



Pôle Alpin Risques Naturels

Symposium : les ouvrages de protections contre les risques naturels : évolutions et perspectives

8 Juillet 2022

ECRANS PARE-BLOCS ROCCO

Franck SERVANT, Geobrugg France



ECRANS PARE-BLOCS ROCCO

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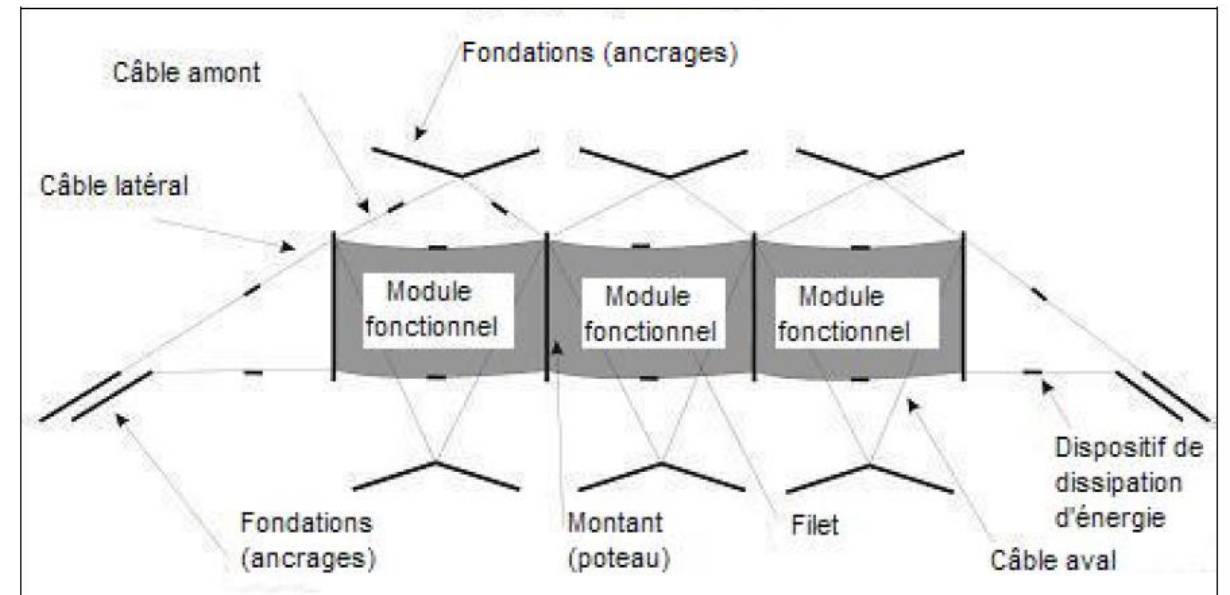
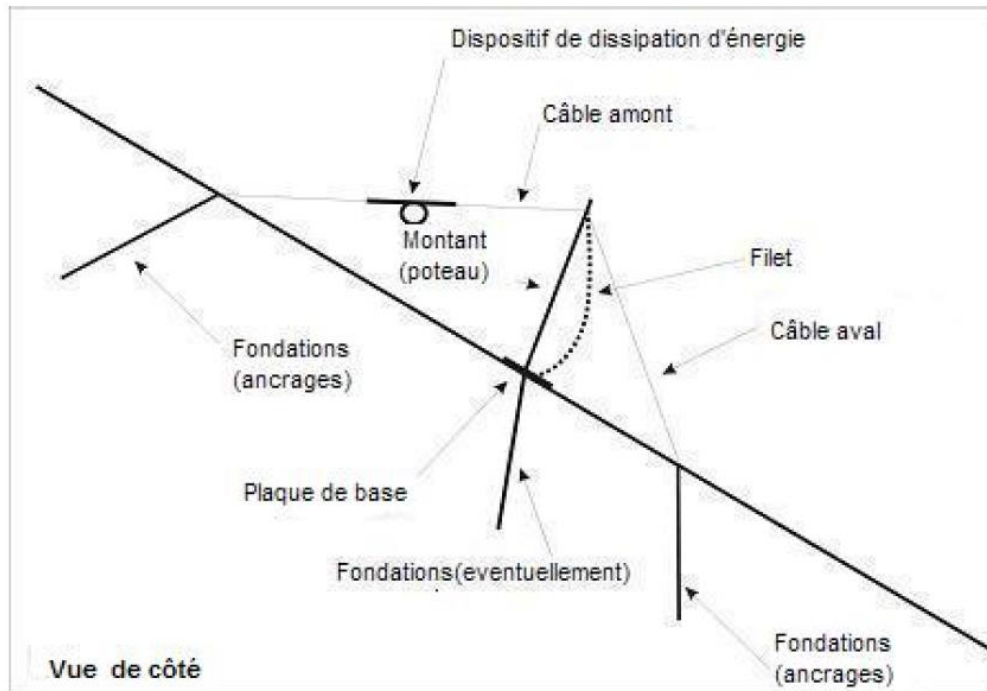


