



hanggliding & paragliding equipment



www.finsterwalder-charly.de



PG - harnesses



Best of Air - The difference is in the details

The Charly platform principle

The Charly harnesses ZIP, Tube, und Air-tube differ from one another in the positioning of the rescue reserve, the type of protector, and the fastening system. You can choose these according to your personal preference. Common to all harnesses is the basis harness constructed according to the most recent insights. It ensures an easy launch and a super comfortable flight in every desired flight attitude. Charly harnesses encourage an active flight style and broaden the performance spectrum of your paraglider.

Variable and trimable seat board tilt

The angle of the seating surface is variable and adapts itself to the different flight attitudes. The harnesses possess a seating angle fixation with which the basic position of the seating board can be trimmed.

Adaptation to various flight attitudes

The shoulder straps which are free running through the chest strap (or SIL) and down to the rear of the seating board, support the adjustment of the seating angle. When the shoulder straps are burdened, the rear of the seating board is raised. By launch and by transition to the supine position, the seating board readjusts itself, transition from launch to the seated position becomes easier.

Balanced stability characteristics

The harness apparatus possess a forked chest strap. Height and type of the chest strap fork determine the stability characteristics of the harness in turbulence. Due to the fork, a balanced stability bearing can be achieved with a relatively low lying chest strap. A low lying chest strap makes launching the paraglider easier. By the SIL-D Oharness apparatus the stability characteristics of the harness by turbulence can be regulated in flights.

Pleasant support for the back

By Charly harnesses, the hip strap is suspended as high as possible. The back support is thus optimised, and makes heavy reinforcing unnecessary.

Easy to adjust

The specially developed sliding bridges from Charly, and the applicable harness straps enable easy adjustment when unburdened, and ensure dependable fixation of the straps when burdened. Neoprene-masking of the adjustment elements prevents unintentional slipping of the straps.

A contribution to safety

Unsecured rescue reserve release pins have led to unwanted reserve deployments quite often. The friction of the loop on the release pin lessens with time. This can be dangerous if the splints fall out when the pilot is near to the ground. Generally the release pins are thus secured with special weak link threads that have to be renewed after every reserve deployment.

Charlys loop tensioner makes safety threads unnecessary and ensures constant release pin pressure. In order to be able to react correctly in emergency situations, deployment of the rescue reserve should be practised from time to time. With Charly harnesses you do not have to attend to safety threads.

Back protectors



Highly elastic neoprene foam: Even after driving over the Scooter with the DHV-test truck, we were still able to achieve positive results in the certification test.

Type	Charly Scooter	Charly Softairbag
Advantages:	Based on the overall height, approx. 25% more puncture protection on an uneven impact surface. No risk of ripped fabric or the bursting of seams. Low aerodynamically relevant overall height of 16.5 c. Much larger protection area compared to tapered Softairbags. The only protector that remained under 20 g in the DHV test at a drop height of 2 m. Weight only 650g	compressible
Disadvantages:	Larger transport volume, not compressible, thus does not fit into every harness.	Weight 1200g
Art.Nr.	HG 15	HG 151
Price*	115,- €	108,- €

*unless included in the harness price

Side protectors



Side protectors „Charly“ light foam side protectors. Sewn into pockets, these are attached to the harness using loops. weight 250 gr.

HG155 Side protectors Charly (pair) 25,00

Side protectors „Protexx“ Constant absorption properties over a large temperature range. Absorption of the collision energy over a long duration (4,5ms). Approx. Test procedure CE EN 1621-1. weight 600 g.

HG156 Side protectors Protexx (pair) 79,00

Conventional karabiners or our innovativer Pinlock karabiner ?

You have the choice!



Data	Powerfly	Pinlock	New Snaplock
Weight (pair)	280 g	160 g	154 g
Tensile strength	2600 DaN	2500 DaN	3000 DaN
Renewal interval	annually	8 years	5 years



Charly ZIP II

Allround harness with detachable rescue system container.
 Practical: Not the whole harness has to be sent in to let the rescue system be packed; rescue system respectively side pocket can be attached at the right / left side.

- Rescue system container can be zipped off.
- Suitable for right- and left handers.
- Optionally also available as frontcontainer version.
- Alternatively with Scooter lightweight protector or Charly Softairbag.
- Weight: From 4,4 kg
- Sizes: M (1,60 m - 1,80 m), L (1,80 m - 2 m)
- Colours **optional**: black/red, black/blue

€

HG361	CHARLY ZIP II with karabiner	599,00
HG362	add. price with frontcontainer	49,00
HG365	Side pocket ZIP II extra	29,00
HG3650	Flat side pocket (neoprene) ZIP II extra	32,00
HG155	Side protector „Charly“ (pair)	25,00
HG156	Side protector „Protexx“ (pair)	79,00



Charly AIR TUBE II

- Central trimming due to positioning of the rescue reserve below the front edge of the seating surface (integrated in the ram air container).
- Optimized Tube-container for an easy and safe deployment of the rescue system (compatibility assumed).
- Minimal packing volume and low weight.
- Additional, flat softairbag for the take-off phase.
- Large rear storage compartment as well as side pockets.
- Weight: From 4 kg
- Sizes: M (1,60 m - 1,80 m), L (1,80 m - 2 m)
- Colours **optional**: black/red, black/blue

€

HG38	CHARLY AIR TUBE II with karabiner	629,00
HG155	Side protector „Charly“ (pair)	25,00
HG156	Side protector „Protexx“ (pair)	79,00

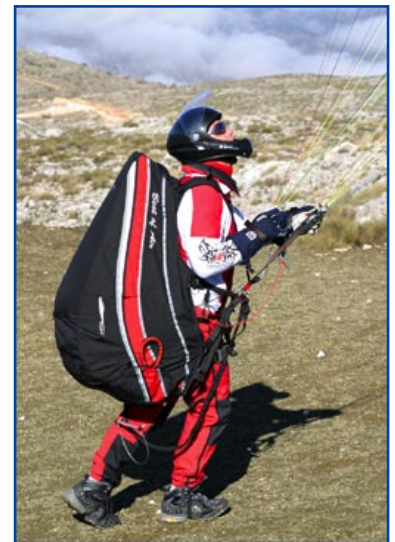


Charly TUBE II

- Central trimming due to positioning of the rescue reserve below the front edge of the seating surface.
- Simple and safe rescue reserve deployment (compatibility assumed).
- Prevention of unwanted deployment.
- The rescue reserve is almost completely protected from intruding dirt and cannot get into conflict with the speedsystem.
- Aerodynamically clean, Charly protectors with a low overall height.
- Large rear storage compartment with pocket for radio sets.
- Side pocket on the left, mounting possibility for frontcockpit-pocket or waterballast frontpocket.
- Alternatively with Scooter lightweight protector or Charly softairbag.
- Weight: 3,9 kg
- Sizes: M (1,60 m - 1,80 m), L (1,80 m - 2 m)
- Colours **optional**: black/red, black/blue

€

HG37	CHARLY TUBE II with karabiner	599,00
HG155	Side protector „Charly“ (pair)	25,00
HG156	Side protector „Protexx“ (pair)	79,00



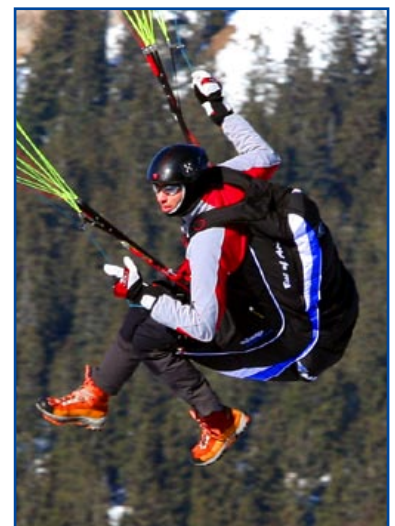
Charly MISSION **New**

With only 3.9 kg very lightweight, comfortable allround harness with Charly C.I.S. ram air protector and integrated rescue system container.

- Outstanding comfort level due to the newly-developed basic harness.
- Various adjustment possibilities at the seating board and the back panel.
- Two staggered ram air vents with sophisticated valves of the newly-developed C.I.S. system provide for an optimal inflation of the protector.
- Integrated multi-flap rescue system container under the seating board.
- Large and easy accessible rear storage compartment with integrated small zipper pocket.
- Uncomplicated lightweight PT-Lock buckles.
- Spacious side pockets, easily accessible during flight.
- Integrated pull-back system for the accelerator.
- Weight: 3,4 kg
- Sizes: S (1,50 bis 1,65), M (1,65 m - 1,80 m), L (1,80 m - 2 m)
- Colours **optional**: black/red, black/blue

€

HG9	CHARLY MISSION with karabiner	599,00
HG155	Side protector „Charly“	25,00
HG156	Side protector „Protexx“ (pair)	79,00



PG - harnesses



Charly ONE *New*

Charly's innovative and ultra-lightweight PG reversible harness. As the product name „One“ implies: We have combined everything that makes the heart of a nordic parawalker / traveller beat faster!

A technical reversible backpack was integrated into the harness which is equipped with an approved Cygnus back protection. It possesses sufficient room to stow away for example a Nova IbeX together with the needed accessories. Even an accurately packed Rookie fits in! The rescue system is placed as a front-container.

- Innovative Design and an excellent comfort level even on long flights.
- Back padding made from breathable hollow chamber functional foam.
- Equipped as standard with the new Finsterwalder P-Lock buckles.
- Cygnus back protection with a DHV measured value of about 10 g.
- Lightweight but sturdy band- and Cordura material.
- For flying, the backpack is simply upended into the airbag.
- Very good wearing comfort - even in alpine terrain.
- Various adjustment- and compression possibilities.
- Easily accessible outside pockets.
- Attachment possibility for telescopic sticks.
- Detachable hip strap.
- Weight: From 1,9 kg
- Sizes: M (up to 1.70 m), L (from 1.70 m)
- Colours **optional**: black-blue, black-red (Nova Special Edition)

HG25 CHARLY ONE with karabiner

€
509,00



NOVA ONE Special Edition



Charly GLOBE *New*

While the Charly One focuses on uncompromising lightweight design, the new Charly Globe with its seating board and the various adjustment- and compression possibilities offers an astonishing comfort level despite a still extremely low weight compared to conventional harnesses.

For what concerns safety, the Charly Globe scores with its integrated rescue system container, which can be individually adjusted to the different packing volumes of all prevalent systems, as well as the new Charly C.I.S. (Charly Inflate System) protector system: The first-class ram air protector has two asymmetrically positioned lateral valves that provide for a fast inflation independent from the inflow direction. The integrated flaps basically work like cardiac valves - they in the one direction provide for an excellent airflow, but seal extremely quick in the other direction. At the test of the admission office, the required damping values could for the first time be reached also after a five-second streaming disruption.

- Ideal combination of lightweight design and comfort due to the integrated seating board and various adjustment- and compression possibilities.
- Integrated and individually adjustable rescue system container.
- C.I.S. (Charly Inflate System) for an improved pilot safety - tested according to the latest LTF guidelines.
- Equipped as standard with Finsterwalder P-Lock automatic lightweight components.
- Easily accessible outside pockets and attachment possibility for telescopic sticks.
- Detachable hip strap.
- Weight: From 4,4 kg
- Sizes: M (1.60 m to 1.80 m)
L (1.80 m to 2.00 m)
- Colours: grey/blue/orange

HG7 CHARLY GLOBE with karabiner

€
789,00



Charly DUPLEX II

- Specially conceived for professional tandem use.
- Divided seating board for safe launching and landing.
- Safely positioned rescue system container for rapid deployment.
- Compatible with all current bi-place rescue systems.
- Tested soft airbag included in the price.
- Weight: From 4 kg
- Sizes: M (1,60 m - 1,80 m), L (1,80 m - 2 m)
- Colours **optional**: black/red, black/blue

HG39 CHARLY DUPLEX II with karabiner

€
599,00



PG - harnesses and paraglider backpack

Charly TITAN 3 Neu

With the Charly Titan 3 we are already presenting the third generation of our successful competition harness. The further improved back support provides for an optimal comfort in a flying situations; large rear stowage compartments, multiple smaller pockets which are easily accessible also during flight, as well as the possibility to stow a hydro pack with tube are suited ideally for longer flights. Also the cockpit features some novelties: Its attachment is extremely simple and quick and can be adjusted by the pilot with few turns of the hand in the angle that suits him best. In addition to the well-protected instrument compartment, the cockpit offers room for about 10 l of ballast.

The 3D rescue system container enables the easy deployment of the rescue system in all directions and is suitable for all prevalent rescue system types. Further highlights include the three-stepped accelerator which has been especially designed for the Charly Titan 3, as well as the aerodynamic, glide-angle improving tail trim that can be zipped on and is already included in the price. The Charly Titan 3 with its highly effective soft protector is approved according to the latest LTF guidelines and is equipped as standard with Pin Lock karabiners, which with an exchange interval of eight years possess a considerably longer factory qualification than conventional karabiners. By request, the Charly Titan 3 can of course also be equipped with conventional karabiners..



- Further improved back support for an optimal comfort level.
- Multiple larger and smaller stowage compartments which are easily accessible also during flight.
- Possibility to stow a hydro-pack with tube.
- Quickly attachable cockpit with angle adjustment.
- Room for about 10 l of ballast integrated in the cockpit.
- Especially-designed three-stepped accelerator.
- Already included in the price: Aerodynamic, glide-angle improving tail trim that can be zipped on.
- Approved according to the latest LTF guidelines.
- Weight: from 8,5 kg
- Sizes: M (up to 1,75 m), L (from 1,75 m)
- Colours: black/red



HG5 CHARLY TITAN 3 with karabiner

€ 999,00



Charly EASY WALK

Luxury paraglider backpack designed using the latest cognizance, suitable for mid and large paragliders.

- Extra sturdy Cordura backpack material, meticulously processed f. heavy duty usage.
- Backpack and top compartment are easy to stow.
- Using 6 highly effective compression straps the Easy Walk can be pulled into shape and a centre of gravity achieved near to the carrier. During flight it can be rolled up small and stowed away.
- Thanks to a very effective hip-strap, the load can be placed pressure-free on the hips whilst climbing.
- Size-adaptable: The shoulder-straps can be attached at two different heights and make the Easy Walk suitable for pilot heights of 1,65 m to 2,05 m.

HPa15 CHARLY EASY WALK
HG1433 Camelback Unbottle incl. tube

€ 129,00
43,00



The spacious and easily accessible lid compartment is also suitable for the Camelbak hydration system.



Practical I: Storage compartment easily accessible during ascent for gloves, drink.



Advantageous by check-in: Hip- and shoulder-straps can be pulled in very close to the main backpack body for transport purposes.



Practical II: Wireless pocket on the hip-strap.

Charly EASY CLIMB

Ideal paraglider backpack for the hiker-, mountaineer- and traveller pilot. Spacious enough for paragliders in combination with the CHARLY Superlight harness.

- Robust Cordura material
- Comfortable carrying system
- Variable size adjustment
- More volume by additional fold-out pocket
- Volume: approx. 60 l + 12 l additional pocket
- Weight: 1,2 kg
- Colours: black/grey/orange, black/grey/blue

HPa16 CHARLY EASY CLIMB paraglider backpack

€ 99,00



Accessories for PG-harnesses

Charly frontcockpit pocket €

The front pocket offers the possibility of mounting instruments in a compact and clear manner in front of the chest. The pocket can be attached to the chest-strap with the use of strap loops. Due to the flexible neoprene sides mobile phone, radio set and provisions etc. are easily accessible during flight. When transporting the instruments are stowed away well protected in the lid compartment.

HG148 Charly frontcockpit pocket 59,00



HG148



Charly frontcockpit rescue container €

Attachment through a length adjustable webbing with an attached screw lock link or snap-hook on it's ends. For flying or during transport the instruments are well protected in the detachable lid compartment.

The frontcontainer cockpit is available in 3 different sizes: L (suitable e.g. for SC, Revolution or Clou), XL (suitable e.g. for Clou SAS or Duo 160), XXL (suitable e.g. for Duo 200).

HFa189 Charly frontcockpit rescue container 74,00



HFa189



Instrument - protective cover- mounts for front cockpits €

either to attach instruments to the front cockpit pocket, to the rescue reserve front cockpit container, or to the chest strap by use of the metal angled mount. Using the Vario & GPS base board, two instruments can be attached to the metalangled mount or the paraglider leg mount.

Hi9641 Protective mount for IQ-One, IQ-Basic/GPS 10,10
 Hi9640 Protective mount for Competino+, Compeo+ 10,10
 Hi9660 Protective mount for Garmin eTrex 10,10



Hi9641



Hi9640



Hi9600



Hi552



Hi9630

Hi9600 flexible metal angled mount for the chest strap 8,90
 Hi552 Paraglider leg mount for Varios or for Vario & GPS base board 19,00
 Hi9630 Vario & GPS base board 10,10

CamelBak €

HydroBak

Special features: insulated reservoir compartment, elasticated fastening straps, adjustable net support, reflection strips, 19,1x2,5x33 cm, 1,5 l volume, weight 300 g.

HG1432 HydroBak incl. drink tube 43,00



HG1432



HG1433

UnBottle

Special features: separate hydration system with insulation for retrofitting for all backpack systems, D-rings for outer attachment, 2,0 l volume, weight 200 g.

HG1433 UnBottle incl. drink tube 43,00

Water ballast bag €

HG142 High pressure water ballast bag 10l 26,90



HG121



HG142

free*spee speedbar *New* €

free*spee allows for the optimal adjustment of the accelerator at any time. This can be done with only one hand, so that the steering lines do not have to be let loose completely. Therefore, free*spee is ideally suited for flying schools where harness and paraglider are switched frequently.

HG121 free*spee speedbar 59,90

Charly Speedpedal €

Length adjustable directly on the footrest with the three holes system. Very easy to mount and adjust.

HG126 Charly Speedpedal, incl. cord with sewn-in brummel hooks. 19,90



HG126



HG128

Charly Doublespeed Pedal €

Easy entry through stainless steel wire rope with plastic casing tilted in direction of flight. Ultra-light tubing made from high-strength aircraft aluminium alloy.

