OKOndt GROUP

OKOSCAN UT 73HS Pickup

High-Speed Ultrasonic Testing System
For Track Rails

Compliant with:
AREMA
EN 16729-1
EN 13977

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The OKOSCAN UT 73HS Pickup is a System for high-speed ultrasonic testing (UT) of track rails at speeds of up to 24.85 mph (40 km/h). The System is installed on a hi-rail vehicle based on the Ford F350 XL (SUPER DUTY), which is supplied by the customer.

OKOSCAN UT 73HS System consists of:

a) an ultrasonic trolley which simultaneously moves behind the vehicle in testing mode and monitors the changes in the track gauge (track width) through the system for trolley decompression.

b) equipment installed in the vehicle body (UT channels, automation and control box, hydraulic station, air compressor, container for coupling liquid, water supply system, hydraulic system for lifting and lowering the trolley).

c) the operator's workplace with control monitors is located at the rear seat in the vehicle cabin.

The trolley is equipped with:

- Four search wheels with immersion ultrasonic probes (SWP)—two on each side of the trolley.

Each search wheel includes:

- 0° probe, 4 MHz – 1 pc
- 70° probe, 2 MHz – 3 pcs
- 50° probe (side looking), 2 MHz – 1 pc
- 40° (37°) probe, 2 MHz – 1 pc

- An SWP positioning system for lifting, lowering, transverse displacement, and tilting, which is operator-guided.
- A trolley decompression system that allows for monitoring of the track gauge and optimal positioning of the SWP along the rail axis.
- Encoder for tracking the path coordinates.
- Video surveillance system of search wheels (SWP).
- Water supply system under SWP (manual adjustment valves, tubes, nozzles).

The vehicle body includes:

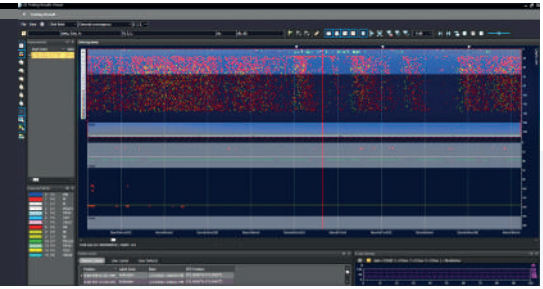
- Ultrasonic modules OKO-24 (at least 24 pcs) with frequency range from 1 to 7 MHz and sounding pulses frequency of up to 4 kHz
- Automation and control box
- Trolley lifting and lowering system with hydraulic station
- Air compressor for trolley decompression system
- Water supply system for SWP

OKOSCAN UT 73 HS hardware and computing complex

Equipment for processing and inspection results visualization is located at the operator's workplace in the vehicle cabin.
The equipment provides for collection of inspection results data, visualization in various modes (A-scan, B-scan), generation of inspection reports, and the possibility of inspection results transmission through mobile operators via the 3G/4G protocol.

Pre-installed Software ensures the following functions:

1. Automatic identification of defects and their classification.
2. UT control channels settings (gain, sweep parameters, RFC, probe parameters, gates parameters) and saving settings to the DB.



3. Inspection results visualization simultaneously in B-scan and A-scan modes for all channels in real time.
4. Starting coordinate registration, recording of inspection area data, as well as track data registration.
5. Viewing inspection results data with the possibility to implement all standard DBMS functions (sorting and sampling according to agreed parameters).
6. Formation of inspection protocols (also in Excel format).
7. Memory capacity (HDD) allows you to save inspection results of at least 10,000 km of testing.
8. Automatic linking of the detected defect to path and GPS coordinates.

OKOSCAN UT 73 HS features

- The trolley performs continuous ultrasonic testing (UT) of double-rail track along its entire length and cross-section, excluding the rail foot flanges, at speeds of up to 24.85 mph (40 km/h).

- The track gauge under inspection ranges from 56.5 to 66 in. (1,435 to 1,676 mm) and can be modified upon request of the buyer.

- The system allows detecting all types of defects: transverse and longitudinal horizontal cracks, longitudinal vertical cracks, cracks from bolt holes, etc. according to AREMA listing

- The system measures defect parameters and saves inspection results to the database with the possibility of subsequent viewing and analysis

- The System implements the following ultrasonic testing methods: pulse-echo and echo-shadow techniques.

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