FeDDI

Iron/Rust Digital Detection Imaging

VISAYA

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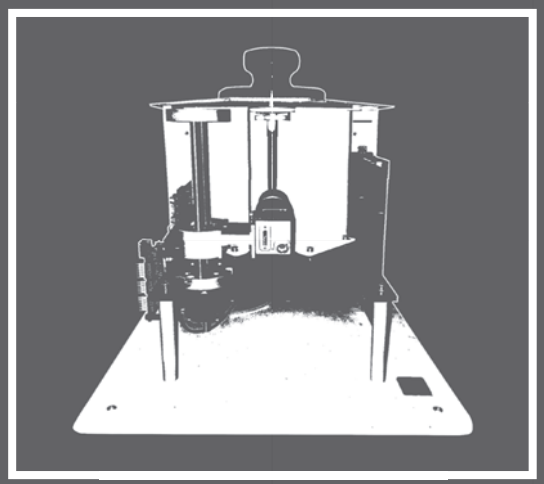
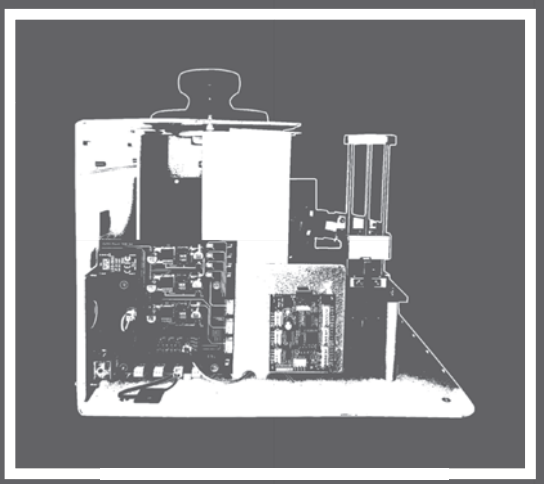
Corrosion on steel pipelines and tanks can lead to destructive leaks that can cost millions to fix and cause irreversible environmental damage. As a result, industries spend billions each year to slow down the natural process of corrosion. The National Association of Corrosion Engineers (NACE) indicates that small amounts of water, air, and polar compounds are some of the biggest threats to petroleum pipeline corrosion.

As such, NACE carefully monitors levels of corrosion by testing the interior of pipes for these substances adverse effects. The NACE system of testing as well ASTM and other standardized methods are dependent upon a manual rating process in which the operator must quantify small percentages of corrosion by visually inspecting a test specimen that has been bathed in a mixture of test fuel and distilled water. This procedure is highly susceptible to operator error. In addition, due to differences in visual acuity, results are not repeatable.





FeDDI, from VISAYA Inc., was designed to solve the difficulties of rating in NACE TM0172 and D665 specimens accurately. It uses a four-step automated vision algorithm and classification process to eliminate user bias and provide repeatable results. After scanning a specimen's entire surface area, corrosion coverage is quantified. FeDDI provides a complete automated method, which replaces the inherently difficult visual quantification referenced in NACE TM0172 and ASTM D665. FeDDI has the capability of displaying both unfiltered images and filtered images after subtracting marks, spots, sagging and any other anomalies present in the untested specimen.

Principle

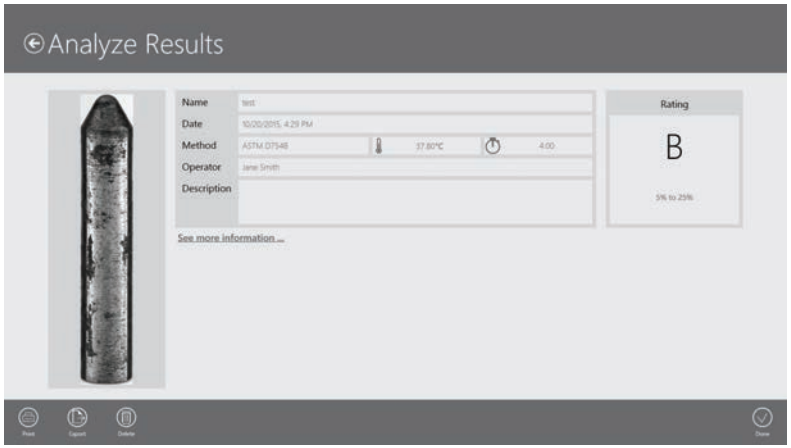
FeDDI's exclusive, patent pending design takes the guesswork out of NACE and current standardized methods corrosion detection. Its unique vision algorithm and the current-controlled light box records, calculates and displays accurate corrosivity coverage ratings in a matter of seconds. A high-resolution camera with sophisticated optics provides higher precision machining and motors for the total 360° rotation of the steel specimen. The results are not only a ground breaking improvement on the rating, methodology and sample handling of current laboratory procedures; they are the new standard for corrosion rating.

