



Willoughby Locking Systems
5105 West 78th Street
Indianapolis, IN 46268

Sdn. Bhd.

RE: Willoughby Locking Systems Appointment Letter

This letter shall serve that Willoughby Locking Systems in Indianapolis Indiana, USA appoint Sdn Bhd as the exclusive distributor for Willoughby products in all of Malaysia.

Willoughby Locking Systems will support our products with timely deliveries, after-sales service, maintenance tips, an inventory of parts and a warranty for all our locks.

We expect Sdn Bhd in return to support our products through advertising, specification support, after-sales support for any issues that may arise, and maintenance of our products during and after the warranty period.

We look forward to a prosperous relationship with Sdn Bhd supplying Willoughby products on any project you decide to take on.

Sincerely,

Gary Noha

Gary Noha- Sales Manager Willoughby Locking Systems

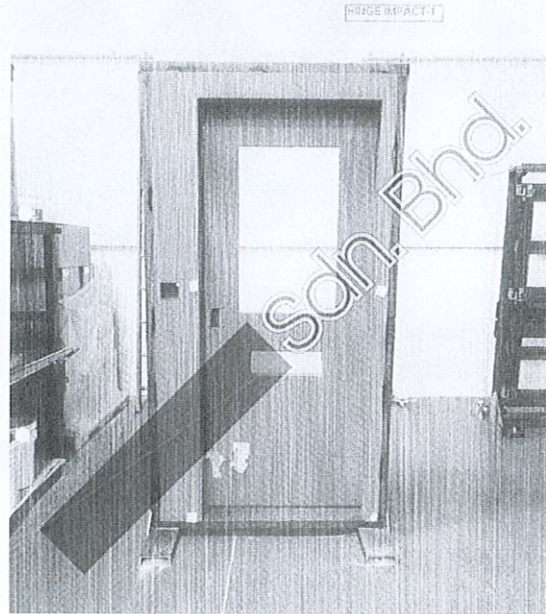
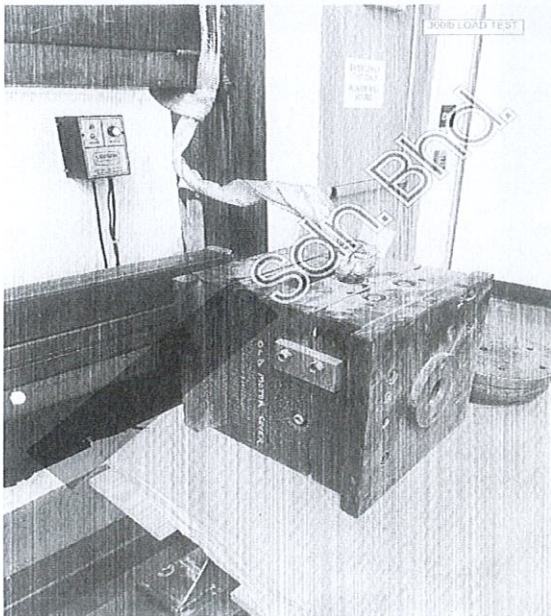
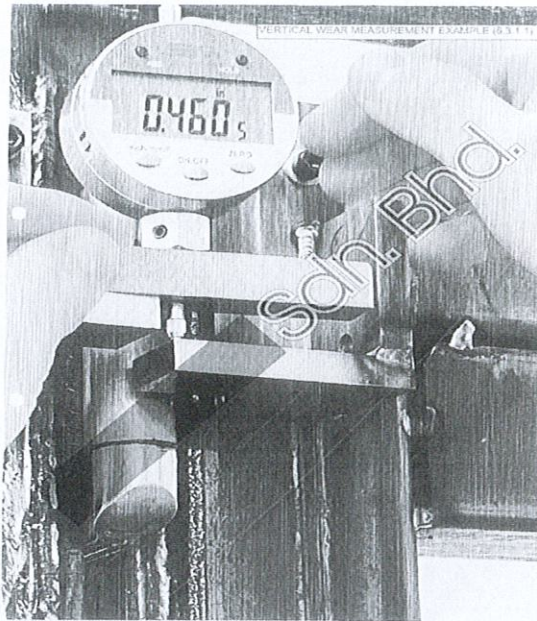
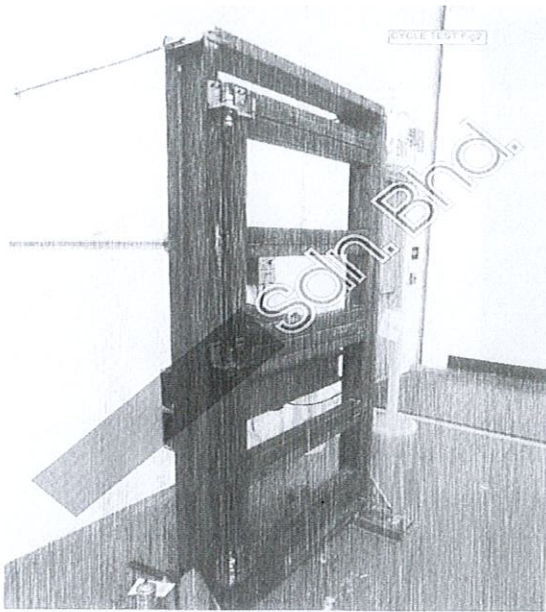
Main: (317) 875-0830 • Toll Free: (800) 428-4065 • Fax: (317)875-0837

