



Vibration Monitoring for Machine Protection

Machine Saver Inc.

9788 Clarewood Dr. STE 302

Houston, TX 77036 USA

+1(832) 581-9908

www.MachineSaver.com

Sales@machinesaver.net

Proximity Transducers, Seismic Sensors and Accessories

3300XL Series

3309 Focus View Series

3000 Series

7200 Series

Compatible Proximity Probes

Extension Cables

Proximity Signal Conditioners



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Introduction to 8mm, 5mm Proximity Probe System

Introduction to proximity probe transducers

Proximity probe transducers (aka prox probes) are used to measure the static and dynamic distance between the target and the probe. Machine Saver series proximity probes measure the following:

- ✓ Radial vibration used for indicating bearing condition and measuring machine malfunctions such as rotor imbalance, misalignment, and shaft crack.
- ✓ Axial thrust position used for determining thrust bearing wear or potential bearing failure.
- ✓ Shaft radial position used for determining shaft position relative to rotor attitude angle, an indicator of rotor stability and shaft alignment.
- ✓ Vibration amplitude and phase angle used for diagnostic information in Polar and Bode formats or for vector monitoring.
- ✓ Eccentricity used to measure the shaft bow during startup of large turbine machinery.
- ✓ Phase reference used for measuring shaft rotation speed and phase angle of shaft vibration for monitoring and diagnostic purposes.

The Machine Saver MS series proximity probe systems are designed to meet API 670 standards. Each system consists of a probe, extension cable, and a probe signal conditioner. The signal conditioner, also called proximitors, probe driver and transmitters (4-20mA) directly interface with the prox probe and extension cable.

Components of proximity probe transducers

Probe

The 8mm and 5mm prox probes are designed for long life cycles and are suitable for harsh environments. Machine Saver realizes one of the most significant problems in proximity probe installations are ground loops and loss of isolation due to damaged cable jackets. Machine Saver's custom rugged cable jacket prevents the probe cable from breaking and tearing and is highly resistive to corrosive environments.

The Machine Saver MS prox probe and extension cable are equipped with a standard protective rubber boot, which covers the connectors, prevents oil and dirt penetration and also prevents the connection from coming loose due to vibration movement.



The MS series prox probes come in 0.5m and 1.0m cable lengths, as well as, special lengths of 5.0m and 9.0m with an integrated probe and extension cable design.

The probe may be selected in English or metric threads, as well as, reverse mounting options. Reverse mount probes are used with probe housings for hazardous areas.

Extension Cable

Machine Savers MS series extension cable design results in better system performance and a longer life cycle.

One may select various extension cable lengths based on the probe cable length. The total length of the probe and the extension cable need to be 5m or 9m in total length.

The connector on the extension cable is also an API 670 standard, allowing compatibility with other manufacturers' proximity probe systems.

Probe Driver, Proximitor, Proximity Transmitter

The probe driver, proximitor or 4-20mA transmitter are used to power the proximity probe systems. The circuit isolation from ground is a standard feature for all our probe drivers. The total length of cable between the probe and the driver should be 5m or 9m. The distance between the driver and the vibration monitor, PLC or DCS may be up to 300m (1,000 ft). A multi-conductor shielded cable from the probe driver should be used to connect to a vibration monitor.

Hazardous Area

Machine Saver proximity probe transducers have hazardous area approvals. Please consult Machine Saver for further information.

MS Series 3300XL

Bently Nevada Compatible

System Specifications

Electrical

Power Supply:

Voltage: -23 to -30VDC

Current: < 12mA

Linear Range:

2.0mm (80mil) begins at 0.25mm (10mil)
from probe face (AISI4140)

Range is 0.25 - 2.25mm (10 - 90mils)

Sensitivity:

7.87 mV/um (200mV/mil) ± 5%

Temperature Sensitivity (Normal and High):

Probe and 5 meters cable, from -51°C to 177°C for 3300XL Compatible, tolerance is within ±0.3% °C in the middle of the linear range. At 2.25mm (90mil), nominal ±0.5%/°C

