SKYLAUNCH
Windenstartsysteme

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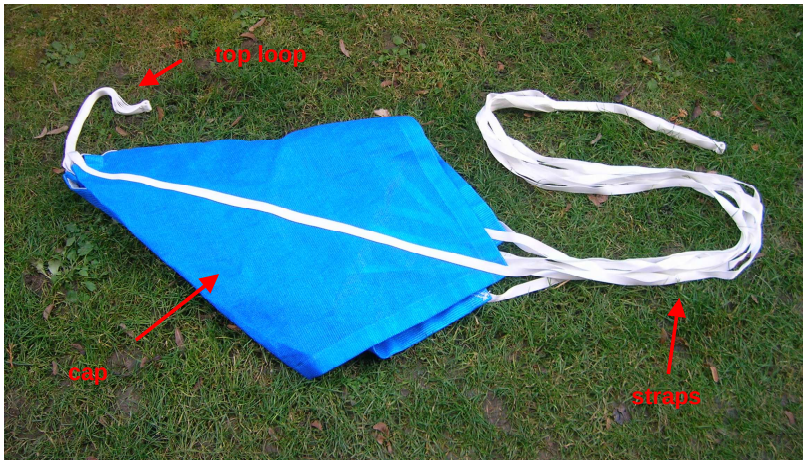
SKYCHUTE 2

Universal cable parachute for winch launching gliders and powered gliders



Development objectives for SKYCHUTE 2:

- free of rotation
- affordable price
- easy handling without trimming
- low abrasion
- choice of various contrasting colours
- operation with synthetic or steel cables
- low drag while launching glider
- light weight, small diameter for safety

Technical data

type	SKYCHUTE 2, L sized	SKYCHUTE 2, XL sized
application	synthetic cables	steel cables
diameter of cap	1.40 m / 4.5 ft	1.80 m / 6 ft
length (closed)	3.50 m / 11.5 ft	4.00 m / 13 ft
mass incl. shackles	1.3 kg / 2.9 lbs	1.8 kg / 4 lbs
minimum length of trace+strop (may be different in other countries)	(0 + 5) m or (2 + 3) m / (0 + 16.5) ft or (6.5 + 10) ft	10 m + 3 m = 13 m / 33 ft + 10 ft = 43 ft
straps	8 x 20 mm / ¾“ wide	
breaking strain	8 x 700 daN / 8 x 1700 lbs	
earth wire	not available for safety reasons	
colours	red, amber, yellow, or light blue	

INSTRUCTIONS FOR INSTALLATION AND OPERATION

These instructions have to be present at the winch and serve as a guideline for winch driver instructions and the annual check of all winch drivers.

Traces

It is seriously recommended not to use any naked steel cable as a trace. It suffers from kinking and can be picked up by the glider easily when it's getting overrun. On the other hand, it damages the straps of the parachute by the cable's roughness if it wraps around the parachute after the release of the glider. Therefore, just use synthetic cable or steel cable covered by a plastic hose for making strops and traces. The minimum length of strops and traces must be observed according to the size of parachute and the table given above, and has to be checked using a measuring tape regularly because unauthorized incorrect repairs of strops and traces often result in undercutting the minimum length.

Installation

The parachute must be set up with the straps lying at the outer side of the cap. If the cap is turned over, the straps may tear off the cap!

The SKYCHUTE 2 has got a loop of 20 mm width on its top and bottom end. The trace has to be connected to the top end loop, the launching cable from the winch with the bottom loop using a proper quick release connector. SKYLAUNCH strictly recommends its swivels for use as a connector from steel cables and twisted synthetic ropes (as SKYROPE) to the bottom of the parachute. Twisted cable tends to jam and twists the parachute's bottom straps, resulting in a late or no opening of the parachute at all.

Straight connectors must be used only, e.g. a bolt of a D-shackle or swivel, or a delta shaped quick release connector. O-shaped connectors must not be used because the edges of the parachute's loops abrase on their round ends.

After inserting the connectors, they have to be fixed in the loop by winding some adhesive tape around the 8 straps several times on a width of about 5 cm / 2 inches. This way, you prevent the straps and cables from getting tangled and avoid any unnecessary friction on the straps.

Operation

Set up the winch as far as possible to the upwind side of the airfield. This allows the parachute to land at a safe distance from obstacles (trees, fences, buildings, vehicles, landing lights etc) or roads that might be present. Also shortening the launch run might be necessary for gaining clearance.

During operation you have to ensure that the straps are always at the outside of the cap and have neither knots nor tangle. Although the SKYCHUTE 2 does not rotate it needs more time for opening if its straps are tangled or does not open at all at the worst case.

The parachute must be hooked on to the launch cable just before starting the launch because a hooked on parachute is extra dangerous if the layed-out cable is picked up by an airplane or vehicle overrunning it.

Right before releasing the glider, reduce cable tension early enough to allow for sag untill the cable falls off the glider's hook. This way, you avoid releasing under tension both causing cable jams and the straps winding around the parachute. It may start rotating or refuse opening. In downwind conditions, release earlier because the parachute may drift behind the winch laying the cable across it! In strong headwind, you may launch up to 80° to the horizontal in order to give the glider a maximum launch height. SKYLAUCH recommends its Winch Launch Assistant to avoid launching too slow or too fast, breaking weak links or releasing under tension.

