

11th edition, March 2014

Translation

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Standard of quality for EUR flat pallets made of wood measuring 800 mm x 1 200 mm (EUR-1)

Norme de qualité pour une palette plate EUR en bois de dimensions 800 mm x 1 200 mm (EUR-1)
Gütenorm für einen EUR-Ladungsträger aus Holz mit den Abmessungen 800 mm x 1 200 mm (EUR-1)



INTERNATIONAL UNION
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Leaflet to be classified in volumes:

II - Transport of goods

IV - Management

Application :

With effect from 1 March 2014

All members of the International Union of Railway, technical amendments, printing and factual errors notwithstanding

Record of updates

1st edition, January 1960	First issue and 1 amendment
7th edition, July 1994	Including 2 amendments
8th edition, May 2005	Overhaul of leaflet
9th edition, February 2009	Update of the leaflet with new title
10th edition, April 2010	Changes to points 1.4.5 and 1.7.1 in addition to Appendix M due, inter alia, to the decision of UIC WG "Questions on palletising" to introduce the mandatory implementation of the ISPM 15 standard.
11th edition, March 2014	Uptade of the leaflet. Implementation of the one-brand concept.

The person responsible for this leaflet is indicated in the UIC Code

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Summary

This leaflet applies to the production, testing and marking of recyclable and repairable EUR pallets (EUR pallets) made of wood with the dimensions 800 mm x 1 200 mm EUR-1.

1 - Technical construction

1.1 - Dimensions

The production tolerances take the natural properties of the material wood into account, which shrinks when it dries out.

The dimensions with the permissible tolerances can be seen from [Appendix A - page 12](#), drawing.

In case of deviating wood moisture of the elements, the shrinkage values in [Table 3 - page 45](#) are relevant.

1.2 - Load bearing capacity

The EUR-1 pallet is recommended for the following loads when stacked on a shelf or on the fork of a forklift truck:

- 1 500 kg, if the load is evenly distributed on the pallet surface,

In a stack, the additional load of the lowest EUR-1 pallet is

- maximum 4 000 kg, if it lies on an even, horizontal and rigid surface and the load lies horizontally and covers the ground completely.

1.3 - Construction

1.3.1 - Approved fasteners

For the construction, only approved fasteners may be used, which correspond to the conditions in [Appendix E - page 33](#) and which guarantee a stability of the EUR pallets in accordance with [point 1.3.4 - page 3](#).

They must be tested and applied for and registered with a UIC RU ([see List of abbreviations - page 58](#)) in accordance with [Appendix N - page 54](#) / a pallet organisation in accordance with [Appendix L - page 52](#).

The acceptance of the tested fasteners, approved by an RU in accordance with [Appendix L](#) by a pallet organisation, by other railway companies is permissible.

1.3.2 - Construction process

All fasteners must be attached so that none of the fasteners protrudes laterally from a board or a block. They must be seated so deep in the wood that their heads do not protrude from the surface of the board but that they do also not lie lower than 3 mm below the surface (in case of minimum height of the pallet).

The fasteners shown in the parts list of [Appendix A](#) must be set into each block - both from the top as well as from the bottom side of the pallet, for example - so that they do not lie in one and the same grain of the block and have the greatest possible distance from each other.

In doing so, a minimum distance of 20 mm from the corners of the blocks and of the boards as well as from production-specific cavities must be adhered to. The lead boards and the central deck board, if necessary, must be connected with each stringer board with at least one fastener. Fasteners which penetrate the bottom of the stringer boards must be clinched.

1.3.3 - Other construction methods

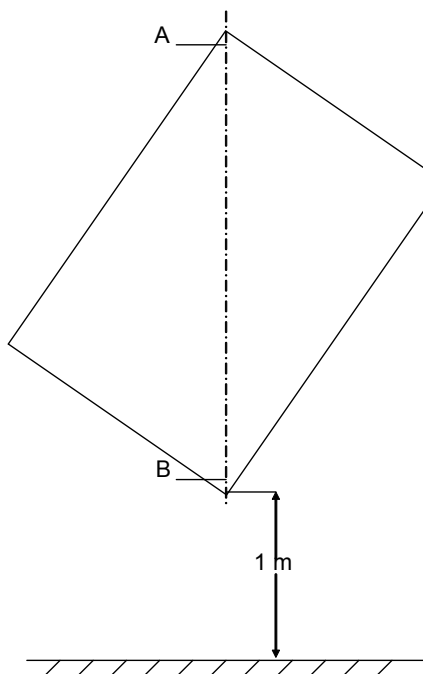
Other types of construction, such as gluing, screwing or riveting, must be applied for and approved by the managing UIC RU (see [List of abbreviations - page 58](#)).

