Key Findings

Increased bit tip angle, carbide shoulder rounding, and decreased carbide tip width were highly correlated with reduced drilling productivity (e.g., rate of penetration).

The 10 other wear patterns were not so highly correlated with reduced productivity.

Manufacturers could use these findings to score or embed wear indicators in drill bits, to inform users when bit replacement was needed.

To support productive work, contractors should replace concrete bits when they show these wear patterns.

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See abstract: