



財團法人金屬工業研究發展中心
機械測試實驗室

40768 台中市工業區 37 路 25 號 TEL : (04)23502169

Metal Industries Research & Development Centre

Mechanical Testing Laboratory

No.25, 37th Road, Industrial Park, Taichung City 40768, Taiwan (R.O.C.)

試驗報告 TEST REPORT



Testing Laboratory

0099

TEST REPORT NO. : N1205030-T01

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Customer :		
	NovaVision, LLC 524 East Woodland Circle Bowling Green, Ohio 43402 USA	
Subject :	Freight containers Mechanical seals classification Testing	
Name of Article :	CABLE SEALS	
Type :		
	NovaVision, LLC	MS-CS3.5X
Received Date :	2024/12/05	
Test Dates :	2024/12/30~2025/01/06	
Date Issued :	2025/01/06	



Chiang Ching-Liu



CHIANG, Ching-Liu

報告簽署人 (Report Authorized Person)

Su, Yuan-Da



SU, Yuan-Da

檢驗員 (Inspector)

Note :

- (1) The operation and testing of MIRDC laboratory are in conformity to the requirements of ISO/IEC 17025 : 2017
(Taiwan Accreditation Foundation, Accreditation No. : 0099)
- (2) This report is responsible for designated samples only.
- (3) Reproduction of all or parts this report without a written approval is strictly prohibited.
- (4) Decision rules of conformance statement of this test report, do not consider uncertainty of measurement.



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1. ABSTRACT

Customer :		
	NovaVision, LLC 524 East Woodland Circle Bowling Green, Ohio 43402 USA	
Name of Article :	CABLE SEALS	
Type :		
	NovaVision, LLC	MS-CS3.5X
Serial No. :	01~25	
Quantity Tested :	25	
Specification No. :	ISO 17712:2013(E)	

Test Item	Section Number	Results
Tensile Test	5.2	See Page 3
Shear Test	5.3	See Page 5
Bending Test	5.4	See Page 6
Impact Test room temp	5.5	See Page 7
Impact Test reduced temp	5.5	See Page 7



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2. Tensile Test :

Testing Instrument : Universal Testing Machine (No.TG0103)

Ambient Temp. : 17°C ; 61% R.H.

Specification No. : ISO 17712:2013(E)

Result :

Tensile Test Section 5.2

The seal was gripped in a tensile machine and a pull force applied.

Specimen No.	Requirement Load to failure	Result kN	Seal classification
01	10.0 kN : High security seal	14.6	High security seal (H)
02	2.27 kN : Security seal	16.6	High security seal (H)
03	< 2.27 kN : Indicative seal	17.2	High security seal (H)
04		13.8	High security seal (H)
05		17.4	High security seal (H)



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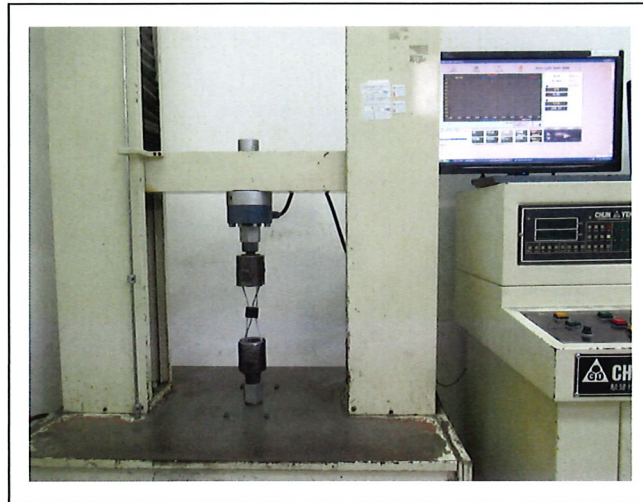
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Universal Testing Machine



Tensile Set up





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3. Shear Test

Testing Instrument : Universal Testing Machine (No.TG0103)

Ambient Temp. : 17°C ; 61% R.H.

