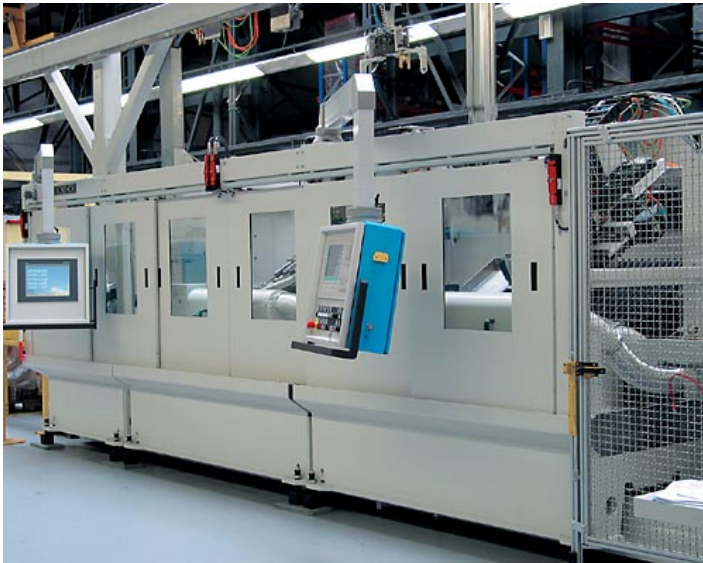


200 RBTK Transfer Balancing Machine for Crankshafts (Exchange Transport)



- Fully automatic operating sequence
- Integrated exchange transfer
- Interfacing with production lines
- NC axis control for transporter and correction
- Optimized unbalance correction
- High-speed drill unit with minimum lubrication or coolant lubrication

Design

Multi-station machine with fully automatic operating sequence. Modular machine design provides optimum adaptability to the application. Layout of the machine transverse to the in-feed and outfeed conveyors. All stations of the machine covered by numerically controlled loading gantry delivering crankshafts lengthwise to the machine. One or two transfer carriages, one or two double grippers depending on requirements. Short cycle times through NC-control, minimum mass movement and short travel distances. Microprocessor-controlled measuring equipment for calculation of optimum correction. Software program for component or optimized correction and statistics. Programmable machine control and diagnostic system with monitor display for shortening the machine downtime is standard (display in German, English, or other official EC languages, other languages on request).

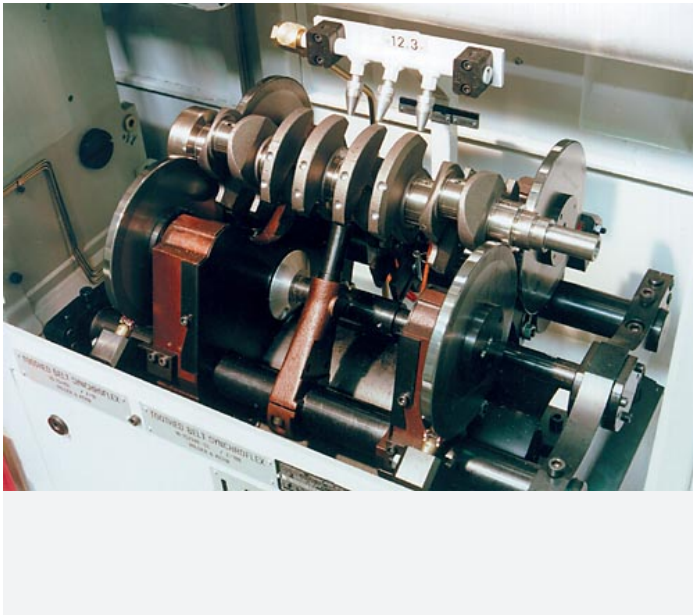
Range of application

Measurement and correction of unbalance of finished-machined crankshafts.

Flexible use in largeseries production, integrated with the production line and with any arbitrary infeed and outfeed conveyors.

Unbalance correction by drilling into the counterweights in one or two correction steps.

