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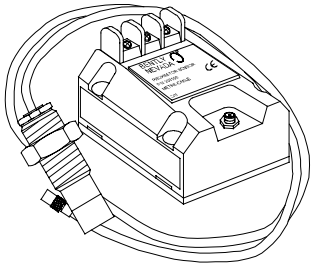
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Find the *GE / Bently Nevada 76683-02 35mm* at our website: *Click HERE*

Specifications and Ordering Information

35 mm Extended Range Proximity Transducer



Description

The 35 mm Proximity Transducer System consists of a probe, extension cable, and a Proximitor® Sensor. It is primarily used to measure differential expansion (DE) on medium and large steam turbines. It is specifically designed for applications where the required range of the transducer system exceeds 4 mm (160 mils) **and** the temperature at the probe location exceeds 125°C (257°F).[1]

Three primary configurations are available for 35 mm probes:

1) a threaded probe case with lock nut for mounting in a tapped hole.
2) an unthreaded probe case for use with a mounting clamp.
3) rear-exit or side-exit integral cable.

Probes are also available with 5 or 9 metres of integral cable that connects directly to the Proximitor® Sensor, thus eliminating connections with a separate extension cable.

Note:

1. The 25 mm Integral Differential Expansion Transducer System is available and provides numerous improvements over the 35 mm Extended Range Proximity Transducer System. It is recommended as the best available technology for extended range applications where the temperature at the probe location does not exceed 125° C (257° F). Consult Specifications and Ordering Information (p/n 141611-01) or your Bently Nevada Sales and Service Professional for more information.

Specifications

Specifications were determined with a -24 Vdc supply, 10 k Ω load, and a 102 mm (4 in) diameter AISI 4140 steel target at +22°C (+72°F).

Electrical

Proximitor® Sensor Input:	Accepts one noncontacting 7200 series 35 mm Proximity Probe and Extension Cable.
Power:	-18 Vdc to -24 Vdc at 12 mA maximum consumption.
Output resistance:	50 Ω.
Probe dc resistance (nominal) (R_{PROBE}):	5.0 Ω +2.85 Ω/m (0.866 Ω/ft).

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Extension cable dc resistance (nominal)

Center conductor (R_{CORE}):	2.80 Ω/m (0.850 Ω/ft).
Shield conductor (R_{JACKET}):	0.05 Ω/m (0.016 Ω/ft).
Extension cable capacitance:	68.8 pF/m (20.9 pF/ft) typical.
Field wiring:	Recommend using three-conductor shielded triad cable. Maximum length of 305 metres (1,000 feet) between the Proximitor® Sensor and the monitor. Consult the manual for frequency roll-off at longer lengths.
Linear Range:	12.7 mm (500 mils). Linear range begins at approximately 1.3 mm (50 mils) from target and is from 1.3 to 14.0 mm (50 to 550 mils) (approximately –1.5 to –11.5 Vdc).
Average Scale Factor (ASF):	0.79 V/mm (20 mV/mil) ±6% including interchangeability error when measured in increments of 1.3 mm (50 mils) over the 500 mil linear range.
Deviation from best fit straight line (DSL):	Less than ±0.33 mm (±12.8 mil).
Minimum Target Size:	57 mm (2.25 in) in diameter (flat target).
Electrical Classification:	Complies with the European CE mark. Hazardous area approvals not available.

Mechanical

Probe Tip Material:	Molded thermoplastic.
Probe Case Material:	300 series stainless steel.
Probe and Extension Cable Specifications:	95 Ω coaxial, fluoroethylene propylene (FEP) insulated probe cable in the following total probe lengths: 1, 5 or 9 metres.
Extension Cable Material:	95 Ω coaxial, fluoroethylene propylene (FEP) insulated.
Proximitor® Sensor Material:	A380 aluminum.
System Length:	5 or 9 metres including extension cable.
Extension Cable Armor (optional):	Flexible AISI 302 SST with FEP outer jacket.
Tensile Strength (maximum rated):	Probe tip to probe case: 22 N (5 lbf) Probe case to connector: 133 N (30 lbf)
Connector material:	Silver-plated brass.
Probe case torque:	68 N•m (600 in•lbf)
Maximum connector-to-connector torque:	0.565 N•m (5 in•lbf)
Total System Weight (typical):	0.86 kg (1.9 lbm)

Environmental Limits

Probe Temperature Range

Operating Temperature:	-18°C to +177°C (0°F to +350°F)
Storage Temperature:	-34°C to +177°C (-29°F to +350°F)

Extension Cable Temperature Range

Operating and Storage Temperature:	-51°C to +177°C (-60°F to +350°F)

Proximitor® Sensor Temperature Range

Operating and Storage Temperature:	-34°C to + 100°C (-29°F to +212°F)
Relative Humidity:	95% non-condensing from +2°C to +100°C (+35°F to +212°F) when connectors are protected.

