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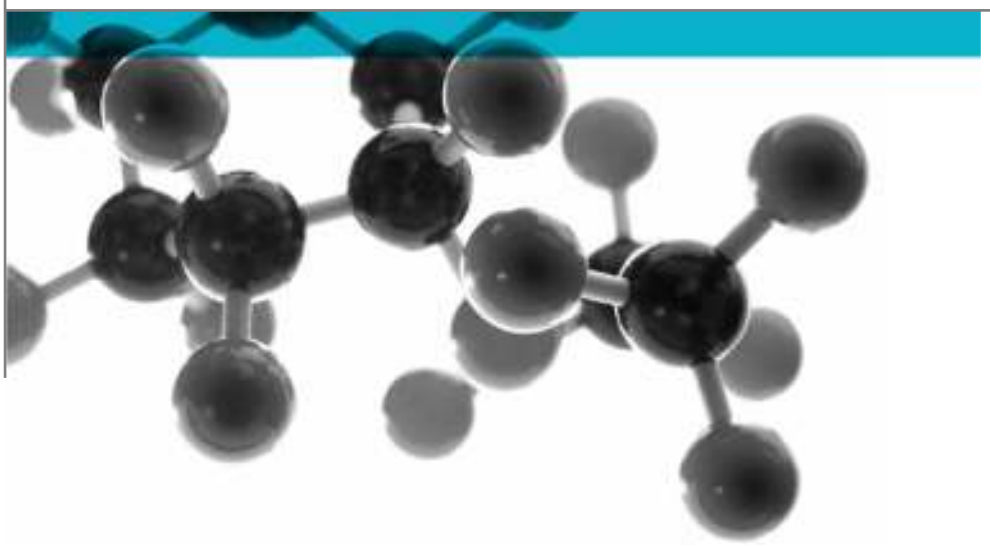
BS EN 1154:1997 / A1:2002



TESTS OF:

IT920 ADJUSTABLE STRENGTH SINGLE ACTION CONTROLLED DOOR CLOSING DEVICE

A Report To: Leado Door Controls
No 4, Ally 54
Tain Jhong Yang Lane
Yuanlin
Changhua Country 510
Taiwan

Document Reference: WIL 353191

Date: 17.10.2016

Copy: 1

Issue No.: 1

Testing
Advising
Assuring

UKAS TESTING
0621

TEST CONCLUSIONS

Samples of:
Manufacturer Dorint
Product Overhead door closer
Model IT920
have been tested in accordance with:
BSEN 1154: 1997/ A1:2002 (Building hardware - Controlled door closing devices.)
By Exova Warringtonfire [A UKAS accredited Testing Laboratory (No. 0621)
At Key Industrial Park, Fernside Rd., Willenhall. West Midlands. WV13 3YA.
Results and comments as detailed below:

Clause No.	Description	Complience
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 " NA" are not applicable to the type of device under test.
Tests marked "NT" cannot be applied to the type of device under test

AUTHORISATION

Tests performed by: Lewis Chan, Test Engineer

Report issued by: Lewis Chan, Test Engineer

Signed

Date 17.10.2016
For and on behalf of Exova

Report authorised by: Steve Wilkes, Deputy Business Unit head

Signed

Date 17.10.2016
For and on behalf of Exova

Report issued: 17.10.2016

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	Leado Door Controls
Address	No4, Ally 54 Tain Jhong Lane Yuanlin Town Changhua Country 510 Taiwan
Contact	Ruby Tsao
ORDER DETAILS	
Order number	LD05062015
Dated	05.06.2015
SAMPLE DETAILS	
Product	Overhead door closer
Models	IT920
Markings	Written confirmation received
Manufacturer	Dorint
Date of Manufacture	484/2113
Other information	None
TEST DETAILS	
Test specification	BSEN 1154: 1997 – controlled door closing devices
Full test	Yes
Test to clauses	BS EN 1154
Corrosion resistance	Yes
Date sample received	04.06.2015
Date test started	05.06.2015
Date test completed	21.08.2015
Special Test requirements	Full test
Other reports to be used in conjunction with this report	WF No 369490.
Closer type:	With latch action
backcheck	No
Delay	Not possible
Arm configuration:	Single with track
Mounting:	Overhead Surface

