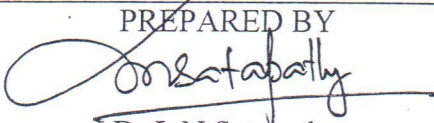
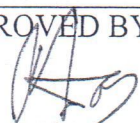




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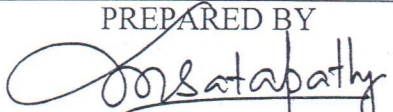

SL NO	SPECIFICATION	REQUIREMENT
1	Purpose	The equipment should be capable of determining the impact of hard and brittle ceramic balls
2	Scope of Supply	Complete Impact Tester for Ceramic balls which are hard and brittle. Equipment to be supplied along with standard accessories. Detailed technical specification is shown in clause 15 of this specification.
3	Qualifying Requirement:	1. The vendor must have recognized expertise in developing advanced machines for testing. Manufacturer / Principles of Original manufacturer should have capability for fabricating similar test equipment such as abrasion tester, erosion tester, impact tester etc. 2. The supplier should have supplied at least two such equipments to industries / Institutions in India or abroad and certificate from users to demonstrate satisfactory operation of equipment for at least one year is essential. 3. In case of agent for overseas manufacturer, a letter of authorization from the manufacturer should be submitted along with the offer.
4	Warranty and Service	One year warranty from the date of completion of installation. All spares supplied for maintenance during warranty period should be free of cost. AMC for two years maintenance to be provided.(optional rates can be quoted)
5	Supporting Equipment	Vendor will provide all requisite supporting parts as mentioned in our technical specifications in clause 15.
6	Utilities Requirement :	Various utilities such as compressed air, power connection etc. are to be provided by BHEL separately. However, technical requirement of these utilities are to be furnished by the vendor.
7	Equipment Layout Plan	Information on the requirements for layout plan for installation of equipments with set off dimensions to be furnished along with the offer in order to enable BHEL to check suitability in the identified location.
8	Safety features	Equipment to be provided with suitable Safety arrangements since this instrument uses impact with loads
9	Standard sample	Standard sample for calibration of the Impact Testing system and calibration procedure will be inclusive in the offer.
10	Availability of Spares	The Vendor must assure the availability of spares for servicing of equipment for at least 10 years. Supplier should give an undertaking that spares parts will be supplied within the specified periods as and when ordered.
11	Factory Acceptance Data	Proposed acceptance criteria for the equipment should be provided by the supplier in order to compare the performance against the quoted specifications. Manufacturer's test certificate along with test conditions and results is to be supplied along with the equipment.
12	Training	Two days training should be provided FREE of charge at the premises of BHEL Malleswaram complex, BANGALORE on operation and maintenance of the equipment.
13	Descriptive literature and User & Service Manuals	A set of specifications, description and illustrated literature of the equipment, electrical circuit diagram and related peripherals should accompany the Techno-Commercial bid. A set of User's manuals and Service manuals of the main instrument, attachments and related equipment should be supplied with the equipment
14	Any other information	Supplier can furnish any other additional information, considering the overall requirements. The equipment will be installed at Ceramic Technological Institute, Malleshwaram Complex, BHEL, Bangalore-560012

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SL NO	SPECIFICATION	REQUIREMENT
15	<b>Technical Specification</b> The machine will be used to test the impact resistance of ceramic balls due to gravity fall on a hard surface and also the impact of a Dead Load on its surface .	
a.	Main feature	The equipment must confirm to both the following requirements i. Dropping of ceramic ball on a hardened metal plate with automatic repeated cycling till fracture ii. Dropping of metallic ball of varying weight on the ceramic ball head-on with automatic repetition till fracture
b.	Parameters	i. Mass range : 0.1 kg- 5.0 kgs. ( Provision for higher load in future) ii. Impact Energy : 1 -100 Joules iii. Impact Height : Variable between 0.5-2.0 m iv. Impact velocity : To be estimated v. Digital measurement of number of impacts
c.	Other compulsory requirements to be provided in the equipment	i) Sample holder for holding balls of 40, 50, 60, 100 and 125 mm diameter ii) Hardened flat detachable metal plate of 6 in x 6 in to be fixed at the bottom iii) Hardened metal plate with provisions for replaceable ceramic/ metallic balls in the range of 40-125 mm diameter iv) Two methods identified in 15 (a) to be interchangeable at any time v) Arrangement of impacted ball to roll over and go back to the top for the next loading automatically vi) enclosure for interlocks and safety vii) digital indicator for load viii) Supply of two metallic balls each of 50, 100 and 125 mm diameter
d.	Optional requirements to be enclosed with the offer	i. Impact force data acquisition system without computer ii. Sound proof chamber

BHEL will provide space, power connection, compressed air and other service requirement for this equipment.

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