

TEST REPORT EN 179

**Building hardware — Emergency exit devices operated by a lever
handle or push pad, for use on escape routes — Requirements and test methods**

Report No.....: GZ09050129-1R2
 Supersede Report No. GZ09050129-1R1 dated July 8, 2009
 Tested by (name and signature).....: Happy Chen *Happy Chen*
 Approved by (name and signature)....: John Qiao *John Qiao*
 Date of issue.....: July 17, 2009
 Contents.....: Total test report 10 pages including:
 Report text: 9 pages
 Appendix A for product photos and drawings: 1 page(s)

Testing Laboratory name.....: Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Address.....: Block E, No.7-2 Guang Dong Software Science Park, Caipin Road,
 Guangzhou Science City, GETDD, Guangzhou, China
Testing location.....: Same as above

Applicant's name.....: BESKO PRECISION LIMITED
Address.....: UNIT 303, BLOCK A, PO LUNG CENTRE, 11 WANG CHIU ROAD,
 KOWLOON BAY, HONGKONG.

Test specification:
Standard.....: EN 179:2008
Non-standard test method.....: N/A

Test Report Form No.....: TTRF EN 179:2008 A
TTRF Originator.....: Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Master TTRF.....: Dated 2009-04

Test item description.....: EXIT DEVICE LEVER HANDLE
Trade Mark.....: BESTKO
Model and/or type reference.....: 2039AP
Manufacturer.....: BESTKO PRECISION HARDWARE (SHENZHEN) COMPANY
 LIMITED
Rating(s).....:

3	7	6	B	1	3	3	2	A	B
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Copy of marking plate (information/comments):

										
Model No.:	2039AP									
EN179	3	7	6	B	1	3	3	2	A	B
Manufacture date:										

Summary of testing

The submitted samples were tested and found to **COMPLY WITH** all applicable design requirements and performance requirements of EN 179:2008.

Possible test case verdicts:

- test case does not apply to the test object.....: N/A
- test object does meet the requirement.....: P(Pass)
- test object does not meet the requirement.....: F(Fail)

Testing

Date of receipt of test item.....: 2009-05-24

Date (s) of performance of tests.....: From 2009-05-24 through 2009-07-02

General remarks:

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"(see remark #)" refers to a remark appended to the report.

"(see Appendix #)" refers to an appendix appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

When determining the test result, measurement uncertainty has been considered.

General product information:

Detail "Ratings" information listed as following:

First character (Category of use): Grade 3 – high frequency of use where there is little incentive to exercise care;

Second character (Durability): Grade 7 – 200 000 test cycles;

Third character (Door mass): Grade 6 – 200 Kg;

Fourth character (Suitability for use on fire/smoke doors): Grade B – Suitable for use on fire/smoke assemblies based on a test in accordance with EN 1634-1 (Not evaluated in this report);

Fifth character (Safety): Grade 1 – all emergency exit devices have a critical safety function, therefore only the top grade is identified for the purposes of this European Standard;

Sixth character (Corrosion resistance): Grade 3 – 96 h (high resistance);

Seventh character (Security): Grade 3 – 2000 N;

Eight character (Projection of operating element): Grade 2 – projection up 100 mm (standard projection)

Ninth character (Type of operation): Type A – emergency exit device with "lever handle" operation;

Tenth character (Field of door application): Category B – outwardly opening single exit door only;

Amendment:

1. The original Report No. GZ09050129-1 dated on July 1, 2009 was modified on July 8, 2009 to clarify function, and revise product drawing, fire/smoke resistance classification, and typo mistake
2. The Report No. GZ09050129-1R1 dated on July 8, 2009 was modified on July 17, 2009 to add marking.

