



DYNAMIC BALANCING MACHINE

HARD BEARING DSP / CONTROLLER BASED



(Formerly)

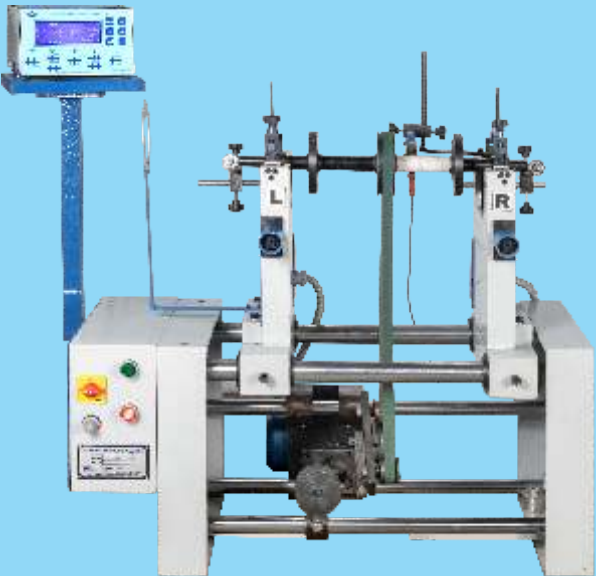


Mastering the fine art of testing

**Model: FBM-D
(End / Coupling Drive)**



**Model: FSBM-D
(Belt Drive)**



Model: FSBM-DB (Belt Drive)

BIE Make End / Coupling Driven, FBM-D

BIE make hard bearing type horizontal two plane Dynamic Balancing Machine with DSP based / microcontroller based / Computerised measuring panel. Machine Model FBM-D / FSBM-D / FSBM-DB are more suitable for balancing of different types of rotors like rotors of Electric machines, Fly wheels, Crankshafts cylinders, Submersible pump rotors, Blowers, ID fans, Fabricated impellers, etc.

Working of these machines are very simple. The cycle is fully automatic which starts the machine, measures and stores the unbalance in grams, 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.

For DAS Panel, 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. For more details please refer features of DSP based / microcontroller based panel for dynamic balancing machines. Computerised models are also available (Optional). Special computerised software also can be provided (Optional).

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 rotors. Vertical Drill Head System also can be provided with all models (All Optional).

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 / FSBM-DB

BIE make horizontal, hard bearing type two plane dynamic balancing machines, with over slung type belt drive arrangement, Models: FSBM-D / FSBM-DB 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 applications are balancing of bomb shells for ordnance factories, pipes, printing machine rolls, etc.

- Machines are available from 10 kg. to 3000 kg. capacity in various models.
- FSBM-DB models are available up to 100 kg. Capacity only.
- 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. For Standard models, depending upon capacity, 200-1200 rpm speed is provided.
- Balancing accuracies achievable up to 0.5 microns for maximum rotor weight.
- Machines are more suitable for Production shops, Balancing job workshops, repair workshops, etc,

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	3 - 100	10 - 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	350	400	400	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
Balance speed (n) *	rpm	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

Technical Specifications of FSBM-DB

Model	Unit	FSBM-10-DB	FSBM-30-DB	FSBM-50-DB	FSBM-100-DB
Weight of Rotor	Kg.	0.3 - 10	0.3 - 30	0.5 - 50	3 - 100
Maximum diameter of rotor	mm	250	500	500	800
Maximum distance between bearings	mm	450	450	1200	1280
Maximum diameter under Belt	mm	225	225	325	400
Journal diameter range over std. roller carriage	mm	5 - 50	5 - 50	5 - 50	20 - 100
Balance speed (n)	rpm	500 - 3000*	500 - 3000*	500 - 3000*	500 - 2000*
Power of drive motor	H.P.	0.33	0.75	0.75	2
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
Minimum Achievable unbalance	Microns or gmm/kg	0.5	0.5	0.5	0.5



* Computerised Models are also available.

The features of DSP Panel (User Friendly) is 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.
- RS 232 / USB / RS 485 Interface for reports.
- Adjustable auto cycle according to geometry of job.
- Auto Ranging from 0.1 grams to kilograms.
- Auto tolerance indicator in grams & in gram.mm.
- Actual RPM Indicator (Resolution ± 1 RPM).

Optional Accessories, Special software as per Customer requirements can be arranged for customised machines.

Machines confirms to 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 Belt Drive Machines, Standard speeds are provided for standard Machines. (200-1200 rpm according to Models)

** 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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