



Type approval of safety nets for protection against rockfall

Test Certificate No. S 17-1

System description

• System designation	RXE-500-LA		
• Address of manufacturer	Gebrugg AG, Aachstrasse 11, 8590 Romanshorn		
• System description			
– Energy class		500 kJ	
– Posts:	profile	HEA 120	
	length a_l	3.3 m	
	interval a_s	10 m	
– Support ropes:	type	6x36 SE, 1770 N/mm ²	
	diameter	22 mm	
– Stop ropes:	type	6x36 W-S + SE, 1770 N/mm ²	
	diameter	18 mm	
– Net:	type	ROCCO 7/3/300 ring net (7 windings)	
	diameter	Ring diameter 300 mm, wire diameter 3 mm	
	mesh	-	
	height h_v	3.0 m	
– System drawings			
	Description	No.	Date
	System handbook RXE-500-LA	EKLS/04	09.12.2016
	Maintenance handbook RXE series (500 kJ to 5000 kJ)	EKLS/02	23.11.2016

Basic documentation

• Field test			
	Gebrugg RXE-500-LA test report	Date 26.10.2016	Report no. DTC pSi-16-0886
• Overall assessment			
	Overall assessment of the FECAR	Date 19.01.2017	Report no. S 17-1

Test results

• Preliminary test of outer part		
– Penetration of test body		yes <input type="checkbox"/> / no <input checked="" type="checkbox"/>
– Additional observations	See test S03-4 (same type)	



• Preliminary energy test (50%)	250 kJ
– Penetration of test body	yes <input type="checkbox"/> / no <input checked="" type="checkbox"/>
– Braking time t_s	0.27 s
– Braking distance b_s	4.3 m
– Sum of the tensile forces in the upper cable	108 kN
– Sum of the tensile forces in the lower cable	107 kN
– Maximum of the tensile forces in a stay cable	43 kN
– List of damaged elements	-
– Assessment of repairs	The net and four braking elements were replaced. The work took 8 man hours.
• Main energy test (100%)	500 kJ
– Penetration of test body	yes <input type="checkbox"/> / no <input checked="" type="checkbox"/>
– Braking time t_s	0.32 s
– <i>Maximum permissible braking distance b_s</i>	6.0 m
– Measured braking distance b_s	5.5 m
– <i>Minimum permissible residual braking height h_n</i>	1.5 m
– Measured residual braking height h_n	1.53 m
– Sum of the tensile forces in the upper cable	99 kN
– Sum of the tensile forces in the lower cable	94 kN
– Maximum of the tensile forces in a stay cable	55 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 is simple. An intermediate retaining rope is required every 60 m in accordance with the regulations.
– Comments on anticipated service life	The anticipated service life is ascertained as adequate.



Overall assessment

Test passed

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

10.02.2017

Name, Position

Dr. Josef Hess, Vice-Director

Signatures

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