



INTERTEK TESTING SERVICES  
SHENZHEN LTD. GUANGZHOU BRANCH  
Block E, No.7-2 Guang Dong Software Science Park,  
Caipin Road, Guangzhou Science City, GETDD,  
Guangzhou, China 510663

**Intertek Report No. GZ11080428-1R1**

Superseded the report No. GZ11080428-1 dated on November 8, 2011

EVALUATION  
OF  
**AHG2-4540-steel (A8112) , Grade 2 Hinge**  
FOR  
**ANGEL METAL CO., LTD.**  
#1099, WORAM-DONG, DALSEO-GU, DAEGU, SOUTH KOREA

**TEST STANDARD:**

All tests were conducted in accordance with the client's test plan with reference to ANSI/BHMA A156.1:2006 American National Standard for Butts and Hinges.

**TEST SAMPLES:**

Sample identified as Model AHG2-4540-steel (A8112), 4.5"x4.0"x3.4mm, Grade 2, 2 Bearings steel Hinge.

Hinges were received in good condition on July 13, 2011, which manufactured by ANGEL METAL CO., LTD.

**TEST DATES:**

September 5, 2011 to October 28, 2011.

**RESULTS:**

Product **COMPLIED WITH** ANSI/BHMA A156.1 grade 2 requirements.

The attached data are results of the product testing and evaluation.

**Amendment:**

1. The original Report Reference No. GZ11080428-1 dated on November 8, 2011 was modified on August 31, 2012 to add the BHMA Numbers on the report.

Report Prepared By:

Credy Chen  
Engineer  
Intertek

Reviewed By:

Blusea Dong  
Project Engineer  
Intertek

This report is for the exclusive use of Intertek's Clients and is provided pursuant to the agreement between Intertek and its Client.

Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Report No.: GZ11080428-1R1  
ANGEL METAL CO., LTD.  
AHG2-4540-steel (A8112)

ANSI/BHMA A156.1:2006  
Report Date: August 31, 2012  
Page 1 of 4

**DATA SHEETS**  
**ANSI/BHMA 156.1:2006**  
**AMERICAN NATIONAL STANDARD FOR**  
**BUTTS AND HINGES**

Model: AHG2-4540-steel (A8112)  
 Grade: Grade 2  
 Hinge height: 4 1/2 Inch  
 Door Weight: 150 lbs

**5.10 Baseline Measurement (inches)**

	Top	Center	Bottom
<b>Vertical</b>	0.004	0.009	0.012

<b>Lateral</b>	0.045	0.034	0.042
----------------	-------	-------	-------

Comments: \_\_\_\_\_

**5.11 Overload Test** Maximum all grades: .015 inches

Lateral shift: 0.007 inches Status  
Compliant

**5.12 Friction Test (lbf.)**

Friction Requirements Maximum Resistance (lbf.)

Inches	3	3 1/2	4	4 1/2	5	6	8
Gr.1&2	N/A	0.50	0.625	0.75	0.88	1.15	1.50
Gr.3	0.50	0.625	1.00	1.50	1.75	2.00	N/A

	In	Out	Average	Status
Friction (lbf.)	0.58	0.52	0.55	Compliant

**6.1 Cycle Test**

Cycle requirements

Test door weight. 150 lbs.

Grade 1	Grade 2	Grade 3
2,500,000	1,500,000	350,000

Date	Cycle Count	Tech
2011-09-05	0	Blusea
2011-09-11	168,952	Blusea
2011-09-17	337,852	Blusea
2011-09-23	506,989	Blusea
2011-09-29	675,102	Blusea
2011-10-05	843,960	Blusea
2011-10-11	1,013,015	Blusea
2011-10-17	1,181,985	Blusea
2011-10-23	1,351,616	Blusea
2011-10-29	1,500,000	Blusea

**Post Cycle Tests:**

**6.2 Hinge Pin Rise Test**

Hinge pin rise requirements-Maximum all Grades 1/4 inches

Status

Pin rise  inches

**6.4 Vertical and Lateral Wear Test**

Vertical wear requirements - Maximum (inches)

Grade 1	Grade 2	Grade 3
.020 inches	.030 inches	.105 inches

Vertical

Top Center Bottom

Post Test

Status

Total wear

Lateral wear requirements - Maximum all Grades .062 inches

Lateral

Top Center Bottom

Post Test

Status

Total wear

**6.5 Overload Test**

Overload requirements - Maximum all Grades .062 inches

Status

Lateral shift:  inches

**5.12 Friction Test (lbs.)**

In	Out	Average	Status
0.50	0.55	0.53	Compliant

### Product Photo



### Product Drawing

