



# Randall's Adventure & Training®

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## Technical Rope Equipment Destructive Testing

All test data recorded using an Eilon Engineering Ron 2000 Dynamometer. Accuracy of test results are not guaranteed or certified to any standard - for information purposes only! Unless stated, all testing performed on new, un-used components.

### Rope / Cordage / Webbing Testing

Break testing by wrapping each end four times around 3.5" diameter drum, tying off remaining end, then slowly pulling until complete failure.

#### Manufacturer's Stated Specs:

Manufacturer's Stated Specs:							Test Data			
Manufacturer	Model	Diameter / Width	Construction	Elongation	MBS	Weight	Max. Force Achieved Before Failure	Test Date	% of MBS	Photo Ref #
Sterling	CanyonPrime	8.5mm	Polyester Sheath, Polyester Core	1.65% @ 300 Lb.	17.0 kN (3821 Lbs)	3.75 Lbs / 100'	19.28 kN (4334 Lbs)	07/18/18	+ 13.5%	07-18-18 (1 thru 3)
Imlay	Canyon Fire	8.3mm	Polyester Sheath, Polyester Core	1.2% @ 390 Lb.	18.2 kN (4100 Lbs)	3 Lbs 13.6 Oz. / 100'	19.16 kN (4326 Lbs)	07/19/18	+ 5.5%	07-19-18 (1 thru 3)
Atwood	Grand	8.0mm	Polyester Sheath, Dyneema Core	93% @ 300 Lb.	24 kN (5400 Lbs)	2.6 Lbs / 100'	Sheath failed @ 20.5 kN (4608 Lbs) Core failed at 21.64 kN (4865 Lbs)	07/23/18	-10%	07-23-18 (1 thru 4)
Petzl	Cordelette	6.0mm	Nylon	Unknown	9 kN (2023 Lbs)	Unknown	9.6 kN (2158 Lbs)	07/28/18	+6.5%	07-28-18 (1 thru 3)

### Carabiner / Connector Link Testing

Carabiner tested by slow pulling between two pins (9/16" diameter pin at top and round carabiner spine at bottom). Carabiner tested until complete failure.

#### General Information:

#### Manufacturer's Stated Specs (MBS):

#### Test Data

General Information:			Manufacturer's Stated Specs (MBS):			Test Data				
Manufacturer	Model	Serial #	Major Axis, Gate Closed	Major Axis, Gate Open	Minor Axis	Axial Tested	Max. Force Achieved Before Failure	Test Date	% of MBS	Photo Ref #
CIC / RAT	AF-818	0382	24 kN (5395 Lbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Triaxial Loaded**	22.26 kN (5004 Lbs)	7/30/18	-7.25%	07-30-18 (1 thru 4)
CIC / RAT	AF-818	0088	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Triaxial Loaded**	22.76 kN (5116 Lbs)	7/30/18	-5.25%	07-30-18 (5 thru 8)
CIC / RAT	AF-818	0552	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Major, Gate Closed	25.8 kN (5800 Lbs)	7/30/18	-7.5%	07-30-18 (9 thru 11)
CIC / RAT	AF-818	0745	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Major, Gate Open	8.78 kN (1974 Lbs)	7/30/18	+10%	07-30-18 (12 thru 14)
CIC / RAT	AF-818	0915	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Minor	9.82 kN (2207 Lbs)	7/30/18	+22.5%	07-30-18 (15 thru 17)
CIC / RAT	AF-824	2598	24 kN (5395 Lbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Major, Gate Closed	25.68	9/9/18	+7%	09-09-18 (1 thru 3)
CIC / RAT	AF-824	0179	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Major, Gate Closed	28.14	9/9/18	+17%	09-09-18 (1 thru 3)
CIC / RAT	AF-824	1672	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Major, Gate Closed	27.46	9/9/18	+12.5%	09-09-18 (1 thru 3)
CIC / RAT	AF-824	0657	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Major, Gate Open	8.46	9/9/18	-8.5%	09-09-18 (1 thru 3)
CIC / RAT	AF-824	1180	24 kN (5395 Lbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Major, Gate Open	8.11	9/9/18	-1.4%	09-09-18 (1 thru 3)
CIC / RAT	AF-824	0946	24 kN (5395 Lbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Major, Gate Open	8.02	9/9/18	+25%	09-09-18 (1 thru 3)
CIC / RAT	AF-824	0813	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Minor	8.01	9/9/18	+13%	09-09-18 (1 thru 3)
CIC / RAT	AF-824	0948	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Minor	8.1	9/9/18	+1.4%	09-09-18 (1 thru 3)
CIC / RAT	AF-824	0003	24 kN (5395 Kbs)	8 kN (1798 Lbs)	8 kN (1798 Lbs)	Minor	8.31	9/9/18	+4%	09-09-18 (1 thru 3)

\*\*Carabiner triaxial loaded, gate closed but not screwed shut. 1" flat webbing used to create triaxial loading.  
\*Carabiner triaxial loaded gate closed and screwed shut. 1" flat webbing used to create triaxial loading.

