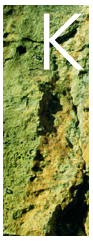


Slowly, safely, slowly



Keeping a watching brief on the progress of climbing rope development has all the excitement of snail racing in the dark. The first kernmantel ropes were produced in 1951, allegedly by the German company Edelmann and Ridder (Edelrid) and the process of braiding a sheath (mantel) over a reverse twisted fibre core (kern) has changed but little in the intervening fifty years. Production machinery has improved; it now takes less than half the elapsed time to produce comparative lengths of rope and the quality is consistent. Component yarns have improved; the results have been smoother sheathing and greater flexibility in use. But even with the technology available to the twenty-first century manufacturer, the best possible method of final quality checking is still a length of rope running through a pair of human hands.

Of course there have been specification developments, but almost all of them have been activity-led rather than technology-borne. The current crop (over a period of some three years) has all appeared in answer to changes in the type of activity and the growth in professionalism among sport climbers. The latter factor in particular has given rise to more rigid production and test standards and, it is believed, the loss of that essentially anarchic scepticism that was the signature of the sport just a few years ago.

Testing times

The Union Internationale des Associations d'Alpinisme (UIAA) is effectively, amongst other things, the controlling body for equipment standards in mountaineering. It is reasonably safe to say that all climbing ropes sold throughout the world meet the requirements established by the Union's Safety Commission. Those standards have also been accepted as the basis for the establishment of European Norms and subsequent CE certification required by the relevant Personal Protection Equipment (PPE) directives of the European Union.

All of which made the embarrassment more acute a couple of years ago when the UIAA was asked to write the rope standards for PPE and it was realised there were no standards relating to the actual machinery and rigs used to carry through the tests themselves. At the time there were four test laboratories charged with the responsibility for ensuring that rope specifications and finished products met UIAA standards and for issuing the appropriate certification which is prominently displayed on all the product packaging. They were, and are, located in Toulouse (France), Chamonix (France), Vienna (Austria) and Stuttgart (Germany) and the differences in their respective test equipment meant that it was impossible for one unit to duplicate the work of another. It should be emphasised that there was never any compromise of safety factors, but the methodology in ensuring that they could be met was inappropriately varied.

To cut a lengthy period of discussion and travel down to a reporting minimum it should suffice to say that the members of the UIAA Safety Commission have now established test equipment design and operational parameters that will ensure the standardisation of compliance for all mountaineering ropes where the manufacturers are seeking UIAA and CE certification. In the process the Toulouse facility removed itself from consideration as a testing house, leaving Chamonix (now known as APAVE/Chamonix), and Stuttgart in place and with Vienna and the Swiss EMPA facility hoping to join the listing very shortly

Necessity the father of modification

As has been noted the rope products passing through the test facilities will subsequently, in most circumstances, have a long-term deployment in mountaineering. Where an activity is developed from the mountaineering base it is usual for existing ropes to be used as a starting point, followed by a request to the manufacturer for a modification.

As an example, sport climbers seeking out longer pitches have established a requirement for longer ropes up to 80 metres in some instances. With original single ropes of 11mm or 10.5mm diameters such lengths could add as much as 2kg to the walk-in load, and manufacturers are therefore developing single rope specifications at below 10mm diameters to meet the demand. Edelrid is about to release a 9.5mm product, following closely on the heels of Mammut (Swiss) which announced the details of its 9.5mm Infinity rope very

Emma Williams, Sierra Prades.



Edelrid Dynaloc

recently. At 58g/m the latter shows a reduction of 5g/m over the nearest single rope specification previously available. French company Beal currently offers the slimmest and lightest single rope in Europe with its Stinger II product at 9.4mm and 57g/m.

