

Rockfall Protection Net / Product – Data Sheet

• System name	GEOBRUGG GBE-100A
• Address of manufacturer	Geobrugg AG, Aachstrasse 11, 8590 Romanshorn

Reference documents (Sources 1, 2 and 3)

BAFU (2018): Grundlagen zur Qualitätsbeurteilung von Steinschlagschutznetzen und deren Foundation - Anleitung für die Praxis

(1) Quality assessment by: Report no.: 19-5 Date: 28.2.2019

Swiss Federal Institute for Forest, Snow and Landscape Research WSL,
Zürcherstrasse 111, 8903 Birmensdorf

(2) EOTA technical report (TSUS): Report no.: 17/0279 Date: 12.6.2018

Angle of block trajectory during European evaluation	90 Degree	Gradient Reference level	82 Degree
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(3) Documentation Geobrugg AG:	No.	Date
Systemhandbuch GBE-100A (inkl. Montagehandbuch)	Ausgabe 07	18.1.2019
Wartungshandbuch RXE-, GBE-Reihe	Ausgabe 09	11.10.2018
Extract of ETA 17/0279	Version 01	12.6.2018
Extract of ER to ETA 17/0279	Ausgabe 01	11.10.2018
Extract of DTC Report	Edition 01	11.10.2018
DTC Berechnung der Seilkräfte	--	17.8.2018
Berechnung der Ankerkräfte	Ausgabe 01	8.1.2019

System description (Sources 2 and 3)

Specifications:			<i>Source</i>
– Energy absorption (MEL)	100 kJ	Level 0	(2)
– Nominal height	2.03 m		(2)
– Residual height	1.55m	Class A	(2)
Posts	Profile	HEA 120	(3)
	Steel quality	S355	(3)
	Length	2.2 – 3.2 m	(3)
	Spacing for test	10 m	(3)
Rope:	Standard	EN-12385-4	(3)
	Diameter	12 mm, 16 mm	(3)
Net:	Type/name	TECCO G80/4	(3)
	Standard	EN 10264-2 (Draht)	(3)
	Rope diameter	4 mm	(3)
Weight of heaviest inseparable component	72 kg (Post 3.2 m)		(3)

Deceleration processes (SEL1, SEL2 und MEL) *(Source 1 and 2)*

Test	m	d	v	w	t	Ek	Ew	En
	(kg)	(m)	(m/s)	(m)	(s)	(kJ)	(kJ)	(kJ)
SEL 1	-	-	-	-	-	-	-	-
SEL 2	-	-	-	-	-	-	-	-
MEL	277	0.53	27.3	3.0	0.15	103	8	111

Maximum forces in the ropes (SEL1, SEL2 und MEL) *(Source 1 and 3)*

Rope (s)	Sa	Tu	Rhs 5	Rhs 6	Rhs 7	Rhs 8
Number of ropes	1	1	1	1	1	1
Cells no.	K121	K125	K133	K128	K127	K135
SEL 1 (kN)	-	-	-	-	-	-
SEL 2 (kN)	-	-	-	-	-	-
MEL (kN)	104	104	29	37	16	32

Anchor forces (MEL) *(Source 1 and 3)*

Anchors	Sa	Tu	Rhs4+5	Rhs_p	Rhs_o
Number of ropes	1	1	2	2	2
Cells no.	K121	K125	K133+K133		
Maximum force (kN)	104	104	35	35	0
Factor	1.3	1.3	1.3	1.3	1.3
Substitute load (kN)	135	135	46	46	0

Points for assessment criteria

(Source 1)

Criteria	maximum possible	minimum recommended	attained
A1: Priority criteria (without SEL-tests)	11		11
A2: Assessment of the nets (without brake-elements)	9		9
A3.1: Technical documentation (without secondary mesh)	12		12
A3.2: Assembly instructions (without stop ropes)	31		31
A3.3: Maintenance manual (without all)	16		16
Total (without SEL-tests, brake elements, stop ropes, secondary mesh)	79		79

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Designations for rockfall protection nets