LIMITES DE L'EAD 340059-00-0106

PETIT HISTORIQUE DES ESSAIS DE CERTIFICATION

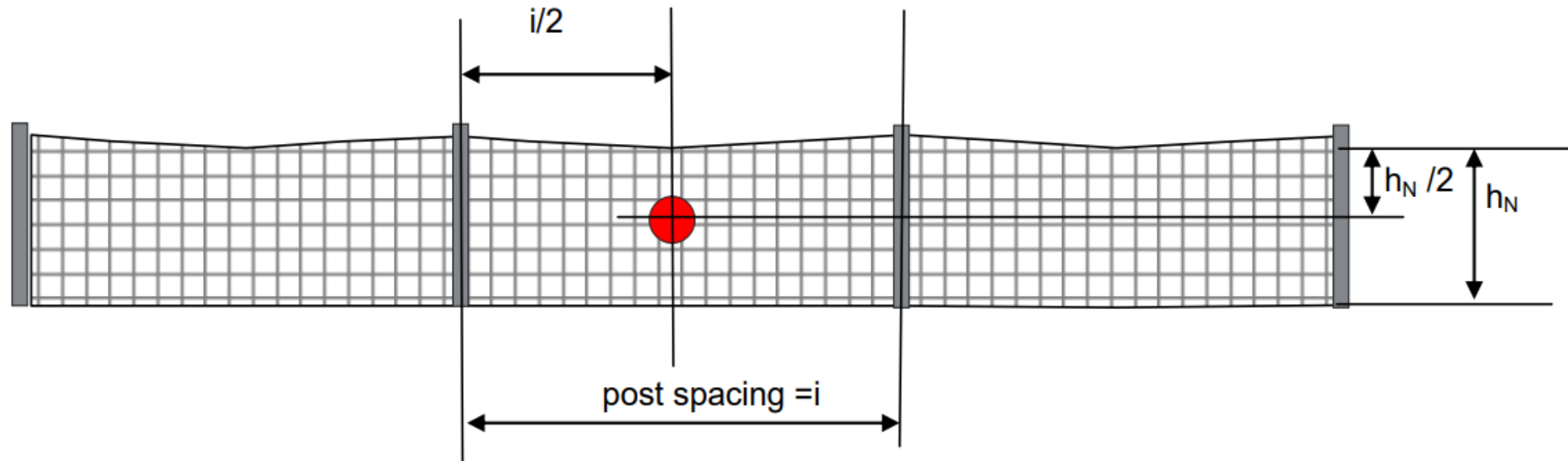
2008 : l'EOTA produit une référence → ETAG 027

