UDS2-77 AREMA

OKOndt GROUP

Ultrasonic Single Rail Flaw Detector

Complies with:
AREMA, EN16729

MAIN FEATURES OF THE FLAW DETECTOR

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- It weighs just 23 kg (50.7 lb) for the UDS2-77 AREMA (SL) and 27 kg (59.5 lb) for the UDS2-77 AREMA (SWP) due to its light, shock-resistant plastic construction.
- Flaw detector parking mode.
- Module structure: a frame on rollers, a central electronic unit, multiplexer units, a storage battery, a tank, a couplant supply system, probe units, and an encoder.
- All modules are easy to assemble and disassemble; they are safely fixed on the flaw detector frame.
- Adjustable probe unit position in the transverse plane of the rail.
- Centering probe units along the rail axis with adaptive rollers.
- The probe unit suspension system ensures stable acoustic contact in case of lateral inclination of the trolley at up to ±15° (for UDS2-77 AREMA (SL)).

UDS2 - 77 AREMA Ultrasonic Single Rail Flaw Detector

Main technical specifications

The UDS2 - 77, an ultrasonic flaw detector, is intended for continuous testing of rails and railway switches, as well as for confirmatory testing of quick test system results. The flaw detector ensures flaw detection in the entire rail cross section, excluding rail base blades.

- Rail inspection complies with AREMA requirements.
- Number of inspection channels (probes): 11 psc.
- Probe type and frequency: 0°/4 MHz, ±70°, ±40/45°, ±50°SL/2 MHz.
- Scanning pitch is 1mm at a speed of 4 km/h (2.5 mph).
- Display modes: A-scan, B-scan, A-scan+B-scan.
- Continuous test result recording in a database format linked to path and GPS coordinates.
- Test result reviewing mode on the screen of the flaw detector.
- The weight of the flaw detector without coupling agent (liquid) is no more than 23 kg (50.7 lb) for the UDS2-77 AREMA (SL) and 27 kg (59.50 lb) for the UDS2-77 AREMA (SWP).
- Coupling liquid tank volume: 5 L (1.3 gal).
- Coupling liquid consumption: up to 1.5 L per km at 4 km/h (2.5 mph).

