Hellenic Accreditation System

Annex F1/A26 to the Certificate No. **64**-8

SCOPE of ACCREDITATION

of the

Testing Laboratories

of the

Materials Industrial Research and Technology Center S.A. (MIRTEC S.A.)

VOLOS

Materials / Products to be tested	Types of test / Properties to be measured	Applied methods / Techniques to be used
Non destructive tests		
Metallic products Welded joints Fusion weld joints in metallic materials to and above 8mm thick Martensitic or ferritic steel forgings Full penetration welded joints in ferritic steels Gas and Arc welding in carbon and low-alloy steel piping Cast steels Welded joints	1. Ultrasonic examination using the pulse echo technique	EN ISO 16810:2014 ASME V Art. 4:2023 ASME V Art. 5:2023 ELOT EN ISO 17640:E2:2018 ELOT EN 10228-3 E2:2016 ELOT EN ISO 11666:E2:2018 API 1104, 22nd Edition (Acceptance levels) ASME VIII App. 7:2017 (Acceptance levels) ASME VIII App. 12:2017 (Acceptance levels)
Metallic products Welded joints, Cast metallic materials Fusion welds of metallic materials Gas and Arc welding in carbon and low alloy steel piping Steel butt welds	2. Radiographic examination by X-Rays in Steel products up to 35mm in thickness and aluminum alloy products up to 100mm in thickness (the testing is only performed in permanent laboratory premises)	EN ISO 5579:2014 ASTM E94/E94M-17 ASME V Art. 2:2023 ELOT EN ISO 17636-1:2022 API 1104, 22nd Edition (Test method and acceptance levels) EN ISO 10675-1 E2:2016 (Acceptance levels)

Materials / Products to be tested	Types of test / Properties to be measured	Applied methods / Techniques to be used
Aluminum butt welds Arc-welded joints in steels Welded joints in metallic materials Cast steels		EN ISO 10675-2 E2:2018 (Acceptance levels) ELOT EN ISO 5817 E3:2014 (Acceptance levels) ASME VIII App. 4:2017 ASME IX QW-191.2:2017 ASME VIII App. 7:2017 (Acceptance levels) ASTM E 446:2015 (Acceptance levels)
Ferromagnetic materials Ferromagnetic welds. Forgings of ferromagnetic materials. Ferromagnetic cast steels.	3. Magnetic particle inspection using magnetic particles and YOKE (Electromagnetic balance)	ASTM E 709:2017 ASME V Art. 7:2023 ASME VIII App. 6:2017 (Acceptance levels) ELOT EN ISO 17638 E2:2016 ELOT EN ISO 23278:2015 ELOT EN ISO 5817 E3:2014 (Acceptance levels) ELOT EN 10228-1 E2:2016 ASME VIII App. 7:2017
Metallic materials Welded joints of metallic materials Cast steels	4. Liquid penetrant inspection using visible and fluorescent contrast.	ASTM E165/E165M-12 ELOT EN 3452.01:2021 ASME V Art. 6:2023 ASME VIII App. 8:2017 (Acceptance levels) ELOT EN ISO 23277 E2:2015 (Acceptance levels) ELOT EN ISO 5817 E3:2014 (Acceptance levels) ELOT EN ISO 10042:2018 (Acceptance levels) ASME VIII App. 7:2017 (Acceptance levels)
Metallic materials	5. Non-destructive testing - Ultrasonic thickness measurement	ΕΛΟΤ EN ISO 16809:2019 ASTM E797/E797M-15
Physical tests		
Welded joints	1. Visual examination – Detection and evaluation of imperfections	ELOT EN ISO 17637:E2:2017 ELOT EN ISO 5817 E3:2014 ELOT EN ISO 10042:2018 ASME V, art. 9:2023
Mechanical tests		
Metallic materials	1. Tensile test (0 - 600) kN.	ELOT EN ISO 6892-1:E3:2020 (tensile strength, yield strength, percentage plastic extension at maximum force, percentage elongation after fracture) ASTM E8/E8M-16a (Sample dimensions)

