

# APEX

E X O S U I T

## Quick Start Guide

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# Introducing the Apex

Thank you for purchasing the HeroWear Apex. This Quick Start Guide is an abridged version of *The Apex Exosuit User Manual*. Familiarizing yourself with this guide will enable you to quickly identify Apex components and understand how to assemble, wear, adjust, and maintain the exosuit. Always keep this guide with your exosuit unit for reference—because a strong, comfortable fit is the HeroWear standard.

Now, let's get started.

# Diagram of Components

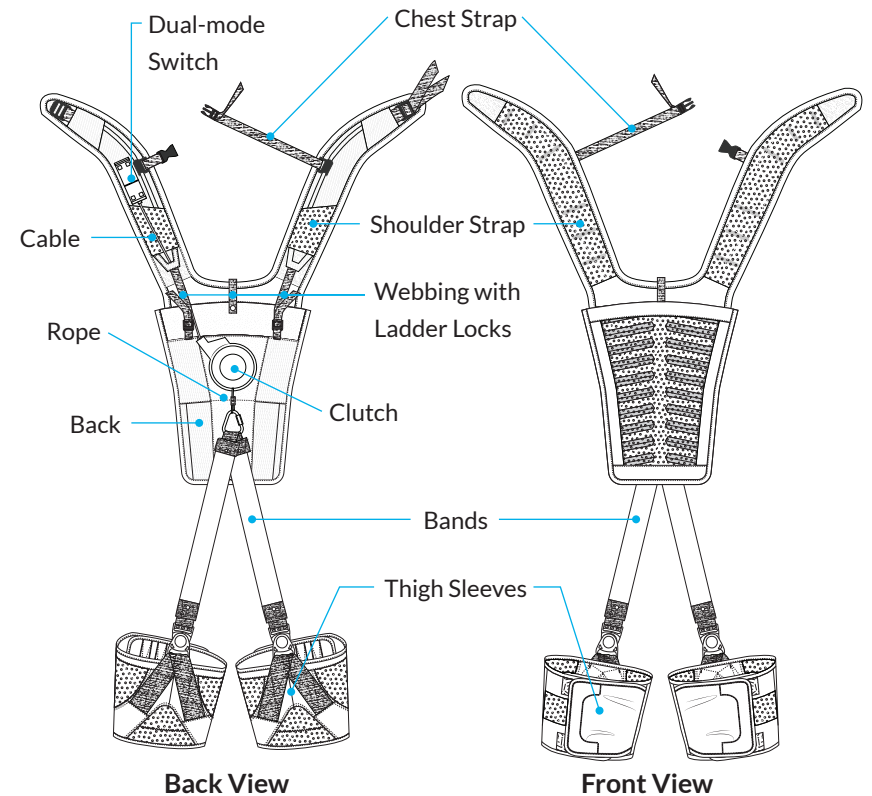


Figure 1: Components of the Apex Exosuit

# Basic Assembly

- Step 1** Install the **Shoulder Straps into the Back** by sliding the Strap's large center panel into the Back's pocket using the yellow stitching to ensure they are installed straight/level (Figure 2). The Back length can be adjusted by sliding more or less of the Strap's large center panel into the Back.
- Step 2** Install the **Switch** onto the rails of the left Shoulder Strap then install the set screw to lock the Switch in place (Figure 3).
- Step 3** Connect the **Webbing Strips**. Connect the three (3) Webbing Strips at the top of the Back into the ladder locks and tighten so that when the Apex is on the user, there is no slack in the Webbing (Figure 4). Connect the two (2) Webbing Strips from the bottom of the Back to the end of the Shoulder Straps.



Figure 2: Shoulder Strap Installation



Figure 3: Switch Installation



Figure 4: Webbing Strips into Ladder Locks

- Step 4** Connect the **Bands** to the Rope loop at the bottom of the Clutch on the Back by unscrewing the gate on the triangle, sliding it into the loop then retightening the gate (Figure 5).
- Step 5** Clip the **Bands to the Thigh Sleeves**. Be sure to clip the Band angled toward the right thigh into the right Thigh Sleeve and the Band angled toward the left thigh into the left Thigh Sleeve (Figure 6).
- Step 6** Capture loose **Webbing with Webbing Keepers**. Fold or roll up extra Webbing once the Apex is properly adjusted and capture with the Webbing Keepers (Figure 4, 7, 11, and 12).



Figure 5: Connect Bands to Rope Loop



Figure 6: Clip Bands to Thigh Sleeves



Figure 7: Capture Loose Webbing with Webbing Keepers

# Putting the Apex On

Note: The Apex is intended to be worn over clothing.