	Unit	Designation
d	[m]	Edge length of test body
m	[kg]	Weight of test body
v	[m/s]	Speed of test body at first net contact
w	[m]	Braking distance of test body in the net
t	[s]	Braking time of test body in the net
Ek	[kJ]	Kinetic energy of test body at first net contact
Ew	[kJ]	Potential energy of test body due to braking distance
En	[kJ]	Total energy relative to lowest position of test body
To, Tu	[kN]	Maximum force in upper or lower support rope
Fso, Fsu	[kN]	Maximum force in upper or lower stop rope
SA	[kN]	Maximum forces in lateral anchorage
Rhs	[kN]	Maximum forces in retaining ropes
Rhs_o	[kN]	Maximum sum of forces (Rhs) parallel to the installation line
Rhs_p	[kN]	Maximum sum of forces (Rhs) perpendicular to the installation line
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SEL 1	Service Energy Level 1st Test	
SEL 2	Service Energy Level 2nd Test	
MEL	Maximum Energy Level	

Diagram showing designations for braking processes

View in direction of installation (vertical system)

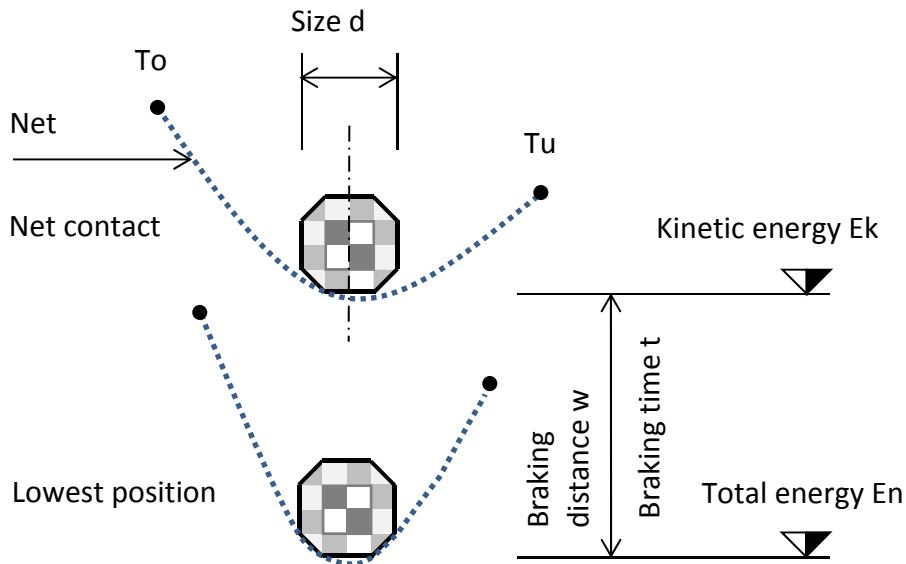
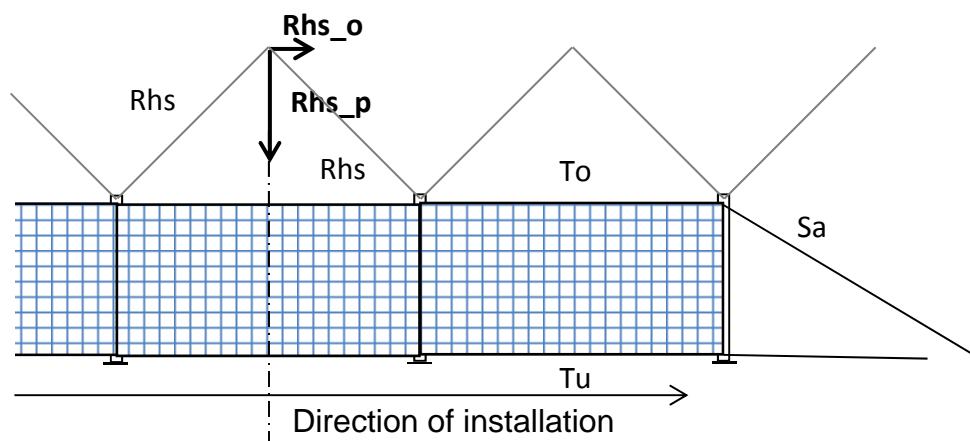


Diagram showing designations for anchor forces



The rockfall barrier GEOBRUGG GBE-100A does not contain brake elements, stop ropes and mesh.