

NTPC LTD
Vendor Development Cell
CPG-1 RAIPUR

A)	Details of MEG (MATERIAL ENLISTMENT GROUP)	
	1.0 MEG No.	55MEG-09
	2.0 MEG Description	ASTM 4140 Grade Forged Crusher Hammer
	3.0 Responsibility centre	VDC
<p>Technical Criteria of QR: Applicant has to meet either Option-1 or Option-2.</p> <p>Option-1 (a) Applicant should be a manufacturer of Forgings of minimum 12kg each. (b) Should have supplied forged hammer for coal crushing application.</p> <p>Option-2 Applicant should be an OEM of Ring Granulators. Applicant should have supplied Forged Hammers for Ring Granulators for Coal Crushing applications.</p> <p><u>Other documents to be submitted:</u></p> <p>In addition to the documents required in support of meeting technical requirements as stated above, following documents are required to be submitted by the Applicants applying for enlistment:</p> <ol style="list-style-type: none"> 1. Three POs of the highest executed values of similar work during previous five years from the date of application. Copy of Invoice / Completion certificate from the concerned buyer/s in support of successful execution of supply against the POs to be submitted. 2. Audited balance sheet including Profit & Loss statement for the previous three completed financial years reckoned from the date of application. In case the audited documents are not ready / available, then certified copy by a registered practicing Chartered accountant may be submitted. 3. Latest annual report OR NSIC / SSI / MSME registration certificate / BIS license / ISO certificate / Certificate of registration from the concerned excise department / any other statutory document as a proof of being manufacturer of the required material. 4. Any other documents in addition to the above which the applicant wants to submit. <p>5. Similar works: Similar works means: For Option-1 and 2: Supply of Forged Hammers for coal crushing application by the applicant during last 5 years from the date of application</p>		

Standard Technical Specification for 4140 Grade Forged Crusher Hammer

A. Description of Item:

Forged Hammers as per attached drawing (to be attached by respective NTPC stations)

B. Application:

To be used in Ring Granulator / coal crusher where 04 rows of crusher hammers are mounted on suspension bars used to crush coal.

C. Applicable Standard: ASTM A322 Grade 4140

D. Additional Requirement as specified below:

i) **Chemical Composition** – As per Table-1 of ASTM A322 Grade 4140 Steel

C	0.38 – 0.43
Si	0.15 – 0.35
Mn	0.75 – 1.00
P	0.035 max.
S	0.040 max
Cr	0.80 -1.10
Mo	0.15 - 0.25
Ni	0.50 max.

ii) **Hardness Value:** 302-375 BHN

iii) **Impact Strength:** Minimum 4.0 Kg-m (Charpy – 2 mm U Notch)

E. Ultrasonic Testing:

100% will be carried out at steel mill as per ASTM A388 and acceptance norms: Defects indication equal to or larger than the indication from the 4 mm Flat Bottom Hole (FBH) is not acceptable.

F. Micro Structure Analysis:

Forged quality steel with uniformity and homogeneity in the structure "Tempered Martensite with traces of intermediate structure".

G. Weight of each Hammer:

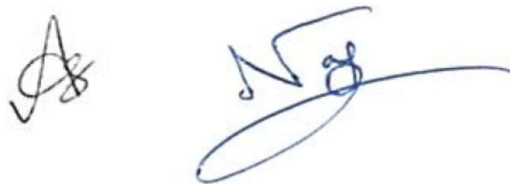
As per drawings (Permissible variation in weight +/- 2%) weight of the hammer shall be punched / marked on each hammer.


H. Dimensions & Tolerances:

As per attached Drawings

I. Testing:

As per Standard Quality Plan attached



		Forged Hammer 4140 Grade (for Ring Granulator / Coal Crusher)		STANDARD QUALITY PLAN Conforming to Code: As per Technical Specification (Conforming to ASTM A 322)				QP No.: 0000-PPA-QJM-S-017A Date: 24.08.2021 Rev: 00 Page 1 of 1		Prepared By: Vivik Y. Upadhyay Reviewed By: B C Roy		Approved By: B C Roy		
Sl. No.	Component & Operations	Characteristics	Class	Type of Check	Quantum of check		Reference Document	Acceptance Norms	Format of Record	Agency			Remarks	
					M	C/N					M	C	N	
1	2	3	4	5	6		7	8	9	D*	** 10			11
1.0	Raw Material													
1.1	Raw material for Crusher Hammer	Chemical Composition	Major	Chemical Analysis	One sample/Heat	One sample/Heat	Technical Specification	Test Report	✓	P	V	V	See Note - 1	
		Internal Defects	Critical	Ultrasonic Test	100%	100%	Technical Specification	UT Report	✓	P	V	V		
2.0	In-Process (Forging) Inspection													
2.1	Heat Treatment Cycle	Time & Temperature	Major	Verification	100%	100%	Technical Specification	HT Chart	✓	P	V	V		
3.0	Final Inspection													
3.1	Finished Crusher Hammer	Chemical Composition	Critical	Chemical Analysis	One sample/Heat	One sample/Heat	Technical Specification	Test Report	✓	P	W	W		
		Hardness	Critical	Measurement	100%	One sample/Heat/HT batch	ASTM E 10	Technical Specification	IR	✓	P	W	W	
		Impact Strength	Critical	Impact Test	One sample/Heat/HT batch	Random 1% of offered lot	IS:1499	Technical Specification	Test Report	✓	P	W	W	
		Micro Analysis	Critical	Etching	One sample/Heat/HT batch	One sample/Heat/HT batch	ASTM E 407	Technical Specification	IR	✓	P	W	W	
		Surface Defects & Near Surface Defects	Major	MPI	100%	Random 1% of offered lot	ASTM E 275 / E 709	No linear indication	MPI Report	✓	P	W	W	
		Weight	Major	Measurement	100%	Random 5% of offered lot	Approved Drg./Data Sheet/ Technical Specification	IR	✓	P	W	W		
		Surface Defects, marking & dimensions	Major	Visual & Measurement	100%	Random 5% of offered lot	Approved Drg./Data Sheet/ Technical Specification	IR	✓	P	W	W	See Note - 2 & 4	
<p>Note: 1. Heat Number & Heat Treatment Batch number after forging shall be formed / punch on each hammer.</p> <p>2. Surface Cracks, dent marks, scratches visible to naked eye are not acceptable. No weld repair on hammer forgings is acceptable.</p> <p>3. Manufacturer to offer extra hammers so that samples can be drawn for carrying out destructive testing.</p> <p>4. The hammer forgings which are subjected to NTPC inspection shall be identified by NTPC Inspection Stamp. Weight of Hammer will be punched / marked on each hammer.</p> <p>5. Manufacturer shall ensure proper Surface Protection on the Hammer prior to dispatch.</p>														
<p>LEGEND: * Records Identified with "Tick" (✓) shall be essentially included by supplier in QA documentation.</p> <p>** M: MANUFACTURE /SUB-SUPPLIER C:- MAIN SUPPLIER, N:- NTPC P:- PERFORM, W:- WITNESS AND V:- VERIFICATION, AS APPROPRIATE, TC:- TEST CERTIFICATE, IR:- Inspection Report, MPI:- Magnetic Particle Inspection</p> <p>CHP:- NTPC SHALL IDENTIFIED IN COLUMN "N" AS "W"</p>														