Swedish Theft Prevention Association Interpretation Document

Document:
SSF 1091 Edition 1
Interpretation/Application
Section 5.4, 6.2 and 6.5
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Substitutes: **SSF 1091 – T1 edition 1**

Requirement Specification

Document	Edition	Title	Section
SSF 1091	Edition 1 April 2015	Mechatronic cylinders – Burglar resistance – Requirements and test methods	5.4, 6.2 och 6.5

Interpretation/Application

This entire document is valid as an interpretation of SSF 1091 edition 1. Interpretation and application of requirements in this document are related to the following sections:

Content

- **5.4 Electrically controlled obstruction mechanism** Approved 2018-10-10
- **6.2 Durability** Approved 2020-08-12
- **6.5 Electrically controlled obstruction mechanism** Approved 2018-10-10

Orientation

In section 5.4, text has been changed to be able to be classified according to SS-EN 156 84 section 4.8 Attack resistance.

Section 6.2 has been amended to reduce the cost of durability testing with a continued high level of quality.

In section 6.5 a new test has been added, 6.5.8 Attacks with increased voltage.

5.4 Electrically controlled obstruction mechanism (Addition / Change)

1) In order to be classified according to SS-EN 156 84 "4.8 Attack resistance" based on SSF 1091: 2015 testing, the mechatronics cylinder must also be tested according to the requirement “6.5.8 High-voltage attack” based on SS-EN 156 84, "4.8.9 Increased voltage attack transmission.

2) Section 5.4 is supplemented with requirement 5.4.8
3) Table 1 - Requirements for the mechatronic cylinder are supplemented with 5.4.8

Interpretation and application of the above:

5.4 Electrically controlled obstruction mechanisms

5.4.8 Attack with increased Voltage

Mechatronic cylinder and its electronic key shall withstand higher voltages than the normal DC voltage specified by the manufacturer. The mechatronic cylinder and the electronic key may lose their function temporarily or permanently during the attack due to errors encountered in the equipment, software or data storage. The cylinder should not open during the attack.

Testing is performed according to 6.5.8.

Cylinder function	Unit	Level 1	Level 2	Level 3	Level 4	Level 5
5.4.1 Minimum number of electrically applicable code combinations	Number	10^5	10^8	10^8	10^8	10^9
5.4.2 Theoretical manipulation time of electric code combinations	Hours	No requirement	6	6	24	48
5.4.3 The electric code's read distance without manual activation	Metres	≤0.1	≤0.1	≤0.1	≤0.1	≤0.1
5.4.4 The electric code's read distance with manual activation	Metres	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5
5.4.5 Cryptographic key length Level according to SSF 1075	Number of bits	48	48	48	50	100
	Level	3	3	3	3	4
5.4.6 Replay protection Level according to	Level	3	3	3	3	4

Cylinder function	Unit	Level 1	Level 2	Level 3	Level 4	Level 5
SSF 1075						
5.4.7 Authentication Level according to SSF 1075	Level	3	3	3	3	4
5.4.8 Attack with increased Voltage	Voltage	No requiremen	Specified Voltage + 6 Volt at maximum 600 mA	Specified Voltage + 6 Volt at maximum 600 mA	Specified Voltage + 6 Volt at maximum 600 mA	Specified Voltage + 48 Volt at maximum 600 mA

Note: Other requirements 5.1 to 5.9.5 according to Table 1 are unchanged

6.2 Durability (Background to interpretation)

SSF norm have a higher level of acceptance than EN standards for cylinders. Both mechanical cylinders and mechatronic cylinders must be so designed that downtime due to the cylinder in the maneuvering situation is small.

Change of the acceptance criterion in case of downtime caused by the object in SSF 1090 so that the cylinder in case of downtime caused by the object itself must be able to be operated within the next five maneuvering attempts and that further downtime caused by the object does not occur within the 50 cycles.

In the event of a stoppage of more than 0.1% = 50 times, the test is considered completed and the durability requirement is not met.

The following sections are clarified in this interpretation:

6.2 Durability *(Text in section 14)*
If the cylinder stops during the test, the tester is allowed to try to restart the test and the test can continue. After ten stops caused by the test object, the test object is considered not to meet the requirement. A note about this must be made in the test report.

Interpretation and application of the above
The text of the 14th section is amended to read as follows:

If the cylinder stops during the test, the tester is allowed to try to restart the test with a maximum of five maneuvering attempts, the test being continued for at least 50 cycles before further stops occur.

When restarting the cylinder, the maneuvering attempts are counted as 1 stop, regardless of whether the tester has performed 1 - 5 maneuvering attempts on the cylinder.

If the above conditions are not met or fifty stops caused by the test object occur, the test object is considered not to meet the requirement. A note about this must be made in the test report.

Other sections in 6.2 Durability are unchanged.

6.5 Electrically controlled obstruction mechanism

6.5.8 Attacks with increased voltage (New section)
This test shall verify that the electrically operated locking element is not moved from the blocked to the open position
By electrically attacking with a higher voltage than the specified operating voltage of the mechatronics cylinder through contacts or other parts.
The mechatronics cylinder must be mounted for the intended area of use in a test fixture according to the manufacturer's instructions (door, lock, accessory).

Expose the cylinder to a voltage specified in Table 1 via contacts that are accessible from the side of the fixture that corresponds to the “outside” of a door or on other visible parts of the cylinder. Keep the voltage for a maximum of 10 seconds. If the cylinder is intended to be operated according to type A (with both mechanical and electrical code), a key with the correct mechanical code but with the incorrect electrical code must be inserted in the cylinder.

The test device must limit the attacking voltage and current.
Verify for:

- Mechatronics cylinder operated with a key, that with an incorrect electric code key inserted in the cylinder the blocking shall withstand 3.5 Nm for 5 seconds in both directions without opening the cylinder
- Mechatronics cylinder operated with lock case or knob must withstand 5 Nm for 5 seconds in both directions without opening the cylinder

- Mechatronics cylinder with free rotating clutch operated with key, verify that with an incorrect electric code key inserted in the cylinder the clutch can transmit a maximum of 0, 3 Nm in both directions without opening the cylinder

- Mechatronics cylinder with free rotating clutch operated by lock case or knob, verify that with an incorrect electrical code key inserted in the cylinder the clutch can transmit a maximum of 0, 3 Nm in both directions without opening the cylinder

- that after the test the cylinder should only be able to be operated with its correct key or knob. It is not necessary that the cylinder can be operated in the open position after the test.