

**Universal application**

**High balancing accuracy**

**Easy to upgrade through modular design and a wide range of accessories**

**Hard-bearing design ensures quick change-over from one rotor to the next**

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

**Full range of safety equipment for all protection classes**

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## Horizontal balancing machines

**Series HM4/HM40, HM5/HM50**

### Range of application

Universal balancing machines series HM are designed for accurate balancing of a wide spectrum of rotors. They are suitable for balancing cylindrical rotors with integral shaft journals and for balancing disc shaped rotors on balancing arbors. Typical rotors are electrical armatures, rolls up to 8000 kg, spindles,

turbo charger rotors, crankshafts, ventilators, pump impellers, drive assembly components, and gear wheels.

Permanent calibration, ergonomic design and a logical operating sequence facilitate operation.

Their modular design principle and a wide range of accessories make the machine highly flexible.

Schenck universal balancing machines series HM are a highly efficient investment both for one-off rotors and for 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

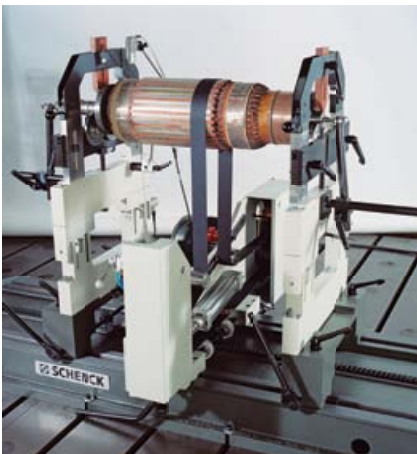
anti-friction bearings available as option.

- 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 systems



**Underslung belt drive (BU)**

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



**Universal-joint drive (U)**

for smooth operation and are universally applicable. Universal-joint drives (U) in cases where a high drive power is required.

### 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 units



Measuring unit CAB 920



Measuring unit CAB 820

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



Class B protection



Class C protection

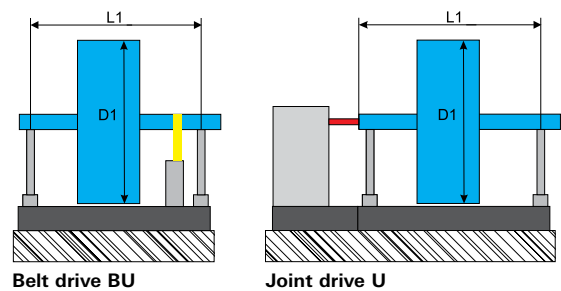
must be capable of containing any such projected rotor fragments.

## Important data at a glance

Machine		HM 4	HM 40	HM 5	HM 50
Rotor weight, max	[kg]	1500	3000	5500	8000
Diameter, max (D1)	[mm]	1600			
Bearing journal diameter	[mm]	12 - 100	15 - 120	18 - 140	25 - 180
Bearing centre distance (L1) <sup>(1)</sup> <sup>(2)</sup>	[mm]	BU: 2750		BU: 2270	
Minimum achievable residual unbal. [gmm]		5	8	16	20
Rotor drive <sup>(2)</sup>		BU, U			
Drive power <sup>(2)</sup>	[kW]	7,5		> 7,5	> 15
Power supply		400V ± 10%, 3Ph, 50Hz			
Measuring instrumentation		CAB 820 (c.f. Brochure RC 1057)			
Paint finish		RAL 7024 / 7035 graphite grey / light grey			
<b>Options</b>					
Measuring unit CAB 920		Reference system for peak power, ... (c.f. Brochure RC 1034)			
Additional software		Operator support, documentation, unbalance correction calculations			
Printer with mounting kit		For documentation of the balancing process			
Machine bed extension	[mm]	1000 / 2000 / 3000		1000 / 2500 / 3500	
Roller carriage inserts for rotor	[Ø mm]	100 - 200	120 - 240	140 - 280	180 - 380
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; U: Universal-joint drive



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