

## BRÜEL & KJÆR® Transducers

### Piezoelectric Charge Accelerometer Type 8346-C

#### Uses

- Low-level vibration measurements

#### Features

- Hermetically sealed
- High sensitivity



180087

#### Description

Type 8346-C is a DeltaShear™ piezoelectric charge accelerometer. It features a 10–32 UNF-2A top connector and a 10–32 UNF threaded hole for mounting.

#### Characteristics

This piezoelectric accelerometer may be treated as a charge source. Its sensitivity is expressed in terms of charge per unit acceleration ( $\text{pC/ms}^{-2}$ ,  $\text{pC/g}$ ).

The DeltaShear design consists of three piezoelectric elements and three seismic masses arranged in a triangular configuration around a triangular centre post. They are held in place by a clamping ring that isolates the configuration from the base. The ring also prestresses the piezoelectric elements to give a high degree of linearity. This design provides a high sensitivity-to-mass ratio, a relatively high resonance frequency and high isolation from base strains and temperature transients.

The piezoelectric element used is PZ 27 lead zirconate titanate, and the housing material is stainless steel.

#### Calibration

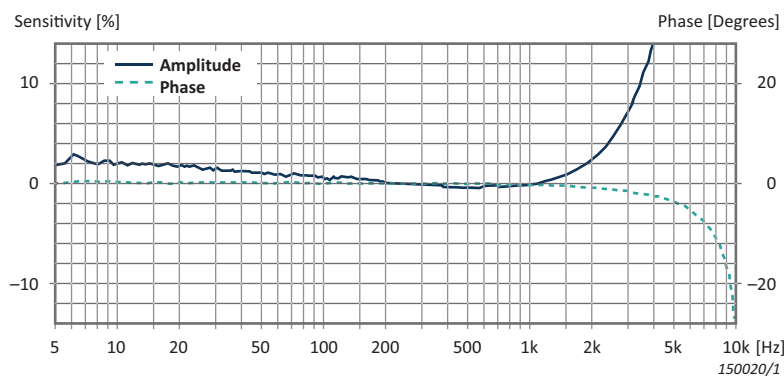
Each accelerometer is calibrated using random excitation and 1600-line FFT transformation to provide a high-resolution (amplitude and phase) frequency response. This yields a unique characterization and secures the integrity of your vibration measurements.

The sensitivity given on the calibration chart is measured at 159.2 Hz with 95% confidence level using coverage factor  $k = 2$ .

The upper frequency limits given on the calibration chart are frequencies where the deviation from the reference sensitivity at 159.2 Hz is within  $\pm 10\%$ . The upper frequency limit is approximately 30% of the mounted resonance frequency. This assumes that the accelerometer is correctly mounted on the test structure – poor mounting can have a marked effect on the mounted resonance frequency.

The lower frequency limits and phase response are determined by the built-in preamplifiers. The lower frequency limits are given in the specifications for deviations from reference sensitivity within  $\pm 10\%$ .

Fig. 1 Individual frequency response curve for Type 8346-C, taken from a calibration chart



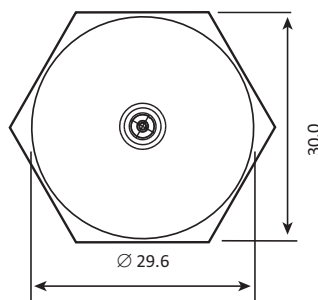
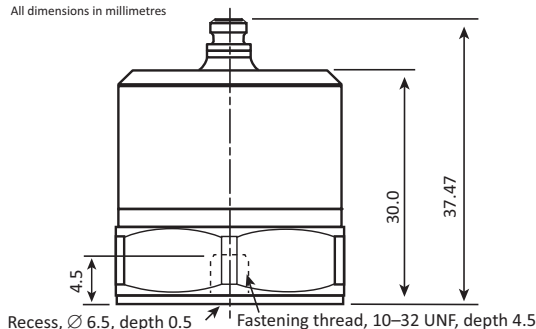
## Specifications

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

Type Number		8346-C
<b>General</b>		
Weight	g (oz)	176 (6.2)
Charge Sensitivity (at 159.2 Hz)	pC/ms <sup>-2</sup>	48 ± 15%
	pC/g	47 ± 15%
Frequency Range	±10% limit	0.1 to 3000
	±5% limit	0.1 to 1000
Mounted Resonance Frequency	kHz	10
Max. Transverse Sensitivity (at 30 Hz, 100 ms <sup>-2</sup> )	%	<5
Transverse Resonance Frequency	kHz	3.5
Max. Operational Continuous Sinusoidal Acceleration (peak)	kms <sup>-2</sup>	20
	g	2000
<b>Electrical</b>		
Residual Noise Level (measured with NEXUS Type 2692-001 in the specified frequency range)	mmms <sup>-2</sup>	1.0
	mg	0.1
Capacitance (excluding cable)	pF	1100
Min. Leakage Resistance (at 20 °C)	GΩ	>20
<b>Environmental</b>		
Temperature Coefficient of Sensitivity	%/ °C	0.12
Temperature Transient Sensitivity (3 Hz Low. Lim. Freq. (-3 dB, 6 dB/octave))	ms <sup>-2</sup> / °C	0.001
	g/ °F	0.00006
Base Strain Sensitivity (at 250 µε in the base plane)	ms <sup>-2</sup> /µε	0.002
	g/µε	0.0002
Acoustic Sensitivity (154 dB SPL)	ms <sup>-2</sup>	0.001
	g	0.0001
Magnetic Sensitivity (50 Hz, 0.038 T)	ms <sup>-2</sup> /T	0.5
	g/kG	0.005
Max. Non-destructive Shock (± peak)	kms <sup>-2</sup>	50
	g	5000
<b>Mechanical</b>		
Housing Material		Stainless Steel AISI 316-LS
Piezoelectric Sensing Element		PZ 27
Construction		DeltaShear
Sealing		Hermetic
Electrical Connector		10-32 UNF-2A
Mounting		10-32 UNF × 4.5 mm threaded hole
Mounting Torque	Max.	1.5 (13)
	Min.	0.5 (4.4)

Fig. 2 Dimensions of Type 8346-C

All dimensions in millimetres



180088/1

## Ordering Information

Type 8346-C Piezoelectric Charge Accelerometer

Includes a calibration chart

OPTIONAL ACCESSORIES*	
AO-0038-x-yyy†	Low-noise coaxial cable, 10-32 UNF connectors, 250 °C (482 °F)
JP-0145	Plug adaptor, 10-32 UNF to BNC
UA-0186	Extension connector, 10-32 UNF (set of 25)
UA-2063	Steel stud, length 7.9 mm (set of 10)
QA-0029	Tap for 10-32 UNF thread
QA-0013	Hexagonal key for 10-32 UNF studs
QS-0007	Tube of cyanoacrylate adhesive
YJ-0216	Beeswax for mounting
Type 4294	Calibration Exciter
CALIBRATION SERVICES	
ACC-M-CAI	Accredited initial calibration
ACC-M-CAF	Accredited calibration
ACC-M-CFF	Factory standard calibration

\* Additional accessories, cables and services are available (see [www.bksv.com](http://www.bksv.com))

† x = D (decimetres) or M (metres)

yyy = length in decimetres or metres

Please specify cable length when ordering

### COMPLIANCE WITH STANDARDS



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