

Installation Instructions: K-RockNet Debris Containment Nets

Kinder Australia Product:	K-RockNet Debris Containment Nets
Product Category:	Containment & Debris
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Revision:	1

K-RockNet Debris Containment Nets offers a cost-effective solution for protecting against conveyor accidents, ensuring secure movement of items along conveyor belts as well as protecting debris falling from side, rear or below. It also provides an extra layer of protection and safety for workers from dangers:

- Falling bulk material from overhead conveyors
- Falling conveyor components, such as conveyor rollers

Repairs

Containment nets can only be repaired by a competent person authorised by the manufacturer.

It is good practice to demonstrate an audit trail from purchase to present (e.g. When it was purchased, when it was last examined and repaired (and by whom) and when it was last tested for UV degradation.

Dismantling

It is good practice to identify any damage to the nets prior to dismantling them. Damage should be marked by the rigger to aid future examination. Containment nets should only be dismantled by competent persons with confirmation from the user that the nets are no longer required. Care must be taken to ensure that any debris is removed carefully and safely.

Loading

Once a containment net has been loaded (with person or object). it should only be put back into service once it has been inspected by a competent person authorised by the Manufacturer.

Storage, Care and Inspection

Containment nets should be stored in a dry place, out of direct sunlight not be stored in close proximity to heat sources, be kept away from corrosive materials (acids, solvents oils etc). It is the rigger's responsibility to carry out a visual inspection of any containment net and attachment system. Any damage must be reported before any work commences, and appropriate measures taken.

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Fall Height

Definitions:

- Fall Height is the distance debris can fall (i.e. the distance between the debris and the containment net below them).
- Clearance is the distance between a containment net and the ground below.
- Ground is taken as being the highest point anywhere below a containment net (i.e. an immovable fixed object on the ground below the net).

European Standard EN.1263:2:2014 refers to a maximum fall height of up to 6m and a maximum fall height of 3m within 2m of the edge of the containment net.

Anchorage/ Fixing Points

Containment nets must be attached to a fixing point at least every 2m. Each fixing point should be capable of withstanding 6kN loading at 45°. It is important to consult manufacturer's instructions for those attachment systems which are not dealt with by EN.1263:1:2014.



Gaps

Guidance on the horizontal distance between the edge of the net and supporting structure or adjacent net is as follows:

- It is preferable to rig containment nets with NO GAPS
- Gaps up to 100mm are permitted, in exceptional circumstances, gaps up to 225mm are permitted.

Eaves Bagging

Eaves should be rigged so that the net doesn't waste in and create gaps. In many circumstances there is no suitable structure to achieve this and therefore it is common practice to use a technique called eaves bagging. The eaves border rope is tied tightly between adjacent points (with appropriate capacity) to form a straight edge. Approx. 1.5m of net is gathered into these points to create a bag.

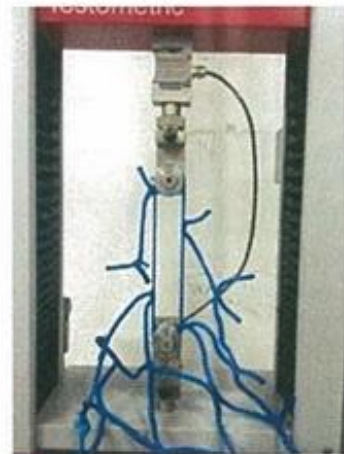
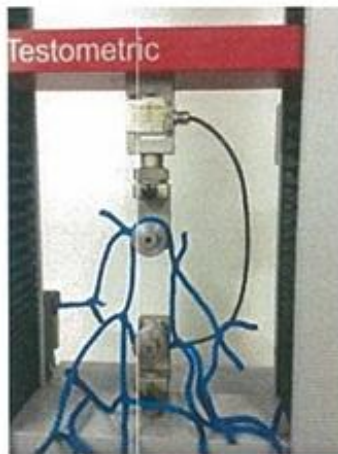
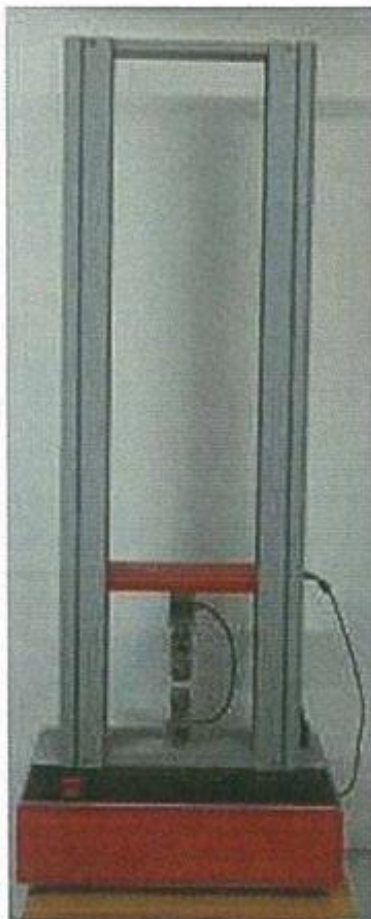
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Annual Inspection