1.3.4 - Stability test of the EUR pallet

The stability of the EUR pallet must be tested by the approving UIC RU in accordance with [Appendix N - page 54](#) / by the pallet organisation in accordance with [Appendix L - page 52](#). This test must be carried out with every manufacturer (see [Glossary - page 59](#)) at the start of production and when the production method is changed, or when the approving UIC RU / the pallet organisation consider it necessary. For the stability test, the wood moisture must be $20 \% \pm 2 \%$ in case of natural wood. The corner drop test mentioned below must be passed.

1.3.5 - Corner drop test

- Two points A and B must be marked on the deck surface of the pallet on the diagonal, with a distance of approximately 40 mm from the corners of the EUR pallet.
- The EUR pallet must be suspended so that the diagonal is perpendicular to the measuring points.
- The EUR pallet must drop freely from a height of 1 m with the corner onto a flat, hard, firm and horizontal floor.
- The tests must be performed with 3 EUR pallets and a **test report** must be prepared.
- The distance of the measuring points A and B must be measured prior to the first and after the sixth drop.
- Damages of the EUR pallet are not permissible, with the exception of local damages having a distance of up to 50 mm from the point of impact.
- After 6 drops of each EUR pallet onto the same corner, the reduction of the distance between the measuring points must not exceed 3 % of the original distance.



1.4 - Treatment of the wood and the pallet

1.4.1 - General condition

The EUR pallet must be free from impurities (e.g. sawdust, sawmill waste, paint, oil, etc.).

1.4.2 - Boards

All boards must be in one piece.

On the loading and bottom surface of the pallet, the boards must be rough (not planed).

1.4.3 - Blocks

The blocks may consist of:

- one piece of wood,
- wood-chip material (moulded wood-chip block).

In case of blocks made of one piece of wood, with the exception of the 145 x 145 mm blocks, the grain must run parallel to the 1 200 mm side of the EUR pallets.

For the construction with moulded wood-chip blocks, only blocks made of wood-chip material may be used which fulfil the requirements of [Appendix C - page 15](#) and which guarantee the stability of the EUR pallet in accordance with [point 1.3.4 - page 3](#).

They must be **tested** and approved by the approving UIC RU in accordance with [Appendix N - page 54](#) / by the pallet organisation in accordance with [Appendix L - page 52](#).

1.4.4 - Bevelled edges

The upper edges of the floorboards and the four corner edges of the EUR pallet must have the bevelled edges shown in and intended by the drawing of [Appendix A - page 12](#). Shreds of wood are not permitted.

1.4.5 - Treatment

The wood must be free of any trace of wood preservatives and blue stain inhibitors. The allowed wood preservatives against mould and wood blueing are included in [Appendix M - page 53](#).

From 1.1.2010 the phytosanitary treatment of wood for EUR pallets in accordance with the current ISPM 15 standard (IPPC) is mandatory. This is to be achieved by means of heat treatment of the wood or pallet. It is the responsibility of the relevant national authorities to ensure that this standard is adhered to.

1.5 - Wood types and wood materials

The allowed wood types are included in [Appendix D - page 32](#).

Other types of wood may only be allowed if they have at least the same mechanical properties as the wood types given in [Appendix D](#).

1.6 - Wood quality

1.6.1 - General regulations

The following is not permissible:

- Rotting (mould, fungus, dry rot),
- the inclusion of bark and,
- active insect infestation.

1.6.2 - Moisture content

The wood moisture may not exceed 22 % of the weight of the dry wood (dry weight).

