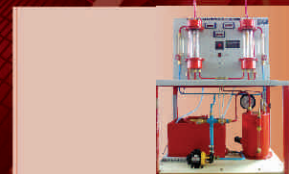




LABTEK

MECHANICAL ENGINEERING LAB EQUIPMENTS

HEAT TRANSFER LAB





Sun LabTek Equipments (I) Pvt. Ltd.
(ISO : 9001 : 2008 Certified Company)



LABTEK COVERS THE FOLLOWING LABORATORY:

- STRENGTH OF MATERIAL LAB
- THERMAL ENGINEERING LAB
- FLUID MECHANICS LAB
- DYNAMICS OF MACHINE LAB
- HEAT TRANSFER LAB
- FLUID MACHINERY LAB
- REFRIGERATION AND AIR-CONDITIONING LAB
- AUTOMOBILE ENGINEERING LAB
- APPLIED MECHANICS LAB
- CAM LAB
- M & I LAB
- DATA ACQUISITION LAB
- MECHATRONICS LAB

The company lays special emphasis on export of its products all over the world, hence has a correct knowhow of resending product and its instruction manual in printed and soft format accepted internationally.

WELCOME TO LABTEK TECHNICAL CATALOG

Established in 1999, LabTek has built a solid reputation for manufacturing and marketing laboratory equipment with strong mechanical base required in universities, engineering colleges, polytechnics, vocational schools etc. LabTek has a selection of more than 500 mechanical engineering and 800 civil engineering equipments and test rigs. With customers spread across the globe, LabTek is regarded as premier supplier of reliable, high quality and competitively priced products. We provide Turnkey solution for establishing mechanical and civil engineering laboratory with state of the art technology and solution.

R & D & QUALITY ASSURANCE:

Our R & D Engineers work in close contacts with clients to produce user friendly products and manuals providing a fulfilling teaching and learning experience. Students can complete their assignments in single laboratory session. LabTek operates a continual product improvement process through ISO procedures and customer feedback to ensure that our product stays ahead of the competition and meets customer needs. Our product specifications are reviewed in line with worldwide curriculum to comply varied syllabus requirements and hence regularly updated and new products developed.

AFTER SALES SERVICE

Company responds to customer needs quickly and considers after sales service equally important to establish a culture of customer confidence, LabTek has established long term relationships with its clients. To expedite your order or to get any particular service, please send us an e-mail or fax with product details and your contact address along with mobile /landline numbers. Our Service Engineers will respond to you quickly through e-mail/phone. We also provide installation, commissioning and training service for any customers who require assistance.

The largest established manufacturing, trading and export house of quality Technical Education Lab Equipments in INDIA



Corporate Office: B-3A, Shiv Shakti Complex, East Vinod Nagar, 1st Floor, New Delhi-110091

Tel: 011-22732108/2109, **Fax:** 01122732109 **Customer Care No.:** +91-99999-84267

Mob: +91-99710-77233, +91-98118-88915

E-mail: labtekindia@gmail.com, **Website:** www.labtekindia.com

Works: 80-A, Rajendra Nagar Industrial Area, Sahibabad, Ghaziabad-210005, Uttar Pradesh (India)



S

T

N



E



T

N

O

C

CERTIFICATE

Nr IN/10/100755

SUN LABTEK EQUIPMENTS INDIA PRIVATE LIMITED

B-3A, Shiv Shakti Complex, East Vinod Nagar, New Delhi-110091 (INDIA)

Scope

Manufacturing & Trading of Scientific Lab Testing Equipments.

EA 23, Code

The Quality Management System is in accordance with

SS-EN ISO 9001:2008

Excluded requirement: None

Under the assumption that the quality system and its function is satisfactory at the surveillance and that A.g.R Certification Ltd.'s "Rules for certification" are upheld.

INDIA, 11/04/2011

Issued Date

A.g.R Certification Ltd.

