



SINCE 1865

# TESTING LABORATORY TALLINNA MASINATEHAS

PRESENTATION





To ensure the high quality of products, Tallinn Machinebuilding Factory (TMT) has its own testing laboratory for non-destructive and destructive testing.

Product quality control is ensured by the following methods:

- Ultrasonic testing (UT);
- Magnetic particle testing (MT);
- Penetrant testing (PT);
- Visual inspection and measurement (VT);
- Radiographic testing (RT);
- Mechanical testing;
- Metallographic examination;
- Positive material inspection;
- Intergranular corrosion testing.

The laboratory staff is certified in accordance with international standard ISO 9712:2012 and has extensive experience in the field of quality control of industrial equipment. Testing is carried out in accordance with ISO, EN, GOST standards.

# ULTRASONIC TESTING

Ultrasonic testing is carried out by specialists of II and III qualification levels. The laboratory is equipped with reference samples and a wide range of transducers for the inspection of welded joints and base metal with a thickness of 4 mm.



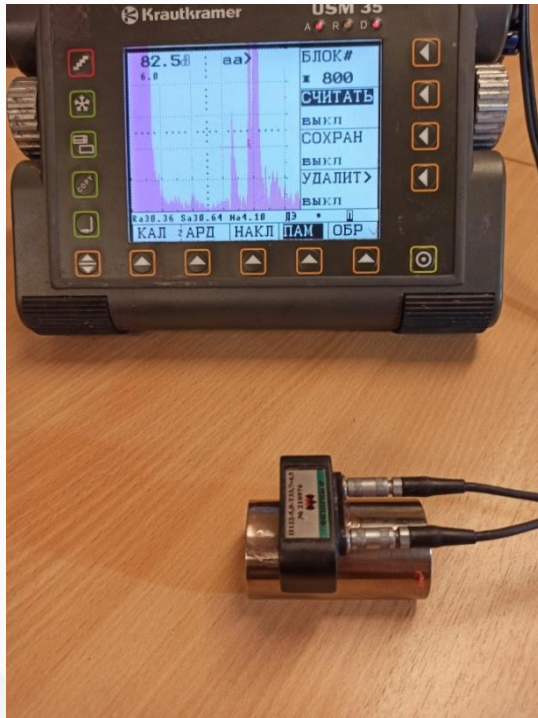
Reference samples and transducers for ultrasonic testing



Performing DAC setup for the inspection of welded joints

# ULTRASONIC TESTING

Ultrasonic testing of welded joints with chord transducers of pipes of small diameters with a wall thickness of 4 mm or more. This method ensures the detection of discontinuities with an area of 0.9 mm<sup>2</sup>



Sensitivity setting from flat bottomed hole  $d = 1.0$  mm



Chord transducer and reference sample  
 $d = 33.7 \times 4.5$  mm



Carrying out ultrasonic testing of welded joints of coil pipes



# ULTRASONIC TESTING



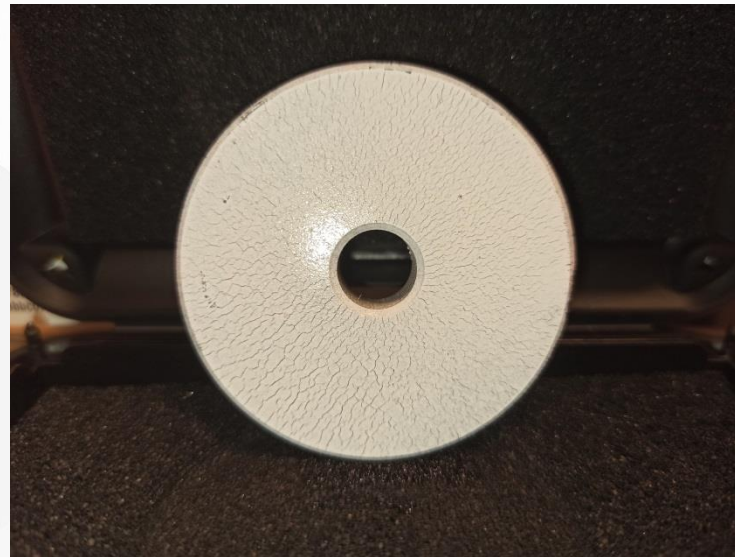
Ultrasonic thickness measurement.  
Measurement of sample thickness to determine areas of corrosion and metal thinning ratio.

