

The image features a dramatic, stormy background with dark, heavy clouds and several bright, jagged lightning bolts striking across the scene. The overall color palette is a mix of dark greys, blues, and whites from the lightning. In the center, the brand name 'LITRIC' is prominently displayed in a large, bold, black, italicized sans-serif font. To the left of the text is a stylized logo consisting of a thick black square frame. Inside the frame, on the right side, is a circle containing a white plus sign. The lightning bolts are positioned around the logo and text, with one particularly large bolt striking from the right side towards the center.

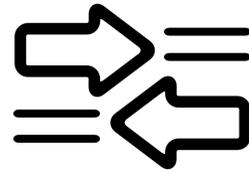
LITRIC

MADE IN
GERMANY

collaboration



ARC'TERYX



ORTOVOXX



safety

usability

weight

1. SAFETY

- avalanche airbags are recommended by experts worldwide
- purpose to actively minimize the risk of a full burial in the event of an avalanche
- inverse segregation - “brazil nut effect” - when the largest particles end up on the surface of a granular material containing a mixture of variously sized objects...

➤ survey by Pascal Haegeli – 2014

...of 100 people caught in avalanche / minimum size 2 / not wearing an airbag backpack

➤ 22 did not survive

...of 100 people caught in avalanche / minimum size 2 / wearing an airbag backpack

➤ 11 did not survive

➤ airbag systems likely double your survival chances!

➤ EN 16716

- european airbag norm
- requirements are challenging...
- basic airbag function of all sold products is highly reliable

➤ inflation technology does make a difference!

- mechanical systems
- electronic systems

- mechanical systems
 - compressed gas cartridge
 - venturi effect
 - limited to one inflation /cartridge



➤ electronic systems

- electric fan
- 100% ambient air
- multiple inflations possible



- remote terrain
- you pull the trigger
- after 20 min...
- another inflation is possible



➤ accidental inflation

➤ real training

non inflated airbags are the biggest limiting factor of airbag systems
20% of all airbags surveyed were not inflated, because of...

- destruction by the avalanche
- user or product failures (cartridge installation...)
- and > 60% were just not triggered

➤ conclusion: all airbag systems are reliable in the basic airbag function - still only electronic systems provide the extra safety margin of the multiple inflations option



- interference with beacons?
- specifications in hardware and software considered to not interfere with beacons from the start of the development
- no influences – no need to turn off the system in search

2. USABILITY



the best system & pack does

➤ ...not cause any trouble ...not cause extra work

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features...

➤ the system box

- powerful blower with an axial diffuser moves air into a 150L balloon within < 4 seconds
- compact size
- low complexity - one ON/OFF button and USB-c port



➤ the energy supply

- state of the art with...
- 9 supercapacitors and
- small integrated lithium-ion battery
- easiest charging with USB-c port (down to -20°)



- a supercapacitor system...
- lightweight
- same performance profile at cold temperatures
- providing energy superfast
- we want backup energy for secondary inflations...



➤ lithium-ion battery advantages

- no extra purchase required
- no batteries, no cartridge... nothing!
- fast recharge time (~ 20 – 25 min) for second inflation
- developed for extreme cold conditions
- developed for full lifetime



