

TEST REPORT EN 1154

Building hardware- Controlled door closing devices -Requirements and test methods

Report Reference No.....	GZ12101410-6						
Tested by (name and signature).....	Credy Chen <i>Credy Chen</i>						
Approved by (name and signature)...	Blusea Dong <i>Blusea Dong</i>						
Date of issue.....	October 11, 2013						
Contents	Total test report 13 pages including: Report text: 6 pages Appendix A for product photo: 1 page Appendix B for Product Drawing and Bill of Material: 2 pages Appendix C for Installation Instruction: 3 pages Revision Page: 1 page						
Testing Laboratory name	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch						
Address.....	Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China						
Testing location.....	Same as above						
Applicant's name	Bestko Precision Limited						
Address.....	Unit 303, Block A, Po Lung Centre, 11 Wang Chiu Road, Kowloon Bay, Hong Kong						
Test specification							
Standard	EN 1154:1996/A1:2002/AC:2006						
Non-standard test method	None						
Test Report Form No.....	TTRF EN 1154: 1997 A						
TTRF Originator.....	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch						
Master TTRF.....	Dated 2008-01						
Test item description							
Trade Mark	BESTKO						
Model and/or type reference.....	TJ107E.100						
Manufacturer	Bestko Precision Hardware (Shenzhen) Company Limited						
Rating(s)	3	8	3	0	1	0	
Summary of testing							
The submitted samples COMPLIED WITH all applicable mechanical performance requirements of EN 1154:1996/A1:2002/AC:2006 for the ratings.							

Test item particulars	
Classification of installation and use	For all internal and external doors for use by the public, and others with little incentive to take care.
Test case verdicts	
Test case does not apply to the test object	N/A
Test item does meet the requirement	P (Pass)
Test item does not meet the requirement	F (Fail)
Testing	
Date of receipt of test item	May 27, 2013
Date(s) of performance of test	May 27, 2013 to October 10, 2013
General remarks	
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General product information:	
Framed Door Floor Hinge, double action type with two adjustable speed valve, with hold open function, maximum open angle: $\pm 125^\circ$.	
Schedule of Components:	
See Appendix B – product drawing and bill of material.	
Detail "Ratings" information listed as following:	
First digit (Category of use): Grade 3–For closing doors from at least 105° open;	
Second digit (Durability): Grade 8 – 500 000 test cycles;	
Third digit (Door closer power size): power size 3;	
Fourth digit (suitability for use on fire/smoke doors): Grade 0: Not suitable for use on fire/smoke door assemblies;	
Fifth digit (Safety): Grade 1– all door closers are required to satisfy the essential requirement of safety in use;	
Sixth digit (Corrosion resistance): Grade 0–No defined corrosion resistance.	

EN 1154							
Clause	Requirement – Test			Result - Remark		Verdict	
4	CLASSIFICATION					—	
4.1	Door closer shall be classified by six digit coding system:					—	
4.2	Category of use:			3		—	
4.3	Durability:			8		—	
4.4	Door closer power size:			3		—	
4.5	Suitability for use on fire/smoke doors:			0		—	
4.6	Safety:			1		—	
4.7	Corrosion resistance:			0		—	
5	REQUIREMENTS						
5.1	<p>Product information</p> <p>A door closer manufactured to this standard shall be supplied with clear, detailed instructions for its installation, regulation and maintenance, which shall include any limitations of opening angle.</p> <p>Where a door closer is recommended for fitting in other than a standard application, these instructions shall clearly define the door closer power size for each application of fitting position stated.</p>			<p>Detail instruction information was provided in the Product Instruction</p> <p>Power size 3 and relevant recommended door specification were list in the installation instruction.</p> <p>Maximum opening: 125°.</p>		P	
5.2	Performance						
	Door closer Power size	Closing moment			Opening moment 0° to 60°	Door closer efficiency 0° to 4°	
		0° to 4°	88° to 92°	Any other angle			
		Nm min.	Nm max.	Nm min.	Nm max.	% min.	
	1	9	<13	3	2	26	50
	2	13	<18	4	3	36	50
	3	18	<26	6	4	47	55
	4	26	<37	9	6	62	60
	5	37	<54	12	8	83	65
	6	54	<87	18	11	134	65
	7	87	<140	29	18	215	65
5.2.1	General			See below clauses		P	
	When tested in accordance with clauses 6 and 7, the door closer shall satisfy the relevant performance requirements of 5.2.2 to 5.2.11, and 5.2.12 to 5.2.18 as appropriate:						

