



GOVERNMENT COLLEGE OF ENGINEERING, KEONJHAR

ସରକାରୀ ଯାନ୍ତ୍ରିକ ମହାବିଦ୍ୟାଳୟ, କେନ୍ଦୁଝର

(An Affiliated College of BPUT, Odisha)

At : Jamunalia, P.O.: Old Town, Dist., Keonjhar, Pin: 758002 (Odisha)

Web: www.gcekjr.ac.in / Mail id- principal@gcekjr.ac.in

No. 1576 Date 19-09-2025

TENDER CALL NOTICE

Sealed tenders are invited from reputed authorized manufacturers/distributors mentioned in the tenders for supply of equipment through speed/registered post for supply of equipment for **Department of Metallurgical and Materials Engineering, Government College of Engineering, Keonjhar**. The date of opening the tender is mentioned in the tender document, which will be opened in the office of the Principal, Government College of Engineering, Keonjhar in the presence of bidders and/or their nominees. The tender bid documents with details of terms and conditions are to be downloaded from the College Website: www.gcekjr.ac.in.

The authority reserves the right to reject/cancel the tenders in whole or in part without assigning any reason thereof. The authority will not be responsible for any postal delay.

Sd/-

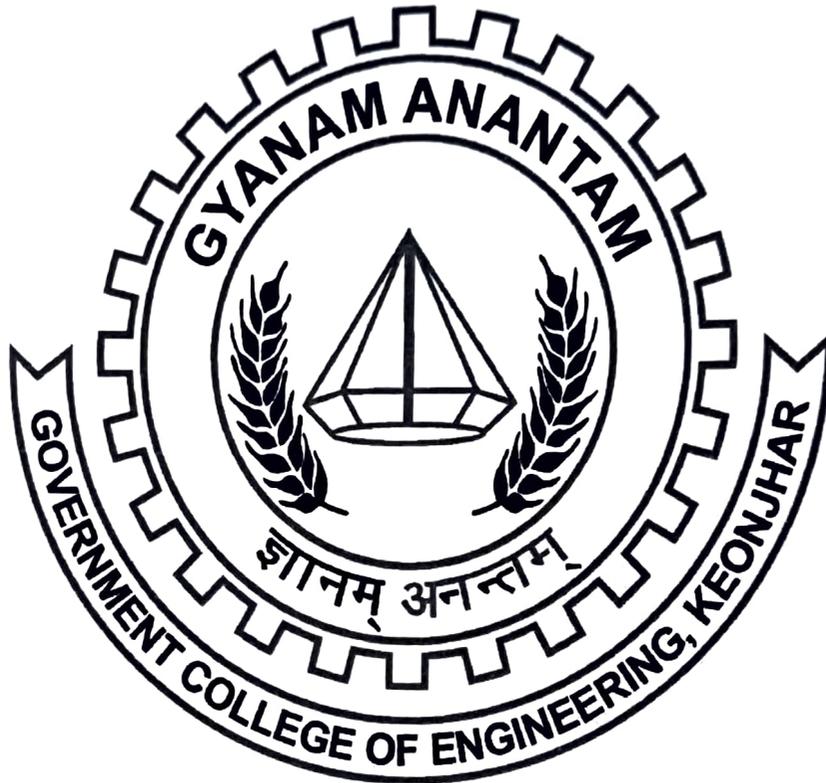
Principal

Government College of Engineering, Keonjhar

BIDDING DOCUMENTS AND INSTRUCTION TO SUPPLY OF EQUIPMENT

FOR

DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING



GOVERNMENT COLLEGE OF ENGINEERING, KEONJHAR

[An Affiliated College of Biju Patnaik University of Technology]

Jamunalia, Old Town, Keonjhar– 758 002

INVITATION FOR BIDS

Principal, Government College of Engineering, Keonjhar invites sealed bids from eligible bidders for supply of machineries/equipment to Department of Metallurgical and Materials Engineering.

Interested eligible Bidders may obtain detail information and list of items with technical specifications from the website of the College www.gcekjr.ac.in

Particulars about submission of bidding document are as follows:

Price of bidding document	Rs.1000/- (Service Tax is included) (non-refundable)
First date of availability of Bidding	19/09/2025
Last date and time for submission of bids	13/10/2025, 5PM
Time and date of opening of bids	16/10/2025, 11AM
Place of opening of bids	Principal Office Government College of Engineering, Jamunalia, Old Town, Keonjhar-758002
Address for communication	Principal Government College of Engineering, Jamunalia, Old Town, Keonjhar-758002

Sd/

Principal



1. Eligibility of Tenderer and General Instructions:

1.1. Eligibility:

Those who fulfil the following criteria are eligible to participate in the tender.

