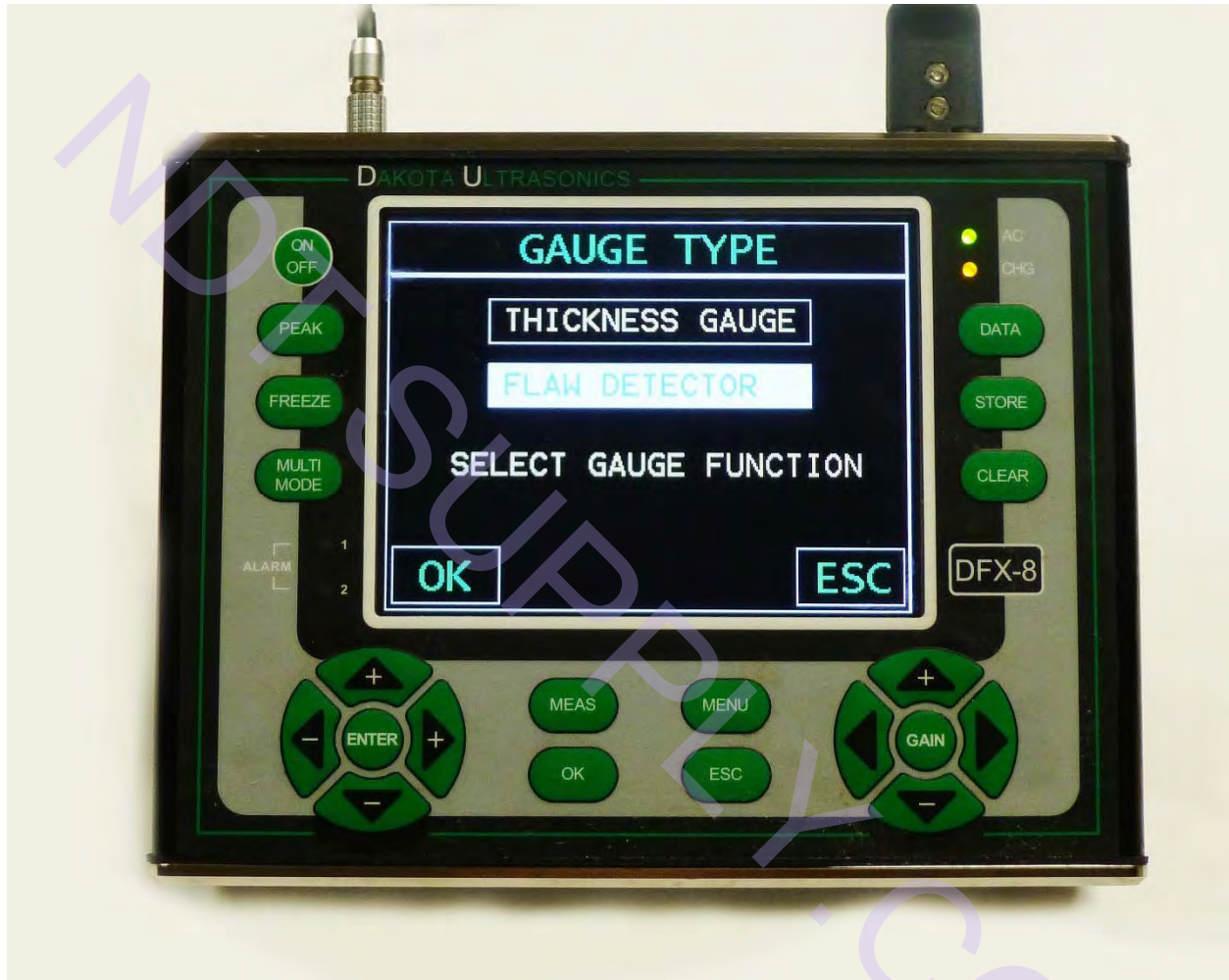


Demonstration of Dakota FX80 Straight Beam Applications



The Dakota FX80 is 2 instruments in 1

- Select Thickness Gauge for a Multi-Mode Thickness Gauge
- Select Flaw Detection Mode for a very capable Ultrasonic Flaw Detector

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Demonstration of Dakota FX80 Straight Beam Applications

INDEX STRAIGHT BEAM APPLICATIONS

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21. Delay Line Probe – Thickness Gauging

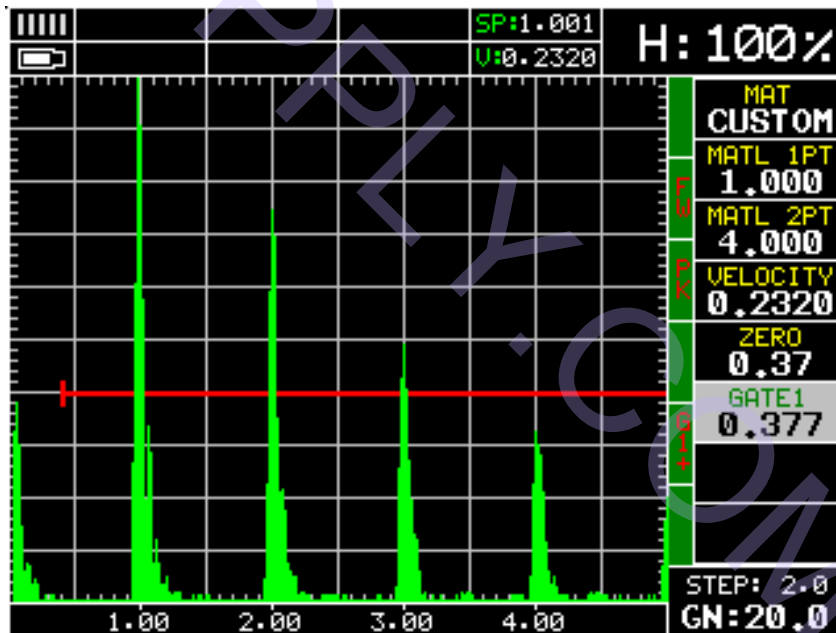
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Demonstration of Dakota FX80 Straight Beam Applications

