

**MATERIAL STANDARDS  
DIESEL LOCO MODERNISATION WORKS  
PATIALA**

NUMBER	D81340 ab
INDEX	
SHEET	1 OF 1
DATE	11-08-2009

**STEEL - D 81340**

**1. Material:**

Steel Bars/Billets and Forging to DMW material standard No. D 81340.

**2. Material Treatment Note:**

This standard applies to the above said items (Basic material are Normalised/ Normalised and Tempered) to be subsequently, Quenched & Tempered/Induction Hardened etc. to obtain the specified Mech. Properties.

**3. Condition Before Final Heat-Treatment (also Purchase Condition):**

- (i) Forgings - as Forged & Normalized/ Normalized and Tempered.
- (ii) Bars and Billets:-Hot worked & Normalized/ Normalized and Tempered

**4. Microstructure:**

“Mostly ‘Bainitic (fine)’ and with little ‘Tempered Martensite’ (depending upon ‘Quench-Severity’), with ‘free Ferrite Precipitates to the tune of 10% (Max.)”

**5. Finished Mechanical Properties :-**

	<u>Psi</u>	<u>Kg/mm2</u>
Tensile Strength (Min.)	95,000	67.00
Yield Strength (Min)	65,000	46
% Elongation (Min. in 2" gauge length)		20
% Reduction in area (Min.)		50
Hardness (HB)		207-248

BASED ON DLW SPEC. NO. D81340ab ALT. R3.

ALTERNATION	CHD. VALIDATED SSE ADE	DATE
SPEC. REVISED AND REDRAWN (VIDE DLW ALT. R3) (SUPERSEDES ALT. R2)	<i>[Signature]</i>	11/08/09
ALT. NO. A2		
VALIDATED	ADE	<i>[Signature]</i>
CHD. SSE/D	<i>[Signature]</i>	
DRN.	JE	<i>[Signature]</i>