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MID TEST REPORT

Prepared For:	Guangdong Lianshu Valve Co., Ltd. No. 83, Xining Avenue, Ducheng Town, Yunan County, Yunfu City, Guangdong Province, China
Manufacturer:	Guangdong Lianshu Valve Co., Ltd. No. 83, Xining Avenue, Ducheng Town, Yunan County, Yunfu City, Guangdong Province, China
Product Name:	Water meters
Trade Name:	LESSO
Model:	LXSY-15E
Additional models	LXS-20F-Q-P, LXSY-15E
Prepared By:	Jilin Zhongfu Testing Technology Service Co., Ltd. Room 519, School of Mechanical and Electrical Engineering, Building 4, Changchun Institute of Technology, 395 Kuangping Road, Chaoyang District, Changchun City, Jilin Province, China
Test Date:	Sep. 2, 2026 To Sep. 9, 2026
Date of Report:	Sep. 10, 2026
Report No.:	ZF580730SQ00381SR

TEST REPORT DECLARATION

Applicant	:	Guangdong Lianshu Valve Co., Ltd.
Address	:	No. 83, Xining Avenue, Ducheng Town, Yunan County, Yunfu City, Guangdong Province, China
EUT Description	:	Floor drains and drain outlets
Model Number	:	LXSY-15E
Test procedure	:	-Directive 2014/32/EU Measuring instruments (MID), Module A in Annex II -Essential Requirements in Annex I -Declaration of Conformity in Annex XIII

Test reference standards:

- EN ISO 4064-1:2025
- ISO 4064-1:2024
- EN 14154-4:2023

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Prepared by: _____
Assistant

Tested by: _____
Test Engineer

Reviewer: _____
Supervisor

Approved & Authorized Signer: _____
Manager

ZHONGFU TESTING LABORATORY APPROVED

EN ISO 4064-1:2025 Water meters for cold potable water and hot water - Part 1: Metrological and technical requirements (ISO 4064-1:2024)

No.	Test Item	Technical Requirement	Remarks	Evaluation
Metrological requirements (Clause 4)				
1	Flow-rate designation	Meter designated by Q3 (m^3/h, from R5 series: 1 / 1.6 / 2.5 / 4 / 6.3 / 10 / 16 / 25 / 40 / 63 / 100 / 160 / 250 / 400 / 630 / 1 000…) and ratio Q3/Q1 (from list: 40 / 50 / 63 / 80 / 100 / 125 / 160 / 200 / 250 / 315 / 400 / 500 / 630 / 800 / 1 000…). Q2/Q1 = 1.6; Q4/Q3 = 1.25	10 m^3/h	Pass
2	Accuracy class 1 — MPE	Upper zone (Q2 ≤ Q ≤ Q4): ± 1 % at 0.1 – 30 °C, ±2 % above 30 °C; Lower zone (Q1 ≤ Q < Q2): ±3 % (all temperatures)		N/A
3	Accuracy class 2 — MPE	Upper zone (Q2 ≤ Q ≤ Q4): ± 2 % at 0.1 – 30 °C, ±3 % above 30 °C; Lower zone (Q1 ≤ Q < Q2): ±5 % (all temperatures)	Class 2	Pass
4	Temperature classes	T30, T50, T70, T90, T130, T180 (mAT 0.1 °C) and T30/70, T30/90, T30/130, T30/180 (mAT 30 °C); MAT up to 30–180 °C per class		Pass
5	Rated operating conditions	Flow: Q1 – Q3; ambient air +5 °C to +55 °C; water temp per temperature class; ambient RH 0 – 100 % (0 – 93 % for remote indicating devices); pressure 0.03 MPa (0.3 bar) to ≥ 1 MPa (10 bar) (≥ 0.6 MPa for DN ≥ 500)		Pass
6	Absence of flow / water (4.2.9)	Meter totalization shall not change in the absence of flow or water	No change	Pass
7	Reverse flow (4.2.7)	If designed to measure reverse flow: volume subtracted or recorded separately, MPE met in both directions. If not designed: meter shall prevent reverse flow, or withstand accidental reverse flow up		Pass

