



B/BB BIRCH PLYWOOD GRADING

Norms of restrictions of plywood processing defects in accordance with the requirements of STO (corporate standard) 00255177-001-2013

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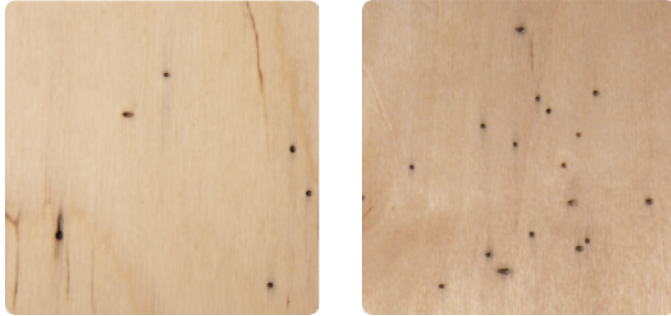
GRADE B ALLOWABLE DEFECTS

GRADE B / ALLOWABLE DEFECTS

Biological defects (wormholes)

Wormhole means channels or holes left in the timber by insects or larvae.

Measured at the part with largest diameter.



Allowable within total number in accordance with the norms for black knots.

For B:

Closed cracks

Closed shake (crack) is a chap with width not more than 0.2 mm.

Measured on maximal length and width.



Allowable length is up to 200mm, 5 pcs/m of sheet width.

GRADE B / ALLOWABLE DEFECTS

Dead knots, falling out knots, holes from fallen out knots (without bark)

Black knot is a knot without intergrowth of annual rings with surrounding wood or intergrowth along less than 1/4 of knot size perimeter.

Fallen out knot is a knot without intergrowth with surrounding wood and tightly standing in it.

Arithmetical average of minimal and maximal diameters is set as knot (hole) diameter.



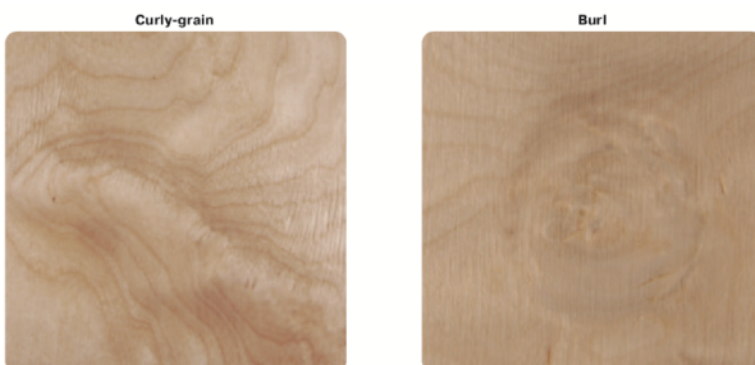
Allowable among black knots with diameter up to 6mm, 3 pcs/m².

Deviations in wood structure (curly-grain, burl)

Curly-grain is curved or disordered arrangement of wood fibres.

Burl is local curvature of annual rings caused by knots and bark pockets.

Curly-grain, eyes and burls are not measured. Their presence is registered as assortment making feature.



Allowable with no limitation.

GRADE B / ALLOWABLE DEFECTS

Deviations in wood structure (eyes)

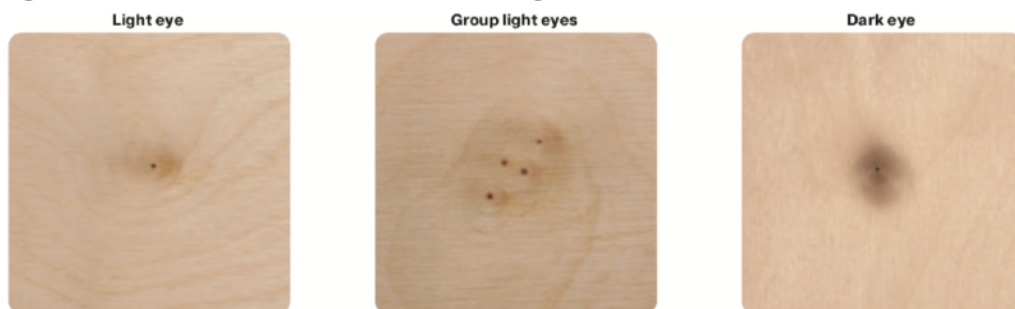
Eyes mean traces of non-deferred shoots. Eyes diameter is not more than 5 mm.

