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Inter Dyne Systems
TEST REPORT

SCOPE OF WORK
SEFA 8M-2016 RECOMMENDED TESTING STANDARDS FOR LABORATORY GRADE METAL CASEWORK on Base and Wall Cabinets
REPORT NUMBER
104681075GRR-001B

ISSUE DATE
29- Oct- 2021

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19-Nov-2021

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TEST REPORT FOR INTER DYNE SYSTEMS

Report No.: 104681075GRR-001B
Date: 29-Oct-2021
P.O.: 10201

SECTION 1

CLIENT INFORMATION

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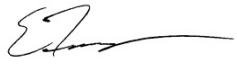
James Jantz
Test Engineer



Eric Frees
Project Reviewer

SECTION 2

SUMMARY AND CONCLUSION

Date Received 11-May-2021-23-Oct-2021
Dates Tested 14-May-2021-26-Oct-2021

DESCRIPTION OF SAMPLES

MODEL NUMBER	DESCRIPTION OF SAMPLE	DIMENSIONS
SBC3548-A-SP	Base Cabinet	48” x 35” x 22”
SWC-4830	Wall Cabinet	48” x 30” x 12”

WORK REQUESTED/APPLICABLE DOCUMENTS

SEFA 8M-2016 LABORATORY GRADE METAL CASEWORK
Intertek quote Qu-01172807

CONCLUSION

TEST		RESULTS
4.2	Cabinet Load Test	CONFORMING
4.3	Cabinet Concentrated Load Test	CONFORMING
4.4	Cabinet Torsion	CONFORMING
5.1	Door Hinge Test	CONFORMING
5.2	Door Impact Test	CONFORMING
5.3	Door Cycle Test	CONFORMING
6.1	Drawer Static Test	CONFORMING
6.2	Drawer and Door Pull Test	CONFORMING
6.3	Drawer Impact Test	CONFORMING
6.4	Drawer Internal Impact Test	CONFORMING
6.5	Drawer Cycle Test	CONFORMING
7.2	Shelf Load Test	CONFORMING
9.2	Load Test	CONFORMING

SAMPLE DISPOSITION

The samples are still at Intertek upon test completion.

TEST EQUIPMENT

ASSET #	DESCRIPTION	LAST CAL	NEXT DUE
138520	STEEL RULE 36"	01/04/2022	01/04/2022
138012	Scale/0-1,000#	08/30/2021	08/30/2022
138296-1-50	50lb steel bars	VBU	VBU
138279	FORCE GAUGE	12/29/2020	12/29/2021
138235	DIAL INDICATOR	10/15/2020	10/15/2021
138390	Portable Drawer Cycle Station	VBU	VBU
138900.02	Stopwatch	06/22/2021	06/22/2022

SECTION 3

4.1 SEFA 8M-2016 – DESCRIPTION OF TEST UNIT:

Date Received 11-May-2021-13-Aug-2021
Dates Tested 14-May-2021-24-Aug-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE	DIMENSIONS
SBC3548-A-SP	Base Cabinet	48” x 35” x 22”
SWC-4830	Wall Cabinet	48” x 30” x 12”

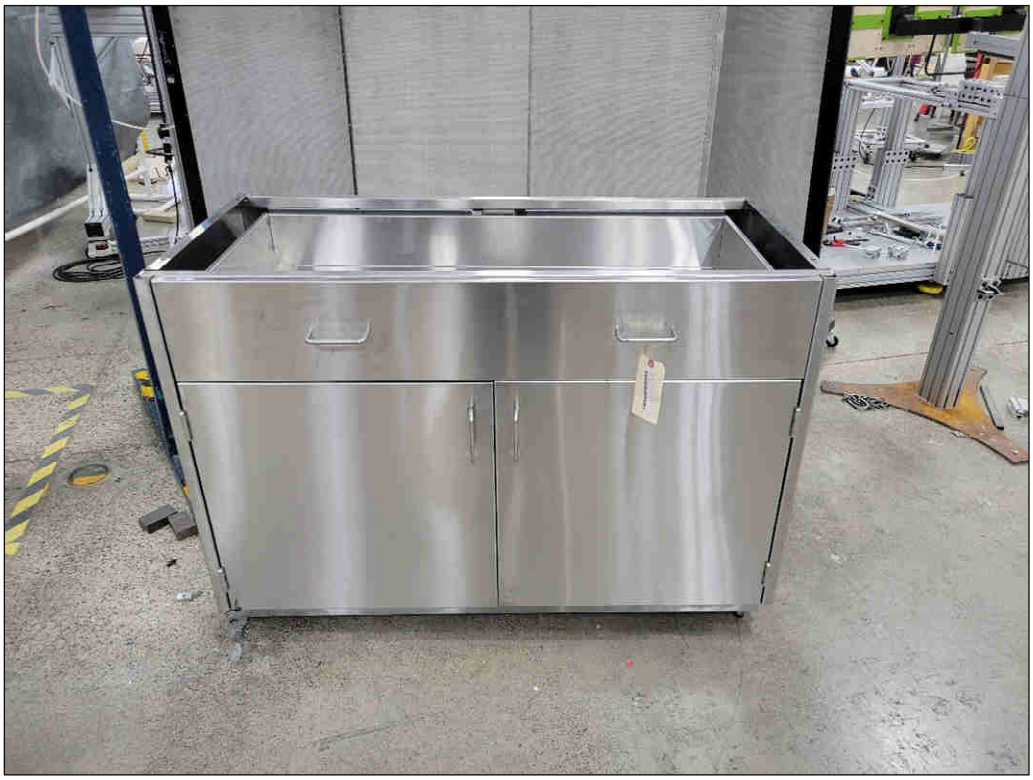
PART DESCRIPTION:

