Avalanche Probe Review

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This project was carried out under the patronage of The Austrian Alpine Club. All equipment has been purchased and paid for by the authors and none of the involved parties are in any kind involved in the manufacturing, sales or promotion of any of the tested equipment.

1. Probe selection criteria

From all major manufacturers, only one or two of the most promising (mechanically strong, ergonomic and lightweight) versions were selected for the test. One of each of these was purchased in a regular mountain sports shop. We would have liked more probes in the test from G3, but not all of their models were available.

2. General Description of Important Characteristics and Features

Lengths

A companion rescue probe should not be shorter that 240cm, whereas an organized rescue probe should not be shorter than 320cm.

Diameter

The smaller the diameter of the probe, the more often deformations and strong bending will occur in the debris. Carbon probes in particular need to have a sufficient diameter to withstand the forces applied in avalanche rescue.

Material

High quality carbon probes are not only lightweight, but they also withstand the stress they are subjected to in companion rescue. This implies probing will not be performed over several hours, i.e. in a probe line search. However, for organized rescue, metal probes are definitely preferable.

Spanning mechanisms

The spanning mechanism should not allow any, or at most very marginal, play. This play leads to faster mechanical destruction of the probe and the overlapping sections in particular. Textile based spanning cords, including Kevlar, are not sufficient. The most static spanning mechanism is threaded probes, where the individual elements get screwed together. However, the necessity to frequently retighten the elements in respect to each other makes this option less attractive.

Spanning cables need to be long enough in their total lengths so that the probes may be easily folded in the collapsed state without damaging the cable or the probe segments.

Connection between segments

The connection between the segments influences how smoothly the probe can be assembled and how durable the probe will be. Sharp, open edges are inferior to segments with a smooth finish on both sides.

Probe design

Probes should be marked with a centimetre scale in order to determine burial depth and make them a versatile tool for snow pack investigation.

Locking mechanisms

There is a large variety of locking mechanisms available. It is important to find a good balance between user friendliness when wearing gloves, reliability, durability and proper functionality under icing conditions. Probes with threaded locking mechanism are more time consuming to deploy and require most participants to take their gloves off to spin the locking nut.

Tip design

The tip of the probe should be replaceable with a maximum diameter larger than the probe shaft. Probes with rounded tips were harder to push through hard layers in the debris than pointed tips.

Proper use of the probe

Always deploy the probe downwards. Wear gloves to prevent frozen hands. Always probe with two hands in order to penetrate the debris quickly and in control.

3. Tested probes in alphabetic order

The Ortovox Pro Steel 320 and Ortovox Carbon Pro 240 Plus have both nice features, but did not get fully tested as their locking mechanisms exhibited poor long term durability. The steel cable kept breaking just above the metal spanning bolt.

	Length	Weight	Probe diameter	Tip diameter	Connection between segments	Tip replaceable	Looking mechanisms	Remarks
BCA Carbon 260	260cm	211g	10.2mm, too small in general (bending)	11.7mm (+ 1.5mm)	angled on two sides	No	Easy to handle with big gloves, incl. attaching the clip at the end of the cable. Mechanically weak.	Centimetre scale printed on probe does not last very long.
BCA SR3 QuickDraw Probe	300cm	334g	12.7mm	13.0mm (+ 0.3mm)	angled on two sides	No	Easy to handle with big gloves, incl. the clip at the end of the cable. Mechanically weak.	
BCA SR3 Standard Probe	300cm	315g	12.7mm	13.0mm (+ 0.3mm)	all open	No	Very durable, oval. Time consuming assembly.	
Black Diamond Carbon Quick Draw Probe 230	230cm	234g	13.3mm	14.2mm (+ 0.9mm)	angled on two sides	No	Easy to lock, harder to unlock with bigger gloves/mittens. Some icing problems make it difficult to unlock the mechanism. Nice grip on the top segment. Clip on mechanism at the end of the cable works well.	Measurement imprint should go to the top and not stop at 185cm. Cable length can be manually adjusted.
Black Diamond Guide Quick Draw Probe 300	300cm	351g	12.8mm	14.4mm (+ 1.6mm)	angled on two sides	No	Easy to lock, harder to unlock with bigger gloves/mittens. Some icing problems make it difficult to unlock the mechanism. Nice grip on the top segment. Clip on mechanism at the end of the cable works well	Measurement imprint should go to the top and not stop at 263cm. Nice colour coding. Plastic coating of the metal wire is thin. The wire is too short which damages the wire in the dismounted state as the radius of the wire is extremely small. Cable length can be manually adjusted.
G3 Tech Probe 240	240cm	270g	12.6mm	14.1mm (+ 1,5mm)	angled on two sides	Yes	Very durable, round. More time consuming. Needs to be periodically retightened or it will unscrew itself and fall apart. Missing locking clip for the end of the cable.	Best and most functional probe bag!

Mammut Expert Probe	265cm	230g	10.8 mm	12.7mm (+ 0.9 mm)	Open	No	Hard to unlock.	Measurement imprint should go to the top and not stop at 225cm. Cable length can NOT be manually adjusted. Weak probe in general.
Mammut Standard Probe	280cm	218g	9.4 mm	11.7mm (+ 2.3 mm)	Open	No	Knot in the rope, proper locking mechanism totally missing!	No measurement imprint, but simple colour coding. Cord is made from rope, far too much elasticity. Probe seriously deformed (destroyed) in the test. Very weak probe in general.
Ortovox 320	320cm	440g	13.3mm	13.9mm (+ 0.6mm)	angled on two sides	Yes	Locking and unlocking easy to handle even with gloves. Should be more rigid. Locking mechanism for the end of the cable does not work.	No coating on wire. Cable length can be manually adjusted. Additional grip material gets slippery in wet snow conditions.
Pieps Standard Probe	260cm (42cm wasted due to locking mecha-nism)	286g	13mm	14.5mm (+ 1.5mm)	angled on two sides	No	Not easy to handle with big gloves, in particular the unlocking mechanism. Needs a lot of force to extend it so that there is no slop. This is only possible if extended to the very last segment of the locking rings where the segment is not in a straight, stable line to the probe any more. Mechanically rather weak.	
Voilé Tourlight Probe	250cm	266g	11.1mm	12.7mm (+ 1.6mm)	all open	No	Hard to unlock, mechanism failed during test.	Measurement imprint should go to the top and not stop at 195cm. Nice colour coding. Wire too short. Cable length can be manually adjusted.

4. Recommendation

Personal probe for touring: High quality carbon probe, approximately 240 cm and with sufficient diameter.

Probe for frequent use in courses and organized rescue: High quality metal probe at least 300 cm in length.