

SAFETY SOLUTIONS INC

TEST REPORT

SCOPE OF WORKs

ANSI/ASSP Z359.14-2021 – SELF RETRACTING DEVICES

REPORT NUMBER

105853924CRT-001

ISSUE DATE

July 25, 2024

PAGES

12

DOCUMENT CONTROL NUMBER

GFT-OP-10a (6-March-2017)

© 2017 INTERTEK



TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

Sudipto Bose Safety Solutions Inc 149, H.L. Sarkar Road Naskar Para Bansdrone Kolkata, West Bengal 700070 India sudipto@safetechsafety.com	
Report Number..... :	105853924CRT-001
Signed Quote Number..... :	Qu-01457355
PO Number.....:	N/A
Name of Testing Laboratory Preparing the Report..... :	Intertek Testing Services NA Inc.
Test Specification:	
Standard..... :	ANSI/ASSP Z359.14-2021
Date(s) of Testing..... :	07/22/2024
Product Description:	
Product Type:	Self-Retracting Lanyard with Rescue Capability
Brand Name:..... :	Safetech
Model Number(s):..... :	RFA-10-30 with Steel Snap Hook, Steel Cable
Model Share:.....:	N/A
Dates Samples Received.....:	05/30/2024

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024



SECTION 1

SUMMARY OF TESTING

TESTS COMPLETED	ANSI/ASSP Z359.14-2021 CLAUSE	STATUS
General Requirements	3	PASS
Line Constituent (Wire Rope)	3.1.6/7.1,7.2,7.3	PASS
Static Strength Testing of SRD's	3.2.1/4.2.1	PASS
Locking Strength	3.2.3/4.2.3	PASS
Dynamic Performance (ambient)	3.3/4.3.1	PASS
Dynamic Performance (hot)	3.1.9/4.3.1.7	PASS
Dynamic Performance (cold)	3.1.9/4.3.1.8	PASS
Dynamic Performance (wet)	3.1.9/4.3.1.9	PASS
Markings and instructions/User inspection, Maintenance	5.1, 5.2,6	PASS

SECTION 2

This test report concludes the work anticipated in the testing phase of your project. If there are any questions regarding this report please contact the undersigned at 607-753-6711.

COMPLETED BY:	Alex Smith	REVIEWED BY:	Matthew Stevens
TITLE:	Technician	TITLE:	Team Leader
SIGNATURE:		SIGNATURE	
DATE	07/23/2024	DATE:	07/25/2024

Please see attached test data for details.

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

SECTION 3

TESTING EQUIPMENT CALIBRATION INFORMATION

USED FOR TEST	DESCRIPTION	MANUFACTURER	CONTROL NO.	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE
X	Test Weight	NA	NA	310 lbs	-	VBV	VBV
X	Load Cell	PCB	N1392	-	-	10/06/23	10/03/24
X	Load Cell	Interface	L137	-	-	07/28/23	07/28/24
X	Tape Measure	Kobalt	H338	25'	-	05/20/24	05/20/25
X	Force Guage	-	S116	-	68201	04/29/24	04/29/25

