LABORATORY DATA PACKAGE File R27326

Standard installation

Number of pages in this package 33[including additional pages <u>0</u>] (Fill in when using printed copy as record)

TEST LOCATION:

[]UL or Affiliat	e [x] WTDP	[]CTDP	[]TPTDP	[]TCP	[]PPP	
	[]WMT	[]TMP	[]SMT			
Company Name			HARDWARE	INDUSTRY	CO LTD	
Address	#350-1 GUIL	AN RD				
	QIAODUN TOW CHINA	IN, CANGNI	AN , ZHEJI	LANG 3258	306	

CLIENT INFORMATI	ON
	ZHEJIANG DOORENHAUS HARDWARE INDUSTRY CO LTD
Address	#350-1 GUILAN RD QIAODUN TOWN, CANGNAN , ZHEJIANG 325806 CHINA

AUDIT INFORMATION:		
[x] Description of Tests	Per Standard No.	ANSI/BHMA Edition 2008 A156.4
[x] Tests Conducted by +	David Huang Printed Name	David Huang Signature
<pre>[x] UL Staff conducting or witnessing testing (WTDP, TMP, WMT only) [] UL Staff supervising UL Staff in training</pre>	Wilson Wang	Wilson Wang 2012-7-31
[]Authorized Signatory (CTDP, TPTDP, TCP, PPP, SMT)	Printed Name	Signature, and include date for CTDP, TPTDP, TCP, PPP, WMT, TMP, SMT
Reviewed and accepted by qualified Project Handler	Wilson Wang	Wilson Wang 2012-7-31
	Printed Name	Signature

TESTS	TO BE	CONDUCTED:	
Test	Done		[] Comments/Parameters
No.	+++	Test Name	[]Tests Conducted by ++
1	x	PREPARATION FOR PERFORMANCE TEST:	
2	х	BREAK-IN CYCLE TEST:	
3	x	STATIC TEST 1:	
4	x	STATIC TEST 2 TWO SPEEDS OF CONTROL:	
5	x	STATIC TEST 3:	
6	х	STATIC TEST 5 (Closing Force for Closers with Adjustment Through Range of Sizes):	

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TESTS	TO BE	CONDUCTED:	
Test	Done		[] Comments/Parameters
No.	+++	Test Name	[]Tests Conducted by ++
7	x	STATIC TEST 6 (Door Closer Efficiency):	
8	x	STATIC TEST 7 Checking Cylinder	
		Test:	
9	x	STATIC TEST 8 Backcheck Tests:	
10	х	STATIC TEST 11:	
11	x	INTERMEDIATE CYCLE TEST:	
12	x	INTERIM STATIC TEST:	
13	х	FINAL CYCLE TEST:	
14	x	FINAL STATIC TEST:	

Instructions -

+ - When all tests are conducted by one person, printed name and signature can be inserted here instead of including printed name and signature on each page containing data. Must indicate number of pages in the data package. ++ - When test conducted by more than one person, printed name and signature of person conducting the test can be inserted next to the test name instead of including printed name and signature on each page containing data. Must indicate number of pages in the data package. +++ - Use of this field is optional and may be employed differently.

Special Instructions -

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be recorded at the time the test is conducted.

Ambient	Relative	Barometric
Temperature, C ±	Humidity, % ±	Pressure, mBar ±

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	Printed Name		Signature		

WITNESS TEST DATA PROGRAM (WTDP) INFORMATION:

Environment:	
Accommodations and Environmental conditions, including proper power source meet the requirements of the test standard or UL default criteria (ISO/IEC 17025 Clause 5.3.1, 5.3.2. 5.3.3, 5.3.4)	[]Yes []No [x] N/A
Personnel:	
Lab Management shall authorize personnel to operate particular types of equipment used in testing. (ISO/IEC 17025 5.2.5)	[x]Yes []No
Equipment:	
Testing is being conducted within the test equipment calibration dates. (See Test Instrument Information Page and ISO/IEC 17025 5.5.1, 5.5.2, 5.5.4, 5.5.5, 5.5.8,)	[x]Yes []No
Calibrations for testing equipment is traceable to SI Units. Refer to 00-OP-C0032 (Calibration Certificate Analysis). (ISO/IEC 17025 5.6.2.2)	[x]Yes []No
Critical Consumables:	
Critical consumables are compliant with test standard requirements. (ISO/IEC 17025 Clause 4.6)	[]Yes []No [x]N/A
Sample Identification:	
Identification of items to be tested has been made (e.g. model no., Serial No., etc.) (See Test Sample Identification page and ISO/IEC 17025 Clause 5.8.2)	[x]Yes []No
Summary:	
The test facility [was] [was not] deemed to have the capabilities necessary to perform the tests included in	

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[] The CAS Staff or Field Services Member, as indicated below, (a competent L1, L2 or L3 in a similar CCN/Standard for a similar test method) was utilized to conduct the witnessing of tests on behalf of the project handler. (Please complete the table below to document the rationale and approval.)

