

비파괴시험기 (LST)

- **Ultrasonic flaw detector and thickness gauge SONOCON B, SONOCON BL**
- **Ultrasonic flaw Detector UD-4-76**
- **Ultrasonic flaw detector small-sized UD3-71**
- **TOFD PRO System**
- **Ultrasonic multi-channel flaw detector OKO-22M-EMA, OKO-22M-UT**
- **Ultrasonic probe for flaw detection and sizing**
- **Ultrasonic thickness gauge UTG-8**
- **Eddy current flaw detector VD3-81 EDDYCON, EDDYCON C**
- **Eddy current multi-channel flaw detector EDDYCON D**
- **Ultrasonic and eddy current calibration blocks**
- **Eddy current production probes Standard compliant EN13860-2**
- **Ultrasonic double rail flaw detector UDS2-73 , single rail UDS2-77**
- **Flaw detector for ultrasonic testing of rail welds UDS-71**
- **Magnetic particle testing system for rail wheels UMPK 3 and UMPK5**
- **Magnetic particle testing and flaw detection of railway axles UMPK-38**
- **Automated ultrasonic testing of pipes SAUZK-T 18US**
- **System of automated non-destructive testing of pipe's body T-18, T-18VT**
- **Automated ultrasonic in-line testing of wheels and tyres SNK "YUG" system**
- **Automated system for complex non-destruction testing of railcar wheelsets KP-8**
- **System of automated ultrasonic testing of longitudinal welded pipes phs-11**
- **Portable XRF System**



Portable Ultrasonic Flaw Detector Sonocon B & BL



Portable XRF

ULTRASONIC Flaw Detector and Thickness Gauge

ULTRASONIC FLAW DETECTORS & THICKNESS GAUGES SONOCON product family



SONOCON BL



SONOCON S

Sonoccon SPECIFICATIONS	
Characteristics and Features	General and "UT" VERSION
DISPLAY	
• Size	BL : 7,2 in B : 4,5 in
• Resolution	800 x 480
CONNECTORS	
• Probe connectors	2 x BNC or 2 x LEMO-1 or 2 x LEMO-00
• Analog output	Alarm
• USB ¹	Type A
• LAN	BL : RJ 45 B : Lemo
• REMOVABLE MICRO CD CARD: BL :	B : -
PULSER	
• Types	Spike + Square Wave (SWP)
• Voltage (SWP)	50 V, 100 V, 150 V, 200 V, 250 V, 300 V, 400 V
• Energy (SWP)	20 ns to 1000 ns with 10 ns step Manual & Auto modes
• Voltage (Spike)	Low: 50 V, High: 300 V
• Damping	+
• PRF modes	comfort, Low, Medium, High, Manual
• PRF	from 15 to 6000 Hz
• Phantoms control	3 modes
RECEIVER	
• Range (at steel longitudinal wave)	8000 mm (314 in)
• Gain	0 to 110 dB, with 0,1 dB step
• Max signal input	20 V p-p
• Bandwidth	0,2 MHz - 27 MHz
• Filters	0,2-27 MHz, 0,2-10 MHz, 2,0-21,5 MHz, 8,0-26,5 MHz, 0,5-4 MHz, 0,2-1,2 MHz, 1,5-8,5 MHz, 5-15 MHz, 0,4 MHz, 0,5 MHz, 1 MHz, 1,25 MHz, 2 MHz, 2,25 MHz, 2,5 MHz, 3,5 MHz, 4 MHz, 5 MHz, 7,5 MHz, 10 MHz, 15 MHz, 20 MHz
• Filters set choice	+
• Rectification	RF, FW, Pos, HW, Neg, HW
• TCG (TVG)	110 dB; 110 dB/us slope
• Signal Average	OFF / 2x / 4x / 8x / 16x / 32x / 64x
• Reject (cutoff)	0-80% FSH
MEASUREMENT	
• Number of gates	2
• Number of cursors	2
• Modes	1, 2, C1, C2, 1-2, 1-C1, 1-C2, 2-C1, 2-C2
• TOF Modes	Peak, Edge (Flank)
• Amplitude measurement	up to 220% FSH
• Units	in / mm / us
• Output fields	5
Characteristics and Features	General and "UT" VERSION
ALARM	
• Number of gates	2
• Number of levels	3
FLAWS EVALUATION	
• AWS	+
• DGS (AVG)	+
• DAC	+
• DAC: Number of points	128
• DAC codes	ASME & ASME III, EN 1712, EN 1713, EN 1714, JIS Z3060, GB 11345, GB 4730
• Custom DAC curves	up to 6
• DAC 20-80	+
• DAC—TCG	+
MEMORY	
• Setup	+
• Databases (with A-Scans)	+
• Capacity	8 GB (up to 64 GB)
• PC SOFTWARE	+
OTHER FEATURES	
• Coupling control	+
• AGC	Independent for both gates
• Quick calibration	+
• Quick estimate (Best signal catch)	+
• AutoXX% (50% or 80%)	+
• Reference gain	+
• Peak hold (collect, peak memory)	+
• Signals compare	+
• Smart zoom	+
• Choice of menu systems	Full, Simple 1, Simple 2
• Keyboard backlight	+
• Smart (Context) keyboard backlight	+
• Number of keyboard shortcuts ¹	41
PHYSICAL	
• Dimensions	BL : 16,1x14,2x2,75 (5,5x4,4x0,9) B : 5,5x4,4x0,9 (2,1x1,5x0,36)
• Weight incl. battery	BL : 5,30 lb (2,4 kg) B : 2,09 lb (0,95 kg)
• Operating temp. range	-22 °F to 122 °F (30 °C to 50 °C)
• Dust & water protection	IP65
• Battery life	8 h
• Replaceable battery	+

