#### Specifications

Speciii							
	System N	Model	m030/MA1-CE	m060/MA1-CE	m120/MA1-CE	m130LS/MA1-CE	m030H/MA1 (High frequency)
	Imag	э	φ7.5	φ9	φ12.6	23.3	φ7.5 11
	Frequen	cy Range (Hz)	0 - 3,000	0 - 3,000	0 - 2,000	2 - 1,000	1,000 - 10,000
	Batad	Sine (lbf)	67	135	270	292	85
	Rated force	Random (lbf rms)	47	94	189	146	60
		Shock (lbf)	67	135	270	292	85
	Maximum Acc.	No load (g)	51	51	51	13	20
System		0.5 kg load (g)	28	35	42	12	16
Specifications		1.0 kg load (g)	19	27	36	11	13
	Maximum Velocity (in/s)		63	63	63	1.0	_*1
	Maximum Displacement(inp-p)		1.0	1.2	1.2	2.0	_*1
	Maximum Load (lbs)		33	33	265	220	33
	Power Requirements (kVA)*2		0.4	0.7	1.1	1.1	0.5
	Model		m030-CE	m060-CE	m120-CE	m130LS-CE	
	Armature	e Support Method	Diaphragm spring	Diaphragm spring	Air Suspension	Air Suspension	Rubber spring
Vibration	Armature	e Mass (lbs)	1.3	2.7	5.3	22	4.2
Generator	Armature	e Diameter (φin)	4.5	4.5	6.9	7.1	2.6
	Dimensi	ons (in)	φ7.5 x H10	φ9 x H11	φ12.6 x H12.9 <sup>-3</sup>	W16.1 x H23.3 x D18.1	φ7.5 x H11
	Mass (lb	s)	49	90	245	550	66
	Model		MA1-CE	MA1-CE	MA1-CE	MA1-CE	MA1-CE
	Maximur	n Output (kVA)	1.0	1.0	1.0	1.0	1.0
Power	Dimensi	ons (in) W x H x D	17 x 6 x 17				
Amplifier	Mass (lb	s)	55	55	55	55	55
	Cooling	Method	Air cooling				
Cooling	Blower		Housed in vibration generator				

<sup>\*1</sup> The displacement at the lower limit of frequency (1,000 Hz) and maximum acceleration (20 g) is so small that there is no certified value.



## **IMV CORPORATION**





## **M**-series

Silent model ideal for abnormal noise inspection

# Compact BSR Vibration test systems

Feature 01 Compact and silent, but also powerful enough for full-scale tests

Feature 02 Can be installed anywhere with AC100V

Feature 03 Silent design with a built-in cooling fan



	For Light test samples	For Heavy test samples	For Transportation tests	For High-frequency tests
Frequency range	0 - 3000 Hz	0 - 2000 Hz	2 - 1000 Hz	1000 - 10000 Hz
Maximum load	15 kg	120 kg	100 kg	15 kg
Applicable model	> m030 > m060	<b>⊘</b> m120	> m130LS	<b>&gt;</b> m030H

## **IMV CORPORATION**

R Insulation had (W16.1 x H1.8 x D16.2 in) is standard equipment

<sup>3</sup> insulation pad (VIII.) 1 × 11.0 × 1

<sup>\*</sup> Frequency range values vary according to sensor and vibration controll

https://www.imv-usa.com/

<sup>\*</sup>The specifications and design are subject to change without notice.

