



# LABTEK

MECHANICAL ENGINEERING LAB EQUIPMENTS

REF. & AIR CONDITIONING 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**



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# 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



A.g.R. Certification Ltd.

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

99003, edition 3.4.5.1 Certificate 9901:2008

INDIA, 10/04/2014





Window Type Air Conditioner Test Rig



Ice Plant Test Rig

### WINDOW TYPE AIR CONDITIONER TEST RIG

#### Aim :

This laboratory scale working model housed on a M.S. Square tube frame further mounted on a wheels (CI) with instrumentation panel is used i) To study the Vapour compression Cycle ii) To calculate co-efficient of performance (COP) iii) To evaluate tonnage capacity.

#### 01. Hermitically Sealed Compressor

- 02. Air Cooled Condenser : 1 NO.
- 03. Condenser Cooling Fan : 1 NO.
- 04. Rota Meter (refrigerant R 22) : 1 No
- 05. Charging Valves :  $\frac{1}{4}$ "
- 06. Filter Drier : DM 50, (3/8")
- 07. Energy Meter : 1 NO.

- 08. Pressure / Compound Gauges : 1 NO. each
- a) Range : 0 to 300 psi / 30 " Hg to +150 psi

#### 09. Measuring Instruments

- a) Digital Temperature Indicator : Ambient 50 to 199.9°C

#### OPTIONAL: AT EXTRA COST LINE VOLTAGE CORRECTOR

- Capacity : 4KVA
- Output : 230V +/- 10%
- Anemometer

#### 10. Thermocouple

- Type : Cr-Al

### ICE PLANT TEST RIG

#### Aim :

This laboratory scale working model housed on a M.S. Angle frame further mounted on a wheels with instrumentation panel is used to determine i) The working of ICE Plant ii) Co-efficient of performance (COP) and iii) Refrigeration circuit.

#### 01. Hermitically Sealed Compressor

- Make : Tecumesh/Kirloskar

- 02. Air Cooled Condenser : 12 x 13 x 2 row

#### 03. Fan Motor :

- a) Capacity : 1/83 HP
- b) Make : AUE

#### 04. Hand Shut off Valves

- a) Size :  $\frac{1}{4}$ "

#### 05. Filter Drier

- a) Make : Danfoss

#### 06. Energy Meters

- Make : Bentex/equivalent

#### 07. Stirrer

- a) Make : Remi/Tullu

#### 08. Pressure/ Compound Gauges

- Range : 0 to 300 psi/-30" Hg to +150psi

#### 09. Brine Tank

- : Stainless steel tank of 304 grade

#### 10. Evaporator cooling coil

- : 3/8" Copper with accumulator

#### 11. Ice Cans

- : GI / 4 Nos

#### 12. Voltage stabilizer

- : 2KVA (Optical)

#### 13. Expansion device

- : Capalury/Tev

#### 14. Brine Solution

- : Calcium Chloride

#### 15. Digital Temp. Ind.

- : 50-199.9°C

#### 16. Thermocouple

- : Cr-Al





Air Conditioning Test Rig



Cold Storage Test Rig

### AIR CONDITIONING TEST RIG

#### Aim :

This laboratory scale working model housed on a M.S. Square tube frame further mounted on a wheels (CI) with instrumentation panel is used i) To study the Vapour Compression Cycle ii) To calculate co-efficient to performance (COP) iii) To evaluate tonnage capacity iv) To study humidification and dehumidification.

#### 01. Hermitically Sealed Compressor

Capacity :1.0 Ton

#### 02. Air Cooled Condenser

Capacity :1.0 Ton

#### 03. Condenser Cooling Fan

Capacity :1/10 HP

#### 04. Rota Meter (Refrigerant R 22)

:1 No

#### 05. Hand Shut Off Valves

Size :3/8 & 1/4"

#### 06. Filter Drier

:DM 50 (3/8 )" Type

#### 07. Energy Meters

:2 NO.

#### 08. Thermostat

:1 NO

#### 09. Pressure/ Compound Gauges

1 Nos Each. Range :0 to 300 psi/-30" Hg

to + 150 Psi

#### 10. Measuring Instruments

a) Digital Temperature Indicator :50 to199.9deg. c.

#### 11. Finned Heater

:1 NO.

#### 12. Electronic Dimmer

:1 NO

#### 13. Hp/Lpcutout

:1 NO.

#### 14. Air Conditioning Duct

:1 SET

#### 15. Steam Generator

:1 SET

#### OPTIONAL: AT EXTRA COST LINE VOLTAGE CORRECTOR

Capacity :4KVA

Output :230V+/- 10%

Anemometer :1 No.

16. Wet & Dry bulb Thermocouple: 2 No.

### COLD STORAGE TEST RIG

#### Aim:

This laboratory scale working model housed on a M.S. Square tube frame and further mounted on a wheels(CI) with instrumentation panel is used. i) To study the vapor compression refrigeration cycle ii) To calculate Co-efficient of performance (C.O.P.)

