

Special Requirements? No Problem.

While the majority of condition monitoring applications can be addressed by our standard catalog offerings of GE Energy's Bently Nevada* transducers, monitoring hardware, and software, one size does not always fit all. Unusual transducer mounting locations, extreme environments, unique signal processing needs, interfaces to non-standard signals – these all require flexible, responsive engineering and manufacturing capabilities to deliver custom products.

For nearly four decades, customers have relied upon our custom applications group to solve their most unique and challenging requirements. Whether a minor modification to an existing product or rapid development of an entirely new device to solve a specialized problem, we have a proven track record spanning thousands of special applications. The result is unrivaled flexibility to address your needs while offering the quality and dependability found in our standard product offerings.

Custom Designs – A Core Competence

During the 1960s, Bently Nevada proximity transducers were just being introduced to the world, revolutionizing the way machinery health could be assessed. While today these transducers and their associated monitoring systems are considered the industry standard, in those days, every application was essentially custom. Out of necessity, the ability to rapidly respond to custom requests while delivering products of legendary quality was born. Even though a standard product line has emerged over the years to address many applications, deep expertise for custom solutions remains a core competence and regular part of our business.



Features and Benefits

- **Experience**
We've been delivering high-quality custom measurement solutions for over 35 years.
- **Single Source**
You enjoy the convenience of dealing with a single supplier for both standard and custom facets of your application.
- **Support and Documentation**
Custom products are backed by the same level of documentation and support as our standard catalog offerings.
- **Strict Confidentiality**
Transducer, software, and monitoring system customization often addresses proprietary aspects of machinery construction and operation. End users and OEMs alike can rely upon us to maintain the strictest confidence with their information.
- **Comprehensive Scope**
Our capabilities span more than just transducers – you can turn to us for monitoring system and software customization, too.



Monitoring Systems

Today's digital technology has allowed more flexibility in our vibration and machine condition monitoring hardware,



such as the 3500 Series Machinery Protection system, allowing items that used to require special alterations (such as unusual scale factors) to be addressed without custom design modifications. However, we continue to supply and design numerous modifications to monitoring systems each year when standard configuration options are inadequate. A small sampling of the types of monitor modifications we have designed and supplied include:

- Rate-of-change alarms used for seismic plate clash monitoring on pulp refining machines
- Special filtering and signal processing used to monitor gas turbine combustor "humming"
- Non-standard proportional output voltages to drive older strip chart recorders
- Inputs for non-standard temperature sensors
- Support for additional Keyphasor* transducers in a single rack
- Specialty enclosures for racks and associated displays

We encourage you to contact us for any application where standard configuration options cannot adequately address your requirements, whether 3500, 3300, 1701, 1900, Trendmaster* components, or portables. Our custom product capabilities may well be the solution.

Software

Our product modification capabilities encompass software as well as hardware. Software modifications performed for customers range from special interfaces between our System 1* platform and external control and automation systems, to new or modified plot types in System 1, to special options in our monitor configuration software.

Transducers

Transducers comprise the largest volume of custom product requests. Literally thousands of different modifications and special transducers have been designed over the years. We take special pride in this capability, allowing you to address even your most unique and challenging applications. And, custom products designed specifically for Original Equipment Manufacturers (OEMs) can be labeled with the OEM's part number, ensuring our customers do not circumvent the important interface with their machinery supplier when spare parts or assistance is required.

Target material calibrations

Our most frequently requested transducer modification is calibration of proximity probes to a target other than 4140 type steel. Over the years, we have provided custom calibrations to over 700 different shaft and target materials including nickel, aluminum, copper, and proprietary metallurgies including Inconel and Monel K500. Even if your specific target material is not in our database, we require only a small physical sample to provide you with a custom calibration.

Feedthroughs

Some machines have significant pressure differences between the probe and where its cable exits the machine casing. Feedthroughs are available, allowing one or more cables to transition from areas with up to 1000 psi of differential pressure. This allows safe and convenient access to cable connections while embedding proximity probes in a pressurized machine case. Numerous standard feedthroughs are available, as well as custom-designed feedthroughs to address specific thread sizes, materials, and cable quantities.