STANDARD REQUIREMENTS

Test door mass:	40Kg.	80 Kg
No of cycles:	500,000	500,000
Closing torque 0 - 4°:	>= 13 < 18Nm	>= 26 < 37Nm
88 - 92°:	4Nm	9Nm
any angle:	3Nm	6Nm
Opening torque 0 - 60°:	36Nm	62Nm
Efficiency 0 - 4°:	50%	60%

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	Supplied
Arms	YES	Supplied
Fixing brackets	NO	Not supplied
Shoes or straps	NO	N/a
Top centres	NO	N/a
Floor pivots	NO	N/a
Fixing screws	YES	Supplied
Covers	YES	Supplied
Special tools	YES	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	Shown
Instructions for regulation.	YES	Shown
Instructions for maintenance.	YES	Shown
Limitations of opening angle.	YES	120°
Details of closer power for each application and fixing position.	YES	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	Dorint
Product model identification.	YES	Written confirmation
Standard number	YES	EN 1154
Week and year of manufacture.	YES	484/2113

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

Category	Number of test cycles	Test door mass	Fire resistance	Safety	Corrosion resistance
3	8	2 to 4	1	1	3
Yes	Yes	Yes	Yes	Yes	Yes

TEST RESULTS

CLOSER SET TO MINIMUM STRENGTH

SAMPLE A1

Clause 7.2 General Requirements and operation at extremes of temperature

Clause 5.1 - Product information – see Page 6

Clause 8 – Marking – see Page 6

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 11°
Latch effect adjustable YES

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

Requirement	Test information	P = Pass F = Fail
Capable of closing door from any angle to which it may open	Capable	P
Size 1 and 2 closers not permitted Adjustable closers must be adjustable up to size 3	Size 2 to 4	P
No hold open unless electrically powered.	No hold open	P
Regulators must be either concealed or operated by a tool	Tool operated	P
It must not be possible to inhibit closing action without use if a tool.	Not possible	P
Delayed action closers must be capable of adjustment to <120 secs from 120°	No delay	P
Must have been subjected to a fire / smoke test	WF No 369490	P

CLAUSE 7.2.2 Operation at extremes of temperature.

Closer temperature	Conditioning time (8 hours) minimum	Test requirement	Measured closing time - seconds				P = Pass F = Fail
			1	2	3	average	
Sample "A.1" Minimum strength closer - Size 2 Test door mass 40Kg							
+20°C	8hrs	set to 5 secs	4.93	4.90	4.88	4.90	P
-15°C	16hrs	3 secs min	15.94	15.47	15.00	15.47	P
+40°C	8hrs	25 secs max	3.50	3.47	3.47	3.48	P

Closer condition after thermal compensation test:

Satisfactory

SAMPLE B1

Clause 7.3 Mechanical performance and durability

Operating angle and test settings.

	Test requirement	Test result	P = Pass F =Fail
Closer strength - size 2	Test door mass 40Kg.	40kg	P
Maximum opening angle	105° grade 3, 180° grade 4	120°	P
Door closes from	105° grade 3, 180° grade 4	120°	P
Door under control from	70° minimum	96°	P
Set closing time 90° to 0°	3 - 7 secs	4.03 secs	P
Set opening time 0 - 90°	2 - 3 secs	2.36 secs	P

Closer cycled for 5000 cycles

Observations on initial cycling of closer up to 5000 cycles:-

Satisfactory

Clause 7.3.4 Tests after 5000 cycles – **Standard fixing position**

Specification	Requirement	Test result	P = Pass F = Fail
Cycles completed	5,000	5,000 cycles	P
Ambient temp.	15 - 30° C	22.5°C	P
Closer temp	Within 2° of ambient	22.5°C	P
Opening moment. (ave of 3 tests) Closer size 2	Max opening torque 0 - 4°	19.7Nm	N/a
	Max opening torque 0 - 60° < = 36Nm	26.8Nm	P
	Max opening torque 88 - 92°	19.7Nm	N/a
Closing moment. (ave of 3 tests) Closer size 2	Max closing moment 0 - 4° > = 13 < 18Nm	14.7Nm	P
	Max closing torque 88 - 92° > = 4Nm	12.2Nm	P
	Minimum closing torque at any angle ➢ = 3Nm	6.5Nm	P
Efficiency	Size 2 closer min value 50%	74%	P
Closing time	Min < = 3 secs. Max > = 20 secs.	1.78 secs. 2 mins to 63°	P
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed	18kg 10.03 secs 15° 10 performed	P
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 5000 cycles – **Transom mount no head projection**