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Ordering Information

35 mm Standard Proximity Probe
1 1/2-12 UNF English Thread:
76679 -AXX -BXX -CXX -DX -EX

M39 x 1.5 Metric Thread:
76680 -AXX -BXX -CXX -DX -EX
Option Descriptions

A: Unthreaded Length Option

English thread configurations:
Order in increments of 0.10 in = **0 1**
Maximum unthreaded length: 8.1 in = **8 1**
Minimum unthreaded length: 0 in = **0 0**
Metric thread configurations:
Order in increments of 10 mm = **0 1**
Maximum unthreaded length: 210 mm = **2 1**
Minimum unthreaded length: 0 mm = **0 0**

B: Case Length Option

English thread configurations:
Order in increments of 0.10 in = **0 1**
Maximum case length: 9.8 in = **9 8**
Minimum case length: 1.7 in = **1 7**
Metric thread configurations:
Order in increments of 10 mm = **0 1**
Maximum threaded length: 250 mm = **2 5**
Minimum threaded length: 40 mm = **0 4**

Note: Case length must exceed unthreaded length by 1.7 in for the English threaded probe and 40 mm for the metric version.

C: Total Length Option

1 0 1.0 metre (3.3 ft)
5 0 5.0 metres (16.4 ft)
Note: For use with 5 metre Proximitor® Sensor only.
9 0 9.0 metres (29.5 ft)

D: Armor Option

0 Without armor
1 With armor

E: Connector Option

0 Without connector
2 With miniature coaxial male connector

35 mm Smooth Case Proximity Probe

Rear Exit: 76681 -AXX -BXX -CX -DX

Side Exit: 76682-AXX-BXX-CX-DX
Option Descriptions

A: Case Length Option

Order in increments of 0.10 in = **01**
For side exit configuration:
Minimum case length:1.6 in = **1 6**
Maximum case length: 9.8 in = **9 8**
For rear exit configuration:
Minimum case length: 0.5 in = **0 5**
Maximum case length: 9.8 in = **9 8**

B: Total Length Option

1 0 1.0 metre (3.3 ft)
5 0 5.0 metres (16.4 ft)
Note: For use with 5 metre Proximitor® Sensor only.
9 0 9.0 metres (29.5 ft)

C: Armor Option

0 Without armor
1 With armor

D: Connector Option

0 Without connector
2 With miniature coaxial male connector

35 mm Extension Cable
76684 -AXXX -BXX
Option Descriptions

A: Total Length Option

0 4 0 4.00 metres (13.1 ft)
Note: For use with 5 metre Proximitor® Sensor only.
0 8 0 8.00 metres (26.2 ft)

B: Armor Option

0 0 Without armor
0 1 With armor

35 mm Proximitor® Sensor
76683 - AXX
Option Description

A:

5 0 For combined system electrical length of 5 metres
9 0 For combined system electrical length of 9 metres

Accessories

77290-01	Manual
153875	Performance Specification

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35 mm Probe: For extremely harsh environments, it is recommended that the probe lead be protected using rigid stainless steel armor to exit the environment. Stainless steel compression fittings are used to attach and seal the armor to the probe case and to the machine casing. Where armor runs are greater than 914 mm (36 in), select a probe lead length of five or nine metres or install a coupling or junction box 36 in from the probe to access the connector. **Rigid armor cannot be used with the flexible probe armor option or with Connector Protectors**.

03010897	3/8-in rigid stainless steel armor 6 foot lengths (1800 mm).
03839501	316 stainless steel fitting, connects 3/8-in tube to 3/8-in tube.
03839516	316 stainless steel fitting, connects 3/8-in tube to 1/4-18 NPT female threads, (used to attach armor to probe case).
03839517	316 stainless steel fitting, connects 3/8-in tube to 1/4-18 NPT male threads
77298-01	1/4-18 NPT pipe thread to probe seal lead (neoprene gland).
04404490	3/8-in tube bender, 1 3/4-in radius.
40113-02	Connector Protector Kit.

