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.)

Testing Laboratory
0099

Date：2019/05/30
Accreditation No.：108TD0530-122-C01

Certificate of Conformance for Freight Container Mechanical Seal Testing
Seal Classification: High Security Seal

Customer：
TamperSeals Packing (Shenzhen) Co., Ltd.
B Bldg, No. 19 Genyu Rd, Yulv Ind. Area, Guangming Dist., 518132 Shenzhen, China.
深圳市特希尔防伪科技有限公司
深圳市光明新区玉律区根玉路 19 号 B 栋四楼
Name of Article：High Security Bolt Seals
Type：HSS-011
Serial No.：01~26
Specification No.：ISO 17712:2013(E)
Test Dates：2019/05/21~2019/05/29

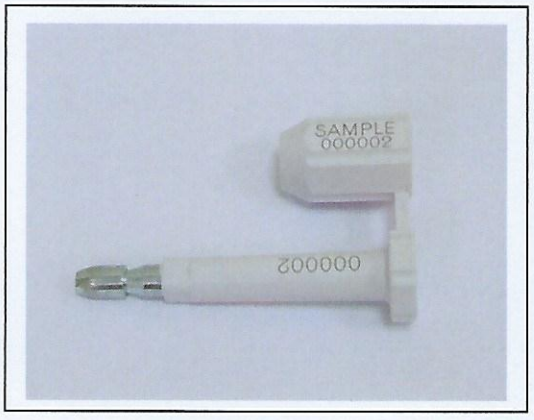
MIRDC ,Certifies that 26 samples, 5 for each test and 1 for measurements, of the seal referenced above were subjected to the following tests.

Test Item	Section Number	Classification
Evidence of Tampering (Minimum Diameter)	4.1.3	Pass
Tensile Test	5.2	High security seal (H)
Shear Test	5.3	High security seal (H)
Bending Test	5.4	High security seal (H)
Impact Test room temp	5.5	High security seal (H)
Impact Test reduced temp	5.5	High security seal (H)

Results： The above listed tests were completed with no discrepancies noted. Refer to test report number I0520122-T01 for complete details.

The test results contained herein pertain only to the specimens listed in this report. This report shall not be reproduced, except in full, without the written approval of MIRDC

Approved Signatory： CHIANG, Ching-Liu	Chiang Ching Liu
Engineer： SU, Yuan-Da	Su. Yuan-Da



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Test Report No. : I0520122-T01　　Page 1 of 10

Customer：
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B Bldg, No. 19 Genyu Rd, Yulv Ind. Area, Guangming Dist., 518132 Shenzhen, China.
深圳市特希尔防伪科技有限公司
深圳市光明新区玉律区根玉路 19 号 B 栋四楼
SUBJECT：Freight containers Mechanical seals classification Testing
Name of Article：High Security Bolt Seals
Type：HSS-011
Received Date：2019/05/20
Test Dates：2019/05/21~2019/05/29
Date Issued：2019/05/30

METAL INDUSTRIES RESEARCH & DEVELOPMENT CENTRE 金屬工業研究發展中心 光機電組

CHIANG, Ching-Liu
報告簽署人 (Report Authorized Person)

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 17025：2005
(Taiwan Accreditation Foundation , Accreditation No.：0099)
(2) This report is responsible for designated samples only.
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1. ABSTRACT

Customer：
TamperSeals Packing (Shenzhen) Co., Ltd.
B Bldg, No. 19 Genyu Rd, Yulv Ind. Area, Guangming Dist., 518132 Shenzhen, China.
深圳市特希尔防伪科技有限公司
深圳市光明新区玉律区根玉路 19 号 B 栋四楼

Name of Article：High Security Bolt Seals

Type：HSS-011

Serial No.： 01~26

Quantity Tested：26

Inspection Reference：ISO 17712:2013(E)

Test Item	Section Number	Serial No.	Results
Evidence of Tampering (Minimum Diameter)	4.1.3	26	See Page 3
Tensile Test	5.2	01~05	See Page 4
Shear Test	5.3	06~10	See Page 6
Bending Test	5.4	11~15	See Page 7
Impact Test room temp	5.5	16~20	See Page 8
Impact Test reduced temp	5.5	21~25	See Page 8