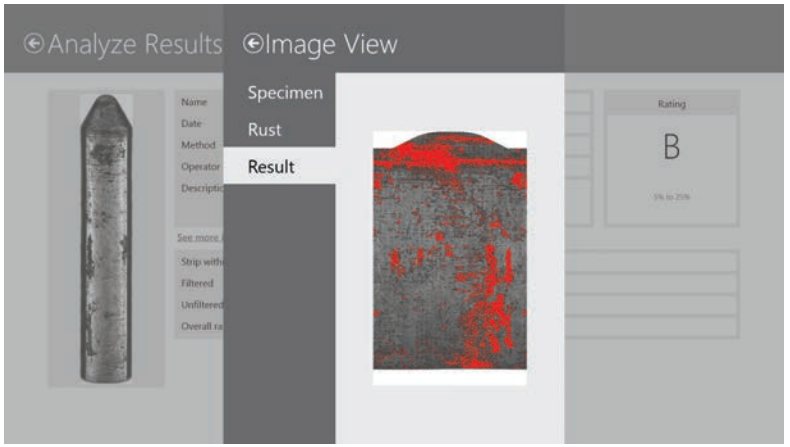
The FeDDI Method

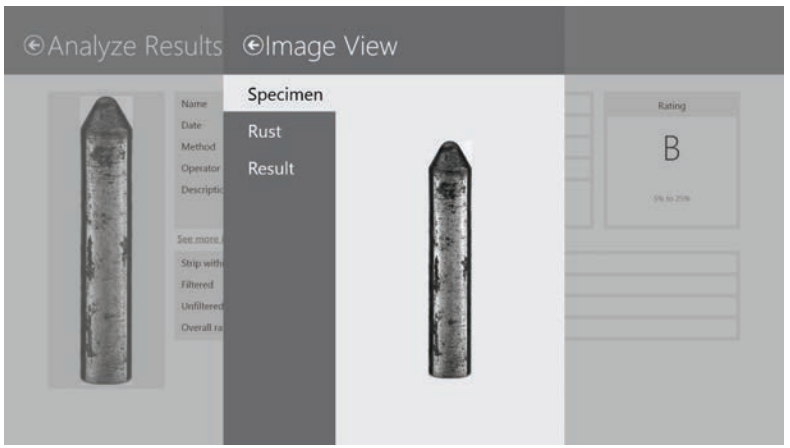
Corrosion digital detection imaging is a simplified process requiring minimal steps that effect maximum efficiency and accuracy:

Step 1:	Insert specimen into specialized holder
Step 2:	Place holder into instrument
Step 3:	LED light source is automatically activated and regulated
Step 4:	Software identifies dimensional data
Step 5:	Software then rotates specimen in specific degree increments
Step 6	Readings are tabulated and processed through FeDDI algorithm
Step 7:	Final results are displayed on a high-resolution touch screen

Final Results are Clear, Concise and Cutting-Edge.







A Better Rating

FeDDI's improvements over current test rating output and analysis include:

- Easy-to-Use Touch Screen Driven Software
- 1-2-3 Button Operation
- Digital Image Logging Complete with Operator Notes and Calculated Results
- Integrated Industrial Computer for Easy Interface with Network
- Direct LIMS Connectivity
- USB, Ethernet and HDMI Outputs

A Better Method

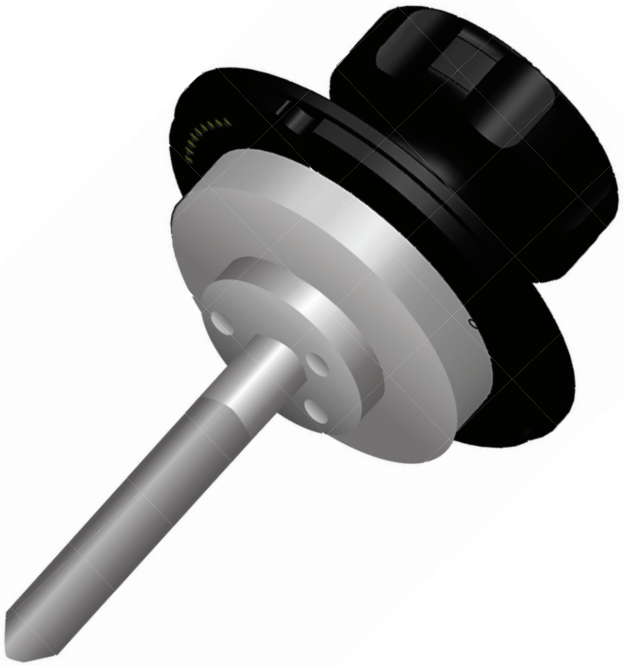
FeDDI's improvements over current test procedures and end results include:

