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Translation

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Standard of quality for a European flat pallet made of wood, measuring 800 mm x 600 mm (EUR-6)

Norme qualitative pour une palette plate européenne en bois, de dimensions 800 mm x 600 mm (EUR-6)
Gütenorm für einen EUR-Ladungsträger aus Holz mit den Abmessungen 800 mm x 600 mm (EUR-6)



UNION INTERNATIONALE DES CHEMINS DE FER
INTERNATIONALER EISENBAHNVERBAND
INTERNATIONAL UNION OF RAILWAYS

Leaflet to be classified in Volumes:

II - Freight traffic

IV - Operating

Application:

With effect from 1 April 2010

for all members of the International Rail Association,

We reserve the right to make technical amendments and correct mistakes and printing errors.

Record of updates

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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

The present leaflet concerns the manufacture, testing and marking of recyclable and repairable load carriers (EUR pallets) made of wood and measuring: 800 mm x 600 mm (EUR-6).

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 seen on the diagrams in Appendix [A - page 11](#).

In case of varying wood moisture of the elements, the shrinkage measurements in Table [3 - page 27](#) can be consulted.

1.2 - Load bearing capacity

The EUR-6 pallet is recommended for the following loads, when stacked correctly on shelves or the forks of a forklift truck:

- 750 kg, if the load is uniformly distributed on the surface of the pallet.

In a stack, the maximum additional load of the lowest EUR-6 pallet is:

- 1 500 kg, if it is on an even, horizontal and rigid surface and the load above it is horizontal and covers the entire surface.

1.3 - Construction

1.3.1 - Approved fasteners

For construction, only approved fasteners which comply with the regulations in Appendix [E - page 18](#) and ensure the strength of the EUR pallet in accordance with point [1.3.4 - page 3](#) may be used.

They must be tested, **applied for and registered** with a UIC RU ([see List of abbreviations - page 40](#)) in accordance with Appendix [N - page 35](#) / pallet organisation in accordance with Appendix [L - page 33](#).

Acceptance by other UIC RUs of fasteners that have been tested and granted approval by an RU / pallet organisation as per Appendix [L](#) 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 be deeply embedded in the wood, so that the heads do not protrude from the board surface. However, they must never be any more than 3 mm beneath the surface (in case of minimum pallet height).

The fasteners shown in the list of parts in Appendix [A](#) must be fitted into each block both from the top as well as the bottom side of the pallet, to prevent them from being in the same direction as the wood grain of the block, and so that they are at the greatest possible distance from each other.

A minimum distance of 15mm from the edges of the blocks and boards must be observed.

At least two fasteners are to be used for each connection between a stringer board and a deck board.

Fasteners which penetrate the underside of the stringer boards must be clinched.

1.3.3 - Other construction processes

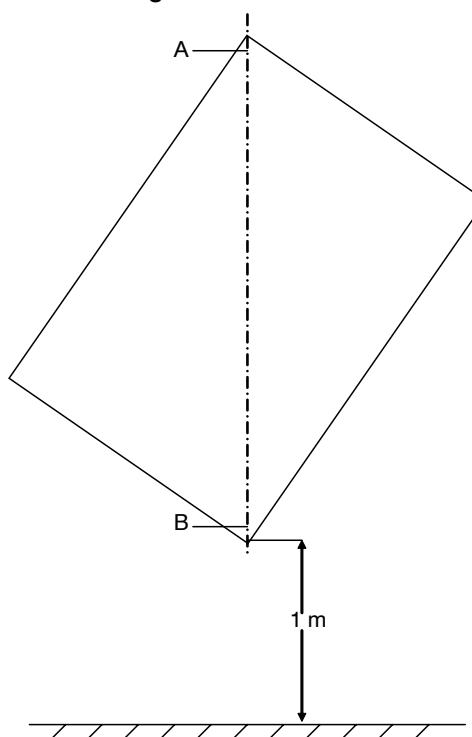
Other types of construction such as glueing, screwing or riveting must be **applied for and be granted the approval of** the executive UIC RU.

