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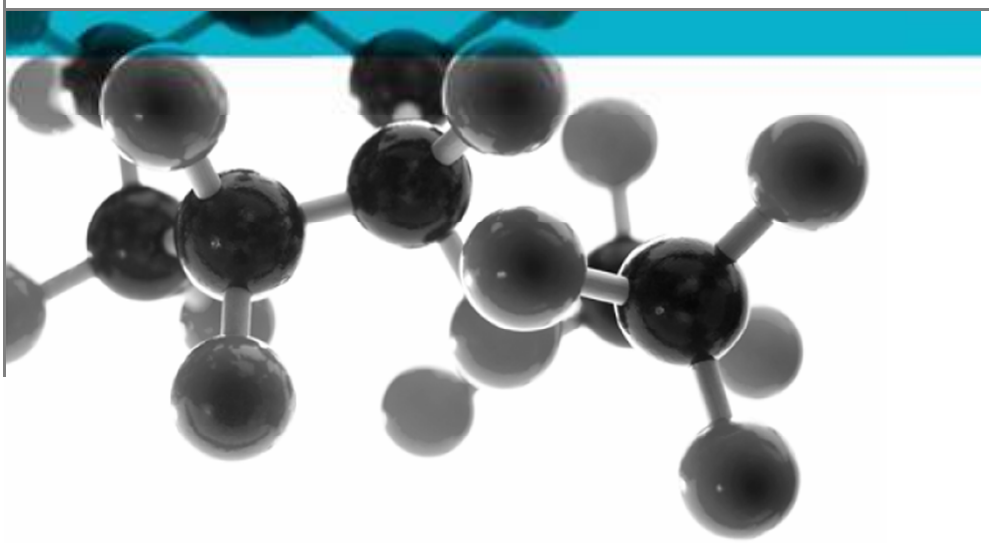
BS EN 1154:1997 / A1:2002



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

Date: 01/11/2017

Copy: **No 1**

Issue No: **No 1**

Testing
Advising
Assuring

UKAS TESTING
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

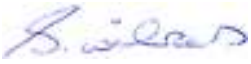
No inferences can be made regarding performance against other requirements of this standard

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

AUTHORISATION

Tests performed by: [Alex Wooldridge, Trainee Test Engineer]

Report issued by: [Steven Wilkes, Deputy Business Unit Head]

Signed 

Date 01/11/2017
For and on behalf of Exova (UK) Ltd

Report authorised by: [Ian Keeling, Business Unit Manager]

Signed 

Date 01/11/2017
For and on behalf of 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

INDEX

TEST DETAILS

CLIENT DETAILS

Company name	Wenzhou Oude Gating Technology
Address	No. 316 Jinhai 1st Avenue, Jinhai Industrial Zone, Wenzhou China
Contact	Allen Huang

ORDER DETAILS

Order number	Pro-forma
Dated	15/02/2017

SAMPLE DETAILS

Product	Overhead door closer
Models	5023AWE
Markings	Written confirmation received
Manufacturer	Wenzhou Oude Gating Technology
Date of Manufacture	Written confirmation received
Other information	None

TEST DETAILS

Test specification	BSEN 1154: 1997 – controlled door closing devices
Full test	Yes
Test to clauses	N/a
Corrosion resistance	Grade 3 : 96 Hours
Date sample received	23/02/2017
Date test started	06/03/2017
Date test completed	30/08/2017
Special Test requirements	Standard fixing position test, gaining evidence in parallel arm and transom mount push side applications at power size 3.
Other reports to be used in conjunction with this report	WF No 388801
Closer type:	With Latch action
Back check	No Back check
Delay	No delayed action
Arm configuration:	Projecting
Mounting:	Overhead surface mount

STANDARD REQUIREMENTS

Test door mass:		60kg (Size 3)
No of cycles:		500,000
Closing torque	0 - 4°:	18 - <26Nm (Size 3)
	88 - 92°:	>6Nm (Size 3)
	any angle:	>4Nm (Size 3)
Opening torque	0 - 60°:	<47Nm (Size 3)
Efficiency	0 - 4°:	55% (Size 3)

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 application and fixing position.	Yes	Closer power for each application 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 or other means of identification.	Yes	OUDE
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

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 Adjustable closers must be adjustable up to size 3	Size 3	Pass
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 tool.	Not possible	Pass
Delayed action closers must be capable of adjustment to <120 secs from 120°	No delayed action	N/a
Must have been subjected to a fire / smoke test	WF No 388801	Pass

CLAUSE 7.2.2 Operation at extremes of temperature.

