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Numerical analysis of damage evolution and formability of DP600 sheet with an extended Rousselier damage model

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Highlights

- A combination of cold rolling followed by uniaxial tension was used to obtain the flow curve of DP600 up to large strains.
- A void nucleation function and a void coalescence criterion were implemented into the Rousselier damage model.
- The predicted evolution of damage is sensitive to the type of hardening function.
- The modified Rousselier damage model successfully predicted the limiting strains of DP600 sheet in different strain paths.
- The predicted geometry of strain localization and final failure in Marciniak specimens correlated well with experimental data

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