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HAFELE AMERICA CO.

TEST REPORT

SCOPE OF WORK
ANSI/BHMA A156.9-2020 AMERICAN NATIONAL STANDARD FOR CABINET HARDWARE

Product # - Two Sets: 315.03.500 HNG Clip 110D FUL SC SCR ST NIP MD 14 w/315.98.650 CLIP MPL Cam Adj Woodscrew ST NIP MOD O

REPORT NUMBER
105757062GRR-001C

ISSUE DATE
Jun-07-2024

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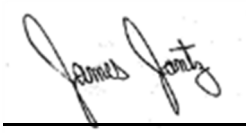
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REPORT FOR HAFELE AMERICA CO.
Report No.: 105757062GRR-001C
Date: Jun-07-2024
P.O. No.: 24453283

SECTION 1
CLIENT INFORMATION

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SECTION 2

SUMMARY AND CONCLUSION

Date Received: Mar-07-Apr-16-2024
Dates Tested: Mar-19-2024-Apr-01-2024
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES

Part Description: 315.03.500 HNG ClIP 110D FUL SC SCR ST NIP MD 14
315.98.650 CLIP MPL CAM ADJ WOODSCREW ST NIP MOD O
Condition of Samples: Production
Number of Samples Received: Two (2) Sets

WORK REQUESTED/APPLICABLE DOCUMENTS

ANSI/BHMA A156.9-2020 (Test No. 1 Hinge Permanent Set, Test No. 2 Hinge Operating Life and Test 3 Hinge Over-Opening) per NAAWS 4.0 Section 10) BHMA Grade 2 (Sections: 4.2,4.3, and 4.4)
Intertek Quote: Qu-01425017

CONCLUSION

SAMPLE ID	TEST DESCRIPTION		RESULTS
5	BHMA Grade 2	4.2 Hinge Permanent Set	CONFORMING
6	BHMA Grade 2	4.3 Hinge Operating Life Cycle Test	CONFORMING
6	BHMA Grade 2	4.4 Hinge Over-Opening Test	CONFORMING

SAMPLE DISPOSITION

After test completion, the samples were returned to client.

TEST EQUIPMENT

ASSET #	EQUIPMENT	CALIBRATION DATE	CALIBRATION DUE
138012	Scale/0-1,000#	08/10/2023	08/10/2024
138520	Steel Rule 0-48"	02/12/2024	02/12/2025
138900.13	Stopwatch	03/11/2024	03/11/2025
138279	100lb Digital force gage	02/06/2024	02/06/2025
138339	Dial Indicator	06/30/2023	06/30/2024

SECTION 3

4.2 HINGE PERMANENT SET:

Date Received: Mar-19-2024
Dates Tested: Apr-01-2024
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: 315.03.500 HNG ClIP 110D FUL SC SCR ST NIP MD 14
315.98.650 CLIP MPL CAM ADJ WOODSCREW ST NIP MOD O
Condition of Samples: Production
Number of Samples Received: Two (2) Sets

TEST PROCEDURE:

Test Method: Per ANSI/BHMA A156.9-2020 Test No. 4.2:
1. Mount the door per manufacturer's instructions and tighten screws if necessary. Record shape of door with adjustable square and set measuring device at M before application of weight. 2. With door at 90° position slowly apply 75 lbs. of weight on door 14" from the center of hinges. 3. Slowly operate the door from 5° open to 90° open then returning to 5° open. Remove the test load.
4. Remeasure door.

ACCEPTANCE CRITERIA:

Per ANSI/BHMA A156.9-2020 Test No. 6.1:
1. Door shall retain its original shape and shall show no visible sign of damage.
2. The amount of set shall not exceed 0.060".
3. Hinges and cabinets shall show no visible sign of damage.
4. Connections between cabinet-and-hinge and door-and-hinge shall show no sign of looseness.

RESULTS:

SAMPLE ID	HINGE LOAD	VERTICAL SET	RESULTS
5	75 lbs.	.038	Conforming

The submitted sample **met** the acceptance criteria of the test described above. Refer to the following page for photograph.



Hinge Permanent Set

4.3 HINGE OPERATING LIFE CYCLE TEST:

Date Received: Mar-19-2024
Dates Tested: Mar-19-2024-Mar-26-2024
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: 315.03.500 HNG ClIP 110D FUL SC SCR ST NIP MD 14
315.98.650 CLIP MPL CAM ADJ WOODSCREW ST NIP MOD O
Condition of Samples: Production
Number of Samples Received: One (1) Set

TEST PROCEDURE:

Standard Cycles: 50,000 cycles
Standard Door Load: 12 lbs.
Standard Door size: 29.5”H x 14.5” W

