



AutoWeldScan System

Precision in Pipeline Inspection

An automated ultrasonic phased array system AutoWeldScan is your simple, lightweight, and rugged solution for girth weld inspections on pipelines.

The system utilizes advanced Phased Array techniques with TOFD for a comprehensive weld volume inspection that aligns with international standards and the requirements of the contractors.



**ROBUST, LIGHTWEIGHT AND RELIABLE FOR FIELD APPLICATION
DEVELOPED BY INSPECTORS, FOR INSPECTORS**

Phased Array + TOFD Technology

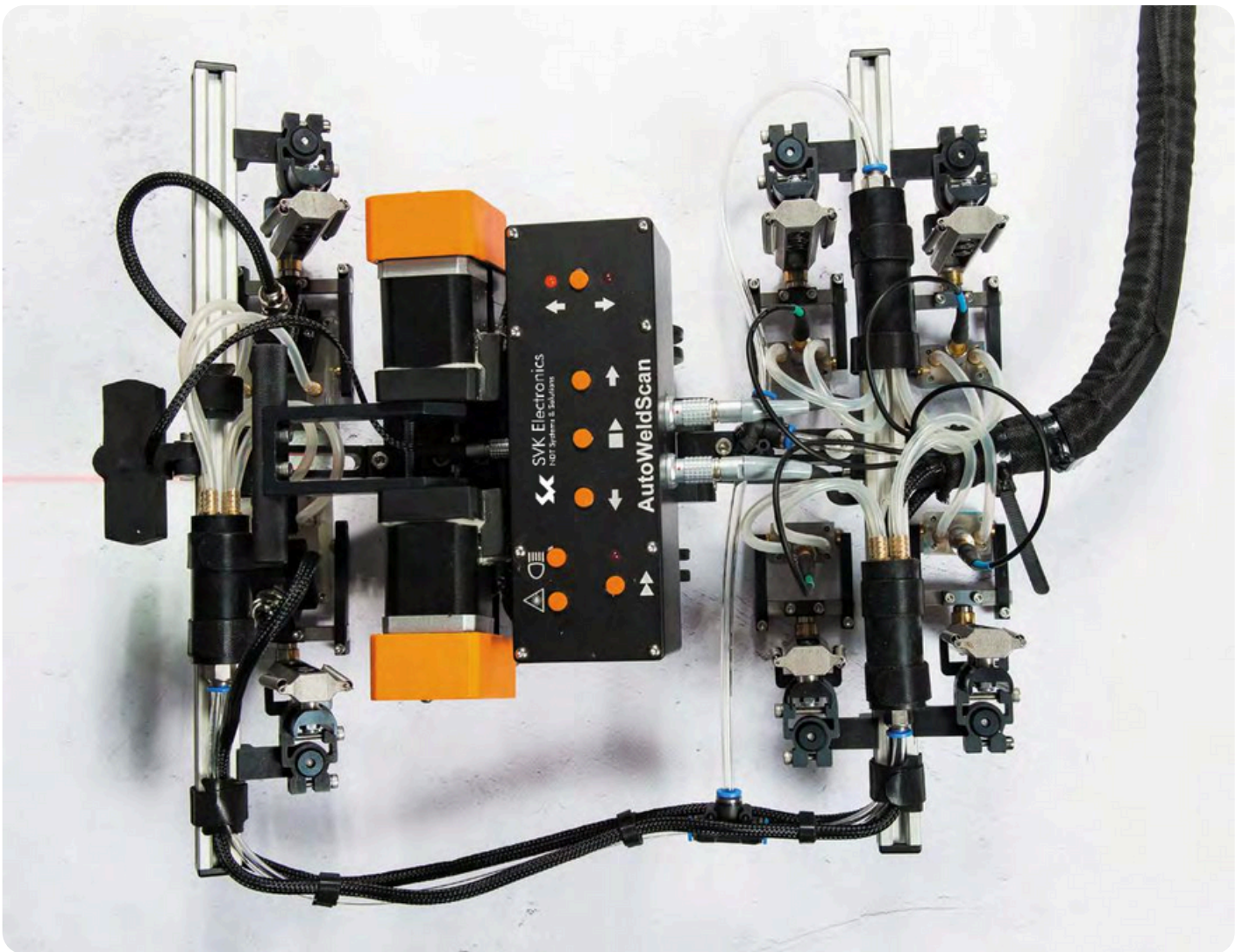
full weld coverage and reliable detection:

The combination of classic PA (2 x Phased Arrays (64 elements each)) with TOFD technology (2 pairs of TOFD) guarantees the best detectability and measurement capability for the defects at full weld volume coverage.