Name of UL Staff conducting WTDP	CCN/Standard to be witnessed	Test(s) to be witnessed	L1, L2 or L3 Competency	Similar CCN/Standard Competency	L3 Reviewer Approval & Date (Similar CCN/Standard)

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TEST EQUIPMENT INFORMATION

Inst. ID No.	Instrument Type	Test Number +, Test Title or Conditioning	Function /Range	Last Cal. Date	Next Cal. Date
1	Weight Scale	All Test	0.01Kg/1 00Kg	2011-12- 16	2012-12-15
2	Tape Measure	1,4,7,10,11,12,13,1 4	1mm/2m	2011-12- 12	2012-12-11
3	Stop Watch	2,5,8,10,11,12,13,1 4	0.01s/24 h	2011-12- 12	2012-12-11
4	Caliper	1,7,10,11,12,13,14	0.01mm/1 50mm	2011-12- 12	2012-12-11
5	Push/Pull Gauge	1,6,7,8,11,12,13,14	1N/200N	2011-12- 13	2012-12-12
6	Protractor	All Test	1/0- 180degre e	2011-12-6	2012-12-5

+ - If Test Number is used, the Test Number must be identified on the data sheet pages or on the Data Sheet Package cover page.

The following additional information is required when using client's or rented equipment, or when a UL ID Number for an instrument number is not used. The Inst. ID No. below corresponds to the Inst. ID No. above.

Inst. ID		
No.	Make/Model/Serial Number/Asset No.	
1	YongKang Qianlong/TCS-100/11221/CGH11120002	
2	Deli/8201/-/DHS-JC-001	
3	ShangHai/JD-1A/-/CDH11120108	
4	ChengLiang/150mm/-/DHS-F1-011	
5	Sundoo/SN-200/2611085322/CCH11120035	Formatted Table
6	Jiangxi/180°/-/DHS-G3-001	

[]UL test equipment information is recorded on Meter Use in UL's Laboratory Project Management (LPM) database.

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TEST SAMPLE IDENTIFICATION:

The table below is provided to provide correlation of sample numbers to specific product related information. Refer to this table when a test identifies a test sample by "Sample No." only.

Sample Card No.	Date Received	[] Test No.+	Sample No.	Manufacturer, Product Identification and Ratings
-	2012-4- 24	1-14	1-3	ZHEJIANG DOORENHAUS HARDWARE INDUSTRY CO LTD,Commercial Testing, Door Closer, Regular Installation
				 D4000 Size 1-6 with Backcheck D8000 Size 1-6 with Backcheck D9000 Size 1-6 with Backcheck

+ - If Test Number is used, the Test Number or Numbers the sample was used in must be identified on the data sheet pages or on the Data Sheet Package cover page.

[] Sampling Procedure -

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PREPARATION FOR PERFORMANCE TEST(Models D4000, D8000, D9000)

Section 3

Weight - The test door weight shall be as specified in Table 1 below. Center of gravity of the weighted door shall be 18 in (457 mm) from the pivot center of the door for size 2 or larger closers and 15 in. (381 mm) for size 1 closers. For light screen or combination storm door closers test door weight shall be 30 lbs (13.6 kg). Door weight is for test purposes only.

TABLE 1

Closer	Closing Force between t	he ½ in. (12.77 mm) and	Test Door Weight
Size	3 in. (76 mr	n) mark (F1)	
	lbf	N	
I	From 2 up to 3	From 9 up to 13	50 lbs/23 kg
II	From 3 up to 5	From 13 up to 22	80 lbs/36 kg
III	From 5 up to 8	From 22 up to 36	100 lbs/45 kg
IV	From 8 up to 11	From 36 up to 49	125 lbs/57 kg
V	From 11 up to 14	From 49 up to 62	155 lbs/70 kg
VI	14 and above	Above 62	180 LBS/82 KG

Mounting - Doors shall be hung on hinges, accurately aligned with vertical pins or on offset or center pivots, if required by the door closer. Force required to overcome friction or out of balance condition, shall be a 1/4 lbf. (1.1 N) or less, throughout the test measured perpendicular to the face of the door at a point 30 in (762 mm) from pivot center. Forces required to overcome friction or out of balance conditions are permitted to be greater than a 1/4 lbf. (1.1 N), if acceptable to closer manufacturer. Top jamb mounting shall be 2 in + 1/8 in (51 + 3 mm) reveal. Any force due to hinge friction shall not be used to adjust test data.

Actuating Means for mechanically opening the door to the 90 degree position (+ 5 degrees) and releasing shall be provided for the cycling test.

The Door Closer to be Tested - If door closer bodies of the same type are of substantially the same construction, the cycle test shall be required only for one arm application (i.e. regular arm, parallel arm, track arm, bracket mounting or top jamb mounting) under tests PT 1, PT 2, and PT 3. All other tests as applicable shall be required for all arm applications.

Door Opening Templates and Floor Marking - In preparation for the testing, attach a pointer to bottom the leading edge of door 30" from pivot center, and provide a template (Figure 4 of ANSI/BHMA A156.4) or floor markings along the swing of the pointer mounted on the test door at the following intervals: 135, 115, 90, 70, and 45 degrees. For the applicable tests, the door will be opened to the line being parallel to the leading edge of the door degree where the pointer intersects the required location. In addition, for tests which require an opening to a specified distance, mark lines (Figure 5 of ANSI/BHMA A156.4) at ½, 2, 3, 4 and 12 inches perpendicular to the door.

