Test Report No. 7191039503-MEC13-02-DL
dated 8 Feb 2013

PSB Singapore

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SUBJECT: Durability test of shower hinge.

TESTED FOR:
CKS Glass Hardware Sdn Bhd (803232-H)
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Bandar Sri Damansara
52200 Kuala Lumpur, Malaysia
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SAMPLE DESCRIPTION:
Two pieces of shower hinges was received on 16 Jun 2012.
Two pieces of shower hinges is installed onto the door test-rig for test.
The shower hinges is described as follows:

Brand name:	CKS
Model no:	CKS-301 (glass to wall, 90°)
Material:	Solid Brass
Finishing:	Bright Chrome Plated

TECHNICAL DETAILS:
1) Self-closing function when door stays within 25 degree of opening
2) Suitable for 8 mm to 10 mm door thickness
3) Maximum door weight 45 kg per 2 hinges

METHOD OF TEST:
Adopted from BS EN 1935: 2002
Building hardware – single axis hinges – Requirements and test methods
Clause 5.4 (Requirements) and Clause 7.5 (test method)

TEST SEQUENCE:

Clause 7.5 – Durability test

1) At 20 and 60,000 cycles - measure and record the torque required to initiate movement of the hinged leaf at operating angles of 0 ±5°, 30 ±5°,60 ± 5° and 90° ±5°.
2) At 20 and 60,000 cycles - measure and record the initial horizontal and vertical gaps between the hinged element and the datum surfaces.

DATE OF TEST: 12 Nov 2012

David Li
Associate Engineer

Ong Khay Beng
Engineer
Building
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TEST SAMPLE:

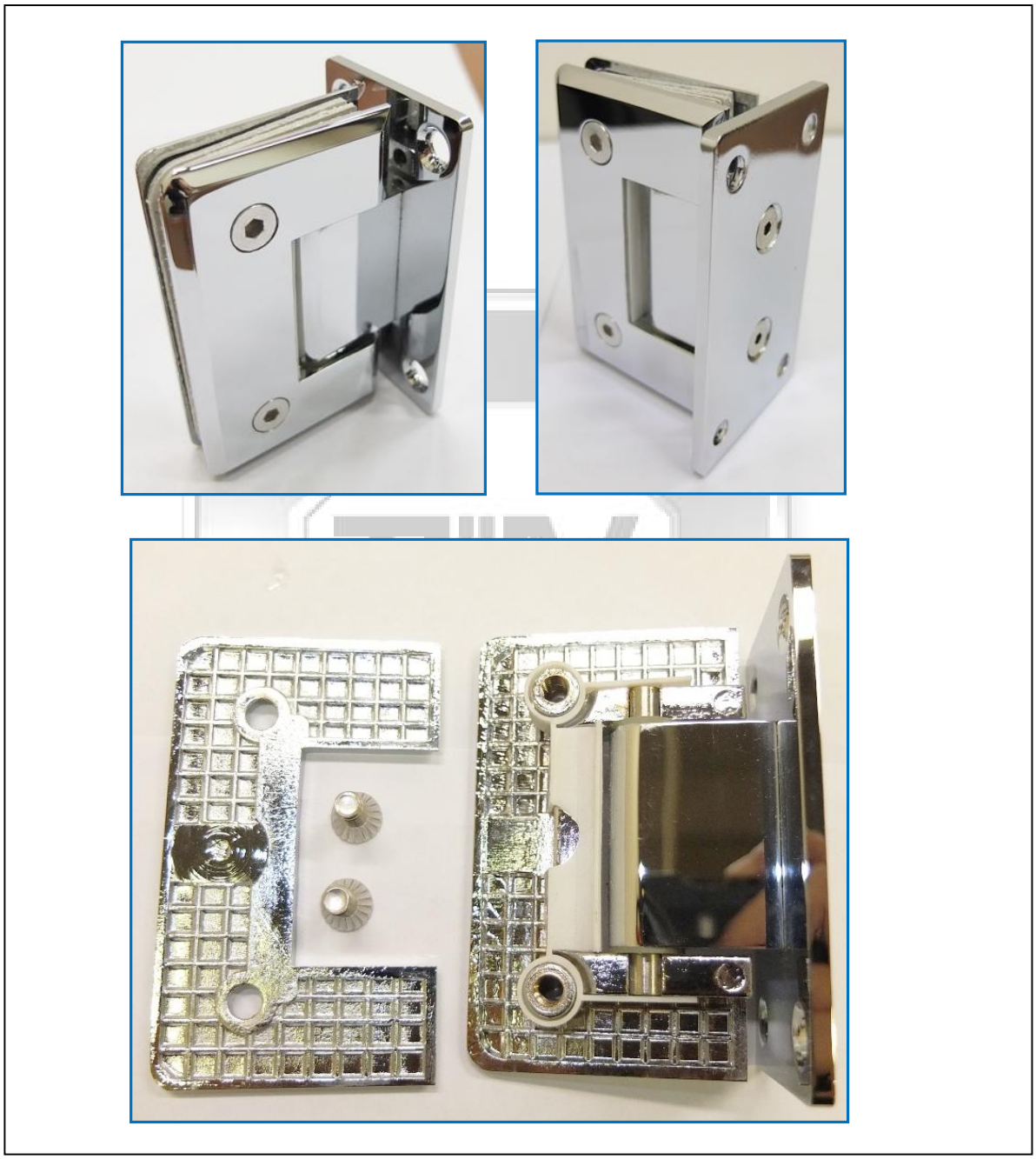


Figure 1: Shower hinge, model: CKS-301 (glass to wall, 90°)
(photo taken before test)

TEST RESULTS:

Date of test: 12 Nov 2012
Door width: 750 mm
Door weight: 45 kg
Glass door thickness: 10 mm

The door used was design according to client's details as given.

1) Torque to initiate movement of the hinged leaf

Door opening	Torque measurement (Nm)	
	Initial at 20 cycles	After 60,000 cycles
0 +5°	3.7	2.9
30 ±5°	8.8	7.4
60 ±5°	4.4	5.9
90 ±5°	5.2	4.4

2) Measurement of horizontal and vertical gaps

	Initial at 20 cycles (mm)	After 60,000 cycles (mm)	Wear measurement (mm)	Results	BS EN 1935: 2002 Clause 5.4 (Requirements)
Horizontal gap	176.06	176.35	0.29	Passed up to 60,000 cycles.	The amounts of lateral and vertical wear of the hinge tested measured as displacements of the datum surfaces shall be within the shaded area as shown in Figure G.2
Vertical gap	282.58	283.25	0.67		

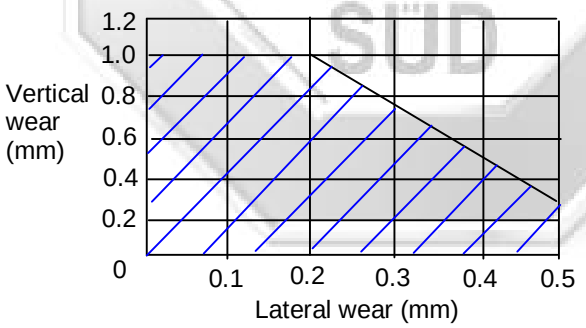


Figure G.2 - Limits of allowable wear in durability test

3) Self-closing functionability test

Test	Initial at 20 cycles	60,000 cycles	Company's Requirement
Self-closing function within 25 degree of opening	operable	operable	Self-closing function shall remains operable when door stays within 25 degree of opening.

Remarks: 1) Door was able to perform self-closing function up to 60,000 cycles.
2) The horizontal & vertical wear maintain within specification up to 60,000 cycles.
3) The shower hinge passed the endurance test up to 60,000 cycles.

TEST SET-UP:

Figure 2: Upper hinge under test (close position)

Figure 3: Lower hinge under test (close position)

Figure 5: Lower hinge under test (open position)

Figure 4: Door in close position

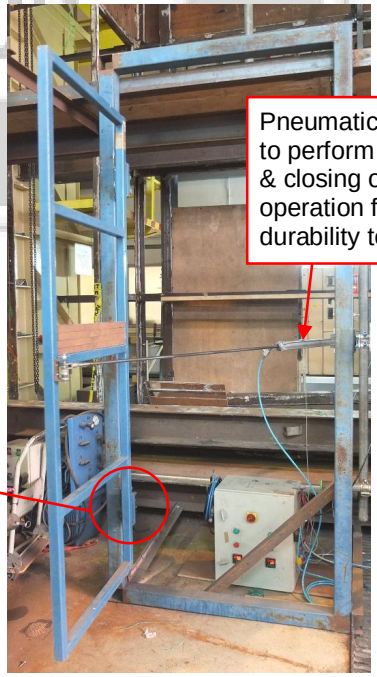


Figure 6: Door in open position (90°)