- a) The tenderer must be a reputed Original Manufacturer or the Authorised agent/ dealer of a reputed manufacturer. Manufacturers must provide all documents relating to their Manufacturing Capabilities.
- b) If the tenderer is an Authorized Dealer/Agent of a reputed manufacturer, necessary certificate to this effect from his manufacturer must be enclosed.
- c) Annual turn-over of the tenderer must be more than **Rs. One Crore in last three years**. As a letter of support the bidder should submit audited balance sheet of last three financial years.
- d) The Company must be registered with GST.
- e) The tenderer must have cleared GST up to date. Attested copies of GST Clearance Certificate or non-assessment certificate from the concerned Authority valid up to date and attested copy of Income Tax Clearance Certificate or non-assessment certificate, as the case may be, from the competent authority, up to date and PAN Number must be enclosed along with the Tender documents.
- f) The tenderer must have the willingness for providing comprehensive maintenance support of the Machine supplied by him for at least two years after expiry of the warranty period.
- g) The tenderer must provide evidence of purchase order and successful execution of supply of orders with installation and successful after sales support in reputed organizations like NITs/IITs/IESTs/IISERs/NISER/IISc/Central Research Laboratories/ Government Engineering Colleges of Odisha.
- h) All after sales support must be provided directly by the manufacturer only.
- i) The manufacturer should be preferably ISO: 9001-2008.
- j) The manufacturer should have preferably its own NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited laboratory or equipments supplied should have certification from any NABL accredited laboratory in respect of quality and performance.
- k) The manufacturer should be preferably registered with ESI.
- l) The manufacturer should have preferably its own R&D section registered with Government of India.

1.2. General Instructions:

The selection for procurement of equipment will be based on quality and performance along with cost. In this context decision of technical committee is final based on documentary evidence or actual physical verification.



- a) Submission of more than one bid by a particular tenderer under different names is strictly prohibited. In case it is discovered later on that, this condition is violated, all the tenders submitted by such tenderer/s would be rejected or contract cancelled.
- b) The tenderer should mention in the tender paper, the location of its service center nearest to Keonjhar.
- c) All offers should be in English and the price quoted for each item should be firm.
- d) Warranty period, Delivery period and After-Sale-Service conditions, etc. are also to be clearly indicated.
- e) The rates and the conditions of the offer will remain valid for **six months** from the date of opening of the tender and no change or alteration of the rate will be acceptable on any account.
- f) Submitted tender forms with overwriting or erased or illegible specifications and rates will be rejected.
- g) Request from tenderer in respect of additions, alterations, modifications, corrections, etc. of either terms & conditions or rate after opening of the bid may not be considered. However, negotiation may be made before finalization.
- h) Tenderers shall carefully examine the bid documents and fully inform themselves of all the conditions, which may in any way affect the work of the cost thereof.
- i) Should a tenderer find discrepancies or omissions from the specification or other documents and any doubt as to their meaning, he should at once notify the purchaser and obtain clarification in writing.
- j) This, however, does not entitle the tenderer to ask for time beyond the due date fixed for receipt of tenders.
- k) The tenderer must also specify minimum time and maximum time to repair/replace in the event of a failure and penalty thereof.
- l) Verbal clarification and/or information given by the purchaser or its employees or representatives shall not be binding on the purchaser.
- m) Submission of sealed bid will carry with the implication that the tenderer agrees to abide by the conditions laid down in the detailed particulars of the bid notice.
- n) Conditional offers and offers qualified by vague and indefinite expression, as "subject to immediate acceptance"/ "subject to prior sale" etc. will not be considered.
- o) While tenders are under consideration, tenderers and their representatives or other interested parties are advised to refrain from contacting by any means, to the purchaser's personnel or representatives on matter relating to the tenders under study.
- p) The purchaser, if necessary, will obtain clarification on tenders by requesting such information from any or all the tenderers either in writing or through personal contact as may be necessary.
- q) The tenderer will not be permitted to change the substance of his offer after the tenders have been opened.



- r) In the event of non-compliance with this provision, the tenderer is liable to be disqualified.

