



SS INSTRUMENTS

MANUFACTURERS OF TEST AND MEASURING EQUIPMENTS

96, 4TH CROSS, 2ND MAIN, INDUSTRIAL LANE, NEAR SAI MANDIRA, KAMAKSHIPALYA, BANGALORE 560079

LOW VELOCITY IMPACT TESTING MACHINE

DESIGNED FOR COMPOSITE & ADVANCED MATERIAL EVALUATION

A Low Velocity Impact (LVI) Testing Machine is used to evaluate how materials and components behave when subjected to slow-speed impact loads, typically in the range of 1 to 10 m/s. These impacts often cause internal damage such as delamination, matrix cracking, and denting without complete fracture — making LVI testing critical for safety-critical products.

We Have Developed A Low Velocity Impact Testing Machine For MSRIT For Research Purposes, With Specifications In Accordance With ASTM D7136.

WHAT IS LOW VELOCITY IMPACT TESTING?

- Low Velocity Impact testing simulates real-life impact events such as:
 - Tool drops on aircraft panels
 - Stone impacts on vehicle body parts
 - Accidental knocks during handling or maintenance
 - Minor crashes or luggage impacts
- Although external damage may appear minor, internal damage can be severe, especially in composite materials, leading to significant loss of structural integrity.

WHY LVI TESTING IS IMPORTANT?

- Detects Barely Visible Impact Damage (BVID)
- Evaluates damage initiation & propagation
- Improves safety & durability of composite structures
- Essential for aerospace, automotive & defense applications.

TEST STANDARDS SUPPORTED

- ASTM D7136 - Drop weight impact test for composites
- ISO 6603 - Plastics – multiaxial impact
- EN 6038 - Aerospace composite impact



KEY APPLICATIONS BY INDUSTRY

Aerospace Industry

- Carbon fiber composite panels
- Aircraft fuselage skins
- Helicopter blades
- Wing leading edges
- Sandwich structures (honeycomb cores)
- Purpose: Detection of Barely Visible Impact Damage (BVID) which can drastically reduce structural strength.

Automotive Industry

- Bumpers
- Door panels
- Underbody shields
- Battery enclosures (EVs)
- Plastic & FRP interior components
- Purpose: Simulation of stone hits, parking knocks, and tool drops.

Research & Development Laboratories

- New composite materials
- Adhesive bonded joints
- Laminated plastics
- Hybrid materials (metal-composite)

Railways & Transport

- Interior composite panels
- Train body side panels
- Seat structures

Civil Engineering

- FRP strengthened beams
- Composite bridge decks

Defence & Ballistics (Low Energy Only)

- Protective armour laminates
- Helmets
- Composite body panels

MAIN PARAMETERS MEASURED

PARAMETER TESTED	WHAT IT MEASURES
Impact Energy (Joules)	Energy Absorbed By Specimen
Force-Time History	Peak Impact Force, Damage Initiation
Displacement-Time	Dent Depth, Deformation Behaviour
Energy-Time	Damage Propagation
Rebound Velocity	Material Resilience
Damage Area	Internal Delamination Or Cracking

Contact Information

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