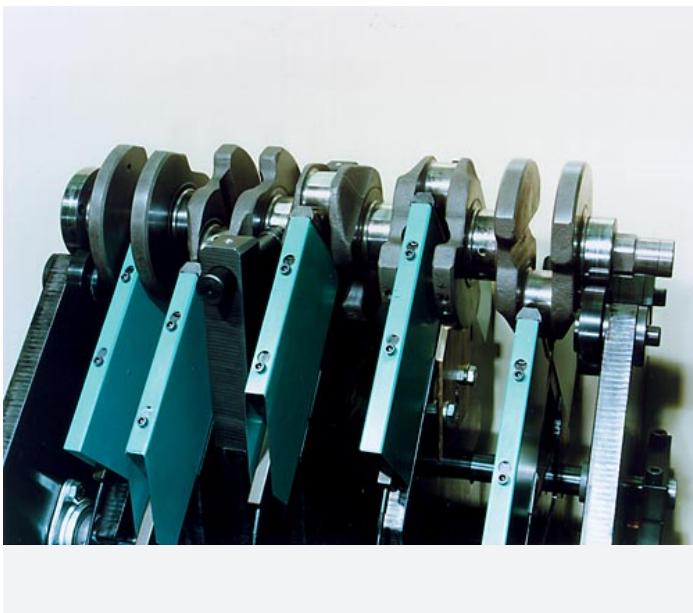
200 RBTK Transfer Balancing Machine for Crankshafts (Exchange Transport)



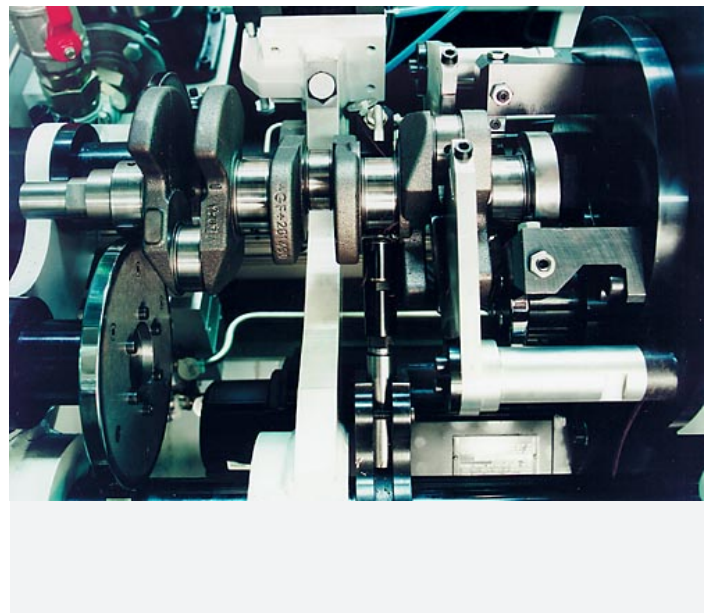
Measuring station for symmetrical crankshafts with coupling-free drive. Drive of the shaft by synchronous drive rollers with hard-metal coating. Crank pin detection provides the angle reference signal.



Correction stations with easy-access, horizontally-arranged drill unit with electro-mechanical feed mechanism. Precise touch point signal and depth-control. Drill with coolant or oil. Clamping unit completely enclosed, to prevent contamination of the machine by coolant and chips. Chip removal by under-floor chute or chip conveyor.

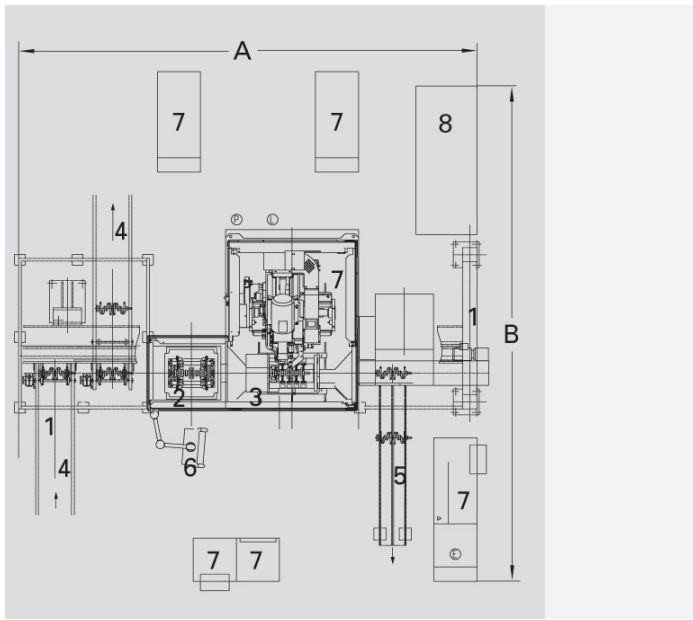


Geometry measuring station (optional) with the following functions: Identification of crankshaft type and sampling of crank pin geometry. The latter allows the compensation of unbalance errors through position deviations of the crank pins. The unbalance condition in later assembly is considerably improved.



