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Issue No:

BS EN 1154:1997 / A1:2002



TESTS OF:

5023AWE FIXED STRENGTH SINGLE ACTION CONTROLLED DOOR CLOSING DEVICE

A Report To:

Wenzhou Oude Gating Technology No.316 Jinhai 1st Avenue Jinhai Industrial Zone, Wenzhou, China

Document Reference: WIL - 380055





01/11/2017

No 1

No 1

Registered Office: Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian EH28 8PL United Kingdom. Reg No.SC 70429 This report in issued in accordance with our terms and conditions, a copy of which is available on request.

0621



TEST CONCLUSIONS

Samples of: Manufacturer: Wenzhou Oude Gating Technology Product : Overhead door closer Model : 5023AWE have been tested in accordance with: BSEN 1154 : 1997 / A1 : 2002 (Building hardware - Controlled door closing devices.) By Exova (UK) Ltd [A UKAS accredited Testing Laboratory (No. 0621) At Unit 3 Wednesbury One Ind Est, Black Country New Rd, Wednesbury. WS10 7NZ Results and comments as detailed below:

Clause No.	Description	Compliance
5.1	Product information instructions shall contain	
5.1.1	Instructions for installation, regulation and maintenance	Yes
5.1.1	details of Limitation of opening angle	Yes
5.1.2	Power sizes for non-standard applications	Yes
5.2	Performance requirements	
5.2.2	Durability	Yes
5.2.3	Closing moment after 5000 cycles and 500 000 cycles	Yes
5.2.4	Opening moment after 5000 cycles	Yes
5.2.5	Efficiency after 5000 cycles and 500 000 cycles	Yes
5.2.6	Max & min closing time after 5000 & 500 000 cycles	Yes
5.2.6	Change of closing time 5000 cycles to 500 000 cycles	Yes
5.2.7	Angles of operation	Yes
5.2.8	Overload performance at 5000 cycles & 500 000 cycles	Yes
5.2.8	Overload performance for delayed action closers	N/a
5.2.9	Temperature dependence	Yes
5.2.10	Fluid leakage	Yes
5.2.11	Damage	Yes
5.2.12	Latch control (optional)	Yes
5.2.13	Backcheck (optional)	N/a
5.2.14	Delayed closing (optional)	N/a
5.2.15	Adjustable closing force (optional)	Yes
5.2.16	Zero position (double action closers only)	N/a
5.2.17	Corrosion resistance	Yes
5.2.18	Additional requirements for fire door closers	Yes
8	Marking.	Yes

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

Tests marked "N/a" are not applicable to the type of device under test Tests marked "N/t" cannot be applied to the type of device under test

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AUTHORISATION

Tests performed by:	: [Alex Wooldridge, Trainee Test Engineer]
Report issued by:	[Steven Wilkes, Deputy Business Unit Head]
Signed 8.22	less
Date 01/11/2017 For and on behalf of	f Exova (UK) Ltd
Report authorised b	y: [Ian Keeling, Business Unit Manager]
Signed	
Date 01/11/2017 For and on behalf of	f Exova (UK) Ltd
Report issued: 01/11/	/2017
UKAS TESTING 0621	NOTE. Tests marked "Not UKAS Accredited" are not covered by the Laboratory UKAS accreditation schedule. Tests marked NT were not tested Tests marked NA are not applicable to the product on test. The laboratory has tested the products supplied by the client as sampled in accordance with their own requirements
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TEST DETAILS

CLIENT DETAILS		
Company name Address		Wenzhou Oude Gating Technology No. 316 Jinhai 1 st Avenue, Jinhai Industrial Zone, Wenzhou China
Contact		Allen Huang
ORDER DETAILS		
Order number Dated		Pro-forma 15/02/2017
SAMPLE DETAILS Product Models Markings Manufacturer Date of Manufacture Other information	9	Overhead door closer 5023AWE Written confirmation received Wenzhou Oude Gating Technology Written confirmation received None
<u>TEST DETAILS</u> Test specification Full test Test to clauses Corrosion resistance	e	BSEN 1154: 1997 – controlled door closing devices Yes N/a Grade 3 : 96 Hours
Date sample receive Date test started Date test completed	ed	23/02/2017 06/03/2017 30/08/2017
Special Test require Other reports to be	ements used in	Standard fixing position test, gaining evidence in parallel arm and transom mount push side applications at power size 3. WF No 388801
Closer type:	Back check Delay configuration: Mounting:	With Latch action No Back check No delayed action Projecting Overhead surface mount
STANDARD REQU Test door mass: No of cycles: Closing torque	IREMENTS 0 - 4°: 88 - 92°: any angle [:]	60kg (Size 3) 500,000 18 - <26Nm (Size 3) >6Nm (Size 3) >4Nm (Size 3)
Opening torque Efficiency	0 - 60°: 0 - 4°:	<47Nm (Size 3) 55% (Size 3)

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INITIAL OBSERVATIONS

Definitions, Clause 3.1, controlled door closing device must contain all parts necessary for installation and operation.

