

BHARAT HEAVY ELECTRICALS LIMITED

Ceramic Technological institute, Corporate R & D
Malleswaram complex, BANGALORE 560 012



| | |
|---|--|
| <p>Purchase Specification of Abrasion Testing Machine as per ASTM G65-2004</p> | No. CTI/LNS/ST13RD72/2013/01 REV : 00 DATE : 29.07.2013 PAGE : Page 1 of 3 |
|---|--|

| SL NO | SPECIFICATION | REQUIREMENT |
|-------|--|---|
| 1 | Purpose | The equipment should be capable of determining the abrasion resistance of the materials at Room temperature |
| 2 | Scope of Supply | Complete Abrasion Tester equipment along with suitable spare parts to carry out room temperature abrasion of ceramic materials as per ASTM G65-2004 standard. Equipment to be supplied along with standard accessories. Detailed technical specification is shown in clause 14.0 of this specification. The Vendor must ensure that the equipment being offered is a new one confirming to said standard and not refurbished or repaired one. If any of the equipment supplied by the Vendor is found to be substandard, refurbished or not in accordance with the description /specification or otherwise faulty, the purchaser will have the right to reject the equipment or its part |
| 3 | Qualifying Requirement: | Manufacturer / Principles of Original manufacturer should have supplied at least ONE similar equipments or use in similar usage in industries / Institutions in India and certificate from user to demonstrate satisfactory operation of equipment for at least one year is essential. 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 | 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. |
| 6 | 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. |
| 7 | Safety features | Equipment to be provided with suitable Safety arrangements especially handling fine silica powder |
| 8 | Standard sample | Standard sample for calibration of the Abrasion Testing system and calibration procedure will be inclusive in the offer. |
| 9 | 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 spare parts will be supplied within the specified period as and when ordered. |
| 10 | 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. |
| 11 | Installation and Training | The equipment must be installed by the supplier free of cost at CTI, BHEL, Bangalore . One day training should be provided free of charge on operation and maintenance of the equipment. |
| 12 | 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 |
| 13 | Any other information | Supplier can furnish any other additional information , considering the overall requirements. The equipment will be installed at Ceramic Technological Institute, Malleswram Complex, BHEL, Bangalore-560012 |

| | |
|---|--|
| <p>PREPARED BY</p> Dr L N Satapathy DY. General Manager/CTI | <p>APPROVED BY</p> Dr. R N Das AGM & Head /CTI |
|---|--|

BHARAT HEAVY ELECTRICALS LIMITED

Ceramic Technological institute, Corporate R & D

Malleswaram complex, BANGALORE 560 012



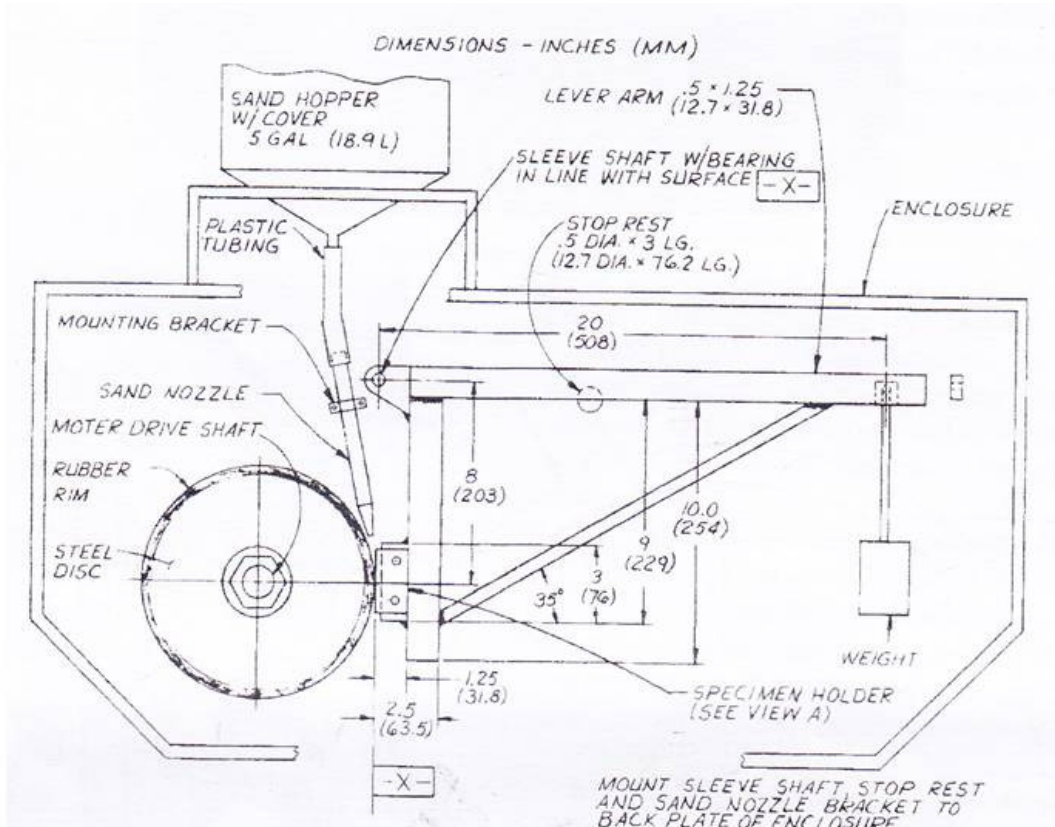
| | |
|---|---|
| <p>Purchase Specification of Abrasion Testing Machine as per ASTM G65-2004</p> | <p>No. CTI/LNS/ST13RD72/2013/01 REV : 00 DATE : 29.07.2013 PAGE : Page 2 of 3</p> |
|---|---|

