OKOndt GROUP™

UDS 2-73
Ultrasonic Double Rail Flaw Detector

Complies with: EN 16729

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UDS2-73
Ultrasonic Double Rail Flaw Detector

UDS2-73 rail flaw detector is intended for continuous inspection of rails and railway switches at a speed of 4 km/h and flaw detection in rail cross section, excluding rail base blades, as well for manual confirmatory testing of individual rail cross sections and welded joints. The flaw detector offers recording of test results both in a database format (B-Scan) and as individual test reports linked to path and GPS coordinates.

UDS2-73 ultrasonic double rail flaw detector

The flaw detector performs non-destructive testing of rails by pulse-echo, echo-mirror and mirror-shadow methods, using contact ultrasonic techniques. The ultrasonic testing provided by UDS2-73 is compliant with EN 16729-1 “Railway applications - Infrastructure - NDT on rails in track - Part 1: Requirements for ultrasonic inspection and evaluation principles”, ETN-01-04 “Manual for Non-destructive Testing of rails” and other regulations.

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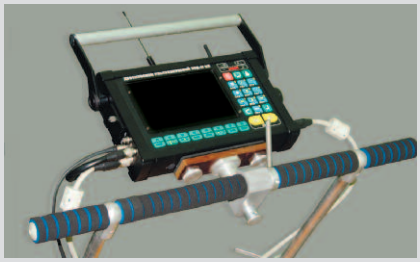
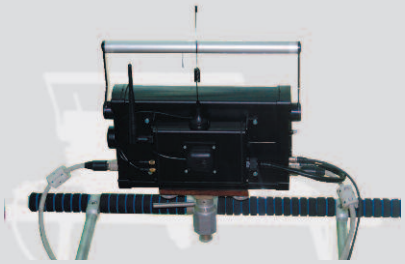
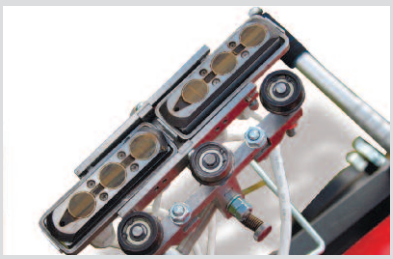
MAIN SPECIFICATIONS





- The flaw detector consists of an electronic unit, four multiplexer units, probe units, a storage battery, couplant tanks and a trolley;
- Rail flaw detector perfomance complies with EN 16729;
- Number of channels (probes): 26 probes (13 probes per each rail);
- Probe type and operating frequency: 0^0/4MHz, $\pm 70^0$, $\pm 58^0$, $\pm 45^0$/2.5MHz;
- Types of inspected rails: S60, S49, UIC60, 60E1, 49E1 and others.
- Scanning pitch - 1mm, at a speed of 4 km/h
- Display modes: A-Scan+B-Scan;
- Continuous test result recording as a database format linked to path and GPS coordinates;
- Test result reviewing mode on the screen of the flaw detector;
- Flaw detector weight without couplant - no more than 50 kg;
- Couplant tank volume: 2x10l;
- Couplant consumption: up to 4l/ at a speed of 4km/h.



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PROBE UNITS

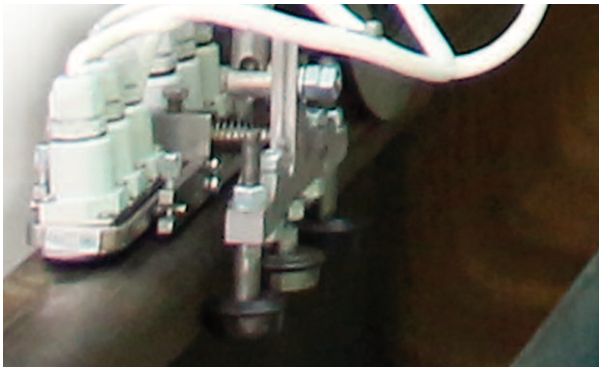
The flaw detector comprises two probe units:

Probe Unit 1:

- Probe 0^0 — 4 MHz;
- Probe 70^0 -2.5 MHz (Forward scanning)
- Probes $4x58^0x34^0$ - 2.5 MHz (Forward/ backward scanning).

