Balance Systems

SB 100

Manual balancing machine for grinding wheels and spindles

The needs
To day's manufacturing industries requires machine tools able to efficiently produce parts with:
- increasingly tight dimensional and geometric tolerances;
- excellent surface finishing.

This can be achieved, among other things, by mounting on the machine tools grinding wheels and spindles perfectly balanced on two planes at the operating RPM. Vibrations and wheels wobbling are thus minimized, since in this way the effect of the strains, induced by the real dynamic loads, is taken in to account.

The solution
To dynamically balance grinding wheels and spindles, prior to their assembly on the machine tool, Balance Systems has developed the SB 100.
The SB100 balancing machine:
- features a very high precision: 0,05 gmm/kg;
- measures the unbalance at the wheel operating RPM;
- guides the operator, to correct the unbalance, by the addition of two sizes of twin masses;
- is provided with certified features that prevent operator's injuries against wheel explosion and wrong operations.

Balance Systems
MILAN-ITALY

SB 100

UNI EN ISO 9001 Cert. n. 9105.BAL5

Characteristics

The SB100 is a very high precision manual balancing machine for shaft like components whit mass up to 50 kg. It has been specially conceived to dynamically balance, at the operating RPM and in a safe operator's environment, grinding wheels previously mounted on the specific driving and support shaft. To accommodate different rotors sizes it is easily retoolable by the quick adjustment of slides. An optional fixture, made by an oscillating plane that is fitted on the support of the basic machine, allows to balance spindles rotating on their bearings. The measure of the unbalance is taken on two planes by means of oscillating supports. For each plane, the module and the phase of the detected unbalance are visualized both in digital and in graphical way. In addition the values of the static and dynamic unbalance can also be displayed.Balancing is simple to perform and the result is accurate in any operative situation. This thanks to the presence of a graphic visualization layout familiar to most machine tool operators and to the selectable languages: English, German, French, Italian, and Spanish that are available as a standard. To correct the unbalance, the operator can enter two correction steps where he employs two different set of twin weight: one for the fine correction, with measures effected at the operativing RPM, the other for the coarse correction, with measures effected at a fixed appropriate, but lower, RPM. Depending on the amount of the detected unbalance, the fine correction step only or both- coarse and fine steps-could be required. The correction is achieved by the operator by positioning two equal masses where indicated by the machine, with reference to the graduated frame present on the flange of the grinding wheel. The algorithms for the insertion of setscrews and drilling are also optionally available. Dedicated parameters tables memorizes the geometric, tolerance and calibration data of any rotor type. The calibration data are obtained by an initial set up procedure performed for each rotor type. The number of stored configurations, that can be immediately retrieved when successive balancing operations has to be performed on a specific rotor type, are virtually unlimited. The human interface, based on an industrial PC, provided with an alphanumeric keyboard, function keys, mouse and I/O interfaces, allows an easy integration of the machine in all the productive networked architectures. The software makes easy and reliable the use of the machine, thank to a multilevel access password system, that makes available only the functions necessary to the different operators. The machine can optionally be supplied with the colours in accordance to the user requirements. The operator's safety is ensured by structural mechanical provisions and by redundant electronic controls at all the stages of the operative cycle.

Technical Data	
Rotating mass	10-50 kg
Maximum rotor diameter	450 mm
Driving system	Loop belt
Driving diameter	40mm min.; 200 mm max.
Distance between support	130 mm min.; 750 mm max.
Support type	oscillating
Shaft diameter	10 mm min.; 50 mm max.
Max. tangential velocity on rotor surface	65 m/s from 250 e 450 mm of rotor diameter 80 m/s for rotor diameter up to 250 mm
Rotor rotation speed	700-6300 g/min (big-small wheel)
Balancing planes	2
Measure repeatability	0,05 g mm/kg
Balancing algorithms	Mass addition, setscrews (optional), drilling (optional)
Machine sizes, (W, D,H)	170x132x180 cm with protection closed 320x132x180 cm with protection opened
Machine mass	1300Kg
Colours	mechanics: green Ral 6011 standard, Other colour optional; monitor, electric boxes, cabinet: beige Ral 7035.
Electric power supply	400 V, tri., 50-60Hz
Electric power	3kW
Compressed air	5 bar, 30 l/h
Human machine interface	Pc Pentium, 64 Mb Ram, HD min 4Mb; Floppy disk, CD ROM;
Gates:	two serial, one parallel, one 10 Mb Ethernet RJ45;
Other characteristics:	colour display LCD 640x480; alphanumeric keyboard with function keys and mouse; operating systems Windows 95 or successive.
Standard languages:	Italian, English , German, French, Spanish.
Options	
Certified master	
Statistical process control	Data collection and statistics. X, R , charts; Cpk of initial and final unbalance values on the planes.
Multilevel access password management	
Teleservice package	
Modem or internet connection	
Diagnostic and service program	

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