## **M**030/MA1-CE

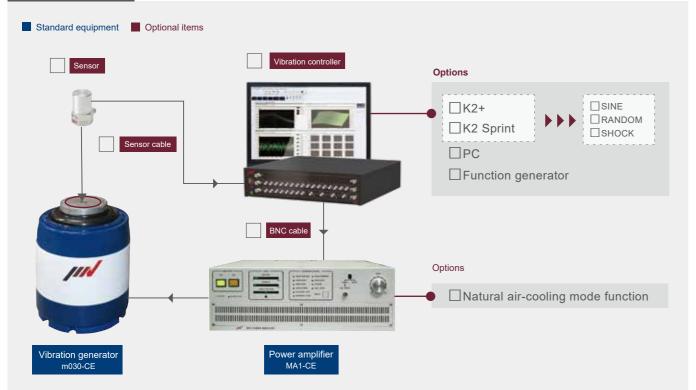
## Compact and silent, but also powerful enough for full-scale tests.



	Syste	m Model	m030/MA1-CE		Model	m030-CE
	Freque	ncy Range (Hz)	0 - 3,000		Armature Support Method	Diaphragm spring
		Sine (lbf)	67	Vibration	Armature Mass (lbs)	1.3
	Rated force	Random (lbf rms)	47	Generator	Armature Diameter (φin)	4.5
		Shock (lbf)	67		Dimensions (in)	φ7.5 x H10
		No load (g)	51		Mass (lbs)	49
System Specifications	Maximum Acc.	0.5 kg load (g)	28		Model	MA1-CE
		1.0 kg load (g)	19		Maximum Output (kVA)	1.0
	Maximu	um Velocity (in/s)	63	Power Amplifier	Dimensions (in) W x H x D	17 x 6 x 17
	Maximu	m Displacement (inp-p)	1.0	Ampliner	Mass (lbs)	55
	Maximu	um Load (lbs)	33		Cooling Method	Air cooling
	Power	Requirements (kVA)*1	0.4	Cooling	Blower	Housed in vibration generator

- \*1 Power supply: single-phase AC100 V/200 V or AC110 V/220 V or AC120 V/240 V ±10% 50/60 Hz. A transformer is required for other supply voltages.
  \* The specifications show maximum system performance. For long-duration tests, system must be de-rated up to 70%.
  Continuous use at maximum levels may cause failure. Please contact IMV if your system operates at more than 70%.
  \*Frequency range values vary according to sensor and vibration controller.

#### System composition



#### Head expander compatible with m030

Use a head expander for test samples that are too large to put on the table. The test sample mass must fall within the load limit of the shaker (33 lbs) minus the head expander mass. When using the head expander, the upper limit frequency is smaller than when using the test system alone.

Model	Dimensions (in)	Mass (lbs)		Material
TBV-125-m30-A	4.9 × 4.9 × t 0.8	2.0	2,000	Aluminum alloy
TBV-200-m30-A-G*	7.9 × 7.9 × t 0.8	6.0	1,500	Aluminum alloy
TBV-200-m30-M-G*	7.9 × 7.9 × t 0.8	4.2	1,500	Magnesium alloy

\*A supplementary guidance system with linear bearings is used with the vibration generator when combined with the head expander.

Armature mass is increased due to the addition of the guide support.



#### Slip table compatible with m030

Use a slip table for test samples that are too large to put on the table. The test sample mass must fall within the load limit of the shaker (33 lbs) minus the head expander mass. When using the head expander, the upper limit frequency is smaller than when using the test system alone.

	Model	Dimensions (in)	Mass (lbs)		Material
	TBH-200-m30-A-MB	7.9 × 7.9 × t 0.8	8.8	500	Aluminum alloy
	TBH-315-m30-A-MB	12.4 × 12.4 × t 0.8	16.5	500	Aluminum alloy



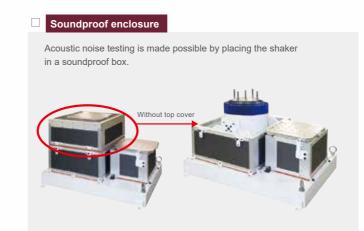
#### Cubic fixture compatible with m030

Use when mounting directly on a vibration generator and performing vibration in 3 axes (X, Y, and Z).

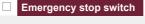
Two types of cubic fixture are available. Type A has mounting holes on each face and type B has specimen mounting plates which attach to the cubic frame.