This sample of door closing device contained:-

	Supplied	Details
Body	Yes	
Arms	Yes	Standard arm
Fixing brackets	No	N/a
Shoes or straps	N/a	N/a
Top centres	N/a	N/a
Floor pivots	N/a	N/a
Fixing screws	Yes	Wood screws & machine screws
		supplied
Covers	No	No cover supplied
Special tools	Yes	Allen key supplied

Clause 5.1: Requirements with regard to product information

Device must be supplied with instructions which must contain the following:-

	Supplied	Details	
Clear fixing instructions.	Yes	Clear fixing instructions supplied	
Instructions for regulation.	Yes	Instructions to regulate shown	
Instructions for maintenance.	Yes	Maintenance instructions shown	
Limitations of opening angle.	Yes	Max opening angle shown	
Details of closer power for each	Yes	Closer power for each application	
application and fixing position.		shown	

Clause 8 Requirements for marking of closing devices and accessories.

Every closer and accessory must be marked with:-

	Marked	Details
Manufacturers name or trademark	Yes	OUDE
or other means of identification.		
Product model identification.	Yes	5023AW
Standard number	Yes	EN 1154
Week and year of manufacture.	Yes	170304

Every closer must be marked with Classification according to clause 4:-

Category	Number of test cycles	Test door mass	Fire resistance	Safety	Corrosion resistance
4	8	3	1	1	3
Yes	Yes	Yes	Yes	Yes	Yes

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TEST RESULTS

SAMPLE A

Clause 7.2 General Requirements and operation at extremes of temperature

Clause 5.1 - Product information - (See Initial Observations)

Clause 8 – Marking – (See Initial Observations)

Clause 5.2.12 –Latch angle (optional). If incorporated must be effective over a maximum range of 15° and shall be adjustable.

Measured latch angle 9° Latch effect adjustable YES

CLAUSE 5.2.18. Additional requirements for closers intended for fire or smoke doors.

Requirement	Test information	Pass / Fail
Capable of closing door from any angle to which it may open	180°	Pass
Size 1 and 2 closers not permitted	Size 3	Pass
Adjustable closers must be adjustable up to size 3		
No hold open unless electrically powered.	No hold open	Pass
Regulators must be either concealed or operated by a tool	Tool operable	Pass
It must not be possible to inhibit closing action without use if a	Not possible	Pass
tool.		
Delayed action closers must be capable of adjustment to	No delayed action	N/a
<120 secs from 120°		
Must have been subjected to a fire / smoke test	WF No 388801	Pass

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CLAUSE 7.2.2 Operation at extremes of temperature.

Closer	Conditioning	Test	Measured cl	Measured closing time - seconds			Pass / Fail
temperature	time (8 hours)	requirement					
	minimum		1	2	3	average	
Sample "A." Closer strength Size 3 Test door mass 60Kg							
+20°C	16 hrs	set to 5 secs	5.00	5.03	5.04	5.02	Pass
-15°C	16 hrs	3 secs min	10.16	9.53	9.25	9.65	Pass
+40°C	8 hrs	25 secs max	4.06	4.09	4.06	4.06	Pass

Closer condition after thermal compensation test: No visual signs of any leaks or damage

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SAMPLE B

Clause 7.3 Mechanical performance and durability

Operating angle and test settings.

	Test requirement	Test result	Pass / Fail
Closer strength –	Test door mass	60Kg	Pass
Size 3	60Kg		
Maximum opening angle	105° grade 3,	180°	Pass
	180° grade 4		
Door closes from	105° grade 3,	180°	Pass
	180° grade 4		
Door under control from	70° minimum	145°	Pass
Set closing time 90° to 0°	3 - 7 secs	4.12secs	Pass
Set opening time 0 - 90°	2 - 3 secs	2.45secs	Pass

Closer cycled for 5,000 cycles

Observations on initial cycling of closer up to 5,000 cycles:- No visual signs of any leaks or damage

