財團法人金屬工業研究發展中心
機械測試實驗室
台中市西屯區工業區 37 路 25 號　TEL：(04)23502169
Metal Industries Research & Development Centre
Mechanical Testing Laboratory
No.25, 37th Road, Industrial Park, Xitun Dist., Taichung City, Taiwan (R.O.C.)

Testing Laboratory
0099

Date：2026/09/04
Accreditation No.：115TD0904-089-C01

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

Customer：
Unisto AG
Seestrasse 7, CH-9326 Horn, Switzerland
Name of Article: Unisto Novus Bolt Seals
Type: Novus 1
Serial No.：01~26
Specification No.：ISO 17712:2013(E)
Test Dates：2026/08/17~2026/08/31

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

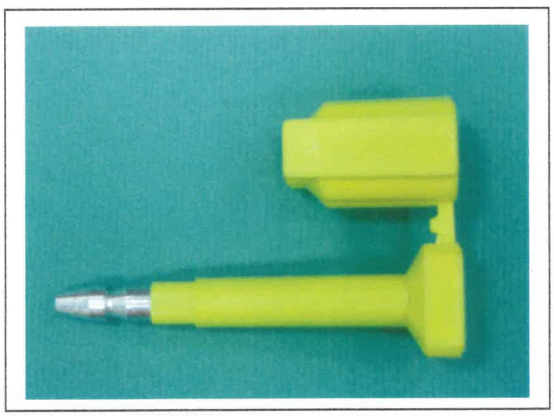
Test Item	Section Number	Classification
Evidence of Tampering (Minimum Diameter)	4.1.3	Pass
Tensile Test	5.2	High security seal (H)
Shear Test	5.3	High security seal (H)
Bending Test	5.4	High security seal (H)
Impact Test room temp	5.5	High security seal (H)
Impact Test reduced temp	5.5	High security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

Remarks：As per ISO17712:2013(E) Clause 5.1.2 "Testing is to be done once every two years". Therefore, this report expires two years from the test completion date.

Results：The above listed tests were completed with no discrepancies noted. Refer to test report number P0817089-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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試驗報告 TEST REPORT

Testing Laboratory
0099

Customer：
Unisto AG
Seestrasse 7, CH-9326 Horn, Switzerland

SUBJECT：Freight containers Mechanical seals classification Testing

Name of Article: Unisto Novus Bolt Seals

Type: Novus 1

Received Date：2026/08/17

Test Dates：2026/08/17~2026/08/31

Date Issued：2026/09/04

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：
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(4) Decision rules of conformance statement of this test report, do not consider uncertainty of measurement.

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試驗報告 TEST REPORT

1. ABSTRACT

Customer：

Unisto AG

Seestrasse 7, CH-9326 Horn, Switzerland

Name of Article: Unisto Novus Bolt Seals

Type: Novus 1

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

2. Evidence of tampering Test：

Ambient Temp.：19°C；69% 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	18.21	Pass
	Lock Body	18.14	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.：19℃；69% 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	16.0	High security seal (H)
02		16.5	High security seal (H)
03		16.1	High security seal (H)
04		17.0	High security seal (H)
05		17.0	High security seal (H)

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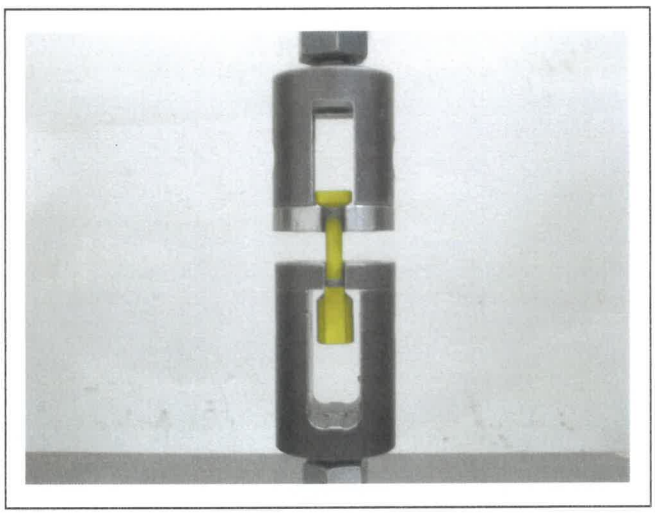
試驗報告 TEST REPORT

