MC 10 H Unbalance Measuring System

Advantages

- Windows interface for easy and reliable operation
- Touchscreen for quick access and efficient operation
- High measuring accuracy for work pieces with permanently high balance quality grades
- Direct, time-saving calculation of correction units for diverse unbalance correction procedures
- High levels of security and availability thanks to different access rights

Application

- Unbalance measurement on horizontal, hard and soft-bearing universal balancing machines
- Unbalance correction by the machine operator
- Modernisation of unbalance measuring systems on older balancing machines
- Unbalance measurement on two different balancing machines

Description

The Hofmann MC 10 H unbalance measuring system is a solution developed for balancing rotors on horizontal soft or hard bearing universal balancing machines. During the development of the MC 10 H, focus was placed on the efficient balancing of a wide range of rotors, including single unit and batch sizes. All important input menus can be called upon at the touch of a button by the touchscreen or keyboard applications.

The screens menus are clearly designed for quick interpretation by the operator, supplementary diagrams also aid clarity for the in putting of parameters.

The MC 10 H unbalance measuring system supports and guids the operator during manual correction of rotor unbalance. Additionally the MC 10 H calculates the unbalance correction in the required correction units for all known forms of correction methods. When the prescribed balancing tolerance (or the calculated tolerance according to ISO 1940) is reached, this is clearly indicated on the screen by the change in colour of the measured values.

A balancing protocol may be established immediately after each balancing process. It can either be sent directly to a printer or be transmitted to the company network via the Ethernet interface.

The processing of unbalance measuring signals within the MC 10 H is configured with extreme care. Thanks to the use of precision hardware and efficient algorithms, only the signals generated by the rotor unbalance are filtered out and used for calculating the unbalance correction. The result is exceptional accuracy with high levels of reproducibility which forms the basis for perfectly balanced rotors.

The MC 10 H also offers a system backup on an external storage medium, including all operating files which have been created. The restoration of the default factory settings is also possible at any time. This guarantees availability and security.

System functions

- Display of the unbalance in mass, unbalance or correction units
- Display of the unbalance in one or two planes, or as static and couple unbalance
- Automatic tolerance comparison with colour recognition
- Zeroing for electronic compensation of the unbalance display
- Index balancing for compensation of unbalance on balancing spindle or auxiliary shaft and holder, and also for centering errors
- Entry of the rotor parameters (position of correction planes and correction radii)
- Balancing tolerance according to ISO 1940-1
- Entry of unbalance offset (e.g. for key compensation)
- Correction through addition or removal, drilling, milling, stepped correction weights (e.g. screws), correction rings or movable weights
- Input of forbidden zones (not approved for correction)
- Rotor-specific calibration for use with flexible rotors, for example
- Rotor database
- Balancing database
- Tool database for correction tools
- Definition of access rights
- Language selection (German and English as standard, other languages are available)
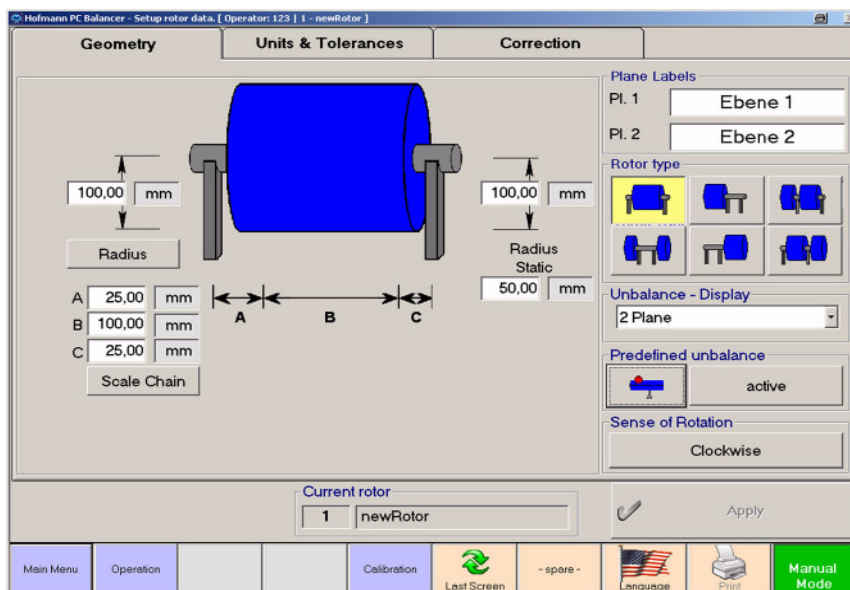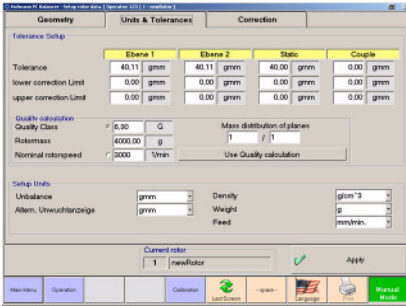- System diagnosis