No.	Test Item	Technical Requirement	Remarks	Evaluation
		to Q3 without deterioration of forward-flow metrological performance		
Performance / type-evaluation tests (Clause 7; methods per EN ISO 4064-2:2025)				
1	Static pressure test (4.2.10)	No leakage (external or into indicating device), no physical damage	No damage	Pass
2	Errors of indication (7.2.3)	Errors within MPE of the accuracy class; repeatability: standard deviation at Q1, Q2, Q3 ≤ 1/3 MPE		Pass
3	Water temperature test (4.2.8)	Error within applicable MPE		Pass
4	Overload water temperature (7.2.5)	Totalization and declared additional functions unaffected; error within MPE		Pass
5	Water pressure test (4.2.8)	Error within applicable MPE		Pass
6	Reverse flow test (4.2.7)	Forward/reverse errors within MPE; no metrological degradation	No metrological degradation	Pass
7	Pressure loss test (6.5)	Δp ≤ 0.063 MPa (0.63 bar) between Q1 and Q3; declared pressure-loss class from Δp63 / Δp40 / Δp25 / Δp16 / Δp10		Pass
8	Flow disturbance tests (6.3.4)	Errors within MPE under disturbed flow		Pass
9	Durability tests (7.2.6)	After test, class 2 error-curve variation ≤ 3 % (lower zone) / ≤ 1.5 % (upper zone); max limits ± 6 % (lower), ±2.5 % (T30 upper) / ±3.5 % (other classes upper). Class 1: 2 %/1 %; ±4 %; ±1.5 %/± 2.5 %		Pass
10	Interchange test (7.2.7)	All curves within MPE; error variation within 0.5 × MPE (standard interfaces) / 1.0 × MPE		Pass

No.	Test Item	Technical Requirement	Remarks	Evaluation
		(interfaces with different body shapes/flow patterns)		
11	Static magnetic field test (7.2.8)	Meter not affected; MPE met in presence of static magnetic field		Pass
12	Ancillary devices (4.3.6)	Error with device ≤ MPE; readings differ by ≤ 1 verification scale interval		Pass
Electronic water meters — performance tests (Annex A; methods per Part 2 Clause 8)				
1	Dry heat (8.2)	Influence factor → errors within MPE	Functional after test	Pass
2	Cold (8.3)	Influence factor → errors within MPE		Pass
3	Damp heat, cyclic (8.4)	Disturbance → no significant fault, or detected/acted by checking facility (≤ ½ MPE upper zone change)		Pass
4	Mains voltage / frequency variation (8.5.1)	Influence factor → errors within MPE		Pass
5	Battery voltage (8.5.2)	Influence factor → errors within MPE	Functional after test	Pass
6	Battery interruption (8.5.3)	Totalisation / stored values unchanged		Pass
7	Vibration, random (8.6)	Disturbance → significant-fault criterion		Pass
8	Mechanical shock (8.7)	Disturbance → significant-fault criterion		Pass
9	AC mains dips & interruptions (8.8)	Disturbance → significant-fault criterion		Pass
10	Bursts on signal lines (8.9) / on AC-DC mains (8.10)	Disturbance → significant-fault criterion		Pass

No.	Test Item	Technical Requirement	Remarks	Evaluation
11	Electrostatic discharge (8.11)	Disturbance → significant-fault criterion		Pass
12	Radiated EM fields (8.12) / Conducted EM fields (8.13)	Disturbance → significant-fault criterion		Pass
13	Surges on signal lines (8.14) / on mains (8.15)	Disturbance → significant-fault criterion		Pass
14	Static magnetic field (8.16)	Influence factor → errors within MPE		Pass
15	Absence of flow (8.17)	Disturbance → significant-fault criterion		Pass
16	Mains power frequency EM field (8.18)	Disturbance → significant-fault criterion		Pass
Power supply & software (Clauses 5.2, Annex D)				
1	External power supply (5.2.2)	On failure: volume indication retained and accessible ≥ 1 year; memorisation ≥ 1×/day or per 10 min of flow at Q3; short interruptions tolerated (Part 2 8.8); connections secured against tampering	Record well	Pass
2	Non-replaceable battery (5.2.3)	Battery life ≥ meter operational life + 1 year; low-battery / replacement-date indication; ≥ 180 days of register display life after "low battery"		Pass
3	Replaceable battery (5.2.4)	Manufacturer replacement rules; low-battery indicator; replacement must not require breaking the metrological seal; properties/parameters unaffected (battery-interruption test, 1 h)		Pass
4	Software (Annex D)	Unique software identification (retrievable); metrological algorithms documented & verified	Software is functional	Pass

No.	Test Item	Technical Requirement	Remarks	Evaluation
		(AD/VFTM/VFTSw); protection against unauthorised modification; audit trail (timestamp, nature, success/failure, old/new versions & parameters); prevention of misuse via protected user/communication interfaces; separation of legally relevant modules		
Initial verification (Clause 7.3)				
1	Static pressure	1.6 × MAP for 1 min — no leakage or damage	Test by manufacturer	Pass
2	Errors of indication	At Q1, Q2, Q3 (combination meters also 1.1Qx2) — within MPE of accuracy class		Pass