Dark eyes mean eyes with much darker wood than surrounding wood.

Light eyes mean eyes with wood color similar to surrounding wood.

Group eyes mean eyes grouped by three or more and separated in not more than 10 mm.

Curly-grain, eyes and burls are not measured. Their presence is registered as assortment making feature.



Allowable without number limitation.

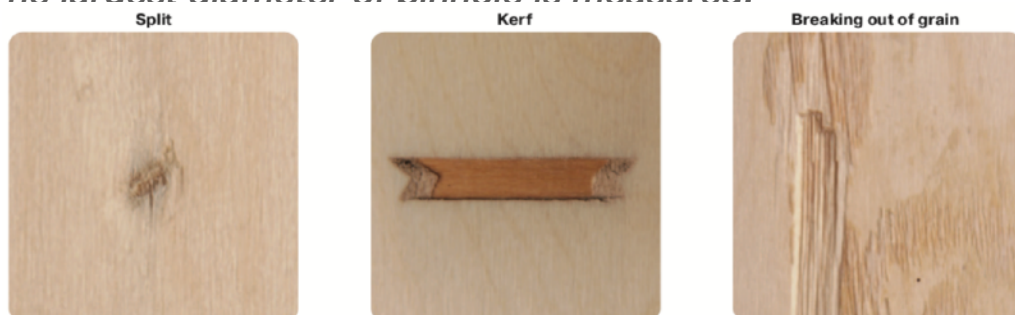
Mechanical damage (splits, kerfs)

Split is local damage by sharp object.

Kerf is local damage in sawing process.

Breaking out is surface cavity due to local wood removing during processing.

The largest diameter of pinhole is measured.



It is allowable within the total number in accordance with the norms for black knots.

For B:

GRADE B / ALLOWABLE DEFECTS

Live sound knots (light and dark)

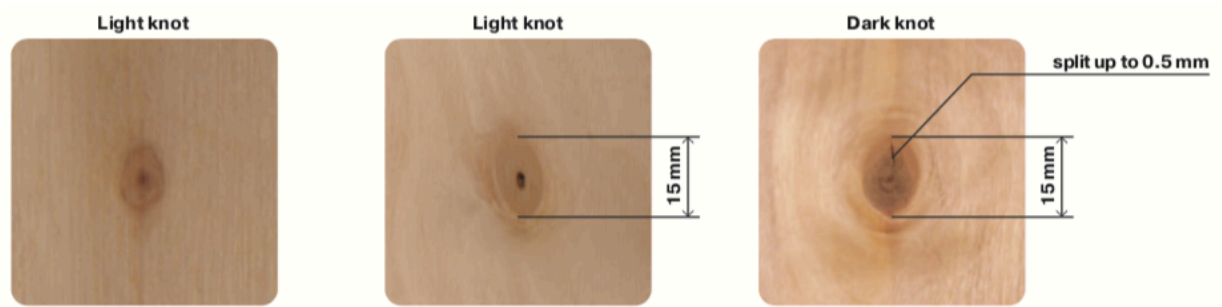
Intergrown knot is a knot with annual rings intergrown with surrounding wood along not less than 3/4 of knot section perimeter.

Sound knot is a knot with wood free of dote.

Light sound knot is a sound knot with light wood similar in color to surrounding wood.

Dark sound knot is a sound knot with wood much darker than surrounding wood, richly saturated with tar, tanning and heart materials, often with mottling.

Arithmetical average of minimal and maximal diameters is set as knot (hole) diameter.



Light ones with diameter up to 15mm with chap up to 0.5mm, 10pcs/m² are allowable.

Pin knot

Pin knot is a sound intergrown knot with diameter not more than 3 mm.

Arithmetical average of minimal and maximal diameters is set as knot (hole) diameter



Allowable with no limitation in sizes and number.