- inflation energy in supercapacitors
- reloading energy in li-ion battery

- USB-c reloads supercapacitors and li-ion battery



➤ the LED status signals



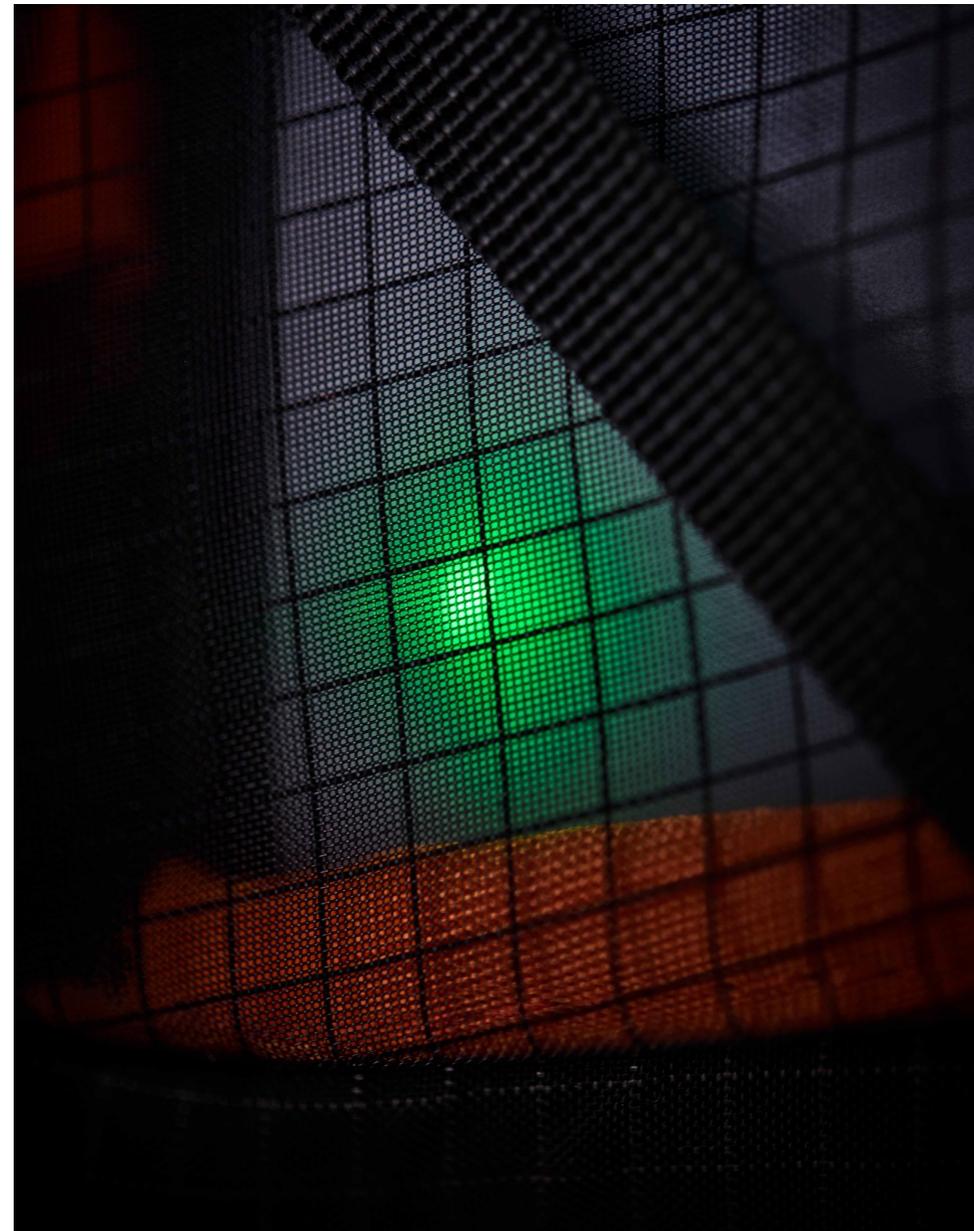
➤ ready for min 2 inflations (for
~ 60h / ~30d in OFF)



➤ ready to inflate (for min 8h)
reload!



➤ reload!



- the travel solution
- no restrictions on a plane
- supercapacitors are passive elements
- li-ion battery: 7,4Wh energy content



