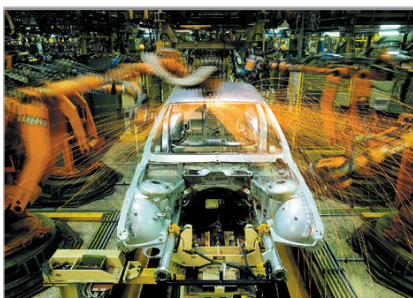
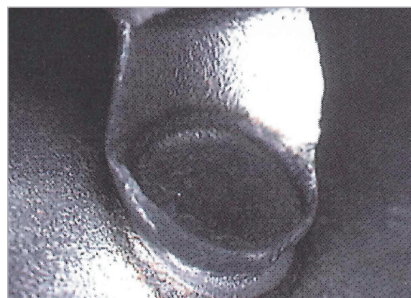


PHAsis[®]one – spot weld inspection device with Phased Array technology

Manual inspection device for the fast and precise spot weld inspection, designed for the testing in the production and the laboratory.



designed for the production



121 ultrasonic elements



lightweight and handy

PHAsis^{®one} spot weld inspection device

Manual inspection with Phased Array technology in the production and the laboratory

High precision with fast imaging evaluation

VOGT Ultrasonics presents the new ultrasonic inspection device PHAsis^{one} – the first phased array ultrasonic inspection device offering a previously unattained physical resolution of the spot weld diameter more precise than 0.35 mm. PHAsis^{one} was designed for the accurate inspection of resistance welded spots of steel- or aluminum sheets. It's ideally suited for the inspection of 2- and 3- layer joints with a single sheet thickness of 0,7 mm - 5 mm.

121 ultrasonic elements and an 11 x 11 matrix grant for a physical resolution more precise than 0.35 mm for the inspection of the spot weld diameter. More than 700 measuring points are recorded per spot weld. The probes are connected to the test part by means of the water path and its reliable bubble technique. The inspection time is just a few seconds per spot.

PHAsisone provides data on the diameter of the welding spot, the remaining wall thickness of the welded area as well as the sound attenuation caused by structural transformation as possible evaluation criteria for zinc adhesion bonding.

The compact and robust housing and its low weight of 3.5 kg make PHAsis.one the ideal equipment for mobile operation (see fig.1).

Central administration of inspection plans and results with the PHAsis^{manager} software

All data is organized by means of the PHAsis^{manager} administration software and synchronized with the PHAsis^{one} ultrasonic inspection device. If needed PHAsis communicates with the customer's data base by individually adapted interfaces. The data and user administration as well as the creation of various inspection plans are clearly designed for easy and fast editing.

Free testing

The free testing enables a fast inspection of various spot welds, detached from set inspection plans. Therby the user has still access to the full functionality as known from the testing according to inspection plans. After the inspection, the results of the free testing can be transferred into an inspection plan and a standard inspection.

Intuitive software for a fast inspection

The PHAsis^{device} inspection and evaluation software on the device is specifically designed by VOGT Ultrasonics for quick use during production. The intuitive operation guarantees a minimum need of training.

