

<b>QUALITY MONITORING INSTRUCTION FOR INSPECTION</b>		Issue No : 01
		Rev No:
		Date of Issue 09/10/2023
<b>C 5115 (CONNECTING LINK RIGID)</b>		<b>OFT/MI/30mm/ 5115</b>
<b>Rev.No</b>	<b>Amendment</b>	<b>Date</b>


MATERIAL SPECIFICATION : 30XPA , OCT-3-98-80  
 ALT.MATERIAL : IS: 4367-91 DISIGNATION 25 Cr 13 Mo 6 'M' (or)  
 IS: 5517-1993, DESIGNATION 25 Cr 13 Mo6 'M'.  
 (LRS-62mm)  
 CONDITION OF SUPPLY : FULL FINISHED THROUGH FORGING ROUTE  
 END USE : 30mm CANNON.


**INSPECTION CHECK TO BE CARRIED OUT**

Table 'A'


SL NO	CHARACTERISTICS	SPECIFICATION / REQUIREMENT	SAMPLE SIZE																																						
1.	Visual	The component shall be free from cracks flacks, segregation porosities, slag inclusions, rolled in scale etc.,	100%																																						
2.	Dimension	100% Dimension to check as per drawing.																																							
3.	Chemical Composition (%)	<p><b>STEEL 30XPA OCT 3-98-80 :-</b>  <b>(As per Standard GOST 5160-70)</b></p> <table style="width: 100%; border: none;"> <tr> <td>C = 0.28-0.33</td> <td>Ni = 0.25-0.50</td> </tr> <tr> <td>Si = 0.17-0.37</td> <td>S = 0.025(Max)</td> </tr> <tr> <td>Mn = 0.50-0.80</td> <td>P = 0.025(Max)</td> </tr> <tr> <td>Cr = 1.00-1.30</td> <td>Cu = 0.20 (Max)</td> </tr> <tr> <td>B = 0.001-0.0045</td> <td></td> </tr> </table> <p><b>IS: 4367-91 DISIGNATION 25 Cr 13 Mo 6 'M'</b></p> <table style="width: 100%; border: none;"> <tr> <td>C = 0.20 - 0.30</td> <td>Cu = 0.25 (Max)</td> </tr> <tr> <td>Si = 0.10 - 0.35</td> <td>V = 0.05 (Max)</td> </tr> <tr> <td>Mn = 0.40 - 0.70</td> <td>Tin = 0.05 (Max)</td> </tr> <tr> <td>Cr = 2.90 - 3.40</td> <td>Boron = 0.0003 (Max)</td> </tr> <tr> <td>Mo = 0.45 - 0.65</td> <td>S = 0.02-0.035</td> </tr> <tr> <td>Ni = 0.30 (Max)</td> <td>P = 0.035 (Max)</td> </tr> <tr> <td>%Cu+10 (%Tin) = 0.50 (Max)</td> <td>S&amp;P = 0.030 (Max)</td> </tr> </table> <p><b>IS: 5517-1993, DESIGNATION 25 Cr 13 Mo6 'M'</b></p> <table style="width: 100%; border: none;"> <tr> <td>C = 0.20 - 0.30</td> <td>Cu = 0.35 (Max)</td> </tr> <tr> <td>Si = 0.10 - 0.35</td> <td>V = 0.05 (Max)</td> </tr> <tr> <td>Mn = 0.40 - 0.70</td> <td>Tin = 0.05 (Max)</td> </tr> <tr> <td>Cr = 2.90 - 3.40</td> <td>Boron = 0.0003 (Max)</td> </tr> <tr> <td>Mo = 0.45 - 0.65</td> <td>S = 0.035 (Max)</td> </tr> <tr> <td>Ni = 0.25 (Max)</td> <td>P = 0.035 (Max)</td> </tr> <tr> <td>%Cu+10 (%Tin) = 0.60 (Max)</td> <td></td> </tr> </table> <p>(Permissible variations in value as per specification standard)</p>	C = 0.28-0.33	Ni = 0.25-0.50	Si = 0.17-0.37	S = 0.025(Max)	Mn = 0.50-0.80	P = 0.025(Max)	Cr = 1.00-1.30	Cu = 0.20 (Max)	B = 0.001-0.0045		C = 0.20 - 0.30	Cu = 0.25 (Max)	Si = 0.10 - 0.35	V = 0.05 (Max)	Mn = 0.40 - 0.70	Tin = 0.05 (Max)	Cr = 2.90 - 3.40	Boron = 0.0003 (Max)	Mo = 0.45 - 0.65	S = 0.02-0.035	Ni = 0.30 (Max)	P = 0.035 (Max)	%Cu+10 (%Tin) = 0.50 (Max)	S&P = 0.030 (Max)	C = 0.20 - 0.30	Cu = 0.35 (Max)	Si = 0.10 - 0.35	V = 0.05 (Max)	Mn = 0.40 - 0.70	Tin = 0.05 (Max)	Cr = 2.90 - 3.40	Boron = 0.0003 (Max)	Mo = 0.45 - 0.65	S = 0.035 (Max)	Ni = 0.25 (Max)	P = 0.035 (Max)	%Cu+10 (%Tin) = 0.60 (Max)		One Sample Per Heat
C = 0.28-0.33	Ni = 0.25-0.50																																								
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4.	Mechanical Properties	<p><b>STEEL 30XPA OCT-3-98-80</b>  Tensile Strength = 160 Kgf/mm<sup>2</sup> (Min)  Yield Strength = 130 Kgf/mm<sup>2</sup> (Min)  Elongation = 9% (Min)  Reduction of area = 40% (Min)  Impact = 5 Kgf/cm<sup>2</sup> (Min)</p> <p><b>IS: 4367-91 DISIGNATION 25 Cr 13 Mo 6 'M' (LRS 63mm)</b>  Tensile Strength = 1550 MPa (Min)  Yield Strength = 1300 MPa (Min)  Elongation = 8% (Min)  Impact (Izod) = 15 Joules (Min)</p> <p><b>IS: 5517-1993, DESIGNATION 25 Cr 13 Mo6 'M' (LRS 63mm)</b>  Tensile Strength = 1500 MPa (Min)  Yield Strength = 1300 MPa (Min)  Elongation = 8% (Min)  Impact (Izod) = 14 Joules (Min)</p>	One Sample Per Heat																																
5.	Hardness	43.5 – 51.5 HRC. ( As per drawing)	100%																																
6.	Other Tests	<p>(i) Macro Etch Test:  Acceptance Standard C-2, R-2,S-2 as per ASTM E-381 -82 standard.</p> <p>(ii) NMIR as per IS: 4163-1982.  with Acceptance standard</p> <table border="1" data-bbox="566 1077 1266 1211"> <thead> <tr> <th colspan="2">A</th> <th colspan="2">B</th> <th colspan="2">C</th> <th colspan="2">D</th> </tr> <tr> <th>Thin</th> <th>Thick</th> <th>Thin</th> <th>Thick</th> <th>Thin</th> <th>Thick</th> <th>Thin</th> <th>Thick</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>1</td> <td>3</td> <td>1</td> <td>3</td> <td>1</td> <td>3</td> <td>1</td> </tr> <tr> <td>(Max)</td> <td>(Max)</td> <td>(Max)</td> <td>(Max)</td> <td>(Max)</td> <td>(Max)</td> <td>(Max)</td> <td>(Max)</td> </tr> </tbody> </table>	A		B		C		D		Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	3	1	3	1	3	1	3	1	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	
A		B		C		D																													
Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick																												
3	1	3	1	3	1	3	1																												
(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)																												
7.	Protective Finish	Accelerated Electroless phosphating with chromate treatment/ Impregnation with adhesive Bφ-4, GOCT 12172-74, with Nigrosine, grade A, GOCT 9307-78, one coat. Or Phosphating (accelerated) Gde JSS:0465-01-94 with coating of Dunlop adhesive S758 one layer and Nigrosine to JSS:1036	100%																																
8.	Packing	The Packing of the Material shall be done in such a manner to avoid corrosion and damage in handling and transit.	Each Consignment																																
9.	Marking	Each Packing shall be legibly marked with manufacturer's identity , Qty, Heat No, OFT Supply order No etc.,																																	