Base unit has one drawer, two doors and a shelf.

The hardware on the units is as follows:

MODEL NUMBER	DESCRIPTION OF SAMPLE
A357-171013-1	Enterprise 5 knuckle stainless steel hinge
ESR-DC4513-18	Sugatsune Drawer Slides

Refer to the following pages for photographs.



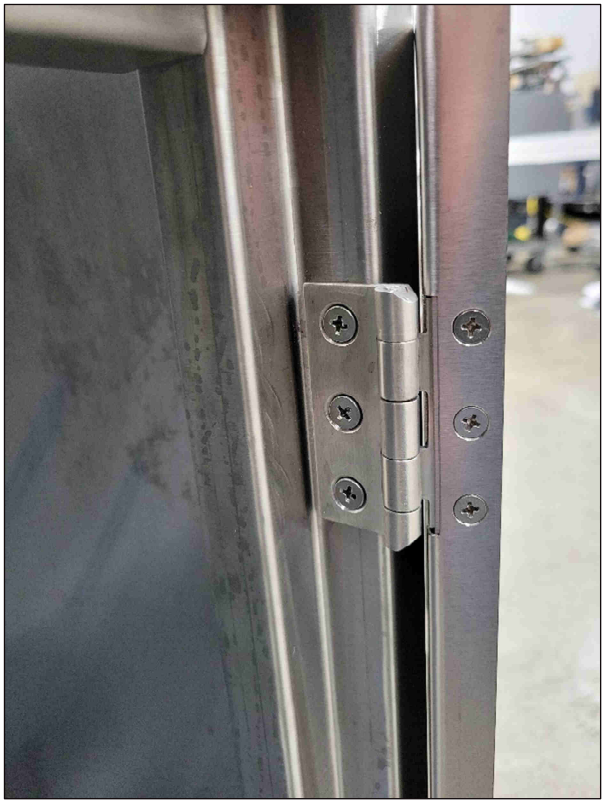
Test Unit (Base Unit)-Front

Test Unit (Base Unit)-Rear

Shelf Support

Drawer Slide

Drawer Pull



Door Hinge

Door Handle

4.2 SEFA 8M-2016 – CABINET LOAD TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 19-May-2021-20-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

4.2.2 Test Method: Verify that the cabinet is level. Load the cabinet top by using 2000 lbs. (907.2 kg) of solid steel bars (Per Section 3.1) stacked 5 high and evenly spaced. After 24 hours, unload the cabinet.

ACCEPTANCE CRITERIA:

4.2.3 Acceptance Level: The cabinet will have no signs of permanent failure. After the load has been removed, inspect the levellers. Any deformation shall not interfere with the function of the level system.

RESULTS:

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

Cabinet Load Test

4.3. SEFA 8M-2016 – CABINET CONCENTRATED LOAD TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 20-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

4.3.2 Test Method: Using 50 lb. solid weights or 10 lb sandbags (per Section 3.1), apply a total of 200 lbs. (90.70 kg) to the top of the cabinet along the cabinet centerline and operate doors and drawers.

ACCEPTANCE CRITERIA:

4.3.3 Acceptance Level: Door and drawer operation shall be normal under condition of test load. There shall be no signs of permanent deformation to front rail, cabinet joinery, doors, or drawers.

