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# Dynamic Balancing Machines with Microprocessor Based Measuring Panel

Hard Bearing Models : HDCM



Belt Driven



Digital Display



Auto Stop



Tolerance Indicators



HDCM 10-30-50



HDCM 100-300-1000



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## Dynamic Balancing Machines

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Hard Bearing Models: HDCM

Machines Model HDCM are belt driven horizontal type photo scanning Universal Hard Bearing Balancing Machine, provided with microprocessor based measuring panel HDCM-8500 suitable for balancing different shapes of rotors, of electrical machines, Cylinders, fly wheel, rotor of centrifugal pumps and other type of rotating machines.

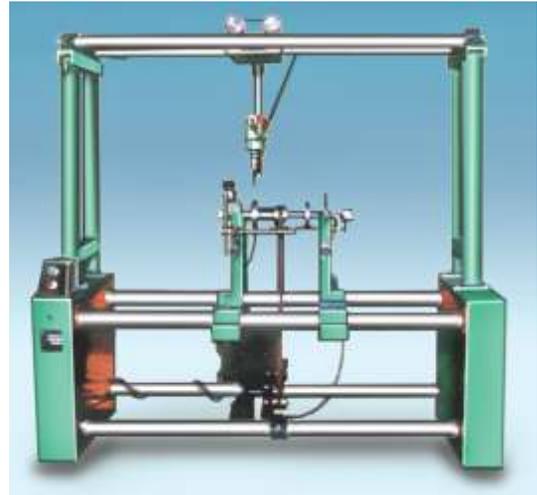
These machines are very simple in design, No drive coupling/adaptor etc. required to connect to the rotor to be balanced. It has following advantages -

1. Cost saving on manufacturing of precision adaptor to connect drive coupling to rotor.
2. Any rotor can be balanced without losing time in manufacturing of adaptor.
3. The balancing accuracy of rotor not disturbed due to unbalance in drive coupling/adaptor.
4. Belt drive machine are more accurate (about 5 times) as compared to end drive machine.

The machines features a very simple operation. The working cycle is fully automatic. From safety point of view a double press push button starts machine, measures and stores the unbalance values on DPMs for two plane simultaneously and stops machine.

Key board facility provided in measuring panel for correct data feeding of rotor with 1 digit accuracy for its dimensions like A, B, C, R1 & R2. Tolerance limits of both correction planes i.e. +11 & +12 can be feed so that when rotor is balanced within the limits respective LEDs glow up, indicating no further correction necessary.

For other details please refer "features of measuring panel HDCM-8500".



Machine provided with  
Optional Vertical Drilling Attachment.



HDCM 8500 Panel





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## STANDARD FEATURES :

### 1) Digital display for unbalance indication

Amount and angle for unbalance for both planes displayed on separate DPMS. Hence linear accuracy is very good as compared to analog meter  $\pm$  digit for amount and  $\pm$  Degree for angle.

### 2) Digital display for RPM indication

ADPM is provided to indicate balancing speed continuously as a standard feature.

### 3) Auto Stop

No necessary to stop machine once started. It stops automatically after stabilization of unbalance results.

### 4) Simultaneous Indication

Amount and Angle of unbalance in both planes displayed simultaneously and remains displayed (Stored) till next run. This totally eliminates operation of plane selector and reduces additional time for stabilization of readings in other plane.

### 5) Key-board

Data of rotor dimensions and balancing tolerance i.e. values of A,B,C, R1,R2,t11,t12 are fed by key operation. Hence accuracy of data feedings accurate upto 1 digit.

### 6) Tolerance Indicators

Separate LEDs are provided for both planes which glow when unbalance is reduced within balancing tolerance.

### 7) Auto-range

Depending upon whether unbalance amount is more or less a respective course or fine range gets automatically selected till rotor gets balanced within tolerance limits.

Multiplier operation is totally eliminated.

### 8) Data Store

Data is provided with 'Self check' mode which checks proper functioning of digital display. LEDs is cyclic operation. This helps immediate fault detection.

### 9) Self Check

Panel is provided with "Self-Check" mode which checks proper functioning of digital displays, LEDs is cyclic operation (optional). This helps immediate fault detection.

## B) Additional Features on demand

### 1) Printer :

A matrix printer can be connected through 'FIE' software. It shows runs till rotor is balanced within balancing tolerance.

### 2) Compensation Indication :

'FIE' software specially developed with 3-99 component indication, is suitable for balancing of rotor with fixed locations for balancing correction.