1.3.4 - EUR pallet strength test

The strength of EUR pallets must be tested by the approving UIC RU in accordance with Appendix **N - page 35** or by a pallet organisation in accordance with Appendix **L - page 33**. Testing must be performed every time a manufacturer (**see Glossary - page 39**) begins production, when a production method is modified or if the UIC RU / pallet organisation issuing the approval considers it necessary. Wood moisture content must be $20 \% \pm 2$ for natural wood. The corner drop test specified below must be passed.

1.3.5 - Corner drop test

- A diagonal of the deck surface of the pallet two points A and B must be marked at 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 hitting a flat, hard, firm and horizontal floor.
- The tests must be undertaken with 3 EUR pallets. A **test report** must be completed.
- The distance between 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, the reduction in the distance between points A and B must not exceed 3 % of the original distance.



1.4 - Treatment of the wood and 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 - Board

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 from one piece of wood, the grain must run parallel to the longitudinal side of the EUR pallets.

For construction with moulded wood chip blocks, only blocks made of wood chip material which complies with the regulations of Appendix C - page 14 and ensures the strength of the EUR pallet as per point 1.3.4 - page 3 may be used.

They must be tested and **approved** by the approving UIC RU in accordance with Appendix N - page 35 / pallet organisation as per Appendix L - page 33 .

1.4.4 - Bevelled Edges

The upper edges of the bottom boards and the four edges of the EUR pallet must have bevelled edges as shown in the diagram in Appendix A - page 11. 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 34.

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 17.

Other wood types may only be granted approval 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 is not permissible:

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

1.6.2 - Moisture content

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

Artificial drying is to be carried out and proven on each EUR-6 pallet.

1.6.3 - Wanes

Wanes are not permissible if oak is used. For other woods wanes are permissible on two edges of each part, provided that they do not have any bark, are on the top and do not exceed 10 mm when measured diagonally. They are not permissible for stringer boards, central bottom boards and the outer edges of outer deck and bottom boards.

1.6.4 - Knots

Knots with a diameter measuring up to 10 mm are not taken into account. Sound knots are permissible. Knots are considered sound if on one side 3/4 of their circumference is firmly grown into the surrounding wood.

On any part of a board whose length corresponds to board width, the diameter of a knot must not exceed:

- 1/4 of the board width for stringer boards
- 1/3 of the board width for other boards

and the sum of the diameters of several knots must not exceed:

- 1/3 of board width for stringer boards
- 1/2 of board width for other boards.

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

1.6.5 - Cracks

Only dry surface cracks are permissible in blocks. Only one continuous crack per board is permissible; it must not be longer than the width of the board and must not result from the board's construction.

1.6.6 - Discoloration

Blueing and slight discoloration due to seasonal conditions are permissible.

Discoloration due to poor drying 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 underside of the bottom boards.

In other places surface resin balls up to a length of 30mm are permissible.

1.6.8 - Wood grain direction

The slant of the wood grain in relation to the longitudinal edge may not exceed:

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

1.6.9 - Insect damage tunnels

In case of non-active insect infestation, tunnels (for example black bore holes) up to 3 mm in diameter are permissible in small numbers.

1.6.10 - Sap wood

Healthy sap wood is permissible in case of:

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

1.6.11 - Medullary rays

A medullary ray that has been cut into is permissible for blocks.

Enclosed medullary rays are generally permissible in case of pine wood, and in case of other woods only at 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 pallets (see Glossary - page 39) must bear the following symbols on the blocks of the 800 mm side:

- **on the left-hand corner block:** the mark of the approving UIC RU in accordance with Appendix N - page 35 and/or of the pallet organisation as per Appendix L - page 33 with a font size of at least 30 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 EUR symbol (EUR) in accordance with Appendix I - page 24 in addition to the number 6 with a font size of at least 15 mm.

The manufacturer code 000-0-00 indicates:

- the approved manufacturer in the first group of numbers / letters
- the last figure of the year of manufacture and the month of manufacture in the second group.

The symbols must be burnt in completely. Stamping together with dyeing is also permissible; the stamp must measure 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

The UIC RU must initiate legal proceedings, particularly in case of the illegal use and copy of the protected EUR symbol (EUR) in accordance with Appendix I - page 24, and of the UIC RU symbol as per Appendix N - page 35 / pallet organisation as per Appendix L - page 33.