APPENDIX: PHOTO TAKEN AFTER TEST

Figure 7: Upper hinge after 60,000 cycles of durability test

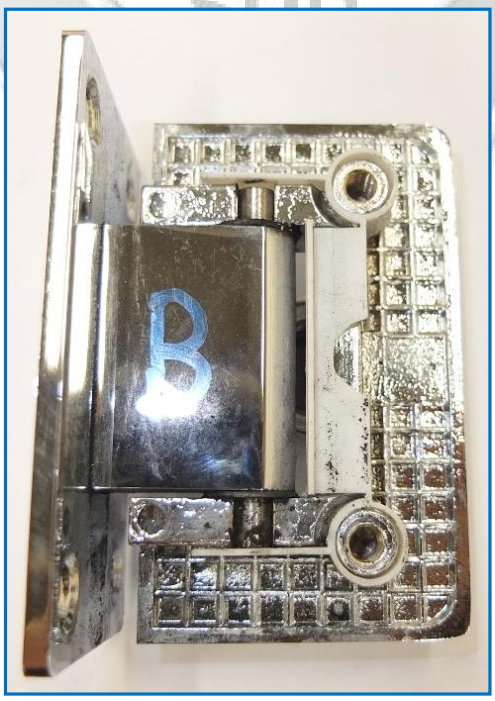
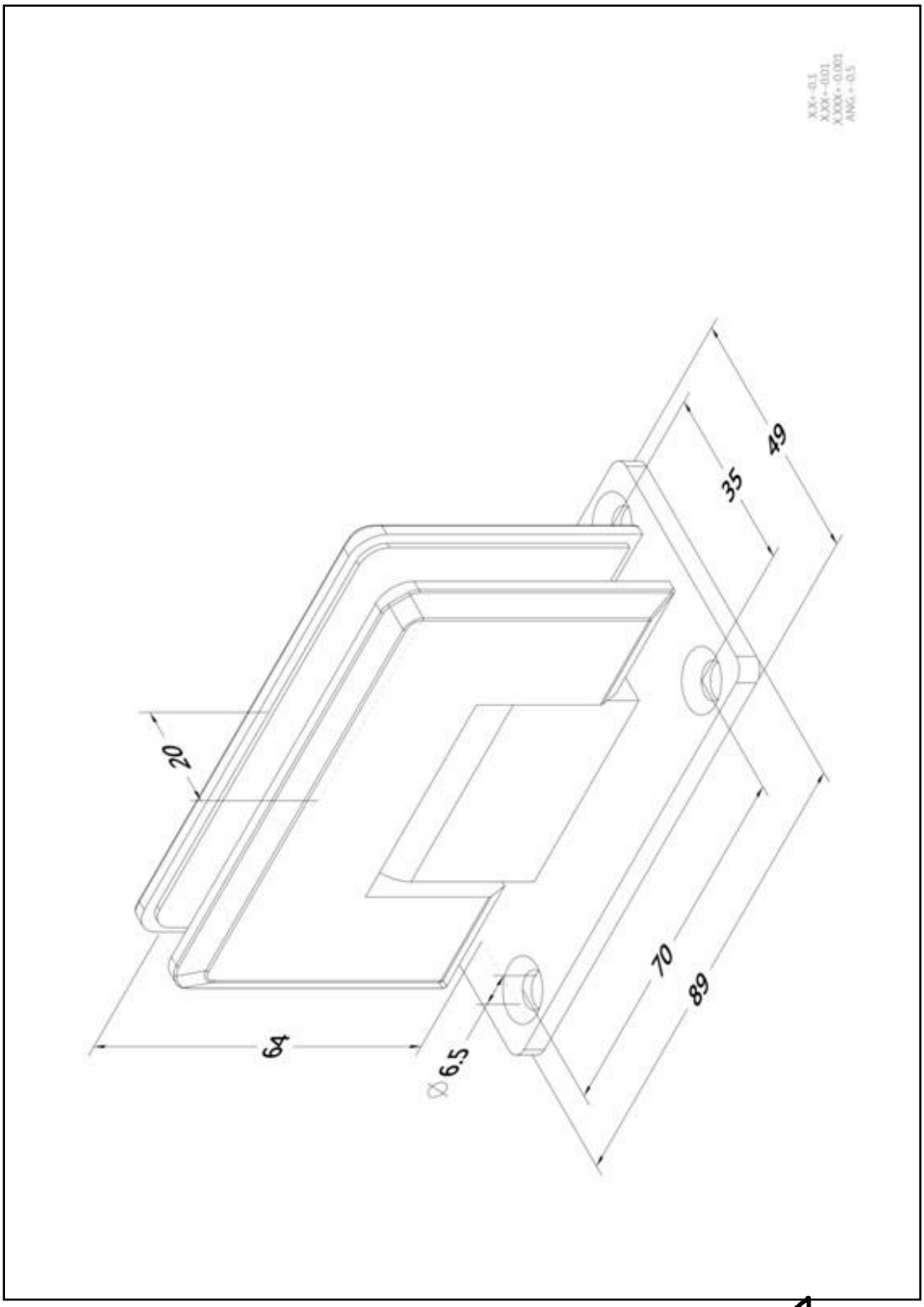


