

OR –BRM55



Four Bar Chain Mechanism

OR –SMR11



Slide Crank Mechanism

OR –EGTA41



EPICYCLIC GEAR TRAIN HOLDING TORQUE APPARATUS

Specification:

Bearing blocks for input & output shafts.
External type Epicyclic Gear Train:
A gear train with Holding drum and handle.

Internal Type Epicyclic Gear Train:-

A compact Gear Train.
Variable speed D.C. Motor
Control Panel comprising of
Digital Ammeter and Voltmeter.
RPM Indicator.
Rope brake arrangement to measure output torque and holding torque.
Speed Controller.

MOTORIZED GOVERNOR APPARATUS

Model : OR-MAG20



Specifications:

- Governor assemblies Hartnell, porter & proell governor assembly one each with rotating weights.
- Variable speed FHP D.C. motor to drive the main spindle.
- Sliding weights for porter & proell governor.
- Scale & a pointer to measure governor lift. Spring & Spring compression adjustment arrangement.

Model : OR-DSA-050

STATIC & DYNAMIC BALANCING APPARATUS



Specifications:

Drive Motor - FHP Motor, variable speed, with speed controller
Balancing Weight - 4 Nos. of Stainless Steel with different sized eccentric Mass for varying unbalance
Rotating Shaft – Material Stainless Steel 0.5 kW, 220V, Single Phase

Experiments:

1. To balance the masses statically and dynamically of a single rotating mass system.
2. To observe the effect of unbalance in a rotating mass system.

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Prony Brake Dynamometer



Rope Brake Dynamometer



Bar Pendulum or Compound Pendulum



TECHOMETER

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MOTORISED GYROSCOPE

Model : OR-MGS002



Specifications:

Rotor diameter 250mm free about 3 axis of rotation driven by Variable speed motor. **Dimmer-stat** to control the motor speed.

Stopwatch to measure the angular speed about the axis of procession.

Weights: 0.2Kg, 0.5Kg, 1Kg

WHIRLING OF SHAFT APPARATUS



Specifications:

Test shaft: 4.75 mm, 6.35 mm and 7.9 mm

Bearing to provided end conditions,

- Both ends fixed,
- One end fixed and one end free.

Drive motor 1/8 HP. 1500 rpm with control Arrangement.

The whole unit is mounted on a sturdy base.

Rotor for each shaft of suitable size.

Model : OR-WSA075

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SLEEP AND CREEP MEASUREMENT APPARATUS

Model : OR-CMA150



Specifications:

D.C. Motor: 1 HP 1500 Rpm, variable speed.

Driving & Driven pulleys of equal diameters.

Brake drum along with spring balance.

Flat Belt of fixed length of following materials: Fabric Belt , Rubber Belt tightening arrangement,

Speed Controller Unit

Two Channel digital APM Indicator Stroboscope.

Range of Experiment:

- To measure co-efficient of friction between pulley material and different Belt materials.
- To measure power transmitted with varied belt tensions and plotting graph of $(T_1 - T_2)$. Tension Characteristics.
- To measure percentage slip at fixed belt tension by varying load on brake drum and plot graph of $(T_1 - T_2)$ vs percentage slip
- To measure belt slip speed and observe the limiting value float at constant Speed when the slip just starts

OR-CAM46



CAM ANALYSIS MACHINE

- Cam-Eccentric, tangent and circular ARC type
- Follower- mushroom, flat faced end roller type
- Cams and followers are hardened to reduce wear of the surfaces.
- Variable speed motor coupled to cam shaft of suitable range and Variac.
- A dial gauge to note the follower displacement.

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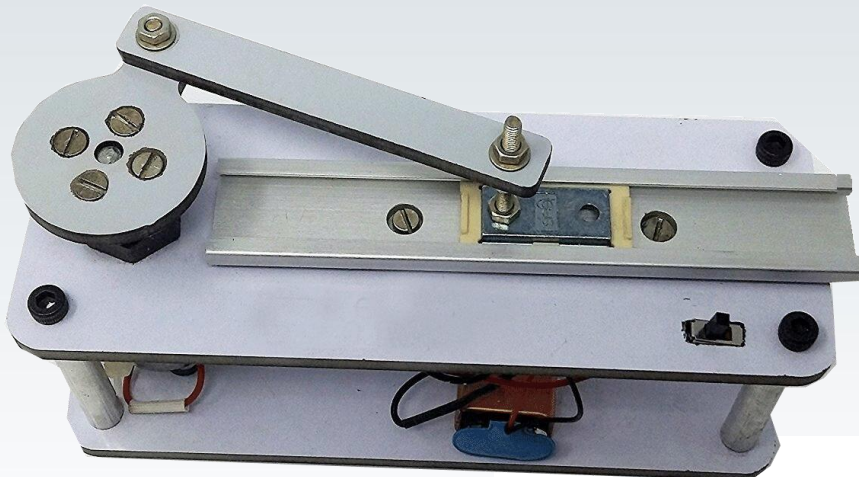




FOUR BAR CHAIN MECHANISM



SLIDE CRANK MECHANISM



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Model : OR-CMA150



Specifications:

D.C. Motor: 1 HP 1500 Rpm, variable speed.