# MAGNETIC PARTICLE TESTING

Magnetic particle testing is carried out by specialists of II and III qualification levels. Magnetic particle testing method ensures the detection of surface and subsurface discontinuities in welded joints and the base metal, with an opening of 2  $\mu\text{m}$ .



Means for carrying out magnetic particle testing



Reference sample for functional testing of the testing system



Magnetometer for determining magnetic field strength



# MAGNETIC PARTICLE TESTING



Carrying out magnetic particle testing of welded joints



Linear indication in the weld (crack)



# PENETRANT TESTING

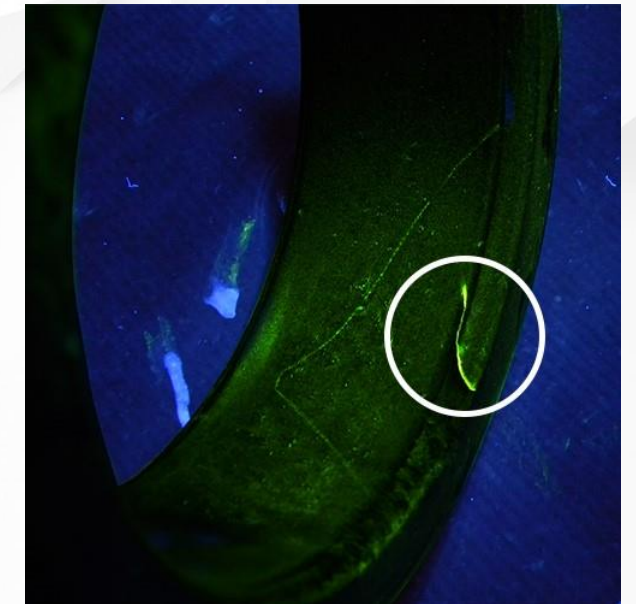
Penetrant testing is carried out by specialists of II and III qualification levels. Penetrant testing method ensures the detection of surface and near-surface discontinuities in welded joints and the base metal with an opening of 10  $\mu\text{m}$ .



Means for carrying out color contrast and fluorescent penetrant testing methodologies

