

DYNAMIC BALANCING MACHINE

HARD BEARING MICROPROCESSOR BASED



SOLD / SERVICE / CALIBRATED BY

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BIE make hard bearing type horizontal two plane Dynamic Balancing Machine with microprocessor based / microcontroller based measuring panel. Machine Model FBM-(M) is Most suitable for balancing of different types of rotors like rotors of Electric machines, Fly wheels, Crankshafts cylinders, Submersible pump rotors, etc.

Working of these machines is very simple. Double start push button is provided to start the machine. The cycle is fully automatic which starts the machine, measures and stores the unbalance in grams (gms) along with the angle for two selected planes on digital display simultaneously & stops the machine (with brake, if machine is provided with electrical braking facility). The measuring cycle takes around fifteen seconds for smaller rotors. For higher capacity machine, the drive is provided through motor. To avoid any damage to drive coupling and other rotating parts in drive system, electronic soft starter is incorporated with machine.

Key board facility is provided on measuring panel for data feeding of dimensions like A, B, C, RL & RR tolerance limits for both correction planes i.e. TLL, TLR can be fed so that when rotor is balanced within specified limits, respective LED glows up, indicating no further correction is required. For more details please refer features of microprocessor based / microcontroller based panel for dynamic balancing machines.

To increase the capacity of machine for extra long rotors. additional bed lengths can be provided, which can be aligned along with the basic machine beds. Facility for additional bed with gap bed arrangement is also possible to accommodate bigger diameter rotor. Higher capacity machines above 7000 kg are provided with fixed separate drives and hence gap bed design is not possible for these machines.

Mastering the fine art of testing

Salient Features:

1) Key Board :

Key board is provided for data feeding. Data of rotor dimensions like A,B,C,RL and RR and balancing tolerances. TLL & TLR are fed by Key operation. Hence, accuracy of data feeding is accurate upto 1 digit.

2) Digital Display :

for unbalance Indication: Amount of unbalance along with angular position is displayed separately for both correction planes simultaneously. Hence angle & amount indications are more accurate and precise as compared to conventional analogue meters.

3) Digital display for speed indication :

Four digit display is provided for indicating balancing speed in RPM as a standard feature.

4) Auto Stop :

Machine once started, stops automatically after the unbalance readings are stabilized.

5) Simultaneous Indication:

Amount and angle of unbalance in both planes is displayed simultaneously and remains stored till next run. This totally eliminates operation of plane selector switch and reduces additional time required for unbalance stabilization.

6) Auto Range :

Depending upon unbalance amount, fine or coarse range gets automatically selected till rotor gets balanced within tolerance limits. Multiplier operation (manual) is totally eliminated.

7) Tolerance Indicators :

Separate LED's for both correction planes are provided which glow when unbalance is reduced within selected balancing tolerance.

8) Data store :

Data for various rotors can be stored against respective rotor type nos. Hence no need of measuring rotor dimensions or rotor data feeding when balancing of same type of rotor is to be carried out. Just call rotor type no and machine is ready for balancing.

9) Self check:

Panel is provided with "Self check" mode to check proper functioning of digital display .(In this mode, LED's will glow in cyclic operation) . This helps immediate fault detection.

Additional features on demand:

Printer :

A 80 column dot matrix printer can be connected through available BIE software.

See sample printout. It shows trial, runs, till rotor is balanced within balancing tolerance.

BIE software specially developed for balancing of 2 / 4 / 6 throw crankshafts available on request.

Note:

Above machines are suitable to operate with 3 Phase, 415V, 50Hz, AC power supply.

Technical Specifications :

Model	Unit	FBM-10-M	FBM-30-M	FBM-50-M	FBM-100-M	FBM-300-M	FBM-650-M	FBM-1000-M	FBM-3000-M	FBM-7000-M	FBM-10000-M
Weight of Rotor	kg	0.5 - 10	1 - 30	2 - 50	3 - 100	10 - 300	15 - 650	20 - 1000	30 - 3000	70 - 7000	100 - 10000
Maximum diameter of rotor	mm	500	500	500	1000	1000	1200	1600	2000	2400	2400
Maximum distance between bearings	mm	480	480	1100	1350	1350	1650	1650	2400	3300	3300
Minimum distance between bearings	mm	* 50	* 50	* 50	**100	**100	**100	350	500	500	500
Journal diameter range over std. roller carriage	mm	5 - 50	5 - 50	5 - 50	20 -100	20 - 100	20 - 100	25 - 140	35 - 200	55 - 300	55 - 300
Balance speed (n)	rpm	1000	700	700	600	500	350	350, 700	300, 600	200, 400	200, 400
Power of drive motor	HP	0.33	0.75	0.75	2	3	5	7.5	20	30	40
Acceleration capability $GD^2(n)^2$	$kgm^2(n)^2$	0.29×10^6	0.37×10^6	0.37×10^6	0.88×10^6	3.90×10^6	8.56×10^6	14.12×10^6	88×10^6	160×10^6	216×10^6
Minimum unbalance mass measured	gm	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1
Maximum unbalance mass measured	kg	0.4	0.4	0.4	4	4	4	4	4	10	10
Unbalance Reduction ratio	%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Minimum achievable unbalance per rotor weight	Microns or gmm / kg	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Machines confirms to IS:13277-1992 (ISO:2953)

Notes for minimum distance between bearings:

* For FBM-10 / 30 / 50 swing diameter will be limited to 150 mm.

** For FBM-100 / 300 swing diameter will be limited to 250mm.

Special Dynamic Balancing Machines as per customers requirement can be designed and supplied

We can also supply - Universal Testing Machines, Compression Testing Machines, Tensile Testing Machines, Spring Testing Machines, Vickers Hardness Testers, Rockwell Hardness Testers, Brinell Hardness Testers, Portable Dynamic Hardness Testers, Impact Testing Machines and Special Purpose Material Testing Machines, etc.

Sample Report Printout

A = 0070 mm	B = 0310 mm	C = 0210 mm
RL = 0060 mm	RL = 0060 mm	
TLL = 100 gmm	TLR = 100 gmm	
Trial = 0001	Speed: 700 RPM	
UL = 045 gms	UR = 065 gms	
Angle: 60 Deg.	Angle: 120 Deg.	
Trial: 0002	Speed 700 RPM	
UL = 0.2 gms	UR = 00.1 gms	
Angel = 40 Deg.	Angel: 110 Deg.	
In Tolerance	In Tolerance	

Manufactured By :

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