TURKISH ACCREDITATION AGENCY

ACCREDITATION CERTIFICATE

As a Testing Laboratory

SASTEK UYGUNLUK DEĞERLENDİRME HİZMETLERİ SANAYİ VE TİCARET ANONİM ŞİRKETİ

Central Address: BATI SİTESİ MAH. TAHSİN KAHRAMAN CAD. GERSAN SANAYII SITESI SASTEK NO:82 YENİMAHALLE Ankara / Türkiye

is accredited in accordance with TS EN ISO/IEC 17025:2017 standard within the scope given in Annex following the assessment conducted by TURKAK.

Accreditation Number : AB-1028-T

Accreditation Date : 05.10.2016

Revision Date / Number : 22.01.2025 / 07

This certificate shall remain in force until **03.10.2028**, subject to continuing compliance with the standard **TS EN ISO/IEC 17025:2017**, related regulations and requirements.

Gülden Banu Müderrisoğlu
Secretary General

Turkish Accreditation Agency (TURKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Agreement (MRA) in the scope of ISO/IEC 17025.

This document has been signed by Gülden Banu Müderrisoğlu with a secure electronic signature in accordance with the electronic signature law numbered 5070. Use the QR code to verify the e-signed document.

Test
TS EN ISO/IEC 17025
AB-1028-T

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Revision Nr: 07 Date: 22.01.2025

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Meters

Tested Materials / Products	Name of Test	Testing Method (National, International Standards, In-house Methods)
Water Meters	Dry Heat Test (non-condensing)	EN ISO 4064-2:2017 Article 8.2 OIML 49-2:2013 Article 8.2 2004/22/AT MI-001 2014/32/AB Annex 3 MI-001 EN 14154-3:2005 Article 6.2.1 75/33/AT Cold Water Meters
Water Meters	Cold Test	EN ISO 4064-2:2017 Article 8.3 OIML 49-2:2013 Article 8.3 2004/22/AT MI-001 2014/32/AB Annex 3 MI-001 EN 14154-3:2005 Article 6.2.2 75/33/AT Cold Water Meters
Water Meters	Damp heat, cyclic (condensing)	ISO 4064-2 Article 8.4 OIML R 49-1 Article 8.4 TS EN 14154-3+A2 Article 6.2.3
Water Meters	Flow disturbance tests	EN ISO 4064-2:2017 Article 7.10 OIML 49-2:2013 Article 7.10 2004/22/AT MI-001 2014/32/AB Annex 3 MI-001 EN 14154-3:2005 Article 5.9 75/33/AT Cold Water Meters
Water Meters	Overload water temperature test	EN ISO 4064-2:2017 Article 7.6 OIML 49-2:2013 Article 7.6 2004/22/AT MI-001 2014/32/AB Annex 3 MI-001 EN 14154-3:2005 Article 5.7 75/33/AT Cold Water Meters
Water Meters	Pressure Loss Test	TS EN ISO 4064-2: Article 7.9 TS EN 14154-3+A1 Article 5.11 Cold Water Meters Regulation 75/33/AT : Article 3.4 2004/22/AT Measurement Devices Regulation: Annex MI-001 2014/32/AB Measurement Devices Regulation: Annex-3 MI-001
Water Meters	Static Pressure Test	TS EN ISO 4064-2: Article 7.3 TS EN 14154-3+A1 Article 5.2 Cold Water Meters Regulation 75/33/AT: Article 3.3 2004/22/AT Measurement Devices Regulation : Annex MI-001 2014/32/AB Measurement Devices Regulation : Annex-3 MI-001

