

320 SBRK-C, 520 SBRK-C, 720 SBRK-C Balancing Machine for Crankshafts



- Fully automatic balancing of crankshafts
- Digital measurement processing and optimized correction calculation
- NC axis control for unbalance correction
- High-speed drilling with drill lubricant or minimum quantity lubrication
- Interfacing with loading gantry is possible

Range of application

Measurement and correction of unbalance of machined passenger vehicle and commercial-vehicle crankshafts. Use of the machine in mid-volume production. Unbalance correction by drilling into the counterweights in one or more correction steps.

Design

Single-station machine with stable balancing frame and hydro-dynamic support pedestals. Hook-drive for driving the crankshaft at the crankpin. Rear-inclined drill gantry with NC-controlled carriage-drill unit. Indexing the crankshaft, displacement of the drill unit and control of drilling depth by the microprocessor-controlled measuring unit.

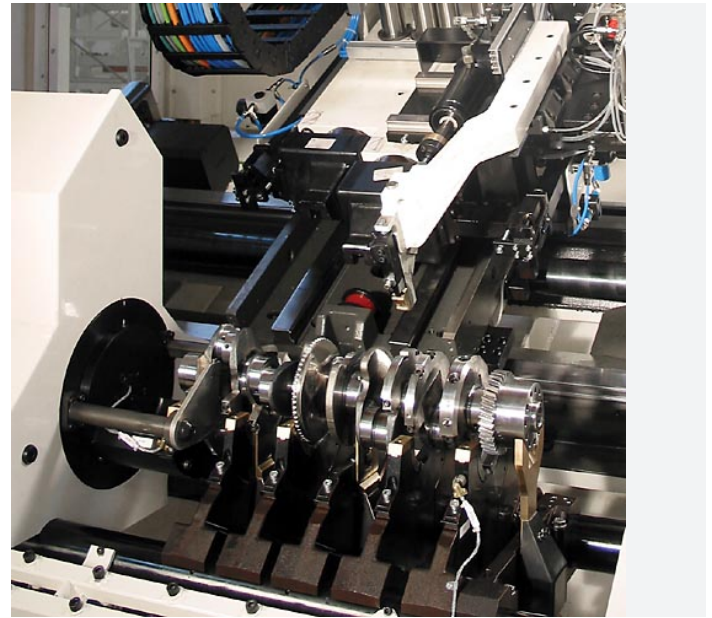
Sequence of operations

- Manually or automatically load the crankshaft
- Close the protective door and start the automatic measuring run:
 - Lower the crank into sleeve shells, close the counter bearing, measuring run, drill the correction holes, check run, open the counter bearing, index to the home position, lift
- Open the protective door and unload

Special features

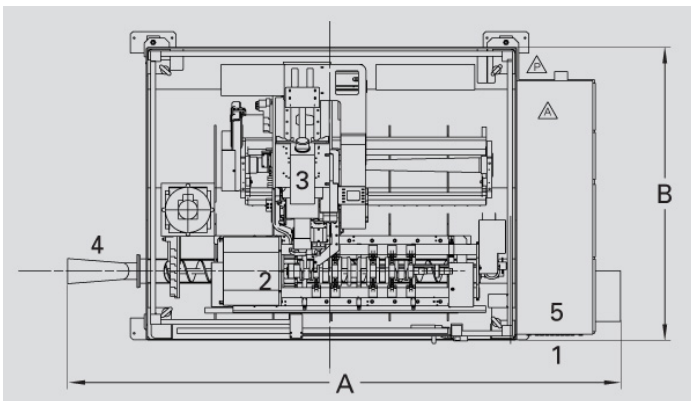
Measurement and correction of unbalance in the same station; hence less rotor handling. The vibrating frame with multiple journal bearings provides measurement under conditions similar to operating conditions, less surface loading when drilling and is gentle on main crank journals. Drilling with coolant shortens drilling time and improves tool life.

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Microprocessor-controlled measuring unit with monitor for optimum correction calculation. Software packages available for component or optimized correction. Further features: Operator prompting, diagnostic program, fault display, statistics program and printer interface. Display in German or English is standard; other languages on request.

Drive by precision spindle and hook at one crank pin means easy loading of the machine and positive connection between crankshaft and drive. When balancing asymmetric shafts free moments are compensated for at the drive shaft. Counter holder prevents lifting of the shaft during rotation. A 2-spindle drilling unit enables permits different drill diameters without tool change.



- 1 Operating panel
- 2 Measurement and control unit
- 3 Drill
- 4 Swarf removal
- 5 Switch cabinet

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		320 SBRK	520 SBRK	520 SBRK-2	720 SBRK	
Measuring unit		CAB 950	CAB 950	CAB 950	CAB 950	
Passenger car crankshafts		•				
Light commercial vehicle crankshafts		•	•	•		
Truck crankshafts			•	•	•	
Asymmetrical crankshafts		•	•	•	•	
Sleeve bearing and hook driver		•	•	•	•	
NC controlled drill unit		•	•	•	•	
Minimum quantity lubrication		•	•	•	•	
Swarf conveyor		•	•	•	•	
Crankshaft						
Weight, max.	[kg]	8-40	30-100	30-160	80 - 350	
Overall length	[mm]	350-790	500-1000	500-1400	800 - 2500	
Bearing distance max.	[mm]	240-660	350-750	350-1100		
Distance between correction planes	[mm]	200-600	300-700	300-1050	800 - 2250	
Main journal diameter	[mm]	40-80	65-125	65-125	80 - 160	
Outside diameter	[mm]	120-200	160-310	160-310	80 - 400	
Crank pin diameter	[mm]	30-60	50-90	50-90		
Stroke	[mm]	55-95	100-160	100-160		
Machine						
Width A	[mm]	3750	3750	3750	4950	
Depth B	[mm]	2200	2200	2200	2200	
Height C	[mm]	2300	2300	2300	2300	
Balancing speed	[min ⁻¹]	400	265	265	300	
Measurement uncertainty	[gmm]	20 - 30	30 - 80	30 - 80	20 - 30	
Cycle time	[s]	90 - 300	90 - 300	90 - 300	90 - 300	
Air pressure	[kPa]	600	600	600	600	
Power consumption	[kVA]	8	10	10	10	
		Order No.	R0280200.01	R0280300.01	R0280400.01	R0280100.01
		Order No.	R0280206.01	R0280306.01	R0280406.01	R0280106.01
Lifting device 5)		Order No.	R0280203.01	R0280303.01	R0280403.01	R0280103.01
Drill wear monitoring		Order No.	R0280205.01	R0280305.01	R0280405.01	R0280105.01

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High-pressure inside cooling 16 bar	Order No.	R0280201.01	R0280301.01	R0280401.01	R0280101.01
Coolant conditioning system, fineness 30 µm	Order No.	R0280202.01	R0280302.01	R0280402.01	R0280102.01

- 2) Acc. to DIN 1319, 95% probability, dependent on work-piece (without uncoupling or unloading)
- 3) Minimum achievable cycle times, depending on crankshaft design
- 4) Plus control cabinet, chip conveyor and optional coolant condition. Data non-binding, depending on equipment supplied
- 5) For loading by means of lifting device