1.6.3 - Wanes

If oak is used, wanes are not permissible. In case of other woods, wanes are permissible on two edges of each part provided that they do not have any bark, that they are on the top and do not exceed 15 mm measured diagonally. They are not permissible for stringer boards, bottom centre boards and on the outer edges of the deck and bottom lead boards.

1.6.4 - Knots

Knots with a diameter of up to 10 mm are not taken into account. Sound knots are permissible. Knots are considered as sound if there are grown together with at least 3/4 of their circumference on one side.

On each length of a board corresponding to the width of a board, the diameter of a knot must not exceed the board width by:

- 1/4 in case of stringer boards,
- 1/3 in case of other boards,

or the total sum of the diameters of several knots:

- 1/3 in case of stringer boards and,
- 1/2 in case of other boards.

In case of the blocks, the diameter of a knot must not exceed 1/4 of the block height on the visible side.

1.6.5 - Cracks

Only dry surface cracks are permissible in the blocks. Only one continuous crack, which must not be longer than the width of the board and which is not traceable to construction, is permissible per board.

1.6.6 - Discolouration

Blueing and slight discolouration corresponding to the time of the year are permissible.

Discolouration due to poor drying and storage conditions is not permissible.

1.6.7 - Resin galls

They are neither permissible on the top of the deck boards nor on the underside of the floorboards.

In other places, surface resin balls up to a length of 50 mm are permissible.

1.6.8 - Lie of the wood grain

In relation to the associated longitudinal edge, the slant of the grain must not exceed:

- 5 % in the boards and
- 20 % in the blocks.

1.6.9 - Insect damage tunnels

In case of non-active insect infestation, tunnels (e.g. black boreholes) with a diameter of up to 3 mm are sporadically permissible.

1.6.10 - Sap wood

Healthy sap wood is permissible in case of:

- deciduous wood, if it neither exceeds 1/4 of the board width nor 1/2 of the board thickness and
- in case of pine woods.

1.6.11 - Medullary canal

A cut-in medullary canal is permissible for the blocks.

Enclosed medullary canals are generally permissible in case of pine wood; in case of other woods only in a maximum of three of the nine blocks of the EUR pallet.

1.7 - Marking

1.7.1 - Marking of EUR pallets

EUR-1 flat pallets (see Glossary - page 59) must have the following symbols on the blocks of the 1200 mm side:

- **on the left-hand corner block:** the UIC symbol in accordance with Appendix B - page 14 in a font size of at least 40 mm,
- **on the centre block:** due to the mandatory phytosanitary heat treatment, the symbols assigned by the relevant authority for said treatment are to appear on both centre blocks on the 1 200 mm side with, one line below, the production code and production year in a legible font size of at least 10 mm and the symbol of the RU in a font of at least 15 mm,
- **on the right-hand corner block:** the protected (EUR) symbol in accordance with Appendix I - page 42.

The manufacturer code 000-0-00 gives

- the approving manufacturer in the first group (digits/letters) and
- the last digit of the year plus the month of manufacture in the second group.

The characters must be burnt in completely. In addition, stamping and simultaneous colouring are permissible. The stamp must be at least 0,3 mm, the colour must be brown to black, water-insoluble, light-resistant and non-toxic (water-based).

1.7.2 - Withdrawal of a symbol

In particular, the unlawful use and imitation of the protected (EUR) symbol in accordance with Appendix I, as well as of the UIC symbol in accordance with Appendix B and of the UIC RU symbol in accordance with Appendix N - page 54 shall be the subject of legal action by the UIC RU/pallet organisation.

The approving UIC RU has to ensure that all the necessary conditions of pursuit are given.

Should a UIC RU not fulfil its obligations from the regulations of this leaflet, its authority to confer the protected (EUR) symbol will be withdrawn.

This will not affect the assertion of any claims for damages and enrichment.

1.7.3 - Unlawful use of symbols

In case of unlawful use of the symbols, the pallets must not be brought into circulation as EUR pallets.

The markings (see Glossary) must be **permanently** obliterated with water-insoluble black paint.

If permitted by national law, destruction of the pallets is **mandatory**.

1.7.4 - Additional markings

From 1.1.2010, a control staple on the centre block is mandatory for all new EUR pallets. This documents that quality inspection has been correctly undertaken in accordance with this leaflet.

