

Overview: In Quest of the Holy Grail

Handled, mostly reversible descent control devices were solicited from several companies for comparison testing. Twelve descenders from approximately 7 different companies were obtained. Testing on the devices included simple rappels to ascertain basic performance and preference for different ropes, if any. Efficiency testing was then conducted on a simple 3:1 haul system to provide a benchmark for further efficiency testing on the devices that were reversible. The 3:1 testing was done with three different weights to satisfy the varied standards for the many users of these devices. The weights used were 100 kg, 200 kg, and 272 kg. These are applicable to single and two person loads in climbing or rope access rappels and rescues, and the NFPA standard of 600 pounds or 272 kg. Each device was tested with the lowering of loads up to their published maximum rating and/or rope size, and some were tested beyond their stated load ratings and rope sizes. Each reversible device was also tested in a raising system, up to its' maximum load rating, and the force needed to raise the load was then compared to the benchmark established by the initial tests on the 3:1 mechanical advantage. In this way an efficiency comparison could be made relating to the practicality of the devices being used in a raising system and the differences between the individual devices.

The results were charted and each device had a separate evaluation. Belay ability with each descender was also included. The original objective was to try to locate a device that would allow us to lower and raise rescue loads, and also belay with it if possible.

The answer to a related question was also sought. Is it possible, for an individual that is descending on one of these devices, to perform a solo pickoff of a co-worker or victim, by creating a simple inline 3:1 incorporating the device, and using their body weight to raise the rescue load? This was another reason for the efficiency testing of the devices. This question was not included in the published article.