Pipecheck™

3D SCANNING SOLUTION FOR PIPELINE INTEGRITY

CODE-COMPLIANT

CREAFORM

AMETEK®
ULTRA PRECISION TECHNOLOGIES
Pipeline operators and NDT service companies are facing increasing pressure from regulatory authorities and environmental groups to guarantee pipeline network integrity to keep maintenance costs down and backfill excavation sites as soon as possible. The use of surface inspection tools that are reliable, efficient, and user-friendly is of the utmost importance.

Creaform has the most trusted 3D technology solution for pipes up to 18 m (60 ft) in length, which includes a portable handheld 3D scanner and Pipecheck™ software. It saves both time and money without compromising on diagnostic results, public safety, or integrity assessments. Thanks to this unique 3D scanning technology and innovative software solution, surface inspection has been completely reinvented!

### MECHANICAL DAMAGE

**ILI CORRELATION**

Pipecheck by correlating pig data against pipeline 3D scanning and/or manual correlation through surface overlays and/or automatic match detection can then be assessed with Pipecheck using the virtual pit gauge tool to report depth readings free of any curvatures.

**IL CORRELATION TOOL**

- High-resolution capture of all corroded areas
- Fast surface acquisition to increase efficiency
- Improved scanning performance for small features such as pitting
- High-resolution organized mesh file to enhance analysis capabilities
- Fast measurement on any surface finish
- Highly repeatable measurement independent from operators' skills to increase correlation accuracy
- Improved performance to capture larger areas and extract more accurate statistical trends

### CORROSION

**Pipecheck SOFTWARE MODULES**

Pipecheck’s corrosion software module offers key functionalities that traditional measurement methods cannot offer. It offers unprecedented measurement quality for dents and facilitates the decision-making process if repairs have to be done.

**MECHANICAL DAMAGE**

- Feature detection using real pipe geometry
- Automatically applied interaction rules
- Estimated burst pressure calculations
- Enhanced virtual pit gauge capabilities near widths and obstacles
- Automatic maximum depth detection
- Automatic creation of 2D cross-sections in both directions at maximum depth
- Maximum depth measurements using the straight edge technique in both directions
- Shoulder section available

**ADVANCED FUNCTIONALITIES**

- **STRAIGHTENING OPERATION**
  - Conventional methods for depth measurement (pit gauges) cannot be used accurately since pipe curvature often introduces depth values that do not represent material loss or pipe geometry deformations. To solve this issue—and to improve efficiency and confidence in results—Pipecheck features a built-in pipeline straightening tool. This non-destructive evaluation (NDE) tool uses powerful algorithms that extract the pipe centerline and straighten the full segment. The metal loss or mechanical damage can then be assessed with Pipecheck using the virtual pit gauge tool to report depth readings free of any curvatures.

**FULL-PIPE JOINT ASSESSMENT**

Pipecheck can now assess full pipe joints. It saves time and money by scanning pipes at once or with multiple HandySCAN® 3Ds simultaneously, it enables any NDT service company and pipeline operator to perform pipeline integrity assessments on pipes up to 18 m (60 ft) in length.

**CORROSION IN MECHANICAL DAMAGE**

- Cross-section details (axial and circumferential)
- CSV depth grid export
- Shoulder section available
- Maximum diameter
- Diameter at deepest point
- Maximum depth of deepest point
- Visual representation of overlay between ILI data and detected features from scanned areas
- Unity chart to assess tool performance for features dimensions, maximum depth and estimated burst pressure
- List of matched and unmatched features

**SCAN**

- Enhanced virtual pit gauge capabilities near widths and obstacles
- Feature detection using real pipe geometry
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**ANALYZE**

- Excel report including worst-case profile and predicted failure path
- Export to CSV available for further analysis
- Mesh export available
- Customizable pass/fail criteria
- Snapshot tool for 3D reporting
- Automatic match detection through surface overlays
- Enhanced virtual pit gauge
- Estimated burst pressure calculations
- Automatic creation of 2D cross-sections in both directions at maximum depth
- Maximum depth measurements using the straight edge technique in both directions
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**REPORT**

- Visual representation of overlay between ILI data and detected features from scanned areas
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- List of matched and unmatched features

**CORROSION**

Pipecheck can now assess full pipe joints. It saves time and money by scanning pipes at once or with multiple HandySCAN® 3Ds simultaneously, it enables any NDT service company and pipeline operator to perform pipeline integrity assessments on pipes up to 18 m (60 ft) in length.
REAL-TIME VISUALIZATION:
WITH VXremote™, CREAFORM’S OPTIMIZED REMOTE DESKTOP APPLICATION, DATA ACQUISITION CAN BE VIEWED IN REAL TIME.

