Tool wear and breakage monitoring system - Automotive application

Milling low end crankshafts

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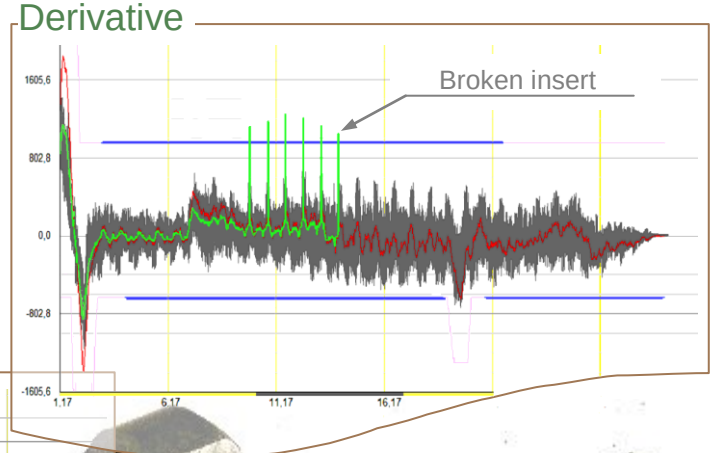
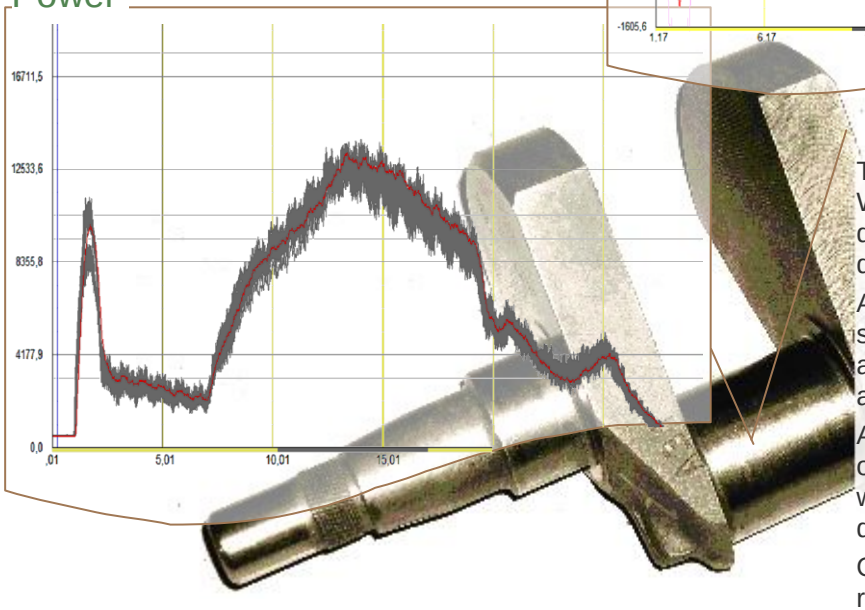
Machining a forged-steel, low end crankshaft on a BOEHRINGER machine, with a 700 mm diameter milling cutter equipped with 200 cutting inserts.

Derivative



Power



This application example shows the sensitivity and the reliability of the WattPilote system. False alarms are minimized, because the WattPilote distinguishes between chip accumulation, part-hardness variability, and actual damaged inserts.

As soon as the first insert breaks (1 broken insert out of all 200!), WattPilote stops the machine. This quick stop avoids the further production of waste and also prevents damage to the toolholder through the progressive breakage of additional inserts.

Actual tool life varies as a function of part hardness. To optimize the number of crankshafts machined between tool changes, WattPilote measures the tool wear continuously. The tool is no longer changed after making a pre-determined number of parts, but only after it has become worn.

Over a period of 4 months of operation, the cost savings achieved (through reductions in tooling costs and waste parts made) in this application increased by $59,000.

WattPilote

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