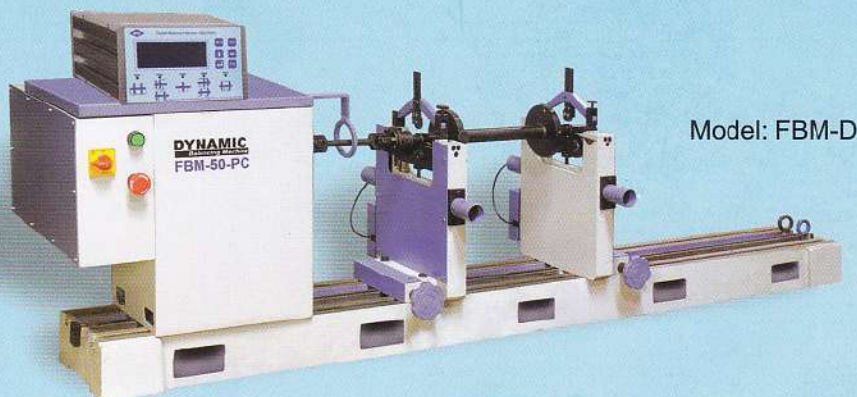
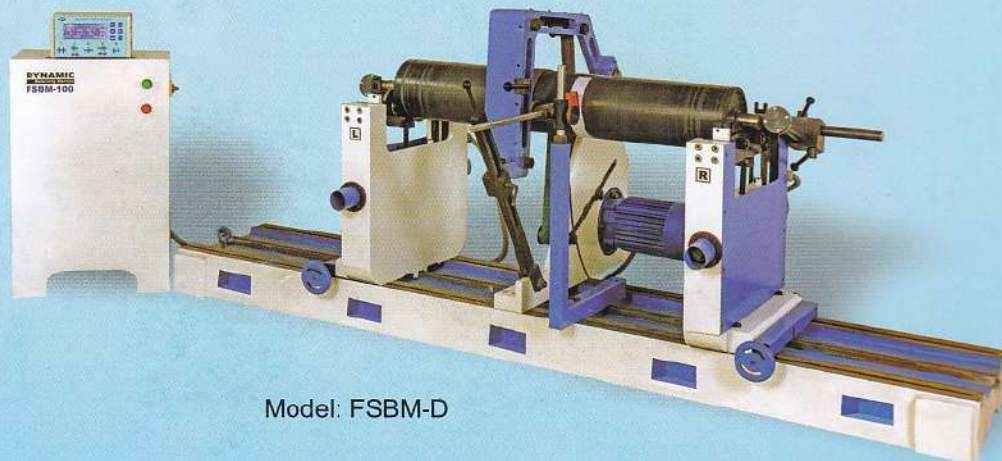


DYNAMIC BALANCING MACHINE

HARD BEARING DSP / CONTROLLER BASED



Model: FBM-D



Model: FSBM-D

BIE make hard bearing type horizontal two plane Dynamic Balancing Machine with DSP based / microcontroller based measuring panel. Machine Model FBM-D 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. 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 and suitable gearbox. To avoid any damage to drive coupling and other rotating parts in drive system, VFD starter is incorporated with variable speed machines / higher capacity machines.

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 indication glows up, indicating no further correction is required. For more details please refer features of DSP 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 gap bed design is also possible for these machines if required.

Mastering the fine art of testing

Technical Specifications of FBM-D:

Model	Unit	FBM-10-D	FBM-30-D	FBM-50-D	FBM-100-D	FBM-300-D	FBM-650-D	FBM-1000-D	FBM-3000-D	FBM-7000-D	FBM-10000-D
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

BIE Make Belt Driven FSBM-D

BIE make horizontal, hard bearing type two plane dynamic balancing machines, with over slung type belt drive arrangement, Model: FSBM are most suitable for the rotors, where end drive cannot be used or where variety of rotors is more and number of adopters required are more for end drive machine. Typical application are balancing of bomb shells for ordnance factories, pipes, printing machine rolls, etc.

- Machine are available from 10 kg. to 3000 kg. capacity in various models.
- Measuring control panel is DSP / Controller based, indicating amount of unbalance in gms along with degree, by using photo scanning arrangement for generating reference signal.
- Speed range is from 200 rpm to 3000 rpm. depending upon models upto to FSBM-300-D & for above models 200 to 1000 rpm
- Balancing accuracies achievable up to 0.5 microns for maximum rotor weight
- Machines are more suitable for repair workshops, where variety of rotors to be balanced is more.

Technical Specifications of FSBM-D

Model	Unit	FSBM-10-D	FSBM-30-D	FSBM-50-D	FSBM-100-D	FSBM-300-D	FSBM-650-D	FSBM-1000-D	FSBM-3000-D
Weight of Rotor	Kg.	0.3 - 10	0.3 - 30	0.5 - 50	0.5 - 100	0.5 - 300	15 - 650	20 - 1000	300 - 3000
Maximum diameter of rotor	mm	250	500	500	800	800	1200	1600	2000
Maximum distance between bearings	mm	700	700	1200	1500	1500	1650	1650	2400
Maximum Dia. of Rotor under belt	mm	150	150	150	250	250	250	350	400
Journal diameter range over std. roller carriage	mm	5 - 50	5 - 50	5 - 50	20 - 100	20 - 100	20 - 100	25 - 140	35 - 200
Balance speed (n)	800-3000	500 - 3000	500 - 3000	500 - 3000	500 - 2000	500 - 2000	200 - 1000	200 - 1000	200 - 1000
Power of drive motor	h.p.	0.33	0.75	0.75	2	3	5	7.5	20
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
Minimum Achievable unbalance	Microns or gmm/kg	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

The features of DSP Panels are as under -

- High speed 150 MHz processor based.
- Compact design. No external hardware.
- Higher accuracy, increased reliability.
- Lowest power consumption (< 50 watts).
- Auto calibration with single key stroke.
- RS232 Serial Interface.
- Adjustable auto cycle according to geometry of job.
- Auto Ranging from 0.1 grams to kilograms.
- Auto tolerance indicator in grams & in gram.mm.
- RPM Indicator (Resolution ± 1 RPM).

Machines confirms to IS:13277 / ISO:2953 / ISO:21940

Notes for minimum distance between bearings:

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

** For FBM-100-D / 300-D 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.



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