Linearity (deviation from straight line):

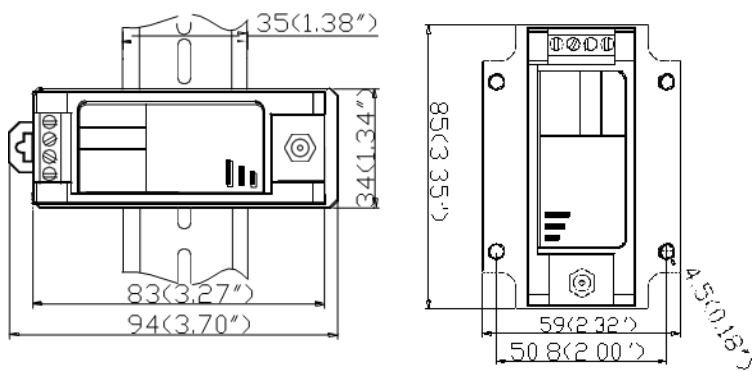
Within ±0.0254mm (±1.0mil) of a straight line, when calibrated as a system. ±0.038mm (±1.5mil) typical including interchangeability errors

Frequency Response (±3db):

0 - 10.0 KHz

Minimum Target Size:

15mm (0.6 inch) in diameter



Environmental

Probe Driver Temperature:

Operation: -51°C to +100°C

Storage: -51°C to +110°C

Probe Temperature:

Operation/Storage: -51°C to +177°C

Extension Cable Temperature:

Operation/Storage: -51°C to +177°C

Humidity:

100% non-condensing

Approval:

ATEX: II 1 G, Ex ia IIC T4@Ta=-40°C to +80°C KEMA06ATEX0217X

CSA: Intrinsically safe.

Class 1, Div. 1, Groups A, B, C and D, T4

Class 1, Zone 0, Ex ia IIC T4

Non-incendive

Class 1, Div. 2, Groups A, B, C and D

PCEC: Ex ia IIC T4

GOST R: 0ExialICT4

Probe and Cable Approval:

ATEX: II1G, ExiaIICT4@Ta=-55°C to +115°C, II2G, ExiaIICT2@Ta=-55°C to +232°C KEMA07ATEX0110X

CSA: Class I, Div 1, Grps ABCD, ExiaIICT4

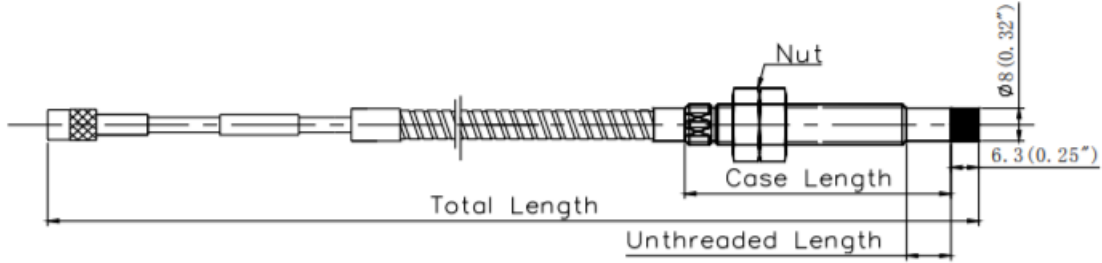
Physical

Driver Height: 75mm (2.95")