INDIA, 10/04/2014

Expiry Date



A.g.R Certification Ltd.
17 Hanover Square, Mayfair, London, W1S 1HU

99003, edition 3.4.5.1 Certificate 9901:2008



LAB & EQUIPMENTS NAME

HEAT TRANSFER LAB

- Heat Transfer Through Lagged Pipe
- Emmissivity Measurement Apparatus
- Thermal Conductivity Insulating Powder
- Heat Transfer in Natural Convection
- Heat Transfer in Forced Convection
- Heat Transfer from Pin-fin
- Stefan Boltzman Apparatus
- Critical heat Flux Apparatus
- Heat Pipe Demonstrator
- Heat Transfer Through Composite wall
- Parallel/Counter Flow Heat Exchanger
- Boiling Heat Transfer Unit
- Drop & Film Condensation
- Shell and Tube Heat Exchanger
- Unsteady State Heat Transfer Test Rig
- Plate Type Heat Exchanger
- Thermal Conductivity by Guarded Hot Plate
- Thermal Conductivity of Metal Rod

HEAT TRANSFER THROUGH LAGGED PIPE

- Pipes
- a. Diameter

:50/100/150mm
Inner/Outer (Approx.)
- b. Length

:450mm (Approx.)
- c. Material

:G.I./MS
- d Quantity

:1 No. Each
- Measuring Instruments
- a. Digital Voltmeter Range

:0 to 300 V
- b. Digital Ammeter & Range

:0 to 5 Amps
- c. Digital Temperature Indicator with Selector switch

Range :Ambient to 0-400 Deg.c
- Thermocouples
- a. Type

:Cr. Al
- b. Length

:1 Mt.
04. Voltage Varaiç

:1 No., 1.5 kw
- 05: Insulation

: Glass wool



EMMISSIVITY MEASUREMENT APPARATUS

- Plates
- a. Diameter

:150
- b. Material

:Brass
- c. Heater

:250W
- d. Specimen

:Black Body and Grey Body
- Rectangular Duct
- a. Material

:MS with Power Coating
Front Acrylic
- Measuring Instruments
- a. Digital Voltmeter Range

:0 to 300 V
- b. Digital Ammeter & Range

:0 to 10 Amps
- c. Digital Temperature Indicator with Selector switch

Range :Ambient to 0-400Deg.c
- Thermocouples
- a. Type

:Cr. Al
- b. Length

:1 Mt.
05. Voltage Varaiç

:2 Nos, 1.5 kw



THERMAL CONDUCTIVITY INSULATING POWDER

- Outer Sphere (top And Bottom)
- a. Diameter

: 200mm (Approx.)
- b. Material

: Copper
- Inner Sphere (top And Bottom)
- a. Diameter

: 100
- b. Materail

: Copper
- Measuring Instruments:
- a. Digital voltmeter, Range

:0 to 300V
- b. Digital Ammeter & Range:

0 to 5 Amps
- c. Digital Temperature Indicator with selector switch:

Range :Ambient to 0-400° c
- Thermocouples:
- a. Type

: Cr. Al
- b. Length

: 1 Mtr.
05. Electronic Dimmer

: 1 No., 1.5 kw

HEAT TRANSFER IN NATURAL CONVECTION

S.S. Cylindrical Tube

- a. Diameter :40mm
b. Length :400/500mm

Measuring Instruments

- a. Digital Voltmeter Range :0 to 300 V
b. Digital Ammeter Range :0 to 10 Ampsc.
c. Temperature Indicator with Selector switch Range :Ambient to 400°C

Thermocouples:

- a. Type :Cr. Al
b. Length :1 Mtr.

Electronic Dimmer :1 No.



SL-5004

Heat Transfer in Natural Convection



SL-5005

Heat Transfer in Forced Convection



SL-5006

Heat Transfer from Pin-Fin

HEAT TRANSFER IN FORCED CONVECTION

Blower

- a. Capacity :350 watts/1.5 cumts/m

Test Section

- a. Diameter :40mm
b. Length :300mm

Cooling Water Chamber

- a. Diameter :50 mm Optional
b. Length :300mm (Approx.)
Material :Copper

Measuring Instruments

- a. Digital Voltmeter Range :0 to 300 V
b. Digital Ammeter & Range :0 to 10 Amps
c. Digital Temperature Indicator with Selector switch Range :Ambient to 400°C.