Model	Dimensions (in)	Mass (lbs)		Material
TCJ-A150-m30-A	5.9 × 5.9 × 5.9	12.1	2,000	Aluminum alloy
TCJ-A150-m30-M	5.9 × 5.9 × 5.9	8.8	2,000	Magnesium alloy
TCJ-A160-m30-A	6.3 × 6.3 × 6.3	14.3	2,000	Aluminum alloy
TCJ-A160-m30-M	6.3 × 6.3 × 6.3	10.1	2,000	Magnesium alloy
TCJ-B150-m30-A	5.9 × 5.9 × 5.9	7.7	2,000	Aluminum alloy
TCJ-B150-m30-M	5.9 × 5.9 × 5.9	5.5	2,000	Magnesium alloy
TCJ-B160-m30-A	6.3 × 6.3 × 6.3	8.8	2,000	Aluminum alloy
TCJ-B160-m30-M	6.3 × 6.3 × 6.3	6.1	2,000	Magnesium alloy









It is possible to stop the system in an emergency.



#### Trunnion Base

It is possible to use the vibration generator horizontally.



## **M**060/MA1-CE

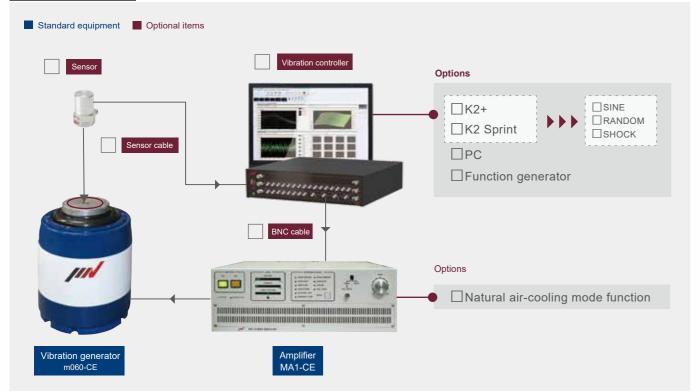
## Compact and silent, but also powerful enough for full-scale tests.



		m Model	m060/MA1-CE		Model	m060-CE
	Freque	ncy Range (Hz)	0 - 3,000		Armature Support Method	Diaphragm spring
		Sine (lbf)	135	Vibration	Armature Mass (lbs)	2.7
	Rated force	Random (lbf rms)	94	Generator	Armature Diameter (φin)	4.5
		Shock (lbf)	135		Dimensions (in)	φ9 x H11
		No load (g)	51		Mass (lbs)	90
System Specifications	Maximum Acc.	0.5 kg load (g)	35		Model	MA1-CE
oposinou a on o		1.0 kg load (g)	27		Maximum Output (kVA)	1.0
	Maximum Velocity (in/s)		63	Power Amplifier	Dimensions (in) W x H x D	17 x 6 x 17
	Maximu	m Displacement (inp-p)	1.2	Ampliner	Mass (lbs)	55
	Maximu	ım Load (lbs)	33		Cooling Method	Air cooling
	Power	Requirements (kVA)*1	0.7	Cooling	Blower	Housed in vibration generator

- \*1 Power supply: single-phase AC100 V/200 V or AC110 V/220 V or AC120 V/240 V ±10% 50/60 Hz. A transformer is required for other supply voltages.
  \* The specifications show maximum system performance. For long-duration tests, system must be de-rated up to 70%.
  Continuous use at maximum levels may cause failure. Please contact IMV if your system operates at more than 70%.
  \*Frequency range values vary according to sensor and vibration controller.

#### System composition



#### Head expander compatible with m060

Use a head expander for test samples that are too large to put on the table. The test sample mass must fall within the load limit of the shaker (33 lbs) minus the head expander mass. When using the head expander, the upper limit frequency is smaller than when using the test system alone.