2018 : ETAG 027 → EAD 340059-00-0106



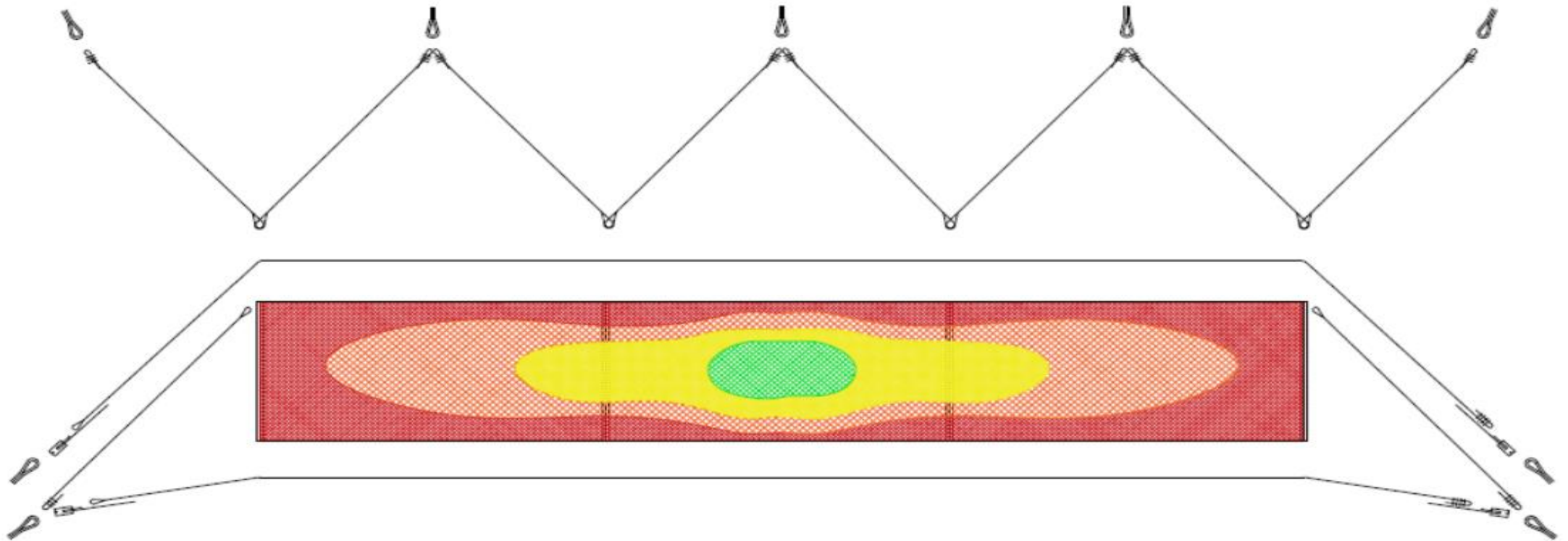
MEL (100%) = Maximum Energy Level

SEL1, SEL2 (33%) = Service Energy Level



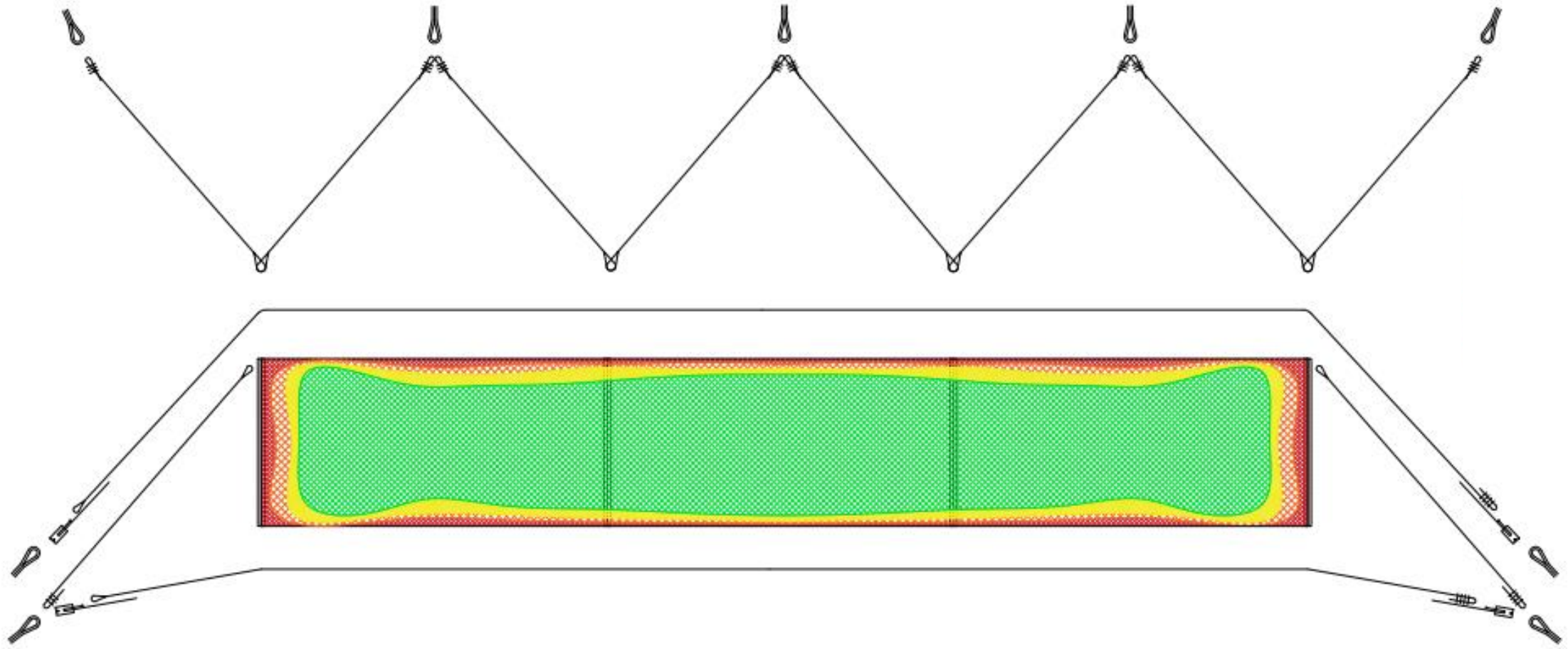
LIMITES DES ESSAIS DE CERTIFICATION / SYSTÈMES STANDARDISÉS

Selon ce principe, ce qu'un écran pare-blocs certifié doit remplir :

