

2nd edition, April 2010

Translation

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Standard of quality for a EUR flat pallet made of wood and measuring 1 200 mm x 1 000 mm (EUR-2) and 1 000 mm x 1 200 mm (EUR 3)

*Norme qualitative pour une palette plate EUR en bois de dimensions 1 200 mm x 1 000 mm (EUR-2) et
1 000 mm x 1 200 mm (EUR-3)*

*Gütenorm für einen EUR-Ladungsträger aus Holz mit den Abmessungen 1 200 mm x 1 000 mm (EUR-2)
und 1 000 mm x 1 200 mm (EUR-3)*



UNION INTERNATIONALE DES CHEMINS DE FER
INTERNATIONALER EISENBAHNVERBAND
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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.

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

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Summary

This specification applies to the manufacture, testing and marking of recyclable and repair-worthy load carriers (EUR pallets) made out of wood with the following dimensions: 1200 mm x 1000 mm EUR-2 with floor frame (full perimeter base pallet) and 1 000 mm x 1 200 mm EUR-3.

1 - Technical construction

1.1 - Dimensions

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

The dimensions with the permissible tolerances can be taken from the drawings in Appendix [A - page 12](#).

If the dampness of the wood of the elements is different, the shrinkage measurements in Table [4 - page 32](#) are relevant.

For the **EUR-2** the dimensions of the wooden pallet parts are laid down in points [A.1 - page 12](#) and [A.2 - page 13](#) for a **standard dampness** of 28 %.

For the **EUR-3** the dimensions of the wooden pallet parts are laid down in points [A.3 - page 14](#) and [A.4 - page 15](#) for a **standard dampness** of 22 %.

1.2 - Load bearing capacity

The EUR-2 and -3 pallets are recommended for the following loads, with correct stacking on the shelving or on the forks of a ground conveyor:

- EUR-2: 1 250 kg,
- EUR-3: 1 500 kg, if the load is evenly distributed on the pallet surface.

In a stack, the additional loading of the lowest EUR-2/-3 pallet is:

- Maximum 3 000 kg, if it is on an even, horizontal and rigid surface and the loading above it is horizontal and is over the entire surface.

1.3 - Construction

1.3.1 - Approved fasteners

For the construction only approved fasteners may be used which conform to the regulations in Appendix [E - page 22](#) and guarantee the strength of the EUR-pallet according to point [1.3.4 - page 3](#).

They must be tested and **applied for and registered** at a UIC RU according to Appendix [N - page 42](#) / a pallet organisation according to Appendix [L - page 40](#).

Acceptance of the tested fasteners approved by an RU / pallet organisation according to Appendix [L](#) by other RUs is permissible.

1.3.2 - Construction process

All fasteners must be attached, so that none of the fasteners protrude sideways from a board or block. They must sit so deep into the wood, that the heads do not protrude beyond the board surface, however lie at the most 3 mm below it (in the case of minimum height of the pallets).

The fasteners shown in the parts list of points [A.2 - page 13](#) and [A.4 - page 15](#) must be set into each block, both from the top side as well as from the bottom of the pallet for example, and these may not lie in the same way of the grain of the block and must be at the greatest possible distance from each other.

A minimum distance of 20 mm must be adhered to from the edges of the blocks and boards, as well as from production specific empty spaces in moulded woodchip blocks. The edge boards of the deck and if necessary also the central deck board must be connected to each cross board by at least one fastener. Fasteners which penetrate the underside of the cross boards must be folded over.

1.3.3 - Other construction processes

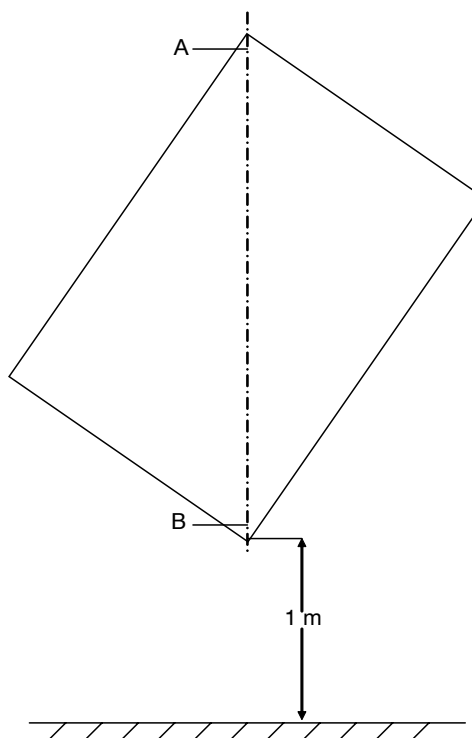
Other types of construction must be **applied for and approved** at the executive UIC RU ([see List of abbreviations - page 49](#)): e.g.: gluing, screwing or riveting process.