Specification	Requirement	Test result	P = Pass F = Fail
Cycles completed	5,000	5,000 cycles	P
Ambient temp.	15 - 30° C	22.5°C	P
Closer temp	Within 2° of ambient	22.5°C	P
Opening moment. (ave of 3 tests) Closer size 2	Max opening torque 0 - 4°	21.8Nm	N/a
	Max opening torque 0 - 60° < = 36Nm	24.3Nm	P
	Max opening torque 88 - 92°	14.1Nm	N/a
Closing moment. (ave of 3 tests) Closer size 2	Max closing moment 0 - 4° > = 13 < 18Nm	14.8Nm	P
	Max closing torque 88 - 92° > = 4Nm	6.0Nm	P
	Minimum closing torque at any angle ➢ = 3Nm	5.2Nm	P
Efficiency	Size 2 closer min value 50%	67%	P
Closing time	Min < = 3 secs. Max > = 20 secs.	2.15 secs. 2 mins to 69°	P
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed		N/t
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

Continued cycling 5000 cycles to 500,000 cycles

Specification	Requirement	Test result	P = Pass F = 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	4.08 secs.	P
Backcheck	Achieve an opening angle of 110°		N/a
Backcheck closers cycle up to 100,000 cycles with backcheck as set.			N/a
Backcheck	Arrest angle < 80°		N/a
Backcheck closers cycle from 100,000 cycles to 500,000 without backcheck			N/a
Nonbackcheck closers cycle from 5000 cycles to 500,000 cycles		500,000 cycles	P

Observations on cycling of closer from 5000 cycles to 500,000 cycles:-

Satisfactory

Clause 7.3.4 tests after 500,000 cycles - **Standard fixing position**

Specification	Requirement	Test result	P = Pass F = Fail
Cycles completed	500,000	500,000 cycles	P
Ambient temp.	15 - 30° C	23.2°C	P
Closer temp	Within 2° of original ambient.	23.2°C	P
Closing time	< 2* original > 0.7* original	5.03 secs (1.23)*	P
Opening moment Closer size 2	Max opening torque 0 - 4°	20.9Nm	N/a
	Max opening torque 0 - 60° <36 Nm	30.4Nm	P
	Max opening torque 88 - 92°	25.7Nm	N/a
Closing moment Closer size 2	Max closing torque 0 - 4° > = 13 < 18 Nm	15.2Nm	P
	Max closing torque 88 - 92° ➢ = 3Nm	11.9Nm	P
	Min closing torque at any angle ➢ =2Nm	8.5Nm	P
Efficiency	Size 2 closer Minimum value 50%	72%	P
Closing time min Closing time max	< = 3 secs > = 20 secs	1.81 secs 2 mins to 59°	P
Closing overload test	Abuse weight, Closing time 90° - 0° set to 10 secs Overload arrest at 15° 10 abuse tests performed.	18kg 9.98 secs 15° 10 performed	P
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:-

Satisfactory

Clause 7.3.4 Tests after 500,000 cycles – **Transom mount no head projection**

Specification	Requirement	Test result	P = Pass F = Fail
Cycles completed	5,000	5,000 cycles	P
Ambient temp.	15 - 30° C	23.2°C	P
Closer temp	Within 2° of ambient	23.2°C	P
Opening moment. (ave of 3 tests) Closer size 2	Max opening torque 0 - 4°	21.3Nm	N/a
	Max opening torque 0 - 60° < = 36Nm	24.5Nm	P
	Max opening torque 88 - 92°	14.4Nm	N/a
Closing moment. (ave of 3 tests) Closer size 2	Max closing moment 0 - 4° > = 13 < 18Nm	14.4Nm	P
	Max closing torque 88 - 92° > = 4Nm	6.8Nm	P
	Minimum closing torque at any angle ➢ = 3Nm	6.0Nm	P
Efficiency	Size 2 closer min value 50%	67%	P
Closing time	Min < = 3 secs. Max > = 20 secs.	2.15 secs. 2 mins to 71°	P
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed		N/t
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

Observations and comments on closer condition at 500,000 cycles:-

Satisfactory

CLOSER SET TO MAXIMUM STRENGTH

SAMPLE A2

Clause 7.2 General Requirements and operation at extremes of temperature

Clause 5.1 - Product information – see Page 6

Clause 8 – Marking – see Page 6

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 8°
Latch effect adjustable YES

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

Requirement	Test information	P = Pass F = Fail
Capable of closing door from any angle to which it may open	Capable	P
Size 1 and 2 closers not permitted Adjustable closers must be adjustable up to size 3	Size 4	P
No hold open unless electrically powered.	No hold open	P
Regulators must be either concealed or operated by a tool	Tool operated	P
It must not be possible to inhibit closing action without use if a tool.	Not possible	P
Delayed action closers must be capable of adjustment to <120 secs from 120°	No delay	N/a
Must have been subjected to a fire / smoke test	369490	P

CLAUSE 7.2.2 Operation at extremes of temperature.