Specification No. : ISO 17712:2013(E)

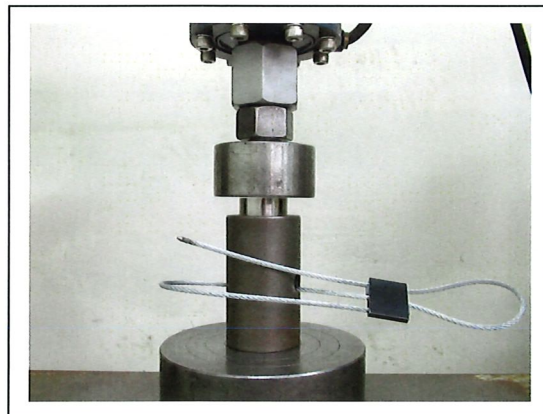
Result :

Shear Test Section 5.3

The seal was fixed in a universal testing machine to withstand cutting with shearing blades and a compressive load applied slowly until the seal is severed.

Specimen No.	Requirement Load to failure	Result kN	Seal classification
06	3.336 kN : High security seal	7.326	High security seal (H)
07	2.224 kN : Security seal	7.377	High security seal (H)
08	<2.224 kN : Indicative seal	7.104	High security seal (H)
09		6.892	High security seal (H)
10		7.227	High security seal (H)

Shear Set up



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



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4. Bending Test

Testing Instrument : Bending Tester

Ambient Temp. : 18°C ; 67% R.H.

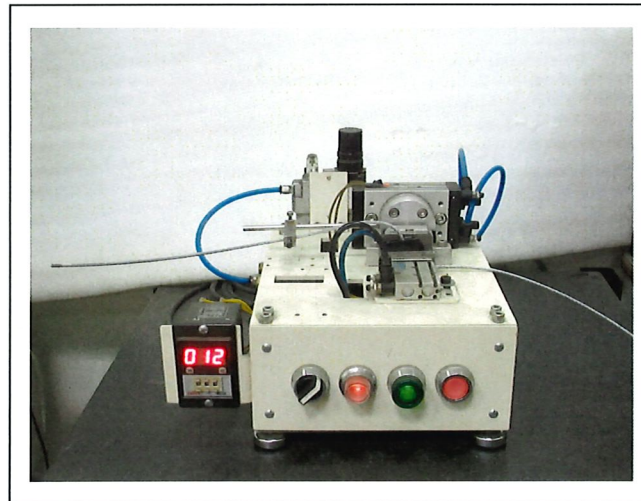
Specification No. : ISO 17712:2013(E)

Result :

Bending Test Section 5.4

Fix the locking end and flex the material adjacent to this fixed end repeatedly through an arc of 180° until failure

Specimen No.	Requirement Cycles to failure	Result Cycles	Seal classification
11	501 : High security seal	> 501	High security seal (H)
12	251 : Security seal	> 501	High security seal (H)
13	<251 : Indicative seal	> 501	High security seal (H)
14		> 501	High security seal (H)
15		> 501	High security seal (H)



Bend Set up



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5. Impact Test

Testing Instrument :

5.1. Impact Tester

5.2. Programmable Low Temp. Tester (No.SG5501)

Specification No. : ISO 17712:2013(E)

Impact Test Section 5.5

The impact test is performed at 18 degrees C and minus 27 degrees C of temperature.

The impact load is applied at the locking mechanism of the seal in the direction opposite the direction used in locking the seal.

Result :

Impact Test at 18±3°C					
Specimen No.	Requirement	Result Joule			Seal classification
		13.56	27.12	40.68	
16	40.68J : High security seal	Pass	Pass	Pass	High security seal (H)
17	27.12J : Security seal	Pass	Pass	Pass	High security seal (H)
18	<27.12J : Indicative seal	Pass	Pass	Pass	High security seal (H)
19	5 impacts at each load	Pass	Pass	Pass	High security seal (H)
20		Pass	Pass	Pass	High security seal (H)

Impact Test at -27±3°C					
Specimen No.	Requirement	Result Joule			Seal classification
		13.56	27.12	40.68	
21	40.68J : High security seal	Pass	Pass	Pass	High security seal (H)
22	27.12J : Security seal	Pass	Pass	Pass	High security seal (H)
23	<27.12J : Indicative seal	Pass	Pass	Pass	High security seal (H)
24	5 impacts at each load	Pass	Pass	Pass	High security seal (H)
25		Pass	Pass	Pass	High security seal (H)



