

PROJECT NUMBER: TCT004140P-2

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DATE: September 20, 2010

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ANSI/BHMA A156.9-2003 PERFORMANCE TESTING

***HINGE PERMANENT SET TEST
HINGE OPERATING LIFE TEST
(P/N 76)**

Prepared for:

**ROCKFORD PROCESS CONTROL
Attn: Mr. Chuck Wilke
2020 Seventh Street
Rockford, IL 61104**

Client Purchase Order Number: 814310

Prepared By:

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**Kyle T. Hall
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The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.

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INTRODUCTION:

This report presents the results of ANSI/BHMA A156.9-2003 testing conducted on a pair of Model #76 hinges. Mr. Chuck Wilke of Rockford Process Control submitted the test samples. Testing was completed on September 20, 2010.

SUMMARY OF RESULTS:

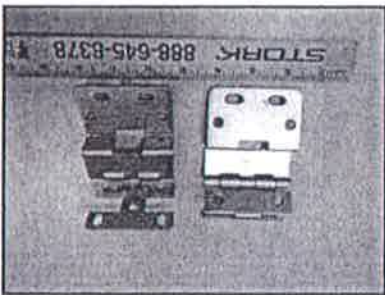
Hinge (P/N 76) was tested in accordance with ANSI/BHMA A156.9-2003 Section 4.2 "Test 1 Hinge Permanent Set Test" and Section 4.3 "Test 2 Hinge Operating Life Cycle Test" and Successfully MET the requirements for a Grade 1 Hinge.

TEST METHODS:

Testing was conducted in accordance with ANSI/BHMA A156.9-2003 Section 4.2 "Test 1 Hinge Permanent Set Test" and Section 4.3 "Test 2 Hinge Operating Life Cycle Test" specifications. Details of the methodology used for the tests are available on the individual test data sheets at the end of this report.

SAMPLE IDENTIFICATION:

The hinges were identified with Part Number 76. A separate pair of hinges were used for each test.

**INSTRUMENTATION:**

Vernier Caliper, MM 160-106
Transducer Techniques Load Cell and Indicator, MM 110-038

REMARKS:

The test specimens will be returned to the client.

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Section 4.2 Test 1 Hinge Permanent Set

ANSI/BHMA A156.9-2003 Section 4.2 "Test 1 Hinge Permanent Set Test"

Sample Identification:

Pair of hinges, P/N 76

Test Summary:

The purpose was to test the ability of the hinges to withstand abnormal loading. Vertical and horizontal measuring devices were positioned on the top of the door, opposite from the center of the hinge. An initial measurement of the elevation of the door was taken at $5^{\circ} \pm 3^{\circ}$ open position. A load of 160-pounds was applied to the door, then operated through 1 full cycle. The load was removed and the door was returned to the initial position and re-measured.

Acceptance Level:

The Horizontal and Vertical displacement shall not exceed 0.03 inches for Grade 1 hinges.

Test Results:

Hinge (P/N 76) met the test requirements.

The Vertical Set was 0.008 inches.

The Horizontal Set was 0.011 inches.

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Section 4.3 Test 2 Hinge Operating Life Test

ANSI/BHMA A156.9-2003 Section 4.3 "Test 2 Hinge Operating Life Test"

Sample Identification:

Pair of hinges, P/N 76

Test Summary:

The hinges were attached to a 40-lb test door per the specifications. Vertical and horizontal measuring devices were positioned on the top of the door, opposite from the center of the hinge. An initial measurement of the door elevation was taken at $5^{\circ} \pm 3^{\circ}$ open position. The door was then operated through 100,000-cycles. The door was returned to the initial position and re-measured.

Acceptance Level:

The maximum horizontal sag shall not exceed 0.02" and maximum vertical sag shall not exceed 0.03 inches for Grade 1 hinges.

Test Results:

Hinge (P/N 76) met the test requirements.

The Vertical Set was 0.010-inches.

The Horizontal Set was 0.007-inches.

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