The choice of 16, 32 or 64 element phased array increases the applicability of the instrument.

The ability of generating 4 groups for each PA (8 subgroups in total) supports enlarged weld zones coverage settings.

Less probes to cover application required.





Effortless Operation

- Easy setup and operation are at the core of the AutoWeldScan System.
- Operators benefit from a user-friendly interface, ensuring a swift learning curve and efficient utilization in the fields.
- Quick setup on the weld without guide belts.
- Easy to manipulate scanner.
- Inspection with consideration of the true geometry of the weld.
- Real-time inspection results on the display of acquisition unit to control quality of received data.
- Special software for Analysis and report generation.

Versatile Applicability

The system fits the variety of circumferential welds:

- different profiles: CRC-Evans, J-bevel, V-bevel, double V, X, etc
- wall thicknesses (6 mm to over 40 mm)
- pipe diameters (200 mm to 1420 mm)
- from standard carbon-steel to complex materials

Defects types: lack of fusion, incomplete penetration, porosity, burn through, undercut, hi-lo, crack, cold lap, inclusion, and more.

Approximate inspection cycle time of 25–40 mm/sec.

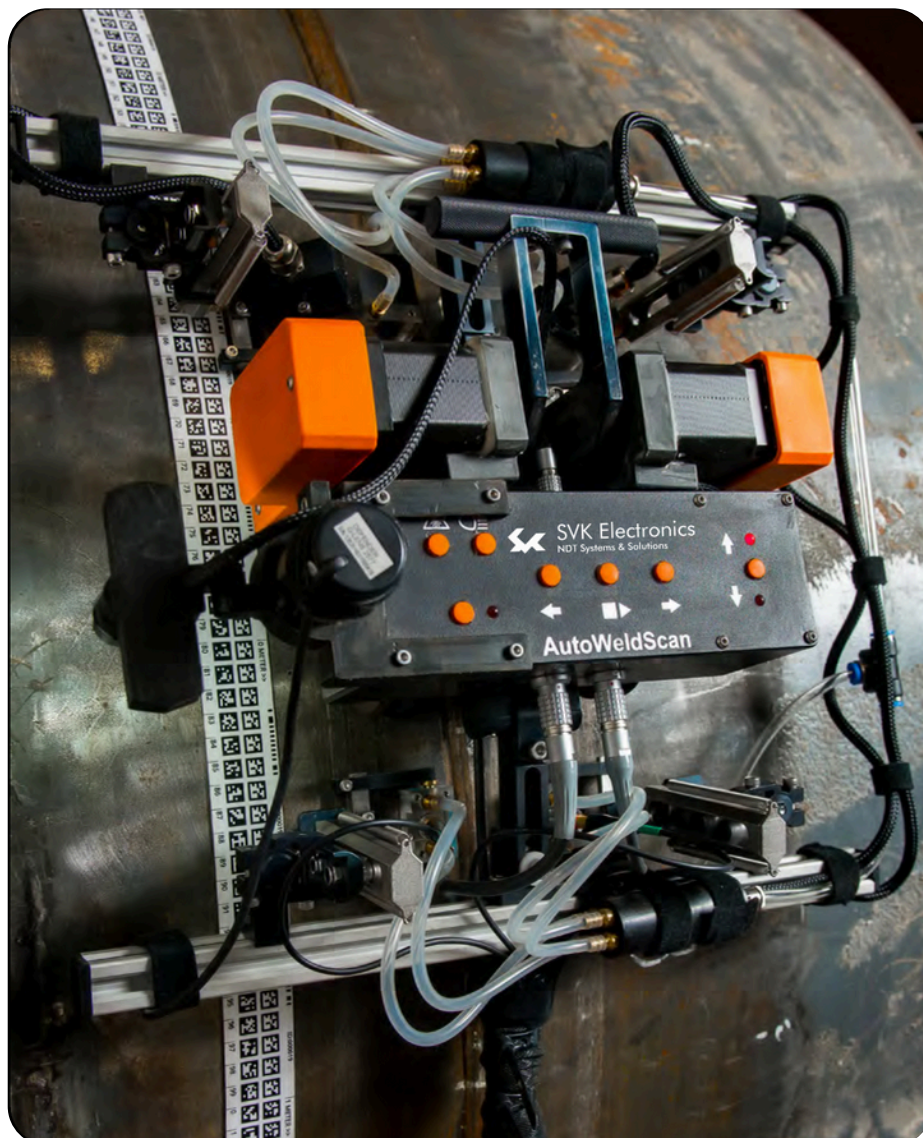
AutoWeldScan Efficient Scanning

SIMPLIFIED SCANNER CONSTRUCTION

Lightweight at 3.5 kg, it's easy to install without the need for special belts.

