SIRIM QAS International Sdn. Bhd.
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TEST REPORT

REPORT NO : 2021MA0491	PAGE : 1 OF 10

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THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

Applicant	: EBCOTECH MACHINERY SDN. BHD. No. 1 Jalan Gangsa SD5/3A, Bandar Sri Damansara, 52200 Wilayah Persekutuan, Kuala Lumpur, MALAYSIA File No.: P5-014051 (Requested by En. Wan Mohd Ramzi, ICCS1, SIRIM QAS International Sdn. Bhd.)
Manufacturer	: ZHAOQING AOLITUO HARDWARE TECHNOLOGY CO., LTD. Jinsheng Industrial Area, Jinli Town Gaoyao Area, 526105 Zhaoqing City Guangdong Province, CHINA
Product	: SINGLE-AXIS HINGES (GLASS DOOR CLAMP)
Reference Standard / Method of Test	: BS EN 1935: 2002 Building hardware - Single-axis hinges - Requirements and test methods
Description of sample	: Brand: GW Model: GW-301-CP Type: Bevel Edge 90° Double Side Bathroom Glass Clamp Size: Refer to Page 3 Classification: 14201406 No. of sample: 4 units
Date Received of Complete Application	: 29 December 2020
Job No.	: J20201391826
Description of Test Results	: The test results for the submitted test samples as described in this test report complied with the requirements of the above reference standard.
Issued Date	: 29 March 2021

Approved Signatory;

(SHAIRAZI BIN ABDUL WAHAB)
Testing Executive

SIRIM QAS International Sdn. Bhd. MECHANICAL & AUTOMOTIVE SECTION

(MOHD FAIZAR BIN MUSTAFA)
Head
Mechanical & Automotive Section
Testing Services Department

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SUMMARY

Product	Model	Classification	Results
Single-Axis Hinges (Glass Door Clamp)	GW-301-CP	**1 4 2 0 1 4 0 6**	The submitted test sample **Complied With** all applicable mechanical performance requirement of BS EN 1935: 2002

Remarks:

1. Four (4) units of test sample identified as 'GW-301-CP Single-Axis Hinges (Glass Door Clamp)' were submitted for the 'BS EN 1935: 2002 – Building hardware. Single-axis hinges. Requirements and test methods' test to verify the durability, strength, security and function of single-axis hinges for use on access windows and doors.
2. The performance test was conducted at testing lab GLOBAL RELIABILITY TEST SDN. BHD. 1148D-G, Jalan Teluk Kumbar, Saujana Heights, 11920 Bayan Lepas, Penang, MALAYSIA. The test was conducted on 17th February 2021 to 23rd March 2021.
3. All type of tests was witnessed by the personnel from Mechanical & Automotive Section (MAST), Testing Service Department, SIRIM QAS International Sdn. Bhd.
4. The abbreviation used in this test report denotes as follows;

PASS: Complied with the requirement

FAIL: Did not comply with the requirement

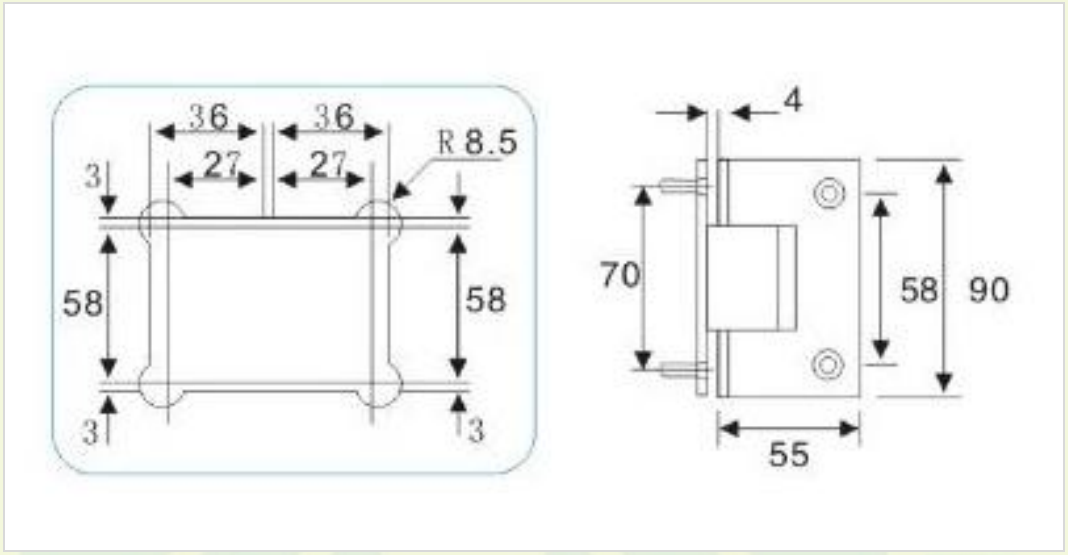
N/A: Not applicable with the requirement