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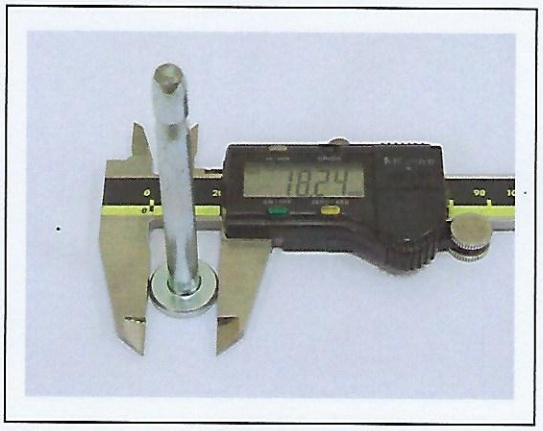
2. Evidence of tampering Test：

Ambient Temp.：20℃；48% R.H.
Inspection Reference：ISO 17712:2013(E)
Result：

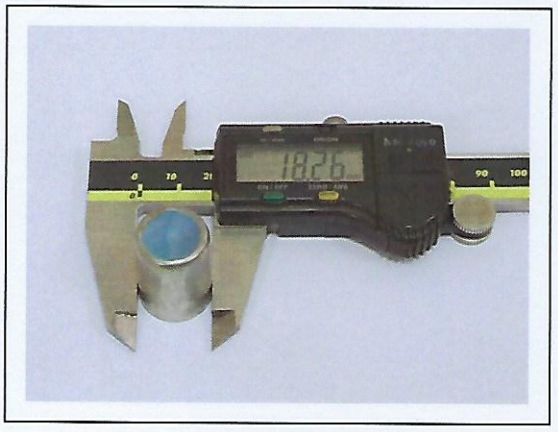
Evidence of tampering **Section 4.1.3**

Specimen No.	Measurement (mm)		Pass/Fail
26	Pin Head	18.24	Pass
	Lock Body	18.26	Pass

Requirement：
The minimum diameter (or minimum widest cross-dimension) for the metal components of a bolt seal shall be 18 mm.



Pin Head



Lock Body

3. Tensile Test ：

Testing Instrument： Universal Testing Machine (No.TG0103)
Ambient Temp.：20℃ ；48% R.H
Inspection Reference：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 2.27 kN：Security seal < 2.27 kN：Indicative seal	16.9	High security seal (H)
02		16.1	High security seal (H)
03		16.9	High security seal (H)
04		16.8	High security seal (H)
05		16.6	High security seal (H)

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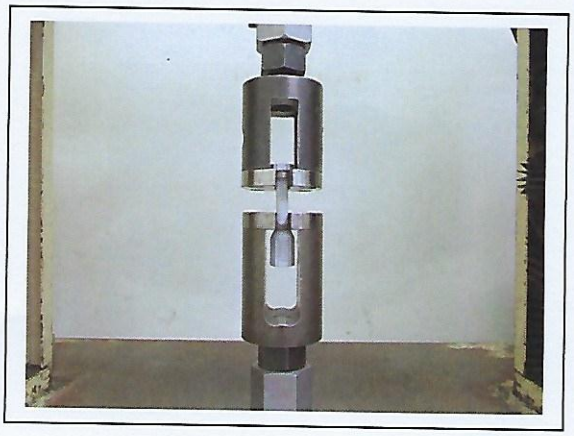
試驗報告 TEST REPORT

Universal Testing Machine

Tensile Set up



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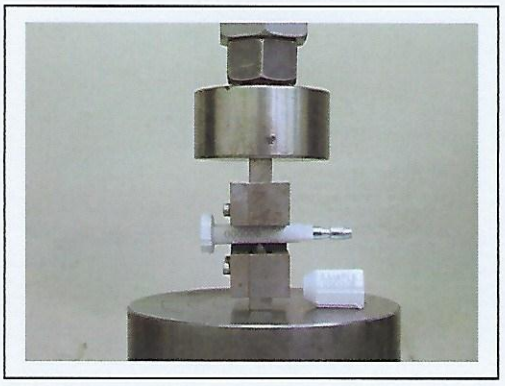
4. Shear Test
Testing Instrument：Universal Testing Machine　(No.TG0103)
Ambient Temp.：20℃；48% R.H.
Inspection Reference：ISO 17712:2013(E)
Result：