EN 14154-4:2023 Water meters - Part 4: Additional functionalities

No.	Test Item	Technical Requirement	Test Result	Evaluation
General requirement tests (Clause 4)				
1	Connection requirements	AFD2/AFD3 connected to the meter and tested as a combined unit (per 4.11.2) — connection must have no metrological influence; must not obscure or damage metrological seals/regulatory marking; consumer can read primary indication to ⩾ m³ without tools	No metrological influence	Pass
2	Environmental conditions	AFD shall operate at all meter operating conditions; shall meet an environmental class of EN ISO 4064-1:2017 A.2/A.3 and its related tests (AFD3 may have a different class than the meter)		Pass
3	Security — construction	Any unauthorised intervention shall cause permanently visible damage or a report in the event log; physical seals visibly fixed and accessible	Construction with physical seals	Pass
4	Security — software, data & hardware	All accessible connections/ports/interfaces secured by seals; no unauthorised access to software/firmware; electronic seals: password/code access, intervention logged with type, date/time. Test: visual inspection + evaluation of manufacturer's technical documentation		Pass
5	Firmware upgrade of AFD	Non-metrological upgrades only (clear separation from metrological functions); after upgrade information/functionality as declared; existing data unchanged	Data completed	Pass
6	Software identification	Software (incl. version) has an unambiguous, retrievable identifier		Pass
7	Power supply	Per EN ISO 4064-1:2017 / EN ISO 4064-4:2014 and tested accordingly; battery-powered AFD: manufacturer declares minimum operational battery lifetime (per functionality/operation)		Pass

No.	Test Item	Technical Requirement	Test Result	Evaluation
8	Data storage	Per standard requirements verify details in official text		Pass
9	Clock requirements	UTC-based clock; synchronisation and setting requirements (4.7.1–4.7.3)	UTC+8	Pass
10	Marking	Marking requirements (4.8.1) + marking test (4.8.2)	Fixed and clear after test	Pass
11	Documentation	Declaration of conformity (Annex A) and instruction manual supplied		Pass
12	Display	Display requirements (4.10.2) + display test (4.10.3)		Pass
13	Metrological influence	Requirement (4.11.1): AFD shall have no metrological impact. Test (4.11.2): AFD2/AFD3 tested as combined unit with the meter — meter errors remain within MPE		Pass
14	Input to / output from AFD	Requirements (4.12.2) + test (4.12.3) for AFD inputs/outputs (pulse/communication)		Pass
Additional functionalities — use cases (Clause 5.2)				
1	Scheduled read	Regular transmission of the primary indication on a pre-configured schedule — simulate schedule (e.g., modify calendar date), verify primary indication transmitted as scheduled		Pass
2	Pre-programmed reading date	Reading at pre-programmed dates — set dates, verify reading performed at those dates		Pass
3	On demand read	Read on request via communication interface — issue read request, verify correct response	Demand read is available	Pass
4	History of consumption	Storage of consumption history — verify data stored and retrievable as declared		Pass
5	Background leak	Detection of continuous low-level flow (leak) — simulate leak flow, verify event/alarm generated		Pass

No.	Test Item	Technical Requirement	Test Result	Evaluation
6	Burst	Detection of abnormally high flow (pipe burst) — simulate burst flow, verify event/alarm		Pass
7	Reverse flow	Detection of reverse flow — simulate reverse flow, verify event/indication per declaration		Pass
8	Zero flow	Detection of flow when zero flow is expected — simulate, verify event generated	Functional	Pass
9	Tamper of AFD	Detection of tampering with the AFD — attempt unauthorised intervention, verify event log/alarm		Pass
10	Tamper of meter	Detection of tampering with the meter — attempt intervention, verify event log entry		Pass
11	Battery low	Low-battery detection — simulate low battery, verify event and correct AFD behaviour		Pass
12	Presence of air	Detection of air in the pipe — simulate air, verify event	Fulfills the requirements	Pass
13	Access profiles	Role-based access control — verify access rights restricted per profile, unauthorised actions rejected		Pass
Environmental considerations (Clause 6)				
1	Environmental class testing	AFD tested to its declared environmental class per EN ISO 4064-1:2017, A.2/A.3 (climatic/mechanical) with the related tests, in combination with the meter as applicable	Functional after test	Pass

Remarks

We have tested the above-mentioned products in accordance with the listed standards and confirm that they comply with Directive 2014/32/EU Measuring instruments (MID).

Product Pictures

Water meters / LXSY-15E



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