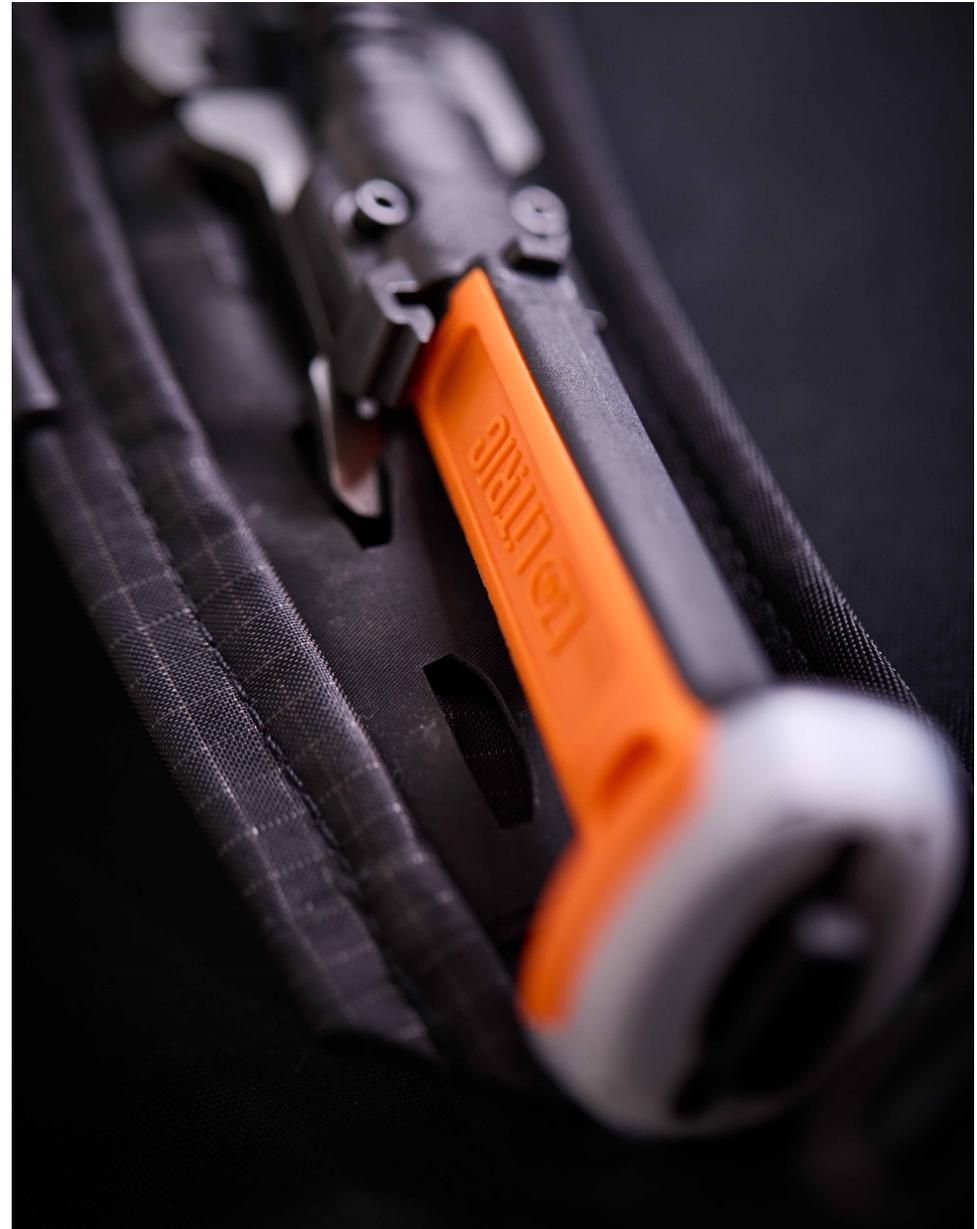
- passengers are allowed to hand-carry up to 15 items with $< 100\text{Wh}$ each for their personal use

➤ the trigger

- rotate 180° to locked position
- 3D rotating to lower profile
- easy one-handed use