RESULTS:

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

Cabinet Concentrated Load Test

4.4 SEFA 8M-2016 – CABINET TORSION:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 19-May-2021-20-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

4.4.2 Test Method: The cabinet shall be tested in its normal upright position, raised not less than four inches off the floor and supported on rear and one front corner. The area of support under the cabinet shall be centered on the leveling feet of the cabinet. Per Section 3.1, secure the cabinet diagonally from the supported corner with seven solid steel bars so that 350 lbs. (158.75 kg.) of weight is placed on the top of the cabinet to prevent over-turning. Apply four solid steel bars (200 lbs. (90.72 kg.)) to the unsupported corner for a period of 24 hours. Remove weight and place the cabinet on the floor in its normal upright position Observe the cabinet joinery. Level the cabinet and measure the face and back of the cabinet across the diagonal corners.

ACCEPTANCE CRITERIA:

4.4.3 Acceptance Level: When returned to normal position, the operation of the cabinet shall be normal, and there will be no signs of permanent damage. The difference between the two measurements taken from measuring the diagonal corners shall be no more than 1/8” (3.175 mm).

RESULTS:

The submitted sample met the acceptance criteria for the test described above. There was no change in the measurements. Refer to the following page for photograph.

Cabinet Torsion

5.1 SEFA 8M-2016 – DOOR HINGE TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 20-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

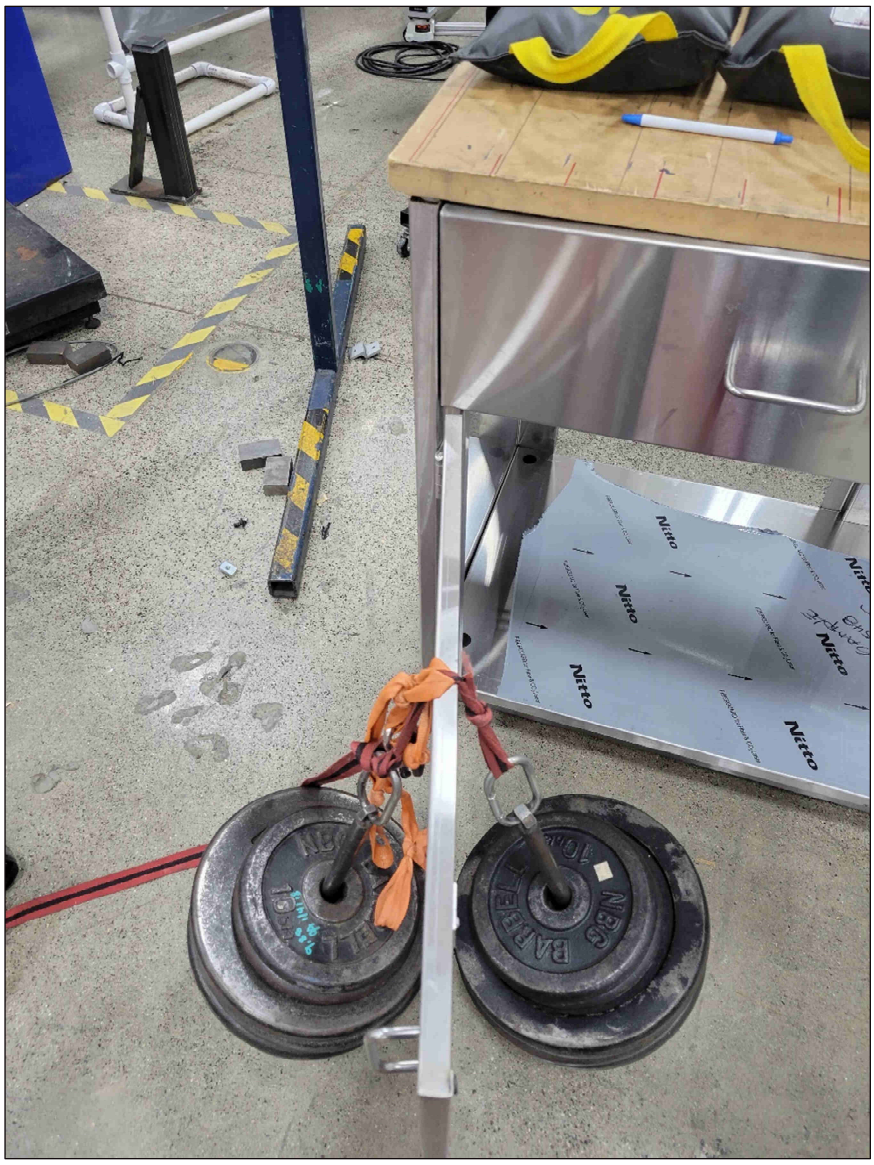
5.1.2. Test Method: Remove the shelf for this test. With unit and top set as described in Section 4.1, add sufficient weight to the top to prevent overturning. With cabinet door opened 90 degrees, hang a sling made up of two 100 lb. (45.35 kg) weights (shot bags or solid weights) over top of the door at a point 12" (304.8 mm) out from the hinge center-line. Slowly move door through the two full cycles of the hinge up to a 160° arc. Remove weight and swing door through its full intended range of motion and close door.

