SWEDAC

Code of Statutes of the Swedish Board for Accreditation and Conformity Assessment

ISSN 1400-4682

Publisher: Anette Arveståhl

STAFS 202X:Y
Published
xx 202x

The Swedish Board for Accreditation and Conformity Assessment's Regulations on water meters

Adopted on xx 202x.

The Swedish Board for Accreditation and Conformity Assessment (Swedac) prescribes[1] the following with reference to Section 4 of the Ordinance (1993:1066) on units of measurement, measurements and measuring instruments, Section 7 of the Ordinance (1994:99) on water and thermal meters and Section 3 of the Ordinance (2011:811) on accreditation and technical verification.

Scope

Section 1 These Regulations contain provisions on requirements for and inspection of water meters used by a principal to determine water consumption in accordance with the Act (2006:412) on public water services for buildings containing one or more dwellings.

Definitions

Section 2 For the purposes of these Regulations, words and terms are used within the meaning of Section 2 of STAFS 2022:4 [2] on water meters. In addition, for the purposes of these Regulations:

1. *principal:* means the owner of a public water and sewerage facility in accordance with the Public Water Services Act (2006:412);

2. *entry into service*: means the first use of a water meter for the purposes specified in Section 1;

3. *in service:* means that a water meter installed at a metering point is in service;

4. *seal*: means physical or software-based protection against unauthorised alteration of the metrological characteristics of a water meter;

[1] See Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services.

[2] The Swedish Board for Accreditation and Conformity Assessment's Regulations (STAFS 2022:4) on water meters

5. *repair*: means an action aimed at restoring the intended function of a water meter without altering its original characteristics, purpose or type;

6. *revision:* repair or maintenance of a water meter.

Responsibility for compliance with the requirements

Section 3 The principal shall ensure that the water meter meets the requirements and is subject to such inspections as are laid down in these Regulations.

Requirements for water meters

Section 4 Requirements for the entry into service of water meters are set out in STAFS 2022:4 on water meters.

A water meter that has been taken out of service may be put back into service provided that it has been inspected and found to comply with the requirements of these Regulations.

Section 5 The water meter shall be installed in such a way so it reliably measures the volume of water that can be assumed to be present at the measuring point.

Section 6 The error indication of an in-service water meter shall be less than or equal to the values resulting from statistical checking set out in Table 1b or 2b.

Table 1a

Test points for meters put into service in accordance with the requirements of STAFS 2006:5[3] on water meters, STAFS 2016:2[4] on water meters and STAFS 2022:4 on water meters.

Test points	Maximum permissible errors
$Q_1 \leq Q < 1{,}1Q_1$ $Q_2 \leq Q < 1{,}1Q_2$ $0{,}9Q_3 \leq Q < Q_3$ [1)]	± 2% for water with a temperature of ≤ 30 °C ($Q_2 \leq Q \leq Q_4$) ± 3% for water with a temperature of > 30 °C ($Q_2 \leq Q \leq Q_4$) ± 5% regardless of temperature ≤ 30 °C ($Q_1 \leq Q < Q_2$)

[1)] A maximum test point of $Q_4/2$ is permitted.

Table 1b

Test points for statistical checking of meters put into service in accordance with the requirements of STAFS 2006:5 on water meters, STAFS 2016:2 on water meters and STAFS 2022:4 on water meters.

Test points	Maximum permissible errors

[3] The Swedish Board for Accreditation and Conformity Assessment's (Swedac) Regulations and general advice (STAFS 2006:5) on water meters

[4] The Swedish Board for Accreditation and Conformity Assessment's (Swedac) Regulations (STAFS 2016:2) on water meters

$Q_2 \leq Q < 1{,}1Q_2$ $0{,}9Q_3 \leq Q < Q_3$ [1)]	Twice as large as the maximum permissible error according to Table 1a

[1)] A maximum test point of $Q_4/2$ is permitted.

Table 2a

Test points for other meters.

Test points	Maximum permissible errors
q_{min}, q_t, q_n according to certificate For meters without a certificate: 0,01qn, 0,06qn, qn för qn < 15 m3/h 0,02qn, 0,1qn, qn för qn ≥ 15 m3/h	± 5 %, ± 2 %, ± 2 %

Table 2b

Test points for statistical verification for other meters.

Test points	Maximum permissible errors
$0.08q_n$, q_n for q_n < 15 m3/h $0.2q_n$, q_n for $q_n \geq 15$ m3/h Meters with a class A EEC certificate are tested at q_t and q_n according to the certificate	± 4 %

Section 7 An in-service water meter shall be sealed.

Section 8 When a water meter is removed from service prior to inspection, it shall be stored under conditions that do not alter its metrological properties.

Controls

General requirements

Section 9 An in-service water meter shall be inspected for compliance with maximum permissible error requirements. The inspections referred to in Section 15(1) may be carried out by means of statistical checking.

Section 10 During the inspection, the error indication of the water meter shall be determined and compared to the maximum permissible error. The result shall be documented in an inspection report.

For the purpose of the comparison, the error indication shall be less than or equal to the maximum permissible error to give a successful result.

