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

330905-07-17-05-02-05

## 1. Description

Part Number: 330905-07-17-05-02-05

## 3. Product Information

Part Number: 330905-07-17-05-02-05

Model: 3300 NSv Proximity Probes

Manufacturer: Bently Nevada

Condition: New & Original in Factory Packing

Factory Warranty: 12 Months

Ordering Information

Model: 330905 - 3300 NSv Probe, M10X1 thread, without armor

Unthreaded Length Option: -07- 70 mm

Overall Case Length Option: -17- 170 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: -05 Multiple Approvals

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.

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

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 | |
|---|---|---|
| | Maximum | Rated Recommended |
| 3/8-24 or M10X1 probe cases | 33.9 N•m (300 in•lb) | 11.3 N•m (100 in•lb) |
| 3/8-24 or M10X1 probe cases – first three threads | 22.6 N•m (200 in•lb) | 7.5 N•m (66 in•lb) |