

INDENT No: 20150137

1.0	PRE QUALIFYING CONDITIONS	REQUIRED	OFFERED	DEVIATION	REMARKS
1.1	Only OEM vendors who are doing coating on solid carbide tools and supplying Coated Solid carbide tools and such items are presently working satisfactorily should quote.	Vendor to accept/agree			
1.2	The following information should be submitted by the vendor about the companies where such coated tools have been supplied during past three years(from Enquiry issue date). This is required from all the vendors for qualification of their offer.	Vendor to accept/agree			
1.2.1	Name of the customer / company where referred item was supplied.	Vendor to submit details			
1.2.2	Complete postal address of the customer.	Vendor to submit details			
1.2.3	Month & Year of previous supply of referred item.	Vendor to submit details			
1.2.4	Dimensions, specification, description & application for which the item was supplied.	Vendor to submit details			
1.2.5	Name, designation and contact details(phone number, fax number and email address) of contact person of the customer to whom referred item was supplied.	Vendor to submit details			
1.2.6	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers are liable to be rejected.	Vendor to accept/agree			
2.0	TECHNICAL ACCEPTANCE CRITERIA				
2.1	All qualified vendors shall be provided 08 nos of resharpened solid carbide tools by BHEL(clause 2.1.1 on returnable basis). Each vendor has to carry out TIALN-coating(free of cost) on tools provided by BHEL and after coating these tools to be delivered to BHEL within a month of receipt of resharpened tools.	Vendor to agree/submit			
2.1.1	Details of the resharpened tools provided by BHEL: i. Torus Cutter T19- Shank Diameter 20mm- Face Diameter 19mm having Corner radius of 1.2mm, Qty 04 nos. ii. Solid Carbide Tapered Ball Nose Cutter K10- Shank Diameter-16mm, Ball Diameter-10mm having Half Taper Angle of 8 degrees, Qty =04 nos.	Vendor to accept/agree			
2.1.2	Performance checking of the coated tools submitted by all qualified vendors shall be done by trial on our existing CNC 5-axis machines as per Input Material, Cutting parameter(criteria 2.3) & Successful performance(criteria 2.4) mentioned below in presence of vendor's representative.	Vendor to accept/agree			
2.2	Offers of only those vendors shall be considered as technically acceptable whose coated tools submitted as sample run successfully as per performance criteria mentioned in clause 2.4 during trial as per 2.1.2	Vendor to accept/agree			
2.2.1	There shall not be any liability on BHEL for failed trial. Price bid shall be opened only for those vendors whose samples have been successfully tried as per specified criteria. Subsequently, ordering shall be done on L-1 vendor as per BHEL purchase policy & practice.	Vendor to accept/agree			



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2.3	<p>Input Material & Cutting Parameter:</p> <p>(a) For T19 Torus Cutter- Feed- 5657 mm/min, RPM-6286, DOC-(0.5mm-0.8mm) to be used in Profile(both external & internal profile) finishing operation of turbine blades.</p> <p>b) For K10 Tapered Ball Nose Cutter- Feed- 2648 mm/min, RPM- 8276, DOC-(0.4mm-0.8mm) to be used in Root Fillet, Root platform, Shroud fillet & Shroud platform (All external & internal side of profile) finishing operation of turbine blades.</p> <p>(c) Material Grade- Hot rolled material X20Cr13 for Torus Cutter & X22CrMoV12 1 for Ball Nose Cutter. (Material composition details as per Annexure III)</p> <p>(d) Input Job Shape for Torus Cutter - (Fig-A Annexure -I) This shape shall be provided after machining of blade with existing tools. (Fig B Annexure -I) illustrates the job after the operation of the torus cutter.</p> <p>(e) Input Job Shape for Tapered Ball nose Cutter - (Fig-C & Fig. E Annexure -II) illustrates the input job for root side & shroud side fillet finishing operation respectively. This shape shall be provided after machining of blade with existing tools. (Fig D & Fig. F Annexure -II) illustrates the job after the operation of the ball nose cutter at the root & shroud side respectively.</p> <p>(f) These figures are only for illustration purpose.</p> <p>(g) The blade on which trial is to be conducted will be the blades that are being manufactured at BHEL shop during the time of trial.</p>	Vendor to accept/agree			
2.4	<p>Performance Criteria:</p> <p>Life of Cutters-</p> <p>(a)For T19- The operational cycle time of T19 torus cutter is in the range of 10-20 minutes in different types of blades. We require total tool life of 90-100 min in finishing operation using the complete life of the coated cutter. It means if in a blade the operation time of T19 cutter is around 10 minutes, then the cutter should finish 9-10 blades using the complete life(till the cutting edge gets blunt) of the coated cutter.</p> <p>(b)For K10- The operational cycle time of K10 tapered ball nose cutter is in the range of 8-15 minutes in different types of blades. We require total tool life of 270-300 min in finishing operation using the complete life of the coated cutter. It means if in a blade the operation time of K10 cutter is around 10 minutes, then the cutter should finish 27-30 blades using the complete life(till the cutting edge gets blunt) of the coated cutter.</p> <p>c) There should not be any chattering marks or line marks on the finished surface after machining.</p>	Vendor to accept/agree			
2.5	Guarantee certificate & Test certificate is required from vendor for a minimum period of 1 year at the time of delivery.	Vendor to agree/submit			
3.0	All established PMD vendors will be exempted from Technical acceptance criteria (2.0) because their tools are tested, proven & successfully running on machine at cutting parameter specified at criteria 2.3 & performance specified at criteria 2.4.				
4.0	All the technically accepted vendors as per sl no 2.0 if not already registered with HEEP, BHEL Hardwar shall be required to submit Supplier Registration Form (SRF) for their registration.	Vendor to agree/submit			



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