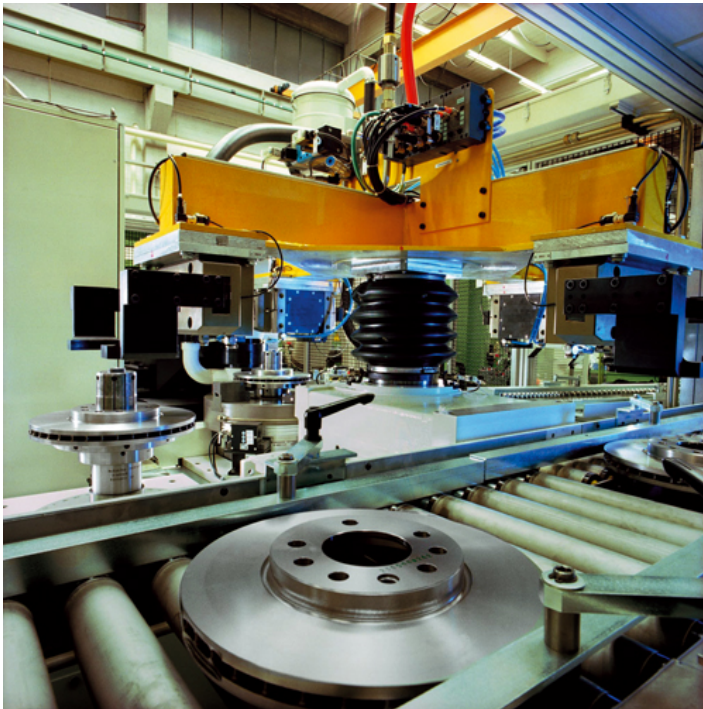


## 450 SVM, 452 SVM, 453 SVM, 454 SVM Vertical Balancing Machines



- Fully automatic function sequence
- Manual and automatic loading and unloading
- Integration with production line
- Fully automatic unbalance correction by milling
- Correction control by NC axes
- Digital measurement data processing
- No hydraulic
- NC controlled power chuck for clamping the brake discs during correction

### Range of application

Measurement and milling correction of unbalance in disc-shaped rotors without their own shaft - such as brake discs, brake drums and flywheels in one plane. Flexible application in series production with simple change over of the machine to other rotor types by manually or fully-automatically changing workpiece adapter parts. Rotors can be fed to the machine in type batches or in random sequence.

Unbalance correction through polar, radial plunge-milling. In case of larger unbalances, the rotors are turned, increasing the amount of material removed.

### Design

Fully automatic machines with high-performance milling unit, horizontal feed axis, automatic height adjustment as option, rotary table and NC controlled power chuck for absorbing the milling forces during correction.

Multiple-station execution with integrated transport device.

Freely programmable control with fault diagnosis with PROTOOL and Pro-Agent. Clamping of the rotor by precision adapter with pneumatic unclamping mechanism.

Unbalance evaluation, correction calculation and control with an industrial PC based measuring unit.

Transport is controlled by two servo axes - one for the lifting movement, the other for the rotation. This ensures highest

positioning accuracy.

Manual or automatic loading and unloading of the machine.

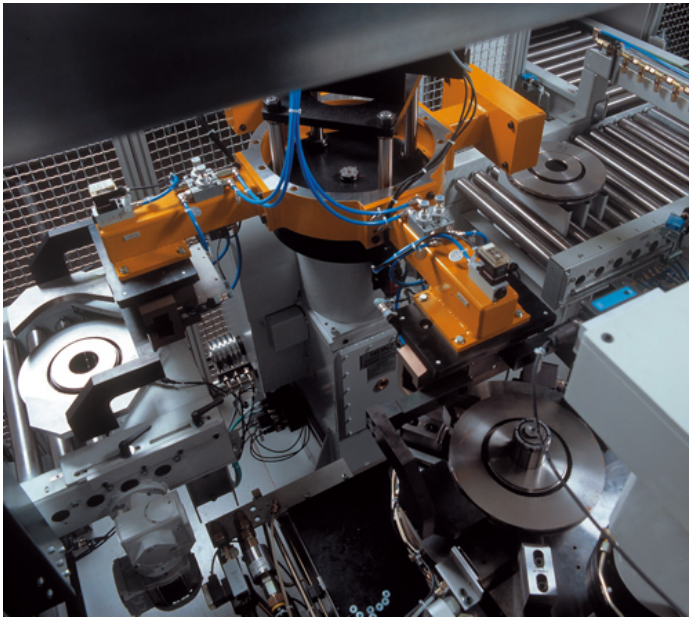
### Special features

CAB 950 PC-based measuring instrument with TFT touchscreen and digital signal processing for efficient suppression of noise signals and highest measuring accuracy.

