

# HORIZON

PERFORMANCE DESIGNS

## PACKING MANUAL



## About This Manual

Congratulations on the purchase of your new Horizon canopy by Performance Designs! We are confident that you will be pleased with it in every way. The Horizon has been created especially for wingsuit skydiving. You will love its light weight and small pack volume. The Horizon's quick and reliable openings along with the responsive handling and its best-in-class flare make this canopy a joy to fly. With proper care this canopy should last for hundreds of jumps.

The Horizon is a low bulk seven cell canopy designed for experienced jumpers only. This manual is not intended to replace instructional information provided by a professional. Before using this parachute you must receive training from a properly certified wingsuit coach/instructor. It is imperative that you understand how the performance of the Horizon is different from other parachute systems commonly used in wingsuiting. Proper deployment, flight, landing, and packing procedures for this canopy must be followed at all times.

We urge you and your rigger to carefully inspect your new canopy and completely familiarize yourself with the Horizon's features and functionality.



**READ THIS MANUAL CAREFULLY BEFORE  
ASSEMBLING, PACKING OR USING YOUR  
PERFORMANCE DESIGNS HORIZON PARACHUTE.**



**WARNING:** COMPONENT INCOMPATIBILITY, INCORRECT ASSEMBLY OR IMPROPER CONFIGURATION OF PARACHUTE SYSTEM COMPONENTS MAY CAUSE SERIOUS INJURY OR DEATH. All components of a parachute system must be compatible with each other to ensure proper functioning of the system. The user is responsible for determining the compatibility and choice of all parachute system components and for ensuring the correct assembly and configuration of all components used in the parachute system.

Parachute systems sometimes fail to operate properly - even when properly assembled, packed and operated - **you risk serious injury and death each time you use the system.**

Because of the unavoidable danger associated with the use of this parachute, Performance Designs makes no warranty, either expressed or implied. It is sold with all faults and without any warranty of fitness for any purpose. The manufacturer also disclaims any liability in tort for damages, direct or consequential, including personal injuries resulting from a defect in design, material, workmanship or manufacturing whether caused by negligence on the part of the manufacturer or otherwise. **BY USING THIS PARACHUTE ASSEMBLY, OR ALLOWING IT TO BE USED BY OTHERS, THE USER WAIVES ANY LIABILITY OF THE MANUFACTURER FOR PERSONAL INJURIES OR OTHER DAMAGES ARISING FROM SUCH USE.**

This manual may be revised at any time by Performance Designs, Inc (PD) without notice. Contact Performance Designs or visit our website at [www.performancedesigns.com](http://www.performancedesigns.com) to ensure that you have the most up-to-date version of this manual.

## General Information

The Horizon is a low bulk seven cell canopy available in 120-190 sizes and designed especially for wingsuit skydiving. With ZP placed all of the right places, the fabrics and construction of the Horizon canopy make it unique and impossible to compare to any other canopies currently available on the market. Although it is unlike anything else in our product line, the Horizon performs in all of the ways our customers have come to expect from Performance Designs. The low bulk fabric we have chosen for this canopy gives it excellent openings that are forgiving to packing and deployment technique while delivering fun flight characteristics and a best-in-class landing. Because of its unique design, the packing and care for this canopy are also unique.

It is important to have a thorough understanding on the factors that will help determine the quality of your experience while using this wing. For more information on the performance of the Horizon, as well as how to pick the best size for you, please visit our Flight Characteristics and our Frequently Asked Questions (FAQ) documents located on the Horizon Product Page at [www.performancedesigns.com](http://www.performancedesigns.com)

## Components

Our testing and experience have shown us that the configuration of your equipment is a major factor in ensuring the best experience while using this product. It is ultimately up to the jumper to consider factors such as gear configuration, packing technique, flight speed, and body position on deployment in order to optimize their user experience with this product during the deployment phase of your wingsuit flight. Improper configurations can increase the chances of malfunction or inconsistent/ hard openings. ***It is always advisable to consult a certified rigger with knowledge and experience of wingsuiting when selecting the components and configuration of your equipment.***

## Deployment Bag

Deployment bags are an important part of the configuration of your equipment. Although many wingsuiters seem to favor semi-stowless bag configurations for smoother openings, the Horizon development tested a wide range of bag and pilot chute configurations. We have found that the best bag to use is simply the bag that works best with the geometry of your container and the size of the canopy you are jumping. In some cases a “standard bag” may be the best option. Follow your container manufacturer’s recommendations when choosing the best deployment bag for wingsuiting.

## Pilot Chute (PC)

There are many factors that should be considered when choosing the best PC for the canopy size, wingsuit, and environment that you are jumping in.