ACCEPTANCE CRITERIA:

5.1.3 Acceptance Level: The open door shall withstand a load of 200 lbs. (90.70 kg) when applied at a point 12" (304.8 mm) from the hinge center-line without permanent damage. Operation of the door, after test, shall show no significant permanent damage that will cause binding of the door or hinges or that will adversely affect operation of the catch.

RESULTS:

The submitted sample met the acceptance criteria of the test. The door operated normally through its entire range of motion, and the door catch operated normally. Refer to the following page for photograph.



Door Hinge Test

5.2 SEFA 8M-2016 – DOOR IMPACT TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 20-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP Base Cabinet	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

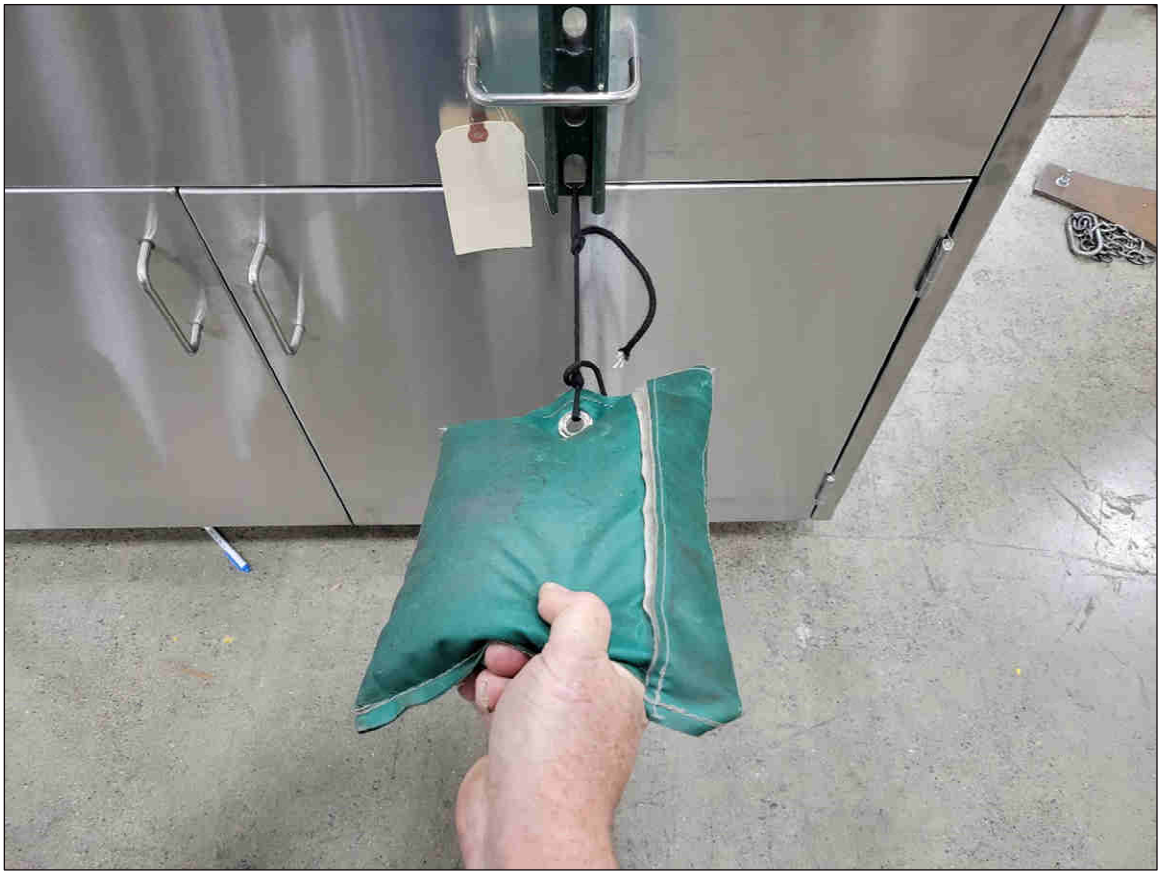
5.2.2 Test Method: With unit and top set as described in Section 4.1, add sufficient weight to the top in order to prevent overturning. A 20 lbs. (9.07 kg.) sand bag (per Section #3.1) shall be suspended and dropped to provide an impact of 240 in-lbs. (27.1 Nm) at the center of the closed door.