### 3) Unbalance Correction :

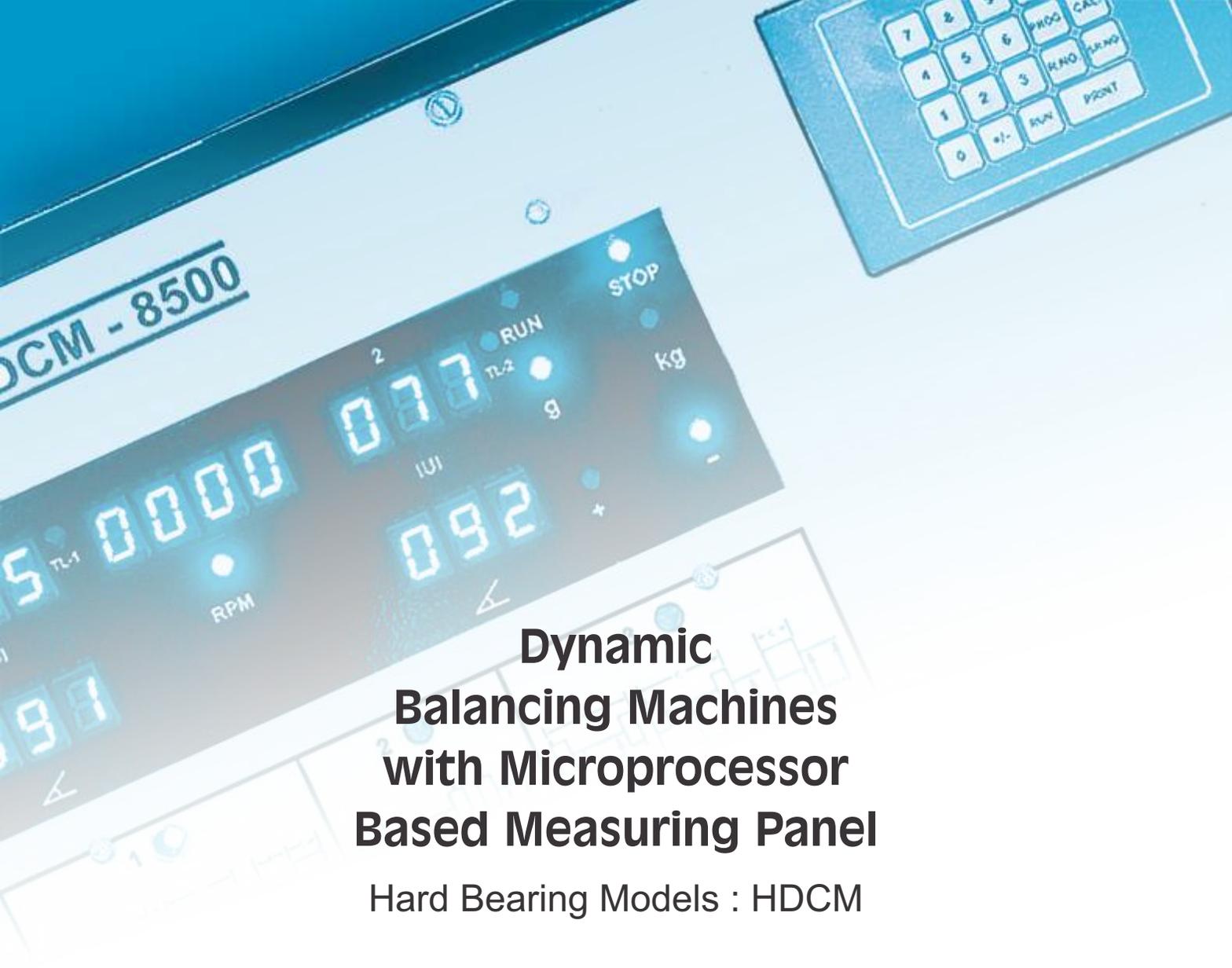
- i) Drill attachment 8mm capacity portable drill with supporting overhead railing.
- ii) Separate drilling attachment 19mm capacity with a vertical drilling head, manual.
- iii) Portable type riveting hammer (piston type) speed 1800 blows/minute, capacity 6mm in aluminum suspended from top with rail.
- iv) Tangential belt drive, in addition to standard (suitable for a particular type of rotor for production balancing).
- v) Longitudinal movement of right hand pedestal by chain & sprocket attachment.

## SPECIFICATIONS :

MODELS	UNIT	HDCM-10	HDCM-30	HDCM-50	HDCM-100	HDCM-300	HDCM-1000
Weight of Rotors	kg	0.2-10	0.3-30	0.5-50	1-100	3-300	10-1000
Max. wt. of each pedestal	kg	7.5	22.5	30	75	180	600
Max. diameter of rotor	mm	250	500	500	800	1000	1600
Max. distance between bearings	mm	300	1200	1200	1200	2100	2400
Min. distance between bearings (drive outside pedestal)	mm	20	50	50	50	150	350
Shaft diameter	mm	5-50	5-50	5-50	15-80	20-120	25-200
*balancing speed range (n)	RPM	750-3000	500-2000	500-2000	400-1600	300-1500	300-1500
Power of drive motor	HP	0.33	0.75	0.75	1.5	3	7.5
Acceleration capability ( $gs^2 n^2$ )	$kgm^2 n^2$	$0.29 \times 10^6$	$0.37 \times 10^6$	$0.37 \times 10^6$	$0.88 \times 10^6$	$3.9 \times 10^6$	$14.12 \times 10^6$
Min. unbalance mass measured	g	0.01	0.1	0.1	0.1	0.1	0.1
Max. unbalance measured	kg	0.4	4	4	4	4	4
Unbalance reduction ratio	%	95	95	95	95	95	95
Min. achievable unbalance per rotor wt. (for max. rotor wt.)	gmm/kg of micron	0.2	0.2	0.2	0.2	0.2	0.2

- The balancing speed depends upon selection of the rotor diameter, where drive is to be given and the motor pulley diameter.
- All the machines above operate on mains supply of 400 to 440 V, 3 $\phi$ , 50 cycles.
- Due to constant R&D, specifications and features are subject to change without notice. The dimensions given above are approximate.

**\* PC & Printer is not in our standard scope of supply.**



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Manufactured By :

**Fuel Instruments & Engineers Pvt. Ltd.**

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