1.3.4 - Strength test of the EUR pallet

The strength of the EUR pallets must be tested by the approving UIC RU according to Appendix [N - page 42](#) / by the pallet organisation according to Appendix [L - page 40](#) in the case of each manufacturer ([see Glossary - page 48](#)) at the start of production and when the production method is changed, or if the approving UIC RU / the pallet organisation consider it necessary. The dampness of the wood must be 20 % $\pm$ 2 % in the case of natural wood. The corner drop test specified below must be passed.

1.3.5 - Corner drop test

- On the deck surface of the pallet two points A and B must be marked on the diagonal at 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 1m with the corner edge onto a flat, hard, firm and horizontal floor.
- The tests must be undertaken with 3 EUR pallets. A **test report** must be completed.
- The distance of the measuring points A and B must be measured prior to the first and after the sixth drop.
- Any damage to the EUR pallet, except for local damage up to 50 mm from the point of impact, is not permissible.
- After 6 drops of each EUR pallet on the same corner edge, the reduction in the distance of the measuring points must be at the most 3% of the original distance.



1.4 - Processing 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 floor 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 the case of blocks made from one piece of wood, except for the 95 x 95 mm and the 145 x 145 mm blocks, the grain must run parallel to the 1 200 mm side of the EUR pallet.

For construction with moulded wood-chip blocks only blocks made of wood-chip material may be used, which conform to the regulations of Appendix C - page 17 and guarantee the strength of the EUR pallet according to point 1.3.4 - page 3.

They must be tested and approved by the approving UIC RU according to Appendix N - page 42 / by the pallet organisation according to Appendix L - page 40.

1.4.4 - Bevelled edges

The upper edges of the floor boards and the four edges of the EUR pallet must have the bevelled edges included in the drawing in points [A.1 - page 12](#) and [A.3 - page 14](#). 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. Approved wood preservatives against mould and wood bluing are included in Appendix [M - page 41](#).

From 1.1.2010 the phytosanitary treatment of wood for EUR pallets according to 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 approved wood types are included in Appendix [D - page 21](#).

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

1.6 - Wood quality

1.6.1 - General regulations

The following are 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

In the use of oak, wanes are not permissible. In the case of other woods wanes are permissible on two edges of each part on condition that they do not have any bark, that they are on the top and measured diagonally do not exceed 15 mm. They are not permissible for cross boards, centre floor boards and on the outer edges of the deck edge and floor edge boards.

1.6.4 - Knots

Knots up to 10 mm diameter are not taken into account. Firmly grown knots are permissible. Knots are regarded as firmly grown if on one side they are firmly grown up to 3/4 of their circumference.

On each length of a board relevant to the board width, the diameter of a knot may not exceed the board width:

- in the case of cross boards 1/4,
- in the case of other boards 1/3,

or the total of the diameter of several knots:

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

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

1.6.5 - Cracks

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

1.6.6 - Discolouration

Bluing and slight discolouration relevant to the time of year are permissible.

Discolouration due to poor dryness or storage conditions is not permissible.

1.6.7 - Resin Galls

They are permissible neither on the top surface of the deck boards nor on the undersides of the floor boards.

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 longitudinal edge, the slant of the grain may not exceed:

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

1.6.9 - Insect damage tunnels

In the case of non-active insect infestation, tunnels (for example black bore holes) up to 3 mm diameter are permissible here and there.

1.6.10 - Sap wood

Healthy sap wood is permissible in the case of:

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

1.6.11 - Medullary rays

A cut-into medullary ray is permissible for blocks.

Enclosed medullary rays are generally permissible in the case of pine wood, and in the 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 the EUR load carrier

The EUR-2 and -3 flat pallets (see Glossary - page 48) must bear the following symbol on the blocks of the 1 200 mm side:

- **on the left hand corner block:** the mark of the approving UIC RU according to Appendix N - page 42 and or of the pallet organisation according to Appendix L - page 40 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/pallet organisation in a font of at least 15 mm
- **on the right hand corner block:** the protected symbol EUR according to Appendix I - page 28 with the additional number 2 or 3 in a font size of at least 15 mm.

The manufacturing code 000-0-00 gives in the

- first group (number/letter) the approving manufacturer and in the
- second group the last figure of the year of manufacture and the month of manufacture.