Straight Beam, 5 MHz, 3/4" Probe, 5" Range



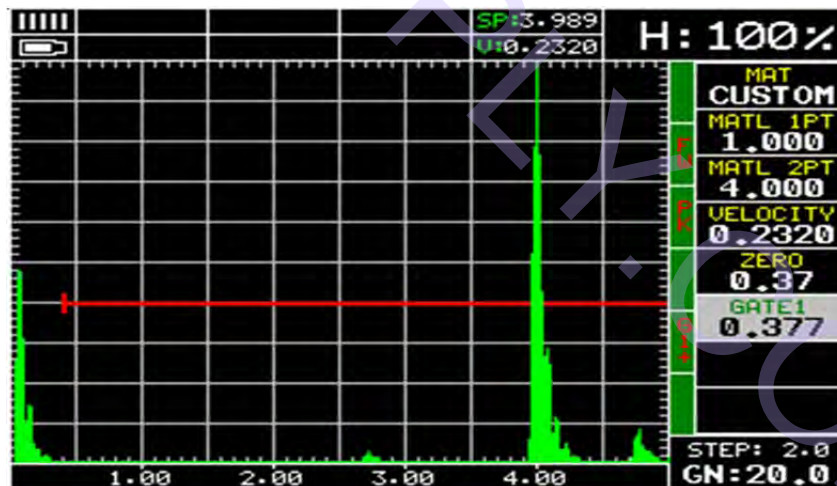
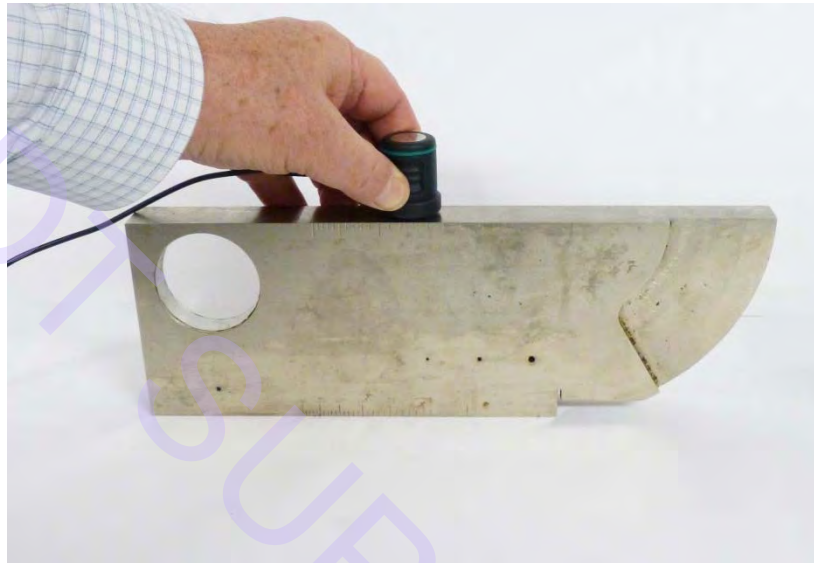
1" Thickness of IIW Block

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Demonstration of Dakota FX80 Straight Beam Applications



4" Thickness of IIW Block

Note:

Auto Cal using 2 known thickness 1" & 4"