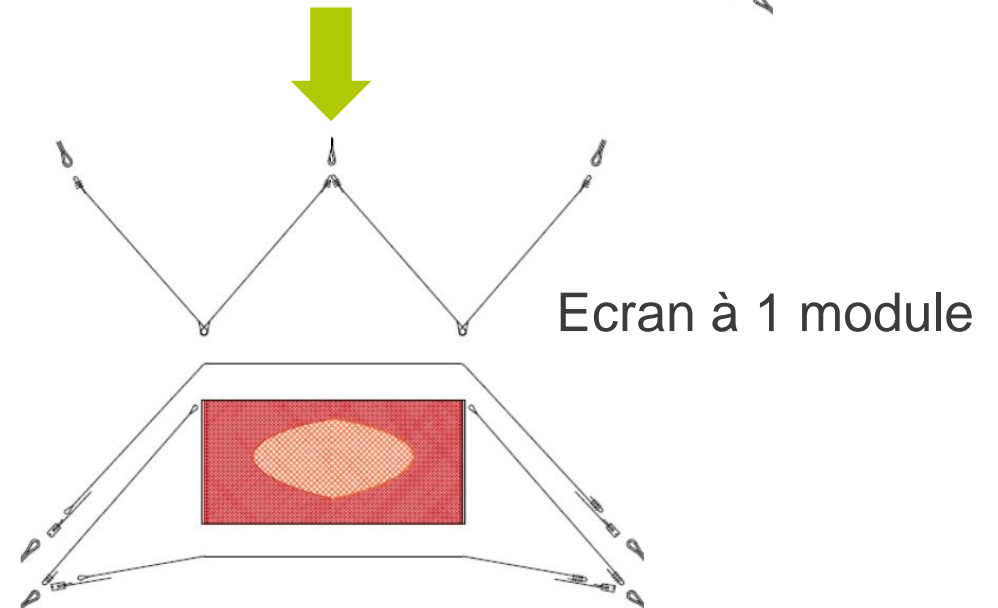
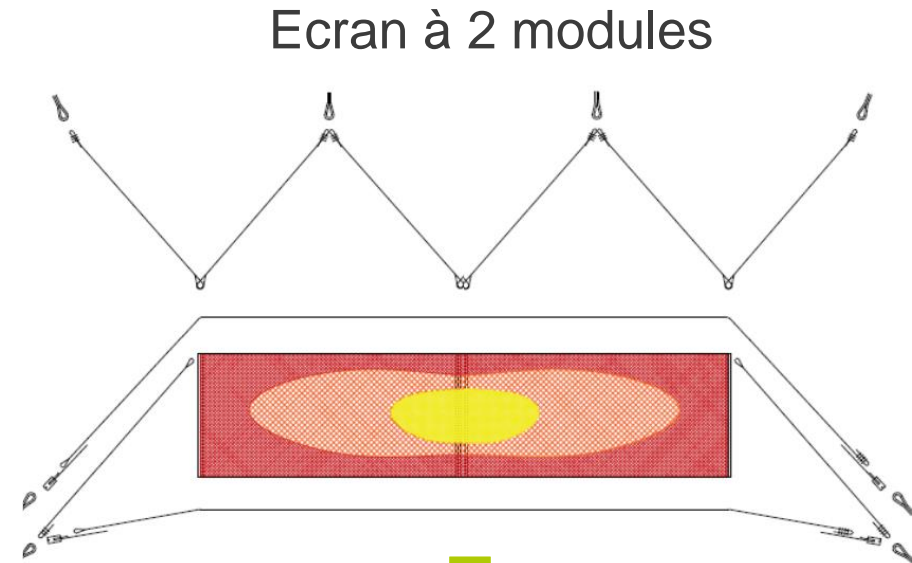
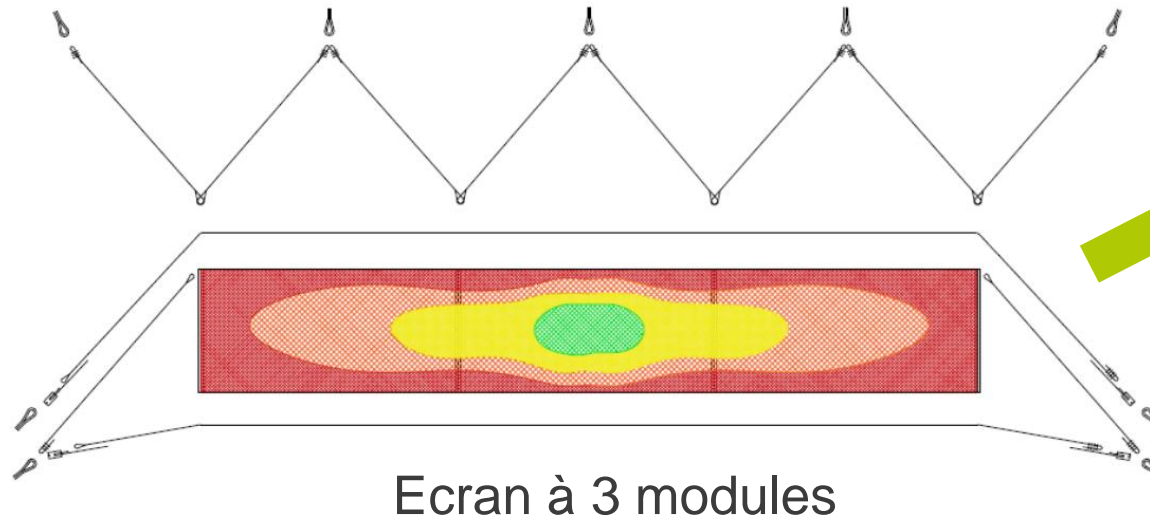


LIMITES DES ESSAIS DE CERTIFICATION / SYSTÈMES STANDARDISÉS

Mais ce que les gens attendent d'un écran pare-blocs :



LIMITES DES ESSAIS DE CERTIFICATION / SYSTÈMES STANDARDISÉS



- ➡ Resistance des composants ?
- ➡ Resistance des ancrages ?