Containment nets should be tested every 12 months to ensure they have not deteriorated through UV exposure and potentially fail when used in anger.

One test mesh is removed (simply unthreaded from the net) each year and returned to Kinder Australia Pty Ltd. Each test mesh has the nets serial number attached to it for easy identification.

If the test mesh passes the test, a letter confirming the net is fit for use for a further 12 months is issued. Kinder Australia Pty Ltd will also supply a pass label which should be affixed adjacent to the label. If the test mesh fails, a letter advising of this will be sent, with instructions for the immediate withdrawal of the net.



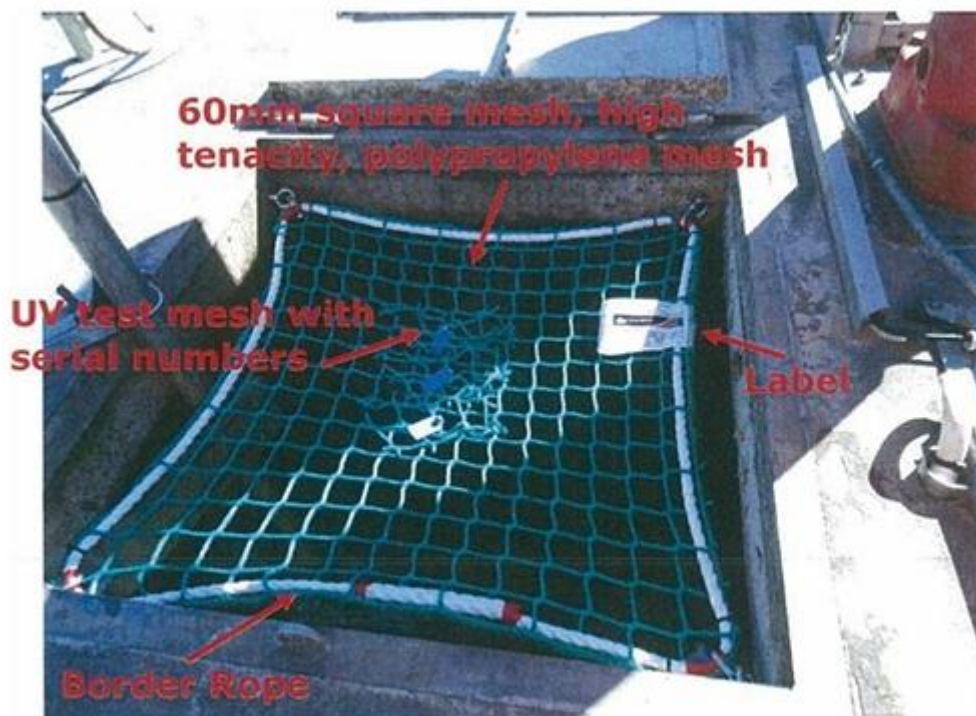
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Identification

To meet the standard, each containment net must have a unique serial number or tag to aid identification.

A label must also be affixed to the net and contain the following information:

- Manufacturer or importer
- Designation • Unique identity number
- Year and month of manufacture
- Minimum energy absorption capacity of the test mesh and the standard to which the net complies.