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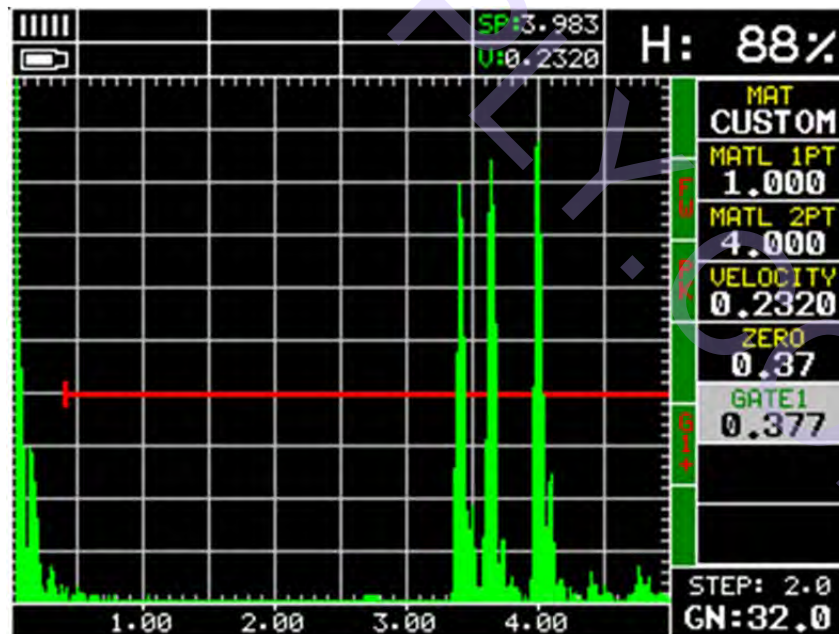
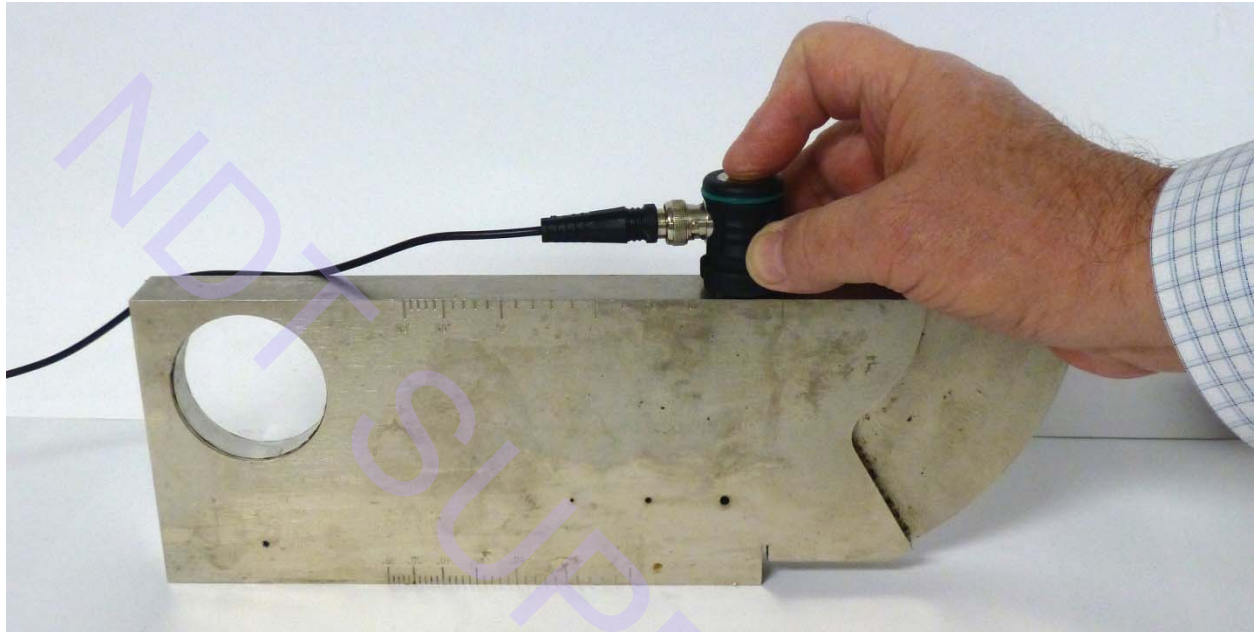
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Demonstration of Dakota FX80 Straight Beam Applications



3.4 & 3.6" Resolution Notches in IIW Block

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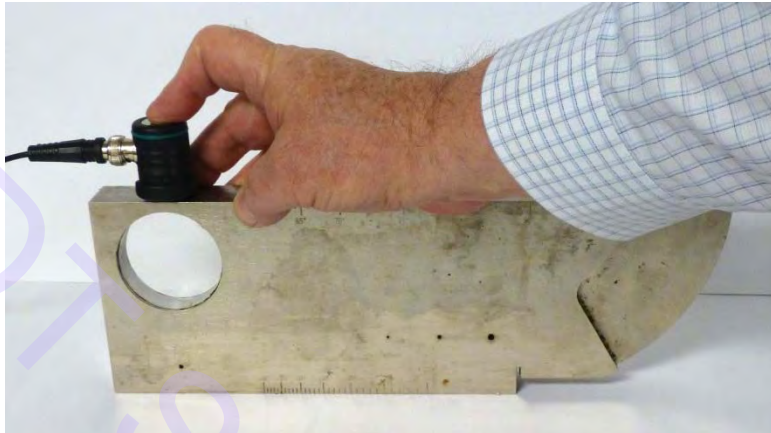
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Demonstration of Dakota FX80 Straight Beam Applications



Resolving 0.200 Metal Travel Distance to 2" IIW Bore Hole

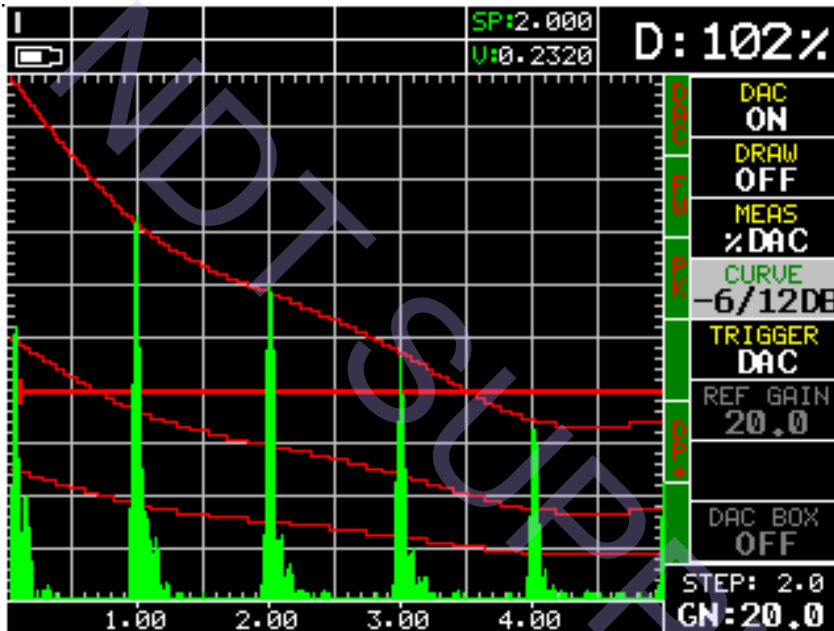
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Demonstration of Dakota FX80 Straight Beam Applications

