



ENGINEERING AND TEST DIVISION  
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TEST REPORT NO.: 418206-06-04-R22-0458

DAYTON T. BROWN, INC. JOB NO.: 418206-06-000



**CUSTOMER:** MEGA FORTRIS (MALAYSIA) SDN BHD  
NO. 29, JALAN ANGGERIK MOKARA 31/47  
KOTA KEMUNING, SEKSYEN 31  
SHAH ALAM  
SELANGOR, 40460, MALAYSIA

**SUBJECT:** FREIGHT CONTAINER MECHANICAL SEAL CLASSIFICATION TESTING  
PER ISO 17712:2013 (E) CLAUSE 5,  
CONDUCTED ON 25 STRAP SEALS, MODEL NO. DMSP 9X22,  
SERIAL NOS. A0000031 THROUGH A0000055

**PURCHASE ORDER NO.:** MFM\_PO-023203-1

**ATTENTION:** FUAD AHMAD BASIR

**SEAL CLASSIFICATION: INDICATIVE**

<b>TEST ADMINISTRATOR</b>	 J. BENINCASA
<b>QUALITY DEPARTMENT</b>	 D. THORNE
<b>DATE</b>	14 JULY 2022

INFORMATION CONTAINED HEREIN MAY BE SUBJECT TO EXPORT CONTROL LAWS. REFER TO INTERNATIONAL TRAFFIC IN ARMS REGULATION (ITAR) OR THE EXPORT ADMINISTRATION REGULATION (EAR) OF 1979. IT IS THE RESPONSIBILITY OF THE RECIPIENT TO OBTAIN ANY REQUIRED LICENSES TO EXPORT ANY CONTROLLED DATA.

THE DATA CONTAINED IN THIS REPORT WAS OBTAINED BY TESTING IN COMPLIANCE WITH THE APPLICABLE TEST SPECIFICATION AS NOTED





## REVISION HISTORY

Revision	Date	Section Affected	Change
--	07/14/2022	--	--

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## 1.0 ABSTRACT

This test report details the results of freight container mechanical seal classification testing conducted on Strap Seals, under reference (a) to the requirements of reference (c).

As per ISO 17712:2013(E) Clause 5.1.2, "Testing is to be done once every two years". Therefore, this report expires 2 years from the test completion date.

Results of the tests are detailed in the following text.

Test data pertinent to this program will remain on file at Dayton T. Brown, Inc. for 90 days.

The testing and results contained in this report are in accordance with the testing requirements called out in ISO 17712:2013 and are only applicable to the samples as received and to the specific units identified in the test report and do not address any individual manufacturer's compliance or non-compliance with all the requirements of ISO 17712:2013 which are the sole responsibility of each manufacturer and not part of the testing performed and recorded in this test report.

Dayton T. Brown, Inc. is not involved in any production quality inspections. All tests are based on the samples that are selected by the manufacturer and provided to Dayton T. Brown, Inc. without any Dayton T. Brown, Inc. involvement in said selection.

Dayton T. Brown, Inc. performs testing to ISO 17712:2013 under laboratory conditions. These tests do not measure and are not intended to measure all possible applications or installations of the seal assembly or components. In that event, the report will describe the particular application tested in detail. Dayton T. Brown, Inc. is not responsible for actual performance of any seal assembly as installed in any application.

This report shall not be reproduced, except in full, without the written approval of Dayton T. Brown, Inc.

## 2.0 REFERENCES

- (a) Customer Purchase Order No.: MFM\_PO-023203-1
- (b) Dayton T. Brown, Inc. Job No.: 418206-06-000
- (c) Test Specification: ISO 17712:2013 (E) Clause 5

## 3.0 SEAL CLASSIFICATION

ISO 17712:2013 (E): (I)-Indicative for Clause 5

#### 4.0 ADMINISTRATIVE INFORMATION

<b><u>Customer</u></b>	Mega Fortris (Malaysia) Sdn Bhd No. 29, Jalan Anggerik Mokara 31/47 Kota Kemuning, Seksyen 31 Shah Alam Selangor, 40460, Malaysia
Sample Type	Strap Seal
Sample Name	DOMINO SP 9X220
Model No.	DMSP 9X22 (as provided by customer)
Serial Nos.	A0000031 through A0000055
Quantity Received	30
Quantity Tested	25
Date Received	17 June 2022
Dates Tested	30 June and 1 July 2022

