



# HAVEN



## PARAGLIDING HARNESS

Please read this manual before flying with the Haven for the first time.

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## Thank You...

Thank you for choosing the Haven harness. We are confident that this harness will provide you with enhanced comfort, control, performance and fun in flight. This manual contains all the information you need to set up, trim, fly and maintain your harness. A thorough knowledge of your equipment will keep you safe and enable you to maximize your full potential.

Please pass on this manual to the new owner if you do resell your harness. Happy Flights and Safe Landings,

The MAC PARA Team

## Safety Notice

By the purchase of our equipment, you are responsible for being a certified paraglider pilot and you accept all risks inherent with paragliding activities including injury and death. Improper use or misuse of MAC PARA equipment greatly increases these risks. Neither MAC PARA Ltd nor the seller of MAC PARA equipment shall be held liable for personal or third party injuries or damages under any circumstances. If any aspect of the use of our equipment remains unclear, please contact your local MAC PARA reseller or importer in your country.

## Introducing the Haven

The Haven meets the highest standards of the most demanding pilots and is used by many high performance oriented pilots. Covered harnesses have a positive influence to the glide ratio increase. The Haven is suitable from the experienced pilot to the cross country or competition pilot.



The Haven can be flown with all types of paragliders unless the manufacturer of your paraglider requires a specific harness to be used with his paraglider. Please refer to the manual of your paraglider to find out if this might be the case. The Haven is a sleek and easy harness, designed for maximum comfort and ease of use. The elegant design focuses on simplicity, eliminating the need for complicated adjustments.

The overall geometry of the harness enables the pilot to feel the feedback from the glider sensitively, whilst retaining a secure feeling in flight. This increases the precision of turns while thermaling and aids active flying. On long flights, the comfort of the Haven is second to none.

### Features of the Haven:

- light construction with excellent comfort
- thick back protection
- large dorsal storage pocket
- carbon seat plate serial
- 3 step speed bar, lines and Brummel hooks
- light Kevlar/Carbon rest plate
- karabineers Lock Jaw



The Haven is available in sizes S, M, L and XL.

Weight: 5.45 kg (L size complete with HAVEN back protection, carabiners, 3 step speed system and cockpit).

Weight: 4.50 kg ( L size without back protection).

Weight of Haven back protection: 0,95 Kg

Volume space for the rescue: 10,0 dm<sup>3</sup>

Leg and chest straps are integrated into the “Get-Up system” to prevent the pilot from falling out of the harness if he forgets to fasten the leg straps. The pilot has to fasten the leg straps first in order to fasten the chest strap, so it helps the pilot not to forget fastening the leg straps.



The safety has also been improved by optimising the position of the back protection; the rear pocket has been moved upwards, offering protection for the pilot in case he accidentally falls on his back.

The bottom rescue container is designed to enable a fast and easy deployment of the parachute. The bottom position is ideal because the weight of the rescue stays near the centre of gravity and therefore provides you with the most balanced comfort and feeling in flight.

The cocoon covers the legs with neoprene in an aerodynamic shape to reduce the drag during flight. You can adjust the angle of the cocoon to be optimized compare to the wing's angle of attack with the 4 attached straps.

The speed system works through a large ball bearing pulley that helps to greatly reduce friction when using the speedbar, it also reduces wear when used often and reduces pilot fatigue during long flights.



## Back protection

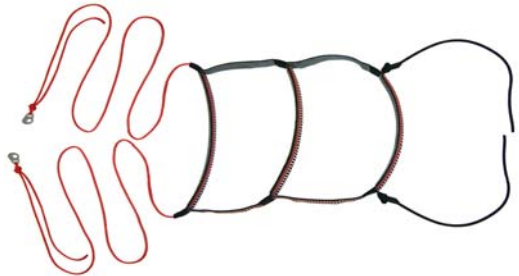
The Haven is equipped with a new back protector with 23 cm thickness. The back protector is divided into separate compartments, to prevent air being dissipated too rapidly in the event of a hard impact.

The foam protector is designed to protect the pilot in case of an impact and to reduce the energy of the impact as much as possible, but it cannot completely eliminate the risk of injury.