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Clause	Requirement – Test	Result - Remark		Verdict
5.2.2	Durability The door closer shall be able to close a test door conforming to 6.1.1 and 6.2 from an opening angle of 90°, for a minimum of 500,000 test cycles:	250 000 test cycles in each direction for double action door closer, total 500 000 cycles completed.		P
5.2.3	Closing moment After 500Q test cycles and after 500,000 test cycles the measured closing moments shall be not less than the value stated in Table 1:	After 5000 test cycles		P
		Rotating direction	CW CCW	
		Maximum closing moment (0°~ 4°), Nm	25,0 25,1	
		Maximum closing moment (88°~ 92°), Nm	N/A N/A	
		Minimum closing moment at any other angle, Nm	4,9 4,9	
		After 500,000 test cycles		
		Rotating direction	CW CCW	
		Maximum closing moment (0°~ 4°), Nm	22,7 22,6	
		Maximum closing moment (88°~ 92°), Nm	N/A N/A	
		Minimum closing moment at any other angle, Nm	4,8 4,9	
5.2.4	Opening moment After 5000 test cycles the measured closing moments shall be not less than the value stated in Table 1:	Rotating direction		P
		CW CCW		
		Maximum opening moment(0°~ 60°), Nm	38,8 38,3	
5.2.5	Efficiency After 5000 test cycles and after 500,000 test cycles the measured efficiency shall be not less than value stated in Table 1:	After 5000 test cycles		P
		Rotating direction	CW CCW	
		Efficiency, %:	71,8 72,9	
		After 500,000 test cycles		
		Rotating direction	CW CCW	
		Efficiency, %:	65,6 65,14	
5.2.6	Closing time After 5000 test cycles and after 500,000 test cycles, the closing time, from a door opening angle of 90 degree, shall be capable of adjustment to 3 seconds or less, and 20 seconds or more. After 500,000 test cycles, the closing time set at 5000 test cycles shall not have increased by more than 100%, or decreased by more than 30 %:	After 5000 test cycles: The adjustable range of closing time: 2'15 to 1'36"65; Setting closing time: 4'21		P
		After 500,000 test cycles: Final closing time: 6'15 The adjustable range of closing time: 2'44 to 1'31"19.		

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Clause	Requirement – Test		Result - Remark	Verdict
5.2.7	Angles of operation The door closer shall permit the test door to open according to its grade, and on closing, shall control the door from a minimum angle of 70 degree:		Maximum open angle: 125° The controlled angle: 120°	P
5.2.8	Overload performance The door closer shall be capable of withstanding the closing overload tests:		Power size 3; After 5000 and 500,000 cycles Overload weight: 21 kg Cycle: 5 times for each side; The floor spring functioned normally after overload and no visible oil leakage were found.	P
	Door closer power size	Test door mass, kg	Overload test weight, kg	
	1	20	15	
	2	40	18	
	3	60	21	
	4	80	24	
	5	100	27	
	6	120	30	
	7	160	33	
5.2.9	Temperature dependence A set closing time of 5 seconds at an ambient temperature of 20 degree C, shall not increase to more than 25 seconds or decrease to less than 3 seconds when tested at -15 degree C and 40 degree C.		Closing time at 20°C: 5'07 Closing time at -15°C: 16'42 Closing time at 40°C: 4'14	P
5.2.10	Fluid leakage Throughout the test programme there shall be no leakage of fluid from the door closer:		Not found any fluid leakage throughout the test	P
5.2.11	Damage Throughout the test programme there shall be no damage to the door closer or its arms that would adversely affect its performance to this standard:		Not found any damage throughout the test	P
5.2.12	Latch control (optional) Accelerated closing shall be effective over a maximum range of 15 degree from the closed position, and shall be adjustable		No latch control valve	N/A
5.2.13	Backcheck (optional) The door closer shall be capable of arresting the test door before 90 degree position:		No backcheck function	N/A