Driver mounting: 35mm DIN rail mount or Plate mount

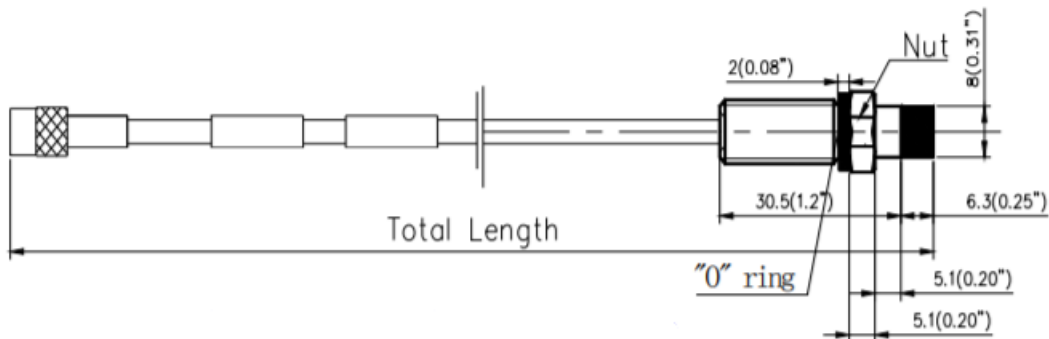


3300XL Compatible Series 8mm Probe System Table Selection



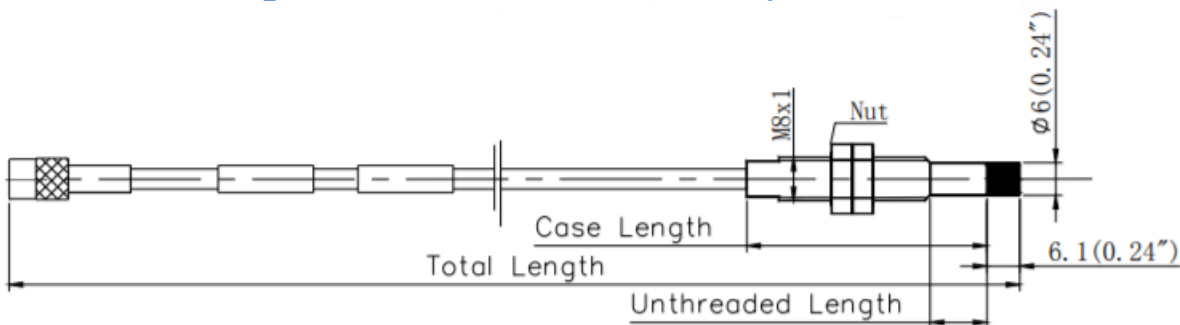
MS	-XXXXXX	-XX	-XX	-XX	-XX	-XX
3300XL Series 8mm Probe	Probe Type	Unthreaded Length	Case Length	Total Length	Connector Type	Hazardous Area Certification
3/8"-24UNF without armor	-330101	Standard: 00 (0.0 in) Increment: 05 (0.5 in) Maximum unthreaded length 8.8 in Minimum unthreaded length 0.0 in Example: 04 = 0.4 in	Standard: 30 (3.0 in) Increment: 05 (0.5 in) Minimum: 10 (1.0 in) Maximum: 95 (9.5 in) Maximum case length: 9.6 in Minimum case length: 0.8 in Example: 24 = 2.4 in	05 (0.5m) 10 (1.0m)	-01 connector with connector protector -02 with connector	-00 not required -05 multiple approval ** refer to specification
3/8"-24UNF with armor	-330102					
M10x1 without Armor	-330103	Standard: 00 (0 mm) Increment: 01 (10 mm) Maximum unthreaded length 230 mm Minimum unthreaded length: 0 mm Example: 06 = 60 mm	Standard: 05 (50 mm) Increment: 01 (10 mm) Minimum: 02 (20 mm) Maximum: 25 (250 mm) Maximum unthreaded length: 230 mm Minimum unthreaded length: 0 mm Example: 06 = 60 mm	05 (0.5m) 10 (1.0m)		
M10x1 with armor	-330104					

3300XL Compatible Series Reverse Mount for 8 mm Probe System Table Selection



MS	-XXXXXX-XX-XX	-XX	-XX	-XX
3300XL series 8mm Probe	Probe Type	Total Length	Connector Type	Hazardous Area Certification
3/8"-24UNF Without Armor Reverse Mount	-330105-02-12	05 (0.5m) 10 (1.0m)	01 connector with connector protector 02 with connector	00 (not required) 05 (multiple approval) **Refer to specification
M10x1 Without Armor Reverse Mount	-330106-05-30			

