



#### Technical Specifications

## ALTERNATING CURRENT FIELD MEASUREMENT FOR FASTER FILLET WELD INSPECTION

Integrating 3Bz crack sizing technology, removing the need to mark surfaces or use a cumbersome encoder

### MAXIMIZE FILLET WELD INSPECTION PRODUCTIVITY

Alternating Current Field Measurement (ACFM®) is an electromagnetic technology that enables fast and reliable crack detection through coatings up to 10 mm (0.4 in), and sizing through coatings up to 4 mm (0.16 in) thick. This eliminates the need for time-consuming and costly processes such as coating removal, surface cleaning, and re-application. ACFM offers productivity gains of up to 60% compared to traditional visual methods like penetrant testing or magnetic particle inspection.

The ACFM fillet weld array probe sets a new standard for fast and cost-effective inspections. It features a sensor arrangement that simultaneously covers the weld toes, cap, and heat-affected zones, providing full coverage in a single pass. Compared to conventional ACFM inspections, this approach boosts inspection productivity by a factor of three.

### EFFICIENT CRACK SIZING TECHNOLOGY

Accurate information on crack length and depth is crucial for making informed decisions about asset integrity and optimizing repairs. The ACFM fillet weld array probe incorporates advanced 3Bz sizing technology, which eliminates the need to use a mechanical encoder or mark the surface to make manual measurements. By integrating two additional Bz sensors per ACFM element in the probe and utilizing a specialized software algorithm, accurate crack length and depth measurements are obtained during signal analysis. This innovative approach empowers informed decision-making, even on rugged, dirty surfaces and complex geometries.

### FEATURES AND BENEFITS

- High-quality array data at fast scan speeds of up to 150mm/s (6in/sec)
- Integrated 3Bz sizing technology for precise crack length and depth information in a single pass
- Convenient buttons on probe for easy control over the inspection process
- Inspection planning software functionality for structured data collection and archiving

BOLSTER-TO-BOLSTER PAD WELD INSPECTION						
Weld Code	Description	Location	Inspection Technique	Number of Cracks	Max Crack Length (0.00)	Crack Orientation Code
SBI	Bolster web, bolster pad and stiffener welds inboard of bolster from the outside edge of side bearing pad to draft sill and (SBI). Full length of weld.	A-End Right				
		A-End Left				
SBO	Bolster web, pad and stiffener welds from outboard of body side bearing. Full length of weld.	B-End Right				
		B-End Left				
E2	Bolster bottom cover plate to sill flange longitudinal weld. Full length of weld.	A-End Right				
		A-End Left				

**Inspection Technique**  
 MT Magnetic Particle  
 PT Liquid Penetrant  
 RT Radiographic  
 RV Remote Visual  
 UT Ultrasonic  
 VT Visual  
 OT Other

**Repair Code**  
 A) grinding and blending with no Weld Buildup  
 B) Patch Plate Repair - AAR Tanks  
 C) Pressing or Choking of dents/Buckles of the Tank  
 D) Reinforcing Plate Application per PM Rule 57  
 E) Repair of Threaded or Non-Threaded Holes  
 F) Repairs to Tank Anchors  
 G) E2 - Replaced in kind not otherwise listed in the Repair codes  
 H) Straightening  
 I) Weld Surfacing (weld buildup)  
 J) Welded Inserts and Tank Sections  
 K) Welding with Pre-Heat  
 L) Welding with PWT  
 M) Welding without PWT or Pre-Heat

**Crack Orientation Code**  
 WBSB Weld Bolster Bottom Cover  
 WBSB Weld Bolster Web-To-Side Cover  
 WBSM Weld Bolster Stiffener-To-Web  
 WBTW Weld Bolster Web-To-Pad  
 WBTB Weld Bolster Web-To-Bill  
 WFT Weld Fillet Face  
 COW Other

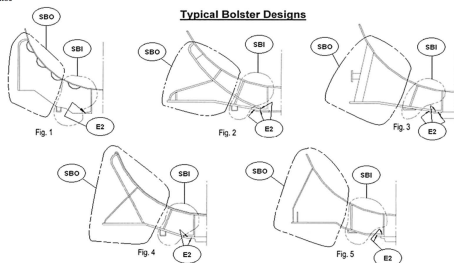


Figure 2: Eddyfi Technologies' ACFM software, Assist, integrates an inspection planning function that allows for pre-programming complex component inspections.