Driving & Driven pulleys of equal diameters.

Brake drum along with spring balance.

Flat Belt of fixed length of following materials: Fabric Belt , Rubber Belt tightening arrangement,

Speed Controller Unit

Two Channel digital APM Indicator Stroboscope.

Range of Experiment:

- To measure co-efficient of friction between pulley material and different Belt materials.
- To measure power transmitted with varied belt tensions and plotting graph of $(T_1 - T_2)$. Tension Characteristics.
- To measure percentage slip at fixed belt tension by varying load on brake drum and plot graph of $(T_1 - T_2)$ vs percentage slip
- To measure belt slip speed and observe the limiting value float at constant Speed when the slip just starts

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CAM ANALYSIS MACHINE

Model : OR-CAM46



Specifications:

- Cam-Eccentric, tangent and circular ARC type
- Follower- mushroom, flat faced end roller type
- Cams and followers are hardened to reduce wear of the surfaces.
- Variable speed motor coupled to cam shaft of suitable range and Variac.
- A dial gauge to note the follower displacement.

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Model : OR-GTH023



Specifications:

External type Epicyclic Gear Train

Bearing blocks for Input & output shafts

A gear train with Holding drum and holding

Internal Typo Epicyclic Gear Train:

A compact Gear Train. Variable speed D.C. Motor

Rope brake arrangement to measure output torque and holding torque.

Control Panel comprising of :

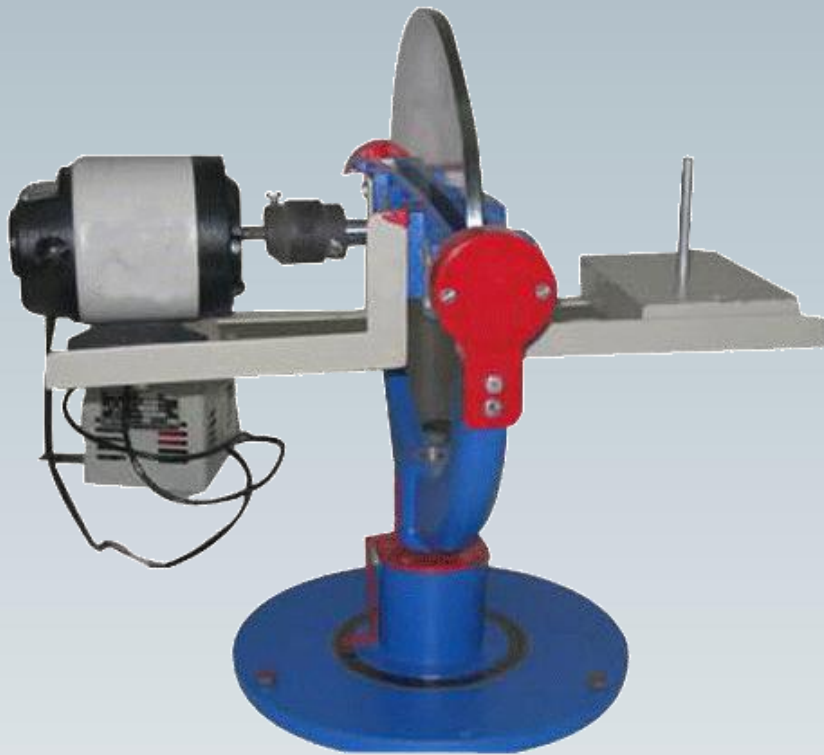
Digital Ammeter and Voltmeter. RPM Indicator. Speed Controller

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Model : OR-MGS002



Specifications:

Rotor diameter 250mm free about 3 axis of rotation driven by Variable speed motor.

Dimmer-stat to control the motor speed.

Stopwatch to measure the angular speed about the axis of procession.

Weights: 0.2Kg, 0.5Kg, 1Kg

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MOTORIZED GOVERNOR APPARATUS

Model : OR-MAG20



Specifications:

- Governor assemblies Hartnell, porter & proell governor assembly one each with rotating weights.
- Variable speed FHP D.C. motor to drive the main spindle.
- Sliding weights for porter & proell governor.
- Scale & a pointer to measure governor lift. Spring & Spring compression adjustment arrangement.



