



## Products

### Dynamic Balancing Machine

with Microprocessor Based Measuring Panel ( Hard Bearing Models - HDM)



**HDM 8500**

Dynamic Balancing Machines with Microprocessor Based Measuring Panel (Hard Bearing Model-HDM) This is a microprocessor based measuring panel suitable for FIE Hard Bearing Balancing Machine

Machines Model HDM are horizontal type universal hard bearing balancing machines provided with Microprocessor based measuring panel HDM-8500 for balancing different shapes of rotors like rotors of electrical machines, crankshafts, cylinders, Gas Compressors, flywheels, turbine rotors, rotors of centrifugal pumps and any other type of rotors of rotating machines.

These 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 planes simultaneously and stops machine ( with brake if machine is provided with electrical breaking facility.) The measuring cycle general is less than 10 seconds for normal rotors, which can be accelerated within 5 seconds.

To have smooth and gradual acceleration models HDM 3,000/ 7,000/ 10,000/ 20,000/ are provided with slipping motors in order not to have damage to drive couplings as well other rotating parts in drive systems like gears etc. The starting of these machines is done manually by cutting resistances of starter in 4 to 5 steps.

Key-board facility provided on 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. t1 and t2 can be fed, 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 HDM-8500'.

The usable length of machine is established according to the longest rotor to be balanced. Extension beds can be supplied on request, which can be added to standard bed of machine. It is also possible to install an additional bed ( Gap bed ) with a pit between this bed and standard bed of machine in order to balance rotors having its outside diameter exceeding swing over standard bed. Models HD 7,000/ 10,000/ 20,000 are provided with fixed separate drives and hence gap-bed design is not possible.

#### Additional Features on Demand :

→ Printer :

→ FIE Software specially developed for balancing of 2/4/6 throw crankshafts available on request.

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

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ROTOR.NO:01      SERIAL.NO:0001
A=0155 mm      B=0785 mm      C=0455 mm
R1=0080 mm      R2=0080 mm
TL1=0150 g.mm    TL2=0150 g.mm
TRIAL:0001      SPEED=0500 R.P.M.
U1=078 gm.      U2=075 gm
ANGLE=037 Deg.- ANGLE=038 Deg.-
TL1=40.53      TL2=40.00
TRIAL:0002      SPEED=0500 R.P.M.
U1=00.3 gm.     U2=00.0 gm
ANGLE=090 Deg.- ANGLE=270 Deg.-
IN TOL          IN TOL
  
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**Standard Features :****➔ 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.

**➔ Digital display for RPM indication**

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

**➔ Auto Stop**

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

**➔ 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.

**➔ 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 up to 1 digit.

**➔ Tolerance Indicators**

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

**➔ 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.

**➔ Data store**

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

**➔ 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.

Models	Unit	HDM-10	HDM-30	HDM-50	HDM-100	HDM-300	HDM-650	HDM-1000	HDM-3000	HDM-7000	HDM-10000	HDM-20000
Weight of rotor	kg	0.5-10	1-30	2-50	3-100	10-300	20-650	10-1000	30-3000	70-7000	100-10000	200-20000
Max. weight on each pedestal	kg	7.5	22.5	30	75	180	480	600	1,800	5,250	6,000	12000
Max. diameter of rotor over bed	kg	600	600	600	1,000	1,000	1,200	1,600	2000	2400	2400	3000
Max. Distance measured from coupling end to extreme bearing center.	mm	480	480	1,100	1,350	1350	1650	1,650	2,400	3,300	3,300	3,200
Min. Distance between Roller bearing of pedestals	mm	75	75	75	90	110	300	350	500	560	560	660
Rotor journal dia	mm	5-50	5-50	5-50	15-80	20-120	20-120	25-140	35-200	55-300	55-300	70-300
Balancing speed (n)	RPM	1,000	700	700	600	500	350	300, 600	250, 500	200, 400	200, 400	200, 400
Power of drive motor	HP	0.33	0.75	0.75	1.5	3	5	7.5	20 Slipring	30 Slipring	40 Slipring	60 Slipring
Acceleration Capability (GD <sup>2</sup> N <sup>2</sup> )	kgm <sup>2</sup> n <sup>2</sup>	0.29x10 <sup>6</sup>	0.37x10 <sup>6</sup>	0.37x10 <sup>6</sup>	0.88x10 <sup>6</sup>	3.9x10 <sup>6</sup>	8.56x10 <sup>6</sup>	14.12x10 <sup>6</sup>	88x10 <sup>6</sup>	168x10 <sup>6</sup>	216x10 <sup>6</sup>	301x10 <sup>6</sup>
Minimum unbalance mass measured	g	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1

Maximum unbalance mass measured	kg	4	4	4	4	4	4	4	4	40	40	40
Unbalance reduction ratio	%	95	95	95	95	95	95	95	95	95	95	95
Minimum achievable unbalance per Rotor Weight (for max. weight or rotor)	gmm/kg	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

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