Approximate **inspection cycle time of 25-40 mm/sec.** (manual control to fully automated scanning).

The **2x-motor automated** scanner, with **flexible semi-independent suspension** enables easy manipulation on the weld during the inspection process, the scanner smoothly passes irregularities without changing the track and uniformity of movement.



The Operator can manipulate the scanner manually or have a fully automated scanning system (optionally). When fully automated the scanner is additionally equipped with a videocamera and bar-code band for seamless automation.

Inspection of welds with offset edges possible.

Manual driving from the remote control unit, from Aquadrive unit, with the buttons on the scanner or fully automated scanning as an option.

No need to physically touch the scanner nor use the lever to align its position.

Scanner has a **laser guide** for precise positioning.

The **magnetic wheels** reliably hold the scanner in each position on the pipe.

Highly efficient and simple in use.



A **patented pumping system for couplant** supply guarantees equal distribution of couplant between the probes in all positions of the scanner on pipe and stable acoustic contact during scanning.

The system **ensures the most economic consumption of couplant (450 ml of water for 1420 mm OD pipe)**.

Light remote control unit allows comfortable operation and change of position by the inspector.

Connection to Scanner and acquisition unit with one cable conduit with cables protected from damaging.

Provides upto 8 hours power supply for AutoWeldScan (and other scanners in the line) from powerful hotswap battery.

Robust construction built to withstand varying environmental conditions (rain, dust, cold, hot).

Key parameters on the display of the unit give additional information to the operator: speed of scanning, state of battery charge, water consumption ml/min and other.

Aquadrive Control Unit

The Aquadrive is a motion control and couplant supply unit in one.

It ensures **smooth and constant movement** of the system which is important for UT data acquisition.

Provides : Forward/Reverse; Right/Left Start/Stop; movement adjustment.

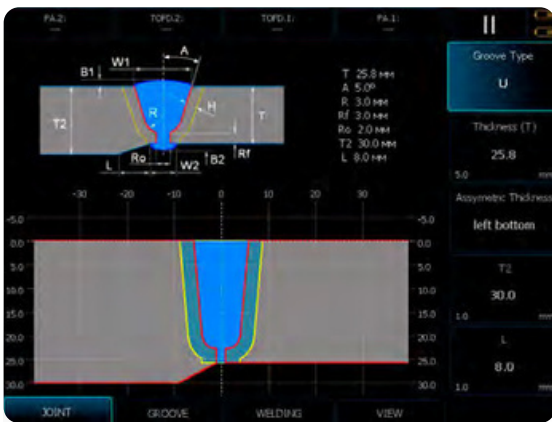


ScaneX PA 16/128 - Setup and Acquisition Unit

This light-weight IP64 protected acquisition unit is a full-functioned UT Phased array flaw detector. It enables setup and operation of 2 x 64 element PAs, 4 x TOFD probes, and connection of different types of scanners.

Provides real-time monitoring of signal and quality of acoustic contact during scanning in two modes: S-Scan and D-Scan. With S-Scan generation at 100Hz, it allows two-sided scanning of the weld at a speed of 6-9 meters per minute.

The unit can display data in different views including A-Scans, S-Scans, LS Scans, and L Scans.



Weld wizard

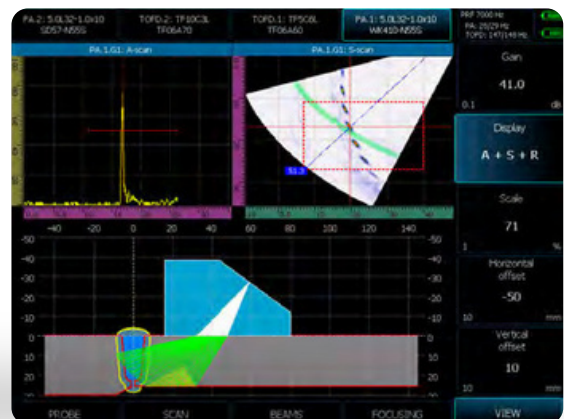
Additional instruments like preset weld constructor, build-in list of probes with set parameters, simple scanner configurator, scanning constructor help operator smooth setup of the parameters with a lot of functionality.

User-friendly interface with customizable display layouts. Bright monitor display optimized for outdoor usage.