HG128 Charly Doublespeed Pedal 29,90



HG123

Charly soft speedsystem *New* €

Flexible speedsystem for regulated acceleration across three steps.

HG123 Charly soft speedsystem 24,90

Charly Speedpedal retainer set *New* €

HG125 Charly Speedpedal retainer set 7,90



HG124



HG125

Charly Footrest €

Optimal comfort through 4 point mounting possibility.

HG124 Charly Footrest 22,90

Karabiner and harness-hardware

PG-karabiner

Finsterwalder Quick Out karabiner

Rapid links



AustriAlpin Powerfly steel karabiner with alum. locking, inner 61x42 mm, 140 g, B = 2600 kg, annual replacement recommended HKar410 25,90



Pinlock forged Titanal karabiner, inner 40x42 mm, 80 g, B = 2500 kg, average fatigue strength 425 kg, replacement interval 8 years HKar3 29,50



Charly Automatic 30 for webbing up to 30 mm, inner 51x30 mm, 68 g, B=1800 kg, annual replacement recommended HKar42 24,90

New



Charly Snaplock forged Titanal karabiner, Automatic twist lock, inner 62x25 mm, 76 g, B=3000 kg, replacement interval 5 years HKar35 26,00



Paraglider karabiner, that allows for a rapid separation of the pilot from his/her paraglider, even when loaded. Apart from the additional rescue possibilities, that the Quick Out offers by emergency landings in water, trees, high winds, it also proves advantageous, when hooking in/out: By safety training programs it has been shown, that once the rescue system

has been deployed separating the paraglider makes a safe landing possible. Certified for all PG-harnesses. B approx. 4000 kp, individually tested to 2000 kp. Rapid separation for speedsystem functions automatically when the Quick Out is released. Not recommended for hang-gliding. **Unlimited hours of usage!**

HKar12 Quick Out karabiner 49,95
HKar121 Extra insert for Quick Out 17,80

Separation system for speed system



HKar14



HKar141

The speedsystem separation systems work automatically when releasing the Quick-Out.

HKar14 Patent lock link separation system (pair) 24,00
HKar141 Brummel hook separation system (pair) 16,00

Finsterwalder Components



FINSTERWALDER-COMPONENTS MANUFACTURER'S REQUEST WELCOME!

Finsterwalder has been designing and selling sport aviation components for more than 25 years. These have been incorporated by many renowned manufacturers and are respected world-wide. Approved design and development.

Manufacturing and maintenance establishment according to the civil aircraft and aviation appliance ordinance (ZLLV) BGLB. 191/1995

New fastening system P-Lock

Innovations from Finsterwalder make aviation sport safer, simpler, and lighter. Our most recent product is already being utilised successfully by several paraglider manufacturers. The P-Lock for leg straps and the PT-Lock for chest straps with T-Strap are especially characterised by their super simple serviceability – also when wearing gloves. Faulty operation is constructively impossible.



The P-Locks manufactured from titanal are not only much lighter than previous paraglider harness buckles, they also have greater strength! The complete PTL with adjustment element for the chest strap weighs only 53g, the PL leg strap buckle with adjustable element weighs only 39g. Up to 250g weight saving per harness can be achieved!

The P-Locks manufactured from titanal are not only much lighter than previous paraglider harness buckles, they also have greater strength! The complete PTL with adjustment element for the chest strap weighs only 53g, the PL leg strap buckle with adjustable element weighs only 39g. Up to 250g weight saving per harness can be achieved!



HG-karabiner



Stubai 5000 forged steel karabiner with extreme D-form for hang loops of rope, 220 g, B = 4500 kg, fatigue endurable HKar5 23,25



AustriAlpin Delta steel karabiner suitable for webbed hang loops, 230 g, B = 3200 kg, annual replacement recommended. HKar2 18,90

About fatigue strength of sport aviation karabiners:

Paraglider karabiners are constantly subjected to oscillating loading. The DHV has ascertained through tests, that these load variations amount to between 10 and 110 kg and more (max. 160 kg), dependant upon pilot weight, thermal conditions and flight style. Due to the high breaking strength of these karabiners (at least 1500 kg) such loading variation should not really present any problems. Conventional karabiners however have a peculiarity due to their construction: the play in the fastening catch. This play is necessary, in order that the catch snaps closed free of friction, but causes the karabiner to be burdened, as if the fastening catch were open, within the range of the gate play. As the karabiners have not been constructed for this type of loading, metal fatigue is possible, when there is too much play. For this reason there have been several recorded karabiner failures in the past. An accredited testing institute ascertained fatigue strengths (catch open) of only 35 to 100 kg for prevalent paraglider karabiners. Also the values of the tested steel paraglider karabiners lay by only 50-70 kg.

To be able to reliably exclude the possibility of karabiner breakage due to metal fatigue, karabiners must be fatigue endurable or at least constructed to be endurable for a specific length of time for the maximum loading occurring in flight (160 kg). Insufficient insight into the number and intensity of the loading oscillations occurring in flight make substantiated statements about the duration of use for conventional sport aviation karabiners impossible. For this reason we recommend, that karabiners without sufficient proof of their fatigue strength should be changed annually. Further informations under www.finsterwalder-charly.de!

Steel is good ?

The fatigue strength of karabiners is not dependant on the material used, but rather on the construction! By continuous oscillation tests, aluminium karabiners sometimes showed much higher fatigue strengths than steel karabiners. Steel is usually more fatigue resistant, harder and less vulnerable to corrosion than aluminium, however these disadvantages can easily be outweighed, when the aluminium karabiner is constructed with appropriately larger dimensions. High quality aluminium alloys have a considerably better strength/weight ratio than steel.

The breakage in the steel karabiner (left) arose after 1.739.700 loading oscillations between 5 and 50 kg. The steel karabiner (right) broke after 287.000 loading oscillations between 7 and 70 kg.

Pin Lock karabiner endured 5.000.000 loading oscillations between 40 and 400 kg undamaged.



B = approx. breaking load, P = max. recommended payload, D = approx. deformation



Rectangular screw lock link Stainless steel \varnothing 7 mm, for webbing 34/50 mm. 63g, B=3125 kg, P=625kg, fatigue endurable when screwed closed. Be304 11,80



Harness screw connection for webbing 28/42 mm, Steel \varnothing 6 mm, Height 50 mm, Opening 8 mm, 47 g, B=2000 kg, P=250kg Be305 7,70



Harness-reserve connection link \varnothing 7 mm, inner length 53 mm, opening 9 mm, B = 2800 kg, P=550kg. Be31 4,20



Screw lock link \varnothing 5 mm, inner length 42 mm, opening 8 mm, B = 1200 kg, P=280kg. Be30 3,40



Screw lock link \varnothing 4 mm, B = 1500 kg, P = 280 kg Be29 2,90



Triangular screw lock link: st. steel \varnothing 4 mm, width 25 mm, height 32 mm, B = 900 kg, P=100kg. Be300 5,00



Patent shackle: brass, length 40 mm, B = 300 kg Be22 9,50



Ring Messing, 4 mm, \varnothing 14 mm Be23 2,00



Stainless steel hook: with sprung latch, eye 6,5x10,5 mm, length 50 mm, B = 200 kg Be20 5,10



Mini karabiner: steel \varnothing 5 mm, length 50 mm, P = 120 kg HKar91 2,70



Mini karabiner: steel \varnothing 4 mm, length 40 mm, P = 40 kg HKar90 1,65



Mini double button buckle: with adjustable tongue for 18-20 mm webbing, B approx. 350 kg, 30x45x9 mm HSi20 5,20



Jamming Buckle: Cast zinc for webbing 25 mm, 50x32x18 mm, B = 350 kg HSi95 3,50

Speedsystem



Finsterwalder speedsystem hooks
Be18 Stainl. st., B=230 kg, each 1,95
Be180 Titanal, B=230kg, each 1,95
Be181 Titanal, adjustable, each 2,65



Finsterwalder mini roller f. speedsystem: for cord up to \varnothing 5 mm, Avional, hardened steel axle, low running, length 28 mm, B approx. 600 kg Be541 4,30

Mini brake-handle swivel



Mini brake-handle swivel: avoids annoying twisting and curling of the paraglider brake lines, can be easily sewn into the brake lines, diameter 8/10 mm, length 33 mm, B = 300 kg, P = 150 kg

Be2 Mini brake-handle swivel 8,00
Sewing in of swivels in exist. handles (please send to Seeg!), pair 35,00

Handle with sewn-in swivel



Be2G Handle „Neoprene“, Pair 36,50
Be2GF Handle „NOVA“, Pair 29,00

Accessories for PG and HG

Cross-country identification number €

D-NFEX

For paragliders and hanggliders

From self adhesive ripstop material, black, since other colours are not covering.

HSe403	Set 30 cm in height	26,50
HSe405	Set 50 cm in height	42,00

Please order in advance!

Repair material €



Hang-/paraglider plaster

Packed, high adhesive ripstop material 12x90 cm, available in transparent white, black, red, dark blue, purple, pink.

HSe11		5,50
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Self adhesive sailcloth

From the roll, 90 g/m² for small repairs on hang-/paragliders. Roll width 90 cm, smallest order per colour is 1 m. Colours: black, red, dark blue, transparent white, pink, neon yellow. For advertising lettering or cross-country registration only black is usable, since other colours are not covering.

HSe100	0,3 up to 1 m, per 0,1 m	4,90
HSe10	per m	28,00

Self adhesive reinforcing cloth

From the roll, Dacron 180 g/m², width 95 cm, covering white, smallest order is 1 m.

HSe12	per m	44,00
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Rescue set €



HR	Rescue cord with lead weight	4,10
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HKa	SOS-severing knife for webbing	7,95
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Multi purpose bag €



Equally suited for storing camera, radio set or sandwiches. With Velcro strap for mounting on a paraglider harness or to an A-frame upright.

HR10		19,95
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Helmet-/harness bag for radio set €



With Velcro strip for mounting on the chin guard of a full face helmet or the shoulder strap of the harness.

HR100		14,80
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Windssocks €

HWi1	Windssock large size ø 35 cm, length 210 cm, without tubing	19,95
HWi30	Nova-windssock medium ø 15 cm, length 80 cm, from ripstop	10,90
HWi2	Foldable tubing for windssock, length 260 cm	15,50
HWi20	Earth stake with robust handle for easy removal	16,80
HWi4	Mini-windspy ø 7 cm, length approx. 60 cm	4,60



Dyneema super-cord €

The new super fibre makes possible ductile ropes that have higher tensile strength, are lighter, have higher abrasion resistance and almost as low stretch as kevlar-ropes by the same diameter! The 3 mm dyneema cord can be used as rescue cord, you can rope down with in an emergency.

Art.N°	ø	Weight g/m	Strength kp	€/m
HSeiD2	2 mm	5	250	1,20
HSeiD3	3 mm	7	400	1,40
HSeiD4	4 mm	10	650	2,00
HSeiD5	5 mm	15	1000	2,60
HSeiD6	6 mm	22	1500	3,45

Quality-kernmantel-cord €

Fully impregnated, good abrasion resistance, high UV-resistance, good strength-weight rate.

Art.N°	ø	Weight g/m	Strength kp	€/m
HSei3	3 mm (for VG)	10	180	0,90
HSei6	6 mm	24	730	1,00
HSei7	7 mm	30,5	1200	1,50

Sail batten cord €/m



Polyester cord, good tensile- and abrasion strength, 16 times plated.

HSei2,5	2,5 mm, 110 kp	0,35
HSei4	4,0 mm, 290 kp	0,40

Elastic cord €/m



Elastic cord with nylon-plaiting, highly elastic by good tension force, universally applicable.

HSeiGu	4,0 mm	1,45
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Velcro fastener €/m



Velcro-fastener

HKI7	Velcro band/clasp 18 x 5 cm	3,20
HKI800	Velcro band/clasp 75 x 3 cm	4,40
HKI81	Velcro band/clasp 100 x 4 cm	6,20
HKI82	Velcro band/clasp 135 x 4 cm	8,00



For sewing on, can be cut down to the desired length without fraying.

HKI1	Velcro fastener, hook side 25 mm	1,85
HKI2	Velcro fastener, loop side 25 mm	1,85
HKI5	Velcro fast. hook or loop side, 100 mm, orange	5,35

Flat bands €/m



Abrasion resistant, pliant, with UV-stabilization.

HBa1	12x1,2 mm, 700 kp	2,15
HBa5	25x2,5 mm, 1800 kp e.g. for pilot hang-ins	2,60
HBa4	44x2 mm, 2200 kp	3,10
HBa3	50x2 mm	3,30

Towing releases one-stepped €/m



Charly S2 Improved version of the super light-weight, dependable and proven release for paraglider or hangglider-UL towing (less risk of injuries in case of breaking ropes). 500 kg tensile strength, 150 g, DHV-certification.

HS300	Charly S2	54,00
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Frontcontainer towing release SK1 For paraglider towing, DHV-certification.

HS420	Frontcontainer towing release SK1	56,00
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Frontcontainer towing release SK2 For paraglider towing. Similar to SK1, but with integrated towing adapter and windlass-towing-accelerator. DHV-certification.

HS421	Frontcontainer towing release SK2	92,00
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GS-towing accessories €/m



Charly webbing loops: 12 mm for mounting the PG-towing release to the riser insertions of the Safe-In-Lock (SIL).

HS5	Charly webbing loops (pair)	7,70
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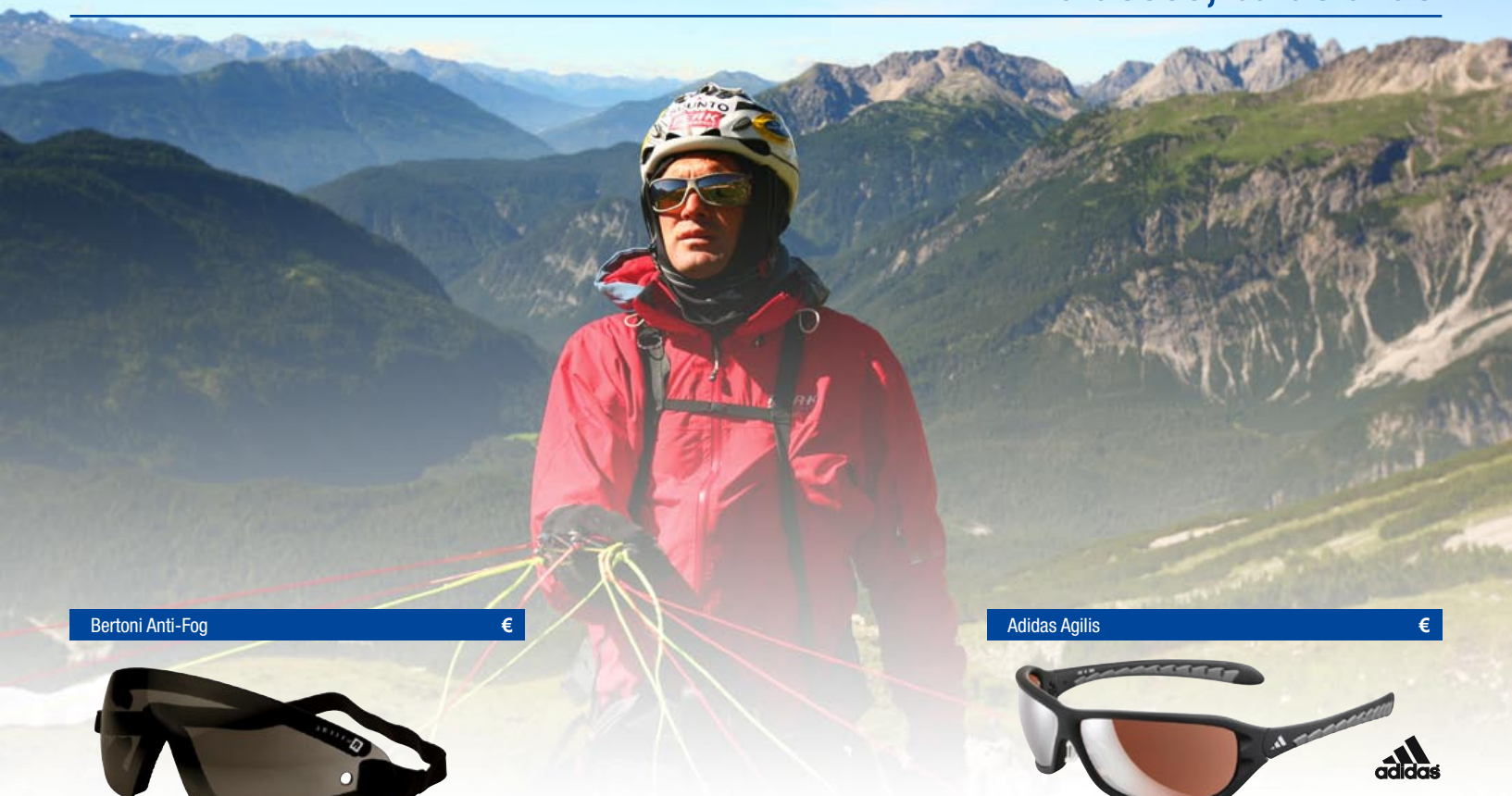
Charly PG-towing adapter for karabiners: For mounting the towing release directly to the end of the risers.

HS50	Charly PG-towing adapter (pair)	10,50
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Nova paraglider towing aid: The paraglider is accelerated by pull on the towing aid and slowed when slackened. Suitable in some cases for other types of paraglider.

HS500	Nova paragliding towing aid (pair)	46,90
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Bertoni Anti-Fog

€



Sport aviation sun/helmet glasses **without hindrance to the field of vision**. Distortion-free 2 mm polycarbonate lenses, 100% UV-protection, anti-scratch, incl. micro fibre transport bag.

Colours: silver mirror

HM71 Bertoni Anti Fog

34,00

Bertoni Eagle Eye

€



Flying glasses with interchangeable lenses. The grey, mirrored lenses (100% UV-protection, anti-scratch & anti-reflection, 6-fold coated) can be quickly exchanged with the orange or clear lenses that are included in delivery.

