BS EN 13126-19:2011

BSI Standards Publication

Building hardware — Requirements and test methods for windows and door height windows

Part 19: Sliding Closing Devices

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee B/538/4, Building hardware.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ISBN 978 0 580 63822 0

ICS 91.190

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2011.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13126-19

February 2011

ICS 91.190

English Version

Building hardware - Requirements and test methods for windows and door height windows - Part 19: Sliding Closing Devices

Quincaillerie pour le bâtiment - Exigences et méthodes d´essai des ferrures de fenêtres et portes-fenêtres - Partie 19: Dispositifs de verrouillage pour ouvrants coulissants (SCD)

Baubeschläge - Beschläge für Fenster und Fenstertüren - Anforderungen und Prüfverfahren - Teil 19: Schiebeverschlüsse (SCD)

This European Standard was approved by CEN on 8 January 2011.

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Contents

Page

Foreword

This document (EN 13126-19:2011) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2011, and conflicting national standards shall be withdrawn at the latest by August 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

A full contribution to the preparation of this European Standard has been made by the European manufacturers´ organization ‘ARGE’ and national standards bodies.

This European Standard is one of a series of European Standards for building hardware products. It is divided into several parts incorporating all types of windows and balcony doors.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This part of EN 13126 specifies requirements and test methods for durability, strength, security and functionality of Sliding Closing Devices (SCDs) for windows and door height windows.

This European Standard does not specifically cover the handles used in handle-operated SCDs or the sash fasteners used in cam-operated SCDs, requirements and test methods for which are given in EN 13126-3 and EN 13126-14, respectively.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1670, *Building hardware — Corrosion resistance — Requirements and test methods*

EN 12519:2004, *Windows and pedestrian doors — Terminology*

EN 13126-1:2006, *Building hardware — Requirements and test methods for windows and doors height windows — Part 1: Requirements common to all types of hardware*

ISO 4520, *Chromate conversion coatings on electroplated zinc and cadmium coatings*

3 Terms and definitions

For the purposes of this document the definitions given in EN 13126-1:2006 and EN 12519:2004 and the following apply.

3.1
sliding Closing Device (SCD)
device allowing the users to open and lock sliding windows and balcony doors

3.2
SCD Manually action
sliding closing device is actuated under the “finger operated” or “hand operated” action

3.3
SCD Automatic action
SCD lock the sash when the sash is closed without any action more

3.4
PRD Position of Reference for Distance between sash and frame
see Annex A, Figure A.2

4 Classification

4.1 General

Sliding closing devices shall be classified in accordance with EN 13126-1:2006, Clause 4.

4.2 Category of use (1 – first digit)

The category of use shall be classified in accordance with EN 13126-1:2006, 4.2, with no marking.

4.3 Durability (2 – second digit)

Durability shall be classified in accordance with EN 13126-1:2006, 4.3.

4.4 Mass (3 – third digit)

Mass shall be classified in accordance with EN 13126-1:2006, 4.4.

4.5 Fire resistance (4 – fourth digit)

One grade of fire resistance shall be identified in accordance with EN 13126-1:2006, 4.5:

— grade 0: no requirements.

4.6 Safety in use (5 – fifth digit)

One grade of safety in use shall be identified in accordance with EN 13126-1:2006, 4.6:

— grade 1: The hardware shall conform to this European Standard EN 13126-19.

4.7 Corrosion resistance (6 – sixth digit)

The corrosion resistance shall be classified in accordance with EN 13126-1:2006, 4.7.

4.8 Security (7 – seventh digit)

The security shall be classified in accordance with EN 13126-1:2006, 4.8, with no marking.

4.9 Applicable part (8 – eighth digit)

The eighth digit shall indicate the applicable part of the standard that was used for testing the SCD, in accordance with EN 13126-1:2006, 4.9. One of two grades shall be allocated:

grade 19/1: for use as SCD manually action;

grade 19/2: for use as SCD automatic action.

