

Instructions for the installation of safety nets



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Applicable standards and rules

Personal fall arrest nets must comply with the safety requirements of the EN 1263-1, EN 1263-2 and DGUV regulation 101-011 apply to the erection and installation of safety nets.

HUCK's safety nets comply with EN 12631

① Application

Safety nets are used for fall protection. They are typically used for construction work at great heights, such as hall construction (see Fig. 1), overhead line construction or as a fall arrest system on work scaffolding. They guarantee unimpeded mobility for the workers.

② Marking

Each safety net must be clearly marked according to EN 1263-1 (see figure 2). The marking must contain the following points:

- Date of manufacture, name of the manufacturer
- Net type and mesh size
- The exact article description (article number)
- Minimum energy absorption capacity or minimum breaking strength of the test mesh according to ISO 1806.
- Test number of the testing body that certified the network.

③ Annual audit

There are test seals with identical identification numbers on the safety net label and test mesh on every HUCK safety net (see Fig. 3). This ensures that the safety net and the test mesh belong together.

The first test mesh must be sent to an authorised tester (e.g. manufacturer) no later than 1 year after the date of manufacture. The latter proves whether the net used still has the necessary strength/energy absorption and keeps a written record of the results.

Art. 9700 Examination costs per examination mesh:

④ If the test result is positive, you will receive a new test badge with an identification number, which you then attach to the relevant net again (see Fig. 4).

The net can then be used for another year. Please also note the point "ready for discarding"!

Erection and dismantling of personal safety nets

Only persons who have been instructed by the contractor may be entrusted with the assembly. The persons involved in the assembly must be secured against falling (safety harness, lifting platform).

Required anchoring forces

Safety nets must be attached to load-bearing structures. For the design of each suspension point, a characteristic load P of at least 6 kN at an angle of $\alpha = 45^\circ$ shall be assumed. For the design of the structural elements, three characteristic loads of 4 kN, 6 kN and 4 kN at the unfavourable point shall be considered.

The suspension points must not be more than 2.50 m apart.



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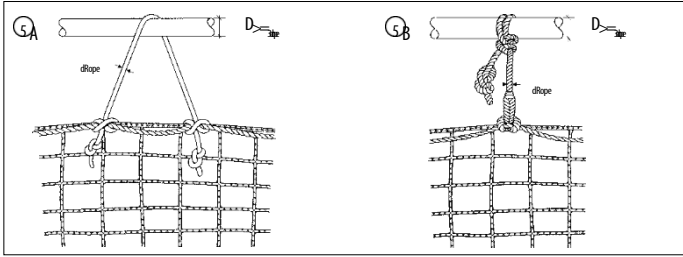
Label front 2 ○



Label back 2 ○



Inspection sticker with identification number and next inspection date 4 ○



A) : two-strand suspension rope Z (rope breaking force \geq 15 kN)
 B) : single-strand suspension rope L (rope breaking force \geq 30 kN)

5 **Suspension**

Suspension is done with suspension ropes, snap hooks, net thimble loops or safety net thimbles. Other means of attachment such as suspension ropes EN 1263-1 must have a safety factor of 2. In the case of single-strand suspension (Fig. 5B) with suspension ropes, the breaking strength of the suspension rope must be at least 30 kN; in the case of double-strand suspension (Fig. 5A), the suspension can be made with 15 kN ropes. The karabiners used may be karabiners according to DIN EN 362 "Personal protective equipment against falls from a height - Connecting elements", DIN EN 12 275 "Mountaineering equipment; karabiners; safety requirements and test methods" or according to DIN 5299 "Snap hooks made of half-round wire, round wire and forged" may be used. Further safety instructions can be found in the DGUV information on safety nets.

Dimensions/Minimum size

The values given below assume a minimum size of 35 m², whereby the length of the shortest side must be at least 5 m. If the minimum dimensions are not met, special proof is required (see DGUV 101-011, Annex 1).

6 **Falling height / minimum catch width**

Safety nets must be suspended as close as possible below the workplaces to be protected. If, for technical reasons and structural conditions, safety nets cannot be installed directly below the workplace, the fall height H (vertical difference in height between the edge of the fall and the impact surface in the safety net) must not exceed 6 m due to the physical properties of the safety net. In the edge area up to 2 m (H_{i1}), the permissible fall height must not exceed 3 m.

7 **Free space under the protective net**

Safety nets must be suspended in such a way that, during the fall arrest process, persons cannot touch the ground, hit fixed or moving objects and injure other persons in traffic areas. The deformation depends on the shortest side of the net and the fall height (see table 7 and figure 7). In addition to the deformation, a safety distance $S > 0$ for traffic routes etc. must be maintained.

