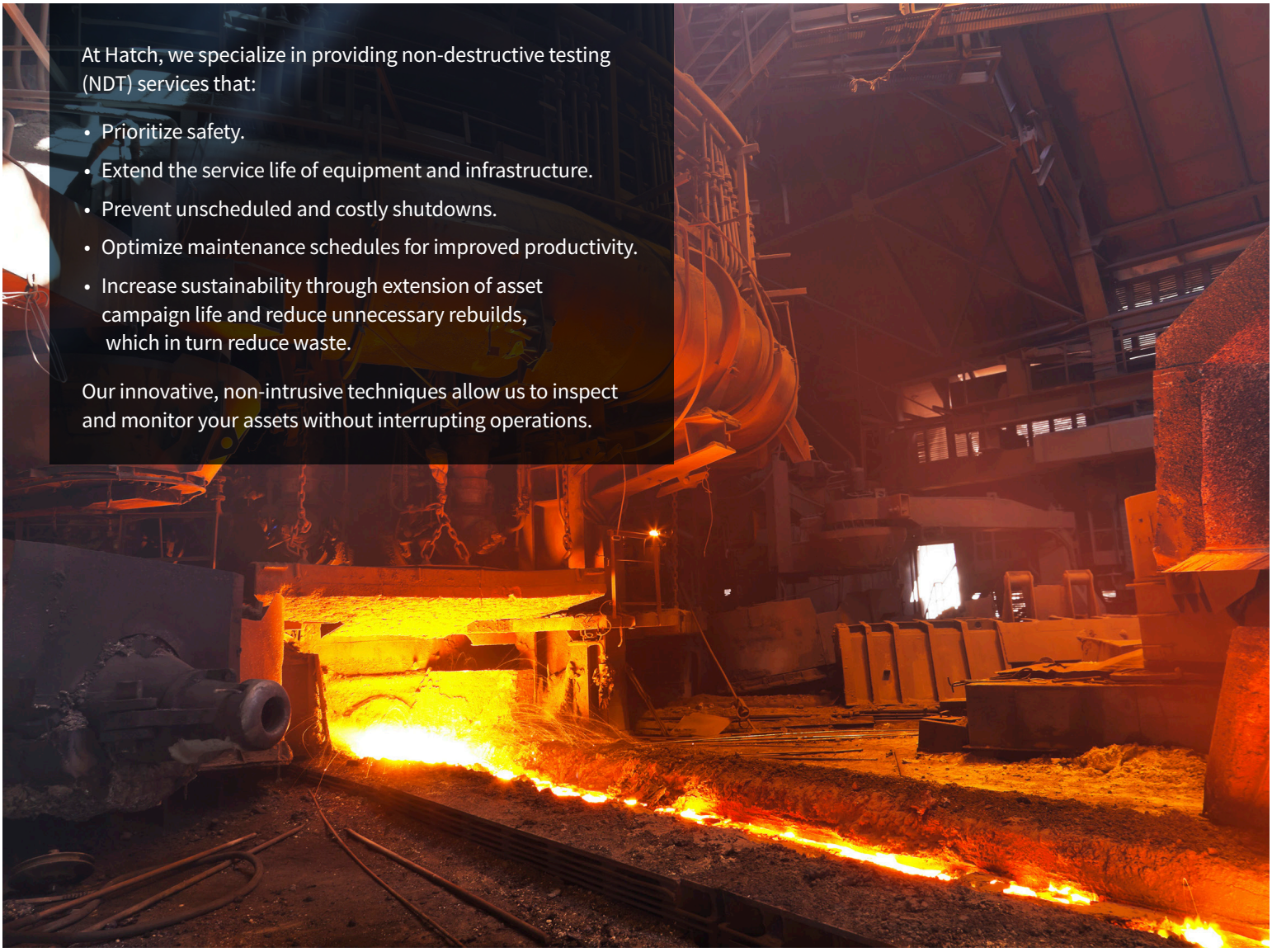
Non-destructive testing services

Asset performance management capability statement

HATCH

Protect asset integrity with precision

In the metals, energy, and infrastructure industries, mechanical and structural assets inevitably deteriorate over time. The damage can lead to costly shutdowns, safety hazards, and reduced operational efficiency. Without proper assessment, the lifespan of these critical assets shortens, increasing risks and operational costs.



At Hatch, we specialize in providing non-destructive testing (NDT) services that:

- Prioritize safety.
- Extend the service life of equipment and infrastructure.
- Prevent unscheduled and costly shutdowns.
- Optimize maintenance schedules for improved productivity.
- Increase sustainability through extension of asset campaign life and reduce unnecessary rebuilds, which in turn reduce waste.

Our innovative, non-intrusive techniques allow us to inspect and monitor your assets without interrupting operations.

Inspection services

Real-time monitoring
Custom-designed, non-intrusive techniques and technologies patented by Hatch to monitor structures, equipment, and assets.

Comprehensive analysis and reporting
Expert-reviewed results with actionable recommendations to extend asset service life and optimize maintenance schedules and operational efficiency.