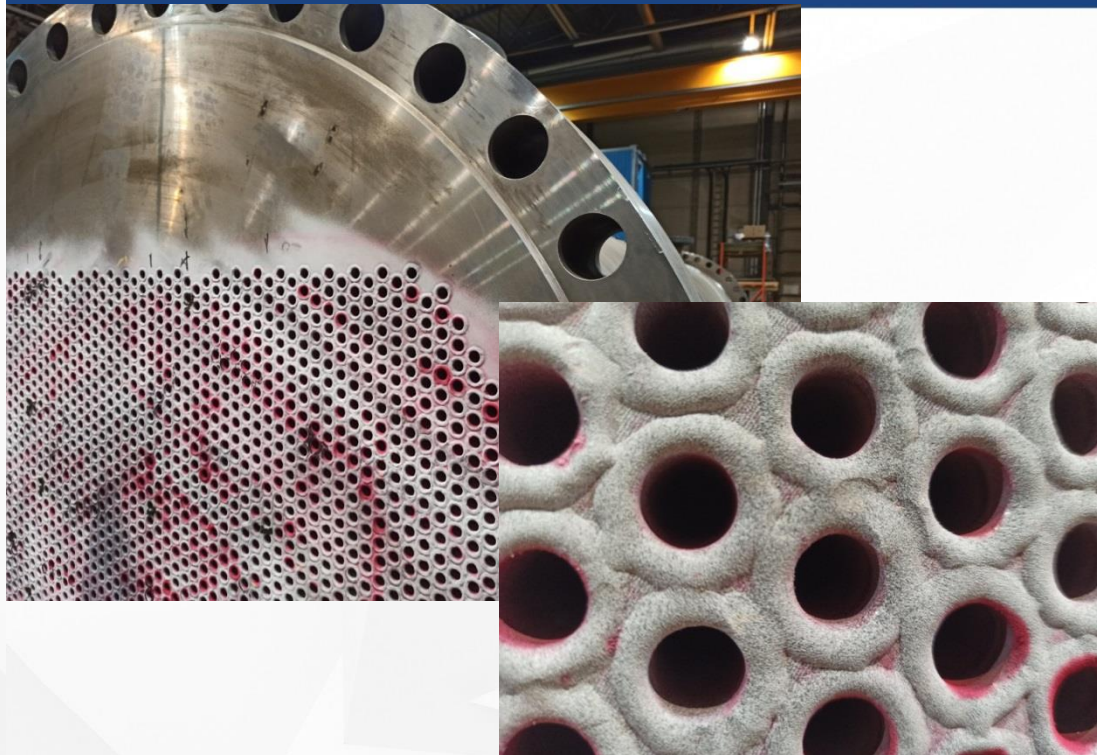


Reference sample for functional testing of the testing system

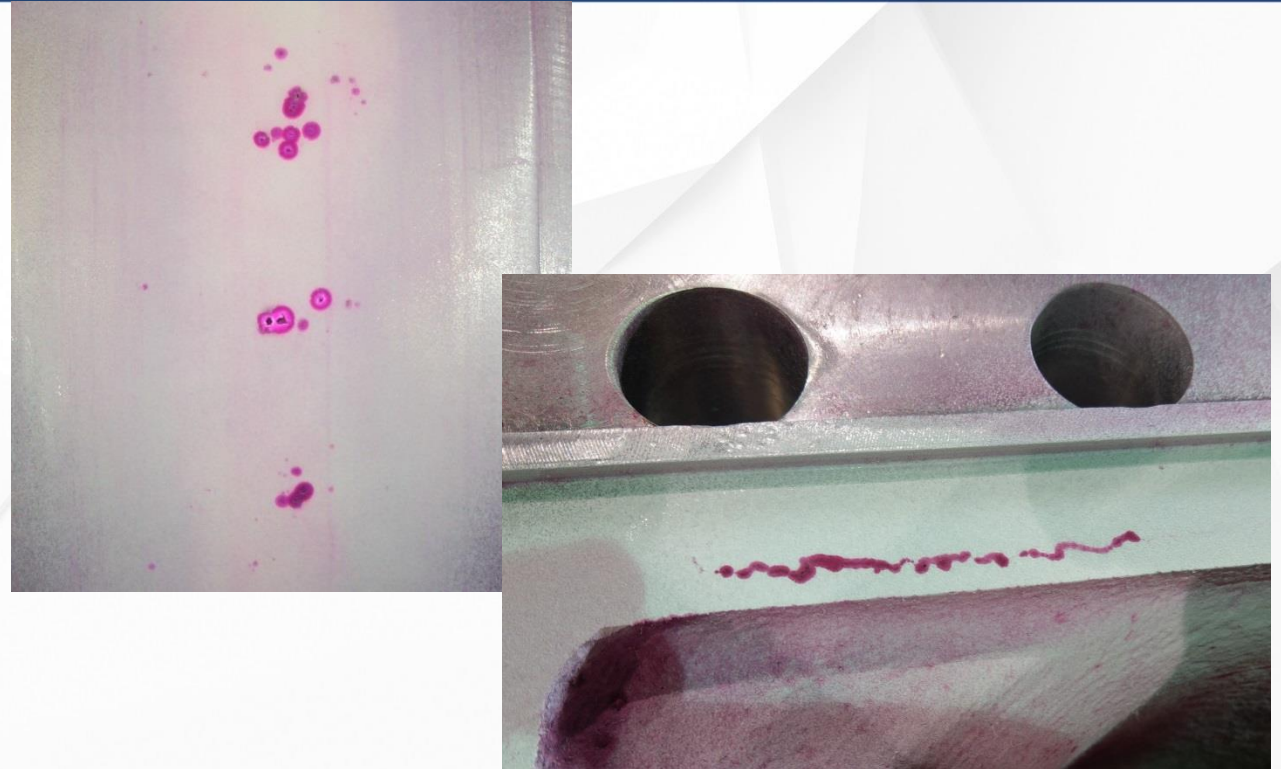


Linear indication in the base metal when carrying out fluorescent penetrant testing

# PENETRANT TESTING



Penetrant testing of seal welding of pipes in tube sheets for the presence of incomplete fusion and cracks



Round and linear indications in base metal



# VISUAL INSPECTION AND MEASUREMENT

Visual inspection and measurement is carried out by specialists of II and III qualification levels. Visual inspection and measurement method ensures the detection of surface discontinuities in welded joints and the base metal.