**Step 1** Start with the **Shoulder Straps**. Shoulder Straps and Back go on like a backpack.

**Step 2** **Switch Off**. Be sure the Switch is toggled OFF by pressing the button at the bottom of the Switch before putting on Thigh Sleeves (Figure 8).

**Step 3** **Wrap Thigh Sleeves**. The label on the inside of the Thigh Sleeve will indicate which thigh it goes on, and the black clip on the back of the Thigh Sleeve should always be at the top of the thigh and centered on the buttock (Figure 9).

Follow steps A, B, and C, and D in Figure 10.

Secure Thigh Sleeves by wrapping the inner flap around the front of the thigh, then the flap from the outer part of the thigh attaches over it, with the final flap stretched tight from the inner thigh, and fastened in to place over the front of the thigh.

**Step 4** **Connect Bands**. If the Back and Thigh Sleeves are already connected with the Bands, the user is ready to use the Apex exosuit; if not, connect the Bands by clipping them (Figure 9).



Figure 8: Dual-mode Switch ON/OFF



Figure 9: Thigh Sleeve Placement



Figure 10: Wrapping Thigh Sleeve

# Adjusting the Apex

**Back Length** Loosen or detach the three (3) strips of Webbing connecting the Shoulder Straps to the Back. Pull the Shoulder Straps away from the Back and adjust the length by sliding more or less of the Strap's large center panel into the Back, and using the yellow stitching to ensure they are installed straight and level. Reattach and tighten the Webbing connecting the Shoulder Straps to the Back so there is no slack in the Webbing when the Apex is being worn (Figures 11 and 12).

**Strap Length** Loosen or tighten the Shoulder Straps like a backpack so that the Switch sits on the front of the shoulder, not on top (Figure 13 and 14). Shoulder Straps should fit snugly but allow for comfortable movement.

**Chest Strap** Loosen and tighten the Chest Strap to the desired length like a backpack.

**Thigh Sleeves** Adjust Thigh Sleeves so that they are very snug and allow for comfortable movement, using the instructions in Step 3 on Page 4.

**Band Length and Strength** Contact HeroWear to obtain the proper Band length or strength for the user.



Figure 11: Shortest Back Length



Figure 12: Longest Back Length



Figure 13: Male Straps Adjusted Incorrectly. Straps too loose. Note height of Switch.



Figure 14: Male Straps Adjusted Correctly

# Using the Apex

The Apex is a passive exosuit with no batteries, motors, or sensors. It uses elastic bands activated by a proprietary, patent-pending mechanical on/off switch as its support and assistance mechanism to reduce strain, fatigue, and injury risk for the tissues of and those surrounding the spine, torso, hips, and thighs during tasks that require the user to bend, lean, stoop, squat, or lift.

The Apex exosuit does not increase strength or allow users to lift loads that are heavier than they can typically lift. Always use good body mechanics and safe lifting techniques when using the Apex.

## Switch Operation

Engage the system by pulling the upper portion of the Switch downward until it clicks. Disengage the system by pressing the button at the bottom of the Switch so that the upper portion of the Switch slides back up to the top of the rails (Figure 8).



## Engaged Mode

The Apex exosuit is designed to be engaged while performing tasks and activities, such as but not limited to, the following:

- Lifting
- Bending
- Leaning forward
- Stooping
- Squatting
- Extended reaching involving bending or leaning

## Disengaged Mode

The Apex exosuit can be disengaged when the assistance from the Bands is not wanted or needed. While in disengaged mode, users can easily perform tasks and activities that do not require assistance from the device, such as but not limited to the following:

- Walking
- Running
- Climbing
- Sitting
- Operating equipment
- Lying down
- Crawling

# Taking the Apex Off

- Step 1** Switch the device OFF to disengage.
- Step 2** Remove Thigh Sleeves.
- Step 3** Unclip the Chest Strap.
- Step 4** Loosen Shoulder Straps if needed.
- Step 5** Take the device off like a backpack.

## Maintenance

### Sanitizing and Cleaning

#### Daily Sanitizing

- With the device hanging on a hanger, spray all parts except the Switch, Cable, and Clutch well at the end of each day with a sanitizing solution. Disinfectant wipes can be used to wipe, clean, and sanitize the Switch, Cable, Clutch, and any other hard or elastic component.
- For recommended cleaning products and further cleaning instruction, visit <https://HeroWearExo.com/Care>
- Ensure there is adequate airflow around the device and allow it to dry thoroughly before the next use.