1.3. Procedure for Submission of Tenders:

The Tenderers must submit their bids as required in two parts in separate sealed covers prominently super scribed as Part-I "Technical Bid" and Part-II "Financial Bid" and also indicating on each of the covers the "Tender call Notice Number & Date" and due date and time of submission as mentioned in Tender Call Notice.

Part-I (Technical Bid)

Excepting the price schedule, all other documents as mentioned in para 1.1 shall be covered in Part-I (Technical Bid).

- a) Tender fee and EMD
- b) Copy of Firm Registration Certificate from the competent authorities,
- c) GST registration certificate and clearance,
- d) Income Tax Clearance,
- e) Proof of annual turnover
- f) PAN Card copy,
- g) List of clients, evidence of successful execution with photograph, etc.
- h) Details of technical specifications, printed information Catalogue for each instrument,
- i) Willingness for providing comprehensive maintenance support of the Machine supplied by him for at least two years after expiry of the warranty period
- j) Tender document duly signed by the authorized person in each page

Part-II (Financial Bid)

All indications of price shall be given in Part-II (Financial Bid).

- A. Both sealed covers Part-I "Technical Bid" and Part-II "Financial Bid" should be placed in a third cover and sealed. The sealed cover containing tender documents as per procedure indicated above should be sent to the Office of the Principal, GCE, Keonjhar by Registered Post/Speed Post addressing to the Principal, Government College of Engineering, Jamunalia, Old Town, Keonjhar-758002 within the due date and time as stipulated in Tender. The sealed envelope must show the name of the tenderer and his address and should be super scribed as "Tender for supply of Equipment for Metallurgical and Materials Engineering Department" on the top of the envelope.
- B. All the documents submitted must be in the papers showing signature of the tenderer and printed office name of the tenderer on official seal.

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[Handwritten Signature]

- C. All the documents must be submitted in a sequential manner with separator/flags to help in quick scanning of the topics. Wherever possible, data in tabular form should be given.

2. Requirements by Tenderer before Supply:

2.1. Rating Plate, Name Plate and Labels:

Each of the equipment is to have permanently attached to it, a rating plate of non-corrosive material in a conspicuous position, upon which the total specifications along with the manufacturer's name, address, etc. are to be engraved.

2.2. Packaging:

All the equipment are to be suitably protected, covered in water -proof packing and crated to prevent damage or deterioration during transit and storage till the time of installation. The supplier shall be responsible for any loss or damage caused during transportation, handling or storage till their successful installation.

2.3. Inspection:

- a) All materials / equipment shall be inspected and tested for completeness, proper assembly, operation, cleanliness and state of physical condition and performance as per quoted specification.
- b) The test shall be conducted, reported and certifications to be provided by the tenderer.
- c) The tenderer shall provide all test and measuring equipment/tools required for inspection / testing. The cost of all such tests shall be borne by the Tenderer.
- d) GCE, Keonjhar reserves the right to reject any equipment if it does not comply with the specifications during site testing, installation and commissioning stage.
- e) Inspection & testing would be conducted, jointly, at various stages as applicable during unpacking, installation and commissioning of respective equipment / components at the manufacturing site.

2.4. Environmental Condition:

All the equipment supplied shall be rugged and should operate without any deviation in quality, or degradation of equipment performance. All the specification/parameters shall be guaranteed over the following environmental conditions:

- a) Storage and operating Temperature: 0 to 50⁰ C
- b) Humidity: 95% RH (non-condensing)
- c) Power supply: 220 V/440 V, 50 Hz

3. Requirements by Tender after Supply:

3.1. Supply:

- a) The material would be delivered by the supplier at GCE, Jamunalia, Old Town, Keonjhar – 758002, Odisha.