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	Specification	Requirement	Test result	Pass / Fail
Ambient temp.15 - 30° C24°CPassCloser tempWithin 2° of ambient2.3°CPassOpening moment. Closer Size 3Max opening torque1 - 32.8Nm 2 - 33.4Nm 3.30.Nm (Avg)N/aMax opening torque 0 - 60°1 - 33.0Nm 2 - 33.4Nm 3.30.Nm (Avg)N/aMax opening torque 0 - 60°1 - 33.0Nm 2 - 33.4Nm 3.30.Nm (Avg)PassMax opening torque 8 - 92°1 - 20.1Nm 3.1Nm (Avg)PassMax opening torque 88 - 92°1 - 20.1Nm 2 - 18.1Nm 3 - 19.4NmN/aClosing moment. Closer Size 3Max closing moment 0 - 4°1 - 21.1Nm 2 - 22.1Nm 3 - 21.5NmPassSize 3 = >18 & <26Nm Size 3 = >18 & <26Nm Size 3 = >6Nm1 - 21.1Nm 2 - 12.4Nm 3 - 11.3NmPassMax closing torque 88 - 92°1 - 10.0Nm 2 - 12.4Nm 3 - 11.3NmPassSize 3 = >6Nm Minimum closing torque at any angle1 - 8.7Nm 2 - 8.4Nm 3 - 8.4N	Cycles completed	5,000	5,112cycles	Pass
$ \begin{array}{c closer temp} & \mbox{Withn 2° of ambient} & 23^\circ$C & Pass \\ \end{tabular}{lllllllllllllllllllllllllllllllllll$	Ambient temp.	15 - 30° C	24°C	Pass
Opening moment. Closer Size 3Max opening torque $0-4^\circ$ 1 - 32.8Nm 2 - 33.4Nm 3 - 322.7NmN/aMax opening torque 0 - 60°1 - 33.0Nm 2 - 33.4Nm 3 - 32.8Nm 3 - 32.8Nm 2 - 18.1Nm 3 - 19.4NmPassMax opening torque 88 - 92°1 - 20.1Nm 2 - 18.1Nm 3 - 19.4NmPassClosing moment. Closer Size 3Max closing moment $0 - 4^\circ$ 1 - 21.1Nm 2 - 22.1Nm 3 - 19.4NmN/aClosing moment. Closer Size 3Max closing torque 88 - 92°1 - 10.0Nm 2 - 22.1Nm 3 - 21.5NmPassMax closing torque 88 - 92°1 - 10.0Nm 2 - 12.4Nm 3 - 11.2NmPassSize 3 = >18 & <26Nm	Closer temp	Within 2° of ambient	23°C	Pass
Closer Size 3 $0 - 4^{\circ}$ $2 - 33.4 Nm$ $3 - 32.7 Nm$ $33.0 Nm (Avg)$ N/aMax opening torque $0 - 60^{\circ}$ $1 - 33.0 Nm$ $2 - 33.4 Nm$ $3 - 32.8 Nm$ $3 - 19.4 Nm$ $3 - 21.5 Nm$ N/aClosing moment. Closer Size 3Max closing moment $0 - 4^{\circ}$ $1 - 21.1 Nm$ $2 - 22.1 Nm$ $3 - 21.5 Nm$ PassSize $3 = >18.8 < 26 Nm$ $3 - 21.5 Nm$ PassSize $3 = >18.8 < 26 Nm$ $3 - 21.5 Nm$ PassSize $3 = >18.8 < 26 Nm$ $2 - 12.4 Nm$ $3 - 11.3 Nm$ PassSize $3 = >18.8 < 26 Nm$ $3 - 11.3 Nm$ PassSize $3 = >6 Nm$ $11.2 Nm$ (Avg)Max closing torque $88 - 92^{\circ}$ $1 - 10.0 Nm$ $2 - 12.4 Nm$ $3 - 11.3 Nm$ EfficiencySize $3 Closer / Min Value 55\%$ 65.4% $3 - 8.4 Nm$ $3 - 8.4 Nm$ $2 - 8.4 Nm$ $3 - 8.4 Nm$ $2 -$	Opening moment.	Max opening torque	1 - 32.8Nm	
$ \begin{array}{ c c c c c c } \hline & 3 & - 32.7 \text{Nm} & 3 & - 32.7 \text{Nm} & 3.30 \text{Nm} (Avg) & 3.30 \text{Nm} (Avg) & 3.30 \text{Nm} (Avg) & 3.30 \text{Nm} & 2 & - 33.4 \text{Nm} & 3 & - 32.8 \text{Nm} & 3 & - 32.4 \text{Nm} & 3 & - 39.2 \text{Nm} & 3 & - 31.3 \text{Nm} & 3 & - 38.4 \text{Nm} & 3 & - 38.4 \text{Nm} & 3 & - 8.4 \text{Nm} & 3 $	Closer Size 3	0 - 4°	2 - 33.4Nm	N/a
$ \begin{array}{ c c c c c c } \hline & & & & & & & & & & & & & & & & & & $			3 - 32.7Nm	IN/a
Max opening torque 0 - 60°1 - 33.0 Nm 2 - 33.4 Nm 3 - 32.8 Nm 33.1 Nm (Avg)PassSize 3 = <47Nm			33.0Nm (Avg)	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Max opening torque 0 - 60°	1 - 33.0Nm	
$ \begin{array}{ c c c c c c c } \hline Size 3 = <47Nm & 32.8Nm & 33.1Nm (Avg) & 3.1Nm (Avg) & 3.1Nm (Avg) & 3.1Nm (Avg) & 3.1Nm (Avg) & 2.18.1Nm & 2.18.1Nm & 3.19.4Nm & 19.2Nm (Avg) & 1.20.1Nm & 2.18.1Nm & 19.2Nm (Avg) & 1.21.1Nm & 2.22.1Nm & 2.22.1Nm & 2.22.1Nm & 3.21.5Nm & 2.22.1Nm & 3.21.5Nm & 2.16.Nm (Avg) & 3.21.5Nm & 2.12.4Nm & 3.21.5Nm & 2.12.4Nm & 3.21.3Nm & 2.12.4Nm & 3.21.3Nm & 2.21.5Nm & 2.22.1Nm $			2 - 33.4Nm	Pass
Size $3 = <4/Nm33.1Nm (Avg)Max opening torque88 - 92°1 - 20.1Nm2 - 18.1Nm3 - 19.4NmN/aClosing moment.Closer Size 3Max closing moment 0 - 4°1 - 21.1Nm2 - 22.1Nm3 - 21.5NmN/aCloser Size 32 - 22.1Nm3 - 21.5NmPassMax closing torque 88 - 92°1 - 10.0Nm2 - 12.4Nm3 - 21.6Nm (Avg)PassMax closing torque 88 - 92°1 - 10.0Nm2 - 12.4Nm3 - 11.3NmPassSize 3 = >6NmSize 3 = >6Nm11.2Nm (Avg)PassMinimum closing torque at any angle1 - 8.7Nm2 - 8.4Nm3 - 8.4NmPassClosing timeMin < = 3 secs.Max > = 20 secs.2.50secs.10 abuse tests performedPassClosing timeOverload testMin < = 3 secs.0.03secs2.50secs.10.03secsPassClosing time 4Closing time 90° - 0° set to 10 secs.10 abuse tests performedSize 3 = 21Kg2.50secs.PassDelayedaction testsTorque to push door from delay zone max150 Nm min 2*90° torque for size of150 SNm min 2*90° torque for size ofYesN/a$			3 - 32.8Nm	1 400
Max opening torque $88 - 92^{\circ}$ 1 - 20.1Nm 2 - 18.1Nm 3 - 19.4NmN/aClosing moment. Closer Size 3Max closing moment 0 - 4°1 - 21.1Nm 2 - 22.1Nm 3 - 21.5NmN/aCloser Size 3Size 3 = >18 & <26Nm		Size 3 = <4/Nm	33.1Nm (Avg)	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Max opening torque	1 - 20.1Nm	
