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SBS DYNAMIC BALANCING SYSTEMS

Improve product quality and increase throughput with each revolution.



Productivity through Precision®

DYNAMIC BALANCE SYSTEM

SBS is the industry standard for quality, accuracy, and customer service in grinding applications, no matter where in the world you turn.









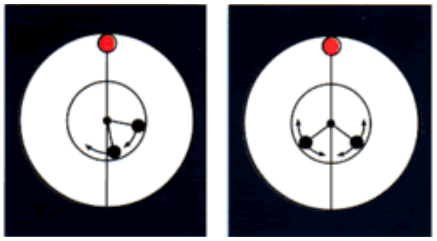
Balancing Solutions

Manual Balancing

Manual balancing consists of a manual balance control unit, a vibration sensor and RPM sensor.

Manual balancing permits the operator to balance the wheel before operation by adjusting the fixed position or spread-angle balance weights. Consisting of a computer control unit, a vibration sensor and an RPM sensor, the SBS manual balancing solution detects and measures the imbalance, calculates the compensation needed to eliminate the imbalance and guides the operator in manually placing the balance weights at calculated positions. This solution provides a lower cost alternative for dedicated machine tool balancing.

Balancer System Principle



The system operates on the principle of mass compensation for wheel imbalance. The balance head contains two movable eccentric weights, each weight is driven by electric motors through a precision gear train. These weights can be repositioned to offset any imbalance in a grinding wheel.



Automatic Balancing

Auto balancing is elegantly simple: a computer control panel, a vibration sensor, spindle mounted adaptor and a balance head (either external or internal to the spindle).

Automatic balancing enables the operator to ensure proper balancing with just the push of a button. The SBS automatic balancing solution is comprised of a computer control unit such as the SB-5500, an SBS vibration sensor, an SBS spindle-mounted adapter and an SBS balancer (in either external or internal configurations). Once activated, the sensor attached to the grinding machine measures the imbalance and transmits this signal to the control unit, which automatically adjusts the position of counterweights inside the balancer to automatically and dynamically eliminate the vibration of the machine.

Internal Balancers System Principle



Internal Balancers use internal motors and precision gear trains to position two balance weights inside the unit, to compensate for imbalance in the spinning wheel/ spindle assembly. Power transfer systems are identical to external balancers, either long life rotary slip ring, or non-contact systems are available.

Hydrokompenser System Principles

The Hydrokompenser is the original automatic balance system, designed for high-speed applications. The Hydrokompenser system uses machine coolant, water, or other available fluids to perform balancing.



Process Monitoring

Process monitoring involves the detection and analysis of high frequency noise (acoustic emission or AE) generated by the grinding process. The AE-1000 and the AEMS add-in card for the SB-5500 help reduce air grind time and provide automatic crash protection by using proprietary acoustic detection technology.

SBS offers different versions of our AEMS (Acoustical Emission Monitoring System) that provide our customers the capability to monitor their grinding process with exceptional precision. The AE-1000 acoustic monitor is a basic control that offers crash protection and two programmable process limits that can be used for Gap elimination or monitoring grind quality. The AEMS add-in card for the SB-5500 control offers more flexibility with a separate Gap and Crash Limit, as well as sixteen sets of programmable process limits. The AEMS product line uses proprietary acoustic sensor technology to monitor the high frequency signals generated on the grinding machine structure during key events in the grinding process. The user can set up the system easily and quickly, and immediately reap the benefits of improved control over the grinding process.



Model SB-5500 Full-Featured Balance and Process Control Platform

DETACHABLE DISPLAY.
MORE DATA UPFRONT.
BALANCES TO .02 MICRON.

SBS strengthens its reputation as the world leader in automatic dynamic balancing and process monitoring for the grinding industry with the SB-5500 controller. With its all-digital electronic design, compact size and larger high resolution detachable display, the SB-5500 provides unsurpassed accuracy (up to 0.02 micron), speed (300-30,000 RPM) and flexibility (four-channel capability).