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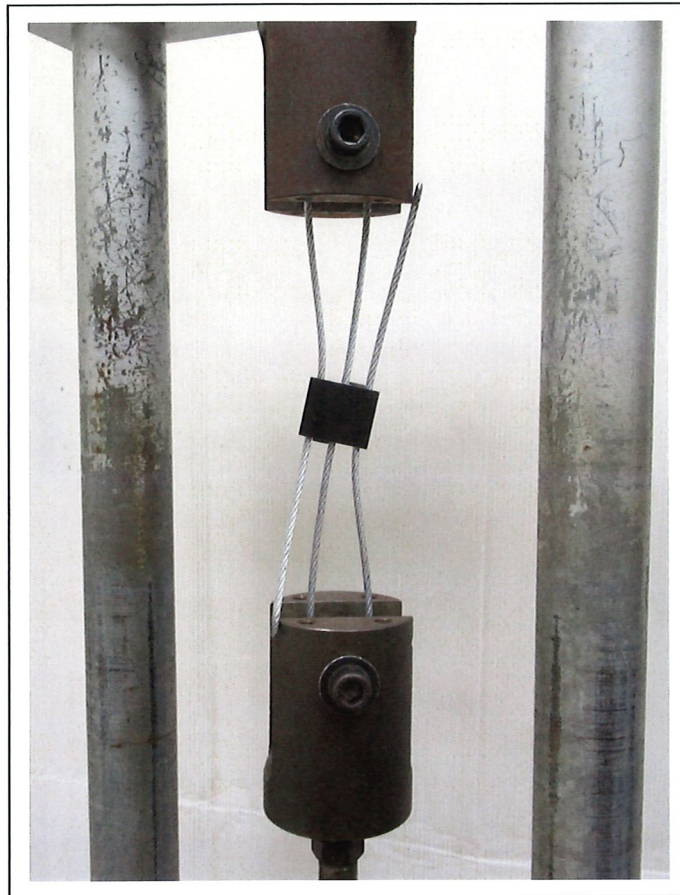
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Impact Set up



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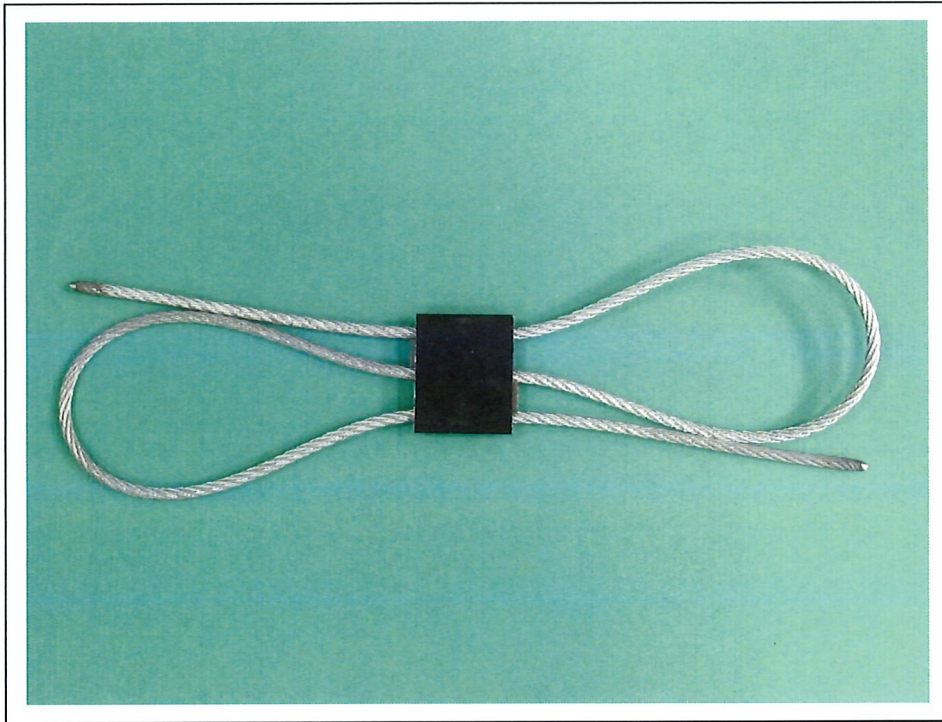
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CABLE SEALS

Type		
	NovaVision, LLC	MS-CS3.5X

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