Title: An alternative evaluation method for friction condition in cold forging by ring with boss compression test

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Research highlights

1. An alternative quantitative evaluation method for the friction condition in cold forging by ring with boss compression test (RCT-B) was proposed.
2. The RCT-B method was successfully applied to determine the friction factors of four different lubricating conditions with aluminum workpieces.
3. Experimental and FE simulation results also show that using the RCT-B method the difference of lubrication conditions can be quantitatively evaluated by checking the inclined angle of the outer boss.