Email: Locks@Willoughby-Ind.com • Web: WilloughbyLocks.com

Sdn. Bhd. • Willoughby Locking Systems Pricing		
ESTIMATED QUANTITY	WLS PRODUCT NUMBER	UNIT PRICE
	WLS 1710 x Paracentric x K1 x Hollow Metal Mounting	
	WLS 1710 x Paracentric x K2 x Hollow Metal Mounting	
	WLS 1710 Flat Keeper	
	WLS 1710 Keeper with Dust Box	
	WLS 1710 Keeper with Switch & Dust Box	
	WLS 1780 x Paracentric x K1 x Hollow Metal Mounting	
	WLS 1780 x Paracentric x K2 x Hollow Metal Mounting	
	WLS 1780 Flat Keeper	
	WLS 1780 Keeper with Dust Box	
	WLS 1780 Keeper with Switch & Dust Box	
	WLS 1770 x Paracentric x K1 x Hollow Metal Mounting	
	WLS 1770 x Paracentric x K2 x Hollow Metal Mounting	
	WLS 1770 Flat Strike with Lip	
	WLS 1770 Strike with Dust Box	
	WLS 1770 Strike with Switch & Dust Box	
	WLS 1730 x Paracentric x K1 x Hollow Metal Mounting	\$
	WLS 1730 x Paracentric x K2 x Hollow Metal Mounting	\$
	WLS 1730 Flat Keeper	
	WLS 1730 Keeper with Dust Box	
	WLS 1730 Keeper with Switch & Dust Box	
	WLS 1717 x Paracentric x K1 (food pass locks) (strike and door by others)	\$
	WLS 1717 x Paracentric x K2 (food pass locks) (strike and door by others)	\$
	WLS 1520M x K1 x 24VDC Motor x (1) WLS True Mogul Cylinder x Strike	\$
	WLS 1520M x K2 x 24VDC Motor x (2) WLS True Mogul Cylinder x Strike	\$
	WLS 1520M Key Cylinder Extension (need frame depth when ordering)	\$
	WLS 1100 x Any Function x (1) WLS True Mogul Cylinder x Lever Trim Kit	\$
	WLS 1100 x Any Function x (2) WLS True Mogul Cylinder x Lever Trim Kit	\$
	WLS 1015 Head & Foot Bolt (2)	\$
	WLS 1015 Floor Receptacle	\$
	WLS 1015 Standard Strike	
	WLS 1015 Spanner Keys	
	WLS WSH4545K 4-1/2" Full Mortise Hinges	
	WLS 8001-TB Triple Bias Door Position Switch	\$
	WLS 8001 Door Position Switch	\$
	WLS Mogul Cut Keys	
	WLS Paracentric Cut Keys	