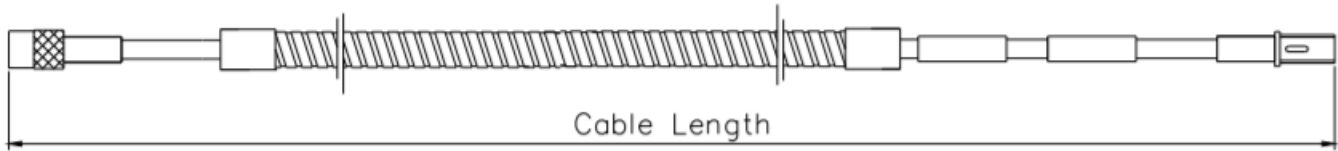
3300XL Compatible Series 5mm Probe System Table Selection



MS	-XXXXXX	-XX	-XX	-XX	-XX	-XX
3300XL Series 5mm Probe	Probe Type	Unthreaded Length	Case Length	Total Length	Connector Type	Hazardous Area Certification
1/4"-28UNF without armor	-330171	Standard: 00 (0.0 in) Increment: 05 (0.5 in) Maximum unthreaded length 8.8 in Minimum unthreaded length 0.0 in Example: 04 = 0.4 in	Standard: 30 (3.0 in) Increment: 05 (0.5 in) Minimum: 10 (1.0 in) Maximum: 95 (9.5 in) Maximum case length: 9.6 in Minimum case length: 0.8 in Example: 24 = 2.4 in	05 (0.5m) 10 (1.0m)	-01 connector with connector protector -02 with connector	-00 not required -05 multiple approval ** refer to specification
1/4"-28UNF with armor	-330172					
M8x1 without Armor	-330173	Standard: 00 (0 mm) Increment: 01 (10 mm) Maximum unthreaded length 230mm Minimum unthreaded length: 0 mm Example: 06 = 60 mm	Standard: 05 (50 mm) Increment: 01 (10 mm) Minimum: 02 (20 mm) Maximum: 25 (250 mm) Maximum unthreaded length: 230 mm Minimum unthreaded length: 0 mm Example: 06 = 60 mm	05 (0.5m) 10 (1.0m)		
M8x1 with armor	-330174					

3300XL Compatible Extension cable for 5mm or 8mm probe system

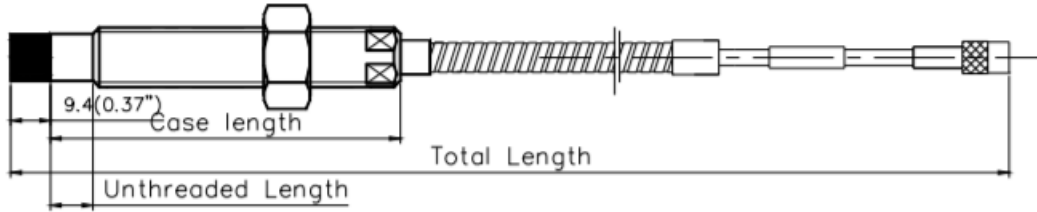
Bently Nevada Compatible



MS-330130-XX-XX-XX

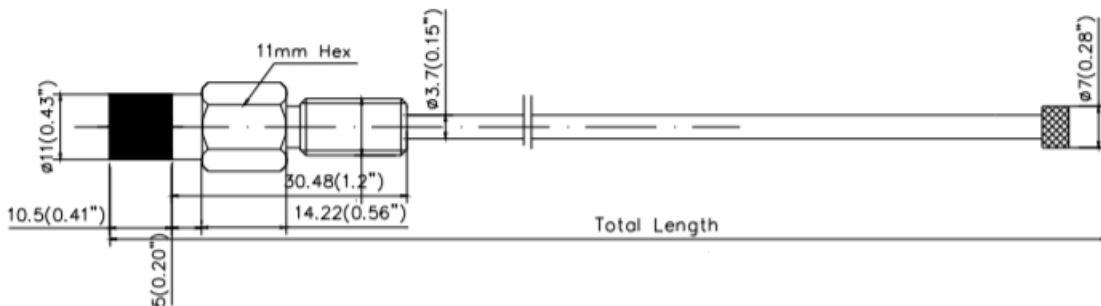
MS	-330130	-XX	-XX	-XX
Probe Type	Model	Cable Length	Connector Protector	Hazardous Area Certification
3300XL compatible series 8mm probe	-330130	-040 (4.0 m)	-00 standard cable	-00 Not required
		-045 (4.5 m)	-01 armored cable	-05 Multiple Approval
		-080 (8.0 m)	-02 standard cable with connector protector	*Refer to specification
		-085 (8.5 m)	-03 Armored cable with connector protector	