Any other possible markings must first be approved by the UIC "Palletisation issues" WG.

1.8 - Quality control

The approving UIC RU in accordance with [Appendix N - page 54](#) / pallet organisation in accordance with [Appendix L - page 52](#) must check the quality of the finished EUR pallets by batch in accordance with a random test schedule in accordance with [Appendix J - page 43](#) cont. at the manufacturer's site/ the principal (quality check - see Glossary - [page 59](#)).

The measuring equipment required for this must be made available by the manufacturer, the UIC RU/ the pallet organisation.

The measuring equipment for checking the dimensions must have a measurement accuracy of 0,1 mm and must be calibrated on a yearly basis. The measuring range of the measuring equipment must be adjusted so that the required dimensions and tolerances can be checked, depending on the wood moisture.

The measuring equipment for determining the moisture must also be calibrated once a year and must dispose of a temperature setting device.

If no EUR pallets are presented for quality control (no production), it must be checked at least once a year whether the conditions for production as provided by this leaflet are still given or whether the approval (see Glossary) must be withdrawn.

1.8.1 - Self-monitoring

If the manufacturer has manufactured 30 000 EUR flat pallets (EUR-1/-2/-3/-6) in accordance with the required conditions within six months and disposes of a self-monitoring system which has been approved by the competent UIC RU in accordance with [Appendix N](#) or the pallet organisation in accordance with [Appendix L](#), the approving UIC RU / pallet organisation must check its proper

manufacturing procedure once a month by carrying out unannounced inspections for monitoring the production in accordance with the following production figures.

<u>Monthly production figure in pieces</u>	<u>Number of unannounced inspections</u>
< 10 000	1x
> 10 000 < 50 000	2x
> 50 000 < 100 000	3x
> 100 000	4x

In case of granted self-monitoring, the manufacturer must record the test results by means of a defect collection sheet in the scope of an independent quality control (SQK), (see [Glossary - page 59](#)), comparable to [Appendix J - page 43](#).

A pallet must be taken as random sample from the running production and tested at least once every 20 minutes. Evidence of the test results must be produced directly on-site by the manufacturer in the scope of his independent quality control (SQK).

1.8.2 - Imported EUR pallets

The UIC RU in whose area the imported EUR pallets are brought into circulation first is allowed to check these pallets in accordance with the sample test plan in [Appendix J](#).

In case of negative results, the markings must be obliterated and the approving UIC RU must be notified of it.

The approving UIC RU **must** then take the respective measures.

2 - Approval of EUR pallet manufacturers

2.1 - Approving RU

In principle, any RU, which is a member of the UIC, has the right to approve a manufacturer for the production of EUR pallets within its area.

The approving UIC RU is entitled to charge a pallet organisation with this task in accordance with [Appendix L - page 52](#).

If [Appendix K - page 49](#) is adhered to, manufacturers outside its area can also be approved. For doing this, the company can also charge a pallet organisation in accordance with [Appendix L](#) with this.

In principle, approving a pallet organisation from abroad must be **applied for and approved** by the managing UIC RU.

2.2 - Approval

Approval will only be granted if:

- the technical production conditions have been fulfilled,
- the manufacturer has committed himself in writing to keep to the construction regulations and to accept the conditions with regard to checking and quality control and,
- if it has been proven by checking a sample batch of 100 EUR pallets against a defect collection sheet ([see Appendix J - page 43](#)), that the conditions of the leaflet have been adhered to.

Approval shall be given by granting the express authorisation and obligation to use the EUR protected symbol in accordance with [Appendix I - page 42](#), the UIC symbol in accordance with [Appendix B - page 14](#) and the symbol of the UIC RU in accordance with [Appendix N - page 54](#), and by allocating the manufacturer code.

In case of previous withdrawal of approval, approval may only be granted again after a **waiting period of 6 months**.

2.3 - Withdrawal of approval

The approval must be withdrawn in case of:

- **non-compliance** with the conditions of this leaflet,
- unlawful use of the UIC symbol in accordance with **Appendix B**, of the EUR symbol in accordance with **Appendix I**, or of the UIC RU symbol in accordance with **Appendix N**,
- cessation of production or,
- declaration of insolvency or,
- winding up of the company or,
- upon request of the trade mark owner.