SHIPPING POLICY

WLS does not ship out of the United States. We will ship to a Freight Forwarder of your choice within the United States. If your Purchase Order is over \$25,000.00 WLS will pay for the shipping costs to the freight forwarder. If the Purchase Order is less than \$25,000.00 we will add shipping costs to the invoice.



TIME (in Sec)	UNEXPOSED FACE OBSERVATIONS
00:00	Assembly tight to flange.
04:45	Door bowing into furnace.
07:00	Door deflection in "off" axis middle.
14:00	Distortion on arc and perimeter off door.
18:00	"in" deflection on head.
20:00	Distortion on face of door.
30:00	Later side starting to glow.
38:32	Deflection on hinge side starting to slow.
42:30	Head of door glowing.
46:00	Hinge side starting to glow.
76:00	No significant change.
08:00	Strutless starting to glow.
09:00	Deflection on head shrinking.
102:00	No significant change.
115:00	No significant change.
165:00	No significant change.
180:00	Total end.

TEST REPORT FOR WILLOUGHBY INDUSTRIES, INC.
Report No.: 105668265MD-004
Date: 01/24/24

SECTION 1 - SUMMARY
TESTING AND EVALUATION OF RESULTS

AMBIENT TEMPERATURE

The ambient temperature at the beginning of the test was 70°F.

DOOR DEFLECTION

Door deflection relative to the frame, when applicable, was monitored throughout the test. The door deflections did not exceed the allowable limits of one times the door thickness, and thus met the requirements of the test standards.

FLAMING AND PENETRATION

During the fire exposure period there was no flaming of the unexposed face of the assembly in excess of that allowed by the standard. No through openings were noted. The assembly met the criteria of the test standards for flaming and penetration.

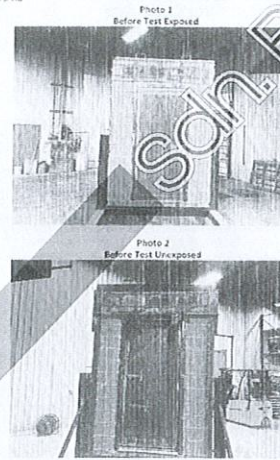
HOSE STREAM TEST OBSERVATIONS AND RESULTS

Per UL 10C (2021) a Hose-Stream Test was conducted for 1 minute and 9 seconds based on a total assembly area of 23.3 square feet and a required duration of 3.0 seconds per square foot of assembly area at 45 psi.

At the conclusion of the hose stream test there were no through openings and the latch was engaged to the strike. This assembly met the requirements of the standard for the Hose-Stream test.

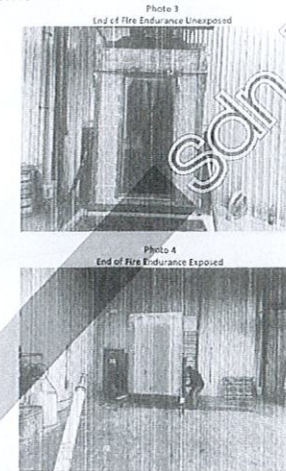
TEST REPORT FOR WILLOUGHBY INDUSTRIES, INC.
Report No.: 105668265MD-004
Date: 01/24/24

SECTION 2 - PHOTOGRAPHS



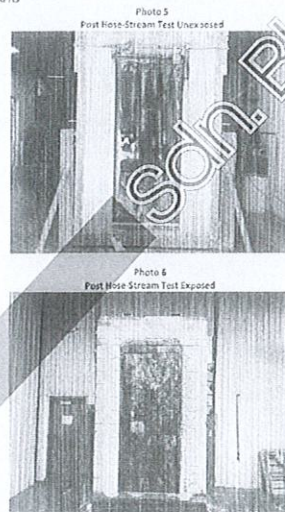
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SECTION 2 - PHOTOGRAPHS