Incl. microfibre-cloth and practical case with zipper & extra pockets for the 2. and 3. pair of lenses for secure transportation.

Colour: mat grey

Lenses: smoke/orange/clear

HM710 Bertoni Eagle Eye

84,00

Bertoni Widescreen

€



The large, distortion-free field of vision of the Bertoni Widescreen provides good overview when flying whereby the transition of the lens tone from light to dark creates a comfortable light. Continuous lens, thus no shade over the nose. Scratch-resistant polycarbonate lens with 100% UV-protection and anti-reflection coating. Flat, flexible temple-ends allow trouble-free insertion of the glasses when wearing a helmet. Eyelets for attachment of a glasses-strap.

Incl. microfibre-cloth and practical case with zipper for secure transportation..

Colour: rubber black

Lenses: smoke

HM711 Bertoni Widescreen

38,50

Buff multifunctional balaclava

€



Multifunctional, seamless microfiber-tube, also usable as mask/scarf, cap and pirate. Can be worn trouble-free under a helmet, and is therefore ideal for airport.

Features: 100% microfiber, breathable, wind- and water-repellent, quick moisture transportation to the outside, where it can evaporate, keeps the body heat and provides for an optimum temperature equalization, sun protection..

Colours: uni black, uni blue, uni grey

HM7H Buff multifunctional balaclava

15,40

Cyclone Buff

New

€



Cyclone Buff can be worn as a scarf, balaclava, saharaine, mask or hat/helmet liner. Cyclone Buff combines a double layer of seamless Buff polyester microfibre with a Gore Windstopper fabric thus offering highly breathable protection from cold, wind, rain and snow. Only a Buff enhances your wellbeing in a hot & cold environment.

HM7HF Cyclone Buff

33,90

Adidas Agilis

€



The latest innovation from Adidas Eyewear is the Agilis Multi-sport model. This is the first frame to incorporate Blue Light absorbing lenses. The frame incorporates an integrated ventilation system which was inspired by climacool this optimises air circulation. Weighing in at 26.4 grammes this is a very comfortable fitting frame. We think this will be a successful model release for Adidas.

Features: Double Snap nose bridge, TRI.FIT Temples, Quick Change Lens System, Quick Release Hinge, Traction Grip, Ventilation System, Performance Insert Compatible, Flex Zones, Antifog Lens.



Colours: matt black, matt silver, matt cooper, transp. blue

HM62 Adidas Elevation

149,00

Charly fleece balaclava



Our snug balaclava with smooth outer surface combines top quality Climawarm elastic fleece with a practical cut and a sufficiently long neck covering to ensure you stay warm.

HM7F

€ 18,00

Various balaclavas



HM7B Cotton

€ 8,80

HM7S Silk

€ 18,50

Charly sport aviation helmets



HHe30 white with visor toned (HHe350)



HHe31 anthracite-metallic



HHe31 blue-metallic



HHe31 carbon-optic

Charly No Limit

The ultimate paragliding- and hanggliding-helmet according to CE EN 966 for competition pilots offers uncompromising safety.

The visor integrated in the helmet form reduces air resistance measurably. The mounted, clear polycarbonate visor possesses a field of vision that had until now not been known for a visor-integral-helmet. The break-resistant visor offers 100% UV-protection and is provided with antireflection-, antifog- and antiscratch-coatings. This makes sunglasses unnecessary. The clear visor can be dismounted and replaced by a toned one (not included in delivery).

By its fixed textile interior in 4 sizes, the CHARLY NO LIMIT offers the same good fit, that has made the CHARLY INSIDER the most popular flying helmet worldwide. As with the CHARLY INSIDER, the helmet shell is produced by a high pressure heat process with counter-mold and is reinforced by aramid fibre and sealed with an epoxy finish. The high-quality materials and the elaborate production process offer the greatest possible stability and durability by a weight of only 650 g.

Weight: 650 g + Visier 114 g
Sizes: S=55/56, M=57/58, L=59/60, XL=61/62 cm circumference of head

No Limit with clear visor		€	No Limit without visor		€
HHe30	white	235,00	HHe300	white	190,00
HHe31	blue-, anthracite-metallic	243,00	HHe310	blue, anthracite-metallic	198,00
HHe32	carbon optic	259,00	HHe320	carbon optic	214,00

No Limit accessories		€
HHe350	Visor toned	48,00
HHe35	Visor clear	45,00
HHe351	Kit visor-screws w. ratchet ins.	5,50
HHe73	Softbag for helmet/accessories	6,50



Charly's recipe for successful sport aviation helmets

1. Take only the best ingredients: high quality Vinylester, fibreglass and kevlar fabric. Do not use simple polyester and cheap fibreglass mats!
2. These are processed in a high pressure metal mould with counter-mould. Not in a simple, open synthetic-mould. Only in this way can a high percentage of fabric use be guaranteed.
3. By use of an annealing process, the strength of the synthetic material can be increased by up to 70% in comparison to hardening at room temperature! **In this way it is possible to achieve an unbeatably light-weight, yet impact-resistant and robust outer shell.**
4. One should certainly not scrimp and save on the varnishing, otherwise the helmet will rapidly become scruffy. Therefore only anneal the most expensive enamels and the best varnishes in three (by unicolor two) layers!
5. For the impact-absorption material, top quality EPS-foam (made in Germany) should be utilised, otherwise either the helmet dimensions must be larger or one fails to fulfill the CE-certification for aviation helmets (HPG) (Caution: certain helmets fulfill only the cycle and ski helmet norm)!
6. Perfect fitting and maximum comfort can only be provided by a helmet, that has been fully upholstered with endermic material and is available in **6 definite sizes**. Adjustable internal head straps are more suitable for cycling helmets due to essential ventilation.
7. The interior should make it possible to put on glasses subsequently.
8. When you put the helmet on, there should be as little to feel and see of it as possible. Please check out what **we** mean by a large field of vision.
9. The chin strap must feel comfortable and keep the helmet safely on the head.
10. Can you still communicate without difficulty when wearing the helmet? Are the sounds from the wind sufficient to judge wind speed, yet quiet enough, so that the VOX of your transistor radio still functions in flight?

Charly No Limit Jet



HHe31J blau-metallic

No Limit Jet with clear visor		€	No Limit Jet without visor		€
HHe30J	white	235,00	HHe300J	white	190,00
HHe31J	blue-, anthracite-metallic	243,00	HHe310J	blue-, anthracite-metallic	198,00
HHe32J	carbon optic	259,00	HHe320J	carbon optic	214,00

Charly sport aviation helmets



HHe70 bicolor wine red-metallic



HHe77 carbon-optic



HHe7 unicolor white



HHe7 unicolor red



HHe7 unicolor blue



HHe70 bicolor silver-metallic



HHe70 bicolor blue-metallic



HHe70 bi. turquoise-metallic



HHe70 bi. anthracite-metallic



HHe70 bicolor black-metallic



HHe70 bicolor yellow



HHe75 uni-soft red



HHe75 uni-soft blue



HHe75 uni-soft black

Charly Insider

The CHARLY INSIDER is still the best selling full protection integral sport aviation helmet. This helmet is especially popular with paraglider pilots, because the helmet provides full protection without the chin guard being noticeable. The helmet edges pulled inwards at the visual field account for an extension of the field of vision and a minimization of the air resistance, the helmet edge pulled far down on the sides for good fit and a pressure-free area around the ears. Comfortable fit also for special sizes as XS and XXL.

Weight: 650 g
Sizes: XS=53/54, S=55/56, M=57/58, L=59/60, XL=61/62 cm, XXL=63cm circumference of head (XS and XXL only for HHe7 and HHe70)

Charly Insider		€
HHe7	unicolor (white, red blue)	161,00
HHe70	bicolor (silver-, blue-, turquoise-, anthracite-, black- metallic, yellow)	174,00
HHe75	unicolor-soft (red, blue, black)	178,00
HHe77	carbon-optic	193,00
HHe702	extra inner upholstery, cheek- and chin-padding	11,25
HHe703	extra inner upholstery incl. insertion	19,95

Charly Breeze

Freestyle-paragliding helmet certified to flying helmet standard CE EN 966 with strong ABS shell, high quality EPS shock absorbing foam and extra soft, skin-friendly textile interior in fixed sizes. This allows better fit and comfort of the helmet in comparison with helmets with adjustable size. The flexible ear parts are especially appreciated by pilots with wide head shape.

Weight: 495 g
Sizes: S=55/56, M=57/58, L=59/60, XL=61/62 cm circumference of head

Charly Breeze		€
HHe2	Breeze white with black ear pads	77,00
HHe20	Breeze soft black with silver ear pads	89,00
HHe25	Breeze UL black	129,00
HHe251	Visor for Breeze UL	45,00
HHe252	Peltor for Breeze UL	49,00



HHe25 + HHe252

Charly Air Control

Safe and competitive paragliding helmet corresponding to flying helmet standard CE EN 966 with impact resistant ABS shell and high-quality EPS shock absorption foam. Now also available in exclusive full-carbon-look. The revised textile interior in 4 fixed sizes provides for perfect fit, maximum comfort and doesn't affect hearing. The interior XS, S, M and L now have been adapted to the Insider sizes. The helmet shell pulled far down offers protection also by side impact and moreover provides a considerably better fit of the helmet.

The helmet is predominately flown without chin guard, even though a screw-on chin guard is included in delivery. The chin guard primarily is intended for towing where it offers protection against releases catapulting back. By contrast to the current skiing helmets, the Air Control fulfills the required flying helmet standard.

Weight: 495 g
Sizes: XS=53/54, S=55/56, M=57/58, L=59/60, XL=61 cm circumference of head

Charly Air Control		€
HHe5	Air Control unicolor (red, white, black)	68,00
HHe51	Air Control carbon optic	92,00



HHe5 red

HHe5 black



HHe5 white with mounted chin guard



HHe20 soft black



HHe2 white



HHe51 carbon optic

Sportswear, overalls, speedshirts

HAGLÖFS Jaw Jacket *New*

€

The Haglöfs windstopper® Soft Shell jacket that is best suited for snow activities.

Features: Exterior in a woven stretch provides excellent durability • Interior of varying thicknesses combines good thermal properties with maximum versatility • Very water resistant with excellent breathability • Stand-alone fleece lined collar with 3-way adjustable hood • Recco® Avalanche Rescue System Reflector • DWR treated (Durable Water Repellent) • Integrated, adjustable snow skirt with press studs to attach snow skirt to pants and hinder snow from entering • Cuffs with velcro adjustment • Full-length, watertight zip with inner wind flap • Articulated elbows • One napoleon pocket, one laminated sleeve pocket and two long, ventilating torso pockets – all with watertight zips • Cord adjustable hem

Color: black (schwarz)

Size: S-XXL

HM7805 Haglöfs Jaw Jacket

350,00



HAGLÖFS Mid Flex Pant

€

Very comfortable and versatile pant with stretch panels for improved fit. Two zippered side pockets with bellows, with a cell phone compartment in the right side pocket. Single-hand adjustable cuff. Offset inner leg seam for greater comfort. Elasticated waist with bottom closure. Fly zipper. One security pocket. Hang loop. Wind resistant. # DWR (Durable Water Resistance) treated. Weight: 520 gr. in size 52

Charcoal/black

Blue ink/midnight blue

Color: Charcoal/black, Blue ink/midnight blue

Size: 46-58

HM2837 Haglöfs Mid Flex Pant

125,00



HAGLÖFS Jaw Pant *New*

€

The windstopper® Soft Shell pant that is best suited for snow related activities

Features: Exterior in a woven stretch gives excellent durability • Interior of varying thicknesses combines good thermal capacity with maximum versatility • Ventilation zips at the thighs • Zipped fly • Detachable braces • Waistband fitted with loops and press studs to attach pants to the jacket's snow skirt and hinder snow from entering • Articulated knees • Recco® Avalanche Rescue System Reflector) • Schoeller® Keprotec® reinforcements on the insteps • Velcro adjustable cuffs and integrated, adjustable snow gaiter • DWR treated (Durable Water Repellent)

Color: black

Size: S-XXL

HM7804 Haglöfs Jaw Pant

290,00

Overall „Experts“ *New*

Overall „NOVA“ *New*



With the Charly Experts Overall, Charly Produkte presents an innovative and technical premium class flight-overall. The ergonomic design offers a maximum wearing comfort and functionality throughout the whole year to all PG-, HG-, and UL pilots. Specifically geared to the needs of pilots, the overall

is made from a water-repellent and breathable 3-layer material and was developed and manufactured by Charly in cooperation with a leading outdoor specialist.



Features: Robust and functional 3-layer membrane for a maximum wearing comfort throughout the whole year • Outstandingly breathable, water-repellent and wind-proof • Taped seams • 2-way zippers at trouser legs and front for an easy step-in with flight boots • Lycra-sleeves to avoid cold bridges • Waterproof zippers • Adjustable wristbands with Velcro • Fleece-lined banded collar • Kevlar-protected inserts • Small pack size • Laminated „Time Spot“ on the wrist • Stretch-inserts at legs and back, precasted sleeves and legs, flexible waistband for maximum comfort • Two front pockets with cable bushing for radio unit, cellphone or MP3 player • Riff-raff stretch-elements at upper arms and lower legs for less air drag of the pilot • Reinforced loops at the left thigh for a secure instrument mounting



EXPERTS
STRONG. LIGHTWEIGHT. BREATHABLE.

Color: red/anthracite, blue/anthracite

Sizes: S-XL (S only in red/anthracite)

HM231 Overall „Experts“ 289,00 €

NOVA

Farben: anthracite, red

Größen: S-XL (S only in red)

HM231 Overall „NOVA“ 289,00 €

Speedshirt „Experts“ *New*

New



Tight-fitting top-quality shirt for hang- and paraglider pilots made from highly elasticated Lycra stretch material that can be worn over the normal flying outerwear to reduce the air resistance.

New model with high-quality chest zipper to avoid the annoying „slipping in“. Practical extensions at the sleeves avoid thermal bridges. Sleeves, collar and back with elaborate textile print.

EXPERTS
STRONG. LIGHTWEIGHT. BREATHABLE.

Color: black, blue, red

Size: M, L, XL

HM45C Speedshirt „Experts“ 49,90 €

Speedshirt „NOVA“ *New*

New



Color: grey, blue, red, black

Size: M, L, XL

HM45N Speedshirt „NOVA“ 49,90 €

Sportswear, gloves, shoes

NOVA Softshell Team Jacket *New*

€



The Nova Softshell Team Jacket is made of three laminated membrane layers: A protecting robust outer layer, a wind- and water-repellent middle layer, as well as an isolating and warming microfleece lining. This material mix maintains the body climate and is highly breathable. Moreover, the high material elasticity provides for best wearing comfort and an optimal freedom of movement.

The jacket possesses two side pockets, one Napoleon pocket, and one sleeve pocket. The smooth-running zipper is continuously underlapped and equipped with a chin protector. Additional features include the adjustable wristbands (via Velcro) as well as a cord with stopper for an individual waistband adjustment. Machine washable at 30°C.

Size: S, M, L, XL
HM16 NOVA Softshell Team Jacket 99,00

NOVA Cap *New*

€



This cap has cool styling, and is adjustable at the back by means of an elastic cord. The cap is from 100% cotton and has a firm pre-shaped peak.



HM20 NOVA Cap 13,90

Heatable PG-handfairings *Special price*

€



Heatable handfairings made from neoprene warm better than any glove, as the heating packs are directly at the finger tips. In summer, these handfairings are sufficiently warm without heating packs. Simple instrument adjustment, you can slip into the neoprene handfairings without gloves or just with thin leather or fleece gloves.

Can be attached in just 10 seconds! The braking handles need not be removed, you can slip them through an elastic opening at the tips of the handfairings.

[HG - handfairings on page 28 !](#)

HM932 Finger warmers, pair 12,00
HM151 Heating packs for Hotl. system, pair 1,60

CHARLY Gore Windstopper fleece summer PG-gloves

€



Sensitive „feel-good“ PG-fleece gloves with long, tight fitting neoprene-gauntlet and Supergrip-reinforcement.

Features: The palm is strengthened with non-slip Supergrip-reinforcement, inner lining from windproof but breathable Gore Windstopper material.

Sizes: S, M, L, XL, XXL
HM18 Charly WS-fleece gloves 46,90

CHARLY Performer Hotliner Neoprene

€



Wind- and waterproof flight gloves with well insulated back hand from neoprene, warmer lining and extra long gauntlets with elastic draw cord (one hand operation!).

Features: Outer material windproof, sturdy and elastic, extra soft fleece lining keeps your hands warm and dry, long gauntlets with elastic cord draw (one hand operation), sensitive and non-skid palm, areas subject to heavy abrasion (on the sides and the thumb) have been reinforced with Supergrip, by extreme low temperatures heatable with the Chiba Hotliner heating system.

Sizes: S, M, L, XL, XXL
HM17 Charly Performer Hotliner 57,90
HM151 Heizpacks f. Hotl. Heizsystem, paar 1,60

HAGLÖFS Helix Gloves

€



Technischer Handschuh aus einem Materialmix, der Wärme mit Haltbarkeit und Stretch verbindet. Wind- und wasserresistente Außenseite. Wasserdichter Innenhandschuh aus Proof Material. Wärmende Primaloft Isolierung. Mit Fleece gefütterte Handflächen sorgen für Wärme ohne großes Volumen. Pittards® Leder an Handinnenflächen, Daumen und Fingerspitzen für gute Haltbarkeit. Verlängerte Bündchen mit Ösen am Handgelenk. Elastisches Handgelenk. Eine Fingeröse.

Sizes: S, M, L, XL
HM19 Haglöfs Helix Glove 82,50

Softshell Pant "NOVA"

New

Softshell Pant "EXPERTS"

€



Functional Softshell pants for paraglider pilots. This softshell pant, designed by Charly Products is claimed to be the best designed multifunctional pants for aviation sport to date! Ergonomically tailored to the requirements of pilots who prefer a two piece outer garment in flight. Access when wearing shoes is problem free.