SECTION 4

SUPPLEMENTAL TEST DATA

Section (Test)	Requirement	Results					Compliance															
3	Design Requirements							PASS														
3.1.6/ 7.1/ 7.2/ 7.3	Wire Rope (Line Constituent)				Made of Synthetic materials?		NO	PASS														
					Any Restrictions?		NO	PASS														
	<table><tr><td>Section 7.1</td><td>Sample: 3.3.3 (-1)</td><td>Sample: 3.3.3 (-2)</td><td>Sample: 3.3.3 (-3)</td><td>Sample: 3.3.3 (-4)</td><td>Sample: 3.3.3 (-5)</td><td>AVG.</td></tr><tr><td>Tensile Load (lbs.)</td><td>>3600</td><td>>3600</td><td>>3600</td><td>>3600</td><td>>3600</td><td>>3600</td></tr></table>							Section 7.1	Sample: 3.3.3 (-1)	Sample: 3.3.3 (-2)	Sample: 3.3.3 (-3)	Sample: 3.3.3 (-4)	Sample: 3.3.3 (-5)	AVG.	Tensile Load (lbs.)	>3600	>3600	>3600	>3600	>3600	>3600	PASS
	Section 7.1	Sample: 3.3.3 (-1)	Sample: 3.3.3 (-2)	Sample: 3.3.3 (-3)	Sample: 3.3.3 (-4)	Sample: 3.3.3 (-5)	AVG.															
Tensile Load (lbs.)	>3600	>3600	>3600	>3600	>3600	>3600																
Minimum breaking strength of 3,600 lbs when tested to Section 7.1 (FED-STD-191/4108)																						
3.2.1/ 4.2.1	Static Strength: (ambient) shall withstand 3,600 lbs. when tested to: - apply a 3,600 lbs ,(+60/-0 lbs) load and maintain for 1-minute to the point of SRL line connection to the SRL drum (across the device)				<table><tr><td></td><td>Sample: 1</td><td>Sample: 2</td><td>Sample: 3</td></tr><tr><td>Withstand 3,600lbs load?</td><td>YES</td><td>YES</td><td>YES</td></tr></table>				Sample: 1	Sample: 2	Sample: 3	Withstand 3,600lbs load?	YES	YES	YES	PASS						
	Sample: 1	Sample: 2	Sample: 3																			
Withstand 3,600lbs load?	YES	YES	YES																			
3.2.3/ 4.2.3	Locking Strength: With no less than 75% of the retractable length of the device retracted, lock the SRD and install the device in the tensile test equipment. Apply a load of 1,800lbs. Time to reach the load shall take no less than 1 minute. The energy absorber may be bypassed, or removed.				<table><tr><td></td><td>Sample: 4</td><td>Sample: 5</td><td>Sample: 6</td></tr><tr><td>Withstand 1,800lbs load?</td><td>YES</td><td>YES</td><td>YES</td></tr></table>				Sample: 4	Sample: 5	Sample: 6	Withstand 1,800lbs load?	YES	YES	YES	PASS						
	Sample: 4	Sample: 5	Sample: 6																			
Withstand 1,800lbs load?	YES	YES	YES																			

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

Section (Test)	Requirement	Results	Compliance																																																												
3.3/4.3.1	Dynamic Performance: "AMBIENT" <ol style="list-style-type: none">connect 310 lb. weightextract enough line for a 36-inch free fall per Fig 5 in Test Standard.release the test weightMax Arrest distance shall not exceed 42 inches. <table><tr><th></th><th>Sample: 1</th><th>Sample: 2</th><th>Sample: 3</th></tr><tr><td>Conditioning in: (Ambient)</td><td></td><td></td><td></td></tr><tr><td>SN or ID:</td><td>4</td><td>5</td><td>6</td></tr><tr><td>Payout and retract the line per 3.3.1.2 following test</td><td>YES</td><td>YES</td><td>YES</td></tr><tr><td>Lock function shall operate per 3.3.1.1</td><td>YES</td><td>YES</td><td>YES</td></tr><tr><td>Visual indicator shall activate</td><td>YES</td><td>YES</td><td>YES</td></tr><tr><td>Max. Arrest Force: (lbs.) Class 1 & 2 < 1,800 lbs.</td><td>785</td><td>814</td><td>728</td></tr><tr><td>Avg Arrest Force (lbs.): Class 1 & 2 < 1,350 lbs.</td><td>683</td><td>650</td><td>63</td></tr><tr><td>Distance Initial (in): D1</td><td>87"</td><td>87"</td><td>87"</td></tr><tr><td>Distance Final (in): D2</td><td>101 ¾"</td><td>106 ¾"</td><td>109 ½"</td></tr><tr><td>Arrest Distance (in): D2-D1 Class 1&2 < 42-inches</td><td>14 ¾"</td><td>19 ¾"</td><td>22 ½"</td></tr></table> Retraction Strength: The weight of the line constituent, shall not be less than 1.25 lbs. (5.55N) or more than 25 lbs. (111.1N) at any point in the of range of motion provided by the line constituent when tested in accordance with 4.5.1. <table><tr><th>Retraction</th><th>Sample 1</th><th>Sample 2</th><th>Sample 3</th></tr><tr><td>Weight in lbs. at 1 ft</td><td>2.3</td><td>2.2</td><td>2.6</td></tr><tr><td>Weight in lbs at 50%</td><td>5.4</td><td>6.1</td><td>6.4</td></tr><tr><td>Weight in lbs at 100%</td><td>9.8</td><td>9.6</td><td>10.2</td></tr></table>			Sample: 1	Sample: 2	Sample: 3	Conditioning in: (Ambient)				SN or ID:	4	5	6	Payout and retract the line per 3.3.1.2 following test	YES	YES	YES	Lock function shall operate per 3.3.1.1	YES	YES	YES	Visual indicator shall activate	YES	YES	YES	Max. Arrest Force: (lbs.) Class 1 & 2 < 1,800 lbs.	785	814	728	Avg Arrest Force (lbs.): Class 1 & 2 < 1,350 lbs.	683	650	63	Distance Initial (in): D1	87"	87"	87"	Distance Final (in): D2	101 ¾"	106 ¾"	109 ½"	Arrest Distance (in): D2-D1 Class 1&2 < 42-inches	14 ¾"	19 ¾"	22 ½"	Retraction	Sample 1	Sample 2	Sample 3	Weight in lbs. at 1 ft	2.3	2.2	2.6	Weight in lbs at 50%	5.4	6.1	6.4	Weight in lbs at 100%	9.8	9.6	10.2	PASS
	Sample: 1	Sample: 2	Sample: 3																																																												
Conditioning in: (Ambient)																																																															
SN or ID:	4	5	6																																																												
Payout and retract the line per 3.3.1.2 following test	YES	YES	YES																																																												
Lock function shall operate per 3.3.1.1	YES	YES	YES																																																												
Visual indicator shall activate	YES	YES	YES																																																												
Max. Arrest Force: (lbs.) Class 1 & 2 < 1,800 lbs.	785	814	728																																																												
Avg Arrest Force (lbs.): Class 1 & 2 < 1,350 lbs.	683	650	63																																																												
Distance Initial (in): D1	87"	87"	87"																																																												
Distance Final (in): D2	101 ¾"	106 ¾"	109 ½"																																																												
Arrest Distance (in): D2-D1 Class 1&2 < 42-inches	14 ¾"	19 ¾"	22 ½"																																																												
Retraction	Sample 1	Sample 2	Sample 3																																																												
Weight in lbs. at 1 ft	2.3	2.2	2.6																																																												
Weight in lbs at 50%	5.4	6.1	6.4																																																												
Weight in lbs at 100%	9.8	9.6	10.2																																																												

