

# PRODUCT DATA

## High Temperature DeltaTron<sup>®</sup> Accelerometers — Types 4526 and 4526-001

### USES

- Gas turbine auxiliary equipment
- Power train, engine and exhaust
- Environmental stress screening

### FEATURES

- Continuous operation at 180°C
- Low impedance output
- $\pm 7$  Volt output  $\sim 110$  dB dynamic range
- High resolution with 10 or 100 mV/g sensitivity
- Hermetically sealed

### Description

Types 4526 and 4526-001 feature a built-in DeltaTron<sup>®</sup> preamplifier designed especially for use with continuous high-temperature operation and with a stable bias voltage.

Both accelerometers include a ThetaShear<sup>®</sup> sensing element, which enhances performance and provides low susceptibility to temperature transients and base bending. The miniature titanium construction and hermetically sealed (glass) connector are specifically constructed to withstand operation in rough environments and provide resistance to humidity and aggressive gases.

### Characteristics

The accelerometers work on a low-impedance output enabling the use of inexpensive long cables and connection to a DeltaTron power supply (ICP<sup>®</sup> compatible). The built-in low-noise preamplifier gives 110 dB dynamic range, enabling measurements of both low- and high-level acceleration. Brüel & Kjær has given special attention in assuring the stability, reliability and long-term operational life of the transducer, including (but not limited to):

- Artificial aging during the production process
- Demanding burn-in test at 180°C to secure stable bias
- Performance verified at 180°C continuously for more than 3000 hrs

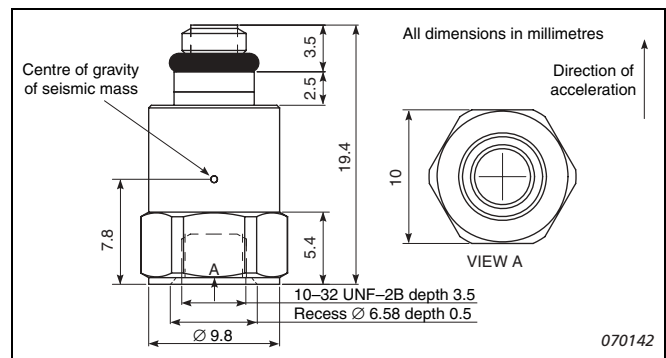


### Calibration

The transducers are individually calibrated using state-of-the-art random FFT (Fast Fourier Transform) technology, providing an 1600-point, high-resolution calibration (magnitude and phase). This gives a unique characterisation and secures the integrity of the vibration measurement. Field checking and system calibration are both made simple by using Brüel & Kjær's hand-held vibration Calibration Exciter Type 4294.

### Supplied calibration values:

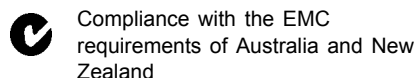
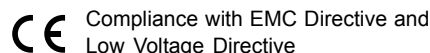
- Sensitivity @ 159.2 Hz
- Maximum transverse sensitivity verification
- Amplitude and phase response (5 Hz to 12.8 kHz)
- Amplitude response with PULSE REq-X applied (10 Hz to 12.8 kHz)



## Specifications – High Temperature DeltaTron® Accelerometers Types 4526 and 4526-001

	Units	4526	4526-001
<b>Dynamic Characteristics</b>			
Voltage Sensitivity (@ 160 Hz)	mV/ms <sup>-2</sup> (mV/g)	10 ±10%(100)	1 ±10%(10)
Measuring Range (±7V FS)	ms <sup>-2</sup> (g)	±700 (±71)	±7000 (±714)
Frequency Response		See typical amplitude response	
Mounted Resonance Frequency	kHz	25	
Amplitude Response ±10%	Hz	0.3 to 8000	0.1 to 8000
Amplitude Response ±10% with REq-X	Hz	0.3 to 12000	0.1 to 12000
Residual Noise	mg	0.35	0.8
Transverse Sensitivity	%	<5	
Transverse Resonance Frequency	kHz	>18	
<b>Electrical Characteristics</b>			
Output Impedance	Ω	<2	
Bias Voltage in Full Temperature Range	V <sub>DC</sub>	+8.5 to +13	
Power Supply	mA	2 to 10	
Start-up Time	s	5	
Grounding		Signal ground connected to case	
<b>Environmental Characteristics</b>			
Temperature Range (±5V FS)	°C (°F)	-54 to +180 (-65 to +356)	
Temperature Range (±7V FS)	°C (°F)	-54 to +150 (-65 to +302)	
Humidity		Hermetic Welded, Glass Sealed	
Max. Non-destructive Shock (peak)	ms <sup>-2</sup> (g) pk	50000 (5100)	
Base Strain Sensitivity	Equiv. ms <sup>-2</sup> /μstrain	0.001	
Thermal Transient Sensitivity	ms <sup>-2</sup> /°C	0.3	
Temperature Coefficient	%/°C	+0.09	
Magnetic Sensitivity (50 Hz–0.03 Tesla)	ms <sup>-2</sup> /T	3	
<b>Physical Characteristics</b>			
Dimensions		See outline drawing	
Weight	gram	<5	
Housing Material	–	Titanium	
Connector	–	10–32 UNF	
Mounting	–	10–32 threaded hole	
Mounting Torque	Nm	Max. 4, min. 0.5	

