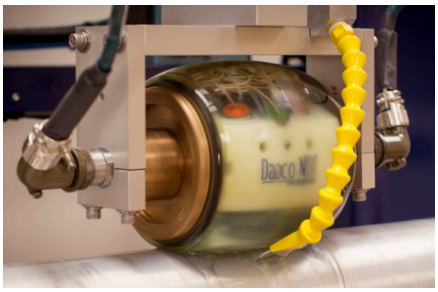
# Micro Cylinder Inspection System

## *Key Features*

- Ultrasonic inspection of steel and aluminum cylinders ranging from 3.2" to 8" (81-203 mm) outside diameter and up to 30" (762 mm) long
- Compact tabletop configuration for maximum flexibility and portability
- HD digital signal processing platform
- Couplant reclamation system
- Length Test Verification
- Soft Home feature for reduced cycle time.

CYL-SONIC



Nordco 9-channel inspection wheel probe

High definition digital signal processing platform offers superior performance and optimized signal to noise capabilities

## Flaw testing, flawlessly done

Nordco's Cyl-Sonic Micro Cylinder Inspection System ultrasonically scans cylinders to detect potential pits, cracks, corrosion and gouges. The system also measures and detects losses in cylinder wall thickness as well as identifies undesirable moisture contamination inside the cylinders.

## Wheel probe technology

The ultrasonic wheel probe / rolling search unit includes nine complementary high-frequency transducers - an industry leading number in a single unit - that search for flaws in transverse, longitudinal and oblique directions. This ensures 100% coverage of required examination volume and area. The four oblique transducers specialize in detecting any potentially harmful moisture droplets inside cylinders.

## Perfect for specialty gases

Nordco's Cyl-Sonic Micro Cylinder Inspection System is the ideal solution for facilities specializing in small cylinder specialty gases, such as medical and beverage gases. It is small enough to be portable — easily fitting on a cart to move to different locations as required and can accommodate most "grab-and-go", or integrated valves.

## Safer for operators and the environment

Unlike hydrostatic testing methods, ultrasonic inspection eliminates the need to remove hazardous gases from cylinders prior to testing; helping protect both the operator and the environment. Ultrasonic testing does not require valve or O-ring removal, minimizing the need for valve replacement as well as reducing cylinder neck thread damage.

Ultrasonic examination also eliminates the introduction of water into the cylinders, helping to prevent product contamination and minimize the number of post requalification processing steps.

## Average System Throughput

| Cylinder Model | Outside Diameter | Length w/o Valve and Cap | Description |
|---|---|---|---|
| M6 (3AL) | 3.2" (81mm) | 11.8" (300 mm) | 50 to 60 cylinders/hour (operator dependent) |
| Medical E (3AL) | 4.2" (107 mm) | 25.75" (654 mm) | 30 to 40 cylinders/hour (operator dependent) |
| 20 (3AA) | 5.25" (133 mm) | 14" (356 mm) | 30 to 40 cylinders/hour (operator dependent) |

## Product Specifications

| Category | Specification | Value |
|---|---|---|
| General Unit Specs | Length | 4' 8" (1422 mm) |
| | Width | 2' 3" (686 mm) |
| | Height | 3' 5" (1041 mm) |
| | Weight | ~500 lbs (227 kg), including control cabinet (benchtop table not included) |
| Cylinder Inspection | Tested Products | Steel (DOT 3A and 3AA), Aluminum (DOT 3AL) and other cylinders allowed in accordance with established standards and specifications |
| | Regulatory Requirements | Complies with cylinder re-qualification requirements of US Department of Transportation (SP14920), Transport Canada (SU 10807) and ISO 10461 & 6406 |
| | Diameter Range | 3.2" to 8.0" (81 mm to 203 mm) outside diameter |
| | Wall Thickness | 0.080" to 0.5" (2 mm to 12.7 mm) |
| | Length | 4" to 30" (102 mm to 762 mm) |
| | Exam Coverage | 110% with a 0.15" (4 mm) helix |
| | System Performance | 98%+ system up-time |
| | Configurations | Manual load/unload only |
| Utilities | Electric | 110/220 VAC, 50/60 Hz, 10A |
| | Pneumatic | 80 psi (5.5 bar) |
| Optional Equipment | Length Test Verify (LTV) | LTV sensors to ensure examination over the entire cylinder length |
| | Soft Home | Reduces cycle time by returning the wheel probe to the start position of the next cylinder to be tested. |

## Saves time, lowers costs and simplifies maintenance

Nordco's Cyl-Sonic Micro Cylinder Inspection System quickly pays for itself. Since operators do not need to spend time drying and re-valving the cylinders, daily production levels can be much higher and the cost per cylinder test is much lower than with hydrostatic testing. With just two motors, the Micro uses the least power and has the lowest water requirements of all Nordco cylinder systems, making it extremely economical to operate. In addition, the system has fewer mechanical components, both simplifying and minimizing preventive maintenance to increase overall system performance and up-time. The digital electronic components are interchangeable with all of Nordco's inspection systems.

## Calibration standards ensure accuracy

Each system uses a calibration cylinder standard with simulated flaws dictated by the applicable regulatory authorities. These standards allow for accurate comparison testing against known simulated flaws.

## Software control and record retention

The Cyl-Sonic Cylinder Test application software has been designed to support Nordco's high-definition, digital control electronics. The software allows the operator to control all axis motion, including position, rotation and sensitivity. Calibration job setups are stored and reused. The software displays real-time scanning test results showing the location of any detected flaws; the system also alerts the operator of the cylinder's pass/fail status. All test data is stored and used to provide a standardized test report at the end of a shift.

Nordco Rail Services, LLC
125 Railroad Avenue, Beacon Falls, CT 06403 USA
Tel: +1-203-438-9696 Email: sales@nordco.com

Nordco®
www.nordco.com

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