

SONOSCAN

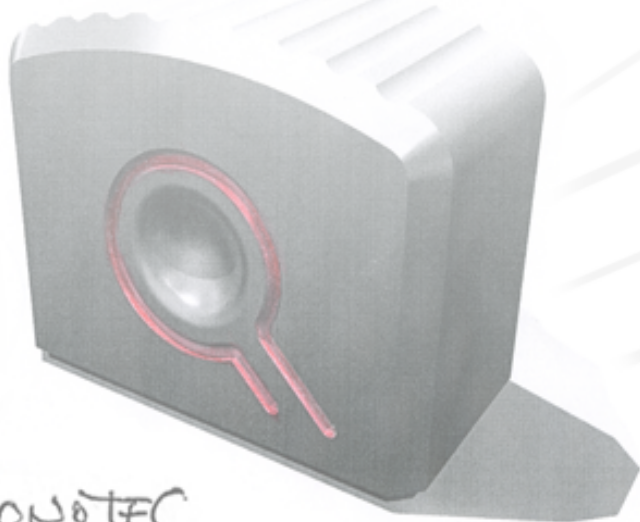
# Transducers CATALOG

For Nondestructive Ultrasonic Testing



# Ultrasound is our Strength.

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**SONOTEC**   
ULTRASONIC SOLUTIONS

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# SONOSCAN Transducers for Nondestructive Ultrasonic Testing

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## Test Equipment from the Ultrasound Specialist

SONOTEC was founded in the beginning of 1991 by the physicists Dr. Santer zur Horst-Meyer and Hans-Joachim Münch and has been owner-managed since then. With currently more than 170 employees, today we are a growing technology company established on the market as a provider of specific solutions using ultrasonic measurement technologies.

*Ultrasound is our Strength.*

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More than 25 years of experience in the development, production and worldwide distribution of innovative ultrasonic solutions - our philosophy of strong customer orientation and an open corporate culture are the secrets of our success.

You don't find the required product or suitable accessories on the following pages?  
Contact us!



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# SONOSCAN Transducers

## Quality 'Made in Germany'

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### Highly flexible Material Testing Devices

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**Experienced material testers** have supervised the development of SONOTEC flaw detectors and transducers focusing on **simple operation procedures and high sensitivity** while simultaneously providing a robust design.

The SONOSCREEN ST10 can be used for all conventional ultrasonic tests such as weld inspections, wall thickness measurements and the detection of discontinuities, which includes invisible cracks, inclusions, voids and other discontinuities in metals, plastics, ceramics and composites.

### High-precision Wall Thickness Measuring Devices

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**Wall thickness measurement** as part of nondestructive testing is one of the most common uses of ultrasonic technologies. In addition to the classic measurement of wall thickness as part of **quality control**, our precise wall thickness measurement devices can also be used to detect damage caused by **erosion and corrosion** on, for example, ships, storage tanks, pipelines and cranes. We have a variety of versions of our devices for all types of applications as well as stationary solutions.

### Automated Air-Coupled Ultrasonic Inspection Systems

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Compared to conventional contact non-destructive testing methods the advantage of air-coupling is that the inspection can be performed **100 % contact free**.

Accordingly, this innovative testing method is suited especially for the **inspection of modern composite materials** as they are used in several industries such as automotive, aerospace, ship building, machine building and sports and leisure goods. The applications and structures are highly diverse and are being developed further constantly.

In addition to standard products, **we also manufacture customized solutions**.

# SONOSCAN Transducers

## Made in Germany.

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### Our insistence on quality

Our ergonomically designed, in manufactory work individually produced transducers are used for locating objects accurately as well as for safe evaluation of material defects and discontinuities within components and test objects. The evaluation of such flaws is made on the basis of reflected ultrasound using the maximum of this echo signal. Decisive for extraordinary acoustic properties of the transducer are the characteristics of the transducer.

With a strong R&D department and an own production for piezo-composites we are able to offer efficient transducers as well as implement variable solutions fast and flexible.

At SONOTEC you receive high quality - Made in Germany.

Transducers are characterized by technical specifications like nominal frequency, bandwidth, and the diameter of transducer. However, only the long-term stability of these parameters is a sign for the reliability and quality of our transducers. Additional requirements are set in specific applications by environmental conditions such as temperature, pressure, and resistance to media.

To make sure that the various transducers cope with the particular measuring tasks, all technical data of the SONOSCAN transducers is specified in very close tolerance limits.

In order to ensure a high quality every transducer manufactured at SONOTEC has to pass a strict quality control. In this test it is checked if the measuring values of the transducer lie in the close tolerance range of our acceptance inspection. The evaluation of measuring data enables us to restrict our tolerance range to a smaller extent. So, we can steadily increase the precision of our transducers and create more accurate products for our customers.



# SONOSCAN Transducers for Nondestructive Ultrasonic Testing

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## Transducer Parameters

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Size of Transducer

Describes the dimensions (diameter or length x width) of the ultrasound generating element, i.e., piezo-ceramic or piezo-composite material. The dimensions of the active element have a significant impact on the shape of the emitted sound field.