With appropriate proof from the manufacturer and a fall height of up to 2 m, nets can also be used with a clearance of 3-5 m below the fall edge.

The installations we carry out are carried out by qualified specialist personnel.

Protective net connections

If safety nets are joined together, coupling ropes must be used in such a way that there are no gaps of more than 100 mm at the seam and that the safety nets cannot shift more than 100 mm in relation to each other. Safety nets can also be connected by overlapping. However, the overlap must then be at least 2 m.

Ready to discard

In the following cases, nets must not be used any further:

- Nets through which a person has already been caught
- Nets that no longer meet the minimum breaking strength (see also item annual inspection).
- Nets that are defective (= nets with considerable wear, defective meshes, damage to the edge rope or thimble loops).

Storage/Warnings

Dry storage, never store near a heat source, do not bring into contact with aggressive substances such as acids, bases or similar, do not expose to direct UV radiation. Do not pull nets or ropes over sharp edges. Objects that have fallen into the net must be removed immediately, as they could injure people on impact and impair the load-bearing capacity of the net.

Repair/Deficiencies

Damaged nets may only be repaired by qualified personnel at the manufacturer's works.

If defects are found, safety nets may only continue to be used after a decision by an expert or must be professionally repaired.

If the nets are used under extreme temperatures of $< -20^{\circ}\text{C}$ or $> +50^{\circ}\text{C}$, please consult the manufacturer.

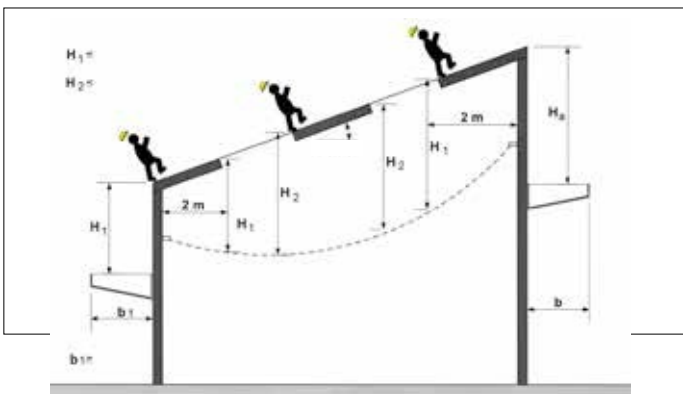
HUCK personal safety nets comply with DIN EN 12631.

| Fall height h (m) | 1 | m2 m | 3m4 | m5 | m6 m | |
|--|------|------|------|------|------|------|
| Deformation f _{max} (m) at l = 5 m | 2,65 | 2,85 | 2,95 | 3,00 | 3,05 | 3,10 |
| Deformation f _{max} (m) at l = 9 m | 3,35 | 3,55 | 3,75 | 3,85 | 3,95 | 4,00 |
| Deformation f _{max} (m) at l = 12 m | 4,20 | 4,40 | 4,55 | 4,75 | 4,90 | 5,00 |

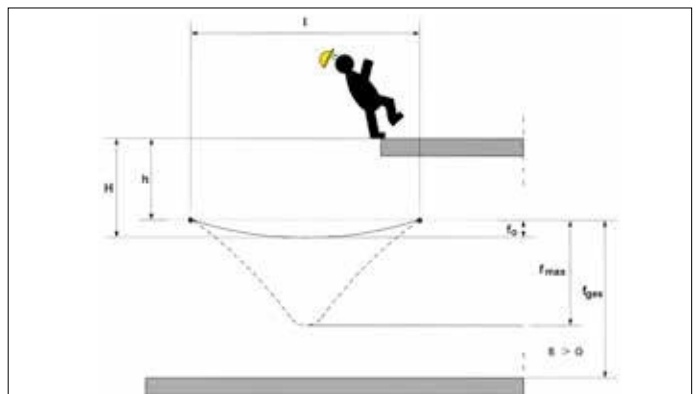
l = span of the rockfall protection kit (smallest side)

The fall arrest width is directly related to the fall height: Fall height $h_a < 1$.

| | | | |
|-----------------------|--------|---------|---------------|
| | 0 < 3. | 0 < 6.0 | metres |
| Minimum catch width b | :> 2. | 0 > 2. | 5 > 3.0 Metre |



Distinction between flat roof and pitched roof according to European standards now 22.5°.



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