OKOndt GROUP

EDDY CURRENT DOUBLE RAIL FLAW DETECTOR

ETS2 - 73

Complies with: 16729-2

Eddy Current Double Rail Flaw Detector

INTENDED USE

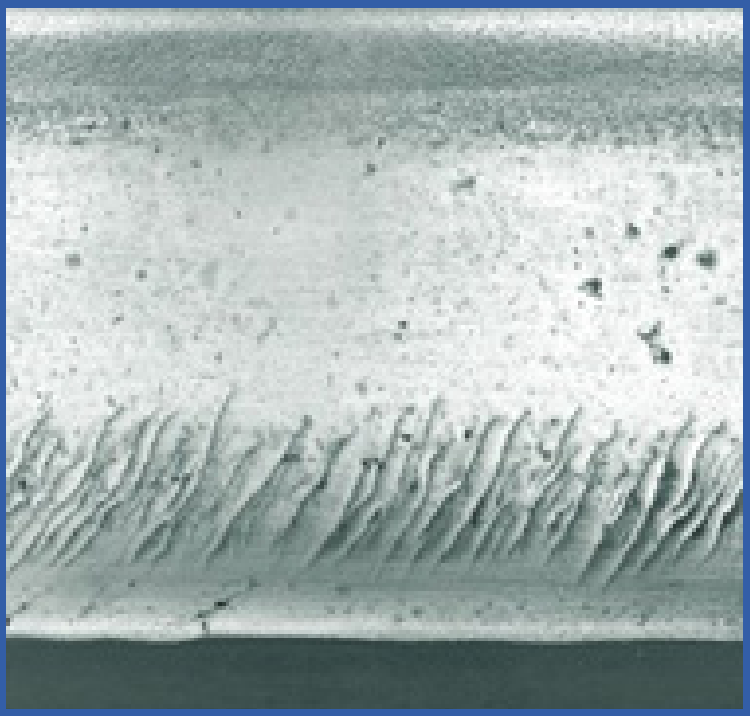
Durability and reliability of rails in-service play a decisive role in railroad industry that is due to the fact that the development of the defects and breach of strength characteristics of the rails can result in their breakage or even lead to crashes.

Operation of rails within many years has shown which types of defects are mainly developed in them (see UIC Code 712 R) and, of course, it can have a crucial effect on the railroad traffic safety.

OKOndt GROUP, in order to provide for the monitoring procedure, as well as to evaluate the railway track rails condition, has released 16-channel double rail eddy current flaw detector ETS2-73.

Eddy current double rail flaw detector ETS2-73 refers to the mechanized scanning devices designed for manual testing by the eddy current method to detect surface cracks.

Application of this flaw detector ensures timely inspection of the rail head for presence of such defects as quenching cracks on the gauge corner of the rail head and on the rail head running surface when in-service, and assessment of the damage depth in order to decide if further repair would be efficient.



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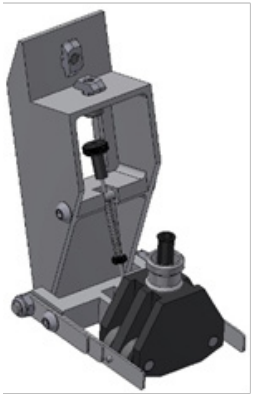
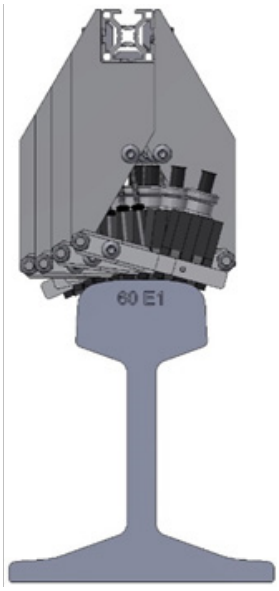
APPLICATION

- ETS2-73 flaw detector allows to perform the eddy current testing of rails in accordance with EN 16729-2 Non-destructive testing on rails in track - Part 2: Eddy current testing of rails in track requirements;
- Possibility to test both the rail track and rail switches;
- Selective testing of particular sections of the rail track;
- Testing and evaluation of the surface defects presence after grinding machines;
- Testing of all major rail profiles: 49E1(S49), 54E1(UIC54), 60E1 (UIC 60) and others.

