9200 and 74712 Seismoprobe Velocity Transducers

Datasheet

Cordant™

141626 Rev. V



Description

Bently Nevada™ Seismoprobe Velocity Transducer Systems are designed to measure absolute (relative to free space) bearing housing, casing, or structural vibration. The two-wire systems consist of a transducer and appropriate cable.

The Seismoprobe family of velocity transducers is a two-wire design that uses moving-coil technology. It provides a voltage output directly proportional to the transducer's vibration velocity.

Moving-coil transducers are less sensitive to impact or impulsive excitation than solid-state velocity transducers, which are inherently accelerometers with embedded integration electronics.

Moving-coil transducers are less sensitive to impact or impulsive excitation and can represent a good choice for certain applications. Because they don't require external power, they are convenient for portable measurement applications.

For most installations, Bently Nevada's Velomitor family of velocity transducers, which incorporate solid-state technology, provide improved performance and ruggedness for casing velocity measurement applications.

Baker Hughes

Specifications

Specifications are at approximately +22°C (+72°F) with 25 mm/s (1 in/s) of machine casing vibration at 100 Hz (6000 cpm) with a 10 kΩ load unless otherwise specified.

Electrical

Sensitivity	20 mV/mm/s (500 mV/in/s), ±5% when properly terminated and oriented at the angle of calibration.
Calibration Load	10 kΩ Terminal "A" to "B" Output taken across pins "A" and "B"
Sensitivity Temperature Coefficient	0.2%/°C
Frequency Response-See Theoretical Velocity Seismoprobe Frequency Response on page 11.	4.5 to 1000 Hz (270 to 60,000 CPM); +0, -3dB typical. 10 to 1000 Hz (600 to 60,000 CAM); +0, -3dB typical. 15 to 1000 Hz (900 to 60,000 CPM); +0, -3dB typical.
Frequency response	From minimum operating frequency (see Ordering Information) to 1 kHz (60,000 cpm); +0, -3dB typical. Please contact Bently Nevada for detailed calibration data.
Dynamic operating range	2.54 mm (0.100 in) peak to peak maximum displacement.
Velocity Range	25 mm/s (1 in/s) (at +22 °C of casing vibration at 100 Hz with a 10 kΩ load.
Coil Resistance	1.25 kΩ ±5%
Locked Coil Inductance	125 mH, typical
Amplitude Linearity	±5% from 0.01 to 5.0 in/s (0.254 to 127 mm/s) at 100Hz (6000CPM)
Shock resistance	Withstands 50 g peak maximum acceleration along non-sensitive axis.
Transverse sensitivity	±10% maximum of the sensitive axis sensitivity at 100 Hz and 1.0 in/s (2.54 cm/s)
Polarity of output signal	Pin A goes positive with respect to Pin B when the transducer case velocity is towards the connector.
Lead wire length	305 meters (1,000 feet) maximum between Seismoprobe Velocity Transducer and 3300 or Bently Nevada™ 3500 Monitor. Consult manual for frequency roll-off at longer lengths.

Environmental Limits

Operating and Storage Temperature:	9200: -29°C to +121°C (-20°F to +250°F). 74712: -29°C to +204°C (-20°F to +400°F).
Environment	Dust and moisture resistant. Contact your Sales Professional regarding transducer operation in a radiation environment.
Relative Humidity	To 95%, noncondensing. 100%, non-submerged, when ordered with integral cable.
Maximum Use Altitude	2000 m (6,561 ft) above sea level.