The symbols must be completely burnt in. In addition stamping and at the same time colouring is permissible, the stamp must be at least 0,3 mm, the colour must be brown to black, water insoluble, light resistant and non-toxic.

1.7.2 - Withdrawal of symbol

Particularly the illegal use and copying of the protected symbol (EUR) according to Appendix I - page 28, as well as of the UIC RU symbol according to Appendix N - page 42 / of the pallet organisation according to Appendix L - page 40 must be legally pursued by the UIC RU.

The approving UIC RU must secure the necessary conditions of pursual.

Should a UIC RU not conform to its obligations under the conditions of this leaflet, the justification for allocation of the protected EUR symbol (EUR) will be removed.

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

1.7.3 - Illegal use of symbols

In the case of illegal use of the symbol the pallets cannot be brought into circulation as EUR flat pallets.

The markings must be **permanently** obliterated with water insoluble black paint.

Should national law so permit, the pallets **must be** immediately destroyed.

1.7.4 - Additional markings

From 1.1.2010, with a transition period until 1.7.2010, a control staple on the centre block is mandatory for all new EUR pallets. This document that the correct quality inspection has been undertaken according to this leaflet.

Other possible markings must first be approved by the UIC WG "Questions on palletising".

1.8 - Quality control

The approving UIC RU according to Appendix **N** / the pallet organisation according to Appendix **L** must check the quality of the finished EUR pallets by batch according to the random test schedule in accordance with point **J.2 - page 30** at the manufacturer / principal (quality check - see Glossary - **page 48**).

The measuring equipment required for this must be held 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 be calibrated annually. The measuring range of the measuring equipment must be arranged so that, depending on the dampness of the wood the required dimensions and tolerances can be checked.

The measuring equipment for determining the dampness must also be calibrated annually and must have a temperature adjustment.

Should no EUR pallets be presented for quality checking (no production), a check must be carried out at least once a year to determine whether the conditions for production according to this leaflet still exist or if approval (**see Glossary - page 48**) should be withdrawn.

1.8.1 - Own inspection

If the manufacturer has produced 30 000 EUR flat pallets (EUR-1/-2/-3/-6) according to the conditions within a half year and uses his own inspection which is recognised by the relevant UIC RU according to Appendix N - page 42 and the pallet organisation according to Appendix L - page 40 the approving UIC RU / the pallet organisation must check his correct procedure monthly, whereby unannounced visits for inspecting manufacture according to the following production figures must be carried out:

<u>Monthly production figures</u>	<u>Number of unannounced visits</u>
< 10 000	1x
> 10 000 < 50 000	2x
> 50 000 < 100 000	3x
> 100 000	4x

If own inspection has been granted, the test results must be listed in a defect recording card, cf. points J.4 - page 32 and J.6 - page 34, within the framework of an independent quality check.

At least every 20 minutes one pallet must be taken from the current production as a random test and checked. Evidence of the test results must be produced directly on site by the manufacturer within his independent quality control.

1.8.2 - Imported EUR pallets

The UIC RU, under whose auspices imported EUR pallets are first put into circulation, has the right to check these according to the random checking schedule in point J.2 - page 30.

In the case of negative results, the marks must be eradicated and the approving UIC RU must be advised of this.

They **must** authorise the relevant measures.

2 - Approval of EUR pallet manufacturers

2.1 - Approving RU

In principle every RU member of the UIC is entitled to approve a manufacturer within its area for the production of EUR pallets.

The approving UIC RU is entitled to use a pallet organisation according to Appendix **L - page 40** for these tasks.

It may approve manufacturers outside its area in accordance with Appendix **K - page 37**.

It may utilise a pallet organisation according to Appendix **L**.

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

2.2 - Approval

Approval shall only be granted if:

- the technical production conditions have been fulfilled,
- the manufacturer has committed himself in writing to adhere to the construction regulations and to accept the conditions regarding checking and quality control and,
- it has been proven by checking an inspection batch of 100 EUR pallets according to the defect record card, see points **J.4 - page 32** and **J.6 - page 34**, that the conditions of the leaflet were adhered to.

Approval takes place with the specific authorisation and obligation for the use of the protected EUR symbol (EUR) according to Appendix **I - page 28**, of the UIC RU symbol according to Appendix **N - page 42** or of the pallet organisation according to Appendix **L** and with the allocation of the manufacturer's code.

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

2.3 - Withdrawal of approval

Approval must be withdrawn in the case of :

- **non-compliance** with the conditions of this leaflet,
- illegal use of the symbol of another UIC RU according to Appendix **N - page 42** and/or the pallet organisation according to Appendix **L - page 40**,
- cessation of production or,
- declaration of insolvency or,
- winding up of the company or,
- at the request of the trade mark holder.

