TEST REPORT

EN 1906
Building hardware –

Lever handles and knob furniture – Requirements and test methods

Report reference No. ..... :	170302035GZU-001
Tested by (name and signature)..... :	Nelson Zhu Nelson Zhu. Engineer
Approved by (name and signature) . :	Credy Chen Credy Chen Supervisor
Date of issue ..... :	April 14, 2017
Contents..... :	Total test report 13 pages including: Report text: 7 pages Appendix A for product photo: 4 pages Appendix B for document register: 1 page Revision Page: 1 page
Testing Laboratory name ..... :	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Address..... :	No. 9 Nan Xiang San Road, GETDD, Guangzhou, China 510663
Testing location..... :	Same as above
Applicant's name ..... :	JINCHENG Hardware Industry Co., Ltd
Address..... :	No.191 Wudong Industrial Development Zone, Lile Town, jianghai District, jiangmen City, Guangdong Province ,China.
Test specification	
Standard ..... :	EN 1906:2012
Non-standard test method ..... :	N.A.
Test Report Form No. ..... :	TTRF EN 1906: 2012 B
TTRF Originator..... :	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Master TTRF..... :	Dated 2017-1
Test item description..... :	Lever Handle
Trademark ..... :	Jincheng
Model and/or type reference ..... :	JTH101, JTH102, JTH104, JLH004, JLH024, JLH041, JLH046, JLH051
Manufacturer..... :	JINCHENG Hardware Industry Co., Ltd
Rating ..... :	4 7 — — 0 3 0 B

Summary of testing

The submitted samples **COMPLIED** with all applicable clauses of EN 1906:2012 for the classification.

Test item particulars	
Classification of installation and use.....:	High frequency of use on doors which are subject to frequent violent usage

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 ..... : March 2, 2017

Date (s) of performance of tests ..... : March 2, 2017 to March 31, 2017

General remarks

"(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:

Lever handle, 8 Models: JTH101, JTH102, JTH104, JLH004, JLH024, JLH041, JLH046, JLH051, range of door thickness: from 38 to 45 mm, and the maximum rotation angle is 53°. 8 models are the same structure, only the lever shapes are different, and the model JLH041 was subjected to a full test, and the model JTH104 was subjected to a strength test. See appendix A product photos and drawings for detailed appearance.

Schedule of Components:

See Appendix B – document register.

Detail “Ratings” information listed as following:

First digit (Category of use): Grade 4 – high frequency of use on doors which are subject to frequent violent usage, e.g. football stadiums, offshore installations (oil rigs), barracks, public toilets, etc;

Second digit (Durability): Grade 7 – High frequency of use: 200, 000 test cycles;

Third digit (Door mass): No classification;

Fourth digit (Fire resistance): Exclude in this mechanical test report;

Fifth digit (Safety): Grade 0: Normal.

Sixth digit (Corrosion resistance): Grade 3 – High resistance;

Seventh digit (Security): Grade 0 – No performance determined;

Eighth digit (Type of operation): Type B – spring-loaded furniture.

EN 1906			
Clause	Requirement – Test	Result - Remark	Verdict
4	**CLASSIFICATION**		
4.1	Coding system		—
4.1.2	Category of use:	4	—
4.1.3	Durability	7	—
4.1.4	Door mass	—	—
4.1.5	Fire resistance	Excluding in this report	—
4.1.6	Safety	0	—
4.1.7	Corrosion resistance	3	—
4.1.8	Security	0	—
4.1.9	Type of operation	B	—
5	**REQUIREMENTS**		
5.1	General Sets of furniture shall be classified in grades 1 to 4 in regard to performance requirements specified in 5.2 to 5.13.	Refer to Clause 5.2 to 5.13	—
	Materials in products shall not release any dangerous substances in excess of the maximum levels specified in the European material standards.	Informative	—
5.2	Check of spindle and fastening elements The spindle and fastening elements shall be supplied or specified by the manufacturer with every set of lock or latch furniture. The manufacturer shall state clearly the door thickness or range of the door thicknesses for which the furniture is suitable and in the case of spring assisted and spring loaded furniture, the angle of rotation permitted by the design.	Spindle and fastening elements were supplied by manufacturer. Range of door thickness: from 38 to 45 mm The angle of rotation the maximum rotation angle is 53°	P
5.3	Rotational torque strength Lock or latch furniture shall show no failure of any component and the lever handles or knobs shall still operate after the test. Lever handles or knobs shall not deform permanently more than 5 mm as measured at 50 mm ± 2mm from the axis of rotation by the dial gauge. Category of use acceptance criteria:	Rotational torque 60 Nm. JLH041: Permanent deformation: 0,54 mm JTH104: Permanent deformation: 0,35 mm	P