TOFD PRO SYSTEM

Family of **TOFD** products

WiFi

CEN/TS 14751:2004 Compliant
EN 5836:2000 Compliant

OKO-ndt GROUP

www.oko-ndt.com

TOFD 2.11 PRO

TOFD 2.11 PRO scanner is intended for testing of the ring welded joints of pipes and tubulars the diameter above 20 to 200 mm, or small diameter from 20 to 120 (from 6 to 50 mm) and also for weld large diameter objects such as ship hulls, oil and gas storage tanks, etc.

The scanner can carry up to 2 pairs of probes and can be modified to carry up to 4 pairs of probes on request.

Scanner is light and comfortable to guide. It contains coupling liquid supply to the working surfaces of each probe individually for postcoupling.



WIRELESS TECHNOLOGY OF TOFD DATA TRANSFER

TOFD 2.10 Dragonfly

TOFD 2.10 Dragonfly scanner has a wide range of applications testing the welded joints of flat surfaces, longitudinal and ring welded joints of pipes with minimal outer diameters from 30 to 200 mm and thicknesses from .25 to 4 in (from 6 to 100 mm).



TOFD UNIT SPECIFICATIONS OF ALL SYSTEMS

• Ultrasound wave generator	2 (DMC)	• PC	16 - 000 Hz
• A/D converter	1024 (100 MHz)	• Software averaging	1, 2, 4, 8, 16, 32, 64
• Total pulse	50 - 4000	• Maximum scanning velocity	100 mm/s
• Gain	1 (30dB)	• Operating temperature range	from minus 20°C to plus 50°C
• Penetration	0.2 - 21 MHz	• Protection level	IP65
• Decoder	up to 2 bits decoder		

TOFD SCANNERS

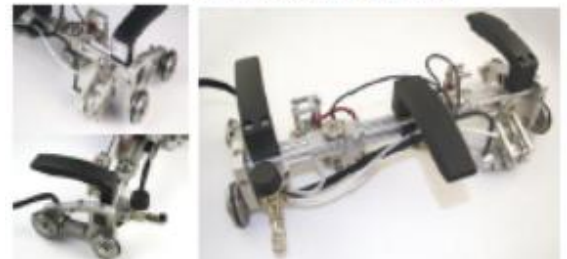
To meet requirements of a variety of working conditions with TOFD techniques, OKO-ndt has developed and continues developing a product line of TOFD scanners presented below.