Specialized techniques

Technique	Description	Industry application	
		Metal structures and elements	Coarse-grain structures (concrete masonry, refractory)
Acousto ultrasonic-echo (AU-E)	Determine industrial vessels' remaining refractory thickness, material properties changes, build-up thickness, and damage zone locations, including cracks and chemically altered zones.	✓	✓
Acoustic emission monitoring	Leak detection, crack growth monitoring, and continuous structural stress monitoring.	✓	✓
Eddy current testing	Identify materials thickness, detect surface cracks, assess material conductivity.	✓	
Copper Cooler QA/QC	Determine the quality and thicknesses of copper coolers.	✓	
Fiber optic sensing	Thermal and strain measurements to determine stress and damaged zones.	✓	✓
Ground penetrating radar	Concrete and rebar condition evaluation, void detection, underground leak identification, underground utility detection, concrete reinforcement spacing and location.		✓
Impact echo	Crack, void, thickness, and quality detection.		✓
Infrared thermography	Leak detection, wear analysis, and corrosion detection.	✓	✓
Leak detection acoustic system	Leak detection and location of pipes and vessels.	✓	✓
Liquid penetrant inspection	Identify defects in welds.	✓	
Magnetic particle inspection	Surface crack detection in ferromagnetic materials.	✓	
Schmidt hammer	Surface hardness and strength evaluation of concrete.		✓
Stave Check ™	Determine the remaining rib and root thickness of the cooling stave in blast furnaces.	✓	
Strain gauge, displacement gauge	Crack monitoring, determine stress changes.	✓	✓
Stray current inspection	Corrosion detection. Particularly useful for rail inspection.	✓	✓
Ultrasonic testing and phased array ultrasonic testing	Cracks and defects detection, thickness measurement, and weld inspections.	✓	✓

Industry applications

Our engineers and technical experts bring unparalleled expertise in asset inspection and monitoring across the metals, energy, and infrastructure industries.

We utilize traditional and patented NDT equipment tailored for precision monitoring and testing. From furnace monitoring to infrastructure integrity assessments, we customize plans to your operational needs and site conditions.

Metals

1. Furnace integrity monitoring system (FIMS)

Problem: Thermal and mechanical stress causes structural failures.

Service: Hatch's patented FIMS technique provides early warnings of structural damage, which enables prevention of molten metal leaks and runouts.

2. Cooler stave thickness

Problem: Deterioration in the cooling staves of blast furnaces leads to water leaks, refractory damage, and process disruption.

Service: Hatch patented low-frequency pulsed ultrasound (Stave Check ™) technique identifies remaining stave thickness with a precision of +/- 2 mm.

3. Radar feed level measurement

Problem: Traditional feed level measurements require furnace shutdowns, which reduces productivity.

Service: Hatch's patented radar technology automates real-time feed-level monitoring.

4. Refractory thickness monitoring

Problem: Deterioration of refractory linings in furnaces can cause molten metal runouts, severe safety risks, damage to properties, and loss in production.

Service: Hatch's patented Acousto Ultrasonic-Echo (AU-E) technology detects remaining refractory thickness, gaps, cracks, and metal impregnation/infiltration. Periodic AU-E inspection also enables refractory wear trend and remaining campaign life determination.

5. Acid absorption tower leak detection

Problem: Acid leak due to lining material failure in acid towers places workers, environment, and equipment at risk.

Service: Hatch patented FIMS and AU-E techniques and infrared thermography to determine leak locations and damage zones, which helps to identify areas in need of repair.

6. Taphole acoustic monitoring (TAM)

Problem: Damage of refractory linings at the tapblocks due to improper drilling and lancing operations.

Service: The Hatch patented TAM technique provides real-time guidelines to operators to prevent damage to the refractory lining due to directional drilling, lancing and tapping.

7. QA/QC of copper coolers

Problem: Poor manufacturing practice can lead to premature cooler failures

Service: QA/QC of copper coolers to ensure the design standards are met.

Energy

1. Dam inspections

Problem: Damaged concrete due to age and alkali-aggregate reaction can lead to failure of dam structures.

Service: Hatch can provide NDT service to evaluate the quality of existing concrete structures and also localize the damage zones.

2. Nuclear power facility inspections

Problem: Deterioration of structures due to thermal stress and age.

Service: Hatch can provide multiple NDT techniques to determine the conditions of the aged concrete and steel structures.

Infrastructure

1. Steel structure inspections

Problem: Corrosion of steel structures and cracks in welds jeopardize structural integrity.

Service: Evaluate weld condition, detect voids and cracks in welds, determine remaining steel thickness, determine concrete and rebar condition (including rebar corrosion extent, concrete cover, and reinforcement spacing), estimate concrete strength, and locate voids.

2. Concrete inspections

Problem: Deterioration of old infrastructure or defects in new structures compromises safety and durability.

Service: Multi-method NDT techniques to evaluate concrete quality, determine concrete and rebar condition, estimate corrosion extent, detect concrete cover and reinforcement spacing, estimate concrete strength, and locate voids.

3. Crack monitoring

Problem: Aged and overloaded structures experience stress can form cracks.

Service: Install strain and displacement gauges to continuously monitor crack growth which allow the development of proper mitigation strategies.

4. Sewage treatment plant and pipe inspections

Problem: Aged infrastructure leads to leakage.

Service: Inspection of clarifiers, aeration tanks and buildings by using multi-method NDT techniques to determine the conditions of the concrete and steel structures.

Hatch offers long-term, continuous monitoring services. Assess the quality of your assets, identify localized areas for repair, and extend the service life of your critical assets.

HATCH

About Hatch

Whatever our clients envision, our engineers can design and build. With over six decades of business and technical experience in the mining, energy, and infrastructure sectors, we know your business and understand that your challenges are changing rapidly.

We respond quickly with solutions that are smarter, more efficient, and innovative. We draw upon our 10,000 staff with experience in over 150 countries to challenge the status quo and create positive change for our clients, our employees, and the communities we serve.

hatch.com

Contact

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Scan the QR code to learn more about what we can do!

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