LABTEK

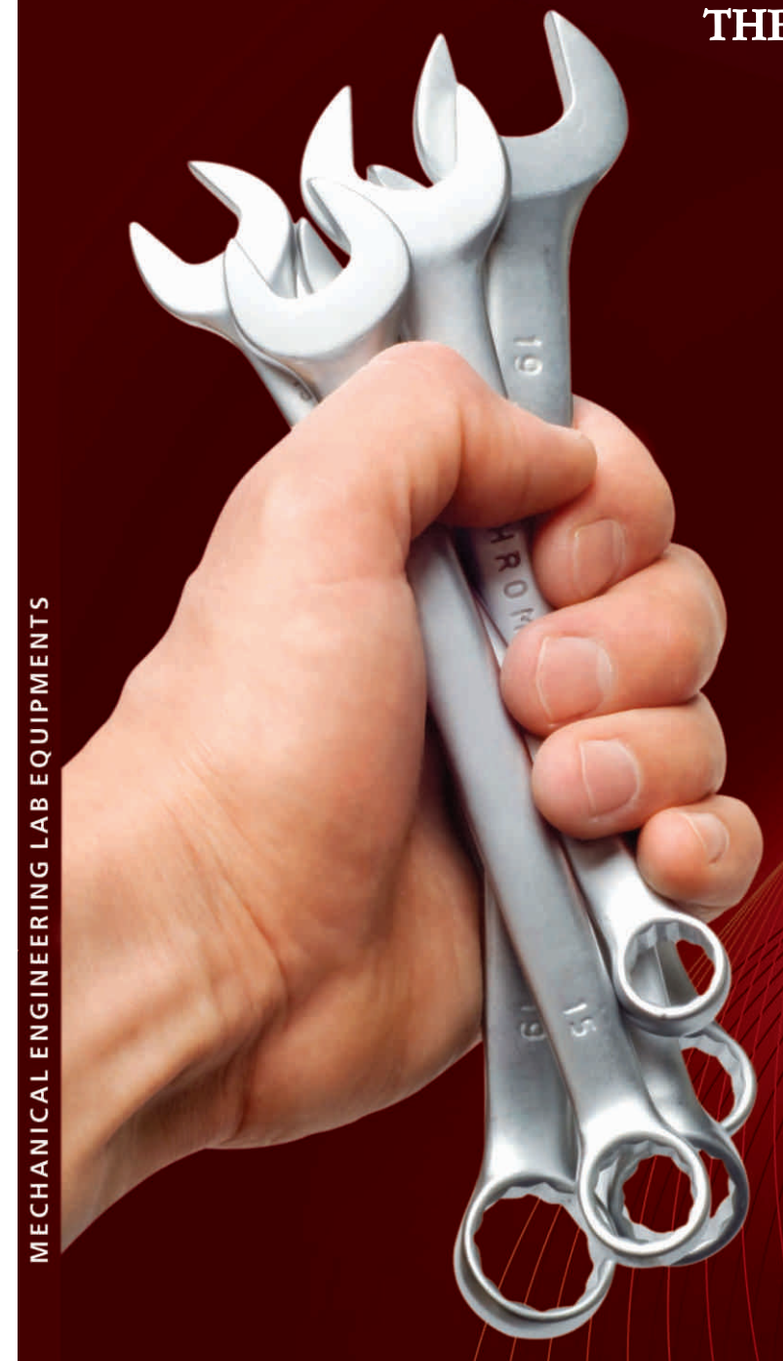
Experience The Difference

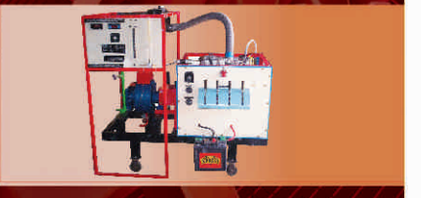
UKAS QUALITY MANAGEMENT
ISO-9001:2008

LABTEK

MECHANICAL ENGINEERING LAB EQUIPMENTS

THERMAL ENGINEERING LAB





MECHANICAL ENGINEERING LAB EQUIPMENTS

Experience The Difference

Sun LabTek Equipments (I) Pvt. Ltd.

