

**STRENGTH OF MATERIALS LAB**

Rockwell hardness testing machine



Rockwell hardness testing machine essentially consist of a supporting table for placing the specimen, a hand wheel to raise or lower the supporting table, a Rockwell ball indenter which is a hardened steel ball 1/6" in diameter, a Rockwell cone indenter which is a diamond cone of 120°.

Brinell hardness testing machine



Brinell hardness test is most commonly used to test materials that have a structure that is too rough or too coarse to be tested using other test methods, e.g., castings and forgings.

Impact testing machine



Impact test signifies toughness of material that is the ability of material to absorb energy during plastic deformation. Toughness takes into account both the strength and ductility of the material.

Impact testing machine consists of a pendulum suspended from a short shaft that rotates in ball bearing and swings midway between two rigid upright stands supported on a rigid base near the bottom of which are the specimen supports anvils. The knife-edge or striking edge is slightly rounded. The pendulum can be raised to any desired height and rested at that position. It is supported in the starting position by a catch and can be released by a trigger. The mechanism is so designed that the pendulum is not disturbed when the catch is released.

Universal testing machine (25 ton)



	<p>In tension test ends of a test piece are fixed into grips connected to a straining device and to a load measuring device. The test involves straining a test piece by tensile force generally to fracture for the purpose of determining one or more of the mechanical properties.</p>
<p>Hounsfield tensometer</p>	
<p>Torsion testing machine</p>	 <p>In torsion testing the circular bar is placed in the machine such a way that its longitudinal axis coincides with the axis of the grips and so that it remains straight during the test. Then rotate one grip at a reasonable constant speed until the test piece breaks, here the shearing stresses will develop in any cross section of the bar whose value increases linearly from zero at the centre to a maximum at the outer periphery. Troptometer is used to measure the twist to an accuracy of one minute.</p>
<p>Simply supported apparatus</p>	 <p>Simply supported apparatus to find the shear force and bending moment in simply supported beam.</p>
<p>Cantilever beam apparatus</p>	
<p>Weighing machine</p>	

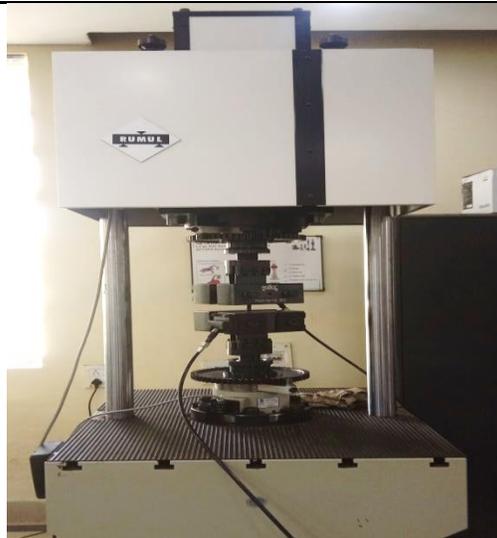
Bench grinding machine.

Universal testing machine (100 ton)



In tension test ends of a test piece are fixed into grips connected to a straining device and to a load measuring device. The test involves straining a test piece by tensile force generally to fracture for the purpose of determining one or more of the mechanical properties.

Fatigue testing machine



Fatigue testing is often performed to characterize material properties when selecting or verifying materials. Low cycle fatigue and high cycle fatigue test processes measure the ability of materials to withstand the application of repeated load cycles. The tests can be performed under varying loads, speeds and temperatures. The test results help predict the life of materials and parts that may be exposed to these types of demanding conditions.

		<p>Both high and low-cycle fatigue testing use cyclic loading to evaluate the lifespan of materials that are subjected to conditions of fluctuating strain and stress, which may result in cracking or fracture. These tests are valuable in ensuring product safety, especially in industries where failure could cause serious injury or significant damage.</p>
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