Section 11 In the case of broken seals, resealing shall be carried out by the inspection body or the manufacturer of the meter. The seal shall be

implemented in the manner and to the extent indicated in the EU type-examination certificate or equivalent documentation.

Section 12 If a batch is approved after statistical verification, water meters that are in service and included in the batch may remain in service.

If a batch is rejected on the basis of statistical verification, all meters in the batch shall be taken out of service within one year. However, if it is reliably possible to locate and isolate faulty meters in a batch, the remaining meters in the batch need not be taken out of service.

Determining the error indication of a water meter

Section 13 The error indication of the water meter shall be determined by inspecting at least the test points specified in Section 6.

The measurement uncertainty in determining the error indication shall include the measurement method, the measuring equipment and the meter resolution. The measurement uncertainty may not exceed 1/5 of the current maximum permissible errors and shall be determined with a coverage probability of at least 95 percent.

Section 14 The water meter shall be inspected with liquid within the temperature range specified in the EU type certificate or equivalent documentation.

When water meters are to be inspected

Section 15 A water meter shall be inspected:

1. no later than the ninth calendar year after the meter was put into service and no later than every fourth calendar year thereafter;
2. after revision;
3. where metrological seals are broken; and
4. when it can be assumed, for some other reason, that the metrological characteristics of the meter have changed.

The first paragraph shall apply only to meters that are to be put back into service or remain in service.

Statistical checking

Section 16 For statistical checking purposes, water meters shall be divided into batches. A batch shall consist of at least the number of meters specified in the Annex to these Regulations. Water meters constituting a batch shall:

1. have been put into service for no more than a two-year period;
2. be covered by the same EU type-examination certificate or equivalent document;
3. have the same nominal flow rate; and
4. have been in service in the same production network.

The start time for the first inspection interval shall be set at the middle of the two-year period referred to in the first paragraph.

Section 17 The number of water meters to be inspected in a batch during statistical verification is specified in the Annex to these Regulations.

The Annex also sets out the conditions under which the batch is to be considered approved.

The selection of meters shall be representative of the batch.

The number of meters in a selection may be increased. An increase in the number in a selection and the reason for the increase shall be documented.

Section 18 A water meter in a selection shall be replaced if:

1. its metrological seal has been broken;
2. the meter has been damaged by external influences; or
3. the meter is not in operational condition for some other reason.

A water meter may be replaced if:

1. the meter can no longer be located; or
2. it is not possible to access the meter.

A water meter may not be replaced after an inspection measurement has been initiated.

Documentation

Section 19 When a water meter is in service, and for three years thereafter, the following documentation and data relating to the meter shall be available for supervision:

1. the manufacturer's serial number or the principal's identification number on the meter;
2. the number of the EU type-examination certificate or equivalent document;
3. flow area;
4. production network;
5. the date on which the meter was put into service;
6. the date on which the meter was last inspected or, in the case of statistical verification, the date on which the batch to which the meter belonged was last verified;
7. the inspection report from the most recent actual inspection; and
8. reason for removal.

Inspection bodies

Section 20 Inspection of water meters shall be carried out by a type A, B or C inspection body accredited for this task under Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and repealing Regulation (EEC) No 339/93.

The inspection may be carried out by the same person within a type C inspection body who carried out installation or revision as long as this does not compromise the results of the inspection.

Section 21 If an inspection body, which is accredited by an accreditation body other than Swedac, intends to carry out prescribed inspections, the inspection body shall notify Swedac of this. The accreditation decision shall be attached to the notification. The inspection body shall also notify Swedac immediately if the accreditation decision is changed or withdrawn.

Section 22 The inspection body shall participate in meetings for the exchange of experience and comparative measurements or studies designated by Swedac.

Other

Section 23 Swedac may, in individual cases and if there are specific reasons for doing so, grant exemptions from the application of these Regulations.

1. This statute shall enter into force on 1 April 2026.
2. The statute repeals the Board's Regulations and general advice (STAFS 2007:2) on the periodic inspection of water and thermal meters
3. Decisions on extended sitting-out time that have been issued on the basis of STAFS 2007:2 or other previous regulations shall remain valid even after this statute has entered into force. The extension applies as specified in the decision, either for a certain total period of time or for a certain number of years beyond the sitting-out time under the provision in force at the time the decision was issued.
4. STAFS 2007:2 may continue to be applied until 31 March 2027.

On behalf of Swedac

ULF HAMMARSTRÖM

Mikael Schmidt

Annex

Sampling plan

Number in batch	Number of meters to be inspected	Number of meters whose error indication exceeds the maximum permissible errors	
		Quantity for the batch to be accepted	Quantity for the batch to be rejected
17-25	17	0	≥ 1
26-50	22	0	≥ 1
51-90	24	0	≥ 1
91-150	26	0	≥ 1
151-280	28	0	≥ 1
281-500	32	0	≥ 1
501-1200	50	≤ 1	≥ 2
1201-3200	80	≤ 3	≥ 4
3201-10000	125	≤ 5	≥ 6
10001-35000	200	≤ 10	≥ 11