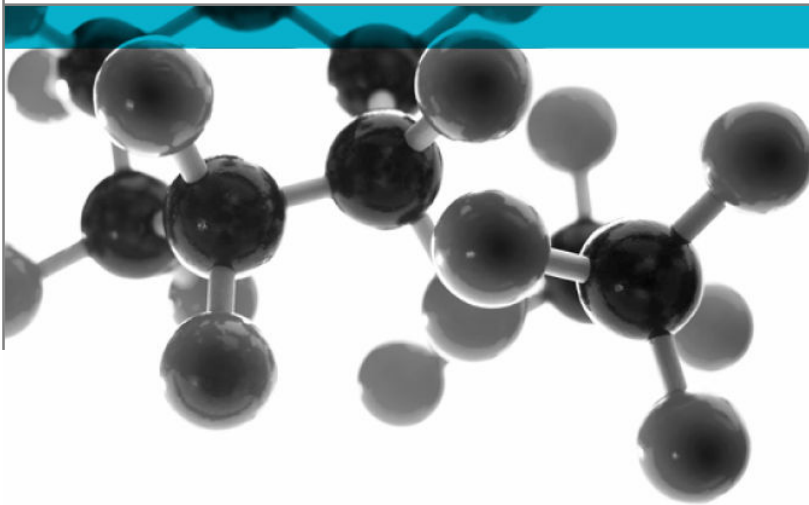


Exova Warringtonfire
Key Industrial Park
Fernside Road
Willenhall
West Midlands
WV13 3YA

T : +44 (0) 1902 722 122
F : +44 (0) 1902 727 242
E : willemhall@exova.com
W : www.exova.com



EN 1155:1997



TESTS OF :

PERKO R106 FS CONCEALED FIXED ELECTRICALLY POWERED FREE SWING DEVICES FOR SWING DOORS

A Report To: Samuel Heath & Sons Plc
Leopold Street,
Birmingham.
B12 0UJ

Document Reference: WIL 325213

Date: 20 August 2013

Copy: 1

Issue No.: 3

Page 1

Testing
Advising
Assuring



TEST CONCLUSIONS

Samples of:

Product: : Freeswing door closer (Concealed)
 Manufactured by : Samuel Heath & Sons Plc
 Model : Perko R106 FS
 Size : 3

have been tested in accordance with:



BS EN 1155:1997 Building hardware-Electrically powered hold-open devices for swing doors
 By Exova Warringtonfire at Key Industrial Park, Fernside Rd., Willenhall,. West Midlands. WV13 3YA,

Results as detailed below:

Clause No.	Description	Compliance
5.1	Product information and design	Yes
5.1.1	Instructions	Yes
5.1.2	Angle of release	Yes
5.1.3	Not possible to inhibit release	Yes
5.1.4	Supply voltage	Yes
5.1.5	Terminals	Yes
5.1.6	Wiring entry	Yes
5.2	Performance requirements	Yes
5.2.2	Electrical release	Yes
5.2.3	Door closing device to BSEN 1154: 1997	Yes
5.2.4	Durability	Yes
5.2.5	Angle of hold-open	N/a
5.2.6	Manual release	N/a
5.2.7	Continuous hold-open	Yes
5.2.8	Overload performance	N/a
5.2.9	Delayed release	N/a
5.2.10	Electrical performance.	Yes
5.2.11	Temperature rise	Yes
5.2.12	Damage	Yes
5.2.13	Fire resistance of fire door	Yes
5.2.14.1	Neutral salt spray test	Yes
5.2.14.2	Electrical release after neutral salt spray test	Yes
8	Marking.	Yes

No inferences can be made regarding performance against other requirements of this standard

AUTHORISATION

Tests performed by: Steve Wilkes, Deputy Operations Manager	
Report issued by: Steve Wilkes, Deputy Operations Manager	
Signed : 	
Date : 20 August 2013 For and on behalf of Exova Warringtonfire	
Report authorised by: Ian Keeling, Business Unit Manager	
Signed : 	
Date : 20 August 2013 For and on behalf of Exova Warringtonfire	
Report issued: 20 August 2013	
 0621	<p>NOTE. Tests marked "Not UKAS Accredited" are not covered by the Laboratory UKAS accreditation schedule.</p> <p>Tests marked NT were not tested</p> <p>Tests marked NA are not applicable to the product on test.</p> <p>The laboratory has tested the products supplied by the client as sampled in accordance with their own requirements</p>
Exova Warringtonfire is an EC Notified Body Number 1104	