4.10 Test sizes – Size limitations (9 – ninth digit)

The ninth digit shall indicate the test size in accordance with EN 13126-1:2006, 4.10 for example as follows:

S.R.W.[1)] in mm / S.R.H.[2)] in mm – tolerance ± 5 mm.

EXAMPLE S.R.W =700/S.R.H=1200

NOTE 1 No test size is required for this category (Window type N).

The specimen size shall be identified in the test, to full fill the ninth digit.

NOTE 2 The specified sizes are test sizes only. They do not relate to the maximum or minimum sizes to which a window could be fabricated.

NOTE 3 The manufacturer's product-documentation should advise that in daily use windows smaller or larger than those tested should not be subjected to stronger forces than those for the specified test size.

1) S.R.W: Sash Rebate Width

2) S.R.H: Sash Rebate Height

4.11 Example of classification for sliding closing devices

1	2	3	4	5	6	7	8	9
-	3	40	0	1	2	-	19/2.	S.R.W =700/ S.R.H=1200

This denotes sliding closing devices, which has:

Digit 1	category of use	- (no requirements)
Digit 2	durability	grade 3 (10 000 cycles)
Digit 3	mass	40 Kg
Digit 4	fire resistance	grade 0 (no requirements)
Digit 5	safety in use	grade 1
Digit 6	corrosion resistance	grade 2
Digit 7	security	- (no requirements)
Digit 8	applicable part	19/2 means SCD Automatic action
Digit 9	test sizes	S.R.W =700/ S.R.H=1200

5 Requirements

5.1 General

Sliding closing devices shall conform to Clause 5 of EN 13126-1:2006.

5.2 Additional tests

5.2.1 Mechanical resistance

There shall be no breakage or deformation of any part during the test sufficient to prevent normal operation of the sliding closing device.

5.2.2 Durability

Grades shall conform to EN 13126-1:2006, 4.3.

Before the durability test:

The force/torque F1/M1 to operate the SCD shall be ≤ 20N / 2Nm when it is operated by finger or ≤ 30 N / 5Nm if it is operated by hand.

— The SCD shall function correctly.

After the durability test:

The force/torque F1/M1 to operate the SCD shall be ≤ 20N / 2Nm when it is operated by finger or ≤ 30N / 5Nm if it is operated by hand.

— The SCD shall continue to function correctly.

— The position of reference for Distance between sash and frame (PRD) shall not vary by more than 2 mm, in accordance with 7.2.

5.2.3 Static load test

On completion of the static load test in accordance with 7.3, the SCD shall continue to function correctly.

6 Test equipment

The sliding closing devices shall be fitted to a test rig as specified in EN 13126-1:2006, Clause 6, using a simulated casement or sash in accordance with the manufacturer's fixing instructions (see Annex A, Figure A.1), with a minimum mass of 15 kg.

If there is no fitting location in the manufacturer's fixing instructions, mount the sample sliding closing device and keep it to the centre of the vertical rail of casement or sash.

Gaskets, brush or others elements shall not be applied to the specimen, in order to assure the free movement of the sash.

7 Test procedures (methods)

7.1 Samples

According to the Annex C, three test samples shall be used for testing, as follows:

sample A – performance tests	(complete set)
sample B – corrosion tests	(fitting set)
sample C – retained for reference control	(fitting set)

NOTE Sample B should only be necessary if no test report can be supplied by the manufacturer regarding the testing of the hardware component or set in accordance with EN 1670.

7.2 Durability test procedure

7.2.1 General

The test shall be carried out according to the following instructions:

Before the durability test shall be applied, firstly record the force F_1 / torque M1 necessary to operate the sliding closing device and check the correct functioning (see Table 1).

Secondly shall be applied the force F_2 (see Figure A.2) and measure and record the PRD (Position Reference Distance).

The durability test shall be implemented according to 7.2.2 or 7.2.3.

After the durability test, the force F_1 / torque M1 necessary to operate the sliding closing device shall be applied again, this force shall be recorded and the correct functioning shall be checked (see Table 1).

Force F_2 (see Annex A, Figure A.2) shall be applied again and measure and record the position reference distance (PRD).