Figure 8: Lower hinge after 60,000 cycles of durability test



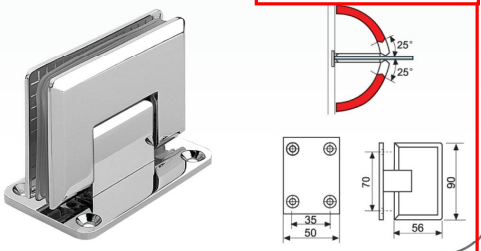
Shower hinge, model: CKS-301 (glass to wall, 90°)

CKS®

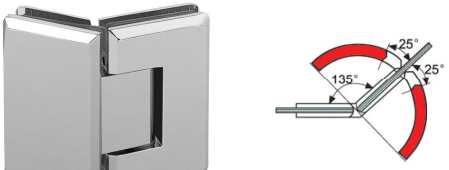
SHOWER HINGES

• CKS-301 Glass to wall

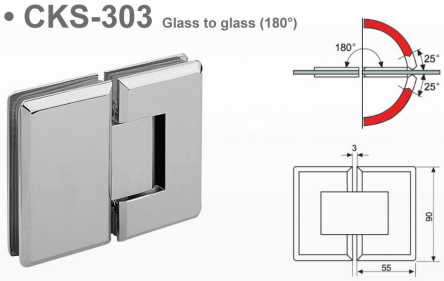
Test Specimen



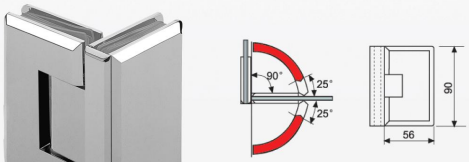
• CKS-302 Glass to glass (135°)



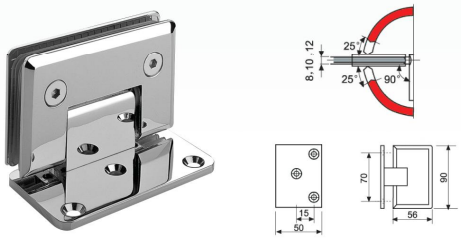
• CKS-303 Glass to glass (180°)



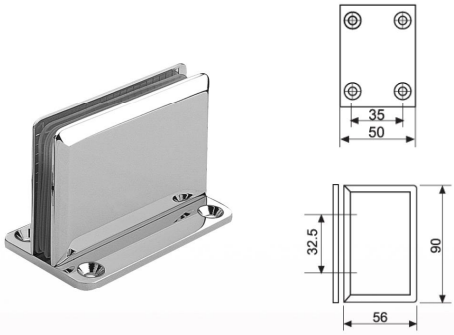
• CKS-304 Glass to glass (90°)

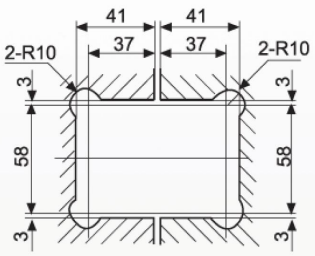


• CKS-305 Glass to wall (offset)



• CKS-306 Glass to wall (fixed)





Self return from 25° (either direction)
Fit for door thickness: 8, 10mm
Door load up to 45kg
Material : Brass, Stainless Steel
Finish : Bright Chrome Plated (CP)
Polished Stainless Steel (PSS)
Satin Stainless Steel (SSS)

Glass preparation detail
(The glass angle of fixed panel need to cut 45° when used in CKS 302 135° hinge)

PSB Singapore

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July 2011