



P·A·Hilton Ltd

HI-TECH
EDUCATION



MAGNUS

HI-TECH Education is a market leader in the manufacture and provision of teaching equipment for Universities and Technical Colleges worldwide for both degree and vocational level.

It has been designing and manufacturing "hands-on" Engineering teaching equipment for almost 50 years and has a wealth of knowledge and experience within the educational and training industry. Its worldwide network of agents guarantees a fast and professional response to all enquiries.

The MAGNUS Universal Testing Frame enables clear and comprehensive learning of stress, strain, deflections and forces within full size structures such as roof truss, concrete beams, and wooden structures. A variety of experiments can be supplied as well as instruction manuals detailing the construction of concrete beams and wooden structures by the end user.

This apparatus is a great addition to any Civil or Structural Engineering laboratory for student and industrial use.

2

Two Year Warranty

HPM1 MAGNUS Frame

The MAGNUS Universal Testing Frame is constructed of a twinned steel channel frame fastened with high tensile fixings. This creates an overall structure size of 4.61m long, 2.53m high and 1.2m wide and a working space of 4.0m long x 1.6m high. The 0.60m spacing between the verticals allows for wide test specimens to be tested. The base feet distribute the self-weight of about 1 tonne to four anti-vibration leveling feet. The top channel members are used to carry either a single or double acting hydraulic ram carriage (not supplied). To accompany the HPM1 a comprehensive range of accessories (HPM2) are also included. These accessories include load supports, reaction plates, clamps, dial gauge support bars, half round and full round bearings, height spacing units and clamps. All these accessories enable specimens to be set up quickly and easily in a variety of arrangements. They also accompany many of the experiments available for use within the HPM1 frame. A set of hollow steel dial gauge support bars are included to allow optionally available dial gauges to be mounted anywhere within the frame.



Essential Accessories: HPM3 or HPM3a
Optional accessories: HPM11, HPM12

HPM3a Twin Hydraulic Ram System

Two 20 tonne dual direction rams are each fitted in wheeled carriages that roll along the flanges of the top members of the HPM1 MAGNUS frame. Quick acting clamps lock the carriages in position. Both hydraulic rams are operated using a hand pump mounted on a mobile table. A lever on the end of the hand pump allows vertical direction control of the ram. A digital pressure indicator shows the ram pressure via a transducer and displayed on a digital display. To prevent rapid pressure loss in the hydraulic system during loading a one way valve is incorporated. Each ram will load the test specimen simultaneously. The hydraulic table has an integral shelf to store accessories. Each ram comes supplied with its own set of 3metre flexible hoses with self-sealing couplings.



HPM6/1a Plane Frame fitted with Strain Gauges

A plane frame is made from fully welded hollow square section steel members making a 45° truss. The truss has special end mountings supplied that allow different end bearing conditions to be used, i.e. pinned and roller end. The end mountings also allow the frame to be inverted for work on an inverted truss. Seven members of the truss are strain gauged with half bridge arrangements. Each strain gauge pairing has a cable loom attached and terminated with a numbered connector. This connector can be fitted into the optionally available HPM15 Data Acquisition Interface for direct reading of the member strain during loading. The truss has been specially designed to be tested in the HPM1 MAGNUS Test frame. The HPM2 standard accessories supplied with the HPM1 are required. The experiment calls for joint deflections to be measured during testing. Safety chains and high level reaction supports are supplied with this apparatus.



Essential accessories: HPM1, HPM3 or HPM3a
Optional accessories: HPM15, HPM20

OTHER EXPERIMENTS AVAILABLE *(Refer to our Website for details)*

HPM3	Single Hydraulic Ram System	HPM6/1	Plane Frame
HPM4/1	Ultimate Moment of a Reinforced Concrete Beam	HPM6/2a	Braced Arch fitted with Strain Gauges
HPM4/2	Crack Control in a Reinforced Concrete Beam	HPM11	Flood Lighting Set
HPM5/1	Stress grading of Timber Joists	HPM15	Data Acquisition System
HPM5/2	Load Distribution on a Timber Grillage	HPM20	Dial Gauges and Holders for MAGNUS Frame



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