UDS2-77 AREMA (SL) UNITS PROBE

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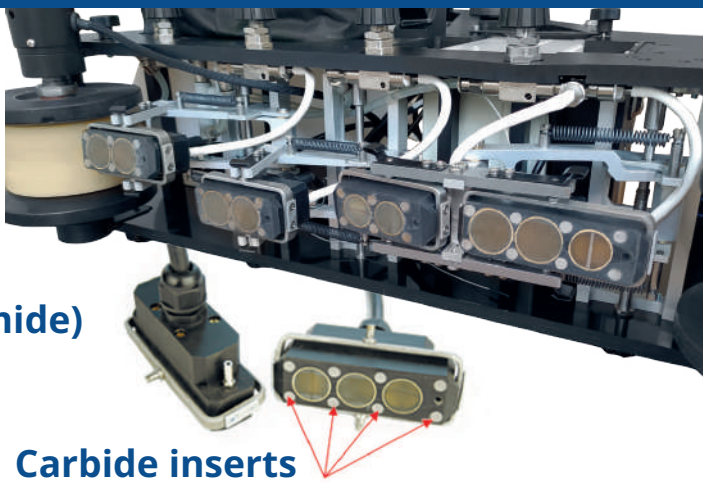
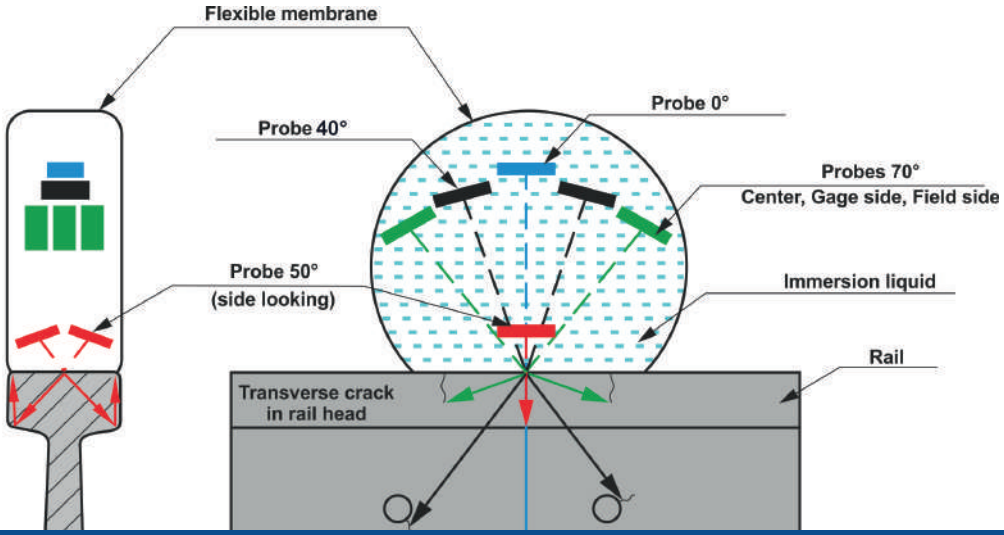
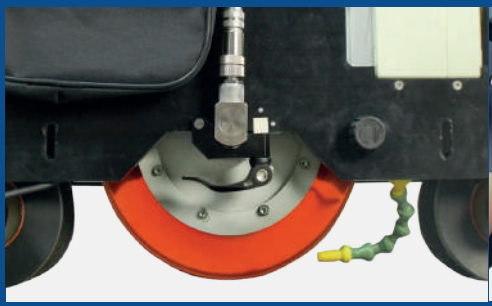
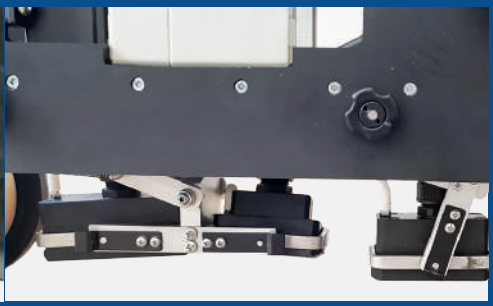


UDS2-77 AREMA (SWP) WHEEL PROBE



Features of design, application, and maintenance of ultrasonic single-rail flaw detectors UDS2-77 AREMA

