

Impact Hammers

Highlights

- Modally Tuned® to provide more consistent results
- Variety of hammers to suit any size test object
- Assortment of tips offer frequency tailored impulse

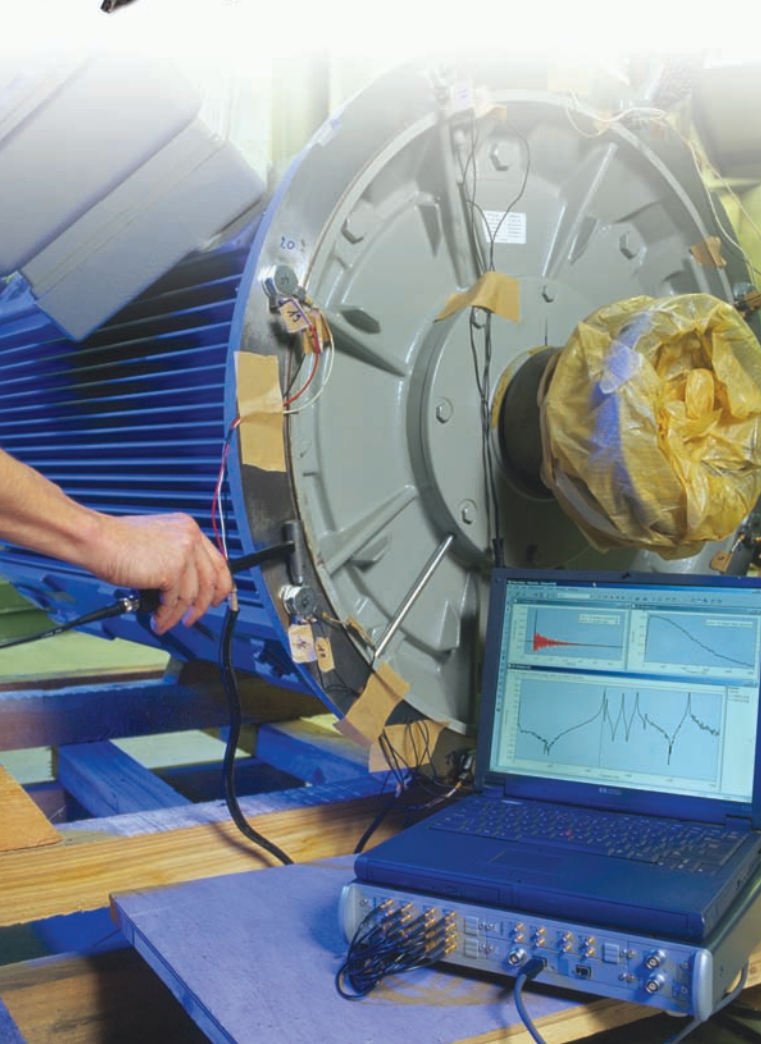


Each PCB® Modally Tuned®, ICP® instrumented impact hammer features a rugged, force sensor that is integrated into the hammer's striking surface.

"Modal Tuning" is a feature that ensures the structural characteristics of the hammer do not affect measurement results. This is accomplished by eliminating hammer resonances in the frequency range of interest from corrupting the test data, resulting in more accurate and consistent measurements.

The force sensor serves to provide a measurement of the amplitude and frequency content of the energy stimulus that is imparted to a test object. Accelerometers are used in conjunction with the hammer to provide a measurement of the object's structural response due to the hammer blow. A variety of tips supplied with each hammer permit the energy content of the force impulse to be tailored to suit the requirements of the item under test.

Using multi-channel data acquisition and analysis software, the test engineer is able to ascertain a variety of mechanical properties leading to an understanding of an object's structural behavioral characteristics. Items analyzed can include resonance detection, mode shapes, transfer characteristics, and structural health – such as crack and fatigue detection.