## Speed bar

The Haven is compatible with all common types of speed systems. The Haven is supplied with a 3 step speed bar that allows more accurate speed control for acceleration.



## Cockpit

The light cockpit remains comfortable during flight. The angle of view is automatically adjusted and remains optimally positioned through all positions in flight.





## Optional Extras

The following items are available as optional extras.

### Rescue parachute

The Haven is designed for use with MAC PARA rescue Aegis parachutes. Other manufacturers' rescue chutes may also be used, but they must be folded in Haven's original deployment bag with lateral deployment handle. Every first installation of a rescue system into the harness (that means every new combination of harness and rescue system) must be checked by a qualified paragliding professional. This is called a "compatibility check". In this compatibility check the pilot himself, who will be flying with this harness, must always sit in the harness hanging on a simulator and deploy the rescue from the harness container. This check must also be done each time after the rescue has been repacked and re-installed.



# Before you fly

## Other Accessories

For up-to-date information on additional accessories, visit [www.macpara.com](http://www.macpara.com) or contact your local MAC PARA dealer or the distributor in your country.

The Haven must be assembled by a suitably qualified paragliding professional, for example your instructor. In particular great care and attention must be paid to the fitting of the rescue parachute in the harness. The pilot should then adjust the harness for comfort.

## Assembly

Haven is delivered with the back protection and speedbar already installed from the factory. But when it is necessary to assemble the harness by yourself, MAC PARA recommend that assembly be carried out in the order below. If there is any doubt whatsoever about this procedure, please seek professional advice from your instructor, MAC PARA dealer or importer.

## Back Protection

When you receive the back protector it may be folded. Please let it lay open for several hours before you install it in the harness. To install it, open the zipper inside of the large dorsal pocket and slide the backprotector inside. It needs to slide into the space underneath the seat plate and behind the back support. Do not put it underneath the cross straps in the back of the harness. Insert upper part of the back protector into the pocket placed on the back. Attach the Velcro tapes to each other. The protection should be not compressed in normal use and should not hamper the space of the rescue or move into an incorrect position.

## Rescue Installation

The Haven is compatible with MAC PARA rescue parachutes. Other manufacturer's rescues may be used as well, but as already mentioned earlier in this manual:

Every first installation of a rescue system into the harness (that means every new combination of harness and rescue system) must be checked by a qualified paragliding professional. Prior to the installation, you should also ensure that you have the necessary materials to complete the procedure, for example, suitable maillons and thread.

Rescue parachutes should be repacked at least once every 6 months or as recommended by the manufacturer of your reserve; so installing your rescue in a new harness may also provide a good opportunity for a repack. Check your rescue manual for further details.





### **To attach the rescue bridle to the harness webbing**

A Maillon Rapide type connector or dynema soft shackle are recommended. The connector should be rated at least 15 times the maximum weight, for example, a 7mm Stainless Steel square Maillon – 3125 Kg - provides a suitable connection. The Maillon should be held in place with rubber bands, tape or plastic heat shrink tube.

### **Webbing to webbing connection**

Webbing to webbing connection is light and easy. The webbing knot must be kept tight using tape. If loose these connections have potential danger of friction and melting of the webbing during a deployment, which would significantly weaken or even cut the connection. Tight both straps and secure them with rubber band or tape.

### **Attachment of rescue deployment bag and harness deployment handle**

The rescue container of the Haven comes with its own deployment handle. This handle is firmly and permanently connected to the deployment bag of the parachute. Other manufacturers' rescue chutes may also be used, but they must be folded in Haven's original deployment bag with lateral deployment handle.



In any case a qualified professional must check the compatibility of the system; harness and rescue parachute, when a rescue parachute is installed for the first time. After every repack of the rescue parachute you can do this compatibility check yourself. Please observe carefully how the professional installs the rescue system, so that you can remember the procedure when you have to do it yourself the next time.

This compatibility check - that means to test if the rescue can be released from the rescue container in the harness - must be done by the pilot himself, sitting in the harness hanging on a simulator. It must be done after every repack of the rescue parachute to be sure that the rescue can be released without problems in case of an emergency





## Speed system

The speed system should be connected from the seat end upwards. Pass the speed bar line from the foot end, through the metal ring, under the side straps, through the big pulley and up through the slot in the cover, adjust the length and tie the line to the hook. Be careful that the lines run freely and are not tangled.

