

Combined Blast and Fragment Loading Effects

Objective

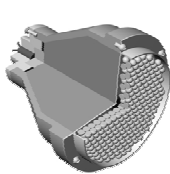
Measure contributions from blast and fragment impacts in combined loading, and assess these effects on structural response

Research Significance

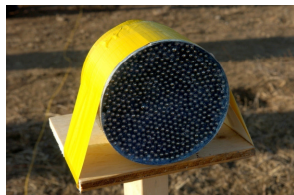
Developed a prototype novel gauge to measure simultaneously both the blast pressure and fragment impacts

Measure spatial distribution and pressure time history of combined blast and fragment loadings

Blast-Fragment Generator

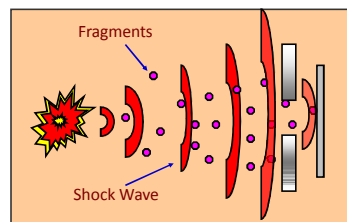


Explosive Device Concept

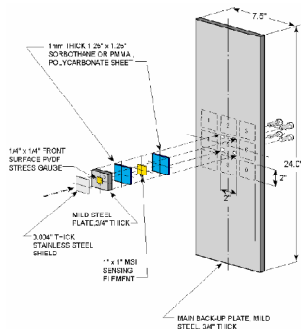


Sheet Metal, C-4, Ball Bearings

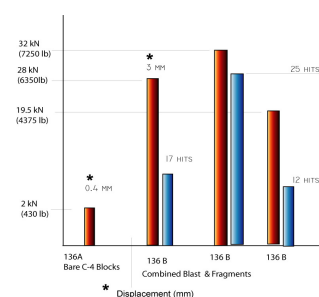
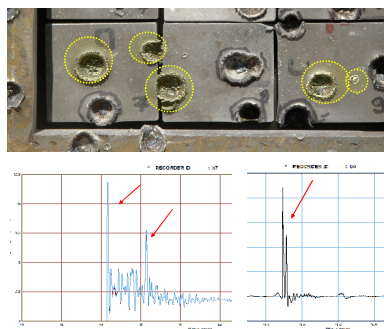
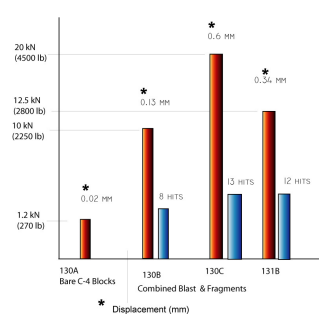
Loads



Instrumented Target



Test Observations



Conclusions

- Obtained time history and spatial distribution of combined loads
- The combined loads are more severe than only blast loads
- Fragment impacts contribute significantly to the structural response
- Findings confirm the feasibility of follow up gauge package development
- Recommended further development could enable one to separate blast and fragment loads