#### 5.0 TEST PROGRAM OUTLINE

Test	Test Item Description	Results
Tensile	Model No. DMSP 9X22 Strap Seals, Serial Nos. A0000031 through A0000035	See Page 6.
Shear	Model No. DMSP 9X22 Strap Seals, Serial Nos. A0000036 through A0000040	See Page 8.
Bending	Model No. DMSP 9X22 Strap Seals, Serial Nos. A0000041 through A0000045	See Page 10.
Impact	Model No. DMSP 9X22 Strap Seals, Serial Nos. A0000046 through A0000055	See Pages 12 and 13.
Test Equipment List and Test Item Photo	Model No. DMSP 9X22 Strap Seal	See Pages 15 and 16.

## 6.0 TEST RESULTS

### Tensile Test and Results

#### TEST REQUIREMENT

The tensile test shall be conducted in accordance with reference (c).

#### TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.  
 All testing was performed in accordance with the referenced specification.  
 The pulling speed during the test was 50.8mm/min.  
 Test room ambient conditions: 20.6° C and 51.5% RH

#### TEST DATA

Date: 30 June 2022

Tensile Test at Room Temperature			
Specimen No.	Load (kN)	Class Rating	Remarks
A0000031	.62	I	*
A0000032	.65	I	*
A0000033	.62	I	*
A0000034	.57	I	*
A0000035	.55	I	*

Tech: JT

\* A post-test visual inspection of the test item revealed that the strap broke off in the lock mechanism due to testing.

#### Classification Key

Rating                      Load to Failure

High Security (H):      10.0 kN

Security (S):            2.27 kN

Indicative (I):         <2.27 kN



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TYPICAL PHOTO OF THE TENSILE TEST SETUP

30 JUNE 2022

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## Shear Test and Results

### TEST REQUIREMENT

The shear test shall be conducted in accordance with reference (c).

### TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.  
 All testing was performed in accordance with the referenced specification.  
 The travel rate during the test was 12.5 mm/min.  
 Test room ambient conditions: 20.3° C and 47.6% RH

### TEST DATA

Date: 1 July 2022

Shear Test at Room Temperature			
Specimen No.	Load (kN)	Class Rating	Remarks
A0000036	.279	I	*
A0000037	.212	I	*
A0000038	.212	I	*
A0000039	.216	I	*
A0000040	.221	I	*

Tech: JT

\* A post-test visual inspection of the test item revealed that the cutting blades severed the seal due to testing.

### Classification Key

Rating                      Load to Failure

High Security: (H):      3.336 kN

Security (S):              2.224 kN

Indicative (I):            <2.224 kN

**SAFETY PRECAUTIONS** – Do not exceed a shear force greater than 8900 N (2001 lbf). If the specimen has not failed at that force, halt the test and unload the test equipment. Record a shear force of 8896 N (2000 lbf). Sudden and violent rupture of the test specimen can endanger personnel, equipment and property.





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TYPICAL PHOTO OF THE SHEAR TEST SETUP

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## Bending Test and Results

### TEST REQUIREMENT

The bending test shall be conducted in accordance with reference (c).

### TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.  
 All testing was performed in accordance with the referenced specification.  
 The test was performed using a bending time of 3 seconds/cycle.  
 Test room ambient conditions: 20.2° C and 47.8% RH