DAC using Straight Beam and 1" Back Wall Echoes



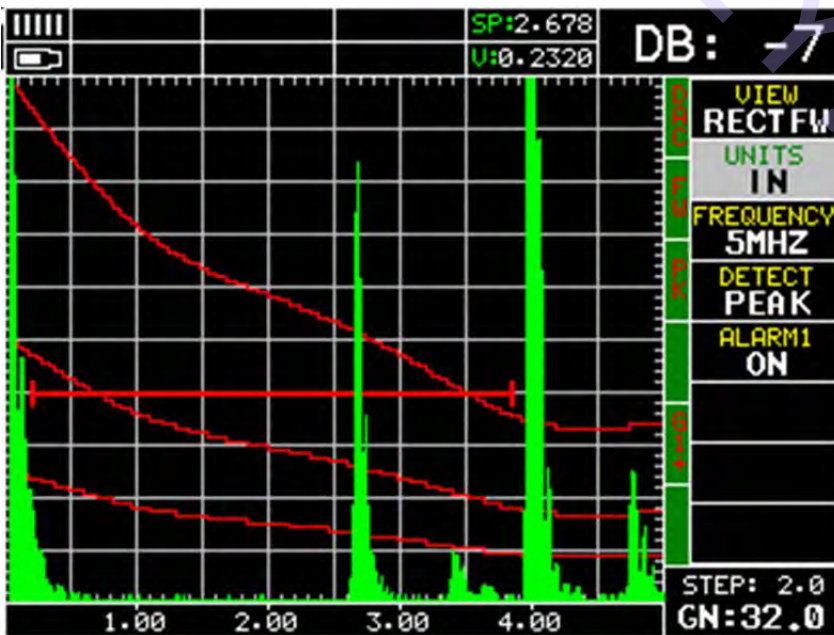
DAC Evaluation Straight Beam

DAC Curves can be set

- DAC
- +6/12 dB
- -6/+6 dB
- -6/14 dB
- -6/12 dB
- -10 dB
- -6 dB
- -2 dB

Trigger selections

- DAC
- GATE



DAC EVALUATION

- DB
- % DAC
- % FSH

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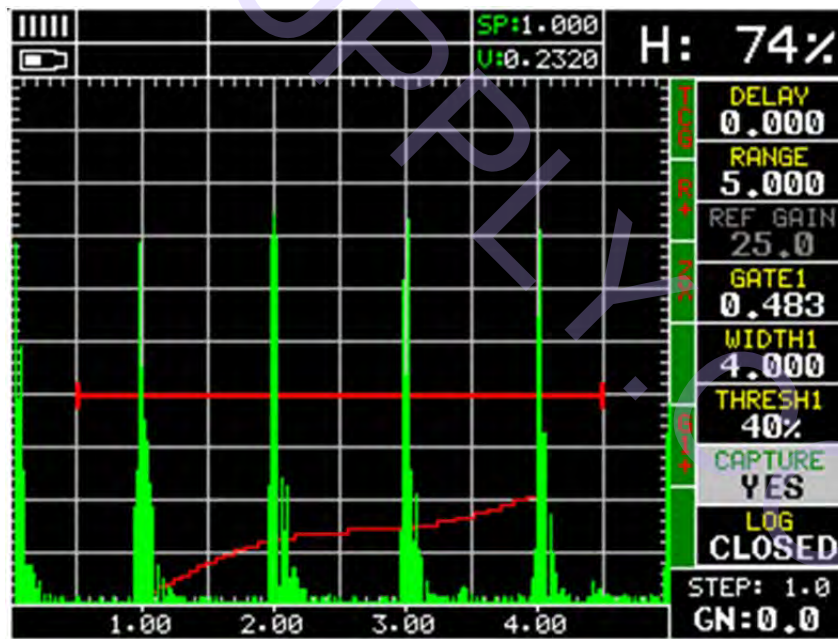
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Demonstration of Dakota DFX-8 Straight Beam Applications



TCG Using 1" Back Wall Echo for demonstration purposes

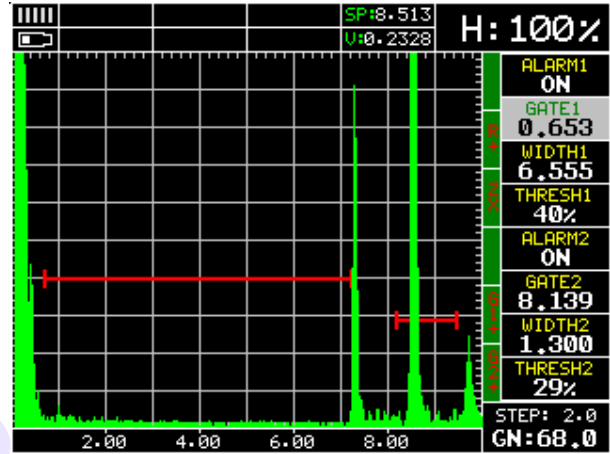
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Demonstration of Dakota FX80 Straight Beam Applications

