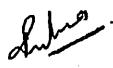




DATE		25/11		<p align="center"><b>MATERIAL STANDARD</b></p> <p align="center"><b>DIESEL LOCO MODERNISATION WORKS</b></p> <p align="center">PATIALA</p>		NUMBER: D-81345	
VALIDATED WMD		<i>[Signature]</i>				Index	
CHD SSE		<i>[Signature]</i>		TITLE: QUENCHED & TEMPERED, FINISHED HEX BARS (HEAT TREATED).		Sheet 1 of 2	
ALTERATION		SCOPE REVISED (WIDE CME'S APPROVAL) ON DATE 4-8-11		<p><b>1. SCOPE :</b> This specification covers Magnaflex Inspection Quality Quenched &amp; Tempered Finished Hex Bars. The steel shall be made in Electric-arc Furnace, Fully Killed, VAD treated (with secondary refining) or through in Blast Furnace — Basic Oxygen Furnace &amp; finally ladle refining Furnace route. <b>(A5)</b></p> <p><b>2. CHEMICAL COMPOSITION (%): [As per AISI -1045]</b> Carbon : 0.43-0.50      Manganese : 0.60-0.90 Phosphorous : 0.04 max.      Sulphur : 0.04 max. Silicon : 0.10-0.30</p> <p><b>2.1 TOLERANCE LIMITS IN CHEMISTRY (%)</b> Carbon : 0.02      Manganese : 0.04 Phosphorous : 0.008      Sulphur : 0.008 Silicon : 0.02</p> <p><b>3. SURFACE DEFECTS:</b> Total depth of surface defects (like Seams, Laps, Folds, Scar-marks, Total Decarburization, or any other harmful defect) shall be as specified by the purchaser.</p> <p><b>4. MACRO STRUCTURE :</b> Macro examination of deep acid etched sections of bars (in as received condition) shall show no evidence of abnormalities like shrinkage-cavity, blow-hole, porosity, pin-holes, piping, hairline cracks, seams or any other harmful defect that would adversely effect the end use; beyond the above permissible limit (ref. clause-3).</p> <p><b>4.1 MICRO STRUCTURE:</b> Microstructure shall be of uniformly Tempered Martensite. The Micro structure shall be free from any Banding / Lamination /Harmful Segregation or any other detrimental defect that may adversely effect the end use.</p> <p><b>4.2 HARDNESS (BHN) : 217-255</b></p>			
ALT. NO.		<b>(A5)</b>					
VALIDATED DATE		16/5					
VALIDATED BY		<i>[Signature]</i>					
SUPER CHD SSE/DRG		<i>[Signature]</i>		<p align="right">D-81345 CONT.</p>			
CHD SE/D		<i>[Signature]</i>					
ALTERATION		SPECN REVISED & REDRAWN (WIDE DEW REVISION R1) NO. OF SHEETS 2 WAS 1					
ALT. NO.		<b>(A3)</b>					
ALTERATION		CLAUSE-11 ADDED. (WIDE D/W Rev- R2)		ALT. NO.		<b>(A4)</b>	

<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	16/5
CHD SE/DRG	SUPER CHD SSE/DRG	VALIDATED BY DYCME/P&D	DATE

<b>MATERIAL STANDARD</b>  <b>DIESEL LOCO MODERNISATION WORKS</b> <b>PATIALA</b>	NUMBER: D-81345															
<b>TITLE: QUENCHED &amp; TEMPERED, FINISHED          HEX BARS ( HEAT TREATED ).</b>	Index  Sheet 2 of 2															
<p><b>5 CLEANLINESS:</b>          The inclusion rating shall not be worse than the following limits (as per IS: 4163):-</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Type</th> <th style="text-align: center;">Thin Series</th> <th style="text-align: center;">Thick Series</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">1.5</td> <td style="text-align: center;">1.0</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">1.5</td> <td style="text-align: center;">1.0</td> </tr> <tr> <td style="text-align: center;">C</td> <td style="text-align: center;">1.5</td> <td style="text-align: center;">1.0</td> </tr> <tr> <td style="text-align: center;">D</td> <td style="text-align: center;">1.5</td> <td style="text-align: center;">1.0</td> </tr> </tbody> </table> <p><b>6. PURCHASE CONDITION:</b>          Quenched and Tempered, Machine Straightened and with Sawn /Machine-cut ends.</p> <p><b>7. DIMENSIONAL TOLERANCES:</b>          As specified by the purchaser.</p> <p><b>8. INSPECTION :</b>          Two copies of certified test reports shall be sent to the Chief Inspecting Officer, D.M.W./ PATIALA. The report shall furnish Chemical Composition, Cleanliness-status of the Product, Heat treatment rendered with, Hardness &amp; Micro Structural details including Depth of decarburization, etc; as per the above mentioned clauses.</p> <p><b>10. All other conditions, not specified herein, (like 'Workmanship and finish', 'Magnetic particle inspection' etc.), must meet the relevant AISI/ASTM Standards.</b></p> <p><b>11. Raw material / Bars supplied should have identification code as per DMW specification no. MISC-153. (A4)</b></p> <p style="text-align: right;">D81345</p>		Type	Thin Series	Thick Series	A	1.5	1.0	B	1.5	1.0	C	1.5	1.0	D	1.5	1.0
Type	Thin Series	Thick Series														
A	1.5	1.0														
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 CHD SE/DRG	 SUPER CHD SSE/DRG	 VALIDATED BY DY CME/P&D	16 <sup>5</sup> / <sub>05</sub> DATE
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