### TEST DATA

Date: 1 July 2022

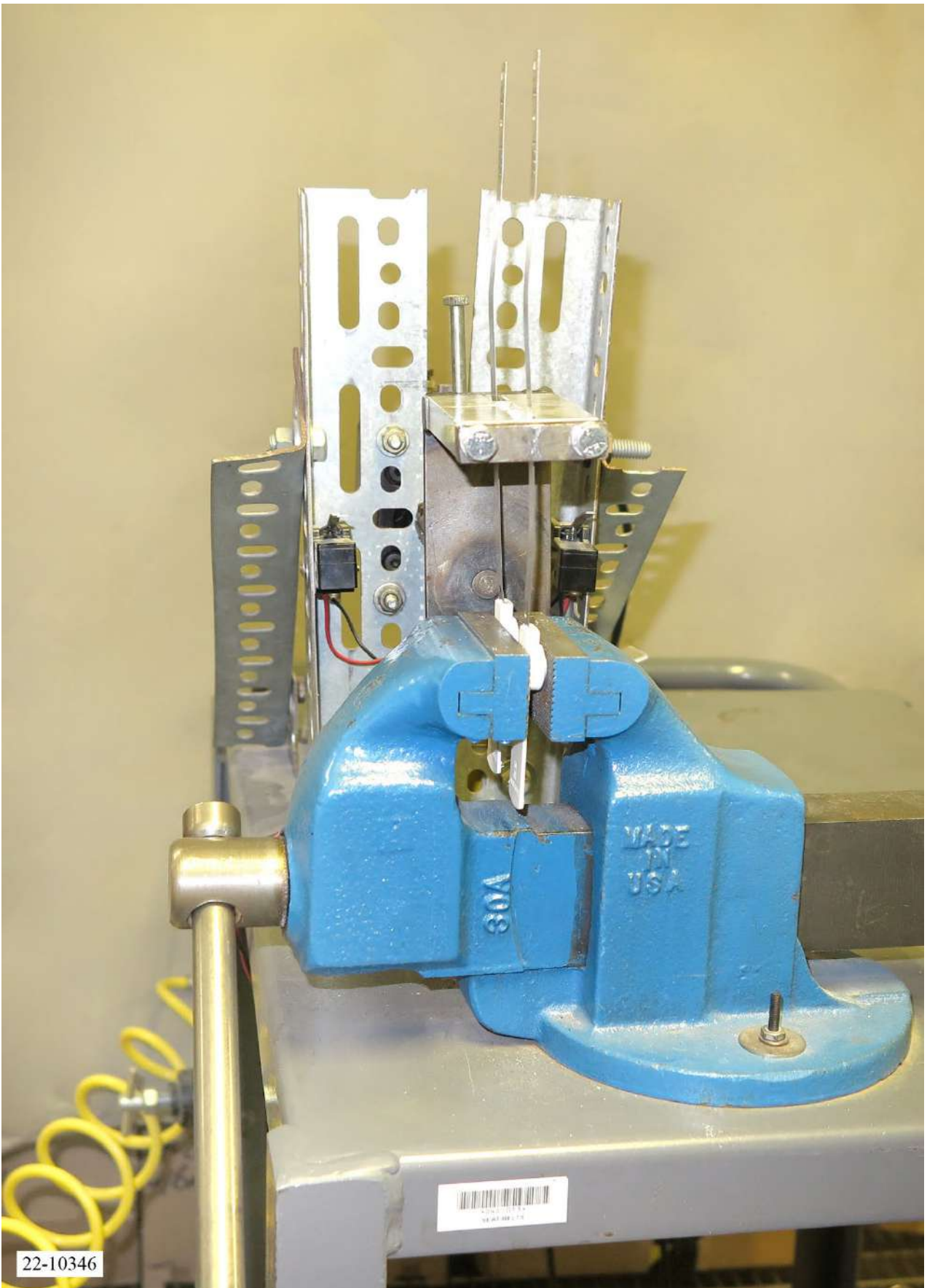
Bending Test at Room Temperature			
Specimen No.	Flex Cycles	Class Rating	Remarks
A0000041	208	I	*
A0000042	202	I	*
A0000043	218	I	*
A0000044	170	I	*
A0000045	194	I	*

Tech: JT

\* A post-test visual inspection of the test item revealed that strap broke near the lock due to testing.

### Classification Key

	Flexible Seals
Rating	Cycles to Failure
High Security (H):	501
Security (S):	251
Indicative (I):	<251



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TYPICAL PHOTO OF THE BENDING TEST SETUP

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## Impact Test and Results

### TEST REQUIREMENT

The impact test shall be conducted in accordance with reference (c).

### TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.  
All testing was performed in accordance with the referenced specification.  
Test chamber conditions: 18.1° C and 56.8% RH

### TEST DATA

Date: 30 June 2022

Impact Test at Room Temperature (required $18 \pm 3^{\circ}\text{C}$ )					
Specimen No.	Number of Successful Impacts Per Load (J)			Class Rating	Remarks
	13.56	27.12	40.68		
A0000046	0	N/A	N/A	I	*
A0000047	0	N/A	N/A	I	*
A0000048	0	N/A	N/A	I	*
A0000049	0	N/A	N/A	I	*
A0000050	0	N/A	N/A	I	*

Tech: JT

\* A post-test visual inspection of the test item revealed that the strap broke off in the lock mechanism due to testing.