Bridge Pin
Straight Beam Probe



Good Pin Shoulder and End Echo



Cracked Pin – 2nd Zone Crack



Cracked Pin – 1st Zone Crack

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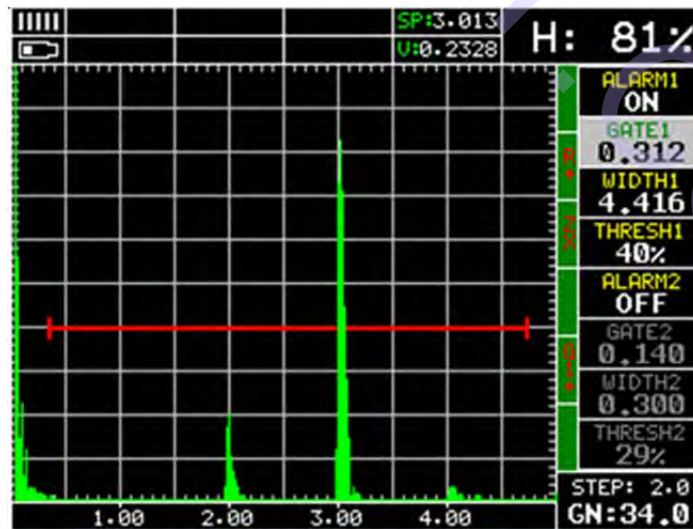
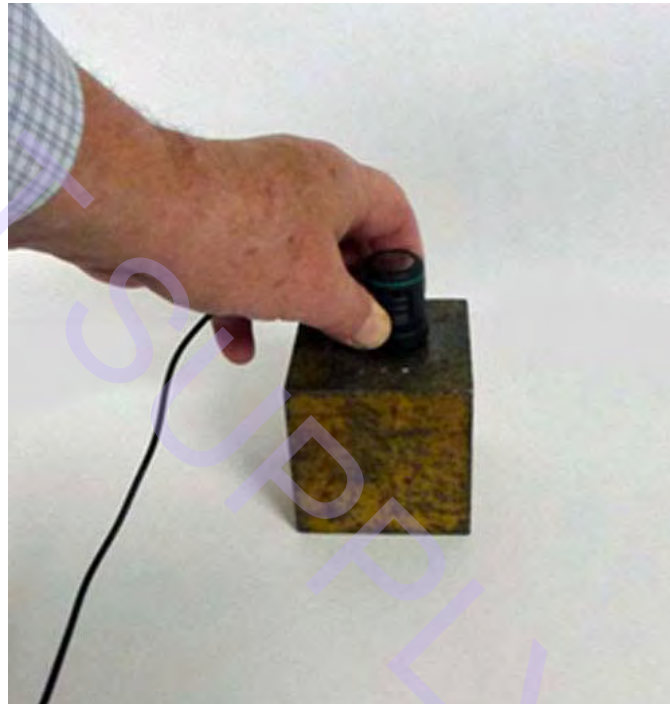
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Demonstration of Dakota FX80 Straight Beam Applications 3" Steel Block with Flat Bottom Hole Straight Beam



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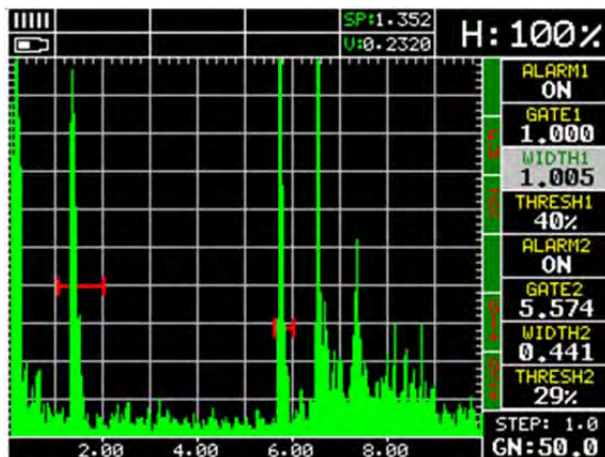
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Demonstration of Dakota FX80 Straight Beam Applications

Gas Compressor Bolt with Crack
Straight Beam Test



Calibration Bolt

Showing both Saw Cut and Back Wall Echo



Cracked Bolt

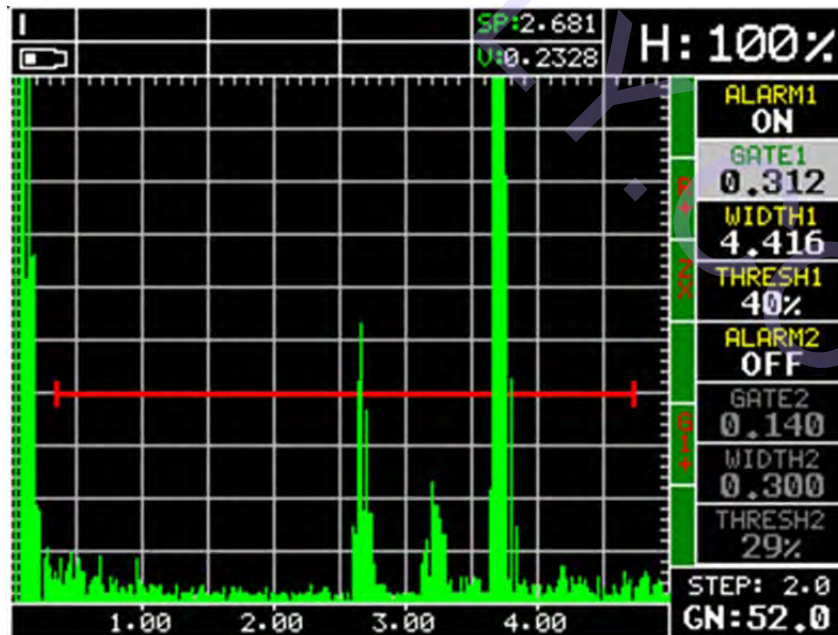
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Demonstration of Dakota FX80 Straight Beam Applications