The SCD shall be lubricated in accordance with the manufacturer's installation and maintenance instructions unless the hardware is claimed to be maintenance-free.

7.2.2 Implementation test for SCD manual action

NOTE For the realization of this test, it will not be necessary for the displacement (movement) of the sash, for what the test will only validate the correct operation of the mechanism of SCD.

The SCD shall be operated for lock and unlock for the cycles number according the grade to test at a rate of 250 cycles /h $^{+25}_{0}$ cycles / h.

7.2.3 Implementation test for SCD Automatic action

For the realization of this test it will be necessary the displacement (movement) of the sash, a distance of 200 mm with a rate of 250 cycles /h $^{+25}_{0}$ cycles / h.

The test cycles on the test specimen shall consist of the following movements:

— initially, the sash shall be in the closed position (SCD locked);

— the SCD shall be unlocked;

— the sash shall be moved into the open position (200 mm);

— the SCD shall set free;

— the fall of the test mass shall be the cause of the displacement of the sash to the closed position (SCD shall be in the locked position).

The test mass shall be connected by a cable to the test specimen near the window SCD. The cable length shall be selected so that the test mass comes to a halt 20 mm before the sash reaches its final position and locks the hook into the keeper.

7.2.4 Acceptance criteria

Some marking of the SCD as a result of the falling test mass shall be deemed to be acceptable.

After the durability test the SCD shall function correctly, according to the following criteria:

The force F1 / torque M1 to operate the SCD shall be ≤ 20 N. / 2 Nm when it is operated by finger or ≤30N / 5Nm if it is operated by hand.

The variation on PRD before and after the durability test shall be ≤ 2 mm.

7.3 Static load test

Apply static load F_3 = n x 200 N $^{+10}_{0}$ for 60 s $^{+10}_{0}$ (see Annex A, Figure A.3), in the intermediate position among the SCD's locking points.

Key:

n: number of locking points.

NOTE In the case of SCD with multipoints, the application of the force of nx 200 N, can be split up in n forces, applying a force of 200 N in the vicinity of each closing points.

During this time, the sash shall be closed.

After the static load test the SCD shall function correctly.

7.4 Corrosion resistance

NOTE 1 This test is necessary if the manufacturer cannot provide a test report in accordance with EN 1670.

All corrosion tests shall be on original new samples. For Zinc galvanized surfaces on iron or steel, the specified thickness of 12 µ (class 3) or 16 µ (class 4) is not necessary if other surface protection methods are used to conform to the requirements (Minimum time to formation of white corrosion products) of ISO 4520. (µ = micrometer).

Unless a test report can be provided by the manufacturer, the hardware shall be tested in accordance with EN 1670.

NOTE 2 The evaluation of the corrosion resistance is limited to the essential areas (as a rule, the visible surfaces of the installed hardware).

Exempt from the corrosion resistance evaluation are:

- areas with rivets;
- locations of later processing (for example: cleaved surfaces that result from cropping the hardware components, millings etc.);
- non surface-treated parts/surfaces, provided they are not in the visible vicinity of the hardware (for example: screw guide-holes made of zinc die-cast etc.);
- welding joints and their immediate surroundings.

Table 1 — Test forces

Test sequence		Force / Torque			
		F_1 (N)	M_1 (Nm)	F_2 (N)	F_3 (N)
Before durability test	Operating force: SCD actuated by finger	≤20N	≤2Nm	—	
	Operating force: SCD actuated by hand	≤30N	≤5Nm	—	
	Record PRD	—		100 $^{+10}_{0}$ **N**	
During Durability test:		Not measured		—	
After durability test	Operating force: SCD actuated by finger	≤20N	≤2Nm	—	
	Operating force:SCD actuated by hand	≤30N	≤5Nm		
	Record PRD			100 $^{+10}_{0}$ **N**	
Static load test (force shall be applied 60”)		—			n x 200 $^{+10}_{0}$ **N**

Key:

F1/ M1: Force/torque to operate the SCD.