### Knot Testing

Tested by wrapping one end of the cordage four times around 3.5" diameter drum and tying off remaining end. Anchor knot pull testing is achieved by anchoring knot end through, or around, a 9/16" diameter pin.

#### General Information (Cordage) Manufacturer's Stated Specs:

#### Test Data

General Information (Cordage) Manufacturer's Stated Specs:						Test Data				
Manufacturer	Model	Diameter	Construction	Elongation	MBS	Knot Tested	Max. Force Achieved Before Failure	Test Date	% of MBS	Photo Ref #
Petzl	Cordelette	6mm	Nylon	Unknown	9kN (2023 Lbs)*	Figure 8 Bight	6.6 kN (1483 Lbs)	7/26/18	-26.5%	07-26-18-2
Petzl	Cordelette	6mm	Nylon	Unknown	9kN (2023 Lbs)*	Overhand Bight	5.94 kN (1335 Lbs)	7/26/18	-34%	07-26-18-1
Petzl	Cordelette	6mm	Nylon	Unknown	9kN (2023 Lbs)*	3 Half Hitches	7.72 kN (1735 Lbs)	7/26/18	-14%	07-26-18-3
Petzl	Cordelette	6mm	Nylon	Unknown	9kN (2023 Lbs)*	Scaffold Hitch	8.66 kN (1946 Lbs)	7/26/18	-4%	07-26-18 (4 and 5)
Petzl	Cordelette	6mm	Nylon	Unknown	9kN (2023 Lbs)*	Alpine Butterfly	6.34 kN (1425 Lbs)	7/28/18	-29.5%	07-28-18-11
Petzl	Cordelette	6mm	Nylon	Unknown	9kN (2023 Lbs)*	Double Figure 8 Bight	6.94 kN (1560 Lbs)	7/28/18	-23%	07-28-18-12
Petzl	Cordelette	6mm	Nylon	Unknown	9kN (2023 Lbs)*	Double Fisherman*	6.72 kN (1511 Lbs)	7/26/18	-25.5%	07-26-18-6

\*Cord used for this test failed at 9.6 kN in actual testing. See line 15 above.

\*See notes in file. Double Fisherman performed slightly better when tied incorrectly.

### 3-Wrap Prusik Hitch Slip Testing

Single Prusik Cord w/ 3 wraps around mainline. Prusik cord anchored at bottom with round spine carabiner. Mainline wrapped four times around 3.5" diameter drum at top or secured with anchor knot. Slow pull force applied until Prusik slips or system fails.

#### Prusik Cord Information

#### Mainline Information

#### Test Data

Prusik Cord Information			Mainline Information			Test Data			
Manufacturer	Diameter	Construction	Manufacturer / Type	Diameter	Mainline Construction	Max. Force Achieved	Test Date	Failure kN	Photo Ref #
Petzl	6mm	Nylon	Imlay Canyon Fire	8.3mm	Polyester Sheath and Core	1" of slippage then mainline complete failure at 9.42 kN	7/26/18	26.5 kN	07-27-18 (5 thru 8)
Petzl	6mm	Nylon	Sterling CanyonPrime	8.5mm	Polyester Sheath and Core	No slippage. Mainline complete failure at 9.5 kN	7/27/18	27.1 kN	07-27-18 (1 thru 4)
Petzl	6mm	Nylon	Sterling Accessory Cord	8mm	Nylon Sheath and Core	Slippage at 4.5 kN No system failures	7/27/18	13.5 kN	NA
Petzl	6mm	Nylon	Sterling HTP	9mm	Polyester Sheath and Core	No slippage. Prusik complete failure at 10.1 kN	7/27/18	30.3 kN	NA
Sterling	7mm	Nylon	Sterling HTP	9mm	Polyester Sheath and Core	Slippage at 8.5 kN No system failures	7/27/18	25.5 kN	NA
Sterling	8mm Bound Prusik	Nylon	Sterling HTP	9mm	Polyester Sheath and Core	Slippage at 6.2 kN No system failures	7/28/18	17.7 kN	07-28-18 (4 thru 7)

### Device Testing

#### General Information:

#### Pertinent Mfg. Specs

#### Test Data

General Information:			Pertinent Mfg. Specs		Test Data			
Manufacturer	Model	Serial #			Test Performed	Test Date	Failure kN	Photo Ref #
Sterling	ATS Descender	15286M0390	7.5 - 11.2 mm, 23 kN MBS		*Pull test from carabiner hole to top of ATS along vertical axis. Pulled between two round spine carabiners.	7/28/18	25.7 kN	07-28-18 (8 thru 10)
Petzl	PAW 5 (Plate)	16G0030735406	36 kN MBS		Center hole	12/31/18	44.3 kN	IMG_3778-3782

\* Purpose of test was to verify strength when running a self-belay VT prusik from top of ATS.