Drill Stem with Thread Cracks
Straight Beam



Small crack at 2.6" & 3.3" note: no loss of Back Wall Echo

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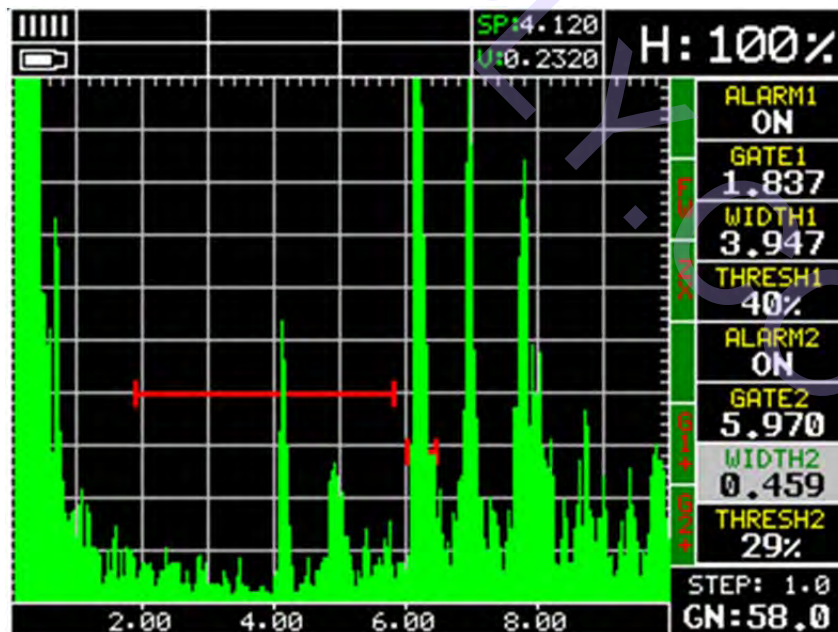
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Demonstration of Dakota FX80 Straight Beam Applications

Cracked 6" Machine Bolt
Straight Beam



6" Bolt with Crack at 4", note strong Back Wall Echo

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Demonstration of Dakota FX80

Straight Beam Applications

Aluminum Billet with Centerline Crack
Straight Beam



Centerline crack, note complete loss of Back Wall Echo

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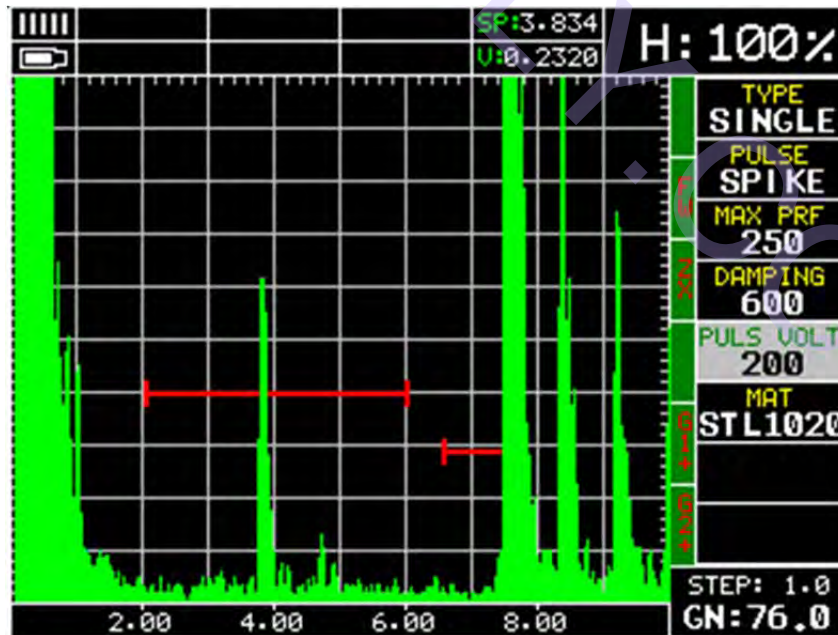
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Demonstration of Dakota FX80 Straight Beam Applications

Section of Railcar Axel with small Centerline flaw
Straight Beam



Flaw at 3.8" no loss of Back Wall Echo

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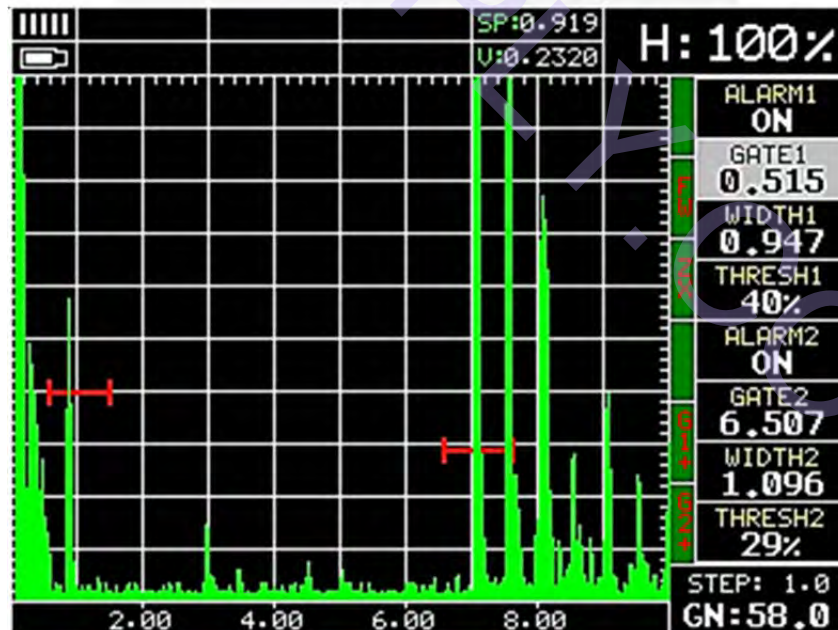
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Demonstration of Dakota FX80 Straight Beam Applications