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



## Ordering Information

Type 4526 and 4526-001 include the following accessories:

- Carrying box
- Calibration chart
- 10–32 steel stud with flange

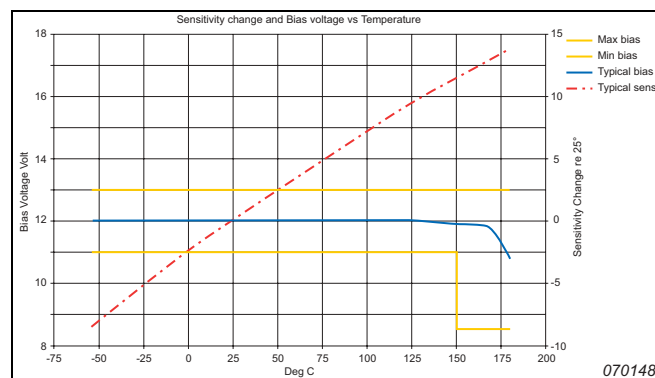
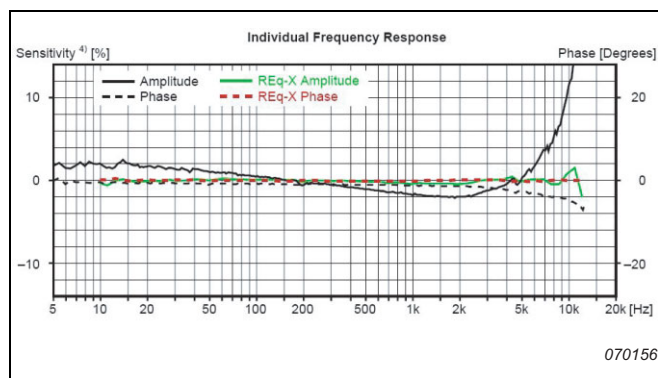
### OPTIONAL ACCESSORIES<sup>a</sup>

- UA-2063: Set of 10 steel stud, 10–32 UNF, Length 7.9 mm (0.311")
- UA-2064: Set of 10 steel stud with flange, 10–32 UNF, Length 5.3 mm (0.209")
- UA-0866: Set of 25 cementing studs, 10–32 UNF
- UA-1192: Set of 10 high temperature (200°C/392°F) insulating studs, 10–32 UNF to 10–32 UNF
- UA-0643: Set of 5 mounting magnets and 2 insulating discs, 10–32 UNF stud
- QA-0029: Tap for 10–32 UNF thread
- AO-0038: Teflon super low-noise cable, 10–32 UNF to 10–32 UNF connector, 250°C/482°F
- AO-1382: Lightweight double screened cable, 10–32 UNF to 10–32 UNF connector, 200°C/392°F
- AO-0406: Double-screened cable, 10–32 UNF to BNC connector via JP-0145, 200°C/392°F
- JP-0145: Plug adaptor, BNC to 10–32 UNF
- UA-0186: Set of 25 extension connectors, 10–32 UNF

### SERVICE PRODUCTS

- 4526-CAF Accredited Calibration
- 4526-CAI Accredited Initial Calibration

a. Additional accessories and cables are available (see [www.bksv.com](http://www.bksv.com))



### TRADEMARKS

ICP is a registered trademark of PCB Group

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

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