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PREPARATION FOR PERFORMANCE TEST: (CONT'D)

Section 3

Installation – The door closer shall be installed in accordance with the manufacturer's written installation instructions.

Applied Forces and Force Readings All applied forces or force readings shall be made perpendicular to the face of the door at a point 30 in (762 mm) from the pivot center of the door. Force applications and readings shall be applied by a force gauge with a combined calibration and reading accuracy within 5%.

Overload Abuse Test Weights - In closers with adjustable spring power, set the closing force to the closest increment within the values specified for the closer size in Table 1.

TABLE 2

Door Closer Size	I	II	III	IV	V	VI
Overload Test Weight	35 lbs	40 lbs	45 lbs	55 lbs	60 lbs	65 lbs
	(16 kg)	(18 kg)	(21 kg)	(25 kg)	(27 kg)	(30 kg)

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BREAK-IN CYCLE TEST: (Models D4000, D8000, D9000)

Model D4000

METHOD

This test was conducted for Grades 1, 2, 3 (PT1, PT2, PT3, PT5, PT6, PT7, & Other PT Options closers).

The door closer was mounted on the test apparatus and the door closing time was regulated from 90 degrees to between 3 and 6 seconds. This time was maintained during the cycling by re-regulating if necessary. The backcheck valve was fully open, where applicable. The door closer was operated for 4,000 cycles. After the 4,000 cycles, the static tests were conducted.

RESULTS

The door closer [did] [did not] complete the 4,000 cycles.

Model D8000 The door closer [did] [did not] complete the 4,000 cycles.

Model D9000 The door closer [did] [did not] complete the 4,000 cycles.

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Section 4.1

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STATIC TEST 1: (Models D4000, D8000, D9000)

METHOD

[x] Surface or Concealed-in-Door Closers, (PT1, PT2, PT7) and Concealed-in-Floor or Overhead Concealed Closers, (PT3, PT5, PT 6)

After the 4,000 break in cycles were completed the general speed regulating valve on the closer was completely closed. The door was opened to 135° or the maximum designed opening if less than 135 degrees and release. The point at which the closing motion of the door essentially stopped (a slow creeping motion after deceleration shall be disregarded) was measured.

RESULTS

 $[\,x\,]$ Surface or Concealed-in-Door Closers, Grade 1 (PT1) and Concealed-in-Floor or Overhead Concealed Closers, Grade 1 (PT5)

Model D4000

The point at which the closing motion of the door essentially stopped [was] [was not] more than 20° from release point. (10°)

[X] Surface or Concealed-in-Door Closers, Grade 2 (PT2) and Concealed-in-Floor or Overhead Concealed Closers, Grade 2 (PT6)

Model D8000

The point at which the closing motion of the door essentially stopped [was] [was not] more than 20° from release point.(5°)

Model D9000

The point at which the closing motion of the door essentially stopped [was] [was not] more than 20° from release point.(15°)

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Section 4.2

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STATIC TEST 2 TWO SPEEDS OF CONTROL: (Models D4000, D8000, D9000)

METHOD

Surface or Concealed-in-Door closers, Grades 1, 2, 3 (PT1, PT2, PT3) and Concealed-in-Floor or Overhead Concealed closers, Grades 1 (PT5)

 $[\,x\,]$ a) After the Static Test 1 the general speed regulating value was adjusted for a normal closing motion and the latch speed regulating valve was fully opened. The door was opened to approximately 45 degrees and release. The point at which the door noticeably accelerates measured.

RESULTS

Surface or Concealed-in-Door closers, Grades 1, 2, 3 (PT1, PT2, PT3) and Concealed-in-Floor or Overhead Concealed closers, Grades 1 (PT5).

Model D4000

[x] a) The point at which the door noticeably accelerates [was] [was not] between the 12 in. (305 mm) and 2 in. (51 mm) marks.(10°)

Model D8000

[x] a) The point at which the door noticeably accelerates [was] [was not] between the 12 in. (305 mm) and 2 in. (51 mm) marks.(14°)

Model D9000

[x] a) The point at which the door noticeably accelerates [was] [was not] between the 12 in. (305 mm) and 2 in. (51 mm) marks.(12°)

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Section 4.3

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STATIC TEST	3: (Models D40	00, D8000, D9	000)		Section 4.4	
		MET	HOD			
Surface or (PT6, PT7)	Concealed-in-Do	oor closers, G	rades 1, 2, 3	(PT1, PT2, PT	3, PT5,	
	h the general a ened to 90 degr	-		alve(s) fully	closed the	
	h the general a ened to 90 degr			alve(s) fully	opened the	
		RESI	JLTS			
Model D4000						
Results #1 5 close. <u>(317s</u>	The door [did]	[did_not] tak	e 60 seconds o	er longer to f	ully	Formatted: Strikethrough
Results #2 3	The door [did]	[did not] ful	ly close in 3	seconds or lea	ss. <u>(1.31s)</u>	Formatted: Strikethrough
Model D8000						
Results #1 5	The door [did]	[did not] tak	e 60 seconds o	or longer to f	ully	Formatted: Strikethrough
close.(136s	<u>)</u>					
Results #2 1	The door [did]	[did not] ful	ly close in 3	seconds or lea	<mark>ss.</mark> (1.66s)	Formatted: Strikethrough
Model D9000						
	The door [did]	<mark>[did not]</mark> tak	e 60 seconds o	r longer to f	ully	Formatted: Strikethrough
close.(380s	<u>)</u>					
Results #2 1	The door [did]	[did not] ful	ly close in 3	seconds or le	<u>ss.(1.27s)</u>	Formatted: Strikethrough

