Selection and practical tips

Selection criteria

Which criteria shall I consider when choosing a rescue parachute?

Dependant on intended use (paraglider, hang-glider, paramotoring, trike, tandem, etc.) our huge product range provides a suitable model for every pilot and every wallet.

A rescue system should be regarded as long-term investment, which one usually only buys once within twelve years. And in case of emergency it is your last chance to save your life.

That is why we advise every pilot to choose a system, which is technically ideal. Costs should play a secondary role, as optimum safety in real terms costs only a few cent per months, calculated over ten years!

Which is the best choice: round or cruciform parachute?

All our round parachute series have been well established equipment for many years and have proven their worth in countless emergency situations! Today they still represent an outstanding compromise between weight, performance and costs.

But our cruciform series offer even better performance regarding deployment time, pedulum stability and low sink rate. As rescue equipment should be regarded a long-term and value-stable product with a life-span of more than 10 years, it is advisable to choose the technically best solution. Considering that life-span the price difference is of minor importance.

That's why we recommend a cruciform parachute. The advantages are obvious.

Which size is ideal? Is it better to choose a larger size?

"In case of doubt it's better to choose a size bigger than necessary" - this principle doesn't make sense when talking about independence rescue systems.

All our rescue parachutes are construed to provide optimum safety at low sink rates up to the maximum weight they are certified for.
Particularly when talking about our cruciform parachutes, we even advise to fully utilise the load capacity. The performance of these rescue systems is so good, that the sink rate might even be too low, if the parachute's capacity is not fully used.

DHV advises to use rescue systems not to their full load capacity, but stay 20% below. Does that make sense?

Yes and No! If a rescue system is only certified according to LTF by fully using the maximum sink rate of 6,8 m/s, this advise does make sense!

But rescue systems certified according to EN12491 already have a lower maximum sink rate of only 5,5 m/s, thus the advise is not applicable. Particularly independence cruciform parachutes considerably stay below that sink rate of 5,5 m/s!

How can I visualise specifications given regarding sink rates?

There are two different values for the maximum sink rate for rescue systems. According to LTF it is 6,8 m/s and according to EN12491 only 5,5 m/s. Only few of us understand, what that means for the according downthrow!

There is a simple rule to calculate the virtual downthrow out of the sink rate: \( (v \times v) / 2 \)

<table>
<thead>
<tr>
<th>Sink rate (m/s)</th>
<th>Downthrow (m)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 m/s</td>
<td>5,00 m</td>
<td></td>
</tr>
<tr>
<td>6,8 m/s</td>
<td>2,31 m</td>
<td>= LTF max. sink rate (=24,5 km/h!!!)</td>
</tr>
<tr>
<td>5,5 m/s</td>
<td>1,51 m</td>
<td>= EN max. sink rate</td>
</tr>
<tr>
<td>5,0 m/s</td>
<td>1,25 m</td>
<td>= typical sink rate at max. total</td>
</tr>
<tr>
<td>4,5 m/s</td>
<td>1,01 m</td>
<td>load for Ultra Cross and EVO Cross</td>
</tr>
<tr>
<td>3,0 m/s</td>
<td>0,45 m</td>
<td></td>
</tr>
</tbody>
</table>

How important are opening time, pendulum stability and low sink rate?

The most important criterion for rescue systems is the **opening time**. We almost only hear reports about rescue deployments at low height (below 100m). Usually there are only a few seconds between activation of the rescue system and touching the ground.
Second important criterion is **pendulum stability**. If a rescue parachute commutes during sinking, effective sinking speed does vary a lot. When touching the ground, sinking speed and pendulum speed can accumulate - in worst cases up to 10 m/s, even though the sink rate is only e.g. 5m/s!

Third important criterion is the **sink rate** of the rescue parachute. The lower vertical speed, the less is the scissors position between glider and rescue system, as the paraglider due to low sink rate can not build up enough ascending force to cause a scissors position.

Is it possible to convert a paragliding rescue system into hang-glider version or the other way round?

A conversion can be done by exchanging the risers, which, regarding costs, is only worthwhile in case of new rescue systems.

Which rescue system do you recommend for hang-gliding?

For hang-gliders, dependant on total weight, we suggest to use either Annular EVO 22 or Annular EVO 24 with integrated **swivel**. This rescue system is a reasonable compromise for hang-gliding purposes regarding performance, weight and price.

Is there a combined rescue solution for paragliding and hang-gliding available??

No. Rescue systems for paragliders and hang-gliders only differ in length of their connector line, but for hang-gliding a very long connector line is necessary. Its length shall not be less than half wing-span of the hang-glider in order to prevent from damages to the rescue system caused by the wing.

Rescue systems for paragliders have a very short connector line in order to minimise the opening time.

It is not advisable to use a temporary extension for the connector line, as it would be quite an effort to attach a connecting part and to pack it for the paraglider harness respectively hang-glider harness each time.

Do I need a swivel to use the rescue system for hang-gliding purposes?
In general **we do advise to use a swivel**. The most common cause for activating the rescue system in hang-gliding is a broken part of the framework. This often leads to rotations. Dependant on rotation speed and remaining altitude, the rescue parachute can possibly be screwed together. A swivel is made to prevent the parachute from being pulled together by rotations.