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

Section (Test)	Requirement	Results	Compliance																																																												
3.1.9 (4.3.1.7)	<p>Dynamic Performance: "HOT"</p> <ol style="list-style-type: none">connect 310 lb. weightextract enough line for a 36-inch free fall per Fig 5 in Test Standard.release the test weighttest within 90 seconds of removing from conditioning <table><tr><td>54 C, 85% RH</td><td>Sample: 7</td><td>Sample: 8</td><td>Sample: 9</td></tr><tr><td>Conditioning in: (2 hrs min)</td><td>2hrs</td><td>2hrs</td><td>2hrs</td></tr><tr><td>SN or ID:</td><td>7</td><td>8</td><td>9</td></tr><tr><td>Payout and retract the line per 3.1.6 following test</td><td>YES</td><td>YES</td><td>YES</td></tr><tr><td>Lock function shall operate per 3.1.2</td><td>YES</td><td>YES</td><td>YES</td></tr><tr><td>Visual indicator shall activate</td><td>YES</td><td>YES</td><td>YES</td></tr><tr><td>Max. Arrest Force: (lbs.) Class 1 & 2 < 1,800 lbs.</td><td>818</td><td>819</td><td>934</td></tr><tr><td>Avg Arrest Force (lbs.): Class 1 & 2 < 1,575 lbs.</td><td>609</td><td>689</td><td>696</td></tr><tr><td>Distance Initial (in): D1</td><td>87"</td><td>87"</td><td>87"</td></tr><tr><td>Distance Final (in): D2</td><td>105 ¼"</td><td>110"</td><td>103 ½"</td></tr><tr><td>Arrest Distance (in): D2-D1 Class 1&2 < 42-inches</td><td>18 ¾"</td><td>23"</td><td>16 ½"</td></tr></table> <p>Retraction Strength: The weight of the line constituent, shall not be less than 1.25 lbs. (5.55N) or more than 25 lbs. (111.1N) at any point in the of range of motion provided by the line constituent when tested in accordance with 4.5.1.</p> <table><tr><td>Retraction</td><td>Sample 7</td><td>Sample 8</td><td>Sample 9</td></tr><tr><td>Weight in lbs. at 1 ft</td><td>2.3</td><td>2.1</td><td>2.1</td></tr><tr><td>Weight in lbs at 50%</td><td>4.7</td><td>4.4</td><td>3.9</td></tr><tr><td>Weight in lbs at 100%</td><td>7.4</td><td>8</td><td>7.9</td></tr></table>		54 C, 85% RH	Sample: 7	Sample: 8	Sample: 9	Conditioning in: (2 hrs min)	2hrs	2hrs	2hrs	SN or ID:	7	8	9	Payout and retract the line per 3.1.6 following test	YES	YES	YES	Lock function shall operate per 3.1.2	YES	YES	YES	Visual indicator shall activate	YES	YES	YES	Max. Arrest Force: (lbs.) Class 1 & 2 < 1,800 lbs.	818	819	934	Avg Arrest Force (lbs.): Class 1 & 2 < 1,575 lbs.	609	689	696	Distance Initial (in): D1	87"	87"	87"	Distance Final (in): D2	105 ¼"	110"	103 ½"	Arrest Distance (in): D2-D1 Class 1&2 < 42-inches	18 ¾"	23"	16 ½"	Retraction	Sample 7	Sample 8	Sample 9	Weight in lbs. at 1 ft	2.3	2.1	2.1	Weight in lbs at 50%	4.7	4.4	3.9	Weight in lbs at 100%	7.4	8	7.9	<p>PASS</p>
54 C, 85% RH	Sample: 7	Sample: 8	Sample: 9																																																												
Conditioning in: (2 hrs min)	2hrs	2hrs	2hrs																																																												
SN or ID:	7	8	9																																																												
Payout and retract the line per 3.1.6 following test	YES	YES	YES																																																												
Lock function shall operate per 3.1.2	YES	YES	YES																																																												
Visual indicator shall activate	YES	YES	YES																																																												
Max. Arrest Force: (lbs.) Class 1 & 2 < 1,800 lbs.	818	819	934																																																												
Avg Arrest Force (lbs.): Class 1 & 2 < 1,575 lbs.	609	689	696																																																												
Distance Initial (in): D1	87"	87"	87"																																																												
Distance Final (in): D2	105 ¼"	110"	103 ½"																																																												
Arrest Distance (in): D2-D1 Class 1&2 < 42-inches	18 ¾"	23"	16 ½"																																																												
Retraction	Sample 7	Sample 8	Sample 9																																																												
Weight in lbs. at 1 ft	2.3	2.1	2.1																																																												
Weight in lbs at 50%	4.7	4.4	3.9																																																												
Weight in lbs at 100%	7.4	8	7.9																																																												