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 2.224 kN：Security seal <2.224 kN：Indicative seal	8.896	High security seal (H)
07		8.896	High security seal (H)
08		8.896	High security seal (H)
09		8.896	High security seal (H)
10		8.896	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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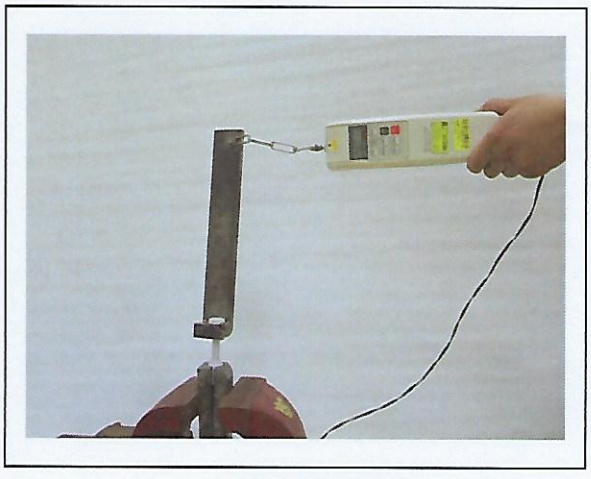
5. Bending Test

Testing Instrument： FORCE GAURE
Ambient Temp.：20℃ ；48% R.H
Inspection Reference：ISO 17712:2013(E)
Result：

Bending Test　Section 5.4

Fix the locking end on the universal testing machine in a horizontal position.
Apply a load on the remaining portion of the seal at a distance (the moment arm) above the fixed end so as to bend the seal 90 degrees.

Specimen No.	Requirement Bending moment to failure	Result Nm	Seal classification
11	50 Nm：High security seal 22 Nm：Security seal < 22 Nm：Indicative seal	57.6	High security seal (H)
12		60.2	High security seal (H)
13		54.8	High security seal (H)
14		57.5	High security seal (H)
15		57.4	High security seal (H)



Bend Set up

6. Impact Test

Testing Instrument：

1. Impact Tester
2. Programmable Low Temp. Tester (No.SG5501)

Inspection Reference：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 ℃					
Specimen No.	Requirement	Result Joule			Seal classification
		13.56	27.12	40.68	
16	40.68J：High security seal 27.12J：Security seal <27.12J：Indicative seal **5 impacts at each load**	Pass	Pass	Pass	High security seal (H)
17		Pass	Pass	Pass	High security seal (H)
18		Pass	Pass	Pass	High security seal (H)
19		Pass	Pass	Pass	High security seal (H)
20		Pass	Pass	Pass	High security seal (H)

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

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Impact Set up

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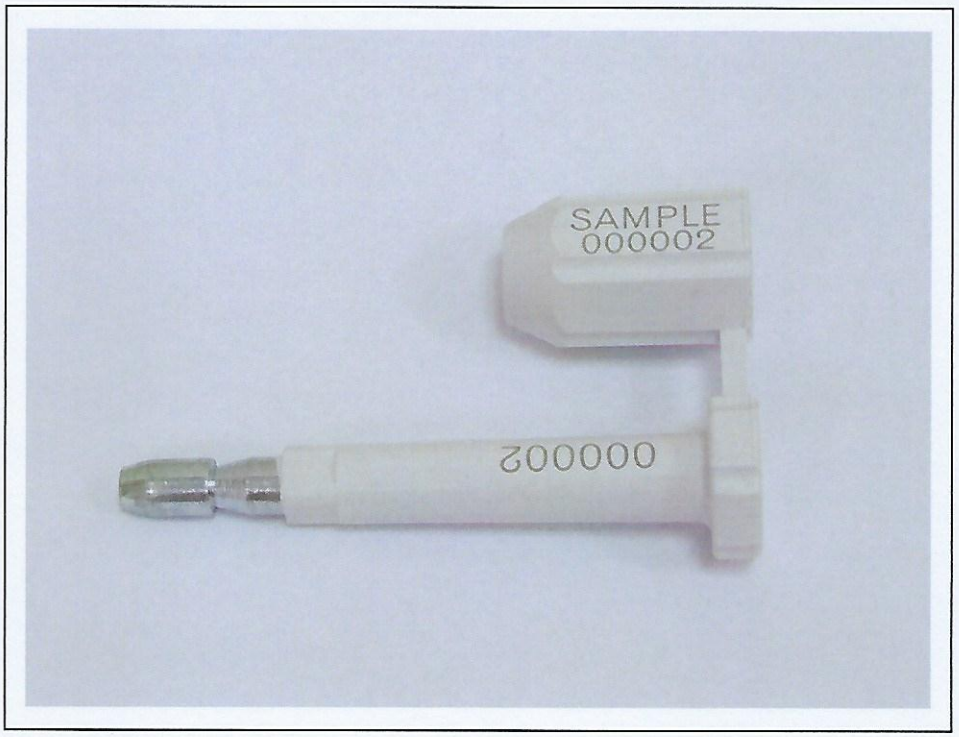

High Security Bolt Seals
Type：HSS-011

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