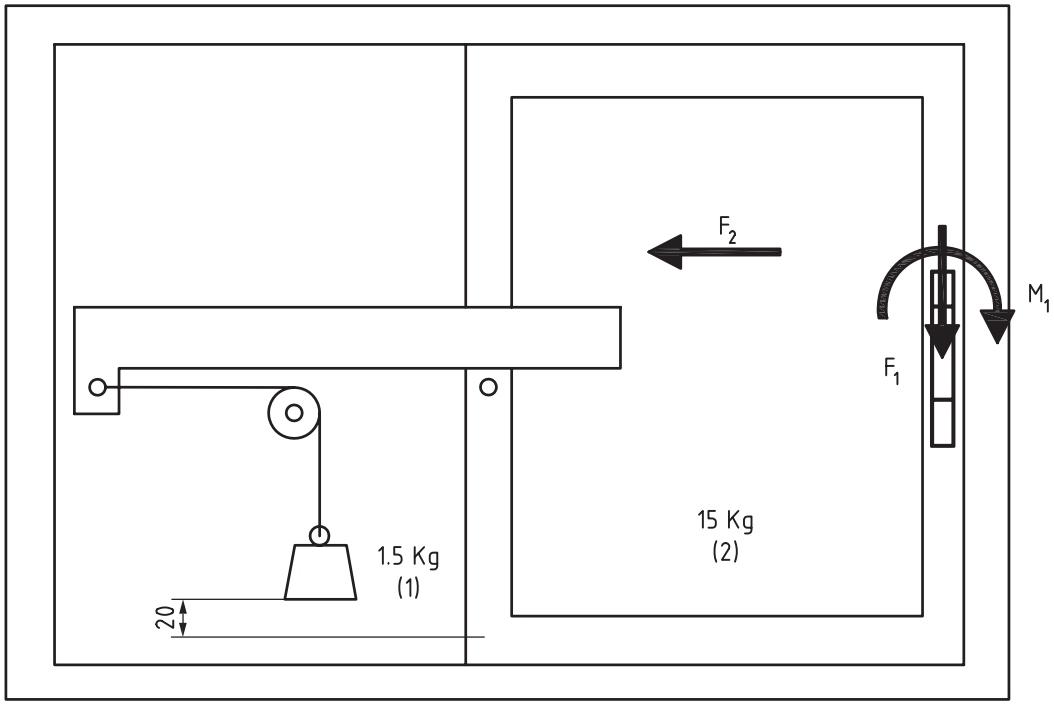
F2,F3: Forces applied over the sash in direction to open the sash.

N: Number of locking points

In Annex B, there are application examples.

Annex A
(informative)

Test assembly

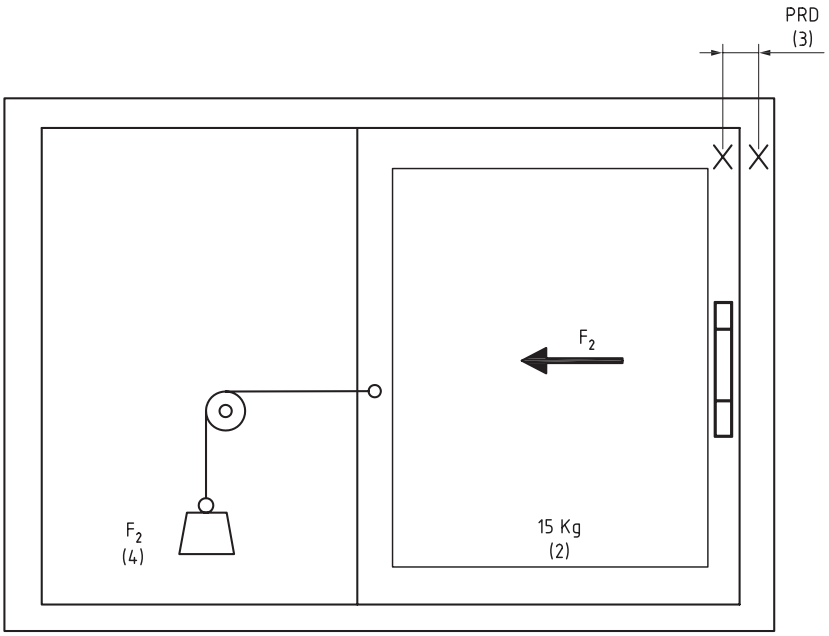


Key:

1 Test mass

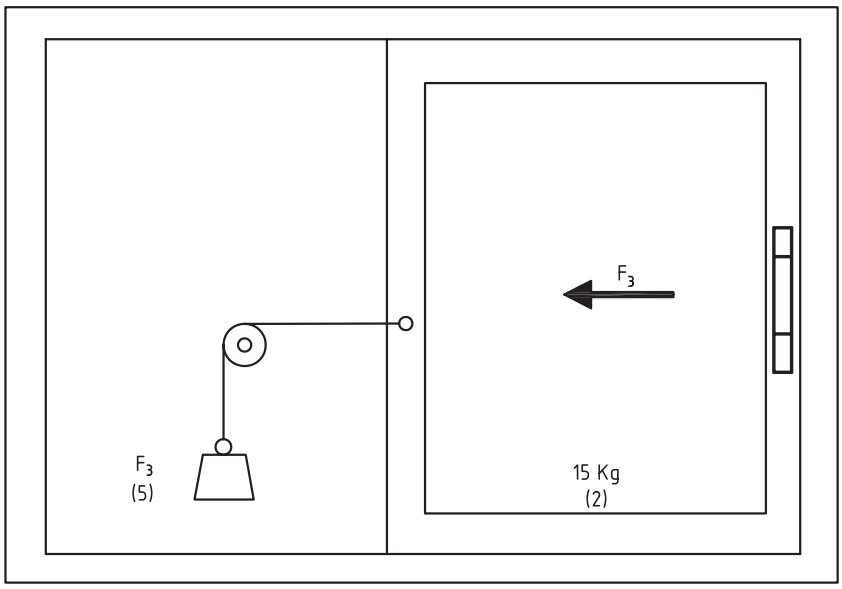
2 Sash weight

Figure A.1 - Orientational implementation of test



Key:
2 Sash weight
4 Test mass

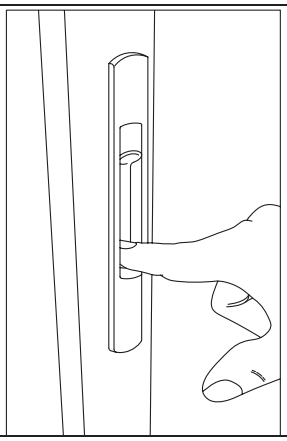
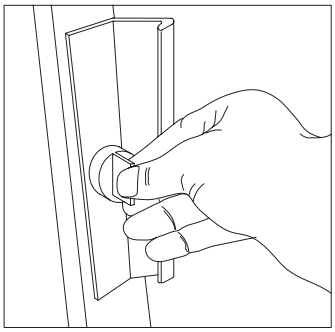
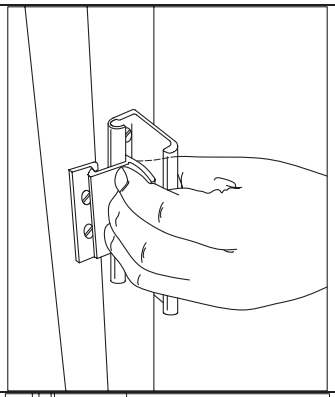
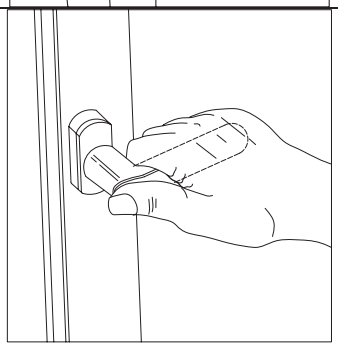
Figure A.2 - Measure of PRD: position reference distance



