

440 KBTU Transfer Balancing Machine for Wound Armatures



- Integrated overhead rotary transfer
- Machine base of mineral casting with good damping characteristics
- Automatic sequence, secured, controlled by Soft PLC
- NC axes for all movements
- Integration with production lines
- Powerful PC based industrial measuring unit
- Photo based operating manual for conversion of machine
- Picture and text based fault diagnosis
- Teleservice for measuring and control system

Range of application

Measurement and correction of unbalance of armatures of various sizes. Application of the machine in production lines for large rotor volumes. Unbalance correction by milling into the stack (profile/slot milling) in one or two planes.

Design

Four-station machine with fully automatic sequence of operations. Station-to-station transfer and integration with peripheral equipment through integrated rotary transfer system.

Work-pieces can be delivered to the machine by conveyor belt or on pallets.

Correction methods

Profile milling:

Polar unbalance correction at the correct location, suitable for most applications.

Polar slot-milling:

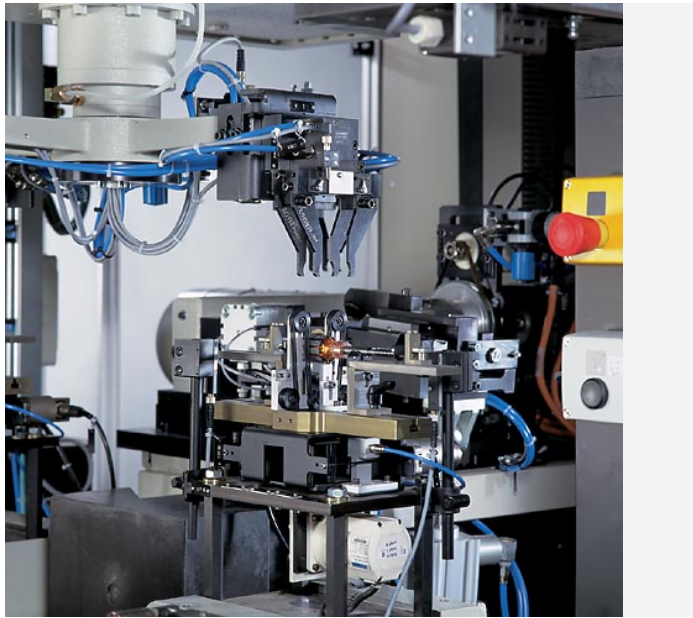
The milling spindle with twin cutter is displaced axially to shift the effect of the milling operation to the polar direction of the unbalance.

Slot-milling:

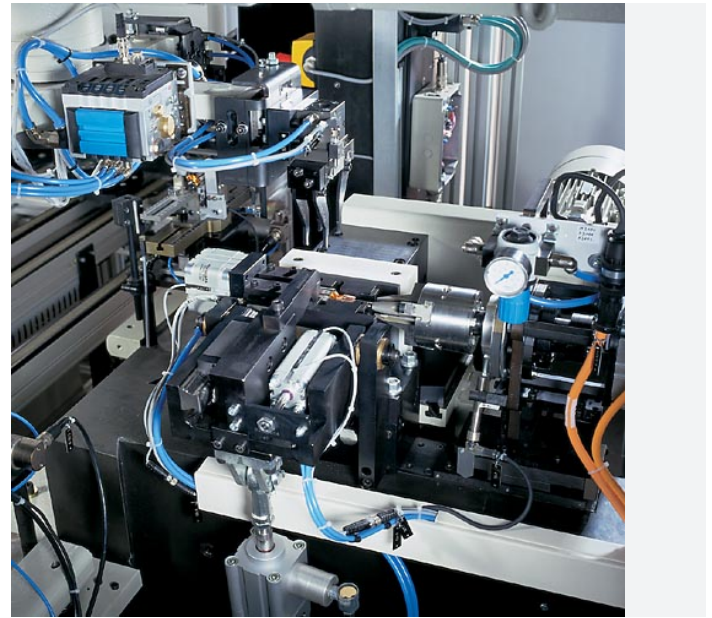
A variable method for quasi-polar or component correction. High flexibility through employment of single or multiple cutters and adaptation of the component angle.

All correction methods can be used for armatures with inclined or straight stack slots. In addition to material removal by plunge milling, weight removal can be increased by controlled axial cutter advancing.