Closer temperature	Conditioning time (8 hours) minimum	Test requirement	Measured closing time - seconds				Pass / Fail
			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

SAMPLE B

Clause 7.3 Mechanical performance and durability

Operating angle and test settings.

	Test requirement	Test result	Pass / Fail
Closer strength – Size 3	Test door mass 60Kg	60Kg	Pass
Maximum opening angle	105° grade 3, 180° grade 4	180°	Pass
Door closes from	105° grade 3, 180° grade 4	180°	Pass
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

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

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. Closer Size 3	Max opening torque 0 - 4°	1 - 32.8Nm 2 - 33.4Nm 3 - 32.7Nm 33.0Nm (Avg)	N/a
	Max opening torque 0 - 60° Size 3 = <47Nm	1 - 33.0Nm 2 - 33.4Nm 3 - 32.8Nm 33.1Nm (Avg)	Pass
	Max opening torque 88 - 92°	1 - 20.1Nm 2 - 18.1Nm 3 - 19.4Nm 19.2Nm (Avg)	N/a
Closing moment. Closer Size 3	Max closing moment 0 - 4° Size 3 = >18 & <26Nm	1 - 21.1Nm 2 - 22.1Nm 3 - 21.5Nm 21.6Nm (Avg)	Pass
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 10.0Nm 2 - 12.4Nm 3 - 11.3Nm 11.2Nm (Avg)	Pass
	Minimum closing torque at any angle Size 3 = > 4Nm	1 - 8.7Nm 2 - 8.4Nm 3 - 8.4Nm 8.5Nm (Avg)	Pass
Efficiency	Size 3 Closer / Min Value 55%	65.4%	Pass
Closing time	Min < = 3 secs. Max > = 20 secs.	2.50secs. 1min 34secs.	Pass
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed	Size 3 = 21Kg 10.03secs 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 zone. Delay time adjustable to >20 secs		N/a

Clause 7.3.4 Tests after 5,000 cycles – **PARALLEL ARM**

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. Closer Size 3	Max opening torque 0 - 4°	1 - 33.5Nm 2 - 33.8Nm 3 - 35.5Nm 34.3Nm (Avg)	N/a
	Max opening torque 0 - 60° Size 3 = <47Nm	1 - 33.5Nm 2 - 33.8Nm 3 - 33.5Nm 33.6Nm (Avg)	Pass
	Max opening torque 88 - 92°	1 - 14.8Nm 2 - 14.7Nm 3 - 15.0Nm 14.8Nm (Avg)	N/a
Closing moment. Closer Size 3	Max closing moment 0 - 4° Size 3 = >18 & <26Nm	1 - 21.8Nm 2 - 22.8Nm 3 - 21.8Nm 22.1Nm (Avg)	Pass
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 9.6Nm 2 - 9.8Nm 3 - 9.6Nm 9.7Nm (Avg)	Pass
	Minimum closing torque at any angle Size 3 = > 4Nm	1 - 5.6Nm 2 - 6.7Nm 3 - 7.1Nm 6.5Nm (Avg)	Pass
Efficiency	Size 3 Closer / Min Value 55%	64.7%	Pass
Closing time	Min < = 3 secs. Max > = 20 secs.	2.87secs. 1min 12secs.	Pass
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed	Size 3 = 21Kg 10.03secs 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 zone. Delay time adjustable to >20 secs		N/a

- Performed in standard fixing position.