ACCEPTANCE CRITERIA:

5.2.3 Acceptance Level: After the test, the door and catch shall operate normally and show no signs of permanent damage. A dent or depression is an indication of permanent damage This test is not intended to evaluate the cabinet finish.

RESULTS:

The door operated normally through its entire range of motion, and the door catch operated normally. Refer to the following page for photograph.



Door Impact Test

5.3 SEFA 8M-2016 – DOOR CYCLE TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 14-May-2021-21-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP Base Cabinet	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

5.3.2. Test Method: This test shall be in conformance to the ANSI test procedure A156.9, Grade 1, requirements for cycle testing of doors. A cycling mechanism shall swing door 90-degrees. Door shall operate for 100,000 cycles with a speed not greater than 15 cycles per minute.

ACCEPTANCE CRITERIA:

5.3.3 Acceptance Level: Door shall operate for the full cycle period without deterioration that will significantly affect the function of the door. The door shall operate freely without binding.

RESULTS:

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

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Door Cycle Test

6.1 SEFA 8M-2016 – DRAWER STATIC TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 21-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP Base Cabinet	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

6.1.2. Test Method: With unit and top set as described in Section # 4.1, add sufficient weight to the top in order to prevent overturning. Open the drawer to 13" (330.2 mm.) of travel and hang 150 pounds (68.0 kg.) from the drawer head at the centerline of the drawer for five minutes. Remove the weight and operate the drawer through the full cycle.

ACCEPTANCE CRITERIA:

6.1.3. Acceptance Level: There shall be no interference with the normal operation of the drawer and the drawer head should remain tightly fastened to the drawer.

RESULTS:

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

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Drawer Static Load Test

6.2 SEFA 8M-2016 – DRAWER AND DOOR PULL TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 21-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP Base Cabinet	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

6.2.2. Test Method: Pulls are to be installed in accordance with manufacturer's practice using specified attaching hardware and method. Block door and drawer closed. Using a cable, pulley and weight assembly, apply a force of 50 lbs (22.676 kg) perpendicular to each pull. Remove weight.

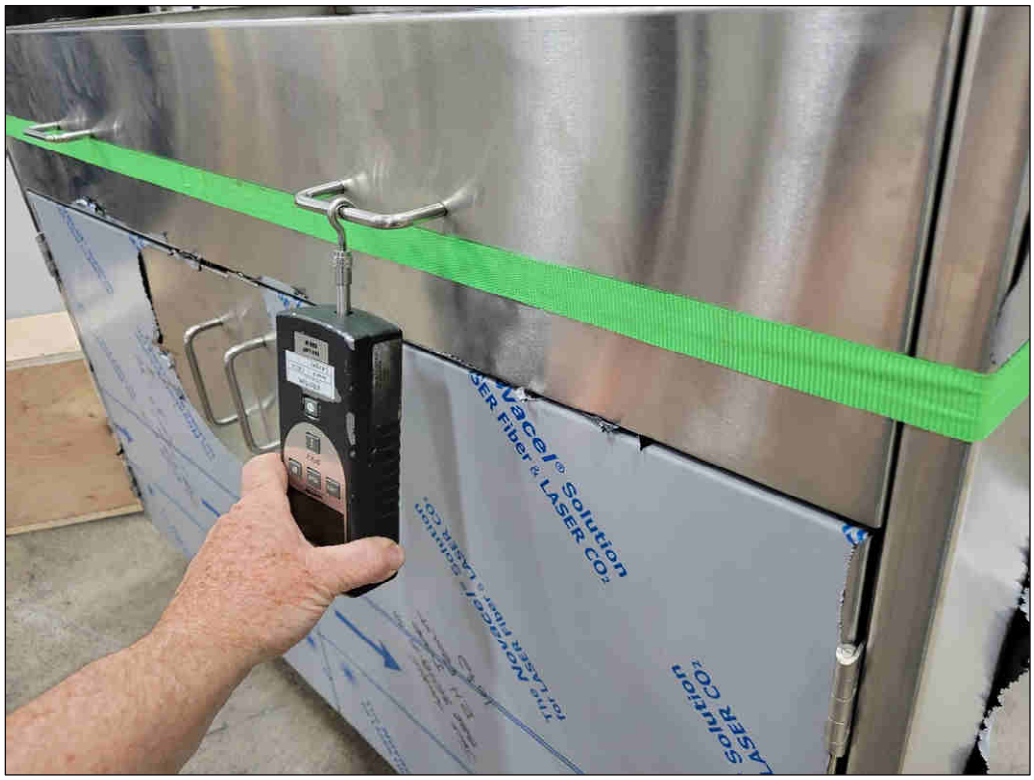
ACCEPTANCE CRITERIA:

6.2.3 Acceptance Level: Pull shall resist force and support weight without breakage. After completion of test and removal of weight, there shall be no significant permanent deformation.

