Tool wear and breakage monitoring system – Aerospace application

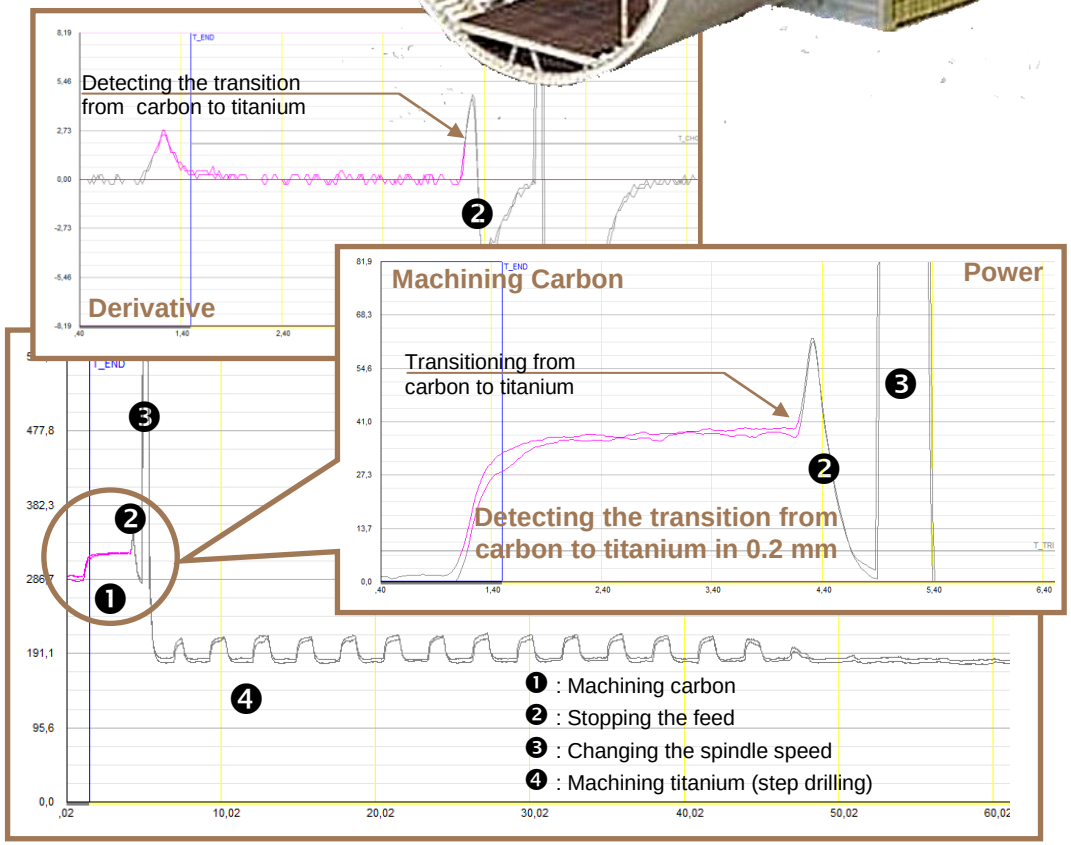
Machining sandwiched materials

Boring 4.75-mm holes in a sandwiched panel made of carbon and titanium.

When used to monitor the machining of layered composite materials with unknown thicknesses, the WattPilote system detects each transition from one material to another and enables **adjustment of the cutting conditions** (feed and speed) **to match the material**.

Digital Way is the patentee for this method, which is based upon the power derivative. It is **independent of no-load power, tool wear, and homogeneous variations in part hardness.** It is also fast and reliable.

The WattPilote system is appropriate both for orbital boring/drilling and also for traditional boring operations. It **optimizes the feed rates as well as the cycle times** and therefore **it becomes an important part of overall machining quality**.



Test conditions:

Thickness of carbon panel ..... : 12-mm	Thickness of titanium panel ..... : 14-mm
Cutting conditions for carbon..... : F=300 S=3000	Cutting conditions for titanium ..... : F=40 S=1300

Gain in time – cost savings

WattPilote	Without	With
Duration of the boring operation	76.42 s	47.28 s
Gain in time	38 %	

WattPilote

1, chemin des Chaux - 42000 Saint-Etienne - FRANCE | Tel +33 (0)4 77 74 92 50 | Fax +33 (0)4 77 74 92 05 | www.digitalway.fr | contact@digitalway.fr