Model	Dimensions (in)	Mass (lbs)		Material
TBV-125-m60-A	4.9 × 4.9 × t 0.8	2.0	2,000	Aluminum alloy
TBV-200-m60-A	7.9 × 7.9 × t 0.8	5.5	1,500	Aluminum alloy
TBV-200-m60-M	7.9 × 7.9 × t 0.8	3.7	1,500	Magnesium alloy
TBV-315-m60-A-G*	12.4 × 12.4 × t 1.2	19.4	1,000	Aluminum alloy
TBV-315-m60-M-G*	12.4 × 12.4 × t 1.2	13.4	1,000	Magnesium alloy

\*A supplementary guidance system with linear bearings is used with the vibration generator when combined with the head expander.

Armature mass is increased due to the addition of the guide support.



#### Slip table compatible with m060

Use a slip table for test samples that are too large to put on the table. The test sample mass must fall within the load limit of the shaker (33 lbs) minus the head expander mass. When using the head expander, the upper limit frequency is smaller than when using the test system alone.

Model	Dimensions (in)	Mass(lbs)		Material
TBH-200-m60-A-MB	7.9 × 7.9 × t 0.8	8.8	500	Aluminum alloy
TBH-315-m60-A-MB	12.4 × 12.4 × t 0.8	16.5	500	Aluminum alloy
TBH-400-m60-A-MB	15.7 × 15.7 × t 0.8	27.1	500	Aluminum alloy



#### Cubic fixture compatible with m060

Use when mounting directly on a vibration generator and performing vibration in 3 axes (X, Y, and Z).

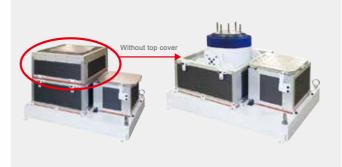
Two types of cubic fixture are available. Type A has mounting holes on each face and type B has specimen mounting plates which attach to the cubic frame.

Model	Dimensions (in)	Mass (lbs)		Material
TCJ-A150-m60-A	5.9 × 5.9 × 5.9	12.1	2,000	Aluminum alloy
TCJ-A150-m60-M	5.9 × 5.9 × 5.9	8.8	2,000	Magnesium alloy
TCJ-A160-m60-A	6.3 × 6.3 × 6.3	14.3	2,000	Aluminum alloy
TCJ-A160-m60-M	6.3 × 6.3 × 6.3	10.1	2,000	Magnesium alloy
TCJ-B150-m60-A	5.9 × 5.9 × 5.9	7.7	2,000	Aluminum alloy
TCJ-B150-m60-M	5.9 × 5.9 × 5.9	5.5	2,000	Magnesium alloy
TCJ-B160-m60-A	6.3 × 6.3 × 6.3	8.8	2,000	Aluminum alloy
TCJ-B160-m60-M	6.3 × 6.3 × 6.3	6.1	2,000	Magnesium alloy



#### ☐ Soundproof enclosure

Acoustic noise testing is made possible by placing the shaker in a soundproof box.



### Excitation at any selected point

Modal analysis can be done by applying vibration to the car body, etc.



#### Emergency stop switch

It is possible to stop the system in an emergency.



#### Trunnion Base

It is possible to use the vibration generator horizontally.



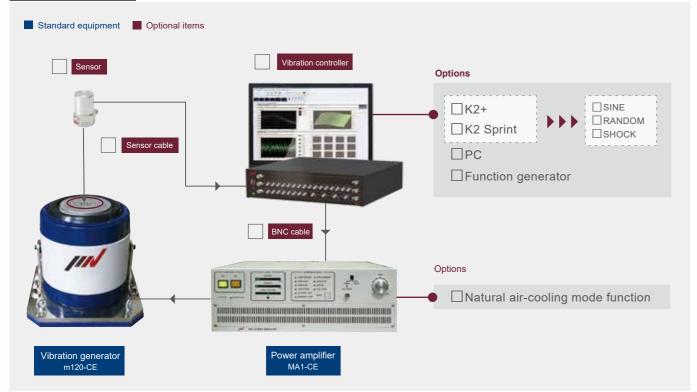
## **M**120/MA1-CE

## Compact and silent, but also powerful enough for full-scale tests.



Air suspension
5.3
6.9
12.6 x H12.9*2
245
MA1-CE
1.0
17 x 6 x 17
55
Air cooling
sed in vibration generate
_

