

TEQIP SUMMER INTERNSHIP REPORT

2019

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- **College** – govt. engineering college,
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- **Topic** – SHPB Apparatus
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- **Internship duration** – 1 month (1st -30th june
2019)

➤ **SUBJECT :- Impact mechanics**

➤ **RESEARCH TOPIC :-** Design and manufacturing of Momentum trap assembly & striker bushings for SHPB setup

➤ **SHPB TEST APPARATUS** – This test is conducted to determine the material properties under varying strain rates. The design or performance assessment of a component or structure requires accurate knowledge of the elastic and inelastic deformational and strength properties of the material ,varying with both temperature and time.

➤ **MOMENTUM TRAP ASSEMBLY** – The purpose of momentum trap assembly is to arrest the forward motion of incident bar ,by dissipating its kinetic energy in a controlled manner.

Another use of momentum trap assembly is to interrupt the test at a predetermined strain level.

➤ **CONSTRUCTION**- In momentum trap assembly a heavy circular mass is held at one side of incident bar and the other side of incident bar is threaded and a nut is fixed .A sleeve is held on incident rod in between the ends as shown in fig.1



Fig.1 (momentum trap)

- **STRIKER** – The striker must have good impact resistance in order to resist plastic deformation when it strikes the incident bar . The striker is usually accelerated by a compressed Gas gun or powder gun.

Striker passes through a hollow bar and strikes at incident bar. Bushings are provided for increasing the ease of movement of striker. Normally circular bushings are provided but due to very high travelling velocity of striker problem of slipping arises.

So to overcome this problem design of bushing has been changed and a taper 2 part bushing is produced as shown in fig.2



Fig. 2

Due to that taper angle provided on bushing so that proper locking takes place and due to the 2 pieces which are produced by wire cut a interference fit is generated and relative motion of bushing is inhibited.



THANK YOU