## Adjustments

The Haven should be adjusted to suit your physique and flying style. It is important to adjust it correctly to ensure you can easily slide into the sitting position after take off.

Adjustments should ideally be tested by hanging on a simulator prior to the first flight. Additional fine-tuning can be done during your first few flights.

Ensure that the rescue system, back and side protection have been installed before making adjustments.

Height of main attachment points above seat plate varies from 41 up to 46 cm depending on the size of the harness.

## Shoulder straps

The optimum setting for the shoulder straps depends on the height of the pilot. Stand upright with the chest/leg straps closed and symmetrically adjust the shoulder straps until they are just tight. To loosen the shoulder straps, pull the narrow webbing loop that protrudes downwards from the buckle cover on the shoulder strap. The shoulder straps don't slip down thanks to an auxiliary strap with a plastic clip. A well-designed back pocket system enables easy assembly of the harness and packing in a rucksack.

## Lateral straps

The lateral straps adjust the angle between the thighs and the back. This angle can be set between 110° and 130°. Lengthening the straps increases the angle and vice-versa. The easiest way to adjust them correctly is during a flight in calm air. Remember that flying in the "supine position", that means leaning back, reduces the stability of the harness and increases the risk of twisting after an asymmetric deflation.

## Seat adjustment straps

The seat adjustment straps allow you to adjust the depth of the seat. You can control the angle of the seat in the seating position with these straps. To get the optimum setting you can loosen these straps to the maximum in the sitting position and start pulling the straps until you get the comfort from the back support depending on the flying style of the pilot.



## Side straps to control angle of seat

The seat adjustment straps allow you to adjust the angle of the front seat. You can control the angle of the seat in the seating position with the straps beside the seat. To get the optimum setting you can loosen these straps to the maximum in the sitting position and start pulling the straps until you get the comfort from the leg support depending on the flying style of the pilot. Don't tighten this strap too much; otherwise you take the load from the main straps. In this case the strap can slip out or break out of the material during flight.

## Leg straps

The correct adjustment of the leg straps allows the pilot to easily reach the sitting position after take-off without using his hands. In the standing position, use the buckles under the chest strap to adjust the leg straps so that they fit comfortably without being tight; make sure you do it symmetrically. If it is necessary to lengthen the leg straps, first check that the shoulder straps are not too tight. It is not normally necessary to make large adjustments from the default leg strap setting.

## Side straps to foot support

These straps help you to adjust the angle of the foot support and give support for your legs on long flights. They also help you to feel more feedback from the glider by feeling the gliders movements. To adjust these straps you first must adjust the length of the bottom part under seat attached with two straps. You may need some assistance to save time to get the correct adjustment. For best results the 2 straps at each side of the harness should be pulled at the same time, pull the upper straps to raise the angle of the legs and pull the lower straps to lower the angle of the legs depending on the flying position of the pilot.





## Chest strap

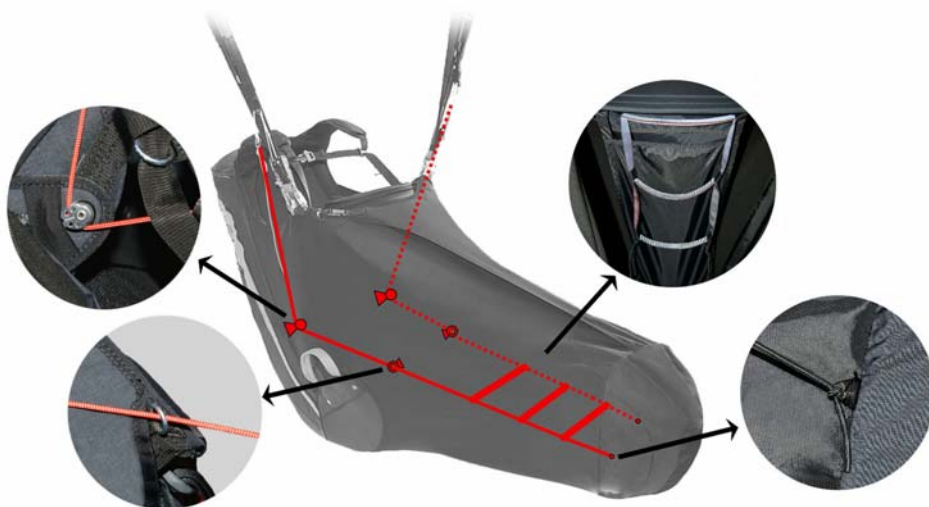
The adjustment of the chest strap controls the distance between the carabiners and affects the handling and stability of the glider. Widening the distance between the carabiners increases feedback from the wing and allows for easier weight shifting. Closing the strap gives you a more stable feeling in turbulence but increases the risk of stable spiral and also the risk of twisting!