#### 01. Hermitically Sealed Compressor

Capacity :1/3 TON

#### 02. Air Cooled Condenser

Capacity :½ HP

#### 03. Condenser Cooling Fan

Capacity :1/83 HP

#### 04. Rotameter (Referigerant R 12)

:1 No

#### 05. Cold Storage Cabinet

:5 Cft With Insulation

#### 06. Filter Drier

:DM 50 (1/4")

#### 07. Energy Meter

:1 NO

#### 08. Thermostatic Expansion Valve

:1 NO.

#### 09. Pressure / Compound Gauges

:1 NO. each

Range :0 to 300 psi/- 30 " Hg

to 150 psi

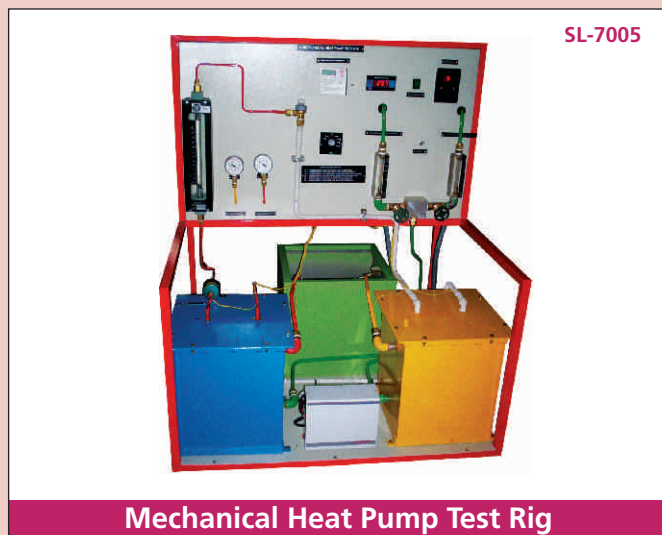
#### 10. Measuring Instruments

Digital Temperature Indicator :50 to 199.9 deg.c.

#### OPTIONAL: AT EXTRA COST LINE VOLTAGE CORRECTOR

Capacity :2KVA

Output :230V+/- 10%



Mechanical Heat Pump Test Rig

### MECHANICAL HEAT PUMP TEST RIG

#### Aim :

This laboratory scale working model housed on a M.S. Square tube frame and further mounted on a wheels (CI) with instrumentation panel is used i) To study the performance of vapour compression Refrigeration system using water cooled condenser / water cooled evaporator, ii) Co efficient of performance (COP) of the system.

#### 01. Hermitically Sealed Compressor

Capacity : 1/3 HP  
Make & Model : SHRIRAM/KIRLOSKAR

#### 02. Condenser

Type : Shell and Coil with Refrigerant inside the tube

#### 03. Evaporator Water Cooled

Type : Shell and Coil with refrigerant Inside the tube

#### 04. ROTA METER

Make : Eureka

#### 05. Hand Shut Off Valves

Size : 1/4"  
Make : Kim/vanaz/equivalent

#### 06. Filter Drier

Make : Danfoss/equivalent

#### 07. Energy Meters

Make : Bhel/indimeter/equivalent

#### 08. Thermostat

Make : Danfoss/equivalent

#### 09. Compound Gauges

Range : 1 NO  
Make : -30 " Hg to +150 psi  
Fiebig/equivalent

#### 10. Measuring Instruments

a) Digital Temperature Indicator : 50 to 199.9°C

#### 11. Sump Tank

a) Capacity : Suitable  
b) Material : S.S



Air Washer Test Rig

### AIR WASHER TEST RIG

#### Aim:

To treat the air by humidifying Or by dehumidifying it to the required comfort.

#### AIR WASHER SECTION:

- A. Directly cooled evaporator of 3/8" dia.
- B. Water tank of SS 304 to 10 litre capacity.
- C. Hot and cold water pump.
- D. Immersion heater of 500 watts.
- E. Spray jets with heater arrangement.
- F. Eliminator of coir or filets.
- G. Ac duct suitable for handle water spray.
- H. Blower and motor to the capacity.

#### Refrigeration Systems:

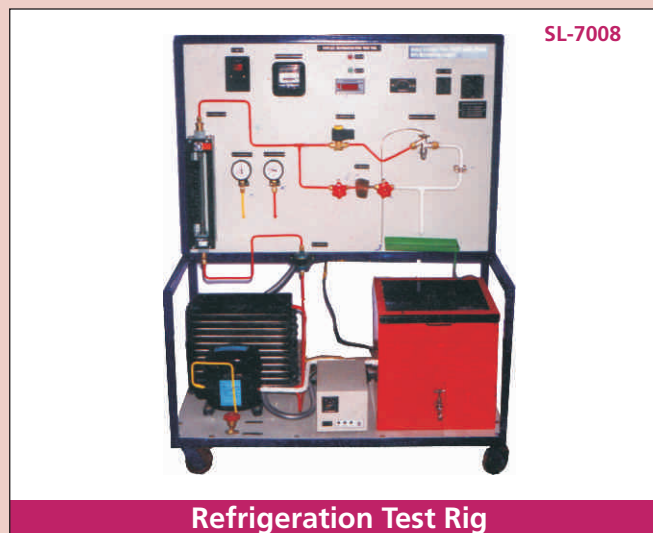
Will be corporate with compressor, condenser filter drier, and condenser fan motor, capillary expansion.

