

Columbia Elevator Products

Smartork Door Closer (Spirator) Test

Test Parameters

Tested on R&D test unit - average 6.9 cycles per minute
 50 lb door weight used during 1 million cycle Test
 41" side slide door travel used

Close Test

Checked ability to close with door weight suspended 2 r

Before cycle test

Weight	150 lb	200 lb	250 lb
Dist (in)			
2	FC	FC	FC
4	FC	FC	FC
10	FC	FC	FC
20	FC	FC	FC
41	FC	FC	FC

After 1 million cycle test

Weight	150 lb	200 lb	250 lb
Dist (in)			
2	FC	FC	FC
4	FC	FC	FC
10	FC	FC	UC
20	FC	FC	UC
41	FC	FC	FC

* FC = Full Close position reached, UC = Unable to Close

Cycle Test

Start Date 6/12/2012

Date	Cycle Count	Noise	Bearing	Cable Coating
6/13/12	9,635	Quiet	Good	Good
6/15/12	39,450	Quiet	Good	Good
6/18/12	59,357	Quiet	Good	Good
6/20/12	79,282	Quiet	Good	Good
6/22/12	109,071	Quiet	Good	Good
6/25/12	128,944	Quiet	Good	Good
6/27/12	148,801	Quiet	Good	Good
6/29/12	178,631	Quiet	Good	Good
7/2/12	218,383	Quiet	Good	Good
7/6/12	248,139	Quiet	Good	Good
7/9/12	268,046	Quiet	Good	Good
7/11/12	287,935	Quiet	Good	Good
7/13/12	317,698	Quiet	Good	Good
7/16/12	337,601	Quiet	Good	Good
7/18/12	357,425	Quiet	Good	Good
7/20/12	387,207	Quiet	Good	Good
7/23/12	421,066	Quiet	Good	Good

7/25/12	430,988	Quiet	Good	Good
7/26/12	470,739	Quiet	Good	Good
7/30/12	480,683	Quiet	Good	Good
8/1/12	506,982	Quiet	Good	Good
8/3/12	526,869	Quiet	Good	Wear
8/6/12	574,750	Quiet	Good	Worn
8/8/12	594,657	Quiet	Good	Worn
8/10/12	624,518	Quiet	Good	Worn
8/13/12	644,371	Quiet	Good	Worn
8/15/12	668,470	Quiet	Good	Worn
8/17/12	691,441	Quiet	Good	Worn
8/20/12	712,458	Quiet	Good	Worn
8/22/12	740,600	Quiet	Good	Worn
8/24/12	761,500	Quiet	Good	Worn
8/27/12	793,770	Quiet	Good	Worn
8/29/12	814,430	Quiet	Good	Worn
8/31/12	834,940	Quiet	Good	Worn
9/3/12	867,500	Quiet	Good	Worn
9/5/12	885,300	Quiet	Good	Worn
9/7/12	912,078	Quiet	Good	Worn
9/10/12	931,937	Quiet	Good	Worn
9/12/12	951,795	Quiet	Good	Worn
9/14/12	981,610	Quiet	Good	Worn
9/17/12	1,017,400	Quiet	Good	Worn

Completion Date 9/17/2012

Although the cable coating showed discoloration and slight wear it did not cause any operational problems.

Co., Inc.

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roller frame.

Remarks

All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
Some discoloration of cable at drop off point.
All running well
All running well
All running well
All running well
All running well
All running well

All running well
All running well
All running well
All running well
Slight wear on cable where drop off occurs
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
All running well
Slight wear on cable where drop off occurs

d not separate