The **cancellation of the approval** results in a ban on use and the withdrawal or the destruction of the marking stamp by the UIC RU.

The **cancellation of the approval of foreign companies** must be notified to the managing UIC.

Appendix A - Drawing EUR-1

A.1 - Drawing EUR-1

EUR wooden flat pallet 800 mm x 1 200 mm

Positioning the fastening elements in accordance with *UIC Leaflet 435-2*. The components must be selected with permissible tolerances so that the pallet covers the base completely!

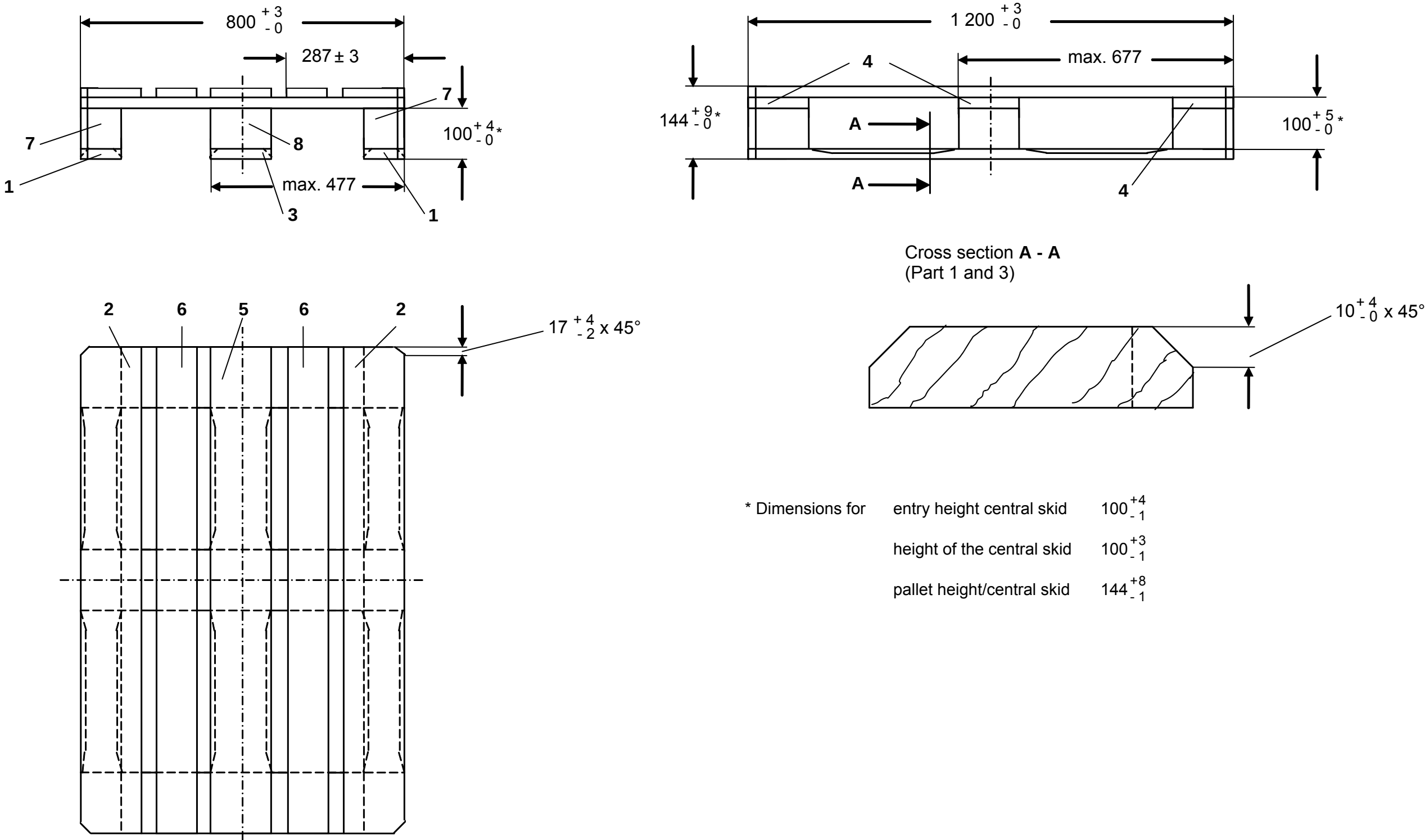


Fig. 1 - Drawing EUR-1

A.2 - Parts list EUR-1

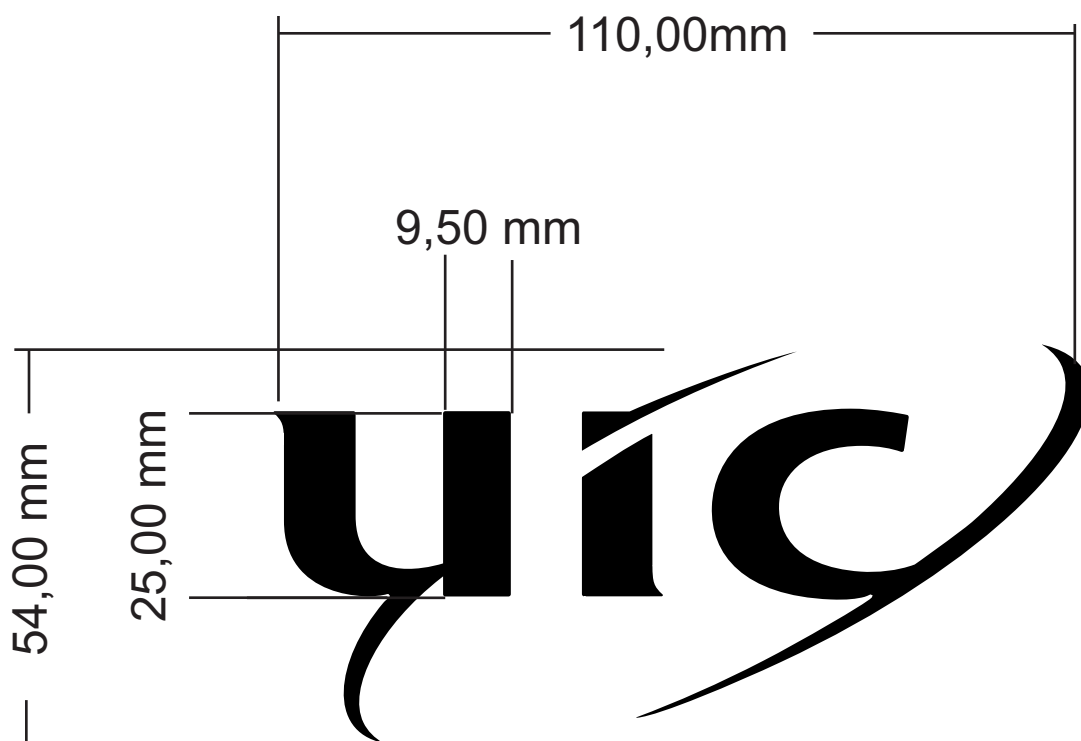
EUR wooden flat pallet 800 mm x 1 200 mm