RESULTS:

The submitted sample met the acceptance criteria for the test described above. There was no functional or structural damage to the unit. The drawer operated freely. Refer to the following pages for photographs.

Horizontal Pull-on Drawer



Vertical Pull-on Drawer

Horizontal Pull on Door

Vertical Pull on Door

6.3 SEFA 8M-2016 – DRAWER IMPACT TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 21-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP Base Cabinet	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

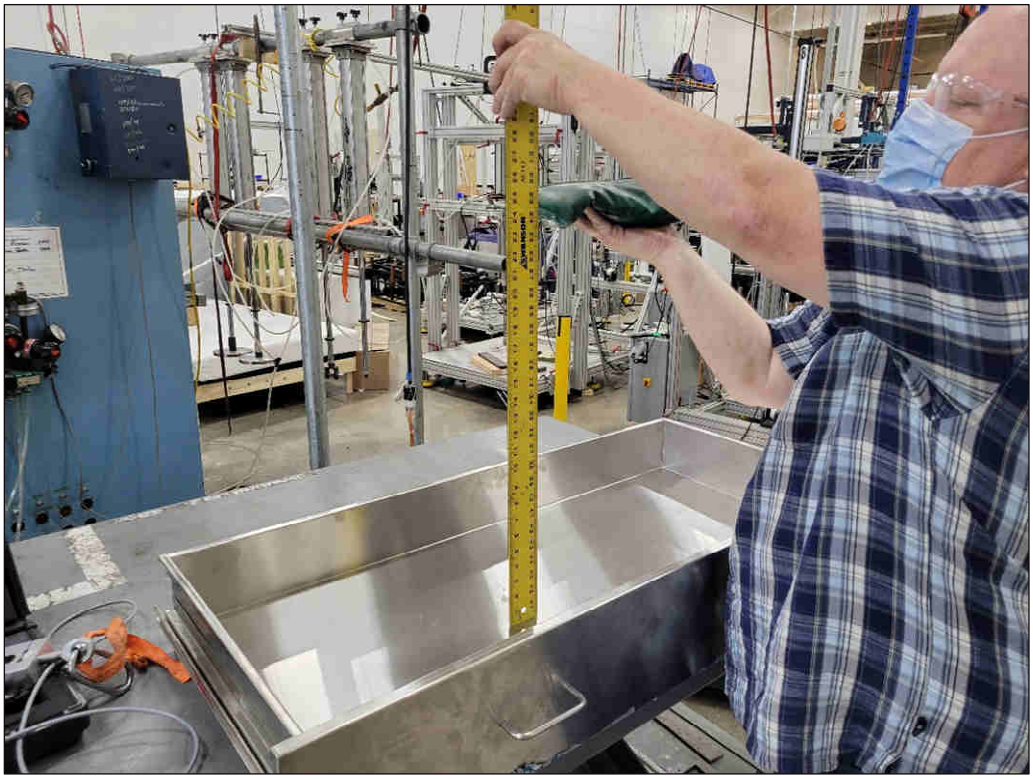
6.3.2 Test Method: Remove drawer; support each corner with 2”x2”x1” (50.8 x 50.8 x 25.4 mm) supports. Drop a 10 lb. (4.545 kg) sand or shot bag from a height of 24” (609.6 mm) into the bottom of the drawer at the center of the width of the drawer. Remove the sand or shot bag.

ACCEPTANCE CRITERIA:

6.3.3. Acceptance Level: No damage or breakout of the drawer bottom.

RESULTS:

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



Drawer Impact Test

6.4 SEFA 8M-2016 – DRAWER INTERNAL ROLLING IMPACT TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 21-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP Base Cabinet	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

6.4.2. Test Method: Position the drawer on a table at a 45° angle. Place a 2" (50.8 mm.) diameter by 12" (304.8 mm.) long steel rod (approximately 10 lbs. (4.535 kg.) 13" (330.2 mm.) from the target impact area such that the rod will roll freely to impact the back of the drawer. Subject the back to three impacts and reverse the drawer to subject the front to three additional impacts.

