ZEROS

# General Test Guid – Ultrasonic Test (UT)

## 1. Purpose of the Inspection

Ultrasonic testing (UT) is a non-destructive method used to detect internal and external flaws in sound-conducting materials. The goal is to ensure the quality and integrity of components without causing damage.

## 2. Scope of Application

- Weld inspection
- Testing of forged and cast parts
- Pipes, plates, semi-finished products
- Wall thickness measurement (e.g. corrosion monitoring)
- Series and individual inspections in production and maintenance

## 3. Preparation

3.1 Visual Inspection
- Check components for contamination, surface defects, and accessibility
- Record geometry, surfaces, and edges

3.2 Equipment & Accessories
- Suitable UT device with calibrated probe (frequency: 0.2-50 MHz)
- Coupling agent (e.g., water, gel, oil)
- Reference blocks / calibration blocks

3.3 Calibration
- Calibrate using standard-compliant reference block
- Set sensitivity according to ISO standards (DAC, DGS, TCG, etc.)

## 4. Execution

4.1 Coupling & Positioning
- Apply coupling agent evenly
- Keep the probe in constant contact and at the correct angle

4.2 Scanning
- Manually or automatically scan the test area
- Monitor A-scan display and echo signals

4.3 Interpretation
- Evaluate signals (amplitude, travel time, position)
- Flaw types: lack of fusion, shrinkage cavities, cracks, inclusions

## 5. Documentation

- Record all relevant test parameters (e.g., frequency, angle, coupling)
- Sketch or digitally scan the test area
- Evaluate flaws based on standard (e.g., ISO 5817: levels B, C, D)
- Create and archive inspection reports

## 6. Safety & Quality

- Wear PPE: protective gloves, hearing protection for high-frequency systems
- Comply with applicable testing and evaluation standards
- Regular maintenance and calibration of equipment

## 7. Contact Person

For questions regarding execution or evaluation, please contact the responsible NDT coordinator or Level 3 inspector.