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

Section (Test)	Requirement	Results			Compliance
3.1.9 (4.3.1.9)	Dynamic Performance: "WET"				PASS
	<div><div>1. connect 310 lb. weight</div><div>2. extract enough line for a 36-inch free fall per Fig 5 in Test Standard.</div><div>3. release the test weight</div><div>4. test within 90 seconds of removing from conditioning</div></div>				
		Sample: 10	Sample: 11	Sample: 12	
	Conditioning in: (3 hrs min)	YES	YES	YES	
	SN or ID:	13	14	15	
	Payout and retract the line per 3.1.6 following test	YES	YES	YES	
	Lock function shall operate per 3.1.2	YES	YES	YES	
	Visual indicator shall activate	YES	YES	YES	
	Max. Arrest Force: (lbs.) Class 1 & 2 < 1,800 lbs.	731	870	775	
	Avg Arrest Force (lbs.): Class 1 & 2 < 1,575 lbs.	628	693	567	
	Distance Initial (in): D1	87"	87"	87"	
	Distance Final (in): D2	124 ¼"	105"	111"	
	Arrest Distance (in): D2-D1 Class 1&2 < 42-inches	37 ¼"	18"	24"	
	Retraction Strength: The weight of the line constituent, shall not be less than 1.25 lbs. (5.55N) or more than 25 lbs. (111.1N) at any point in the of range of motion provided by the line constituent when tested in accordance with 4.5.1.				
		Sample 10	Sample 11	Sample 12	
	Retraction				
	Weight in lbs. at 1 ft	2.5	3.0	2.8	
	Weight in lbs at 50%	7.0	7.2	6.9	
	Weight in lbs at 100%	11.1	12.1	10.4	

