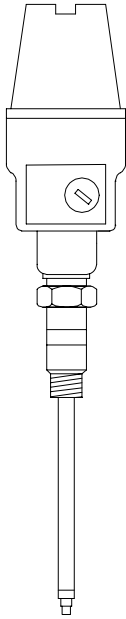


21000, 24701 Proximity Probe Housing Assemblies



Description



Proximity Probe Housing Assemblies

Bently Nevada offers two all-metal Proximity Probe Housing Assemblies for external mounting of proximity probes: the 21000 aluminum probe housing assembly, and the 24701 stainless steel probe housing assembly. These housings consist of a dome cover that screws into the body of the housing, threaded ports for conduit connections, a probe sleeve of optional length, O-rings, a reverse mount proximity probe, a thread seal, optional conduit fittings and an optional standoff adapter. Use of a proximity probe housing allows external access to the proximity probe and its extension cable, permitting gap adjustment or probe replacement without disassembly of the machine.

Note: A newer 31000/32000 proximity probe housing assembly is available with more flexible mounting options, better environmental resistance, and other improved features. It is recommended for installations where an explosion proof housing is not required. Consult specifications and ordering information (p/n 141610-01).

Both the 21000 and the 24701 housing assemblies are available in a Canadian Standards Association (CSA) approved version that is rated explosion proof in hazardous areas. In addition, CSA and BASEEFA approved proximity probes can also be ordered with both 21000 aluminum and 24701 stainless steel housings for intrinsically safe applications. Both housings are certified as CSA Type 4 enclosures, and both are fully compliant with the American Petroleum Institute's (API) 670 Standard for externally mounted proximity probe housings.

Sleeve length is determined by the location in which the probe and housing will be installed. The probe lead must be longer than the sleeve. Sleeve lengths longer than 304 mm (12 inches) require additional sleeve support in order to reduce the vibration associated with unsupported long sleeve lengths. A probe support/oil seal, P/N 37948-01, is available to support long sleeves going through an inner bearing housing, or the customer or BNC can provide a custom sleeve support (see Figure 1. "Proximity Probe Housing Assemblies Dimensions are in millimetres (inches)" on page 7).



Related Documents

For probe information, refer to the following manuals:

- 3300 XL 8 mm Proximity Transducer System 141078-01
- 3300 XL NSV Proximity Transducer System 147357-01
- 3300 XL 11 mm Proximity Transducer System 146255-01
- Radiation Resistant Probe & Proximator System TW8029407

Specifications

Electrical

Electrical

Classification: Complies with the CE mark for Europe.

Intrinsically Safe Applications:

Multiple approvals for hazardous areas certified by Canadian Standards Association (CSA/NRTL/C) in North America and by BASEEFA/CENELEC in Europe for hazardous applications when used with an approved Proximator® Sensor, extension cable, and either intrinsically safe or galvanically isolated barriers.

CSA/NRTL/C: Class I, Divisions 1 and 2: Groups A, B, C, and D.
Class 2, Divisions 1 and 2: Groups E, F, and G.

**BASEEFA/
CENELEC:** Zones 0, 1, and 2: Groups I, IIA, IIB, and IIC.

Explosion Proof Applications:

CA housings certified by CSA for explosion-proof applications in the following applications –
Class I, Divisions 1 and 2: Groups C and D.
Class II, Divisions 1 and 2: Groups E, F, and G.
Class III.

Environmental

Temperature Range

*3300 XL 8 mm and
3300 XL 11 mm*

probes: -51 °C to +177 °C
(-60 °F to +351 °F).

**3300 NSV™ probe:
Operating:** -34 °C to +177 °C
(-30 °F to +351 °F).

Storage: -51 °C to +177 °C
(-60 °F to +351 °F).

Note: Exposing 3300 XL or 3300 NSV™ probes to temperatures below -34 °C (-30 °F) may cause premature failure of their pressure seals.

Mechanical

Material

21000: Aluminum body with 304 stainless steel sleeve.

24701: 303 stainless steel body, with 304 stainless steel sleeve.

Mass (weight)

21000: 1.1 kg (2.4 lb) typical, without fittings.

24701: 1.8 kg (4.1 lb) typical, without fittings.

