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Clamp Calibration System (CCS)

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Key Features

Our Clamp Calibration System (CCS) provides the ability for users to calibrate CRANE Nuclear C/D Clamps or nuC™ Sensors at their facilities.

Key features include:

1. **Guided software** (prompts when parameters are blank) makes product easy to use.
2. **Reduce down-time,** calibration can be conducted on-site.
3. **Easy report** generation for safety, quality assurance, and record retention.

CCS can calibrate the following sensors:

C Clamps:
- Standard (CCL-100)
- Mini (MCC-100)
- Extended Mini (EMC-125)
- Micro (VVC-100)
- Extended (ECC-225)
- Extended High Temp (ECC-225H)
- Extended Mini High Temp (EMC-125H)

D Clamps:
- Standard (DCC-350)
- Extended (DCC-550)
- Narrow (DCC-313)

nuC™ Sensors:
- Stems 0.25″ – 0.75″ (nuC075)
- Stems 0.75″ – 1.25″ (nuC125)
- Stems 1.25″ – 1.75″ (nuC175)
- Stems 1.75″ – 2.25″ (nuC225)

Accuracy (Note: See ER-5.0 for more details):

Sensor	Reading Error +/-	Full Scale Error +/-
Stem Calibrators (C-Clamps)[1]	(11.3% or 2% FS) * TCF, whichever is greater	0.1% per second for time exceeding 10 seconds
Stem Calibrators (C-Clamps)[2]	(10.0% or 1% FS) * TCF, whichever is greater	0.1% per second for time exceeding 1 second
High Temperature Stem Calibrators[1]	(12.9% or 2% FS) * TCF, whichever is greater	0.1% per second for time exceeding 10 seconds
High Temperature Stem Calibrators[2]	(11.8% or 1% FS) * TCF, whichever is greater	0.1% per second for time exceeding 1 second
Stem Calibrators (D-Clamps)	(9.7% · TCF – 1.92%)	
nuC™ on Solids and Threads without Torque Calibrated by Crane	6.8%	1.25%
nuC™ on Threads with Torque Calibrated by CRANE	9.9%	1.25%
nuC™ on solids and Threads without torque Calibrated using Clamp Calibration System (CCS)	7.8%	1.25%
nuC™ on Solids and Threads with Torque Calibrated using Clamp Calibration System (CCS)	10.9%	1.25%

NOTES:
1. Alternative 1 for longer time intervals
2. Alternative 2 for shorter time intervals

Clamp Calibration System Package

Basic System Package Includes:

- CCS DAU with power supply adapter
- ASSIST™ Writer software
- Qty. 2 - 6' USB 2.0 Cables
- Qty. 2 - 12" Universal Cables
- 10' Universal Cable
- 15' Clamp Adapter Cable
- 15' QuickCal Adapter Cable

Full System Package Includes:

- CCS DAU with power supply adapter
- ASSIST™ Writer software
- Qty. 2 - 6' USB 2.0 Cables
- Qty. 2 - 12" Universal Cables
- 10' Universal Cable
- 15' Clamp Adapter Cable
- Calibrated Reference Load Cell with NIST Traceability
- Calibrated 1.25" Reference Stem with NIST Traceability ("125" Model 94004-125)
- Calibrated 0.625" Reference Stem with NIST Traceability ("062" Model 94004-062)
- 18" Reference Load Cell Adapter Cable (Substituted for QuickCal Cable)
- Qty. 2 - 2.5" Spherical Washer Sets

CCS System Specifications:

- Power Adapter AC Input: 110-250VAC, 50-60 Hz
- USB Port Power: 5VDC, 180mA typical
- DAU Sensor and Reference Connector Ports: Channel A/B Inputs: +/-10V differential
  - Accuracy: +/-0.5% of reading, +/-0.1% full scale
  - Sense Input: +/-10V differential
  - Accuracy: +/-0.5% of reading, +/-0.1% full scale
- PC Communication Port: USB 2.0
- Size: 4.25"H x 7.5"W x 6.75"D
- Weight: 2.75 lbs
- Operating Temperature: 64 to 82 degree F, <95% RH Non-condensing with 15 minute warm up period
- Calibration Interval: 1 year with software routine provided with package and NIST Certified Fluke 5700A or Fluke 5520A

Additonal Full System Specifications:

Reference Load Cell

- Model: Interface Advanced Force Measurement, Model 1620 – 50K
- Maximum Capacity: 50,000 pounds axial compression
- Output: Calibrated: 0.8 uV/V full scale at 10V excitation typical
- Calibration Uncertainty: +/-0.29% of reading +/-0.037% full scale (18.5 lbf.)
- Calibration Interval: 1 year recommended

Clamp Stimulus Stem
"125" Model 94004-125

- Overall Length: 9"
- Stem Mounting Surface Diameter: 1.25"
- Expansion Coefficient: Calibrated 0.01 uin/lbF typical
- Calibration Uncertainty: +/-1% of reading
- Calibration Interval: 1 year recommended

"062" Model 94004-062

- Overall Length: 9"
- Stem Mounting Surface Diameter: 0.625"
- Expansion Coefficient: Calibrated 0.02 uin/lbF typical
- Calibration Uncertainty: +/-1% of reading
- Calibration Interval: 1 year recommended

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