We advise pilots of MAC PARA paragliders to fly with a distance between the carabiners of approximately 44 to 57 cm depending on the size of the Haven.

The chest strap may also be adjusted in flight according to the conditions; for example, it may be tightened in turbulent air and flown at a looser setting in more stable or weak conditions.

## Speed bar

Hanging on the simulator, adjust the length of the speed bar cord so that the bar hangs at least 15cm below the front of the harness. Making the cord too short could result in the speed system being constantly and unintentionally engaged during flight. It is safer to start with the speed bar a little long and shorten it following your first flights. Test the speed bar in flight only after you are comfortable with your new harness, and always do so in calm conditions with ample clearance above the ground.



## Pre-flight checks

For maximum safety, use a complete and consistent system of pre-flight checks and repeat the same mental sequence every flight.

### Check that:

- There is no visible damage to the harness or carabiners that could affect its airworthiness. The rescue parachute container is closed correctly and the pins are in the right position. The deployment handle is completely inserted into the elastic pockets.
- All buckles, belts, zips are securely fastened. Buckles should click into place as you close them, and a gentle pull on the fastened buckle verifies this. Secure any zips after fastening the buckles. Take extra care in snowy or sandy environments.
- The paraglider is connected correctly to the harness and both carabiners are secured by their locking mechanisms.
- The speed bar is attached correctly to the glider.
- All pockets are closed properly and any loose items are tied down safely.
- Check again that you have closed your leg and chest straps before you take off!

## Take off with Haven

Check that the cocoon straps are loose enough so that you can put your legs inside the cocoon without any problem after take off. Having legs inside, stretch your legs and the cocoon closes automatically.





## Rescue Deployment

It is vital to periodically feel the position of the rescue handle in normal flight, so that the action of reaching for the rescue handle is instinctive in an emergency.

In the event of an emergency, the pilot must quickly evaluate his or her height and the seriousness of the incident. Deploying the rescue when the glider is recoverable may increase the danger of injury. If you have sufficient height and the glider is in a flat spin, it is preferable to first try to stop the spin (e.g. full stall), due to the risk of entanglement. On the other hand, a second's hesitation in deploying the reserve could prove costly if there is insufficient height.



If the rescue is to be deployed, the procedure is as follows:

- Look for the rescue handle and grasp it firmly with one hand
- Pull sideways / upwards on the handle to release the deployment bag from the harness container
- Look for a clear area, and in a continuous motion, throw (and RELEASE!) the rescue away from yourself and the glider, preferably into the air stream and against the direction of spin
- After deployment, avoid entanglement and pendulum motions by pulling in the glider as symmetrically as possible with the B, C, D or brake lines
- On landing take an upright body position and be sure to do a PLF (Parachute Landing Fall) to minimize the risk of injury

## Storage/Pockets

The Haven contains a large back pocket and smaller pocket in the cockpit.



## Landing with the Haven

Before landing, get your legs out of cocone and slide your legs forward in the harness so that you adopt the standing position. NEVER land in the sitting position; it is very dangerous for your back even if you have back protection. Standing up before landing is an active safety system, and is much more effective than the passive system of back protection.

## Miscellaneous

### Towing

The Haven is ideal for towing. The tow release system is placed in main karabineers or at the lower end of risers. Read the instructions in the user manual for your tow release and the tow adapter or ask for help your flight instructor who has experience with paraglider towing.