Ordering Information

Proximity Probe Housing Assemblies

21000-AXX-BXX-CXX-DXXX-EXX-F02

24701-AXX-BXX-CXX-DXXX-EXX-FXX

Explosion-Proof Housing Assemblies

CA21000-AXX-BXX-CXX-DXXX-EXX-F02

CA24701-AXX-BXX-CXX-DXXX-EXX-FXX

Option Descriptions

A: Probe Option, With Connector:

0 0 Probe not required
1 6 3300 XL 8 mm probe
2 6 3300 NSV™ probe

- 2 7 3300 NSV™ probe, multiple approvals
- 2 8 3300 XL 8 mm probe, multiple approvals
- 2 9 3300 XL 11 mm probe
- 3 0 3300 XL 11 mm probe, multiple approvals
- 3 1 3300 NSV™ probe with connector protector
- 3 2 3300 NSV™ probe with connector protector, multiple approvals
- 3 3 3300 XL 8 mm probe with connector protector
- 3 4 3300 XL 8 mm probe with connector protector, multiple approvals
- 3 5 3300 XL 11 mm probe with connector protector
- 3 6 3300 XL 11 mm probe with connector protector, multiple approvals

Note: If option -00 (probe not required) is selected for Option A, then Option B (Probe Cable Length Option) must also be -00.

Order only multiple approvals probes for CA21000 or CA24701 housings.

B: Probe Cable Length Option (see Table 2, "Maximum Length of C and D Dimension for Proximity Probes," on page 6):

- 0 0 Probe cable not required
- 0 5 0.5 metre (20 in)
- 1 0 1.0 metre (39 in)

Note: 3300 XL 11 mm probes only available in 1.0 metre length.

Excessive cable lengths should be avoided to reduce the possibility of damaging the cable when the housing lid is screwed onto the housing.

C: Standoff Adapter (Option C Dimension):

Order in increments of 0.5 in (13 mm).
 Minimum length: 1.5 in = **1 5** (38 mm).
 Maximum length: 7.5 in = **7 5** (191 mm).

Example:

1.5 in (38 mm) = **1 5**.

No standoff adapter = **0 0**.

D: Probe Penetration (Option D Dimension):

Order in increments of 0.1 in (3 mm).
 Minimum length: 1.0 in = **0 1 0** (25.4 mm).

Maximum length: See Table 2, "Maximum Length of C and D Dimension for Proximity Probes," on page 6.

Example:

3.7 in (94 mm) = **0 3 7**.

22.4 in (569 mm) = **2 2 4**.

Note: Installed probe P/N and S/N may not be visible for all available "C" plus "D" options. See Table 3, "Maximum C and D Dimension with Visible Probe P/N and S/N," on page 6.

For Probe Penetration Lengths between 1.0 and 2.0 inches, counter bore may be required in machine case to reduce probe side view and/or rear view effects.

"C" plus "D" lengths greater than 300 mm (12 in) require additional sleeve support near the probe to prevent resonance from occurring. Adjustment range of Probe Penetration Option "D" is 13 mm (± 0.5 in). For maximum "C" plus "D" see Table 2, "Maximum Length of C and D Dimension for Proximity Probes," on page 6.

E: Fittings Option:

- 0 0 Without fittings
- 0 1 One Explosion-proof fitting and one plug
- 0 2 Two Explosion-proof fittings
- 0 3 One 3/4-14 NPT plug; one 3/4-14 to 1/2-14 NPT reducer; one cable seal grip with grommets for cable sizes: 1/8 to 3/16, 1/4 to 5/16, and 5/16 to 3/8-in
- 0 4 One 3/4-14 NPT plug only

Note: Explosion-proof fittings are available for all housings. However, only CA versions of the housing are rated as explosion-proof by CSA when ordered with the E:00, E:01, E:02, or E:04 options.

F: Mounting Thread Option:

- 0 1 As cast, without threads
- 0 2 3/4-14 NPT (Must be ordered if Standoff Adapter Length Option is not -00.)
- 0 3 1-11 1/2 NPT
- 0 4 1/2-14 BSP
- 0 5 7/8-14 UNF-2A

Note: For 21000 and CA21000 housings, Option F must be -02.

Accessories

37948-01

Probe Support/Oil Seal

Recommended for sleeves longer than 305 mm (12 in).

44382-AXXX

Individual Probe Sleeve for 21000/24701 Proximity Probe Housings A:

Probe sleeve length

This is the measured probe sleeve length. Order in increments of 0.1 in (3 mm). Note that the individual probe sleeve length **does not** include the distance from the end of the sleeve to the probe tip or the gap from the probe tip to the target material. If only the part number of the original housing is known and the sleeve cannot be measured, use the following table to determine the sleeve length:

