


IA section letter No. 6415/IA/C&S/21-22 DT. 23.05.2022


Sl...o	Nomenclature and Drg.No.	Manufacturing Technology & Testing/ Inspection facilities required to produce the item	Must be possessed by the Vendor in his own premises (List of Plant and Machinery and Testing /Inspection facility to be submitted)	May be possessed by the Vendor in his own premises or may be Outsourced (Name and Address of sub-contractor ,list of plant and Machinery and Testing /Inspection facility to be submitted)	
1	172.51.016-1/F TORSION BAR FORGING 172.51.016/F SHAFT TORSION FORGING	Technology 1	Metal Cutting	Band saw or Circular Saw or Shearing machine to cut Min 60mm dia rod.	
		Technology 2	Metal Heating	Bogie or Batch type Gas fired or Oil Fired or Induction furnace max Temp 1200 deg C.	
		Technology 3	Forging	1. Horizontal up setter with capacity Force 800T or more and Grip 400T or more.	
		Technology 4	Isothermal Annealing	Suitable furnace for Isothermal Annealing to accommodate 60mm rod with length 2.5M length capacity 1200 Deg.c	
		Technology 5	Shot Blasting		shot Blasting facility required to accommodate 60mm rod with length 2.5M length
		Technology 6	Truing of Bars after heating not less than 100 Deg.c	Suitable furnace with Auto cut off temperature at specified required temperature (in this case it should be less than 100 deg.c) Hydraulic press capacity 20T or more to accommodate 2.5m length of bar.	
		Technology 7	Die		Die manufacturing facility suitable CAD/CAM facility.
	Test/Inspection 1	Fixtures /Gauges/Testing Instruments	Magnetic particle testing facility(spectrometer, Rockwell BHN, UTM, Impact and metallographic ultra sound test) Firm has to develop as per Specification/Drawings and have to submit undertaking for the same.		


Note: 1. If the firm is not having the above facility and able to make components with alternate methods, the details of methods to be submitted during participation in Tender for validation and acceptance, if found suitable.


2. Facilities must be available with vendor own premises including facilities available with sister/parent concern/strategic partners.


3. Firm should give undertaking that they will develop all the testing facility as per QA/Ty if they get order.

 JWM/QA(ML)
 (B.CHIRANJEEVULU)
 alt- to DGM/BA -R/EDC
 Number /QA

 S Sathyaavelan
 JWM/FS
 (S.SATHYAVELAN)

 DGM/CA, Tech, Rn
 Number User

 JWM/Operations-I
 Chairman

 DGM/SMS&FS
 (C.SIVARAJ)

VQC FOR SHAFT TORSION- FORGING TO DRG NO.172.51.016/F


Date: 20/05/2022

S. No.	Nomenclature & Drawing No.	Manufacturing Technology & Testing /Inspection Facilities required to produce the item	Must be possessed by the vendor in their own premises (List of Plant& Machinery and testing/Inspection facility to be submitted)	May be possessed by the vendor in their own premises (or) may be outsourced (Name and Address of sub-contractor, List of Plant & Machinery and testing/Inspection facility to be submitted)	Firm compliance (Y/N)	Remarks
1	SHAFT TORSION-FORGING 172.51.016/F	<p align="center">TECHNOLOGY 1</p> <p align="center">DIA 56 mm ROUND BAR and LENGTH 2500 mm (Grade: 45XH2MØA-III (ESR) & GOST 4543-71 (TY-14-1-1725-76) with Hot Rolled Forgeable Quality Steel in Annealed condition.)</p>		<p>STEEL MELTING a).Suitable Electric Arc Furnace . b).Ladle furnaces . c).Vacuum degassing Furnace and ESR Facility with preferable heat capacity of 10 MTS .</p> <p>ROLLING Suitable Rolling Mill for rolling the round bars to the required size of Dia 56 mm.</p> <p>HEAT TREATMENT Suitable annealing Furnace to accommodate Length 2550 mm or more.</p>		
<p>Note: The requirement is for very high quality special steels used in critical component Production. The vendor should have capacity to maintain the impurity of chemical components and harmful gases like Oxygen, Nitrogen, Hydrogen etc, at the minimum levels. Also the vendor should have experience in manufacturing of quality special steels and should have successively supplied at least 10MT of material in a single order.</p>						

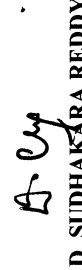
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		TECHNOLOGY 2 FORGING	<p>1. Suitable Horizontal Upsetter to accommodate Length 2550 mm or more. Preferable capacity 1200 Tonnes.</p> <p>2. Suitable heating furnace to heat upto 1250 °c.</p> <p>3. Suitable Isothermal annealing Furnace to accommodate Length 2550 mm or more along with Temperature v/s Time recording facility to carry out isothermal annealing process as per Technological document.</p> <p>4. Suitable heating furnace for straightening of bar as per the Technological document requirement.</p> <p>5. Suitable Hydraulic Press to accommodate as per component drawing & Technological document required for straightening operation.</p> <p>6. Suitable Power hacksaw/Bandsaw to cut Dia 56 mm or more of bar.</p>			
	TEST/ INSPECTION 1		DIA 56 mm ROUND BAR and LENGTH 2500 mm , DIMENSIONAL CHECKING		Should have NABL certified testing facility like Chemical testing-Spectro, Mechanical-Hardness Testing, UTM, Impact etc.	
				Should have testing facility for Ultra Sonic testing ,MPI, Metallographic (for testing of inclusion, Grain size, macro analysis etc.,)		
				1) Suitable Standard Calibrated Measuring Instruments and Gauges.		

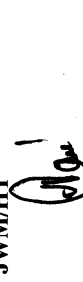
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		TEST/ INSPECTION 2	1) Suitable Brinell Hardness tester 2) Magnetic Particle Inspection. 3. Visual inspection facility. 4. Metallography.			
		FORGING, DIMENSIONAL CHECKING	1) Suitable Standard Calibrated Measuring Instruments and Gauges to ensure the correctness of the required size after upsetting.			
						Note: Firm need to supply one sample of Forging for each Heat no., the same will be subjected to fatigue testing after completion of all operations as per 172.51.TY document. The bulk supply of each Heat No. will be accepted only after successful completion of 1,50,000 cycles in the Fatigue test at HVF.

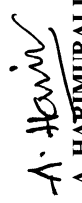

SATHISHKUMAR. D
WM/QA(NF-I&QMISC)



MANISH KUMAR YADAV
AWM/RG


NEERAJ KUMAR
DGM/QA-RIG(OE)


D. SUDHAKARA REDDY
JWM/HT


ANIMESH PAIK
DGM/CA, TRG, RG (USER)


A. HARIMURALI
JWM/RG


J.P. SINGH
OSD/SBU-1(OE)