Balance Systems

BEST BALANCE 4000

Tools & Toolholders Vertical Axis Balancing Machine
with one or two correction planes.

Features

- One or two planes balancing procedures developed according to the specifications of the toolholders suppliers.
- Balancing tolerances in accordance with the ISO 1940 specifications.
- ISO Quality Grades: G1, G2.5, G6.3, and G16.
- User friendly PC-based operator's graphic interface.
- Geometric and mass data of the toolholders inputted by the operator or self-acquired by the unit in learning mode.

Benefits

- Faster cutting speed for tools.
- Extended tool life.
- Prevention of spindle failure.
- Consistent production quality.
- Safe and silent operation.
- Easy integration in any networked productive architecture.

The need

To enhance the quality and the productivity of the milling processes reducing the relevant costs of production, by using HSC toolholders and tools, these must be dynamically balanced within the ISO 1940 tolerances through corrections applied on one or two planes.

The solution

To easily balance these toolholders and tools, in shop floors of any size and organization, Balance Systems proposes the Best Balance 4000 machine.
In its basic configuration, the BEST BALANCE 4000 is a complete unit ready to accommodate, by means of suitable adapters, and balance virtually all types of toolholders and tools.
The standard supply consists of:

- The balancing machine, which includes the spindle with a pneumatic clamping system for the toolholders, and the electronic measurement and control unit.
- The base, which has been designed and manufactured with the purpose to avoid the measure of external vibrations coming from the shop floor.
- A CD ROM with the human machine interface SW, which is installable on a customer‘s supplied Windows-based PC, together with the RS 232 cable for the connection between the unit and the PC.
- The support for the PC (option)

The balancing machine, by means of vibration transducers mounted on rigid supports, detects in module and in phase the residual unbalance of the toolholder and tool, on one or two planes.
Balancing is simple and quick to perform and the result is accurate. This thanks to:

- A digital and graphic visualization layout familiar to the most machine tool operators.
- Selectable languages (standard): English, German, French, Italian, and Spanish
- User-friendly balancing procedures developed in accordance with the specifications of the toolholders suppliers.

Dedicated tables can be created to memorize the main data of any toolholder together with its maximum tolerance. Geometric and mass parameters of the toolholders can be inputted by the operator or self-acquired by the unit in learning mode. The numbers of stored configurations, which can be immediately retrieved when successive balancing operations have to be performed on a specific toolholder, are virtually unlimited.
The accuracy of the machine are assured by means of a simple calibration procedure, which has to be performed at the installation of the machine, by means of a supplied master calibration tool.
During the balancing procedure, the unit measures the residual unbalance of the toolholder and tool, and indicates the corrections, that must be performed on each plane by the operator, to achieve the preset tolerance.
A different correction method can be chosen for each plane, among the ones listed in the below table, which are included in the basic supply. When the corrections have been executed, the procedure displays whether the tolerance has been achieved or not, visualizing in addition the maximum allowed operating RPM in accordance with the ISO quality classes ranging from G1 to G16. A report with the indication of the achieved tolerance together with the relevant maximum RPM can be printed on a standard printer connected to the PC.
At every step of the operative cycle, the operator’s safety is ensured through mechanical and electronic controls.

Technical Data	
Electric power supply	110-240 V; one phase; 50-60 Hz; 1 kW
Compressed air supply	6 bar
Max. size of the toolholder + tool	Diameter 250 mm, height 600mm (toolholder cone excluded)
Mass of the toolholder + tool	20 Kg max.
Support type	Rigid
Vibration measurement unit	gmm
Resolution	0.1 gmm
Machine repeatability	0.5 gmm
Balancing classes (ISO 1940)	G1, G2.5, G6.3, G16
Balancing planes	2 (Balancing methods independent on each plane) Minimum distance between planes= 50 mm
Toolholder balancing RPM	Electronically controlled
Initial toolholder unbalance	1000 gmm
Standard balancing modes	Mass addition or displacement, rings rotation, screws and drilling
Shank retention unlock	Electro-pneumatic
Spindle brake	Electric
Operator’s protection	Interlocked lexan shield
Optional adapters (At least one needed)	ISO 30, 40, 50 with or without locking device HSK E50,E63, A63, A100 with locking device Others upon request
Operating relative humidity	98% max.
Environment protection level	IP52
Machine sizes, (W, D, H)	50x53x180 cm
Machine mass with base	230 kg
Norm	According to EN292, CE, UL, CSA
Standard accessories	Master for machine calibration. Software package with RS 232 cable for user’s PC connection
User’s PC specifications (Minimum configuration)	Pentium 800MHz, 128Mb RAM, HD 20Gb; CD ROM; VGA display; keyboard; mouse; RS232 interface; Windows NT Me, XP, 2000 or successive operating Systems. Office professional.

Balance Systems - Printed in
via Ruffilli, 2/4
20060 Pessano con Bornago
Milano (Italien)
Tel. +39.029 504 955
Fax +39.029 504 977
E-mail: info@balancesystems.it
www.balancesystems.it

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