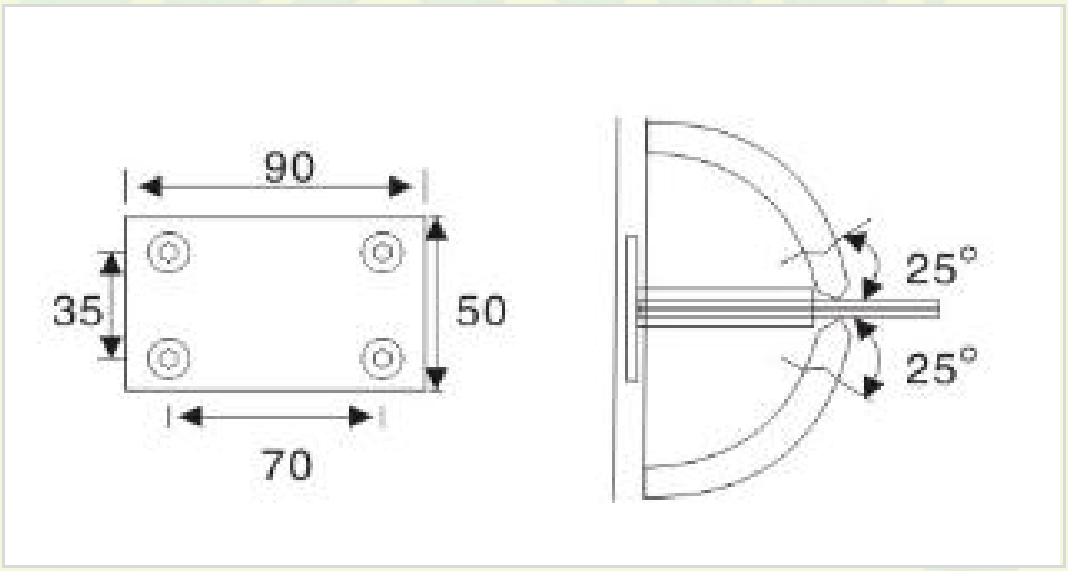
N/C: Not conducted



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TECHNICAL DRAWING





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CLASSIFICATION OF PRODUCT

Clause	Requirement	Results/Observations	Remarks
4	Classification		
4.2	Category of use	Grade 1	Pass
4.3	Durability	Grade 4	Pass
4.4	Test door mass	Grade 2	Pass
4.5	Suitability for use on fire/smoke compartmentation doors	Grade 0	N/A
4.6	Safety	Grade 1	Pass
4.7	Corrosion resistance	Grade 4	Pass
4.8	Security-Burglar-Resistance	Grade 0	N/A
4.9	Hinge grade	Grade 6	Pass

First digit (Category of use) - Grade 1; Light duty, for use on door.

Second digit (Durability) - Grade 4; 25 000 cycles.

Third digit (Test door mass) - Grade 2; 40kg.

Fourth digit (Suitability for use on fire/smoke compartment doors) - Grade 0; Not suitable for use on fire resistant and/or smoke control door assemblies.

Fifth digit (Safety) - Grade 1; Safety the essential requirement of safety in use.

Sixth digit (Corrosion resistance) - Grade 4; Very high resistance

Seventh digit (Security-Burglar-Resistance) - Grade 0; Not suitable for use on burglar-resistant door assemblies.

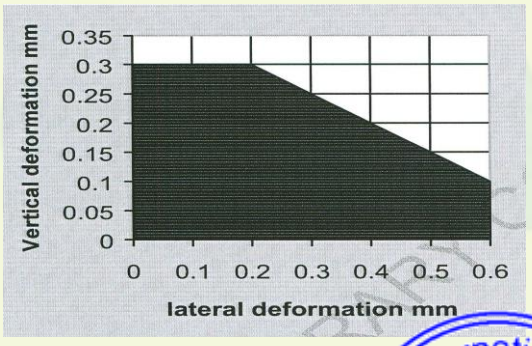
Eighth digit (Hinge grade) - Grade 6.