- Removal of Inherent Bias with Manual Rating
- Voltage and Current Controlled Light Box for Consistent Ambient Light Environment
- Automatic Detection of Steel Specimen Size
- Long-lasting LED Light Source
- Auto Rotation of Specimen for full 360° Recording

A Better Sample handling

FeDDI's improvements over current test sample handling and errors include:

- Enables Single-Hand Loading via Two Part Holder and Clip
- Eliminates Fingerprints and Unwanted Markings on Strips
- Slide Holder Doubles in Functionality as Tool for Manual Verification
- Prompts Operator When Strip Shrinks to Unusable Size
- Provides Auto Recognition of Proper Dimensions



Technical Specifications

Applicable Test Methods	ASTM D665, D7548, IP 135, ISO 7120, JIS K2510, NACE TM-01-72
Corrosion Detection Range	Corrosion Coverage 0.01mm to 100%
Display Units	Corrosion %, Specimen Size & Rating
Detection Method	Patent Pending CMOS Digital Detection
Precision	+/- 0.01% of Raw Reading
Dimension	+/- 0.085mm of Height & Width
Pixel Size	0.035mm per Pixel
Optical Design	Patent Pending Optical Arrangement
Light Source	LED, 4,500K
Measuring Time	2.5 Minutes
Calibration	Vision Calibration with Standard
Display	10.1” Projective Capacitance Touch (Multi-Touch)
Interface	Ethernet x2, USB 3.0 x1, USB 2.0 x4, HDMI, VGA, USB Printer, USB Mouse and Keyboard
Memory/Storage	64 GB SSD Storage
Temperature Range	10° to 35° C
Humidity	Up to 85% Non Condensing
Power	Auto-switching 90 ~ 264VAC, 47 ~ 63Hz, 280 Watt Power Supply
Space Requirements	80 mm (3”) on Sides and Back
Dimension	350x300x270mm (14x12x11”)
Weight	10 Kg. (22 lbs.)
Gross Dimensions & Weight	400x350x530mm, 15 Kg. (15x14x21” 33lbs.)

FULL SPECS AND OPTIONS AVAILABLE AT WWW.VISAYAINC.COM

Accessories

1st Year

Polishing device with chuck

Steel test specimen for D665, NACE, each

400 mL beaker for D665, D3603, D5534, each (no baffle)

400 mL beaker for NACE test, each (with baffle)

2 Part PTFE holder for use with NFX Handle

150 grit silicon carbide paper, 50 sheets

240 grit silicon carbide paper, 50 sheets

FeDDI calibration standard. Made out of SS and two zones for high and low level corrosion verification. Can be used as a daily QC/ Validation or for calibration of camera, size detection and motor position. Supplied in storage case with certificate valid for one year.

2nd Year

Beaker cover (PMMA) for D665, NACE, each

Replacement NFX Handle (Integrated Motor)

Replacement Glass Overlay - VISAYA

Replacement Power Board - Universal Input

Replacement Z-Drive - Supplied with Camera Mount

VISAYA Products

AgDDI
Silver Digital Detection Imaging

AgDDI provides standardization to the current visual determination as referred in ASTM D7671 and gasoline fuel specification ASTM D4814 while using a four-step automated vision algorithm and classification process to eliminate user bias.

CuDDI
Copper Digital Detection Imaging

CuDDI's simplified, breakthrough procedure provides improved ratings, methodology and sample handling. Using a corrosion detection range of 1a through 4C, outcomes are digitally recorded and seamlessly integrate with LIMS software.

FeDDI
Iron/Rust Digital Detection Imaging

FeDDI provides an complete automated method, which replaces the inherently difficult visual quantification referenced in NACE TM0172 and ASTM D665 while using a four-step automated vision algorithm and classification process to eliminate user bias and provide repeatable results.

FoamDDI
Foam Digital Detection Imaging

FoamDDI accurately controls the air flow, temperature and sequence, which is then augmented using a unique VISION algorithm to accurately determine the height of static and dynamic foam heights, while greatly improving the precision and accuracy.

Ask for a Demo Today:
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