

## DEPOSIT SPECIFICATIONS

These deposit specifications are applicable to any organisation wishing to obtain a chronometer certificate for watch movements or watches meeting the official Swiss made criteria and marketed under a brand registered in Switzerland.

### Information

For any information relating to the COSC or these deposit specifications, please contact:

Management of the COSC  
Avenue Léopold-Robert 65  
CP 298  
2301 La Chaux-de-Fonds  
Tel. 032/913 80 78  
e-mail - [info@cosc.swiss](mailto:info@cosc.swiss)

who can, if necessary, direct the application to one of the Official Inspection Bureaux (BO), i.e.:

- COSC - BO Biel,  
SCS 0063 / STS 0626  
Route de Soleure 136, 2504 Bienne  
Tel. 031/636 70 50  
fax 031/636 70 51  
e-mail: [bobi@cosc.swiss](mailto:bobi@cosc.swiss)
- COSC - BO Le Locle,  
SCS 0063 / STS 0626  
Rue des Billodes 18, 2400 Le Locle  
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- COSC - BO Saint-Imier,  
SCS 0063 / STS 0626  
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Any exception to these deposit specifications must be the subject of a concession granted by the COSC.

A time limit to be defined at the time of acceptance by the COSC applies to specific requests requiring a development approved by the Board of Directors, which will determine the economic implications.





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## I. COSC DATA

### I.1 General

The tests to which the timepieces submitted to obtain the title of chronometer are subjected in the Official Control Offices (BO) consist of verifying their daytime operation under the conditions and according to the requirements defined by the control prescriptions, which are as follows:

- for wrist chronometers with a balance-spring oscillator, hereinafter referred to as "mechanical", standard ISO 3159:2009 (type I)
- for pocket chronometers with a balance-spring oscillator, the COSC internal prescription type II
- for fixed-position timepieces with a balance-spring oscillator, the COSC internal specification type III
- for the wrist chronometer with quartz oscillator, hereinafter referred to as "quartz", the COSC internal prescription type IV

These documents provide all the information relating to the test programme, the selection criteria and the precision limits set.

The "General Conditions" regulate the activities of the COSC.

A form for handling customer complaints or suggestions is available on request from COSC .

#### I.1.1 Validation deposits

To ensure compliance with these specifications, a deposit of 5 to 10 items must be made beforehand:

At the Bienne laboratory for:

1. any new dial, calibre or time instrument, whether mechanical or quartz
2. any modification of objects such as dials, hands, calotte, stems or crowns

At the Saint-Imier laboratory for:

1. all-new semi-automatic measuring watch head
2. any modification to the watchhead casing using the semi-automatic method

Pre-deposit: 5 to 10 items, meeting the conditions specified in the General Conditions and the Deposit Specifications, suitable for verification by test measurements. These pre-deposits must be similar to the subsequent deposits made for the certification of the parts.

A change in calibre identification involving no element other than the identification must be the subject of a new calibre identification form to be sent to the COSC.

Only movements or timepieces that can be processed according to the measurement methods accredited by the SAS can obtain the STS test report with a view to the possible issue by the COSC of the SCESp chronometer certificate. These methods can be viewed at [www.sas.ch](http://www.sas.ch), accreditation number STS 0626 and SCESp 0125.

#### I.1.2 Deposit conditions

The time instruments deposited must be numbered. The number of each instrument may only be used once by the same applicant for the same calibre or watch head model for a given brand. The number indelibly marked on the movement or on the watch head must be legible from the outside.



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Timepieces must be equipped with a seconds display. If this does not enable the accuracy required by the control prescription to be obtained, the time instrument must provide a signal enabling the state to be measured by the control procedures used at the COSC. This derogation must be agreed in advance with the COSC.

Time instruments (specialities, tourbillons, etc.) which do not meet the specifications mentioned in articles I.2 to I.5 must be the subject of a prior agreement with the COSC.