Closing moment. Closer Size 3Max closing moment $0 - 4^{\circ}$ 1 - 21.1 Nm 2 - 22.1 Nm 3 - 21.5 NmPassSize 3 = >18 & <26 Nm		88 - 92°	2 - 18.1Nm	N/a
Closing moment. Closer Size 3Max closing moment $0 - 4^{\circ}$ 1 - 21.1Nm 2 - 22.1Nm 3 - 21.5NmPassSize 3 = >18 & <26Nm			3 - 19.4Nm	_
Closing moment. Closer Size 3Max closing moment 0 - 4"1 - 21.1Nm 2 - 22.1Nm 3 - 21.5NmPassSize 3 = >18 & <26Nm		May alaging group at 0 49	19.2Nm (AVg)	
Closer Size 3 $2 - 22.1 \text{Nm}$ $3 - 21.5 \text{Nm}$ $21.6 \text{Nm} (Avg)$ PassMax closing torque 88 - 92° $1 - 10.0 \text{Nm}$ $2 - 12.4 \text{Nm}$ $3 - 11.3 \text{Nm}$ PassSize 3 = > 6 \text{Nm} $1 - 10.0 \text{Nm}$ $2 - 12.4 \text{Nm}$ $3 - 11.3 \text{Nm}$ PassMinimum closing torque at any angle $1 - 8.7 \text{Nm}$ $2 - 8.4 \text{Nm}$ $3 - 8.4 \text{Nm}$ $4 - 2.50 \text{secs.}$ PassClosing time overload testMin < = 3 secs. Overload abuse weight arrest at 15° $10 \text{ abuse tests performed}$ N/aDelayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secs <td>Closing moment.</td> <td>Max closing moment 0 - 4</td> <td>1 - 21.1NM</td> <td></td>	Closing moment.	Max closing moment 0 - 4	1 - 21.1NM	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Closer Size 3		Z = ZZ. [INIT]	Pass
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		Size 2 - >19 8 <26Nm	3 - 21.0NIII	
Max closing torque as - 921 - 10.00M 2 - 12.4Nm 3 - 11.3NmPass $2 - 12.4Nm$ 3 - 11.3NmPassSize 3 = > 6Nm11.2Nm (Avg)Minimum closing torque at any angle1 - 8.7Nm 2 - 8.4NmPass $2 - 8.4Nm$ 3 - 8.4Nm2 - 8.4NmEfficiencySize 3 Closer / Min Value 55%65.4%Closing timeMin < = 3 secs. Max > = 20 secs.2.50secs. 1min 34secs.Closing overload testAbuse weight Closing time 90° - 0° set to 10 secs. 0verload abuse weight arrest at 15° 10 abuse tests performed9assDelayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a		Size 3 = 210 & 201111	21.0Nm (Avg)	
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Immunum closing torque at any angle1 - 0.1 mm 2 - 8.4 Nm 3 - 8.4 Nm 8.5 Nm (Avg)PassEfficiencySize 3 Closer / Min Value 55%65.4 %PassClosing timeMin < = 3 secs. Max > = 20 secs.2.50 secs. 1 min 34 secs.PassClosing overload testAbuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performedSize 3 = 21 Kg 15° YesPassDelayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a		Minimum closing torque at any angle	1 - 8 7Nm	
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EfficiencySize 3 Closer / Min Value 55%65.4%PassClosing timeMin < = 3 secs. Max > = 20 secs.2.50secs. 1min 34secs.PassClosing overload testAbuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performedSize 3 = 21Kg 10.03secs 15°PassDelayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a		Size 3 = > 4Nm	8.5Nm (Avg)	
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Max > = 20 secs.1min 34secs.PassClosing overload testAbuse weight Closing time 90° - 0° set to 10 secs.Size 3 = 21Kg 10.03secsPassOverload abuse weight arrest at 15° 10 abuse tests performed10.03secs YesPassDelayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a	Closing time	Min < = 3 secs.	2.50secs.	Dava
Closing overload testAbuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performedSize 3 = 21Kg 10.03secs 15° YesPassDelayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a	5	Max > = 20 secs.	1min 34secs.	Pass
overload testClosing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed10.03secs 15° YesPassDelayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a	Closing	Abuse weight	Size 3 = 21Kg	
Overload abuse weight arrest at 15°15°Pass10 abuse tests performedYesDelayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a	overload test	Closing time 90° - 0° set to 10 secs.	10.03secs	Dees
10 abuse tests performed Yes Delayed Torque to push door from delay zone max action tests 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secs N/a		Overload abuse weight arrest at 15°	15°	Pass
Delayed action testsTorque to push door from delay zone max 150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a		10 abuse tests performed	Yes	
action tests150 Nm min 2*90° torque for size of closer Position of end of delay zone. Delay time adjustable to >20 secsN/a	Delayed	Torque to push door from delay zone max		
closer Position of end of delay zone. Delay time adjustable to >20 secs	action tests	150 Nm min 2*90° torque for size of		N/a
Delay time adjustable to >20 secs		closer Position of end of delay zone.		IN/a
		Delay time adjustable to >20 secs		

