Test Report No:	WTH1709#2-3
Date:	08/09/2017
Testing of:	Side hung next to side hung casement window
Tested to:	BS 6375-2:2009
Prepared for:	Nico Manufacturing Ltd

The results contained in this report apply only to the samples tested and to the specific tests carried out within this report.

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AUTHORISATION

Test completed by: D.Kury
Assissted by:
Test witnessed by:

Report produced by: D.Kury Position: Principle Test Engineer

Signature: 

Date: 20/10/2017

For and on behalf of Nico Manufacturing Ltd Test Laboratory

Report authorised by: M. Franklin Position: Laboratory Technical Manager

Signature: 

Date: 14/11/2017

For and on behalf of Nico Manufacturing Ltd Test Laboratory

Date of issue of report 14/11/2017

Nico Manufacturing Ltd. Test Laboratory

Oxford Road

Clacton-on-Sea

ESSEX

CO15 3TJ

Telephone +44 (0) 1255 422333

Fax +44 (0) 1255 432909

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9458

TEST REQUESTED BY

Origin of test request

Company Name	Nico Manufacturing Ltd
Company Address	109 Oxford Road Clacton on Sea Essex CO15 3TJ
Contact	Ian Harrison
Contact position	Sales Director

Quotation Details

Quotation No.	WTH1709
Dated:	14/08/2017

DETAILS OF TEST

Description	Side hung next to side hung
Model / type	Projecting casement window
Make / Brand	Swift System
Any special requirements	

Test Specification	BS 6375: Part 2: 2009 Performance of windows & doors. Classification for operation and strength characteristics
Date sample received	30/08/2017
Date testing started	08/09/2017
Date testing finished	15/09/2017
Job No.	WTH1709
Any special requirements	

BS 6375-2: 2009 Table A.1 Summary of classification for windows

Characteristics	Test method	Classification Standard	Class for all windows
Operating forces for windows	BS EN 12046-1	BS EN 13115	Class 1
Resistance to static torsion	BS EN 14609	BS EN 13115	Class 3
Racking	BS EN 14608	BS EN 13115	Class 3
Load-bearing capacity of safety devices	BS EN 14609	BS EN 14351	350 N
Resistance to repeated opening and closing	BS EN 1191	BS EN 12400	Class 2

The samples were mounted in timber sub frames (nominal 100mm x 50mm in section).
The samples were mounted in the test rig without any twists or bends that might influence the test result.

DETAILS OF SAMPLE

Sample number	WTH1709E
Sample details	Side hung next to side hung projecting casement window
Fabricator	Swift Frame Ltd
Material:	PVC-U Swift frame part numbers;Outer frame 5101, Mullion 5301 Sash 5206 Reinforcing; Outer frame, fully reinforced part number SS705 Sash reinforcement SS708 Mullion Reinforcement SS702
Finish	White
Lock & keeps	Nico Mk2 shootbolt system. Part nos; Gearbox 93905 Shootbolt extensions 93945 Cast zinc keeps, part nos; espag keep 9023, corner keep K2
Hinges & protectors	Nico 16" standard friction hinge 13mm stack height. Part no 7740 Nico Xtra bolt hinge protector 13mm stack height. Part no 8000
Handle	ERA Maxim 3 handed
Fixings	Lock - SFR 4.8 x 38mm c'sk head pierce point Keeps - 4.8 x 25mm c'sk head drill point into head and top and bottom frame 4.8 x 25mm c'sk head pierce point into mullion Friction hinges - SFR 4.8 x 25mm pan head drill point into sash and frame Hinge protectores - SFR 4.8 x 25mm pan head drill point into sash and frame Run up blocks - 4.8 x 25mm c'sk pierce point
Weather sealing	Co extruded gaskets.
Glass (or infill)	4-20-4mm clear toughened double glazed units
Glazing system	Internally bead glazed GT products Snap-Lok SK001
Sample dimensions	1200mm(w) x 1200mm(h), central mullion