- While it is impossible to choose one specific pilot chute for all applications in wingsuiting, our testing has shown us that a larger pilot chute than what is typically used in sport jumping provides more consistent results.
- It is not recommended to use a PC smaller than 27 inches (68.5 cm)
- The handle to your PC should be as light as possible to ensure the best results

## Bridle

Bridle length should be carefully considered to coincide with the PC selected for wingsuit jumping. It is critical to select a bridle that extends beyond the burble behind you at pull time. Most standard sport bridles are too short to be considered as they increase the risk of deployment problems. A special “wingsuit” bridle should be selected instead. Most wingsuit pilots today choose a bridle between 7 and 9 feet in length (2.13- 2.74 meters) from the pin to the PC. Bridles shorter than 7 feet (2.13 meters) in length increase the risk of the PC being caught in the jumpers burble and causing a PC in tow.

## Packing The Horizon

The emphasis for developing the Horizon was focused on consistent and predictable openings when deployed in the wake turbulence caused by wingsuits. Because the nature of deploying with a wingsuit is different than freefall skydives, we have found that packing the Horizon is also a bit different than traditional PRO-packing.

This packing manual is not meant to replace the instruction of a certified rigger. This is only meant to be a reference guide.

## FLAKING THE CANOPY

We recommend a PRO-pack job for the Horizon Canopy.

Before packing the canopy, do a full continuity check and ensure that the canopy has been properly assembled to the harness container system.

Ensure the lines are clear and flake the canopy according to the packing guide found in the Info Center of our website ( [www.performancedesigns.com](http://www.performancedesigns.com) ). Focus on making neat and symmetrical folds in the canopy. After you quarter the slider be sure to **utilize the snaps on the canopy and slider** as shown below. We have found that the snaps help the openings tremendously in the event of an uneven presentation due to wake turbulence.



Snap Detail on Stabilizer



Snap Detail on Nose Center Cell

Once you have finished flaking the canopy, and quartered and snapped the slider, double check and ensure that the stabilizers are clear of any lines. If the stabilizer is tucked into the center of the pack job, or it gets caught underneath any of the suspension lines, it could damage the canopy on deployment.



The Horizon has been developed for hassle free packing and openings.  
The nose should be left alone as shown in the photo above.

#### COCOON THE CANOPY

While rolling the tail excessively on any pack job can have adverse effects on the opening of any canopy, it can cause major deployment issues when you deploy a canopy in the wake turbulence of a wingsuit. The fabric of the Horizon makes it easy to control the pack job without rolling the tail in the same manner you would on ZP mains. The technique shown in the photos below encourages the canopy to present more symmetrically to the relative wind and encourages the canopy to begin expansion and pressurization sooner. Early separation of the four line groups gives the canopy less time to induce line twists or other malfunctions while exposed to the wingsuit burble.

Make certain that you are careful to keep the lines in the center of your pack job as you bring the trailing edge of the canopy up to the top of the slider to begin forming the cocoon.

Begin rolling the tail of the canopy approximately 3 to 4 inches (7.62-10.16 cm) below the slider grommets. Roll the tail of the canopy just enough to control the pack job. The end result should look something like this. Be careful not to pull too much fabric into the folds at the tail. The folds should be no wider than the width of the tail seam. Fold the tail no more than 3 times around.



Roll the tail of the canopy just enough to control the fabric and lines inside the pack job before laying the pack job on the floor for bagging.

When you lay the canopy on the floor it should look like the cocoon of a standard Ram- air PRO-pack. Ensure that the slider grommets have not rotated and are still sitting at the stops flat and even.

Cock the PC according to manufacturer's instructions

Carefully spread the grommets apart approximately 3 inches (7.62 cm) as shown in the following images and begin pushing the air out of the canopy for bagging.



Lay the cocoon on the floor normally



Spread the grommets apart approx. 3" (7.62 cm)

**NOTE:** This packing technique encourages faster expansion of the canopy for a more efficient opening. Because of this, it is important to moderate your airspeed and body position at pull time. Consult a wingsuit instructor/coach for more information on moderating your airspeed and angle of attack as you deploy your Horizon. With proper packing and deployment techniques, the Horizon has proven to provide consistently on-heading and soft openings.

### BAGGING THE CANOPY

Depending on what type of deployment bag you choose the procedure for bagging the canopy may vary. Regardless of the type of bag you have it is always important to ensure that the bag is the correct size for the canopy and container that you are jumping. When folding the canopy, take care to keep control of the slider and lines during the entire process.

The size of your first S-fold will depend on the size and type of deployment bag you will be using. Follow the instructions listed in our Performance Designs Packing Guide for folding and bagging the canopy.



Note: after the canopy has had the first S-fold put into place as shown above, the center cell should contain the pack job without exposing any parts of the nose or suspension lines. Good line tension should be maintained throughout the bagging process.