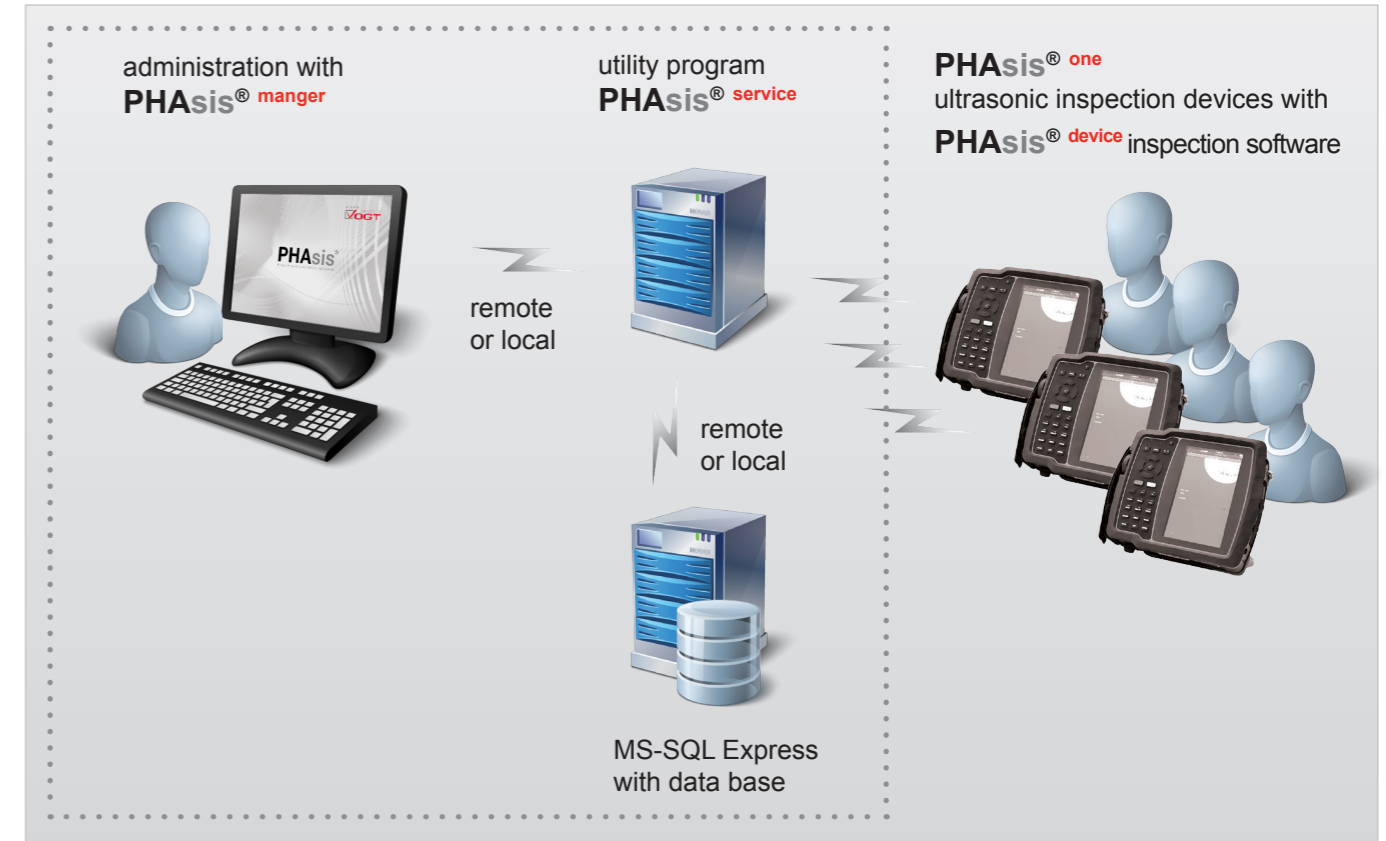


Fig 3: Distributed complete system with various manual inspection systems



Fig. 2: detailed report with D-Scan

Fig. 1: PHAsis^{one} portable inspection device with a laptop as minimal configuration of the complete system

The software of the device supports the customer with a live D-Scan and amplitude-based alignment points for the optimum focussing of the probe on the spot weld to be inspected (refer to fig. 4).

The imaging display of the phased array technology ensures the safe evaluation of the inspection results. The created display of the spot weld with coloured depth imaging of the welded areas shows defects in the welding, e.g. pores or too small welding spots.

By freezing the D-scan the inspection system automatically provides an evaluation proposal (see fig. 1).

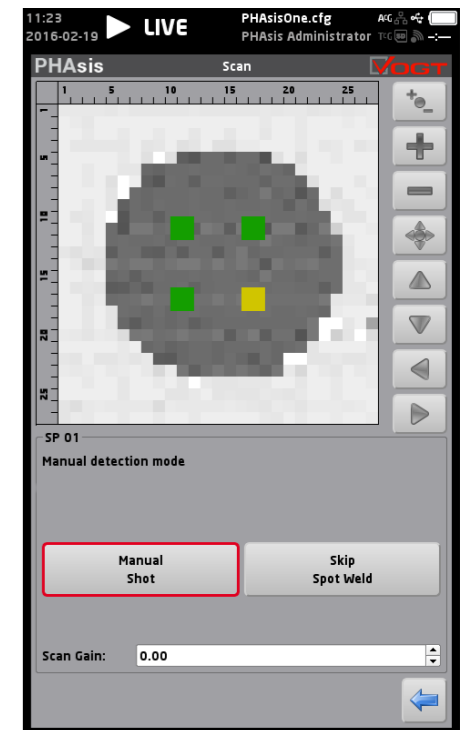


Fig. 4: Live D-Scan for positioning and vertical focussing of the probe on the spot weld surface

Technical Data

Manual inspection device PHAsis ^{one}	
Dimensions	220 x 200 x 90 mm ³
Weight	3,5 kg inkl. Battery
Display	7" TFT, LED Backlight 480 x 800 Pixel, 9:16
Housing	CNC manufactured aluminium housing
Protection Class	IP 64
Battery-Operation	Yes, lithium-Ion 14,4 V with 69 Wh
Battery Life	ca. 5 hours
Phased Array Interface	IPEX 30046 Steckverbindung
Phased Array Channels	16/128 PR
Digitization Rate	100 MHz
Amplitude Resolution	16-bit
Network Connection	Ethernet 10/100 RJ-45
Data Interface	USB Type A
Max. IFF	10 KHz
Video Output	VGA 1024 x 769, HD15
Max. Pulse Width	+/- 100 V (200 V peak to peak)
Band Width (-3dB)	0,5 - 25 MHz
Pulse Width	5 ns bis 10,2 µs in 2,5 ns Schritten
Frequency Filter	Digital
Focal Laws	> 700
Power Supply	100 - 240 VAC, 50 Hz - 60 Hz
Operation Temperature	-10°C up to 40°C
Storage Temperature	-20°C up to 60°C

Probe	
Type	Phased Array 2D Matrix
Frequency	20 MHz
Number of Elements	11 x 11 arranged in squares
Cable	Long-life 2,5m
Inspection area	ca 9 x 9 mm ²
Physical Resolution	better than 0,35 mm

PHAsis Software Solution

- User administration in three right groups
- Manual inspection device administration
- Material administration
- Administration of sheet combinations
- Administration of specific ultrasonic parameters
- Administration of specific evaluation parameters
- Creation of inspection plans for the production (for the easy and rapid processing by the inspectors)
- Spot weld specific setups due to allocation/combination of different parameters (evaluation parameters, ultrasonic parameters, sheet combinations)
- Individual colored result display
- Inspection plans available on all PHAsis inspection devices by synchronisation
- Free testing (testing without inspection plan) for the use in the laboratory and setup
- Creation of test inspection plans based on the results of the free testing
- Clear result display for each processed inspection plan respectively inspection series with the free inspection
- 2 different report types (detailed, compacted)
- The reports can be exported as Word-, Excel- or pdf-document

(Product names and trademarks are the respective owners property. Subject to technical alternations. (Edition: PHAsis ONE inspection device EN_170427_V1).



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- accredited as independent test laboratory acc. to DIN EN ISO / IEC 17025
- certified acc. to ISO 9001:2008 / EN 9100:2009