

Rockfall Protection Net / Product – Data Sheet

System name:	ISOSTOP – 3000 Ev
Address of manufacturer:	Pfeifer Isofer AG, Hasentalstrasse 8, 8934 Knonau

Reference documents (Sources 1, 2 and 3)

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

(1) Quality assessment by: Report no.: 17-4 Date: 27.12.2017

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

(2) EOTA technical report (ETA): Report no.: 15/0611 Date: 8.9.2015

Angle of block trajectory during European evaluation	90 Degree	Gradient Reference level	70 Degree
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(3) Documentation Pfeifer Isofer AG:

	No.	Date
Technisches Produkthandbuch	Rev. 2	07/2017
Berechnung der Ankerkräfte	Rev. 2	20.12.2017
Montagehandbuch	V3.2	09/2017
Wartungshandbuch	Revision 1	10/2013

System description (Sources 2 and 3)

Specifications:			Source
Energy absorption (MEL)	3000 kJ	Level 6	(2)
Nominal height (MEL)	5.34 m		(2)
Residual height (MEL)	3.40 m	Class A	(2)
Posts:	Profile	RHP 250/150/6.3	(3)
	Steel quality	S355	(3)
	Length	5.3-7.8 m	(3)
	Spacing for test	10 m	(3)
Rope:	Standard	EN-12385-4	(3)
	Diameter	24 mm	(3)
Net:	Type/name	Diagonal net	(3)
	Standard	EN-12385-4	(3)
	Rope diameter	12 mm	(3)
	Mesh size	250 mm / 250 mm	(3)
Weight of heaviest inseparable component	320 kg (Post 7.8 m)		(3)

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

Test	m (kg)	d (m)	v (m/s)	w (m)	t (s)	Ek (kJ)	Ew (kJ)	En (kJ)
SEL 1	3205	1.15	25.9	4.51	0.276	1067	142	1208
SEL 2	3205	1.15	25.5	2.54	0.164	1042	80	1122
MEL	9375	1.67	25.9	6.8	0.400	3144	625	3770

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

Rope (s)	To	Sa	Fso + Fsm	Fsu	Tu	Rhs 3	Rhs 4	Rhs 5	Rhs 6
Number of ropes	2	1	2	1	2	1	1	1	1
Cells no.	Z1	Z2	Z4	Z5	Z3	Z8	Z9	Z10	Z7
SEL 1 (kN)	112	51	74	28	123	146	117	90	168
SEL 2 (kN)	103	56	87	23	116	192	-	152	219

Rope (s)	To	Sa	Fso	Fsm + Fsu	Tu	Rhs 3	Rhs 4	Rhs 5	Rhs 6
Number of ropes	2	1	2	1	2	1	1	1	1
Cells no.	Z1	Z2	Z4	Z5	Z3	Z8	Z9	Z10	Z7
MEL (kN)	172	210	50	100	140	213	143	198	228

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

Anchors	To+Fso	Sa	Tu+Fsm +Fsu	Rhs	Rhs_p	Rhs_o
Number of Ropes	3	2	4	2	2	2
Cells no.	Z1+Z4	Z2	Z3+Z5	Z9+Z10	Z9+Z10	Z9+Z10
Maximum force (kN)	232	210	228	291	289	37
Factor	1.3	1.3	1.3	1.3	1.3	1.3
Substitute load (kN)	302	273	296	379	376	48

Points for assessment criteria

(Source 1)

Criteria	maximum possible	minimum recommended	attained
A1: Priority criteria	16	16	16
A2: Assessment of the nets	10	8	10
A3.1: Technical documentation	15	12	15
A3.2: Assembly instructions	41	33	41
A3.3: Maintenance manual	19	15	17
Total	101	84	99

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

Author

Specialist of
rockfall



Werner Gerber
Dipl Bauing. FH

Group leader

Torrents and
Mass Movements



Dr. A. Badoux
Dipl Natw. ETH

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)

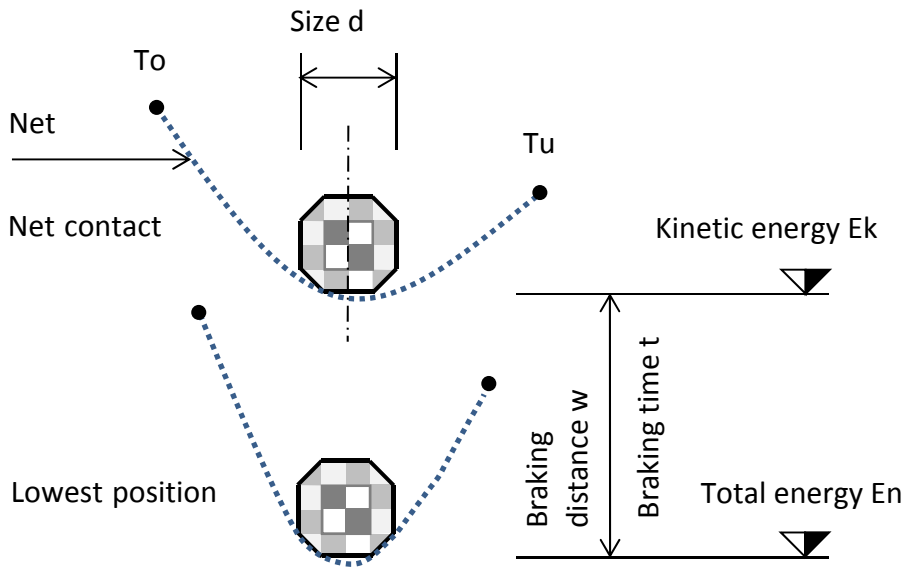


Diagram showing designations for anchor forces