3300XL Compatible Series 11mm Probe System Table Selection



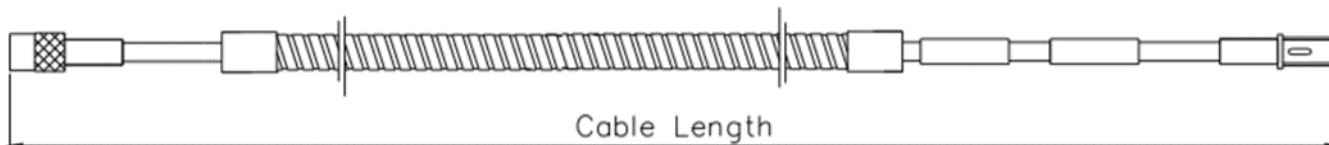
MS	-XXXXXX	-XX	-XX	-XX	-XX	-XX
3300XL Series 11mm Probe	Probe Type	Unthreaded Length	Case Length	Total Length	Connector Type	Hazardous Area Certification
1/2"-20UNF without armor	-330701	Standard: 00 (0.0 in) Increment: 05 (0.5 in) Maximum unthreaded length 8.8 in Minimum unthreaded length 0.0 in Example: 04 = 0.4 in	Standard: 30 (3.0 in) Increment: 05 (0.5 in) Minimum: 10 (1.0 in) Maximum: 95 (9.5 in) Maximum case length: 9.6 in Minimum case length: 0.8 in Example: 24 = 2.4 in	05 (0.5m) 10 (1.0m)	-01 connector with connector protector -02 with connector	-00 not required -05 multiple approval ** refer to specification
1/2"-20UNF with armor	-330702					
M14X1.5 without Armor	-330703	Standard: 00 (0 mm) Increment: 01 (10 mm) Maximum unthreaded length 230 mm Minimum unthreaded length: 0 mm Example: 06 = 60 mm	Standard: 05 (50 mm) Increment: 01 (10 mm) Minimum: 02 (20 mm) Maximum: 25 (250 mm) Maximum unthreaded length: 230 mm Minimum unthreaded length: 0 mm Example: 06 = 60 mm	05 (0.5m) 10 (1.0m)		
M14x1.5 with armor	-330704					
5/8"-18UNF without armor	-330707	Standard: 00 (0.0 in) Increment: 05 (0.5 in) Maximum unthreaded length 8.8 in Minimum unthreaded length 0.0 in Example: 04 = 0.4 in	Standard: 30 (3.0 in) Increment: 05 (0.5 in) Minimum: 10 (1.0 in) Maximum: 95 (9.5 in) Maximum case length: 9.6 in Minimum case length: 0.8 in Example: 24 = 2.4 in	05 (0.5m) 10 (1.0m)	-01 connector with connector protector -02 with connector	-00 not required -05 multiple approval ** refer to specification
5/8"-18UNF with armor	-330708					
M16X1.5 without Armor	-330709	Standard: 00 (0 mm) Increment: 01 (10 mm) Maximum unthreaded length 230 mm Minimum unthreaded length: 0 mm Example: 06 = 60 mm	Standard: 05 (50 mm) Increment: 01 (10 mm) Minimum: 02 (20 mm) Maximum: 25 (250 mm) Maximum unthreaded length: 230 mm Minimum unthreaded length: 0 mm Example: 06 = 60 mm	05 (0.5m) 10 (1.0m)		
M16x1.5 with armor	-330710					