A mixture from flexible Softshell material and robust 3-layered material offers maximal wearing comfort and high functionality the whole year round. The flight suitability is heightened by many further details and features.

Sizes: S, M, L, XL
HM21N Softshell Pant "NOVA" 149,00
HM21N Softshell Pant "EXPERTS" 149,00

T-Shirts Evolution

€



High quality and durable T-Shirts from 100% cotton, 2-coloured rear print.



Sizes: M, L, XL
HM400G Evolution PG 29,00
HM400H Evolution HG 29,00

KAYLAND Paraglider

€



With a weight of only 600 g **the lightest flight shoe available!** Range of use: paragliding, hanggliding, para-alpinism, trekking. **Features:** Closed cording system, no open hooks, new carbon reinforced ANKLE Lock-system provides optimum stability and comfort in the areas of heel and ankle with simultaneous front flexibility, waterproof and breathable due to e-VENT membrane (winner in several tests!), VIBRAM PLANET-Sole for optimum cushioning, walking comfort and off-road grip.

Sizes: 4 - 12
HM86 Kayland Paraglider 199,00

HANWAG Sky GTX *New*

€



Surprisingly light-weight boot for hang- and paragliding pilots. Great cushioning and comfort, breathable, and durably waterproof.

- Eyelet lacing (no line tangling)
- Built-in ankle support
- Upper with 2 wrinkles for good flex

Weight: 635 g
Upper material: Air-Mesh with Sportvelours
Lining: Gore-Tex
Sole: Vibram Mars

Sizes: 4 - 12
HM811 Hanwag Sky GTX 219,95

HANWAG Super Fly GTX

€



The Super Fly GTX made of alpine cow leather has been furnished with the new GORE-TEX DURATHERM membrane. In combination with mixed textile socks permanently waterproof and highly breathable. Very good sideways stability despite its light weight. Modified ankle protection to ensure walking comfort. Shock absorbing two layered absorption wedge from different degrees of hardness for strong spring effect by touch down. Fitted with a scree protective band in the lower ankle area and a contact lip on the front acting as protection especially in rocky terrain.

Sizes: 4 - 12
HM81 Hanwag Super Fly GTX 239,95

Flight instruments



BRAUNIGER Bräuniger hang- and paragliding instruments are world leaders in their field thanks to their technical innovation, dependability and simple operation. Software is not included, can however be downloaded and updated from the web. By all Bräuniger Varios a paraglider leg mount is included in the price. More expensive mountings against extra charge.

BRAUNIGER IQ Sonic



- The cool mini vario IQ Sonic is ideal as a back-up vario for cross-country route and competition pilots; excellent e.g. for coastal soaring, space-saving for PG tandem pilots and mountaineers. It is precisely the right instrument for anyone who wants to enjoy activity with the strict minimum of technology.
- Das BRAUNIGER Mini-Vario kann mittels Klettband vielseitig befestigt werden, z.B. am Helm, am Gurtzeug, am Overall... der Phantasie sind keine Grenzen gesetzt.
- Dimensions: approx. 98 x 37 x 19 mm, Weight only: 40 g incl. battery

Hi480 Bräuniger IQ Sonic 129,00

BRAUNIGER IQ-Basic / GPS



- The IQ-Basic / GPS is the ideal complement to the Bräuniger vario series IQ One / IQ One+, perfectly aligned with the requirements of paraglider- and hanglider pilots.
- The flights are recorded in the IGC format for an easy upload to the OLC server or their presentation on Google Earth using the Flychart software.
- High precision digital vario technology with Smartfilter technology
- Easy handling by menu navigation
- Powered by 2 x 1.5 V AA cells or NiMH rechargeable batteries
- Optional speed port for vane sensor
- High-contrast multifunction LCD
- Mini-USB port for flight downloads and firmware updates
- Dimensions: 150 x 80 x 35 mm, Weight: 290 g incl. battery

Hi494 Bräuniger IQ-Basic / GPS 389,00
Hi500 Bräuniger IQ-Motor A 489,00
Hi510 Bräuniger IQ-Motor B 689,00

BRAUNIGER Compeo+ PG/ HG



- The IQ Compeo+ with its 16 channel GPS receiver is the very new high-end instrument by Bräuniger Flight Electronic.
- Robust, aerodynamic casing, holder bracket is compatible with previous Bräuniger systems.
- 4 function displays - Precision pressure sensor with maximum Vario resolution
- 2 independent battery banks each with 2 AA-batteries (Alkali or NiMH-storage batteries), operating time approx. 2 x 20 hrs. The automatic switch-over of battery sets provides perfect electric discharge - never again you deal with only partially discharged batteries!
- Automatic or manual start/stop of flight recording
- Variable recording interval 2 to 60 sec. for up to 290 hrs. flight recording
- 31 user defined display fields
- 2 instrument versions: One for HG pilots (Hi590+) with removable pitot tube and additional inlet for wind vane speed sensor and one for PG pilots provided only with inlet for wind vane sensor
- Dimensions: 180 x 96 x 45 mm, Weight: 425 g incl. battery

Hi59+ Bräuniger Compeo+ PG 1098,00
Hi590+ Bräuniger Compeo+ HG incl. ball joint mount (Hi550) 1148,00

Speed sensor and display cover



- Hi5600 Towed sensor S3 for PG 110,00
- Hi560 Speed sensor S2 or HG 110,00
- Hi9611 Plexiglas protection for display IQ-Serie 29,00
- Hi962 Plexiglas protection for display IQ-One/IQ-One+ 29,00

Instrument protective material mount

- to mount instruments either on the front cockpit pocket, on the rescue reserve front container, or by means of the flexible metal angled mount to the harness chest strap. With the Vario/GPS base board, two instruments can be mounted onto the flexible metal angled mount or to the paraglider leg mount.
- Hi9641 Textile protective cover for IQ-One / IQ-Basic/GPS 10,10
 - Hi9640 Textile protective cover for Compeo+/Competino+ 10,10
 - Hi9660 Textile protective cover for eTrex 10,10
 - Hi9630 Baseplate Vario & GPS 10,10
 - Hi9600 Flexible metal angle mount 8,90

Precision flat compass

- Special edition for hangglider and paraglider sport. Thanks to improved mounting and dependable directional display gives a true reading even when tipped 35° out of horizontal. Not to be confused with traditional car, boat or walking compasses. Very easy to read display, revolving scale with 360° subdivisions, ø 60 mm. Measures 60x120x15 mm. Weight 80 g. Available either with a Velcro band for attachment onto a front container, with a long band to wrap around the thigh or with faired aluminum mount for the speedbar.
- Hi170 for speedbar 54,00
 - Hi168 with Velcro for cockpit 49,00
 - Hi169 for thigh attachment 54,00

Various mountings

- Hi81 Mount up to 5 kg (without ball joint) 16,00
- Hi80 Mount up to 1,5 kg (without ball joint) 9,80
- Hi85 Ball joint, small 9,50
- Hi86 Ball joint, large 13,50
- Hi89 Plate with thread for instruments (for screwing on to any frame) 2,65
- Hi94 Holder with mounting plate (suitable for Bräuniger variors, Barigo altimeters and other instr.) 19,00
- Hi83 Plastic ball joint mount for light instruments (instruments can be attached to the ball joint by the use of two screws) 11,60
- Hi95 Universal support (ideal for radio sets and instruments, to which a ball joint cannot be attached) 21,40

BRAUNIGER IQ-ONE / IQ-ONE+



- Elegant design, metallic look ABS casing, little volume, lateral Soft-Touch-grip surface and easily operated keys.
- New, high precision Vario - Digital technology with variable response time and excellent filtering due to the new Smart - filter-Technology
- More than 250 operating hours with one battery set (NiMH storage battery is also possible) Several years in Stand-by mode with visible display of current time of day.
- All functions are individually programmable via OPTION-MODE techniques.
- FLIGHT MEMORY
IQ-ONE all Max/Min-Data of 40 flights
IQ-ONE+ 130 hrs. Barogramm memory
- Speed sensor connection for optional wind vane sensor (PG or HG Version)
- Dimensions: 138 x 74 x 23 mm, Weight: 182 g incl. battery

Hi493 Bräuniger IQ-ONE 249,00
Hi4931 Bräuniger IQ-ONE+ (incl. PC connection cable) 299,00
Hi9611 Plexiglas protection for display IQ-One 29,00

BRAUNIGER Competino+



- The IQ-COMPETINO+ is the forceful enhancement of the successful COMPETINO under consideration of the most recent processor technology and ergonomic design.
- Automatic or manual Start / Stop of flight recording
- Variable recording interval 1 to 60 sec. for up to 290 hrs. flight recording
- Permanent display of GPS and battery-status
- The IQ-COMPETINO+ is specifically designed for the PG pilot. Inlet for optional wind vane-speed sensor
- 27 user defined display fields.
- Map display with zooming and panning
- Automatic switchover between battery banks
- Thermal function: guidance (direction and distance) to last thermal
- Included accessories: Clamp (HG or PG clamp; CD with manual, flasher software and Flychart; transport bag, PC-cable USB type.
- Dimensions: 165 x 70 x 36 mm, Weight: 270 g incl. battery

Hi591 Bräuniger Competino+ 849,00

Vario mountings

- Hi550(HG) Hi550(GS) Hi550 Ball joint mount with arm for PG or HG 27,00
 - Hi94 Hi940 Hi94 Speedbar mount for Bräuniger variors 19,00
 - Hi940 Hi941 Hi940 Double mount vario/GPS for speedbar 43,50
 - Hi941 Hi941 Hi941 Double mount vario/GPS with large ball joint 60,90
 - Hi552 Hi552 Hi552 Paraglider leg mount 19,00
 - Hi551 Hi551 Hi551 Adapter for ball joint mount 9,70
- (Adapter that allows the use of the normal Bräuniger ball joint mount with arm (Hi550HG) in combination with the Bräuniger AV Pilot II, IQ Comfort II and Flytec instruments.)

Precision ball compass

Liquid stabilized ball compass, ø 80 mm (air-bubble-free), with optimum readable display. Functions - unlike electronic or car compasses - at any angle! Weight 330 g.

- Hi163 Hi162 Hi160 Hi161 Hi160 with HG-mount 105,00
- Hi161 mith paraglider leg mount 105,00
- Hi163 with UL-mount 105,00
- Hi162 with hand grip and wall mount 89,50

Instrument-camera mountings

The 1/4 inch thread of the Finsterwalder mount is suitable for all camera ball joints, which can be attached to all instrument housing with the use of an aluminium plate with an imperial thread (Hi89).

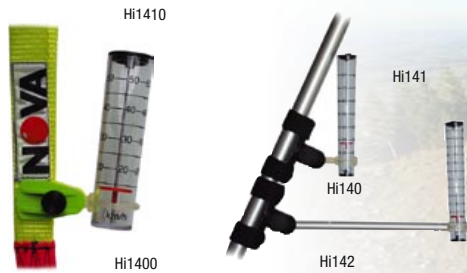
- Hi81 Hi85 Hi86 Hi89

Flight instruments

Hall speedometer

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Proven, astonishing accurate and robust speedometer. Hangglider edition 10-80 km/h or 10-130 km/h. Length 19 cm, weight with mount and material sleeve 170 g. Paraglider edition 10-50 km/h. Length 11 cm, weight with mount and material sleeve 70 g. The Finsterwalder mounting is suitable not only for all types of faired tubing, but can also be attached to a paraglider harness.



Hi141(80)	HG hall speedometer 10 - 80 km/h, 19cm, 60g	39,90
Hi141(130)	HG hall speedometer 10 - 130 km/h, 19cm, 60g	39,90
Hi1410	PG hall speedometer 10 - 50 km/h, 11cm, 34g	39,90
Hi140	Bracket short	12,40
Hi142	Bracket long	14,40
Hi1400	PG-bracket	7,40

Kenwood Funkey LPD mini transmitter

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Universally useful whether for sport, at work or at home. Excellent sound quality. Range air-air 40 km. Range of frequency 433,075 - 434,750 MHz (in 68 channels), 10 mW transmitter performance, pocket-sized 56x101x26 mm, 190 g, foldable antenna. Undesired listeners on the same channel can be blocked out thanks to the CTCSS-disturbance blockage (38 CTCSS-frequencies per channel). In Range- and Channel Scan function, energy saving function, automatic switch off, battery-level display, lit up display, various call tones, confirmation sound, remote control via loudspeaker microphone. 3 Mignon batteries suffice for approximately 60 hours of transmitting.

HiCF200 Kenwood Funkey 125,85

Flytec Windwatch hand wind speed indicator *Special Price*

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Precise and reliable measurements of wind speed and temperature (including windchill). The Windwatch is the ideal portable wind gauge for all outdoor activities.

Features: Peak wind speed, either absolute or over a selected measuring period, Average wind speed over a selected period (0-35 seconds), Current wind speed, All standard units can be displayed; simply press a button and select from mph, knots, Beaufort, km/h, and m/s, Temperature range of -4°F to 131°F (-20°C to 55°C), Windchill, The wind sensor propeller is fully protected by a simple twist of the casing, Weight: 1.62 oz (46 g), Dimensions: 3.93 x 1.57 x 0.70 inches (10 x 4 x 1.8 cm), Battery type: 3V lithium battery (included).

Hi1551 Flytec Windwatch 29,50

Skywatch Xplorer 2 hand wind speed indicator

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Hand wind speed indicator with replaceable lithium-battery for approx. 250.000 measurements.

Features: Balanced instant windspeed, maximum windspeed, calculation of the windchill factor, wind speed units: km/h, m/s, knots, mph, fps, maximum reading: 150 km/h, 42 m/s, 81 knots, 97 mph, 138 fps, backlight, stainless steel back, replaceable lithium battery, waterproof, operation temperature from -40°C to 80°C (-40°F to 176°F), accuracy according to Swiss standards.

Hi156 Skywatch Xplorer 2 46,00

Skywatch Xplorer 4 hand wind speed indicator

€



Hand wind speed indicator with replaceable lithium-battery for approx. 250.000 measurements.

Features: Balanced instant windspeed, maximum windspeed, calculation of the windchill factor, electronic compass in degrees, absolute pressure from 300 to 1100 hPa, relative pressure with calibration, weather forecast with barometric pressure tendencies, altitude with calibration (definition: 1 m/foot, maximum altitude: 8000 m), wind speed units: km/h, m/s, knots, mph, fps, maximum reading: 150 km/h, 42 m/s, 81 knots, 97 mph, 138 fps, backlight, stainless steel back, replaceable lithium battery, waterproof, operation temperature -40°C to 80°C (-40°F to 176°F), accuracy according to Swiss standards.

Hi157 Skywatch Xplorer 4 89,85

Skywatch Eole 1 anemometer *New*

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Position-independent anemometer with tripod socket (suitable e.g. for our HG ball joint photo mountings Hi85 and Hi86).

Features: Waterproof • Floatable • Wind speed in km/h, m/s, Knoten, mph, fps and Beaufort (averaging: 3 seconds up to 24 hours) • Detachable, robust protective cap with openings • Backlit display • Power supply through two AA Mignon standard batteries • Operational between -20°C and 70°C • Measuring accuracy according to Swiss standards • Ø65 x 155mm, 235 g

Hi158 Skywatch Eole 1 anemometer 60,00

Skywatch Meteos 2 anemometer *New*

€



Position-independent anemometer + compass with tripod socket (suitable e.g. for our HG ball joint photo mountings Hi85 and Hi86).

Features as Eole 1 + accessory:

- Calculation of windchill factor
- Electronic compass

Hi159 Skywatch Meteos 2 anemometer 99,00

Suunto Vector

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Altimeter: Altitude, vertical speed, altitude alarm, logbook, vertical difference measurement, automatic 24h altitude memory, temperature compensation. Logbook capacity 8 kB, recording intervals 20s, 1min, 10min and 60min, with respective times 10h, 12h, 7 days and 10 days

Barometer: Sea level pressure, absolute pressure, pressure difference, pressure trend indicator, 4-day barometric memory, temperature

Compass: Cardinal bearing, North-South arrow, bearing tracking, declination setting

Chronograph: Stopwatch, countdown timer, calendar, three daily alarms

Colors: black, black/yellow
Hi4721 Suunto Vector 199,90

Suunto X-Lander

€



Altimeter: Altitude, vertical speed, altitude alarm, logbook, altitude difference, automatic 24h altitude memory, logbook capacity 8kB, recording intervals 20s, 1min, 10min and 60min, with respective times 10h, 12h, 7 days and 10 days

Barometer: Sea level pressure, absolute pressure, pressure difference, pressure trend indicator, 4-day barometric memory, temperature

Compass: Cardinal bearing, North-South arrow, bearing tracking, declination setting

Chronograph: Stopwatch, countdown timer, calendar, three daily alarms

Hi4725 Suunto X-Lander 299,90

Suunto X6

€



Altimeter: Altitude, vertical speed, altitude alarm, asc/dsc alarm, logbook with waypoint recording, altitude difference, online cumulative ascent, alti/baro lock

Barometer: Sea level pressure, absolute pressure, weather trend graph, temperature, 48-hour memory, weather alarm, alti/baro lock

Compass: Bearing, graphic compass rose, bearing tracking, declination setting

Watch: Calendar, 3 alarms with date option, dual time

Chronograph: Simultaneous display of total time and current lap time, altitude profile memory, memory capacity 32kB (33h with 10s and 200h with 60s interval, shared with split/lap times memory)

Miscellaneous: Menu-based user interface familiar from mobile phones, Water resistant to 30 m (100 ft), PC interface + cable
Hi4724 SuuntoX6 299,90

Suunto X9i

€



Altimeter: altitude, vertical speed, altitude alarm

Barometer: Sea level pressure, absolute pressure, weather trend graph, temperature, weather alarm

Compass: Bearing, north indicator, bearing tracking

GPS: Speed, distance, routes, waypoints, tracks

Watch: Calendar, 3 alarms with date option, dual time, stopwatch

Power supply: USB cable and a universal power supply

Miscellaneous: Plan and visualize routes on PC, Water resistant to 100m / 330ft, PC interface software + USB cable, View tracks on Google Earth, Full access to SuuntoSports.com

Hi4726 Suunto X9i 499,90

The Charly success story

The CHARLY team has managed time and again to set new trends in the field of rescue systems due to clever innovation.

