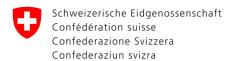
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Type approval of safety nets for protection against rockfall

Test Certificate No. S 14-5

| System descrip | tion | | | | |
|---|-------------------------|--------|--|----------------------|--------------------------|
| System designation | | RXE- | -500 | | |
| Address of manufacturer | | Geob | orugg AG, Aachstras | se 11, 8592 Ro | manshorn |
| System description | n | | | | |
| Energy class | | | 500 kJ | | |
| - Posts: | profile | | HEA 120 (S355JR) | G) | |
| | length a _l | | 3.40 m | | |
| | interval a _s | | 10 m | | |
| Support ropes: | type | | 6x36 W-S + SE, 17 | 70 N/mm ² | |
| | diameter | | 18 mm | | |
| – Stop ropes: | type | | 6x19 W-S + SE, 1770 N/mm ² | | |
| | diameter | | 18 mm | | |
| – Net: type F | | | ROCCO 7/3/350 ring net (7 windings) | | |
| | diameter | | Ring diameter 350 mm, wire diameter 3 mm | | |
| | mesh | | - | | |
| | height h _v | | 3.6 m | | |
| System drawings | 3 | | | | |
| Description | | | | No. | Date |
| System handbook RXE 500 | | | 2VE 2000 | EKLS/01 | 31.07.2014 |
| Maintenance handbook RXE-1000 Technical documentation RXE-50 | | | XXE-8000 | EKLS/01 | 10.04.2013 15.08.2014 |
| | | - 000 | | | |
| Basic documen | tation | | | | |
| Field test | | | | | |
| WSL test report (EOTA) Da | | Date | 08.12.2014 | | Report no. 14-14 |
| Overall assessme | nt | | | | |
| | | Date | 18.12.2014 | | Report no. S 14-5 |
| EKLS (FECAR) | | | | | |
| Test results | | | | | |
| Preliminary test or | f outer part | | | | |
| Penetration of test body | | | | | yes ☐ / no ⊠ |
| Additional observations | | Sec. 1 | test S 03-4 (same ty | ne) | yes |
| - Additional observ | valions | OCC I | icsi o os-4 (same ty) | <i>90)</i> | |



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| Preliminary energy test (50%) | 250 kJ |
|---|--------------|
| Penetration of test body | yes ☐ / no ⊠ |
| - Braking time t _s | 0.18 s |
| - Braking distance b _s | 3.04 m |
| - Sum of the tensile forces in the 4 upper cables | 236 kN |
| Sum of the tensile forces in the 3 lower cables | 158 kN |
| Maximum of the tensile forces in a stay cable | 67 kN |
| List of damaged elements | |
| - Assessment of repairs | |
| The net was completely replaced. The work took 33 man hours. | |
| Main energy test (100%) | 500 kJ |
| - Penetration of test body | yes ☐ / no ⊠ |
| - Braking time ts | 0.27 s |
| − Maximum permissible braking distance b_s | 6.0 m |
| Measured braking distance b_s | 4.6 m |
| Minimum permissible residual braking height h_n | 1.5 m |
| Measured residual braking height h_n | 1.77 m |
| Sum of the tensile forces in the 4 upper cables | 272 kN |
| Sum of the tensile forces in the 3 lower cables | 196 kN |
| Maximum of the tensile forces in a stay cable | 91 kN |
| List of damaged elements | |
| Assessment of special criteria | |
| Comments on assembly and on the assembly instructions | |
| The assembly cost is standard for a system of this energy class. | |
| Comments on adaptability to the terrain | |
| Adaptability to the terrain is normal. | |
| - Comments on design complexity | |
| The system has one U-shaped rope (top and bottom) for each of the suppostop ropes. An intermediate retaining rope is required every 60 m in accordance regulations. 9 ropes must be anchored there. | |
| - Comments on anticipated service life | |

The anticipated service life is ascertained as adequate.

Federal Department of the Environment, Transport, Energy and Communications DETEC

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Overall assessment

☐ Test passed with reservations

Tested according to the following guidelines: 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. Berne, 39 pages. Revised June 2006.

RESERVATION: Should deficiencies arise following certification of the safety net, FOEN may revoke product release and delete it from the type approval list.

Date

Name, position

Signatures

23.02.2015

Dr. Josef Hess, Vice-Director

Federal Office for the Environment FOEN Risk Prevention Division 3003 BERNE http://www.bafu.admin.ch/typenpruefung