Measuring station for asymmetrical crankshafts with spindle-drive, hook-adaptor and hardened metal rollers. Support for the shaft on the outside main journals, synchronization at the crank journal. A bob-weight eliminator in the drive compensates for missing crank masses contained in the counterweights.

200 RBTK Transfer Balancing Machine for Crankshafts (Exchange Transport)



1 Replacement transport (loading portal) 2 Geometry measuring station 3 Measuring, control and correction station 4 Feed / outlet "IO parts" 5 Outlet "out of tolerance" 6 CAB 850 measuring device (operation) 7 Switch cabinet 8 Coolant

Plan view (non-binding example: dimensions of the machine and set-up of the switch cabinets depend on the relevant application)

200 RBTK Transfer Balancing Machine for Crankshafts (Exchange Transport)

Technical data at a glance		220 RBTK	220 RBTK	280 RBTK	280 RBTK
Measuring unit		CAB 950	CAB 950	CAB 950	CAB 950
Optimized correction		•	•	•	•
Balancing unit with roller-drive		•		•	
Balancing unit with hook-drive for asymmetric crankshafts			•		•
1st correction station		•	•		
2nd correction station				•	•
1st transfer carriage with double-gripper		•	•	•	•
Number of stations		2	2	3	3
Crankshafts					
Symmetrical crankshafts		•	•	•	•
Asymmetrical crankshafts		•		•	•
Weight, without master rings	[kg]	2 - 10	2 - 10	6 - 50	8 - 40
Weight, with master rings	[kg]	-	12	-	50
Total length	[mm]	200 - 420	200 - 420	320 - 790	350 - 790
Journal distance, max.	[mm]	60 - 320	60 - 320	22 - 660	240 - 660
Correction planes distance	[mm]	30 - 280	30 - 280	170 - 600	200 - 600
Main journal diameter	[mm]	30 - 60	30 - 60	40 - 75	40 - 80
Rotating outside diameter	[mm]	80 - 150	80 - 150	120 - 195	120 - 200
Diff. Main journal to outside diameter	[mm]	max. 100	max. 100	max. 120	max. 130
Crank pin diameter	[mm]	20 - 45	20 - 45	30 - 60	30 - 60
Stroke	[mm]	40 - 80	40 - 80	55 - 90	55 - 95
Machine					
Width A	[mm]	2800	2800	4200	4200
Depth B	[mm]	2600	2600	2600	2600
Height C	[mm]	2000	2000	2000	2000
Balancing speed	[min ⁻¹]	450 - 600	450 - 600	450 - 600	450 - 600
Measurement uncertainty	[gmm]	see table on page 81	see table on page 81	see table on page 81	see table on page 81
Cycle time	[s]	55 - 100	55 - 100	37 - 60	37 - 60
Air pressure	[kPa]	600	600	600	600
Power consumption	[kVA]	15	15	20	20

Order No.	R0310300.01	R0310500.01	R0310400.01	R0310600.01
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Options (extract)

200 RBTK

Transfer Balancing Machine for Crankshafts (Exchange Transport)

	Order No.	R0310304.01	R0310304.01	R0310504.01	R0310504.01
Multi-spindle drill unit, rigid	Order No.	R0310305.01	R0310305.01	R0310505.01	R0310505.01
Correction station with rotated clamping station for correction into the crank pins instead of counterweights	Order No.	R0310303.01	R0310303.01	R0310503.01	R0310503.01
Geometry measurement for crank pins	Order No.	R0310302.01	R0310302.01	R0310502.01	R0310502.01
Coolant preparation, fineness 30 µm	Order No.	R0310301.01	R0310301.01	R0310501.01	R0310501.01

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

3) Dependent on the crankshaft design and correction scheme