Clause 7.3.4 Tests after 5,000 cycles – **STANDARD FIXING POSITION**

Document No: Author:

Client:

WIL - 380055

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Specification	Requirement	Test result	Pass / Fail
Cycles completed	5,000 5,112cycles		Pass #
Ambient temp.	15 - 30° C 24°C		Pass
Closer temp	Within 2° of ambient	23°C	Pass
Opening moment.	Max opening torque	1 - 33.5Nm	
Closer Size 3	0 - 4°	2 - 33.8Nm	N/a
		3 - 35.5Nm	IN/a
		34.3Nm (Avg)	
	Max opening torque 0 - 60°	1 - 33.5Nm	
		2 - 33.8Nm	Pass
		3 - 33.5Nm	1 400
	Size 3 = <47Nm	33.6Nm (Avg)	
	Max opening torque	1 - 14.8Nm	
	88 - 92°	2 - 14.7Nm	N/a
		3 - 15.0Nm	
		14.8Nm (Avg)	
Closing moment.	Max closing moment 0 - 4°	1 - 21.8Nm	
Closer Size 3		2 - 22.8Nm	Pass
		3 - 21.8NM	
	Size 3 = >18 & <26Nm	ZZ.TNM (AVg)	
	Max closing torque 88 - 92°	1 - 9.6Nm	
		2 - 9.0NIII 2 - 0.6Nm	Pass
	Size $3 - 56$ Nm	3 = 9.0Nm (Avg)	
	Size 5 - 2 0NII	9.7Niii (Avg)	
		2 - 6 7Nm	
		3 - 7 1Nm	Pass
	Size 3 = > 4Nm	6.5Nm (Avg)	
Efficiency	Size 3 Closer / Min Value 55%	64.7%	Pass
Closing time	Min < = 3 secs.	2.87secs.	Dees
Ū	Max > = 20 secs.	1min 12secs.	Pass
Closing	Abuse weight	Size 3 = 21Kg	
overload test	Closing time 90° - 0° set to 10 secs.	10.03secs	Deee #
	Overload abuse weight arrest at 15°	15°	Pass #
	10 abuse tests performed	Yes	
Delayed	Torque to push door from delay zone max		
action tests	150 Nm min 2*90° torque for size of		N/a
	closer Position of end of delay zone.		IN/a
	Delay time adjustable to >20 secs		
H Daufawaaadin ataw	densel C. the second C. a		

Clause 7.3.4 Tests after 5,000 cycles - PARALLEL ARM

- Performed in standard fixing position.

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Specification	Requirement	Test result	Pass / Fail
Cycles completed	5,000	5,112 cycles	Pass #
Ambient temp.	15 - 30° C	24°C	Pass
Closer temp	Within 2° of ambient	23°C	Pass
Opening moment.	Max opening torque	1 - 30.3Nm	
Closer Size 3	0 - 4°	2 - 30.4Nm	N/a
		3 - 30.4Nm	IN/d
		30.4Nm (Avg)	
	Max opening torque 0 - 60°	1 - 30.3Nm	
		2 - 30.4Nm	Pass
		3 - 30.4Nm	1 400
	Size 3 = <4/Nm	30.4Nm (Avg)	
	Max opening torque	1 - 20.1Nm	
	88 - 92°	2 - 19.9Nm	N/a
		3 - 19.8NM	
<u>Clasing memory</u>	Max alacing moment 0 4°	19.9Nm (Avg)	
Closing moment.	Max closing moment 0 - 4	1 - 19./INII 2 - 10.7Nm	
Closel Size 3		2 - 19./INII 2 - 10.0Nm	Pass
	Size $3 = >18$ & <26Nm	10.8Nm (Avg)	
	$\frac{3126.3 - 210.4 \times 201011}{10.4 \times 201011}$	1 - 11 8Nm	
		2 - 11 5Nm	
		3 - 11 6Nm	Pass
	Size 3 = > 6Nm	11 6Nm (Avg)	
	Minimum closing torque at any angle	1 - 8.7Nm	
		2 - 8.8Nm	-
		3 - 8.9Nm	Pass
	Size 3 = > 4Nm	8.8Nm (Avg)	
Efficiency	Size 3 Closer / Min Value 55%	65.0%	Pass
Closing time	Min < = 3 secs.	2.78secs.	Bass
	Max > = 20 secs.	1min 47secs.	F 855
Closing	Abuse weight	Size 3 = 21Kg	
overload test	Closing time 90° - 0° set to 10 secs.	10.03secs	Pass #
	Overload abuse weight arrest at 15°	15°	1 055 #
	10 abuse tests performed	Yes	
Delayed	Torque to push door from delay zone max		
action tests	150 Nm min 2*90° torque for size of		N/a
	closer Position of end of delay zone.		i v/d
	Delay time adjustable to >20 secs		