CONSTAT SUR LE MARCHÉ FRANÇAIS

GEOBRUGG France : 25% des systèmes en 2020 < 30 ml

Augmentation d'écrans courts :

- ▶ Modules latéraux en "zone de danger"
- ▶ Comportement < 30 ml ?



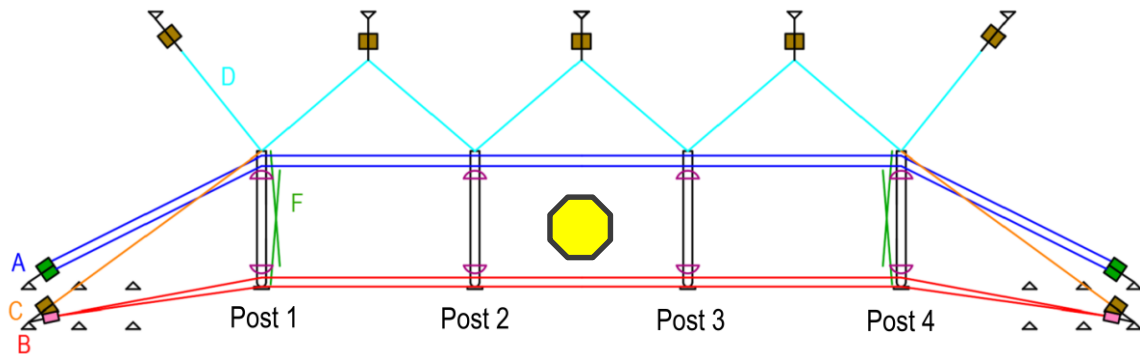
 Pourquoi faire des travaux sans garantie de fonctionnement ?



ÉCRAN PARE-BLOCS ROCCO

TEST DE L'ECRAN ROCCO

Test de certification selon l' EAD 340059-00-0106: **SEL1, SEL2, MEL**



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**European Technical
Assessment**

**ETA 19/0568 – version 01
of 06/03/2020**

General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: **Technický a skúšobný ústav stavebný, n. o.**

Trade name of the construction product

Falling Rock Protection Barrier ROCCO-2000

TEST DE L'ÉCRAN ROCCO

Ce que nous avons fait pour répondre aux attentes des gens :