CREAFORM PORTABLE 3D SCANNERS FEATURE INNOVATIVE AND EXCLUSIVE TECHNOLOGIES

TRUaccuracy™
ACCURATE MEASUREMENTS IN REAL-LIFE OPERATING CONDITIONS

TRUportability™
3D SCANNING WHEREVER YOU NEED TO GO

TRUsimplicity™
VERY SIMPLE 3D SCANNING PROCESS

FULL-PIPE JOINT ASSESSMENT:
PERFORMS PIPELINE INTEGRITY ASSESSMENTS UP TO 18 m (60 ft) IN LENGTH

ON-THE-GO SCANNING:
TAKE IT FROM PLACE TO PLACE. FITS INTO A CARRY-ON CASE. USE IT IN-HOUSE OR ON-SITE.

LIGHTWEIGHT AND SMALL:
WEIGHTS UNDER 1 kg (2.2 lb) AND CAN REACH CONFINED AREAS.

IN-LINE CORRELATION:
ASSESS ILI PERFORMANCE BY COMPARING PIG DATA AGAINST PIPECHECK DATA TO DETERMINE IF THE ILI DATA IS ACCURATE OR NOT

REAL-TIME VISUALIZATION:
WITH VXremote™, CREAFORM’S OPTIMIZED REMOTE DESKTOP APPLICATION, DATA ACQUISITION CAN BE VIEWED IN REAL TIME

CORROSION DEPTH INSIDE MECHANICAL DAMAGE:
UNIQUE AND SOPHISTICATED TOOLS TO EXTRACT CORROSION DEPTH INSIDE MECHANICAL DAMAGE

FOLLOWS CODE REGULATION (ASME B31G)

CODE-COMPLIANT

IN-LINE CORRELATION:
ASSESS ILI PERFORMANCE

TRUaccuracy ON THE PIPE:
ENHANCED VIRTUAL PIT GAUGE CAPABILITIES. PIT GAUGE CONFIGURATION AUTOMATICALLY ADAPTS NEAR WELDS TO ENSURE THE MOST ACCURATE MEASUREMENTS

USER-FRIENDLY:
THE SCANNING AND ANALYSIS PROCESS ARE INTUITIVE AND ACCURATE, REGARDLESS OF THE INSPECTOR’S SKILLS

SCANNING SPEED:
80 TIMES FASTER THAN PIT GAUGE TECHNIQUE

HIGH-QUALITY RESULTS:
ACCURACY OF 0.025 mm (0.0009 in)

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CODE-COMPLIANT
HandySCAN 3D™ handheld scanners have been optimized to meet the needs of engineers who specialize in pipeline integrity assessment and are looking for the most effective and reliable way to acquire 3D measurements of physical objects. Creaform’s flagship metrology-grade scanners underwent a complete re-engineering, building on their core assets. They are now more portable and even faster at delivering accurate and high-resolution 3D scans, while remaining very simple to use. The Creaform Pipecheck solution has two different 3D models of laser scanners to choose from, depending on the required level of accuracy.

WHEN ACCURACY MEETS VERSATILITY AND PORTABILITY: INTRODUCING HandySCAN 3D SCANNERS
HandySCAN is your go-to solution to quickly, efficiently and accurately detect material loss and mechanical damage. Take advantage of unmatched reliability to conduct end-to-end pipeline integrity assessments. Only with HandySCAN!

THE COMPLETE SOLUTION
INCLUDED
• HandySCAN 3D portable scanner
• Pipecheck software license
• Calibration plate
• Reference arrow with protective case
• 8-m USB 3.0 cable
• Universal power supply
• 4 x 500 positioning targets
• 1-year warranty on parts and labor

OPTIONAL
• Certified laptop computer
• Pipecheck reference part

PORTABLE WORKSTATION WITH WIRELESS TABLET
NDT service companies can count on a complete accessory package especially designed to optimize field efficiency and reduce turnaround times.

EXTEND THE POWER OF YOUR Pipecheck SOLUTION

Pipecheck ANALYZE
When all you need is the analysis power of Pipecheck.
Offered at a discount price, this software comprises Pipecheck’s corrosion and mechanical damage modules for analysis only. It is perfect for projects where assessment is done on-site by a senior technician, while a junior technician focuses on data acquisition. When on-site teams are facing complex cases, analysis can also be done off-site by pipeline integrity engineers. Pipecheck Analyze can open any Pipecheck session, change parameters, reprocess analysis and export a report.