(ISO : 9001 : 2008 Certified Company)

UKAS QUALITY MANAGEMENT
Certification Body No.233

CERTIFIED A.g.R 9001:2008 Certificate

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 resenting 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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LABTEK

Experience The Difference

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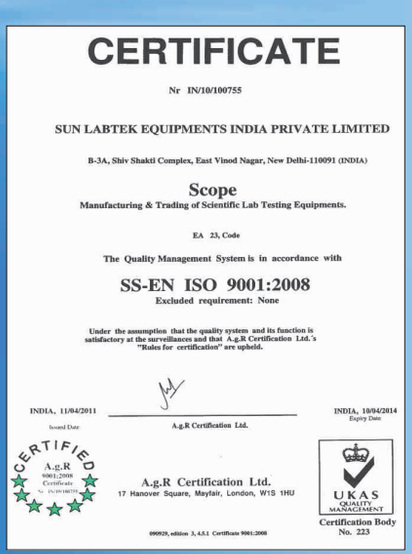


CERTIFICATE

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 surveillances 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

CERTIFIED A.g.R 9001:2008 Certificate

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

UKAS QUALITY MANAGEMENT
Certification Body No. 223

090929, edition 3, 4.5.1 Certificate 9001:2008

LAB & EQUIPMENTS NAME

THERMAL ENGINEERING LAB

- Single Cylinder 2 Stroke Petrol Engine,
- Single Cylinder 4 Stroke Petrol Engine,
- Multi Cylinder 4 Stroke Petrol Engine, S
- ingle Cylinder Variable Compression,
- Single Cylinder 4 Stroke water cooled,
- Four Stroke Slow Speed Diesel Engine,
- Twin Cylinder Four Stroke Diesel Engine,
- Multi Cylinder Four Stroke Diesel Engine,
- Reciprocating Air Compressor,
- Variable Speed Air Blower Test Rig.

SL-2002

Single Cylinder 2 Stroke Petrol Engine

SINGLE CYLINDER AIR COOLED TWO STROKE PETROL ENGINE TEST RIG (2.5HP @ 2800 RPM) WITH MECHANICAL BRAKE OR A.C ALTERNATOR OR D.C GENERATOR OR EDDY CURRENT DYNAMOMETER

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching spark Ignition engine principles. The unit is instrumented so that the following experiments can be carried out.

1. BHP MEASUREMENT
2. BRAKE THERMAL EFFICIENCY
3. FUEL CONSUMPTION MEASUREMENT
4. AIR INTAKE MEASUREMENT

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Performance at various throttle position
- BHP measurement from no load to full load

DESCRIPTION:

Three main components from main parts of the test rig.

Welded steel base plate, complete with Mechanical Brake or A.C. Alternator or D.C. Generator or Eddy Current Dynamometer, Drive coupling and with safety guard, anti vibration mounting.

Resistance loading (Resistance bank) with selector switches to load the engine from no load to full load (Only for A.C. Alternator & D.C. Generator)

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature indicator, Speed Indicator

DYNAMOMETER (as applicable

a. The dynamometer used is a mechanical Brake capable of absorbing a maximum load of 2.5 HP at a speed to 2800 RPM.
b. The Loading device used in an AC alternator of matching capacity to load the engine up to 2.5 HP at 2800 RPM along with Resistance loading arrangement for alternator with selector switches.
c. The Loading device used is DC Generator of matching capacity to load the engine up to 2.5 HP at 2800 RPM along with Resistance loading arrangement provided with selector switches.
d. The loading device used is Eddy Current Dynamometer of matching capacity to load the engine up to 2.5 HP at 2800 RPM.

INSTRUMENTATION (as applicable):

The following instrumentation is provided.

- 'U' tube manometer for air flow rate
- Burette for fuel flow rate
- Speed indicator-Digital
- Digital Temperature Indicator-Multi point selector switch with thermocouples.
- Digital Voltmeter, Ammeter

CONTROLS:

The test rig is arranged for manual control of the engine with a kick start arrangement for engine starting & manual throttle control.

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable frame work and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

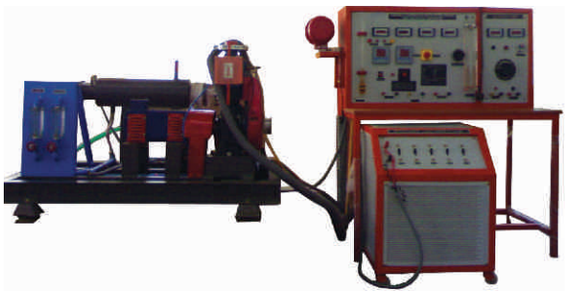
ENGINE:

Single Cylinder two stroke Air Cooled Petrol Engine to develop 2.5 HP @ 2800 RPM

SERVICES:

Electrical supply of 230V, Single Phase, 50Hz AC.