Thermocouples

- a. Type :Cr. Al
b. Length :1 Mt.

Electronic Dimmer :1 No.

07. Measuring Jar & "u" Tube Manometer 1 No. Each

HEAT TRANSFER FROM PIN-FIN

Blower

- a. Capacity :350 watts/1.5 cumts/m

Test Section

- a. Diameter :12mm
b. Length :150mm
c. Material :Brass

Duct

- a. Size :100x150x500mm
b. Material :MS with Powder Coating

Measuring Instruments

- a. Digital Voltmeter Range :0 to 300 V
b. Digital Ammeter & Range :0 to 10 Amps
c. Digital Temperature Indicator with Selector switch Range :Ambient to 400°C.

Thermocouples

- a. Type :Cr. Al
b. Length :1 Mt.

Electronic Dimmer :1 No.

"U" Tube Manometer:

- a. Material :Glass

STEFAN BOLTZMAN APPARATUS**Stefan Boltzman Section****a. Hemisphere**

Diameter/Material :200mm/Copper

b. Outer Jacket

Diameter/Material :250mm/Copper

c. Hylum Base Plate :12 mm thick

d. Test disc

Size :20mm x 1.5 mm

Water Tank With Immersion Heater

a. Material :S.S.

03. Digital Temperature Indicator With Selector Switch

Range :Ambient to 199.9 Deg. C

04. Thermocouples

a. Type :Cr. Al

b. Length :1 Mt.

**Stefan Boltzman Apparatus****Critical Heat Flux Apparatus****CRITICAL HEAT FLUX APPARATUS****Cylindrical Shell**

a. Diameter :200mm (Approx.)

b. Height :200mm (Approx)

c. Material :Glass

Immersion Heaters:

a. Capacity :Suitable

b. Make :Any Standard

Measuring Instruments:

a. Digital Voltmeter Range :0 to 300 V

b. Digital Ammeter & Range :0 to 5 Amps

c. Digital Temperature Indicator with Selector switch Range :Ambient to 199.9 Deg.c

Thermocouples

a. Type :Cr. Al

b. Length :1 Mt.

Electronic Dimmer

:1 No

Test Specimen

: Nichrome wire

**Heat Pipe Demonstrator****HEAT PIPE DEMONSTRATOR****Heat Pipe**

a. Length/Diameter :300/25mm (Approx/)

c. Material :Brass

Test Pipes

a. Diameter/Length :25mm/300mm(Approx.)

Material :Copper

b. Diameter :25mm (Approx.)

Length :300mm (Approx.)

Material :Copper/SS

Small Capacity Tanks

a. Size :150x100x50mm (Approx.)

b. Material/Quantity :S.S./ 3 Nos.

Measuring Instruments

a. Digital Voltmeter Range :0 to 300 V

b. Digital Ammeter & Range:0 to 5 Amps

c. Digital Temperature Indicator with Selector switch Range :Ambient to 400° c.

Thermocouples

a. Type :Cr. Al

b. Length :1 Mt.

Electronic Dimmer

:3 No.

HEAT TRANSFER THROUGH COMPOSITE WALL

Mild Steel, Asbestos & Brass Slabs/wood

a. Thickness :150 od 6 mm Thick

Measuring Instruments

a. Digital Voltmeter Range :0 to 300 V

b. Digital Ammeter & Range :0 to 10 Amps

c. Digital Temperature Indicator with Selector switch Range :Ambient to 400° c.

Thermocouples

a. Type :Cr. Al

b. Length :1 Mt.

Electronic Dimmer :1 Nos.



SL-5010

Heat Transfer Through Composite wall

SL-5011

Parallel/Counter Flow Heat Exchanger**PARALLEL/COUNTER FLOW HEAT EXCHANGER**

Geyser

a. Capacity :3 KW

Heat Exchanger Outer Pipe Insulated By Asbestos Rope

a. Diameter :25mm

b. Material :G.I

Heat Exchanger Inner Pipe

a. Length :1000mm

b. Diameter :12.5 mm OD

c. Material :Copper

Digital Temperature Indicator With Selector Switch

a. Range :Ambient to 199.9 Deg. c

Thermocouples

a. Type :Cr. Al

b. Length :1 Mt.