- b) The items should be supplied directly from the manufacturing terminal having passed all tests successfully with Certifications as required.
- c) The equipment should conform to the latest relevant National/International standards and shall be completed in all respect.
- d) Any component, fitting etc. which may not have been specifically mentioned in the specifications but which are usual and necessary for the equipment, shall be supplied by the tenderer at no extra cost.
- e) In case, articles are found damaged in transit or found short at the time of delivery the full cost of the same will be deducted from the bill of the supplier in case the supplier does not replace the stock within a week from the date of the complain.
- f) The articles ordered must be supplied in one lot within 30 of placing of the order. In case of any extension (if required), the tenderer must take permission from GCE, Keonjhar.
- g) In case of delay in delivery or successful installation, a penalty of 1% (one per cent) per week shall be levied.
- h) GCE, Koenjhar reserves the right to procure the materials from alternative sources at the risk and cost of the successful tenderer giving 15 days notice.
- i) Any increase in tax and duties after expiry of delivery period will be borne by the supplier.
- j) In case the items supplied by the supplier are found not up to the specification shall be rejected. The supplier will be intimated to take back the stocks at his own cost within three days from the date of rejection and to replace the same within 7 days, failing which the EMD will be invoked in addition to taking legal actions.
- k) Imported consignment, if any, should be destined to GCE, Jamunalia, Old Town, Keonjhar – 758002, Odisha, India through Bhubaneswar Airport.
- l) The suppliers shall be responsible for releasing the consignments from the carriers/transporters.
- m) The equipment shall be delivered and installed at site at the cost of the tenderer.
- n) All taxes, levies, surcharges including the customs clearance and handling freight and insurance should be paid and handled by the tenderer.

3.2. Installation and Commissioning:

Installation and Commissioning shall include the following:

- a) Installation and Testing of the Equipment, Machineries etc. must be conducted by the tenderer at GCE, Koenjhar.
- b) It will be the responsibility of the tenderer to provide all necessary spares and consumables, which may be required during installation and commissioning, at no extra cost to purchaser.
- c) The tenderer is to bring their own testing and measuring instruments required for installation, testing, commissioning, which can be taken back after completion.
- d) Installation must complete within 15 days after delivery on site.

- e) During installation and commissioning the complete intended experiments is to be conducted with results must be within accepted level of accuracy.
- f) The raw materials and samples required for conducting experiments during installation is to be supplied by the tenderer free of cost.

3.3. Documentation:

- a) Detailed technical manuals, handbooks, drawings, Warranty card and Factory Quality Assurance checklist, test results and any other certifications mentioned in the Technical specifications shall be supplied along with the consignment.
- b) Supplied manuals/handbooks must cover detailed technical specifications and installation, operation, maintenance and System Safety procedures.
- c) For Experimental setups details of theory, procedure and methods of taking measurements etc. should be provided in the form of handbooks for each experiment.
- d) The receipts for taxes paid, if any, for the supplied materials should also be submitted.

3.4. Trial Operation and Performance Guarantee Test:

- a) After successful completion of Installation and Commissioning of the equipment, a 7-day continuous trial operation putting those on optimum use shall be conducted by the tenderer at site, during which the performance of the equipment shall be demonstrated for trouble-free continuous operation, meeting the specified standards and proper training shall be imparted to two persons of the purchaser.
- b) During trial operation, tenderer shall do all necessary adjustments required to ensure the performance as per the acceptable level.
- c) In case, guaranteed performance is not established, the tenderer shall be given opportunity to rectify/replace the equipment/components, and restart the 7 days continuous trial operation, at the risk and cost of the tenderer.

3.5. On-Site Warranty:

- a) The entire materials may be used continuously. The reliability and safety of the total installed system and trouble-free operation are, therefore, of prime importance. The supplied devices/equipment and components shall be covered under Two-years or more comprehensive on-site warranty from the date of issue of successful completion of Performance Guarantee Report.
- b) During the period of warranty, it shall be the responsibility of the tenderer to provide all essential spares and consumables, which may be required for maintenance and trouble-free operation of the devices / components at the tenderer's cost.
- c) Software, if any, has to be tested with at least one-year warranty for trouble free operation.

3.6. Comprehensive Maintenance Contract:

- a) The tenderer shall be under the obligation of entering into a Comprehensive Maintenance Contract (CMC) with GCE for a minimum period of two years, renewable if felt necessary, on mutually acceptable rates, terms and conditions. CMC shall start after the completion of Warranty.



- b) The scope of CMC shall cover maintenance and supply/replacement of materials and components, for smooth and reliable operation of the systems without trouble.
- c) Accordingly, the tenderer has to offer rates for the CMC structure per equipment along with the price for the Systems and other associated Equipment supplied.

3.7. After Sales Service:

- a) During the warranty period and subsequently, after signing of Agreement for CMC the tenderer shall attend to the problems reported by the users of GCE on a priority basis.
- b) For any problem reported the tenderer shall attend and rectify the problem within 7 (seven) days or provide a standby system of the similar configuration.
- c) The report on any problem will be informed through phone or fax number of which shall be given by the tenderer.
- d) The branch office of the concerned manufacturing firm will be fully responsible to provide maintenance service, in case of any negligence, in providing the service by the tenderer.
- e) On failure to comply with those instructions, the Bank Guarantee provided for the warranty period shall be invoked.