SL-2003



Single Cylinder 4 Stroke Petrol Engine

SINGLE CYLINDER AIR COOLED FOUR STROKE PETROL ENGINE TEST RIG (3HP @ 3600 RPM) WITH MECHANICAL BRAKE OR A.C ALTERNATOR OR D.C GENERATOR OR EDDY CURRENT .DYNAMOMETER

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching spark Ignition engine principles. The unit is instrumented so that the following experiments can be carried out.

1. BHP MEASUREMENT
2. BRAKE THERMAL EFFICIENCY
3. FUEL CONSUMPTION MEASUREMENT
4. AIR INTAKE MEASUREMENT
5. MOTORING TEST TO MEASURE I HP & F HP

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Performance at various throttle position
- BHP measurement from no load to full load

DESCRIPTION:

Three main components from main parts of the test rig.

Welded steel base plate, complete with Mechanical Brake or A.C. Alternator or D.C. Generator or Eddy Current Dynamometer, Drive coupling and with safety guard, anti vibration mounting.

Resistance loading (Resistance bank) with selector switches to load the engine from no load to full load (Only for A.C. Alternator & D.C. Generator)

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature indicator.

DYNAMOMETER (as applicable

Mechanical Brake (Belt brake) Dynamometer arrangement with a brake drum fitted on the Engine shaft and provided with cooling water arrangement, spring balance. A set of dead weights in kg units.

AC Alternator of matching capacity to load the engine upto 3HP at 3600 RPM along with Resistance loading arrangement provided with selector switches.

DC Generator of matching capacity to load the engine upto 3HP at 3600 RPM along with Resistance loading arrangement provided with selector switches.

Eddy current dynamometer of matching capacity to load the engine up to 3 HP at 3600 RPM.

INSTRUMENTATION (as applicable):

The following instrumentation is provided.

- 'U' tube manometer for air flow rate
- Burette for fuel flow rate
- Digital Temperature Indicator-Multi point selector switch with thermocouples.
- Digital Voltmeter, Ammeter

CONTROLS:

The test rig is arranged for manual control of the engine with a Rope & Pulley start arrangement for engine starting & manual throttle control.

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable framework and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

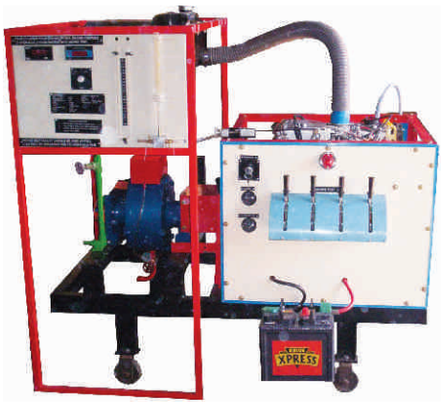
ENGINE:

Brand New engine Single Cylinder Four stroke Air Cooled Petrol Engine to develop 3 HP @ 3600 RPM

SERVICES:

Electrical supply of 230V, Single Phase, 50Hz & Cooling water supply.

SL-2004



Multicylinder 4 Stroke Petrol Engine

MULTICYLINDER FOUR STROKE PETROL ENGINE TEST RIG WITH HYDRAULIC DYNAMOMETER OR A.C ALTERNATOR WITH RESISTANCE LOADING WITH MORSE TEST FACILITY

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching Internal Combustion (spark Ignition) engine principles. The equipment is instrumented so that the following experiments could be performed.

1. BHP MEASUREME
2. IHP MEASUREMENT (BY MORSE TEST ARRANGEMENT)
3. FUEL CONSUMPTION MEASUEMENT
4. AIR INTAKE MEASUREMENT
5. MEASUREMENT OF HEAT REJECTED TO WATER JACKET
6. HEAT BALANCE TEST

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Performance (BHP Measurement) from no load to full load,
- Performance at various throttle position,
- Heat Balance Sheet and Morse test

DESCRIPTION:

Two main components from main parts of the test rig.