Due to our hangglider rescue system „CHARLY“ in 1986 the **middle line** chutes became common. The middle line reduces the deployment time considerably. With the Second Chance CHARLY became the first to produce paraglider rescue systems in larger numbers. These chutes are nowadays still in great demand thanks to their extremely **light weight construction**. Stretchable and slightly permeable material reduces the strain of an abrupt deceleration. Special sewing methods have allowed us to dispense with strengthening bands and high quality material used in the construction of canopy and connecting lines have further helped in weight reduction.

In 1990, with the Passive System, CHARLY brought the first paragliding rescue system onto the market, which did not have to be deployed manually. The rescue system is released by means of a **tensioned spring mechanism** and aid chute. However we have reviewed this system once again, since integrated side and front

containers with streamlined and more accessible deployment release have been developed.

In 1992 CHARLY'S Revolution was the first **double canopy middle line chute** to attain DHV-certification, in the meantime there is hardly a reputable manufacturer, who hasn't adopted this method of construction. With a double canopy 'chute', the preliminary stretching is accelerated and the canopy fills with air not only through the base but also through the protruding second base. Deployment has been achieved in heights of less than 40 m, whereas previously less than 60 m was difficult to attain. Simultaneously the air escaping from the second base has improved pendulum stability and the air resistance of the canopy. With the same sized rescue systems a slower rate of descent has been achieved.

In 1991 CHARLY attained the first DHV-certification for a dirigible paraglider rescue system. CHARLY didn't bring this rescue system onto the market, as the system revealed too many disadvantages in practise.

A successful innovation of CHARLY is the patented **SAS (shock absorption system)**. This system, developed with a leading webbing-band manufacturer, uses absorption elements in the main bridle straps to soften deceleration, when non-permeable chute material is used, allowing for all the advantages of a non-permeable material: slower descent with higher loading and for smaller canopy size and thereby faster deployment (see page 17, 19 Clou 2 SAS).



Packing service

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In order that a rapid deployment (such as by the certification test) is guaranteed in emergencies all reserve chutes should be aired and freshly packed every 4 months. Apart from the above the reserve chute should be repacked, if it becomes damp.

After a test or emergency deployment, by suspected damage and after 10 years of use the reserve chute should be sent to the manufacturer in order that it can be checked for airworthiness.

Because wear and tear can occur to the canopy through normal usage, we recommend, that a complete check of the rescue system be carried out by the manufacturer every 2 years. The whole of the reserve chute is examined over a light table and improvements carried out.

Just such an improvement is the patent registered **loop tensioner**, which provides for constant deployment strength, independent of the packing pressure of the reserve, and does away with safety threads on the splints. See price list for subsequent mounting. Construction in other makes of reserve parachute is possible and highly recommended.

Send your rescue system direct to CHARLY/Seeg and we will inspect, repack and have it in the return post for you within 4 days (inland).



HFa20	Standard rescue system packed	35,00
HFa200	Standard rescue system packed with 2-year-check	79,00
HFa21	Double canopy or Clou 2 packed	39,00
HFa210	Double canopy or Clou 2 packed with 2-year-check	84,00
HFa211	Duo rescue system packed	69,00
HFa212	Duo rescue system packed with 2-year-check	118,00
HFa22	Minimum-rescue system packed	69,00
HFa220	Minimum-rescue system packed with 2-year-check	119,00
HFa23	UL- oder DS-120 rescue system packed	87,00
HFa230	UL-rescue system packed with 2-year-check	139,00
HFa24	FRS 120M/Phantom 450 rescue system packed	105,00
HFa240	DS 120M/FRS 120M/Phantom 450/Phantom 450T rescue system packed with 2-year-check	157,00
HFa161	Subsequent mounting of rotor (in a hangglider- or UL-rescue system)	85,00
HFa194	Loop tensioner incl. fitting in combination with re packing	14,00

CHARLY loop tensioner:

Loop tensioner mounted in the reserve chute container attend to a constant deployment pressure of the fastening pins and save the otherwise necessary fitting of security threads. Test deployments of the rescue reserve, absolutely recommended for practising purposes, are feasible without expenditure by use of a loop tensioner.



Second Chance

The most popular paragliding rescue system world wide with minimum weight and small pack measurements. DHV-certification.

Experts 120 New

With the use of the most up to date, innovative German parachute silk, the packing volume and the weight could be further reduced. In addition, the lessened weight results in a shorter deployment time.

Revolution PG

CHARLY'S often copied double canopy for paragliders. Deployment tests have been carried out with the Revolution over solid ground, showing, that a standing landing is no problem at all. Improved pendulum stability and short deployment time. DHV-certification.

Clou 2 PG

CHARLY'S top model: Simple to pack middle line rescue reserve with integrated packing loops on the apex. High DHV-tested loading, high quality non-permeable rescue parachute silk F111 of German manufacture guarantees rapid deployment and minimum sink speed. According to the DHV-test the sink speed is still acceptable even with 140 kg loading. An aid chute connected to the inner container results in a rapid stretching of the canopy lines and thus a faster opening of the canopy. DHV-certificate of airworthiness.

Clou 2 PG SAS

Same as Clou 2 GS, but canopy lines with the patented SAS-System.

Biplace rescue system Duo 160 PG

Light-weight, almost pendulum-free middle line chute with stabilizing openings and pocket bands for rapid deployment. Ideal also for back-pack motor. DHV-certification.

Biplace rescue system Duo 200 PG

Detailed construction, top quality double canopy rescue parachute for the shortest deployment time and minimum sink values. One of the few parachutes with a DHV-recommended hang-in weight of 200 kg. DHV-certification.



HFa1875

Container for rescue systems

€

CHARLY rescue system containers can be pulled open in all directions and they have a clear splint window, so that the correct positioning of the splints can be easily checked.

The integrated **CHARLY loop tensioner system** ensures a constant deployment strength of the splints irrespective of the packing pressure from the rescue system. The attachment of a safety thread is thus no longer necessary. The loop tensioner, which is recommended by the DHV, prevents unintentional deployment of the rescue system. Test deployments of the rescue system, which are to be recommended for practice purposes, can be carried out with the loop tensioner without further effort. Available in 3 sizes, also suitable for rescue systems from other manufacturers.



HFa189



Charly Frontcontainer-Cockpit

Attachment through a length adjustable webbing with an attached screw lock link or snap-hook on it's ends. For flying or during transport the instruments are well protected in the detachable lid compartment.

Gr. **L** suitable e.g. for SC, Revolution or Clou

Gr. **XL** suitable e.g. for Clou SAS or Duo 160

Gr. **XXL** suitable e.g. for Duo 200

HFa189 Frontcontainer cockpit 74,00

HFa1890 additional price (sold with new rescue system) 36,00



HFa187



HFa187 Charly lightweight rescue container compressible

Via mounting loops, this compressible lightweight rescue container can be either attached in front of the pilot as a frontcontainer, or on the side of the harness. 64,00

HFa1875 Lightweight rescue container „Experts“ 49,00

HFa1870 additional price (sold with new rescue system) 33,00

HFa1872 Inner container extra 20,00

HKar90 Attachment karabiner small 1,65

HKar91 Attachment karabiner large 2,70



Overview of all Charly PG-rescue systems

order no.	rescue system (type)	weight* (with inner cont.)	pack measur./vol. (with inner cont.)	area	descent speed (m/s)				adm. max launch weight	€
					80 kg	100 kg	120 kg	140 kg		
HFa150/86	Second Chance 86	1,56 kg	24x22x8cm / 4,2 l	28 m ²	5,9-6,4				86 kg	474,00
HFa150/94	Second Chance 94	1,62 kg	26x24x9cm / 5,62 l	32 m ²	4,7-5,2				94 kg	499,00
HFa150/118	Second Chance 118	2,08 kg	28x26x10cm / 7,28 l	36 m ²		4,9-5,4			118 kg	529,00
HFa151	Experts 120	1,70 kg	25x22x9cm / 4,75 l	38 m ²			5,0-5,5		120 kg	599,00
HFa180	Revolution GS 1**	1,82 kg	25x22x10cm / 5,50 l	31 m ²	4,9-5,4				100 kg	555,00
HFa185	Revolution GS 2**	1,92 kg	28x26x10cm / 7,28 l	35 m ²		4,6-5,1			120 kg	579,00
HFa169	Clou 2 GS***	2,38 kg	28x26x10cm / 7,28 l	32 m ²			4,6-5,1		120 kg	609,00
HFa170	Clou 2 GS SAS****	2,68 kg	28x28x12cm / 9,41 l	32 m ²			4,6-5,1		140 kg	669,00
HFa190	Duo 160 GS***	2,96 kg	32x30x14cm / 13,44 l	55 m ²				5,8-6,3	160 kg	699,00
HFa192	Duo 200 GS***	3,81 kg	35x32x17cm / 19,04 l	55 m ²				4,3-4,8	200 kg	949,00

* As opposed to our competitors we possess a fully functional set of scales!

** double canopy (for rapid deployment and pendulum stability)

*** with deployment accelerator

**** mit deployment accelerator and shock absorption system

Rescue systems for UL



Charly Minimum 55

€

Round-canopy rescue parachute for „Minimum“ pilots in a stable kingpost carbon fibre container, for all marketed Minimum systems. An integrated aid-chute contributes to a rapid and problemfree deployment. Continuous connection lines are a guarantee for high strength and a steady opening. Surface 55 m². Recommended hang-in weight 150 kg. Weight 3,9 kg. DULV/DAeC-certificate of airworthiness. **When ordering please specify the dimension of your kingpost tubing!**

HFa6	Minimum 55	969,00
HFa60	Minimum 55 without container	730,00
HFa161	additional price for rotor	85,00



Charly UL ES78

€

Round-canopy rescue parachute for ultralight pilots in a robust kingpost carbon fibre container, suitable for all marketed ultralight systems. The construction is identical to that of the Minimum system, with all previously noted features. Surface 78 m². Maximum hang-in weight 220 kg. Weight 5,8 kg. DULV/DAeC-certificate of airworthiness. **When ordering please specify the dimension of your kingpost tubing!**

HFa61	UL ES78	1350,00
HFa610	UL ES78 without container	1090,00
HFa161	additional price for rotor	85,00

Charly DS 120M

€

Round-canopy rescue parachute (for biplace ultralights) in a carbon fibre container. Due to an universal adapter suitable for all marketed biplace gliders. A further development of the DS 120 with new airworthiness certification for 380 kg at 156 km/h deployment speed. The built in shock absorber softens deceleration and makes for less stress and strain to the UL. Maximum loading 380 kg. Weight 8,9 kg. DULV/DAeC-certificate of airworthiness. **When ordering please specify the dimension of your kingpost tubing!**

HFa62	DS 120M	1799,00
HFa622	DS 120M without container	1399,00
HFa161	additional price for rotor	85,00



Charly FRS 120M

€

Improved FRS 120 with shock absorber. Deployment by means of rocket motor AM3 and newly constructed ignition box. The driving motor is automatically cut off, when the rocket motor is deployed. In comparison to manual deployment the deployment time is radically reduced. Round-canopy rescue parachute 122 m², maximum loading 380 kg at 156 km/h deployment speed, weight 9,8 kg. DULV/DAeC-certificate of airworthiness.

HFa620	FRS 120M	1699,00
HFa621	FRS 120M new canopy for earlier container incl. packing and individual testing	1399,00



Charly Phantom 450T

€



Biplace rescue parachute for maximum loading of 450 kg at 156 km/h deployment speed, 106 m² round-canopy made from non-permeable material. Built in shock absorber. The sink speed by loading of 450 kg was measured at only 6,4 m/s! Kingpost container with carbon fibre. Manual deployment by means of tensioned spring and aid-chute. Weight 11 kg. DULV/DAeC-certificate of airworthiness. Duration of use 15 years. **When ordering please specify the dimension of your kingpost tubing!**

HFa63	Phantom 450T	1899,00
HFa630	Phantom 450T canopy for existing UL-rescue system without outer container and deployment system incl. packing and individual testing	1649,00

Phantom 450

€

Round-canopy system, construction as Phantom 450T. Deployment by means of rocket motor AM3 and particularly constructed ignition box. Material container with packing tube. Max. loading 450 kg at 150 km/h deployment speed. DULV/DAeC-certificate of airworthiness.

HFa64	Phantom 450	1750,00
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Charly HG

Countless documented and successful deployments have proven the Charly's dependability and efficiency. Like all Charly rescues DHV-certified. Small pack measurements.

Revolution HG

The CHARLY **double canopy** rescue parachute for the fastest deployment and minimal sink values. DHV-certified.

Clou 2 HG SAS

CHARLY's top model, which combines extremely high maximum loading (hang-in weight) with faster deployment and very low descent speeds. Non-permeable F111-fabric. Deployment accelerator and patented shock absorption system. Ideal for high-performance hanggliders. DHV-certified.

Biplace rescue system Duo 160 HG

Light-weight, almost pendulum free middle line chute with stabilizing openings and pocket bands for rapid deployment. Ideal also for back-pack motor. DHV-certified.

Biplace rescue system Duo 200 HG

Detailed construction, top quality **double canopy** rescue parachute, for the shortest deployment time and minimum sink values. DHV-certified. One of the few parachutes with a **DHV-recommended hang-in weight of 200 kg**.

Rotor



The tiny swivel offers additional safety!

In emergency situations UL's and hanggliders can develop a spinning motion thus wrapping up the rescue system. The rotor prevents this. We recommend, that you let your system manufacturer sew in the rotor at the end of the canopy lines in the main bridle strap. This can best be carried out at the next pack-inspection.

Equipped with loops, the rotor can be integrated into the end of the main parachute strap by the pilot himself.

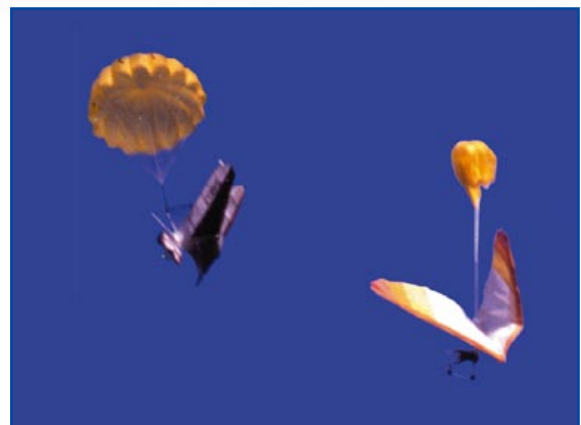
Weight only 120 g, 3 sets of bearings, tested up to 5000 kg breaking load, DHV-certified and recommended for **all** Charly hanglider and UL-rescue systems, if built in by the manufacturer.



HFa160	Rotor	72,00
HFa161	Rotor with webbing loops/incl. fitting	85,00



***It is absolutely recommended,
to order all HG- and UL-rescue systems
with integrated rotor!***



Overview of all Charly HG-rescue systems

order no.	rescue system (type)	weight* (with inner cont.)	pack measur./vol. (with inner cont.)	area	descent speed (m/s)			adm. max. launch weight	€	
					100 kg	120 kg	140 kg		with Rotor	without Rotor
HFa110	Charly HG	2,08 kg	28x26x10cm / 7,28 l	36 m ²	4,9-5,4			125 kg	624,00	539,00
HFa186	Revolution HG**	2,18 kg	28x26x10cm / 7,28 l	35 m ²	4,6-5,1			125 kg	714,00	629,00
HFa171	Clou 2 HG SAS****	2,88 kg	28x28x12cm / 9,41 l	32 m ²		4,6-5,1		140 kg	784,00	699,00
HFa191	Duo 160 HG***	3,16 kg	32x30x14cm / 13,44 l	55 m ²			5,8-6,3	160 kg	834,00	749,00
HFa193	Duo 200 HG***	4,00 kg	35x32x17cm / 19,04 l	55 m ²			4,3-4,8	200 kg	1074,00	989,00

* As opposed to our competitors we possess a fully functional set of scales!
** double canopy (for rapid deployment and pendulum stability)

*** with deployment accelerator
**** mit deployment accelerator and shock absorption system

Fex-Floater

Three reasons, why Finsterwalder gliders are so popular:

Whilst other hangglider manufacturers experience a reduction in sales, the Fexes from Finsterwalder are undergoing a Renaissance and almost enjoy cult status. More than 1000 highly satisfied leisure pilots fly our current gliders and recommend them to others.

1. Good flight characteristics:

Good flight characteristics are a result of the optimum functioning together of many different construction components: Sail cut, elasticity of the sail battens and leading edge tubes, geometry of the glider frame... Years of optimising at the Finsterwalder works have resulted in an optimum mix of the Fexes. As opposed to competition hanggliders, that achieve their performance with a high aspect ratio and pay the price in terms of poorer handling, Finsterwalder's concept for allround hanggliders is for a relatively compact surface furnished with an anhedral. In this way performance is achieved by minimal batten cross-setting. This special concept makes it possible, **to combine excellent flight characteristics with astonishingly high performance.** Due to the trouble-free turning characteristics and the advantages of the anhedral when thermalling, even less experienced pilots can achieve good performance with the Fexes. In the meantime the Finsterwalder concept for intermediate gliders has been copied frequently, but to date never bettered. Read reports from the specialist press, which we would be happy to send you.

2. Unique short pack possibility of 2 metres

All Finsterwalder gliders can be packed down small to 2,00x0,35x0,25 m with the **Snap Lock System** as well as the usual lengths of 5,50 m and 3,80 m. The **Snap Lock System** has been perfected over many years by Finsterwalder, the sail is removed from the glider frame. This is especially long lasting for the sail and makes possible the use of stiffened leading edges. The Snap Lock System with specially developed quick release fasteners designed by Finsterwalder makes it possible to dismantle/assemble the glider without the use of tools within 10-20 minutes. The Snap Lock System is very **advantageous, when it comes to transporting, storing, checking and repairing.** More detailed



information in the test reports from the specialised press. Today this is the only super short pack system for hanggliders, that is used on a broad base. In our shop in Munich we will be happy to demonstrate the short pack system free of charge (appointment necessary).