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EN 179			
Clause	Requirement - Test	Result - Remark	Verdict
4.1	Design requirements		
4.1.1	General Compliance with the design requirements shall be as Table 1	Refer to Clause 4.1.2 through 4.2.9	—
4.1.2	Release function Release time shall less than 1s at any situation by one single hand and without other tools	Released within 1 second by operating inside lever	P
4.1.3	Release operation The release direction of an emergency exit device shall not be opposite to the direction of the door opening	Not opposite to the open direction.	P
4.1.4	Lever handle design The operational movement of the lever handle shall be in a downward rotational direction.....	Operated the lever in downward rotational direction.	P
4.1.5	Push pad design The operational movement of push pad shall be in the direction of the door opening in an arc downwards or to the side	Lever design	N/A
4.1.6	Double doorset (double doorset leaves only) The device shall allow both leaves to be opened simultaneously and to swing freely in the direction of exit once the door has been released.....	Single doorset	N/A
4.1.7	Corrosion resistance The corrosion resistance shall comply with 4.2.9 or be at least grade 3 in accordance with EN 1670, 5.6:	Refer to Clause 4.2.9	—
4.1.8	Exposed edges and corners An emergency exit device shall have all edges and exposed corners, that are likely to cause injury to persons using the exit, rounded to a radius of not less than 0,5 mm.....	No sharp edges or corners which are likely cause injury	P
4.1.9	Temperature range The maximum operating force at -10 °C and at +60 °C shall not exceed 50 % in excess of the operating forces measured at 20 °C.....	Operating force at -10 °C: 56 N Operating force at +60 °C: 52 N Operating force at 20 °C: 53N	P

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Clause	Requirement - Test	Result - Remark	Verdict
4.1.10	Suitability of emergency exit devices for use on smoke/fire-resisting doorsets Devices that are suitable for use on smoke/fire-resisting doorsets shall conform to the requirements of 4.2.3, 4.2.4, Annex B and be classified according to 7.4.....	Not evaluated in this report	—
4.1.11	Push pad installation Push pads shall be designed such that the operating element can be installed at 250 mm or less from the leading edge of the door when the door is in the closed position.....	Lever design	N/A
4.1.12	Lever handle installation Lever handles shall be designed to have a minimum length of 120 mm, measured from the axis of rotation to the free end, and the axis of rotation no more than 150 mm from the leading edge of the door.....	Lever length: 130 mm Distance between axis of rotation and leading edge of door: 55 mm	P
4.1.13	Operating element projection No part of an emergency exit device, when the door is in any position, shall project (dimension W) from the face of the door more than: Category 1: 150mm or category 2: 100 mm.....	Category 2 Dimension W: 67 mm	P
4.1.14	Operating element face The width of the operating element shall be not less than 18 mm Operating face thickness or radius of lever shall be not less than 5 mm Push pad operating face shall be not less than 1400 mm ²	Lever diameter: 21mm	P
4.1.15	Lever handle free end The free end of a lever handle shall point towards the door such that the dimension "U" is not less than 40 mm, the dimension "W" is not more than 100 mm (standard projection) and the angle α between the free end of the lever handle perpendicular to the surface of the door is not more than 30°.....	Dimension U: 49,5 mm Dimension W: 67 mm Angle α : 0°	P

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Clause	Requirement - Test	Result - Remark	Verdict
4.1.16	Lever handle operating gap A rounded (17,5 mm radius) test block of 35 mm width and 95 mm length held at an angle of not more than 15° to the surface of the door can be passed freely between the lever handle and the surface of the door:	Pass freely	P
4.1.17	Push pad operating gap The gap between a push pad and the door face shall not be less than 25 mm at any position of the travel.:	Lever design	N/A
4.1.18	Test rod Any gap shall not trap a test rod (of 10 mm diameter by 100 mm in length) by its 10 mm diameter in any position during the operation of the device.....:	Did not trap the test rod.	P
4.1.19	Push pad release operation The release operation of the device shall not be blocked by the application of a force in the direction of the door opening, anywhere on the exposed operating surface that moves in the direction of opening during normal release operation.....:	Lever design	N/A
4.1.20	Accessible gap The top surface of any operating element, chassis or other mounting assembly shall not contain any accessible gap that could inadvertently be blocked by a foreign object, resulting in failure of the emergency exit device to operate.....:	No accessible gap could be blocked	P
4.1.21	Door free movement Any parts of the device shall not restrict or impede the free movement of the door once the door has been released to open.....:	Door open freely after release	P
4.1.22	Top vertical bolt An device with top and bottom vertical rods shall include a mechanism to ensure that the releasing and/or the manipulation of the bottom vertical rod bolt head does not release the top vertical rod bolt head :	No vertical bolt	N/A
4.1.23	Covers for vertical rods Covers shall have secure fixings and only be removable by means of a specific tool.....:	No vertical bolt	N/A

