

Test Report No. 7191039503-MEC13-04-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)
No. 37, Jalan Tembaga SD5/2G
Bandar Sri Damansara
52200 Kuala Lumpur, Malaysia
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Fax: 603-6275 8199

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-304 (glass to glass, 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 50,000 cycles - measure and record the torque required to initiate movement of the hinged leaf at operating angles of $0 \pm 5^\circ$, $30 \pm 5^\circ$, $60 \pm 5^\circ$ and $90^\circ \pm 5^\circ$.
- 2) At 20 and 50,000 cycles - measure and record the initial horizontal and vertical gaps between the hinged element and the datum surfaces.

DATE OF TEST: 3 Jan 2013

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TEST SAMPLE:

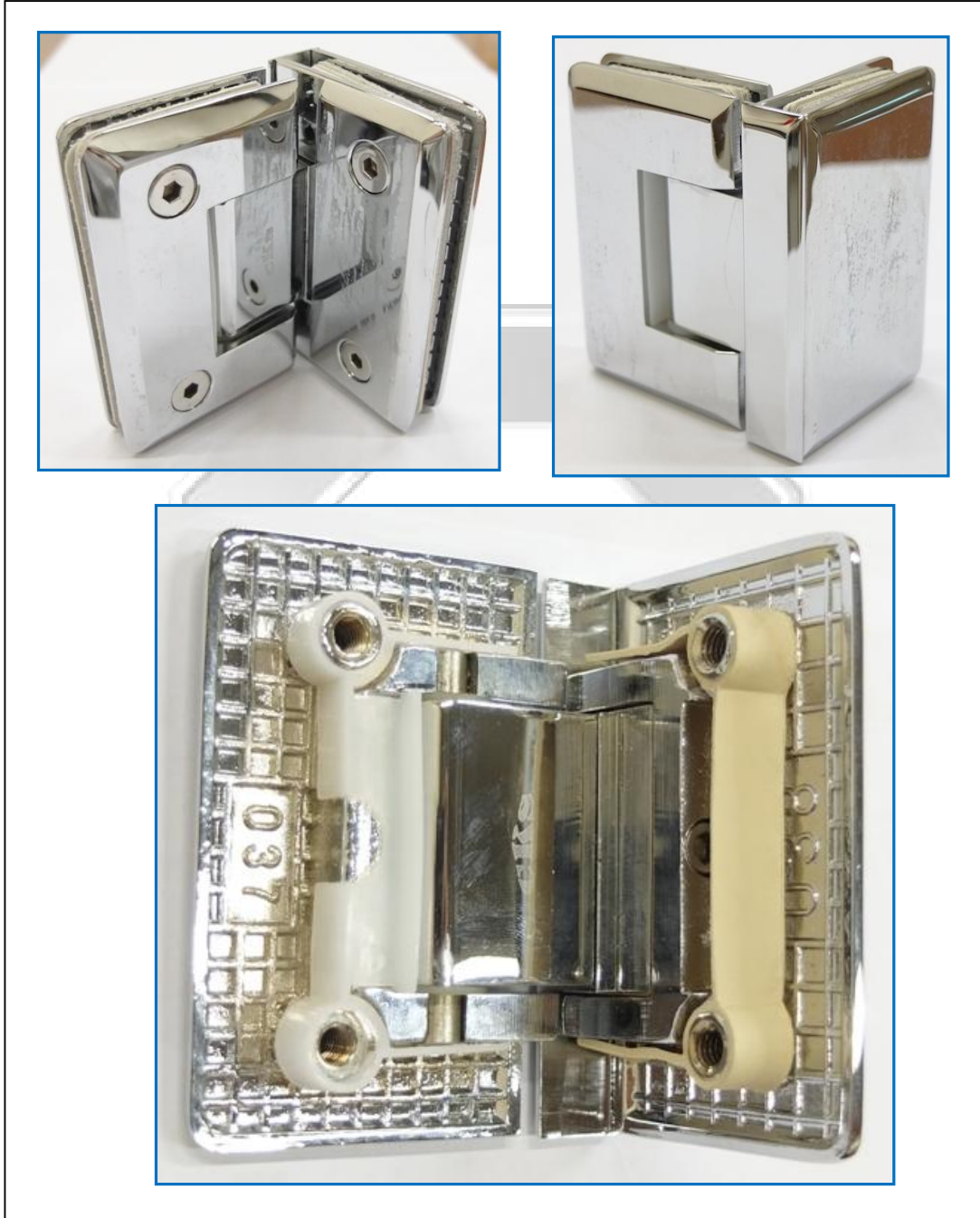


Figure 1: Shower hinge, model: CKS-304 (glass to glass, 90°)
(photo taken before test)