Parts of an EN.1263:1:2014 Type S Safety Net

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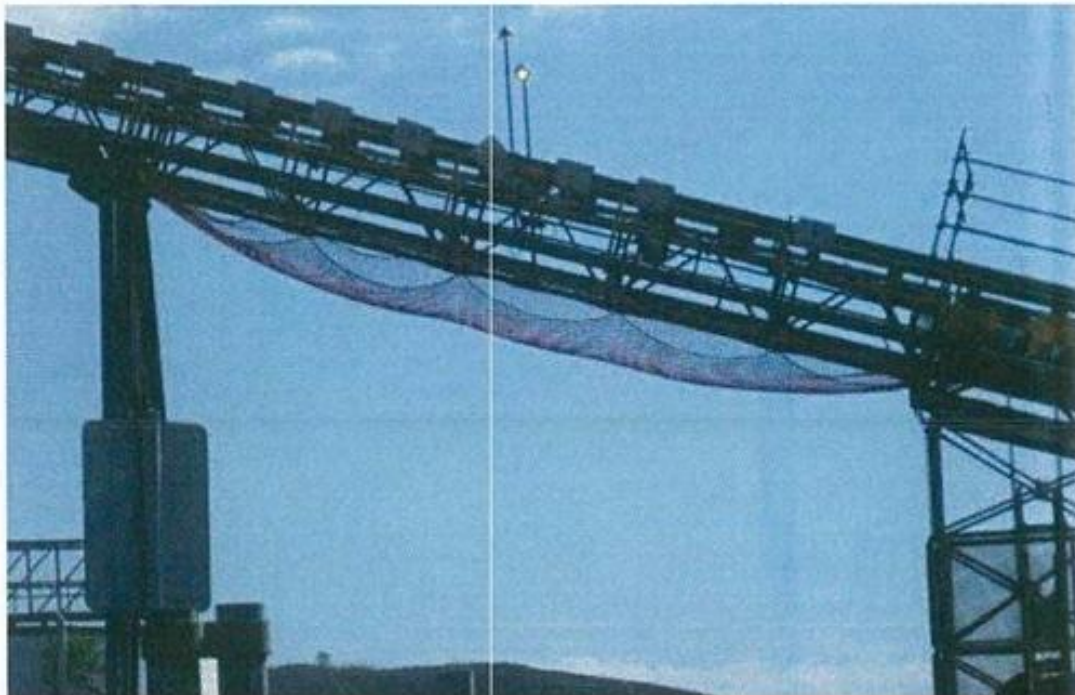
Net Sag

A containment net needs to be set at a tension that allows it to perform as designed in the event of a fall.

The correct tension should be 5-10% of the span (between two adjacent supports).

Net Size

The net will want to sag when supported between fixed points thereby, pulling in on the net perimeter. It is therefore important to always oversize the net by at least 5-10% on all sides. (Example: a 10m x 10m hole- will need an 11m x 11m net).



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Attachment Systems

It is critical that the border rope is always enclosed within the chosen attachment system. There are various means of attachment, however EN.1263: 1: 2014 only refers to the use of tie ropes.

Tie Ropes (EN.1 263:1:2014)

Tie ropes are normally produced from 12mm, 3 strand polyamides with a breaking load of 30kN. Rope ends must be protected against unravelling.



Knots

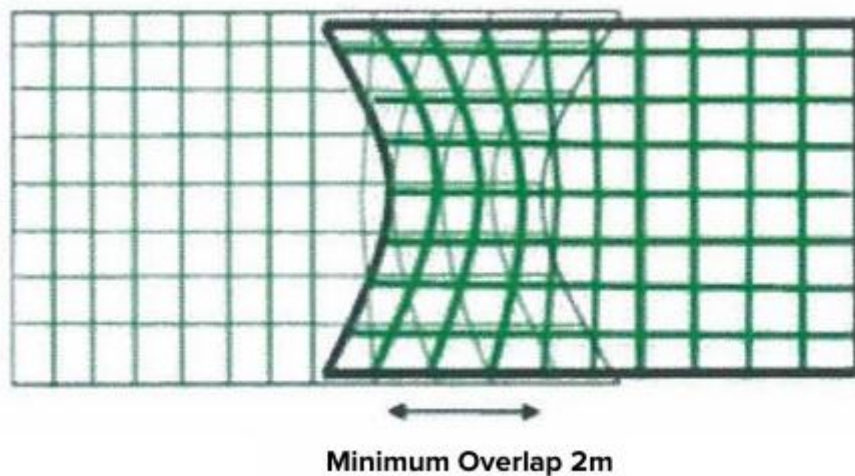
Tie ropes are tied around the border rope and selvage of the net and onto the structure (capable of withstanding a loading of 6kN at 45°). There are various knots known to perform satisfactorily in the event of a fall. If skills are unavailable, then training should be sought.