Closer temperature	Conditioning time (8 hours) minimum	Test requirement	Measured closing time - seconds				P = Pass F = Fail
			1	2	3	average	
Sample "A.2" Maximum strength closer - size 4 Test door mass 80Kg							
+20°C	8hrs	set to 5 secs	4.91	4.90	4.88	4.90	P
-15°C	16hrs	3 secs min	15.12	14.50	13.94	14.52	P
+40°C	8hrs	25 secs max	3.75	3.72	3.73	3.73	P

Closer condition after thermal compensation test:

Satisfactory

SAMPLE B2

Clause 7.3 Mechanical performance and durability

Operating angle and test settings.

	Test requirement	Test result	P = Pass F =Fail
Closer strength - size 4	Test door mass 80Kg.	80kg	P
Maximum opening angle	105° grade 3, 180° grade 4	120°	P
Door closes from	105° grade 3, 180° grade 4	120°	P
Door under control from	70° minimum	97°	P
Set closing time 90° to 0°	3 - 7 secs	3.91 secs	P
Set opening time 0 - 90°	2 - 3 secs	2.21 secs	P

Closer cycled for 5000 cycles

Observations on initial cycling of closer up to 5000 cycles:-

Satisfactory

Clause 7.3.4 Tests after 5000 cycles – **Standard fixing position**

Specification	Requirement	Test result	P = Pass F = Fail
Cycles completed	5,000	5,000 cycles	P
Ambient temp.	15 - 30° C	22.5°C	P
Closer temp	Within 2° of ambient	22.5°C	P
Opening moment. (ave of 3 tests) Closer size 4	Max opening torque 0 - 4°	38.8Nm	N/a
	Max opening torque 0 - 60° 62Nm	42.6Nm	P
	Max opening torque 88 - 92°	29.2Nm	N/a
Closing moment. (ave of 3 tests) Closer size 4	Max closing moment 0 - 4° > = 26 < 37Nm	29.0Nm	P
	Max closing torque 88 - 92° > = 9Nm	18.0Nm	P
	Minimum closing torque at any angle ➢ = 6Nm	10.6Nm	P
Efficiency	Size 4 closer min value 60%	74%	P
Closing time	Min < = 3 secs. Max > = 20 secs.	2.25 secs. 2 mins to 80°	P
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed	24kg 10.02 secs 15° 10 performed	P
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 5000 cycles – **Transom mount no head projection (size 3)**

Specification	Requirement	Test result	P = Pass F = Fail
Cycles completed	5,000	5,000 cycles	P
Ambient temp.	15 - 30° C	22.5°C	P
Closer temp	Within 2° of ambient	22.5°C	P
Opening moment. (ave of 3 tests) Closer size 3	Max opening torque 0 - 4°	37.6Nm	N/a
	Max opening torque 0 - 60° > = 47Nm	39.3Nm	P
	Max opening torque 88 - 92°	20.6Nm	N/a
Closing moment. (ave of 3 tests) Closer size 3	Max closing moment 0 - 4° > = 18 < 26Nm	24.7Nm	P
	Max closing torque 88 - 92° > = 6Nm	7.9Nm	P
	Minimum closing torque at any angle ➢ = 4Nm	6.4Nm	P
Efficiency	Size 3 closer min value 55%	65%	P
Closing time	Min < = 3 secs. Max > = 20 secs.	2.82 secs. 2 mins to 78°	P
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed		N/t
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

Continued cycling 5000 cycles to 500,000 cycles

Specification	Requirement	Test result	P = Pass F = 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	4.10 secs.	P
Backcheck	Achieve an opening angle of 110° (For adjustable back check models) Arrest angle < 80°		N/a
Backcheck closers cycle up to 100,000 cycles with backcheck as set.			N/a
Backcheck	Arrest angle < 80°		N/a
Backcheck closers cycle from 100,000 cycles to 500,000 without backcheck			N/a
Nonbackcheck closers cycle from 5000 cycles to 500,000 cycles		500,000 cycles	P

Observations on cycling of closer from 5000 cycles to 500,000 cycles:-

Satisfactory

Transom mount 0mm head projection could not achieve power size 4.
Client confirmed ok to proceed at power sizes 2 to 3.

