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The fracture mechanics in cutting: a comparative study on hard and soft polymeric materials

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Highlights

- Experiments on cutting of polymers, with brittle and soft hyperelastic behavior
- Steady state cutting of a sharp thin blade into a thin plate
- Insertion force vs penetration displacement and full-field strain maps are recorded
- Blade sharpness depends on blade profile and material toughness and deformability
- Cut propagation in soft polymers when its tip is reached by the blade

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