This report shall not be reproduced except in full, (and then only as permitted by copyright laws), without written approval from Exova Warringtonfire

CONTENTS

TEST CONCLUSIONS	2
AUTHORISATION	3
TEST DETAILS	5
INITIAL OBSERVATIONS	6
TEST RESULTS	8
OBSERVATIONS AND COMMENTS	11
REVISION HISTORY	12

TEST DETAILS

CLIENT DETAILS

Company name Samuel Heath & Sons Plc
 Address Leopold Street,
 Birmingham
 B12 OUJ

Contact Mark Stonelake

ORDER DETAILS

Order number 62970
 Dated 23/11/12

SAMPLE DETAILS

Product Concealed Freeswing door closer
 Model Perko R106 FS
 Markings Written confirmation given.
 Manufacturer Samuel Heath & Sons Plc
 Date of Manufacture Written confirmation given.
 Other information None

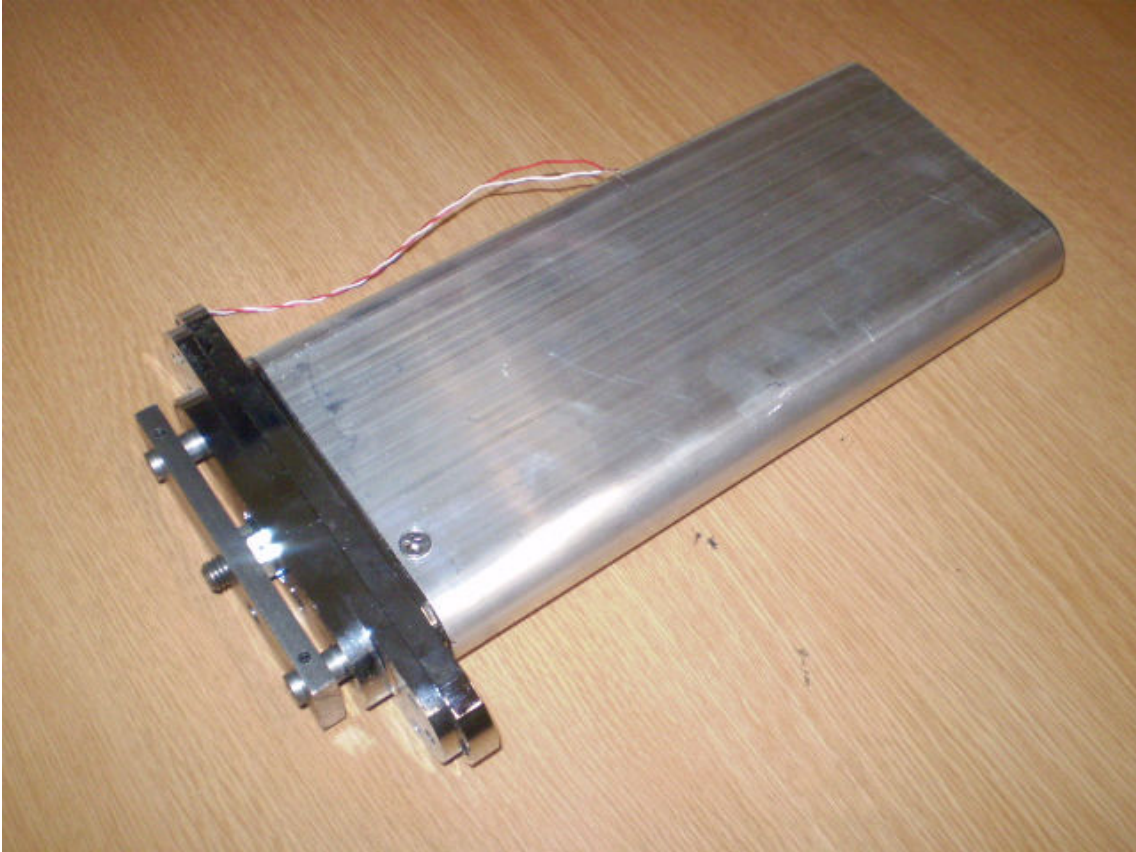
TEST DETAILS

Test reference nos. WIL 325213
 Date sample received 07 December 2012
 Date test started 12 December 2012
 Date test completed 14 January 2013
 Specification tests conducted to BS EN 1155
 Class and or Category Size 3
 Special Test requirements None
 Other reports to be used in conjunction with this report 138332 & WF No. 325231