Welded steel base plate, complete with Dynamometer, Drive shaft with safety guard, engine starting battery of 12V capacity and cooling water arrangement.

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature and speed indicator.

DYNAMOMETER (as applicable) :

a. The Dynamometer used is a Hydraulic Dynamometer capable of absorbing a maximum load of 10 BHP at a speed of 1500 RPM.
b. The Loading device used is an AC Alternator of matching capacity to load the engine upto 10HP at 1500 RPM along with Resistance loading arrangement with selector switches.

INSTRUMENTATION (as applicable):

The following instrumentation is provided.

- Engine oil pressure gauge
- Engine charging circuit ammeter
- 'U' tube manometer for air flow rate
- Burette for fuel flow rate,
- Digital Voltmeter,
- Ammeter
- Speed Indicator-Digital
- Digital Temperature Indicator-Multi point selector switch with thermocouples.

ENGINE STARTING:

The test rig incorporates a 12V DC electrical system designed for use with typical engine self starter system. The battery is included in the scope of supply.

CONTROLS:

The test rig is arranged for manual control with Ignition switch for engine starting, manual throttle control, manual control for hydraulic dynamometer loading and a manul operated cultch actuator arrangement to drive the engine with load or without load (For No Load testing).

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable framework and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

HEAT CARRIED AWAY BY COOLING WATER:

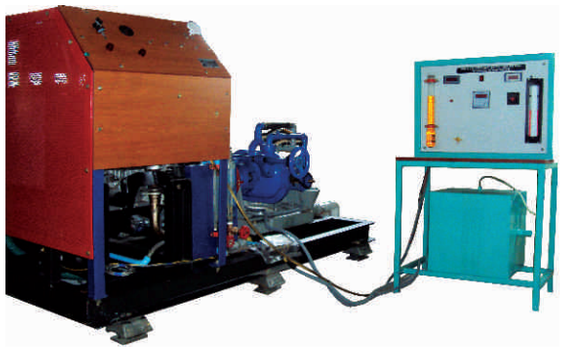
Consists of suitable inlet and outlet piping with flow control valve. Rota meter to measure the rate of flow of cooling water and Thermocouple with pocket connections for measuring inlet and outlet water temperature.

ENGINE (as applicable) :

Four Cylinder Four Stroke Water Cooled Vertical Petrol Engine to develop 10 HP @ 1500 RPM. (Make: "Isuzu" used)
Three Cylinder Four Stroke Water Cooled Vertical Petrol Engine to develop 8 HP @ 1500 RPM. (Make: Maruti-New)
Four Cylinder Four Stroke Water Cooled Vertical Petrol Engine to develop 10 HP @ 1500 RPM. (Make: Ambassador-New)

SERVICES: Electrical supply of 230V, Single Phase, 50Hz AC & external cooling water supply.

SL-2005



Multicylinder 4 Stroke Petrol Engine

MPFI MULTICYLINDER FOUR STROKE PETROL ENGINE TEST RIG WITH HYDRAULIC DYNAMOMETER OR A.C ALTERNATOR OR D.C. GENERATOR OR EDDY CURRENT DYNAMOMETER LOADING WITH MORSE TEST FACILITY

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching Internal Combustion (spark Ignition) engine principles. The equipment is instrumented so that the following experiments could be performed.

1. BHP MEASUREMENT
2. IHP MEASUREMENT (BY MORSE TEST ARRANGEMENT)
3. FUEL CONSUMPTION MEASUEMEN
4. AIR INTAKE MEASUREMENT
5. MEASUREMENT OF HEAT REJECTED TO WATER JACKET
6. HEAT BALANCE TEST

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Performance (BHP Measurement) from no load to full load,
- Performance at various throttle position,
- Heat Balance Sheet and Morse test

DESCRIPTION:

Two main components from main parts of the test rig.

Welded steel base plate, complete with Dynamometer, Drive shaft with safety guard, engine starting battery of 12V capacity and cooling water arrangement.

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature and speed indicator.

