SCHENCK

Universal application

High balancing accuracy

Easily upgradable due to modular design and wide range of accessories

Hard-bearing design provides for quick change-over from one rotor to the next

Ergonomically designed measuring instrumentation type CAB 820 or CAB 920 with superior functionality

Extensive safety equipment for all protection classes

Horizontal Balancing Machines

Series HM 20, HM 3/HM 30

Range of application

Series HM universal balancing machines are designed for accurate balancing of a wide range of rotors. They are suitable for balancing cylindrical rotors on their own bearing journals as well as for balancing of disc-shaped rotors on balancing arbors.

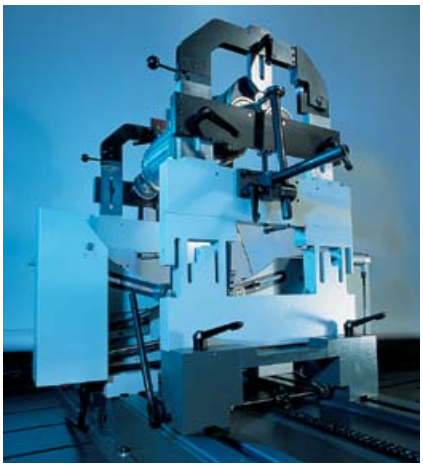
Typical rotors are electrical armatures, rolls up to 700 kg, spindles, turbo charger rotors, crankshafts, ventilators, pump impellers, drive assembly components, and gear wheels.
Operation is simplified by permanent calibration, ergonomic design and logical sequence of operation.
Modular design and a wide range of accessories make series HM balancing machines an extremely flexible solution.
Schenck series HM universal balancing machines are therefore a highly efficient investment for balancing individual rotors and small batches.

Sequence of operation

- Manual loading of the rotor on the bearing pedestals, closing of counter bearings, coupling of the drive system (belt or universal-joint shaft).
- Closing of protection device. Start of automatic measuring sequence:
- Acceleration, determination and display of unbalance on the measuring instrument, deceleration. The measured unbalance values are retained after the measuring run is completed.
- Opening of the protection device, manual unbalance correction (if necessary).
- Verification of residual unbalance (the measuring unit indicates whether the required tolerance has been reached), and unloading of the rotor from the machine.

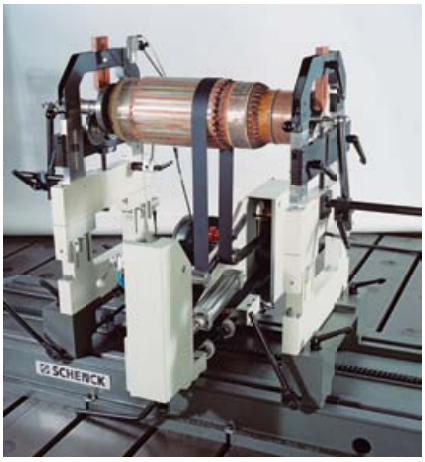
Special features

- High ease of operation: Hard-bearing design eliminates the need for calibration runs.
- Machine provides for unbalance correction in two planes or separate correction of static and couple unbalance.
- Rotors can be mounted on their original shaft or on a balancing arbor. Balancing with mounted anti-friction bearings available as option.
- Indexing angle display in case of belt drive.
- Automatic measuring cycle with selectable, infinitely variable acceleration, measuring and deceleration times.
- Upgradable with many supplementary modules, e.g. for mass correction.

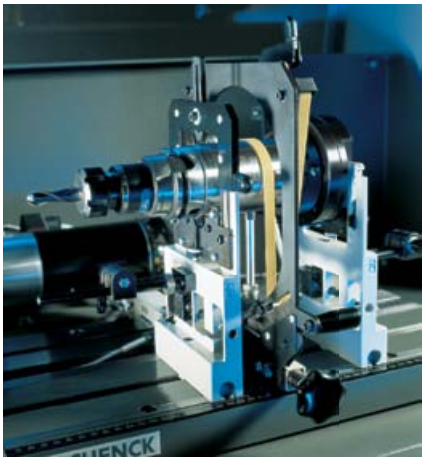


HM bearing pedestals: Slim, robust bearing pedestals ensure high overall stiffness, high linearity and extremely low damping. Use of the Schenck hard-bearing principle, with the middle section of the bearing pedestal designed as sturdy dynamometer. Sensors are arranged outside the force path and are therefore insensitive to impacts.