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STATIC TEST 5 (CLOSING FORCE FOR CLOSERS WITH ADJUSTMENT THROUGH RANGE OF SIZES): (Models D4000, D8000, D9000)

METHOD

Surface or Concealed-in-Door closers, Optional (PT4H PT8M)

Test #1 The general and latch speed regulating valves were fully opened and then the closing force was adjusted to the minimum available for the closer being tested. The door was opened beyond the 3 in. (76 mm) line drawn on the floor. Holding the door open with a force meter, the door was allowed to close slowly under the power of the door closer. The greatest force exerted by the power of the door closer as the door travels between the 3 in. (76 mm) and

 $\frac{1}{2}$ in. (12.7 mm) marks was read and recorded.

Test #2 The general and latch speed regulating valves were fully opened and then the closing force was adjusted to the maximum available for the closer being tested. The door was opened beyond the 3 in. (76 mm) line drawn on the floor. Holding the door open with a force meter, the door was allowed to close slowly under the power of the door closer. Read the greatest force exerted by the power of the door closer as the door travels between the 3 in. (76 mm) and ½ in. (12.7 mm) marks and record force.

Model D4000

RESULTS

5	Test #1 The recorded force [was] <u>[was not]</u> less than the maximum value specified in Table 1 for the minimum size closer specified by the manufacturer.(10N)	Formatted: Strikethrough
r	Test #2 The recorded force [was] <u>[was not]</u> equal to, or greater than the minimum value specified in Table 1 for the maximum size closer specified by the manufacturer. (67N)	Formatted: Strikethrough
l	Model D8000	
5	Test #1 The recorded force [was] [was not] less than the maximum value specified in Table 1 for the minimum size closer specified by the manufacturer.(12N)	Formatted: Strikethrough
r	Test #2 The recorded force [was] [was not] equal to, or greater than the minimum value specified in Table 1 for the maximum size closer specified by the manufacturer.(70N)	Formatted: Strikethrough
1	Model D9000	
5	Test #1 The recorded force [was] [was not] less than the maximum value specified in Table 1 for the minimum size closer specified by the manufacturer.(12N)	Formatted: Strikethrough
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Section 4.6

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1				
		[<mark>[was not]</mark> equal to, or gre		Formatted: Strikethrough
	÷	e 1 for the maximum size clo	ser specified	by
the manufact	<u>urer.(76N)</u>			

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STATIC TEST 6 (DOOR CLOSER EFFICIENCY):
(Models D4000, D8000, D9000)

METHOD

Surface or Concealed-in-Door closers, Grades 1, 2, 3 (PT1, PT2, PT3) and Grades 1, 2 (PT5, PT6)

The general and latch speed regulating valves were fully opened. Using a force meter, the door was opened slowly and uniformly. The opening forces F3, F4, and F5 as the door edge passes the 2 in. (51 mm), 3 in. (76 mm), and 4 in. (102 mm) mark respectively were recorded. Then starting beyond the 4 in. (102 mm) mark, the door closer was allowed to close the door in a slow and uniform manner resisted by the force meter. The force readings F6, F7, and F8 as the door edge passed the 4 in. (102 mm), 3 in. (76 mm), and 2 in. (51 mm) marks respectively were recorded. Calculate the door closer efficiency by the following formula:

Percent Efficiency = ((F6 + F7 + F8) / (F3 + F4 + F5)) x 100.

RESULTS

	F3	F4	F5	F6	F7	F8
Model	100N	90N	85N	53N	61N	69N
D4000						
Model	83N	89N	83N	65N	20N	64N
D8000						
Model	95N	100N	92N	72N	77N	63N
D9000						

Model D4000

The door closer efficiency [was] <u>[was not]</u> a minimum of 50% for sizes I and II and 60% for sizes III through VI.(66%)

Model D8000

The door closer efficiency [was] [was not] a minimum of 50% for sizes I and II and 60% for sizes III through VI.(78%)

Model D9000

The door closer efficiency [was] <u>[was not]</u> a minimum of 50% for sizes I and II and 60% for sizes III through VI.(73.8%)

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STATIC TEST 7 CHECKING CYLINDER TEST: (Models D4000, D8000, D9000) Section 4.8

METHOD

Surface, Concealed-in-Door Closers, Concealed in floor, Overhead Concealed Grades 1,2 (PT1, PT2, PT5, PT6)

The general and latch speed regulating valves were opened and then the closing force was adjusted to the maximum in accordance with the manufacturer's instructions. The door was opened beyond the 3 in. (76 mm) line drawn on the floor. The door was held open with a force meter and then allowed to close slowly under the power of the door closer. The greatest force exerted by the power of the door closer was read as the door traveled between the 3 in.