DYNAMOMETER (as applicable) :

a. The Dynamometer used is a Hydraulic Dynamometer capable of absorbing a maximum load of 8 BHP at a speed of 1500 RPM.
b. The Loading device used is an AC Alternator of matching capacity to load the engine upto 8HP at 1500 RPM along with Resistance loading arrangement with selector switches.
c. The Loading device used is an Eddy Current of matching capacity to load the engine upto 8 HP at 1500 RPM

INSTRUMENTATION (as applicable):

The following instrumentation is provided

- Engine oil pressure gauge
- Engine charging circuit ammeter
- 'U' tube manometer for air flow rate
- Burette for fuel flow rate
- Speed Indicator-Digital
- Digital Temperature Indicator-Multi point selector switch with thermocouples.
- Digital Voltmeter, Ammeter

ENGINE STARTING:

The test rig incorporates a 12V DC electrical system designed for use with typical engine self starter system. The battery is included in the scope of supply.

CONTROLS:

The test rig is arranged for manual control with Ignition switch for engine starting, manual throttle control, manual control for hydraulic dynamometer loading and a manual operated cultch actuator arrangement to drive the engine with load or without load (For No Load testing).

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable framework and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

HEAT CARRIED AWAY BY COOLING WATER:

Consists of suitable inlet and outlet piping with flow control valve. Rota meter to measure the rate of flow of cooling water and Thermocouple with pocket connections for measuring inlet and outlet water temperature.

ENGINE (as applicable) :

Four Cylinder Four Stroke Water Cooled Vertical Petrol Engine to develop 8 HP @ 1500 RPM. (Make: "Isuzu" used)

SERVICES:

Electrical supply of 230V, Single Phase, 50Hz AC & external cooling water supply.

SL-2006

1 cylinder/4 stroke Variable Compression

1 CYLINDER/ 4 STROKE/MAIN CYLINDER AIR COOLED/ AUXILIARY CYLINDER WATER COOLED/ 2.5 HP/ 2800 RPM/ VERTICAL VARIABLE COMPRESSION RATIO/ PETROL ENGINE/ DIRECTLY COUPLED TO EDDY CURRENT DYNAMOMETER. THE COMPRESSION RACIO IS VARIABLE FROM 2.5:1 TO 10:1

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching Internal spark Ignition engine principles. The unit is instrumented so that the following experiments could be performed.

1. BHP MEASUREMENT
2. BRAKE THERMAL EFFICIENCY
3. FUEL CONSUMPTION MEASUREMENT
4. AIR INTAKE MEASUREMENT

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Performance at various throttle position
- BHP Measurement from no load to full load

DESCRIPTION:

Three main components from main parts of the test rig.

Welded steel base plate, complete with Dynamometer, coupling and with safety guard, anti vibration mounting.

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature indicator.

DYNAMOMETER (as applicable) :

Eddy current dynamometer of matching capacity to load the engine up to 2.5 HP at 2800 RPM.

INSTRUMENTATION

- The following instrumentation is provided.
- Speed Indicator-Digital
- 'U' tube manometer for air flow rate
- Burette for fuel flow rate
- Digital Temperature Indicator-Multi point selector switch with thermocouples.
- Digital Voltmeter, Ammeter for ac/dc generator

CONTROLS:

The test rig is arranged to manual control of the engine with a Hand start arrangement for engine starting & manual throttle control.

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable framework and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

ENGINE :

Single Cylinder four Stroke Air Cooled Engine to develop 2.5 HP @ 2800RPM.

SERVICES:

Electrical supply of 230V, Single Phase, 50Hz AC & external cooling water supply.

SL-2007

Single Cylinder Four Stroke water cooled

SINGLE CYLINDER FOUR STROKE WATER COOLED VERTICAL DIESEL ENGINE (KIRLOSKAR) TEST RIG WITH MECHANICAL BRAKE (ROPE BRAKE) OR A.C. ALTERNATOR OR D.C. GENERATOR OR EDDY CURRENT DYNAMOMETER LOADING

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching Compression Ignition engine principles. The equipment is instrumented so that the following experiments could be performed.

1. BHP MEASUREMENT
2. BRAKE THERMAL EFFICIENCY
3. FUEL CONSUMPTION MEASUREMENT
4. AIR INTAKE MEASUREMENT
5. 1 HP MEASUREMENT (By Retardation arrangement)

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Heat Balance Sheet
- BHP Measurement from no load to full load

DESCRIPTION:

Two main components from main parts of the test rig.

Welded steel base plate, complete with Rope Brake Dynamometer/ A.C. DC Generator/Eddy Current Dynamometer provided with cooling water arrangement.