Clause 7.3.4 tests after 500,000 cycles - **Standard fixing position**

Specification	Requirement	Test result	P = Pass F = Fail
Cycles completed	500,000	500,000 cycles	P
Ambient temp.	15 - 30° C	21.8°C	P
Closer temp	Within 2° of original ambient.	21.8°C	P
Closing time	< 2* original > 0.7* original	4.56 secs (1.11)*	P
Opening moment Closer size 4	Max opening torque 0 - 4°	39.2Nm	N/a
	Max opening torque 0 - 60° < = 62Nm	40.9Nm	P
	Max opening torque 88 - 92°	30.9Nm	N/a
Closing moment Closer size 4	Max closing torque 0 - 4° ➢ = 26 < 37Nm	27.3Nm	P
	Max closing torque 88 - 92° ➢ = 9Nm	16.5Nm	P
	Min closing torque at any angle ➢ = 6Nm	12.4Nm	P
Efficiency	Size 4 closer Minimum value 60%	69%	P
Closing time	Min < = 3 secs Max > 20 secs	2.28 secs 2 min to 75°	P
Closing overload test	Abuse weight, Closing time 90° - 0° set to 10 secs Overload arrest at 15° 10 abuse tests performed.	24kg 10.03 secs 15° 10 performed	P
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:-

Satisfactory

Clause 7.3.4 Tests after 500,000 cycles – **Transom mount no head projection (size 3)**

Specification	Requirement	Test result	P = Pass F = Fail
Cycles completed	5,000	500,000 cycles	P
Ambient temp.	15 - 30° C	21.8°C	P
Closer temp	Within 2° of ambient	21.8°C	P
Opening moment. (ave of 3 tests) Closer size 3	Max opening torque 0 - 4°	40.7Nm	N/a
	Max opening torque 0 - 60° 47Nm	40.7Nm	P
	Max opening torque 88 - 92°	21.4Nm	N/a
Closing moment. (ave of 3 tests) Closer size 3	Max closing moment 0 - 4° > = 18 < 26Nm	26.4Nm	P
	Max closing torque 88 - 92° > = 6Nm	10.5Nm	P
	Minimum closing torque at any angle ➢ = 4Nm	8.3Nm	P
Efficiency	Size 3 closer min value 55%	64%	P
Closing time	Min < = 3 secs. Max > = 20 secs.	2.63 secs. 2 mins to 84°	P
Closing overload test	Abuse weight Closing time 90° - 0° set to 10 secs. Overload abuse weight arrest at 15° 10 abuse tests performed		N/t
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 7.4 Sample "C" Corrosion resistance tests

Specification	Requirement	Test result	P =Pass F = Fail
Sample "C"	Closer set to Minimum strength	Size 2	P
Ambient temp.	15 - 30° C	21.1°C	P
Closer temp	Within 2° of ambient	21.1°C	P
Closing moment. (ave of 3 tests) Closer size 2	Max closing moment 0 - 4° > = 13 < 18Nm	15.3Nm	P
	Max closing torque 88 - 92° > = 4Nm	12.6Nm	P
	Minimum closing torque at any angle > = 3Nm	7.5Nm	P
Grade of corrosion resistance	Exposure time	96hrs	P
Ambient temp.	15 - 30° C	20.7	P
Closer temp	Within 2° of ambient	20.7°C	P
Closing moment. (ave of 3 tests) Closer size 2	Max closing moment 0 - 4° > 80% of above	15.2Nm	P
	Max closing torque 88 - 92° > 80% of above	12.3Nm	P
	Minimum closing torque at any angle > 80% of above	7.3Nm	P

Details of any Visual corrosion or damage during test.

No visual corrosion damage

OBSERVATIONS AND COMMENTS

The IT920 Overhead track door closer (size 2 to 4) has successfully completed a full test to BS EN 1154 in standard position with no visual signs of any leaks or damage, additional checks were also performed in transom mount push side application at power sizes 2 and 3 (No head projection), this also resulted in successful evidence being gained.

The IT920 originally failed to comply with the following, clause 8 (product marking)

- Product marking identification
- Classification

Written confirmation has been sent from Leado to confirm the above changes have been made.

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 ---