(76 mm) and $\frac{1}{2}$ in. (12.7 mm) marks, and recorded as force (F1).

The force equaled or exceeded the minimum values specified in the table below, so both the latch and speed regulating values were fully close. The door was opened to 90 degrees, then release and the door was pushed closed with a 20 lbf (89 N) force applied 30 in (762 mm) from the pivot center.

TABLE 1

Closer Size	Closing Force between t 3 in. (76 mm	Test Door Weight	
	lbf	N	
I	From 2 up to 3	From 9 up to 13	50 lbs/23 kg
II	From 3 up to 5	From 13 up to 22	80 lbs/36 kg
III	From 5 up to 8	From 22 up to 36	100 lbs/45 kg
IV	From 8 up to 11	From 36 up to 49	125 lbs/57 kg
V	From 11 up to 14	From 49 up to 62	155 lbs/70 kg
VI	14 and above	Above 62	180 LBS/82 KG

Model D4000

RESULTS

The time required for the door to fully close [was] [was not] less than 8 Formatted: Strikethrough seconds.(36s)

Model D8000

The time required for the door to fully close [was] [was not] less than 8 Formatted: Strikethrough seconds.(43s)

Model D9000

The time required for the door to fully close [was] [was not] less than 8 Formatted: Strikethrough seconds.(219s)

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STATIC TEST 8 BACKCHECK TESTS: (Models D4000, D8000, D9000)

Section 4.9

METHOD

[X] Adjustable Backcheck for Surface or Concealed-in-Door closers, Grades 1 and 2 only (PT1 and PT2 only), Optional (PT4D) and Adjustable Backcheck for Concealed-in-Floor or Overhead Concealed closers, Grades 1 and 2 only (PT5 and PT6 only), Optional (PT8F).

The general and latch speed regulating valves were opened and the closing force was set. The backcheck valve was fully opened and tested by the actuating means of the test apparatus by pushing the door to 50 degrees maximum door opening. The actuating means pushed with a velocity sufficient to propel the door to a minimum opening angle of 110 degrees with the backcheck valve fully open.

The backcheck valve was then adjusted to provide an observable reduction in the door opening speed.

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Tested by:	David Huang		David Huang	Date	2012-4-24- 7-31	
	Printed Nam	e	Signature			
STATIC TEST	8 Backcheck Tests:	(CONT'D)			Section 4.9	
		RESU	LTS			
and 2 only Concealed-in	ole Backcheck for S (PT1 and PT2 only), n-Floor or Overhead 6 only), Optional (Optional Concealed	(PT4D) and Ad	ustable Back	check for	
Model D4000						
observable : degrees of d	ckcheck valve was t reduction in the do door opening and th 90 degrees. <u>(75°)</u>	or opening	g speed between	1 60 degrees	and 85	Formatted: Strikethrough Formatted: Strikethrough
Model D8000						
observable : degrees of d	ckcheck valve was t reduction in the do door opening and th 90 degrees.(68°)	or opening	g speed betweer	1 60 degrees	and 85	Formatted: Strikethrough Formatted: Strikethrough
Model D9000						
observable : degrees of d	ckcheck valve was t reduction in the do door opening and th 90 degrees.(67°)	or opening	g speed betweer	1 60 degrees	and 85	Formatted: Strikethrough Formatted: Strikethrough

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Tested by:	David Huang		David Huang	Date	2012-4-24- 7-31
	Printed Name		Signature		
STATIC TEST D9000)	11: (Models D4000, D8	<u>000,</u>			Section 4.12
		METI	HOD		
Overload Abu only (PT1 an	use Test for Surface o nd PT2 only)	or Conce	ealed-in-Door cl	osers, 1 an	.d 2
ANSI/BHMA A1 position to of ANSI/BHMA	oser was mounted on th 56.4. The closing tim 10 seconds. The test A156.4. The weights ANSI/BHMA A156.4.	ne was a door we	adjusted from 90 eight shall be a	degrees to s described	the closed in Table 1

The door was opened and held to 90 degrees with the cable and weights attached. The door was then released allowing the weights to fall. The falling test weight was arrested when the door was 15 degrees from the closed position. The door was allowed to continue to close under its own momentum until it is arrested by the energy absorbing stop at 5 degrees or the door frame at 0 degrees, or in the case of double action closers, until it stops of its own accord. For Grade 1 (PT1) closers it was cycle 10 times and for Grade 2 (PT2) closers it was cycle 5 times.

RESULTS

 Model D4000

 The door closer [did] [did not] complete the cycles.

 Model D8000

 The door closer [did] [did not] complete the cycles.

 Model D9000

The door closer [did] [did not] complete the cycles.

