0.25 max

*The material must still meet the inclusion ratings specified per B-1. Aim sulfur 0.028-0.040%; this is to aid in machinability.

- 4.0 HARDENABILITY: Hardenability shall be restricted as shown below for the drive pinion application and shall be calculated per SAE J406 (2009). It is optional for the steel mill to test the Jominy. If so, actual values would take precedence to calculated values.

Jominy Distance (1/16 th inch)	J4	J8	J12	Requirement Level
HRC MIN	39	33	30	Mandatory
HRC MAX	45	39	35	Mandatory

Restricted hardenability band for pinions to be processed in Meritor Cameri plant, to mitigate distortions:

Jominy Distance (1/16 th inch)	J4	J8	J12	Requirement Level
HRC MIN	40	33	30	Mandatory
HRC MAX	44	37	34	Mandatory

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5.0 APPLICATIONS: Spiral bevel and hypoid gears and pinions and gear applications.

6.0 REFERENCE SPECIFICATIONS:

Industry Affiliation	Standard Number and revision Date	Title of Standard
Meritor	B-1	General Wrought Steel Standard
SAE	J406 (2009)	Methods of Determining Hardenability of Steels.

Date	Change
03/17/2016 Level E PR-03566	Added restricted Jominy band for Meritor Cameri plant. Added alternative to test actual Jominy for steel mills.
5/19/2014 Level D Request 30272-179	Reformatted and updated the Header / Footer. Added clarifying sentence to General Specification section. Tabularized Chemistry and Hardenability. Added method for calculation of J positions. Added Reference Specification section.
11/5/2008 Level C Request 30272-74	Added (1/16 inch) to Jominy Distance
12/5/2006 Level B Request 26188-25	Sulfur aim was 0.028-0.032%. Changed "sulphur" to "sulfur"
7/5/2006 Level A Request 26188-2	Sulfur minimum requirement was 0.020%. Added sulfur aim. Reiterated the requirement of inclusion ratings per B1.
8/15/91	From J4: 37/43; J8: 28/34; J12: 24/29 - Added chemistry requirement on S, P, Al, Cu.
9/15/87	Issued

Approved By: S. Doyle
Director - Materials Engineering

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