### I.1.2.1 Movement deposits

The movement number (hereafter number) must be legibly and prominently marked on the plate or blank forming part of the movement, with the exception of the oscillating weight.

If required by the applicant, a label may be applied to the bottom of the calotte, without affecting the legibility of the number marked on the plate. This label must be placed in the half-moon opposite the number marked on the plate and must not extend beyond this half-moon.

Incorrect



Number

Correct



In the case of movements with an oscillating weight, the depositor must ensure that it is blocked and does not impede the legibility of the movement number marked on the plate.

The deposit conditions relating to additional devices specified in Art. 12 of the general terms and conditions are set out below. Any indications displayed by the additional devices must not interfere with vision reading (see I.3).

### Article 12 Additional devices

For the purposes of the COSC, an additional device is considered to be any mechanism directly or indirectly linked to the kinematic chain from the energy source to the oscillator of the timepiece to be certified.

This article applies to watches or timepieces with mechanical or hybrid movements.

- An additional device is therefore defined as an assembly that permanently or temporarily consumes energy and is liable to disrupt the distribution of energy to the oscillator synchronising the seconds display, as defined in the deposit specifications of the Contrôle officiel suisse des chronomètres. All additional devices must be installed, engaged and functional when the movements are submitted for certification. All additional devices must be explicitly and exhaustively described on the calibre identification sheet completed under the sole responsibility of the brand owner. Automatic winding mechanisms are not considered to be additional devices.
- In the event of non-conformity observed during the measurements, no certificate will be issued. All the parts in the series will then be declared to have failed. A warning letter will be sent to the owner of the offending brand.



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- c. Random checks may be requested by the COSC or the BO that carried out the measurements, when the parts are returned, as well as in the event of doubt concerning the parts found on the market. The brand owner must be able to provide proof of the conformity of the nested movements with the calibre identification sheet filed with the COSC.
- d. The owner of the trademark bears full responsibility for compliance with the foregoing provisions.
- e. The functions of additional devices are not checked during chronometric certification measurements; only their influence on the running of the time base to be certified will be verified.

All movements must be removed with the stem and crown set.  
Movements of types I to III must be deposited unarmed.

Movements with special features such as indirect seconds, accelerated seconds or non-uniform movement of the seconds hand will be declared to the COSC by means of the calibre identification sheet or its appendices.

For chronograph calibres, the seconds counter hand and the seconds hand must be fitted. The seconds counter hand must be able to be reset to zero and must not obstruct the measurement zone.

All Type IV (quartz) movements with digital display in the same series must display the same time, within the limits of  $\pm 30$  minutes. The difference between the local time and the time displayed by the movements will be specified by the BO concerned for each calibre on the calibre identification sheet. All movements of the same calibre must have identical segments.

### I.1.2.2 Deposits of watch heads or timepieces

Assembled timepieces (watch heads or timepieces in a fixed position) must be numbered. The number of the time instrument must be legibly and prominently marked on the watch case or device.

When watchheads are submitted for inspection using the semi-automatic method, a QR code containing the engraved number and model of the watchhead must be affixed to the centre of the watchhead back. This code, which complies with the ISO 18004:2015 standard, must have a maximum dimension of 15x15mm and a minimum dimension of 9x9mm. This code must not prevent the number legibly marked on the case from being read

A random manual check between the engraved number and the coded number will be carried out on each series deposited. In the event of a mismatch, the series will not be accepted and will be returned to the depositor.

A deposit without a QR code is still possible, but the cost of manually checking the marked numbers will be applied to the series.

The second hand must be legible whatever its position. A temporary covering by the minute or hour hands is permitted.

### I.1.3 Title and documents issued

Title obtained and documents issued: see General Terms and Conditions.

The display of particulars on individual A4 and 3-part bulletins is limited to 3 lines of 40 characters maximum. Any change in the particulars must be the subject of a new calibre identification form.