Key:
2 Sash weight
5 Test mass

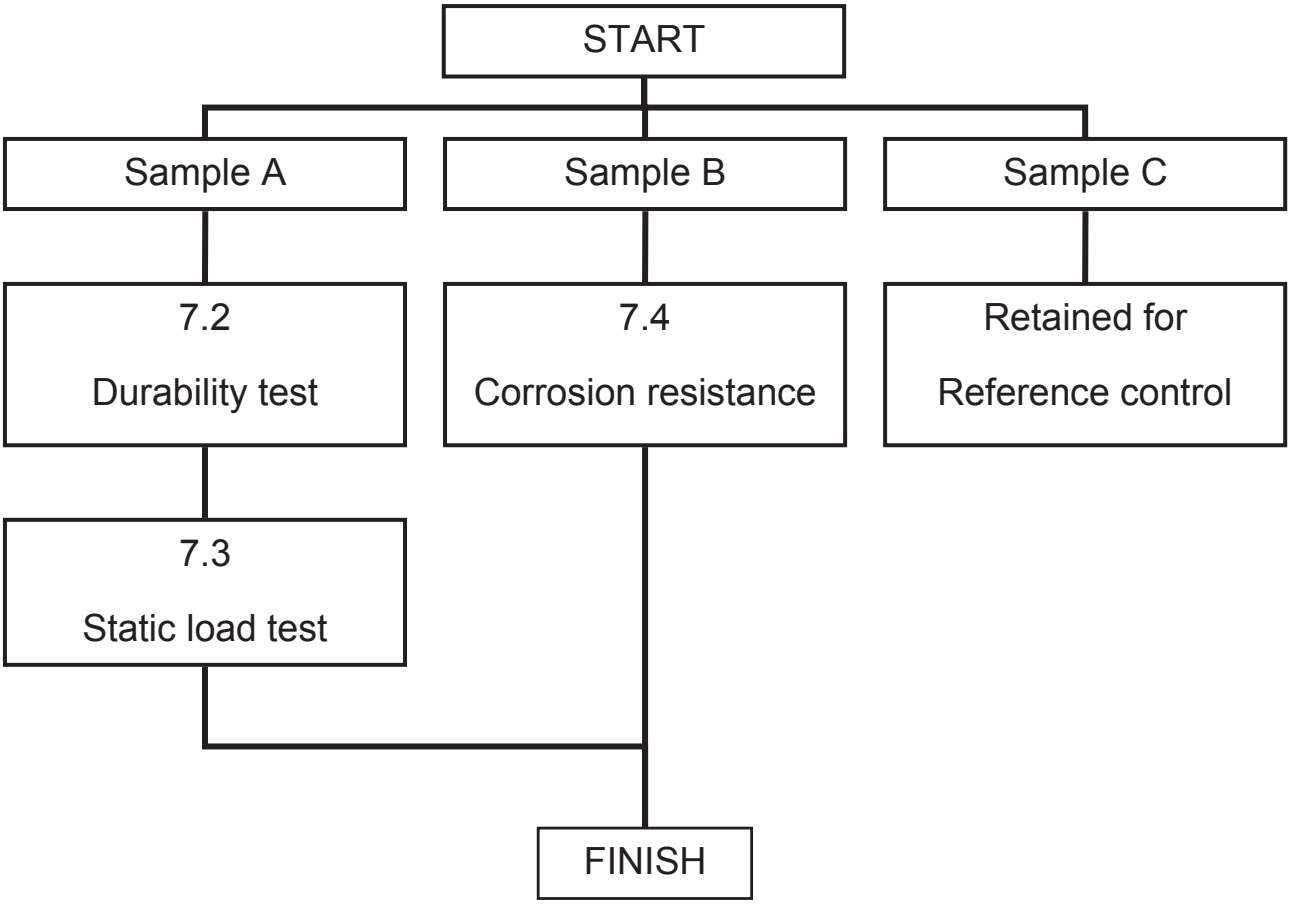
Figure A.3 - Static load test

Annex B
(Informative)
SCDs and operating forces

Sketches	Operating Forces
	F_{bF} (Force made by finger)
	M_{bF} (Torque made by finger)
	F_{bH} (Force made by hand)
	M_{bH} (Torque made by hand)

Annex C
(Normative)

Flow chart of test procedure



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