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Center Frequency  $f_0$

Is the arithmetic mean of the cut-off frequency:

$$f_0 = \frac{f_u + f_l}{2}$$

Within the frequency spectrum of an echo, the upper and lower cut-off frequencies are determined at -6 dB compared to the largest amplitude.

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Bandwidth

Describes the range of frequencies in an echo spectrum that shows a maximum amplitude deviation of up to 6 dB from the center frequency. A transducer with a broad bandwidth can generate shorter ultrasonic pulses. As the lower frequencies of the pulse are less attenuated than the center frequency, resolution and penetration can be improved with higher bandwidths.

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# SONOSCAN Transducers for Nondestructive Ultrasonic Testing

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## Focus

Transducers can be focused with acoustic lenses in order to identify even small reflectors with a higher sensitivity. The focal length refers to the distance of a reflector to the transducer which generates the highest possible echo amplitude. Focusing is only possible within the near field of a transducer. Flat transducers have a natural focus which is defined by the transducer size and its frequency as well as diffraction effects and interferences.

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# SONOSCAN Straight Beam Transducers According to European Standard

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The ergonomic straight beam transducers of the SONOSCAN series for Nondestructive Testing comply with the European Standard DIN EN 12668-2. They are used to check metals, plastics and ceramic materials for discontinuities, such as cracks, inclusions, blowholes and other material flaws. The pulse echo and dual element transducers 'Made in Germany' are powerful, robust ultrasonic transducers, which are compatible to the new ultrasonic devices SONOSCREEN ST10 and SONOWALL70 developed by SONOTEC as well, and common mobile ultrasonic test equipment.

We offer our precise ultrasonic transducers with different frequencies and transducer sizes. Choose the most suitable transducer for your application, depending on material characteristics, thickness and geometry of the work piece.

## Applications

- Straight beam flaw detection and wall thickness measurement on metals, plastics and ceramic materials
- Inspection of pipes, plates, billets, castings and forgings
- Testing of pipes and bars
- Detection of delaminations

## Advantages

- Excellent acoustic characteristics
- Unique ergonomics and fatigue-proof, handy usage
- Suitable for DGS evaluation



# SONOSCAN Straight Beam Transducers According to European Standard

## General Transducer Data

Operating temperature:	-20 °C to +60 °C
Transducer material:	Piezoceramics
Casing material:	Stainless steel, plastics
Standard:	EN 12668-2:2009

## Pulse Echo Transducer with wear-resistant protective layer

### SONOSCAN HS

Element size:	Ø 10 mm
Contact face :	Ø 14 mm
Protective layer:	Aluminum oxide
Connector:	LEMO 00



Transducer type	Center frequency	Order number
HS4 EN	4 MHz	100 02 0007

# SONOSCAN Straight Beam Transducers According to European Standard

## Pulse Echo Transducer with changeable delay line

### SONOSCAN PXS

Element size:             $\varnothing$  6 mm  
 Contact face:            $\varnothing$  8 mm  
 Thread:                    UNEF 3/8-32  
 Connector:                Microdot



Transducer type	Center frequency	Order number
PXS10 EN	10 MHz	100 02 0308
PXS10 EN Set incl. 10 mm delay line, conical	10 MHz	700 01 0321

## Pulse Echo Transducer with Protective Membrane

### SONOSCAN PS

Element size:             $\varnothing$  10 mm  
 Contact face:            $\varnothing$  14 mm  
 Protective membrane:   Vulkollan®  
 Connector:                LEMO 00



Transducer type	Center frequency	Order number
PS2 EN	2 MHz	100 02 0004
PS4 EN	4 MHz	100 02 0005

# SONOSCAN Straight Beam Transducers According to European Standard

## Pulse Echo Transducer with Protective Membrane

### SONOSCAN PL

Element size:                    Ø 24 mm  
Contact face:                    Ø 29 mm  
Protective membrane:        Vulkollan®  
Anschluss:                        LEMO 1S



Transducer type	Center frequency	Order number
PL1 EN	1 MHz	100 02 0001
PL2 EN	2 MHz	100 02 0002
PL4 EN	4 MHz	100 02 0003

# SONOSCAN Straight Beam Transducers According to European Standard

## Dual Element Transducers

### SONOSCAN TXS

Contact face:                    Ø 8 mm  
 Delay material:                Plastics  
 Connector:                      fixed cable with 2 x LEMO 00



Transducer type	Center frequency	Element size	Order number
TXS7.5 EN	7.5 MHz	Ø 5/2 mm	100 02 0032

### SONOSCAN TS

Contact face:                    TS4 EN Ø 17 mm  
                                       TS2 EN Ø 17 mm  
                                       TS5 EN Ø 12 mm  
 Delay material:                Plastics  
 Connector:                      Dual LEMO 00



Transducer type	Center frequency	Element size	Order number
TS2 EN	2 MHz	Ø 11/2 mm	100 02 0010
TS4 EN	4 MHz	3.5 mm x 10 mm	100 02 0011
TS5 EN	5 MHz	Ø 9/2 mm	100 02 0305