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

Section (Test)	Requirement	Results			Compliance
3.1.9/ (4.3.1.8)	Dynamic Performance: "COLD"				PASS
	5. connect 310 lb. weight				
	6. extract enough line for a 36-inch free fall per Fig 5 in Test Standard.				
	7. release the test weight				
	8. test within 90 seconds of removing from conditioning				
		Sample: 13	Sample: 14	Sample: 15	
	Conditioning in: (3 hrs min)	YES	YES	YES	
	SN or ID:	13	14	15	
	Payout and retract the line per 3.1.6 following test	YES	YES	YES	
	Lock function shall operate per 3.1.2	YES	YES	YES	
	Visual indicator shall activate	YES	YES	YES	
	Max. Arrest Force: (lbs.) Class 1 & 2 < 1,800 lbs.	880	937	881	
	Avg Arrest Force (lbs.): Class 1 & 2 < 1,575 lbs.	653	694	655	
	Distance Initial (in): D1	87"	87"	87"	
	Distance Final (in): D2	103"	107"	122"	
	Arrest Distance (in): D2-D1 Class 1&2 < 42-inches	16"	20"	35"	
	Retraction Strength: The weight of the line constituent, shall not be less than 1.25 lbs. (5.55N) or more than 25 lbs. (111.1N) at any point in the of range of motion provided by the line constituent when tested in accordance with 4.5.1.				
	Sample 1	Sample 14	Sample 15		
Retraction					
Weight in lbs. at 1 ft	2.2	2.8	3.0		
Weight in lbs at 50%	4.6	5.1	5.3		
Weight in lbs at 100%	7.4	11.8	12		

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

Section (Test)	Requirement	Results	Compliance
5	"Marking and Instructions"		
5.1.1	Shall be in English		PASS
5.1.3	Self-Retracting Devices shall be marked with the following:		PASS
5.2.1	Instructions shall be in English, and affixed to the equipment at time of shipment from the manufacturer		PASS

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

Section (Test)	Requirement	Results				Compliance
5.2.2	Instructions shall contain the following information:					PASS
	Instructions	Comments	YES	NO	NA	
	A statement that the manufacturer’s instructions shall be provided to the users		X			
	Manufacturers name, address, and telephone number		X			
	Manufacturer’s part number and model designation for the equipment		X			
	Intended use and purpose of the equipment		X			
	Proper method of use and limitations on use of the equipment		X			
	Illustrations showing locations of markings on the equipment		X			
	Reproduction of printed information on all markings		X			
	Inspection procedures required to assure the equipment is in serviceable condition and operating correctly		X			
	Anchorage requirements		X			
	Criteria for discarding equipment which fails inspection		X			
	Procedures for cleaning, maintenance, and storage		X			
	Reference to Z359 standards		X			
	Proper installation means and limitations on the type of anchorage connectors used		X			
	The fiber or other materials used in the lanyard construction		X			
	The lanyard length		X			
	The average arresting force when dynamically tested in accordance with the requirements of the standard		X			
	SRD class and arrest distance when dynamically tested in accordance with the requirements of the standard		X			
	How to determine fall clearance		X			
Testing the device for locking before each use		X				
5.2.3	Instructions shall require that only the equipment manufacturer, or persons or entities authorized in writing by the manufacturer, shall make repairs to the equipment					PASS
5.2.4	Instructions shall require the user to remove equipment from service if it has been subjected to the forces of arresting a fall or affecting a rescue					PASS
5.2.5	Instructions shall require the user to have a written rescue plan and the means at hand to implement it when using the equipment					PASS

TEST REPORT FOR SAFETY SOLUTIONS INC

Report No.: 105853924CRT-001

Date: July 25, 2024

Section (Test)	Requirement	Results				Compliance
5.2.6	Instructions shall provide warnings regarding:					PASS
	Warnings	Comments	YES	NO	NA	
	Altering the equipment		X			
	Misusing the equipment		X			
	Using combinations of components or sub-systems, or both, which may affect or interfere with the safe function of each other		X			
	Exposing the equipment to chemicals, high heat, severe cold, or other harsh environments which may produce a harmful effect and to consult the manufacturer in case of doubt		X			
	Using the equipment around moving machinery and electrical hazards		X			
	Using the equipment near sharp edges or abrasive surfaces		X			
	Risk of striking an object or obstruction during a swing fall		X			
	That the consequences of improperly using the device, not following instructions or markings may cause serious injury or death		X			
6	User Inspection, Maintenance and Storage of Equipment:					PASS

SECTION 5

REVISION HISTORY

REPORT NUMBER	DATE OF REVISION	DESCRIPTION OF CHANGE:	PROJECT OWNER	REVIEWED BY
105853924CRT-001	07/25/2024	Original Report	Alex Smith	Matthew Stevens