Measuring Jar :1 Ltr. Capacity



SL-5012

Boiling Heat Transfer Unit**HEAT PIPE DEMONSTRATOR**

Glass Tube

a. Diameter/Height :100mm OD/275mm (Approx.)

Copper Tube

a. Diameter :9mm OD (Approx.)

b. Material :150mm (Approx.)

Measuring Instruments

a. Digital Voltmeter Range :0 to 300 V

b. Digital Ammeter & Range:0 to 5 Amps

c. Digital Temperature Indicator with Selector switch Range :Ambient to 199.9 Deg. c

Thermocouples

a. Type :Cr. Al

b. Length :1 Mt.

Dimmer/ Electronic

a. Make :Agro/Equivalent

b. Range :0 to 10 Amps

Rotameter

a. Material :Acrylic

b. Range :40 to 60 cc/sec

Sump Tank:

a. Size :200 x 200x 400mm (Approx.)

b. Material :S.S



Drop & Film Condensation

DROP & FILM CONDENSATION**Glass Tube**

- a. Diameter :100mm OD (Approx.)
 b. Height :275mm (Approx.)
 c. Quantity :2 Nos.

Measuring Instruments

- c. Digital Temperature Indicator with Selector switch Range :Ambient to 199.9 Deg.c

Thermocouples

- a. Type :Cr. Al
 b. Length :1 Mt.

Rotameter

- a. Material :Acrylic
 b. Range :40 to 60 cc/sec

Sump Tank:

- a. Size :200 x 200x 400mm (Approx.)
 b. Material :S.S

Steam Generator

- a. Diameter :200mm (Approx.)
 b. Height :300mm (Approx.)
 c. Material :M.S.
 d. Heater used :2KW/ 1 No.



Shell and Tube Heat Exchanger

SHELL AND TYBE HEAT EXCHANGER**Control Panel**

Stand Alone Metallic powder coated panel

Specimen

Shell: 200mm dia, 5mm thick, 1m long MS pipe
 Tubes: 1/2" dia, 1020mm long Copper or seamless MS tubes

Insulation

Asbestos Cloth / Rope

Geyser

1 liter, 3 kW, Instantaneous (SS hot water tank with pump at extra cost)

Flow measurement

Measuring Jar with digital stop watch (Rota meters at extra cost).

Temperature Indicator

Digital Temperature Indicator, 0-199.9°C with TSS

Thermocouples

Teflon coated Cr -Al (K-type)-4 no.

Measuring Jar

Plastic-1000ml

Stop Watch

Digital, 1/10 of a second, Racer/Pacer Make

Experimental Capability

Over All Heat transfer Co-Efficient, Effectiveness

Manual

Self explanatory Instruction manual with sample calculation

Optional Feature @ Extra

Computerized data acquisition system with software



Unsteady state Heat Transfer Test Rig

UNESTEADY STATE HEAT TRANSFER TEST RIG**Control Panel**

Stand Alone Metallic powder coated panel

Specimen

Copper 30mm dia, 30mm long,

Duct / Enclosure

MS powder coated duct of 8"x8" in size 8" dia MS shell with glass wool insulation

Heater

Band Heater-500W

Cooling Fan

8" dia exhaust fan

Voltmeter

Digital voltmeter of range 0-300V AC

Ammeter

Digital ammeter of range 0-20A AC

Temperature Indicator

Digital Temperature Indicator ,0-400°C with TSS

Thermocouples

Teflon coated Cr –Al (K-type)-8 no.

Stopwatch

Digital Stop Watch.

Regulator

Electronic Dimmer 1kW. (2Amps Variac At extra cost)

Experimental Capability

Nusslet No. And Biot No.

Manual

Self explanatory Instruction manual with sample calculation

Optional Feature @ Extra

Computerized data acquisition system with software



Plate Type Heat Exchanger

PLATE TYPE HEAT EXCHANGER**Control Panel**

Stand Alone Metallic powder coated panel

Specimen

An industrial Plate Heat exchanger made of SS of size 200 mm x 75 mm, Number of plates are 14

Flow type

Both Parallel and Counter Flow

Geyser

1 liter, 3 kW, Instantaneous
(SS hot water tank with pump at extra cost)

Flow measurement

Measuring Jar with digital stop watch
(Rota meters at extra cost – 2 nos).