For **ease of mounting and verification**, a special mounting bracket and verification kit has been designed for the 35 mm probe that can be used on straight collar applications. Each Mounting Bracket comes with: one sliding plate; one base plate; sliding plate securing bolts with safety wire holes; and lock washers**. Mounting bracket inserts must be ordered with each mounting bracket** (unless ordered for replacement purposes).

131071-01	Single Transducer Mounting Bracket.
131030-01	Short Complimentary Input Differential Expansion (CIDE) Bracket (used on collars).
131031-01	Long Complimentary Input Differential Expansion (CIDE) Bracket (used on couplings).
131040-01	35 mm Mounting Bracket Insert, English Threads.
131040-02	35 mm Mounting Bracket Insert, Metric Threads. The material in the mounting brackets is T6061-T6 aluminum. Base plate securing bolts are not provided. Recommended bolt size is 3/8-24 or M8 socket head bolts.

The Verification Kit comes with: a Verification Kit bracket, a spindle micrometer with either 0 to 2 in or 0 to 50 mm range, two set screws, and a bracket securing bolt. The material used for the Verification Kit bracket is T6061-T6 aluminum. The Verification Kit is removable; only one Verification Kit is required for each facility.

131036-01	Verification Kit, Spindle Micrometer with English Units.
131036-02	Verification Kit, Spindle Micrometer with Metric Units.

