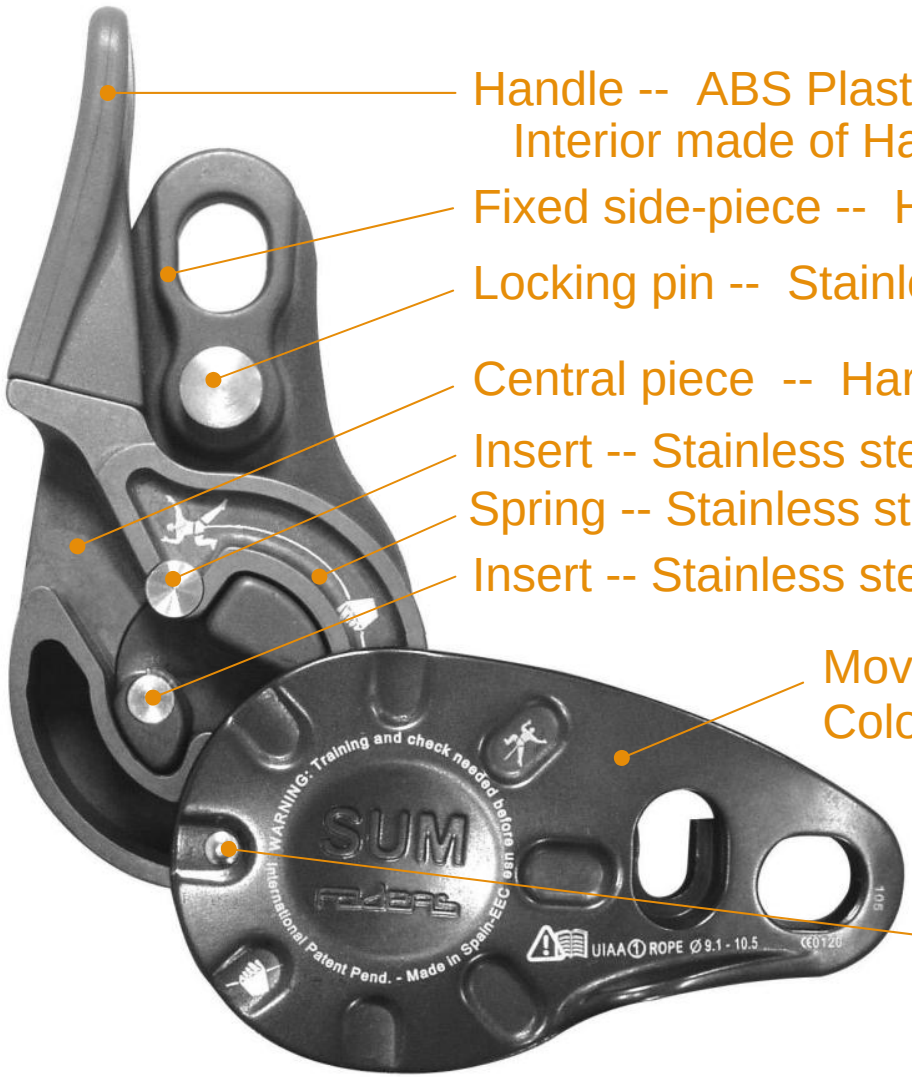
FADERS®

SUM

TECHNICAL REPORT

COMPONENTS AND MATERIALS



Handle -- ABS Plastic
Interior made of Hard anodized Aluminum 7075

Fixed side-piece -- Hard anodized Aluminum 7075

Locking pin -- Stainless steel 304

Central piece -- Hard anodized Aluminum 7075

Insert -- Stainless steel 316

Spring -- Stainless steel 304

Insert -- Stainless steel 316

Moving side-piece --
Color anodized Aluminum 7075

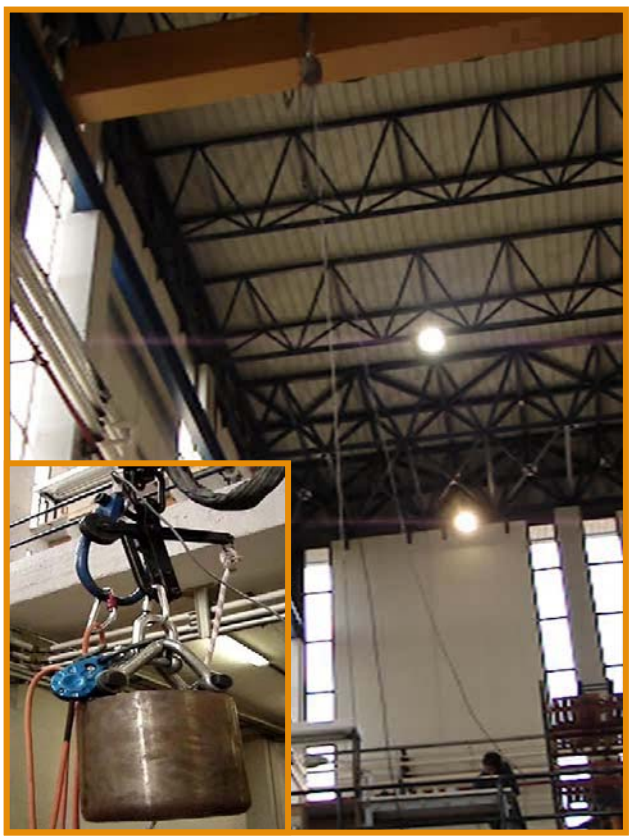
Pin -- Stainless steel 304

- SUM TECHNICAL REPORT -

PERFORMANCE TESTS

DYNAMIC TEST:

DROP AND SHOCK LOAD RESULTS



STATIC TEST:

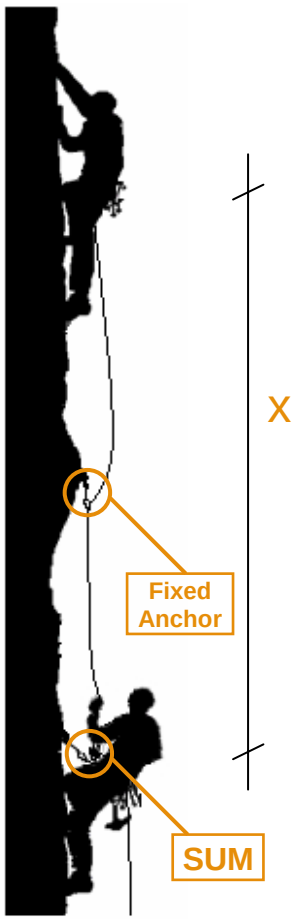
BEGINNING OF SLIPAGE RESULTS

DYNAMIC TEST SPECS

- Performed by Applus Certification Technological Centre.