#### Periodic Cleaning

- **Cleaning Option 1 (Partial Machine Wash):**

**Note: DO NOT machine wash the Back component of the Apex exosuit. Please read and follow these instructions carefully.**

- Ensure the Apex is in disengaged mode.
- Remove the Switch from the Left Shoulder Strap and engage it to lock it together.
- Remove the Shoulder Straps from the Back, disconnect the Thigh Sleeves from the Bands, and remove the Bands from the Back.
- Place the Shoulder Straps and Thigh Sleeves inside a laundry sack and machine wash using mild detergent in cold or warm water (do not use hot water) using the most gentle cycle possible.
- The Back and Bands can be hand washed with a moist, soapy rag (mild detergent and cold or warm water).
- The Switch, Cable, Clutch, and any other hard or elastic components can be wiped clean with moist, soapy rag, or disinfectant wipes; be careful not to get these components wet or submerge them. For recommended cleaning products and further cleaning instruction, visit <https://HeroWearExo.com/Care>.
- Line dry wet components thoroughly.

- **Cleaning Option 2 (Complete Hand Wash):**

- All measures listed in Option 1 apply to Option 2, exempting the instructions for machine washing the Shoulder Straps and Thigh Sleeves.
- Alternately, the Shoulder Straps, Thigh Sleeves, Back, and Bands can be hand washed with a moist, soapy rag (mild detergent and cold or warm water).

## Inspection

Visually inspect the following areas on a weekly basis for any cracking, ripping, or other signs of stress or wear: Shoulder Straps, Clutch, Switch, Bands, Thigh Sleeves, Rope, Cable, Webbing, and all plastic

In the event that any of the above issues are identified during inspection, take pictures of the problem, and contact HeroWear by emailing [Care@HeroWearExo.com](mailto:Care@HeroWearExo.com) or visiting <https://HeroWearExo.com/HeroCare360>. Depending on the severity of the issue, the Apex can stay in use if the problem is only minor. For all conditions that appear to affect the functionality of the device, remove the Apex exosuit from use and contact HeroWear.

## Storage

Store the Apex on a hanger, or on a rack, with sufficient airflow to allow the exosuit to dry thoroughly if wet. Protect the exosuit from dust, moisture, extreme temperatures (-4° Fahrenheit to 122° Fahrenheit), and large temperature fluctuations by storing it in an area not subject to these conditions.

## Safety Considerations

The Apex exosuit is only for use as intended. Please refer to User Manual for detailed safety information.

## Resources

User Manual will be available online by July 2020 at:  
[HeroWearExo.com/HeroCare360/user-manual](https://HeroWearExo.com/HeroCare360/user-manual)



# Apex Exosuit Fitting Checklist

Fit checks should be performed with new users. This involves observation of the user working with the Apex and discussion about adjustments that might improve the fit. Fit checks every two to four hours during the first week of use will help fine-tune the fit for a better user experience. Once users achieve their perfect fit, they may no longer require fit checks, and can visit [HeroWearExo.com/HeroCare360](https://herowearexo.com/HeroCare360) for additional inquiries about the Apex.

## Straps

- A. Shoulder Straps should be adjusted so the upper body portion of the Apex is snug, minimizing any sliding or shifting on the body with movement. It should fit more snugly than a backpack.
- B. Top of Switch is positioned at or slightly below collarbone level, not above the collarbone.
- C. Chest Strap is adjusted, horizontally and vertically, so that the Shoulder Straps don't interfere with arm movements across the body or overhead. The Back and Straps should be so comfortable that they feel like part of the body (rib cage/thorax). Similar to a hydration pack for running, the Apex should not bounce, slide, or shift.
- D. Once adjusted for the user, all Webbing is captured in the Webbing Keeper.

## Thigh Sleeves

- E. Thigh Sleeves are worn as far up the thighs as possible, snug enough not to shift, slide down, or rotate.
- F. Thigh Sleeve clips are positioned under the middle of each butt cheek. Some people may prefer the clips to be slightly more toward the body's midline, but not so far that the clips wedge between the buttocks; nor should the clips orient too far toward the outside of the hips so that the Bands slide around the outside of the hips.

## Bands

- G. Bands should not be so long that there is too much slack in the upright standing position. With typical uses, the user should begin to feel support and assistance when they begin to bend or squat, but not feel the device pulling on them in the upright standing position.
- H. Bands should be long enough that they do not spool more than 2" of rope out of the Clutch when the user is standing upright and the suit is disengaged. If the Bands are a little too short, the user can adjust the Back and Straps (Figure 12, Page 6). This will minimize the amount of rope coming out of the Clutch.
- I. The Bands should be strong enough to provide support and assistance with bending and squatting movements, but not too stiff so as to restrict movement into these positions. The user shouldn't have to fight against the Apex to bend or squat. Minor adjustments to Band length and of the Back and Straps can typically resolve any issues, and attain the right balance of getting good assistance without fighting against resistance.





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