Probe Unit 2:

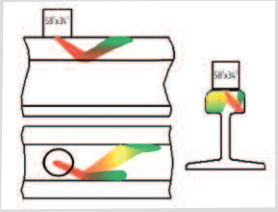
- Probe $4x58^0x34^0$ - 2.5 MHz; (Forward/ backward scanning)
- Probe 70^0 -2.5 MHz (Backward scanning)
- Probe $2x45^0$ - 2.5 MHz (Forward/ backward scanning)



Sounding Schemes

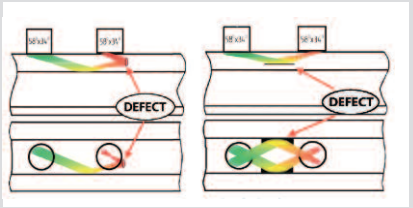
SCHEME 1

Pulse - echo method for the rail head inspection with the probe 58^0 $x34^0$



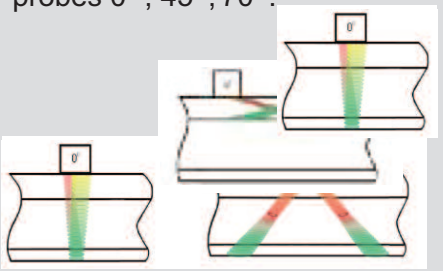
SCHEME 2

Echo - mirror method for the rail head inspection with two probes 58^0 $x34^0$



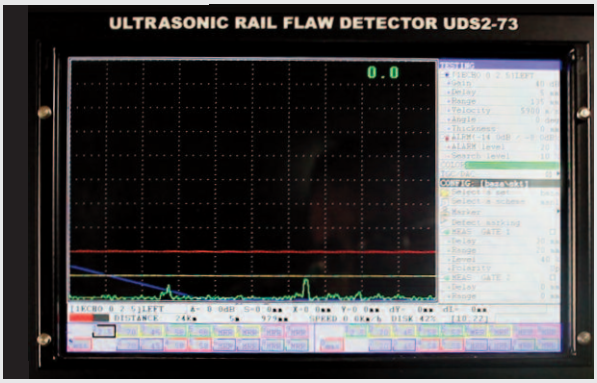
SCHEME 3

Pulse - echo method for inspection of rail head, web and foot with standart probes 0^0 , 45^0 , 70^0 .