3300XL Compatible Series Reverse Mount for 11 mm Probe System Table Selection



MS	-XXXXXX-XX-XX	-XX	-XX	-XX
3300XL series 11mm Probe	Probe Type	Total Length	Connector Type	Hazardous Area Certification
3/8"-24UNF Without Armor Reverse Mount	-330705-02-18	05 (0.5m) 10 (1.0m)	01 connector with connector protector 02 with connector	00 (not required) 05 (multiple approval) **Refer to specification
M10x1 Without Armor Reverse Mount	-330706-005-046			

3300XL Compatible Series Extension Cable for 11 mm Probe System Table Selection



MS	330730	-XX	-XX	-XX
Probe Type	Model	Cable Length	Connector Protector	Hazardous Area Certification
3300XL compatible series 11mm probe	-330730	-040 (4.0 m)	-00 standard cable	-00 Not required
		-045 (4.5 m)	-01 armored cable	-05 Multiple Approval
		-080 (8.0 m)	-02 standard cable with connector protector	*Refer to specification
		-085 (8.5 m)	-03 Armored cable with connector protector	

3309 Focus View

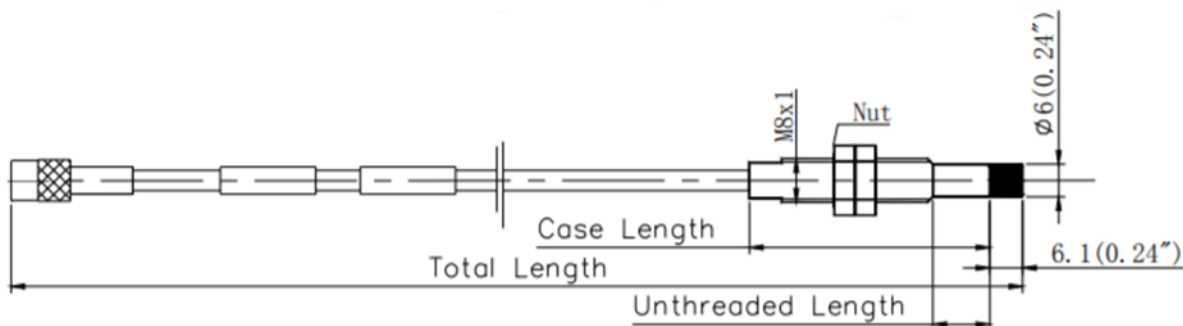
Bently Nevada Compatible NSv & RAM Series

The 3309 Focus View Proximity Transducer system is intended for use with centrifugal air compressors, refrigeration compressors, process gas compressors and other machines with tight installation requirements.

The lengths of the proximity probes and extension cables must combine for a system length of 5 or 7 meters.