Universal Testing Machine

Tensile Set up



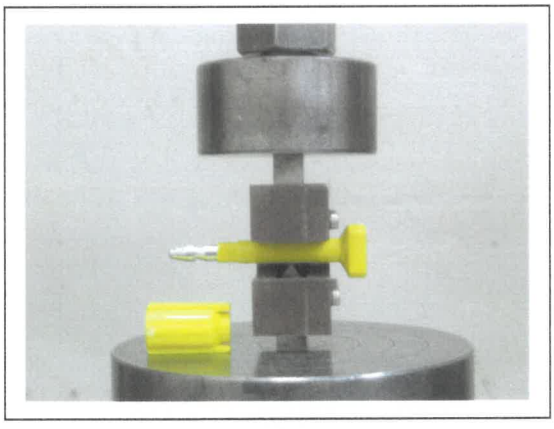
4. Shear Test
Testing Instrument：Universal Testing Machine (No.TG0103)
Ambient Temp.：19°C；69% R.H.
Inspection Reference：ISO 17712:2013(E)
Result：

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.

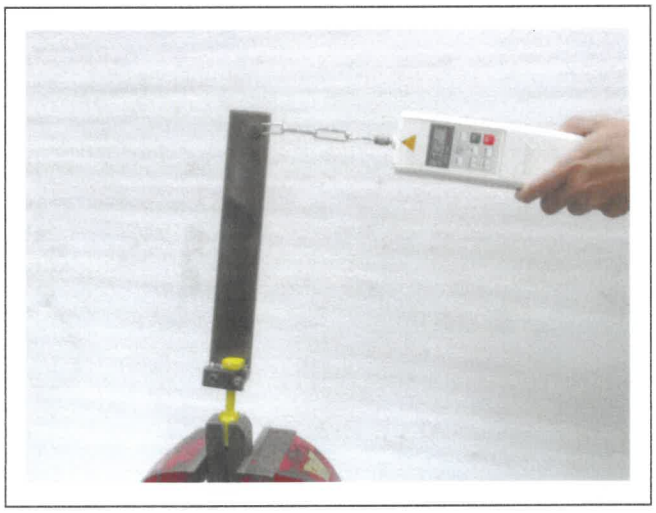
5. Bending Test

Testing Instrument：Force Gauge
Ambient Temp.：19℃；70% 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 N·m	Seal classification
11	50 N·m：High security seal 22 N·m：Security seal < 22 N·m：Indicative seal	61.3	High security seal (H)
12		61.3	High security seal (H)
13		59.9	High security seal (H)
14		59.6	High security seal (H)
15		63.8	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 Celsius and minus 27 degrees Celsius 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.

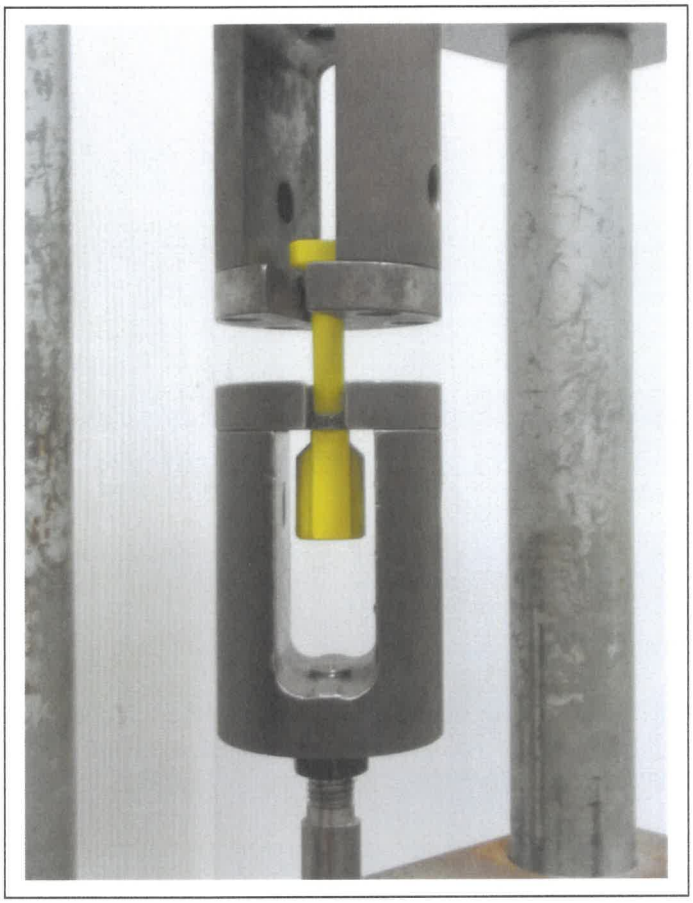
Result：

Impact Test at 18±3°C

Specimen No.	Requirement	Result Joule			Seal classification
		13.56	27.12	40.68	
16	40.68 J：High security seal 27.12 J：Security seal < 27.12 J：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±3°C

