NAILING SPECIFICATION FOR PALLETS

1 Application

This specification describes how nailing of pallet must be performed for wood/plywood pallets designed for or by Ericsson.

This applies to all pallets designed with board material of softwood, hardwood, plywood, and pallet blocks made of chip blocks, plywood blocks or wooden blocks. Exception applies if the pallet drawing specifies otherwise.
2 **Nail types**

Profiled nails must always be used in Ericsson pallet designs as described below. See description and figures below.

1. Ring nails - used with chip, wood, and plywood blocks.
2. Screw nail - optional nail if required by hydraulic machines in pallet assembly.
3. Blank nails without profile shall normally not be used in any pallet designs.

Exception from this rule can be made if deck boards and stringer boards are clinch nailed together before they are attached to blocks and runners. See illustration in Pallet deck nailing on page 4.
3 **Nail diameter**

Minimum nail diameter $d_1$ is 2.8 mm. Commonly used diameter are 3,4 mm to 3,8 mm.

![Fig. 4](image)

4 **Nail length**

The length of the nails is depending on the thickness of the board and block dimensions. The nails must go through 2/3 of the block, excluding the top- and bottom deck boards. The nails must overlap each other with 1/3 inside the block for maximum strength.

![Fig. 5](image)
5 Nail heads

Driving the nails into the pallet in the nailing operation must be done in a correct way. The protruding/countersunk limitation, +1/-2 mm, demands the operator to use the correct pressure in the nail gun for the assembly process. Too high pressure in the nail gun can cause countersunk nails, and too low pressure will cause protruding nail heads. Both these scenarios will affect the strength of the pallet in a negative way. It is also a security risk and can cause personal injuries.

Limitations
- Protruding nail: +1 mm
- Countersunk nail: -2 mm

6 Pallet deck nailing

Protruding nail between deck board and stringer board must be bent 90 degrees and opposite the wood fiber direction. No sharp protruding parts of nails are allowed due to the risk of injury.
7 **Nail placement**

Nails must be placed as far away from each other as possible, but not too close to the edges of the block. A minimum of 20mm from the block edge is needed to avoid the risk of breaking. Fig. 8

The nail placement must be in a diagonal, or triangle pattern in relation to the fiber direction in the wooden deck board. This is to eliminate the boards to crack. Fig. 9 and fig. 10

Fig.11 shows preferred nail pattern seen from top- and bottom view where the diagonal and triangle pattern are opposite from each other.

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**Fig. 8**

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**Fig. 9**

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**Fig. 10**

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**Fig. 11**

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- ● = black circle illustrates nail applied from top
- ○ = white circle illustrates nail applied from bottom

Placement of nails in the same wood fiber direction shall be avoided due to the risk of cracking the board.
8 Nail quantity

The number of nails can differ depending on pallet design and manufacturing process. Below figures shows standard nail applications that should be used.

If the number of nails and nail patterns are different than below standard, it must be specified on the pallet drawing.

Fig.12
View showing the nail pattern from above, through deck boards, stringer boards and into block.

Fig.13
View showing alternative nail pattern from above by first applying 2 nail through stringer board into the block + 2 nails through deck board and stringer board into the block.

Fig.14
Nail pattern through deck board and stringer board.

Fig.15
View showing nailing from bottom runner into block.