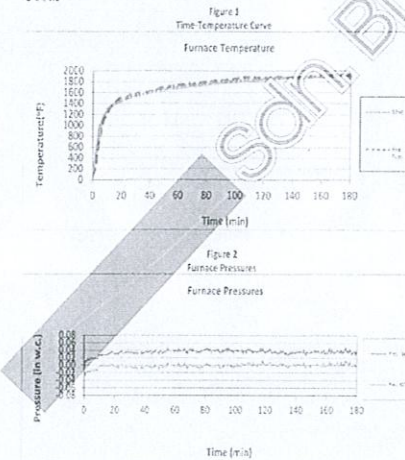
TEST REPORT FOR WILLOUGHBY INDUSTRIES, INC.
Report No.: 105668265MD-004
Date: 01/24/24

SECTION 3 - PHOTOGRAPHS



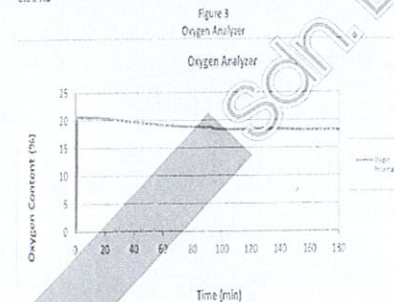
TEST REPORT FOR WILLOUGHBY INDUSTRIES, INC.
Report No.: 105668265MD-004
Date: 01/24/24

SECTION 4 - GRAPHS



TEST REPORT FOR WILLOUGHBY INDUSTRIES, INC.
Report No.: 105668265MD-004
Date: 01/24/24

SECTION 5 - OXYGEN ANALYZER
GRAPHS



intertek

Total Quality Assured

TEST REPORT FOR WILLOUGHBY INDUSTRIES, INC.

Report No.: 1056682654-ND-004

Date: 01/24/24

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	01/24/24	13	Original Report Issue

1451 Murphy Drive
Woburn, MA 01801

Telephone: 617-934-1000
Facsimile: 617-934-1001
www.intertek.com



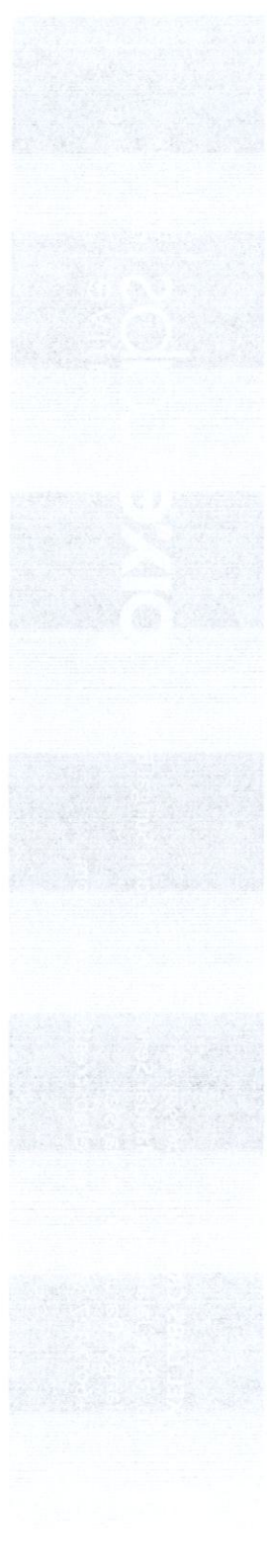
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TEST NO.	TEST NAME	TEST DATE	TEST RESULT
1056682654-ND-004	TEST NAME	TEST DATE	TEST RESULT
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TEST REPORT FOR WILLOUGHBY INDUSTRIES, INC.

