

Introducing a More Accurate, Stable, and Sensitive Stem Force Sensor

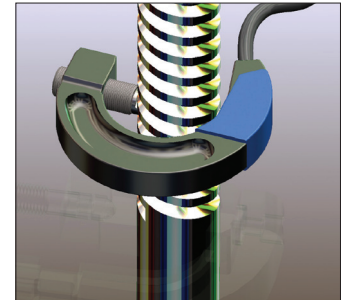
The nuC Stem Force Sensor from Crane Nuclear is a new, portable valve stem force sensor delivering high accuracy and stability with an improved circuit body and element design. Benefiting from Crane's experience with the industry standard in C-Clamps, the nuC design features a smaller radial profile which fits into tight yoke configurations. This allows for use in applications where other stem-mounted sensors fail.

The patent-pending nuC sensors are strain-gage type diametrical expansion devices that easily mount on the valve stem. The product line offers a range of sizes designed to fit stem diameters from .25" to 2.25" on either the unthreaded portion of a valve stem or on the threaded area of single and double lead stems. This revolutionary design measures thrust by sensing the expansion and contraction of the

stem as force is applied. nuC uses Crane Nuclear Signature Software 5.6, which on threaded stems uses the calibrated sensitivity, stem material and dimensional properties to provide the user with accurate thrust data.



The sensors can function in temperatures up to 170°F and are approved for use on all safety-related components in power generating and industrial facilities. nuC is designed, manufactured, validated, and calibrated under Crane Nuclear's Quality Assurance Program QAM-1, that meets the requirements of ANSI 10CFR 50, Appendix B.



Crane Nuclear is a manufacturer of quality engineered valve diagnostic products

nuC™ Benefits

- *Portable valve stem force sensors providing high accuracy, improved sensitivity/ output, good zero stability, and low sensitivity to the use environment*
- *More compact design and shape than current stem sensor footprint to fit a wide range of valve configurations*
- *Field-rugged, waterproof, durable, and not easily damaged by normal use*
- *Minimum susceptibility to shock and vibration during typical valve testing*
- *Can be installed and zeroed with minimum effort*
- *Usable on threaded (Unified and Acme) valve stems*
- *Compatible with the existing CRANE Nuclear Viper® and VOTES® Infinity Diagnostic Systems*

nuC™ Stem Diameter Ranges

nuC™ MODEL	STEM DIAMETER RANGE
075	.25" to .75"
125	.75" to 1.25"
175	1.25" to 1.75"
225	1.75" to 2.25"



Accuracy Statement

	MOUNTING POSITION	READING ERROR +/- (%)	FULL-SCALE ERROR +/- (%)	FULL-SCALE VALUE
nuC™ Thrust Only	Solid	6.8%	1.25%	Calculated
nuC™ Thrust with Torque	Solid	6.8%	1.25%	Calculated
nuC™ Thrust Only	Threaded	6.8%	1.25%	Calculated
nuC™ Thrust with Torque	Threaded	9.9%	1.25%	Calculated

1. Accuracy statement provided is considered bounding over the course of a test in which the temperature at the stem contact point varies less than 1°F during the course of the test.
2. Calibration interval for new force sensor devices is initially set at 6 months. Crane will collect calibration data on nuC at the 6 month interval and evaluate the feasibility of moving to a 12 month calibration interval. While we expect to be able to move nuC to a 12 month interval, we must initially set the interval at 6 months until we have the data to support a longer period.

For more information on nuC™, please contact pgilbert@cranevs.com or call 770-424-6343