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#### I.1.4 Current Rates

See the rates in the appendix to the General Terms and Conditions.

#### I.1.5 Insurance

See General Terms and Conditions.

#### I.1.6 Delivery time

For deposits agreed between the COSC and the depositors, the delivery time is equal to or less than the number of test days plus 5 days, starting from the 1<sup>st</sup> working day following the deposit for time instruments deposited from Monday 07:00 to Friday 12:00.

Items that have not been scheduled for deposit will be processed in such a way as to guarantee a turnaround time as close as possible to the above-mentioned deadlines.

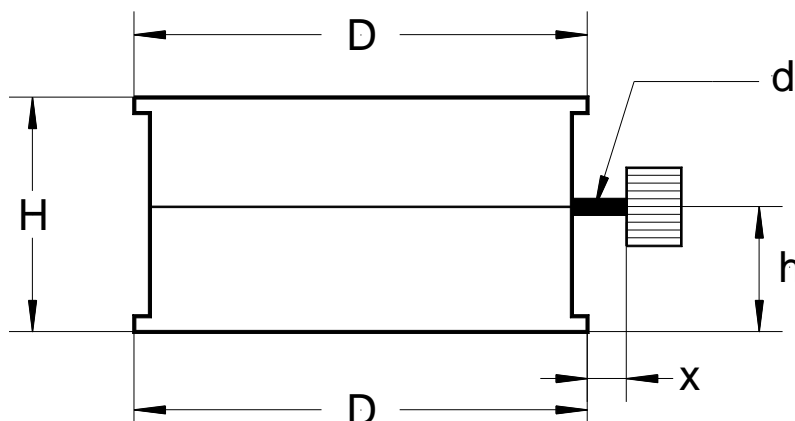


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### I.2 Specifications of the calotte (upper dial)

Any change to the dimensions of the calotte must be agreed in advance with the COSC.



D	H	h	d <sub>max</sub>	x (l)
27.30 ±100	10.00 < H < 13.00	3.70 < h < 7.65	1.00	2.10 ±150
33.10 ±100	12.00 < H < 15.00	4.90 < h < 9.70	1.30	2.95 ±150
38.55 ±100	12.00 < H < 15.00	4.95 < h < 9.70	1.50	2.95 ±150
42.00 ±100	12.00 < H < 15.00	4.05 < h < 9.65	1.50	2.85 ±150
44.60 ±100	14.50 < H < 17.50	3.60 < h < 9.90	*	1.00 ±150
48.90 ±100	13.50 < H < 16.50	4.75 < h < 10.00	*	2.75 ±150

Dimensions in mm, tolerances in  $\mu$ m, \* contact the COSC management,  
(l): for genus IV, exemptions on x may be granted; please contact us beforehand.

General indications:

- the movement number must be legible from the outside, the back of the calotte must be free of any optical disturbance over an area ideally exceeding 1 mm, but at least 0.3 mm  $\pm$  0.05 mm around the movement number
- both sides must be flat, free from optical interference, transparent, uncoloured and free from scratches
- the controls for the functions of the additional devices must be accessible from the outside and completely unobstructed
- D is given for the base of the calotte. Please consult us in advance if you are using rings with a diameter greater than D
- h must be identical for the same size, within the prescribed tolerances
- the calottes must be identical in the same series
- the cover and bottom of the calotte must not be able to open (adhesive-free hold, etc.)
- the movements are inserted correctly, without shaking in the calottes.
- for the  $\varnothing$  27.30 - 33.10 - 38.55 - 42.00 calottes, the movement is positioned (anti-rotation) via the winding stem, whereas for the  $\varnothing$  44.60 and 48.90 calottes, the movement is positioned (anti-rotation) via the calotte. For the latter, please consult us beforehand.

