



# SDT Ultrasound Solutions Level 2 Certification Training in accordance with ASNT for Airborne and Structure Borne Ultrasound Inspector

## Training Overview

This course "Airborne and Structure Borne Ultrasound Inspector Level 2 SDT Ultrasound Solutions" represents three days of training. Level 2 training is designed to exploit advanced maintenance techniques. It is the next logical step for maintenance technicians who want to get more out of their ultrasound detection program by taking advantage of the latest developments in technology. These technicians will leave the 3-day training with a higher level of competence and know-how. A better theoretical knowledge of ultrasound and its operation as well as a more in-depth knowledge of ultrasound detection and measurement applications will enable them to better understand the monitoring of machine operating conditions.

## Training objectives

- Stimulate the confidence of maintenance technicians
- Improve the understanding of ultrasound and its potential for use in industrial environments
- Ensure that the knowledge level of maintenance technicians meets the standards of the ultrasonic method
- Highlight and clarify the many unique benefits of ultrasound detection in predictive maintenance plans.

## Training content

### Theoretical part of Ultrasound

- Introduction, summary of the training
- Principles of ultrasound:
  - Basics of sound
  - Sound wave motion
  - The velocity of sound
  - Frequency measurement of sound
  - Acoustic Impedance and its influence on propagation and attenuation
  - Inverse distance law
  - How friction, turbulence and impacting produce ultrasound and where they apply
  - Understanding the properties of the decibel
- Generic equipment knowledge
  - Instrument operation and function
  - Airborne sensors
  - Structure-borne sensors
  - Heterodyne principle and application
  - Sensitivity validation
- Data acquisition in ultrasound
  - Principles of data acquisition
  - Sensor positioning considerations
  - Competing ultrasound and shielding techniques
  - Measurement of ultrasound

- Capturing time domain and spectrum signals for analysis
- Data storage and management
  - Developing and using a database
  - Managing stored data
  - Disposition of anomalies
- Condition monitoring principles
  - What is condition monitoring?
  - Why is it useful?
  - What other technologies are there?
  - Why and when would ultrasound be useful?
  - Acceptance testing
  - Benchmarking
- Data acquisition
- Diagnosis when using ultrasound
  - Using ultrasound as an intelligent filter
  - Just dealing with numbers
  - Trend
  - Time
  - Spectrum
  - Signal changes caused by heterodyning
  - Recording signals
- Procedures for systematic diagnosis
  - AVM approach – design to defect mapping
  - Calculations
  - Tools needed in software
  - Using alarms to assist in the analysis process
- Reliability strategies and considerations
  - RCM Reliability Centered Maintenance
  - FMEA

### Application overview

#### PRESSURIZED LEAKS

- Why does this problem produce ultrasound?
- What measurement methods are available?
- Who can do this inspection?
- When you find something, how will you report it?
- Where is the benefit, the savings, the success seen?

#### VALVES

- Why does this problem produce ultrasound?
- What measurement methods are available?
- Who can do this inspection?
- When you find something, how will you report it?
- Where is the benefit, the savings, the success seen?

#### STEAM

- Why does this problem produce ultrasound?
- What measurement methods are available?
- Who can do this inspection?
- When you find something, how will you report it?

- Where is the benefit, the savings, the success seen?

#### LUBRICATION

- Why does this problem produce ultrasound?
- What measurement methods are available?
- Who can do this inspection?
- When you find something, how will you report it?
- Where is the benefit, the savings, the success seen?

#### CONDITION MONITORING OF ROTATING MACHINES

- Why does this problem produce ultrasound?
- What measurement methods are available?
- Who can do this inspection?
- When you find something, how will you report it?
- Where is the benefit, the savings, the success seen?

#### ELECTRICAL

- Why does this problem produce ultrasound?
- What measurement methods are available?
- Who can do this inspection?
- When you find something, how will you report it?
- Where is the benefit, the savings, the success seen?

#### TIGHTNESS

- Why does this problem produce ultrasound?
- What measurement methods are available?
- Who can do this inspection?
- When you find something, how will you report it?
- Where is the benefit, the savings, the success seen?

### Practical exercise using an SDT ultrasonic measurement device according to the different applications

- Handling of the SDT ultrasonic detector
- How to use the SDT measuring device for different applications
- Choice of sensors
- Practical exercise in the field with the SDT340 ultrasonic detector

### Training examination:

Written exam (1/2 day) which will result in a diploma issued by SDT International.

### Conditions of participation:

- Price of the training: 1 431 €, VAT excluded / participant
- The candidate is responsible for his own accommodation.
- A welcome coffee, coffee breaks and lunches are provided and included in the price of the training. All registrations are subject to full payment before the beginning of the session. Upon registration, an invoice clearly indicating the method of payment is sent.
- The training starts precisely with the registration from 7:45 am.
- A printed copy of the training material is given at the beginning of the session.
- The number of participants is fixed at a minimum of 5 people and a maximum of 15 people (\*)

**(\*): if the number of participants is insufficient during a session, the people already registered will be automatically registered at the next date.**