4. Financial Terms:

4.1. EMD

- a) The tenderer has to submit a Demand Draft / Banker's Cheque / Pay order of Rs.20000/- in favour of Principal, Government College of Engineering, Keonjhar payable at Keonjhar in any Nationalized Bank towards EMD.
- b) There will be no interest paid to the tenderer towards EMD money.
- c) In no case, the EMD Money in cash or other forms will be accepted at the time of opening of the bid.
- d) No request for adjustment of claims, if any, will be accepted.
- e) The EMD of unsuccessful tenderers will be refunded as soon as possible after the tenders are finalized.

4.2. PRICES:

Price quoted should be FOR Government College of Engineering, Keonjhar only. Tax components as applicable should be mentioned clearly in the financial bid.

- a) Price should be quoted for unit item.
- b) Purchase order will be placed as a single lot for each type of item or for all the items together, as the case may be.
- c) In case of items of import, the tenderer should take full responsibility for customs clearance, handling, tax payment, etc. and specify the charge for the same in the price bid.

4.3. Tax Concession:

Central Sales Tax Concession is to be availed on production of the required certificates applicable to Educational Institution.

4.4. Discount:

- a) Our Institute is a pioneer Institution in the field of Teaching and Research in Engineering and allied disciplines and do not run with profit motive.
- b) As such we are availing price discount for purchase of equipment/instruments.
- c) The rate of discount or any other Institutional benefit arising out of Govt. Policy etc., on each item may also be indicated in the bid specifically.

4.5. Payments:

- a) In case of imported items, payment will be made by opening LC in the name of the manufacturer subject to the condition that a Bank Guaranty for an equal amount will be submitted by the selected tenderer to GCE for the period of completion of installation and commissioning.
- b) In case of purchase in Indian Rupees, payment of 90 percent of the ordered value will be made after successful installation and commissioning of the equipment subject to submission of satisfactory performance report by the concerned Head of Department. The rest 10 percent of the payment will be made after one year of successful installation of the equipment.

4.6. Penalty:

If the delivery, installation and commissioning is not carried out in time as specified in other part of the tender document, the tenderer/manufacturer will be charged @ 1 % (one per cent) per week of the total value of the concerned machine / equipment.

5. Instructions to the Tenderer:

- a) Some of the minimum specifications specified may be redundant, obsolete or incompatible and in these cases, quote the particulars of correct specification of latest trend and technology.
- b) Higher specifications instead of minimum specifications are allowed if a minimum specification is not available, obsolete or incompatible.
- c) Otherwise, model with higher specification should be in addition to the model with minimum specifications.
- d) Specify brand name and full model name and number for each offer.
- e) Include the printed catalogue and pricelist if any for each of the equipment quoted.
- f) Specify the list of Accessories required along with each of the equipment.
- g) Quote the additional price of the accessories; only those, which are fully compatible with the quoted model, should be furnished.
- h) Specify the list of Accessories to be given free of cost, along with the equipment as "Free Accessories"; these should be fully compatible with the quoted models.

5.1. Solving Disputes:

- a) GCE, the tenderer and the manufacturer shall make all efforts to resolve amicably by direct informal negotiation on any disagreement or dispute arising between them under or in connection with this contract.

- b) All disputes arising out of the contract shall be referred to courts under the jurisdiction of the Keonjhar court only.
- c) The above terms and conditions except those otherwise agreed upon, shall form a part of the Purchase Order.
- d) Sign on each page of this tender document and Return it along with the offer enclosing this part together with the Technical Offer.
- e) The GCE authority has all rights to accept / reject any tender without assigning any reasons thereof.

