

300 EBTK, 310 EBTK Balancing Machine for Crankshafts



- Universal machine concept
- Automatic unbalance measurement
- Precision positioning during correction
- Microprocessor-controlled measuring unit

Design

Two-station machine with separate measuring and correction stations. Measuring station with coupling-free roller-drive or hook drive for asymmetrical crankshafts. Correction station with positioning equipment and electro-mechanical drilling equipment.

Range of application

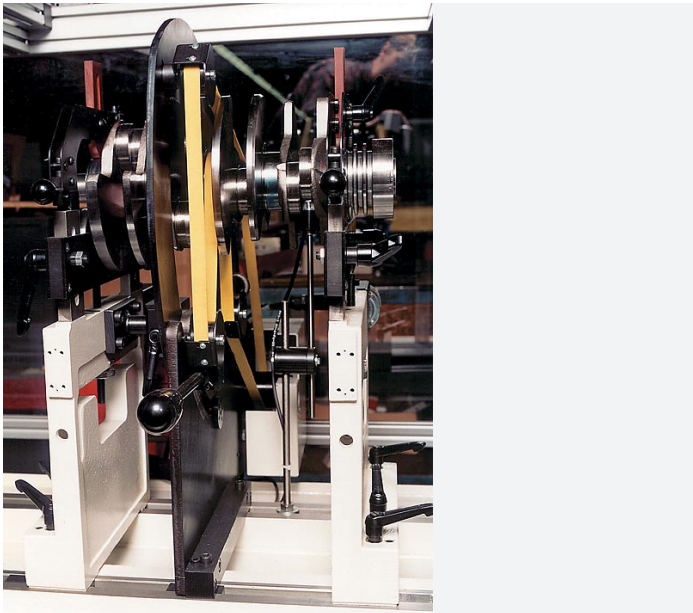
Measurement and correction of unbalance in machined passenger vehicle and light commercial- vehicle crankshafts. Use in small and mid-volume series production or as a repair balancing machine.

Unbalance correction by drilling into the counterweights in one or more steps at a separate drill stand (correction station). Manual handling of the work-pieces between measuring and drilling stations.

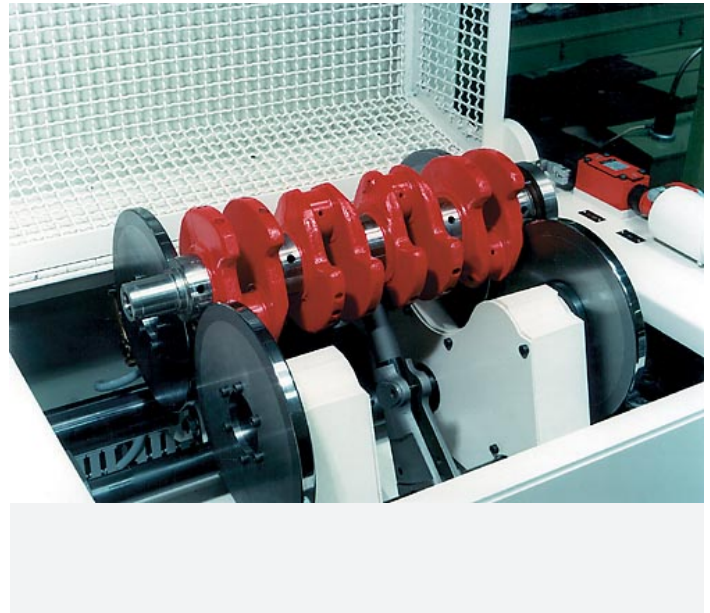
Sequence of operations

- Load a crankshaft into the measuring station, manually or by lifting device
- Close the protective shroud. Automatic measuring run and display measured values.
- Open the protective shroud and move the crankshaft to the correction stand.
- Insert the crankshaft into positioning device and couple with angleencoder for optional indexing aid or with locking-pin device
- Drill correction holes one after another corresponding to the display
- Return the crankshaft to the measuring station. Automatic check run and display of residual unbalance.
- Remove the crankshaft. If the crankshaft is still out of tolerance proceed with a second step.