### Classification Key

Rating	Load to Failure (5 impacts at each load)	Dead Blow Weight (4 kg) Drop Height
High Security (H):	40.68 J	1.037 m
Security (S):	27.12 J	0.691 m
Indicative (I):	<27.12 J	0.346 m

## Impact Test and Results

Test chamber conditions: -28.0° C and 68.0% RH

TEST DATA – (Continued)

Date: 30 June 2022

Impact Test at Reduced Temperature (required -27 ± 3°C)					
Specimen No.	Number of Successful Impacts Per Load (J)			Class Rating	Remarks
	13.56	27.12	40.68		
A0000051	0	N/A	N/A	I	*
A0000052	0	N/A	N/A	I	*
A0000053	0	N/A	N/A	I	*
A0000054	0	N/A	N/A	I	*
A0000055	0	N/A	N/A	I	*

Tech: JT

\* A post-test visual inspection of the test item revealed that lock mechanism broke while the strap pulled out due to testing

### Classification Key

Rating	Load to Failure (5 impacts at each load)	Dead Blow Weight (4 kg) Drop Height
High Security (H):	40.68 J	1.037 m
Security (S):	27.12 J	0.691 m
Indicative (I):	<27.12 J	0.346 m



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TYPICAL PHOTO OF THE IMPACT TEST SETUP

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Test equipment utilized for the program reported herein was within its assigned interval of calibration. Details are on file at Dayton T. Brown, Inc. and will be made available upon request.



**TEST: FREIGHT CONTAINER MECHANICAL SEAL TESTING**

<u>ITEM</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>DTB NO.</u>	<u>ACCURACY</u>	<u>CAL DUE DATE</u>	<u>LAST CAL DATE</u>
THERMOTRON, 275	THERMOTRON	FX-82-CHV-25-25	04E-006	-	N.C.R.	-
CONDITIONING ROOM	DAYTON T. BROWN	N/A	04S-001	-	N.C.R.	-
TEST FIXTURE, CABLE SEAL BEND WITH COUNTER	DAYTON T. BROWN	JB-2	04S-013	-	N.C.R.	-
RECORDER, CHART TRULINE	HONEYWELL	DR4500	12-12	Type T ± 0.7°F	09/18/2022	09/20/2021
LOGGER, RH AND TEMPERATURE	FLUKE	1620A	12-39	59 to 95°F ± 0.75°F; 10 to 70% RH ± 2% RH	01/01/2023	01/06/2022
Tape Measure, 26 feet/8 meters	STARRETT	TX1-26ME	15-100	± 1 mm	05/21/2023	05/24/2022
CONTROLLER, ENVIRONMENTAL SYSTEM	JC SYSTEMS	620	25-55	RTD ± 1.08°F; RH ± 1% RH	03/12/2023	03/18/2022
TESTER, UNIVERSAL TENSILE W/STATIC LOAD CELLS (2)	INSTRON	5569	29-2	± 1% of reading	06/18/2023	06/20/2022
TRANSMITTER, TEMPERATURE & HUMIDITY	VAISALA	HMT335	31-181	± 1% RH (0 to 90 % RH) ± 1.7% RH (90 to 100 % RH)	07/17/2022	01/18/2022
WEIGHT, DEAD BLOW	DAYTON T. BROWN	JB-1	38-55	± 0.01 kgrams	05/26/2024	06/01/2022
TIMER, DIGITAL	FISHER SCIENTIFIC	14-649-17	47-55	± 8.64 Sec/24 hr	01/22/2023	01/26/2022
IMPACT TESTER, FREIGHT CONTAINER MECHANICAL	DAYTON T. BROWN	ISO 17712:2013	61-10	-	N.C.R.	-
PROTRACTOR, DIGITAL	PRO PRODUCTS	PRO 3600	68-279	± 0.05° (0° to 10°) ± 0.1° (80° to 90°) ± 0.2° (10° to 80°)	12/11/2022	12/17/2021
TAPE MEASURE, 16'5m X 3/4"	LUFKIN	HV1035CME	68-349	± 0.03125"	03/05/2023	03/09/2021
CALIPER, DIGITAL 4"	MITUTOYO	500-195-20	68-466	± 0.001"	07/10/2022	07/10/2021
FIXTURE, BYPASS CUTTING	DAYTON T. BROWN	ISO 17712:2013E	68-494	± 0.1mm	04/02/2023	04/06/2022

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MODEL NO. DMSP 9X22 STRAP SEAL

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