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	2. Charpy impact test.	ELOT EN ISO 148-1:E2:2017 ELOT EN ISO 9016 E2:2022 ASTM A370-17a (Sample dimensions)
Steel reinforcing bars	3. Tensile test (0- 600) kN.	EN ISO 15630-1 (tensile strength, yield strength, percentage plastic extension at maximum force, percentage elongation after fracture) EN ISO 15630-2:2019 EN ISO 15630-3:2019
	4. Bend test (at 180° angle)	ELOT 1421-2,-3 E2:2007 ELOT EN 10080:2005 EN ISO 15630-1:2019 EN ISO 15630-2:2019 EN ISO 15630-3:2019
	5. Fatigue strength.	ELOT EN 10080:2005, ELOT 1421-2,-3 E2:2007 EN ISO 15630-1:2019 EN ISO 15630-2:2019 EN ISO 15630-3:2019
	6. Surface geometry of ribbed or indented steel.	ELOT EN 10080:2005, ELOT 1421-2,-3 E2:2007 EN ISO 15630-1:2019 EN ISO 15630-2:2019 EN ISO 15630-3:2019
Welded joints Gas and Arc welding in carbon and low alloy steel piping Welded joints in pipes and plates	7. Bend test in metallic materials.	API 1104, ~~21~~st-22nd Edition ELOT EN ISO 5173/A1:2012 ASME IX, QW 162:2010
Non-alloy steel tubes	8.Tensile test (0-600) kN.	BS EN 10255:2004
	9. Bend test (at 180° angle).	BS EN 10255:2004
	10.Flattening Test	BS EN 10255:2004
	11.Leak Tightness Test	BS EN 10255:2004
	12.Dimensional Inspection	BS EN 10255:2004
	13.Visual Examination	BS EN 10255:2004
Chemical tests		
Carbon and low-alloy steel	C, Si, Mn, P, S, Cr, Ni, Mo, V, Cu, Al, Co, Nb, Ti, Sn, N	ASTM E 415-21
Stainless steel	C, Si, Mn, P, S, Cr, Ni, Mo, Cu	ASTM E 1086:2022
Aluminum and aluminum-alloys	Si, Fe, Cu, Mn, Mg, Zn, Ni, Cr, Pb, Sn, Ti	EN 14726:2019
Copper alloys	Sn, Pb, Zn, P, Mn, Fe, Ni, Si, Al, Cu	EN 15079:2015
Metallic products	Corrosion (salt spray) tests Visual examination	EN ISO 9227:2022 + A1:2024
Hot Dip Galvanized coatings on ferrous materials	Gravimetric determination of the mass per unit area	ISO 1460:2020
Steel reinforcing bars	Corrosion test	KTX 2008

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Control tests for fire extinguishers		
Fire extinguishers	1. Corrosion (salt spray) tests	EN ISO 9227:2022 + A1:2024
Portable extinguishers Mobile extinguishers Small disposable of the aerosol type extinguishers	2. Extinguishing capacity tests (dielectric constant excluded)	ELOT EN 3-7 + A1:2007 ELOT EN 1866-1:2007 ELOT 1066 E2:2006
Portable extinguishers Mobile extinguishers Small disposable of the aerosol type extinguishers	3. Characteristics, performance and test methods (dielectric constant excluded)	ELOT EN 3-7 + A1:2007 ELOT EN 1866-1:2007 ELOT 1066 E2:2006
Portable aerosol dispensers for fire extinguishing purposes	External Corrosion Resistance of aerosol dispensers Protective cover removal test of aerosol dispensers Internal Corrosion Resistance of aerosol dispensers Pressure and chemical stability of aerosol dispensers Impact Resistance test of aerosol dispensers Resistance to shocks and mechanical damage of aerosol dispensers	EN 16856:2020 §5.3.1 EN 16856:2020 §5.1.7 – 5.1.8 EN 16856:2020 §5.3.2 EN 16856:2020 §5.3.3 EN 16856:2020 §5.4 EN 16856:2020 §5.5
Aerosol canisters for extinguishing purposes	Pressure test of aerosol dispensers Burst Pressure test of aerosol dispensers	EN 16856:2020 §5.6 EN 16856:2020 §5.7
Portable aerosol dispensers for fire extinguishing purposes Fire extinguishing performance rating	Filling requirements and media tolerance of aerosol dispensers Filling pressure Maximum developed pressure Duration of discharge of aerosol dispensers Minimum discharge of contents of aerosol dispensers Retention of charge following partial discharge of aerosol dispensers Solid fuel extinguishing test (Type A fire) Liquid Fuel Extinguishing Test (Type B Fire)	EN 16856:2020 §6.1 EN 16856:2020 § 6.2 ± 0,5 bar από την πίεση λειτουργίας στους 20°C EN 16856:2020 §6.3 EN 16856:2020 §7.2 EN 16856:2020 §7.3 EN 16856:2020 §7.4 EN 16856:2020 §7.5.2 EN 16856:2020 § 7.5.3

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	Fuel oil extinguishing test (Fire type F)	EN 16856:2020 § 7.5.4
	Calculation test for effective throw of aerosol dispensers of aerosol dispensers	EN 16856:2020 § 7.6
	Marking and color control of aerosol dispensers	EN16856:2020

Site of assessment: **Laboratory permanent premises, A' Industrial Area, Volos, Greece.**
Approved Signatories:**G. Archontis, A. Stamou, P. Kokkonidis, E. Marou, P. Zisakis, G. Moisidis.**

This Scope of Accreditation replaces the previous one dated January 9th, 2025**.**
The Accreditation Certificate No. **64-8**, to ELOT EN ISO/IEC 17025:**2017**, is valid until 28.08.2026, according ESYD decision.

Athens, February 10th , 2026

Konstantinou Evangelos Apostolos
CEO of ESYD