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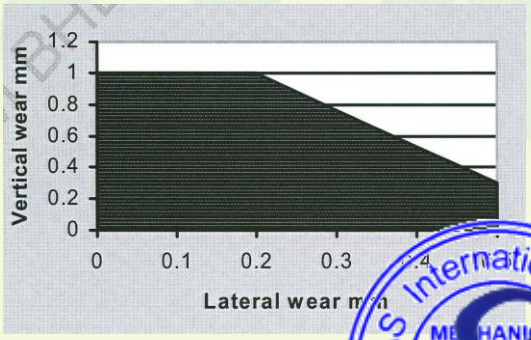
TEST RESULT

Product Description : Bevel Edge 90° Double Side Bathroom Glass Clamp – GW-301-CP
Test Method : BS EN 1935: 2002

Clause	Requirement	Results/Observations
5	Requirements	
5.1	Initial friction torque measurements. The maximum permissible friction torque shall be: 2 Nm for grades 1 to 7, 3 Nm for grades 8 to 11, 4 Nm for grades 12 to 14.	**Pass** Grade 6 Friction torque at opening angles: 0° ± 5° = 1.50 Nm 30° ± 5° = 0.40 Nm 60° ± 5° = 0.40 Nm 90° ± 5° = 0.40 Nm
5.2	Static load	
5.2.1	Load deformation The total mass of the hinged test element plus any additional load is equal to the load deformation mass of 80 kg for Hinge Grade 6.	Grade 6 Load deformation mass: 80 kg
5.2.1 (a)	The lateral displacement under load shall not exceed 2mm	**Pass** 0.30 mm
5.2.1 (b)	The vertical displacement under load shall not exceed 2mm	**Pass** 0.60 mm
5.2.1 (c)	Residual displacement after unloading shall be within the shaped area of fig G.1 	**Pass** After unloading (40kg): Lateral displacement (mm) = 0.00 Vertical displacement (mm) = 0.10
5.2.1 (d)	No visible cracking or breakage	**Pass**

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Clause	Requirement	Results/Observations
5.2.2	Overload The total mass of the hinged test element plus any additional load is equal to the load overload mass of 120 kg for Hinge Grade 6	Grade 6 Load overload mass: 120 kg
5.2.2 (e)	Shall be no breakage of hinged leaf, knuckle, barrel, pin and no any cracking visible to normal or corrected vision.	**Pass**
5.2.2 (f)	Shall remain connection to the frame even though the hinge may have been rendered inoperable	**Pass**
5.3	Shear strength Without shock apply the shear load as specified in Table 2 at a uniform rate within 30s ± 5s and maintain it for 1 min ± 10s. Remove the load without shock	Grade 7 Shear load: 1500 N
5.3 (g)	Shall be no breakage or cracking, or lateral deformation greater than 3mm	**Pass** No breakage or cracking. Lateral deformation = 0.06 mm
5.3 (h)	Additional lateral and vertical displacement after test shall not exceed 1mm Shall operate for 20 cycles without breakage of any hinge leaf, knuckle, barrel or pin	**Pass** Lateral displacement (mm) = 0.02 Vertical displacement (mm) = 0.08
5.3 (i)	Unlimited permanent deformation	**N/A**
5.4	Durability	
5.4 (j)	The displacements from the datum surface shall be within the shaded area of Figure G.2. 	**Pass** After 25,000 cycles test; Lateral wear of hinge under test (mm) = 0.30 mm Vertical wear of hinge under test (mm) = 0.30 mm

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Clause	Requirement	Results/Observations
5.4 (k)	Maximum permissible frictional torque measured after the first 20 cycles and after completion of test shall be 2 Nm grade 1 to 7.	**Pass** After 25,000 cycles test; Friction torque at opening angles: 0° ± 5° = 1.80 Nm 30° ± 5° = 1.00 Nm 60° ± 5° = 1.00 Nm 90° ± 5° = 1.00 Nm
5.5	Corrosion resistance	
5.5.1	Hinges not intended to be protected after fitting Grade 4: Very high resistance (240h)	**Pass** No corrosion occurred on significant surface after salt spray exposure of 240 hours.
5.5.2	Hinges intended to be protected after fitting.	**N/A**
5.6	Hinges for use on fire-resistant and /or smoke-control doors.	Exclude in this mechanical report
5.7	Hinges for use on burglar-resistant doors	Not suitable for use on burglar-resistance door assemblies.
5.8	Families of hinges with common design features	Informative
6.	Test apparatus	
7.	Test method	