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Water Meters	Determination of intrinsic errors (of indication)	TS EN ISO 4064-2: Article 7.4 TS EN 14154-3+A1 Article 5.4 Cold Water Meters Regulation 75/33/AT: Article 2 2004/22/AT Measurement Devices Regulation: Annex MI-001 2014/32/AB Measurement Devices Regulation: Annex-3 MI-001
Water Meters	Durability - Continuous Flow	ISO 4064-2 Article 7.11 OIML R 49-1 Article 7.11 TS EN 14154-3+A2 Article 5.13
Water Meters	Absence of flow test	ISO 4064-2 Article 8.17 OIML R 49-1 Article 8.17 TS EN 14154-3+A2 Article 5.5
Water Meters	Water pressure test	ISO 4064-2 Article 7.7 OIML R 49-1 Article 7.7 TS EN 14154-3+A2 Article 5.8
Water Meters	Reverse Flow Test	TS EN ISO 4064-2 Article 7.8 OIML R 49-2 Article 7.8 2014/32/AB Measurement Devices Regulation (MI-001) TS EN 14154-3+A2 Article 5.12
Measuring systems for continuous and dynamic measurement of quantities of liquids other than water	Performance tests	OIML R 117 OIML R 118
Measuring systems for continuous and dynamic measurement of quantities of liquids other than water	Dry Heat (Non-Condensing) Test	OIML R 117 OIML R 118
Measuring systems for continuous and dynamic measurement of quantities of liquids other than water	Cold Test	OIML R 117 OIML R 118
Measuring systems for continuous and dynamic measurement of quantities of liquids other than water	Damp Heat, Cyclic (Condensing) Test	OIML R 117 OIML R 118
Heat Meters	Dry Heat Test (Non-Condensing)	TS EN 1434-4:2015 Article 7.5 OIML R75-2:2002 Article 6.5 2004/22/AT MI-004 2014/32/AB Annex 6 MI-004
Heat Meters	Cold Test	TS EN 1434-4 Article 7.6 OIML R75-2:2002 Article 6.6 2004/22/AT MI004 2014/32/AB Annex 6 MI004

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Heat Meters	Damp Heat, Cyclic Test(Condensing)	TS EN 1434-4:2015 Article 7.9 OIML R75-2:2002 Article 6.9 2004/22/AT MI004 2014/32/AB Annex6 MI004
Heat Meters	Determination of Indication errors test	TS EN 1434-5 Article 6
Water Meters	Water Temperature Test	EN ISO 4064-2:2017 Article 7.5 OIML 49-2:2013 Article 7.5 2004/22/AT MI-001 2014/32/AB Annex 3 MI-001 EN 14154-3:2005 Article 5.6 75/33/AT Cold Water Meters
Water Meters	Durability - Discontinuous flow test	ISO 4064-2 Article 7.11 OIML R 49-1 Article 7.11 TS EN 14154-3+A2 Article 5.13
Water Meters	Static Magnetic Field Test (Magnet Test)	TS EN ISO 4064-2:2015 2014/32/AB Measurement Devices Regulation (MI-001)
Heat Meters	Performance tests	TS EN 1434-4:2015 Article 7.4 OIML R75-2:2002 Article 6.4 2004/22/AT MI-004 2014/32/AB Annex 6 MI-004
Heat Meters	Flow Disturbances	TS EN 1434-4:2015 Article 7.22 2004/22/AT MI-004 2014/32/AB Annex 6 MI-004
Heat Meters	Internal Pressure	TS EN 1434-4:2015 Article 7.18 OIML R75-2:2002 Article 6.16 2004/22/AT MI-004 2014/32/AB Annex 6 MI-004
Heat Meters	Pressure Loss Test	TS EN 1434-4:2015 Article 7.19 OIML R75-2:2002 Article 6.17 2004/22/AT MI-004 2014/32/AB Annex 6 MI-004
Water Meters	Water meters for cold potable water and hot water - Part 2: Test methods	TS EN ISO 4064-2
Cold and Hot Water Meters Flow Meter (DN 15-200)	Changes in power supply (Interruption in battery supply)	EN ISO 4064-2 Article 8.5.4 OIML 49-2 Article 8.5.4 2004/22/EC MI-001 (* It was repealed on 29.06.2016 but was temporarily included in the scope of accreditation upon the request of the organization.) 2014/32/EU MI-001 Cold Water Meter Directive 75/33/EC (* It was repealed on 07.08.2008 but was temporarily included in the scope of accreditation upon the request of the organization) (*This test is performed at the other location for DN50 and above meters.)