Cable Part Numbers

Part Number	Description
	Use 'NN' in these part numbers to specify the length (in feet) of the cable you want to order.
Standard Cables	
9571-NN	2-conductor twisted, shielded 22 AWG (0.5 mm2) cable with 2-socket moisture-resistant female connector at one end, terminal lugs at the other end (used with monitors or vibration data collectors). Cable operating temperature is -50˚C to 120˚C. Minimum length of 2.0 ft (0.6 m); maximum length of 99 ft (30 m).
84661-NN	2-conductor twisted, shielded 22 AWG (0.5 mm2) armored cable with 2-socket moisture-resistant female connector at one end, terminal lugs at the other end (used with monitors or vibration data collectors). Cable operating temperature is -50˚C to 120˚C. Minimum length of 3.0 ft (0.9 m); maximum length of 99 ft (30 m).
9755-NN	2-wire shielded 22 AWG (0.5 mm2) cable with 2-pin female connectors at each end (connects 9200 or 74712 Seismoprobe Velocity Transducers to Bently Nevada test kits). Cable operating temperature is -70˚C to 150˚C. Minimum length of 1.0 ft (0.3 m); maximum length of 99 ft (30 m).
83968-NN	2-wire straight cable with 2-pin female connector at one end and coaxial connector in the other end (used with instruments with BNC connector input jacks). Minimum length of 2.0 ft (0.6 m); maximum length of 99 ft (30 m).
High-Temperature Cables	
84508-NN	2-wire shielded 22 AWG (0.5 mm2) cable with terminal lugs at each end. Minimum length of 1.0 ft (0.3 m); maximum length of 99 ft (30 m).
84509-NN	2-wire shielded 22 AWG (0.5 mm2) armored cable with terminal lugs at each end. Minimum length of 3.0 ft (0.9 m); maximum length of 70 ft (21 m).
84660-NN	2-wire shielded 22 AWG (0.5 mm2) cable with 2-socket female connector at one end, terminal lugs at the other end. Minimum length of 3.0 ft (0.9 m); maximum length of 99 ft (30 m).

Graphs and Figures

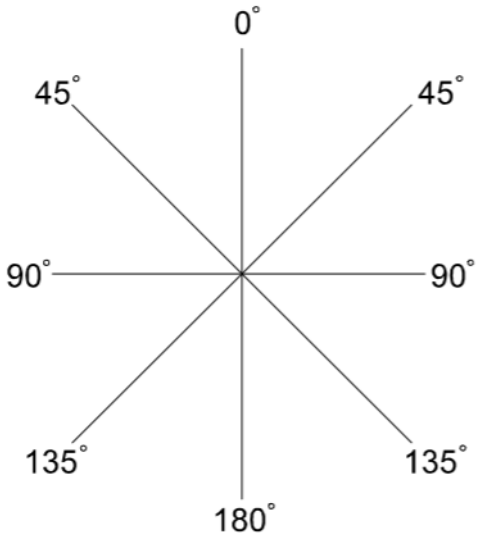
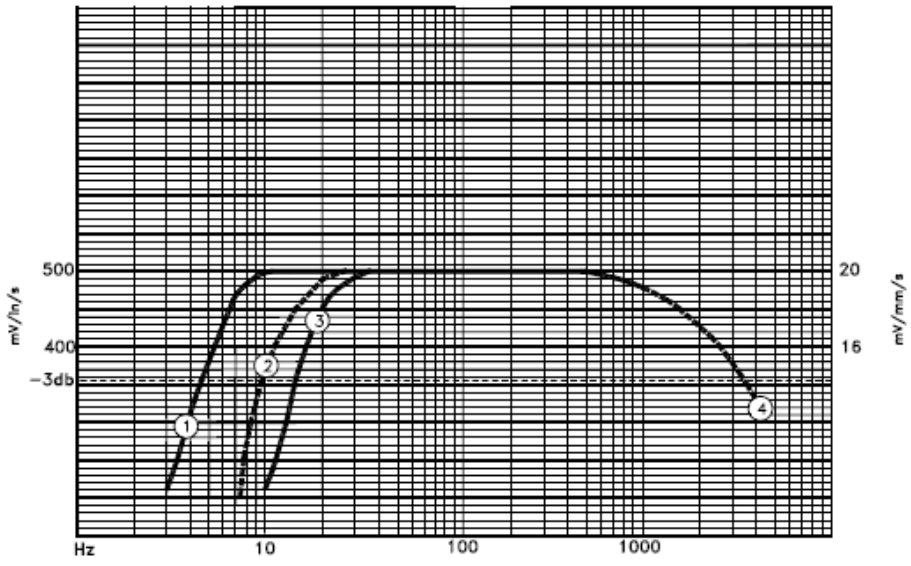


Figure 1: Seismoprobe Orientation

All Seismoprobe Velocity Transducers are specified for the mounting orientations shown here. 0° is vertical, as viewed from driver end of the monitored machine.



1. 270 CPM (4.5 Hz)
2. 600 CPM (10 Hz)
3. 900 CPM (15 Hz)
4. All versions

Figure 2: Theoretical Velocity Seismoprobe Frequency Response