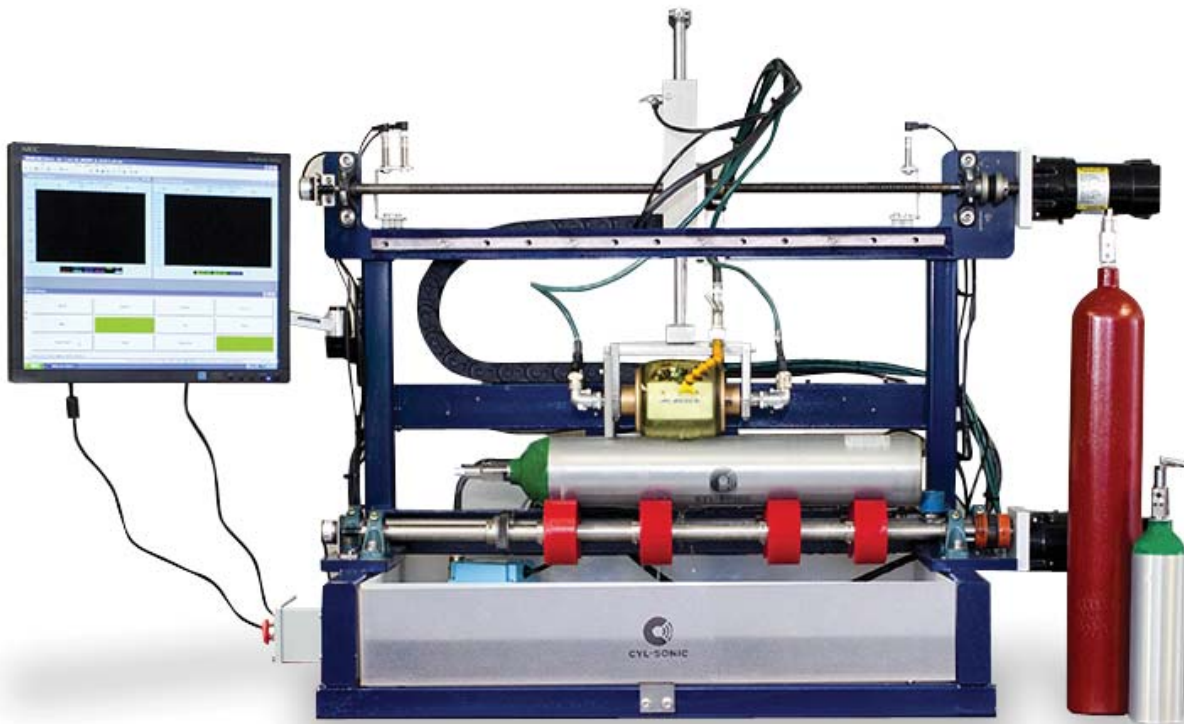


# Cyl-Sonic Micro Tabletop Cylinder Inspection System



**CYL-SONIC**

## The Cyl-Sonic Family

The Cyl-Sonic Cylinder Inspection Systems family can be used for either requalification or new cylinder manufacturing. The family includes the following products:

- **Cyl-Sonic Micro** - Performs Ultrasound examinations of cylinders with 3.2" - 8.0" outside diameters; less than 30" long, the Micro easily fits on a cart for maximum flexibility and portability
- **Cyl-Sonic Industrial** - Performs Ultrasound examinations of cylinders with 4" - 12" outside diameters
- **Cyl-Sonic Integrated Industrial** - Performs surface blasting and Ultrasound examinations of cylinders with 4" - 12" outside diameters
- **Cyl-Sonic Optimal** - Performs Ultrasound examinations of cylinders with 3.2" - 12" outside diameters. For small cylinders (3.2 to 8.0), maximum length is 30"; for industrial cylinders, maximum length is 72"
- **Cyl-Sonic Tonne** - Performs Ultrasound examinations of tonne containers with 18" - 26" outside diameters and up to 7.5' lengths
- **Cyl-Sonic TnT (Tube and Tonne)** - Performs Ultrasound examinations of tonne containers with 18" - 26" outside diameters and up to 7.5' lengths, and tubes with 9" - 12" outside diameters and up to 40' length
- **Available accessories** - Calibration standard, pre-wet station, and cart

*Range of products allows you to inspect cylinders with 3.2" - 26" outside diameters and up to 40' in length*



## Flaw testing, flawlessly done

The Cyl-Sonic Micro scans through paint and most clear coatings to identify pits, gouges, cracks, and corrosion. In addition, the system measures and detects lost cylinder wall thickness and identifies undesirable moisture inside the cylinders.