GRADE B / ALLOWABLE DEFECTS

Mineral streaks, sap stains (bluestain, colour sap spots), colour change at wood storage

Mineral streak is wood coloration in pale shades not masking its structure.

Bluestain is sap grey coloration with faint bluish tinge greenish cast.

Color sap spots are orange, yellow, pink (to light-purple) and brown sap color.

The defects shall be measured along the length and width of the area of their location, and shall be expressed in percentage of the plywood sheet square.

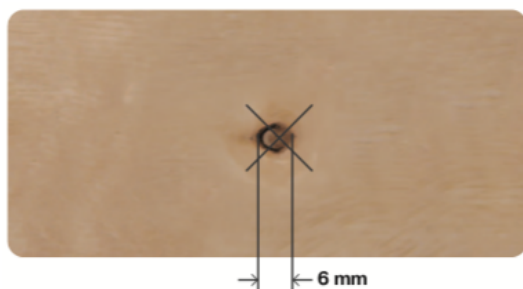


Allowable up to 30% of sheet area.

Partially intergrown knots

Partially intergrown knot is a knot with annual rings intergrown with surrounding wood along from 1/4 to 3/4 of knot section perimeter.

Arithmetical average of minimal and maximal diameters is set as knot (hole) diameter.



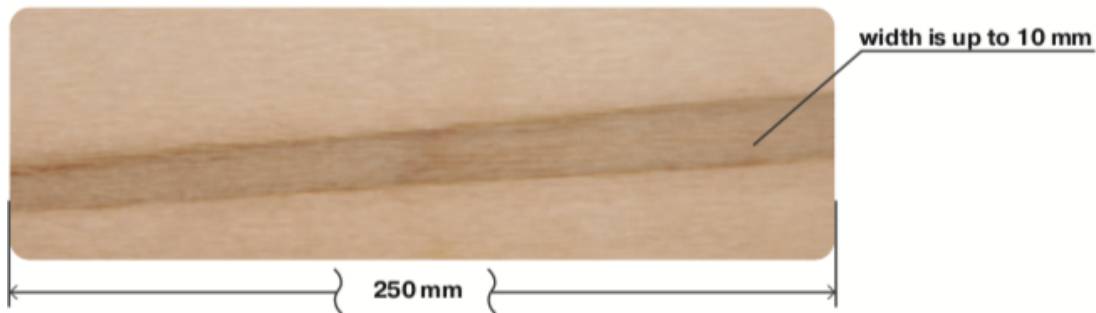
Allowable among black knots with diameter up to 6mm, 3pcs/m².

GRADE B / ALLOWABLE DEFECTS

Sound colour changes (mottles)

Mottles mean hardwood sap colour in the form of spots and strips without reducing wood hardness occurring in growing trees and similar in color to core colour.

Mottles length, width and number shall be measured.



The light one is allowable the length up to 175mm, width up to 4mm, 4pcs/m².

Sound colour changes (stringers, traces of stringers)

Stringers mean mottling in the form of thin yellowish and brown strips of spongy tissue located along border of annual rings.

Traces of stringers are bleached or darkish strips on veneer sheet area due to stringers under it at a depth of not more than 1 mm.

Stringers length, width and number shall be measured.



The light ones are allowable the length up to 175mm, width up to 4mm, 3pcs/m².

GRADE B / ALLOWABLE DEFECTS

Sound colour changes (veins groups)

Veins groups are stringers close spacing in the form of overlap strips.
Veins length, width and number shall be measured.