Underwater transducers

Vertical pumps are just one example of machines with submerged bearings. To make proper measurements, transducers must be mounted near bearings, requiring underwater environmental protection. Numerous modifications exist for both proximity probes and seismic transducers with special sealing, cable lengths, and pressure capabilities. Or, for applications where an existing modification is insufficient, our engineers can create entirely new designs to meet your requirements.

Cable armor

Cables are particularly susceptible to physical damage and most have standard options for ordering with or without armor. However, we also provide custom capabilities for the addition of armor when a standard ordering option does not exist. This often allows the use of an otherwise standard product in applications where a more expensive solution may previously have been needed. Armor modifications include:

- **Radiation-resistant armor**
Uses Tefzel® rather than Teflon® insulation for superior survivability in high-radiation environments.
- **Thermoplastic hose armor**
Ideal when probes must be pressurized for submerged applications.
- **Shrink tubing**
Custom-fitted shrink tubing provides protection and ensures that otherwise free-floating armor stays in position.
- **Non-standard lengths**
Certain applications require armor on portions of the cable, but not on others, necessitating custom armor lengths.
- **Connector attachments**
Armor, usually free at the connector end, can be modified to attach at this end, preventing accidental connector damage when pulled.

Custom case designs

Special threads, right-angle probes, t-brackets, and smooth-body probes with clamps are just a few of the case designs that can be provided to address your special mounting geometry requirements. Whether you simply want to upgrade an older “custom” probe to newer components, or have an entirely new application, we can help. And, we can design cases from special alloys such as 316 SST, C-22, C-276, and others when case metallurgy is important.

Custom probe tips

When constraints dictate that standard probe tips are too large or will not withstand the environment, special tip sizes and materials (such as ceramic) are available in a variety of configurations.

Special cable lengths

Proximity probes use cable lengths that are electrically tuned to match the Proximator* sensor. While standard 5m and 9m lengths are available, numerous applications may require longer or unique cable lengths and our custom products capabilities are able to address this.

Extreme environments

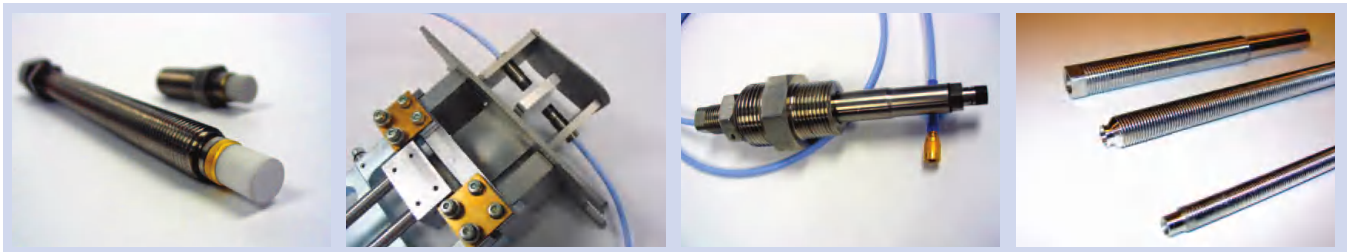
Probes and cables can be engineered to withstand cryogenic or highly elevated temperatures, as well as particularly corrosive environments such as ammonia, H₂S, and others. Mineral-insulated cables, special metallurgies, and other technologies are employed for such applications.

Pressure modifications

When the use of a feedthrough is inappropriate or undesirable, pressure differentials of up to 1500 psi between the probe and its cable exit can be addressed through special probe modifications.

Custom Means Custom

This overview is just a small sample of the types of modifications available, illustrating our flexibility and capabilities. We encourage you to contact your nearest sales professional with your requirements. Whether you are applying our products to something other than rotating machinery, or simply need customization to address a more conventional application, you can rely on our custom applications team to provide the unique solutions you need.



GE Energy



Contact GE Energy today to learn more about custom applications capabilities for the products in our Bently Nevada Asset Condition Monitoring portfolio, and for a proposal tailored to your specific needs.

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