Standard Proximity Probe for 3309 Focus View Series

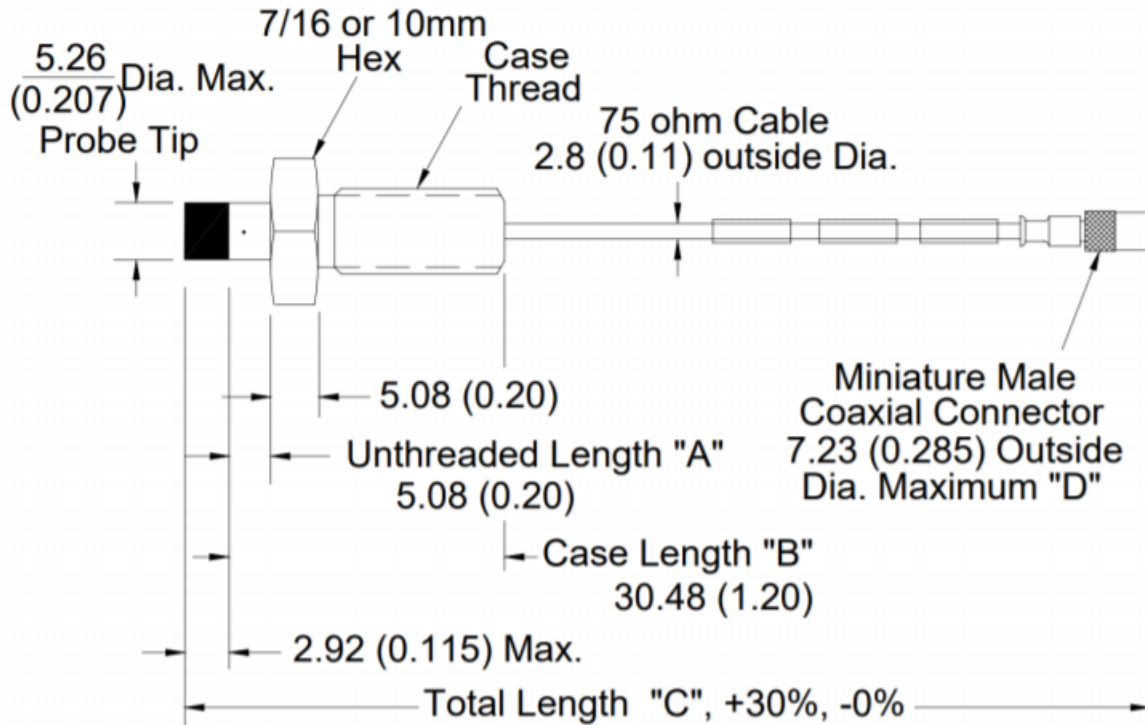
5mm Tip Diameter Only



MS3309XX-XX-XX-XX-02-XX

Case Threads	Armor	Model No.	Unthreaded Length	Case Length	Probe Length (meters)	Connector Protector	Agency Label
1/4"-28	No	01	Standard 00 = 0.0 in. Increments 05 = 0.5 in Maximum = Case Lgth. minus 1.0 in.	Min: 10 = 1.0in	05 = 0.5m 10 = 1.0 m	02= with connector & protector	00 = None req'd. 05 = Agency appr'1.
1/4"-28	Yes	02		Delta: 05 = .05in			
3/8"-24	No	08		Std: 30 = 3.0in			
3/8"-24	Yes	09		Max: 95 = 9.5in			
M8x1	No	03	Standard 00 = 00 mm. Increments 01 = 10 mm Maximum = Case Lgth. minus 20 mm.	Min: 02 = 20mm			
M8x1	Yes	04		Std: 07 = 70mm			
M10x1	No	05					
M10x1	Yes	10					

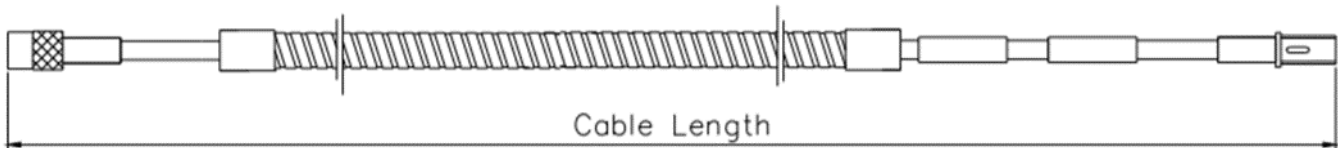
Reverse Mount Proximity Probe for 3309 Focus View Series



MS3309XX-XX-XX-XX-02-XX

Case Threads	Model No.	Unthreaded Length	Case Length	Probe Length	Connection Protector	Agency Label
3/8"-24	MS330906	02 = 0.2 in.	12 = 1.2 in.	05 = 0.5m (+/- .05m)	02 = yes	00 = None Req. 05 = Agency Approval
M10X1	MS330907	05 = 5 mm	30 = 30mm	10 = 1.0m (+/- 0.1m)		

Extension Cable for 3309 Focus View Series



MS330930-XXX-XX-XX

Cable Length	Cable Armor Conn. Protector	Agency Approval
040 = 4.0 m	00= St'd. cable w/o armor	00 = none required
045 = 4.5 m		
060 = 8.0 m	02 = Cable w/ SS	05 = Agency approval
065 = 8.5 m		
An extension cable is not needed for a 5 or 7 meter length probe		