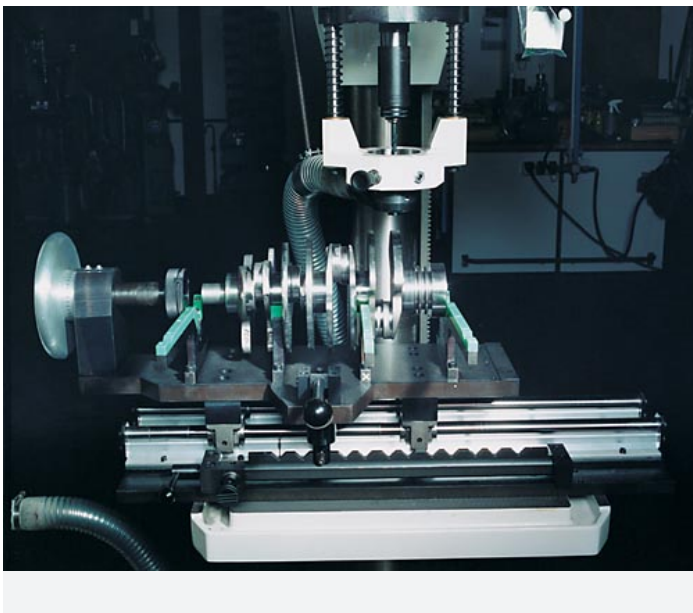
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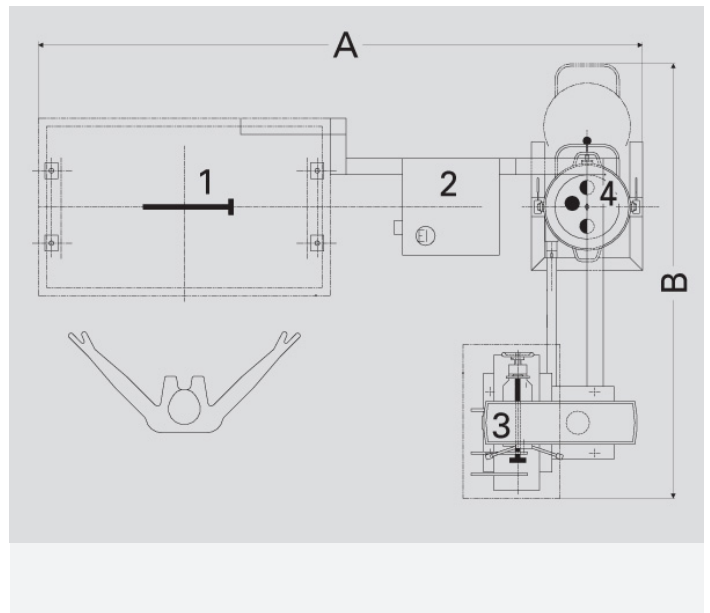
Universal balancing unit with belt-drive for small volumes and repair, or for re-balancing applications. Due to the ease of setting up the support pedestals and the overslung belt-drive this solution is well suited to single-piece and small production volumes. Asymmetrical crankshafts can be balanced with bob weights.



Balancing unit for series production with an integrated coupling-free drive for symmetrical crankshafts. Drive supplied by two synchronous driven rollers with carbide coating. Non-contacting sensor for angle reference generation. For asymmetrical crankshafts (e.g. R5, V6 and V8 motors) the drive can be through an enddrive and hook-adaptor. Free moments in the crankshaft are compensated by the drive so that no bob weights are required.



Correction station with positioning/snap-in locking device and electro-mechanical drill unit, with either single or two-spindle drill. Chipextractor and indexing aid are options. The unbalance correction, polar or in components, in areas of counterweights that can be drilled as far as not limited by previous correction holes.



1 Balancing machine 2 Switch cabinet with measuring device 3 Correction station 4 Swarf extractor

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

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Technical data at a glance	300 EBTk	310 EBTk
Measuring unit	CAB 950	CAB 950
Passenger-vehicle crankshafts	•	•
Commercial-vehicle crankshafts	•	•
Balancing unit with roller-drive	•	
Balancing unit with hook-drive		•
Manual loading and unloading	•	•
Over-lapping cycle	•	•
Drilling unit with controlled depth	•	•

Rotor

Weight, max.	[kg]	6 - 35	6 - 35
Total length	[mm]	280 - 790	280 - 790
Journal distance, max.	[mm]	650	650
Main journal diameter	[mm]	40 - 75	40 - 80
Outside diameter, max	[mm]	200	200

Machine

Width A	[mm]	3800	3800
Depth B	[mm]	1300	1300
Height C	[mm]	2000	2000
Balancing speed	[min ⁻¹]	450 - 600	450 - 600
Measurement uncertainty	[gmm]	5 - 15	10 - 20
Cycle time	[s]	45 - 60	45 - 60
Drill capacity in St 60	[mm]	28	28
Power consumption	[kVA]	6,5	6,5

Order No.	R0290100.01	R0290200.01
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Order No.	R0290103.01	R0290103.01
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Order No.	R0290104.01	R0290104.01
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2) Acc. to DIN 1319, 95% probability, work-piece dependent (without unloading)

3) Dependent on crankshaft design, correction scheme and initial unbalance

4) Data non-binding, dependent on the respective equipment