North American manufacturer BlueWater already has a 9.6mm rope on its books, clipping in at 57.7g/m and listed as '...ideal for sport and extreme alpine climbing...' while its rival from the same continent, Sterling Ropes, appears to have run into an obesity problem with its 9.5mm Marathon rope at 69.4g/m until it is realised that the Sterling Marathon range has a 50% greater sheath density to counter exceptional wear and tear when used on the more damaging rock routes.

Half ropes are generally used in pairs, but on occasion can be asked to provide the same protection as the single ropes discussed above. These too have lost diameter in the search for weight reduction - hitherto it could be anticipated that 9.0mm was the regular size, now it is more likely to find 8.5mm as the standard and the recently released Mammut Phoenix product is just 8.0mm and 42g/m.

Particularly popular in Europe is the twin rope technique where ultra-slim ropes are used exclusively in pairs. As we go to press we have received news that Edelrid is about to market 7.6mm (or possibly 7.5mm) ropes in this sector. The weight savings have yet to be revealed.

Indoor sport

The incidence of indoor wall or gym climbing has advanced dramatically over the past decade. Quite apart from the purely commercial consideration of profit for the owners, these establishments have a significant social function in introducing many young people to the sport and enabling the disadvantaged to gain physical skill and confidence. As a training ground for the expert prior to an expedition or during the winter months, it is hard to fault them.

Again, this was an area where standard dynamic ropes were used as an entry point, but the intensity of use under constant instruction, including deliberately induced falls, wreaked havoc with both sheath and core. Now all manufacturers produce product developed specifically for prolonged indoor use.

In general the construction is similar to that for ropes intended for outdoor use, although Edelrid makes the point that its Indoor product has the sheath/core weight ratio loaded in favour of the former as an aid to abrasion resistance and long life. The major selling point in every case is the extreme suppleness and ease of handling. Similarly the 10.8mm Gymbo rope from New England Ropes in the USA has a double sheath, allegedly without compromising its handling or ability to carry a knot, while Sterling Ropes runs a complete series of the type: Big Gym at 10.6mm, Jungle Gym at 10.3mm and Slim Gym at 9.5mm. Each caters for a different level of expertise, but all carry the high-density sheath to compensate for the heavier wear factor.



Mammut Phoenix Classic range of ropes.

A licence to...

A colleague recently described canyoning as '...licenced lunacy', but given that he was investigating a fatal accident in the Swiss Alps at the time, it is possible to allow for a measure of emotional rhetoric. There are several official definitions of the activity (it depends whether you're ascending or descending) but essentially it is negotiating steep sided valleys by means of the watercourses at their hearts. This will involve climbing, swimming, diving and abseiling in any order they happen to become necessary. It would appear to be peculiarly European in origin and practice.

The ropes required have some basic requirements. They should float. The yarns should not absorb water. The handling should be at least as good as a quality dynamic rope. Abrasion resistance should be paramount.

Because the load factors are more or less static, the dynamics of a climbing rope are not required. Therefore manufacturers have used their experience in the production of static or semi-static ropes to develop products that meet the specification.

Beal offers two diameters, the 9.5mm Cilaos and the 10.4mm Pro Canyon, both with a polyester sheath covering a polypropylene core. Mammut splashes in with its Performance-static and Aqua-Static at 10.2mm and 11.0mm respectively, but is apparently coy about the raw material content. However, by association with the activity, it is likely that we are looking at a polypropylene core to ensure flotation. The sheath may be polyester but, given that Performance-Static has a number of recommended optional uses including caving, fixed lines on expeditions and rescue work, it is more likely to be polyamide in content. Canyon is the eponymous title of the Edelrid offering; two ropes of 9.0mm and 11.0mm diameters with polypropylene cores and polyamide sheaths.

As was suggested in the opening paragraph, developments in the climbing rope market are neither rapid nor sexy. If you're looking for the latter perhaps an involvement with the clothing or footwear sectors may be more satisfying. But what the development there is, is solidly based on sound technology with the ultimate safety of the user firmly entrenched.

Derryck Draper

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