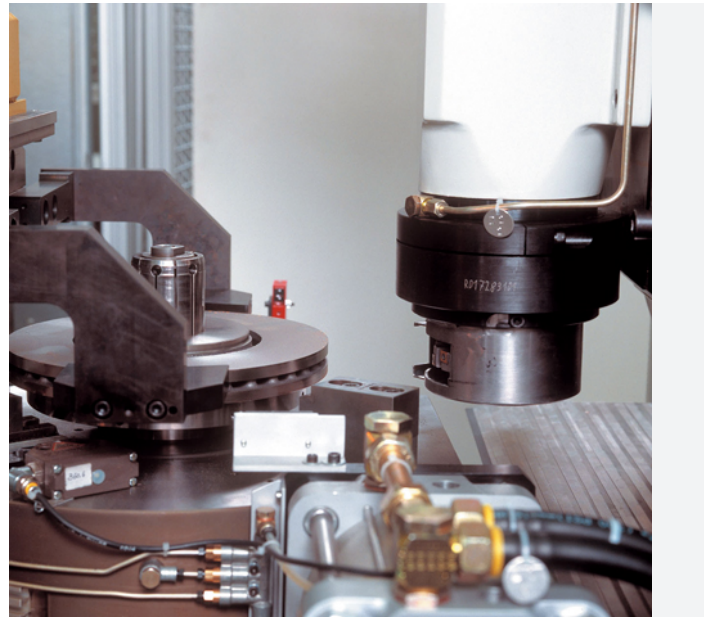
Features: Digital correction control, improved operator prompting and largely automatic setup. Software modules for rotor-dependent calculation and control of the most common, optimized correction methods (polar and in components). Large memory for rotor type data for fast setup of measuring instrument. Machine operation integrated with CAB 950.

Diagnostic programs and fault display by means of PROTOOL/Pro-Agent. Statistics software for checking the quality of production. External interface for data communication and printout. Display in all languages of the European Union; other languages available upon request.

## 450 SVM, 452 SVM, 453 SVM, 454 SVM Vertical Balancing Machines



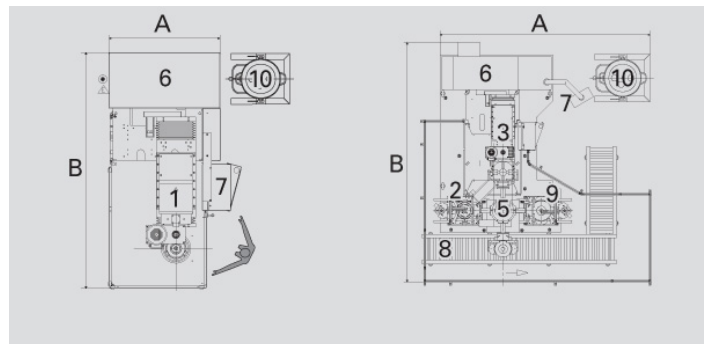
This concept combines measurement and inspection in a single station. Integration into the production line is achieved with the help of a twin-arm replacement transport unit. Several flywheel types can be balanced in mixed mode to extremely tight unbalance tolerances.



Multi-station machine for balancing of brake discs, with lift-and-turn transfer device. The initial unbalance is determined in the measuring station and then corrected in the correction station, following which the residual unbalance is checked. Performing these processes on separate stations optimizes cycle time.



Fully automatic machine for balancing pulleys or vibration dampers, featuring manual loading and unloading. The numerically controlled milling unit can be changed over to a new workpiece type at the push of a button, and ensures highly precise unbalance correction.



Balancing machine 450 SVM  
Plan view (non-binding example)  
Balancing machine 454 SVM  
Plan view (non-binding example)  
1 Measuring and milling station 2 Measuring station 3 Milling station 5 Transport 6 Switch cabinet 7 Measuring device 8 Feed, outlet "IO parts" (optional) 9 Control station 10 Swarf extractor (optional)

## 450 SVM, 452 SVM, 453 SVM, 454 SVM Vertical Balancing Machines

Technical data at a glance		450 SVM	452 SVM	453 SVM	454 SVM
Measuring unit		CAB 950	CAB 950	CAB 950	CAB 950
<b>Combined measuring /</b>					
correction station		•	•		
Separate measuring / correction station				•	•
Separate correction station					•
Transport unit with 2 servo axes			•	•	•
<b>Power chuck with NC clamping</b>					
technology, stroke 55/85 mm		•	•	•	•
Manual loading		•			
Automatic loading			•	•	•
<b>Rotor</b>					
Weight, max.	[kg]	50	50	50	50
Diameter, max.	[mm]	400	400	400	400
Brake disc height, max.	[mm]	130	130	130	130
<b>Machine</b>					
Width A	[mm]	2500	3900	4000	4000
Depth B	[mm]	1630	1900	2500	2500
Height C	[mm]	2200	2500	2500	2500
Balancing speed	[min <sup>-1</sup> ]	800	800	800	800
Measuring uncertainty	[gmm]	2 - 10	2 - 10	2 - 10	2 - 10
Cutter diameter	(mm)	125 (16)	125 (16)	125 (16)	125 (16)
Cycle time, approx.	[s]	35	25	18	12
Air pressure	[kPa]	600	600	600	600
Power consumption	[kVA]	12	17	18	20
	Order-Nr.	R0040100.01	R0040200.01	R0040300.01	R0040400.01
	Order-Nr.	R0040101.01	R0040201.01	R0040301.01	R0040401.01
Internal index balancing	Order-Nr.	R0040102.01	R0040202.01	R0040302.01	R0040402.01
Swarf extractor	Order-Nr.	R0040103.01	R0040203.01	R0040303.01	R0040403.01
Mixes production	Order-Nr.	R0040103.01	R0040203.01	R0040303.01	R0040403.01
Automatic height adjustment with twin milling cutter	Order-Nr.	R0040104.01	R0040204.01	R0040304.01	R0040404.01

## 450 SVM, 452 SVM, 453 SVM, 454 SVM Vertical Balancing Machines

nach DIN 1319, 95% Wahrscheinlichkeit,

- 2) Rotor plus adapter
  - 3) Depending on initial unbalance, correction geometry, cutting data and operator
  - 4) Data non-binding, depending on respective equipment
- o.r. On request