Luxmeter for determining luminous flux density



Control by measurement. Checking the perpendicularity of the upper and lower walls



Endoscopic examination of the inside of the tube

# HARDNESS MEASUREMENT



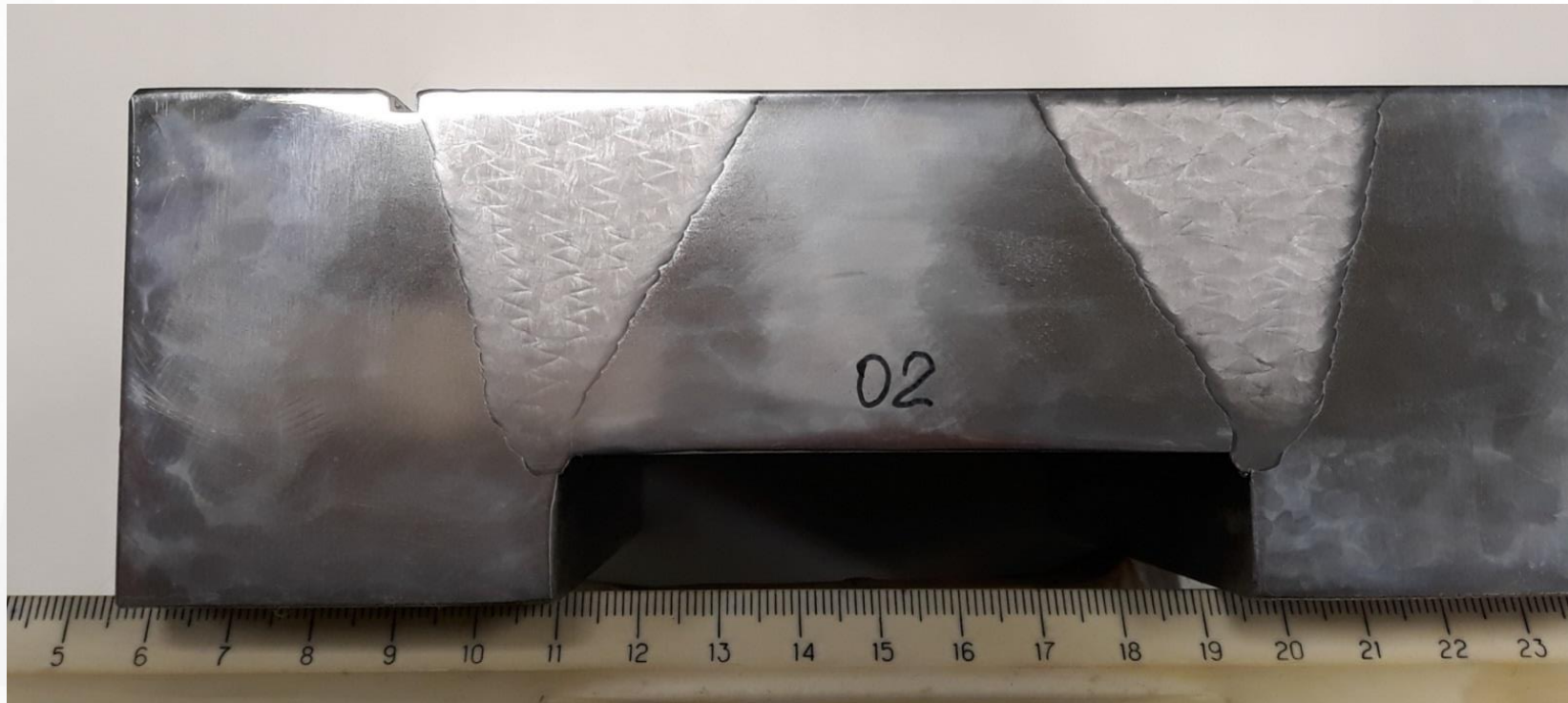
Hardness tester and reference sample



