**UIAA Safety Commission**
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# Explanatory Note to UIAA 110 – Static Ropes

(Standard approved June 2025)

**To the mountaineering community,**

The new safety standard UIAA 110 for static ropes was approved in the middle of 2025 after five years of intense effort by the Safety Commission working group. It was composed of delegates from various climbing, mountaineering and rescue federations, experts, rope manufacturers and testing laboratories.

## Why a new standard?

This UIAA 110 standard shall be distinguished from the other UIAA and EN standards related to climbing and mountaineering ropes. While the requirements for dynamic ropes are well-defined since 1961 in the international standard UIAA 101 (and later in EN 892), the situation is more complex for low-elongation ropes. As shown in the comparative table in this letter, the UIAA 107 is valid for low-stretch kernmantle[1] ropes with an elongation up to 5 %. In this 107 standard, the minimal diameter is set to 8,5 mm (and the maximal to 16 mm).

Nevertheless, for several years, ropes smaller than 8,5 mm diameter are on the market for crevasse rescue, rappelling, and hauling operations. These ropes are currently certified according to UIAA 102 and EN 564, but these standards are meant for accessory cords. For example, they have no specification for static strength with terminations, nor a fall-arrest test.

The main requirements for the UIAA 102 are a diameter between 4 mm and 8 mm, and a minimal tensile strength is for example 5 kN for 5 mm diameter and 7,2 kN for 6 mm. Values below 8 kN are considered too low for the above-mentioned uses of low-elongation ropes. Of course, a manufacturer could claim higher tensile strength values than required by UIAA 102, but this situation was not fully satisfactory, so UIAA decided to homogenize the requirements with the release of a new standard.

## Rationals for the main requirements

The working group intensely discussed the requirements matching the uses recommended by associations, fulfilling reproducible tests in laboratories, while ensuring as much consistency as possible with the other rope standards. To allow future innovation, it has been decided not to impose minimal and maximal diameters. The construction shall be kernmantel, meaning distinguished core and sheath.

The static elongation shall be lower or equal to 2,5 % tested with 100 kg mass differences (under 150 kg vs 50 kg). An indicative value of the static elongation shall be given for a mass difference of 200 kg as well (under 250 kg vs 50 kg). This 2,5 % value is half of the UIAA 107 standard for low stretch ropes.

The static strength with figure of 8 knot terminations shall be $\geq$ 8 kN and $\geq$ 12 kN without terminations. The 12 kN value is aligned with many other standards. The 8 kN value should be understood as the very minimum breaking strength for textile products to survive a 'normal' use, for example the peak force generated by an abrupt stop while abseiling.

**Note that with these static ropes, additional equipment is mandatory to absorb energy, since the low elongation ropes as per UIAA 102 or the static ropes as per UIAA 110 do NOT permit any dynamic use. Their constructions are not designed to limit impact forces nor prevent bodily injury from an abrupt stop.**

## Recommended uses

For each product, the recommended uses shall be verified on the manufacturer's instructions and information leaflet attached with the rope.

[1] A rope design in which load-bearing fibers form a central core (*Kern*), enclosed by a tightly woven sheath (*Mantel*). This structure separates strength from protection: the core carries most of the load, while the sheath guards against abrasion and gives the rope consistent handling.

**Comparison between UIAA and EN Rope Standards.**

| **UIAA** | **101** | **107** | **110** | **102** |
|---|---|---|---|---|
| **EN equivalent** | **EN 892:2012 +A3:2023** | **EN 1891:1998** | **no equivalent** | **EN 564:2023** |
| **Official Name** | dynamic ropes | low stretch kernmantel ropes | static ropes | accessory cord |
| **Types** | single, half and twin | type A: general use by persons in rope access including all kinds of work positioning and restraint; in rescue rigging scenarios and in speleology.<br>type B: of a lower performance than type A ropes, requiring greater care in use. | (only one type) | (only one type) |
| **Definition** | Rope, which is capable, when used as a component in the safety chain, of arresting the free fall of a person engaged in mountaineering or climbing with a limited peak force. | A textile rope consisting of a core enclosed by a sheath, designed for use by persons in rope access including all kinds of work positioning and restraint; for rescue rigging scenarios and speleology. | Static ropes, intended to support the weight of a human body or bodies in mountaineering, caving, canyoning, and glacier traverse when rappelling, ascending, positioning, and rescue rigging scenarios. Static ropes are not intended to dissipate energy in the instance of a shock load. | Cord that is intended to withstand forces, but not intended to absorb energy. |
| **Diameter** | no req. | 8.5 to 16 mm | no req. [1] | 4 to 8 mm |
| **Construction** | kernmantel | kernmantel | kernmantel | kernmantel |
| **Static elongation** | single $\leq$ 10 %<br>half $\leq$ 12 %<br>twin $\leq$ 10 % (double strand) | $\leq$ 5 % | $\leq$ 2,5 % | no req. |

**Comparison between UIAA and EN Rope Standards — continued.**

| UIAA | 101 | 107 | 110 | 102 |
|---|---|---|---|---|
| | dynamic ropes | low stretch kernmantel ropes | static ropes | accessory cord |
| **Mass difference to measure static elongation** | 75 kg (80–5) | 100 kg (150–50) | 100 kg (150–50)<br>& 200 kg (250–50) | n/a |
| **Dynamic elongation** | $\leq$40 % | no req. | no req. | no req. |
| **Sheath slippage** | $\leq$1 % (20 mm) | type A, for diam. $\leq$12 mm:<br>$<$ 20 mm + 10(D–9 mm)<br>and for diam. 12.1–16 mm:<br>$<$ 20 mm + 5(D–12 mm)<br>type B: $\leq$15 mm | no req. | no req. |
| **Shrinkage** | yes | yes | no req. | no req. |
| **Fall arrest peak force** | single $\leq$12 kN<br>half $\leq$8 kN<br>twin $\leq$12 kN (double strand) | $<$ 6 kN | no req. | no req. |
| **Fall arrest falling mass** | single 80 kg<br>half 55 kg<br>twin 80 kg | type A: 100 kg<br>type B: 80 kg | 80 kg | n/a |
| **Falling mass height** | 4800 mm | 600 mm | 300 mm | n/a |
| **Sample length** | 2800 mm | 2000 mm | 2000 mm | n/a |
| **Fall factor** | FF 1.7 | FF 0.3 | FF 0.15 | n/a |
| **Static strength without termination** | no req. | type A $\geq$22 kN<br>type B $\geq$18 kN | $\geq$12 kN | **diam.** (mm) – **min.** (kN)<br>4 – 3.2<br>5 – 5.0<br>5.5 – 6.1<br>6 – 7.2<br>7 – 9.8<br>8 – 12.8 |
| **Static strength with terminations** | no req. | type A $\geq$15 kN<br>type B $\geq$12 kN | $\geq$8 kN with figure 8 knot | No min. value but shall be tested and value indicated. |
| **Dynamic performances** | single & half $\geq$5 falls, twin $\geq$12 falls (FF 1.7) | $\geq$5 falls (FF 1) | no | no |
| **Knotability test** | no | yes | no | no |
| **UIAA water repellency test** | yes (optional) | no | no | no |

[1] Diameter not limited, but with a requirement to measure and state the diameter.

## Further Information

Please consult the complete library of UIAA Safety Standards at:
https://www.theuiaa.org/safety/safety-standards/

For direct access to the new static rope standard (UIAA 110 – *Static Ropes*):
https://www.theuiaa.org/documents/safety-standards/UIAA_110_StaticRopes_v1.pdf

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