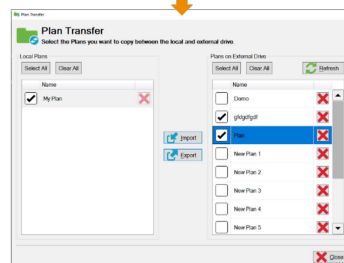
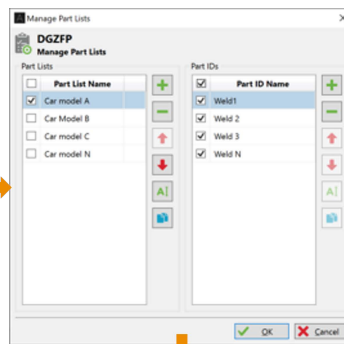


Figure 1: Experience unprecedented ease in fillet weld inspections.

## BUILT TO PERFORM IN HARSH CONDITIONS

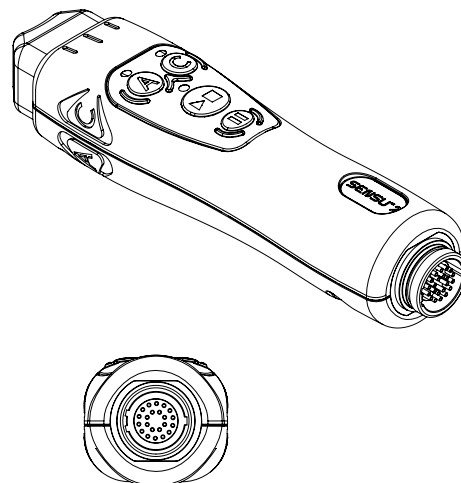
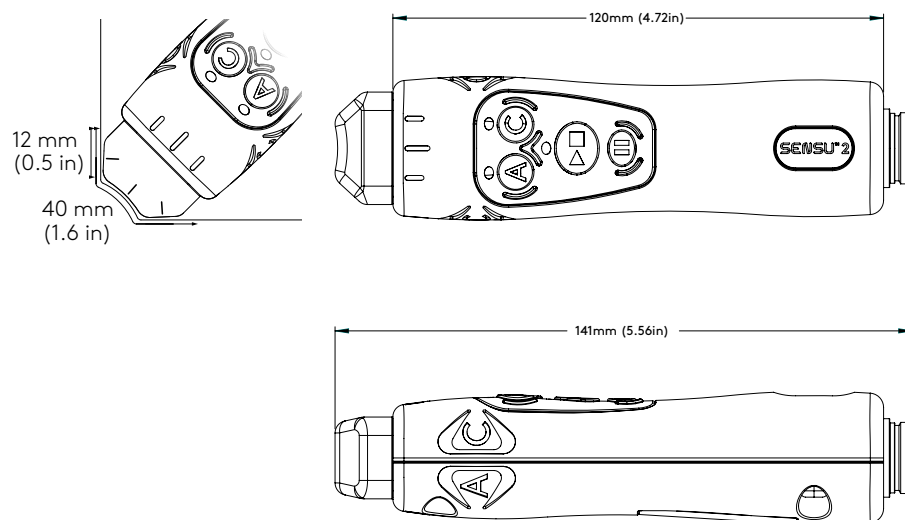
Acknowledging the physical challenges associated with inspecting carbon steel fillet welds, the probe's design prioritizes user-friendliness and ruggedness. It integrates buttons to control various aspects of the inspection workflow. For example, the Assist software's planning function enables the inspection of complex components to be pre-programmed by listing the welds to be inspected in an optimized sequence, reducing inspection time and the risk of errors. The sequence is controlled using the probe's buttons, ensuring user comfort and productivity while streamlining the entire inspection process.

Furthermore, the probe's simplistic design, with no moving parts, is a crucial factor in minimizing potential downtime, offering a reliable and practical tool for inspections in challenging environments.

## SPECIFICATIONS

### GENERAL

Compatible instruments	Amigo2
Range	Sensu 2
Sensor configuration	3 rows of mini ACFM sensors with 3Bz sizing technology
Frequency	5 kHz (for ferromagnetic weld inspections)
Nose configuration	Straight
Coverage	40mm (1.6in) over fillet welds Extending 12mm (0.5in) into the heat-affected zones (HAZ), measured from the weld toes
Compatible cables	SENSU-2-STD-CBL-5M, SENSU-2-STD-CBL-20M, SENSU-2-STD-CBL-50M



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