

PROCESS MONITORING FOR GRINDING AND DRESSING PROCESSES

ExactControl™ Card with IVIS Operator Software

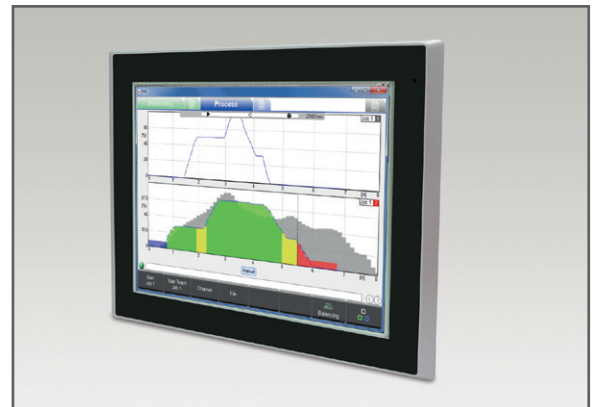
The SBS ExactControl Card has been developed to meet today's requirements for comprehensive process monitoring. Six acoustic emission sensors can be connected, two can be operated simultaneously. It can be plugged into the SB-5500 or SB-5575 controllers, which are also capable of automatic and manual balancing, hydro-balancing and cards for basic acoustic emission monitoring.

The ExactControl Card is multi-channel capable and has Profibus and Ethernet interfaces, and analogue and digital inputs/outputs. With this card, power, spindle current, vibration, temperature, torque and speed, as well as information from the controller, e.g. alarms and positions can be used individually or in parallel for process monitoring.

A micro SD card is integrated for data storage and records all grinding cycles in a continuous loop to its memory. In a three-shift operation, all process data can be recorded for at least the last three months for process analysis. Each grinding cycle is recorded with a date and time stamp and can be viewed and analyzed individually and in its entirety. In this way, various process monitoring strategies can be tested and developed later on the basis of the recorded data.

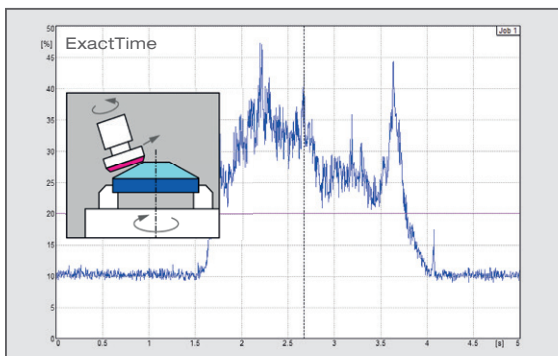
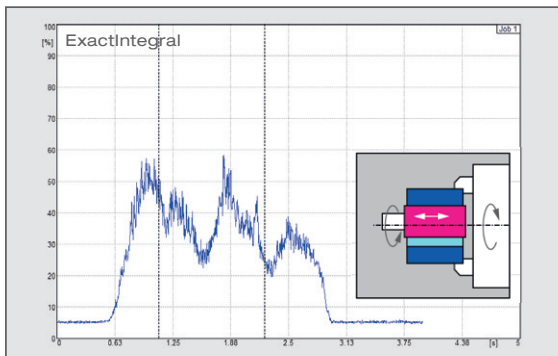
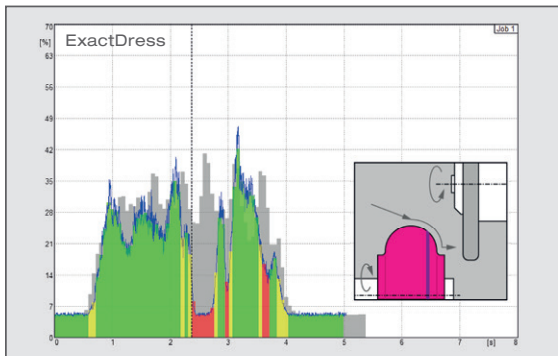
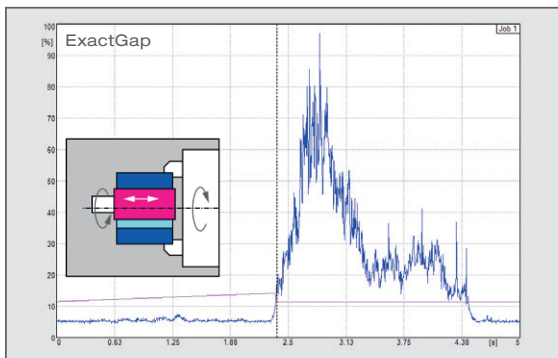
IVIS (intelligent visualization) is the PC-based control software for the SB-5500 and SB-5575.

IVIS provides easy-to-use operation and simple integration. Via IVIS the process data can be visualized and the devices can be configured. Seven possible starting sources as well as two parallel channels of the ExactControl Card can be displayed and managed. With the IVIS MiniView, the process monitoring is always visible, even when the machine screen is in operation or other software is running.



Productivity through Precision.





Examples of Monitoring Strategies of the ExactControl™ Card

All strategies are self-learning. Reference values are saved and parameters are automatically set in each learning cycle.

ExactGap: Gap-elimination with background noise suppression and adaptive threshold response to reduce the air-grinding time.

- Automatic contact recognition to reduce the air-grinding time and to improve the performance of the grinding cycle.
- Automatic idle tracking and background suppression to improve evaluation sensitivity and safety. Disturbances e.g. of coolants, drives, motors, axial drives and of others machines, are taught and do not lead to wrong results. As an example, higher bearing noise, e.g. by increasing speeds are zeroed.
- The response threshold can be chosen statically or adaptively (self-learning).
- The screen scaling can be fixed or set to automatic zoom.

ExactDress: Signal pattern recognition for dressing straight or profiled grinding wheels.

- Safe and trouble-free dressing process monitoring using acoustic emission sensors enables the detection of improper dressing processes and increases the quality and reproducibility of workpieces.
- The grinding cycle is only started when all segments are within the specified tolerances (all segments green).

ExactIntegral: Material removal monitoring during the grinding process.

- Detection of material removal and evaluation with operator-specified minimum and maximum values, by evaluation of the area under the process signal.
- Reliable monitoring despite possible signal fluctuations due to mean value formation.

ExactTime: Detecting the minimum contact time during grinding and/or dressing.

- Monitors a signal threshold adjusted by the machine operator and the minimum permissible cycle time of grinding processes.
- If the signal does not exceed a defined threshold in sufficient time, an error is displayed and passed on to the controller.

More strategies and further information can be found on www.grindingcontrol.com. Or contact your nearest SBS Sales Representative or call Schmitt Industries.



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