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	Tested by:	David Huang		David Huang	Date 7	/-31			
		Printed Nam	le	Signature	2				
	INTERMEDIATH	E CYCLE TEST: (Mode 0)	<u>ls D4000,</u>			Section 5			
			METH	OD					
	(PT1, PT2, P	face or Concealed-i PT3) and Concealed- Grades 1, 2, 3 (PT	in-Floor o	r Overhead Co	,				
	closing ford actuating me maximum door to propel th	general and latch ce was set. The bac eans of the test ap r opening. The actu he door to a minimu fully open.	k check va paratus pu ating mean	lve was opene shing the doo s did push wi	d and tested by or to the 50 deg th a velocity s	the rees ufficient			
	The back che door opening door shall b was cycled a [x] For Grac functional.	and the r closer							
	check contro mechanically close the do with the doo [x] For Grac	general and latch ol was turned off, y opened to 90 degr oor. One opening a or closer maintaini de 1 (PT1, PT5), ru for a total of 504,	and the sp ees and re nd closing ng control n 400,000	ring force ad lease allowin constitutes over the doo cycles with b	justed. The do g the door clos one cycle. Cycl or for:	or was er to e door			
	INTERMEDIATI	E CYCLE TEST: (CONT	'D)			Section 5			
I	Model D4000		RESUI	LTS					
1		eren faiat faia	1	+ b a a 1				_	
	The door clo	oser [did] <mark>{did not</mark>	+ complete	the cycles.			_	 For	Formatted: S
	Model D8000								
	The door clo	oser [did] <mark>[did not</mark>	l complete	the cycles.			_	 For	Formatted: S
	Model D9000								
	The door clo	oser [did] <mark>[did not</mark>] complete	the cycles.				 For	Formatted: S
1									
	ANS-00305-FUC Form Page 20	DR-DataSheet-2004 Cc	opyright © 2		ssued: 2007-0 evised: 2009-0				

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Tested by:	sted by: David Huang David Huang		Date	2012-4-24- 7-31
	Printed Name			
regulating v	valves for a door clos	Once spring force is set sing time from a 90 degre- ime during the cycling by	e opening	to between

necessary.

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Tested by:	David Huang	David H	0	Date 7-31	
INTERIM STAT D9000)	Printed Name TIC TEST: <u>(Models D400</u>		Signature	Section 6	
		METHOD			
The followir	ng tests were repeated	ag applical	hle to the close	r time:	
<pre>[x] Range of [x] Adjustme [x] Door Clo [x] Checking</pre>	E Checking Control (4. Ent Through Range of S Deser Efficiency (4.7), g Cylinder Test (4.8), ck Tests (4.9),	2),			
		RESULTS			
[x] Surface	Checking Control (4. or Concealed-in-Door erhead Concealed Close	Closers, Grad		oncealed-in-	
Models D4000	<u>)</u>				
	which the closing mo ore than 20° from rele			stopped [was]	Formatted: Strikethrough
Models D8000	<u>)</u>				
	which the closing mo			stopped <mark>[was]</mark>	Formatted: Strikethrough
[was not] mo	ore than 20° from rele	ase point. <mark>(5</mark>	<u>。)</u>		
Models D9000	-				
	t which the closing mo ore than 20° from rele			stopped [was]	Formatted: Strikethrough
[x] Adjustme	ent Through Range of S	izes (4.6)			
Models D4000	<u>)</u>				
Test #1 The	recorded force [was]	[was not] lea	ss than the maxi	mum value	Formatted: Strikethrough
	n Table 1 for the mini				(Tormatted: Strikethoogh
	recorded force [was]				Formatted: Strikethrough
minimum valu the manufact	ue specified in Table turer. <u>(66N)</u>	l for the ma:	ximum size close	r specified by	
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Tested by:	David Huang	David Huang	Date	2012-4-24- 7-31				
	Printed Name	Signat	ure					
Models D8000	<u>)</u>							
Test #1 The recorded force [was] [was not] less than the maximum value Formatted: Strikethrough specified in Table 1 for the minimum size closer specified by the manufacturer.(12N)								
Test #2 The recorded force [was] [was not] equal to, or greater than the minimum value specified in Table 1 for the maximum size closer specified by the manufacturer.(69N)								
Models D9000	<u>0</u>							
Test #1 The recorded force [was] [was not] less than the maximum value Formatted: Strikethrough manufacturer.(11N)								
	recorded force [was] as specified in Table curer.(74N)				Formatted: Strikethrough			