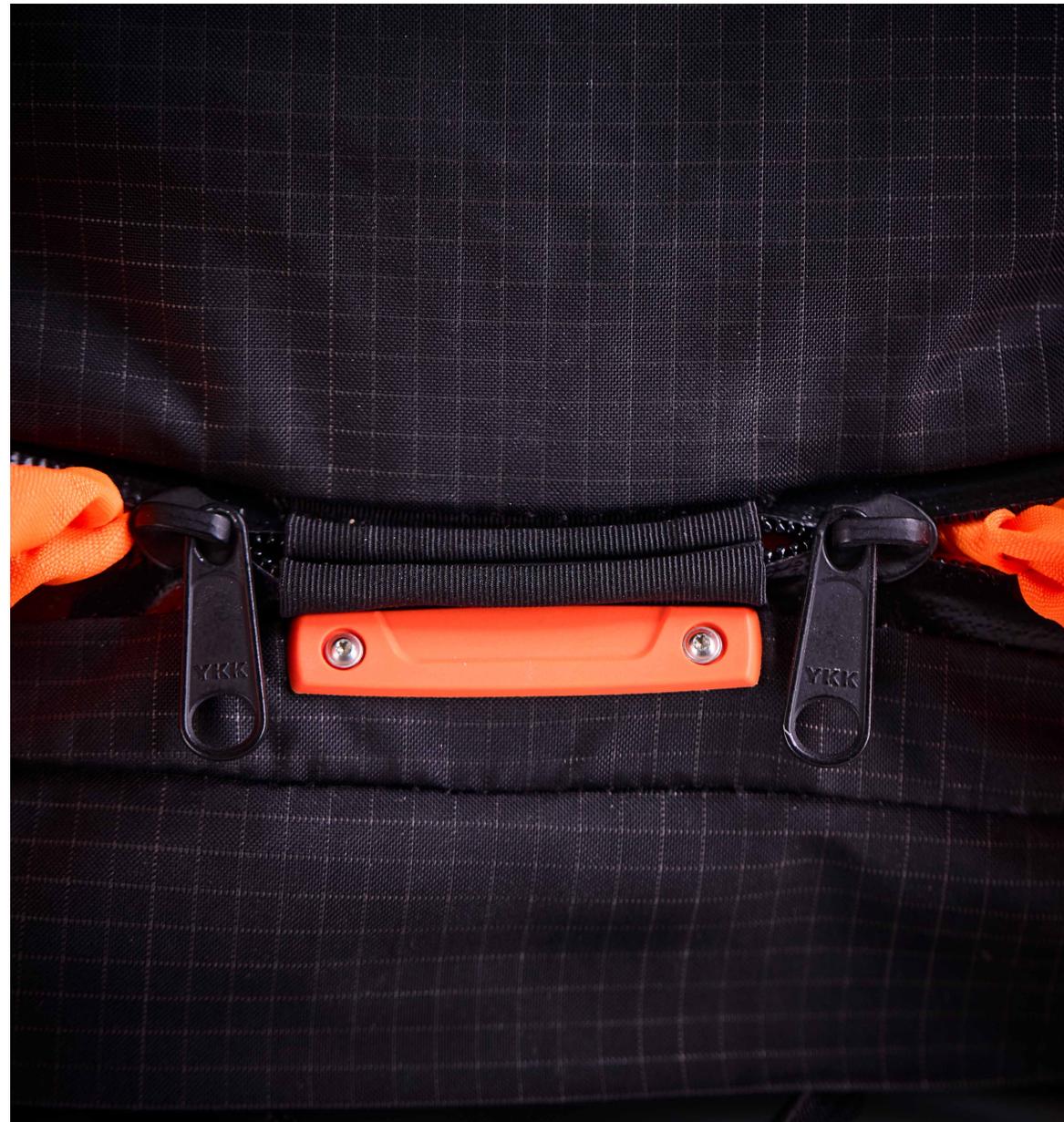
super fast!

increased safety!



➤ the compartment

- mechanical latch secures the airbag compartment against false openings
- secondary safeguard that prevents the system from accidental inflations



➤ the airbag

- double-wall balloon technology
- reduced weight
- increased tear strength
- super-easy repacking