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Dimensional Drawings

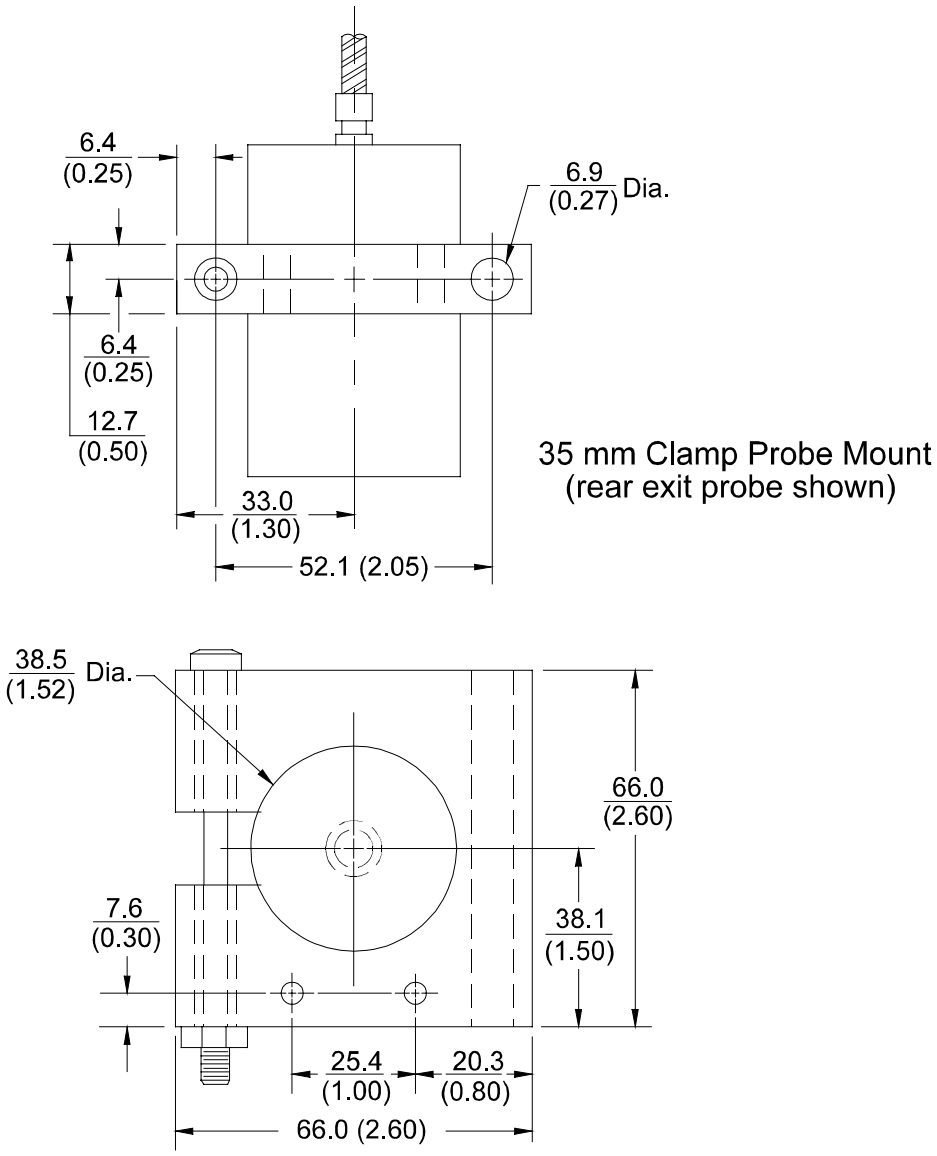


Figure 1: **35 mm non-threaded probe mounting clamps** [1, 2]

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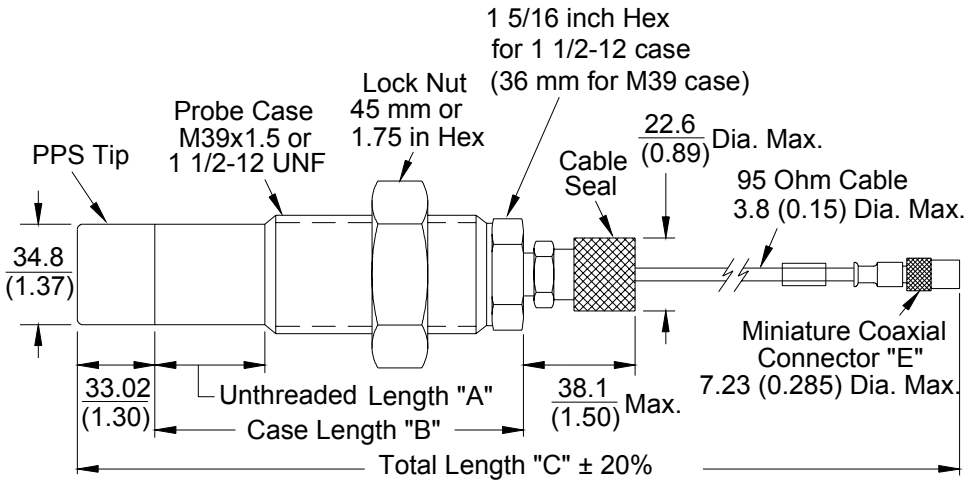


Figure 2: Part Number: 76679, English thread and 76680, metric thread
35 mm threaded probe configuration

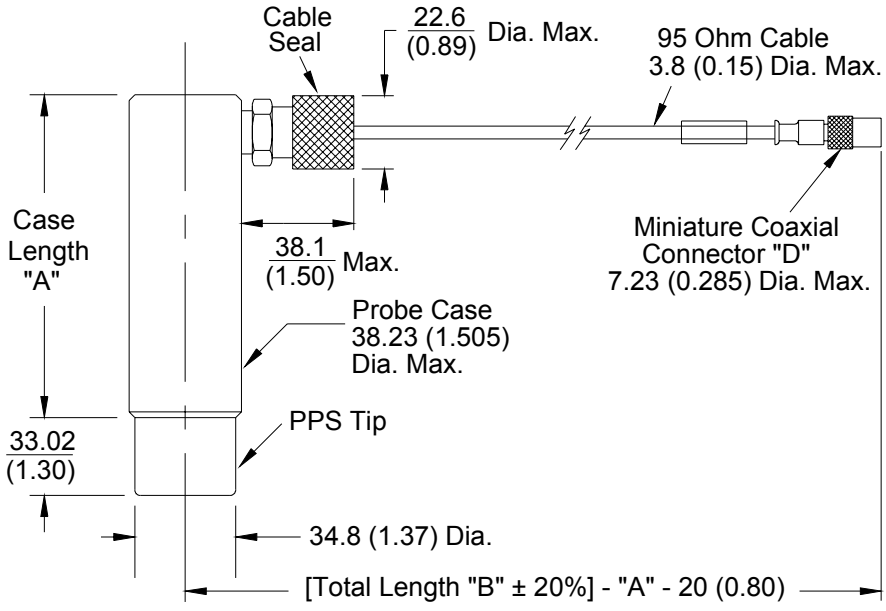


Figure 3: Part Number 76682
35 mm probe with side cable exit [1]