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature and speed indicator.

DYNAMOMETER (as applicable) :

a. The Dynamometer used is a Mechanical Brake capable of absorbing a maximum load of 5HP at a speed of RPM.

b. The Loading device used is an AC Alternator of matching capacity to load the engine upto 5HP at 1500 RPM along with Resistance loading arrangement with selector switches.

c. DC Generator of matching capacity to load the engine upto 5 HP at 1500 RPM along with Resistance loading arrangement provided with selector switches.

d. The loading device used is an Eddy Current Dynamometer of matching capacity to load the engine upto 5HP at 1500 RPM.

INSTRUMENTATION (as applicable):

The following instrumentation is provided.

- 'U' tube manometer for air flow rate
- Burette for fuel flow rate
- Digital Temperature Indicator-Multi point selector switch with thermocouples.
- Digital Voltmeter, Ammeter
- Digital Speed indicator

CONTROLS:

The test rig is arranged for manual control with Hand cranking start arrangement for engine starting.

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable framework and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

HEAT CARRIED AWAY BY COOLING WATER:

Consists of suitable inlet and outlet piping with flow control valve. Rota meter to measure the rate of flow of cooling water and Thermocouple with pocket connections for measuring inlet and outlet water temperature.

ENGINE

Single Cylinder Four Stroke Water Cooled Vertical Diesel Engine to develop 5 HP @ 1500 RPM. (Make: Kirloskar)

SERVICES:

Electrical supply of 230V, Single Phase, 50Hz AC & external cooling water supply.

SL-2008

Four Stroke Slow Speed Diesel Engine

SINGLE CYLINDER FOUR STROKE WATER COOLED SLOW SPEED DIESEL ENGINE TEST RIG (KIRLOSKAR) WITH MECHANICAL BRAKE (ROPE BRAKE) LOADING

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching Compression Ignition engine principles. The equipment is instrumented so that the following experiments could be performed.

1. BHP MEASUREMENT
2. BRAKE THERMAL EFFICIENCY
3. FUEL CONSUMPTION MEASUREMENT
4. AIR INTAKE MEASUREMENT

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Heat Balance Sheet.
- BHP Measurement from no load to full load.

DESCRIPTION:

Two main components from main parts of the test rig.

Welded steel base plate, complete with Rope Brake Dynamometer provided with cooling water arrangement.

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature and speed indicator.

DYNAMOMETER (as applicable) :

a. The Dynamometer used is a Mechanical Brake capable of absorbing a maximum load of 6HP @ 650 RPM/8 HP @ 850RPM

INSTRUMENTATION

The following instrumentation is provided.

- 'U' tube manometer for air flow rate
- Burette for fuel flow rate
- Digital Temperature Indicator-Multi point selector switch with thermocouples.
- Digital speed indicator

CONTROLS:

The test rig is arranged for manual control with Hand cranking start arrangement for engine starting.

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable framework and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

HEAT CARRIED AWAY BY COOLING WATER:

Consists of suitable inlet and outlet piping with flow control valve. Rota meter to measure the rate of flow of cooling water and Thermocouple with pocket connections for measuring inlet and outlet water temperature.

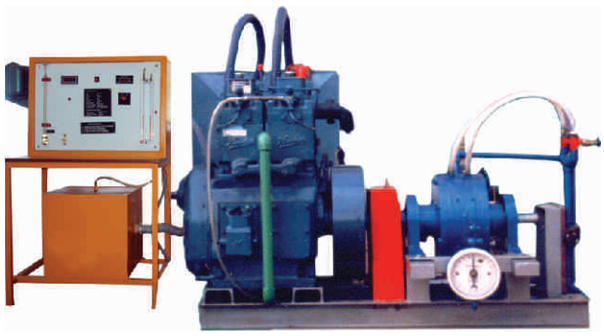
ENGINE

Single Cylinder Four Stroke Water Cooled Vertical Diesel Engine to develop 6 HP @ 650 RPM./8 HP @ 850 RPM. (Make: Kirloskar/Equivalent)

SERVICES:

Electrical supply of 230V, Single Phase, 50Hz AC & external cooling water supply.