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

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. Closer Size 3	Max opening torque 0 - 4°	1 - 30.3Nm 2 - 30.4Nm 3 - 30.4Nm 30.4Nm (Avg)	N/a
	Max opening torque 0 - 60° Size 3 = <47Nm	1 - 30.3Nm 2 - 30.4Nm 3 - 30.4Nm 30.4Nm (Avg)	Pass
	Max opening torque 88 - 92°	1 - 20.1Nm 2 - 19.9Nm 3 - 19.8Nm 19.9Nm (Avg)	N/a
Closing moment. Closer Size 3	Max closing moment 0 - 4° Size 3 = >18 & <26Nm	1 - 19.7Nm 2 - 19.7Nm 3 - 19.9Nm 19.8Nm (Avg)	Pass
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 11.8Nm 2 - 11.5Nm 3 - 11.6Nm 11.6Nm (Avg)	Pass
	Minimum closing torque at any angle Size 3 = > 4Nm	1 - 8.7Nm 2 - 8.8Nm 3 - 8.9Nm 8.8Nm (Avg)	Pass
Efficiency	Size 3 Closer / Min Value 55%	65.0%	Pass
Closing time	Min < = 3 secs. Max > = 20 secs.	2.78secs. 1min 47secs.	Pass
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed	Size 3 = 21Kg 10.03secs 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 zone. Delay time adjustable to >20 secs		N/a

- Performed in standard fixing position

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

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. Closer Size 3	Max opening torque 0 - 4°	1 - 28.6Nm 2 - 28.3Nm 3 - 28.3Nm 28.4Nm (Avg)	N/a
	Max opening torque 0 - 60° Size 3 = <47Nm	1 - 28.6Nm 2 - 28.3Nm 3 - 28.3Nm 28.4Nm (Avg)	Pass
	Max opening torque 88 - 92°	1 - 18.3Nm 2 - 18.9Nm 3 - 17.7Nm 18.3Nm (Avg)	N/a
Closing moment. Closer Size 3	Max closing moment 0 - 4° Size 3 = >18 & <26Nm	1 - 19.5Nm 2 - 18.0Nm 3 - 19.4Nm 19.0Nm (Avg)	Pass
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 11.2Nm 2 - 11.5Nm 3 - 11.7Nm 11.5Nm (Avg)	Pass
	Minimum closing torque at any angle Size 3 = > 4Nm	1 - 6.5Nm 2 - 6.5Nm 3 - 6.7Nm 6.6Nm (Avg)	Pass
Efficiency	Size 3 Closer / Min Value 55%	68%	Pass
Closing time	Min < = 3 secs. Max > = 20 secs.	2.81secs. 1min 40secs.	Pass
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed	Size 3 = 21Kg 10.03secs 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 zone. Delay time adjustable to >20 secs		N/a

- Performed in standard fixing position

Continued cycling 5,000 cycles to 500,000 cycles

Specification	Requirement	Test result	Pass / Fail
Delayed action closers only	Delay time set to 20 secs, Dwell time set to 270 secs Perform 500 cycles Delay time for last 5 cycles 10s – 30 s		N/a
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 as set.			N/a
Backcheck	Backcheck angle		N/a
Backcheck closers cycle from 100,000 cycles to 500,000 without backcheck			N/a
None backcheck closers cycle from 5000 cycles to 500,000 cycles		500,000 cycles	Pass #

- 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

Clause 7.3.4 tests after 500,000 cycles – **STANDARD FIXING POSITION**

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

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

Clause 7.3.4 tests after 500,000 cycles – **PARALLEL ARM**

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 Closer Size 3	Max opening torque 0 - 4°	1 - 33.6Nm 2 - 33.6Nm 3 - 33.2Nm 33.5Nm (Avg)	N/a
	Max opening torque 0 - 60° Size 3 = <47Nm	1 - 33.6Nm 2 - 33.6Nm 3 - 33.2Nm 33.5Nm (Avg)	Pass
	Max opening torque 88 - 92°	1 - 13.1Nm 2 - 13.3Nm 3 - 13.4Nm 13.3Nm (Avg)	N/a
Closing moment Closer Size 3	Max closing torque 0 - 4° Size 3 = >18 & <26Nm	1 - 22.3Nm 2 - 21.9Nm 3 - 22.0Nm 22.1Nm (Avg)	Pass
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 8.5Nm 2 - 8.9Nm 3 - 8.5Nm 8.6Nm (Avg)	Pass
	Min closing torque at any angle Size 3 = > 4Nm	1 - 6.4Nm 2 - 6.2Nm 3 - 5.9Nm 6.2Nm (Avg)	Pass
Efficiency	Size 3 Closer / Min Value 55%	66.0%	Pass
Closing time min Closing time max	< = 3 secs > = 20 secs	2.37secs 50secs	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