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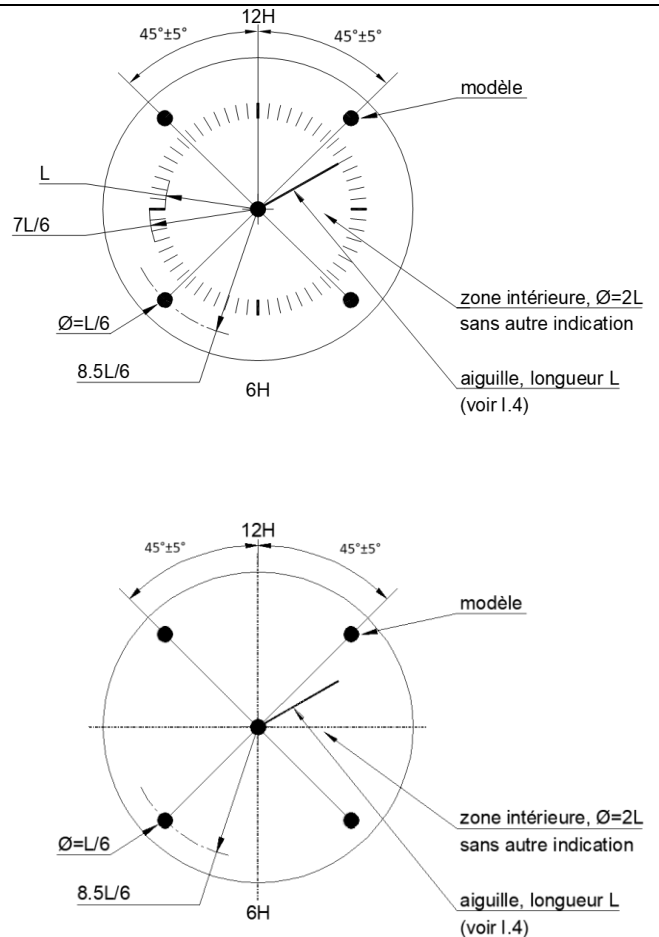
### I.3 Dial specifications

The dial can be fitted with or without graduation.

The dials and all their useful geometries must be identical in the same series.

#### General indications

- background colour: matt white
- graduation colour: matt black
- uniform background and scale colour throughout the series
- the pair of models (diametrically opposed) can be positioned at  $45^\circ$  above or below 12 o'clock, as required. Consult us in advance for any other case.
- a ring  $L/6$  wide around each model must be free from variations in contrast
- a zone of  $\varnothing = 2L$  around each model must be free of similar models
- the minute and hour hands are not fitted
- the needle, scale and circular patterns must always be completely visible (take care not to touch the calotte cover)
- the entire area through which the needle passes must be free of contrast variations
- the proportions between the needle, the models and the scale must be respected
- the hole through which the needle axis passes or a saving on the dial around this hole will have a maximum diameter equal to



Dimensions in mm, general tolerances  $\pm 200\mu\text{m}$ , needle axis concentricity tolerance  $\pm 400\mu\text{m}$

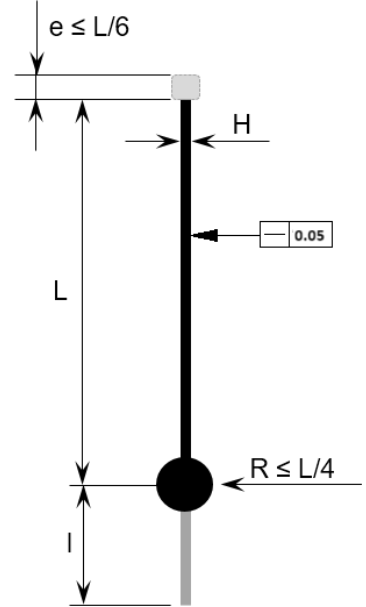


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### I.4 Needle specifications