Continue S-folding and place the canopy into the bag per manufacturer's instructions. Regardless of the technique, the slider grommets should be well seated in between the two S-folds as shown above. It is important to maintain good line tension and control of the slider ensuring it remains at the stops. The end result should look something like the photo above.



Follow your container manufacturer's instructions for closing the bag, stowing the lines, and closing the container.

Line stowing methods vary by manufacturer. When using large rubber bands, PD recommends double wrapping all line stows. (including locking stows)

We recommend leaving approximately 18 inches (45.72 cm) of excess line between the bag and the risers for wingsuiting deployments.

## Care and Maintenance of your Horizon Canopy

When properly cared for, the Horizon will last for hundreds of jumps. Excessive exposure to hard openings, deep or aggressive stalls, rough packing, and even certain environmental factors can shorten the life span of your canopy. Here are some things to pay attention to that will help maximize the longevity of your Horizon canopy and ensure that it continues to perform at its best.

### Keep the canopy clean and dry

- Avoid dragging any part of the canopy across the ground.
- Keep your Horizon dry at all times. In the event that the canopy gets wet it should be hung up in a manner that does not distort the fabric or tapes. Dry thoroughly before packing or storage.
- We have added ZP fabric in all of the right places to enhance the performance and longevity of the canopy, however, true to all canopies utilizing non-ZP fabrics it is critical to avoid unnecessary agitation of the fabric.
- Pack the canopy in a clean environment and avoid exposing the canopy to dirt and oils from your skin as well. Always wear a shirt while packing your Horizon.
- Avoid washing your entire canopy. Doing so will reduce the performance of the parachute, possibly to the point of making the canopy un-airworthy. Local areas that are soiled or stained should be cleaned with mild soap and water. Do not use harsh detergents or products containing bleach
- Nylon degrades rapidly with acids. Acids from bug spots or food can seriously degrade the parachute. These should be cleaned as soon as possible. Acids from batteries will destroy parachutes. Never allow the parachute to come in contact with lead acid (automotive and aircraft) batteries or be stored in the same environment. Acid contamination may take a long time to degrade the canopy enough to make it structurally unsafe. The affected area may have no visible signs of damage. If there is reason to suspect significant acid contamination, the equipment should be permanently removed from service and destroyed.
- Other chemicals such as agricultural or household chemicals can also be degrading.

### Avoid Heat and UV exposure

When not in use the best place for all of your skydiving gear is in a cool, dry place away from sunlight. Excessive exposure to heat and UV rays can degrade or weaken the canopy fabric and shorten the lifespan of the canopy. Never store your gear in the trunk of your car for extended periods of time.

## Scheduled Maintenance

It is always wise to inspect your canopy before each jump. Have the canopy inspected by a certified rigger at least once a year and carefully log the jumps you put on the system. Keeping track of the jumps you have put on your Horizon will make it easier to decide when to replace components such as suspension lines and pilot chutes. Ensuring that all of the components on your Horizon are in good working order will optimize your experience and extend the life of the canopy.

Replacement line sets can be ordered through Performance Designs. It is highly recommended that you use only line sets manufactured at Performance Designs when relining your Horizon.

## Wing Loading Recommendations

Performance Designs has done extensive R&D and testing when considering our wing loading recommendations for the Horizon. For more information on choosing the best size Horizon for your use, see our Flight Characteristics Document located on the Horizon Product Page at [www.performancedesigns.com](http://www.performancedesigns.com)

***Our testing has shown that jumping the canopy outside of our recommendations can affect the canopy's opening, flight, and landing performance as well as the longevity of the wing itself.***

If you have any questions please contact [support@performancedesigns.com](mailto:support@performancedesigns.com)

## Horizon Weight Chart

Canopy Model	Conservative Range*	Optimal Range*	Max Weight**	Span (FT.)	Chord (FT.)	Aspect Ratio
Horizon - 120	108 (49) 132 (60)	132 (60) 150 (68)	168 (76)	15.88	7.56	2.1:1
Horizon - 135	122 (55) 149 (67)	149 (67) 169 (77)	189 (86)	16.84	8.02	2.1:1
Horizon - 150	135 (61) 165 (75)	165 (75) 188 (85)	210 (95)	17.74	8.45	2.1:1
Horizon - 170	153 (69) 187 (85)	187 (85) 213 (96)	238 (108)	18.89	8.99	2.1:1
Horizon - 190	171 (78) 209 (95)	209 (95) 238 (108)	266 (121)	19.98	9.51	2.1:1

\*Numbers are the Recommended Exit Weight Range in pounds (KG) for each skill set

\*\*Exceeding Max Recommended Weight could result in shorter canopy life span, greater sensitivity to wingsuit burble, and reduced landing performance