Clause 7.3.4 Tests after 5,000 cycles - TRANSOM MOUNT PUSH 0MM HEAD PROJECTION

- Performed in standard fixing position

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Specification	Requirement	Test result	Pass / Fail
Cycles completed	5,000	5,112 cycles	Pass #
Ambient temp.	15 - 30° C	24°C	Pass
Closer temp	Within 2° of ambient	23°C	Pass
Opening moment.	Max opening torque	1 - 28.6Nm	
Closer Size 3	0 - 4°	2 - 28.3Nm	N/a
		3 - 28.3Nm	IN/C
		28.4Nm (Avg)	
	Max opening torque 0 - 60°	1 - 28.6Nm	
		2 - 28.3Nm	Pass
		3 - 28.3Nm	
	Size 3 = <4/Nm	28.4NM (AVg)	
		1 - 18.3Nm	
	88 - 92	2 - 18.9Nm	N/a
		3 - 17.7 Nm (Avg)	
Closing moment	Max closing moment $0 - 4^{\circ}$	1 - 10.5 Nm	
Closer Size 3	Max closing moment o - 4	2 - 18 0Nm	
		3 - 19 4Nm	Pass
	Size 3 = >18 & <26Nm	19.0Nm (Avg)	
	Max closing torque 88 - 92°	1 - 11.2Nm	
		2 - 11.5Nm	Deer
		3 - 11.7Nm	Pass
	Size 3 = > 6Nm	11.5Nm (Avg)	
	Minimum closing torque at any angle	1 - 6.5Nm	
		2 - 6.5Nm	Pass
		3 - 6.7Nm	F 855
	Size 3 = > 4Nm	6.6Nm (Avg)	
Efficiency	Size 3 Closer / Min Value 55%	68%	Pass
Closing time	Min < = 3 secs.	2.81secs.	Pass
	Max > = 20 secs.	1min 40secs.	1 400
Closing	Abuse weight	Size 3 = 21Kg	
overload test	Closing time 90° - 0° set to 10 secs.	10.03secs	Pass #
	Overload abuse weight arrest at 15°	15°	1 400 //
	10 abuse tests performed	Yes	
Delayed	I orque to push door from delay zone max		
action tests	150 Nm min 2°90° torque for size of		N/a
	closer Position of end of delay zone.		
	Delay time adjustable to >20 secs		

Clause 7.3.4 Tests after 5,000 cycles - TRANSOM MOUNT 40MM HEAD PROJECTION

- Performed in standard fixing position

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Specification	Requirement	Test result	Pass / Fail
Delayed action	Delay time set to 20 secs,		
closers only	Dwell time set to 270 secs		N/a
	Perform 500 cycles		IN/d
	Delay time for last 5 cycles 10s – 30 s		
Closing time	Closing time 90° - 0° set to 3 -7 secs	4.12 secs.	Pass #
Backcheck	Achieve an opening angle of 110°		N/a
Backcheck	Initial arrest angle 80°		N/a
Backcheck closers cycle up to 100,000 cycles with backcheck			N/a
as set.			IN/d
Backcheck Backcheck angle			N/a
Backcheck closers cycle from 100,000 cycles to 500,000			N/a
without backcheck			IN/d
None backcheck closers cycle from 5000 cycles to 500,000		500,000 cycles	Dass #
cycles			1 035 #

Continued cycling 5,000 cycles to 500,000 cycles

- Performed in standard fixing position.

Observations on cycling of closer from 5000 cycles to 500,000 cycles:- No visual signs of any leaks or damage

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Specification	Requirement	Test result	Pass / Fail
Cycles completed	500,000	500,000 cycles	Pass
Ambient temp.	15 - 30° C 23°C		Pass
Closer temp	Within 2° of original ambient.	22°C	Pass
Closing time	< 2* original > 0.7* original	4.75 secs (1.15*)	Pass
Opening moment Closer Size 3	Max opening torque 0 - 4°	1 - 29.3Nm 2 - 29.4Nm 3 - 29.5Nm 29.4Nm (Avg)	N/a
	Max opening torque 0 - 60° Size 3 = <47Nm	1 - 30.8Nm 2 - 30.8Nm 3 - 31.1Nm 30.9Nm (Avg)	Pass
	Max opening torque 88 - 92°	1 - 18.1Nm 2 - 18.1Nm 3 - 18.3Nm 18.2Nm (Avg)	N/a
Closing moment Closer Size 3	Max closing torque 0 - 4° Size 3 = >18 & <26Nm	1 - 19.4Nm 2 - 19.8Nm 3 - 19.6Nm 19.6Nm(Avg)	Pass
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 12.0Nm 2 - 12.1Nm 3 - 11.9Nm 12.0Nm (Avg)	Pass
	Min closing torque at any angle Size 3 = > 4Nm	1 - 8.5Nm 2 - 9.1Nm 3 - 8.9Nm 8.8Nm (Avg)	Pass
Efficiency	Size 3 Closer / Min Value 55%	66.7%	Pass
Closing time min Closing time max	< = 3 secs > = 20 secs	1.96 secs 2mins 0 secs to 1°	Pass
Closing overload test	Abuse weight, Closing time 90° - 0° set to 10 secs Overload arrest at 15° 10 abuse tests performed.	Size 3 = 21Kg 10.11secs 15° Yes	Pass #
Delayed action tests	Torque to push door from delay zone max 150 Nm min 2*90° torque for size of closer. Position of end of delay. Delay time adjustable to >20 secs.		N/a

