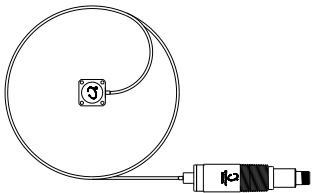


# 330750 and 330752 High Temperature Velomitor\* System

## Product Datasheet

Bently Nevada\* Asset Condition Monitoring

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### Description

The standard 330500 Velomitor\* Piezo-velocity Sensor has a limited temperature range it can be exposed to, due to its signal conditioning electronics being located in the same case as the sensing element. Temperature limitations of the electronics limit its maximum operating temperature to +121°C (+250°F).

The 330750 and 330752 High Temperature Velomitor System (HTVS) has a fundamentally different construction to solve this problem. Its design segregates the sensing element from the signal conditioning electronics, with the two permanently connected via a hardline cable. Current versions (see note below) of these sensors allow the sensing head to be mounted on surfaces with temperatures as high as +400°C (+752°F). Due to the segregated design, the signal conditioning electronics can be installed in a cooler location. This achieves overall transducer system performance comparable to other Velomitor transducers, but permits use at significantly higher temperatures. By eliminating connections between the sensing head and its associated signal conditioning electronics, a significant source of potential transducer failures (connector problems) is eliminated.

### **Caution**

If housing measurements are being made for overall protection of the machine, thought should be given to the usefulness of the measurement for each application. Most common machine malfunctions (imbalance, misalignment, etc.) originate at the rotor and cause an increase (or at least a change) in rotor vibration. In order for any housing measurement alone to be effective for overall machine protection, a significant amount of rotor vibration must be faithfully transmitted to the bearing housing or machine casing, or more specifically, to the mounting location of the transducer.

In addition, care should be exercised in the physical installation of the transducer. Improper installation can result in a degradation of the transducer's performance, and/or the generation of signals which do not represent actual machine vibration.

Upon request, Bently Nevada can provide engineering services to determine the appropriateness of housing measurements for the machine in question and/or to provide installation assistance.

**Note:** The previous version limited the sensor head to +300°C (+572°F). The current versions will have the letter "G" preceding the serial number.



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## Specifications

Parameters are specified from +20 to +30°C (+68 to +86°F) and 100Hz unless otherwise indicated.

**Note:** Operation outside the specified limits may result in false readings or loss of machine monitoring.

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### Electrical

#### Sensitivity:

5.7 mV/mm/s (145 mV/in/s)  
±5%

#### Frequency response:

15 to 2000 Hz (900 to 120,000 cpm) ± 3.0 dB;  
20 to 1000 Hz (1,200 to 60,000 cpm) ± 0.9 dB

#### Transient Temperature Sensitivity

0.0762 mm/s/°C (0.003 in/s/°C), typical, as defined in ISO 5347-18:1993(E)

#### Amplitude range:

635 mm/s (25 in/s) peak  
below 680 Hz.  
2940 m/s<sup>2</sup> (300 g) peak  
above 680 Hz.  
Vibration at frequencies above 2 kHz will decrease this range.

#### Transverse sensitivity:

Less than 5% of Sensitivity

#### Amplitude linearity:

±2% to 152 mm/s (6 in/s) peak

#### Mounted resonant frequency:

Greater than 5 kHz

#### Broadband Noise floor (15Hz to 2kHz)

0.127 mm/s (0.005 in/s) rms nominal

#### Maximum cable length:

305 metres (1000 feet)  
with no degradation of signal.

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## Hazardous Area Approvals

For the detailed listing of country and product specific approvals, refer to the **Approvals Quick Reference Guide**, document 108M1756, at [www.GEmeasurement.com](http://www.GEmeasurement.com).



Multiple approvals for hazardous areas certified by Canadian Standards Association (CSA/US/C) in North America and by LCIE in Europe.

### North America

Class I, Div I, Groups A, B, C, and D;  
Class II, Div I, Groups E, F, and G;  
Class III, Div I.  
Ex ia IIC  
AEx ia IIC  
T4 @ Ta = 100° C  
When installed with an approved zener barrier per BN drawing 168077.

Ex nL IIC; Class I, Zone 2  
Class I, Div 2, Groups A, B, C, D.  
When installed per BN drawing 168077

### Europe/ATEX

 II 1 G  
Ex ia IIC T4  
T4 @ Ta = -40°C - 100°C  
 II 3 G  
Ex nA IIC T4  
T4 @ Ta = -40°C - 100°C.

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## Environmental Limits

### Operating and storage temperature range

#### Sensing head:

Maximum mounted surface temperature –55°C to +400°C (–67°F to +752°F)

#### Integral hardline cable:

–55°C to +400°  
(–67°F to +752°F)

#### Electronics:

–55°C to +121°C  
(–67°F to +250°F)

### Shock survivability:

24,535 m/s<sup>2</sup> (2500 g) peak

### Relative humidity:

To 100% non-submerged; case is hermetically sealed.

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## Physical

### Weight (typical):

#### 2 metres:

635 grams (1.40 lb)

#### 4 metres:

794 grams (1.75 lb)

#### 6 metres:

953 grams (2.10 lb)

#### 8 metres:

1111 grams (2.45 lb)

### Mounting:

See Dimensional Drawings, Figures 1 and 2

### Case material:

300 series stainless steel.

