



## EQUIPMENT LIST

### LABORATORY FACILITIES

#### MECHANICAL TESTING

Test	Equipment	Method
Tensile Testing of Metallic Materials at room temperature	Universal Testing Machine, 20 Tons load, High temperature furnace HT-900 (100-900°C),	ASTM E8 SR EN ISO 6892-1
Tensile Testing of Metallic Materials at elevated temperature up to 900°C		ASTM E21 SR EN ISO 6892-1
Charpy V-Notch Impact at room temperature and low temperature down to -80°C	Impact Testing Machine, JBW-300, Range: 0-300 Joules Cooling chamber down to -80°C Optical, Digital, Profile projector, JBM00057 for V-notch check	ASTM E23 SR EN ISO 148-1
Brinell Hardness Testing	3 Portable Brinell Hardness Testers, HBW10/3000 kgf, model King Tester	ASTM E110
Brinell Hardness Testing	Static Brinell Hardness Tester, TH 600, HBW10/3000 kgf	ASTM E10 SR EN ISO 6506-1
Brinell Hardness Testing	Static Brinell Hardness Tester, DHB 3000, HBW10/3000 kgf	ASTM E10 SR EN ISO 6506-1
Rockwell Hardness Testing	Static Rockwell Hardness Tester, HR-150A, 20-67 HRC/150 kgf	ASTM E18 SR EN ISO 6508-1

#### CHEMICAL TESTING

Test	Equipment	Method
Determination of Elemental Composition in steel samples.	Optical emission spark spectrometer, Q4 Tasman	ASTM E415
Portable X ray Spectrometer	X-ray Portable Analyzer Olympus – Omega Series	PMI

#### NON DESTRUCTIVE TESTING

Test	Equipment	Method
Ultrasonic examination of forged parts	Ultrasonic Flaw detector, USM 35X, Krautkramer, Germany	ASTM A388/ A388M SR EN 10228-3
	Ultrasonic Flaw detector, Epoch 600, Olympus USA	ASTM A388/ A388M SR EN 10228-3
Liquid Penetrant Examination	Die Penetrant Testing spray kits	ASTM E-165 SR EN 10228-2
Magnetic Particle Examination	Magnetic Particle suspension, magnetic yokes	ASTM E-709 SR EN 10228-1

# LISTA DE ECHIPMENTE

## LABORATOARE

### INCERCARI MECANICE

Test	Echipment	Metoda
Inercarea la tractiune la temperatura ambianta	Masina universală de incercare la tractiune, sarcina 20 Tone,	ASTM E8 SR EN ISO 6892-1
Inercarea la tractiune la temperatura ridicata, pana la 900°C	Cuptor axial pentru incercare la temperatura ridicata HT-900 (100-900°C),	ASTM E21 SR EN ISO 6892-1
Inercarea de incovoiere prin soc pe epruveta Charpy – la temperatura ambianta si la temperaturi scazute pana la -80°C	Masina de incercare la incovoiere prin soc, JBW-300, Domeniu: 0-300 Joul Camera de racire epruvete pana la -80°C Proiector de profile optical, digital, JBM00057 pentru verificarea crestaturii in V a epruvetei de incercare la soc	ASTM E23 SR EN ISO 148-1
Inercarea de duritate Brinell	3 aparate portabile de incercare la duritate Brinell, HBW10/3000 kgf, model King Tester	ASTM E110
Inercarea de duritate Brinell	Aparat static de incercare la duritate Brinell, TH 600, HBW10/3000 kgf	ASTM E10 SR EN ISO 6506-1
Inercarea de duritate Brinell	Aparat static de incercare la duritate Brinell, DHB 3000, HBW10/3000 kgf	ASTM E10 SR EN ISO 6506-1
Inercarea de duritate Rockwell	Aparat static de incercare la duritate Rockwell, HR-150A, 20-67 HRC/150 kgf	ASTM E18 SR EN ISO 6508-1

### ANALIZE CHIMICE

Test	Echipment	Metoda
Determination of Elemental Composition in steel samples.	Spectrometru optic cu emisie prin scanteie, Q4 Tasman	ASTM E415
Portable X ray Spectrometer	Spectrometru portabil cu raze X Olympus – Omega Series	PMI

### EXAMINARI NEDISTRUCTIVE

Test	Echipment	Metoda
Examinari cu ultrasunete ale pieselor forjate	Defectoscop ultrasonic, USM 35X, Krautkramer, Germania	ASTM A388/ A388M SR EN 10228-3
	Defectoscop ultrasonic, Epoch 600, Olympus SUA	ASTM A388/ A388M SR EN 10228-3
Examinari cu lichide penetrante	Kit de examinare cu lichide penetrante	ASTM E-165 SR EN 10228-2
Examinari cu pulberi magnetice	Juguri magnetice, Instalatie de examinare cu pulberi magnetice, Pulberi magnetice	ASTM E-709 SR EN 10228-1