Temperature Indicator

Digital Temperature Indicator ,0-199.9°C with TSS

Thermocouples

Teflon coated Cr –Al (K-type)-4 no.

Measuring Jar

Plastic-1000ml

Stop Watch

Digital, 1/10 of a second, Racer/Pacer Make

Experimental Capability

Over All Heat transfer Co-Efficient, Effectiveness

Manual

Self explanatory Instruction manual with sample calculation

Optional Feature @ Extra

Computerized data acquisition system with software



Thermal Conductivity by Guarded Hot Plate



Thermal Conductivity of Metal Rod

THERMAL CONDUCTIVITY BY GUARDED HOT PLATE**Guarded Plate Section**

- | | |
|-------------------------|---------------------|
| a. Main Heater Plate | : |
| b. Diameter | : 90mm |
| c. Material | : Brass |
| d. Ring Heater Diameter | : 100ID/150 OD mm |
| e. Material | : MICA |
| f. Ring Heater Plate | |
| g. Diameter | : 100 ID/150 mm OD |
| h. Material | : Brass |
| i. Asbestos plate | : 150OD/12 mm thick |
| j. Cooling jacket | |
| k. Diameter | : 150OD |
| l. Material | : Brass |
| m. Size | : 123mm thick |

Measuring Instruments

- | | | |
|---|---|------------------------|
| a. Digital Voltmeter Range | : | 0 to 300 V |
| b. Digital Ammeter & Range | : | 0 to 10 Amps |
| c. Digital Temperature Indicator with Selector switch | : | Ambient to 199.9 Deg.c |

Thermocouples:

- | | | |
|-----------|---|--------|
| a. Type | : | Cr. Al |
| b. Length | : | 1 Mtr. |

- | | | |
|--------------------------|---|--------|
| Electronic Dimmer | : | 2 Nos. |
|--------------------------|---|--------|

THERMAL CONDUCTIVITY OF METAL ROD**Control Panel**

Stand Alone Metallic powder coated panel

Specimen

Shell: 200mm dia, 5mm thick, 1m long MS pipe

Tubes: 1/2" dia, 1020mm long Copper or seamless MS tubes

Insulation

Asbestos Cloth / Rope

Geyser

1 liter, 3 kW, Instantaneous (SS hot water tank with pump at extra cost)

Flow measurement

Measuring Jar with digital stop watch (Rota meters at extra cost).

Temperature Indicator

Digital Temperature Indicator, 0-199.9°C with TSS

Thermocouples

Teflon coated Cr-Al (K-type)-4 no.

Measuring Jar

Plastic-1000ml

Stop Watch

Digital, 1/10 of a second, Racer/Pacer Make

Experimental Capability

Over All Heat transfer Co-Efficient, Effectiveness

Manual

Self explanatory Instruction manual with sample calculation

Optional Feature @ Extra

Computerized data acquisition system with software

QUALITY POLICY

The Management and the staff of LabTek is committed to provide Educational training equipments and test & measurement products and services on par with international standards with and emphasis on cost effectiveness, customer satisfaction and market coverage. It is our endeavor to create a culture of total quality where continuous improvement of our products by increasing involvement of people through customer oriented, flexible, multiple job functions with emphasis on cost consciousness becomes a way of life.

***The largest established manufacturing, trading and export house of quality
Technical Education Lab Equipments in INDIA***

Sun LabTek Equipments (I) Pvt. Ltd.

Corporate Office:

B-3A, Shiv Shakti Complex, East Vinod Nagar, 1st Floor, New Delhi-110091

Tel: 011-22732108/2109, Fax: 01122732109 Customer Care No.: +91-99999-84267

Mob: +91-99710-77233, +91-98118-88915

E-mail: labtekindia@gmail.com, **Website:** www.labtekindia.com

Works :

80-A, Rajendra Nagar Industrial Area, Sahibabad, Ghaziabad-210005, Uttar Pradesh (India)