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Clause	Requirement – Test	Result - Remark	Verdict
5.2.14	<p>Delay closing (optional)</p> <p>The delay time shall not be less than 20 seconds.</p> <p>The delay zone shall not extend below the 65 degree open position.</p> <p>The moment required to override manually the delay action shall not exceed 150 Nm.</p> <p>The delay time at the conclusion of 500 test cycles shall be between 10 seconds to 30 seconds:</p>	No delayed closing function	N/A
5.2.15	<p>Adjustable closing force (optional)</p> <p>If provided with an adjustable closing function, the door closer shall comply with the performance at both the minimum and maximum power settings claimed by manufacture:</p>	Fixed closing force door closer	N/A
5.2.16	<p>Zero position (for double action door closers only)</p> <p>The amount of free play at the zero position of a new door closer shall not exceed 3 mm, and after 500,000 test cycles shall not exceed 6 mm:</p>	<p>Before test, the measured free play is 2,4mm.</p> <p>After 500 000 test cycles, measured free play is 4,6mm</p>	P
5.2.17	<p>Corrosion resistance</p> <p>The requirement shall be according to EN 1670.</p> <p>The closing moment of the door closer shall be not less than 80% of the closing moment measured prior to the test.</p> <p>The acceptance conditions of EN 1670 shall be met for all surfaces of the door closer which are visible:</p>	<p>Grade 0</p> <p>No define corrosion resistance.</p>	N/A
5.2.18	<p>Fire/smoke door suitability</p> <p>A door closer for use on a fire/smoke door assembly shall meet the necessary requirements of Annex A.....</p>	<p>Grade 0</p> <p>Not suitable for use on fire/smoke door assemblies</p>	N/A

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Appendix A

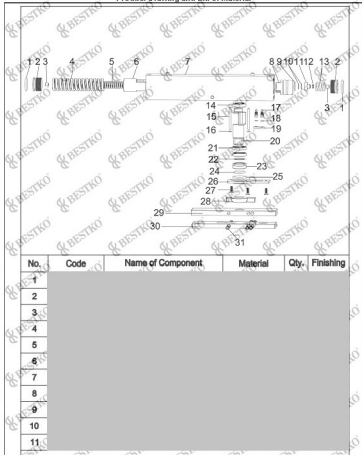
Product Photo



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Appendix B

Product Drawing and Bill of Material



No.	Code	Name of Component	Material	Qty.	Finishing
12					
13					
14					
15					
16					
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18					
19					
20					
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Appendix C

Installation Instruction

BESTKO®

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**APPLAUSE FLOOR HINGE
(SEMI-FRAMED)**


- Closing angle: 25°-0' (adjusted by value 2)
- Closing angle: 70°-25' (adjusted by value 1)
- Closing angle: 85°-70' (non-adjustable)
- Hold-open: 90°-125°
- Open angle: 125° (maximum)

Bill of Material

TJ107E

TJ405

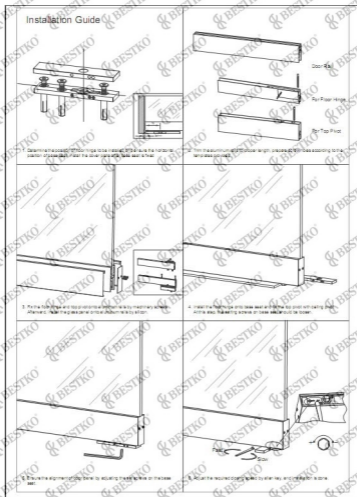
TJA02B



FOR TJ107E80

FOR TJ107E100

DOOR RAIL REPLACEMENT



	Standard: EN1154 Power Size 3
	Tested door weight: 60kg
	Maximum door width: 1050mm
	Suitable door thickness: 10-13.5mm
	Tested temperature: -15°C to 40°C
	Do not remove the base plate, or function and warranty will be rendered.

End of Report

Revision Page

Revision No.	Date	Changes	Author	Reviewer
0	October 11, 2013	First issue	Credy Chen	Blusea Dong