Specimen No.	Requirement	Result Joule			Seal classification
		13.56	27.12	40.68	
21	40.68 J：High security seal 27.12 J：Security seal < 27.12 J：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)



Impact Set up

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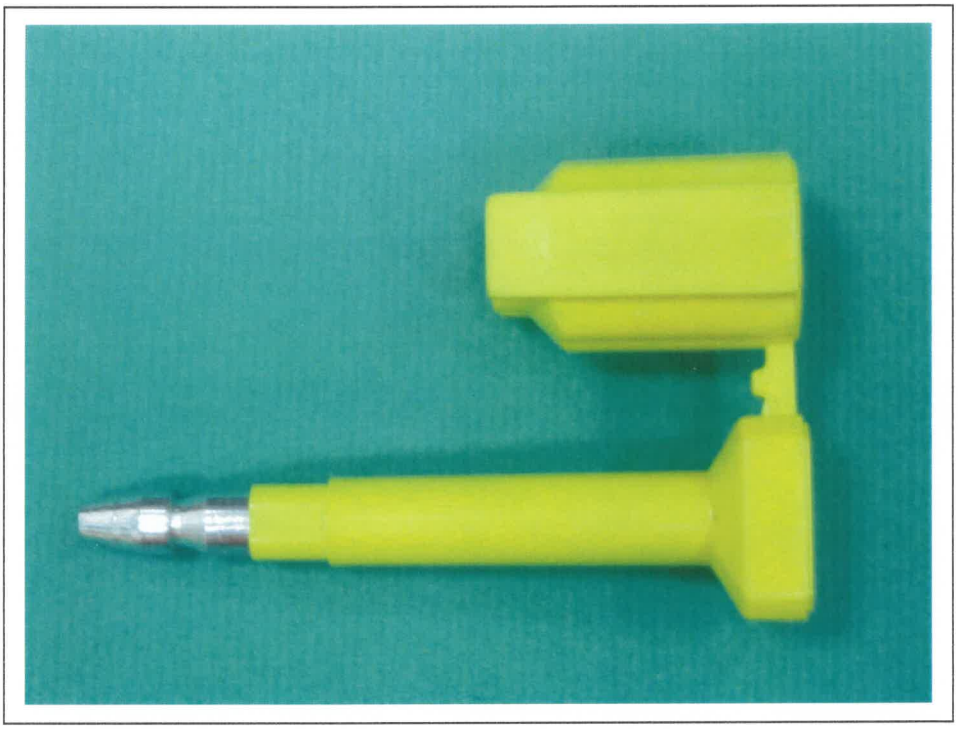

Name of Article：Unisto Novus Bolt Seals

Type：Novus 1

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試驗報告 TEST REPORT

Customer：
Unisto AG
Seestrasse 7, CH-9326 Horn, Switzerland

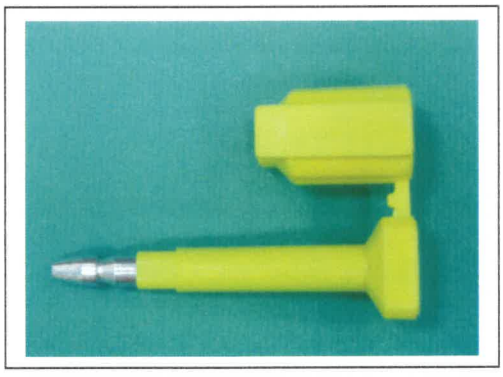
檢測編號：P0817089-T02
Application No
收件日期：2026/08/17
Received Date
試驗日期：2026/09/02
Test Date
簽發日期：2026/09/04
Date Issued

(1).試樣名稱 Name of Article：Unisto Novus Bolt Seals
(2).型號 Type：Novus 1
(3).試驗項目 Test Item：抗旋轉測試 Anti-rotation test
(4).測試規範 Inspection Reference：CNS 17712 (2014) 5.1.2
(5).測試方法 Testing method：子彈型封條以手動進行扭轉測試,於鎖桿插入鎖座扣合上鎖後,組合元件於未使用工具時,以相反方向旋轉或扭轉。
The Bolt seals will undergo rotation test manually. And after the locking mechanism of the seal is locked, it will be turned or twisted in opposite direction by hand without using any tools.
(6).試驗結果 Result：

抗扭轉 Anti-rotation	扭轉角度 Rotation angle	
有效/無效 Valid /fail	測試值 Test result	規範要求 Requirement
有效 Valid	21°	＜360°

判定：符合抗旋轉要求(合格)。
Conclusion：The test sample met the requirement of anti-rotation regulation (Qualified).

原樣品
Sample



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Inspector
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