  
P.MURUGESAN  
HoS / QCM,  
CHECKED BY

  
U.MANGALASAMY  
HoS/STD.CELL  
PREPARED BY

  
M.GIRISH KUMAR REDDY,  
WM(QCM)


  
SUKESH GEHLAUT,  
Jt.GM (QCM)  
APPROVED


**Note:**


1. The Raw material / component to be tested by the firm on selection of the sample by the firm itself for chemical composition and mechanical properties in NABL accredited approved Lab as per Table 'A'.
2. The Firm has to check for the dimensions, visual defects, packing and marking as per Table 'A'. After completion of tests as per Note-1 as above, the Firm has to submit the following documents to OFT.
  - I. The Raw material certificate from the original manufacturer, Heat number, and quantity purchased and number of bars is to be mentioned in the inspection letter to OFT.
  - II. The Chemical and Mechanical test certificates from NABL accredited approved lab as per Table 'A'.
  - III. Dimensional reports including visual as per Table 'A'.
  - IV. Guarantee / Warrantee certificate of supplier against the supply.
3. All the above Documents mentioned at Note No.2 above are to be forwarded to ED/OFT along with supply.
4. OFT shall verify all the documents as above and accord clearance to the firm for dispatch of the material to OFT if all documents are in order.
5. OFT/Trichy shall verify all the parameters as per Table 'A' and after satisfactory results, the material will be accepted /cleared accordingly.
6. Material has to be replaced 100% by the firm in case of non conformity to specification as per Table-A, during inspection at OFT, Trichy.


**VERIFICATION OF INSPECTION DOCUMENTS**

SL_NO	INSPECTION DOCUMENTS
1	The Raw material original Manufacturer's certificate, Details of Heat Number, Quantity purchased and number of Bars etc.,
2	The Chemical and Mechanical test certificates from NABL accredited approved Lab.
3	Dimension report including visual.
4	Packing slip details.

  
P.MURUGESAN  
HoS/QCM  
CHECKED

  
U.MANGALASAMY  
HoS/STD.CELL  
PREPARED

  
M.GIRISH KUMAR REDDY  
WM/QCM

  
SUKESH GEHLAUT  
Jt.GM(QCM)  
(APPROVED)