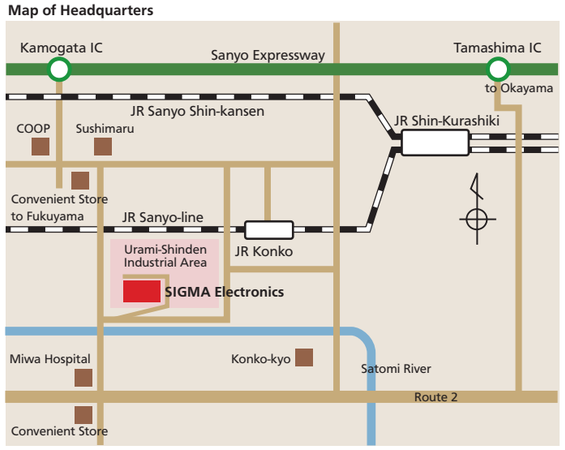
SIGMA BALANCING MACHINE

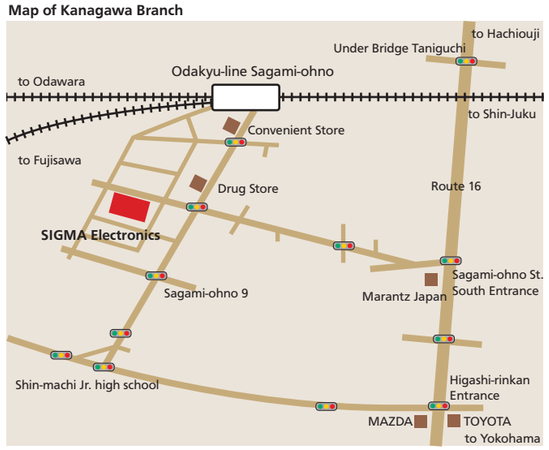
Field Balancer
Balancing Machine
Custom Balancing Machine

Map of Headquarters



Train: Walk 10min. from JR Konko station.
Vehicle: Run 5 min. from Kamogata IC, 10 min. from Tamashima IC in Sanyo Expressway

Map of Kanagawa Branch



Train: Walk 3 min. from Odakyu-line Sagami-ohno St.(Express train stops).
Vehicle: Route16 Turn left at "Higashi-rinkan entrance" or "Sagami-ohono St. South Entrance" from Yokohama.
Turn Right at "Higashi-rinkan Entrance" from Hachiouji".

Specifications may be changed without any notice due to modification, etc.
A brand name of mention is a trademark of each companies or a registered trademark.

A Member of Japan Testing Machine industrial Society

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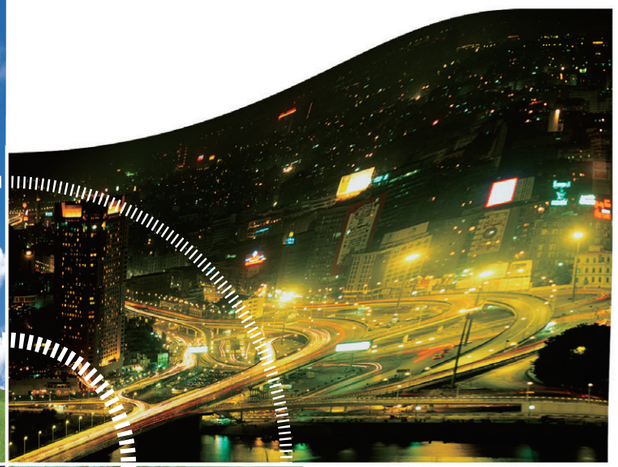
SIGMA BALANCING MACHINE PRODUCTS CATALOG



www.sigma-elec.co.jp
SIGMA ELECTRONICS Co., Ltd.

