STEEL, CROSS REFERENCE FOR STANDARD PARTS

WSD-M1A283-B1/B8
WSD-M1A283-B11
WSD-M1A283-B30
WSD-M1A283-B33
WSD-M1A283-B36/B55
WSD-M1A283-B57
NOT TO BE USED FOR NEW DESIGN **WSD-M1A283-B9/B10**
NOT TO BE USED FOR NEW DESIGN **WSD-M1A283-B12/B29**
NOT TO BE USED FOR NEW DESIGN **WSD-M1A283-B31/B32**
NOT TO BE USED FOR NEW DESIGN **WSD-M1A283-B34/B35**
NOT TO BE USED FOR NEW DESIGN **WSD-M1A283-B56**

1. SCOPE

The materials defined by this specification are alternative national steel specifications related to the International Organization for Standardization classification.

2. APPLICATION

This specification was released originally to simplify material choice for fasteners which could be sourced in several countries.

Complete compositional agreement may not exist between the alternates listed but these differences are slight and will not significantly affect manufacture or application.

The abbreviations heading the tables indicate the following:

ISO – International Organization for Standardization
SAE – Society of Automotive Engineers International
EN – Euronorm
ASTM – American Society for Testing and Materials

3. REQUIREMENTS

The general quality of manufacture of steel and the wire product for the making of fasteners shall conform to the relevant ISO standard or the equivalent national standard for the country of sourcing. In the absence of a national standard or for referee purposes, the ISO standard applies.

Specific requirements for composition, hardenability, mechanical properties and treatment condition shall conform to the relevant national standards specified in section 3 of this specification.

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).

Date	Action	Revisions	Rev 04
2013 05 08	Revised	See Summary of revisions	S. Ryzyi, NA
2011 04 27	Revised	See Summary of revisions for details	S. Ryzyi, NA
1986 07 03	Released	SM/ER3665TC JPC. Lines, EAO	

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3.2. COMPARABLE STEELS

Suffix	Industry Standards	Typical Applications	Composition[a]	Status
B1	ISO 4954 CC 4 X EN 10016-2 C4D SAE J403 UNS G10050	Bolts, Nuts, clips, Cylinder Head Insert, Brackets	C: 0.06 max Mn: 0.35 max P: 0.030 max S: 0.050 max Si: 0.10 max	A
B2	ISO 4954 CC 8 X EN 10016-2 C9D SAE J403 UNS G10080	Bolts, Nuts, clips, Cylinder Head Insert, Brackets	C: 0.10 max Mn: 0.30-0.50 P: 0.030 max S: 0.050 max Si: 0.10 max	A
B3	ISO 4954 CC 11 X EN 10016 C10D SAE J403 UNS G10100	Bolts, Nuts, clips, Cylinder Head Insert, Brackets	C: 0.08-0.13 Mn: 0.30-0.60 P: 0.030 max S: 0.050 max Si: 0.10 max	A
B4	ISO 4954 CC 15 X EN 10016 C15D SAE J403 UNS G10150	Bolts, Nuts, clips, Cylinder Head Insert, Brackets	C: 0.13-0.18 Mn: 0.30-0.60 P: 0.030 max S: 0.050 max Si: 0.10 max	A
B5	ISO 4954 CC 21 K EN 10016 C20D SAE J403 UNS G10200	Bolts, Nuts, clips, Brackets	C: 0.18-0.23 Mn: 0.30-0.60 P: 0.030 max S: 0.050 max Si: 0.15-0.35	A
B6	ISO 4954 CE 20 E4 EN 10083 C22E SAE J403 UNS G10220	Bolts, Nuts, clips, Brackets, Retainers	C: 0.18-0.23 Mn: 0.70-1.00 P: 0.030 max S: 0.050 max Si: 0.40 max	A
B7	ISO 4954 CE 28 E4 EN 10083 C30E SAE J403 UNS G10290 SAE J403 UNS G10300	Bolts, Nuts, Washers,	C: 0.25-0.34 Mn: 0.60-0.90 P: 0.030 max S: 0.050 max Si: 0.40 max	A
B8	ISO 4954 CE 35 E4 EN 10083 C35E SAE J403 UNS G10350	Bolts, Nuts, Rivets, Studs	C: 0.32-0.39 Mn: 0.50-0.80 P: 0.035 max S: 0.035 max Si: 0.40 max	A
B9	EN 10083-1 C45E	Bolts, Nuts, Washers, Rivets	C: 0.40-0.47 Mn: 0.60-0.90 P: 0.035 max S: 0.050 max Si: 0.40 max	N

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Suffix	Industry Standards	Typical Applications	Composition[a]	Status
B10	EN 10083-1 C45E SAE J403 UNS G10420	Nuts, Rivets, Studs	C: 0.40-0.47 Mn: 0.60-0.90 P: 0.035 max S: 0.050 max Si: 0.40 max	N
B11	ISO 4954 CE 45 E4 EN 10083 C45E SAE J403 UNS G10450	Brackets, Nuts, Washers, Bolts, Pins	C: 0.43-0.50 Mn: 0.60-0.90 P: 0.035 max S: 0.050 max Si: 0.40 max	A
B12	DIN SEL 38Cr1	Nuts		N
B13	DIN SEL 48Cr1 SAE J404 UNS G50460	Nuts	C: 0.44-0.49 Mn: 0.75-1.00 P: 0.030 max S: 0.040 max Si: 0.15-0.35 Ni: 0.20-0.35	N
B14	ISO 4954 37 Cr 2 E EN 10083 38Cr2	Nuts	C: 0.34-0.41 Mn: 0.50-0.80 P: 0.035 max S: 0.035 max Si: 0.40 max Cr: 0.40-0.60	N
B15	ISO 4954 46 Cr 2 E EN 10083 46Cr2	Nuts	C: 0.42-0.50 Mn: 0.50-0.80 P: 0.035 max S: 0.035 max Si: 0.40 max Cr: 0.40-0.60	N
B16	ISO 4954 34 Cr 4 E EN 10083 34Cr4	Bolts, Nuts	C: 0.30-0.37 Mn: 0.60-0.90 P: 0.035 max S: 0.035 max Si: 0.40 max Cr: 0.90-1.20	N
B17	ISO 4954 37 Cr 4 E EN 10083 37Cr4	Nuts	C: 0.34-0.41 Mn: 0.60-0.90 P: 0.035 max S: 0.035 max Si: 0.40 max Cr: 0.90-1.20	N
B18	ISO 4954 41 Cr 4 E EN 10083 41Cr4	Nuts	C: 0.38-0.45 Mn: 0.60-0.90 P: 0.035 max S: 0.035 max Si: 0.40 max Cr: 0.90-1.20	N

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