

# PRODUCT DATA

## Impact Hammers — Types 8206, 8206-001, 8206-002 and 8206-003

### USES

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

### FEATURES

- Four types with sensitivity from 1 to 22 mV/N
- Ergonomic handle
- Negligible changes to dynamic properties of test structure
- Three replaceable tips
- Acceleration compensated

### Description

This series of Impact Hammers has been designed to excite and measure impact forces on small to medium structures such as engine blocks, car frames and automotive components. An accelerometer (or laser velocity transducer) is used to measure the response of the structure. By using a multichannel FFT analyzer, such as the PULSE™ system, the frequency response function and mode shapes of the test structure can then be derived. Contrary to using an electrodynamic exciter, an impact hammer does not apply additional mass loading to the test object and it provides a very portable solution for excitation.

### Characteristics

The Type 8206 series feature built-in electronics and the output sensitivity is expressed in terms of voltage per unit force (mV/N or mV/lbf). The hammers also have built-in acceleration compensation that removes unwanted noise from the resonance of the hammer from the output signal. This results in a clean, smooth output signal representing the excitation in both amplitude and phase.



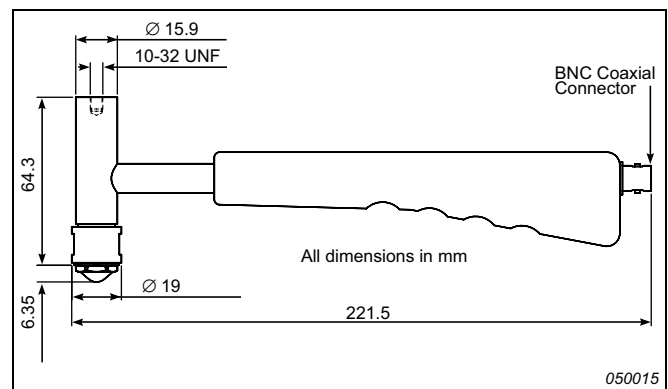
The impact hammer is supplied with three interchangeable impact tips of aluminium, plastic and rubber. The choice of impact tip determines the impulse shape (amplitude and duration) and the bandwidth of the excitation.

For increased head mass, a 40 gram head extender is available.

The handle has been ergonomically designed for optimal control of impact, thus reducing the risk of “double hits”.

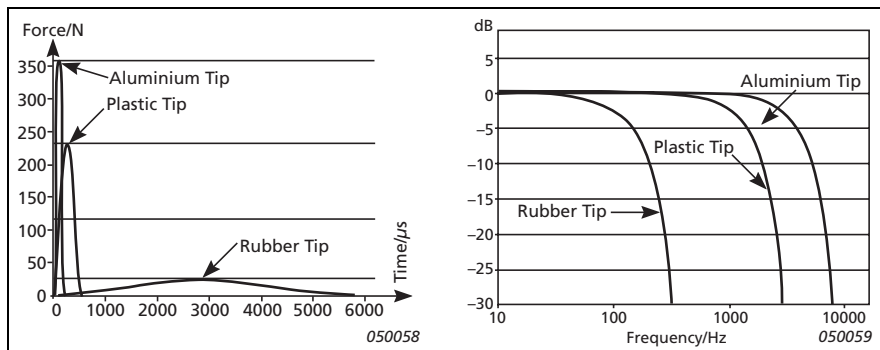
### Calibration

The transducer is supplied with an individual calibration of the sensitivity.



**Fig. 1**

Impulse shapes for the hammer tips as a function of time showing the pulse decay and peak value (left); Force spectrum of an impact on an aluminium plate (right)



## Specifications – Impact Hammers Types 8206, 8206-001, 8206-002 and 8206-003

	Units	8206	8206-001	8206-002	8206-003
<b>Dynamic Characteristics</b>					
Voltage Sensitivity (typical)	mV/N (mV/lbf)	22.7 (100)	11.4 (50)	2.27 (10)	1.14 (5)
Full Scale Force Range Compression	N (lbf)	220 (50)	445 (100)	2200 (500)	4448 (1000)
Linear Error at Full Scale	% full scale	<±1			
<b>Electrical Characteristics</b>					
Full Scale Output Voltage	V	+5			
DC Output Bias Voltage	V	10 ±1			
Output Impedance	Ω	<100			
Power Supply	mA	2 to 20			
Voltage Range	V DC	+18 to +30			
<b>Environmental Characteristics</b>					
Temperature Range	°C (°F)	-73 to +60 (-100 to +140)			
Max. Force Compression	N (lbf)	4448 (1000)			8896 (2000)
<b>Physical Characteristics</b>					
Dimensions		See outline drawing			
Overall Length	mm (in.)	221.5 (8.72)			
Effective Seismic Mass	gram (oz.)	100 (3.53)			
Sensor Housing Material		Stainless steel (17-4 PH)			
Handle Material		Fibreglass			
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

Type 8206, 8206-001, 8206-002 and 8206-003 include:

- Impact tip of aluminium
- Impact tip of plastic (Delrin)
- Impact tip of rubber (Polyurethane)
- Carrying box
- Calibration chart
- Head extender (40 grams)
- PVC Insulated Cable, 70°C, 10–32 UNF to BNC Connector, 5 m (16.4 ft)

- Plug Adaptor, BNC to 10–32 UNF

### OPTIONAL ACCESSORIES\*

- AO 0531: 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
- AO 0406: Low-noise, double-screened cable, 10–32 UNF to BNC, 200°C, 5 m (16.4 ft)

- DB 3996: Head extender (40 grams) for Impact Hammer Type 8206
- UA 2059: Set of three impact tips for Type 8206 series impact hammers
- ZZ 0245: In-line TEDS Adaptor, 10–32 UNF to 10–32 UNF

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