Drive system



Underslung belt drive (BU)



Overslung belt drive (BK)

Universal-joint drive (U)

Selection of a drive system is determined by the shape or your rotors. Combinations of different drive systems on one machine are possible. Underslung belt drives (BU) provide for smooth operation and are universally applicable. Overslung belt drives (BK) are used for high rotor throughput, universal-joint drives (U) in cases where a high drive power is required.

Measuring units

Proven measuring technology
This machine series includes measuring technology in the accustomed Schenck top quality in two levels:
The CAB 920 SmartTouch combines maximum precision with simplest operation: the CAB 920 offers an ingeniously simple operating concept, whose logical relationships are clearly apparent at the first glance. The result is totally convincing: rapid and safe working with the minimum learning requirement – for every conceivable technical rotor variant.
The CAB 820 is the basic measuring unit, which sets the standards for its class. It offers absolute peak performance combined with every operating convenience, all at outstanding value for money.
This measuring unit is always the right solution when you want to achieve the balancing objective in your business quickly and without major effort.

Measuring unit CAB 920

Measuring unit CAB 820

Enclosures

The choice of protective enclosure is determined by the danger the rotor presents, with due consideration to balancing speed, method of unbalance correction and maximum penetration energy of rotor components or fragments.

Depending on the varying protection requirements, ISO 21940-23 specifies five protection classes (0, A, B, C, D) for balancing machines.

Series HM balancing machines usually require Class B or Class C enclosures. Safety class B should be chosen, if contact with the rotor or parts of the drive system may result in injury. Class C is to be used in cases, where the hazard of fragments detaching from the rotor cannot be ruled out entirely. The size, shape, hardness and tangential speed of a projected fragment are used to calculate the penetration potential. The safety enclosure must be capable of containing any such projected rotor fragments.

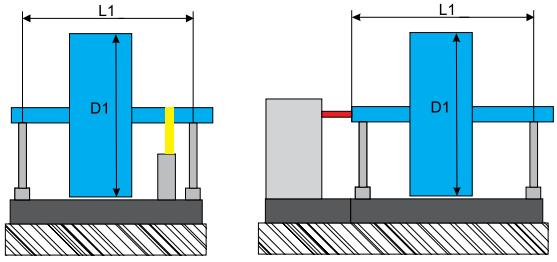

Class B protection

Class C protection

Important data at a glance

Machine		HM 20	HM 3	HM 30
Rotor weight, max	[kg]	100	300	700
Diameter, max (D1)	[mm]	1260		
Bearing journal diameter	[mm]	9 - 70		10 - 80
Bearing centre distance (L1) (1) (2)	[mm]	BU: 1330	BU: 1330, U: 1545	
Minimum achievable residual unbal.	[gmm]	0,8	1,0	1,5
Rotor drive (2)		BU, BK	BU, U	
Drive power (frequency-controlled) (2)	[kW]	2,2	BU: 2,2, U: 4,0	
Power supply		400V ± 10%, 3Ph, 50Hz		
Measuring instrumentation		CAB 820 (c.f. Brochure RC 1057)		
Paint finish		RAL 7024 / 7035 graphite grey / light grey		
Options				
Measuring unit CAB 920		Vectormeter display, network connection, ... (cf. Brochure RC 1034-1)		
Additional software		Operator support, documentation, unbalance correction calculations		
Printer with mounting kit		For documentation of the balancing process		
Machine bed extension	[mm]	500 / 1500		
Roller carriage inserts	[mm]	70 - 140		80 - 160
Class B protection to ISO 21940-23		Protection against contact with rotating parts		
Class C protection to ISO 21940-23		Protection against projected fragments		

(1) For larger rotors, machine base extension or balancing machines series HM 4/40, HM 5/50 are available
(2) Drive system: BU: Universal belt drive; BK: Overslung belt drive; U: Universal-joint drive



Belt drive BU/BK **Joint drive U**

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Balancing and Diagnostic Systems

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