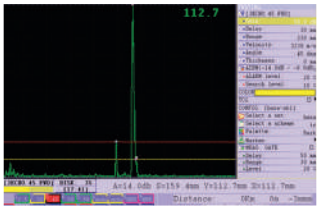




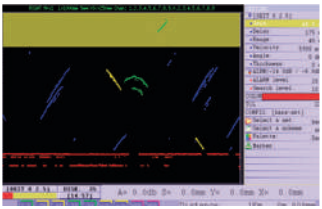
UDS2-77 AREMA (SWP)	UDS2-77 AREMA (SL)
Provides testing of rails in accordance with AREMA requirements	Provides testing of rails in accordance with AREMA requirements
Immersion probes unit design - wheel (SWP)	Sliding probe unit design (4 sliding blocks)
Number of ultrasonic probes: 11	Number of ultrasonic probes: 11
0°– 4 MHz	0°– 4 MHz
70°– 2 MHz (Head Central Forward)	70°– 2 MHz (Head Central Forward)
70°– 2 MHz (Head Central Backward)	70°– 2 MHz (Head Central Backward)
70°– 2 MHz (Head Gauge Face Forward)	70°– 2 MHz (Head Gauge Face Forward)
70°– 2 MHz (Head Gauge Face Backward)	70°– 2 MHz (Head Gauge Face Backward)
70°– 2 MHz (Head Field Face Forward)	70°– 2 MHz (Head Field Face Forward)
70°– 2 MHz (Head Field Face Backward)	70°– 2 MHz (Head Field Face Backward)
2x40°– 2 MHz (Web, Foot Forward/Backward)	2x45°– 2 MHz (Web, Foot Forward/Backward)
2x50°– 2 MHz (Head Side Looking)	2x50°– 2 MHz (Head Side Looking)
Specifics of Application	
Requires a strictly vertical position of the trolley during rail testing	Trolley tilt of +/- 15° is acceptable during rail testing
Comparison of Costs, Repair, and Maintenance	
The cost of repaire/replacement of the probe unit (SWP) is higher	The cost of repairing sliding probe units is lower
The cost of replacing a soft tyre is lower	The cost of replacing sliding probe units is higher
The process of replacing a soft tyre is more difficult	The process of replacing sliding probes is easier
Comparison of Flaw Detector Costs	
The cost is higher	The cost is lower
Net weight (without liquid)	
Weight 23 kg (50.7 lb)	Weight 27kg (59.5 lb)

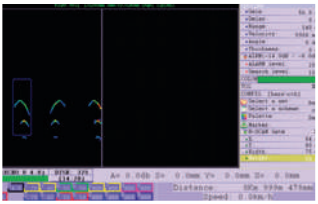
Interface and main modes of the flaw detector software

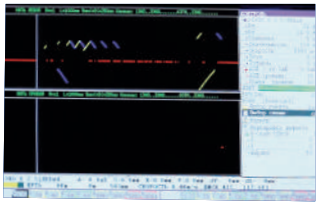
General flaw detector interface



Display mode: A-scan for one channel


Display mode: B-scan for one channel

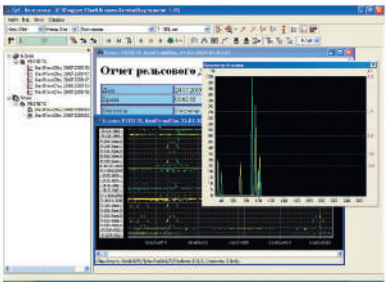

Display mode: B-scan for one channel

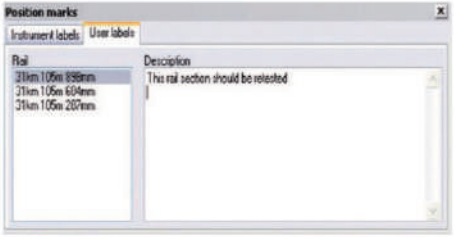

Display mode: A-scan +B-scan for one channel

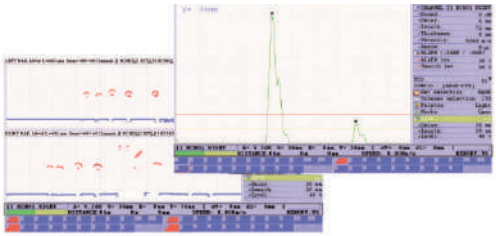
Software for test result analysis, and evaluation

The "Rail Inspector" program is intended for display, analysis and evaluation of test results on PC. The program utilizes all the necessary tools to process data. The major advantages of the program are:

- Convenient work with the database of inspected sections (stages);
- Selection of the layout of inspection channels, selection of an inspected rail, inspected rail segment, and testing method;
- Measuring the notional size of defects in B-scan mode;
  Viewing A-scan based on the data recorded in B-scan;
- Viewing a defectogram (B-scan) in scroll mode or in a mode of fast switch to the given coordinate;
- Path-marking mode to mark suspicious segments of rail track while viewing test results;
- Sorting out test results by sensitivity level from -6 to +6 dB above or below the measuring gate level;
- Mode of viewing and producing reports on the inspected segment;
- Mode of viewing reports on confirmatory testing.







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Ultrasonic Single Rail

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