STANDARD REQUIREMENTS

Closer strength Size 3
 Door Mass 60Kg
 Durability Grade Grade 5
 Corrosion resistance grade Grade 3

INITIAL OBSERVATIONS



Sample B- Product information and design

Requirement clause	Test clause	Requirement details	Test result	P = Pass F = Fail
5.1.1	7.3.1	Device supplied with clear detailed instructions for its:- Electrical supply Installation Adjustment Maintenance Limitation of opening angle Non-incorporated devices details of suitable closer strengths.	Yes Yes Yes Yes Yes	P
5.1.2	7.3.1	Release from any angle it can hold at Maximum hold-open angle Releases electrically Releases mechanically Minimum hold-open angle Releases electrically Releases mechanically	Yes	P
5.1.3	7.3.1	Release cannot be readily inhibited.	Yes	P
5.1.4	7.3.1	Designed for 24 volt DC operation Ripple content < 30%	Yes	P
5.1.5	7.3.1	Terminals for electrical connection clamp conductor between metal with sufficient pressure.	Yes	P
5.1.6	7.3.1	Inlet openings for external wiring; cable must enter and be secured without damage.	Yes	P

Door closing device requirements

5.2.3		Evidence of BSEN 1154 compliance.	138332	P
		Closers packed with following items: Arms or track. Fixing brackets Shoes or straps Top centres Floor pivots Fixing screws Covers if required Special tools	Yes No No No No Yes No Yes	P
		BS EN 1154 additional requirements for fire and smoke doors.	Yes	P
		Capable of closing door from any angle to which it is opened	Yes	P
		Delayed action must be capable of adjustment to < 25 secs from 120° to end of delay.		N/a
		Must have been subjected to a fire or smoke test.	WF No. 325231	Yes

Details of all test evidence supplied to prove above requirements.

TEST RESULTS

Sample A

Requirement clause	Test clause	Requirement details	Test result	P = Pass F = Fail
5.2.1	7.2.2	Closer strength Door Mass 0 – 4° closing torque..	Size 3 60Kg 18.7Nm	P
5.2.5	7.2.2	Door closer set to minimum strength. Angle of hold-open; when energised at rated voltage must not hold at < 65°		N/a
5.2.5	7.2.3	Settleback from 90°; energised at rated voltage open to 95° position must be > 90° after 5 minutes.		N/a
5.2.6	7.2.4	Manual release Must hold for 5 seconds with applied closing moment of 40Nm. Must release within 5 seconds with applied closing moment of 120 Nm. If maximum holding moment is above 120Nm must have release switch.		N/a
5.2.2	7.2.5	Release within 3 seconds of power removal Release before voltage drops to 2.4 volts	0.43 S 11.78 V	P
5.2.11	7.2.6	Temperature rise, 115% rated voltage after 8 hours coil temperature rise <55°C terminal temperature rise < 25°C	42°C 0°C	P
5.2.8	7.2.7	Opening overload tests – only for devices which limit opening Drop weight 5 drop tests performed. Damage		N/a
5.2.4	7.2.8	Durability		
	7.2.8.1	With electrical release – all electrically powered hold-open / free swing devices. 25,000 cycles	25,000	P
	7.2.8.2	With manual release – not for electrically powered free-swing devices. 25,000 cycles		N/a
	7.2.8.3 a	Hold open devices that contain arms. 450,000 cycles with no applied voltage		N/a
	7.2.8.3 b	Free-swing devices that contain arms. 25,000 cycles with no applied voltage 450,000 cycles with applied voltage		N/a