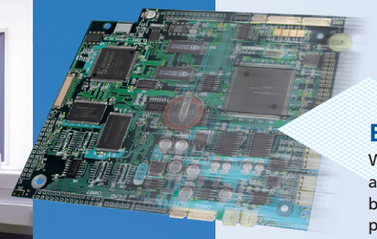
SIGMA ELECTRONICS is a Specialized Company in Balancing Technology, Minimizing mechanical vibration and Contributing to the improvement of global environment

We SIGMA ELECTRONICS keep in mind to deliver excellent quality and reliable products which are developed and produced with our original technology as a pioneer of balancing technology.
Since the multivariate analysis method is adopted in our unbalance measuring algorithm, high accuracy measurement at very wide rotational speed range has been implemented.
This unbalance measuring concept has been firstly adopted in field balancers on 1988, thereafter the improved algorithm is adopted current Sigma Electronics Field Balancers and Balancing Machines.
We have produced and delivered more than 8,000 units of field balancer and balancing machine for 30 years, these units are contributing every industrial field.

SIGMA ELECTRONICS

Classification of SIGMA Balancing Machines

Balancing Machine	Field Balancer	for General Rotors	Flexible Rotors	SB-7705RS/7706RSB SB-7705RH/7706RHB SB-7705R/7706RB SB-7705RL/7706RLB
			Very High Speed Rotors	SB-7006RS SB-7006RH SB-8802RH/RHB
			High Speed Rotors	SB-7006R SB-8802R/8805RB SB-8003R SB-8002R/8805RB
			Low Speed Rotors	SB-7006RL SB-8802RL/8805RLB
		for Grinding Wheels (dedicated)		SB-8001G/GB
		for General Rotors and Grinding Wheels		SB-7006RHG SB-7006RG SB-8802RHG/8805RHGB SB-8802RG/8805RGB SB-8802RGW/8805RGWB
	Vertical Balancing Machine	Single Plane Balancing	Hard Type	SHVseries
			Soft Type	SSVseries
		2 Plane Balancing	Hard Type	SHV2series
			Soft Type	SSV2series
	Horizontal Balancing Machine	Single Plane and/or 2 Plane Balancing	Hard Type	SHBseries
			Soft Type	SSBseries
	Custom Designed Machine	Fully Automatic Machine for Mass Production		Fully Automatic Balancing Machine
		Balancing Machine for Self-Driven Work Piece		Spindle Assy. Polygon mirror motor Assy. Blower Assy. etc.
Vibration Measurement Equipment		Vibration Monitor		VMseries
		Condition(Vibration) montoring Instrument		CMseries



Environmentally friendly Lead-Free production facility

We have installed Reflow Oven for Lead-Free Soldering system. Since all process of making circuit boards are done by ourselves, we cleared European RoHS regulations and ship Lead Free Products that do not burden environment. And more, since we can produce highly integrated original circuit boards, we promptly supply products that meet customers' demands.