Accreditation Scope

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Cold and Hot Water Meters Flow Meter (DN 15-200)	Electrostatic discharge	EN ISO 4064-2 Article 8.11 OIML 49-2 Article 8.11 2004/22/EC MI-001 (* It was repealed on 29.06.2016 but was temporarily included in the scope of accreditation upon the request of the organization.) 2014/32/EU MI-001 EN 14154-3+A2:2013 Article 6.3.1 (* It was repealed on 18.02.2015 but was temporarily included in the scope of accreditation upon the request of the organization) Cold Water Meter Directive 75/33/EC (* It was repealed on 07.08.2008 but was temporarily included in the scope of accreditation upon the request of the organization) (*This test is performed at the other location for DN50 and above meters.)
Heat Meters (DN 15-50)	Electrostatic discharge	TS EN 1434-4 Article 7.15 OIML R75-2 Article 6.13 2004/22/EC MI-004 (* It was repealed on 29.06.2016 but was temporarily included in the scope of accreditation upon the request of the organization.) 2014/32/EU MI-004 (*This test is performed at the other location for DN50 and above meters.)
Heat Meters (DN 15-50)	Static deviations in supply voltage	TS EN 1434-4 Article 7.7 OIML R75-2 Article 6.7 2004/22/EC MI-004 (* It was repealed on 29.06.2016 but was temporarily included in the scope of accreditation upon the request of the organization.) 2014/32/EU MI-004 (*This test is performed at the other location for DN50 and above meters.)
Cold and Hot Water Meters Flow Meter (DN 15-200)	Changes in power supply (Water meters powered by external DC voltage or by primary DC batteries)	EN ISO 4064-2 Article 8.5.3 OIML 49-2 Article 8.5.3 2004/22/EC MI-001 (* It was repealed on 29.06.2016 but was temporarily included in the scope of accreditation upon the request of the organization.) 2014/32/EU MI-001 EN 14154-3+A2:2013 Article 6.4.5 (* It was repealed on 18.02.2015 but was temporarily included in the scope of accreditation upon the request of the organization) Cold Water Meter Directive 75/33/EC (* It was repealed on 07.08.2008 but was temporarily included in the scope of accreditation upon the request of the organization) (*This test is performed at the other location for DN50 and above meters.) (*This test is performed at the other location for DN50 and above meters.)

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Electrical,Electronic and IT Products and Devices

Tested Materials / Products	Name of Test	Testing Method (National, International Standards, In-house Methods)
Final Product	Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)	TS EN 60695-2-11 EN 60695-2-11 IEC 60695-2-11
Household and similar electrical appliances	Household and similar electrical appliances – Safety - Part 1: General requirements -Protection against accessing live parts -Input power and current -Leakage current and electrical resistance at operating temperature -Moisture resistance -Leakage current and electrical resistance -Mechanical strength - Heat and fire resistance -Annex A (For Information) Routine Experiments	TS EN 60335-1 EN 60335-1 IEC 60335-1 Article 8 Article 10 Article 13 Article 15 Article 16 Article 21 Article 30.2.1 Article 30.2.2 Article 30.2.3
Final Product	Test B: Dry heat	TS EN 60068-2-2 EN 60068-2-2
Final Product	Tests A: Cold	TS EN 60068-2-1 EN 60068-2-1
Final Product	Test Eh: Hammer tests	TS EN 60068-2-75 EN 60068-2-75
Final Product	Degrees of protection provided by enclosures (IP code) (For electrical equipments) tests	TS 3033 EN 60529 EN 60529/A1
Final Product	Test S: Simulated solar radiation at ground level and guidance for solar radiation testing and weathering	TS EN 60068-2-5 EN 60068-2-5
Final Product	Tests Fc: Vibration (sinusoidal)	TS EN 60068-2-6 EN 60068-2-6
Final Product	Test Db: Damp heat, cyclic (12 h + 12 h cycle)	TS EN 60068-2-30 EN 60068-2-30
Final Product	Test Cab: Damp heat, steady state	TS EN 60068-2-78 EN 60068-2-78
Final Product	Test Ea and guidance: Shock	TS EN 60068-2-27 EN 60068-2-27