Balancing in one plane
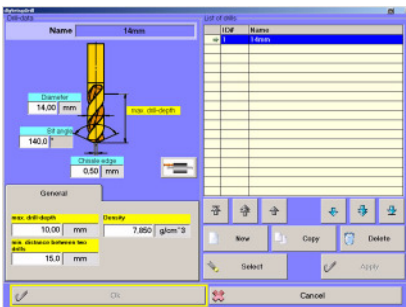

Balancing in two planes
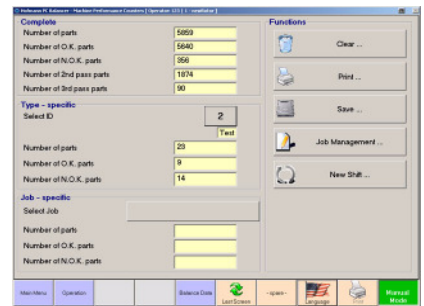
Performance counter

Rotor data setting

Support arm attachment

Tolerance calculation

Correction software (drilling)
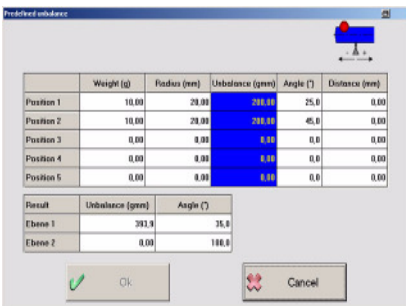
Unbalance offset

Cabinet integration

Balance protocol

HOFMANN
Mess- und Auswuchttechnik GmbH & Co. KG

Rotor   Walze

Operator:	Mustermann	**Date:**	25.11.2009

Customer:	Firma Meyer	**Orderer:**	xxx
Attachment:	Anlage 1	**Order number:**	1364.796
Building:	Bau 34	**Sub order:**	xxx
Inventory number:	807	**Unit-Nr.:**	22223765
Balance machine:	UHK 8		

Rotor data

Units in mm

Quality calculation with ISO 1940

Quality Class:
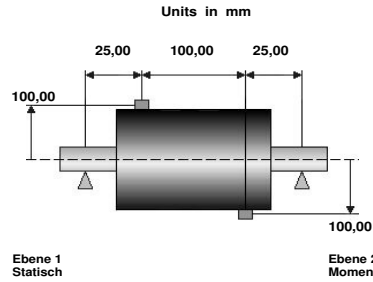   G 6,3
Rotormass:
   4000,00 g
Nominal rotorspeed:
   3000 1/min
Mass distribution of planes:
   1 / 1
Static tolerance:

Ebene 1	Ebene 2
40,11 gmm	40,11 gmm
Statisch	**Moment**
80,21 gmm	40,11 gmm

25,00   100,00   25,00
100,00
100,00

Ebene 1   Ebene 2
Statisch   Moment

Measured data

Initial unbalance reached quality   G 8,3 v 2267 1/min

	Speed:	600 1/min		
	Ebene 1:	53,06 gmm	182,23 °	**out of tolerance**
	Ebene 2:	10,61 gmm	2,23 °	**in tolerance**
	Statisch:	42,45 gmm	182,23 °	**in tolerance**
	Moment:	31,84 gmm	182,23 °	**in tolerance**

Residual unbalance reached quality   G 6,1 v 3092 1/min

	Speed:	600 1/min		
	Ebene 1:	38,91 gmm	182,23 °	**in tolerance**
	Ebene 2:	7,78 gmm	2,23 °	**in tolerance**
	Statisch:	31,13 gmm	182,23 °	**in tolerance**
	Moment:	23,35 gmm	182,23 °	**in tolerance**

