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Product Name :

Pipe Surge and Water Hammer Apparatus

Product Code :

SLE/MCE/37



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Description :

Pipe Surge and Water Hammer Apparatus (Product Code: SLE/MCE/37) is a fluid mechanics test rig used to demonstrate pipe surge and to measure water hammer pressure transients in engineering college and polytechnic laboratories. Students work with stainless steel test pipes 3m long and 20.2 mm in bore, a fast-acting discharge valve, electronic pressure sensors and aclear acrylic surge shaft. It is made by **Jain Scientific Equipments Pvt Ltd (ScienceLab)**, anOEM manufacturer of engineering lab equipment in India, at its own factory in Ambala.

Specifications

Parameter	Detail
Test pipes	Stainless steel, 20.2 mm inside diameter
Test pipe length	3 m
Water hammer pipe	Second test pipe with a fast-acting valve at the discharge
Pressure measurement	Tappings with electronic pressure sensors next to the fast-acting valve and half way along the test pipe
Surge shaft	Clear acrylic, 40 mm inside diameter, 800 mm high
Head tank	PVC, 45 litre capacity
Overall dimensions	3500 x 800 x 1600 mm
Weight	120 kg
Product code	SLE/MCE/37
Manufacturer	Jain Scientific Equipments Pvt Ltd (ScienceLab) — OEM
Country of origin	India (made in Ambala, Haryana)

What Is the Water Hammer Apparatus Used For?

When a valve at the end of a pipeline shuts quickly, the moving column of water is brought to rest and its momentum becomes a pressure wave that runs back up the pipe and reflects to and fro. On this rig students trigger that event with the fast-acting valve on the second test pipe, and the two electronic sensors capture the high-speed pressure transients as the wave travels backwards and forwards along the pipe.

Since one sensor sits beside the valve and the other half way along the pipe, the time delay between their signals gives the wave speed — the speed of sound in water, reduced by the elasticity of the metal pipe wall. The acrylic surge shaft makes the slower rise and fall of water level after a flow change visible, which links the experiment to surge tanks on hydropower and pumping mains. As lab equipment for technical institutes teaching hydraulics, it is best run with the head tank kept full and air cleared from the pipes so that repeated runs compare fairly.

OEM Manufacturer

Jain S
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