TEST REPORT FOR WILLOUGHBY INDUSTRIES, INC.





Test Performed: Standard Test Methods for Detention Locks for Swing Doors
Standard Designation: ASTM F 1577-05 (Reapproved 2019)

Manufacturer:
Willoughby Industries
5165 West 78th Street
Indianapolis, IN 46268

Model Number: WLS-1520
Model Description: Electromechanical Detention Lock

Witnessing Laboratory:
F2 Labs
26501 Ridge Rd.
Dramosus, MD 20872

F2 Labs was contracted to witness the setup and testing in accordance with ASTM F 1577-05, and review the final report.

F2 Labs Project Engineer: Benjamin Lewis
Test Completion Date: 2023-10-09

Benjamin T. Lewis



Test procedures performed and completed in accordance with ASTM F 1577-05

Test Sections Performed and Test Result

- 6.2 Impact Test Grade 1: Pass
- 6.5 Remote Lock Bolt Retraction Force Test: Pass
- 6.6 Mechanical Release Force Test: Pass
- 6.7 Remote Operation Cycle Test: Pass
- 6.8 Mechanical Release Operation Cycle Test: Pass

Test data and Results by section

6.2 Impact Test

Impact test was performed in conjunction with Titan Steel Door as allowed in ASTM F1577-05 section K3.9.1

ASTM F1577-05 K3.9.1 Manufacturers of components may work together to obtain multiple compliance certifications. For example, a lock manufacturer may team with a hollow metal manufacturer to conduct impact testing on an assembly under Test Method F1450 and obtain dual certifications for impact test portions of both Test Method F1450 and F1577, since the test methods in both are comparable.

Applied Technical Services (ATS) conducted the 3rd party impact test and certification in accordance with ASTM F1450-12a. The test requirement of ASTM F1450-12a are more rigorous than that of ASTM F1577 with equivalent test setups and procedures. ASTM F1577 allows the test performed by ATS and results of the test to be acceptable and used as a dual certification as noted in the above excerpt from ASTM F1577. Please see included ATS test report for ASTM F1450-12a Grade 1 impact testing.



6.5 Remote Lock Bolt Retraction Force Test

A static load of 192lbs was applied to the test apparatus providing 85lb (83lb min req'd) of force at the lock bolt as required. A power supply was utilized to monitor voltage and current during each of the 5 test cycles. The operating voltage was regulated to the specified minimum voltage (remote to Section 6.5). The lock was remotely activated 5 consecutive times successfully and performed within the test parameters. Voltage and current were measured within the manufacturer's specifications. The maximum current measured was 1.3 amp with max current limit of 2 amp. All required remote tests were successful constituting a "PASS" for section 6.5. In addition, the standard test a secondary test was performed with a static load of 750lb at the lock bolt. The previous test was duplicated also resulting in a "PASS" for all required parameters of section 6.5. Please see images of test procedure included in this report for more detail.

6.6 Mechanical Release Force Test

A static load of 192lbs was applied to the test apparatus providing 85lb (83lb min req'd) of force at the lock bolt as required. The lock was mechanically operated 5 consecutive times successfully and performed within the test parameters. All requirements of the test were successful constituting a "PASS" for section 6.6. Please see images of test procedure included in this report for more detail.

6.7 Remote Operation Cycle Test

The WLS-1520 lock was installed into a standard 200lb detention door and frame utilizing a PLC control device meeting the test apparatus criteria outlined in section 6.5. The lock was cycled 1,000,000 times as required in the standard. The



6.8 Mechanical Release Operation Cycle Test

Utilizing a test apparatus meeting the requirements of section 6.5, the lock was mechanically cycled 1,000,000 times without failure resulting in a "PASS" for section 6.8. Please see images of test procedure included in this report for more detail.

Willoughby Locking Systems
WLS-1520 Electromechanical Detention Lock