3000 Series

(Typically used with MS2789 or MS4454 extension cable and 20929 Proximitors)

** : 2X measured physical length inches

MS	-XXXXX	-XX	-XX	-XX	-02
3000 series 190 probe	Probe Type	Unthreaded Length	Case Length	Total Length	Connector Type
1/4"-28UNF; without armor	-19000	Standard: 00 (0.0 in) Increment: 05 (0.5 in)	Standard: 30 (3.0 in) Increment: 05 (0.5 in)	06 = Min 6in. 36 = Max 36in. 6 in. increments	02 (yes)
1/4"-28UNF; with armor	-19001	Maximum: Case length – 1.0 in	Minimum: 11 (1.1 in) Maximum: 96 (9.6 in)		
M8×1; without armor	-19007	Standard: 00 (0 mm) Increment: 01 (10 mm)	Standard: 07 (70 mm) Increment: 01 (10 mm)		
M8×1; with armor	-19008	Maximum: Case length – 20 mm	Minimum: 02 (20 mm) Maximum: 25 (250)		

(Typically used with MS2789 or MS4454 extension cable and 20929 Proximitors)

** : 2X measured physical length inches

MS	-XXXXX	-XX	-XX	-XX	-02
3000 series 190 probe	Probe Type	Unthreaded Length	Case Length	Total Length	Connector Type
3/8"-24UNF; without armor	-30000	Standard: 00 (0.0 in) Increment: 05 (0.5 in)	Standard: 30 (3.0 in) Increment: 05 (0.5 in)	06 = Min 6in. 36 = Max 36in. 6 in. increments	02 (yes)
3/8"-24UNF; with armor	-30001	Maximum: Case length – 1.0 in	Minimum: 11 (1.1 in) Maximum: 96 (9.6 in)		
M10×1; without armor	-30011	Standard: 00 (0 mm) Increment: 01 (10 mm)	Standard: 07 (70 mm) Increment: 01 (10 mm)		
M10×1; with armor	-30012	Maximum: Case length – 20 mm	Minimum: 02 (20 mm) Maximum: 25 (250)		

Extension Cables for 3000 series probes

Cable length + 2 X probe physical length = the equivalent electrical length. All the units should be inches

MS	-XXXX	-XXX
Probe Type	Model	Cable Length (in)**
Use with 3000 series probe, no armor	-2789	
Use with 3000 series probe, with armor	-4454	



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About Machine Saver Inc.

Our broad product line offers modern and innovative solutions for every application, such as online protection systems for monitoring high-value critical machinery, portable vibration data collectors for routine predictive maintenance and easy to use vibration analysis software for balance of plant equipment.

Rely on our vibration monitoring equipment to prevent machinery failures before they occur

In addition to minimizing the risk of facility unavailability, Machine Saver products are designed to increase the lifespan of your equipment, optimize its performance, and ensure that it complies with operational safety standards. Since faulty machinery is one of the most common causes of workplace accidents, it's of primary importance not to let the condition worsen to the irreversible stage and carry out maintenance at the right time. By analyzing the deviations of the parts that are vibrating, our monitors will help you predict when and what should be replaced or fixed to avoid disastrous consequences. VibraVista is capable of serving an extensive range of industries and supplying its revolutionary monitoring systems all over the world. When browsing through our product catalog, you can find something for:

- Steam Turbines
- Hydro Turbines
- Compressors
- BFP Pumps
- Cooling Towers

Machine Saver is all about the best value and customer service

If you're in the market for the most cost-effective vibration monitoring equipment, you can stop searching because you've already found it. Explore our assortment, take your pick, and let us provide you with the best price for it. [Contact us](#) to clarify details. Protect your machinery using cutting-edge condition monitoring solutions. With Machine Saver help navigating your machine vibration monitoring and or condition monitoring solution is right around the corner. Let us help you!

SERVICE@MachineSaver.NET