STATIC & DYNAMIC BALANCING APPARATUS

Model : OR-DSA

Specifications:

Drive Motor - FHP Motor, variable speed, with speed controller
Balancing Weight - 4 Nos. of Stainless Steel with different sized eccentric Mass for varying unbalance
Rotating Shaft – Material Stainless Steel 0.5 kW, 220V, Single Phase

Experiments:

1. To balance the masses statically and dynamically of a single rotating mass system.
2. To observe the effect of unbalance in a rotating mass system.

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BAR PENDULUM / COMPOUND PENDULUM



ROPE BRAKE DYNAMOMETER



PRONY BRAKE DYNAMOMETER



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WHIRLING OF SHAFT APPARATUS

Model : OR-WSA075



Specifications:

Test shaft: 4.75 mm, 6.35 mm and 7.9 mm

Bearing to provided end conditions,

- Both ends fixed,
- One end fixed and one end free.

Drive motor 1/8 HP. 1500 rpm with control Arrangement.

The whole unit is mounted on a sturdy base.

Rotor for each shaft of suitable size.

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SINGLE CYLINDER FOUR STROKE PETROL ENGINE TEST RIG

Model : OR-PSE354



Specifications:

Engine: Make - Honda, Model - Honda

GX200D QX, Type- Single cylinder, 4 stroke Petrol, Air cooled, 4.1 KW at 3600 rpm, stroke 54 mm, bore 68mm. Capacity 196 cc

Dynamometer: Type eddy current, water cooled

Propeller shaft: With universal joints

Air box: M S fabricated with orifice meter and manometer

Fuel tank: Capacity 15 lit with glass fuel metering column

RPM indicator: Digital with non contact type speed sensor

Temperature sensor: Type Thermocouple, Type K

Temperature indicator: Digital, Range 0- 1200 Deg C

Load indicator: Digital, Range 0- 50 Kg, Supply 230VAC

Load sensor: Load cell, type strain gauge, range 0- 50 Kg

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SINGLE CYLINDER FOUR STROKE DIESEL ENGINE TEST RIG

Model : OR-DSE360



Type Single cylinder, 4 stroke Diesel, water cooled, power 5.2 kW (7 BHP) at 1500 rpm, stroke 110 mm, bore 87.5 mm. compression ratio 17.5:1, capacity 661 cc.

Specifications:

Make Kirloskar, **Model** TV1,

Dynamometer: Type Eddy current Propeller shaft: With universal joints

Air box : M S fabricated with orifice meter and manometer

Fuel tank : Capacity 15 lit with glass fuel metering column

Calorimeter : Type Pipe in pipe

Temperature sensor: Thermocouple, Type K

Temperature indicator: Digital, multi-channel with selector switch

Speed indicator: Digital with non-contact type speed sensor

Load sensor: Load cell, type strain gauge, range 0- 50 Kg

Load indicator: Digital, Range 0- 50 Kg, Supply 230VAC

Rotameter: Engine cooling 40- 400 LPH; Calorimeter 10- 100 LPH

Pump: Type Monoblock

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LINEAR VARIABLE DISPLACEMENT SENSOR

Model : OR-VDS50



Specifications:

Spring Loaded core & ext Ball Tip end Measurement Range : ± 50 mm Output : 0 to 10 vdc
 3 wire type sensor Supply voltage : 14 to 24 vdc Supply current : 35mA @15V Frequency : 10 Hz
 Non-linearity < ± 0.1 % stroke range Output ripple : 30 mV max
 Operating temp : -30 Deg C to 85 Deg C Vibration resistance : 20g upto 2 Khz
 Shock resistance : 1000 g for 10 milliseconds IP : IP 55 Cable : 2 meter screened PTFE Cable
 Construction material : Body & Extension Rod: 303 St/Steel
 Core: 416 St/Steel, Cable Gland: Nickel-Plated Brass, Spring: 316 St/Steel

LABORATORY CONCRETE MIXTURE

Model : OR-CML100



Specifications:

Automatic, Portable, mixing Capacity 50 to 100 ltr, drum speed 25-35 rpm, Motor: 3 HP, 960 RPM, Single and 3 Phase, roller foot (Rubber wheel)

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ELECTRIC FURNACE (MUFFLE FURNACE)

Model : OR-EMF022



Specifications:

Spring Loaded core & ext Ball Tip end Measurement Range : ± 50 mm Output : 0 to 10 vdc

3 wire type sensor Supply voltage : 14 to 24 vdc Supply current : 35mA @15V Frequency : 10 Hz