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

The **cancellation of foreign approvals** must be reported to the managing UIC RU.

Appendix A - Drawings and lists of parts

A.1 - Drawing EUR-2

EUR load carrier made out of wood - 1 200 mm x 1 000 mm

Positioning the fasteners in accordance with *UIC Leaflet 435-5*. The components are to be selected with permissible tolerances, in such a way that the pallet completely covers the base !

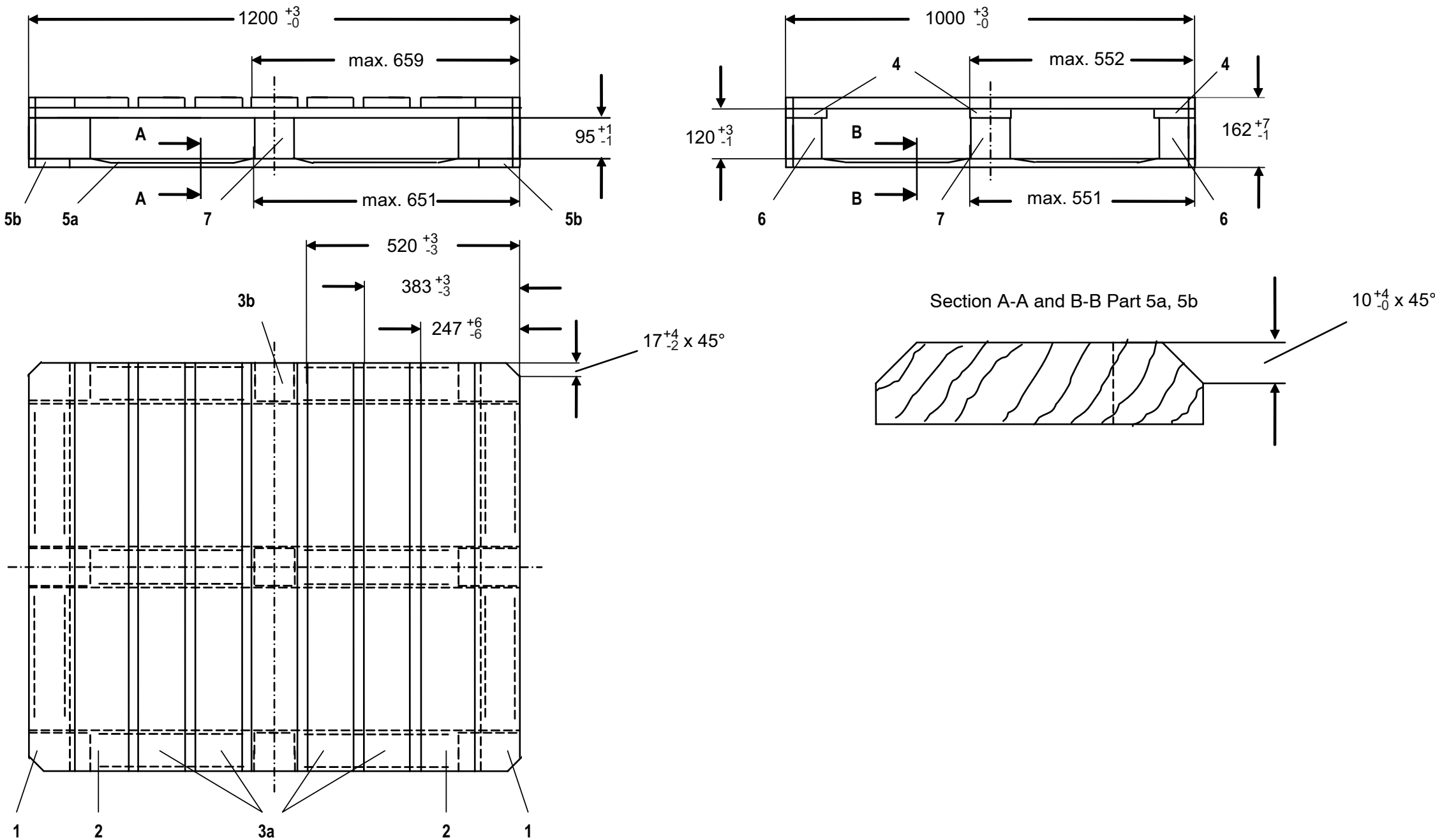


Fig. 1 - Drawing EUR-2