Rail with Head Piping
Straight Beam



Flaw at 0.9" no loss of Back Wall Echo

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Demonstration of Dakota FX80 Straight Beam Applications Bolt Hole Cracking in Rail



Good Section of Rail



Good Bolt Hole

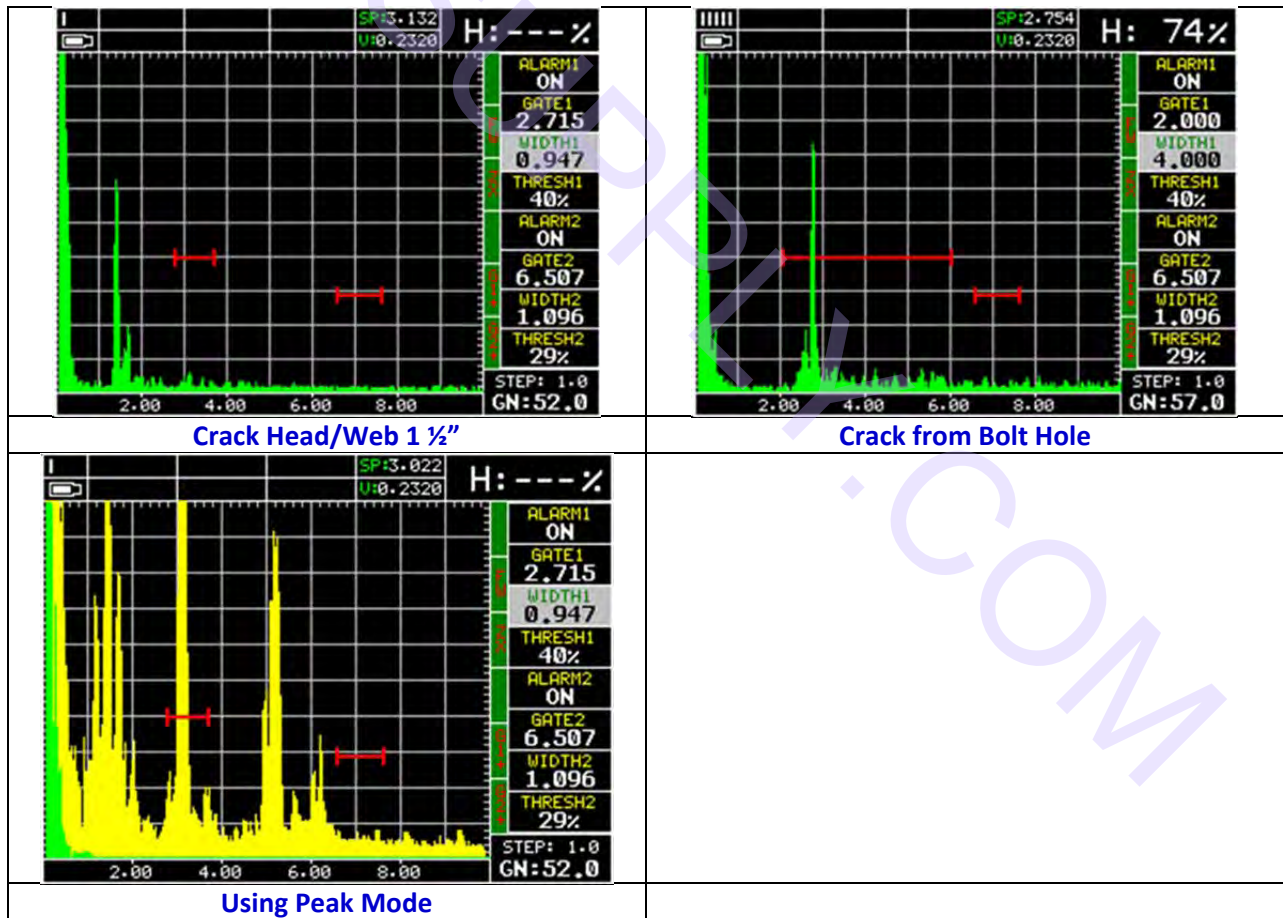
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Demonstration of Dakota FX80 Straight Beam Applications