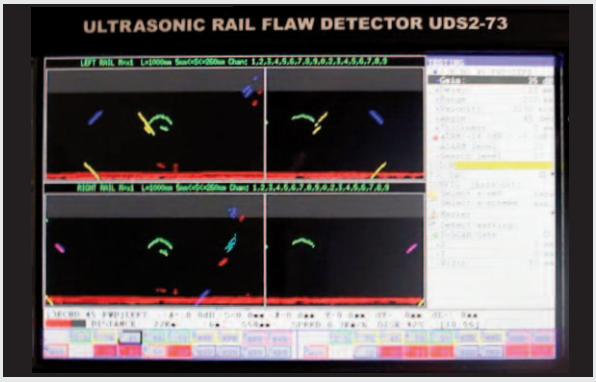


Interface and main modes of the flaw detector software

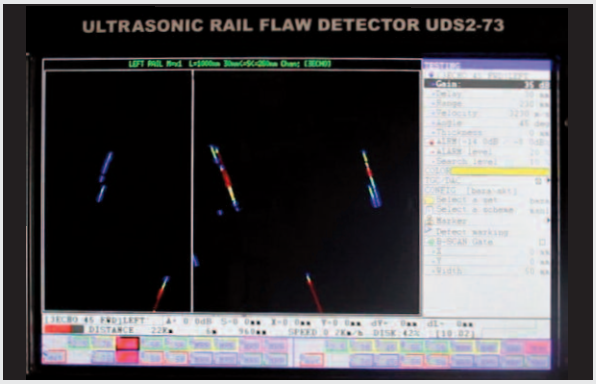
General flaw detector interface



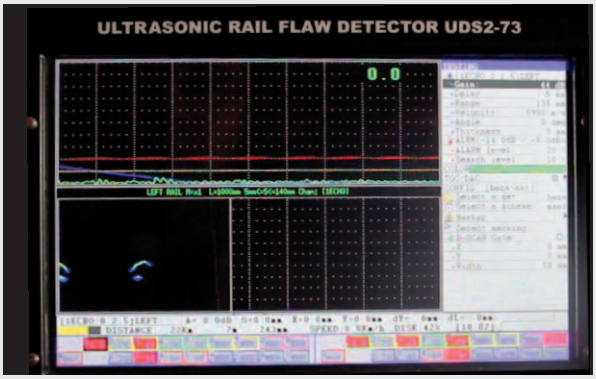
Display mode: A-Scan for one channel



Display mode: B-Scan for all channels



Display mode: B-Scan for one channel



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

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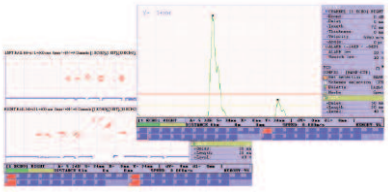
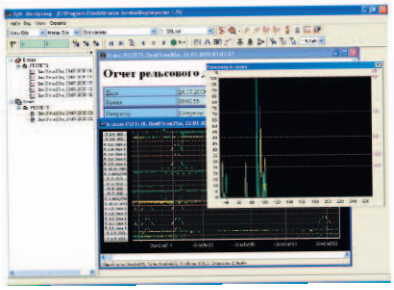
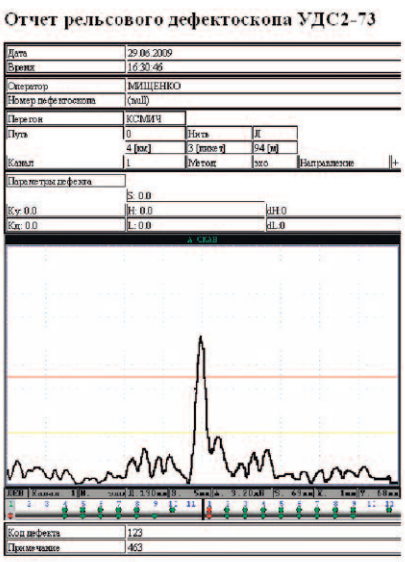
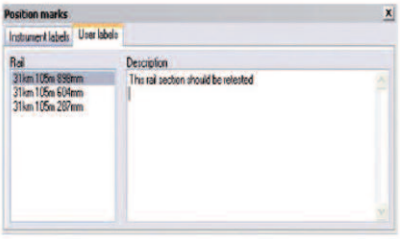
SOFTWARE FOR TEST RESULT ANALYSIS AND EVALUATION





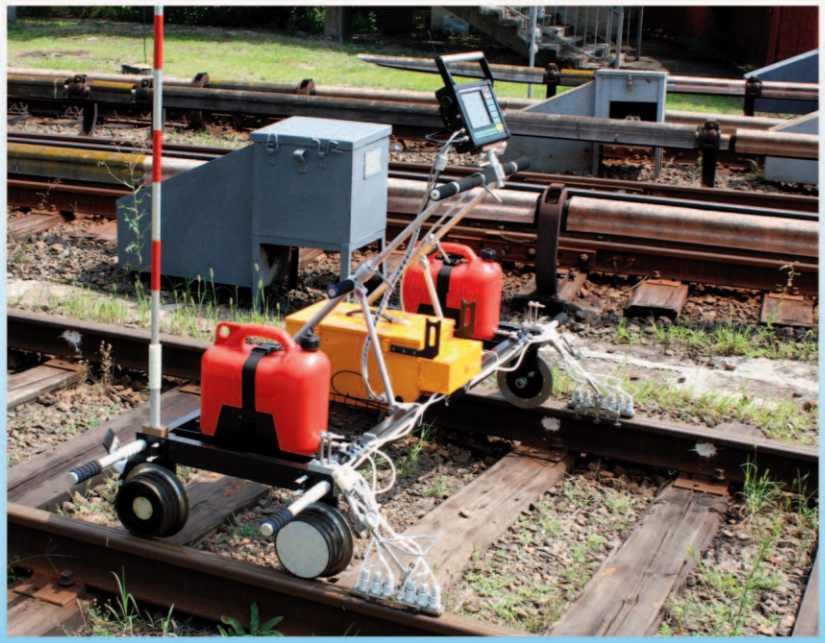




The "Rail Inspector" program is intended for display, analysis and evaluation of test results on PC. The program utilizes all the necessary tools to process data.

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, 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 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 +6dB 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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