CONCLUSIONS OF TEST

Clause No.	Test Description	Test result
C.5.1 (Test 1)	**Operating forces** (BS 6375-2 Max force to operate lever handle 100N or 10Nm) (BS 6375-2 Max force to move casement of sash 100N)	Pass
C.5.2.1 (Test 2)	**Mechanical strength - Resistance to satic torsion** (BS EN 14609 Force 300N for 5 minutes - deflection and opeating forces measured and recorded)	Pass
C.5.2.2 (Test 3)	**Mechanical strength - racking** (BS EN 14608 Force 600N for 5 minutes - deflection and opeating forces measured and recorded)	Pass
C.5.3 (Test 4)	**Load-bearing capacity of safety devices** (BS EN 14351 Resist force of 350N for 60 seconds)	Not tested
C.5.5 (Test 5)	**Resistance to repeated opening and closing** (BS EN 1191 Window opened and closed minimum of 10,000 cycles for Class 2 (BS EN 12400) or 20,000 for Class 3 with operating forces measured at start and finish of test)	Pass

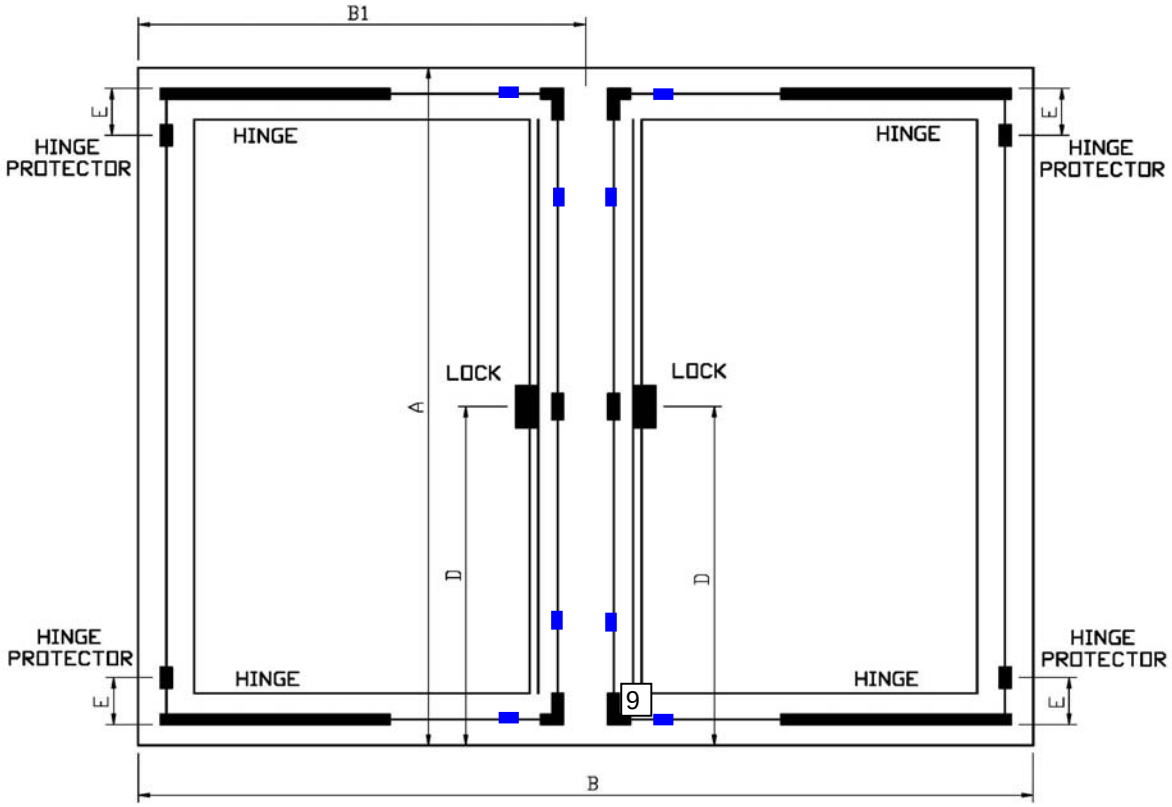
Please Note: No impact resistance test was completed as currently the requirement in the UK is Class 0 with zero drop height of the impactor.