Non-linearity < ± 0.1 % stroke range Output ripple : 30 mV max

Operating temp : -30 Deg C to 85 Deg C Vibration resistance : 20g upto 2 Khz

Shock resistance : 1000 g for 10 milliseconds IP : IP 55 Cable : 2 meter screened PTFE Cable

Construction material : Body & Extension Rod: 303 St/Steel

Core: 416 St/Steel, Cable Gland: Nickel-Plated Brass, Spring: 316 St/Steel

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Specifications:

Standard Interfaces

- To Host Computer 10/100Base-T, standard RJ-45 connector
- Daisy chain output: 10/100Base-T, standard RJ-45 connector
- Config/General: RS-232, 9-pin "D"
- Sync Custom cable to sync multiple cubes
- I/O Slots : 3 slots
- Distance from host: 100 meters max, CAT5 cable
- Ethernet data transfer rate: 2 megabyte per second
- Analog data transfer rate : up to 1 mega sample per sec (16-bit samples)
- DMAP I/O mode: update 1000 I/O channels (analog and/or digital) in less than 1 millisecond, guaranteed
- CPU :Free scale MPC5200, 400 MHz, 32-bit – Memory :28 MB (not including on-board Flash Memory which contains OS kernel, I/O drivers and firmware)
- Status LED: Attention, Read/Write, Power, Communications Active
- Temp (operating): Tested to -40 °C to 85 °C
- Temp (storage): -40 °C to 100 °C
- Humidity: 0 to 95%, non-condensing
- Vibration: 5 g
- Physical Dimensions :4.1" x 4.0" x 4.0"

Software support Windows, Linux, Vx Works, RTX and QNX operating systems VB, VB .NET, C, C#, C++, J# MATLAB, Lab VIEW, OPC, ActiveX support

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Multipurpose Analog Input Channel Any type of Thermocouple can be connected And +/- 10 V DC input, Current Input can be connected at a same time. 16 no's of 2 wire typesensor can be connected.

- Number of channels: 16 fully differential plus 1 single-ended dedicated CJC channel
- Programmable DIO line 1 (external trigger)
- ADC resolution 18 bits
- Sampling rate 1 S/s - 16 kS/s per channel;
- 16 kS/s max aggregate for entire board
- FIFO size 512 samples
- Input bias current $\pm 5\text{nA}$ max, $\pm 0.5\text{nA}$ typical
- Current Input 4 to 20 mA with external shunt resistance
- Input impedance 10M Ω
- Gains 1,2,4,8,10,20,40,80,100,200,400,800
- Frontend bandwidth 48kHz @ -3dB
- Common mode rejection 100dB typical
- Oversampling ratio 2 to 8192, selected automatically
- Accuracy $\pm 287.59 \mu\text{V}$ at $\pm 10 \text{ V}$ input range. Please see
- table on page 3 for other ranges. (Typical test results also depict on pages two and three.)
- Isolation 350 Vrms
- Overvoltage protection -40V to +55V
- Power consumption 1.4W (stand-by); 2.2W max
- Operating temp. (tested) -40°C to +85°C
- Operating humidity 95%, non-condensing
- Vibration IEC 60068-2-6
- IEC 60068-2-64
- 5 g, 10-500 Hz, sinusoidal Accessories Ethernet cable 02 no. USB communication cable 02 No. Software for data monitoring and logging 01 Unit

Analog Input Strain Gage Card

Resolution: 18 Bit

- Number of Channel : 8 (differential)
- Min Sampling Rate : 1 KS/s per channel max sampling rate
- Input range : $\pm 10\text{V}$
- Wiring scheme : 4 and 6wire
- support Quarter-Bridge configuration with 350 ohm
- Bridge Resistance : 120 Ohm , 350 Ohm , 1000 Ohm and custom with external terminal block.
- Input Impedance : 10 M Ohm in parallel with 50 Pf
- Gains : 1,2,4,8,10,20,40,80,100,200,400,800
- Temperature Drift : Offset drift : 5 microvolt/ Deg C typ
- Onboard Shunt calibration (software selectable) with min 256 steps from 5K to 205K ; external
- FIFO size : 512 samples Channel Isolation : 350 Vrms
- Overvoltage protection : Min -40V to +55V or better
- Excitation voltage : 1.5V - 10.05V (software selectable)
- Excitation current 85 mA, per channel
- Excitation type : Pulsed.
- Impulsive force generator with variable force set up
- You can connect either 120 Ohm or 350 Ohm resistance strain gauge .

IEPE / ICP Vibration Sensor interface card

- 4 Independent 24-bit input channels
- 125 KSPS maximum sample rate (each channel)
- Digital anti-aliasing filter provides 100 dB attenuation
- 350 VDC channel to channel isolation



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