#### System composition



#### Head expander compatible with m120

Use a head expander for test samples that are too large to put on the table. The test sample mass must fall within the load limit of the shaker (265 lbs) minus the head expander mass. When using the head expander, the upper limit frequency is smaller than when using the test system alone.

Model	Dimensions (in)	Mass (lbs)		Material
TBV-200-m120-A	7.9 × 7.9 × t 0.8	5.5	1,500	Aluminum alloy
TBV-200-m120-M	7.9 × 7.9 × t 0.8	3.7	1,500	Magnesium alloy
TBV-315-m120-A	12.4 × 12.4× t 1.4	19.8	1,000	Aluminum alloy
TBV-315-m120-M	12.4 × 12.4× t 1.4	13.6	1,000	Magnesium alloy
TBV-400-m120-A-G*	15.7 × 15.7 × t 1.4	33.0	600	Aluminum alloy
TBV-400-m120-M-G*	15.7 × 15.7 × t 1.4	23.0	600	Magnesium alloy

\*A supplementary guidance system using linear bearings is used with the vibration generator when combined with the head expander. Armature mass is increased due to the addition of the guide support.



#### Slip table compatible with m120

Use a slip table for test samples that are too large to put on the table. The test sample mass must fall within the load limit of the shaker (265 lbs) minus the head expander mass. When using the head expander, the upper limit frequency is smaller than when using the test system alone.

	Model	Dimensions (in)	Mass(lbs)		Material
	TBH-200-m120-A-MB	7.9 × 7.9 × t 0.8	12.1	500	Aluminum alloy
	TBH-315-m120-A-MB	12.4 × 12.4 × t 0.8	19.8	500	Aluminum alloy
	TBH-400-m120-A-MB	15.7 × 15.7 × t 0.8	30.8	500	Aluminum alloy



#### Cubic fixture compatible with m120

Use when mounting directly on a vibration generator and performing vibration in 3 axes (X, Y, and Z).

Two types of cubic fixture are available. Type A has mounting holes on each face and type B has specimen mounting plates which attach to the cubic frame.

TCJ-A150-m120-A 5.9	× 5.9 × 5.9 12.1	2.000	
		2,000	Aluminum alloy
TCJ-A150-m120-M 5.9	× 5.9 × 5.9 8.8	2,000	Magnesium alloy
TCJ-A160-m120-A 6.3	× 6.3 × 6.3 14.3	2,000	Aluminum alloy
TCJ-A160-m120-M 6.3	× 6.3 × 6.3 10.1	2,000	Magnesium alloy
TCJ-B150-m120-A 5.9	× 5.9 × 5.9 7.7	2,000	Aluminum alloy
TCJ-B150-m120-M 5.9	× 5.9 × 5.9 5.5	2,000	Magnesium alloy
TCJ-B160-m120-A 6.3	× 6.3 × 6.3 8.8	2,000	Aluminum alloy
TCJ-B160-m120-M 6.3	× 6.3 × 6.3 6.1	2,000	Magnesium alloy



#### ☐ Soundproof enclosure

Acoustic noise testing is made possible by placing the shaker in a soundproof box.



### Excitation at any selected point

Modal analysis can be done by applying vibration to the car body, etc.



#### Emergency stop switch

It is possible to stop the system in an emergency.



#### Trunnion Base

It is possible to use the vibration generator horizontally.