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Overlapping

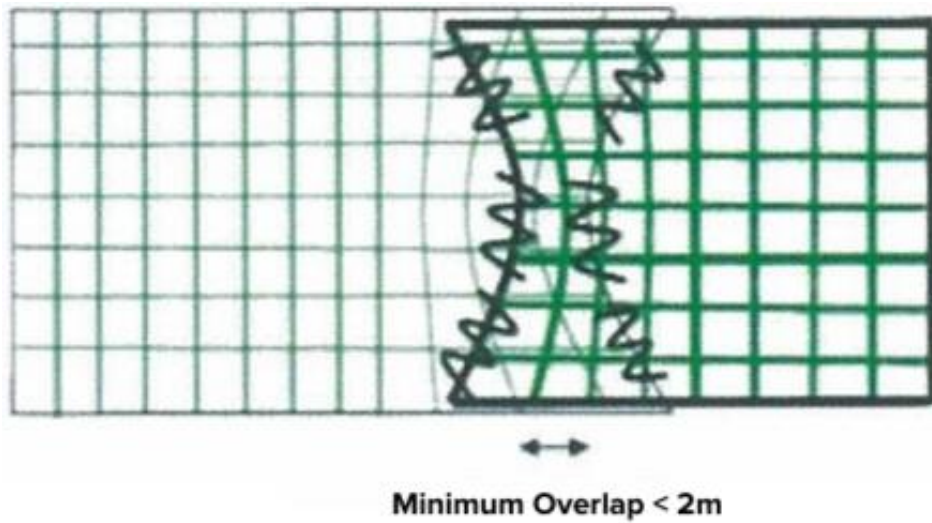
Both nets are simply overlapped. It is critical that the overlap in the middle of the two nets is greater than 2m.



Pinning

Where it is not possible to achieve a 2m overlap, the top border rope of one net is laced to the mesh of the other and repeated on the other side of the overlap. 8mm diameter, polyamide lacing rope with a minimum breaking load of 7.5kN (type O according to EN 1263/2:2014) should be used or if not available, 12mm tie ropes.

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Joining Nets

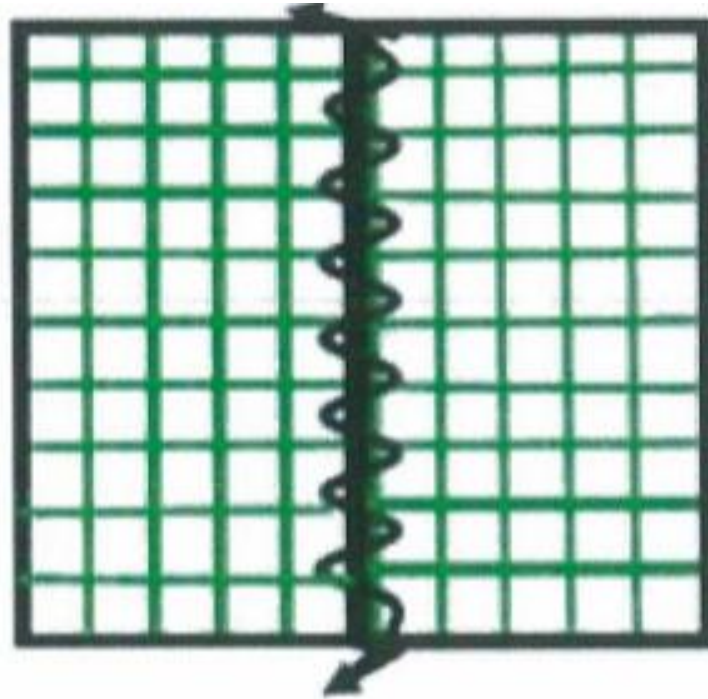
If it is necessary to join containment nets, the following techniques should be employed:

Lacing

8mm diameter, polyamide lacing rope with a minimum breaking load of 7.5kN (type 0 according to EN.1263:1:2014). The lacing rope should be fed through every other mesh (picking up both border ropes) so that no gap greater than 100m is presented within the netted area. It is safer to do this on the ground before the nets are rigged. If 8mm rope is not available, then 12mm tie ropes can be used, taking care to ensure they overlap. Both ends of the lace should be tied off.