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Clause	Requirement - Test	Result - Remark	Verdict
4.1.24	<p>Keepers</p> <p>Keepers shall provide protection for any part of the door or frame that could be damaged by the emergency exit device during the opening and closing cycle of the door</p>	A strike was provided to engage the bolt and protect door and frame.	P
4.1.25	<p>Keepers dimensions</p> <p>The floor keeper shall be designed such that dust and dirt can easily be removed with a conventional vacuum cleaner. If the keeper is not fitted flush it shall not exceed 15 mm in height (dimension H) from the finished floor level and shall be chamfered in the direction of escape at an angle (M) not exceeding 45° from the horizontal, and any up stand (dimension P) shall not exceed 3 mm.....</p>	Not the floor keeper type	N/A
4.1.26	<p>Lubrication</p> <p>Where periodic lubrication is required, it shall be possible to lubricate without dismantling the emergency exit device</p>	No requirement of periodic lubrication by manufacturer.	N/A
4.1.27	<p>Door mass and dimensions</p> <p>--Maximum door mass 100 kg or 200 kg according to the classification;</p> <p>--Maximum door height, excluding any rebates up to 20 % increase of the height of the test door (i.e. maximum increased height = 2 520 mm);</p> <p>--Maximum door width, excluding any rebates up to 20 % increase of the width of the test door (i.e. maximum increased width = 1 320 mm)</p>	Grade 6: door mass 200 kg Test door dimension: 2 100 mm high and 1 100 mm wide.	P
4.1.28	<p>Outside access device</p> <p>The provision for a connection of an outside access device (key, cylinder, lever handle, knob, etc.) shall not, in any, way render the emergency exit device inoperable from the inside, whether the outside access device is tested in the fully locked or unlocked position with the key removed. The installation instructions shall clearly indicate the approved configurations for outside access</p>	Was operated by inside lever any time, no matter key in operation or not.	P

