Mechanism of the crack propagation in the chip root in dry hard orthogonal turning of the hardened steel

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Highlights

- Formation mechanism of the serrated chip in dry hard high-speed orthoganal turning of hardened steel with different hardness levels was investigated.
- The cutting force contribution to the formation mechanism of serrated chip in dry hard high-speed orthoganal turning of hardened steel with different hardness levels was investigated.
- Critical condition and transformation mechanism from the ribbon chip to serrated chip in dry hard high-speed orthoganal turning of hardened steel with different hardness levels was investigated.