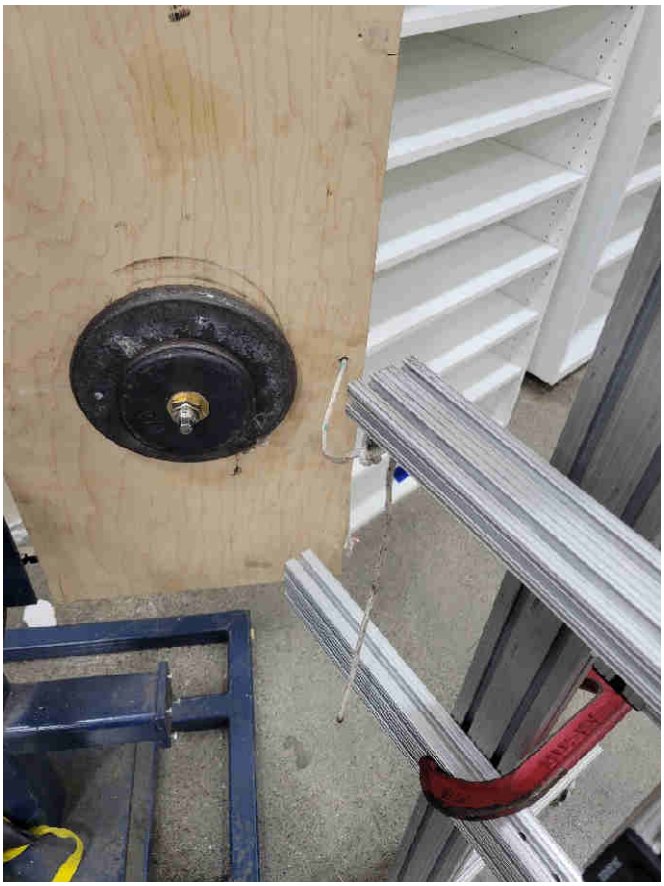
ACCEPTANCE CRITERIA:

Per ANSI/BHMA A156.9-2020:
Grade 2: 50,000 cycles. The amount of set shall not exceed 0.030”. After the cycle test, the drawer slide shall meet the pull fore test requirements. There shall be no loss of serviceability to the drawer slide.

RESULTS:

SAMPLE ID	CYCLES	Vertical Deflection (in)	RESULTS
6	0	0	Start of Test
	50,000	.016	Test Complete

The submitted sample **met** the acceptance criteria of the test described above. Refer to the following pages for photographs.



Hinge Operating Life Cycle

4.4 SELF CLOSING HINGE, CLOSING FORCE & OVER-OPENING TEST:

Date Received:	Mar-19-2024
Dates Tested:	Mar-27-2024
Location Tested:	Intertek Kentwood, MI
Part Description:	315.03.500 HNG ClIP 110D FUL SC SCR ST NIP MD 14 315.98.650 CLIP MPL CAM ADJ WOODSCREW ST NIP MOD O
Condition of Samples:	Production
Number of Samples Received:	One (1) Set

Test Procedure:

Test Method: ANSI/BHMA A156.9-2020

TEST NO.: 4.4.2 CLOSING FORCE TEST (PRE-CYCLE TEST)

Two (2) self-closing hinges when mounted on the test door shall produce a minimum closing force (not the force to open) when the door is in the closed position of 4 ounces (1.1 N) 14 inches (356 mm) from the test fixture.

Test No.: 4.4.3 CLOSING FORCE TEST (POST CYCLE TEST)

The hinges shall hold the door in the closed position and shall cause the door to automatically close from not less than a 10-degree open position while the door is being moved slowly toward the closed position.

Test No.: 4.4.4 Over-Opening Test (Post Cycle Test)

Apply a force of 17 lbs. (74 N) in the opening direction at a point 12 in. out from the inside edge and halfway down the length of the door. Apply the force increasingly at a constant rate up to the required value and then release.

ACCEPTANCE CRITERIA:

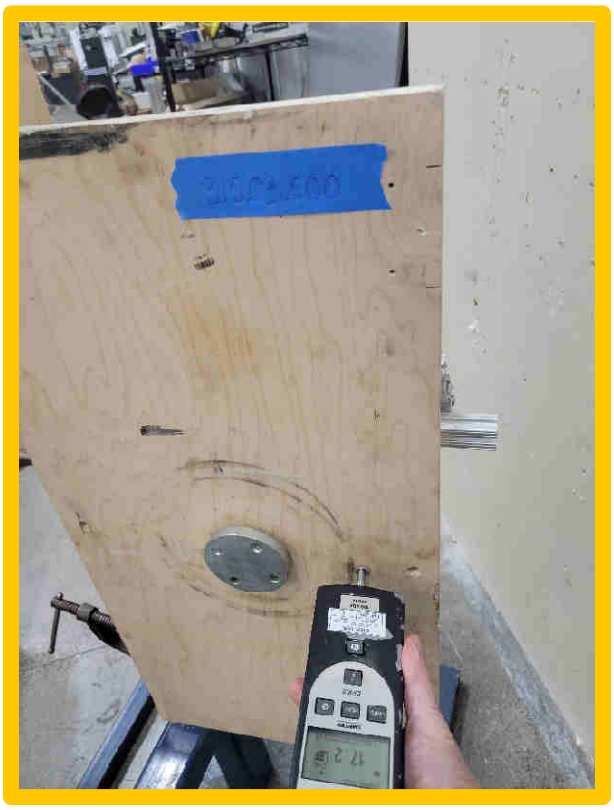
Per ANSI/BHMA A156.9-2020

Closing Force Test – closing force must be greater than 4 ounces when door is in the closed position prior to cycle testing and the door must automatically close from not less than a 10-degree open position while the door is being moved slowly toward the closed position after cycle testing.

Over-Opening Test – The hinges shall be fully functional and hold the door in a closed position. The hinges shall cause the door to automatically close from a minimum 10-degree open position while the door is being moved slowly toward the closed position.

RESULTS:

The submitted sample did meet the acceptance criteria for the tests described above. Refer to the following page for photograph.



SELF CLOSING HINGE, CLOSING FORCE & OVER-OPENING TEST

REVISIONS MADE TO TEST REPORT:

DATE	REVISION DESCRIPTION	REVISED BY	REVISED BY
Jun-07-2024	Initial release.	James Jantz	