History of SIGMA Balancing Machines

Mar. 1986 Established Sigma Electronics Co., Ltd.
Oct. 1988 Released field balancer models SB-8307 and SB-8308.
Jun. 1989 Released field balancer model SB-7001 for high-speed rotors.
Feb. 1990 Developed balance measurement device for tool balancing machine for machine tools.
Jun. 1990 Released vertical balancing machine model SB-5100.
Jun. 1991 Released field balancer model SB-7200 for precision machine tools.
Sep. 1991 Became a member of Japan Testing Machine Association.
Aug. 1992 Jointly developed tool balancing machine model SHV-6100 for precision machine tools with Toshiba Machine Co., Ltd.
Oct. 1992 Released high accuracy field balancer model SB-7002.
Oct. 1992 Exhibited and released horizontal hard type balancing machine SHV series at the 16th Japan International Machine Tool Fair (Harumi, Tokyo).
Jul. 1993 Released field balancer model SB-8001 for high precision grinding wheels.
Oct. 1993 Released field balancer model SB-8002 for general industrial rotors.
Nov. 1994 Exhibited fully-automatic balancing machine model SHVA series at the 17th Japan International Machine Tool Fair (Intex Osaka), and installed the machine to a customer.
May 1995 Developed fully automatic balancing machine model SB-MELT that correct unbalance by synchronously jetting adhesive during rotation.
Aug. 1995 Developed and installed vertical balancing machine model SSV-51001 for ultra-light work piece.
Nov. 1997 Established Kanagawa branch office in Sagamihara-city.
Jul. 1998 Developed and installed fully-automatic balancing machine for impellers with surface waviness compensation and chip-conveyer.
Apr. 1999 Exhibited and released field balancer model SB-8003 with built-in printer and communication with PC at the 5th Japan Testing Technology Show.
Apr. 2000 Exhibited and installed new balancing machine model SSV2-58000 for Polygon mirror at the 18th Motortech Japan.
Oct. 2000 Developed and installed a balancing system for turbo-molecular pump at service speed.
Oct. 2000 Exhibit new field balancer models SB-7003 and SB-7300 which can measure up to 400000rpm at the 20th Japan International Machine Tool Fair (Tokyo Big Sight).
Feb. 2002 Developed field balancer model SB-7003RF which can balance at up to 4 balancing planes.
Oct. 2002 Exhibited new field balancer model SB-7700R for flexible rotors at the 21st Japan International Machine Tool Fair (Tokyo Big Sight).
Jun. 2003 Released field balancer model SB-7700R.
Apr. 2004 Exhibited vertical balancing machine combined with new developed measuring device at the 22nd Motortech Japan (Makuhari Messe).
Nov. 2004 Exhibited field balancer models SB-SB-7004 and SB-7400 at the 22nd Japan International Machine Tool Fair (Tokyo Big Sight).
Feb. 2005 Released field balancer models SB-7004R and SB-7400R.
Mar. 2006 Field balancer model SB-7700R has received technical award from district branch of the Japan Society for Precision Engineering
May 2006 Released new 8000 series field balancer models SB-8001G, SB-8002R and SB-8003R.
May 2007 Released new SB-7700 series field balancer models SB-7704RH, SB-7704R and SB-7701R.
Apr. 2009 Selected as one of "300 medium and small enterprises very active at manufacturing" by the Ministry of Economy, Trade and Industry Department.
Jul. 2009 Developed fully automatic balancing machine model SHVA2-6130A, and installed major pump manufacturer.
Apr. 2010 Released field balancer models SB-7702 and SB-8801.
Sep. 2010 Released field balancer models SB-8001GB and SB-8002GB which can operate with integrated battery.
Sep. 2010 Developed fully automatic 2-plane balancing machine model SHVA2-6130A which can operate without set-up change.
Oct. 2010 Developed fully automatic 2-plane balancing machine with automatic workpiece transfer device model SHVA2-6130AT.
Oct. 2010 Exhibited balancing machine models SHVA2-6130A, SHVA2-6130AT and field balancer model SB-8002RB at the 25th Japan International Machine Tool Fair.
Mar. 2011 Developed field balancer model SB-8801RB which is battery operated, 5.7 inches color LCD, USB communicating port and 1 to 4 plane balancing capability.
Jul. 2011 Released field balancer model SB-7005 series as successor of SB-7004.
Mar. 2012 An employee has awarded from the Japan Testing Machinery Association.
Dec. 2013 Released field balancer model SB-8802 series as successor of SB-8801.
Feb. 2014 Released field balancer models SB-7006 and SB-7705 series as successor of SB-7005 and SB-7705.
Mar. 2014 Received technical contribution prize from district branch of the Japan Society of Mechanical Engineers.
Sep. 2014 Exhibited Vibrometer model VM-1001 series at the 17th Mechanical Components & Materials Technology EXPO Osaka.
Sep. 2015 Exhibited field balancer models SB-7705R and SB-8802R, Balancing machine models SHV-5110A and SSB-6001A, Condition monitoring system, Vibration exciter for accelerometer calibration, Laser Doppler vibrometer at TEST 2015 Show.
Mar. 2016 Started measuring equipment rental business.
May 2017 Launched "SB-8805RB/7706RB" series and condition monitoring system
Jul. 2019 Seismometer developed.

Reduce all vibration in specified rotational speed range of flexible rotor by multi-speed multi-plane balancing technique.