Grade	1	2	3	4
Torque (Nm)	20	30	40	60

<table>
<tr><td colspan="4">EN 1906</td></tr>
<tr><td>Clause</td><td>Requirement – Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td>5.4</td><td>Axial strength of lock furniture or latch furniture and fixing
There shall be no fail of any component and lever handles or knobs shall still operate after the test. After test the permanent deformation for lever handles or knobs measured at the reference point 75 mm±2mm from the axis of rotation shall not increase by more than 2 mm.
Category of use acceptance criteria:
<table><tr><td>Grade</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Load (N)</td><td>300</td><td>500</td><td>800</td><td>1000</td></tr></table></td><td>Axial load: 1000 N.
JLH041:
Permanent deformation: 0,63 mm
JTH104:
Permanent deformation: 1,03 mm</td><td>P</td></tr>
<tr><td>5.5</td><td>Free play and safety</td><td></td><td>—</td></tr>
<tr><td>5.5.1</td><td>Requirement of free play
The maximum total movement measured shall not exceed the limit as below,
Category of use acceptance criteria:
<table><tr><td>Grade</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Total movement (mm)</td><td>⩽10</td><td>⩽10</td><td>⩽6</td><td>⩽6</td></tr></table>This requirement only applies to lever handles and knobs that will not be driven during the endurance test.</td><td>Maximum movement:
Position at rest: 0,14 mm
Position at max angle: 0,15 mm</td><td>P</td></tr>
<tr><td>5.5.2</td><td>Safety requirement
When the lock or latch furniture is fitted to the test block there shall be no sharp edges that can cause injury.</td><td>No sharp edges can cause injury.</td><td>P</td></tr>
<tr><td>5.6</td><td>Free angular movement or misalignment
The free angular movement or misalignment shall not exceed the limit as below,
Category of use acceptance criteria:
<table><tr><td>Grade</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Total movement (mm)</td><td>⩽10</td><td>⩽10</td><td>⩽5</td><td>⩽5</td></tr></table>This requirement applies to all furniture with either a fixed or floating spindle.</td><td>Maximum movement: 0,22 mm</td><td>P</td></tr>
<tr><td>5.7</td><td>Torque of return mechanism</td><td></td><td>—</td></tr>
<tr><td>5.7.1</td><td>General</td><td>See item 5.7.2 and 5.7.4</td><td>—</td></tr>
</table>

<table>
<tr><td colspan="4">EN 1906</td></tr>
<tr><td>Clause</td><td>Requirement – Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td>5.7.2</td><td>Unsprung and spring-assisted lever handles
Category of use acceptance criteria:

For unsprung lever handles, maximum moment,
<table>
<tr><td>Grade</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Operate moment (Nm)</td><td>—</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>Return moment (Nm)</td><td colspan="2">⩽0,6</td><td colspan="2">⩽1,5</td></tr>
</table>
For spring assisted lever handles,
<table>
<tr><td>Grade</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Operate moment (Nm)</td><td colspan="2">⩽1,5</td><td colspan="2">⩽2,4</td></tr>
<tr><td>Return moment (Nm)</td><td colspan="2">⩽0,6</td><td colspan="2">⩽1,5</td></tr>
<tr><td>Angle of rotation</td><td colspan="4">≥40°</td></tr>
</table></td><td>Spring-loaded lever handles</td><td>N/A</td></tr>
<tr><td>5.7.3</td><td>Unsprung knobs
Category of use acceptance criteria:
<table>
<tr><td>Grade</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Operate moment (Nm)</td><td>—</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>Return moment (Nm)</td><td colspan="4">⩽0,6</td></tr>
</table></td><td>Spring-loaded lever handles</td><td>N/A</td></tr>
<tr><td>5.7.4</td><td>Spring-loaded lever handles or knobs
The torque required to rotate the lever handles or knobs through a maximum of 60° 0/+5°or through the angle of rotation possible by the design shall meet the specified requirement as below,