Part Serial no.	No. of pieces	Parts designation	Nominal dimensions (mm) L / W / H	Tolerances (mm)			Material Tensile strength fastening element (N / mm²)	Restriction of the applicaton	Connection of:
				L	W	H			
1	2	Outer floorboard	1200 x 100 x 22	+3/-0	+3/-3	+2/-0	(see Appendix E - page 33)	(see Appendix E)	
2	2	Outer deckboard	1200 x 145 x 22	+3/-0	+5/-3	+2/-0			
3	1	Centre floorboard	1200 x 145 x 22	+3/-0	+5/-3	+2/-0			
4	3	Stringer board	800 x 145 x 22	+3/-0	+5/-3	+3/-0			
5	1	Inner deckboard	1200 x 145 x 22	+3/-0	+5/-3	+2/-0			
6	2	Inner top deck board	1200 x 100 x 22	+3/-0	+3/-3	+2/-0			
7	6	Block	145 x 100 x 78	+5/-3	+3/-3	+2/-0			
8	3	Block	145 x 145 x 78	+5/-3	+5/-3	+1/-1			
9	27	Angular ring shrank nail***	4,2 x 70	see UIC Leaflet 435-2			Pcs. / min. 650	Blocks made of ** coniferous wood, hardwood, formed chipboard	connection 6 x 3 fastening elements part no. 1 with part no. 7
10	27	Anti gap screw nail***	5,2 x 70				Pcs. / min. 650	Blocks made of hardwood	connection 3 x 3 fastening elements part no. 3 with part no. 8
11	24	Angular ring shrank nail***	4,2 x 38	see UIC Leaflet 435-2			Pcs. / min. 600	Stringer board made of hardwood	connection 6 x 3 fastening elements Part no. 6 with part no. 4 and connection 6 x 1 fastening elements part no. 2 with part no. 4
12	24	Anchor nail */***	2,8 x 56				Pcs. / min. 800	Fix rivet bar	
13	24	Machine nail***	2,5 x 60				Pcs. / min. 800	Movable rivet bar	
14	24	Clamp***	2,2 x 14 x 53				Pcs. / min. 760		
15	27	Angular ring shrank nail***	4,2 x 90	see UIC Leaflet 435-2			Pcs. / min.700	Blocks made of ** coniferous wood, hardwood and formed	connection 6 x 3 fastening elements Part no.2 with part no. 4 and part no. 7 connection 3 x 3 fastening elements Part no. 5 with part no. 4 and part no. 8
16	27	Anti gap screw nail***	5,2 x 90				Pcs. / min. 700	Blocks made of hard wood	

* Angular ring shrank nail with cut head.
** NH = coniferous wood / LH = hardwood / FSPH = Formed chipboard.
***Other fastening elements example (see Appendix E).

The total number (78 pieces) of nails to be used per pallet has to be specified depending on the manufacturer in accordance with the lines of the running numbers 9 to 16 of the column "number of pieces".
Example: 27 nails (Serial no. 9) + 24 nails (Serial no. 11) + 27 nails (Serial no. 15) = 78 nails (total number).

Appendix B - UIC symbol



The UIC symbols are registered at the Office for Harmonisation in the Internal Market (OHIM - see List of abbreviations - [page 58](#)) in Alicante under numbers 7007495, 011388196 and 011647534 for classes 6, 20, 39 and 42.

Appendix C - Permissible blocks made of wood-chip material (moulded wood-chip blocks)

C.1 - General

Only glues and additives which can permanently guarantee the strength of the material may be used as bonding agents. If glues/additives can cause a hazard when used or disposed of, this **must** be indicated by the glue/additive manufacturer on a data sheet.

The blocks must not be coated or sealed in any manner. Documentary evidence of the glue currently used in the most recent batch must be provided both on initial approval and for every repeat approval.

Hollow spaces caused by production (extrusion process) are permissible up to the maximum size given in the drawing (see point C.11 - page 31), and must be positioned centrally (± 5 mm from the block's centre line). Authorised blocks are to be given a manufacturer-specific marking (manufacturer/month/year, in the same way as for the pallet). This manufacturer-specific marking is to be applied to the side of the block such that the blocks' origin can be immediately ascertained when installed. The blocks may not therefore be marked on the vertical-facing surfaces (see point C.11).

C.2 - Initial approval

The block manufacturer applies to UIC for approval for each block type and production plant.

The sampling of the block batch must be carried out directly on-site during ongoing production by a UIC-approved inspection body as per the terms of point C.6 - page 22. The sampling shall take place in accordance with point C.8 - page 28. The inspection body is responsible for the sampling, the tests to be performed in accordance with this appendix, and verification of the manufacturer's self-monitoring (inspection as per point C.10 - page 30). For approval tests, the date of sampling may be agreed between the block manufacturer and the inspection body.

Exception:

- The inspection body approved as per the terms of point C.6 may commission a suitably-qualified outside testing body to perform either the heavy metal analysis or the formaldehyde test.

After sampling, the block batch must be stored for at least 10 days at 20 °C (± 2 °C) and an air humidity of 65 % (± 5 %).

Deviations from the European testing standards mentioned below are only permitted in the ways described.

Exception:

- Deviations from the test standard are authorised during the chemical heavy metal analysis to the extent that the material being tested demands such deviations.