- Performed in standard fixing position

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

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

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 Closer Size 3	Max opening torque 0 - 4°	1 - 26.8Nm 2 - 26.9Nm 3 - 26.6Nm 26.8Nm (Avg)	N/a
	Max opening torque 0 - 60° Size 3 = <47Nm	1 - 26.8Nm 2 - 26.9Nm 3 - 26.6Nm 26.8Nm (Avg)	Pass
	Max opening torque 88 - 92°	1 - 18.6Nm 2 - 18.9Nm 3 - 18.8Nm 18.8Nm (Avg)	N/a
Closing moment Closer Size 3	Max closing torque 0 - 4° Size 3 = >18 & <26Nm	1 - 18.2Nm 2 - 18.0Nm 3 - 17.9Nm 18.0Nm (Avg)	Pass
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 12.6Nm 2 - 12.4Nm 3 - 11.9Nm 12.3Nm (Avg)	Pass
	Min closing torque at any angle Size 3 = > 4Nm	1 - 9.3Nm 2 - 9.2Nm 3 - 8.6Nm 9.0Nm (Avg)	Pass
Efficiency	Size 3 Closer / Min Value 55%	67.3%	Pass
Closing time min Closing time max	< = 3 secs > = 20 secs	2.32secs 1 min 42secs	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

- Performed in standard fixing position

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

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

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 Closer Size 3	Max opening torque 0 - 4°	1 - 26.6Nm 2 - 26.2Nm 3 - 26.2Nm 26.3Nm (Avg)	N/a
	Max opening torque 0 - 60° Size 3 = <47Nm	1 - 26.6Nm 2 - 26.2Nm 3 - 26.2Nm 26.3Nm (Avg)	Pass
	Max opening torque 88 - 92°	1 - 16.7Nm 2 - 16.5Nm 3 - 16.4Nm 16.5Nm (Avg)	N/a
Closing moment Closer Size 3	Max closing torque 0 - 4° Size 3 = >18 & <26Nm	1 - 17.3Nm 2 - 18.0Nm 3 - 17.1Nm 17.5Nm (Avg)	Fail
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 10.7Nm 2 - 10.9Nm 3 - 10.8Nm 10.8Nm (Avg)	Pass
	Min closing torque at any angle Size 3 = > 4Nm	1 - 6.4Nm 2 - 6.4Nm 3 - 6.4Nm 6.4Nm (Avg)	Pass
Efficiency	Size 3 Closer / Min Value 55%	65.0%	Pass
Closing time min Closing time max	< = 3 secs > = 20 secs	2.25secs 1 min 42secs	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

- Performed in standard fixing position

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

Clause 7.4 Sample “C” Corrosion resistance tests

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. (ave of 3 tests) Closer Size 3	Max closing moment 0 - 4° Size 3 = >18 & <26Nm	1 - 20.0Nm 2 - 20.3Nm 3 - 20.1Nm 20.1Nm (Avg)	N/a
	Max closing torque 88 - 92° Size 3 = > 6Nm	1 - 12.2Nm 2 - 12.3Nm 3 - 12.2Nm 12.2Nm (Avg)	N/a
	Min closing torque at any angle> Size 3 = > 4Nm	1 - 9.1Nm 2 - 9.0Nm 3 - 9.2Nm 9.1Nm (Avg)	N/a
Grade of corrosion resistance	Exposure time Grade 3 : 96 Hours	96hrs	Pass
Ambient temp.	15 - 30° C	22°C	Pass
Closer temp	Within 2° of ambient	22°C	Pass
Closing moment. (ave of 3 tests) Closer Size 3	Max closing moment 0 - 4° > 80% of above	1 - 20.5Nm 2 - 21.2Nm 3 - 20.8Nm 20.8Nm (Avg) (103%)	Pass
	Max closing torque 88 - 92° > 80% of above	1 - 12.6Nm 2 - 12.4Nm 3 - 12.3Nm 12.4Nm (Avg) (102%)	Pass
	Minimum closing torque at any angle > 80% of above	1 - 9.0Nm 2 - 9.0Nm 3 - 9.0Nm 9.0Nm (Avg) (99%)	Pass

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

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.

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 -----