Clause 7.3.4 tests after 500,000 cycles - STANDARD FIXING POSITION

Observations and comments on closer condition at 500,000 cycles:- No visual signs of any leaks or damage

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Clause 7.3.4 tests	after 500,000 cycles -	PARALLEL	ARM
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Specification	Requirement	Test result	Pass / Fail
Cycles completed	500,000	500,000 cycles	Pass #
Ambient temp.	15 - 30° C	23°C	Pass
Closer temp	Within 2° of original ambient.	22°C	Pass
Closing time	< 2* original > 0.7* original	4.75secs (1.15*)	Pass #
Opening moment	Max opening torque 0 - 4°	1 - 33.6Nm	
Closer Size 3		2 - 33.6Nm	N/a
		3 - 33.2Nm	N/a
		33.5Nm (Avg)	
	Max opening torque 0 - 60°	1 - 33.6Nm	
		2 - 33.6Nm	Pass
		3 - 33.2Nm	
	Size $3 = <47$ Nm	33.5NM (AVg)	
	Max opening torque 88 - 92	1 - 13.11NIII 2 12.2Nm	
		2 - 13.3 Nm	N/a
		$13.3 \text{Nm} (\Delta v \alpha)$	
Closing moment	Max closing torque $0 - 4^{\circ}$	1 - 22 3Nm	
Closer Size 3		2 - 21 9Nm	
		3 - 22 0Nm	Pass
	Size 3 = >18 & <26Nm	22.1Nm (Avg)	
	Max closing torgue 88 - 92°	1 - 8.5Nm	
		2 - 8.9Nm	Deee
		3 - 8.5Nm	Pass
	Size 3 = > 6Nm	8.6Nm (Avg)	
	Min closing torque at any angle	1 - 6.4Nm	
		2 - 6.2Nm	Pass
		3 - 5.9Nm	1 400
	Size 3 = > 4Nm	6.2Nm (Avg)	
Efficiency	Size 3 Closer / Min Value 55%	66.0%	Pass
Closing time min	< = 3 secs	2.37secs	Pass
Closing time max	> = 20 secs	50secs	
Closing overload	Abuse weight,	Size $3 = 21$ Kg	
test	Closing time 90° - 0° set to 10 secs	10.11secs	Pass #
	Overload allest at 15	15°	
Deleved estion	To abuse lesis periorneu.	res	
tests	150 Nm min 2*00° torque for size of		
10010	closer		N/a
	Position of end of delay		IN/CI
	Delay time adjustable to >20 secs.		

- Performed in standard fixing position

Observations and comments on closer condition at 500,000 cycles:- No visual signs of any leaks or damage

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Specification	Requirement	Test result	Pass / Fail
Cycles completed	500,000 500,000 cycles		Pass #
Ambient temp.	15 - 30° C	23°C	Pass
Closer temp	Within 2° of original ambient.	22°C	Pass
Closing time	< 2* original > 0.7* original	4.75secs (1.15*)	Pass #
Opening moment	Max opening torque 0 - 4°	1 - 26.8Nm	
Closer Size 3		2 - 26.9Nm	N/a
		3 - 26.6Nm	IN/a
		26.8Nm (Avg)	
	Max opening torque 0 - 60°	1 - 26.8Nm	
		2 - 26.9Nm	Pass
		3 - 26.6Nm	
	Size 3 = <4/Nm	26.8Nm (Avg)	
	Max opening torque 88 - 92°	1 - 18.6Nm	
		2 - 18.9Nm	N/a
		3 - 18.8NM	
	May alaging tangung Q 48	18.8Nm (Avg)	
Closing moment	Max closing torque 0 - 4	1 - 18.2NM	
Closer Size 3		2 - 10.010111 2 - 17.01m	Pass
	Size $3 = >18$ & <26Nm	18 ONm (Ava)	
	$\frac{31263 - 210 \text{ (C} \times 2000)}{1000 \text{ (C} \times 2000)}$	1 - 12.6 Nm	
		2 - 12.0 Nm	
		3 - 11 9Nm	Pass
	Size 3 = > 6Nm	12.3Nm (Ava)	
	Min closing torque at any angle	1 - 9.3Nm	
		2 - 9.2Nm	5
		3 - 8.6Nm	Pass
	Size 3 = > 4Nm	9.0Nm (Avg)	
Efficiency	Size 3 Closer / Min Value 55%	67.3%	Pass
Closing time min	< = 3 secs	2.32secs	Pass
Closing time max	> = 20 secs	1 min 42secs	F 855
Closing overload	Abuse weight,	Size 3 = 21Kg	
test	Closing time 90° - 0° set to 10 secs	10.11secs	Pass #
	Overload arrest at 15°	15°	1 033 #
	10 abuse tests performed.	Yes	
Delayed action	Torque to push door from delay zone max		
tests	150 Nm min 2*90° torque for size of		
	closer.		N/a
	Position of end of delay.		
	Delay time adjustable to >20 secs.		