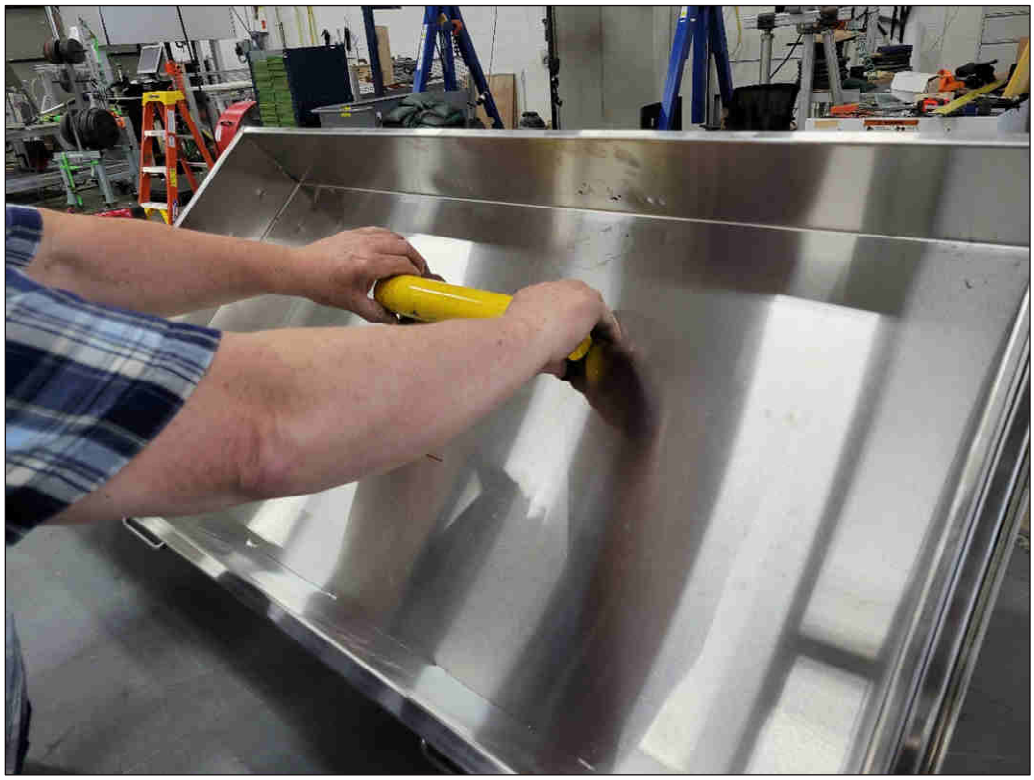
ACCEPTANCE CRITERIA:

6.4.3. Acceptance Level: The drawer shall show no permanent damage. All joinery shall be intact and the drawer, when replaced in the unit, shall operate normally. Minor scratches and dents are acceptable.

RESULTS:

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

Drawer Internal Rolling Impact Test – Front to Rear



Drawer Internal Rolling Impact Test – Rear to Front

6.5 SEFA 8M-2016 – DRAWER CYCLE TEST:

Date Received: 11-May-2021-13-Oct-2021
Date Tested: 21-Oct-26-Oct-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP Base Cabinet	Base Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

6.5.2. Test Method: A static load of 100 lbs (45.35 kg) (using ten 10 lb. (4.535 kg) sand bags per Section 3.1) or 150 lbs. (for heavy duty load) shall be uniformly distributed in the drawer. Measure force required to activate the drawer. Operate from a closed position to within 1/4" (6.35 mm) of full extension for 50,000 cycles at a rate not to exceed 10 cycles per minute.

ACCEPTANCE CRITERIA:

6.5.3. Acceptance Level: The drawer shall operate freely without evidence of dragging, rubbing, or binding. The force required to open and close loaded drawer shall not greater than 8 pounds (3.628 kg.) to activate hardware.

RESULTS:

ELEMENT	LOAD	FORCE TO OPEN/CLOSE	RESULTS
Drawer	100	4.7-Start of Test	Conforming
		4.5-End of Test	**Conforming**

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

Drawer Cycle Test

7.2 SEFA 8M-2016 – SHELF LOAD TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 21-May-2021-24-Aug-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
SBC3548-A-SP Base Cabinet	Base Cabinet

This test is only shelf deflection of the shelf in a base cabinet.

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

7.2.2 Test Method: A shelf shall be mounted in the manner in which it is designed. Measure the distance from the underside of the shelf to a reference point perpendicular to the center of the shelf. Use shot or sand bags weighing 10 lbs. (4.535 kg) each. Unless otherwise specified, load the shelf uniformly to 40 lbs. (18.14 kg) per square foot shelf area to a maximum of 200 lbs. (90.70 kg). Measure the deflection on the shelf by measuring the distance to the reference point and calculating the difference between the two measurements. Record data and remove the load.

