

INVENTORS

DR. MOHD AFENDI BIN ROJAN
 AYU HASWANI BIN AYOB
 MOHAMMAD AZRIE HUSAINY BIN MOHD JASRI
 DR. HAFIRMAN
 DR. MOHD SHUKRY BIN ABDUL MAJID
 DR. RUSLIZAM BIN GAUD
 EDRY SUSILO MOHD, MUSLIM TAN

CONTACT DETAILS

School of Mechatronic Engineering,
 Universiti Malaysia Perlis
 Pauh Putra Campus,
 02600, Arau, Perlis
 e-mails: afendiajan@umap.edu.my
 (013-4003531)
 azriehusainy@gmail.com
 (017-4162078)

COMPACT MICRO FLEXURAL FATIGUE TESTING MACHINE



PHILOSOPHY & NOVELTY

Ease and Flexibility: To strive for an easy working-environment as required by the users besides cutting the cost of the machine.

INTRODUCTION

- The flexural test is a method in measuring the behaviour of the materials subjected to a simple beam loading.
- Maximum stress and maximum strain are calculated for increments of load.
- Results from the test are plotted in a stress-strain and stress-cycle diagram.
- These results could help in determining the maximum loading of that material could hold and also their cycle before reaching the fatigue failure.
- These results also could be applied for industrial and construction site.

OBJECTIVES & USEFULNESS

- To design the prototype of compact flexural fatigue testing machine.
- To investigate and analyze the properties of the testing materials.
- To enable this prototype to function exactly similar as the actual machine.
- To compare the results obtained with the existing product.



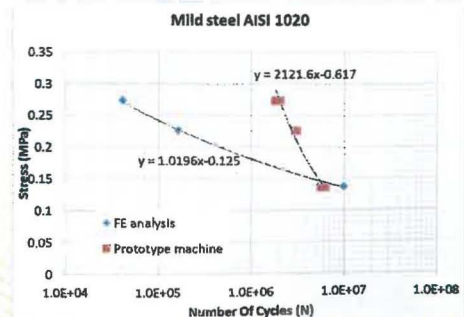
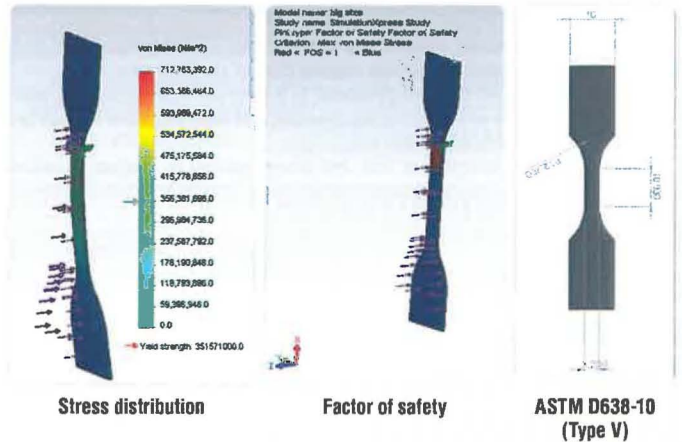
Fatigue testing machine (INSTRON)

METHODOLOGY

- Application of basic electronics for the circuit.
- Simulation of fatigue using FEA software.
- Lab testing of specimens using the actual fatigue machine (INSTRON).
- Prototype testing.
- Fracture mechanics and fatigue Analysis
- Product improvement.

ADVANTAGES & COMMERCIAL POTENTIAL

- Low cost machine that is affordable and easy to operate with low maintenance required.
- Small and compact in size which is convenience for transportation.
- Only small specimen is needed.



Stress-Cycle curves