TEST RESULTS:

Date of test: 3 Jan 2013
 Door width: 750 mm
 Door weight: 45 kg
 Glass door thickness: 10 mm

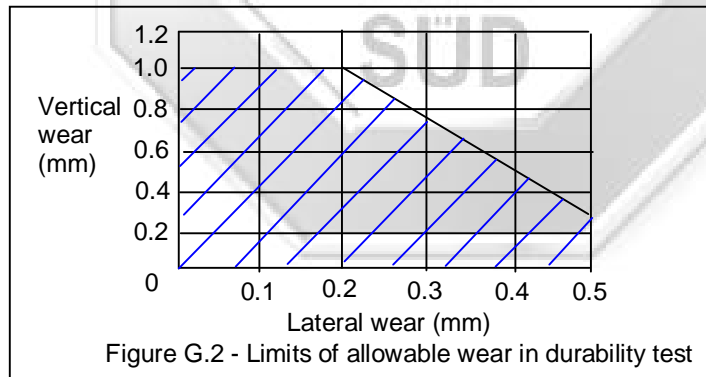
The door used was design according to client's details as given.

1) Torque to initiate movement of the hinged leaf

Door opening	Torque measurement (Nm)	
	Initial at 20 cycles	After 50,000 cycles
0 +5°	2.9	2.2
30 ±5°	10.3	8.1
60 ±5°	5.9	7.4
90 ±5°	5.9	4.4

2) Measurement of horizontal and vertical gaps

	Initial at 20 cycles (mm)	After 50,000 cycles (mm)	Wear measurement (mm)	Results	BS EN 1935: 2002 Clause 5.4 (Requirements)
Horizontal gap	119.12	119.43	0.31	Passed up to 50,000 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	183.02	183.44	0.42		



3) Self-closing functionality test

Test	Initial at 20 cycles	50,000 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 50,000 cycles.
 2) The horizontal & vertical wear maintain within specification up to 50,000 cycles.
 3) The shower hinge passed the endurance test up to 50,000 cycles.

TEST SET-UP:



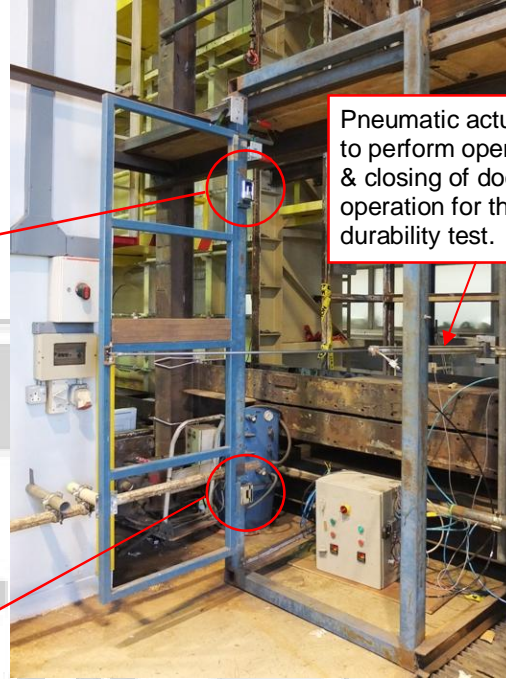
Figure 2: Upper hinge under test
(close position)



Figure 3: Lower hinge under test
(close position)



Figure 5: Lower hinge under test
(open position)



Pneumatic actuator
to perform opening
& closing of door
operation for the
durability test.

Figure 4: Door in close position



Figure 6: Door in open position (90°)