Clause 7.3.4 tests after 500,000 cycles - TRANSOM MOUNT PUSH 0MM HEAD PROJECTION

- Performed in standard fixing position

Observations and comments on closer condition at 500,000 cycles:- No visual signs of any leaks or damage

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Specification	Requirement	Test result	Pass / Fail
Cycles completed	500,000	500,000 cycles	Pass #
Ambient temp.	15 - 30° C	23°C	Pass
Closer temp	Within 2° of original ambient.	22°C	Pass
Closing time	< 2* original > 0.7* original	4.75secs (1.15*)	Pass #
Opening moment	Max opening torque 0 - 4°	1 - 26.6Nm	
Closer Size 3		2 - 26.2Nm	N/a
		3 - 26.2Nm	IN/C
		26.3Nm (Avg)	
	Max opening torque 0 - 60°	1 - 26.6Nm	
		2 - 26.2Nm	Pass
		3 - 26.2Nm	
	Size $3 = \langle 4/NM \rangle$	26.3NM (AVg)	
	Max opening torque 88 - 92	1 - 16./INM	
		2 - 10.0INIII 2 - 16.4Nm	N/a
		3 - 10.4Nm (Avg)	
Closing moment	Max closing torque 0 4°	1 17 3Nm	
Closer Size 3		2 - 18 0Nm	
		3 - 17 1Nm	Fail
	Size 3 = >18 & <26Nm	17.5Nm (Avg)	
	Max closing torque 88 - 92°	1 - 10.7Nm	
		2 - 10.9Nm	Deee
		3 - 10.8Nm	Pass
	Size 3 = > 6Nm	10.8Nm (Avg)	
	Min closing torque at any angle	1 - 6.4Nm	
		2 - 6.4Nm	Pass
		3 - 6.4Nm	1 000
	Size 3 = > 4Nm	6.4Nm (Avg)	
Efficiency	Size 3 Closer / Min Value 55%	65.0%	Pass
Closing time min	< = 3 secs	2.25secs	Pass
Closing time max	> = 20 secs	1 min 42secs	
Closing overload	Abuse weight,	Size $3 = 21$ Kg	
test	Closing time 90° - 0° set to 10 secs	10.11secs	Pass
	10 abuse tests performed	15° Vee	
Delayed action	To abuse lesis periorneu.	res	
tests	150 Nm min 2*00° torque for size of		
10313	closer		N/a
	Position of end of delay		in/d
	Delay time adjustable to >20 secs		

Clause 7.3.4 tests after 500,000 cycles - TRANSOM MOUNT 40MM HEAD PROJECTION

- Performed in standard fixing position

Observations and comments on closer condition at 500,000 cycles:- No visual signs of any leaks or damage

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Specification	Requirement	Test result	Pass / Fail
Sample "C"	Closer set to Minimum strength	Size 3	Pass
Ambient temp.	15 - 30° C	22°C	Pass
Closer temp	Within 2° of ambient	23°C	Pass
Closing moment.	Max closing moment 0 - 4°	1 - 20.0Nm	
(ave of 3 tests)	Size 3 = >18 & <26Nm	2 - 20.3Nm	N/a
Closer Size 3		3 - 20.1Nm	-
		20.1Nm (AVg)	
	Max closing torque 88 - 92°	1 - 12.2Nm	
	Size $3 = > 6$ Nm	2 - 12.3NM	N/a
		3 - 12.2Nm	
	Min closing targue at any angles	12.2N/// (AVg)	
	Min closing torque at any angle>	1 - 9.11 Nm	
	Size 5 = > 4iviii	2 - 9.0	N/a
		$0.1 \text{Nm} (\Lambda va)$	
Crada of correction resistance	Exposure time Crade 2 : 06 Hours	9. INIII (AVY)	Page
Ambient temp		301115	Pass
Closer temp	13-50 C	22°C	F d S S
		22°C	Pass
Closing moment.	Max closing moment 0 - 4°	1 - 20.5NM	
(ave of 3 tests)	> 80% of above	2 - 21.2NM	Deee
Closer Size 3		3 - 20.8 Nm (Aug)	Pass
		20.6N/11 (AVG)	
	Max alaging targue 88 02°	(103%)	
	Nax closing lorque $86 - 92$	1 - 12.0	
		2 - 12.4 Nm	Page
		12.0000	F d 5 5
		(102%)	
	Minimum closing torque at any angle	(10270) 1 0.0Nm	
	> 80% of above	2 - 9.0 Nm	
		3 - 0.0 Nm	Pass
		9 0Nm (Avg)	1 455
		(99%)	

Details of any visual corrosion or damage during test. No visual signs of any leaks or damage

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OBSERVATIONS AND COMMENTS

The 5023AWE Overhead door closer sent for testing fully to BS EN 1154 met with all of the relevant temperature dependence, durability and corrosion resistance test requirements in standard fixing position at power size 3, additional fixing position checks were also performed in parallel arm application at power size 3 and were successful, transom mount push side application with and without head projection also was performed at power size 3, successful evidence was gained when checked without head project, however failed with 40mm head projection after completing 500,000 cycles due to the closing force 4-0deg being less than the required 18.0Nm.

Durability was performed in standard fixing position.

Clause 5.2.18 (Additional requirements for closers intended for fire or smoke doors) Originally failed to comply due to no fire test evidence currently being supplied.

Clause 8 (Product marking) Originally failed to comply due product not being marked with :

- 1. Manufacturers name or trademark or other means of identification,
- 2. Product model identification,
- 3. Standard number,
- 4. Week and year of manufacture,
- 5. Classification box.

Confirmation has now been received regarding the above outstanding points.

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Revision History

Issue No :	Re - Issue Date :
Revised By:	Approved By:
Reason for Revision:	

Issue No :	Re - Issue Date :
Revised By:	Approved By:
Reason for Revision:	

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

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