Testing the hardness of welded joints

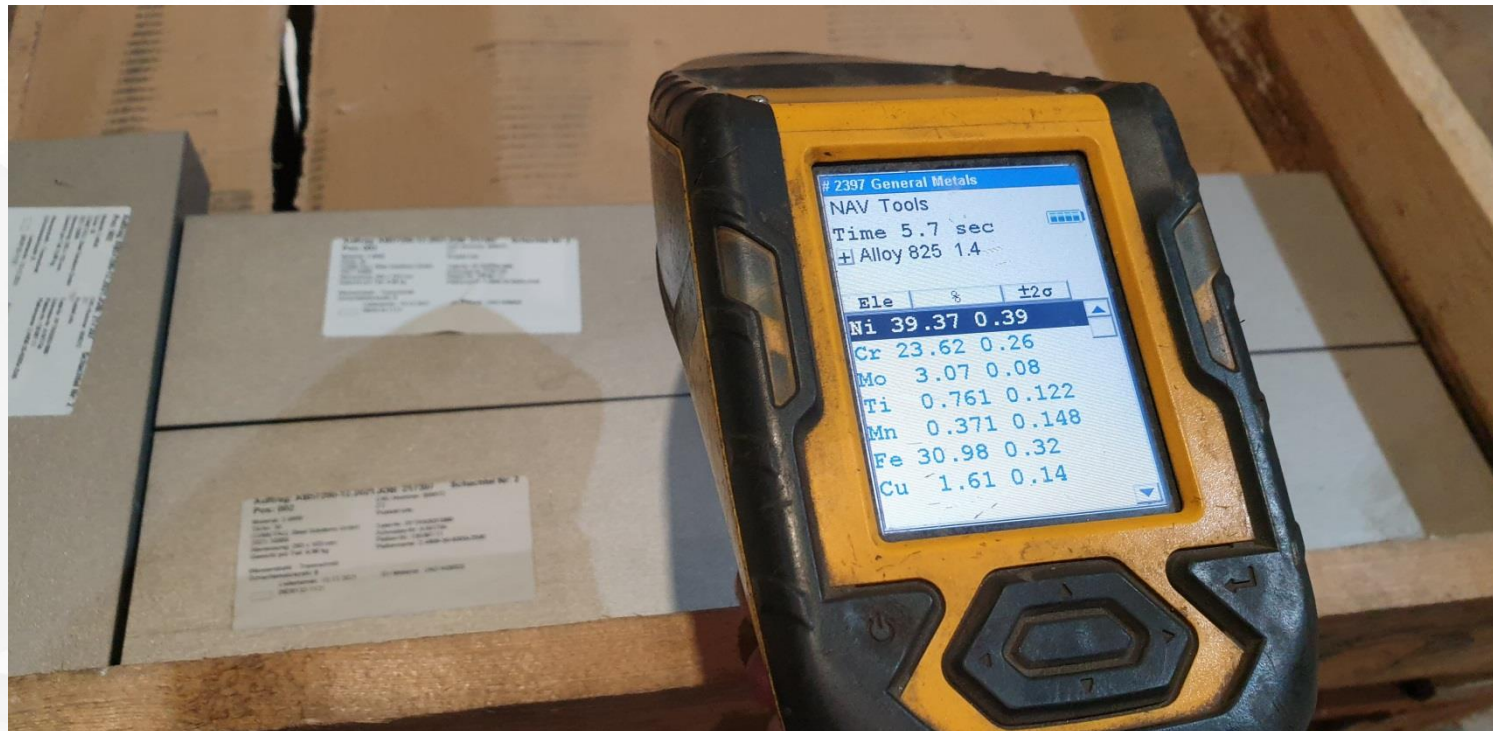


# METALLOGRAPHIC EXAMINATION



Macro section of welded joints

# POSITIVE MATERIAL INSPECTION



Positive material inspection Determination of the chemical composition and the grade of material



**THANKS FOR ATTENTION!**

