H31

HYDRAULIC RAM PUMP

A compact experiment for use with the Hydraulic Bench to demonstrate the use of water hammer to create a pumping action.

KEY FEATURES

- Uses water hammer effect to pump water
- Works with TecQuipment’s Hydraulic Bench for easy installation
- Includes air vessel to reduce hydraulic shock
- Supplied with textbook ‘Hydraulic Ram Pumps’
- Includes header tank and all necessary pipework
- Additional weights to adjust cycle times
- Ideal for demonstrations to small groups of students

LEARNING OUTCOMES

- Demonstration of the water hammer effect to produce a pumping action

KEY SPECIFICATIONS

- Air vessel
- Header tank and fittings
- Delivery pressure gauge
- Textbook
- Five valve weights
**HYDRAULIC RAM PUMP**

**DESCRIPTION**

The Hydraulic Ram Pump uses the water hammer effect, where the momentum of a column of moving water in a pipe causes the water hammer.

The ram pump is not a normal mechanically-operated pump. A column of water in the supply (drive) pipe from a header tank, moving at low velocity, is similar to a 'plunger'. The energy in the plunger forces water from the supply into a delivery pipe. This exchanges the momentum of a large amount of water into energy that pumps a smaller amount of water up a hill or gradient.

The Hydraulic Ram Pump fits onto and works with TecQuipment’s Digital Hydraulic Bench (H1F)*. The pump also includes a textbook that introduces the reader to all aspects of ram pumps.

The apparatus has three main parts: the header tank, the pump and the interconnecting pipe work. The header tank mounts to a suitable wall.

The pump has:
- a supply pipe fitted with an inner and outer valve,
- an air vessel to reduce hydraulic shock, and
- a delivery section.

The outer valve has a weight platform, for loading with the weights provided. This changes the pump’s cycle times.

**STANDARD FEATURES**

- Supplied with a comprehensive user guide and textbook
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- ISO9001 certified manufacturer

**ESSENTIAL BASE UNIT**

- Digital Hydraulic Bench (H1F)*

* This product will also work with an existing TecQuipment Volumetric Hydraulic Bench (H1D)
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HYDRAULIC RAM PUMP

SHOWN WITH TECQUIPMENT’S DIGITAL HYDRAULIC BENCH (HIF)

HEADER TANK AND OTHER PARTS (INCLUDED)

HEADER TANK

PIPE WORK

WALL BRACKETS
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HYDRAULIC RAM PUMP

DETAILED SPECIFICATIONS
TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

NETT DIMENSIONS (ASSEMBLED):
Ram pump: 700 mm long x 700 mm high x 200 mm

NETT WEIGHT:
20 kg

APPROXIMATE PACKED DIMENSIONS:
0.3 m³ and 25 kg

VALVE WEIGHTS:
5 off

TEXTBOOK:

OPERATING CONDITIONS

OPERATING ENVIRONMENT:
Laboratory

STORAGE TEMPERATURE RANGE:
–25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:
+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:
80% at temperatures < 31°C decreasing linearly to 50% at 40°C