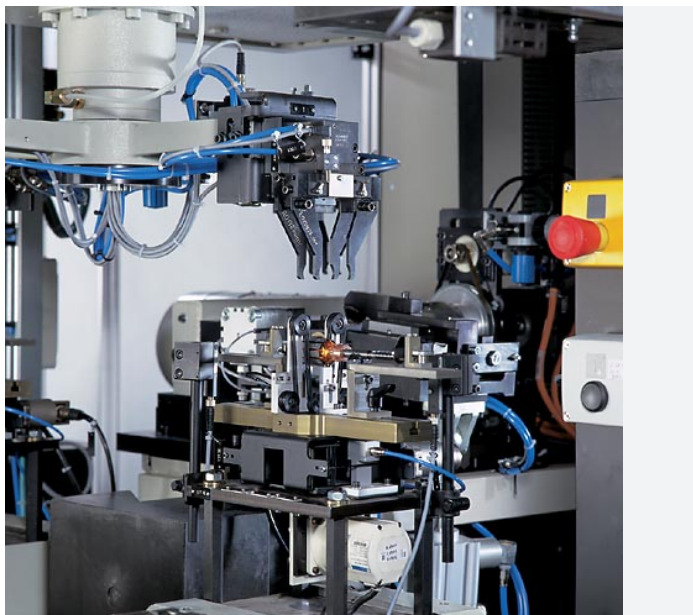
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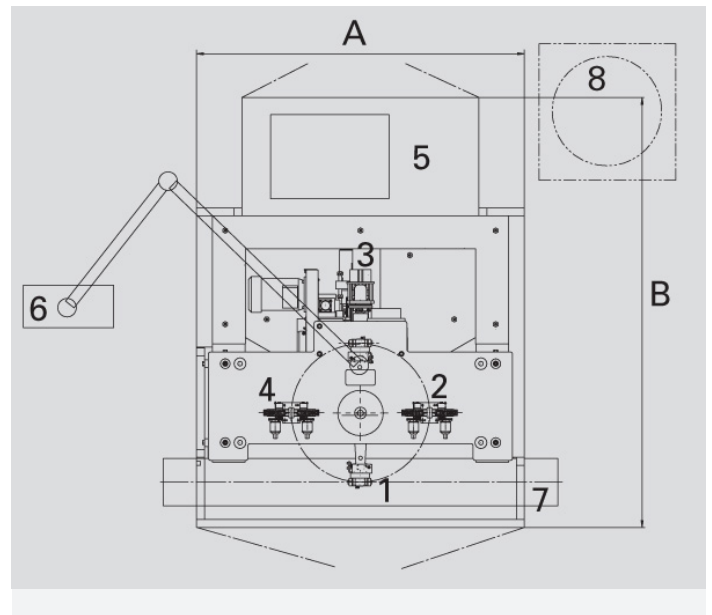
The transporter operates with a lift-and-turn gear and is regulated by frequency-controlled drive. In a flowing, sine-wave motion the rotors are safely transferred through the stations. This ensures short cycle times with smooth acceleration, and exact positioning. We offer a variety of customized solutions for integration with existing production lines and the sorting of out-of-tolerance rotors.



Flexible installation and easy change over capability also in the case of the correction station. The digitally controlled milling and positioning equipment operates effectively and accurately, and also permits the desired milling method to be selected without a control change. Whether polar profile milling or slot milling in components, whether plunge or axial milling, this machine is designed for any processing format.



The balancing unit is mounted on spring bars. A pneumatic damping cylinder locks the balancing unit during loading. The belt drive with AC servo motor and precise electro-dynamic vibration sensors complete the unit. The bearing assembly equipped with scaling or revolving heads allows a simple change over to other rotor types within short time. The electronic angle impulse sampling operates accurately and requires no separate reference mark.



- 1 Pick-up/transfer device
- 2 Measuring station
- 3 Correction station
- 4 Control station
- 5 Switch cabinet
- 6 Measuring system, positioning control
- 7 Interlinking (option)
- 8 Swarf extractor (option)

Plan view (non-binding example)

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Technical data at a glance		441 KBTU	442 KBTU	443 KBTU
Measuring unit		CAB 850	CAB 850	CAB 850
Polar profile milling		•		
Slot milling in components			•	
Polar slot milling				•
Commutator armatures				
Weight	[kg]	0,1 - 2	0,1 - 2	0,1 - 2
Diameter	[mm]	24 - 82	24 - 66	24 - 40
Length	[mm]	69 - 250	90 - 250	90 - 190
Stack height	[mm]	12 - 65	30 - 65	30 - 50
Machine				
Width A	[mm]	1720	1720	1720
Depth B	[mm]	2700	2700	2700
Height C	[mm]	2780	2780	2780
Balancing speed	[min ⁻¹]	1500 - 2100	1500 - 2100	1800 - 2100
Measuring uncertainty	[gmm]	0,02 - 0,1	0,02 - 0,1	0,02 - 0,1
Achievable tolerance	[gmm]	0,4	0,1	0,2
Cycle time (plunge milling) / ???	[s]	6	8	6
Cycle time (axial-milling)	[s]	6 - 8	8 - 10	6 - 8
Change over time	[min]	5 - 15	5 - 15	5 - 15
Air pressure	[kPa]	450	450	450
Air consumption	[m ³ /h]	2,5	2,5	2,5
Power consumption	[kVA]	10	10	12

	Order No.	R0190100.01	R0190200.01	R0190300.01
	Order No.	R0190101.01	R0190201.01	R0190301.01
Mill slot recognition, measuring station	Order No.	-	R0190203.01	-
Chip-extractor	Order No.	R0190104.01	R0190204.01	R0190304.01
Unloading equipment with OT belt	Order No.	-	-	-
Compact swivelling gripper	Order No.	R0190107.01	R0190207.01	R0190307.01
Axial clamping in the milling station	Order No.	-	-	-
Pneumatic sliding spindle	Order No.	R0190109.01	R0190209.01	-

A photograph of a large industrial machine, the 440 KBTU Transfer Balancing Machine, used for balancing wound armatures. The machine is white and blue, with a large, complex metal component being processed. The background is a clean, industrial setting.

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2) Data non-binding, dependent on the respective equipment supplied

3) Rotor-dependent