# SONOSCAN Straight Beam Transducers According to European Standard

## Dual Element Transducers

### SONOSCAN TL

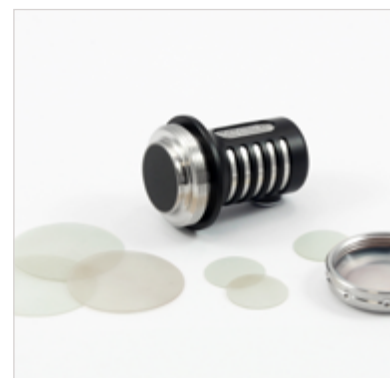
Contact face:                    Ø 29 mm  
 Delay material:                Plastics  
 Connectors:                    Dual LEMO 00



Transducer type	Center frequency	Element size	Order number
TL2 EN	2 MHz	7 mm x 18 mm	100 02 0008
TL4 EN	4 MHz	6 mm x 20 mm	100 02 0009

## Coupling Membranes for Straight Beam Transducers

Scope of delivery: 10 pieces  
 Material: Vulkollan®



Transducer type	Order number	Ø in mm
PS	400 01 0098	6
PL	400 01 0099	13
	400 01 0100	19

# SONOSCAN Angle Beam Transducers According to European Standard

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The SONOSCAN series angle beam transducers for Nondestructive Testing detect even smallest discontinuities and quality failures such as cracks, incomplete fusions, blowholes or inclusions. All SONOSCAN transducers are compatible with the new flaw detector SONOSCREEN ST10, developed by SONOTEC as well, and other common ultrasonic testing equipment.

During the testing process, the transducer transmits ultrasonic waves through an integrated wedge into the test object. Typical incident angles are 45°, 60° and 70°. There exist several construction types and sizes for various applications. By individual grinding, the transducers can be adapted to differently curved surfaces.

Due to the high quality of the angle beam transducers, the EN 12668-2 Standard can easily be achieved. Their unique and ergonomic design allows comfortable and fatigue-proof testing.

The high precision SONOSCAN transducers are manufactured in three different construction types. They can be selected according to their angle, frequency, transducer size and environmental conditions. In addition to standard transducers, customer specific solutions can be realized.

## **Advantages**

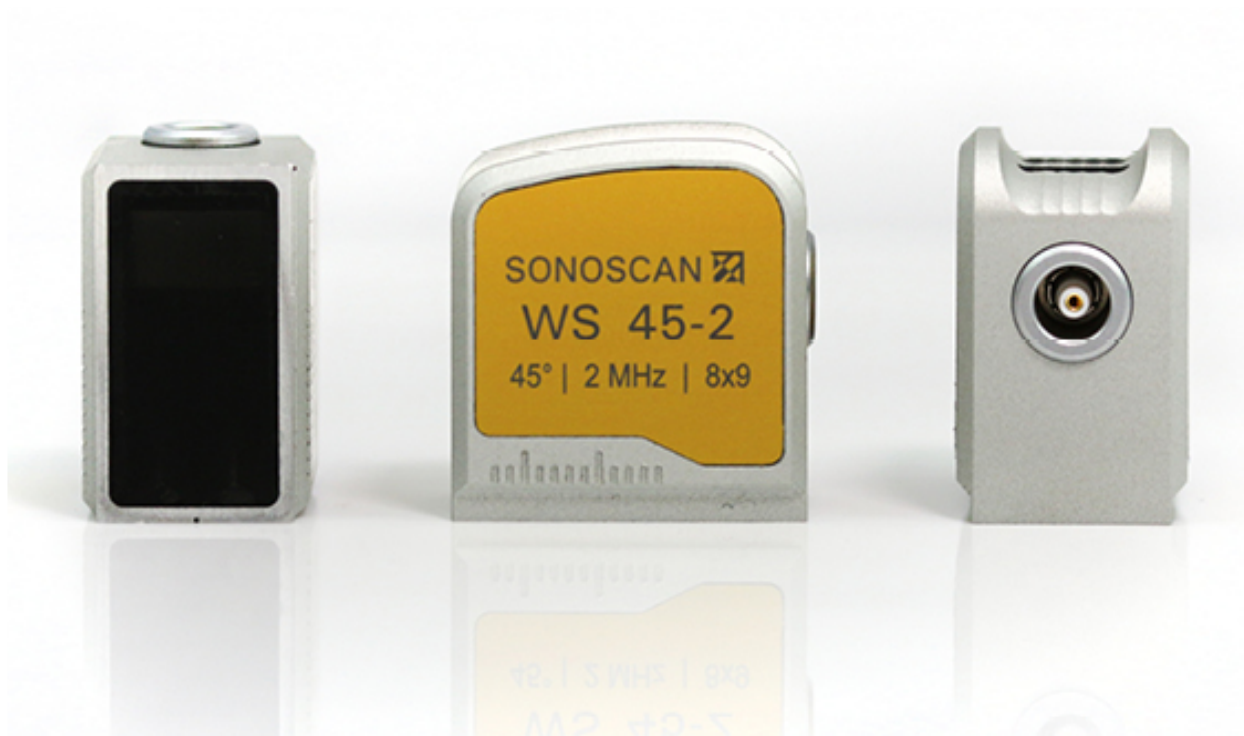
- ▶ Excellent acoustic characteristics
- ▶ Unique ergonomics and fatigue-proof, handy usage
- ▶ Realization of customized solutions possible