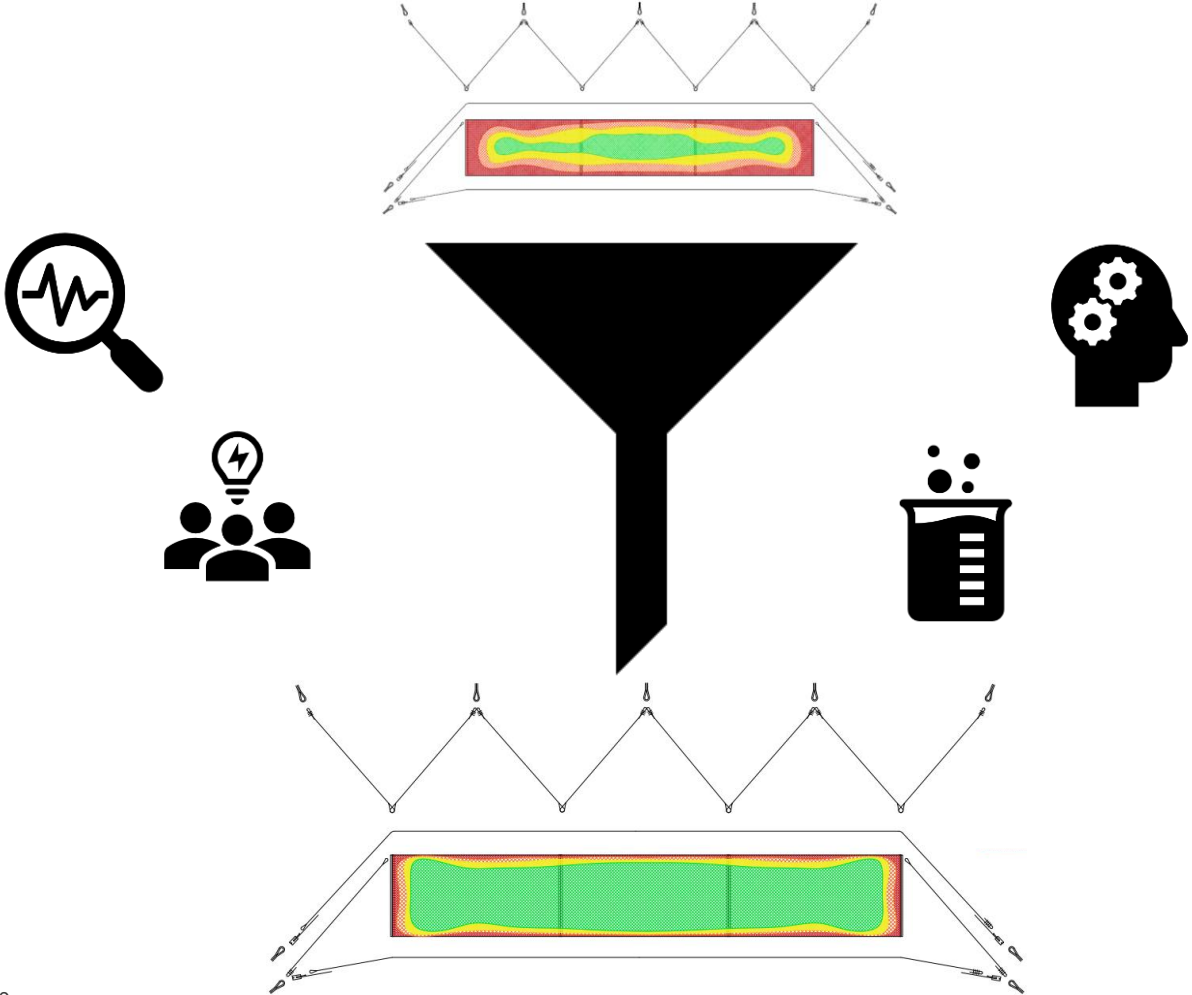
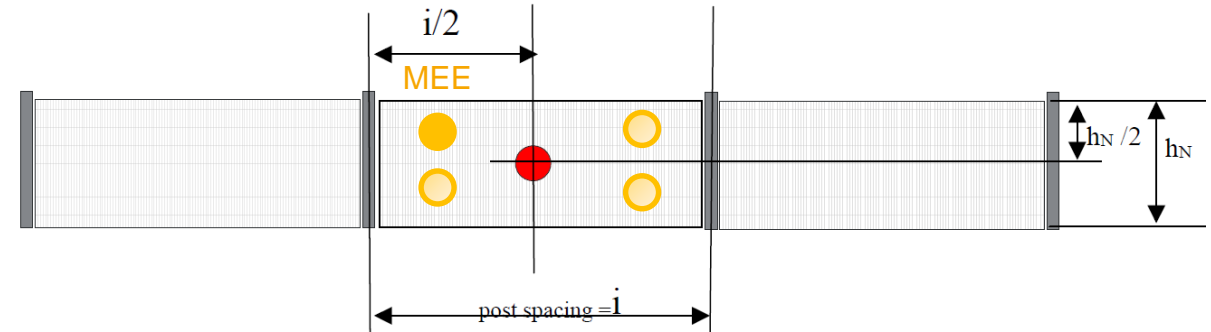


Image: schematic drawing by Geobruigg 2020

TEST DE L'ÉCRAN ROCCO

MEL-E* (100%) = **M**aximum **E**nergy **L**evel - **E**ccentric (excentrique dans le module central)



- ▶ Charges asymétriques
- ▶ Preuve de la résistance nette

TEST DE L'ÉCRAN ROCCO

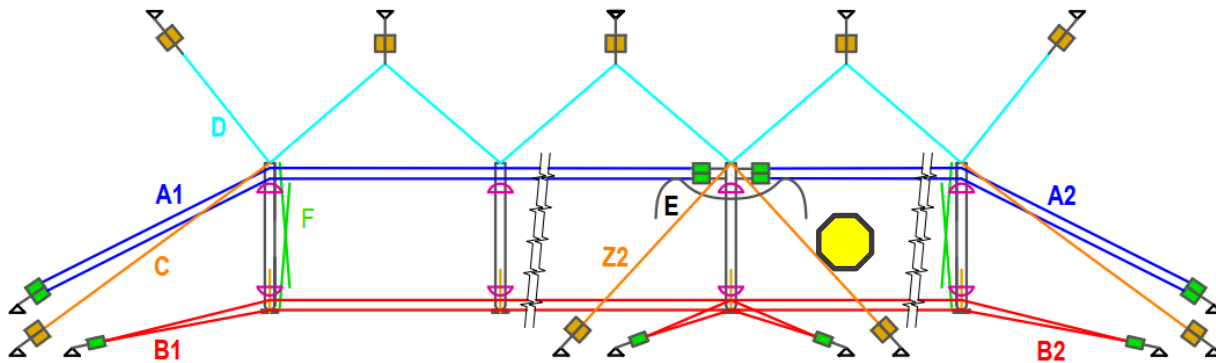
MEL-F* (100%) = Maximum Energy Level - Field (un ou deux modules et module d'extrémité)