6. Technical Specifications:

Hot air oven

Sl No.	Description	Specification
1.	Temperature Range Temperature Resolution Temperature Accuracy Temperature Variation	RT+10 ~ 250°C 1°C ±2°C @100°C
2.	Outer Body Material	Heavy duty Powder coated MS
3.	Inner Chamber Material	Stainless Steel (SS 304)
4.	Electrical Requirements	AC 230V ,50HZ/60Hz
5.	Weight (Kg)	65Kg
6.	Power consumption (Watts)	2500 Watt
7.	Number of Shelves	3 pcs each
8.	Chamber Volume (Litre)	105
9.	Chamber Dimension (W×D×H) cm	45X45X60
10.	Display	Digital LED display with touch keypads

Tap density meter

Sl No.	Description	Specification
1	Sample weight	300-350 gm
2	Sample volume	500 ml
3	Motor torque	0.86 N.m
4	Frequency	0-300 rpm
5	Power supply	AC 200V ± 10 % 50HZ
6	Power consumption	40 Watt
7	Dimension (W×D×H) cm	330× 265 ×165
8	Weight (Kg)	15
9	Accuracy Error	≤1%
10	Amplitude	Maximum 15 mm

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PIN-ON-DISC WEAR & FRICTION

Parameters	Specification
Normal Load (N)	10 to 100 (Dead Weights)
Frictional Force range (N)	Up to 200 with tare facility
Wear measurement Range (mm)	±5, with tare facility
Disc speed (rpm)	100–1000
Software-controlled timer/Manual	Desired user data entry of test time
Wear disc diameter (mm)	150×8 thickness,
Wear track diameter (mm)	10–100
Specimen pin diameter (mm)	8 to 10
Ball Holder	8 to 10
Pin length (mm)	25–30
Ball diameter (mm)	8–10 (Bearing Steel)
Lubrication system	NO
Environmental chamber system for inert gases	NO
Universal disc set-up	To accommodate all sizes of disc onto the machine (Qty: 1)
Operating Kit (Pack)	Allen key set and spanner set are required for the machine. (Qty: 1)
Complete tool kit for operation and maintenance of the equipment	Required
Machine dust cover	Required
Wear disc	EN 31 Steel (Hardness 58- HRC)
(i) Pin Samples 5 nos. each -Brass, diameters (mm) (ii) Pin Samples 5 nos. each -Aluminum, diameters (mm)	(i) 10 and 8 (ii) 10 and 8
Data acquisition software	ASP based
Software	Installing Data Acquisition Software
Hard copy and soft copy of operation and maintenance manual	Required
Warranty	1 Year

Fatigue testing machine

SPECIFICATION	DETAILS
Testing Diameter of Specimen	8 millimeter
Digital Counter	10
Gripping Diameter of Specimen	12 millimeter

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Overall Size (mm)	1000L x 500W x 600H
Bending Moment Adjustable	1 to 200 kg·cm
Power Required	0.5 horsepower
Rotating Speed (RPM)	4200
Main Supply	3-phase, 440V, 50Hz
Ranges (kg·cm)	100 to 200
Weight (Kg)	120
Maximum Bending Moment	200 kg·cm

Muffle furnace

SPECIFICATION	DETAILS
Maximum Temperature (°C)	1200 °C
Working temperature	1150 °C
Temperature Accuracy	±2°C
Chamber volume	12 litres
Inner working size	12" x 8" x 8" (300 mm D x 150 mm W x 150 mm H)
Temperature Controller	Microprocessor Based PID Temperature Programmer/controller with 32 Ramp/dwell segments and 0-5 volts output for the thyristor system
Programmable (Profile) Temperature Controller	Yes
Overall Dimensions	510 X 805 X 740(L X W X H) mm
Thermocouple	K Type
Power Supply	400 Volts, 3-phase, A.C. Supply, 50 Hz
Optional fittings	Software : Magnetic Lock : Hour meter Over Temp Protection System - with Audio Alarm

Thermal conductivity measuring equipment

SPECIFICATION	DETAILS
Metal Bar brass	25 x 300 mm long (approx.)
Insulating Powder Shell	200mm diameter (approx.)
Cooling Water Chamber	100mm diameter x 75mm long (approx)
Volt meter	0-100/200 volts.
Ammeter	0-2A
Dimmer stat	0-240 volts, 2A

Test Temperature Range	-30°C or less to 1500°C or better
Precision	Better than 1% of measurement
Accuracy	Better than 5% of measurement
Temperature Control Unit	Digital Temp.indicator with 0.1°C least count using chromel alumel thermo couples couples, cold junction compensation