Category of use acceptance criteria:
<table>
<tr><td>Grade</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Operate moment (Nm)</td><td colspan="2">⩽1,5</td><td colspan="2">⩽2,4</td></tr>
<tr><td>Return moment (Nm)</td><td>—</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>Limited deviations "at rest"</td><td>±4°</td><td>±2°</td><td>±1°</td><td>±1°</td></tr>
</table></td><td>Maximum operating torque: 2,1 Nm.
Limited deviations "at rest": <1°</td><td>P</td></tr>
</table>

<table>
<tr><td colspan="4">EN 1906</td></tr>
<tr><td>Clause</td><td>Requirement – Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td>5.8</td><td>Durability of mechanism
There shall be no failure of any component and the lever handle or knob shall still operate after test.
After the test, the "at-rest" position of spring-loaded door furniture when against its stops shall conform to the "at-rest" position recorded before commencing, the detailed requirement specified as below,
<table><tr><td>Grade</td><td colspan="2">1</td><td colspan="2">2</td><td colspan="2">3</td><td colspan="2">4</td></tr><tr><td>Number of cycles</td><td colspan="4">100k</td><td colspan="4">200k</td></tr><tr><td>force L (N)</td><td colspan="4">60</td><td colspan="4">100</td></tr><tr><td>force P (N)</td><td colspan="4">60</td><td colspan="4">100</td></tr><tr><td>Limited deviations "at rest" (except for spring assisted levers)</td><td colspan="2">±4°</td><td colspan="2">±2°</td><td colspan="2">±1°</td><td colspan="2">±1°</td></tr></table></td><td>200 000 cycles, function correctly
after test;
Limit deviations ”at-rest” after
test: less than 1°</td><td>P</td></tr>
<tr><td>5.9</td><td>Repeat test of axial strength of lock or latch
furniture and methods of fixing
The lock or latch furniture shall meet the
requirement of 5.4.</td><td>Axial load: 1000 N.
Permanent deformation: 0,89 mm</td><td>P</td></tr>
<tr><td>5.10</td><td>Repeat test of free play measurement
The lock or latch furniture shall meet the
requirement of 5.5.1</td><td>Maximum movement:
Position at rest: 0,34 mm
Position at max angle: 0,34 mm</td><td>P</td></tr>
<tr><td>5.11</td><td>Repeat test of measurement of free angular movement or misalignment
The lock or latch furniture shall meet the requirement of 5.6.</td><td>Maximum movement: 0,30 mm</td><td>P</td></tr>
<tr><td>5.12</td><td>Repeat test or torque of return mechanism
The lock or latch furniture shall meet the requirement of 5.7.</td><td>Operate lever handle: 1,3 Nm
The spring can return the lever
handle to its ”at-rest” position.</td><td>P</td></tr>
<tr><td>5.13</td><td>Axial strength for safety furniture (optional)
Category of use acceptance criteria:
<table><tr><td>Grade</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Axial load (N)</td><td colspan="2">1500</td><td colspan="2">2500</td></tr></table>
After test, there shall be no failure of any component and the furniture shall remain fixed to the test block. The lever handle or knob need not operate after completion of the test.</td><td>No safety furniture.</td><td>N/A</td></tr>
</table>

EN 1906			
Clause	Requirement – Test	Result - Remark	Verdict
5.14	Corrosion resistance Corrosion resistance shall comply with requirements of EN 1670:1998.	After 96 hours exposure, no visible corrosion was found on the surface which are visible when fitted in service Grade 3.	P
8	**MARKING**		—
Annex A	**Requirements for security lock furniture for use on burglary resistant doors**	Furniture not approved for use on burglary resistant doors	N/A
Annex C	**Requirements for lock and latch furniture for use on fire/smoke door assemblies**	Not approved for use on fire/smoke door assemblies	N/A

