Test object: PLUTON handles with key-lock

Customer: “MEDOS” Spółka Jawna
(name and address) 82-200 Chełmno, ul. Magazynowa 3

Dates:
Sampling:
Accepted for testing: 11.08.2008 under acceptance report no. LOW-144/2008
Test started: 26.08.2008
Test ended: 09.09.2008
1. **Product and test data**

1.1. **Test object**

The tested item was aluminium one-grip PLUTON spindle handles for windows and balcony doors, equipped with tumbler cylinders.

Two sets of handles were submitted for the test:
- in the first set, the plate locking the pin in the body of the shield was manufactured from carbon steel, and there were 2 holes of the diameter of 5.5 mm inside the body of the handle, on both sides of the locking pin of the tumbler cylinder.
- in the second set, the plate locking the pin in the body of the shield was manufactured from quenched and tempered spring sheet metal, and there were no holes in the body of the handle.

The handles were laboratory marked as LOW-144-8-1-x and LOW-144-8-2-x.

1.2. **Test documents**

1.2.1. Reference documents:

1.2.2. Test methods and procedures:
- PB LOW-012/5/09-2007 “Forces - measurement and load.”
- PN-EN 1303:2007, item 5.8. “Key related security”

1.2.3. Related documents:
- PN-84/B-94019 “Building hardware. Handles with shields.”

2. **Test results**

2.1. **Testing the torsional strength of the tumbler cylinder**

2.1.1. Requirements in accordance with the opinion of the ZAT no. NJ-7913/08, item 3.2.1.1.

2.1.2. Test method in accordance with PB LOW-012/5/09-2007.

2.1.3. Measuring devices, apparatus and instruments used – LOW-047 dynamometer, LOW-053 stopwatch.

2.1.4. Test results:

The handle was fixed with screws to an immobilised steel plate, and the cylinder was locked in position. 30 Nm of torque was applied to the grip of the handle for 60 s. The handle withstood the load and continued to function correctly.

2.2. **Testing the torque resistance of the cylinder**

2.2.1. Requirements in accordance with the opinion of the ZAT no. NJ-7913/08, item 3.2.1.2.

2.2.2. Test method in accordance with PN-EN 1303:2007, item 5.8.6.

2.2.3. Measuring devices, apparatus and instruments used – LOW-176 torque meter.

2.2.4. Test results:
The handle was fixed with screws to an immobilised steel plate. 2 Nm of torque was applied to the tumbler mechanism with the torque meter. During the test, the tumbler cylinder was not deformed and continued to function correctly.

2.3. Testing the detachment resistance of the handle

2.3.1. Requirements in accordance with the opinion of the ZAT no. NJ-7913/08, item 3.2.2.1.

2.3.2. Test method in accordance with PB LOW-012/5/09-2007.

2.3.3. Measuring devices, apparatus and instruments used – LOW-047 dynamometer.

2.3.4. Test results:
The handle was fixed with screws to an immobilised steel plate. Torque load was applied to the grip of the handle, perpendicularly to its turning plane. Three tests were performed, and during each test the grip was broken after torque load of less than 100 Nm was applied. The values of the torque which caused the grip to break: 47 Nm, 71 Nm i 44 Nm. The damage to the handles did not enable the opening of the window (balcony door).

2.4. Testing the twisting resistance of the handle

2.4.1. Requirements in accordance with the opinion of the ZAT no. NJ-7913/08, item 3.2.2.2.

2.4.2. Test method in accordance with PB LOW-012/5/09-2007.

2.4.3. Measuring devices, apparatus and instruments used – LOW-047 dynamometer.

2.4.4. Test results:
The handle was fixed with screws to an immobilised steel plate, and the cylinder was locked in position. Torque was applied to the grip of the handle, in the direction opposite to the closing direction. Three tests were performed for both sets of handles. During the testing of the first set, the steel plate in the shield was sheared and the handle was turned into the open position, enabling the opening of the window (balcony door). The values of the torque which caused the handle to turn into the open position: 30 Nm, 50 Nm i 35 Nm. During the testing of the second set, the application of 100 Nm of torque to the handle did not cause the handle to turn into the open position. The handle was turned into the open position after greater torque was applied: 106 Nm, 103 Nm i 101 Nm.

2.5. Verification of the minimum number of actual combinations and moving tumblers

2.5.1. Requirements in accordance with the opinion of the ZAT no. NJ-7913/08, item 3.2.3.

2.5.2. Test method in accordance with PN-EN 1303:2007, item 4.8.

2.5.3. Measuring devices, apparatus and instruments used – none.

2.5.4. Test results:
The tumbler cylinders used in the PLUTON handles have 5 pin tumblers and 3 bitting levels, allowing 243 actual combinations. This corresponds to grade 1 of key related security.
The Laboratory of Building Hardware and Metalwork hereby declares that the test results relate to the test object only. The report can be reproduced as a whole, unless otherwise authorised in writing by the Laboratory of Building Hardware and Metalwork. The test report is not a permission for sale or use in building industry.