Bolt Hole Cracking



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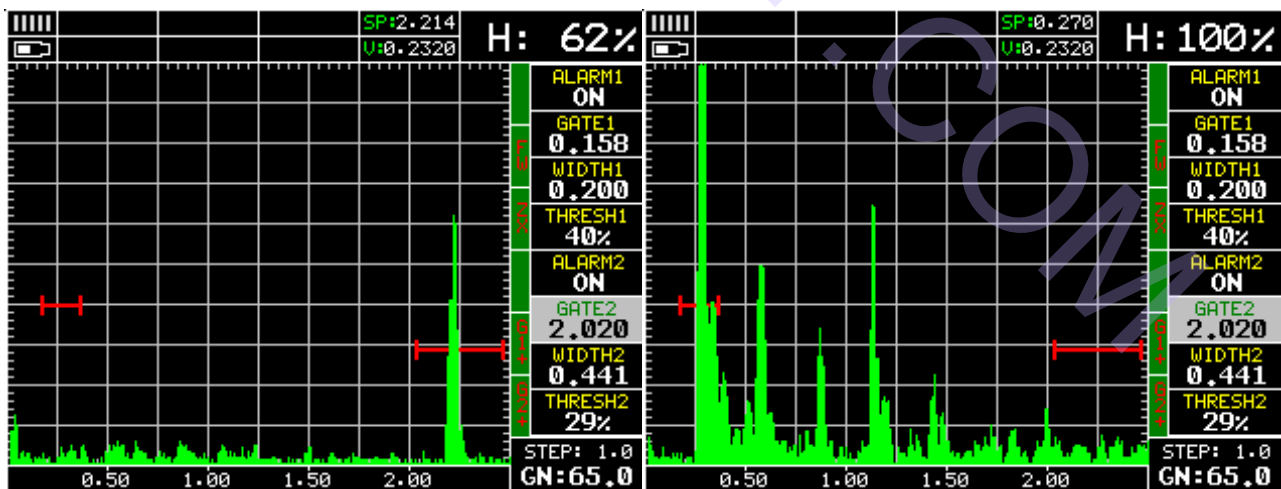
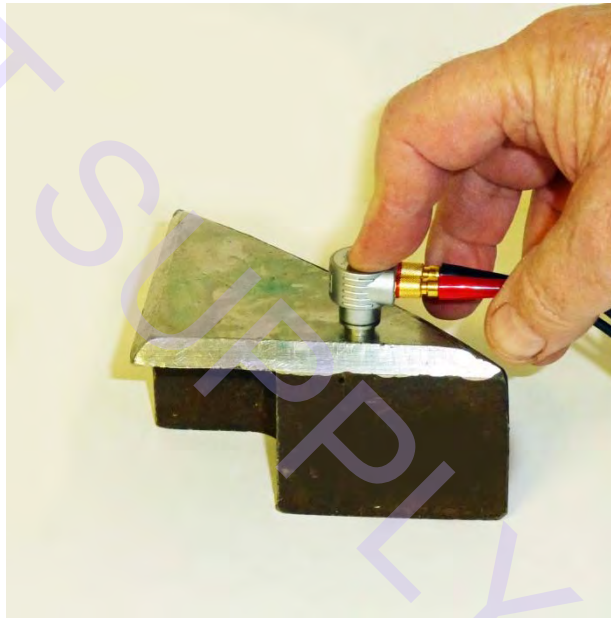
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Demonstration of Dakota FX80 Straight Beam Applications

DUAL PROBE APPLICATIONS

Bond – Weld Cladding Stainless Steel to Carbon Steel
Dual Probe



Good Bond
Back Wall Echo at 2.2"

Un-Bonded
Signal at 0.27"

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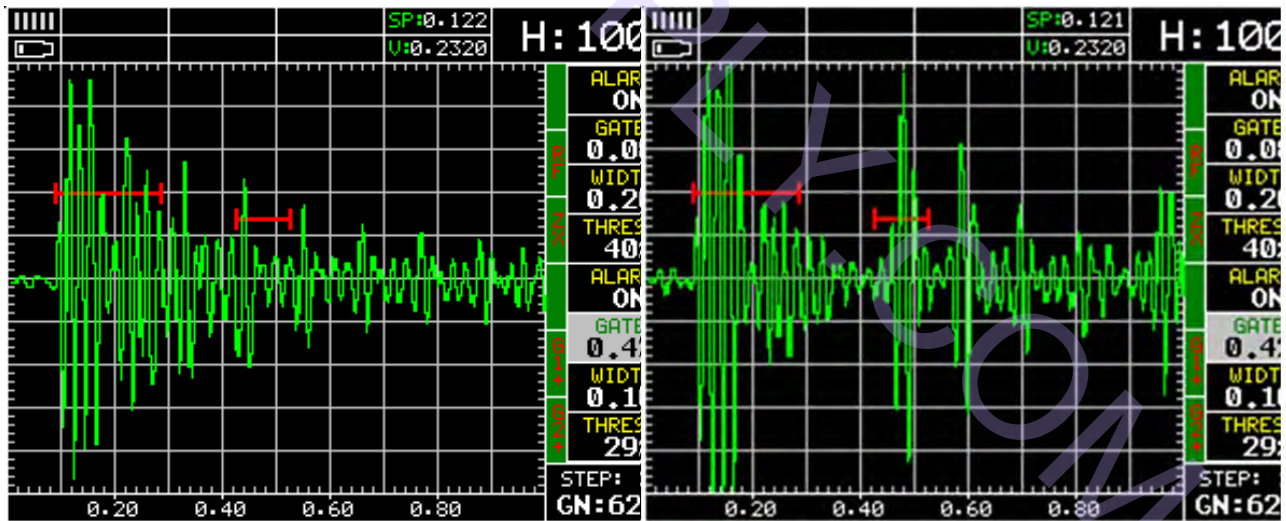
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Demonstration of Dakota FX80 Straight Beam Applications

Bond Test

Silver Braze Tungsten Carbide to Steel
Dual Probe



Disbonded
No Back Wall Echo

Bonded
Good Back Wall Echo

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Demonstration of Dakota FX80 Straight Beam Applications

Delay Line Probe Applications

Thickness Measurement with 10 MHz Delay Line in Flaw Mode 0-1st Echo Measurement

