Order Code - 32016
Hydraulic Ram Pump Demo Apparatus

Tesca Hydraulic Ram Pump Demonstrator uses a water hammer effect to pump water. It is a simple hydraulic machine which uses the kinetic energy of a large quantity of falling water from the source to lift a smaller quantity of water to a higher elevation. It can be used for example, to lift water from a stream, pond or a spring to a storage tank. This device is useful where small quantities of water are required to be pumped from the nearby source for the purposes such as household, gardening, or livestock when power supplies are limited. A hydraulic ram pump can be used where the usable fall from the water source to the pump is at least one meter. The hydraulic ram pump demonstrator is important equipment for civil, mechanical, agricultural and related branches of engineering educational institutions.

The hydraulic ram pump demonstrator has been designed to familiarize students with water hammer effect and the principle of operation of hydraulic ram pump. The pump can be connected to the Tesca 32096 hydraulic bench. The unit consists of a header tank connected to the hydraulic bench to supply water and the delivery section connected to a delivery tank at a higher elevation. The pump comprises the piping system with inlet and outlet connections and a valve block mounted with the air vessel to reduce hydraulic shock. The supply line consists of inner and outer valves which operate in a cycle during the working of the pump. Different weights may be applied on the outer valve platform to change closing pressure and hence the pump cycle time. Pressure gauge is provided to measure pressure fluctuations.

The Hydraulic ram pump demonstrator is a compact unit and all components and instrumentation are placed in a robust and mobile frame. The complete unit is manufactured from corrosion resistant material.

Options:

Computer based learning software is included to enable students to understand and conduct experiments, tabulate results and plot graphs. The Hydraulic Ram Pump Demonstration Apparatus is an important experimental set-up for any Fluid Mechanics and Hydraulics Laboratory of an educational institution.

Note: Specifications are subject to change.

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Experiments

1. Demonstration of the water hammer effect.
2. Familiarization with the operation of hydraulic ram pumps.
3. Study of pressure versus flow characteristics of hydraulic ram pump.
4. Determination of efficiency of hydraulic ram pump.
5. Study of the effect of different weights on the outer valve on hydraulic ram pump performance.

Important Features and Specifications:

1. Header tank, supply head: 0.25 – 0.75 m variable.
2. Delivery tank, delivery head: 0.75 – 1.5 m variable.
3. Pump capacity: 2 lpm.
4. Inner valve.
5. Air vessel.
6. Pressure gauge, digital readout.
7. Outer valve with weight platform.
8. Piping system.
9. Mobile frame and panel.

Services Required:

- Single phase electrical supply, 220-240 V, 50 Hz for Hydraulic Bench.
- Water supply and drainage.

Overall Dimensions:

1.2m X 0.75m X 1.5m

The manual describing the theoretical and practical aspects of the apparatus, operation, analysis of results, and sample of results will be supplied with the equipment.

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