3. Unbeatably light and sturdy

Thanks to high quality materials and a technically mature construction, the DHV-test runs were unable to damage the Fexes even by top speeds. Years of hard usage in flight schools have shown, that despite the considerably lighter weight and the short pack possibility our Fexes are just as sturdy as any other glider on the market. All construction parts have proven their longevity. **Thanks to their high quality used Fexes have a high resale value.** We use only seamless drawn tubing from 7075 T6 alloy with a strength of 650 N/mm² of special dimensions prepared for Finsterwalder. Those tubes are eddy current-tested, mechanically polished and anodised internally and externally.

All Fexes are delivered with super light-weight airfoil **AEROFOIL®** and **AEROSAFE®** king post and A-frame uprights and forged, aerodynamically shaped fittings from aviation aluminium.



Fex-details from the left to the right: control bar bracket with high tech fittings, aerodynamically shaped control bar corners and nose plate from Perunal.

Lightfex Floater

The smaller version of the Perfex is comparable in flight characteristics, performance and technical furnishings, however, the construction (tube dimensions, sail cut etc.) is designed for the lighter pilot. The Lightfex, just as the Perfex, achieved best marks in test run by Drachenflieger magazine. 14 m², optimum loading 55-80 kg. Weight from 19,5 kg! Pack measurements 5,2/3,7/1,85 m. New DHV-certification. With A-frame for flying prone or available with specially suited supine A-frame.

L1000

€ 3050,00



Perfex Floater

The first 2 m short-pack skyfloater with new DHV-certification can be flown extra slowly and is enormously manoeuvrable. The Perfex has handling that you've always dreamed of, under 1 m/s sinkrate, maximum speed supine 65 km/h, prone 80 km/h. Well suited for the practise hill thanks to its low weight, robustness and simple ground handling, yet with performance to satisfy the most ambitious beginner.

100% Perunal frame, telescopic tubing, Perunal sail battens, faired kingpost, Finsterwalder kingpost hang-in, AEROSAFE uprights, aerodynamic and rapid rigg-up fittings, the Perfex offers far more than you'd anticipate considering its price. The sail is sewn from particularly finely woven, light-weight, long-life sailcloth and has a perfect profiled leading edge with mylar reinforcement and nose cover. 16 m², optimum loading 70-105 kg. Weight from 21 kg. Available with prone A-frame or specially designed supine A-frame.

P1000

€ 3180,00

Special prospectus for Finsterwalder hanggliders available (office@finsterwalder-charly.de)!



Options for hanggliders

	€
Supine-A-frame incl. special lower rigging (instead of the prone A-frame)	free
Round tubed A-frame or light-round tubed A-frame (instead of Aerosafe faired A-frame for Perfex/Lightfex)	free
Speedbar with twist-locking and security cable	free
A40 Special colours/sailcloth in lower sail by Airfex/Funfex or upper sail front/rear part by all glider types	53,00
A30 Special colours/sailcloth for leading edge	26,00
A60 Neon colours/designer sailcloth in lower sail by Airfex/Funfex or upper sail front/rear part by all glider types	82,00
A80 Pulley mounting-aid to span the crossbar	16,00
A82 Sail sack	26,00
A84 Wingtip protectors, pair	21,00

Se39 Tip fairings, pair	50,00
FHa63 Keel tube extension for Funfex (rigging up-aid)	35,00
Pa10 Short glider cover (2,00 m) with shoulder carrying straps extra	142,00
Pa20 Long glider cover extra	142,00
HPa71 Weather protective glider cover	350,00
HPa70 Drying out set (f. weather prot. glider cover)	5,00
HRa7/28 Wheel spacers/base tube protectors, pair	5,20
Tr22M1 AS spare A-frame upright for Funfex/Airfex	48,00
Tr22M2 AS spare A-frame upright for Perfex/Lightfex	51,50
Tr22M3 AS spare A-frame upright for Speedfex	58,00

Don't forget to order the most important spare parts as well!



Funfex S Intermediate

The Funfex S with 70% double sail is the connecting link between skyfloater and high performance hanggliders. The concept of the Funfex is so convincing that it has become the paragon for a new class of hanggliders. Its imitations however have never surpassed the Funfex in performance and handling. In addition comes perfect workmanship and the short pack potential.

16 m², optimum loading 70-105 kg. Weight from 23,5 kg.
Available for prone or supine flight.

F1000

€ 3580,00

Airfex Intermediate

Double sail glider with DHV-classification 2. Specially constructed for lighter pilots. We have used the best hardware available, thus unbeatably light, handy and robust. The Airfex excels with its particularity problem-free landing characteristics. 13,8 m², opt. loading 55-70 kg, weight from 22 kg.

A1000 € 3450,00



Please request hangglider order form!
www.finsterwalder-charly.de



With the SPEEDFEX we are able to offer a modern high-performance hangglider with variable geometry and many fine technical innovations, with a 2 m short-pack potential.

In terms of performance, the SPEEDFEX is most up to date, has a very easy handling, without being any more demanding than a Funfex in its landing characteristics. In the speed range between 40 and 70 km/h, the SPEEDFEX has considerably better speed sink ratio than an intermediate, whereby the radius of possibilities by XC flights is considerably widened.

Technically the SPEEDFEX is the finest available. In spite of the VG, rigging up from the short pack is hardly any more demanding than other FEX gliders. The VG has been tucked away inside the keel tube and is still easily accessible. The wide VG range is connected to a linear 4 x pitch compensator, which is incorporated into the kingpost. A whole range of special fittings had to be developed for this purpose. This construction has made it possible to optimise performance, handling and pitch.

A wire tensioner in the lower rigging eases ground handling.

The combination of high performance with 2 m short pack is possible thanks to our proven sail removal system (extending its life considerably), which eases repairs, frame control, and reduces check costs.

Test fun gliders:

Read what the Fly & Glide magazine has written about the up to now unsurpassable concept of our Fexes in number 11/2002 (www.finsterwalder-charly.de)!

SPEEDFEX Features:

- Surface 14 m²
 - Span 10 m
 - Nose angle 130°
 - Double sail 90%
 - Weight 29,5 kg
 - V-min 30 km/h
 - V-max 100 km/h
 - Glide ratio 1:12
 - **DHV-classification 2!**
- Upper-sail battens 21, tip battens sprung
Lower-sail battens 8, internal sail ribs 6
Wingtip with twist joint
Fully integrated highly effective swiveltip
Pack measurements 2 m/3,95 m/5,80 m
Recommended pilot weight 70-110 kg
max. loading 138 kg
Winch towing- and UL-admission

S1000

€ 4650,00



For further details about Finsterwalder Fexes see:
www.finsterwalder-charly.de

Aerosafe/Aerofoil and round A-frame tubing

AEROSAFE/AEROFOIL-uprights

We supply sawn-to-size, undrilled A-frame uprights on request
(Made to measure tubing -> cannot be returned!):

Aerosafe-profile* (weight only 520 g/m)	width 26 mm, depth 53,5 mm (inner diameter 22 mm)	Tr22M1 mat silver up to 1,65 m Tr22M2 mat silver or gold up to 1,80 m Tr22M3 polished silver up to 1,65 m	48,00 € 51,50 € 58,00 €
Aerosafe-profile* (weight only 417 g/m)	width 26 mm, depth 49,5 mm (inner diameter 22 mm)	Tr22M1 mat silver up to 1,80 m Tr22M3 polished silver up to 1,80 m	48,00 € 58,00 €
Round-tubing R25/2E (405 g/m)	inner-ø 21,1 mm, outer-ø 25,0 mm	R25/2E up to 1,645 m R25/2E up to 2,18 m	28,90 € 34,80 €
Round-tubing R28E (400 g/m)	inner-ø 25,1 mm, outer-ø 28,5 mm	R28E up to 1,645 m R28E up to 2,18 m	38,50 € 46,40 €

* for a better grip and less risk of injuries, ** Please enquire about drilling of round tubing!

**Reinforcing tubes extra
(fitted reinforcing tubes cannot be returned!):**

With the AEROSAFE-reinforcing tube system, it is possible to adapt the strength of the A-frame upright to different sizes of pilot/upright lengths, so that safety is optimised in the case of a crash.

Length of reinforcing 0,83 m	Tr221 without fitting	7,00 €	Tr221M with fitting	9,50 €
Length of reinforcing 1,00 m	Tr22 without fitting	8,00 €	Tr222M with fitting	10,50 €
Length of reinforcing 1,25 m	Tr23 without fitting	10,00 €	Tr223M with fitting	12,50 €

Ready to use AEROSAFE/AEROFOIL A-frame uprights (the listed reinforcing tube is included in the price), others on request:

	please choose: AS = Aerosafe AF = Aerofoil	type of surface finish	upright length in mm	reinforcing tubes length in mm	special adapter pieces	€
Finsterwalder						
Funfex S, Airfex S, Perfix S	AS/AF	s	1470	-	-	48,00
Funfex S, Airfex S, Perfix S supine	AS/AF	s	1326	-	-	48,00
Funfex, Perfix, Lightfex	AS/AF	s	1511	-	-	51,50
Funfex, Perfix, Lightfex supine	AS/AF	s	1367	-	-	51,50
Speedfex	AS/AF	s	1570	-	-	58,00
Topfex	AS/AF	s	1645,5	-	□	58,00
Airborn						
Sting 118	AS	p	1485	0,83	-	65,00
Sting 145, 154	AS	p	1650	0,83	-	65,00
Blitz 137	AS/AF	p	1570	0,83	-	65,00
Blitz 146, Blade 141	AS	p	1700	0,83	-	66,50
Blitz 155, Blade 153	AS	p	1750	1,00	-	66,50
Aeros						
Stealth 14	AF	s	1620	0,83	-	57,80
Stealth klein	AF	s	1520	-	-	48,00
Airwave						
Calypto	AS	s	1575	0,83	□	57,50
K2, K4, K5, Kiss	AS/AF	s	1649	1,00	□	62,50
K3, Magic 185	AS/AF	s	1778	1,25	□	65,00
Apco						
Santana	AS	s	1620	-	-	48,00
Enterprise Wings						
Rage 157, Desire 141	AS/AF	p	1616	1,00	□	68,50
Desire 151, Elite 150	AS/AF	p	1670	1,00	□	68,50
Foil 139C, Aero 165	AS/AF	p	1640	1,00	□	68,50
Aero 145	AS/AF	p	1568	0,83	□	67,50
Foil 150, 160, 170, 152C	AS/AF	p	1740	1,00	□	69,80
Foil 140	AS/AF	p	1558	0,83	□	67,50
Firebird (ab Bj. 1998)						
Laser, Uno, New Wave, Classic, Quattro	AS/AF	w	1640	0,83	-	67,50
Flight Design						
Exxtacy (exkl. Umlenkrollen)	AS	p	1480	-	-	58,00
Guggenmos						
RCS	AS/AF	s	1698	-	-	48,00
Cut	AS/AF	s	1650	-	-	48,00
Icaro 2000						
GTR 148	AS	p	1595	0,83	-	65,00
GTR 162, 175, Brazil 142, 155, 169	AS	p	1650	0,83	-	65,00
Laminar, Relax	AS	p	1650	0,83	-	65,00
La Mouette						
Atlas, Azur, Profil, Probe	AS	g	1600	-	-	51,50
Topless	AS	g	1700	-	-	61,00
Moyes						
XS 142	AS	p	1567	-	-	51,50
XS 155, 169	AS/AF	p	1567	0,83	-	61,00
XT 145	AS/AF	s	1498	-	-	48,00
XT 165	AS/AF	s	1651	0,83	-	57,50
Seedwings						
Sensor 510	AF	p	1702	0,83	-	65,00
Merlin 145, 148, 158, 610	AS/AF	p	1653	0,83	-	65,00
Merlin 611	AS/AF	p	1750	1,00	-	69,50
Kestrel 133, 148, 158	AS/AF	p	1653	0,83	-	65,00
Spyder 14	AS/AF	p	1653	0,83	-	65,00
Solar Wings						
Ace	AS	g	1650	0,83	-	67,50
Rumor	AS	g	1595	-	-	58,00
Thalhofer						
Reflex C, Vektor	AS/AF	s	1628	-	-	51,50
Reflex CS	AS/AF	s	1580	-	-	51,50
GT	AS	w	1600	-	-	67,50
UP						
Speed	AF	p	1630	1,00	-	69,50
Wills Wing						
Supersport 143, Spektrum 144	AS/AF	p	1575	0,83	-	61,00
Supersport 153, Spektrum 165, Sport AT167, HP AT145 links	AS/AF	p	1651	1,25	-	64,00
HP AT145 rechts	AF	p	1651	1,25	-	75,00
Supersport 163, Ram Air, Fusion, HP AT158 links	AS/AF	p	1727	1,25	-	71,00
HP AT158 rechts	AF	p	1727	1,25	-	75,00

Abbreviations: s = silver mat anodised, g = gold mat anodised, p = silver polished anodised, w = white powder coated
□ = if not existent, please order special AS/AF-adapters for top/bottom of your uprights € 11,50

AEROSAFE/AEROFOIL adapter pieces and/or A-frame head on request:



Speedbar

€

Suitable for control bar corners ø 28,5 mm (1,125"). Inner-ø 25,1 mm, suitable for wheel insert-axles, high strength aircraft aluminium (Avional), mechanically polished, hence very light weight and robust. Rubber mantled in the grip area. Overhang 14 cm.

Tr29/1	Speedbar undrilled up to 1,57 m	79,00
Tr29/2	Speedbar cut to size and drilled	95,00
Tr29/3	Speedbar with connection for base-bar locking system, individual finishing in all requested lengths, suitable for our control bar corners	112,00
Tr29/S	add. price for insertion of safety cable	25,30
Tr29	Safety cable for self mounting	9,50

Rubber grip

€

Soft rubber tubing for mounting on A-frame uprights and control bar. The talcum-powder included, eases mounting. 1,5 m rubber grip, packed and available for A-frame ø 25 mm or 28 mm (please state when ordering!).

HG10		12,00

Bolts, rings, screws, rivets

€

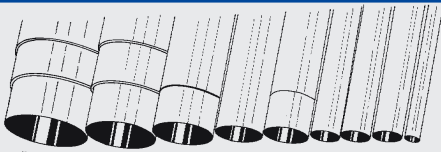
P5/...	Bolt 5 mm drilled, use length 26, 47 or 54 mm	1,25
P6/26	Bolt 6 mm drilled, flat head, use length 26 mm	1,35
R5	Retaining ring 1,0 x 11 mm	0,30
R6	Retaining ring 1,5 x 17 mm	0,45
DIV	Standard stainless steel screws used in glider manufacture	on request
M4-6	Polystop nuts M4, M5, M6 from stainless steel	0,40
M8	Polystop nuts M8 from stainless steel	0,60
N2,8-6,4	High strength monel metal pop rivets in various lengths	on request

Rigging wire and accessories

€

Ve40/1,5	Stainless steel wire ø 1,5 mm to 2 mm PA-coated, per m	2,45
Ve40/2,5	Stainless steel wire ø 2,5 mm to 3,5 mm PVC-coated, per m	2,30
Ve30/2	Nico Press sleeve ø 2 mm for wire ø 1,5 mm coated	0,40
Ve30/2,5	Nico Press sleeve ø 2,5 mm	0,40
Ve30	Wire clamp (screw tightened) for rigging wire ø 2-4 mm	2,50
Ve20/2	Thimble stainless steel for wire ø 2-3 mm	0,85
Ve18	Thimble insert green/red for tangs up to 3 mm	0,60
Ve10	High strength light metal tang 3 mm	2,70
Ve15	Stainless steel tang 1,2 mm	2,70
Ve70	PVC tubing flexible, transparent	2,00
Ve71	Heat shrink tubing transparent ø 9,5/4 mm, per m	7,80





Finsterwalder is famous for a large selection of high strength super light-weight tubing from special aluminium alloys unavailable elsewhere. The tubing is also used for sport aviation purposes. We should like to draw attention to the fact, that each individual tube should be specially tested when used in safety critical situations. *All tubing used in Finsterwalder gliders is from tested tubing of 7075 alloy!*

Info aluminium alloys

The most commonly used alloys in HG-construction are:

AlMgSi0,5 = Extrudal = 6061 (tempered warm)

Most frequently used alloy for line-pressed sections above 1 mm wall strength. Strength 25-28 kp/mm². Can be polished and anodised in all colors.

AlMgSi1 = Anticorodal 100 = 6081 (tempered warm)

Alloy for inexpensive, seamless drawn tubes. Strength 32-36 kp/mm². Can be polished and anodised in all colours. Is approx. 1,5 x more expensive than Extrudal.

Hochwertige Legierung für nahtlos gezogene Rohre, Bleche

Abbreviations:

L = length of uncut tube (minimum order)

54x0,9 means outer diameter 54 mm, wall thickness 0,9 mm

F = tensile and compression strength per mm² (is also the measurement for bending)

AlCuMg1 = Avional 100 = 2017A (tempered cold)

High quality alloy for seamless drawn tubing, sheet metal and forged parts. Strength 38-44 kp/mm². In spite of greater strength, it can be deformed more strongly than Anticorodal 100. Cannot be color-anodised and can only be polished mechanically. Is approx. 3 x more expensive than Extrudal.

AlZnMgCu1,5 = Perunal = 7075 (tempered warm)

High quality alloy for seamless drawn tubing and sheet metal. Strength 53-64 kp/mm². By approx. double the strength, the elongation after fracture is somewhat lower

than by Anticorodal. Perunal tubing is much more resistant to damage when knocked than anticorodal tubing, in spite of the lower wall strength (minimal weight) and has more safety reserve under bending stress. Perunal tubing cannot be anodised in various colours, and can only be mechanically polished. Perunal tubes are 5 x more expensive than Extrudalrohre. Mechanical polishing is 4 x more expensive than chemical or electrical shining.

When used for the construction of hang gliders the following should always be observed: that the higher strength of the tubes should only be utilised to a maximum of 10% by normal usage.

Moment of inertia: Information about the rigidity and compression stability of the tube. Is for all practical purposes independant of the alloy type and tensile strength.