SL-2009



Twin Cylinder Four Stroke Diesel Engine

TWIN CYLINDER FOUR STROKE WATER COOLED DIESEL ENGINE TEST RIG (MAKE : KIRLOSKAR) WITH MECHANICAL BRAKE OR HYDRAULIC DYNAMOMETER OR A/C ELECTRICAL ALTERNATOR OR EDDY CURRENT.

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching Compression Ignition engine principles. The equipment is instrumented so that the following experiments could be performed.

1. BHP MEASUREMENT
2. BRAKE THERMAL EFFICIENCY
3. FUEL CONSUMPTION MEASUREMENT
4. AIR INTAKE MEASUREMENT
5. MEASUREMENT OF HEAT REJECTED TO WATER JACKET

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Heat Balance Sheet.
- BHP Measurement from no load to full load.

DESCRIPTION:

Two/Three main components from main parts of the test rig.

Welded steel base plate, complete with A.C. Alternator/Mechanical Brake/ Hydraulic Dynamometer/ Eddy Current Dynamometer, Drive shaft with safe guard and anti vibration mounting.

Resistance loading (Resistance bank) with selector switches to load the engine from no load to full load (as applicable)

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature and speed indicator.

DYNAMOMETER (as applicable) :

a. The Dynamometer used is a Mechanical Brake capable of absorbing a maximum load of 10HP at a speed of 1500RPM.
b. The Dynamometer used is a Hydraulic Dynamometer capable of absorbing a maximum load of 10 HP at a speed of 1500 RPM.
c. The loading device used is and AC alternator of matching capacity to load the engine up to 10 HP at 1500 RPM along with Resistance loading arrangement with selector switches.
d. The loading device used is and Eddy Current Dynamometer of matching capacity to load the engine up to 10 Hp at 1500 RPM

INSTRUMENTATION

The following instrumentation is provided.

- 'U' tube manometer for air flow rate
- Burette for fuel flow rate
- Digital Temperature Indicator- Multi point selector switch with thermocouples.
- Digital Voltmeter, Ammeter
- Digital speed indicator

CONTROLS:

The test rig is arranged for manual control with Hand cranking start arrangement for engine starting.

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable framework and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

HEAT CARRIED AWAY BY COOLING WATER:

Consists of suitable inlet and outlet piping with flow control valve. Rota meter to measure the rate of flow of cooling water and Thermocouple with pocket connections for measuring inlet and outlet water temperature.

ENGINE

Single Cylinder Four Stroke Water Cooled Vertical Diesel Engine to develop 10 HP @ 1500 (Make: Kirloskar/Equivalent)

SERVICES:

Electrical supply of 230V, Single Phase, 50Hz AC & external cooling water supply.

SL-2010

Multicylinder Four Stroke Diesel Engine

MULTICYLINDER FOUR STROKE DIESEL ENGINE TEST RIG WITH HYDRAULIC DYNAMOMETER OR A.C. ALTERNATOR WITH RESISTANCE OR EDDY CURRENT DYNAMOMETER LOADING

INTRODUCTION:

The test rig is designed to provide self-contained facility for teaching Internal Combustion (Compression Ignition) engine principles. The equipment is instrumented so that the following experiments could be performed.

1. BHP MEASUREMENT
2. IHP MEASUREMENT
3. FHP MEASUREMENT
4. FUEL CONSUMPTION MEASUREMENT
4. AIR INTAKE MEASUREMENT
5. MEASUREMENT OF HEAT REJECTED TO WATER JACKET
6. HEAT BALANCE TEST

THE ENGINE TEST RIG FACILITATE TO EVALUATE THE FOLLOWING:

- Performance at various throttle position
- Heat Balance Sheet.
- Performance (BHP Measurement) from no load to full load.

DESCRIPTION:

Two main components from main parts of the test rig.

Welded steel base plate, complete with Dynamometer, drive shaft with safety guard, engine starting battery of 12V capacity and cooling water arrangement

Panel board positioned over the base plate consisting of fuel system with flow measurement by burette, air flow measurement system, temperature and speed indicator.

DYNAMOMETER (as applicable) :

a. The Dynamometer used is a Hydraulic Dynamometer capable of absorbing a maximum load of 10 HP at a speed of 1500 RPM
b. The Loading device used is an AC Alternator of matching capacity to load the engine up to 10 HP at 1500 RPM along with Resisistance loading arrangement for alternator.
c. The loading device used is an Eddy Current Dynamometer of matching capacity to load the engine up to 10 HP at 1500 RPM.