TOFD 2.2 Lite scanner

TOFD 2.2 Lite scanner is a great solution for testing of both flat walls as large objects (like oil and gas storage tanks, ship hulls, etc.) and smaller horizontal or vertical and large diameter pipelines - ranging from 10 to 200 mm.

Scanner can carry one pair of probes and can be modified to carry 2 pairs of probes on request.

Scanner is lightweight and easy to guide. It contains coupling liquid supply to the working surfaces of each probe individually for post coupling.



TOFD 2.3 PRO by oko-ndt

The system is primarily intended for testing circumferential welds of large pipelines and other cylindrical objects with a diameter from 24 to 200 mm), as well as spherical objects with a diameter from 20 to 120 mm and tubulars from 20 to 120 mm (from 6 to 50 mm) inspected provided that the probes being changed.

As the result of philosophy of the system, scanner that the scanner accommodates all elements, including with four lenses. The scanner is light, easy to guide and reliable due to the fact that TOFD module, power and software (V) module are placed outside. For good coupling, it is advised to use an external coupling liquid supply system. In this case, it means there will come to the scanner. Also if absolute mobility is needed, coupling module can be applied to the object before testing, or a non-alignable can be used to adjust distance between scanner. If required by the customer, it is possible to supply a modified standard eye scanner. Standard includes not only two pairs of probes.

A system for protecting the integrity of scan data is provided, while they are fully saved inside the TOFD module and transferred to PC in the end of testing. If required, it is possible to use a wire connection to transfer data to PC.



Ultrasonic testing



Ultrasonic testing

- Ultrasonic flaw detectors
- Ultrasonic thickness gauges
- Ultrasonic scanners
- Ultrasonic probes
- Ultrasonic calibration blocks



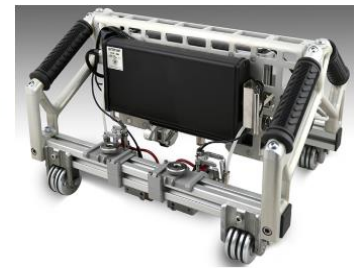
Portable Ultrasonic Flaw Detector Sonocon B & BL

OKO-22M-UT ultrasonic flaw detector

USR-01 Kit Testing Of Rail Welded Joints

ExScan1000

TUZ-5



UDS2-73 rail flaw detector

UDS2-77 Ultrasonic Single Rail Flaw Detector

Portable Ultrasonic Flaw Detector Sonocon B Version «Thickness Gauge +»

TOFD Man

TOFD 2.2 PRO Wireless System



Ultrasonic testing

- Ultrasonic flaw detectors
- Ultrasonic thickness gauges
- Ultrasonic scanners
- Ultrasonic probes
- Ultrasonic calibration blocks



OKOndt GROUP™

ULTRASONIC FLAW DETECTORS & THICKNESS GAUGES
SONOCON
 product family



SONOCON BL

SONOCON B

www.okondt.com

OKOndt GROUP™



OKOndt GROUP™
 NON DESTRUCTIVE TESTING



OKOndt GROUP™
 NON DESTRUCTIVE TESTING


USR-01 KIT
TESTING OF RAIL WELDED JOINTS



Complies with:
 EN14730-1:2006+A1:2010


www.okondt.com

MULTI-CHANNEL ULTRASONIC FLAW DETECTOR
OKO-22M-UT
 THE BEST INDUSTRIAL OEM SOLUTION FOR IN-LINE AND IN-SERVICE SYSTEMS



OKOndt GROUP™
 www.okondt.com

ULTRASONIC THICKNESS GAUGE
ExScan1000



OKOndt GROUP™
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OKOndt GROUP™

WiFi

Wireless TOFD MAN™ system
 CEN/TS 14751
 EN 583-6
 compliant

www.okondt.com



Family of TOFD products

WiFi

CEN/TS 14751:2004
 Compliant
 EN 5836:2000
 Compliant

OKOndt GROUP™
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Ultrasonic testing