# SONOSCAN Angle Beam Transducers According to European Standard

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## General Transducer Data

Operating temperature:	0 °C to +60 °C
Transducer material:	Piezoceramics
Casing material:	Anodized aluminum
Delay line material:	Polystyrene
Label:	Transducer type, frequency (color coded), angle of incidence, Element size, serial number
Color code:	Yellow - 2 MHz, Blue - 4 MHz
Standard:	EN 12668-2:2009



# SONOSCAN Angle Beam Transducers According to European Standard

## WS type (8 mm x 9 mm)

### SONOSCAN WS

Element size: 8 mm x 9 mm  
 Contact face: 24 mm x 15.5 mm  
 Connector: LEMO 00  
 Dimensions W x H x D: 24 mm x 25.5 mm x 15.5 mm



Transducer type	Angle of incidence in steel	Center frequency	Order number
WS 45-2	45°	2 MHz	100 01 0170
WS 60-2	60°	2 MHz	100 01 0171
WS 70-2	70°	2 MHz	100 01 0172

Transducer type	Angle of incidence in steel	Center frequency	Order number
WS 45-4	45°	4 MHz	100 01 0173
WS 60-4	60°	4 MHz	100 01 0174
WS 70-4	70°	4 MHz	100 01 0175

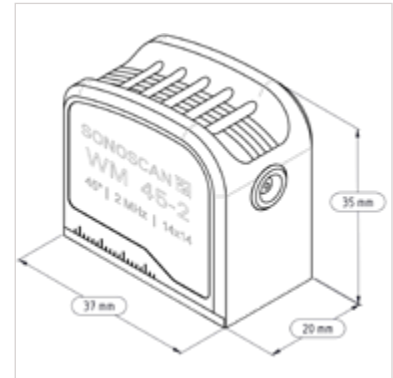


# SONOSCAN Angle Beam Transducers According to European Standard

## WM type (14 mm x 14 mm)

### SONOSCAN WM

Element size: 14 mm x 14 mm  
Contact face: 37 mm x 20 mm  
Connector: LEMO 00  
Dimensions W x H x D: 37 mm x 35 mm x 20 mm



Transducer type	Angle of incidence in steel	Center frequency	Order number
WM 45-2	45°	2 MHz	100 02 0012
WM 60-2	60°	2 MHz	100 02 0013
WM 70-2	70°	2 MHz	100 02 0014

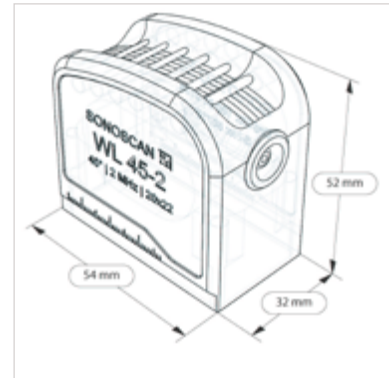


# SONOSCAN Angle Beam Transducers According to European Standard

## WL type (20 mm x 22 mm)

### SONOSCAN WL

Element size: 20 mm x 22 mm  
 Contact face: 54 mm x 32 mm  
 Connector: LEMO 1S  
 Dimensions W x H x D: 54 mm x 52 mm x 32 mm



Transducer type	Angle of incidence in steel	Center frequency	Order number
WL 45-2	45°	2 MHz	100 01 0176
WL 60-2	60°	2 MHz	100 01 0177
WL 70-2	70°	2 MHz	100 01 0178



## Replacement Soles for Angle Beam Transducers

Scope of delivery: 5 pieces  
 Thickness: 3 mm  
 Material: Plastics

Transducer type	Order number
WS	500 01 0062
WM	500 01 0063
WL	500 01 0064





# SONOSCAN Quick Change Transducers

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In addition to the angle beam transducers according to European Standards, we offer Quick Change transducers with interchangeable wedges for weld seam testing in all common sizes and frequencies especially for the American market. Suitable wedges you can find on page 25.

The transducers are manufactured by ourselves according to specific requirements of the ASTM E1065 defined by the American Welding Society. Instead of regular ceramics are used highly sensitive piezo-composites for the SONOSCAN transducer series, manufactured in our own in-house production. An innovative manufacturing technology for the protective layer also helps to ensure advantageous acoustic features such as high sensitivity and low noise.

The SONOTEC angle wedges as well as all common wedges can be mounted easily at the transducer with the customary screw thread and can be changed quickly, if different frequencies or angles are necessary to perform an adequate evaluation of defects. Quick Change transducers are used anywhere where the access to the test object is limited. In addition, the fairly small, circular transducers offer a better failure resolution.