The SB-5500 is easy to install and easy to use. Quick setups and dynamic graphic displays keep you well informed and in control of the grinding process. Optional virtual screen software lets you see readings on your existing monitor, or detach the display panel for installation where you want it. As an inexpensive and permanent installation, the SB-5500 takes the challenge out of grinding wheel balancing, helping you to improve part quality, increase efficiency, and save money.

Benefits

- Increases throughput by saving setup time
- Improves part quality by automatically balancing to 0.02 micron
- All-digital electronic design increases operating life and reliability
- Easy to install and operate
- Longer life for grinding wheels, dressing wheels and spindle bearing
- Works with existing SBS installations
- Profibus, Ethernet and USB 2.0 communication compatibility
- International adaptability: voltage, frequency, communication, and display language
- Four-channel capability reduces costs by permitting balancing of multiple machines
- Backed by world-class SBS customer service



Quick Detachable Display

Multi-Channel Status Indicators

Large, High Resolution Color Display

Intuitive Menu Interface





Model SB-1000 Simplified Balance Control

COMPACT FORM FACTOR. SINGLE SPINDLE. BALANCES TO .02 MICRON.

The SB-1000 is an easy to use, compact dynamic balancing system that provides full functionality, including both an automatic and a manual balancing mode, at an entry-level price. This single machine control provides exceptional accuracy, capable of balancing to a tolerance as low as 0.02 microns peak-to-peak displacement over a spindle range of 300 to 30,000 RPM. With its digital design and intuitive icon-driven user interface, the SB-1000 is simple to install on existing equipment and can be easily integrated through the grinding machine CNC/PLC hardwire interface.

The SB-1000's Manual Balance mode not only provides the most economical manual balancing solutions, it also provides real-time display of vibration and RPM levels.

Benefits

- Automatic and manual balancing modes in one product
- Increases throughput by saving setup time
- Improves part quality by automatically balancing to 0.02 micron
- All-digital electronic design increases operating life and reliability
- Easy to install and operate
- Longer life for grinding wheels, dressing wheels and spindle bearing
- Works with existing SBS installations
- Profibus, Ethernet and USB 2.0 communication compatibility
- Backed by world-class SBS customer service

Model AE-1000 Simplified Acoustic Emission Monitoring

IT PREVENTS CRASHES. IT ELIMINATES GAP TIME. IT CUTS CYCLE TIME BY 20%.

The SBS AE-1000 reduces air grinding time and alerts the operator of crash conditions by using proprietary acoustic detection technology to monitor and analyze the high frequency signals generated by the grinding process.

The AE-1000 reports initial contact between the wheel and a new part to the machine control system so it can stop wheel in-feed without operator intervention, which can save up to 20% of the typical cycle time. It can also detect and report abnormal contact from an incorrectly loaded part or fixture within milliseconds, allowing the in-feed to be stopped, avoiding a crash, damage or injury.

Benefits

- Precise monitoring of the grinding process
- Rapid, automatic grinding-wheel in-feed
- Increased productivity by up to 20%
- Cuts cycle time by eliminating gap time
- Works with a wide variety of grinding machine types
- Sensor options accommodate diverse environments
- Backed by world-class SBS customer service

1. 

2. 

3. 

1. External Bolt-on Sensor For retrofit applications
2. In-Spindle Sensor For mounting into a spindle shaft
3. Fluid Sensor For difficult to reach applications

SBS Customer Support

SBS is committed to providing the highest level of customer service possible. With our main service center in the US and regional service centers in Europe, China, India and Brazil, we pride ourselves in offering 72-hour service turnaround time for most service projects, anywhere in the world. We also offer operations manuals and technical information for all of our products in addition to software and firmware updates. Visit us at www.schmitt-ind.com



For more information on Schmitt Balancing Systems, contact your nearest SBS Sales Representative or call Schmitt Industries.

DYNAMIC BALANCE SYSTEM
A Product Line of Schmitt Industries, Inc.

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