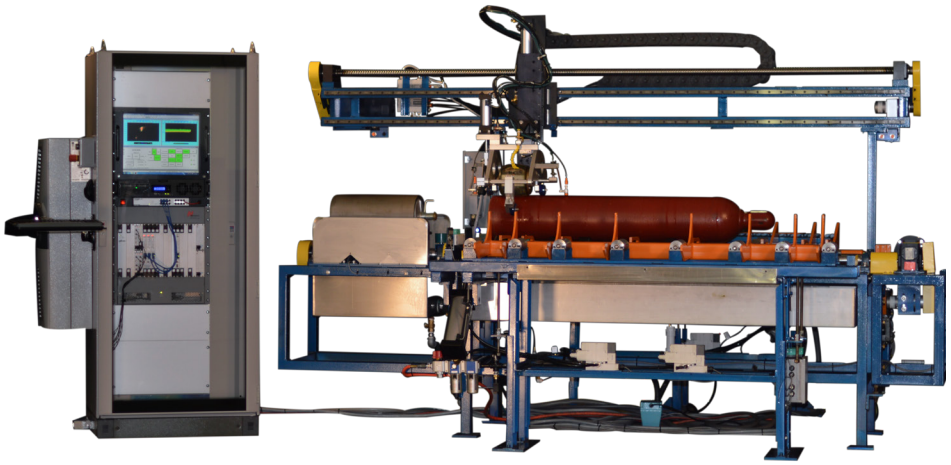
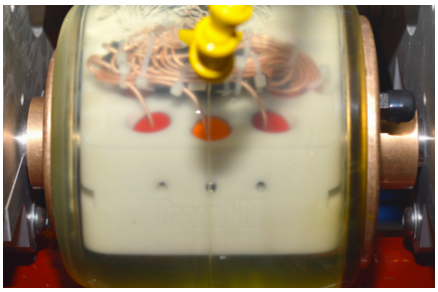
Industrial Cylinder Inspection System

Key Features

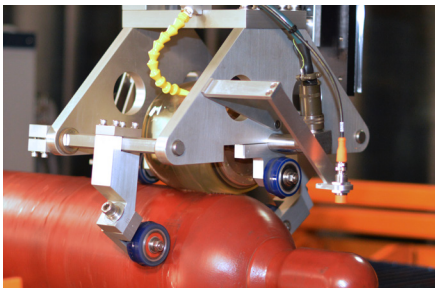
- Ultrasonic inspection of steel and aluminum cylinders with outside diameters ranging from 4" to 10.5" (102-267 mm) with a maximum length of 72" (1524 mm)
- HD digital signal processing platform
- Dedicated stage for calibration cylinders
- Couplant reclamation system
- Length Test Verification
- Fully automated with optional integration with:
  - Database bar-coding
  - Surface blasting
  - Painting
  - Marking

CYL-SONIC





Nordco 9-channel inspection wheel probe



Length Test Verification (LTV) sensors ensure ultrasonic examination over the entire cylinder length

Flaw testing, flawlessly done

Nordco's Cyl-Sonic Industrial 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.

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 eliminates the introduction of water into the cylinders, thus reducing water consumption while simultaneously helping to prevent product contamination and minimize the number of post requalification processing steps.

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.

One machine, many types of cylinders

Nordco's Cyl-Sonic Industrial Inspection System handles a wide range of outside diameters, lengths and materials, which means you can inspect most cylinder types using a single machine. A dedicated calibration cylinder stage, which can be configured to the left or right side of the machine, allows for automated and efficient cal-in and cal-out procedures.

Average System Throughput

Cylinder Model	Outside Diameter	Length w/o Valve and Cap	Description
Medical E (3AL)	4.3" (109 mm)	25.75" (654 mm)	27 to 30 cylinders/hour (operator dependent)
20 (3AA)	5.25" (133 mm)	14" (356 mm)	48 to 60 cylinders/hour (operator dependent)
300 (3AA)	9.25" (235 mm)	55" (1397 mm)	27 to 30 cylinders/hour (operator dependent)

Product Specifications

Category	Specification	Value
General	Length	10' 10" (3302 mm)
	Width	3' 10" (1168 mm)
	Height	7' 1" (2159 mm)
	Weight	~4600 lbs (2087 kg), including control cabinet (cylinder tables not included)
Cylinder Inspection	Tested Products	Steel (DOT 3A and 3AA), Aluminum (DOT 3AL) and other exemption steel cylinders per US DOT and ISO 4606 & 10461 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	4" to 10" (102 mm to 267 mm) outside diameter
	Wall Thickness	0.080" to 1.0" (2 mm to 25.4 mm)
	Length	11" to 72" (279 mm to 1524 mm)
	Exam Coverage	110% with a 0.25" (6 mm) helix
	System Performance	98%+ system uptime
	Configurations	Up-Ender/Down-Ender for loading/unloading, staging tables, shot-blaster integration
Utilities	Electric	220/110 VAC, 50/60 Hz, 50A
	Pneumatic	100 psi (6.9 bar)
Optional Equipment	LTV	Length Test Verification sensors to ensure examination over the entire cylinder length

Saves time, lowers costs and increases productivity through automation

Nordco's Cyl-Sonic Industrial 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.

To meet your high-volume, high-productivity needs, the system includes optional decks or tables to allow staging and simultaneous loading/unloading of cylinders while the automated testing process continuously operates. Pneumatically operated up-enders and down-enders assist with the handling of large cylinders. 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.

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