# SONOSCAN Quick Change Transducers

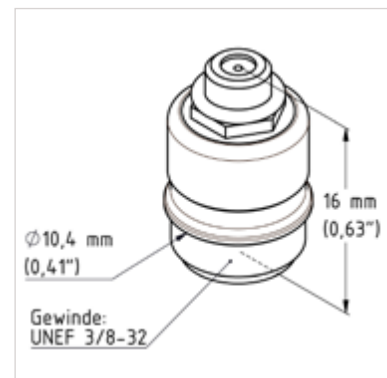
## General Transducer Data

Transducer material:	Piezocomposite
Casing material:	Stainless steel, plastics
Label:	Transducer type, frequency (color coded), transducer dimension, serial number
Farbcodierung:	Yellow - 2.25 MHz, Green - 5 MHz
Connector:	Microdot
Standard:	ASTM E1065

## QS type (Ø 1/4")

### SONOSCAN QSC

Element size:	Ø 1/4" (6.4 mm)
Contact face:	Ø 0.41" (10.4 mm)
Thread:	UNEF 3/8-32



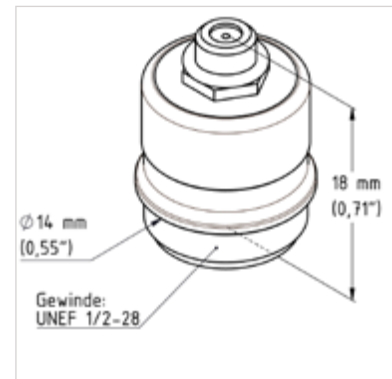
Transducer type	Center frequency	Order number
QSC 2.25	2.25 MHz	100 02 0023
QSC 5	5 MHz	100 02 0026

# SONOSCAN Quick Change Transducers

## QM type (Ø 3/8")

### SONOSCAN QMC

Element size: Ø 3/8" (9.5 mm)  
Contact face: Ø 0.55" (14 mm)  
Thread: UNEF 1/2-28

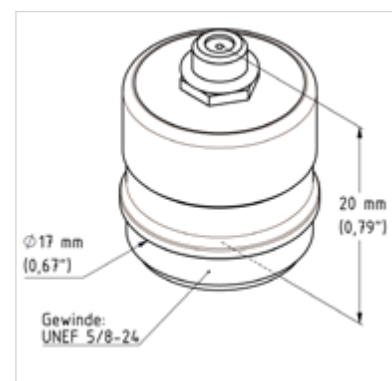


Transducer type	Center frequency	Order number
QMC 2.25	2.25 MHz	100 02 0022
QMC 5	5 MHz	100 02 0025

## QL type (Ø 1/2")

### SONOSCAN QLC

Elementgröße: Ø 1/2" (12.7 mm)  
Aufsatzfläche: Ø 0.67" (17 mm)  
Gewinde: UNEF 5/8-24



Transducer type	Center frequency	Order number
QLC 2.25	2.25 MHz	100 02 0021
QLC 5	5 MHz	100 02 0024

# SONOSCAN Quick Change Transducers

## Angle Wedges for Quick Change Transducers

Transducer type	Transducer size	Thread	Angle	Order number
QSC	Ø 1/4" (6.4 mm)	UNEF 3/8-32	45°	500 01 0078
			60°	500 01 0079
			70°	500 01 0080
QMC	Ø 3/8" (9.5 mm)	UNEF 1/2-28	45°	500 01 0081
			60°	500 01 0082
			70°	500 01 0083
QLC	Ø 1/2" (12.7 mm)	UNEF 5/8-24	45°	500 01 0084
			60°	500 01 0085
			70°	500 01 0086



# SONOSCAN AWS Transducers

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In addition to the angle beam transducers according to European Standards and Quick Change transducers, we offer AWS transducers with interchangeable wedges for weld seam testing in all common sizes and frequencies especially for the American market.

Suitable wedges (serrated and snail wedges) you can find on page 29.

The transducers are manufactured by ourselves according to specific requirements of the ASTM E1065 defined by the American Welding Society. Instead of regular ceramics are used highly sensitive piezo-composites for the SONOSCAN transducer series, manufactured in our own in-house production. An innovative manufacturing technology for the protective layer also helps to ensure advantageous acoustic features such as high sensitivity and low noise.

The robust transducers with BNC connector allow a fast scanning over comparatively large areas with high precision and repeatability. Via the mounting screws can be attached the SONOTECH angle wedges as well as common angle wedges.

Thanks to the different types of wedges various material tests can be performed.



# SONOSCAN AWS Transducers

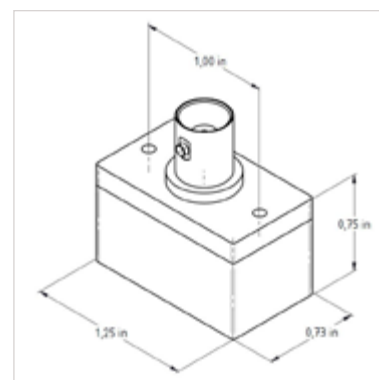
## General Transducer Data

Transducer material:	Piezo composite
Casing material:	Stainless steel, plastics
Label:	Transducer type, Element size, serial number
Connector:	BNC
Thread:	UNF 4-40
Standard:	ASTM E1065

## RS type (0.63" x 0.63")

### SONOSCAN RSC

Element size: 0.63" x 0.63" (16 mm x 16 mm)  
Contact face: 1.25" x 0.73" (31,8 mm x 18,5 mm)