ADVANTAGES

- The equipment of the ETS2-73 flaw detector corresponds to ISO 15548-1 and ISO 15548-2 requirements
- Folding aluminum frame;
- Simultaneous testing of left and right rails;
- Flaw detector's structure allows to follow the current gage of the track and adjust to it;
- Specialized ECPs with protective wear-resistant protectors allow to evaluate the depth of the rail vertical damage of up to 3 mm and do not care about the ECP integrity;





- Use of 8 ECPs allow to perform testing of the whole rail head per one ride;
- Possibility of crossing the rail bolt joints with up to 15 mm distance between the rails;
- Individual spring-mounted suspension of each ECP;
- Operation time from the rechargeable battery — minimum 8 hours;
- Specialized software to perform setting, testing and view the test results.

Eddy Current Double Rail Flaw Detector ETS2-73

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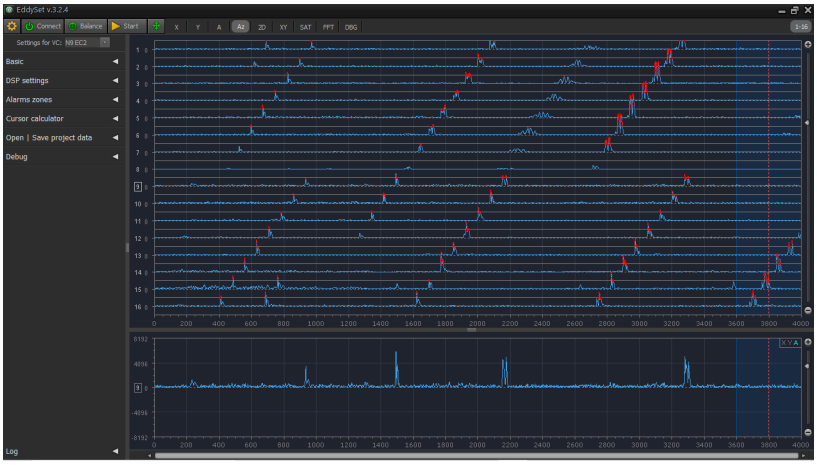
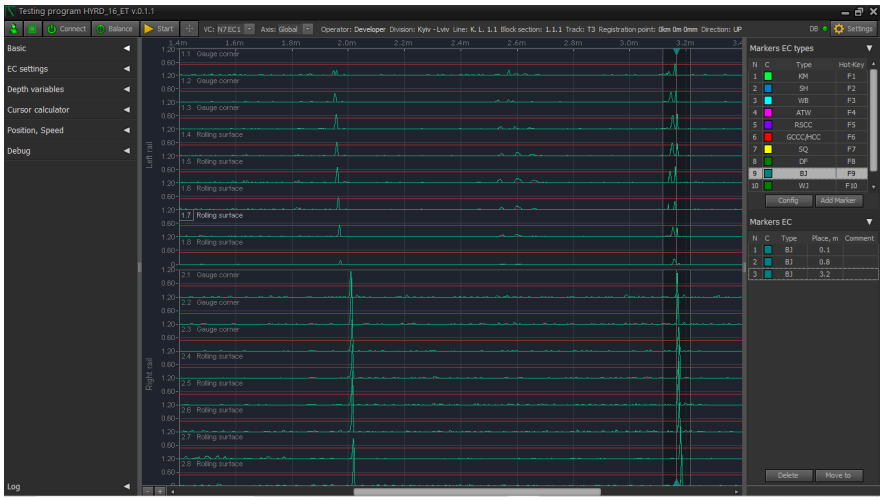
Specialized software of the ETS2-73 flaw detector EddySet program for setting of the eddy current channels of the Eddycon D

- Fast setting of the Eddycon D's eddy current channels – frequency, generator's voltage, gain, filters, threshold level etc;
- Building of the calibration curves and creation of settings for a vertical damage depth evaluation;
- Saving of the settings in the PC's memory.



Specialized software of the ETS2-73 flaw detector ETS2_73_ET program for testing

- Signals display from ECPs per every channel.
- Signals display from ECPs in a real time mode.
- Different types of information display (amplitude display and defect depth display).
- Record and saving of the test results for further processing.