### Tandem flying

The Haven is not recommended for tandem flying.

### Flying over water

The Haven is not recommended for the extreme manoeuvres. But in any case all other flights over water, the back protection should be removed, due to the increased possibility of drowning after a water landing.

### Behaviour in the nature and preservation of flying site

Please observe the local rules at the respective flying site which you use. This is important not to endanger the preservation of flying sites which are necessary to maintain the possibility to execute our beautiful sport.



The materials used in the Haven have been carefully selected for maximum durability. Nevertheless, keeping your harness clean and airworthy will ensure a long period of continuous safe operation.

### Care and Maintenance

Avoid dragging your harness over rough or rocky ground.

Unnecessary exposure to UV rays, heat and humidity should be always avoided. Keep the harness in your rucksack when not in use.

Store all your paragliding equipment in a cool, dry place, and never put it away while damp or wet.

Keep your harness as clean as possible by regularly cleaning off dirt with a plastic bristled brush and/or a damp cloth. If the harness gets exceptionally dirty, wash it with water and a mild soap. Make sure you first remove all the sub-components: seat board, back plate, back protection, rescue parachute etc. Allow the harness to dry naturally in a well ventilated area away from direct sunlight.

If your rescue parachute ever gets wet (e.g. in a water landing) you must remove it from the harness, dry it and repack it before putting it back in the container.

After a hard landing you must check your back protection for damage. A tear in the back protection could significantly reduce the efficiency of the protection it provides.

The zips and buckles may be occasionally lubricated with silicone spray, no more than once a year.

### Inspection checklist

In addition to regular pre-flight checks, the Haven should be inspected thoroughly on every rescue repack, normally every 150 days. Additional inspections should be performed after any crash, bad landing or take off, or if there are any signs of damage or undue wear. Every 2 years or 200 hours your harness has to be inspected from your dealer or a professional repair shop. Always seek professional advice whenever in doubt.

The following checks should be carried out:

- Check all webbing, straps and buckles for wear and damage, especially the areas that are not easily seen, such as the inside of the carabiner hook-in points.
- All sewing must be intact and any anomalies attended to immediately to avoid exacerbation of the problem. Special attention should be paid to the rescue installation, particularly the elastic and Velcro parts.
- The seat and back plates must be free from cracks.
- The main carabiners must be replaced if they have suffered any damage no matter how slight. Impacts may create undetectable cracks that could result in structural failure under continuous load.



## Repairs

The manufacturer or an approved specialist should carry out any repair that involves critical parts of the harness. This will ensure that the correct materials and repair techniques are used.

## Environmentally friendly disposal of the harness

When this paragliding harness cannot be used any longer after an extended period of life time, then you must ensure that it will be disposed in an environmentally friendly way. Please observe the existing regulations and laws in your country.

Haven harness must be checked at least every 24 months.

Name	Company	Date	Signature & Stamp

## Technical Data

### Specification

Description:	paragliding harness
Max. load:	120 kg
Distance between karabiner and seat:	size S-41 cm, size M-43 cm, size L-44 cm, size XL-46 cm
Distance between karabiner (min/max):	size S-44/55 cm, size M-45/56 cm, size L-46/57 cm, size XL- 46/57 cm
Size of Plate (width/length):	size S-31/37 cm, size M-32/38 cm, size L-34/40 cm, size XL- 35,5/43 cm
Recommended pilots height:	S - under 165 cm, M - 165/178 cm, L - 175/190 cm, size XL- 185/195 cm
Weight (without rescue chute and carabineers):	S - 4,90 kg, M - 5,30 kg, L - 5,45 kg, XL - 5,75kg
Back protection:	Styrofoam protection; 23 cm
Rescue system:	Integrated container (tunnel system) under the seat plate with a lateral handle.

Every effort has been made to ensure that the information in this manual is correct, but please remember that it has been produced for guidance only.

This owner's manual is subject to changes without prior notice.

Please check with [www.macpara.com](http://www.macpara.com) for the latest information regarding the Haven and other MAC PARA products.



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