| SL NO | SPECIFICATION | REQUIREMENT |
|-------|---------------------------------------|---|
| 14. | Technical Specification | |
| | Purpose | The equipment should be capable of determining the abrasion resistance of the materials at Room temperature |
| a. | Rubber lined MS wheel | The rubber lined wheel Consists of a steel disc (AISI 1020 or equivalent) with an outer layer of chloro-butyl rubber or equivalent moulded to its periphery. The hardness of rubber : Shore A 60 ±2. |
| b. | Speed of the wheel | 200 ± 10 rpm under load |
| c. | Wheel diameter | 228.6 mm with key slot provision for fixing the shaft. |
| d. | Wheel thickness | 12.7 mm |
| e. | Thickness of MS sheet for fabrication | 8 mm |
| f. | Shaft diameter | 36.2 mm |
| g. | Revolution Counter | 5 digit reset counter with reset and with limit switch controlled with LCD display |
| h. | Drive motor | 2 HP motor with gear drive |
| i. | Test Load | 130 ± 4.0 N (~ 13.2 ± 0.4 Kgs.) on the sample (Suitable Load units to be supplied to achieve this) |
| j. | Rate of sand flow | Variable in the range of 100-400 g /min. – Suitable attachment must be provided for precise control alongwith digital display. |
| k. | Each test duration | 30 min. |
| l. | Sand Hopper volume | 18-20 L |
| m. | Typical Specimen size | 76± 2 mm length x 25± 1mm width x 7 ± 2 mm thick |
| n. | General Requirements | <ul style="list-style-type: none"> a) The equipment must be in line with ASTM G65-2004 standard specifications. b) Weight in Kgs. should be embossed on each unit of load c) One spare nozzle shall be supplied d) Separate bag for dust collection has to be provided e) Doors opening either in the middle or from the top. The door should be fitted with suitable transparent windows. f) Suitable wire mesh shall be provided at the top of hopper to arrest foreign particles g) 10 Nos. of standard samples (AISI D2 tool steel or equivalent) to be provided for calibration purpose. The volume loss range of standard specimen must be in the range of 36 ± 5 mm³. h) 5 Nos. of rubber lined MS wheels to be supplied alongwith the equipment |
| o. | Schematics of set up | A copy of schematics of set up as appeared in ASTM standard G 65-2004 is attached for reference. For further details, the supplier is requested to refer in detail the said standard and contact us. |

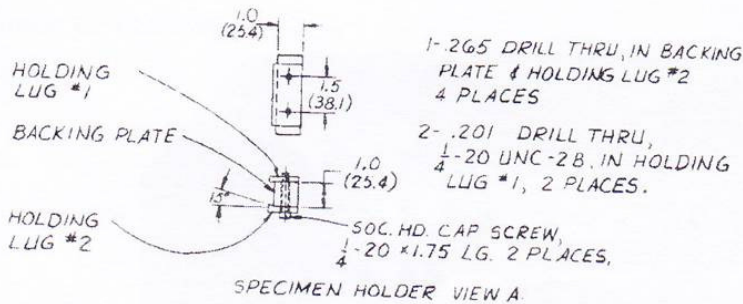
| | |
|---|--|
| <p>PREPARED BY</p> <p>Dr L N Satapathy DY. General Manager/CTI</p> | <p>APPROVED BY</p> <p>Dr. R N Das AGM & Head /CTI</p> |
|---|--|

**Purchase Specification
of Abrasion Testing Machine as per
ASTM G65-2004**

No. CTI/LNS/ST13RD72/2013/01
REV : 00
DATE : 29.07.2013
PAGE : Page 3 of 3



 G 65 - 04



PREPARED BY

Dr L N Satapathy
DY. General Manager/CTI

APPROVED BY

Dr. R N Das
AGM & Head /CTI