Impact Hammers



Applications

- Structure Health Testing
- Resonance Determination
- Modal Analysis

Impact Hammers

			
Model Number	086E80	086C01	086C03
Sensitivity	100 mV/lbf 22.5 mV/N	50 mV/lbf 11.2 mV/N	10 mV/lbf 2.25 mV/N
Measurement Range	± 50 lbf pk ± 220 N pk	± 100 lbf pk ± 440 N pk	± 500 lbf pk ± 2200 N pk
Resonant Frequency	≥ 100 kHz	≥ 15 kHz	≥ 22 kHz
Sensing Element	Quartz	Quartz	Quartz
Sealing	Epoxy	Epoxy	Epoxy
Hammer Mass	4.8 gm	100 gm	160 gm
Head Diameter	0.25 in 6.3 mm	0.62 in 1.57 cm	0.62 in 1.57 cm
Tip Diameter	0.10 in 2.5 mm	0.25 in 0.63 cm	0.25 in 0.63 cm
Hammer Length	4.2 in 107 mm	8.5 in 21.6 cm	8.5 in 21.6 cm
Electrical Connection Position	Bottom of Handle	Bottom of Handle	Bottom of Handle
Extender Mass Weight	1.25 gm	25 gm	75 gm
Electrical Connector	5-44 Coaxial Jack	BNC Jack	BNC Jack
Supplied Accessories			
Mounting Stud	—	(2) 081B05	(2) 081B05
Extender Mass	084A13	084A06	084A08
Hard Tip	—	084B03	084B03
Medium Tip	—	084B04	084B04
Soft Tip	—	(2) 084C05	(2) 084C05
Super Soft Tip	—	(2) 084C11	(2) 084C11
Tip Cover	084A28	(2) 085A10	(2) 085A10
NIST Calibration	HCS-2	HCS-2	HCS-2
Cable	018G10	—	—
Wax	080A109	—	—
Plastic Handle	084A14	—	—
Aluminum Handle	084A17	—	—
Additional Version			
Alternative Sensitivity	—	—	086C04 - 5 mV/lbf

Tips from Techs

How do I know which impact hammer to select for my application?

The general rule of thumb to follow is the larger the structure to excite, the larger the impact hammer required. Some selection guidelines are as follows:

086E80 - Printed Circuit Boards & Hard Drives

086C01 - Lightly Damped Panels & Frames

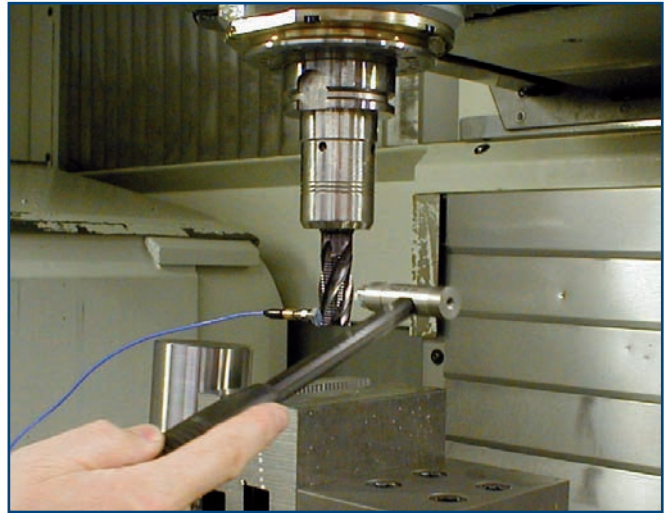
086C02, C03, & C04 - Medium sized structures such as Car Frames, Engines, & Machined Parts

086D05 - Heavier sized components such as Pumps & Compressors

086D20 - Heavy Structures such as Tool Foundations & Storage Tanks

086D50 - Large Structures such as Buildings, Bridges, & Ships

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Model Number	086D05	086D20	086D50
Sensitivity	1 mV/lbf 0.23 mV/N	1 mV/lbf 0.23 mV/N	1 mV/lbf 0.23 mV/N
Measurement Range	± 5000 lbf pk ± 22,240 N pk	± 5000 lbf pk ± 22,240 N pk	± 5000 lbf pk ± 22,240 N pk
Resonant Frequency	≥ 22 kHz	≥ 22 kHz	≥ 5 kHz
Sensing Element	Quartz	Quartz	Quartz
Sealing	Epoxy	Hermetic	Hermetic
Hammer Mass	0.32 kgm	1.1 kgm	5.5 kgm
Head Diameter	1.0 in 2.5 cm	2.0 in 5.1 cm	3.0 in 7.6 cm
Tip Diameter	0.25 in 0.63 cm	2.0 in 5.1 cm	3.0 in 7.6 cm
Hammer Length	9.0 in 22.7 cm	14.5 in 37 cm	35 in 89 cm
Electrical Connection Position	Bottom of Handle	Bottom of Handle	Bottom of Handle
Extender Mass Weight	200 gm	—	—
Electrical Connector	BNC Jack	BNC Jack	BNC Jack
Supplied Accessories			
Mounting Stud	(2) 081B05	—	—
Extender Mass	084A09	—	—
Hard Tip	084B03	084A63	084A32
Medium Tip	084B04	084A62	—
Soft Tip	(2) 084C05	084A61	084A31
Super Soft Tip	084A50	084A60	—
Tip Cover	(2) 085A10	—	—
NIST Calibration	HCS-2	HCS-2	HCS-2

Hochwertige Messtechnik und Beratung aus einer Hand

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