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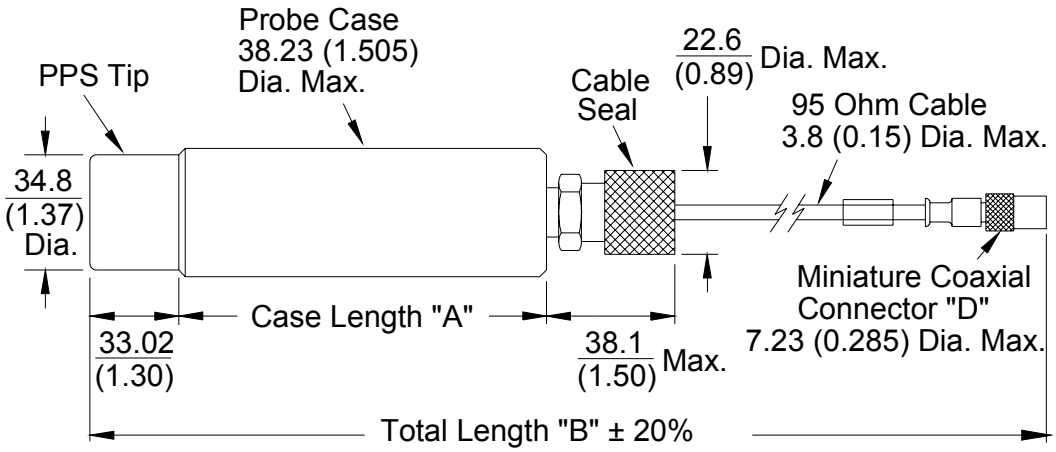


Figure 4: Part Number 76681
35 mm smooth case probe with rear cable exit [1]

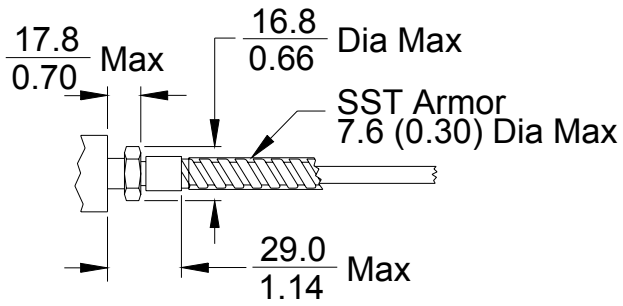


Figure 5: Probe Armor Detail

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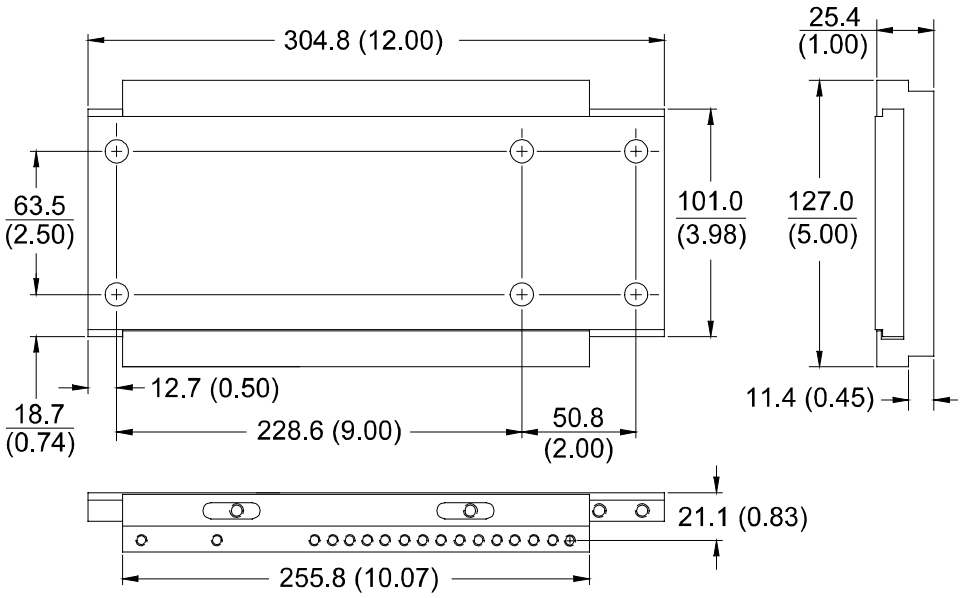


