



Email : sales@laboratoryinstrumentindia.com

Product Name :
Nozzle Rig Bench

Product Code :
LBNY-0005-16300013



Description :

Steam passes from the inlet chamber, through the test nozzle, into the exhaust chamber and finally into the surface condenser via a back pressure control valve. Nozzle Steam Bench consists of a sturdy framework and panels of all steel construction, fitted with a student work surface, interconnecting back panel and adjustable feet. Steam supply to the inlet chamber first passes through a steam separator to remove excess water content and the chamber is fitted with a throttling facility to enable the dryness of the inlet steam to be determined. The steam chest consists of an inlet chamber and an exhaust chamber with a test nozzle positioned in the wall common to the two chambers.

Experimental Capability:

- Determination of critical pressure ratio for choked flow
- Calculation of velocity through length of nozzles of various forms
- The variation of pressure along a nozzle profile as a function of back pressure
- The effect of back pressure on the mass rate of flow
- Measurement of state at entry to the nozzle and subsequent calculation
- A comparison of theoretical and actual throat pressures on rates of flow
- Study of shock wave formation within nozzle divergence and at nozzle outlet
- Study of the effects of friction in a parallel nozzle.

Technical Specification :

The chest will include an inlet chamber fitted with a drain line, a throttling restrictor assembly and type K thermocouple, a temperature measuring point with type K thermocouple and a pressure measuring point coupled to 0-16 bar Bourdon type pressure gauge; an exhaust chamber fitted with a type K thermocouple, a pressure

measuring point coupled to a -1 to 15 bar Bourdon type pressure gauge and an exhaust line, a traversing nozzle pressure measuring assembly including a stainless steel measuring probe, a water cooled surface condenser with a capacity of 31 kg/ hr, a -1 to 12 bar calibrated pressure test gauge and a nozzle distance indicator. To comprise a study framework and panels of all steel construction including student work surface and fitted with a steam chest constructed of mild steel.



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