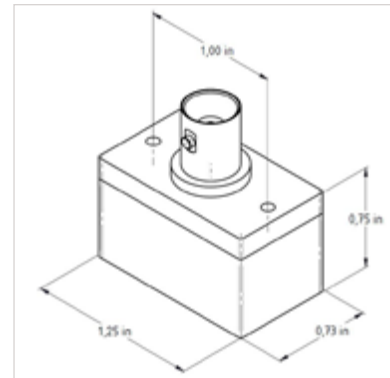
Transducer type	Center frequency	Order number
RSC 2.25	2.25 MHz	100 02 0300

# SONOSCAN AWS Transducers

## RM type (0.63" x 0.75")

### SONOSCAN RMC

Element size: 0.63" x 0.75" (16 mm x 19 mm)  
Contact face: 1.25" x 0.73" (31.3 mm x 18.5 mm)

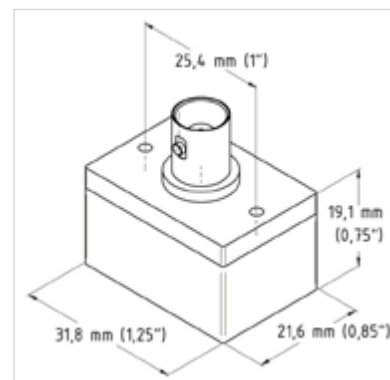


Transducer type	Center frequency	Order number
RMC 2.25	2.25 MHz	100 02 0028

## RL type (0.75" x 0.75")

### SONOSCAN RLC

Element size: 0.75" x 0.75" (19 mm x 19 mm)  
Contact face: 1.25" x 0.85" (31.8 mm x 21.6 mm)



Transducer type	Center frequency	Order number
RLC 2.25	2.25 MHz	100 02 0029

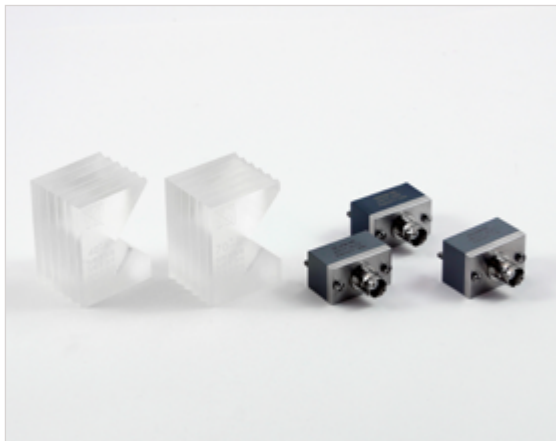
# SONOSCAN AWS Transducers With Angle Wedges

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## Angle Wedges for AWS Transducers

Thread: UNF 4-40  
Transducer types: RSC, 0.63" x 0.63" (16 mm x 16 mm)  
RMC, 0.63" x 0.75" (16 mm x 19 mm)  
RLC, 0.75" x 0.75" (19 mm x 19 mm)  
Material: PMMA

Angle wedge	Angle	Order number
AWS serrated wedge	45°	500 01 0087
	60°	500 01 0088
	70°	500 01 0089
AWS snail wedge	45°	500 01 0090
	60°	500 01 0091
	70°	500 01 0092





# SONO-ID Transducers for SONOWALL 70 and SONO FD-1

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## Intelligent and wireless transducer recognition

The SONOWALL 70 is the first gage in the market with intelligent transducer recognition. The wireless recognitions allows a quick transducer setup for testing. In addition the extended transducer management enables transducer-specific information, such as DAC-curves, delay lines and serial numbers, to be saved directly in the transducer.

Thanks to the different sizes various material tests can be performed.



# SONO-ID Transducers for SONOWALL 70 and SONO FD-1

## Pulse Echo Transducers

### SONOSCAN PXS<sub>i</sub> Fingertip Transducer

Element size:                    Ø 6 mm  
 Contact face:                    Ø 8 mm  
 Connector:                        Microdot



Transducer type	Center frequency	Order number
PXS10i EN	10 MHz	100 02 0309
PXS10i EN Set incl. 10 mm delay line, conical	10 MHz	700 01 0320

### SONOSCAN PS<sub>i</sub>

Element size:                    Ø 10 mm  
 Contact face:                    Ø 14 mm  
 Protective layer:                Vulkollan®  
 Connector:                        LEMO 00



Transducer type	Center frequency	Order number
PS2i EN	2 MHz	100 02 0307
PS5i EN	5 MHz	100 02 0322

# SONO-ID Transducers for SONOWALL 70 and SONO FD-1

## Dual Element Transducers

### SONOSCAN TXSi Fingertip Transducer

Contact face:             $\varnothing$  8 mm  
 Delay material:        Plastics  
 Connector:              fixed cable with 2 x LEMO 00



Transducer type	Center frequency	Element size	Order number
TXS7.5i EN	7.5 MHz	$\varnothing$ 5 / 2 mm	100 02 0031

### SONOSCAN TSi

Contact face:            TS2i EN  $\varnothing$  17 mm  
                               TS5i EN  $\varnothing$  12 mm  
 Delay material         Polystyrene  
 Connector:              Dual LEMO 00