Figure 6: Part Number 131030-01
Short CIDE mounting bracket

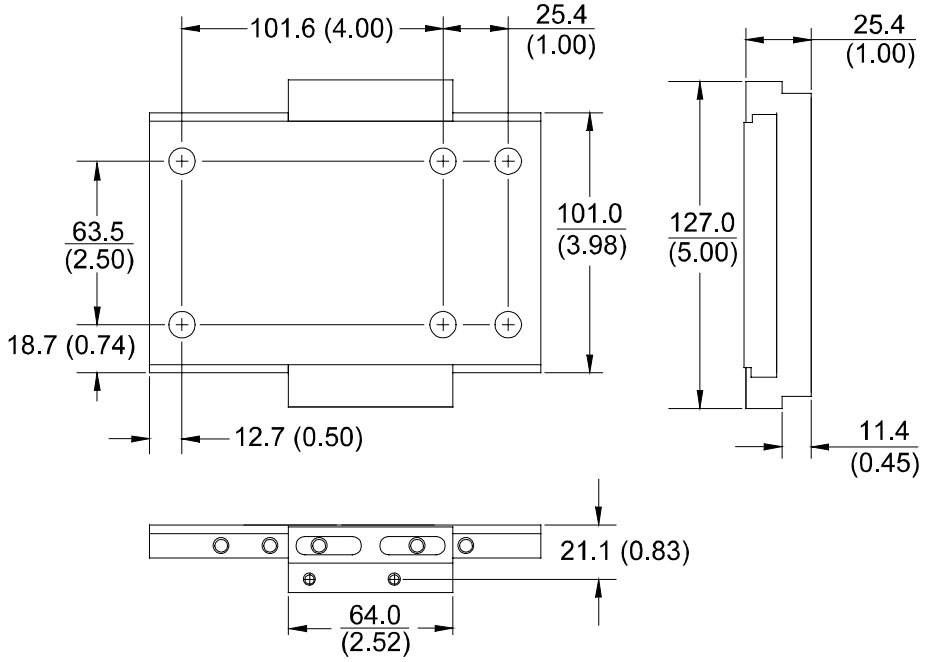


Figure 7: Part Number 131071-01
Single transducer mounting bracket

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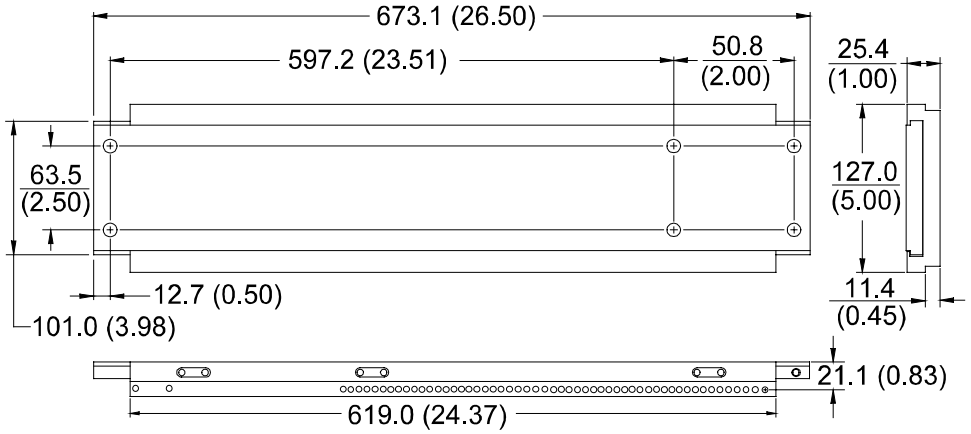