An USB memory disk/stick for storing inspection results, enhances memory capacity and streamlines data operations. There's no requirement to transfer results via a specific interface to a PC; simply plug in the memory disk/stick and seamlessly work with your data.



Scanner configurator



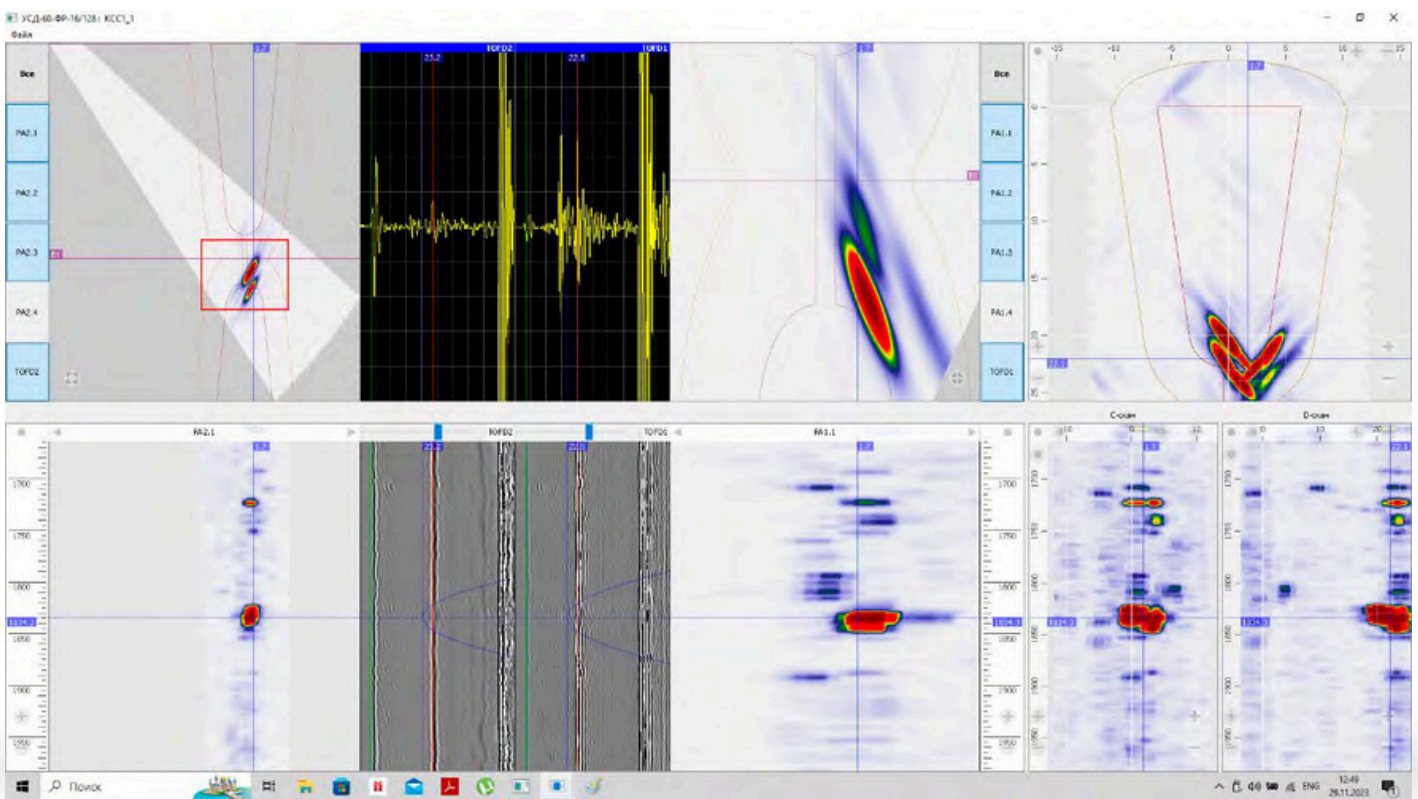
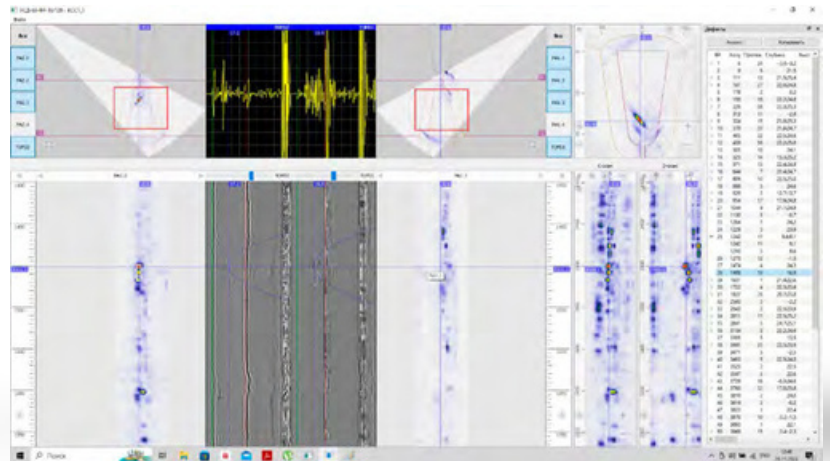
Scan wizard