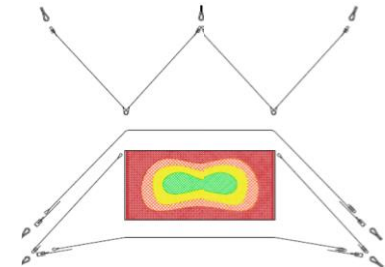
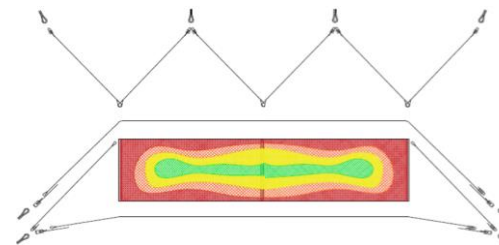
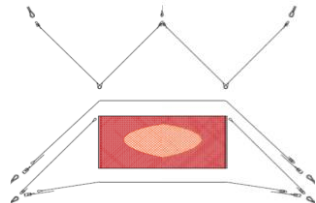
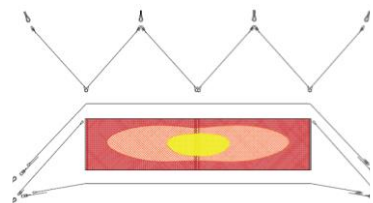
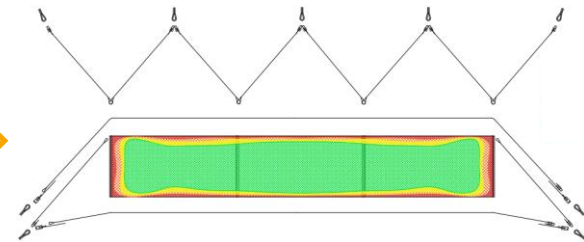
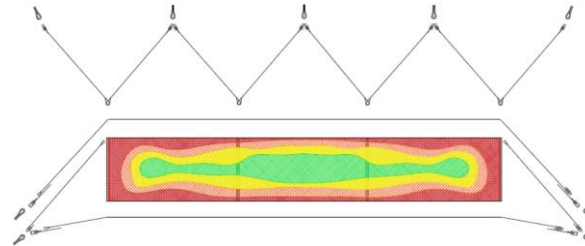
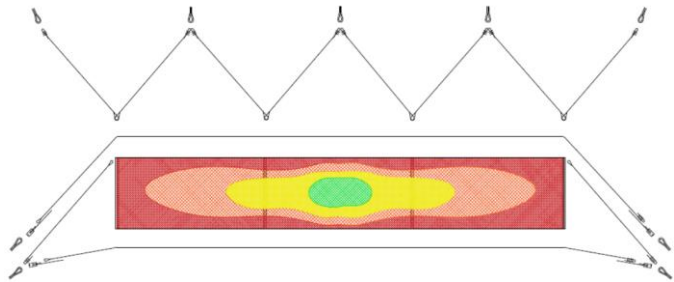
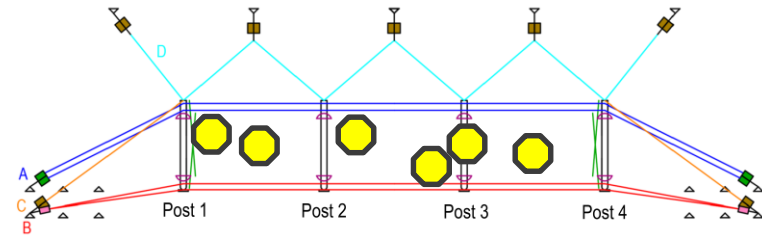
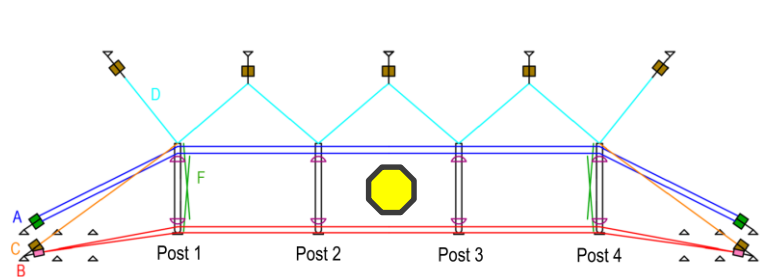
- ▶ MEL dans un module
- ▶ 1/3 de forces en plus dans les ancrages amont
- ▶ 50% d'absorption d'énergie en plus dans les dissipateurs

TEST DE L'ÉCRAN ROCCO

MEL-S* (100%) = **M**aximum **E**nergy **L**evel - **S**eparation (au centre du module central et du module d'extrémité avec des cables de separation)



CE QU'APPORTE L'ECRAN ROCCO



Pérennité retrouvée? Justification des travaux réalisés ?

LA GAMME D'ÉCRANS ROCCO

Certifiés ...