The approving UIC RU must ensure that all the necessary resources are available for initiating these proceedings.

If a UIC RU does not fulfil its obligations as set forth by the present leaflet, the right to allocate the protected EUR symbol (EUR) will be removed.

This does not affect the RU's right to sue for damages and initiate legal proceedings.

1.7.3 - Illegal use of symbols

In case of illegal use of the symbol, the pallets may not be put into circulation as EUR flat pallets.

The markings (see Glossary - page 39) must be **permanently** obliterated with black paint that is insoluble in water.

If permitted by national law, 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 as per Appendix N - page 35 / pallet organisation in accordance with Appendix L - page 33 must check the quality of the finished EUR pallets by batch at the manufacturer / designer's site (quality check - see Glossary - page 39) in accordance with the sampling plan presented under Appendix J - page 25).

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

The measuring equipment for checking the dimensions must have an accuracy of 0,1 mm and be calibrated annually. The range of the measuring equipment must be adjusted so that the required dimensions and tolerances can be checked with regard to wood moisture.

The measuring equipment for determining the moisture must also be calibrated annually and be equipped with a temperature adjustment device.

If no EUR pallets are presented for quality inspection (no production), a check must be carried out at least once a year to determine whether the conditions for pallet production in accordance with the present leaflet still exist, or whether approval should be withdrawn.

1.8.1 - Internal inspection

If the manufacturer has produced 30 000 EUR flat pallets (EUR-1/-2/-3/-6) in accordance with requirements within six months and performs its own inspections, which are recognised by the relevant UIC RU as per Appendix N / pallet organisation as per Appendix L, the approving UIC RU / pallet organisation must verify the correct performance of this procedure monthly, by carrying out unannounced inspections on the manufacturing site according to the following figures:

<u>Monthly production figures</u>	<u>Number of un announced inspections</u>
< 10 000	1x
> 10 000 < 50 000	2x
> 50 000 < 100 000	3x
> 100 000	4x

If internal inspection has been authorised, the test results must be recorded by means of a defect record chart, cf Appendix J, as part of an independent quality check.

One pallet must be taken from the ongoing production at least every 20 minutes as a random sample and checked. Evidence of the test results must be produced directly on site by the manufacturer as part of its independent quality check procedure.

1.8.2 - Imported EUR pallets

The UIC RU in whose area imported EUR pallets are initially put into circulation has the right to check these according to the random checking schedule presented under Appendix J.

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

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

2 - Approval of EUR pallet manufacturers

2.1 - Approving RU

In principle it is the right of each member RU of the UIC to approve a manufacturer within its area to produce EUR pallets.

The approving UIC RU has the right to task a pallet organisation with issuing this approval in accordance with Appendix [L - page 33](#).

It may issue approval for manufacturers outside its sector, as per Appendix [K - page 30](#).

It may task a pallet organisation with issuing this approval, as per Appendix [L](#).

In principle, applications for overseas approval **must be submitted** to the executive UIC RU **and receive its approval**.

2.2 - Approval

Approval will only be granted if:

- the technical production conditions have been fulfilled,
- the manufacturer has committed itself in writing to observe the pallet construction regulations and fulfil the requirements in terms of checks and quality control
- it has been proven by an inspection of a sample batch of 100 EUR pallets using a defect record chart, see Appendix [J - page 25](#) , that the requirements of the present leaflet were fulfilled.

Approval is formalised through specific authorisation and obligation to use the protected EUR symbol (EUR) in accordance with Appendix [I - page 24](#), and the symbol of the UIC RU in accordance with Appendix [N - page 35](#) or pallet organisation as per Appendix [L](#) and through allocation of 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

Approval must be withdrawn in case of:

- **non-compliance** with the conditions set forth in the present leaflet,
- illegal use of the symbol of another UIC RU as per Appendix N - page 35 and/or pallet organisation as per Appendix L - page 33,
- cessation of production,
- declaration of insolvency,
- winding-up of the company,
- request by the trademark owner.

The **cancellation of approval** results in a ban on the use of the marking stamp, as well as its confiscation or destruction by the UIC RU / pallet organisation.

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