Eddy Current Double Rail Flaw Detector ETS2-73

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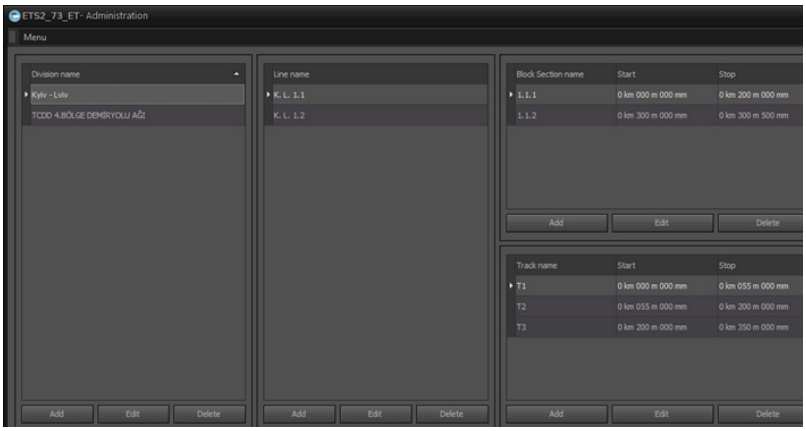
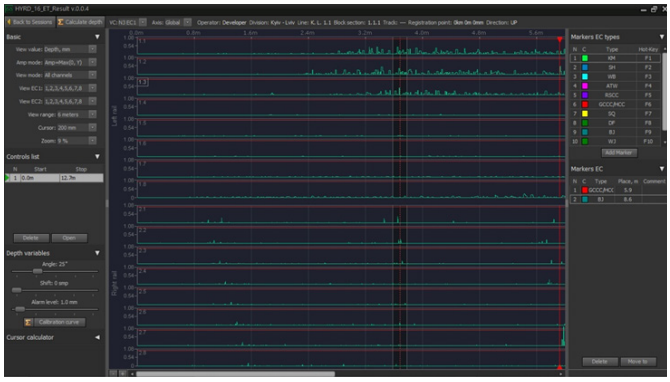
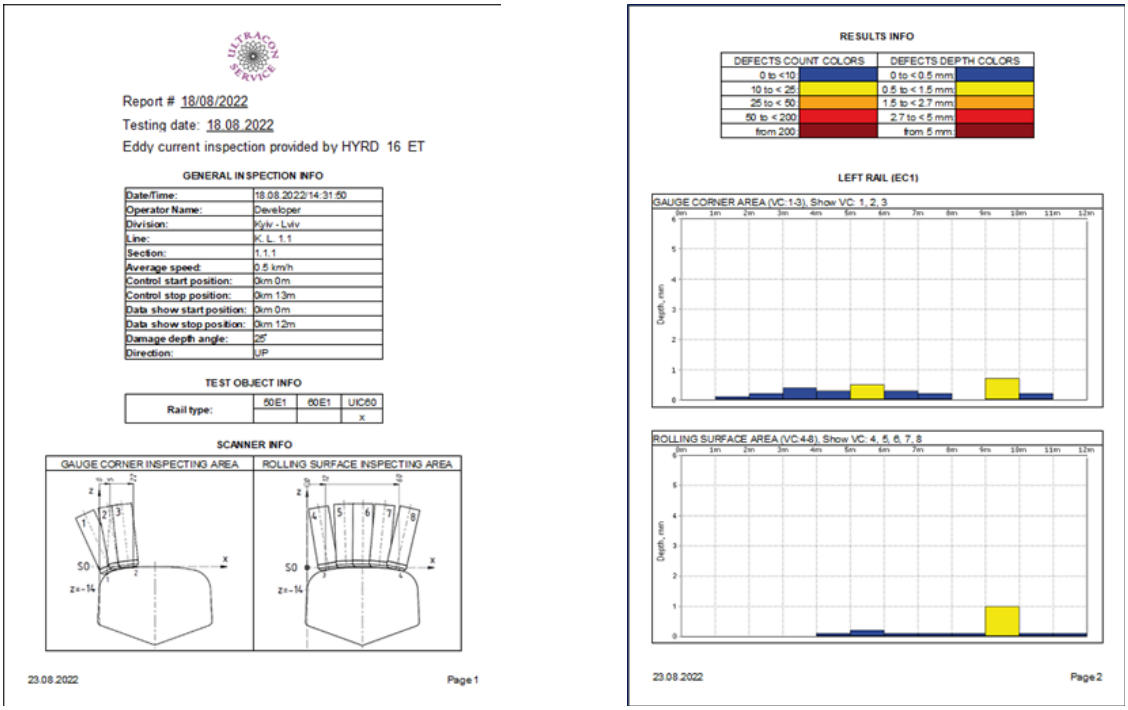
Specialized software of the ETS2-73 flaw detector Program for creation of the track sections to provide the testing and user Administration

- Creation and administration of the track sections for testing;
- Creation and administration of the user accounts.