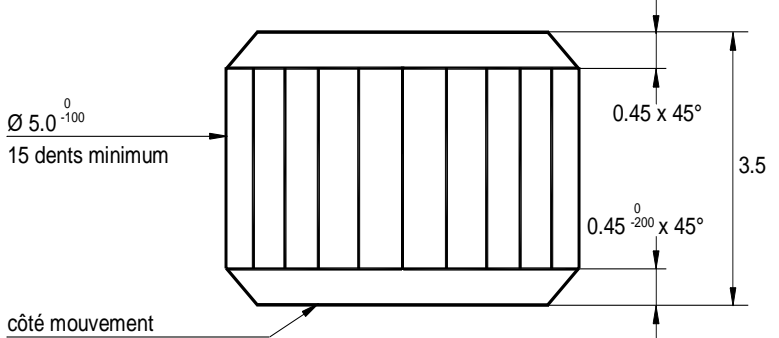
The needles must be identical in the same series.

General indications	
<ul style="list-style-type: none"> <li>needle colour: matt black</li> <li>needle with straight and parallel edges</li> <li>length L: <math>3.0 \leq L \leq 12.0</math></li> <li>width H: <math>0.15 \leq H \leq 0.30</math></li> <li>following the length L, the end of the needle may have a different geometry over a length <math>e \leq L/6</math></li> <li>a needle tail is not accepted, except for type IV with the following dimensions: <math>l \leq 1/3</math> of L ; the geometry of the tail is not imposed</li> </ul>	

Dimensions in mm

### I.5 Crown specifications

The crowns must be identical within the same series.

General indications	
<ul style="list-style-type: none"> <li>material: hard, non-friable material that does not generate dust or delamination</li> <li>greater flexibility on dimensions is authorised for type IV; please consult us beforehand</li> </ul>	

Dimensions in mm, tolerances in  $\mu$ m, general tolerances  $\pm 100 \mu$ m

The actual position of the crown in relation to the normal time-reading position of the finished watch, the 12 o'clock position according to standard ISO 3158:1976, must be indicated on the identification sheet [R1] when the calibre is registered.

If this position is not orthogonal, the applicant is asked to choose the orthogonal position closest to the actual position of the crown. If the actual position is  $45^\circ$ ,  $135^\circ$ ,  $225^\circ$  or  $315^\circ$ , the applicant is free to mark the orthogonal position just before or just after the actual position of the crown.

For tests according to the ISO 3159:2009 standard, the COSC ensures that the crown is correctly positioned according to the position announced by the depositor.

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### 1.6 Containers for watch heads

The containers used to deposit the parts will be used for the entire certification process and must therefore comply with the following dimensions and functions:

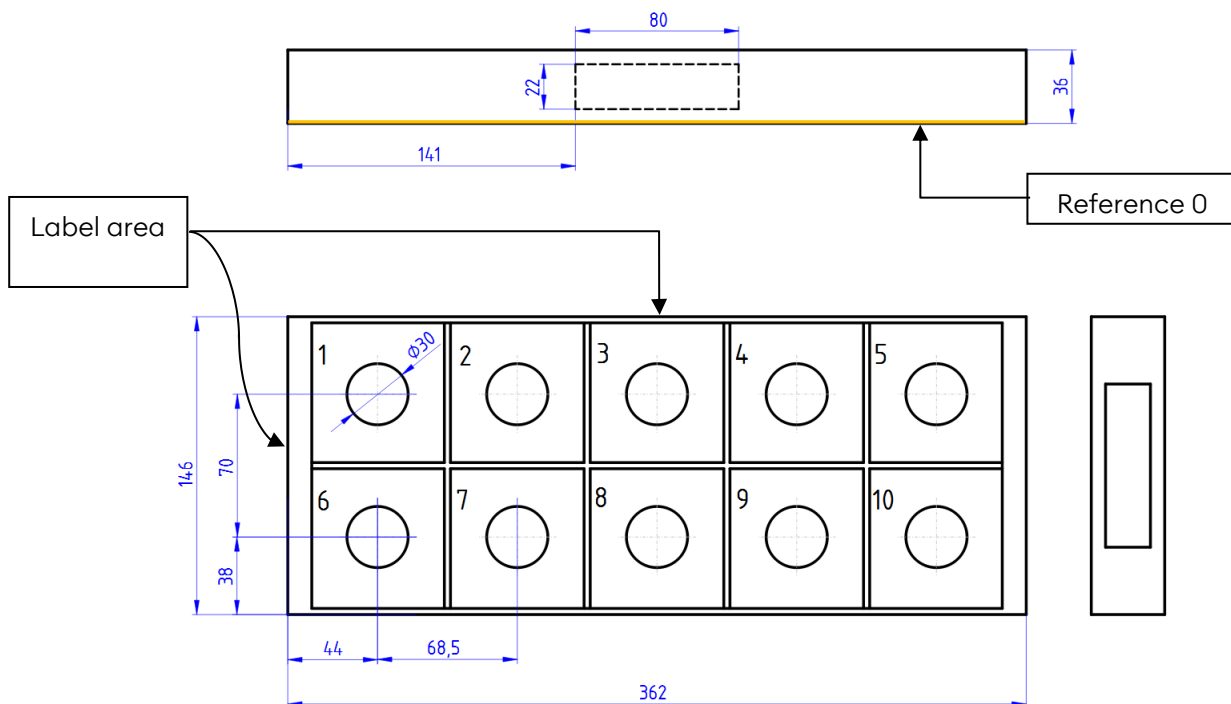
#### 1.6.1 Dimensions of containers

Containers must have the following external dimensions:

length  $362 \pm 0.5$  mm - width  $146 \pm 0.5$  mm.

The maximum height must be  $36 \pm 0.5$  mm. The dial must be between 18mm and 28mm from reference 0 (bottom of the container as shown in the figure below).

- The 10 cells must be divided into 2 rows of 5 columns
- The centres of the 2 lines must be 70 mm apart.
- The centres of the 5 columns must be 68.5 mm apart.
- Brackets 3 and 8 are centred on the length



The sides and bottoms of containers must be flat, smooth and free of burrs.

The containers must allow 2 labels to be applied. One centred on the rear edge and one on the entire left-hand side as shown above

The bottom of the trays must have 10 holes with a minimum diameter of 30 mm. These holes will be centred in each compartment to enable the QR codes affixed to each watch head to be read.

#### 1.6.2 Batch - grouping of containers

A series is made up of batches (at least one). A batch is an assembly of 5 containers.



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If the series does not have a number of containers that is a multiple of 5, empty containers must be sent with the series so that the COSC can make up complete batches of 5. The empty or incomplete containers will be placed underneath the completely filled containers.

During the tests, these batches must be placed in the 5 positions of standard ISO 3159:2009. This means that once assembled, a batch must naturally fit into these positions (CH/FH/3H/6H/9H).

The depositor must provide a system for holding the 5 containers of a batch together during positioning. This holding system must be easy to use and must not interfere with the positioning of the batches in the COSC's climatic chambers.

A cover for the upper tray is permitted. This must be easy to remove to allow the state to be taken.

### I.6.2.1 Watch heads without automatic arming module

In the case of watchheads without an automatic winding system, the system for holding the watchheads in the plates must allow the stem to be wound by providing access to the stem. These watches will be wound manually, implying an additional cost for the depositor.

## II. CUSTOMER DATA

### Definitions COSC

- Customer: Company using COSC services
- Brand: Identification of the finished product marketed
- Debtor: Company to which the invoice is addressed
- Depositor: Company that deposits parts in the COSC's OBs.
- Series: Group of 1 to 500 identical pieces maximum, identified by a unique number. Each series is the subject of a collective bulletin.
- Batch: Operational processing unit for a maximum of 100 parts belonging to a series
- Portal: A secure IT platform for use by customers to register and monitor series, register new calibres, download results and qualitative statistics. Access to the portal is free of charge and must be requested from the COSC management or official control offices.