Figure 8: Part Number 131031-01
Long CIDE mounting bracket

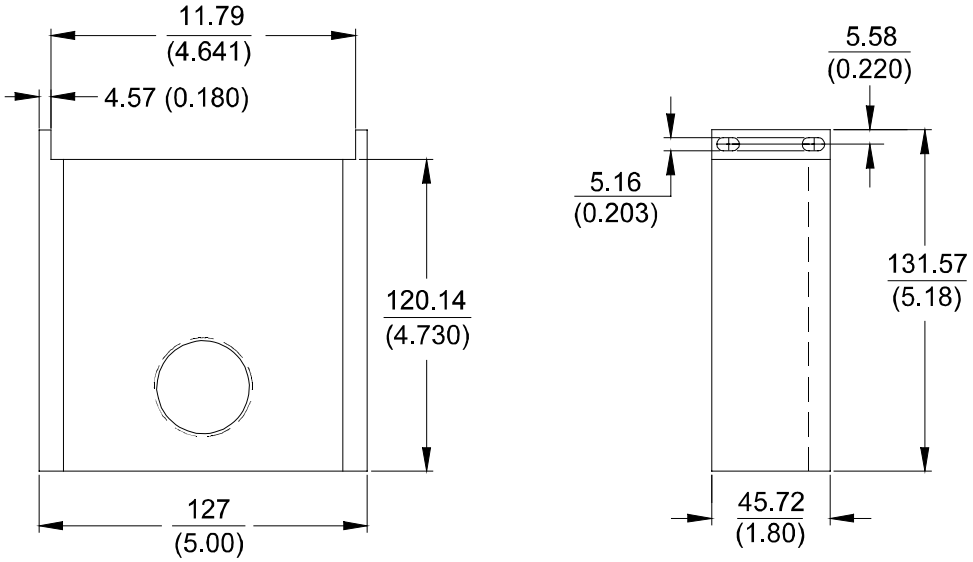


Figure 9: Part Number 131040
35 mm mounting bracket insert

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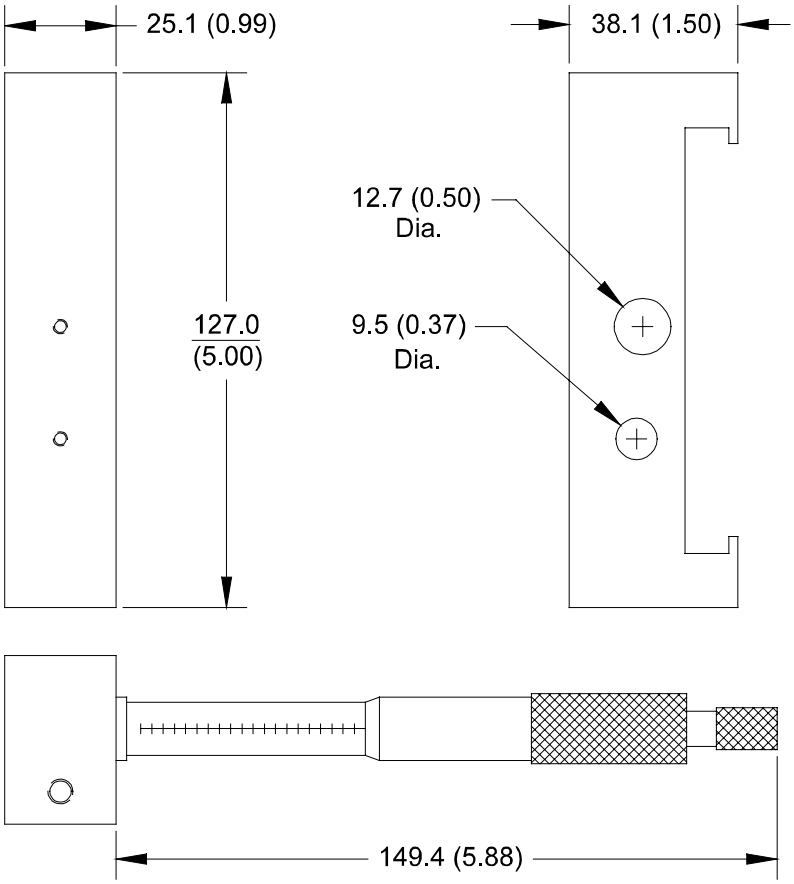


Figure 10: Part Number 131036-01 and 131036-02
Verification kit spindle micrometer fully extended

Notes:
1. Probe mounting clamps are included with smooth case side and rear exit probes.
2. Mounting clamps should never extend beyond metal probe case onto the probe tip.
3. All dimensions on figures are in millimetres (inches) unless otherwise noted.
4. Letters inside quotation marks on figures refer to probe ordering options.
5. Stainless steel armor is supplied with FEP outer jacket.
6. Coaxial cable contains FEP insulation and outer jacket.

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