Ultrasonic testing

- Ultrasonic flaw detectors
- Ultrasonic thickness gauges
- Ultrasonic scanners
- Ultrasonic probes
- Ultrasonic calibration blocks



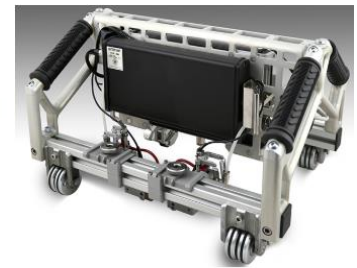
Portable Ultrasonic Flaw Detector Sonocon B & BL

OKO-22M-UT ultrasonic flaw detector

USR-01 Kit Testing Of Rail Welded Joints

ExScan1000

TUZ-5



UDS2-73 rail flaw detector

UDS2-77 Ultrasonic Single Rail Flaw Detector

Portable Ultrasonic Flaw Detector Sonocon B Version «Thickness Gauge +»

TOFD Man

TOFD 2.2 PRO Wireless System

Eddy Current Flaw Detector Eddycon C & CL



Portable eddy current flaw detector Eddycon C & CL



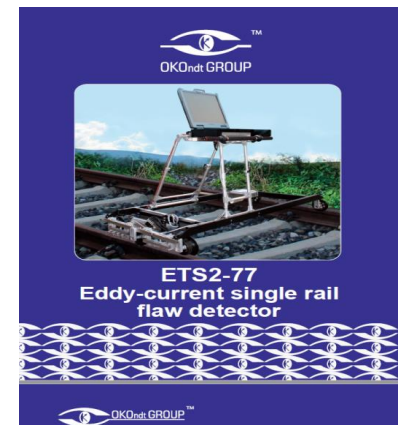
SMARTSCAN Aircraft Wheel Inspection System



EDDYCON D multi-channel eddy-current flaw detector



Eddy-current single-rail 8-channel flaw detector ETS2-77 for the track rails control





Eddy-current testing

- Eddy-current flaw detectors
- Eddy-current probes
- Eddy-current calibration blocks

OKOndt GROUP

**PORTABLE
EDDY CURRENT
FLAW DETECTORS
EDDYCON
product family**

EDDYCON CL

EDDYCON C

Complies with:
ISO 15548-1

OKOndt GROUP

**MULTI-CHANNEL
EDDY CURRENT FLAW DETECTOR
EDDYCON D**

THE BEST INDUSTRIAL OEM SOLUTION
FOR IN-LINE AND IN-SERVICE SYSTEMS

OKOndt GROUP

www.okondt.com

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**ETS2-77
Eddy-current single rail
flaw detector**

OKOndt GROUP

QUALITY STARTS AT THE SOURCE:
High-quality tube inspection just after the welder machine

**COMPLETE
INSPECTION SOLUTIONS
FOR ERW AND HFW PIPES**

Monitoring of the ERW weld quality in in-line welding area
Real Time Presentation of Wall Thickness Data, in engineering units, on the tube mill
Scrap Reduction. Catch ID and OD flash removal problems before they become a costly encounter.

PRP

www.oko-ndt.com



ULTRASONIC PROBES
for Flaw Detection and Sizing



probes for NDT equipment

**Types of
eddy-current
probes produced by
OKOndt GROUP™**

- Surface Probes (for different purposes)
- Subsurface Probes (for subsurface defects detectors)
- Dynamic rotating probes (for both holes and countermink testing, manual and scanner)
- Weld probes (for HAZ and welded seam testing)
- Encircling Coils (for pipes, rods and wire testing)
- Etc.