Field balancer for flexible rotors and extra-precision rotating machinery

SB-7705Rseries

SB-7705 series is the pioneer field balancer which can be used for flexible rotor balancing

CE RoHS

Built-in printer (Factory option)

CE RoHS

Rechargeable battery operation type

SB-7706RBseries

SIGMA ELECTRONICS

Field Balancer

Small and light weight handy field balancer, suitable for field work

Field balancer for precision grinding wheel

SB-8001GB

Field balancer for general rotating machinery

SB-8002RB

CE RoHS Rechargeable battery operation type

CE RoHS Rechargeable battery operation type

SB-8802RBseries

Unbalance measurement of grinding wheel under mounted on spindle.
All rotating member including a grinding wheel and a spindle system can be balanced.

Field balancer for precision grinding wheel

SB-8001G

CE RoHS

CE RoHS

Easy operation and high accuracy field balancer with established reputation.
Small and light weight with less expensive field balancer

SB-8805RBseries

Field balancer for general rotating machinery and precision grinding wheel

FIELD BALANCER

Excellent principal performance for high accuracy and high efficiency balancing, Sigma's Field balancers are well considered as simple and rational usability.

Field balancers developed and manufactured by Sigma Electronics have characteristic features that high accuracy is maintained from low speed to ultra-high speed. The feature contribute to very high accuracy balancing for precision spindle for machine tools, high speed spindle motors, high speed slicers, dicing saws, centrifuges, and precision grinding machines.
Examples of ultimate performance are measuring resolution of 0.001μm, maximum speed of 400,000 rev per minute. Measured data is transferred to PC and EXCEL data tables can be created.

