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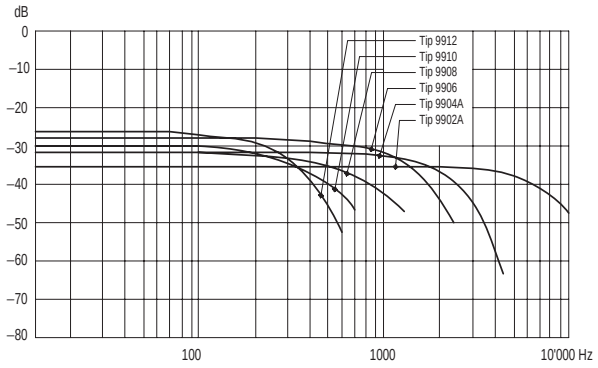
Quartz

Type 9722A...

Impulse Force Hammer; Low Force Range

Dynamic quartz sensor elements contained within instrumented hammers are used to deliver a measurable force impulse (amplitude and frequency content) to excite a mechanical structure under test. A response signal measured with an accelerometer in conjunction with a FFT analyzer provides the transfer function of the structure.

- Low impedance, voltage mode
- Quartz sensing element guarantees long-term stability
- Accessories for various applications
- Sensor cable integrated to hammer handle
- Conforming to CE



Description

The dynamic response of a mechanical structure while either in a development phase or an actual use environment can readily be determined by impulse force testing. Using a FFT analyzer, the transfer function of the structure can be determined from a force pulse generated by the impact of a hammer and the response signal measured with an accelerometer. The impulse force test method, yields extensive information about the frequency and attenuation behavior of the system under test.

The stainless steel head of an impulse force hammer, is equipped with a quartz, low impedance force sensor which accepts impact tips varying in hardness. A selection of steel, plastic, PVC and rubber tips along with an extender mass allow the hammer to be tailored to impart to the test structure, a desired spectrum of frequencies. Shear quartz accelerometers operating in a voltage mode and featuring insensitivity to base strain, thermal transients and transverse motion are available to measure the response of the test specimens ranging from thin- walled structures to steel bridge members.

The hammer incorporates a quartz measuring cell with built-in Piezotron® low impedance electronics. The cell's voltage mode operation, guarantees a stable signal transmission insensitive to ambient influences. A wide selection of single or multi-channel couplers are available to provide power and signal processing for the hammer and accelerometers.

Application

The hammer may be used to excite light to medium-weight structures at medium to high frequencies, e.g. disks brakes, vehicle body panels, air frame structures, general structural testing etc. The impulse force hammer is used to analyze the dynamic behavior of mechanical structures. The vibrations induced by the hammer impact are measured by an accelerometer.

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Technical Data

Type	Units	9722A500	9722A2000
Force Range	N	0 ... 500	0 ... 2000
Maximum Force	N	2500	10000
Sensitivity nom.	mV/N	10	2
Resonant Frequency	kHz	27	27
Frequency Range with steel impact tip (-10 dB)	Hz	8200	9300
Time Constant nom	s	500	500
Rigidity	kN/µm	0,8	0,8
Temperature Range Operating	°C	-20 … 70	-20 … 70
Output:			
Voltage F.S.	V	±5	±5
Bias nom.	VDC	11	11
Impedance	Ω	<100	<100
Source:			
Voltage	V	20 ... 30	20 ... 30
Constant current	mA	2 ... 20	2 ... 20
Hammer head dimensions:			
Diameter	mm	17,5	17,5
Length	mm	61	61
Weight	gram	100	100
Length of handle	mm	188	188
Connector	type	BNC neg.	BNC neg.

1 N = 0,2248lb, 1 g = 9,80665 m/s2, 1 inch = 25,4 mm, 1 gram = 0,03527 oz

Accessories Included	Type
• impact tip, steel	9902A
• impact tip, steel with Delrin cap	9904A
• impact tip, soft PVC	9906
• impact tip, rubber hard (green)	9908
• impact tip, rubber medium (red)	9910
• impact tip, rubber soft (gray)	9912
• adapter for rubber impact tips	9928
• extender mass (50 grams)	9922
• impact tip wrench	1370
• Plastic carrying case	

Ordering Key

9722A □

Measuring Range	
500 N	500
2000 N	2000

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