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The Scaffold Hook

This is a new design net attachment. It is being used as a replacement for tie ropes when attaching fall arrest containment nets to scaffolding.

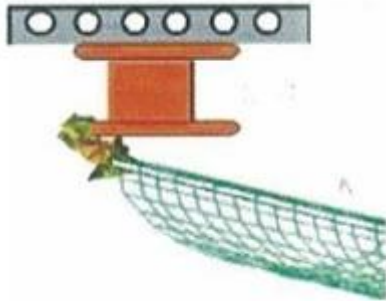


The Net Claw

To allow the erection of EN.1263:1 type S safety nets to the requirements of EN.1263:2, suspended directly from the steel frame as close as possible below the working level. The Net Claw and net can be attached to the steel beam using a pole.



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Installation:

- The Net Claw can only be attached to the lower flange of an I section or C section. • The Net Claw is not suitable for use on extreme curved roofs such as barrel vaults.
- The Net Claw cannot be used on circular sections.
- The Net Claw must always be fitted to the outer flange of the steel in such a way that the self-weight of the net is drawing it into the steel.
- The containment net must be attached on all four sides, unless eaves bagging techniques are employed. When this is the case, the Net Claw should be prevented from sliding along the steel work.
- The Net Claw pole is suitable for use for up to 3.5m storey height

Net Deformation and Clearance Distance

The mesh of the containment net is engineered to absorb the load created in a fall by stretching in a controlled manner.

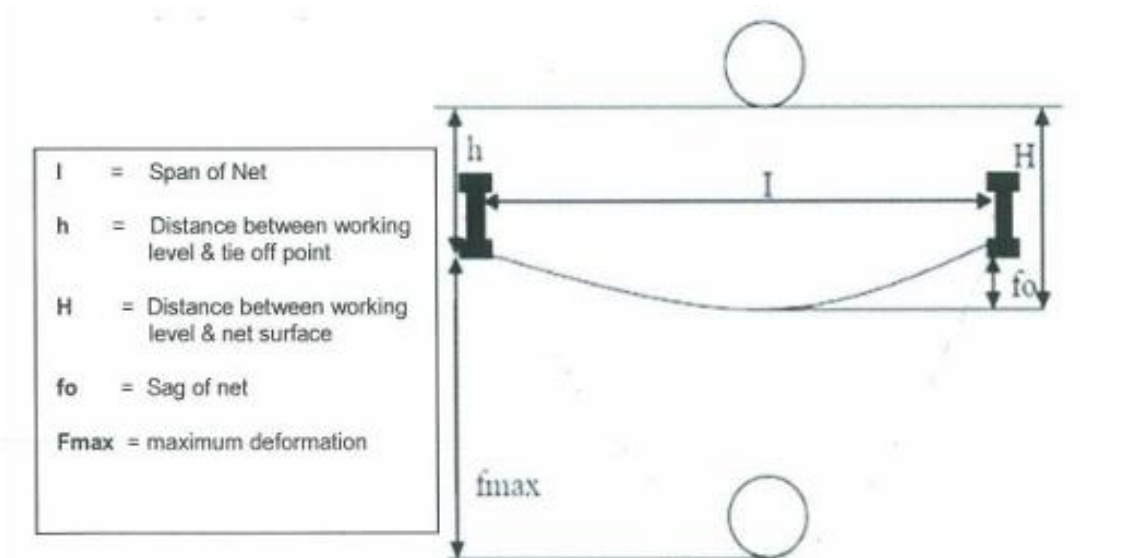
The amount the net deforms is dependent on two factors:

- A. The height of the fall and
- B. The span of the net.

A big fall into a big net is likely to result in the net deforming significantly more than a small fall into a small net.

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The following applies



Fall Height in Metres	Clearance in Metres																			
2 metres -	2.90	2.90	2.90	2.90	2.90	2.90	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25	6.50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Net Span in Metres																			
Fall Height = Vertical																				
Net Span = Horizontal																				
PLEASE NOTE: Fall height from debris to net in Australia, must not be more than 2 metres																				
Clearance between bottom of net and ground must not be less than 2.9 metres.																				