Impact testing machine

Specification	Details
Pendulum Drop Angle	Charpy: 140°, Izod: 85° 21°
Effective Weight	Charpy: 20-59 kg, Izod: 21.79 kg
Speed	Charpy: 5.3465 m/sec, Izod: 3.857 m/sec
Impact Energy	Charpy: 30 kgm (300J), Izod: 16.4 kgm (164J)
Min. Graduation	2J
Distance of Hammer Rotation Axis & Test Piece Centre	825mm
Max. Permissible Loss by Friction	0.5% of max. impact energy
Charpy Test - Striking Edge Angle	30° ± 1°
Charpy Test - Striking Edge Radius of Curvature	2.25mm
Charpy Test - Striking Edge Width	18mm
Charpy Test - Support Distance Between Arm	40mm
Charpy Test - Support Sloping Angle	0°
Charpy Test - Support Relief Angle	10°
Charpy Test - Support Radius of Curvature	1.25mm
Izod Test - Striking Edge Angle	75°
Izod Test - Striking Edge Radius of Curvature	0.75mm
Izod Test - Striking Edge Horizontal Relief	10°
Izod Test - Striking Edge Vertical Relief	5°
Izod Test - Support for Gripping Specimen	10 x 10mm
Impact Tension Test - Striking Edge Distance Between Forks	36mm
Impact Tension Test - Striking Edge Radius of Curvature	1mm
Impact Tension Test - Support Clamping Specimen Diameter	6.4mm
Impact Tension Test - Support Clamping Specimen Total Length	25.4mm
Impact Tension Test - Support Clamping Specimen Measuring Length	M10 x 1.5
Impact Tension Test - Support Thread Specification	M10 x 1.5

Abrasive cutter

Sl/No	Name of the items	Specification
1	M/C	Abrasive cutter
2	Cut Operation	Manual
3	Units	English and Metric
4	Blade Movement Axis	Vertical (Z)
5	Cut Type	Chop
6	Controls	Manual Chop Handle, Control Panel with Buttons
7	Cutting Bay Lighting	2 LEDs
8	Hood Door Design	Rising hood (slides open upwards)
9	Exhaust Port	Located in back of machine
10	Flush Hose	Yes
11	Other Features	Adjustable cutting arm handle; Dual blade cutting; Set RPM setting per blade size
12	Maximum Sample Width	Up to 26in [660mm]
13	Cooling System Capacity	18 gal [70L]
14	T-Slot Table Dimensions	L: 7.1in x 9.8in [180mm x 250mm] R: 4.5in x 9.8in [115mm x 250mm]
15	Machine Dimensions	Width: 31.3in [795mm] Depth:27.3in [693mm] Height : 25.7in [653mm]
16	Weight	309lbs [140kg]
17	Blade Sizes	10in [254mm] -12in [305mm]
18	Blade Table Clearance	6.9in [175mm] 5.9in [150mm]
19	Cut Capacity	3.3in [84mm] 4.3in [109mm]
20	Blade Speed	3000rpm 2600rpm
21	Motor Power	5.5Hp [4kW] (5Hp [3.7kW] for CSA)
22	Main Power	180-240VAC, 3 phase, 50/60Hz 380-460VAC, 3 Phase, 50/60Hz
23	Main Current	200V: 26A -400V:13A
24	Safety Features	Interlock Hood Switch, Emergency Stop
25	Compliance	CE Directives

Student optical microscope

Sl/No-	Name of the items	Specification
1	Student optical microscope	Upright Metallurgical Microscope
2	Stand	Upright stand with Z - Motorized focus. Microscope should have an ECO Mode & Build in light intensity manager. Stand should have snap button for easily capture images. Should have full Kohler Stand
3	Tube	Trinocular tube with beam splitting 100:0/0:100. The inclination angle should be 30° at a field number of 23mm
4	Illumination system	Halogen lamp of 10-12V,100 W or LED

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5	Stage	Mechanical stage with travel dimensions 75X50 mm for better.
6	Objectives	All objective should be with magnification Plan 5X,10X,20X & 50 X
7	Eyepiece	10x
8	Condenser	Height adjustable 0.9/1.25 N.A. Condenser for BF.
9	Cytogenetic Imaging Camera:	CMOS Monochrome Camera : Minimum resolution 5 MP (2448 x 2048), pixel depth of 3.45 μ X3.45 μ m, at least 40 frames per second & USB 3.0 should be offered. Should have suitable Camera adapter.
10	Imaging mode	Bright field only
11	Camera software	Basic free software to capture image
12	Accessories	Microscope, camera, attachment cables etc.

LIST OF SOFTWARE FOR MME DEPARTMENT

Sl no	Software	quantity	Purpose
1	HSC chemistry	1	Measure thermodynamically detail of the material
2	Design of experiment (Design Expert, Minitab etc)	1	Helps to design the experiment