SPECIFICATION	Model	Input ch	No. of Correcting Plane	Measuring method	Balance speed (min⁻¹)	Resolution (μm)	Correction method • Components of unbalance vector • Polar coordinates	• Correction weight	Battery Powered	Unbalance Vibration Analysis	Harmonic Vibration Analysis		FFT Analyzer	Over All Vibration Monitor	Wave form	Eccentricity Compensation	Work Data Memory	Built in Printer	*1 USB I/F	USB *2 Memory Port	microSD*3 card slot	Trunk Case W×D×H(mm)	Applications
For Flexible rotors and high precision machinery	**SB-7705RS**	2/4/6	1 – 4	Const./Multi.	180 – 240,000	0.001	√	3-50	–	OK	OK	**SB-7705RS**	OK	OK	OK	OK	4(2) *4	Opt.*5	OK	OK	–	455×185×320	Variable speed precision rotating machinery, precision spindle, turbo-molecular pump etc.
	SB-7705RH	2/4/6	1 – 4	Const./Multi.	180 – 120,000	0.001	√	3-50	–	OK	OK	**SB-7705RH**	OK	OK	OK	OK	8(4) *4	Opt.*5	OK	OK	–		
	SB-7705R	2/4/6	1 – 4	Const./Multi.	180 – 61,000	0.001	√	3-50	–	OK	OK	**SB-7705R**	OK	OK	OK	OK	8(4) *4	Opt.*5	OK	OK	–		
	SB-7705RL	2/4/6	1 – 4	Const./Multi.	60 – 61,000	0.001	√	3-50	–	OK	OK	**SB-7705RL**	OK	OK	OK	OK	8(4) *4	Opt.*5	OK	OK	–		
	SB-7706RSB	2	1 – 4	Const./Multi.	180 – 240,000	0.001	√	3-50	–	OK	OK	**SB-7705RSB**	OK	OK	OK	OK	2	–	OK	–	OK	385×120×255	
	SB-7706RHB	2	1 – 4	Const./Multi.	180 – 120,000	0.001	√	3-50	–	OK	OK	**SB-7705RHB**	OK	OK	OK	OK	2	–	OK	–	OK		
	SB-7706RB	2	1 – 4	Const./Multi.	180 – 61,000	0.001	√	3-50	–	OK	OK	**SB-7705RB**	OK	OK	OK	OK	2	–	OK	–	OK		
	SB-7706RLB	2	1 – 4	Const./Multi.	60 – 61,000	0.001	√	3-50	–	OK	OK	**SB-7705RLB**	OK	OK	OK	OK	2	–	OK	–	OK		
For general rotating machinery	**SB-7006RS**	2	1 – 4	Constant speed	180 – 400,000	0.001	√	3-50	–	–	OK	OK	**SB-7006RS**	Opt.	OK	Opt.	OK	10	Opt.	OK	OK	–	455×185×320	Very high speed rotating machinery
	SB-7006RH	2	1 – 4	Constant speed	180 – 120,000	0.001	√	3-50	–	–	OK	OK	**SB-7006RH**	Opt.	OK	Opt.	OK	10	Opt.	OK	OK	–		
	SB-7006R	2	1 – 4	Constant speed	180 – 61,000	0.001	√	3-50	–	–	OK	OK	**SB-7006R**	Opt.	OK	Opt.	OK	10	Opt.	OK	OK	–		Spindle of machine tools, high speed spindle motors, centrifuges, blowers, Lathes, slicers, turbo-molecular pumps, crashers, pulleys, gears etc.
	SB-7006RL	2	1 – 4	Constant speed	60 – 61,000	0.001	√	3-50	–	–	OK	OK	**SB-7006RL**	Opt.	OK	Opt.	OK	10	Opt.	OK	OK	–		
	SB-8802RH	2	1 – 4	Constant speed	180 – 120,000	0.001	√	3-50	–	–	OK	OK	**SB-8802RH**	Opt.	Opt.	Opt.	OK	10	–	OK	–	–	385×120×255	
	SB-8802R	2	1 – 4	Constant speed	180 – 61,000	0.001	√	3-50	–	–	OK	OK	**SB-8802R**	Opt.	Opt.	Opt.	OK	10	–	OK	–	–		
	SB-8802RL	2	1 – 4	Constant speed	60 – 61,000	0.001	√	3-50	–	–	OK	OK	**SB-8802RL**	Opt.	Opt.	Opt.	OK	10	–	OK	–	–		
	SB-8805RHB	2	1 – 4	Constant speed	180 – 120,000	0.001	√	3-50	–	OK	OK	OK	**SB-8802RHB**	Opt.	Opt.	Opt.	OK	10	–	OK	–	OK		
	SB-8805RB	2	1 – 4	Constant speed	180 – 61,000	0.001	√	3-50	–	OK	OK	OK	**SB-8802RB**	Opt.	Opt.	Opt.	OK	10	–	OK	–	OK		
	SB-8805RLB	2	1 – 4	Constant speed	60 – 61,000	0.001	√	3-50	–	OK	OK	OK	**SB-8802RLB**	Opt.	Opt.	Opt.	OK	10	–	OK	–	OK		
	SB-8003R	2	1 – 2	Constant speed	180 – 61,000	0.001	√	3-99	–	–	OK	OK	**SB-8003R**	–	–	–	–	1	OK	OK	–	–	455×185×320	
	SB-8002R	2	1 – 2	Constant speed	180 – 61,000	0.001	√	3-99	–	–	OK	OK	**SB-8002R**	–	–	–	–	1	–	–	–	–	385×120×255	
	SB-8002RB	2	1 – 2 (1)*	Constant speed	180 – 61,000	0.001	√	3-50	–	OK	OK	OK	**SB-8002RB**	–	–	–	–	1	–	OK	–	OK		
For grinding wheels	**SB-8001G**	1	1*	Constant speed	180 – 10,000	0.001	–	–	√	–	–	–	**SB-8001G**	–	–	–	–	1	–	–	–	–	385×120×255	Grinding machines
	SB-8001GB	1	1*	Constant speed	180 – 61,000	0.001	–	–	√	OK	–	–	**SB-8001GB**	–	–	–	–	1	–	OK	–	OK		
For general rotating machinery and grinding wheels	**SB-7006RHG**	2	1 – 4 (1)*	Constant speed	180 – 120,000	0.001	√	3-50	√	–	OK	OK	**SB-7006RHG**	Opt.	OK	Opt.	OK	10	Opt.	OK	OK	–	455×185×320	Various rotating machinery and grinding machines
	SB-7006RG	2	1 – 4 (1)*	Constant speed	180 – 61,000	0.001	√	3-50	√	–	OK	OK	**SB-7006RG**	Opt.	OK	Opt.	OK	10	Opt.	OK	OK	–		
	SB-8802RHG	2	1 – 4 (1)*	Constant speed	180 – 120,000	0.001	√	3-50	√	–	OK	OK	**SB-8802RHG**	Opt.	Opt.	Opt.	OK	10	–	OK	–	–	385×120×255	
	SB-8802RG	2	1 – 4 (1)*	Constant speed	180 – 61,000	0.001	√	3-50	√	–	OK	OK	**SB-8802RG**	Opt.	Opt.	Opt.	OK	10	–	OK	–	–		
	SB-8802RGW	2	1 – 4 (2)*	Constant speed	180 – 61,000	0.001	√	3-50	√	–	OK	OK	**SB-8802RGW**	Opt.	Opt.	Opt.	OK	10	–	OK	–	–		
	SB-8805RHGB	2	1 – 4 (1)*	Constant speed	180 – 120,000	0.001	√	3-50	√	OK	OK	OK	**SB-8802RHGB**	Opt.	Opt.	Opt.	OK	10	–	OK	–	OK		
	SB-8805RGB	2	1 – 4 (1)*	Constant speed	180 – 61,000	0.001	√	3-50	√	OK	OK	OK	**SB-8802RGB**	Opt.	Opt.	Opt.	OK	10	–	OK	–	OK		
	SB-8805RGWB	2	1 – 4 (2)*	Constant speed	180 – 61,000	0.001	√	3-50	√	OK	OK	OK	**SB-8802RGWB**	Opt.	Opt.	Opt.	OK	10	–	OK	–	OK		

