

MATERIAL STANDARDS  
DIESEL LOCO MODERNISATION WORKS  
PATIALA

NUMBER

Misc. 104

INDEX

Steel Plates

Steel Plates for manufacturer of  
Engine blocks of ALCO and crank case  
& under frame of GM design  
DLW built Locomotives.

SHEET

1 of 2

DATE

18.11.2004.

1. SCOPE :

This specification covers the technical requirements of weldable quality steel plates for the manufacturer of Engine blocks of ALCO and crank case & under frame of GM design DLW built locomotives & replaces ALCO spec. D 54190 and GM specification No.M 54361.

2. REQUIREMENTS :

2.1 MANUFACTURE :

Steel shall be manufactured by any process except Bessemer process. It should be fully killed and secondary refined (which should include vacuum degassing).

2.2 FREEDOM FROM DEFECTS :

All plates shall be well and cleanly rolled to the dimensions, sections and masses specified. The finished material shall be free from surface flaws, laminations, rough/jagged and imperfect edges, and all other harmful defects. Minor surface defects may be removed by the manufacturer by grinding, provided the final dimensions are within the requirements of this specification. Welding is not permitted.

2.3 ALLOWABLE STEEL GRADES : SAILMA 300 HI

2.4 PRODUCT ANALYSIS : Chemical composition (%) of the plates shall conform to the following standard.

<u>Carbon</u>	<u>Manganese</u>	<u>Sulphur</u>
0.11-0.13	1.45-1.55	0.035 max.
<u>Phosphorus</u>	<u>Silicon</u>	<u>Niobium +V +Ti</u>
0.035max	0.15-0.40	0.15-0.20

Ceq (equivalent) : 0.39 (Max).

2.5 MECHANICAL PROPERTIES :

Yield Strength (Min)	300 MPa.
Tensile Strength (Min)	440 MPa
Elongation in 2" % (Min)	23
Internal dia of bend (Min)	2T
Impact Energy. Charpy V-Notch (Min)	27 J at 0°C

BASED ON DLW SPEC. NO. MISC. 104 ALT. 'NIL'

SUPERCHD BY SSE/DRG  
VALIDATED BY DY CNE/PBC

*[Handwritten signatures]*

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**2.6 ULTRASONIC TESTING :**

All plates shall be ultrasonically tested and conform to the requirements of the specification ASTM A-578/578M-96 Level-B by the supplier.

**2.7 TOLERANCES :**

All plates shall satisfy the requirements of tolerances w.r.t. thickness and waviness as specified in the specification ASTM A-6 In case of any deviation, prior approval of CDE/DLW is essential.

**2.8. INSPECTION :**

Two copies of test reports shall be sent by the supplier to the chief design engineer/DLW. The report shall give the heat number chemistry and physical properties of the material supplied.

**2.9 NOTE:**

In case of any proposed change in chemical composition and mechanical properties, prior approval of CDE/DLW should be essential.

SUPERCHG By SSE/DRG	VALIDATED By DYCME/PAD
<i>[Signature]</i>	<i>[Signature]</i>