Transducer type	Center frequency	Element size	Order number
TS2i EN	2 MHz	$\varnothing$ 11/2 mm	100 02 0311
TS5i EN	5 MHz	$\varnothing$ 9/2 mm	100 02 0306

# Wall Thickness Transducers for SONOWALL 50

## Perfect for bended pipe surfaces

SW5-22 with integrated bearing

Dimensions :                    Ø 32 mm, 60 mm  
 Temperature Range:        - 10°C to + 50 °C  
 Protection type:            IP67



Transducer type	Center frequency	Measuring range in steel	Order number
SW5-22	5 MHz	0.6 ... 250 mm	100 01 0213

## Perfect for plastics and composites

SW2-23

Temperature range:        - 20°C to + 60 °C  
 Connector:                 Dual Lemo 00 plug connector



Transducer type	Center frequency	Measuring range	Order number
SW2-23	2 MHz	up to 6 mm	100 01 0308

## others

Transducer type	Center frequency	Measuring range	Order number
SW2-21	2 MHz	6 ... 400 mm	100 01 0255
SW5-21	5 MHz	0.6 ... 250 mm	100 01 0194

# SONOSCAN Immersion Transducers

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Immersion transducers are used for semi- or fully-automatic testing of serial and mass production over a water stand-off distance.

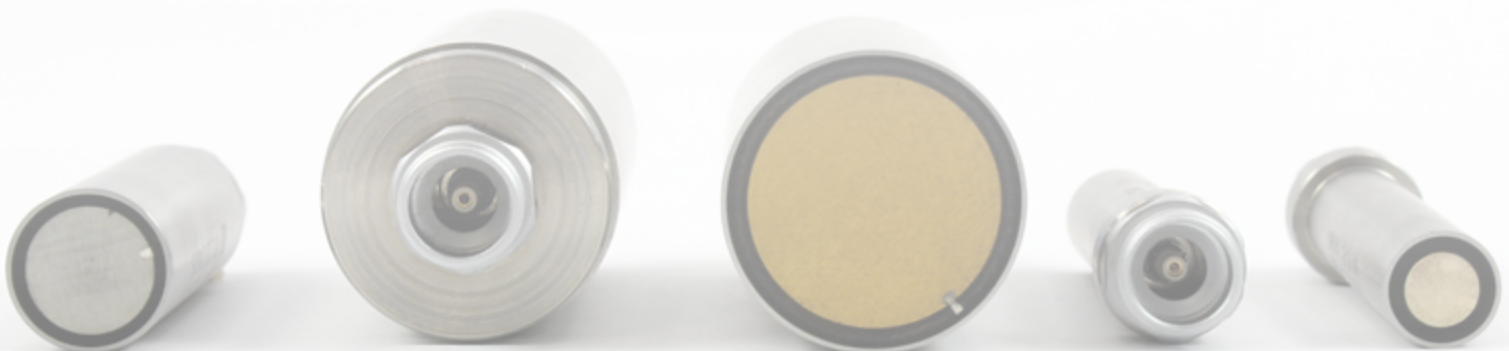
The test object is checked for smallest defects or defective fabrics with maximum repeatability of the testing results. Thus, defects in soldered junctions, welding faults or cracks and pinholes in metal parts can be identified reliably.

Most testings are conducted in water-filled immersion tanks. Thereby the test object is completely immersed. To check the object, it is either firmly clamped and scanned by the transducer or it is uniformly moved on coordinates passing the transducer. Larger test objects, which cannot be immersed completely, are clamped into special attachments. The transducer is either connected from the bottom through a water-filled reservoir or through a free water jet.

The emitted ultrasonic impulses are transmitted through the water into the test object. The signals are reflected by inhomogeneities and interfaces of the object. Therefore, the immersion analysis provides constant connection conditions and accurately repeatable testing results.

## Properties

- ▶ Complete waterproof construction
- ▶ Robust stainless steel housing
- ▶ Extremely high detection sensitivity for smallest inhomogeneities with high-frequency Transducers



# SONOSCAN Immersion Transducers

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## General Transducer Data

Casing material:	Stainless steel
Label:	Transducer type, serial number
Connector:	LEMO HVR 03
Bandwidth (-6 dB):	approx. 80 %
Storage temperature:	-20 to + 60 °C
Operating temperature:	+10 to +40 °C
Operating pressure:	0.2 to 1 bar
Medium resistance:	Water

## IW type – Broadband Transducer

### SONOSCAN IW-10-6

Center frequency:	10 MHz
Element size:	Ø 6 mm
Contact face:	Ø 9.5 mm
Transducer material:	Piezoceramics
Order number:	100 01 0130

Further types on request.