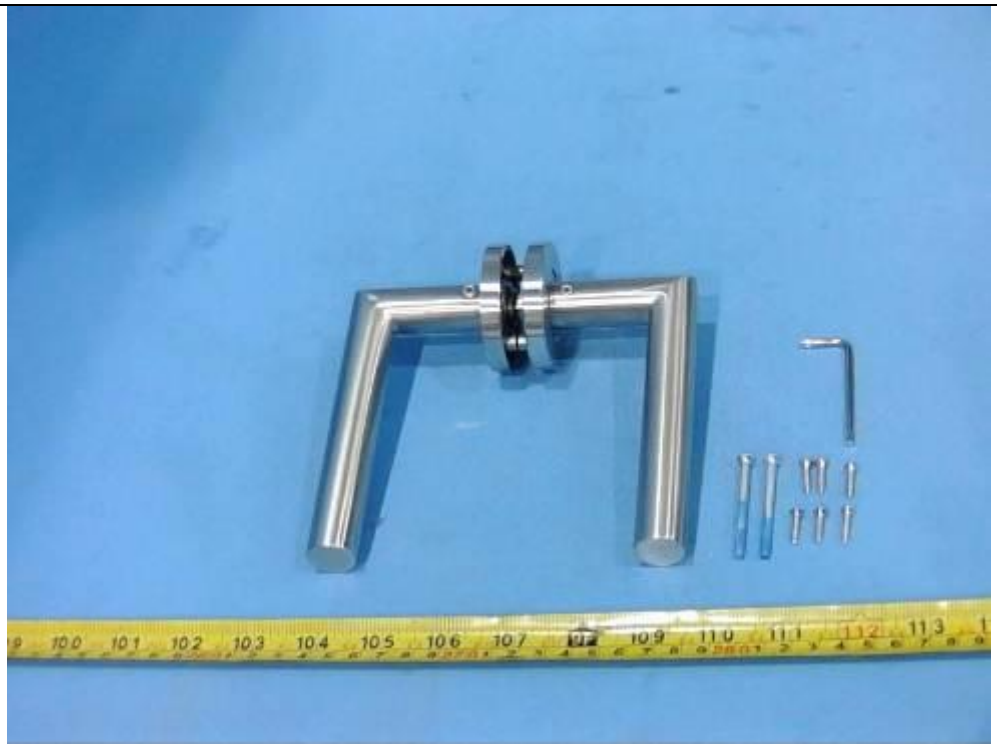
Appendix A

Product Photos

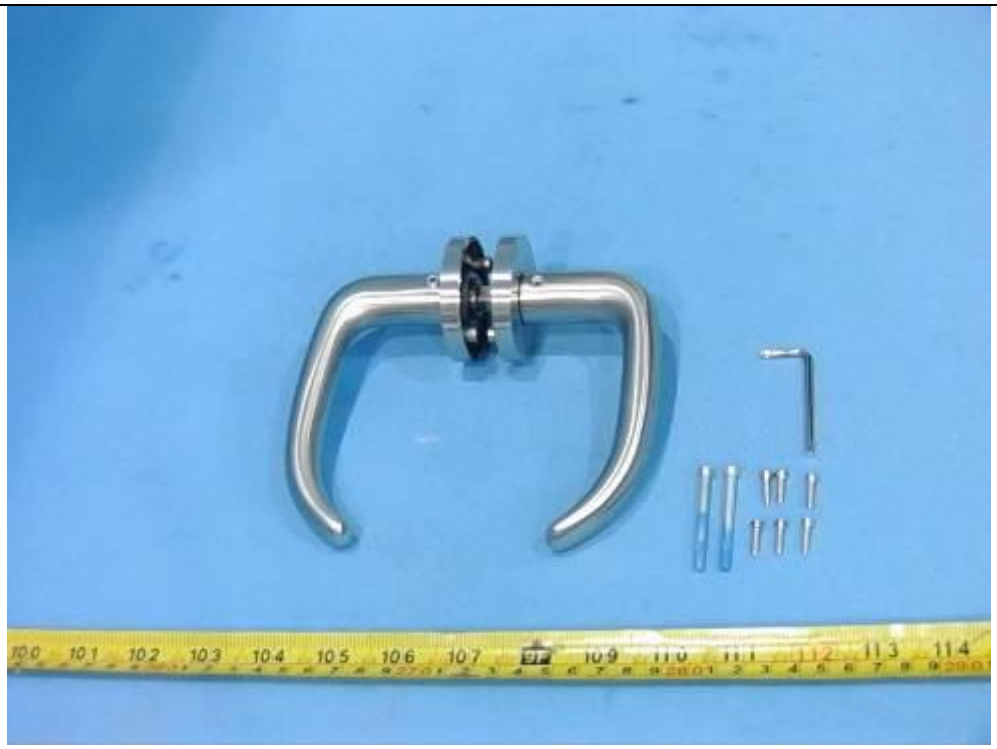
JLH041

JTH101

JTH102

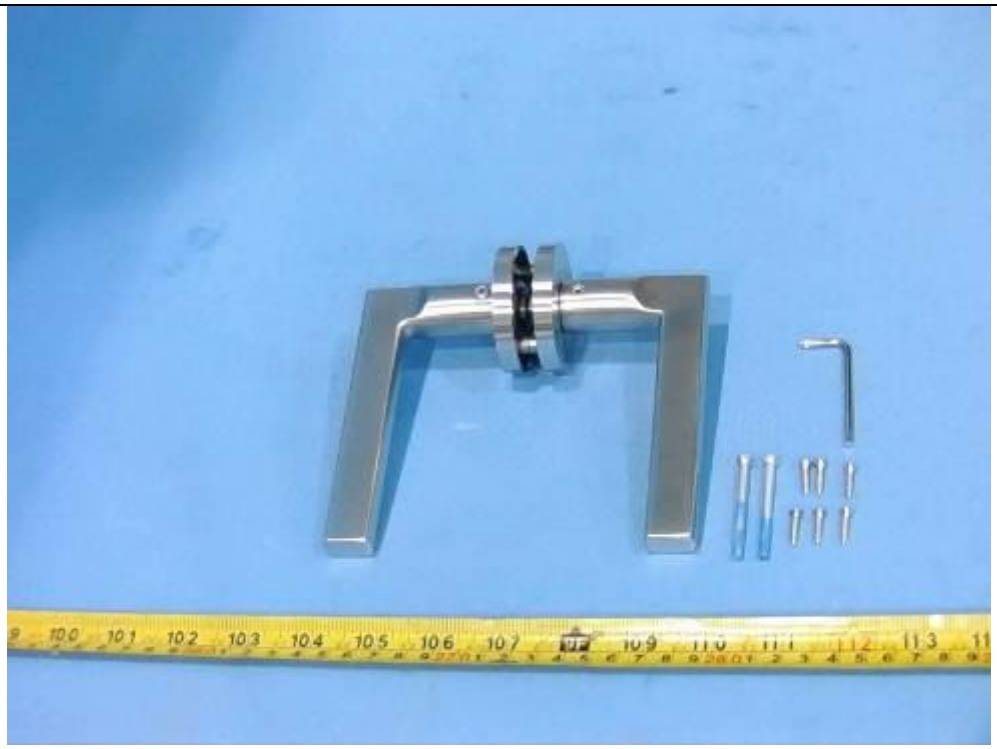


JTH104



JLH004

JLH024



JLH046

JLH051

Appendix B

Document Register

Document Ref.	Document Title	Project No.: 170302035GZU-001	
		Issue	Date
JLH-041	General drawing	201703	201610
JTH-101	General drawing	201703	201610
JTH-102	General drawing	201703	201610
JTH-104	General drawing	201703	201610
JLH-004	General drawing	201703	201610
JLH-024	General drawing	201703	201610
JLH-046	General drawing	201703	201610
JLH-051	General drawing	201703	201610
Lever Handle grouping wilson	BOM List	201702	201702

**********End of Page**********

Revision Page

Revision No.	Date	Changes	Author	Reviewer
Original	April 14, 2017	First issue	Nelson Zhu	Credy Chen

**********End of Report**********