Ultrasonic probes

Eddy current probes

Automated Testing System



Automated testing

- Magnetic Particle and Ultrasonic Inspection System
- Wet fluorescent magnetic particle testing of railway axles
- System of complex testing of railcar wheel pairs
- The system for automated ultrasonic testing of railway axles OS-4
- Automated system of ultrasonic testing of longitudinal pipe welded joints



System of automated ultrasonic quality testing of wheels and rims SNK KB-13



AXLE-4 System for automated ultrasonic inspection of railway axles during production



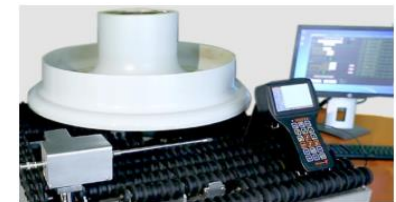
Automated ultrasonic and eddy-current system for mill rolls testing SNK B-35 (L)



Magnetic Particle and Ultrasonic Inspection System



SNK KP-8 automated system for integrated nondestructive testing of railcar wheelsets



SMARTSCAN Aircraft Wheel Inspection System

Electromagnetic Acoustic Testing



Electromagnetic acoustic testing

- Electromagnetic acoustic flaw detectors



OKO-22M-EMA ultrasonic flaw detector intended use

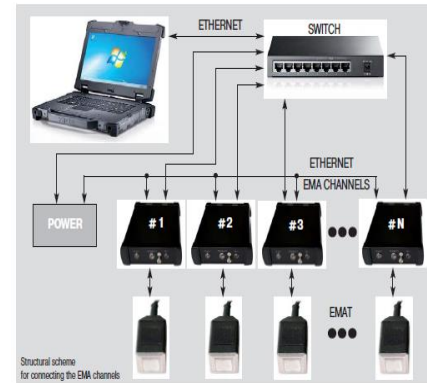
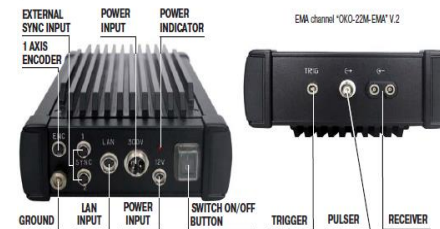


Figure 1
EMA channel
"OKO-22M-EMA"



ULTRASONIC PROBES

for Flaw Detection and Sizing



Ultrasonic testing

- Ultrasonic flaw detectors
- Ultrasonic thickness gauges
- Ultrasonic scanners
- Ultrasonic probes
- Ultrasonic calibration blocks



Eddy-current testing

- Eddy-current flaw detectors
- Eddy-current probes
- Eddy-current calibration blocks



Automated testing

- Magnetic Particle and Ultrasonic Inspection System
- Wet fluorescent magnetic particle testing of railway axles
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- Automated system of ultrasonic testing of longitudinal pipe welded joints



Electromagnetic acoustic testing

- Electromagnetic acoustic flaw detectors

The XRF Analyzer



EDXRF spectrometers



Handheld, mobile, desktop & laboratory EDXRF spectrometers



The product line

Handheld Model: H500

Bench-top Model :

EDX280D, EDX6000D, EDX9000D, EDX6600D, EDX8800D(equipped with Vacuum pump)

Bench-top Model with touch screen:

EDX6000280E, EDX6000E, EDX9000E

Mineral and soil application



Exploration/prospecting:
Standard Bulk



Exploration Drilling:
Standard Bulk
and Industrial Bulk



Ore Grade Control:
Industrial Bulk

Environmental:
Standard Bulk
and Industrial Bulk



Processing:
Industrial Bulk



RoHS/WEEE Directives

- Reduce and eventually eliminate the use of prohibited substances at the source (RoHS)
 - *Maximum permissible levels in a homogeneous material will be as follows:*

• Cadmium (Cd)	100 ppm
• Mercury (Hg)	1000 ppm
• Lead (Pb)	1000 ppm
• Hexavalentchromium (Cr(VI))	1000 ppm
• PolybrominatedBiphenyls	1000 ppm
• PolybrominatedDiphenylsEther	1000 ppm
- Recycle as much of the product as possible after its useful life, in order to minimize the issues of disposal (WEEE).