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Tostod but	David Huar	na	David H	luana	Data	2012-4-24-	
Tested by:		inted Name		Signature	Date	7-31	
INTERIM STA	TIC TEST: ((CONT'D)				Section 6	
[x] Door Cl	oser Efficie	ency (4.7),					
	F3	F4	F5	F6	F7	F8	
Model D4000	99N	89N	85N	53N	61N	68N	
Model D8000	83N	88N	83N	65N	69N	64N	
Model D9000	95N	99N	92N	72N	76N	63N	
Model D4000			·	·			
			····	nimimum of 50	e for ai-	og T ogd	
	for sizes I	-		ninimum of 50	S LOF SI2	es i and	
Model D8000							
The door cl	oser efficie	ency [was]	wag not 1 a r	minimum of 50	1% for siz	es I and	
	for sizes I						
Model D9000							
The door cl	oser efficie	ency [was]	was not] a r	minimum of 50	% for siz	es I and	
II and 60%	for sizes I	II through N	/I.(74%)				
[x] Checkin	g Cylinder 1	Test (4.8),					
Model D4000							
The time re	quired for t	the door to	fully close	<mark>[was]</mark> [was n	ot l less	than 8	Formattad Strikethrough
seconds. (34		0110 4001 00	1411/ 01050		100, 1000		Formatted: Strikethrough
Model D8000							
The time re	quired for t	the door to	fully close	[was] [was n	ot] less	than 8	Formatted: Strikethrough
seconds.(40			50 10				
Model D9000							
The time re	quired for t	the door to	fully close	[was] [was n	ot] less	than 8	Formatted: Strikethrough
seconds.(21	2s)						
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Tested by:	David Huang		David Huang	Date	2012-4-24- 7-31	
	Printed Nam	le	Signature			
	ck Tests (4.9),	-	~		~]]	
5	ble Backcheck for S [.] (PT1 and PT2 only),			,		
	n-Floor or Overhead		d closers, Grad	les 1 and 2 or	nly	
(PT5 and PT	6 only), Optional (P.I.8F.) .				
Model D4000						
	ckcheck valve was t					Formatted: Strikethrough
	reduction in the do of door opening and					
	f 90 degrees. <u>(75°)</u>	the door		- compretery	scopped at	Formatted: Strikethrough
Model D8000						
MODEL DOUD						
	ckcheck valve was t reduction in the do					Formatted: Strikethrough
	of door opening and					Formatted: Strikethrough
<u>a maximum o</u>	f 90 degrees.(68°)					
Model D9000						
When the ba	ckcheck valve was t	hen adjust	ed the closer	[did] [did_n	ot l have an	
observable	reduction in the do	or opening	g speed between	n 60 degrees a	and	Formatted: Strikethrough
	of door opening and f 90 degrees.(67°)	the door	did) <mark>(did not)</mark>	-completely	stopped at	Formatted: Strikethrough

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Tested by:	David Huang	David Huang	Date 7-31	_
	Printed Nam	e Signature		
FINAL CYCLE D9000)	TEST: (Models D4000) <u>, D8000,</u>	Section 7	
		METHOD		
(PT1, PT2,		n-Door Closers with Back o in-Floor or Overhead Conco , PT6, PT7)		
control was mechanicall	turned off and the y opened to 90 degre	gulating valves were open spring force was adjusted ees and released, which a and closing constitutes of	d. The door was llowed the door closer	
[x] For Grad cycles.	de 1 (PT1, PT5), run	n 996,000 cycles for a to	tal of 1,500,000	
Models D400	0	RESULTS		
	-			
The door cl	oser [did] <mark>[did not</mark>]	complete the cycles.		Formatted: Strikethrough
Model D8000				
The door cl	oser [did] <mark>[did not</mark>]	complete the cycles.		Formatted: Strikethrough
Model D9000				
The door cl	oser [did] <mark>[did not</mark>]	complete the cycles.		Formatted: Strikethrough

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FINAL STATIC TEST: (Models D4000, D8000, D9000)

METHOD

[x] Range of Checking Control (4.2),
[x] Two speeds of closing control (4.3)

[x] Adjustable Closing Speed (4.4)

[x] Adjustment Through Range of Sizes (4.6),

[x] Door Closer Efficiency (4.7),

[x] Checking Cylinder Test (4.8),

[x] Backcheck Tests (4.9),

[x] Overload Abuse Test for Surface or Concealed-in-Door closers (4.12),

RESULTS

[x] Range of Checking Control (4.2):
[x] Surface or Concealed-in-Door Closers, Grade 1 (PT1) and Concealed-inFloor or Overhead Concealed Closers, Grade 1 (PT5)

Models D4000

The point at which the closing motion of the door essentially stopped [was] [was not] more than 20° from release point. (3°)

Model D8000

The point at which the closing motion of the door essentially stopped $\frac{[was]}{[was not]}$ more than 20° from release point.(4°)

Model D9000

The point at which the closing motion of the door essentially stopped [was] [was not] more than 20° from release point.(15°)

[x] Two speeds of closing control (4.3) Surface or Concealed-in-Door closers, Grades 1, 2, 3 (PT1, PT2, PT3) and Concealed-in-Floor or Overhead Concealed closers, Grades 1 (PT5).