Note: * : for grinding wheels

Note: *1: System requirement to use USB I/F: Hardware=PC with USB port, OS=Windows XP/7, Software=Communication program attached with Sigma Field Balancer. To create data table, EXCEL2000 or later is needed.
*2: Measured data can be stored in USB memory. *3: Measured data can be stored in micro SD card. *4: Bracketed value is for 6 channel input type. *5: Printer can be built in for only 2channel input type.

VERTICAL BALANCING MACHINE

Vertical 2 plane balancing machine suitable for fans etc. A collet chuck is mounted and high accuracy unbalance measurement can be performed.

Vertical 2 plane balancing machine

SSV2-5100series

Vertical balancing machine suitable for gears, pulleys, flywheels etc. Space saving small foot print and high efficiency balancing can be performed.

Vertical single plane balancing machine

SHV-5103series

Balancing Machine

Vertical balancing machine with unbalance correcting drilling machine suitable for impellers, brake disks etc.

Vertical single plane balancing machine

SHV-5110 AU

Easy unbalance correcting process in high productivity can be performed without experienced skill.

SPECIFICATION

1 plane balancing	2 plane balancing	Max. rotor mass	Max. rotor dia.	Max. work thickness	Test speed (min^{-1})	Drive motor (servo motor)	Automatic index	Eccentricity compensation	Work data memory	Mini. achievable residual specific unbalance
SSV-51001A	**SSV2-51001A**	0.1kg	ø100mm	50mm	1500 - 3500	0.03/0.1kW*)	OK	OK	50	0.5**)
SSV-5101A	**SSV2-5101A**	1kg	ø200mm	80mm	600 - 2000	0.2kW	OK	OK	50	0.5
SHV-5103A	**SHV2-5103A**	3kg	ø250mm	80mm	60 - 1500	0.75kW	OK	OK	50	0.5
SHV-5110AU	**SHV2-5110AU**	10kg	ø350mm	100mm	850	0.75kW	OK	OK	100	0.5
SHV-5110A	**SHV2-5110A**	10kg	ø350mm	100mm	850	0.75kW	OK	OK	50	0.5
SHV-5130A	**SHV2-5130A**	30kg	ø350mm	100mm	600 - 1000	1.5kW	OK	OK	50	0.5

Note*: 1 plane machine / 2 plane machine. **: Minimum achievable residual specific unbalance will vary according to rotor mass and test speed.

HORIZONTAL BALANCING MACHINE

Balancing of flexible rotors with journals can be performed in high efficiency.

Horizontal 4 plane balancing machine

SSB-6010AF

Flexible rotor balancing can be performed easily with multi-speed multi-plane balancing procedure.