Test specimen details

Details of the samples construction and hardware components is based on information supplied by the test client, while these details have been checked and verified where possible WTH accepts no responsibility for the accuracy of details supplied.

Note : The test specimens were kept in the test laboratory at the required temperature and humidity for a minimum of 12 hours before testing was undertaken as specified in BS EN 14608:2004, BS EN 14609:2004 & BS EN 1191:2012.

TEST WINDOW DRAWING



Run up blocks

Weather wedges

A	=	1200	mm
B	=	1200	mm
B1	=	600	mm
C	=		mm
D	=	600	mm
E	=	50	mm
F	=		mm

RESULTS TEST 1-3

BS 6375-2 test	Requirement	Test results
Opeating forces (Test 1)	BS EN 13115: 2001 Class 1 Lever handle operation, max 10Nm Movement of casement or sash Movement of casement or sash Lever handle operation, max 10Nm	 Disengage = 3.24 Nm Open = 27.2 N Close = 28.2 N Engage = 4.41 Nm
Resistance to static torsion (Test 2)	Class 3. No damage or permanent deformation and remain operational BS EN 13115: 2001 Class 1 Lever handle operation, max 10Nm Movement of casement or sash Movement of casement or sash Lever handle operation, max 10Nm	Load applied and removed, operational forces still within allowable limits Disengage = 3.41 Nm Open = 23.9 N Close = 30.7 N Engage = 4.96 Nm
Resistance to racking (Test 3)	Class 3. No damage or permanent deformation and remain operational BS EN 13115: 2001 Class 1 Lever handle operation, max 10Nm Movement of casement or sash Movement of casement or sash Lever handle operation, max 10Nm	Load applied and removed, operational forces still within allowable limits Disengage = 3.26 Nm Open = 25.0 N Close = 28.1 N Engage = 4.89 Nm

TEST RESULTS 4-5

BS 6375-2 test	Requirement	Test results
Resistance to repeated opening and closing (Test 5)	Class 2 Moderate duty as classified by BS EN 12400:2002 The window is to remain operation and functional within accepted forces	Window remained fully functional on completion of test and was considered to be fit for purpose
	Operating forces before test BS EN 13115: 2001 Class 1 Lever handle operation, max 10Nm Movement of casement or sash, max 100N	Disengage = 3.24 Nm Open = 26.2 N Close = 29.1 N Engage = 4.76 Nm
	Operating forces after 2500 cycles BS EN 13115: 2001 Class 1 Lever handle operation, max 10Nm Movement of casement or sash, max 100N	Disengage = 3.11 Nm Open = 28.1 N Close = 29.4 N Engage = 5.13 Nm
	Operating forces after 5000 cycles BS EN 13115: 2001 Class 1 Lever handle operation, max 10Nm Movement of casement or sash, max 100N	Disengage = 2.82 Nm Open = 26.9 N Close = 26.7 N Engage = 4.81 Nm
	Operating forces after 7500 cycles BS EN 13115: 2001 Class 1 Lever handle operation, max 10Nm Movement of casement or sash, max 100N	Disengage = 2.71 Nm Open = 26.8 N Close = 27.0 N Engage = 4.68 Nm
	Operating forces after 10000 cycles BS EN 13115: 2001 Class 1 Lever handle operation, max 10Nm Movement of casement or sash, max 100N	Disengage = 2.58 Nm Open = 28.4 N Close = 26.7 N Engage = 4.49 Nm
Cleaning and maintenance mode of operation	**Operating forces after 200 cycles** BS EN 1191:2012 G.4.2.4 Lever handle operation, max 10Nm Movement of casement or sash, max 100N	Disengage = Nm Open = N Close = N Engage = Nm

PICTURE OF TEST WINDOW