APPENDIX: PHOTO TAKEN AFTER TEST

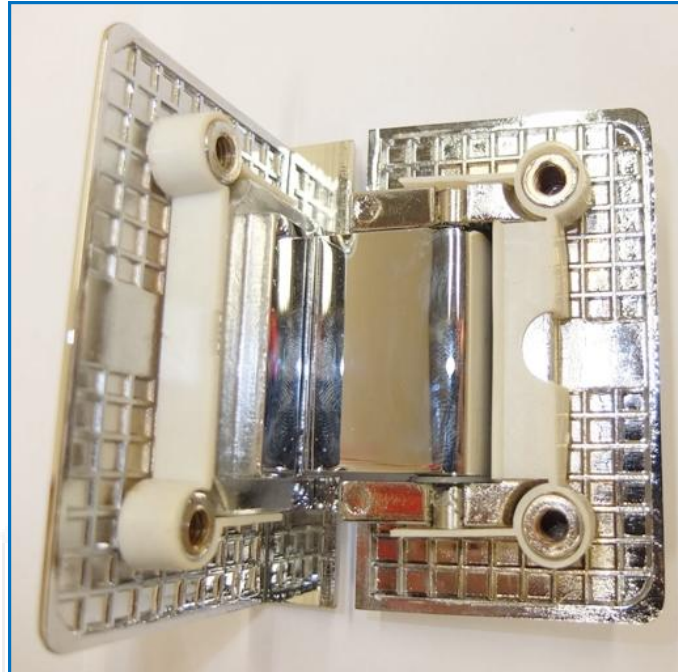


Figure 7: Upper hinge after 50,000 cycles of durability test

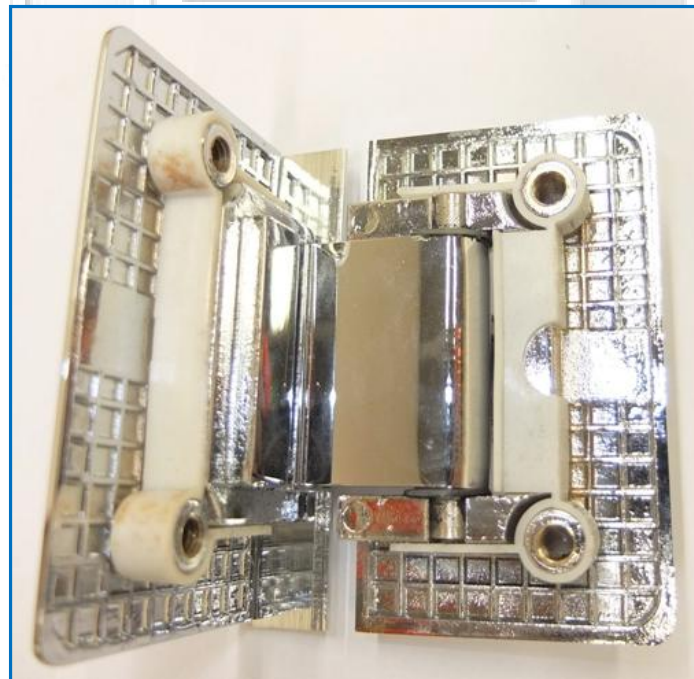
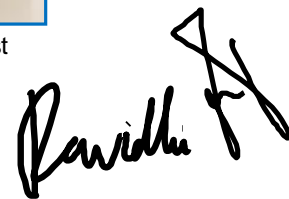
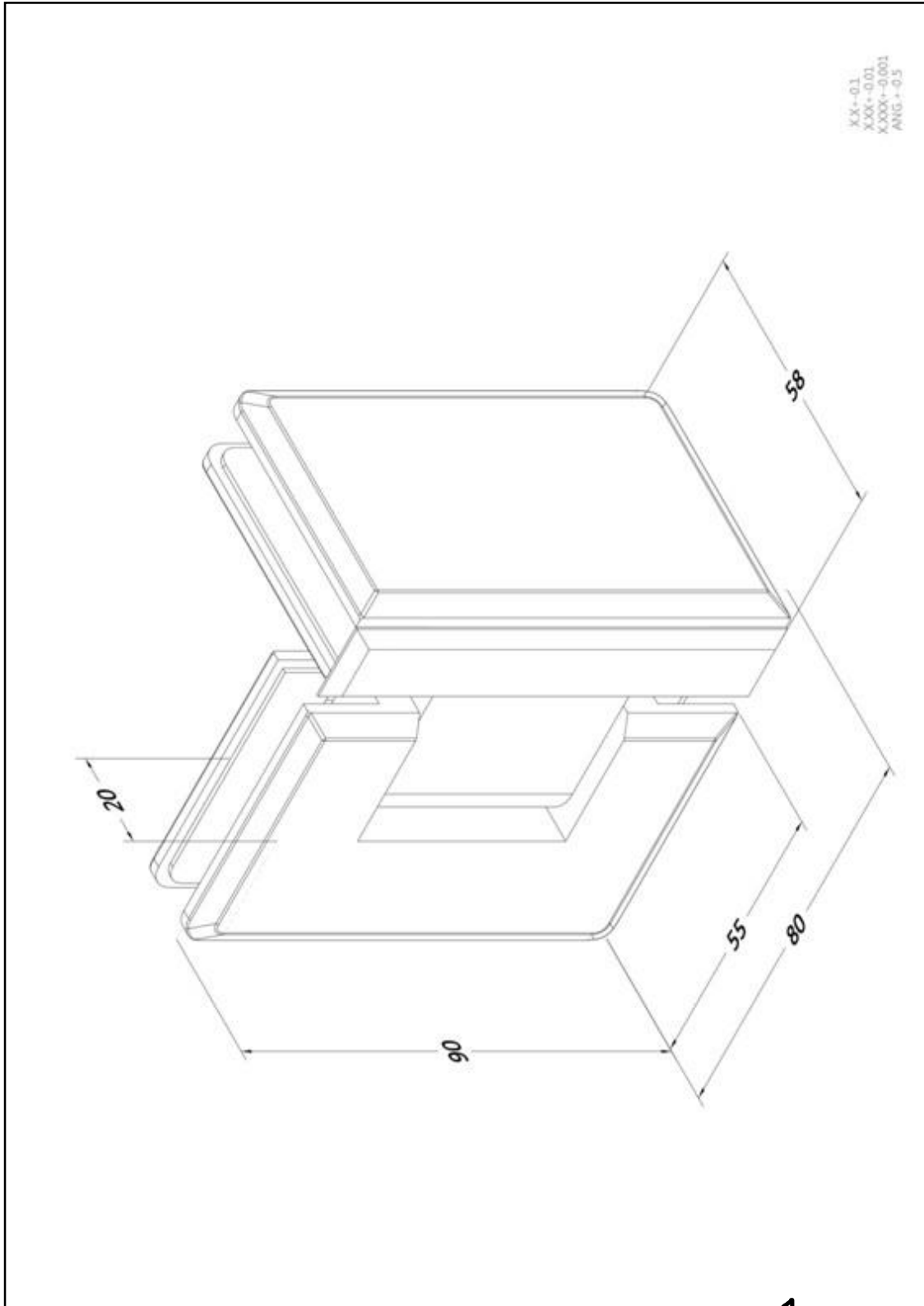