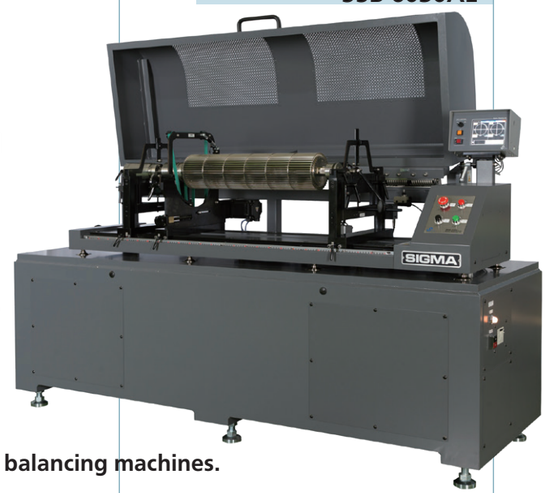
Horizontal 4 plane balancing machine

SSB-6001A

Balancing of long flexible rotors can be performed in high efficiency.
Max 1000mm length can be available as requested

Horizontal 4 plane balancing machine

SSB-6030AL



Very high accuracy and user-friendly belt driven horizontal balancing machines.

SPECIFICATION

Model	Max. rotor mass	Max. swing dia.	Journal dia.	Max. distance between pedestals	Test speed (min^{-1})	Drive motor (servo motor)	Automatic index	Eccentricity compensation	Work data memory	Mini. achievable residual specific unbalance
SSB-60001A	0.1	ø30mm	ø1-6mm	45mm	1000 - 5000	0.05kW	OK	OK	50	0.1μm*)
SSB-60005A	0.5	ø100mm	ø5-15mm	250mm	1000 - 5000	0.2kW	OK	OK	50	0.1μm*)
SSB-6001A	1	ø100mm	ø4-25mm	200mm	1000 - 5000	0.2kW	OK	OK	50	0.1μm*)
SSB-6005A	5	ø150mm	ø8-50mm	350mm	600 - 3000	0.4kW	OK	OK	50	0.1μm*)
SSB-6010A	10	ø200mm	ø10-50mm	350mm	600 - 3000	0.75kW	OK	OK	50	0.1μm*)
SHB-6030A	30	ø250mm	ø15-80mm	600mm	500 - 3000	0.75kW	OK	OK	50	0.1μm*)
SHB-6100A	100	ø500mm	ø10-70mm	700mm	600 - 1500	1.0kW	OK	OK	50	0.1μm*)

Note*: Minimum achievable residual specific unbalance will vary according to rotor mass, test speed driving method etc.

CUSTOM BALANCING MACHINES

High efficiency balancing of pump impellers, motors for EV, brake disks etc.
All process from measurement to unbalance correction is performed automatically without set-up change.

Fully automatic unbalance correcting machine for pump impellers

SHVA-6130Aseries

Fully automatic unbalance correcting machine for pump impellers, motors for EV.

SHVA2-6130A

Vertical single plane balancing machine with twin spindles and automatic carry out device
When one side is performing measurement, next workpiece can be set-up at the other side, therefore high efficiency can be performed.

Twin spindle vertical single plane balancing machine

SHV-5103A

Custom Balancing Machines

Transfer system is installed and automatically carries a workpiece among unbalance measuring station, correcting station and check measuring station.
Cycle time is approx. 12.5 seconds.

Semi-automatic vertical single plane balancing machine

SHV-5103A

Vertical 2 plane balancing machine suitable for high accuracy balancing polygon mirrors, HDD spindle motors etc.

Vertical 2 plane balancing machine for self-driven work pieces

SSV2-5800series

Object work piece: Self-driven spindle
Number of correcting plane: 1 to 2 (1 to 4 as option)
Test speed: 180 to 120,000 min^{-1}

Horizontal 4 plane balancing machine for self-driven work pieces

SSB2-5850A

Typical function
1. Multi-speed multi-plane balancing
2. Constant speed balancing
3. Condition monitoring at running in operation
4. Bearing diagnosis by FFT
5. Measurement of dynamic characteristics (Option)