Remark: xxx

Balancing protocol
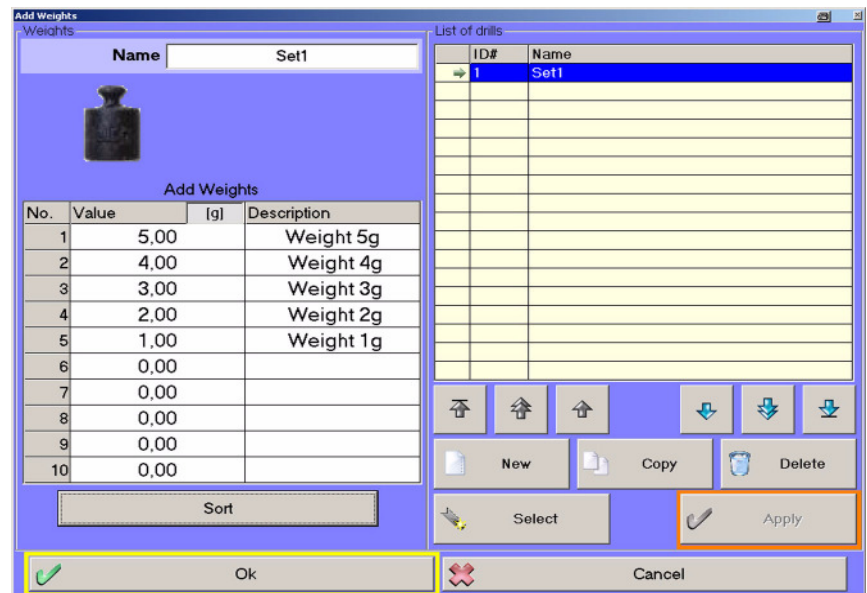
Entry of a weight set

Technical data

General	
Application	Horizontal, hard- and soft-bearing universal balancing machines
	Modernisation of existing balancing machines

Basic system	
	- Dispay of the unbalance in terms of mass or unbalance units
	- Display of the unbalance in one or two planes, or as static and couple unbalance
	- Automatic tolerance comparison with colour recognition
	- Zeroing for electronic compensation of the unbalance display
	- Index balancing for compensation of unbalance on balancing spindle or auxiliary shaft and holder, and also for centering errors
	- Entry of unbalance offset (e.g. for key compensation)
	- Entry of the rotor parameters (position of correction planes and correction radii)
	- Balancing tolerance according to ISO 1940-1
	- Correction polar or in component
	- Correction through addition or removal
	- Rotor database
	- Balancing database
	- Definition of access rights
	- Language selection (German and English as standard, other languages are available)
	- System diagnosis

Measuring electronics	
Speed range	300 - 3,000 rpm (standard), other speeds available on request
Measuring time	Min. 3 seconds, depending on rotor, machine and balancing speed
Measuring method	Separation of measuring signal from other vibration interference using watt-metric measuring method with upstream parallel filter
Interfaces	Hofmann CAN measuring bus, sensor connections
Dimensions	1 HU for cabinet installation, 450 mm x 45 mm x 300 mm (W x H x D)
Mains supply	115/230 V +/- 10%, 50/60 Hz

Industrial PC	
Operating system	WINDOWS XP®
Working memory	Min. 256 MB
Hard disk	Min. 80 GB
Interfaces	USB, CAN measuring bus, CD-ROM drive (optional), Ethernet
Screen	19" (15") touchscreen, IP 65
Data storage	Via USB stick, external hard disk, Ethernet
Logging	Printer protocol (PDF-file) with customer's logo and customer specific comment lines or list in tabular form
Mains supply	115/230 V +/- 10%, 50/60 Hz

Options

- Angle indexing indicator Posiquick C
- Correction software
  - *Drilling*
  - *Milling*
  - *Stepped weights*
  - *Movable weights*
  - *Rotor-specific calibration*
- Statistics software
- Desktop version
- CD-ROM drive
- Operation on two machines

Delivery scope

- MC 10 H measuring electronics system
- Industrial PC
- Touchscreen with keyboard and mouse
- Mounting accessories
- Cable set
- Operating instructions

All information without obligation, subject to change without notice!

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