Experimental and numerical research on contact friction in the process of plastic deformation by means of compression with torsion

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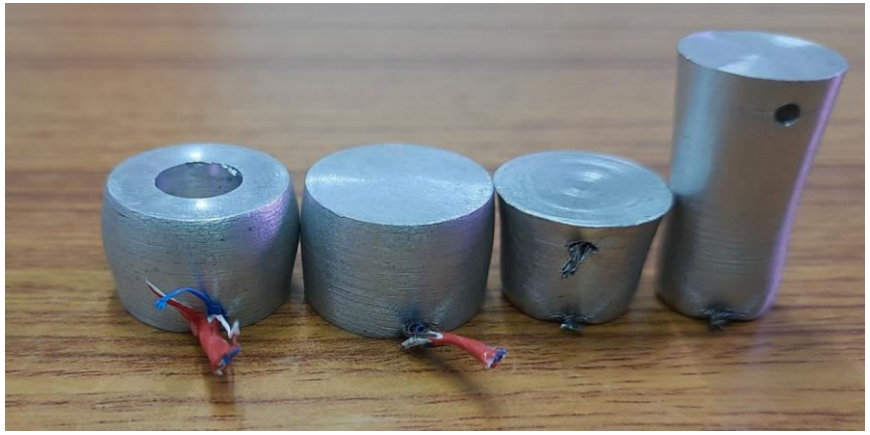
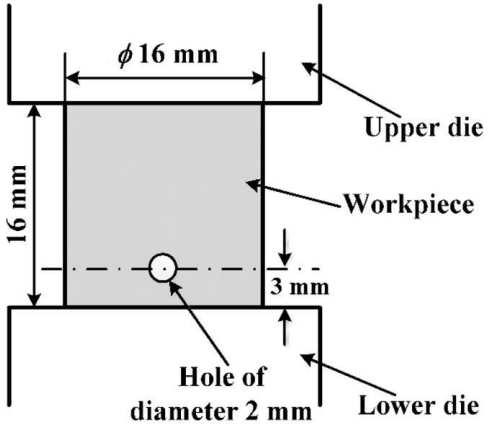
The project is on fundamental scientific study on friction in metal forming. The main focus is on forging with compression. Specific objectives are as follows: 1. **Development of research models of contact friction**, 2. **Experimental study on contact friction in the process of plastic deformation by means of simultaneous action of the axial force and the rotation torque on the deformed metal by rotating the tool during formation of the blank (forging/compression with torsion),** 3. **Use of the models in the metal forming (compression with torsion process).**

The project aims at providing appropriate modes for analyzing friction.

- Inverse models have been developed to estimate friction in forging and friction stir welding.
- Inverse models were also developed for obtaining important mechanical and thermal properties of the process.
- Influence of friction on temperature in compression with rotation was also studied.
- Temperature generation in a asperity was also studied.
- Models were verified experimentally.
- Study will be useful to metal forming industries.





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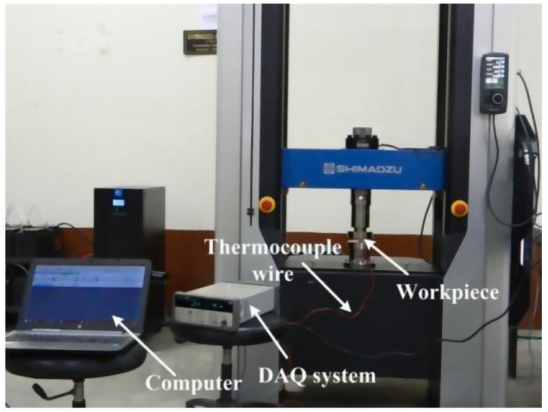

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