## Wheel probe technology

The ultrasonic wheel probe includes nine complementary high-frequency transducers — the most integrated transducers in one unit in the industry — that search for flaws in traverse, longitudinal, and oblique directions. The four oblique transducers excel in detecting any moisture droplets inside cylinders.

## Perfect for specialty gases

The Cyl-Sonic Micro is the ideal system for facilities specializing in small-cylinder specialty gases, such as medical and beverage gases. In addition, the Micro is small enough to be portable — easily fitting on a cart to move to different locations as needed. The Micro is also configurable to accommodate "grab-and-go", or integrated, valves.

## Lower costs. Simple maintenance.

With just two motors, the Micro uses the least power and has the lowest water requirements of all our cylinder systems, making it extremely economical to operate. In addition, the system has fewer mechanical components, both simplifying and minimizing preventive maintenance. The electronic components are interchangeable with all our testing systems.

## Safer for operators and environment

Unlike hydrostatic testing methods, ultrasonic examination eliminates the need to remove hazardous gases from cylinders, helping protect both your operators and the environment. The method does not require valve or O-ring removal, so there is less need for valve replacement as well as reduced cylinder neck thread damage.

Ultrasonic examination also eliminates the need to introduce water into the cylinders, helping prevent product contamination and eliminating or minimizing the number of post-requalification cylinder treatment processing steps.

## Software control and record retention

The integrated software allows the operator to control all axis motion, including position, rotation and sensitivity. These calibration setups are stored and reused.

The software displays real-time scanning plots that show the locations of any detected flaws; the system also alerts the operator about a cylinder's pass/fail status.

## Meets all regulatory requirements

The Cyl-Sonic Micro complies with the requirements of the following regulatory agencies:

- **DOT** - Meets US Department of Transportation cylinder requalification requirements (SP 14920)
- **TC** - Meets Transport Canada cylinder requalification requirements (SU 10807)
- **ISO** - Meets International Organization for Standardization requirements (ISO 10461 & 6406)

## Calibration standard ensures accuracy

Each system uses a calibration cylinder standard with simulated flaws. This allows accurate comparison testing against known simulated flaws.

## Saves time and operating costs

The Cyl-Sonic Micro saves on personnel costs. Since operators don't need to spend time drying and re-valving the cylinders, daily production levels can be much higher. In addition, the cost per cylinder test is lower for UE testing than hydrostatic testing.

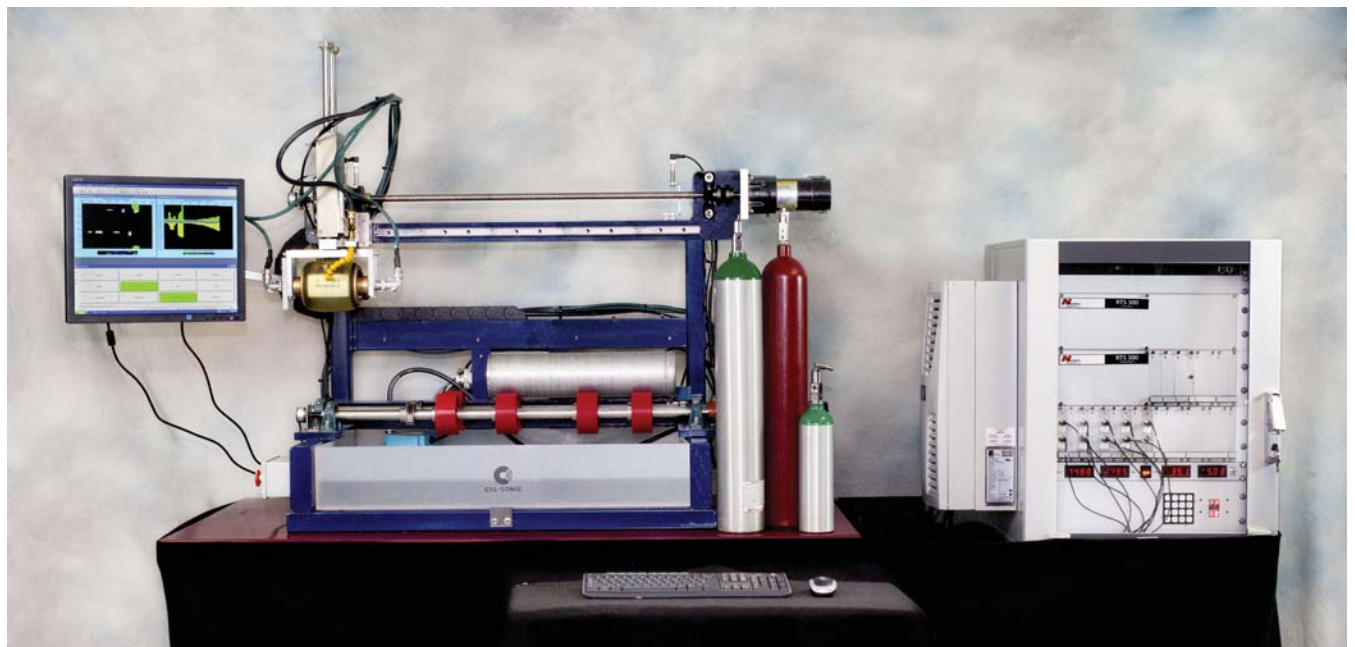
## Inspection systems are only the beginning

