#### **USER INFORMATION**

THE REVOLUTION PULLEY MEETS THE PULLEY REQUIREMENTS OF NFPA 1983, INCORPORATED IN THE 2022 EDITION OF NFPA 2500. RATED FOR GENERAL USE (G) MBS 38KN



#### **KEEP THESE INSTRUCTIONS:**

Refer to these instructions before and after each use. Read and understand warning below before first use. Retain a copy for your permanent records. Retain a second copy to keep with the device. Additional information regarding pulleys can be found in NFPA 1500 and NFPA 1858 and NFPA 1983, incorporated in the 2022 edition of NFPA 2500.

If you have any questions, comments or concerns, contact us at 1600 Kentucky Street, suite A-3 Bellingham, WA 98229 • USA P 360.734.2311 • F 360.738.2241

The sample log suggests records that should be maintained by the purchaser or user of rescue equipment.

| Equipment Inspection and Maintenance Log |                        |          |      |  |  |  |
|--|------------------------|----------|------|--|--|--|
| Item<br>Brand/N                          | #   Date in Service    |          |      |  |  |  |
| Date                                     | How Used or Maintained | Comments | Name |  |  |  |
|  |                        |          |      |  |  |  |
|  |                        |          |      |  |  |  |
|  |                        |          |      |  |  |  |
|  |                        |          |      |  |  |  |

## **WARNING!**

Your REVOLUTION PULLEY is a very specialized piece of equipment. In order to stay safe, your it must be treated with respect:

- 1) It is YOUR responsibility to carefully read and understand these instructions before using your Revolution pulley®. Keep these instruction for future reference. Failure to follow instructions can lead to loss, serious injury, or death.
- 2) You must also test your Revolution pulley® with the ropes that you intend to use, while in a safe environment, while also attached to a separate safety line. You must do this before attempting to use your Revolution pulley® in the field.
- 3) Climbing, mountaineering and rescue work are dangerous activities. Even when properly done, events can happen that may lead to loss, injury, or even death. You must seek proper professional instruction in climbing, rescue and Revolution pulley use before ever using your pulley in the field. Failure to do so may endanger your own life as well as others.

#### 4) Legal Statement, Please read carefully;

By using your Revolution pulley® you have shown that you understand and agree that you that you are assuming full risk and responsibility for any injury or loss that you receive or cause to others while using this equipment, and that such injury, loss or damage will be your responsibility, and not that of Conterra Inc, Conterra Precision Manufacturing, or it's owners, managers, employees, agents or other participants for claims for damages which might arise from the use of the Revolution pulley® including negligence for which the proprietors would otherwise be responsible. You further agree to accept full responsibility for the cost of any treatment for any injury that you receive or cause others as well as any loss of wages, income, or disability that you may suffer or cause others. If you do not agree to the above conditions, please return your pulley to Conterra Inc. in unused condition, for a full refund.



### **REVOLUTION PULLEY**

WITH SMART BECKET NFPA (G)

# USER INSTRUCTIONS

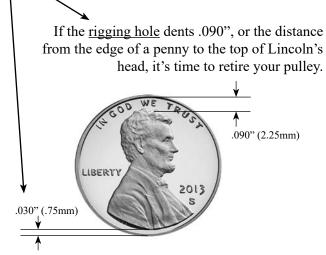
MADE IN THE USA

Revolution Pulley® and Smart Becket® are registered trademarks of Conterra Inc. All rights reserved

#### Wear

This pulley is designed to last for many years of professional rescue use. However, dirt, grit, and industrial abrasives that a rope may transport can wear even the ultra tough materials that make up your Revolution Pulley®.

Frequently check the side plates for wear. If a side plate is worn more than .030" or the top hole is dented more than .090" then it is time to retire your pulley (see below).



If the <u>side plate</u> wears .030", or the distance from the edge of a penny to the edge of Lincoln's bust, it's time to retire your SCARAB®.

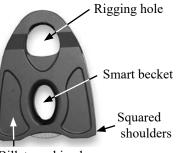
#### **Damage**

If your pulley is dropped or shock loaded to the point that you can see deformation of the side plates, sheave (wheel) or rigging hole, retire and replace the device.

There are no user repairable parts to this device. Do not attempt to disassemble. Do not attempt any field repairs or alteration of any kind.

If visible corrosion or deterioration is found to be present, retire and replace the device.







Billet machined side plates

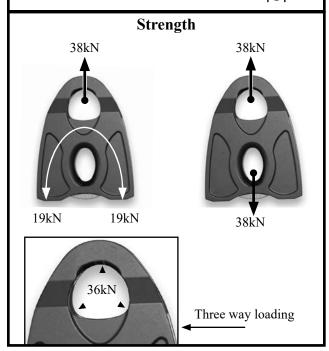
Length (L)= 106mm (4.17in)

Width (W)= 82.5mm (3.25in)

Thickness (T)=23.1mm (.91in)

Weight= 188 gm (6.6 oz)





#### Capacity 8mm - 13mm rope

| Efficiency* |                   |  |  |  |
|-------------|-------------------|--|--|--|
| Input Force | Pulley Efficiency |  |  |  |
| 1 kN        | 86%               |  |  |  |
| 2 kN        | 90%               |  |  |  |
| 3 kN        | 91%               |  |  |  |

\* Test were performed using 12.5mm KMIII static rope. Measurements were taken with rope in motion (more information on reverse side).

#### **Maintenance/ Cleaning**

If your pulley becomes contaminated with dirt or salt water, do the following:

- 1) Rinse with fresh water
- 2) Spray with WD-40 ( to displace rinse water)
- 3) Wipe side plates and pulley sheave with isopropyl alcohol (to clean off WD-40)
- 4) Store in dry area

#### **FURTHER INFORMATION**

For detailed information on pulley systems as well as step by step techniques in rope rescue, get the "Technical Rescue Riggers Guide, Fourth Edition" by Rick Lipke. Available from any Conterra supplier, or by contacting Conterra Inc.



