

PRODUCT DATA

Heavy Duty Impact Hammers — Types 8207, 8208 and 8210

USES

- Impact-force measurements on medium to very large structures
- Measurement of frequency response functions using impact excitation techniques
- As part of a dynamic structural testing system for modal analysis and prediction of structural response

FEATURES

- Robust construction
- 1, 3 and 12 pound versions for a variety of structures
- DeltaTron[®] (low-impedance) output
- Four impact tips for controlling frequency response and impulse
- Supplied in easily transportable carrying case

Description

The heavy-duty impact hammers are designed to excite and measure impact forces on medium to very large structures. An accelerometer (or laser velocity transducer) is used to measure the response of the structure. By using an FFT analyzer, such as the PULSE[™] system, the frequency response function and mode shapes of the test structure can then be derived.

Characteristics

The hammers have built-in electronics. The sensitivity is expressed in terms of voltage per unit force (mV/N or mV/lbf). All types feature a BNC connector at the bottom of the shaft. Each hammer is supplied with four inter-



changeable impact tips to control the amplitude and decay of the impact and frequency response. The hammers must never be used without an impact tip. The sensor housing is made of stainless steel and is permanently attached to the hammer.

Calibration

The hammers are supplied with individual calibrations of their sensitivity.

Versions

- Type 8207: one-pound head for exciting medium size structures such as machinery and larger auto frames.
- Type 8208: three-pound head for exciting large structures such as pipelines, storage tanks and concrete castings.
- Type 8210: twelve-pound head for exciting very large structures such as buildings, bridges and ships.

Fig. 1 Impulse shapes of the hammers showing the shape as a function of used impact tip. From left to right Type 8207, 8208 and 8210

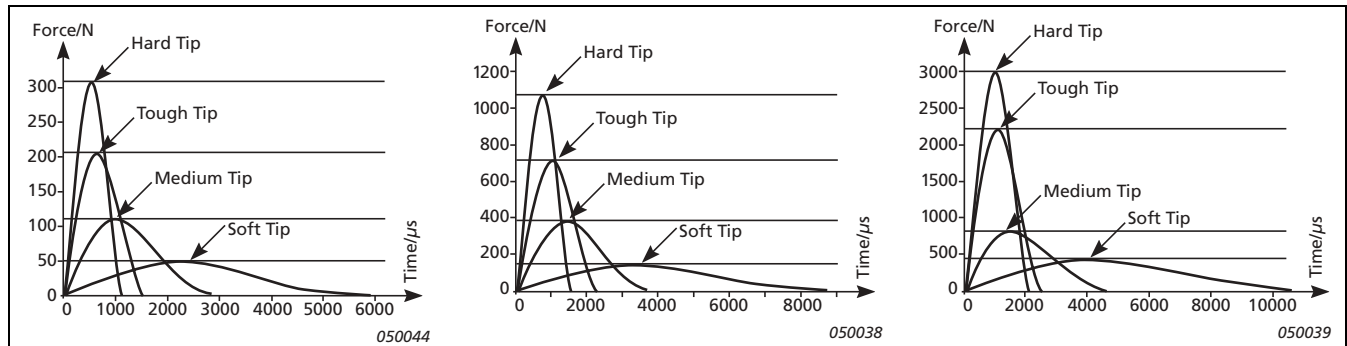
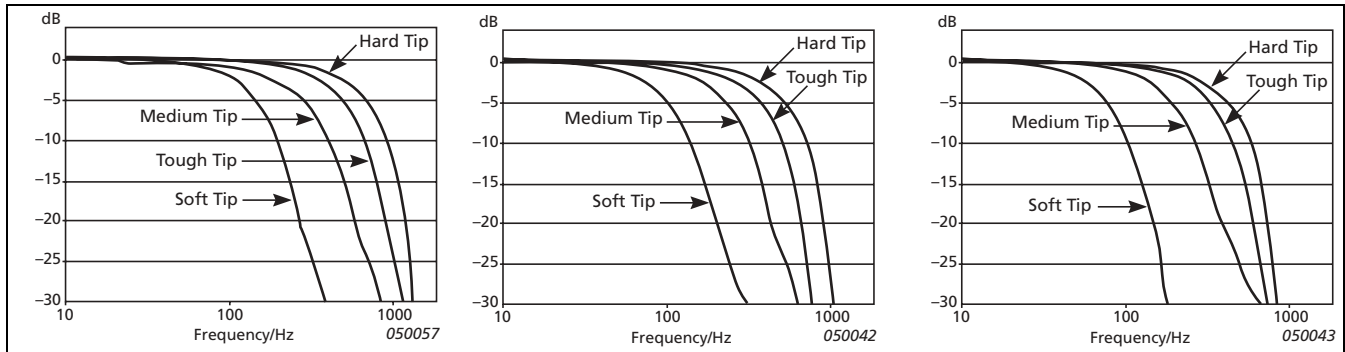


Fig. 2 Force spectra of the hammers showing the frequency response as a function of used impact tip. From left to right Type 8207, 8208 and 8210



Specifications – Heavy Duty Impact Hammers Types 8207, 8208 and 8210

	Units	8207	8208	8210
Dynamic Characteristics				
Sensitivity (typical)	mV/N (mV/lbf)		0.225 (1)	
Full Scale Force Range Compression	kN (lbf)		22.2 (5000)	
Linear Error at Full Scale	% full scale		<±2	
Electrical Characteristics				
Full Scale Output Voltage	V		±5	
DC Output Bias Voltage	V		+9 to +12	
Output Impedance	Ω		<100	
Power Supply	mA		2 to 20	
Voltage Range	V DC		+18 to +30	
Environmental Characteristics				
Temperature Range	°C (°F)		-73 to +60 (-100 to +140)	
Max. Force Compression	kN (lbf)		44.4 (10000)	
Physical Characteristics				
Overall Length	mm (in.)	30 (11.7)	39 (15.2)	90 (35.3)
Effective Seismic Mass	kg (lb.)	0.45 (1)	1.36 (3)	5.44 (12)
Sensor Housing Material		17-4 stainless steel		
Connector		BNC		

All values are typical at 25°C (77°F) unless measurement uncertainty is specified

COMPLIANCE WITH STANDARDS



Compliance with EMC Directive and Low Voltage Directive of the EU



Compliance with the EMC requirements of Australia and New Zealand

Ordering Information

Types 8207, 8208, and 8210 include:

- Carrying Case
- Calibration Chart
- Soft Impact Tip (Brown)
- Medium Impact Tip (Green)
- Tough Impact Tip (Red)
- Hard Impact Tip (Black)
- PVC Insulated Cable, 10–32 UNF to BNC Connector, 5 m (16.4 ft)
- Plug Adaptor, BNC/10–32 UNF

OPTIONAL ACCESSORIES*

- AO-0531-D-050: 70°C, Insulated Single Screen Flexible Cable, 10–32 UNF to BNC, 5 m (16.4 ft)
- JP-0145: Plug Adaptor, BNC/10–32 UNF
- UA-2057: Set of four Impact Tips for Impact Hammer Type 8207
- UA-2058: Set of four Impact Tips for Impact Hammer Type 8208
- UA-2060: Set of four Impact Tips for Impact Hammer Type 8210
- ZZ-0245: In-line TEDS Adaptor, 10–32 UNF to 10–32 UNF

*Additional accessories and cables are available (see www.bksv.com)

Brüel & Kjær reserves the right to change specifications and accessories without notice

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