## M130LS/MA1-CE

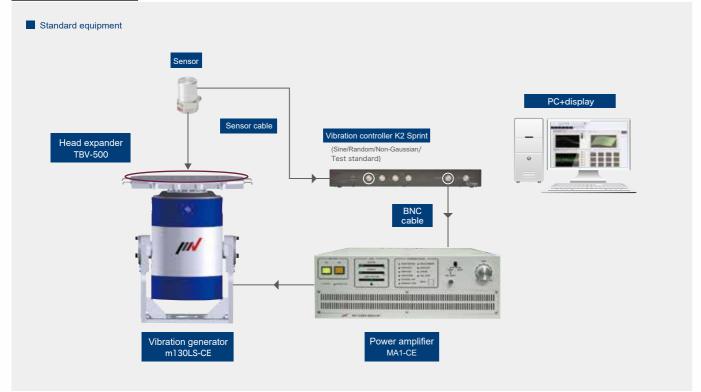
## Ideal for transport vibration tests for maximum 220 lbs, 120 size class packages.



	System Model		m130LS/MA1-CE		Model	m130LS-CE
	Frequency Range (Hz)		2 – 1,000		Armature Support Method	Air suspension
	Rated force	Sine (lbf)	292	Vibration Generator	Armature Mass (lbs)	22
		Random (lbf rms)	146		Armature Diameter (φin)	7.1
		Shock (lbf)	292		Dimensions (in)	W16.1 x H23.3 x D18.1
Contain	Maximum Acc.	No load (g)	13		Mass (lbs)	550
System Specifications		0.5 kg load (g)	12		Model	MA1-CE
		1.0 kg load (g)	11		Maximum Output (kVA)	1.0
	Maximum Velocity (in/s)		1.0	Power Amplifier	Dimensions (in) W x H x D	17 x 6 x 17
	Maximum Displacement (inp-p)		2.0		Mass (lbs)	55
	Maximum Load (lbs)		220		Cooling Method	Air cooling
	Power Requirements (kVA)*1		1.1	Cooling	Blower	Housed in vibration generator

- \*1 Power supply: single-phase AC100 V/200 V or AC110 V/220 V or AC120 V/240 V ±10 % 50/60 Hz. A transformer is required for other supply voltages.
  \*The specifications show maximum system performance. For long-duration tests, system must be de-rated up to 70%.
  Continuous use at maximum levels may cause failure. Please contact IMV if your system operates at more than 70%.
  \*Frequency range values vary according to sensor and vibration controller.

#### System composition



#### **Head expander** compatible with m130LS

Use a head expander for test samples that are too large to put on the table. The test sample mass must fall within the load limit of the shaker (220 lbs) minus the head expander mass. When using the head expander, the upper limit frequency is smaller than when using the test system alone.

Model	Dimensions (in)	Mass (kg)		Material
TBV-500-m130LS-A	19.7 × 19.7 × t 1.8	33	500	Aluminum alloy



#### Slip table compatible with m130LS

Use a slip table for test samples that are too large to put on the table. The test sample mass must fall within the load limit of the shaker (220 lbs) minus the head expander mass. When using the head expander, the upper limit frequency is smaller than when using the test system alone.

Model	Dimensions (in)	Mass (lbs)		Material
TBH-500-m130LS-A-MB	19.7 × 19.7 × t 0.8	61.7	500	Aluminum alloy



#### ☐ Emergency stop switch

It is possible to stop the system in an emergency.

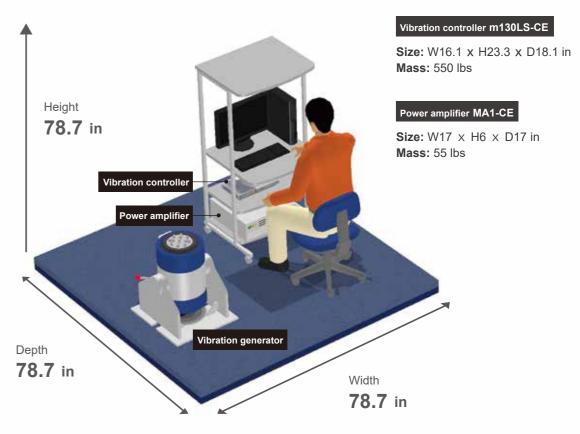


#### Test standards

A test file will be automatically generated upon selection of the test conditions defined by the test standards.