# SONOSCAN Immersion Transducers

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## IK type

### Broadband Transducer with Composite Transducer

#### SONOSCAN IK

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Transducer material: Piezocomposite

Contact faces:

IK 1-20	Ø 24 mm
IK 2-20	Ø 24 mm
IK 5-6	Ø 9.5 mm
IK 5-10	Ø 13 mm



Transducer type	Center frequency	Element size	Order number
IK 1-20	1 MHz	Ø 20 mm	100 01 0161
IK 2-20	2 MHz	Ø 20 mm	100 01 0163
IK 5-6	5 MHz	Ø 6 mm	100 01 0162
IK 5-10	5 MHz	Ø 10 mm	100 01 0195



# Special-purpose transducers

## RAIL TESTING

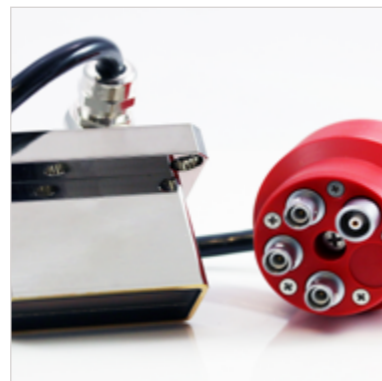
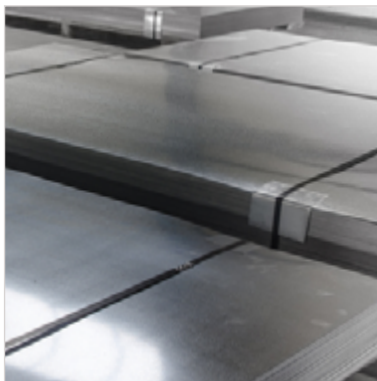


Particularly rugged design  
High vibration and shock resistance  
Ideal for outdoor use

Suitable for use with replacement soles  
Center frequencies from 2 to 5 MHz  
DIN EN 12668-2 / DIN EN ISO 22232-2

## SHEET METAL INSPECTION

Center frequencies from 4 to 5 MHz  
For plates more than 350 mm  
Ultra-high sensitivity  
Excellent repeatability  
of the acoustical characteristics  
Excellent signal-to-noise ratio  
Minimal crosstalk



## TESTING OF TUBES AND BARS

Center frequencies from 2 to 10 MHz  
DIN EN 12668-2  
Line or point focus  
Stable 24 | 7 operation  
Long duration





# Special-purpose transducers

## TESTING OF NUCLEAR POWER PLANTS



Phased-array probes with center frequencies from 2 to 10 MHz | Up to 128 elements possible  
Various housing options ( connection | delay line | beam angle | ...)  
High sensitivity | High uniformity of acoustical characteristics in series | Minimal crosstalk

## PIPELINE INSPECTION WITH PIGS

Center frequencies from 2 to 10 MHz  
Chemically high resistant epoxy resin  
Extended temperature range  
-20°C to +80°C  
High pressure resistance up to 350 bar  
High uniformity  
of acoustical characteristics in series



## TESTING OF EXTRUDED PLASTIC TUBES

High sensitivities  
for testing thick-walled tubes  
High frequencies | short sound pulses  
for testing thin-walled tubes  
Center frequencies from 1 to 10 MHz  
Stable 24 | 7 operation in water  
Long duration  
Low operation costs



# Accessories for Nondestructive Ultrasonic Testing

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In addition to our ultrasonic flaw detectors and transducers we offer extensive accessories for different applications. On the following pages we offer common articles and consumables:

- ▶ Transducer cables with various connectors
- ▶ Selection of calibration blocks with certificates
- ▶ Couplant



# Accessories for Nondestructive Ultrasonic Testing

## Transducer cables

Length: approx. 6.56 ft (2 m)

Transducer type	Connectors	Order number
Straight or angle beam Transducers	LEMO 00 – LEMO 00	800 01 0035
	LEMO 00 – LEMO 1S	800 01 0036
	LEMO 1S – LEMO 1S	800 01 0037
T/R Transducers dual	2x LEMO 00 - 2 x LEMO 00	800 01 0043
	Dual LEMO 00 - 2 x LEMO 1S	800 01 0030
	Dual LEMO 00 – 2 x LEMO 00	800 01 0034
AWS Transducers	BNC – LEMO 00	800 01 0047
	BNC – LEMO 1S	800 01 0056
Quick Change Pulse Echo Transducers	LEMO 1S – Microdot	800 01 0046
	LEMO 00 – Microdot	800 01 0048
	Microdot – BNC	800 01 0059
Immersion Transducers	LEMO FVN03 – LEMO 1S	800 01 0024

Further cable types on request.



# Accessories for Nondestructive Ultrasonic Testing

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## Calibration blocks

Calibration block K1 / V1 Kit incl. case & certificate

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Order number: 700 01 0341



Calibration block K2 / V2 Kit incl. case & certificate

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Order number: 700 01 0342



Step block with certificate

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Step block, steel (metrical)

Steps: 2,5 mm / 5 mm / 7,5 mm / 10 mm / 12,5 mm

Order number: 500 01 0045

Step block, steel (inch)

Steps: 0.100"-0.500"

Order number: 500 01 0124

Step block, aluminum (metrical)

Order number: 500 01 0125

Box for step block

Order number: 500 01 0126



# Accessories for Nondestructive Ultrasonic Testing

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## Couplant

### Oil Couplant

Amount: 100 ml  
Order number: 500 01 0032

### Water-based Gel Couplant

Amount: 250 ml  
Order number: 500 01 0061





# Transducer CATALOG

For Nondestructive Ultrasonic Testing

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