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

330904-05-14-05-02-00

## 1. Description

Part Number: 330904-05-14-05-02-00

## 3. Product Information

Part Number: 330904-05-14-05-02-00

Model: 3300 NSv Proximity Probes

Manufacturer: Bently Nevada

Condition: New & Original in Factory Packing

Factory Warranty: 12 Months

Ordering Information

Model: 330904 = 3300 NSv Probe, M8X1 thread, with armor

Unthreaded Length Option: -05- 50 mm

Overall Case Length Option: -14=140 mm

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

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

Agency Approval Option: -00 = Not required

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)

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.

Connector-to-connector Torque

Probe Case Torque 3/8-24 or M10X1 probe cases – first three threads

Maximum Rated 22.6 N•m (200 in•lb)

Recommended 7.5 N•m (66 in•lb)

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)

Thread Engagement Limits

Probe Case Thread M10x1

Maximum Length of Thread Engagement 15 mm

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