Series deposited must be accompanied and identified by a deposit slip, drawn up for each series. The deposit slip is printable in PDF format on the portal. Deposit slips can be obtained from the COSC management or official control offices.

### II.1 Mechanical watch

When parts of a new calibre are deposited for the first time in a BO, the calibre must first be announced and characterised on the portal or by means of the identification form [R1] or [R5]. This form can be obtained from the COSC management or official control offices.

### II.2 Quartz watch

When parts of a new calibre are deposited for the first time in a BO, the calibre must first be announced and characterised on the portal or by means of the identification form [R2]. This form can be obtained from the COSC management or official control offices.

The movements submitted must be equipped with an oscillator powered by a voltage regulator.



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**II.2.1 Specifications of quartz oscillator movements with analogue display**

The inductive signal corresponding to the movement of the seconds hand must be able to be captured in such a way that the measurement uncertainty corresponds to the measurement method chosen by the COSC and indicated in the collective certificate.

Capture tests may be carried out at the COSC or at the depositor's premises using a device and the adjustment and use procedure [R4] which may be made available free of charge by the COSC.

The system is designed to capture the positive edge of the first pulse when it exceeds a certain adjustable threshold.

The following influences are considered to be instabilities intrinsic to the time instrument:

- inhibition of gait adjustment,
- temperature compensation inhibition,
- motor pulse control technique.

These influences are to be quantified by the applicant and may affect the success rate in the tests.

**II.2.2 Specifications of movements with quartz oscillator and LCD display**

The time instrument must be able to offer a mode which allows the reference segment used for status measurement to flash. This flashing must be synchronised with the passing of the second (frequency of approximately 1 Hz) and have a duty cycle of between 0.5 and 0.8.

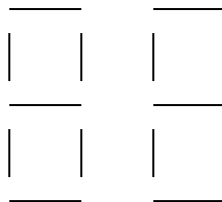
To date, our vision systems consider the extinction of the segment (falling edge) to be the moment when the second passes.

The changeover time of an LCD segment measured on the falling edge is defined as the time taken to go from 90% to 10% of the total range of grey levels (255). In summary, the usable range for status measurement is defined as 204 grey levels.

The switching time of the reference segment used for measurement must be between 17 and 68 ms.

The minimum width of the reference segment, the seconds segments and the tens of seconds segments is 0.3 mm.

Tens and units of seconds are displayed in two 7-segment displays as follows:



If we consider on the one hand the area equal to  $H \cdot L$  inscribing the reference segment and the two times 7 segments of the units and seconds and on the other hand the height  $h$  of a vertical segment, a reference model should be inscribed in an area equal to approximately  $(H+h) \cdot (L+h)$ . The shape and size of this model are not imposed but must be validated in accordance with Chapter I.1.6, subject to Art. 9 of the General Conditions.

The following influences are considered intrinsic to the time instrument:





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- segment switching times outside the range specified above,
- variation in switching time as a function of segment supply voltage,
- light intensity ripple related to segment multiplexing,
- inhibition of gait adjustment,
- temperature compensation inhibition,
- variation of the switchover time according to the microprocessor occupation.

These influences are to be quantified by the applicant and may affect the success rate in the tests.

### III. REFERENCE DOCUMENTS

[R1] Calibre identification sheet Balance-spring oscillator movement	FM-AD-Calibre_identification_form_spring_balance
[R2] Calibre identification sheet Quartz oscillator movement	FM-AD-Quartz_Calibre_identification_form
[R3] Deposit slip	FM-AD-Deposit_Slip
[R4] Specification and use of the CarQua device	IT-EA-Specification_and_use_of_the_CarQua_device
[R5] Watch head identification sheet	FM-AD-Watch_head_identification_form

### IV MONITORING CHANGES

V13: Customers can request the form for complaints or suggestions (see chapter I.1).

