

100 FBMP, 200 FBMP, 100 RBMP Weight-Correction Machines for Connecting-Rods



- Modular design for all connecting-rod designs
- Automatic operating sequence, work-piece handling either manually or by transporter
- High accuracy through digital measured value processing and numerically-controlled correction procedure

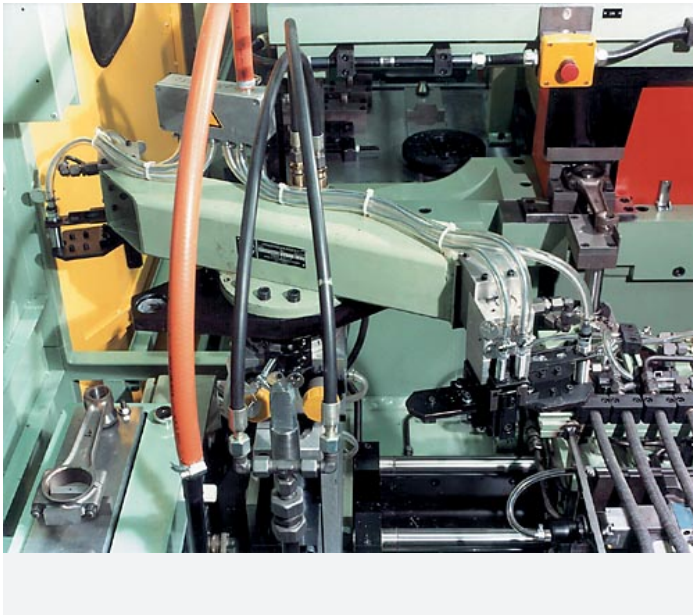
Range of application

Measurement of the weight of rotating and oscillating parts or the absolute weight of machined connecting-rods for internal combustion engines. Controlled weight correction at the prepared correction pads at the small-end and big-end. Weight correction is usually followed by fineboring. Application of the machine in large-volume series production, interfaced with the production line.

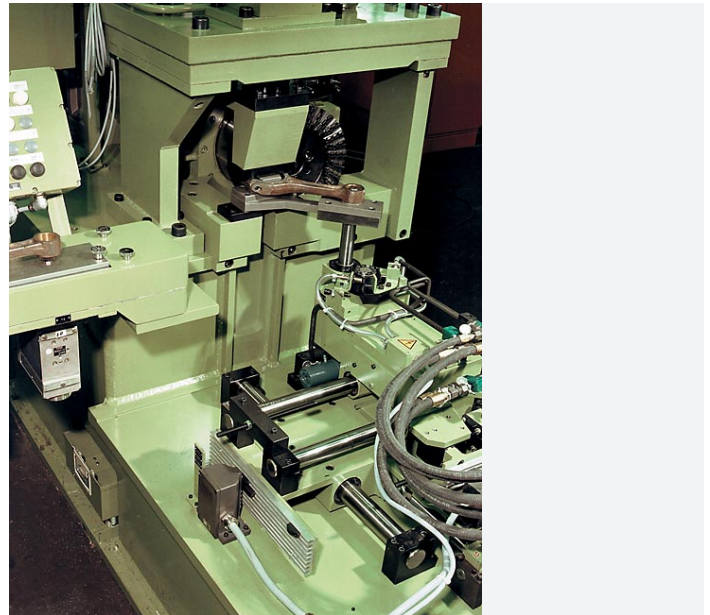
Design

Two-station machine with automatic operating sequence. Modular machine design, thus optimally adaptable to the task. Arrangement of the stations directly adjacent to each other. Loading by hand, transfer of the connecting-rod in the machine by positioning device or exchange transporter. Welded machine base for accommodation of the units, prepared for removal of the chips by a slide chute. Electromechanical, numerically controlled milling unit and digitally operating tandem weighers. Microprocessorcontrolled measuring equipment for acquisition of the measured values and processing; SPS machine control with fault diagnosis.

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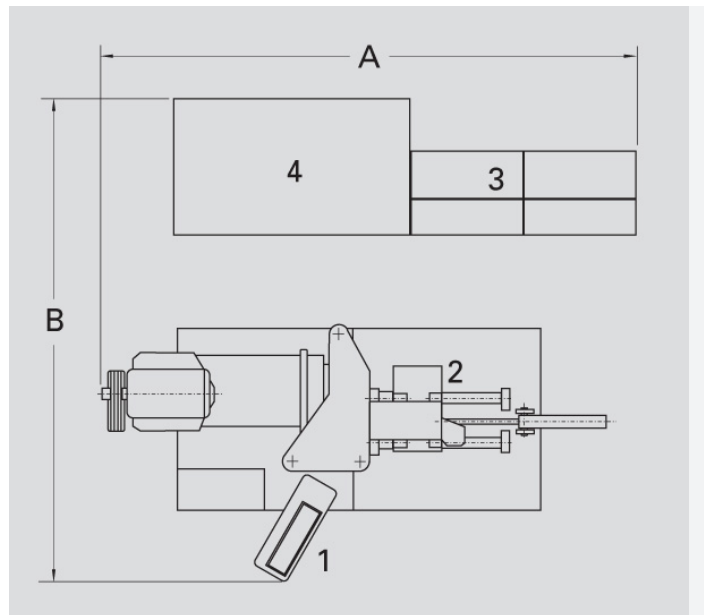
Example of combining both stations by handling unit type RBMP. Linking by robot, linear or surface loader portal is also possible.