Advanced Software

DATA ANALYSIS AND REPORTING

Specially developed software allows a detailed analysis of signals in each scanning point in different views, shows full data from all groups of probes for individual review.

It automatically highlights preset alarm positions and areas requiring additional attention. Allows adding comments on the report. Generate detailed reports with ease.



Serviceability and Reliability

BUILT FOR CONTINUOUS OPERATION

The AutoWeldScan system is designed for non-stop operation in the field. Extended battery life uninterrupted field operations. An additional for rechargeable, hot-swap battery guarantees stable operation during the shift. Quick repair possibilities by replacing key modules ensure minimal downtime.

Complete AutoWeldScan Package

COMPREHENSIVE SOLUTION

The AutoWeldScan package includes the scanner equipped with 2 x PA and 4 x TOFD probes, Aquadrive unit, ScaneX PA 16/128 acquisition unit, heavy-duty cable conduit with all cables, additional battery, recharging station, calibration unit, software, complete spare parts kit, and all necessary tools.

Technical Specification

ScaneX

PHASED ARRAY

Generator Configuration: 16:128 (optionally 32:128)

Excitation Voltage: ± 75 V

Excitation Pulse Type: Radio Pulse

Synchronization: Position or time encoder

Gain: 0–80 dB in 0.5 dB steps

Operating Frequency Range: 500 kHz — 20 MHz

Sampling Frequency: 100 MHz

ADC Bit Depth: 10 bits

Data Bit Depth: 16 bits

Signal Recording: Digital recording of each signal

Max A-Scan Length: Up to 10,000 points

Pulse Repetition Frequency: Up to 20 kHz

Focusing Laws: Up to 1024

Sensitivity Equalization: 2D programmable by angle, depth (VRCR range of 60 dB, 32 points with a slope of up to 50 dB/ μ s)

Focusing Types: Depth, path, distance, auto

Scan Types: S-Scan, Real weld geometry (V-Scan), C-Scan, Top and side views

Scanning Modes: S-Scan, L-Scan, Compound LS-Scan (compound S-Scan)

Simultaneous Element Groups: Up to 10 groups (up to 4 on each PA channel + 2 TOFD channels)

Cursors: Cartesian system, 2D, polar

Measurement: Distance along the beam, coordinates in depth and position (X, Y), maximum in 2D, equivalent area

Post-Processing on PC: Analysis, 3D volume analysis, scaling, protocol output

Connectors: 2 x Amphenol D38999

GENERAL FEATURES

Data Storage: Standard USB card or high-speed Ethernet 10/100 Mbps

USB Ports: 2 USB + hub with 5 additional ports

File Size: 300 MB

Standard Scanning Speed: 6–9 m/min

Scan Record Length: 5000 measurements

Display: 800 x 600 pixels, 8.5 inches, color TFT with background change function for contrast work in bright sunlight

Battery: 2 built-in batteries, with quick replacement, up to 12 hours of autonomous operation

External Power: 220 V AC power supply

Operating Temperature Range: -35 °C to $+50$ °C

Size (H x W x D): 280 mm x 245 mm x 100 mm

Weight: 2.5 kg with battery

SCANNER SYSTEM

SCANNER WEIGHT: 3.5 kg

AQUADRIVE WEIGHT: 3.4 kg

CONVENTIONAL UT CHANNELS

Number of Channels: 2 independent channels

Excitation Voltage: ± 200 V

Sampling: 100 MHz

Processing: A-Scan, B-Scan, TOFD

Rectification: FW, HW+, HW–, and RF

Gain: 0–110 dB in steps of 0.1, 0.5, 1, 2, and 6 dB

Operating Frequency Range: 500 kHz — 20 MHz

Connectors: 4 x Lemo 000

Uptodate Technology. Unmatched simplicity. Contact Us to Elevate Your Inspections.

With a quick setup time, water-saving technology, and developed by inspectors for inspectors, our system is the ideal instrument for field applications.