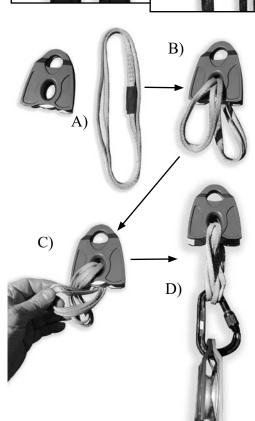
Find more Conterra technical rescue hardware at: www.conterra-inc.com/collections/conterra-made-rescue-hardware

And use Discount Code MoreConterra10 to save 10% on your next order of Conterra made rescue hardware. Limit one use per customer.

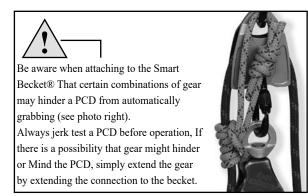
#### Smart Becket

Piggy backing pulleys is a snap





The Smart Becket® of your Revolution Pulley® allows rigging possibilities not available with any other rescue pulley.



You can tie directly into the Smart Becket®

It is possible to change the orientation of a pulley attached to the Smart Becket® even if the pulley does not have a swivel:

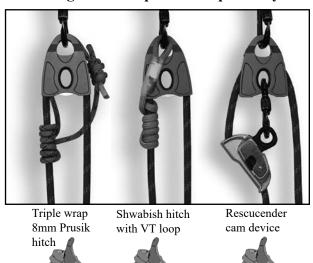
- A) Start with a climbing sling, Prusik Loop, or webbing loop.
- B) Thread the sling through the Smart Becket®.
- C) Take the rear loop and place on top of the front loop without twisting.
- D) Clip all Loops.
- E) This creates an approximate 90° directional change in the lower pulley.





Your revolution pulley is designed to open 90° for loading ropes. If for any reason your pulley rotates farther than 90°, discontinue use, and return to Conterra for inspection.

#### **Progressive Capture Compatibility**



#### **Efficiency Comparison**

Published pulley efficiencies can be confusing. They are a combination of pulley tread dimension, bearing, and rope stiffness. The test method can also effect results. Below are efficiency ratings of the Revolution Pulley with other high quality rescue pulleys using the same test method for comparison.

The efficiencies were measured in the following way:

Tension was constantly applied with a moving test mass being lifted by a winch. As the line turns the pulley, input and output tension was measured and compared\*.

| Pulley   Illao pao peo   winch |
|--------------------------------|
| moving test<br>mass            |
| *tested with 12.5              |

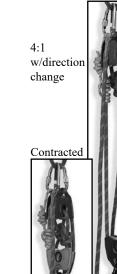
mm KM3 rope

|                               | 1 kN | 2 kN | 3 kN | Avg |
|-------------------------------|------|------|------|-----|
| Revolution pulley             | 86%  | 90%  | 91%  | 89% |
| Petzl<br>Minder 2"            | 81%  | 89%  | 92%  | 87% |
| Rock<br>Exotica 1.5<br>swivel | 87%  | 89%  | 87%  | 87% |
| CMC 1.5"<br>pulley            | 85%  | 86%  | 82%  | 84% |

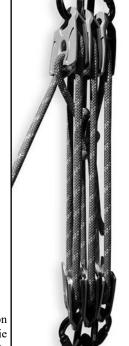
#### - Configurations

Your Revolution Pulley can be used anywhere that other rescue pulleys are used. Shown below are some less common configurations that the Revolution Pulley is uniquely suited for:









change. Note the direct tie to the beckets

#### Tech Tip -

Sometimes its handy to have multiple sheave pulleys, particularly for conspace or tripod work. Your revolution pulleys can be ganged together to form twin sheave or even Tri-sheave

In order to keep the sheaves parallel for twin sheaves, do the following;

Using carabiners that are of similar geometry, clip one through the first pulley with the gate facing OUT. Clip a second carabiner through both pulleys with the gate facing OUT (away from the first Carabiner). This creates a spacer that keeps the sheaves parallel.

For tri-sheave arrangement, Clip the center and an outer pulley with the first carabiner. Clip the second carabiner through the center and remaining outer pulley. Make sure the gates are facing OUT (away from each other).

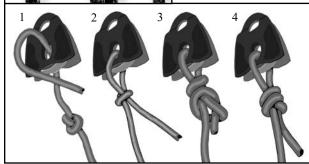




#### **Compact Becket Knot -**



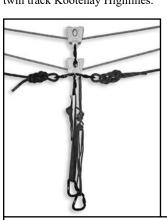
A very compact and efficient becket knot can be tied onto your Revolution Pulley as shown. The knot is historically known as an "Englishman's loop", but is more accurately named a "Blocked Slip Overhand". Using this knot in the Smart Becket allows more contraction of pulley systems in small spaces such as tripods.



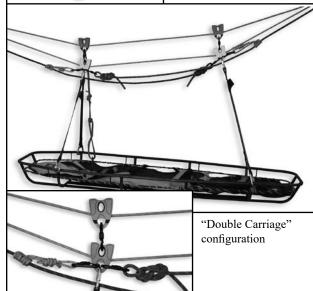
#### **Revolution Pulleys as Carriages -**

Revolution Pulleys can be easily used as carriage pulleys for multi track highlines due to the unique capabilities of their

Shown below are single and double carriage configurations for twin track Kootenay Highlines.



"Single Carriage" configuration



# Simple 6:1 w/direction