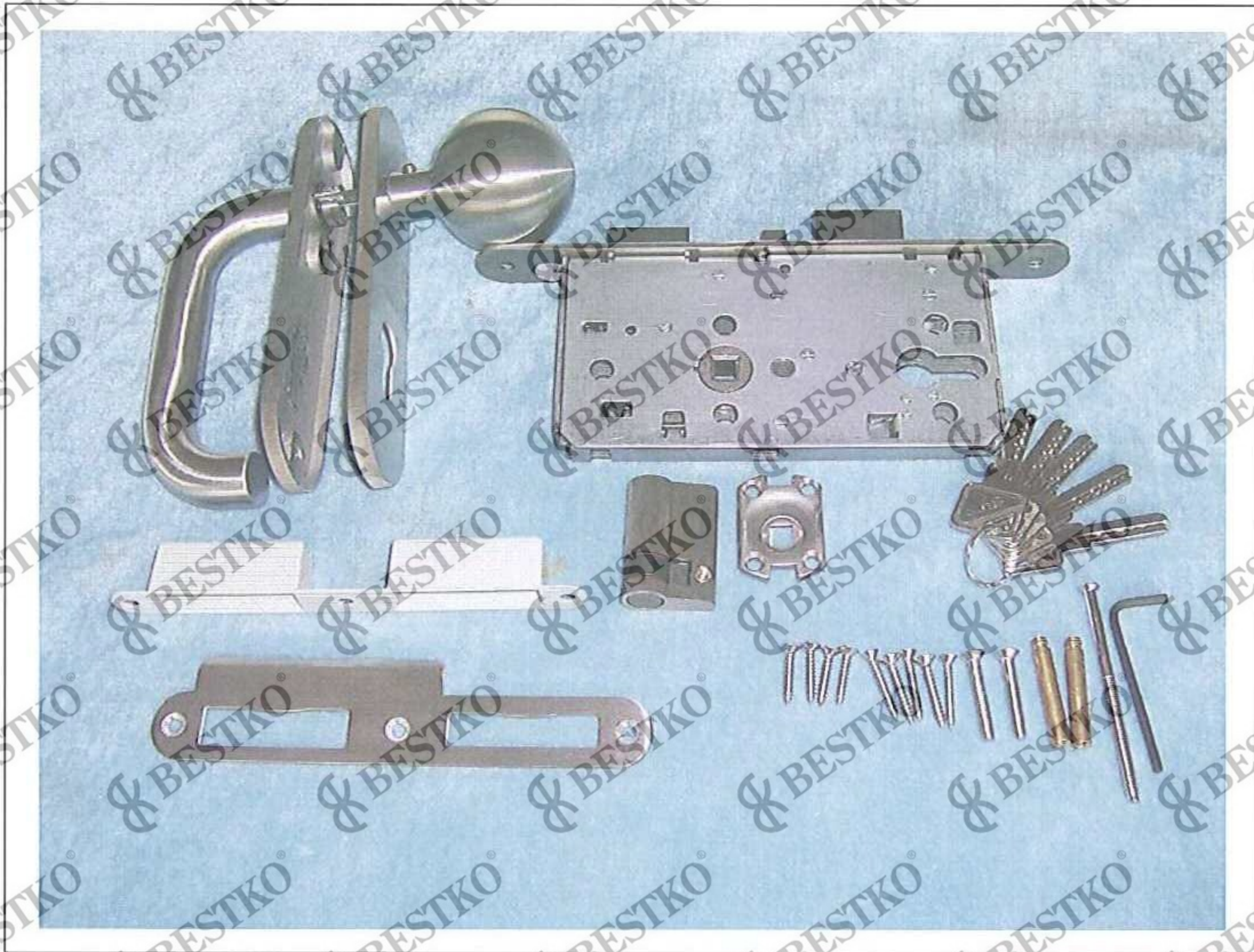
EN-179			
Clause	Requirement - Test	Result - Remark	Verdict
4.1.29	Dangerous substances Materials in products shall not contain or release any dangerous substances in excess of the maximum levels specified in existing European material standards or any national regulations..... :	No performance determined	—
4.2	Performance requirements		—
4.2.1	General		—
4.2.2	Release forces Force required to release the emergency exit device shall not exceed 70 N for lever handle, 150 N for push pad..... :	Lever: 53 N	P
4.2.3	Re-engagement force The force required to release an automatic relatching device in order to re-engage the emergency exit device in the secured position shall not exceed 50 N:	34 N	P
4.2.4	Durability After the test, the emergency exit device shall continue to be operable and meet the requirements of 4.1.21, 4.2.2 and 4.2.3..... :	200 000 cycle Gap between the bolt head and keeper: 3 mm Engagement: 17 mm Release for with 25 N load: 48 N Re-engagement force: 32N Operated correctly	P
4.2.5	Abuse resistance – Operating element Type A shall withstand a perpendicular pull force of 1 000 N and a parallel force of 500 N. Type B shall withstand a force of 1 000 N and a force of 500 N in a vertical direction..... :	Type A Perpendicular pull force: 1000N Parallel force: 500 N Met the requirement of 4.1.16 and 4.1.18 and was operable	P
4.2.6	Abuse resistance – Vertical rod The surface fixed rods shall withstand a pulling force of 500 N:..... :	No vertical rod	N/A
4.2.7	Security requirement The device shall remain in the locked position and shall keep the door closed when subjected to a specified force..... :	Grade 3: 2000N Still locked	P

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Clause	Requirement - Test	Result - Remark	Verdict
4.2.8	Final examination At the end of the test programme, the emergency exit device shall continue to be operable and meet the requirements of 4.2.2 and 4.1.21..... :	Release force by lever: 40 N Door open freely after release	P
4.2.9	Corrosion resistance When an emergency exit device is tested in accordance with 6.2.3, the force required to release the emergency exit device shall not exceed a) Emergency exit devices operated by a lever handle: 1) 70 N prior to the test; 2) 100 N after the test..... :	Operable after 96 hours neutral salt spray Pre-test Release force: 50 N After test release force: 52 N	P
4.3	Requirements for product information An emergency exit device manufactured to this European Standard shall be supplied with clear and detailed instructions for its installation and maintenance. These instructions shall contain the following: a) The limitations on: • intended use, • door mass and door dimensions, • Maximum door distortion to enable safe exit at all times, • minimum resistance of the door leaf against a pulling force of the recommended fixing screws, • field of door application, • fire/smoke door suitability. b) Following warning in a prominent position. "The safety features of this product are essential to its compliance with EN 179. No modification of any kind, other than those described in these instructions, is permitted"; c) Installation and fixing instructions to ensure that the emergency exit device can achieve the performance requirements in this document, including any restriction in use, for example conditions under which the exit device could be rendered inoperable, d) Maintenance instructions to ensure that the emergency exit device continues to achieve the performance requirement in this document for a reasonably economic working life. e) List of all elements that are tested and approved for use with this emergency exit device and which may be packaged separately, e.g. mortise lock, lever handle, cylinder, keeper, etc..... :	Not evaluated in this report.	—