Pipecheck VIEWER
An unprecedented amount of data available to pipeline integrity engineers!
Pipecheck Viewer offers new demonstration and reporting capabilities. Service companies wanting more information about Pipecheck can request real case studies and visualize the results in 3D. Companies already using the software can provide complete Excel reports displaying the 3D model analysis to all of their customers.

CUSTOMER CARE PROGRAM
Creaform is committed to offering first-class customer service so that you can get the most out of your system. Our multilingual team of product specialists will provide you with assistance to answer your immediate needs. Our fleet of leading-edge calibration tools in our service centers gives you local access to faster maintenance service and repair. Be sure to subscribe to the Customer Care Program to take advantage of worry-free maintenance and global repair coverage for all of your Creaform hardware and software. Whether you need to access our latest software releases and knowledge base or require a loaner unit while your device is being serviced, we have a plan tailored to your needs. Gain peace of mind knowing your equipment will get even better with time.

METROLOGY AND ENGINEERING SERVICES
Convincing of the quality and possibilities of the Creaform technologies, but not quite yet ready to commit and buy? Know that Creaform offers a wide range of metrology and engineering services. Our experts have earned a worldwide reputation for effectiveness and professionalism. Whether you need their help to perform 3D scanning, quality control, reverse engineering, FEA/CFD simulations, product and tool development or training services, you can count on their commitment to meet your requirements with responsiveness and adaptability.
### TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>HandySCAN BLACK™</th>
<th>HandySCAN BLACK™ Elite</th>
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<tbody>
<tr>
<td><strong>WEIGHT</strong></td>
<td>0.94 kg (2.1 lb)</td>
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<tr>
<td><strong>DIMENSIONS (LxWxH)</strong></td>
<td>79 x 142 x 288 mm (3.1 x 5.6 x 11.3 in)</td>
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<tr>
<td><strong>MEASUREMENT RATE</strong></td>
<td>800,000 measurements/s</td>
<td>1,300,000 measurements/s</td>
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<tr>
<td><strong>SCANNING AREA</strong></td>
<td>310 x 350 mm (12.2 x 13.8 in)</td>
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<tr>
<td><strong>LIGHT SOURCE</strong></td>
<td>7 blue laser crosses</td>
<td>11 blue laser crosses (+1 extra line)</td>
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<td><strong>LASER CLASS</strong></td>
<td>2M (eye-safe)</td>
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<tr>
<td><strong>MEASUREMENT RESOLUTION</strong></td>
<td>0.025 mm (0.0009 in)</td>
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<td><strong>MESH RESOLUTION</strong></td>
<td>0.100 mm (0.0039 in)</td>
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<td><strong>ACCURACY</strong></td>
<td>0.035 mm (0.0014 in)</td>
<td>0.025 mm (0.0009 in)</td>
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<tr>
<td><strong>VOLUMETRIC ACCURACY</strong></td>
<td>0.020 mm + 0.060 mm/m (+0.0008 in + 0.0007 in/ft)</td>
<td>0.020 mm + 0.040 mm/m (+0.0008 in + 0.0005 in/ft)</td>
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<tr>
<td><strong>VOLUMETRIC ACCURACY</strong> (with MaxSHOT NextlElite)</td>
<td>0.020 mm + 0.015 mm/m (+0.0008 in + 0.00018 in/ft)</td>
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<td><strong>STAND-OFF DISTANCE</strong></td>
<td>300 mm (11.8 in)</td>
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<td><strong>DEPTH OF FIELD</strong></td>
<td>250 mm (9.8 in)</td>
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<td><strong>PART SIZE RANGE</strong></td>
<td>(recommended)</td>
<td>0.05 - 4 m (0.15 – 13 ft)</td>
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<td><strong>SOFTWARE</strong></td>
<td>Pipecheck</td>
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### FEATURE COMPARISON

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<th>Pipecheck VIEWER</th>
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<td><strong>SCANNING</strong></td>
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<td><strong>EDIT SCAN</strong></td>
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<td><strong>MERGE SCAN</strong></td>
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<td><strong>CORROSION INTERNAL ANALYSIS</strong></td>
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<td><strong>ILI CORRELATION</strong></td>
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<td><strong>VIEW 3D SCAN</strong></td>
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<td><strong>VIEW REPORT</strong></td>
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