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Electricity metering equipment	Electricity metering equipment - General requirements, tests and test conditions - Part 11: Metering equipment **Applicable Tests** -Power consumption 4.4 -Repeatability 7.8 -Meter constant 7.4 -Immunity to electrostatic discharges 9.3.3 -Initial start-up of the meter 7.5 -Test of no-load condition 7.6 -External static magnetic fields 9.3.12 -Power frequency magnetic field immunity test 9.3.13 -Starting current test 7.7 -Limits of error due to variation of the current 7.9 -Test of time keeping accuracy 7.11 -Vibration test (Test Fc) 5.2.2 -Shock test (Test Ea) 5.2.1 -Harmonics in the current and voltage circuits 5th harmonic test 9.4.2.2 -Voltage variation 9.4.3 -Ambient temperature variation 9.4.4 -Interruption of phase voltage 9.4.5 -Frequency variation 9.4.6 -Reversed phase sequence 9.4.7 -Auxiliary voltage variation 9.4.8 -Operation of auxiliary devices 9.4.9 -Self-heating 9.4.11 -Dry heat test 8.3.3 -Cold test 8.3.4 -Damp heat, cyclic test 8.3.5	TS EN 62052-11 EN 62052-11 IEC 62052-11 **Applicable Tests** Article 4.4 Article 7.8 Article 7.4 Article 9.3.3 Article 7.5 Article 7.6 Article 9.3.12 Article 9.3.13 Article 7.7 Article 7.9 Article 7.11 Article 5.2.2 Article 5.2.1 Article 9.4.2.2 Article 9.4.3 Article 9.4.4 Article 9.4.5 Article 9.4.6 Article 9.4.7 Article 9.4.8 Article 9.4.9 Article 9.4.11 Article 8.3.3 Article 8.3.4 Article 8.3.5
Luminaires	Luminaires - Part 1: General requirements and tests	TS EN 60598-1 EN 60598-1 IEC 60598-1
Electromagnetic compatibility	Electromagnetic compatibility (EMC) -- Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	TS EN 61000-4-2 EN 61000-4-2 IEC 61000-4-2
Electricity metering equipment	Electricity metering equipment - Particular requirements - Part 23: Static meters for reactive energy (classes 2 and 3) **Applicable Tests** -Repeatability 7.8 -Meter constant 7.4 -Initial start-up of the meter 7.5 -Test of no-load condition 7.6 -Starting current test 7.7 -Limits of error due to variation of the current 7.9 -Time-keeping accuracy 7.11 -Climatic conditions 8	TS EN 62053-23 EN 62053-23 **Applicable Tests** Madde 7.8 Madde 7.4 Madde 7.5 Madde 7.6 Madde 7.7 Madde 7.9 Madde 7.11 Madde 8
Electricity metering equipment	Electricity metering equipment - Particular requirements - Part 22: Static meters for AC active energy (classes 0,1S, 0,2S and 0,5S) **Applicable Tests** -Repeatability 7.8 -Meter constant 7.4 -Initial start-up of the meter 7.5 -Test of no-load condition 7.6 -Starting current test 7.7 -Limits of error due to variation of the current 7.9 -Time-keeping accuracy 7.11 -Climatic conditions 8	TS EN 62053-22 EN 62053-22 **Applicable Tests** Article 7.8 Article 7.4 Article 7.5 Article 7.6 Article 7.7 Article 7.9 Article 7.11 Article 8

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Electricity metering equipment	Electricity metering equipment - Particular requirements - Part 21: Static meters for AC active energy (classes 0,5, 1 and 2) **Applicable Tests** -Repeatability 7.8 -Meter constant 7.4 -Initial start-up of the meter 7.5 -Test of no-load condition 7.6 -Starting current test 7.7 -Limits of error due to variation of the current 7.9 - Time-keeping accuracy 7.11 - Climatic conditions 8	TS EN 62053-21 EN 62053-21 **Applicable Tests** Article 7.8 Article 7.4 Article 7.5 Article 7.6 Article 7.7 Article 7.9 Article 7.11 Article 8
Electricity metering equipment	Electricity metering equipment (a.c.) - Part 3: Particular requirements - Static meters for active energy (class indexes A, B and C) **Applicable Tests** -Repeatability 7.8 - Meter constant 7.4 - Initial start-up of the meter 7.5 - Test of no-load condition 7.6 - Starting current test 7.7 - Allowable errors due to variation of the current 7.9 - Allowable errors due to influence quantities and disturbances 7.10 -Time-keeping accuracy 7.11 - Climatic conditions 8 -Accuracy in the presence of harmonics 8.7.7.7	TS EN 50470-3 EN 50470-3 **Applicable Tests** Article 7.8 Article 7.4 Article 7.5 Article 7.6 Article 7.7 Article 7.9 Article 7.10 Article 7.11 Article 8 Article 8.7.7.7
Electricity metering equipment	Electricity metering equipment (a.c.) - Part 1: General requirements, tests and test conditions - Metering equipment (class indexes A, B, and C) **Applicable Tests** -Heating 7.2 - Immunity to electrostatic discharges 7.4.5 - Immunity to continuous magnetic fields of external origin 7.4.11 - Immunity to power frequency magnetic fields of external origin 7.4.12 -Dry heat test (Test B) 6.3.2 - Cold test (Test A) 6.3.3 -Damp heat, cyclic test (Test Db) 6.3.4 -Vibration test (Test Fc) 5.2.2.3 -Shock test (Test Ea) 5.2.2.2 -Spring hammer test (Test Eh) 5.2.2.1 -Protection against penetration of dust and water 5.9 - Resistance to heat and fire 5.8	TS EN 50470-1 EN 50470-1 **Applicable Tests** Article 7.2 Article 7.4.5 Article 7.4.11 Article 7.4.12 Article 6.3.2 Article 6.3.3 Article 6.3.4 Article 5.2.2.3 Article 5.2.2.2 Article 5.2.2.1 Article 5.9 Article 5.8