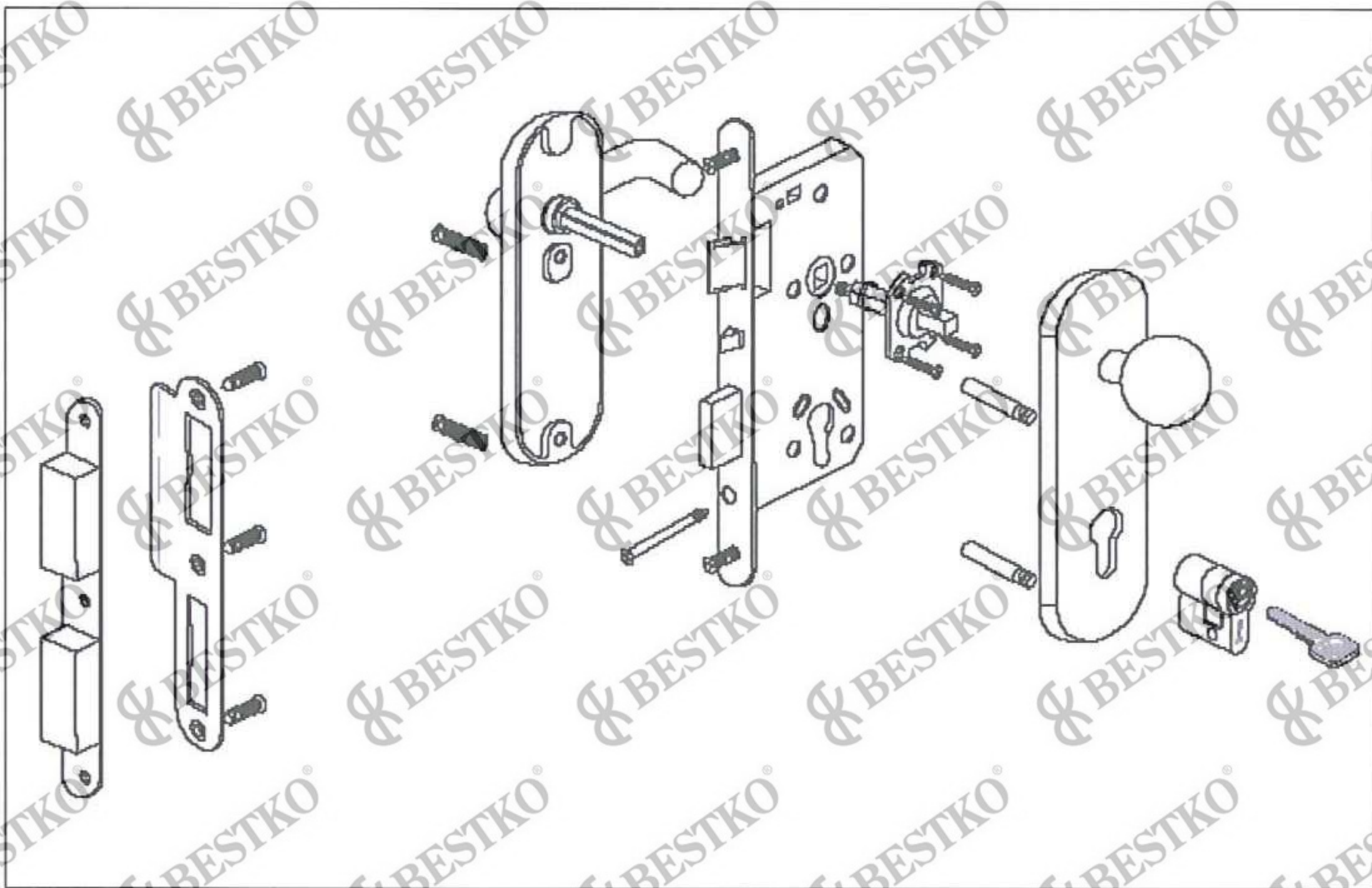
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Appendix A

Product photos



Product Drawing



*****End of report*****