<p>All housing AXX options except NSv™ and 11 mm probes (options other than A:06, A:12, A:26, A:27, A:29, A:30, A:31, A:32, A:35, or A:36)</p>	<p>AXXX: = Standoff Adapter Option from original housing (21000, CA21000, 24701, or CA24701 option C) + Probe penetration option from original housing (21000, CA21000, 24701, or CA24701 option D) + 0 4 5. Example: original part number is 21000-16-10-15-035-03-02. AXXX: option for replacement sleeve is (015 + 035 + 045) = 0 9 5.</p>
<p>Housing AXX options for 3300 NSv™ probe options (A:26, A:27, A:31, or A:32)</p>	<p>AXXX: = Standoff Adapter Option from original housing (21000, CA21000, 24701, or CA24701 option C) + Probe penetration option from original housing (21000, CA21000, 24701, or CA24701 option D) + 0 4 6. Example: original part number is 24701-31-10-15-090-03-02. AXXX: option for replacement sleeve is (015 + 090 + 046) = 1 5 1.</p>
<p>Housing AXX options for 3300 XL 11 mm probe options (A:29, A:30, A:35, or A:36)</p>	<p>AXXX: = Standoff Adapter Option from original housing (21000, CA21000, 24701, or CA24701 option C) + Probe penetration option from original housing (21000, CA21000, 24701, or CA24701 option D) + 0 3 7. Example: original part number is CA24701-36-10-40-053-02-02. AXXX: option for replacement sleeve is (040 + 053 + 037) = 1 3 0.</p>

<p>Housing AXX options for 7200 Series 11 mm probe options (A: 06 or A: 12)</p>	<p>AXXX: = Standoff Adapter Option from original housing (21000, CA21000, 24701, or CA24701 option C) + Probe penetration option from original housing (21000, CA21000, 24701, or CA24701 option D) + 0 3 9. Example: original part number is CA24701-12-10-30-113-01-02. AXXX: option for replacement sleeve is (030 + 113 + 039) = 1 8 2.</p>
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Minimum Probe Sleeve Length:

For **all probes** except NSv™ and 11 mm probes: 5.5 in (140 mm) = **0 5 5**

3300 NSv™ Probe: 5.5 in (142 mm) = **0 5 6**

3300 XL 11 mm probe: 4.7 in (119 mm) = **0 4 7**

Maximum Probe Sleeve Length:

All 0.5 metre probes except NSv™ and 11 mm probes: 18.0 in (457 mm) = **1 8 0**

3300 NSv™ 0.5 metre probe: 18.1 in (460 mm) = **1 8 1**

7200-series 0.5 metre 11 mm probe: 15.4 in (391 mm) = **1 5 4**

All 1.0 metre probes except NSv™ and 11 mm probes: 33.7 in (856 mm) = **3 3 7**

3300 NSv™ 1.0 metre probe: 33.8 in (859 mm) = **3 3 8**

3300 XL 1.0 metre 11 mm probe: 32.9 in (836 mm) = **3 2 9**

7200 Series 1.0 metre 11 mm probe: 33.1 in (841 mm) = **3 3 1**

21003-AXXX

Individual Standoff Adapter:

Order in increments of 0.5 in (13 mm).

Minimum length: 1.5 in = **0 1 5** (38 mm).

Maximum length: 7.5 in = **0 7 5** (191 mm).

Example: 4.5 in (114 mm) = **0 4 5**.

Note: For desired probe penetration lengths of less than 25 mm (1.0 in), order a separate Individual Standoff Adapter. The effective probe penetration length will then be reduced by the length of the Individual Standoff Adapter, plus an additional 13 mm (0.5 in) due to the NPT thread engagement.

Example: The customer desires a probe penetration length of 13 mm (0.5 in). To do this, they can order a 21000 housing with DXXX (probe penetration) option of **0 3 0** [76 mm (3 in)] and a **separate** individual standoff adapter that is 51 mm (2.0 in) in length (part number **21003-020**). The standoff adapter would cover 38 mm (2.0 in) of the probe sleeve, plus an additional 13 mm (0.5 in). Therefore, the effective probe penetration length would drop to 13 mm (0.5 in).

Note: Signal affects due to probe side view and/or rear view of metal components are likely when effective penetration lengths of less than 1.0 inch are used.

**Spare 3300 XL 8 mm Reverse Mount Probe, 3/8-24 UNF threads
330105-02-12-CXX-DXX-EXX**

- C: Total Length Option:*
- 0 5** 0.5 metre (1.6 feet)
 - 1 0** 1.0 metre (3.3 feet)
 - 1 5** 1.5 metre (4.9 feet)
 - 2 0** 2.0 metres (6.6 feet)
 - 5 0** 5.0 metres (16.4 feet)
 - 9 0** 9.0 metres (29.5 feet)

- D: Connector Option:*
- 0 0** Connector not installed
 - 0 2** Miniature ClickLoc™ coaxial connector