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Section 8

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	Printed Name	Signature		
FINAL STATI	C TEST: (CONT'D)		Section 8	
Model D4000				
[x] a) The :	point at which the do	or noticeably accelerates	[was] [was	Formatted: Strikethrough
not] betwee	n the 12 in. (305 mm)	and 2 in. (51 mm) marks.	(12°)	Formatted: Strikethrough
Model D8000				
		or noticeably accelerates	[was] <mark>[was not]</mark>	Formatted: Strikethrough
between the	12 in. (305 mm) and	2 in. (51 mm) marks.(15°)		
Model D9000				
		or noticeably accelerates	[was] <mark>[was not]</mark>	Formatted: Strikethrough
between the	12 in. (305 mm) and	2 in. (51 mm) marks.(10°)		
[x] Adjusta	ble Closing Speed (4.	4)		
		- /		
Model D4000				
Results #1 close.(197s		ot] take 60 seconds or lon	nger to fully	Formatted: Strikethrough
	-	at 1 fully alogo in 2 gogo	da or logg (1.25g)	
		st] fully close in 3 secon	lus of less.(1.358)	Formatted: Strikethrough
Model D8000				
Results #1 close.(84s)	The door [did] <mark>[did n</mark>	st] take 60 seconds or lon	nger to fully	Formatted: Strikethrough
Results #2	The door [did] <mark>[did n</mark>	st] fully close in 3 secon	nds or less.(1.20s)	Formatted: Strikethrough
Model D9000				
		ot] take 60 seconds or lon	nger to fully	Formatted: Strikethrough
close.(128s	_			
<u>Results #2</u>	The door [did] <mark>[did n</mark>	ot] fully close in 3 second	nds or less.(1.20s)	Formatted: Strikethrough
[x] Adjustm	ent Through Range of	Sizes (4.6)		
Model D4000				
Test #1 The	recorded force [was]	[was not] less than the r	naximum value	Formatted: Strikethrough
specified is manufacture		imum size closer specified	l by the	
I Contraction of the second seco	<u></u>			
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	recorded force [wa ae specified in Tab curer. <u>(64N)</u>	Formatted: Strikethrough			

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	Printe	d Name	Signature					
Model D8000								
Test #1 The	recorded force	e [was] [was no	t] less than th	ne maximum val	lue	Formatted: Strikethrough		
specified in	n Table 1 for t		e closer specif			Formatted. Strikethough		
manufacture	<u>c.(llN)</u>							
			t] equal to, or			Formatted: Strikethrough		
the manufact		i Table 1 for t	he maximum size	e closer spec:	ified by			
Model D9000								
			t] less than th		lue	Formatted: Strikethrough		
manufacture			e closer specif	Ted by the				
meat #2 mbe	manufad fama	freed free as						
			xt] equal to, or The maximum size			Formatted: Strikethrough		
the manufact	<u>urer.(72N)</u>							
[x] Door Clo	oser Efficiency	r (4.7),						
	F3	F4 F5	5 F6	F7	F8			
Model D4000	93N	85N 80	N 56N	63N	65N			
Model	82N	85N 82	N 65N	69N	67N			
D8000	85N	92N 85	N 68N	71N	62N			
Model D9000	10.00	9210 05	N 00N	/ 111	0210			
Model D4000			·					
Model D4000								
	oser efficiency sizes III thro		t] a minimum of	E 50% for size	e I and II			
	SIZES III CIIIC	ugii vi. <u>(/1.5%</u>	-					
Model D8000								
			<mark>>t]</mark> a minimum of	E 50% for size	e I and II			
and 60% for	sizes III thro	ough VI.(80.7%)	-					
Model D9000								
The door closer efficiency [was] [was not] a minimum of 50% for size I and II								
and 60% for sizes III through VI.(76.7%)								
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Tested by:	David Huang	David Hu	rang	202 Date 7-2	12-4-24- 31	
	Printed Name		Signature			
[x] Checking	g Cylinder Test (4.8),					
Model D4000						
The time req seconds.(23s	quired for the door to	fully close	<mark>[was]</mark> [was not]	less tha	an 8	Formatted: Strikethrough
Model D8000						
	quired for the door to	fully close	[was] [was not]	less tha	an 8	Formatted: Strikethrough
seconds.(24s	<u>;)</u>					
<u>Model D9000</u>						
The time req seconds.(47s	quired for the door to	fully close	[was] [was not]	less tha	an 8	Formatted: Strikethrough
	_					
<pre>[x] Adjustab and 2 only (Concealed-in and PT6 only</pre>	ck Tests (4.9), ole Backcheck for Surfa (PT1 and PT2 only), Opt n-Floor or Overhead Con 7), Optional (PT8F).	cional (PT4D)	and Adjustable	Backcheo	ck for	
Model D4000						
observable r	ckcheck valve was then reduction in the door o	pening speed	l between 60 degr	rees and	85	Formatted: Strikethrough
	loor opening and the do 90 degrees.(75°)	or did) (did	<u>not)</u> completely	y stopped	d at a	Formatted: Strikethrough
Model D8000						
	ckcheck valve was then	adjusted the	e closer [did] [lid not]	have an	Formatted: Strikethrough
observable r	reduction in the door o loor opening and the do	ppening speed	l between 60 degr	rees and	85	
	00 degrees.(66°)		- HOEF COMPTEREY	A BLOPPER	<u>u ac a</u>	Formatted: Strikethrough
Model D9000						
	ckcheck valve was then					Formatted: Strikethrough
degrees of d	reduction in the door o door opening and the do					Formatted: Strikethrough
maximum of 9	00 degrees.(67°)					
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Tested by:	David Huang	David Huang	2012-4-24- Date 7-31						
	Printed Name	Signature							
FINAL STATIC	TEST: (CONT'D)		Section 8	3					
[x] Overload	[x] Overload Abuse Test for Surface or Concealed-in-Door closers (4.12)								
Model D4000	Model D4000								
The door closer [did] [did not] complete the cycles.									
Model D8000									
The door closer [did] [did not] complete the cycles.									
Model D9000									
The door clo	ser [did] <mark>[did not]</mark> co	mplete the cycles.		Formatted: Strikethrough					

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