Correction station with digitally-controlled, electro-mechanical slide units. Milling of the correction pads with amply dimensioned face milling cutters with divided arrangement for overlapping cut. The horizontal layout of the units allows easy chip removal directly through the machine bed into a collection bin, or on an optional chip-conveyor. Depending on the design of the connecting-rod, and the number of correction pads, either one or two milling units and a loading carriage can be used. The clamping device operates with direct force flow.



Measurement and check weighers each with two electronic load-cells for the big-end and small-end. Digital determination of absolute weight or deviation from pre-defined target weight. Zero setting according to a master connecting-rod. Weigher adaptable to other work-piece types by adjustment or exchange of the adapter.



1 Measuring station 2 Milling station 3 Switch cabinet 4 Hydraulics

Plan view (non-binding example of 100 FBMP: dimensions of the switch cabinet depend on the relevant application)

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Technical data at a glance		102 FBMP	112 FBMP	202 FBMP	102 RBMP	112RBMP
Measuring unit		PC 850				
Con-rod with 1 boss		•			•	
Con-rod with 2 bosses			•	•		•
Measurement/Control station combined		•	•	•	•	•
1 milling unit		•	•		•	
2 milling units				•		•
Integrated transporter					•	•
Connecting-rod						
Total weight	[g]	400 - 7000	400 - 7000	400 - 7000	400 - 7000	400 - 7000
Weight, small-end	[g]	110 - 1900	110 - 1900	110 - 1900	110 - 1900	110 - 1900
Weight, big-end	[g]	290 - 5100	290 - 5100	290 - 5100	290 - 5100	290 - 5100
Gauge	[mm]	110 - 300	110 - 300	110 - 300	110 - 300	110 - 300
Hole dia. at small-end	[mm]	16 - 56	16 - 56	16 - 56	16 - 56	16 - 56
Hole dia. at big-end	[mm]	40 - 105	40 - 105	40 - 105	40 - 105	40 - 105
Rod thickness	[mm]	20 - 50	20 - 50	20 - 50	20 - 50	20 - 50
Rod width, max.	[mm]	160	160	160	160	160
Correction pad width, small-end	[mm]	10 - 50	10 - 50	10 - 50	10 - 50	10 - 50
Correction pad width, big-end	[mm]	20 - 70	20 - 70	20 - 70	20 - 70	20 - 70
Machine						
Width A	[mm]	1500	1500	1500	4200	4200
Depth B	[mm]	2200	2200	2500	2200	2200
Height C	[mm]	2000	2000	2000	2200	2200
Achievable tolerance	[g]	±1 - 10	±1 - 10	±1 - 10	±1 - 10	±1 - 10
Measurement uncertainty	[g]	0,1	0,1	0,1	0,1	0,1
Milling cutter wheel dia.	[mm]	360	360	360	360	360
Cut width	[mm]	20 - 75	20 - 75	20 - 75	20 - 75	20 - 75
Cycle time	[s]	14 - 36	14 - 36	14 - 36	17 - 26	26 - 36
Air pressure	[kPa]	600	600	600	600	600
Power consumption	[kVA]	20	20	35	38	38

Order No. R0650100.01 R0650200.01 R0650300.01 R0650400.01 R0650500.01

Order No. R0650101.01 R0650201.01 R0650301.01 R0650401.01 R0650501.01

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Hole detection	Order No.	R0650102.01	R0650202.01	R0650302.01	R0650402.01	R0650502.01
Boss detection	Order No.	R0650103.01	R0650203.01	R0650303.01	R0650403.01	R0650503.01
Separate checking weigher	Order No.	-	-	-	R0650404.01	R0650504.01
Chip conveyor	Order No.	R0650105.01	R0650205.01	R0650305.01	R0650405.01	R0650505.01
Linking equipment	Order No.	o.r.	o.r.	o.r.	o.r.	o.r.

2) Acc. To DIN 1319, 95% probability, dependent on form accuracy of correction pads and weight division

3) Dependent on the weight required to be removed, the con-rod material and permissible milling data

o.r. On request