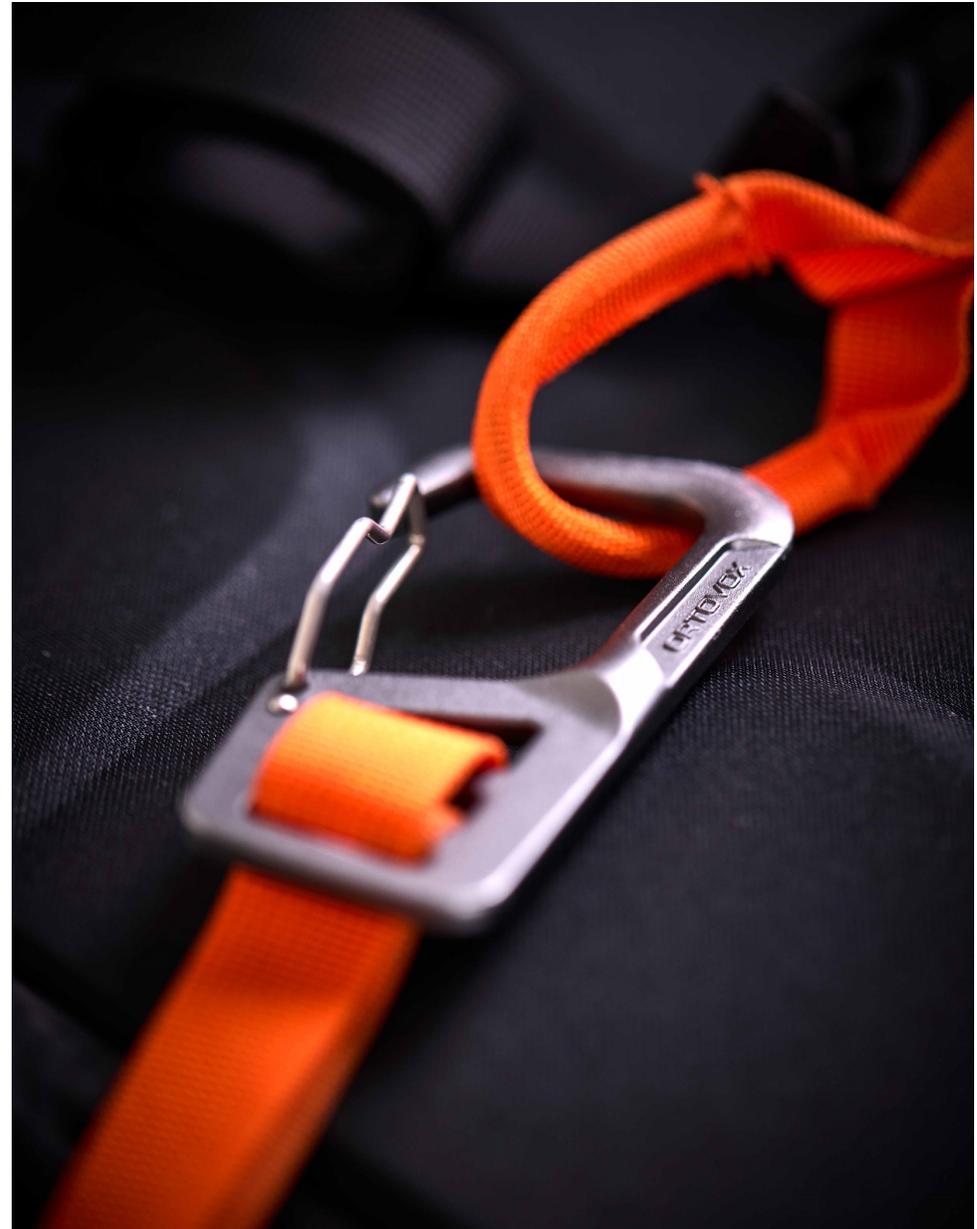
➤ the airbag packing

- hands-free deflation with little tool
- no need for complex folding
- just stuff and go



➤ the leg-loop

- one-handed leg-loop carabiner
- fast, easy, and secure
- custom carabiner developed for use with gloves



➤ the carrying system

- complies with demanding requirements and pulling tests of the airbag norm
- superior usability



➤ conclusion on usability

- state of the art energy management
- superfast trigger locking
- easiest re-packing
- a convenient carrying system

- ...make this product easier to use and safer



3. WEIGHT

- lightest electronic system on the market
- one of the lightest systems including mechanical systems

		total weight - g	system - g	cartridge - g	battery - g	technology
1	XXX mechanical	1000	680	320		mechanical / cartridge
2	XXX mechanical	1010	700	310		mechanical / cartridge
3	ORTOVOX / ARC'TERYX LiTRIC	1100	1100			electronic
4	XXX mechanical	1130	690	440		mechanical / cartridge
5	XXX mechanical	1170	680	490		mechanical / cartridge
6	XXX electronical	1190	1140		50	electronic
7	XXX mechanical	1230	920	310		mechanical / cartridge
8	XXX mechanical	1256	662	594		mechanical / cartridge
9	XXX electronical	1330	1280		50	electronic
10	XXX electronical	~1500	1500			electronic
11	XXX mechanical	1580	1300	280		mechanical / cartridge
12	XXX electronical	~2000	1210		790	electronic
13	XXX mechanical	2110	1830	280		mechanical / cartridge

LITRIC

and finally...

MADE IN BAVARIA!

production of airbag

production of electronics, tests & assembly

production of mechanical parts & housing



LITRIC

the backpacks...

SKITOURING SETUP

AVABAG LITRIC TOUR 40

AVABAG LITRIC TOUR 36S

AVABAG LITRIC TOUR 30

AVABAG LITRIC TOUR 28S

light – functional - variable



➤ ZIP technology

➤ base with LiTRIC system

➤ exchangeable ZIP-packs

➤ customize your LiTRIC



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