- E: Agency Approval Option:*
- 0 0** Not required
 - 0 5** Multiple Approvals

**Spare 3300 NSV™ Reverse Mount Probe, 3/8-24 UNF threads
330906-02-12-CXX-DXX-EXX**

- C: Total Length Option:*
- 0 5** 0.5 metre (1.6 feet)
 - 1 0** 1.0 metre (3.3 feet)
 - 5 0** 5.0 metres (16.4 feet)
 - 7 0** 7.0 metres (23.0 feet)

- D: Connector Option:*
- 0 0** Connector not installed
 - 0 2** Miniature ClickLoc™ coaxial connector

- E: Agency Approval Option:*
- 0 0** Not required
 - 0 5** Multiple Approvals

**Spare 3300 XL 11 mm Reverse Mount Probe, 3/8-24 UNF threads
330705-02-18-CXX-DXX-EXX**

- Option Descriptions: C: Total Length Option:*
- 1 0** 1.0 metre (3.3 feet)
 - 5 0** 5.0 metres (16.4 feet)
 - 9 0** 9.0 metres (29.5 feet)
- D: Connector Option:*
- 0 0** Without connector
 - 0 2** With miniature male coaxial connector
- E: Agency Approval Option:*
- 0 0** Not required
 - 0 5** Multiple Approvals

Tables

Table 1. Part Dimensions in mm (inches)

Catalog Number	Dimension			
	A	B	C & D	E
21000	83.3 (3.28)	161.6 (6.36)	See Ordering Option C & D	26.7 (1.05)
24701	78.2 (3.08)	151.9 (5.97)	See Ordering Option C & D	27.9 (1.10)

Table 2. Maximum Length of C and D Dimension for Proximity Probes

Probe Cable Length	Maximum C & D Dimension
0.5 metre (3300 Series)	343 mm (13.5 in)
1.0 metre	742 mm (29.2 in)

Table 3. Maximum C and D Dimension with Visible Probe P/N and S/N

Probe Cable Length	Maximum C & D Dimension
0.5 metre	Not Visible
1.0 metre	432 mm (17.0 in)

Dimensional Drawing

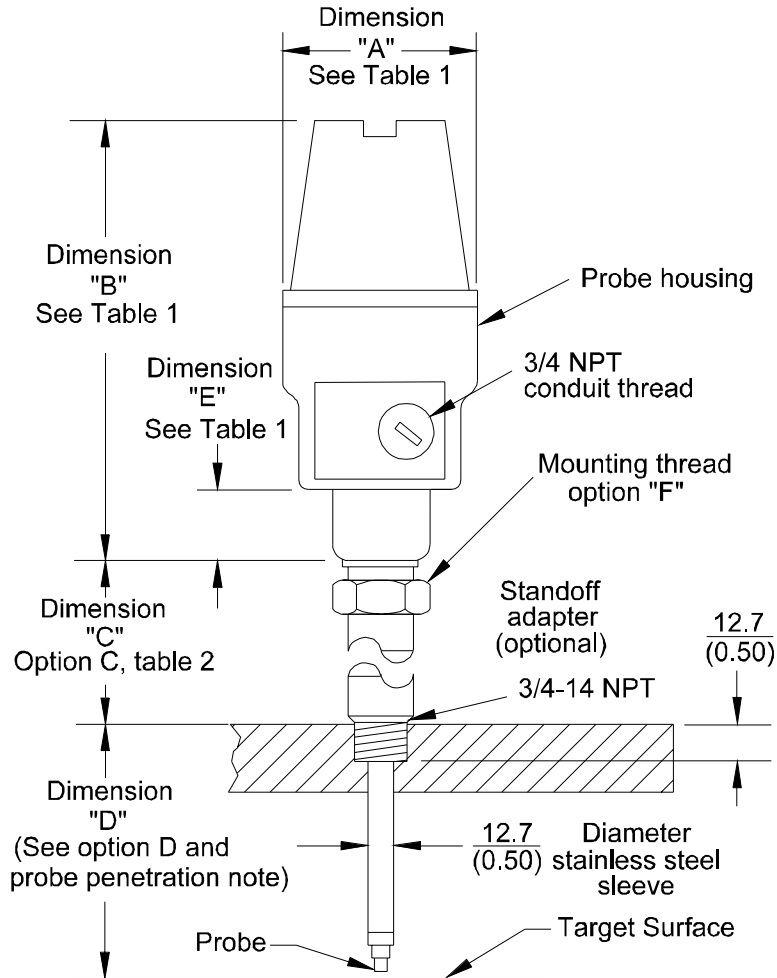


Figure 1. Proximity Probe Housing Assemblies Dimensions are in millimetres (inches)