Art.No.		Moment of inertia	€/m	Art.No.		Moment of inertia	€/m
A10	Saw cut, per cut		0,30	R44E	43,8x0,9, anodised, 340 g/m, Perunal F = 60, L = 1-3,8 m	27917	34,00
R06GFK	Solid fibreglass, diameter 6 mm, L = 6 m		3,10	R45	45,6x0,85, unanodised, 330 g/m, Perunal F = 60, L = 6 m	29923	35,00
R08GFK	Solid fibreglass, diameter 8 mm, L = 6 m		3,50	R45E	45,6x0,85, anodised, 330 g/m, Perunal F = 60, L = 6 m	29923	37,00
R12/0,45	12x0,45, unanodised, 46 g/m, Perunal F = 60, L = 4,8 m	273	5,40	R45PE	45,6x0,85, pol.-anodised, 330 g/m, Perunal F = 60, L = 2 m	29923	41,00
R12/0,45E	12x0,45, anodised, 46 g/m, Perunal F = 60, L = 2,4 m	273	9,00	R47	47,3x0,8, unanodised, 330 g/m, Perunal F = 60, L = 5,75 m	31596	36,00
R13	13,3x0,6, unanodised, 67 g/m, Perunal F = 60, L = 4,8 m	484	6,20	R47PE	47,3x0,8, pol.-anodised, 330 g/m, Perunal F = 60, L = 2 m	31596	42,00
R13E	13,3x0,6, anodised, 67 g/m, Perunal F = 60, L = 2,4 m	484	9,75	R52	52x0,9, unanodised, 390 g/m, Perunal F = 60, L = 5,8 m	47173	39,50
R17	17,3x0,6, unanodised, 87 g/m, Avional F = 38, L = 6 m	1099	9,50	R52PE	52x0,9, pol.-anodised, 390 g/m, Perunal F = 60, L = 1,92 m	47173	45,50
R17E	17,3x0,6, anodised, 87 g/m, Avional F = 38, L = 6 m	1099	11,25	R54	54x0,9, unanodised, 420 g/m, Perunal F = 60, L = 5,9 m	52931	41,50
R22E	21,9x0,9, 150 g/m, AlZn4,5Mn F = 38, L = 5 m	2660	8,00	R54PE	54x0,9, pol.-an., 420 g/m, Perunal F = 60, L = 1,92/2,05 m	52931	47,50
R22/0,4EP	222x0,45, anodised, 85 g/m, Perunal F = 60, L = 4,75 m	1770	15,90	R60	60x0,9, unanodised, 470 g/m, Perunal F = 60, L = 6,01 m	72974	47,50
R25/2E	25x2,0, anodised, 405 g/m, Avional F = 38, L = 6,58 m	9445	17,50	R60PE	60x0,9, pol.-an., 470 g/m, Perunal F = 60, L = approx. 2 m	72974	54,00
R28	28,5x1,7, unanodised, 400 g/m, Avional F = 38, L = 6,58 m	12902	19,30	R62	62x0,9, unanodised, 485 g/m, Perunal F = 60, L = 6,01 m	80634	49,50
R28E	28,5x1,7, anodised, 400 g/m, Avional F = 38, L = 6,58 m	12902	21,10	R62PE	62x0,9, pol.-anodised, 485 g/m, Perunal F = 60, L = 2 m	80634	56,00
R32/0,9	32,4x0,9, unanodised, 234 g/m, Avional F = 38, L = 6 m	11056	10,30				
R32/0,9E	32,4x0,9, anodised, 234 g/m, Avional F = 38, L = 6 m	11056	12,15				
R32/0,9PE	32,4x0,9, pol.-anodised, 234 g/m, Avional F = 38, L = 2 m	11056	14,40				

Please note, that the tubes are usually available only in the length stated below. Other lengths are sometimes available, however the delivery times are usually very long.

Tubes over 2 m length sometimes cause high packing and shipping costs. If desired we will cut the tubing for you at the nominal cost of € 0,30 per cut. We must also charge for unusable off cuts. The minimum order is 1 tube. We have no off cuts resulting from our glider production.

For purchase over € 500,- in value per tube measurement, we are able to offer discount. Please call us and ask for a quote. When picking up orders, please give us one day's notice.

Special offer (second quality):
R47/0,65 47,3x0,65, unanodised, 265 g/m, Perunal F = 60, L = 1,91 m **25752 19,90**

Quickpin (ball lock pin) €

Bolts with push button locking for countless uses, esp. in glider/aerospace construction and in the Reha branch. With the exception of the aluminium grips all parts are constructed from high strength stainless steel. Three ball bearings instead of the usual 2 result in twice the pull out strength. Editions with 2 ball bearings and/or special lengths **on request!** The security cap with inserted steel ring protects the quickpin from dirt and freezing and is available as an accessory. Breaking load in transverse direction 2,8 to.

Be64/22	Use length 22 mm	11,90
Be64/33	Use length 33 mm	11,90
Be64/38	Use length 38 mm	11,90
HKar32	Use length 46 mm, suitable for Pin Lock	14,80
Be64/...	Use length 50/70 mm	14,80
Be65	Security cap for ø 6,35 mm, with high strength nylon cord and sprung ring	2,25

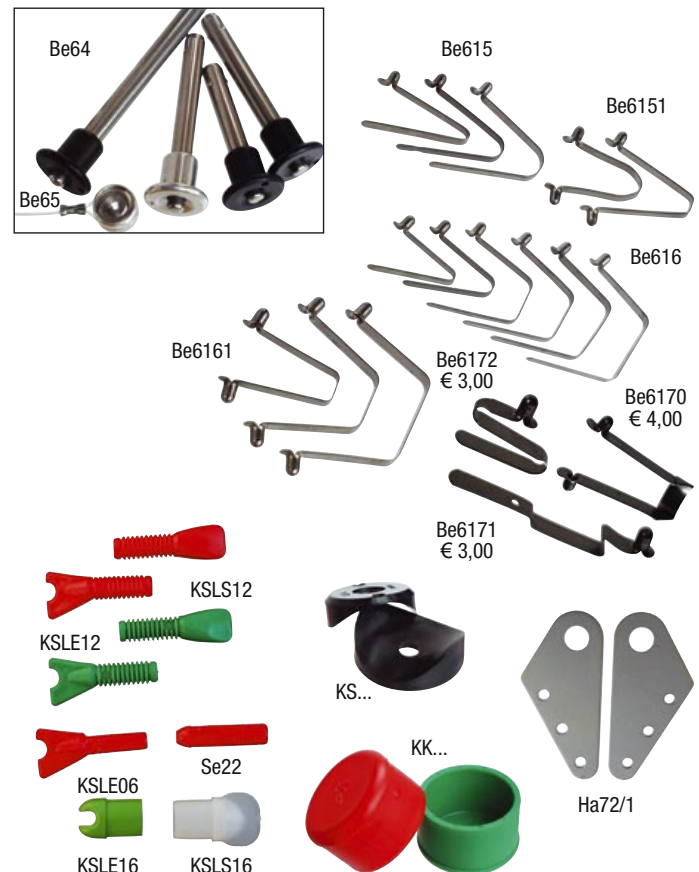
Detent button sprung snappers €

Finsterwalder speciality made from Chrome-Nickel stainless steel. **Please state type and tubing-ø when ordering, as various sizes have the same article number!**

Be615	Single detent button, ø 5,1 mm, 11-25 mm	1,40
Be6151	Double detent button, ø 5,1 mm, 18-25 mm	1,60
Be616	Single detent button, ø 6,4 mm, 19-52 mm	1,60
Be6161	Double detent button, ø 6,4 mm, 25-52 mm	1,90

Tubing accessories €

KK18-25	Tube end caps for inner-ø 18, 20, 25 mm	0,60
KK36-58	Tube end caps for inner-ø 36, 38, 44, 48, 50, 58 mm	1,50
KS47	Saddle part 45x60 suitable tube-ø 45-62 mm	1,30
KS52	Saddle part 50x60 suitable tube-ø 47-54 mm	1,30
Ha72/1	Joint plate 3 mm Avional, length 88 mm, rounded edges and shone	5,60
KSLS/KSLE	Points/ends for sail battens, inner-ø 11, 12 mm	1,30
KSLE 16	Points/ends for sail battens, inner-ø 16 mm	2,00
Se22	Adapter for batten inner-ø 11 mm, to fibreglass 6 mm	0,80

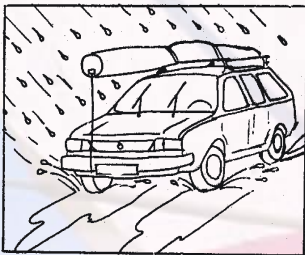


Accessories for HG



Special edition weather protective glider cover

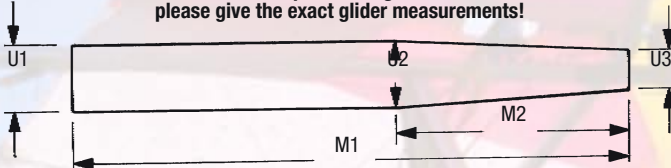
€



Water proof protective cover, made to measure from indestructible, fibre-reinforced tarpaulin with full length covered zipper. When ordering please state glider make, transport length and circumference at the nose, middle and end (according to the drawing without cut allowances).

HPa71 Protective cover 350,00
HPa70 Drying agent set 5,00

For weather protective glider covers please give the exact glider measurements!



Draw webbing

€



For securing the glider to the car roof. With zinc sprung buckle, 25x2 mm, length 2 m.

HVe10 6,90



Anti corrosion spray

€

Acid free, special penetrating oil for the protection of high strength frame tubing from hanggliders. Sprayed once a year into tubing, it prevents dangerous corrosion and weakening of aluminium alloy and releases sticking sleeve joints. A thin film is enough to protect the outer side of aluminium tubing without causing stains on the sail.

HÖL 19,95

Glider cover material

€



Robust nylon glider cover material, inner side acrylic-layered, impregnated, colours on request, width 1,5 m.

HSe30 per m 12,50

Hangglider handfairings

€

Warming bar mitts for hangglider pilots, which can be attached to the control bar, the hands remaining free for take-off or for example to adjust instruments.



HM9N Bar mitts with map pocket, pair

40,00

Map holder for hangglider

€

Flexible map holder

Map holder for hanggliding, aerodynamically shaped for attachment to the control bar, can also be used as a car-stop sign, ideal for XC. 187 g, 300x250 mm.

HI97 € 19,50



Map holder with twist buttons

Maps with a length of up to 80 cm can be rolled through by the use of twist buttons. The map holder can be turned over and used on both sides. 270x200x30 mm.

HI96 € 25,00



Velcro bands with clasp

€



For fastening sail battens and sails.

HKI800 75x3 cm 3,80
HKI81 100x4 cm 5,50
HKI82 135x4 cm 6,20
HKI7 18x5 cm 2,80

Sail fasteners

€



Elasticated rubber grips, length 35 cm, ø 4 mm, with nylon hooks for diverse use, e.g. wrapping up sail and rigging wires, fastening glider cover to glider frame etc., content 4 pieces.

HSe50 4,50

Pilot hang-in

€

Sewn on Velcro band ensures, that this hang-in strap doesn't loosen once secured around the keel tube. Can be secured against slipping by rivets or tube clasps on the keel tube.

Given lengths are from end to end. Please note, that required length will also depend upon the diameter of your keel tube!

Au10/45 Length 23, 30, 33 cm 15,50
Au10/65 Length 48, 62, 74 cm 19,90



Tubular bands

€



Suitable for pilot hang-loops. Width 25 mm, breaking strength approx. 2500 kp.

Au12/40 30, 35, 40 cm 4,80
Au12/60 45, 50, 55 cm 5,90
Au12/120 60, 65, 70 cm 7,40

Glider cover zipper

€



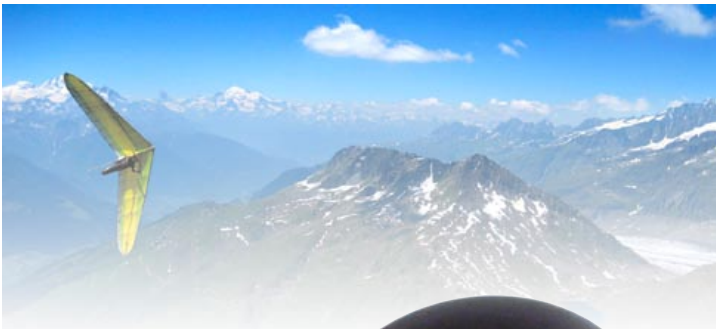
Robust construction, metre ware.

HRV1 per m 4,00

HRV2 Zip fastener 1,50



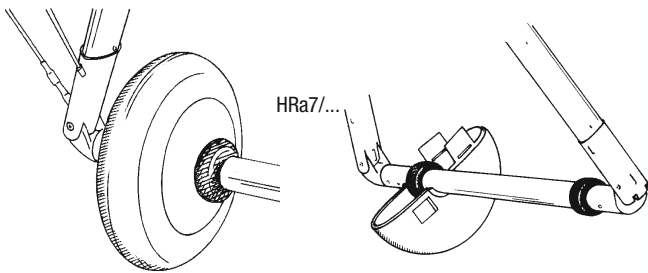
Control bar wheels



HRa001/...



HRa5/33/34



HRa7/...

HRa7/...



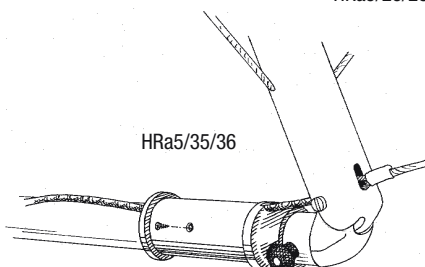
HRa01



HRa1



HRa5/25/28



HRa5/35/36

Who can rule out the possibility of a tail wind landing during changing conditions?

Now that light-weight, aerodynamic wheels, which meet the needs of differing groups of pilots, are on the market, there's no reason to do without them except arrogance. A good pilot has no need to take unnecessary risks for reasons of prestige.

Finsterwalder QUICK-SAFE €

These unbelievable light-weight, aerodynamic, unbreakable pull apart control bar wheels have proven their worth now for years.

Their smooth elliptical shape produces no airresistance worth mentioning, making them also preferred by competition pilots.

It should be clear that even the best control bar wheels (especially when they are not pneumatic) will not survive every crash intact.

QUICK-SAFE wheels help to keep the damage as small as possible. They are suitably robust for normal touch down on the wheels. In situations, where similar wheels break and the control bar is bent, the snappers on the QUICK-SAFE open, preserving the wheels and base tube from destruction.

QUICK-SAFE can be attached to the rigged glider within a few seconds. Problems with putting down on steep rigging sites therefore do not exist.

QUICK-SAFE is made of polyamid (nylon) and weighs only 270 g by measurements of 180x70 mm.

QUICK-SAFE is available for control bar diameters of 25,5 mm, 28,5 mm, 30,5 mm and 32,5 mm; for VG-cord channel also available with diameter 35 mm.

Tip: Pay attention to the accompanied instructions for use! Choose the right hub diameter! Crash-resistance is only warranted if there is no more than 1,5 mm play between wheel-hub and control bar. Guarantee: We replace broken wheel-halves!

HRa001/25/28	QUICK-SAFE ø 25,5 mm, 28,5 mm, each	15,00
HRa001/30/32	QUICK-SAFE ø 30,5 mm, 32,5 mm, each	17,00
HRa001/35	QUICK-SAFE for use with VG-hub, each	17,00

Hub with VG-cord channel €

Cord channel suitable for QUICK-SAFE on gliders with variable geometry.

HRa5/33	Hub with VG-cord channel for control bar ø 25,5 mm	18,00
HRa5/34	Hub with VG-cord channel for control bar ø 28,5 mm	18,00

Wheel spacers €

Practical accessory for every hangglider pilot! Hard rubber rings ø 54/24 or ø 54/27 mm, 20 mm wide with rounded edges for base tubes of ø 25 or 28 mm.

Protects your base tube against scratching during the hang check. Also prevents lateral travel when using wheels.

QUICK-SAFE wheels are mounted directly onto the base tube protectors!

To mount the rings lubricate the base tube with water, glycerine or talcum powder and push them on - when dry the rings are stationary. They can also be glued in place.

Please state the required diameter!

HRa7/25/28	Wheel spacers, each (ø 25,5 mm oder 28,5 mm)	2,60
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Light-weight inflatable wheels €

Designed for pilots, who occasionally land on wheels. These wheels serve as shock absorbers on hard ground, measure 200x50 mm (7,8x2"), weigh 450 g and have a hub hole diameter of 35 mm.

They require adapter sleeves to fit them to control bars with the following diameter: 25,5 mm (1"), 28,5 mm (1,125"), 30,5 mm (1,2"), 32,5 mm (1,28"). Please do not forget the adapter sleeves when ordering the wheels.

Wheel spacers prevent lateral drift of the wheel to the middle of the control bar, outwards the wheels are held in place by the A-frame uprights/downtubes.

HRa01	Light-weight inflatable wheels, pair	24,90
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Trainer wheels €

Due to their brilliant shock absorption qualities especially qualified for hanggliding schools and beginners.

Large wheels with pneumatic tires. They measure 260x85 mm (10,25x3,35") with a hub hole diameter of 35 mm and weigh 950 g.

Wheel spacers prevent lateral drift of the wheel to the middle of the control bar, outwards the wheels are held in place by the A-frame uprights/downtubes.

Adapter sleeves should be ordered in addition.

HRa1	Trainer wheels, each	24,90
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Adapter sleeves €

Please state the required diameter! For each wheel one pair of adapter sleeves will be required!

HRa5/25/28	Adapter sleeves ø 25,5 mm or 28,5 mm, pair	2,60
Add. price ø 35/30 und ø 35/32 mm		1,00

Hub with VG-cord channel for pneumatic wheels €

Hub diameter 35 mm with a cord channel for inflatable wheels on gliders with variable geometry.

The VG-hub with the left wheel rim is attached to the control bar by a screw or pop rivet and the wheel runs over the hub.

