



Different flexible Rockfall Barriers – comparative Results from Type Testing

W. Gerber, A. Volkwein

WSL Swiss Federal Institute for Forest, Snow and Landscape, Birmensdorf, Switzerland
(werner.gerber@wsl.ch)

In order to enable a quantitative assessment of the respective characteristics and qualities of flexible protective net barriers, the Swiss Federal Office for the Environment, BAFU, which subsidizes these protective measures, has issued guidelines for the testing of flexible rockfall barriers consisting of wire nettings and steel posts that protect against rockfall (Gerber 2001). Since the introduction of the guidelines such barriers have been continuously and systematically tested. For the first time comparative results concerning mechanical properties of individual structures can be presented. In accordance with the guideline, the barriers were dynamically tested by free-falling test bodies and characterized by energy absorption classes ranging from 250 kJ to 3000 kJ. For each test a number of different data were gathered before, during and after the actual impact. The forces acting on the supporting ropes reaching 550 kN are of prime interest but the wire netting deformations are also of great importance. The braking times ranging 0.2..0.5 s and braking distances of the test bodies ranging 2.8..7m are necessary basics to establish new and important results, for example to classify the stiffness or softness of a certain barrier type.

Apart from above results the measuring procedures and data analyses were optimized allowing a detailed analysis of the brake down process using software based video post processing to extract the boulder's kinetics. Additional information is gained on the situation after a rockfall event e.g. the remaining net height (should be at least 50% according to above guidelines) and the needed repair times ranging 5..75 man hours.

Gerber, W. (2001) Guideline for the approval of rockfall protection kits. Environment in practice. Swiss Agency for the Environment, Forests and Landscape (SAEFL), Swiss Federal Research Institute WSL. Bern, 39 pages.