Specialized software of the ETS2-73 flaw detector Program for creation of the track sections to provide the testing and user Administration





Report # 18/08/2022

Testing date: 18.08.2022

Eddy current inspection provided by HYRD 16 ET

GENERAL INSPECTION INFO

Date/Time:	18.08.2022/14:31:50
Operator Name:	Developer
Division:	Kyiv - Lviv
Line:	K. L. 1.1
Section:	1.1.1
Average speed:	0.5 km/h
Control start position:	0km 0m
Control stop position:	0km 13m
Data show start position:	0km 0m
Data show stop position:	0km 12m
Damage depth angle:	25°
Direction:	UP

TEST OBJECT INFO

Rail type:	50E1	60E1	UIC60
			x

SCANNER INFO

GAUGE CORNER INSPECTING AREA

ROLLING SURFACE INSPECTING AREA

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RESULTS INFO

DEFECTS COUNT COLORS	DEFECTS DEPTH COLORS
0 to <10	0 to < 0.5 mm
10 to < 25	0.5 to < 1.5 mm
25 to < 50	1.5 to < 2.7 mm
50 to < 200	2.7 to < 5 mm
from 200	from 5 mm

LEFT RAIL (EC1)

GAUGE CORNER AREA (VC:1-3). Show VC: 1, 2, 3

ROLLING SURFACE AREA (VC:4-8). Show VC: 4, 5, 6, 7, 8

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Eddy Current Double Rail Flaw Detector ETS2-73

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Eddy current flaw detector Eddycon D ver.2 specification

Operating frequencies range: 10 Hz - 16 MHz

Excitation voltage: 20 V (Peak-to-Peak)

Maximum input signal voltage: 2.0 V (Peak-to-Peak)

Gain 1: 0 - 30 dB with a step of 0.1 dB

Gain 2: 0 - 40 dB with a step of 0.1 dB

Gain X: 0 - 30 dB with a step of 0.1 dB

Gain Y: 0 - 30 dB with a step of 0.1 dB

Signal phase: 0° - 359° with a step of 1°

LowPass filter: Fsmp. MAX/2 (1 Hz to 40 kHz)

HighPass filter: Fsmp. MAX/2 (1 Hz to 40 kHz)

BandPass filter: Fsmp. MAX/2 (1 Hz to 40 kHz)

Overall dimensions: 293 x 37 x 141 mm

Weight: not more than 1 kg

Power supply: 12 V DC

Eddy Current Double Rail Flaw Detector ETS2-73

OKOndt GROUP

Industrial laptop SWELL i156

SPECIFICATIONS	
Waterproof grade	IP65
OS	Windows 10
Display	15.6inch IPS 1920*1080 FHD
CPU	8th Generation KBL-R Intel® Core™ i5-8250U
Storage	8GB RAM, 1 TB ROM
DATA COMMUNICATION	
WLAN	WIFI 802.11(a/b/g/n/ac) 2.4G+5.8G dual WIFI, BT4.2 (BLE)
Battery	2000mHA/7.4V +6300mHA/7.4V
I/O port	USB3.0*3 , USB2.0*1 , Ø 3.5mm standard headphone port, HDMIx1 (type-A)DB9 (RS232 or RS485) ×1SD cardx1RJ45x2(10/100/1000M self-adaption) Network card chip model 1219+I210
Products size	397*271*37 mm/3300g

SPECIFICATIONS	
Product model	**ETS2-73**
Flaw detector type	manual, double rail
Areas of testing	- rail gauge corner - rail running surface
Quantity of ECPs of the flaw detector	16
Quantity of ECPs for one rail testing	8
Testing speed	up to 2 m/s
Overall dimensions of the flaw detector when stowed	1200 mm × 350 mm × 350 mm
Eddy current channel	Eddycon D
ECP protection from mechanical damage and wear	ceramic protector
Signalization (ADS)	visual
Specialized software	- setting program - testing program - results viewing program
Time of continuous operation	8 hours
Data record and storage	PC's hard drive
Operating PC	Industrial PC with IP 65 protection class

EDDY CURRENT DOUBLE RAIL FLAW DETECTOR

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