The system will be controlled through temperature indicator cum controller for both heating and cooling and the station temperature can be read from wet and dry bulb temp and also with 'k' type thermocouple, the velocity of air will be arrived through anemometer.

The above unit is self-contained in all respect except power and water facility.



Cooling Tower Test Rig



Refrigeration Test Rig

### COOLING TOWER TEST RIG

#### Aim :

This laboratory scale working model housed on a M.S. Square tube frame along with instrumentation panel is used To determine i) the tower characteristic (KVA/L Value), ii) The made up water flow rate and iii) To plot end states on a psychometric chart which can be used to draw energy balance.

#### 01. Cooling Tower

- |                   |                                  |
|-------------------|----------------------------------|
| a) Size           | : 250 x 250 mm                   |
| b) Height         | : 1000 mm                        |
| c) Material       | : Aluminum body with acrylic     |
| D) Packing Sheets | : Perforated Aluminum corrugated |

#### 02. Blower

- |             |                     |
|-------------|---------------------|
| a. Capacity | : 1 HP              |
| b. Make     | : Any reputed make. |

#### 03. Geyaser

- |             |                |
|-------------|----------------|
| a. Capacity | : 3 KW         |
| b. Make     | : RACOLD/BAJAJ |

#### 04. Psychometrics Gun

- |             |           |
|-------------|-----------|
| a) Material | : Acrylic |
|-------------|-----------|

#### 05. Digital Temperature Indicator:

- |                  |                   |
|------------------|-------------------|
| a. No. of Digits | : 4 Digits        |
| b. Range         | : Ambient to 200° |
| c. Resolution    |                   |

#### 06. Thermocouples

- |              |                       |
|--------------|-----------------------|
| a) Length    | : 1 Mtr.              |
| b) Type      | : Cr. Al              |
| c) Sheathing | : Wire mesh sheathing |

#### 07. Air Flow measurement

- |             |                    |
|-------------|--------------------|
| a. Material | : U Tube Manometer |
| b. Size     | : Glass            |
| c. Media    | : 300mm            |
|             | : Mercury          |

#### 08. Water flow measurement

- |          |                  |
|----------|------------------|
| a. Range | : Rotameter      |
|          | : 0 to 60 cc/sec |

#### 09. Calibrated water tank

- |             |              |
|-------------|--------------|
| a. Material | : S.S/18 Swg |
| b. Size     | : 200 x 250  |

#### 10. Starter

- |         |                              |
|---------|------------------------------|
| a. Make | : Crompton/Any Reputed Make. |
|---------|------------------------------|

### REFRIGERATION TEST RIG

#### Aim:

This laboratory scale working model housed on a M.S. Square tube frame and further mounted on a wheels (CI) with instrumentation panel is used i) To study the vapor compression refrigeration cycle ii) To calculate Co-efficient of performance (COP).

#### 01. Hermitically Sealed Compressor

- |          |           |
|----------|-----------|
| Capacity | : 1/3 Ton |
|----------|-----------|

#### 02. Air Cooled Condenser

- |          |          |
|----------|----------|
| Capacity | : 1/2 HP |
|----------|----------|

#### 03. Condenser Cooling Fan

- |          |           |
|----------|-----------|
| Capacity | : 1/83 HP |
|----------|-----------|

#### 04. Rotameter

- |                                |        |
|--------------------------------|--------|
| R 134a Gas (Echo Friendly Gas) | : 1 No |
|--------------------------------|--------|

#### 05. Hand Shut Off Valves

- |      |        |
|------|--------|
| Size | : 1/4" |
|------|--------|

#### 06. Filter Drier

- |  |              |
|--|--------------|
|  | : DM 50 1/4" |
|--|--------------|

#### 07. Energy Meter

- |  |         |
|--|---------|
|  | : 1 NO. |
|--|---------|

#### 08. Thermostat

- |  |        |
|--|--------|
|  | : 1 NO |
|--|--------|

#### 09. Pressure/compound Gauges:

- |                  |                        |
|------------------|------------------------|
| 1 NO. Each Range | : 0 to 300 psi/-30" Hg |
|                  | : to +150 psi          |

#### 10. Measuring Instruments

- |                                  |                        |
|----------------------------------|------------------------|
| a) Digital Temperature Indicator | : -30 to 199.9 deg. C. |
|----------------------------------|------------------------|

#### OPTIONAL: AT EXTRA COST LINE VOLTAGE CORRECTOR

- |          |                |
|----------|----------------|
| Capacity | : 2 KVA        |
| Output   | : 230V +/- 10% |

## 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.

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