

**SHANGHAI XINFAN CONTAINER FITTING CO. LTD.**

Room 1-102, No. 333 Hanzhong Road  
Shanghai, P.R. China 200070

ATTN: Bryman Fang

Shipping Seal Testing

Twenty-Five (25) Bold Seals DH-D  
Standard: ISO/IEC PAS 1772 (E) (2006-07-01)

Bodycote Quote Number: NRA800

Bodycote Project Number: 1662-1

Prepared By: CV

Date Prepared: 02/18/08

APPROVED BY:

Rocco Rizzo  
Technical Manager

## **LABORATORY TEST REPORT**

**PROJECT 1662-1**

Product: Bolt Seal DH-D  
**Evaluation #1:** Tensile Test

Material Received: 01/29/08  
Test Date: 01/31/08

Test Method: ISO/IEC PAS 17712(E) (2006-07-01) Section 6.2

Fixturing: Samples were tested using Bodycote fixture built per ISO/IEC PAS 17712(E) (2006-07-01)

Conditioning/Pretreatment: 24 Hours minimum at 22 ± 1°C and 50 ± 5% RH

Temperature and Humidity: 22°C and 49% RH

Deviation from Standard: None

Tensile Machine: United Model STM-20 MIIBO9093

Load Cell: United, United 20K, Static Load Cell MIIBO9359

Crosshead Speed: 305 mm/min

Evaluation: Peak Load (kN) when seal opens or breaks

mm/min: Millimeter/minute

kN: Kilonewtons

Tensile Test Data: High Security Seal Requirement: 10 kN minimum

ID	Peak Load (kN)
<b>Bold Seals DH-D</b>	
Sample 1	19.1
Sample 2	18.5
Sample 3	18.4
Sample 4	20.2
Sample 5	19.6

**LABORATORY TEST REPORT****PROJECT 1662-1**

Product: Bolt Seals DH-D

**Evaluation #2:** Shear Test

Material Received: 01/29/08  
Test Date: 01/31/08

Test Method: ISO/IEC PAS 17712(E) (2006-07-01) Section 6.3

Fixturing: Samples were tested using Bodycote fixture built per ISO/IEC PAS 17712(E) (2006-07-01)

Conditioning/Pretreatment: 24 Hours minimum at  $22 \pm 1^\circ\text{C}$  and  $50 \pm 5\%$  RH

Temperature and Humidity: 22-23°C and 47-49% RH

Deviation from Standard: None

Tensile Machine: United Model STM-20MIIB09093

Load Cell: United, United 20K Static Load Cell MIIB9359

Crosshead Speed: 305 mm/min

Evaluation: Peak Load (kgf) when seal is severed

mm/min: Millimeter/minute

kgf: Kilogram force

Shear Test Data: High Security Seal Requirement: 341 kgf minimum

ID	Peak Load (kgf)
<b>Bold Seals DH-D</b>	
Sample 1	1824
Sample 2	2044
Sample 3	2040
Sample 4	1961
Sample 5	2207

**LABORATORY TEST REPORT**

**PROJECT 1662-1**

Product: Bolt Seals DH-D

**Evaluation #3:** Bending Test – Rigid Seal

Material Received: 01/29/08

Test Date: 01/31/08

Test Method: ISO/IEC PAS 17712(E) (2006-07-01) Section 6.4

Fixturing: Samples were tested using Bodycote fixture built per ISO/IEC PAS 17712(E) (2006-07-01)

Procedure: Fix the locking end and flex the seal through an arc of 90°.

Temperature and Humidity: 22 ± 5°C and 50 ± 20% RH

Conditioning/Pretreatment: None

Deviation from Standard: None

Evaluations: Visual examination for damage and or loss of function.  
Maximum Torque in Nm

Nm: Newton-meter

Bending Test Data: High Security Requirements: 50 Nm minimum.

ID	Max Torque (Nm)
<b>Bold Seals DH-D</b>	
Sample 1	60.2
Sample 2	61.4
Sample 3	63.5
Sample 4	65.5
Sample 5	59.3

**SHANGHAI XINFAN CONTAINER FITTINGS CO., LTD**  
Room 1-102, No. 333 Hanzhong Road  
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ATTN: Bryman Fang

Shipping Lock Testing

Standard: ISO/IEC PAS 17712(E) (2006-07-01)

Bodycote Quote Number: 08-340-2516  
Bodycote Lab Number: 1960

Prepared By: TRB  
Date Prepared: 03/10/08

*Rocco Rizzo*

Rocco Rizzo  
Technical Manager

Signed for and on behalf of  
Bodycote Materials Testing, Inc.

**LABORATORY TEST REPORT****LAB #1960**

**Evaluation #1:** Impact Test

Test Date: 03/05/08

Test Method: ISO/IEC PAS 17712(E) (2006-07-01) Section 6.5

Fixturing: Samples were tested using Bodycote fixture built per ISO/IEC PAS 17712(E) (2006-07-01)

Conditioning/Pretreatment: 4 hours at  $-27 \pm 2^{\circ}\text{C}$   
4 hours at  $18 \pm 2^{\circ}\text{C}$

Temperature and Humidity:  $22 \pm 5^{\circ}\text{C}$  and  $50 \pm 20\% \text{ RH}$

Deviation from Standard: None

Number of Tests: 5 samples at  $18 \pm 2^{\circ}\text{C}$   
5 samples at  $-27 \pm 2^{\circ}\text{C}$

Number of Impacts: 5 per sample per Impact Energy

Impact Energies: 13.56 Joules  
27.12 Joules  
40.68 Joules

Evaluation: Visual examination for damage and or loss of function.

**LABORATORY TEST REPORT**

**LAB #1960**

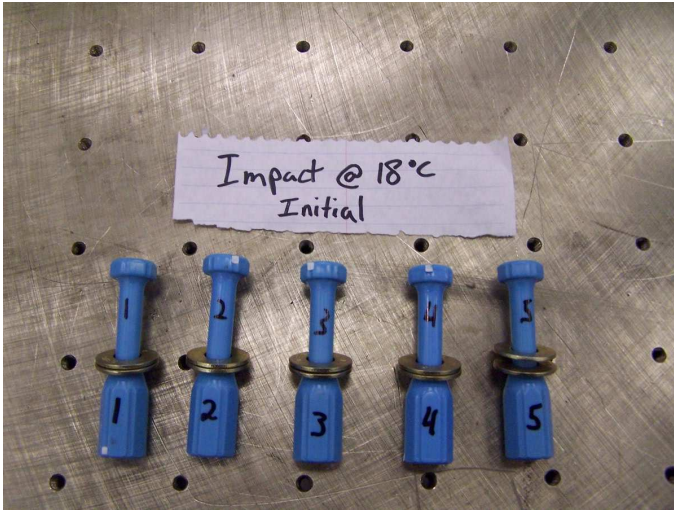
Impact Test - Shipping Locks Test Data: **High Security Seal Requirement: Impact Load – 40.68 Joules**

Sample	Visual Examination		
	13.56 Joules	27.12 Joules	40.68 Joules
<b>At 18 ± 2°C</b>			
Sample 6	No Issues	No Issues	No Issues
Sample 7	No Issues	No Issues	No Issues
Sample 8	No Issues	No Issues	No Issues
Sample 9	No Issues	No Issues	Sample broke on 5 <sup>th</sup> Impact
Sample 10	No Issues	No Issues	No Issues
<b>At -27 ± 2°C</b>			
Sample 1	No Issues	No Issues	No Issues
Sample 2	No Issues	No Issues	Sample broke on 4 <sup>th</sup> Impact
Sample 3	No Issues	No Issues	Sample broke on 5 <sup>th</sup> Impact
Sample 4	No Issues	No Issues	Sample broke on 5 <sup>th</sup> Impact
Sample 5	No Issues	No Issues	No Issues

## LABORATORY TEST REPORT

LAB #1960

### Test Photographs:



18C Impact Initial



18C Impact Final



-27C Impact Initial



-27C Impact Final