# Bently Nevada 330903&330904&330905&330910 Series Service Manual

330909-00-20-05-02-05

## 1. Description

Part Number: 330909-00-20-05-02-05

## 3. Product Information

Part Number: 330909-00-20-05-02-05

Model: 3300 NSv Proximity Probes

Manufacturer: Bently Nevada

Condition: New & Original in Factory Packing

Factory Warranty: 12 Months

Ordering Information

Model: 330909 = 3300 NSv Probe, 3/8-24 UNF thread, with armor

Unthreaded Length Option: -00= 0 in

Overall Case Length Option: -20=2.0 in

Total Length Option: 05= 0.5 meter (20 in)

Connector and Cable Type Option:02= Miniature coaxial ClickLoc connector, standard cable

Agency Approval Option: -05=Multiple Approvals

| Probe dc Resistance | |
|---|---|
| Probe Length (m) | 0.5 |
| Resistance from the Center Conductor to the Outer Conductor (RPROBE) (ohms) | 4.0 ± 0.5 |

The 3300 NSv probe and extension cable are mechanically and electrically compatible and interchangeable with Bently Nevada's previous 3300 RAM proximity probe and extension cable. The NSv probe has increased chemical resistance compared to the 3300 RAM probe, which allows its use in many process compressor applications. The side-view characteristics of the 3300 NSv probe are also superior to those of the 3000-series 190 probe when gapping the 3300 NSv probe at the same distance from the probe target.

| Extension cable dc resistance | |
|---|---|
| Center conductor: 0.220 Ω/m (0.067 Ω/ft) | |
| Shield: 0.066 Ω/m (0.020 Ω/ft) | |
| Extension cable capacitance | 69.9 pF/m (21.3 pF/ft) typical |

Field Wiring

0.2 to 1.5 mm2 (16 to 24 AWG)[0.25 to 0.75 mm2 (18 to 23 AWG) with ferrules]. Recommend using threeconductor shielded triad cable. Maximum length of 305 meters (1,000 feet) between the 3300 XL NSv Proximitor Sensor and the monitor. See the frequency response graphs Figure 16 and Figure 17 for signal rolloff at high frequencies when using longer field wiring lengths.

Linear Range

1.5 mm (60 mils). Linear range begins at approximately 0.25 mm (10 mils) from target and is from 0.25 to 1.75 mm (10 to 70 mils) (approximately -1 to -13 Vdc).

Recommended Gap Setting 1.0 mm (40 mils)

Incremental Scale Factor (ISF)

7.87 V/mm (200 mV/mil) +12.5%/-20% including interchangeability error when measured in increments of 0.25 mm (10 mils) over the 1.5 mm (60 mil) linear range.

Deviation from best fit straight line (DSL)

Less than ±0.06 mm (±2.3 mils).

Frequency Response

0 to 10 kHz: +0, -3 dB typical, with up to 305 meters (1000 feet) of field wiring.

Target Size (flat target)

Minimum: 8.9 mm (0.35 in) diameter

Recommended minimum: 13 mm (0.5 in) diameter

Axial position measurements on shaft diameters smaller than 13 mm (0.5 in) will generally result in a change in scale factor. Reducing the gap between the probe and target will help limit the change in scale factor. See Figure 12 for additional information.

Probe Tip Material Polyphenylene sulfide (PPS).

Probe Case Material AISI 304 stainless steel (SST).

Probe Cable Specifications

75 Ω coaxial, fluoroethylene propylene (FEP) insulated probe cable in the following total probe lengths: 0.5, 1, 5, or 7 meters.

Recommended

torque Finger tight

Maximum torque 0.56 N•m (5 in•lb)

Minimum Bend

Radius (with or

without sst

armor)

25.4 mm (1.0 in)

Operating

Temperature

-52°C to +177°C (-62°F to

+351°F)

Storage

Temperature

-52°C to +177°C (-62°F to

+351°F)

Connector-to-connector Torque

Probe Case Torque 3/8-24 or M10X1 probe cases

Maximum Rated 33.9 N•m (300 in•lb)

Recommended 11.3 N•m (100 in•lb)

Probe

Pressure

3300 NSv probes are

designed to seal differential

pressure between the probe

tip and case. The probe

sealing material consists of a

Viton O-ring. Probes are not

pressure tested prior to

shipment. Contact our

custom design department if

you require a test of the

pressure seal for your

application.

Thread Engagement Limits

Probe Case Thread  3/8-24

Maximum Length of Thread

Engagement  0.563 in

Temperature Schedule

Temperature

Classification

Ambient Temperature

(Probe Only)

For EPL Ga and Gc

T1 -55°C to +232°C

T2 -55°C to +177°C

T3 -55°C to +120°C

T4 -55°C to +80°C

T5 -55°C to +40°C

For EPL Dc

T280°C @ Ta -55°C to +232°C

T225°C @ Ta -55°C to +177°C

T170°C @ Ta -55C to +120°C

T130°C @ Ta -55°C to +80°C

T105°C @ Ta -55°C to +100°C

T90°C @ Ta -55°C to +40°C