The right wheel rim can be removed, if the A-frame control bar and upright are separated. Suitable for inflatable tires with a hub hole diameter of 35 mm.

Please state the required diameter!

HRa5/35	Hub with VG-cord channel for control bar ø 25 mm	20,00
HRa5/36	Hub with VG-cord channel for control bar ø 28 mm	20,00

HG-harnesses



HGu16,
HGu160

Rotor streamline harnesses

The harnesses designed by world class brazilian pilot Nene Rotor are unique in terms of aerodynamic qualities, comfort and many innovative details. Further the clean finishing, the extra sturdy UV-resistant 600-denier polyester material and the elaborate interior layout with large back stowing compartments, comfortable shoulder padding and extra padding in the areas of chest and knees all contribute to a very convincing product. The wireless and camera pockets, which are accessible externally, the drag-chute pocket and even the towing loops and harness buckles have been integrated in the harness in such a way, that a completely smooth outer contour has been achieved. Hence Rotor harnesses are ideally suited for competition purposes. All Rotor harnesses have an aerodynamic sliding single hang-point, that is integrated into the back-plate. This provides a simple transition from flight to touch-down position making the harness suitable even for novices. All harnesses are made to measure and are delivered with a karabiner and luxury rucksack. Delivery time is 4 to 8 weeks dependant upon the season.

CHARLY Highlight und Flashlight

- Problem-free access, can be pulled on and off like a coat without the troublesome climbing into and out of leg straps. Central fastening of the leg straps.
- More room for the chest, due to extra wide back stiffening.
- Bending the knees whilst prone is also possible.
- Fixable tilt adjustment.
- Rescue system container advantageously mounted regarding the aerodynamic aspect, yet attainable with both hands.
- All harnesses are equipped with towing loops.
- Single central hang point results in less wind resistance.
- Numerous pockets and a lot of storage space.
- Quality individual finishing, available in many colours and design materials. Extra charge for special requests.
- **Full service, thanks to our own manufacturing in Germany.**

Rotor Vulto

€

Rotor Vulto

Comfortable harness with a broad GRP/Kevlar back-plate. Thanks to the **Rotor Kickass tilt adjustment** different flight positions can be adopted and fixed quickly and problem-free without having to use the hands. The rescue reserve is completely integrated in the harness, yet can still be easily deployed with either hand.

HGu16 Rotor Vulto

1190,00

Rotor Vulto S

Slim Kickass high performance harness with extra long, light-weight, jointed carbon back-plate, separable for transport purposes. Also available in Mylar.

HGu160 Rotor Vulto S

1290,00

Rotor Havana

€

Allround harness with light-weight GRP/Kevlar back-plate. Central hang-point with sliding mechanism on cord. Flat, aerodynamically optimised, easily deployed neoprene side container.

HGu15 Rotor Havana

1090,00



HGu18

Charly Highlight HG-harness

€

Comfortable harness with broad, extra light-weight carbon sandwich back plate. Sliding central hang point (with faired covering). A specially developed fitting makes coming out of prone problem-free. Mylar reinforced rescue system container. Weight 6,2 kg, pack measurements 90x35x25 cm, DHV-certificate of airworthiness.

HGu18	Highlight incl. steel karabiner and luxury rucksack	1090,00
HGu20F	Design material front or rear panel, each	25,00
HGu20R	Fitting of rescue system	
	(not applicable by new purchase or re-packaging)	15,00
HGu20J	Special inner container	20,00

Hydration system

€

All harnesses available with CamelBak drinking system!

HG1433	CamelBak Unbottle (picture see page 6)	43,00
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AID-CHUT STOP

€

HGu3	STOP incl. attachment	125,00
HGu31	STOP in combination with a new harness	99,00

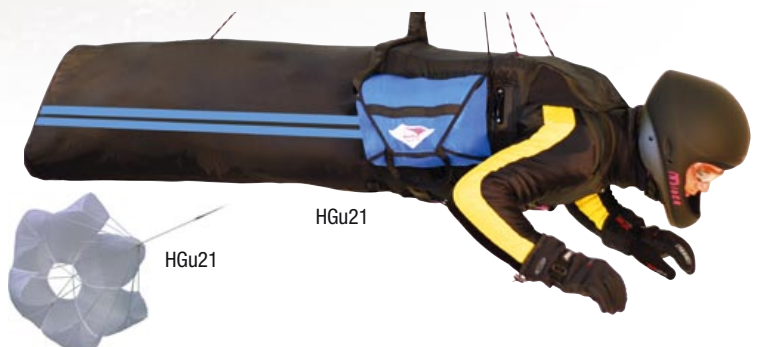
Charly Flashlight Drachengurt

€

Very comfortable, light-weight top quality harness with padded inner upholstery, neoprene arm hole covering, which can be packed down small. Adequate storage space in side and inner pockets. Rear panel stiffened with GRP-tubing. Coming out of prone is easy despite the fixed central hang-in. Side pockets and side rescue system container in a choice of colours: petrol, lilac, purple, all other colours available for an extra charge. Measurements 70x35x25 cm, weight 4,7 kg, DHV-certificate of airworthiness.

HGu21 Flashlight incl. steel karabiner and luxury rucksack

890,00



HGu21

HGu21



**Order form HG-harnesses:
www.finsterwalder-charly.de**



HG101

Supine Integral for hanggliding		€
HGu10 (CS)	Supine HG-harness (side container)	879,00
HGu10 (CR)	Supine HG-harnesse (back container)	899,00
HGu20F	add. price camera/walkie-talkie pocket	22,00

CHARLY Kneehanger

Prone harness for beginners with large pocket, fixed with abrasion-free straps. Coming out of the horizontal is simplified by use of a pulley system. Available in 3 sizes. Stock colours on request, weight 2,4 kg.

HGu5 € 299,00



Skyfloater Supine seat



Extremely comfortable skyfloating harness, does not hinder by take-off, thus ideal for the practise hill. Take-off and flight also possible with skis. The supine seat weighs only 1,2 kg and can be easily slipped into the glider cover. The rescue system can be attached on the side or (if equipped with special aid-chute container) the back.

HGu101 Skyfloater Supine seat incl. leg hang-in 194,00

Spreader bar

Spreader bar		€
HGu110	Spreader bar for paraglider harnesses for use on skyfloaters	89,00
HGu111	Spreader bar in special lengths (made to measure)	124,00
HGu112	Flexible leg hang-in	39,75

General Terms and Conditions of Business

1. Scope

Our General Terms and Conditions of Business shall apply to any and all contracts of the Finsterwalder GmbH, irrespective of their subject-matter, if and when the contract partner has received a copy of the General Terms and Conditions of Business for reference.

Furthermore they shall apply without express reference being made to them to any future business transactions, once they have become a basis of a contract.

2. Contract

Any contract shall be confirmed by us in writing to become effective. Without such confirmation a contract shall be deemed to be accepted upon delivery of the goods or upon rendering of the agreed service.

3. Prices, payment

The specified prices shall be ex works plus cost of transport and collection fees. We offer free shipping within Germany for orders from our webshop with a value of goods over 50,- €. Our price lists valid at the time of concluding a contract shall exclusively apply. For shipping to other countries you receive an order confirmation in which the best type of dispatch and the shipping charges are annotated. Unless otherwise agreed, we shall deliver the goods against cash payment, prepayment according to the order confirmation, or bank collection with a discount of 2% by a value of goods over 50,- €. Otherwise the purchase price shall become due and payable upon the delivery of the goods, at the latest, however, three days after the goods have been delivered to the forwarding agent. This shall also apply to partial deliveries. If and when the period for payment has expired, we shall charge interest on arrears of 2% above the interest usually charged by the banks for overdrafts on current accounts. Unauthorized cash discounts shall be collected plus a processing fee of 10,- €.

4. Minimum value for mailing/dispatch orders

For customers in Germany and/or EU countries:	€ 15,-
For wholesalers in Germany and/or EU countries:	€ 75,-
For export in non-EU countries:	€ 130,-

We charge an extra 5,- € for requested express orders.

5. Delivery

Acceptances of delivery periods shall apply ex works. If and when agreed delivery periods cannot be observed due to acts of God, they shall be suspended until the impediment due to a delivery is remedied. It is also an act of God if a supplier of Finsterwalder GmbH fails to deliver or only makes partial deliveries of the goods. In case of deliveries having a fixed deadline, the customer shall at least be obliged to bear the costs of transport out and home if we dispatch the goods in time, but when they are returned due to a delay in transportation. Items not in stock shall be delivered as soon as possible. Any such subse-

quent delivery shall be freight collect but without charges for packing and packaging.

6. Withdrawal

If and when the period for any subsequent delivery has expired, the purchaser shall be entitled to withdraw from the contract. If he has received a partial delivery before, and such partial delivery is of no use for him, the purchaser shall be entitled to return the same, and the right to the payment of the purchase price shall cease to exist. Any withdrawal from a contract shall be made in writing.

7. Retention of ownership

Finsterwalder GmbH shall retain ownership of all goods until any and all obligations arising from a contractual relationship are fulfilled.

8. Passage of risk

Upon delivery of the goods to the purchaser or to forwarding agent, the risk of deterioration or loss shall pass to the purchaser, irrespective of the fact who (purchaser or seller) has borne the cost of transport.

We shall take out particular transport insurances only upon request of the recipient of the goods and for his account.

9. Return privilege

If and when a customer has received one or more of our articles for the first time and is not satisfied with their quality, he shall be entitled to return the goods within 14 days after their receipt, and the purchase price shall then be reimbursed to him; provided, however, that the goods returned are practically new, and that the freight charges are borne by the customer. **Not prepaid returns are not accepted!**

However, it shall be impossible to return the following: items made to specification, such as tubes cut to size, profiles, material sold by the metre or sails made upon customer's request as well as literature, software and videos. When hanggliders are returned, a processing fee of 50,- € shall become due and payable. If pursuant to the above conditions the return privilege may not be granted, the purchaser shall become liable for damages, if he does not accept the goods although he was requested to do so.

Finsterwalder GmbH shall then decide if it wants to withdraw from the contract or if it wants to claim damages for non-performance.

In the event of damages for non-performance when an acceptance is delayed, the seller shall be entitled to claim 30% of the invoiced value without any deductions whatsoever, if the purchaser fails to furnish evidence that no damage has occurred at all or not for the amount of the afore-mentioned lump sum. Irrespective of the foregoing the seller shall remain entitled to assert any higher damage for which evidence may be given.

10. Warranty

The statutory warranty period of 6 months from delivery shall apply. Finsterwalder GmbH hereby represents and warrants that its goods are free of any defects. If and when the goods/performance are defective for reasons beyond purchaser's or customer's control, he shall be obliged to request a subsequent delivery of goods free of any defects, or to request a subsequent improvement within a reasonable period of time first pursuant to the conditions mentioned under 9. above, before he can assert any further warranty claims. The goods shall be returned to Finsterwalder GmbH to examine any warranty claims. In the event that a warranty claim is not justified, the customer shall be liable for all cost of transport.

If no substitute delivery or no subsequent improvement is possible within a reasonable period of time, the purchaser shall be entitled to withdraw from the contract. Warranty claims for non-performance shall only be admitted if and when intent or gross negligence can be imputed to Finsterwalder GmbH. Apart from that any and all claims for consequential damage due to defects shall be excluded.

If the purchaser is a businessman he shall be obliged to inspect the goods for any possible defects upon their receipt and to forthwith give notice of any defects. Failing this he shall lose his right to any warranty claims.

Furthermore, warranty claims shall be excluded if the defects are due to the purchaser's improper handling of the goods.

When buying a hangglider or a paraglider the customer shall be obliged to observe the operating instructions and to have a control and instruction flight made either by the manufacturer or by an instructor who is familiar with the glider.

11. Other provisions

If one or more of these provisions become ineffective this shall not affect the validity of the remaining provisions.

12. Place of performance

For both parties the place of performance shall be Munich, Germany, if the purchaser/customer is a businessman.



How to find us

By car:

Coming from Stuttgart - The end of the Stuttgart Autobahn runs directly into the Verdisträße towards the city centre. The Pagodenburgstraße is the first street on the right after two railway bridges (approximately 2 km from the end of the Autobahn).

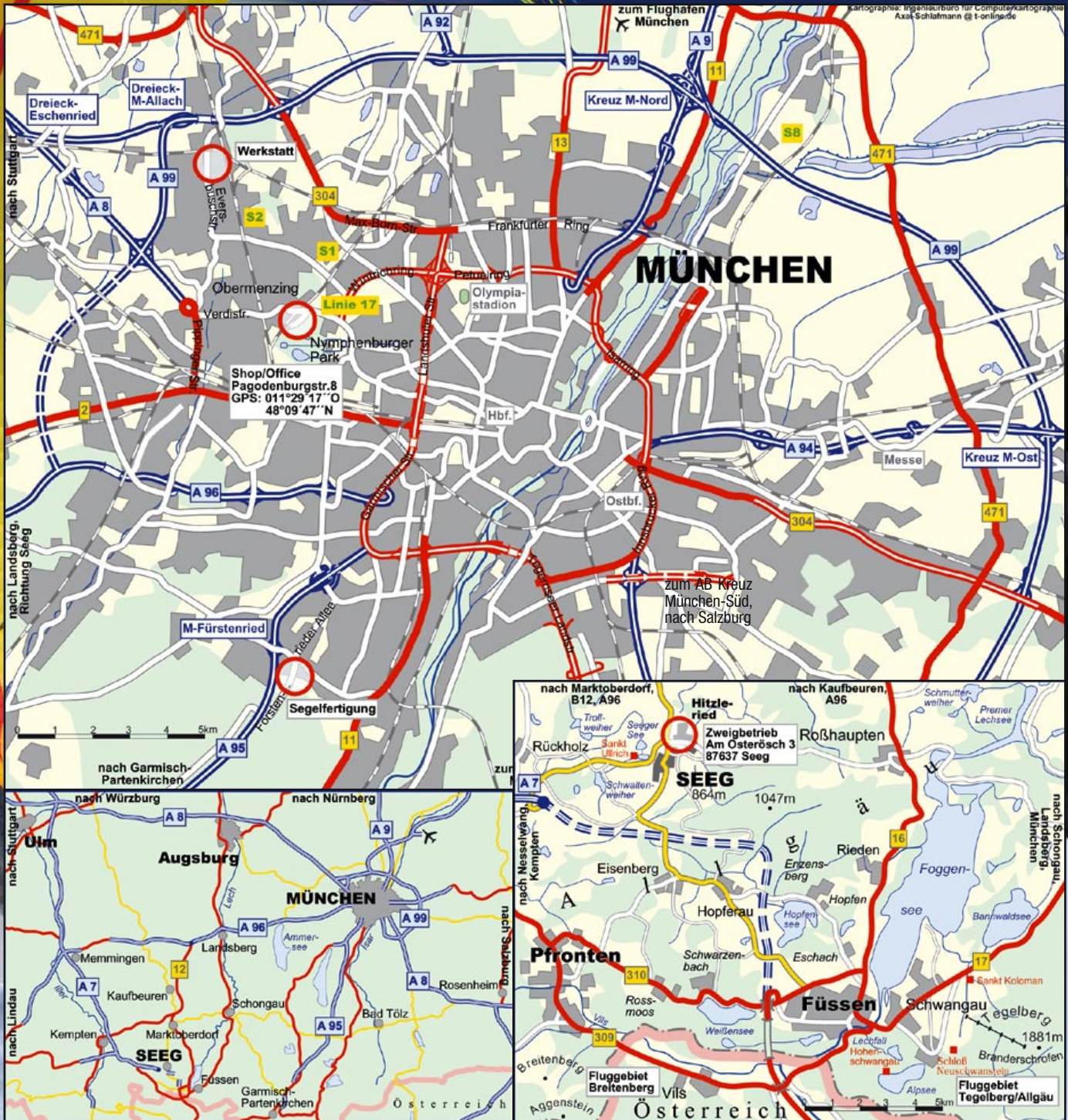
Coming from Nürnberg - Take direction towards the city centre (Stadtmitte) from the end of the Autobahn. Drive onto the Mittlerer Ring (Petuelring) towards the Stuttgart Autobahn. At the end of the ring drive away from the city centre on the Menzingerstraße (running parallel to the tram). The Pagodenburgstraße is the first on the left-hand side after the tram terminus.

From the airport:

Either take the S8 subway to the main railway station or take the S1 subway to Moosach and from there with the taxi.

From the main Railway Station:

Either take tram number 17 to the terminus (Amalienburgstraße). From there it's only an 8 minute walk in the direction out of the city along the wall of the Nymphenburg park. Or take the S2 subway to Obermenzing and walk approximately 1 km along the Verdisträße in the direction of the city centre.



Finsterwalder GmbH, Pagodenburgstr. 8, D-81247 Munich
 Phone +49 (0)89/811 65 28 or 811 85 92, Fax +49 (0)89/814 41 07
 e-mail: office@finsterwalder-charly.de, web: www.fensterwalder-charly.de

Business hours in Munich: Monday - Friday 8.00 - 16.00
 Commerce register entry in Munich under the Nr. HRB 52509 since 14.3.1977
 Business director Dipl. Ing. Thomas Finsterwalder

Bank connection: HypoVereinsbank München 604 384 (BLZ 700 202 70),
 IBAN: DE63 7002 0270 0000 6043 84, SWIFT-Adresse (BIC): HYVEDEMMXXX
 Postgirokonto Munich 31070-807 (BLZ 700 100 80)

Branch: **Charly Produkte**, Am Osterösch 3, 87637 Seeg
 Phone +49 (0)8364/1286, Fax +49 (0)8364/8426
 e-mail: info@charly-produkte.de, web: www.charly-produkte.de

Business hours in Seeg:
 Monday - Thursday 8:00-12:00, 13:00-16:00 Friday 8:00-12:00
 Managing director: Thomas Ide

Bank connection: Commerzbank Kaufbeuren 200 07 01 (BLZ 734 400 46)
 Postgirokonto Munich 89676-805 (BLZ 700 100 80),
 Sparkasse Allgäu 52 589 (BLZ 733 500 00)