INSTRUMENTATION (as applicable):

The following instrumentation is provided.

- Engine oil Pressure gauge
- Engine charging circuit ammeter
- 'U' tube manometer for air flow rate
- Burette for fuel flow rate
- Digital Temperature Indicator- Multi point selector switch with thermocouples.
- Digital Voltmeter, Ammeter
- Digital speed indicator

ENGINE STARTING:

The test rig incorporates a 12 V DC electrical system designed for use with typical engine self starter system. The battery is included in the scope of supply.

CONTROLS:

The test rig is arranged for manual control with Ignition switch for engine starting manual throttle control, manual control for hydraulic dynamometer loading and a manual operated clutch actuator arrangement to drive the engine with load or without load (For No Load testing)

FUEL MEASURING ARRANGEMENT:

Fuel Measuring Arrangement consists of fuel tank, burette and suitable cock all mounted on a suitable framework and panel board and supplied with fuel piping from fuel tank to Engine.

AIR INTAKE MEASUREMENT & HEAT CARRIED AWAY BY EXHAUST GAS:

Consisting of an air tank mounted on an iron stand fitted with a suitable orifice plate, manometer, Thermocouple for measuring the exhaust gas temperature with pocket connection with instruments suitably mounted on a panel board.

HEAT CARRIED AWAY BY COOLING WATER:

Consists of suitable inlet and outlet piping with flow control valve. Rota meter to measure the rate of flow of cooling water and Thermocouple with pocket connections for measuring inlet and outlet water temperature.

ENGINE

Four Cylinder Four Stroke Water Cooled Vertical Diesel Engine to develop 10 HP @ 1500 RPM (Make: Hindustan Stride/Isuzu)

SERVICES:

Electrical supply of 230V, Single Phase, 50Hz AC & external cooling water supply.

SL-2011

Single/Two Stage Reciprocating Air Compressor

SL-2012

Variable Speed Air Blower Test Rig

SINGLE/TWO STAGE RECIPROCATING AIR COMPRESSOR TEST RIG

COMPRESSOR:

Single Stage, Single Cylinder air compressor with a displacement capacity of about 150 LPM and to work against maximum pressure 8Kg/Cm^2 The Unit is mounted on a storage tank.

CONTROLS:

The Unit is supplied with pressure switch, suction filter safety valve, pressure gauge, water drain valve air delivery valve etc.

AIR INTAKE MEASUREMENT

An orifice tank with orifice plat, manometer with pressure tapings are provided to measure the volume of air sucked by the compressor.

INSTRUMENTATION:

Digital temperature indicator to measure suction and delivery side temperature of the compressor.
Pressure gauges to measure stage pressure.
Digital speed indicator. u tube manometer

TWO STAGE RECIPROCATING AIR COMPRESSOR TEST RIG

COMPRESSOR:

Two Stage, Twin Cylinder air compressor-3 HP with a displacement capacity of about 300 LPM and to work against maximum pressure 12Kg/Cm^2 The Unit is mounted on a storage tank.

CONTROLS:

Same as above.

AIR INTAKE MEASUREMENT

Same as above.

ELECTRIC MOTOR:

3 HP/3 Phase electric motor

INSTRUMENTAION:

Same as above.

VARIABLE SPEED AIR BLOWER TEST RIG (DYNAMOMETER TYPE):

BLOWER:

An experimental Centrifugal type air Blower suitable for experiments. It consists of interchangeable impellers of backward, radial and forward curved vanes, so that the effect of different types of blading could be well demonstrated. The approximate discharge of air is 30 cubic meter per minute at a pressure of 25cm of water column.

DISCHARGE MEASUREMENT:

One Orifice meter and a differential manometer of 1.0m height to measure the discharge.

PRESSURE MEASURMENT

Two number of pitot tubes mounted at the inlet duct and outlet duct to determine the total pressure developed at inlet and outlet of the blower.

Motor:

The Blower is coupled to an induction motor of 3HP. The Blower is coupled with a Dynamometer type motor with a stepped pulley arrangement to run at three different speeds, balance arm, dial type spring balance with a large size dial etc., to determine the input power of the blower.

INSTRUMENTAION:

Digital temperature indicator to measure suction and delivery side temperature of the blower.

Pressure gauges to measure stage pressure.

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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