5.2.6	7.2.9.1	Manual release Must hold for 5 seconds with applied closing moment of 40Nm. Must release within 5 seconds with applied closing moment of 120 Nm. If maximum holding moment is above 120Nm must have release switch.		N/a
5.2.2	7.2.9.2	Release within 3 seconds of power removal Release before voltage drops to 2.4 volts	0.34 S 11.23 V	P
5.2.8	7.2.9.3	Opening overload tests – only for devices which limit opening Drop weight 5 drop tests performed. Damage		N/a
5.2.7	7.2.10	<i>Continuous hold open test.</i> <i>Apply 115% rated voltage open door to 90°</i> <i>apply closing moment of 5Nm</i> <i>measure position of door</i> <i>allow door to stand open for 48 hrs</i> <i>measure position of door</i> <i>creep < 2°</i> <i>remove power door must release within 3 seconds and return to closed position</i>	27.60 V 5Nm 90° 48hrs 89.5° 0.5° 0.31 S	P
5.2.7	7.2.10	<i>Continuous hold open test.</i> <i>Apply 85% rated voltage open door to 90°</i> <i>apply closing moment of 5Nm</i> <i>measure position of door</i> <i>allow door to stand open for 48 hrs</i> <i>measure position of door</i> <i>creep < 2°</i> <i>remove power door must release within 3 seconds and return to closed position</i>	20.4 V 5Nm 90° 48hrs 89.5° 0.5°C 0.34 S	P

Comments and observations on mechanical performance and durability tests on minimum strength closer : No visual, mechanical or electrical signs of any problems.

SAMPLE B – CORROSION SAMPLE TESTED AT MINIMUM STRENGTH

Requirement clause	Test clause	Requirement details	Test result	P = Pass F = Fail
5.2.1	7.2.2	Closer strength Door Mass 0 – 4° closing torque..	Size 3 60Kg 18.7Nm	P
5.2.9	7.3.1	Delayed release (optional) must be adjustable to less than 30 seconds.		N/a
5.2.13	7.3.1	Must have been included in a satisfactory suitable fire test	WF No. 325231	P
	7.3.2	Door closer strength verified	18.7Nm	P
5.2.2	7.3.3	Electrical release. Release within 3 seconds of power removal. Release before voltage drops to 2.4 volts	0.57 S 11.22 V	P
5.2.14.1	7.3.4	Subjected to neutral salt spray test to BSEN 1670: grade 3 exposure time : 96hrs	Grade 3 (96hrs)	P
5.2.14.2	7.3.5	Electrical release. Release within 3 seconds of power removal. Release before voltage drops to 2.4 volts	0.51 S 11.32 V	P
5.2.14.3	7.3.5	Condition after test. Operates satisfactorily. No tarnishing of uncoated surfaces. No more than 1 spot per 650mm ² of area on coated surfaces.	Satisfactory Yes No No	P

8. Marking - every device must be marked with:

			P = Pass F = Fail
8.a	name or trade mark or other identification	PERKO	P
8.b	product model identification	Written confirmation received (Powermatic free swing)	P
8.c	Classification (see clause 4)		P
8.d	power consumption and rated voltage.	Written confirmation received (24 VDC 0.9A)	P
8.e	Number of Standard (BSEN 1155:)	BSEN1155:1997+A1:2002	P
8.f	Year and week of manufacture.	Written confirmation received (coded form)	P

Classification details.

Category of use	number of test cycles	Test door mass	Fire resistance	Safety	Corrosion resistance
3	8	3	1	1	3
Pass	Pass	Pass	Pass	Pass	Pass

OBSERVATIONS AND COMMENTS

(include details of all opinions and interpretations given in this report)

The Perko R106 FS door closer (Concealed in door) sent for testing fully to BS EN 1155 met with all of the relevant testing requirements with no visual, mechanical or electrical signs of any problems.

The following clauses initially failed to comply :

- Clause 5.1 (Product Information) Initially failed to comply due to fixing instructions not containing any information on closer maintenance.
- Clause 8 (Product Marking) Originally failed to comply due to device not being marked with the following :
 1. Product model Identification,
 2. Rated voltage,
 3. Year / week of manufacture.

----- WRITTEN CONFIRMATION RELATING TO THE ABOVE OUTSTANDING
INFORMATION HAS NOW BEEN RECEIVED -----

Revision History

Issue No : 2	Re - Issue Date : 26/06/13
Revised By: S Wilkes	Approved By: I Keeling
Reason for Revision: Slight amendment to model reference. (from R106 FR-CP to R106 FS)	

Issue No : 3	Re - Issue Date : 20 August 2013
Revised By: S Wilkes	Approved By: I Keeling
Reason for Revision: EN 1154 report reference included on page 7.	

----- END OF REPORT -----