#### m130LS layout image



- \*This is the recommended layout.
- \*Layout can be changed depending on the characteristics of the installation location.

## **M**030H/MA1-CE

## Supports high frequencies (up to 10,000 Hz)



System Mo		m Model	m030H/MA1-CE		Model	m030H
	Frequency Range (Hz)		1,000 - 10,000		Armature Support Method	Rubber spring
	Rated force	Sine (lbf)	85	Vibration Generator	Armature Mass (lbs)	4.2
		Random (lbf rms)	60		Armature Diameter (φin)	2.6
		Shock (lbf)	85		Dimensions (in)	φ7.5 x H11
	Maximum Acc.	No load (g)	20		Mass (lbs)	66
System Specifications		0.5 kg load (g)	16		Model	MA1-CE
,		1.0 kg load (g)	13		Maximum Output (kVA)	1.0
-	Maximum Velocity (in/s)		_*2	Power Amplifier	Dimensions (in) W x H x D	17 x 6 x 17
	Maximum Displacement (inp-p)		_*2		Mass (lbs)	55
	Maximum Load (lbs)		33		Cooling Method	Air cooling
	Power	Requirements (kVA)*1	0.5	Cooling	Blower	Housed in vibration generato

- \*1 Power supply: single-phase AC100 V/200 V or AC110 V/220 V or AC120 V/240 V ±10 % 50/60 Hz. A transformer is required for other supply voltages.
  \*2 The displacement at the lower limit of frequency (1,000 Hz) and maximum acceleration (20 g) is so small that there is no certified value.

  \*The specifications show maximum system performance. For long-duration tests, system must be de-rated up to 70%.
  Continuous use at maximum levels may cause failure. Please contact IMV if your system operates at more than 70%.

  \*Frequency range values vary according to sensor and vibration controller.

## System composition Standard equipment Optional items Options SINE □K2+ RANDOM ☐ K2 Sprint □shock Sensor cable □РС ☐ Function generator ------■ Natural air-cooling mode function Power amplifier MA1-CE



## Sample test products that can be tested with the m-series



10

## Test cases using the m-series

## **Electronic parts**

Vibration tests can be done on small electronic components such as connectors, capacitors, sensors, resistors, and LEDs.



## Fatigue testing of copper plating

A custom system developed using a compact m-series shaker for fatigue testing copper plating. Up to 12 sheets of copper plating can be tested simultaneously using this system.



### Seismic evaluation tests

Complete systems are available for the reproduction and study of seismic events.





## **Transportation tests**

Transportation tests can be done on small and packaged products. (Compatible with various test standards including JIS, IEC, MIL, and ASTM.)





### **Automotive tests**

A vibration system can be set up to move along guide rails.

The system can be combined with other types of test equipment, including temperature chambers, if necessary.





#### **Automotive tests**

Simulation testing using actual measured data or more traditional random testing can be done in simultaneous 3-axis. When the shaker system is combined with a half-anechoic chamber, 3D squeak-and-rattle testing can be done in an environment with a background noise level of less than 30 dB.





### **Automotive tests**

Function and durability tests can be done on parts exposed to rapid temperature changes.





#### **Automotive tests**

A 6-DOF vibration test system with 8 compact, silent shakers for squeak-and-rattle acoustic noise evaluation of instrument panels.



## **Videos**



IMV's compact transport vibration test system, ideal for conducting a wide variety of transport tests, can be operated easily by anyone.



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