- Falls including Factor 1 and 2.
- 16 falls performed with a single SUM unit.
- 80 kg. mass.
- Ropes UIAA from 8.9 to 10.5mm. complying with the UIAA and the European standards:
  - **9.1 diameter. Manufacturer Beal**
  - **9.7 diameter. Manufacturer Lanex.**
  - **10.5 diameter. Manufacturer Lanex.**

DYNAMIC TEST. FACTOR 1 FALL

REAL CLIMBING SITUATION

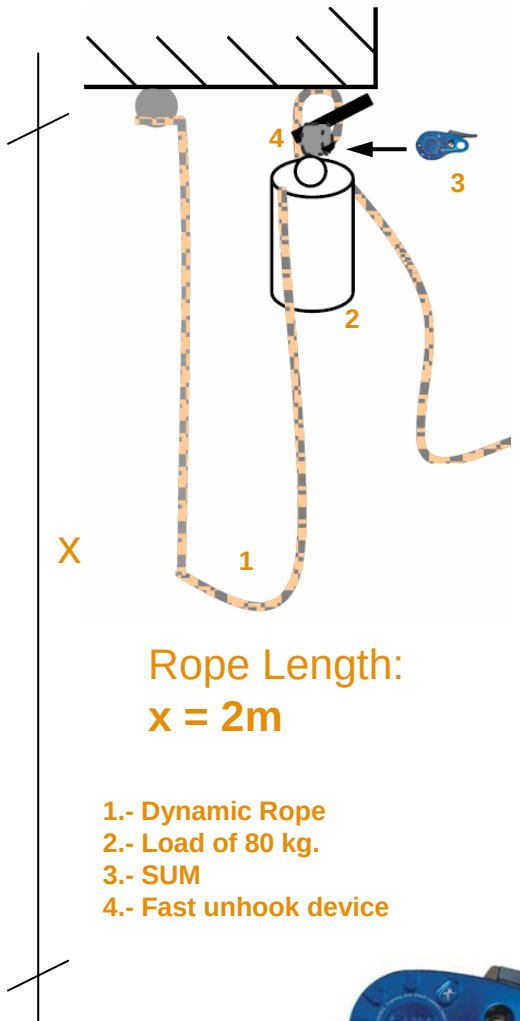


$$Factor = \frac{Fall\_Dist}{Rope\_Lenght} = \frac{x}{x} = \frac{2m}{2m} = 1$$

Fall factor does not depend on the fall distance, but rather the ratio of the length of the fall to the length of rope absorbing the shock of the fall.

The fall distance affects the total energy dissipated, but not the shock load.