ACCEPTANCE CRITERIA:

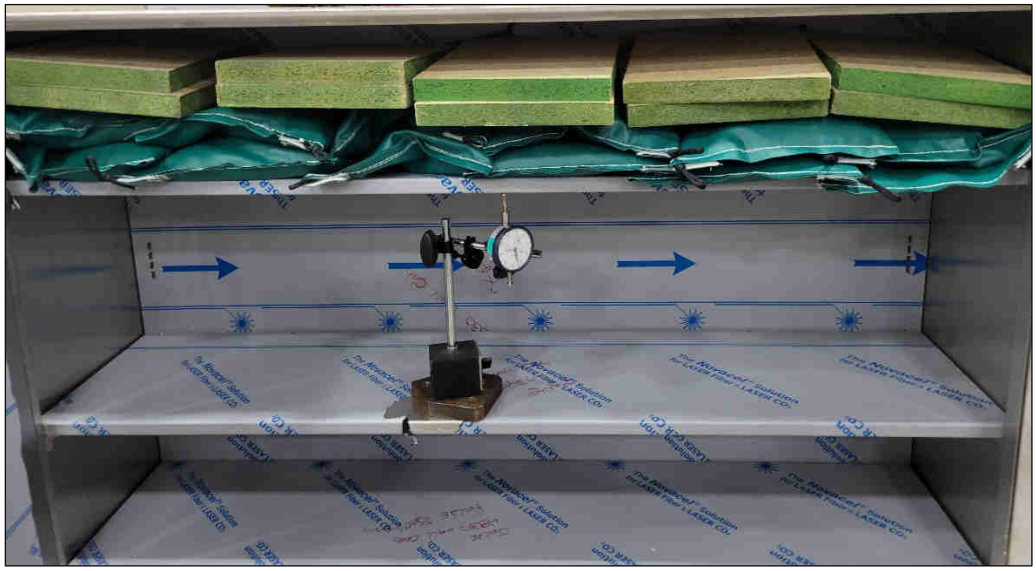
7.2.3. Acceptance Level: The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of .25" (6.35 mm.).

RESULTS:

ELEMENT	SHELF LOAD	DEFLECTION MEASURED	RESULTS
Base cabinet-Shelf	200 lbs	0.183	CONFORMING
Wall Cabinet-shelf	139 lbs	0.223	CONFORMING

The submitted samples met the acceptance criteria for the test described above. Refer to the following page for photographs.

Shelf Load Test – Base Cabinet



Shelf Load Test – Wall Cabinet

9.2 SEFA 8M -2016 - WALL CABINET LOAD TEST:

Date Received: 11-May-2021-13-Aug-2021
Date Tested: 27-May-2021
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

MODEL NUMBER	DESCRIPTION OF SAMPLE
	Wall Cabinet

Condition of Samples: Production
Number of Samples: One (1)

TEST PROCEDURE:

9.2.2 Test Method: A wall mounted cabinet shall be mounted as per manufacturer's instructions and is to have the standard number of shelves. Use shot or sand bags weighing 10 lbs. (4.535 kg) each. Load the shelves per Section 7.0 including the bottom, each shelf, and top uniformly with 40 lbs. (18.14 kg) per square foot shelf area to a maximum of 200 lbs. (90.70 kg).

ACCEPTANCE CRITERIA:

9.2.3. Acceptance Level: With weights in place after a period of 24 hours, operate the doors through full travel to verify normal operation of the doors. Remove weights and operate doors to verify normal operation. Verify that there is no permanent deflection of the cabinet top, cabinet back, cabinet bottom, or shelves. After weights are removed, the cabinet shall show no permanent damage to the cabinet, cabinet bottom, or shelves.

RESULTS:

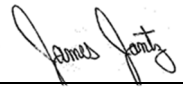
SHELF TYPE	STATIC LOAD (lbs)	DESCRIPTION OF RESULTS
Cabinet Top	173	Conforming
Cabinet Bottom	148	Conforming
Shelves	139	Conforming

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

Wall Cabinet Load Test

SECTION 4

REVISIONS MADE TO TEST REPORT

DATE	REVISION DESCRIPTION	REVISED BY	REVISED BY
29-Oct-2021	Initial release.	James Jantz	
19-Nov-2021	Switched Drawer slide pic on pg 7 with the correct Sugatsune pic	James Jantz