Is it possible to re-use the swivel of my previous rescue system?

Yes, sure! There's no lifespan given for the use of a swivel. But the assembly of swivel and independence rescue system for your hang-glider needs to be carried out by independence.

**Questions & answers on parachute handling**

What shall I consider during an emergency deployment?

„**If you are in doubt – throw it out**“. This is the most important rule!

If a situation is dangerous and you are in low altitude, you should quickly decide to throw out the rescue system. You shall throw it determinedly in the opposite direction of flying into free airspace.

In low altitude sit up in your harness first and look towards the ground. Only if you have enough altitude, thus time left, try to bring the glider into a position, that reduces its flight capability by symmetrical pulling the C-risers.

Can I influence the opening time of the parachute?

Yes! Regarding the development process of our parachutes we have done everything to achieve lowest possible opening times at a range down to tenths of a second. But every pilot himself can, by determined
deploying of the rescue system, gain time, even seconds!

Ideally the rescue system **determinedly** is thrown out **in the opposite direction of flying** into free airspace. That way the system can quickly unfold.

If you throw it out while rotating, try to throw it into a direction where your glider after a full rotation cannot strike the rescue system.

Hesitant throwing, letting the system drop or throwing it into the wrong direction can delay the opening or even completely restrain the parachute from opening.

Do I have to separate the gilder after the opening of my rescue?

No! In more than 90% of emergeny cases we have heard of, it wouldn't have been possible to separate the glider, as due to low altitude there wasn't enough time. If you have enough altitude, thus time left, try to bring the glider into a stable position by symmetrically pulling the C-risers.

How often needs the rescue system to be re-packed?

As quoted in the manual, every rescue parachute needs airing and has to be re-packed at least after 12 months. In case it got damp, or if there's any other reason that might influence its functionality, you need to air and re-pack your rescue system immediately.

May I re-pack my rescue system myself?

You may! All our rescue systems come up with a detailed description how to re-pack the parachute. **But:** Please do only pack your rescue system, if you are absolutely sure, that you are able to pack it correctly. We regularly see rescue systems packed by "self-packers", which surely would never have opened, respectively would have opened delayed.

May I use another packing method than described in the manual?

**No!** The manual for your rescue system explains the only packing method, that makes fast opening of the
parachute possible. That method is well-tried and has been used during certification tests.

Which rubber bands are to be used for re-packing the rescue parachute?

For re-packing only rubber bands approved by the manufacturer may be used in order to grant function and durability. We realised, that there are rubber bands of quite different quality available. That's why we provide suitable rubber bands at a favourable price in our online shop.

Is a rescue system subject to regular mandatory checks?

Yes. A biennial check is mandatory. This check needs to be carried out and quoted by a professional. The check doesn't necessarily have to take place at independence.

Who can integrate the rescue system into my harness?

The first assembly is supposed to be carried out by a professional (compatibility check) and needs to be quoted in the packing and test record of the rescue system. Usually assembly as well as compatibility check are carried out by a specialist dealer.

Is it possible to attach the connector lines of harness and rescue system by using loops or does it take a joint? If so, which one do I need?

There are advantages and disadvantages to both possibilities. If carried out correctly, both ways of connecting harness and rescue system may equally be used.

At safety trainings it often is advised to use a joint in order to be able to quickly release the rescue parachute from the harness in case of an emergency landing in the water. When using a joint, a minimum strength of at least 2400 daN is necessary. Oval Maillon Rapide in size 7 does provide that minimum strength. 

Attention: there are huge differences regarding strength between certified joints (e.g. Maillon Rapide) and those available at hardware stores. Flight carabiners or similar are not convenient because of the
locking mechanism.

For how many years can a rescue system be used?

The life span of independence rescue systems is 10 years, the usual life span of a rescue system. Careful maintenance and a yearly check can elongate the common life span of independence systems for 2 more years.

How often can I "use" a rescue parachute?

During certification test each rescue system is tested 3 times (within the load range it is being certified for). These extreme conditions can't be compared with "normal" use, as usually only a fraction of stress applies. That is why a rescue system under "normal" conditions can be used several times. Anyhow, after deployment for test or emergency purposes, it needs to be checked and re-packed carefully.

My harness has an integrated deployment bag with release handle. May I use it for an independence rescue system?

Yes, of course! But please read and obey the manual for your harness carefully, which provides information how to assemble rescue system and harness.

How do I store a rescue system, while not needing it for a longer period of time?

The rescue system needs to be stored under dry conditions and at room temperature. And it needs to be protected against UV-radiation.

My rescue system got wet, when I had to ditch. How do I dry it best?
Never ever dry it in the sun! Hang it to its crest in a dry and good ventilated room until even its lines are completely dry.

If you had to ditch in salt-water, properly rinse it with sweet water first in order to get rid of the salt, as salt crystals can damage the system and seriously affect its performance.

My rescue is damaged. Is it possible to repair it? And who can carry out repairs for my rescue system?

In general a rescue system does not get damaged due to an opening, but on ground. In an emergency case a rescue system can stick to a tree or a rock, thus get damaged. Even at packing courses in a gym take care and try not to stick to anything with your rescue. Once damaged it needs to be repaired professionally by the manufacturer's repair service.