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Clause	Requirement	Results/Observations
8.	Marking	
8.1	To ensure that only single - axis hinges manufactured in accordance with this standard are installed on designated fire-resistant and/or smoke-control doors or locked doors on escape routes, such single-axis hinges shall be marked as follows: a) manufacturer's name or trademark or other means of identification b) the hinge grade according to 4.9 c) the number of this European Standard *NOTE Items b) and c) should be clearly visible after installation.*	 Provided Not provided Not provided
8.2	The packaging shall clearly denote on the outside label the classification (hinge grade), size, finish and manufacturer's reference number	Partially provided
8.3	In cases the hinges are handed, the designation of the handling shall be in accordance with prEN 12519	**N/A**

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APPENDIX

Test sample of GW-301-CP Glass Clamp – Bevel Edge 90° Double Side Bathroom Clamp



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1. A Test Report will be issued in respect of Testing Services conducted and shall relate only to the sample actually tested. SIRIM QAS International makes no warranty whatsoever and the Applicant shall not represent in any manner that any duplication or mass production of the Product is same as the sample actually tested or that SIRIM QAS International has tested any of the duplicated or mass-produced Product. Measurement uncertainty shall be included in the Test Report when there is no statement of conformity required. When a statement of conformity to a specification or standard is applied, the Simple Acceptance Rule is used. Unless otherwise stated, the Acceptance Rule with Guard Band is used.

2. The Test Report shall not be misused, amended, changed, varied or modified in any manner whatsoever by the Applicant or otherwise.

3. If the Test Report is to be furnished to any third party or to the public, each such Test Report shall be furnished in full, legible and in its entirety.

4. The Test Report shall not be reproduced and shall not in any event be used for any advertising purposes or whatsoever without written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International of No 1, Persiaran Dato' Menteri, Building 8, Section 2, P.O. Box 7035, 40700 Shah Alam, Selangor Darul Ehsan.

5. Customer (Applicant/Manufacture/Factory,etc.) is not permitted to use any SIRIM QAS International, SIRIM or other SIRIM's subsidiaries logo or words on packaging, sample's manual, technical specification, items and products.

6. Subject to consent and written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International, the customer (Applicant/Manufacture/Factory,etc.) may use SIRIM QAS International logo or word on the promotional materials and the Applicant shall only include the phrase, "A sample of this product has been tested by SIRIM QAS International ...(Test Report No) ...(dated) ...(for what test) ...(to which standard)" or such similar words which stress that only the sample was actually tested. This phrase shall only be used for the purpose of product advertisement or product promotion (eg; brochures/flyers/official website). For avoidance of doubt, the statement shall not be used on the sample, packaging of the sample, items and products.

7. In the event there is an investigation from a Government Regulatory Agency concerning the Applicant's Test Report, SIRIM QAS International may disclose the information pertaining to the Test Report for purposes of such investigation.

8. Further or in the alternative, it is strictly forbidden unless with prior written approval from the Chief Executive Officer of SIRIM QAS International, to represent in any manner whatsoever that SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries has endorsed, approved or validated the Product of the Applicant in any manner whatsoever.

9. In the event the Applicant is found in breach of this provision, SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries without prejudice to any other rights and remedies may take whatever action necessary including but not limited to:
   a) Informing and placing a notice in the media;
   b) Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
   c) Refusing to accept any further Product for Testing Services from the Applicant or whosoever related to the Applicant, whether subsidiary or otherwise;
   d) Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries twice in a national publication of SIRIM QAS International's choice at the Applicant's sole cost; and
   e) Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.

10. SIRIM QAS International is committed in supporting an environmentally-friendly business practices by reducing paper consumption, therefore we do not issue any hard copy of Test Report to the Applicant. However, additional certified true copy(ies) or softcopy of the Test Report may be issued upon request by the Applicant upon payment of the relevant fee. The certified true copy(ies) or softcopy of test report shall only be given for test report issued not more than three (3) years from the date of issuance.

11. Issuance of Amendment Report due to the following reasons are chargeable to the Applicant :
    a) Changes in details of the Applicant name and/or address;
    b) Changes in details of the Manufacturer's name and/or address;
    c) Changes in details of the Factory location name and/or address;
    d) Changes in details of the model and/or type designation

12. However, issuance of Supplementary Report due to the following reasons are FOC :
    a) Misprints and typo errors;
    b) Missing technical information as agreed in PP1 form;
    c) Test data not reported;
    d) Mistake in reporting of test data

13. Corrections to report shall only be allowed if the date of issuance of the original report has not exceeded 6 months and shall be limited to a maximum 3 times, after either case whichever occurs earlier, an Amendment or a Supplementary Report shall not be issued.