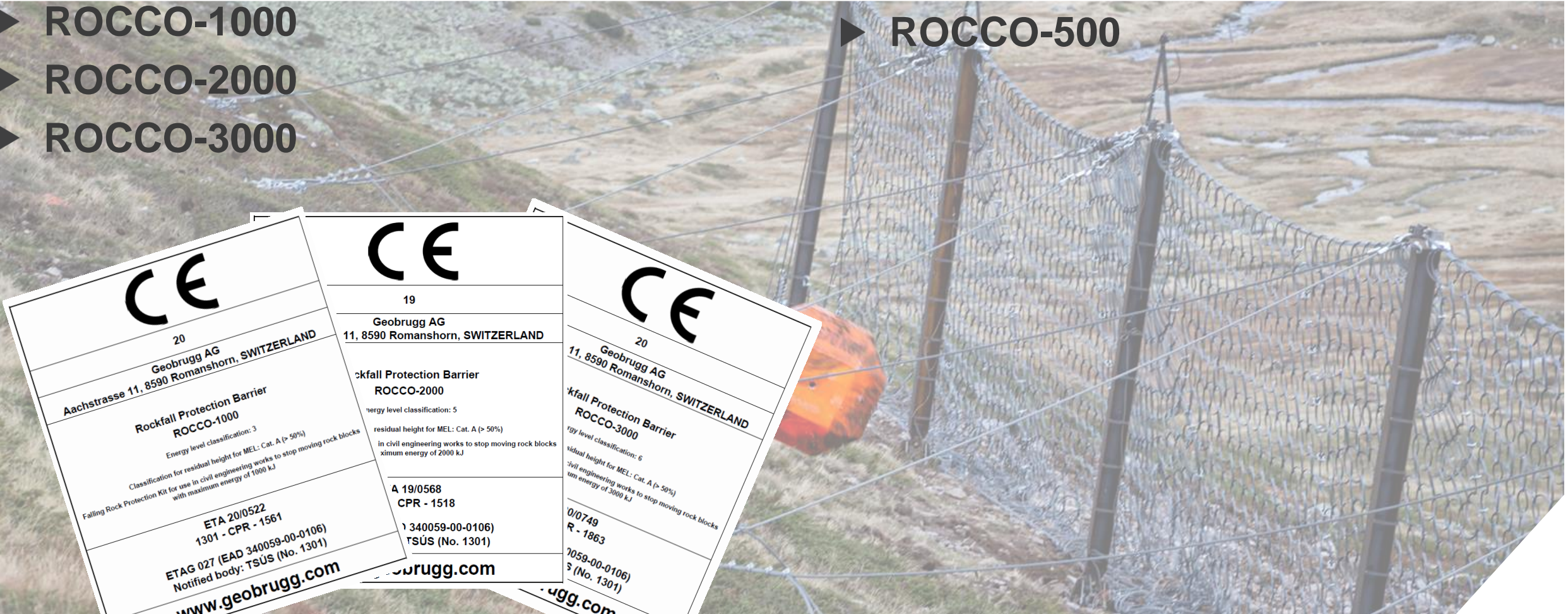
et en cours de certification ...

▶ ROCCO-1000

▶ ROCCO-2000

▶ ROCCO-3000

▶ ROCCO-500



| |
|---|
| CE |
| 20 |
| Geobru gg AG 11, 8590 Romanshorn, SWITZERLAND |
| Rockfall Protection Barrier ROCCO-1000 |
| Energy level classification: 3 |
| Classification for residual height for MEL: Cat. A (> 50%) Falling Rock Protection Kit for use in civil engineering works to stop moving rock blocks with maximum energy of 1000 kJ |
| ETA 20/0522 1301 - CPR - 1561 |
| ETAG 027 (EAD 340059-00-0106) Notified body: TSÚS (No. 1301) |
| www.geobru gg.com |

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|--|
| CE |
| 19 |
| Geobru gg AG 11, 8590 Romanshorn, SWITZERLAND |
| Rockfall Protection Barrier ROCCO-2000 |
| Energy level classification: 5 |
| residual height for MEL: Cat. A (> 50%) in civil engineering works to stop moving rock blocks with maximum energy of 2000 kJ |
| ETA 19/0568 CPR - 1518 |
| ETAG 027 (EAD 340059-00-0106) Notified body: TSÚS (No. 1301) |
| www.geobru gg.com |

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|--|
| CE |
| 20 |
| Geobru gg AG 11, 8590 Romanshorn, SWITZERLAND |
| Rockfall Protection Barrier ROCCO-3000 |
| Energy level classification: 6 |
| residual height for MEL: Cat. A (> 50%) in civil engineering works to stop moving rock blocks with maximum energy of 3000 kJ |
| ETA 20/0749 R - 1863 |
| ETAG 027 (EAD 340059-00-0106) Notified body: TSÚS (No. 1301) |
| www.geobru gg.com |

QUESTIONS?



MERCI BEAUCOUP
POUR VOTRE ATTENTION