Figure 8: Lower hinge after 50,000 cycles of durability test



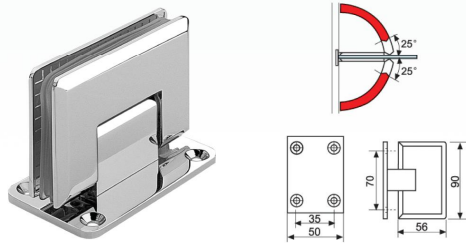


Shower hinge, model: CKS-304 (glass to glass, 90°)

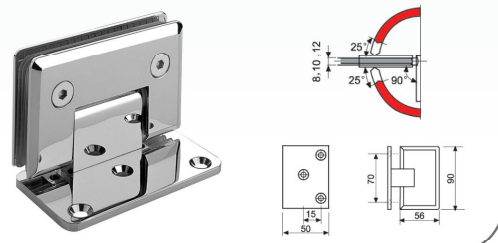


SHOWER HINGES

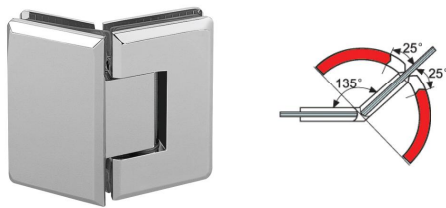
• **CKS-301** Glass to wall



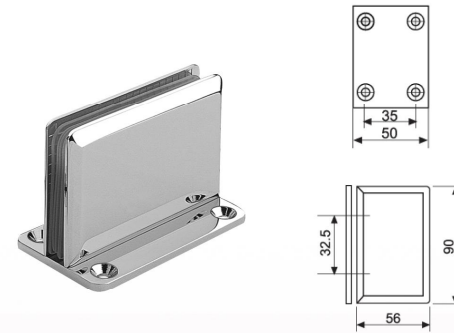
• **CKS-305** Glass to wall (offset)



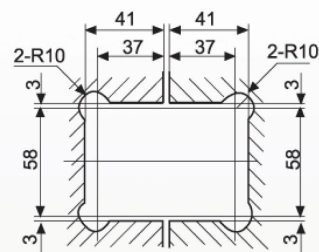
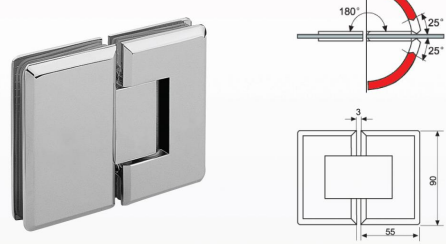
• **CKS-302** Glass to glass (135°)



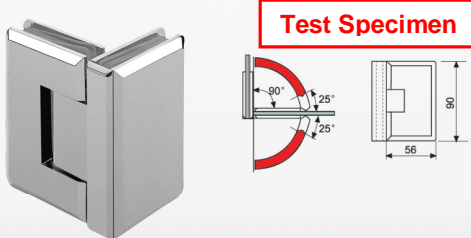
• **CKS-306** Glass to wall (fixed)



• **CKS-303** Glass to glass (180°)



• **CKS-304** Glass to glass (90°)



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)





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July 2011