SIMULATION TEST



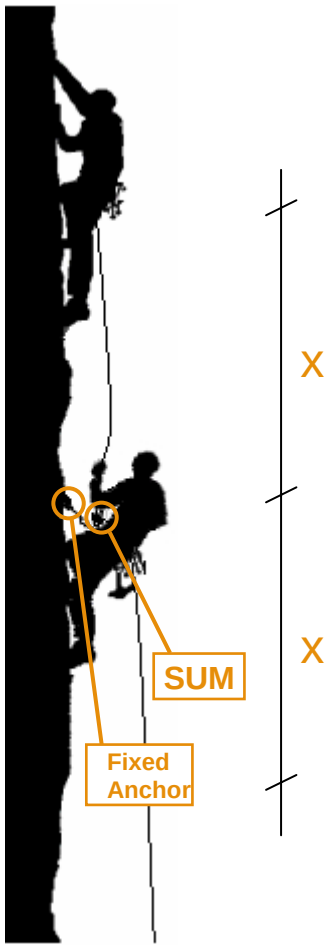
Rope Length:

x = 2m

1.- Dynamic Rope
2.- Load of 80 kg.
3.- SUM
4.- Fast unhook device

DYNAMIC TEST. FACTOR 2 FALL

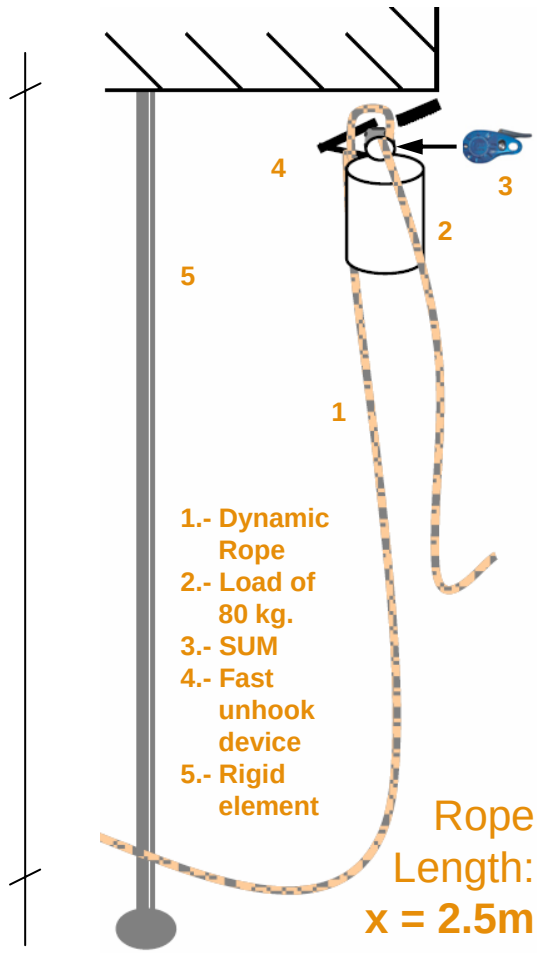
REAL CLIMBING SITUATION



$$Factor = \frac{Fall\_Dist}{Rope\_Lenght} = \frac{2x}{x} = \frac{5m}{2.5m} = 2$$

Factor 2 is the hardest fall possible and very dangerous:
Occurs when climber falls before clipping the first carabiner after the anchor.

SIMULATION TEST



DYNAMIC TEST RESULTS

SHOCK LOAD RESULTS	FACTOR 1 2m/2m		FACTOR 2 5m/2.5m	
ROPE Ø	Shock Load (kN)	Slippage (m.)	Shock Load (kN)	Slippage (m.)
9.1mm	2.24	1.25	2.4	3.15
9.7mm	1.27	0.89	2.77	2.12
10.5mm	1.38	0.6	2.91	1.47

The indicated values are averages and may vary with the type of rope.

- SUM TECHNICAL REPORT -

DYNAMIC TEST RESULTS ANALYSIS

- **16 Falls** performed with a **single unit** with **no damage** on it.
- **Optimal *Shock Load / Slippage* ratio:**
  Dynamic braking which **absorbs** a great part of the impact.
- **Nearly 75% Shock Load reduction** with respect to alternatives.
- Beneficial consequences on other items in the belay system, due to the Shock Load reduction, increasing their resistance and their useful life.
- Rope checked after each fall. In any case **no damages** have been detected **in the sheath nor in the core of the ropes.**

FADERS be one with nature

STATIC TEST RESULTS

BEGINNING OF SLIPPAGE ROPE Ø	Load (kN)
9.1mm	2.8
9.5mm	3.4
10.5mm	3.8

Test made on Lanex static ropes complying with the UIAA and the European standards.

Taking care of climber security