The SKYCHUTE 2 releases later than many other cable parachutes because its low drag causes less sag of the cable. That's why you can launch further untill automatic release or the pilot releases manually.

The SKYCHUTE 2 opens as soon as it has lost its horizontal speed given from the glider. It might take a second due to its low drag providing a higher launch. You can accelerate this process by using strops and traces made of synthetic rope instead of heavy hose reinforced steel cables, and by using just a small number of steel connectors. The lifetime of the cable is not spoiled if the cable hits the ground after release as it's known from operation with cable retrieve winches (without any parachutes). But hitting the ground is an indication for late easing back of the throttle to idle and a release under tension. Tangling of strops, traces and parachutes and cable jams on the drum might occur! The cable may also touch the ground if the cable release is recognised late and the drum is accelerated too late or too slow.

After releasing the glider, take up the launch cable by accelerating the drum as fast as possible. Reel in at high cable speed to clear the airspace and to keep the drift of the parachute to a minimum.

If the parachute is heading towards an obstacle (or the winch in downwind) or a person despite high cable speed, reduce cable speed and stop the cable in time, in case of need use the drum brake. Normally, the parachute and the launch cable do not damage anything if they fall down without being driven. Ignoring this rule has already caused some serious accidents with persons injured or killed and goods heavily damaged.

The parachute follows the cable's sag and lands at the respective distance from the winch. Reel in at small sag, i.e. not too slowly in order to avoid pulling the parachute across the ground.

Reduce cable speed early enough while the parachute is getting closer to the winch. For this purpose prefer idle setting of the throttle and avoid using the brake (risk of cable jam on the drum). If not doing so you may damage the winch's cable rollers or their bearings with the parachute connectors, or the parachute gets pulled into the winch and breaks. Renew all the parts if they have ever been pulled in through the rollers because they loose their original breaking strain and necessary shape.

The parachute will be thankful and live for long if you follow these guidelines! Most parachutes do not die from wear but earlier from getting pulled across obstacles or into the winch.

Retrieving and Storing

Don't disconnect the parachute from the launch cable for retrieving because the bottom straps often tangle from careless storing. Even if the towing hook is mounted low the parachute usually does not touch the ground.

After retrieving the cables the upwind parachute(s) and the upwind cable(s) have to be laid down laterally at a side distance of 20 m and a length of 60 m from the launch point. Otherwise they might be picked up by the launched glider's wingtip, undercarriage or skid. Disconnect the upwind parachute(s) from the launch cable(s) before laying it down and keep it disconnected untill the first launch with the downwind cable has been completely finished (cable drum disengaged) and you have ensured that the upwind cable is clear.

Keep the parachutes away from hot parts, e.g. exhausts while storing them at the winch. For transport, prefer hanging them up on both ends or wind them on a reel including their traces and strops.

Cleaning

If you believe that cleaning is necessary, lukewarm water mixed with some wash up liquid is recommended.

Repairs

Fix any broken filaments of the cap using adhesive before they open up to holes. The parachute has to be renewed of any broken strap ist too old or worn. Otherwise, send the parachute to SKYLAUNCH Windenstartsysteme for inspection or repair.

Lifetime

Although the SKYCHUTE 2 has been developed for grass runways, it reaches a long lifetime also on bad ground if it's always landed close to the winch and not pulled across the ground. Using synthetic strops and traces, it immediately lifts off the ground when the cable tightens. In this case, it is not exposed to friction.

Frequently asked questions

How large must a parachute be?

A parachute should be as small as possible for safety reasons. If it opens in front of the glider, the pilot might loose his horizontal view. A small parachute is less dangerous if its picked up by an airplane. However, a certain size is necessary to provide the cable tension needed for trouble-free reeling in of the cable.

How long must be the strops and traces?

The trace should be as long as possible and not shorter than allowed. A long strop enlarges the safety gap between the glider and the parachute and makes retrieving easier, because the retrieve vehicle does not need to stop close to the glider. The strop can be hooked on without any further manual tow-out. The strop needs to be just long enough to ensure the weak link and shackles will clear the nose of the longest glider to be launched. This keeps the length to a minimum in cas of whip back if the weak link breaks.

Which colour should a cable parachute have?

It should be a contrasting colour for good visibility on the ground or in the air. Thy SKYCHUTE 2 is offered in four colours for easy distinction of all chutes kept on the airfield. It makes recovering of faulty chutes easier and avoids confusions that can occure if some launch cables are crossed over.

Must a cable parachute be earthed?

No. A conducting connection inside the parachute increases the risk for the glider of being struck by a lightning. There is no reason to earth the glider during the launch. It is not earthed while flying disconnected. Earthing a winch is necessary in order to prevent a static charge that can discharge across a person standing on the ground and touching the winch. In comparison, usually nobody standing on the ground touches an airborne glider.

Have always good and safe launches - your SKYLAUNCH Team

prices incl. 19% VAT (VAT rate in Germany)	SKYCHUTE 2 L (∅ 1,40 m)	€ 178,50
	SKYCHUTE 2 XL (∅ 1,80 m)	€ 208,25

Changes of prices, technical and visual details may occur, 28.04.09

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