

**MERITOR®**2135 West Maple Road
Troy, MI 48064-7121

Material Specification

Specification: B-74

Revision Date: 12/08/2014

Revision Level: M

ALLOY STEEL-STRUCTURAL 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 All the requirements for the general specifications apply unless superseded by the requirements within this specification.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 structural parts. It shall be identical in composition with SAE 4140H.
- 3.0 HARDENABILITY:

3.1 Hardenability shall be restricted to the center 50% of the "H" band for Input shafts and thru shafts.

Jominy Distance (1/16 inch)				
	J4	J8	J12	Requirement Level
HRC min.	53	49	43	Aim
HRC max.	57	55	51	Aim

3.2 Hardenability shall be restricted to the upper 50% of the "H" band for brake slack adjuster worms.

Jominy Distance (1/16 inch)				
	J4	J8	J12	Requirement Level
HRC min.	55	52	47	Mandatory
HRC max.	59	57	55	Mandatory

4.0 CHEMISTRY:

Material intended for use in Kingpins requires a carbon "aim" range.

Chemical Property	Requirement (wt.%)	Requirement Level
Carbon	0.40 - 0.44	Aim

Proprietary and Confidential

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

Material Specification

Specification: B-74**Revision Date: 12/08/2014****Revision Level: M**

5.0 INTERNATIONAL EQUIVALENTS:

The following steels, while not necessarily an exact equivalent of this base specification, can be used as an alternate provided it meets the remainder of the specification in its entirety. Suppliers cannot substitute cross referenced steels without prior approval of the using plant quality function.

Chemical Properties (wt.%)	Australia AS1444 4140H	England B.S.970-2 709M40	Germany DIN 17200 42CrMo4 Werk No. 1.7225	China GB/T 3077 42CrMo	Japan JIS G4052 SCM440H
C	0.37-0.44	0.36-0.44	0.38-0.45	0.38-0.45	0.37-0.44
Mn	0.65-1.10	0.70-1.00	0.70-1.00	0.50-0.80	0.55-0.90
P	0.040 max	0.040 max	< 0.035	< 0.035	0.030 max
S	0.040 max	0.050 max	< 0.035	< 0.035	0.030 max
Si	0.1 -0.35	0.10-0.35	< 0.400	0.17-0.37	0.15-0.35
Ni	----	----	----	< 0.300	----
Cr	0.75-1.20	0.90-1.20	0.90-1.20	0.90-1.20	0.85-1.25
Mo	0.15-0.25	0.25-0.35	0.15-0.30	0.15-0.25	0.15-0.35
B	----	----	----	----	----
Grain Size	Fine	Fine	Fine	Fine	Fine

6.0 APPROVED KINGPIN MATERIAL SUPPLIERS:

Supplier	Location
Gerdau - Arkansas	Fort Smith, Arkansas
Gerdau - Jackson	Jackson, Michigan
Gerdau - Monroe	Monroe, Michigan (billet)
Timken Steel - Faircrest	Canton, Ohio
Timken Steel - Harrison	Canton, Ohio
Jiangyin Xingcheng Special Steel	China (bloom cast)

7.0 REFERENCE SPECIFICATIONS:

Industry Affiliation	Standard Number and revision Date	Title of Standard
Meritor	B-1	General Wrought Steel Standard
AS	1444 (2007)	Wrought Alloy Steels
BS	970-2 (1988)	Wrought Steels for Mechanical and Allied Engineering Purposes
DIN	17200 (1969)	Quench and Tempered Steels
GB/T	3077 (1999)	Alloy Structure Steels
JIS	G4052 (2008)	Structural Steels with Specified Hardenability Bands

Proprietary and Confidential

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

Material Specification

Specification: B-74

Revision Date: 12/08/2014

Revision Level: M

Date	Change
12/08/2014 Level M Request 33462-9	Added Gerdau - Monroe in Section 6.0 Approved Kingpin Material Suppliers.
9/05/2014 Level L Request 30932-40	Added Jiangyin Xingcheng Special Steel - China (bloom cast) and added "Steel" to Timken in Section 6.0 Approved Kingpin Material Suppliers.
2/14/2014 Level K Request 30272-176	Reformatted and updated the Header / Footer. Added clarifying sentence to General Specification section. Added Reference Specification section.
04/05/2010 Level J Request 30272-128	Removed "USS Kobe-Ingot" from Section 6.
11/5/2008 Level H Request 30272-78	Added (1/16 inch) to Jominy Distance
03/05/2008 Level G Request 30272-14	Added MacSteel-Jackson to approved Kingpin Suppliers
12/15/2001 Level F Request 21614-1	Added Japan JIS G 4105 Class SCM440H steel
8/15/2001 Level E Request 21417-2	Corrected the revision date in the header.
8/1/97 Level D	Removed Slater from Approved Kingpin Suppliers list
9/15/96 Level C	Added Carbon "aim" to chemistry for Kingpins
4/15/96 Level B	Added Chinese spec. for worm.
10/15/94 Level A	Added approved suppliers.
6/15/88	Correction in Jominy distance.

Approved By: S. Doyle
Director - Materials Engineering

Proprietary and Confidential