### Connector:

2-pin Mil-C-5015 receptacle, hermetically-sealed, 304 stainless steel shell.

### Polarity:

Pin A goes positive with respect to Pin B when the applied velocity is from the base to the top of the transducer.

### Bend Radius:

Minimum bend radius of 51mm (2.0in)

**Note:** Please read and understand the User Guide *before* attempting to install and use this product.

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## Ordering Information

For a detailed listing of country and product specific approvals, refer to the Approvals Quick Reference Guide (document 108M1756) located at the following website: [www.GEmeasurement.com](http://www.GEmeasurement.com).

### 330750-AA-BB

#### AA: Length

**20** 2 metres  
**40** 4 metres  
**60** 6 metres  
**80** 8 metres

#### BB: Approvals

**05** Multiple Approvals (CSA, ATEX, and IECEx)

### 330752-AA-BB

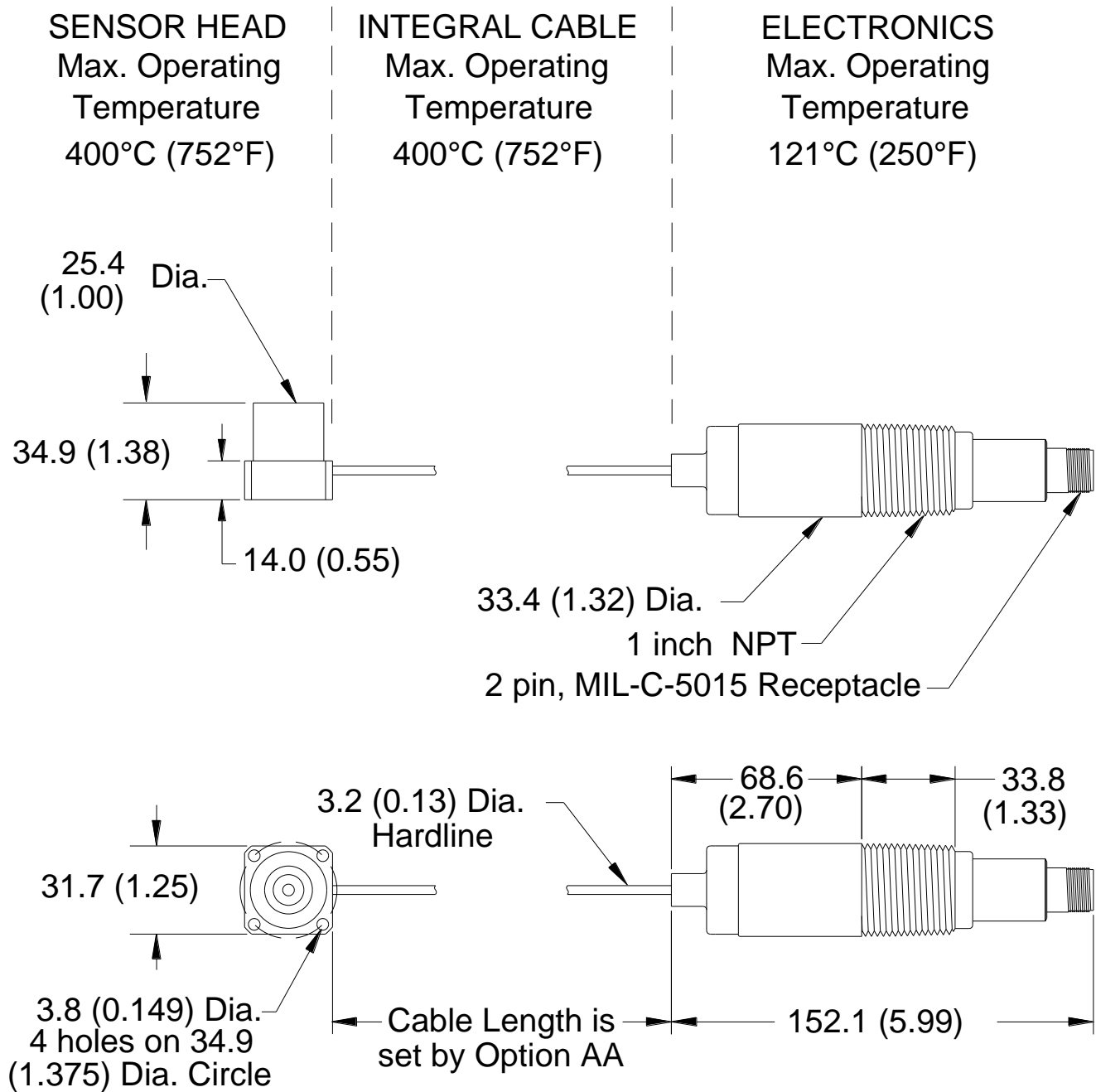
#### AA: Length

**25** 2.5 metres  
**40** 4 metres  
**60** 6 metres  
**80** 8 metres

#### BB: Approvals

**05** Multiple Approvals (CSA, ATEX, and IECEx)

## Dimensional Drawing – 330750 and 330752



**Figure 1: 330750 System Dimensional Drawing**  
 Dimensions are in millimeters (inches)