Nordco also offers a full range of services to keep your processes running smoothly:

- Operator training
- System verification services
- System maintenance and repairs
- Replacement parts
- Remote access assistance

In addition, Nordco also offers oversight and consulting services:

- Development and implementation of in-house UE requalification programs
- Turnkey start-up, management, staffing, and operation of in-house requalification facilities
- Provision of special permit or equivalency certificate and DOT Senior Review Technologist (SRT) services for training, certification, and oversight of in-house cylinder requalification operations



## What is Ultrasonic Examination...

Ultrasonic Examination (UE) provides an exciting technology alternative to hydrostatic testing for cylinder recertification.

UE tests measure the thickness of cylinder walls over their sidewall full lengths. Cylinders do not pass the test if, at any point, the thickness of their walls falls below the established minimum.

In addition, UE identifies small faults, such as cracks, corrosion, pits and gouges, that are not always found during a standard hydrostatic test.

UE also eliminates the need to drain residual contents or remove valves and O-rings.

Ultrasonic examination eliminates problems inherent in hydrostatic testing for cylinders used in high-end specialty gas and electronic services. These cylinders receive special surface treatments and, after hydrostatic tests, must have those treatments re-applied, followed by a thorough drying of the cylinder interior.

Ultrasonic examination also results in fewer rejected cylinders than hydrostatic testing, since many of the testing errors, including leaking seals, operator mis-interpretations, and inaccurate burette readings, are no longer factors.

Since ultrasonic examination has been determined to be extremely accurate in detecting cylinder flaws, the US Department of Transportation has:

- Waived the need for internal visual examination of cylinders used in certain services, and
- Approved the extension of certain cylinder requalification periods

## Specifications

Category	Specification Type	Description
<b>General</b>	Length	56" (4' 8")
	Width	27" (2' 3")
	Height	41" (3' 5")
	Weight	~300 lbs.
<b>Cylinder Inspection</b>	Tested products	Steel (DOT 3A and 3AA), Aluminum (DOT 3AL) and other cylinders allowed in accordance with established standards and specifications)
	Diameter range	3.2" to 8.0" outside diameter
	Wall thickness	0.080" to 0.5"
	Length	4" to 30"
	Exam coverage	110% with a 0.150 helix
	System performance	98%+ system uptime
	Configurations	Manual load/unload only
<b>Utilities</b>	Electric	110 VAC, 10A
	Pneumatic	80 psi

## Estimated System Throughput

Cylinder Model	Outside Diameter	Length w/o valve and cap	Estimated Throughput
<b>M6 (3AL)</b>	3.2"	11.8"	50-60 cylinders/hour (operator dependent)
<b>Medical E (3AL)</b>	4.2"	25.75"	30-40 cylinders/hour (operator dependent)
<b>20 (3AA)</b>	5.25"	14"	30-40 cylinders/hour (operator dependent)

[www.nordco.com](http://www.nordco.com)

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