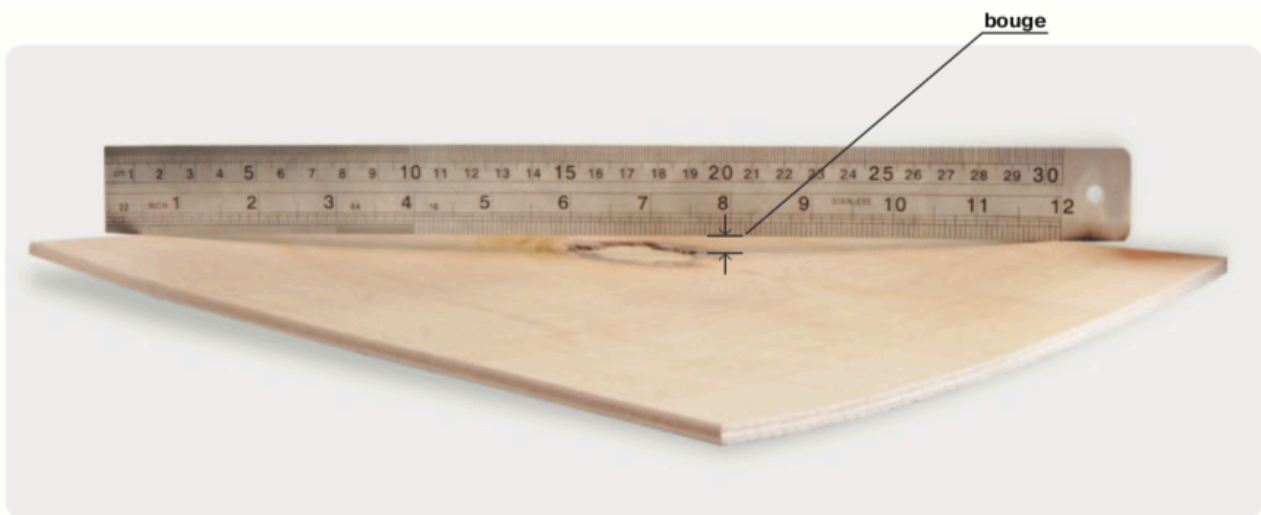


The light ones (30x30mm) are allowable, 1 per m2.

Warpage

Warpage is a curvature of plywood sheet flatness.

It is measured by putting ruler on the cross of a sheet placed on the flat surface and measuring maximal bouge.



Not considered in plywood with thickness of up to 6.5mm; it is allowable with thickness of over 6.5mm but not more than 15mm by 1m of sheet diagonal length.

GRADE B / ALLOWABLE DEFECTS

Wood defects (open inbark)

Open inbark is healing streak with radial gap cavity generally filled in with bark waste and dead tissues.

Bark pocket length shall be measured.



It is allowable within the total number in accordance with the norms for black knots.

Wood structure defects (grown together light and dark bark pocket)

Bark pocket is healing streak or scab with radial gap cavity generally filled in with bark waste and dead tissues.

Grown together bark pocket is a trace of closed bark pocket in the form of elongated section (seam) of wave growth timber on veneer sheet area.

Light bark pocket is bark pocket with wood similar in color to surrounding wood without bark inclusions.

Dark bark pocket is bark pocket with wood much darker than surrounding wood or with bark inclusions.

Bark pocket length shall be measured.

Light bark pocket



Dark bark pocket



Only light bark pocket is allowable, dark bark pocket is allowable in the size and in the number among black knots.

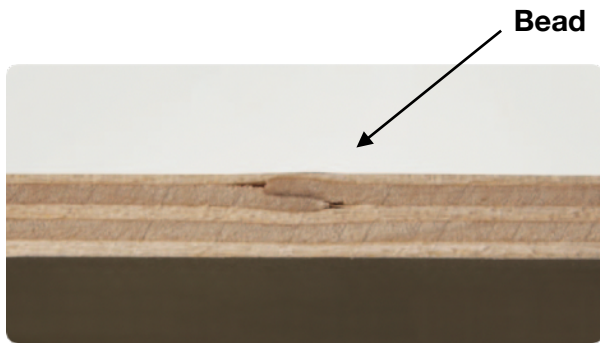
GRADE BB ALLOWABLE DEFECTS

GRADE BB / ALLOWABLE DEFECTS

Beads from side plates (traces of side plates)

Bead means a local thickening caused by overlapping of the inner layers of veneer sheet.

Both length and width shall be measured.



Allowable length is up to 200mm; width is up to 10mm, or 3 pcs/sheet

Biological defects (wormholes)

Wormhole means channels or holes left in the timber by insects or larvae.

Measured at the part with largest diameter.



Allowable within total number in accordance with the norms for black knots.

For BB:

GRADE BB / ALLOWABLE DEFECTS

Closed cracks

Closed shake (crack) is a chap with width not more than 0.2 mm.
Measured on maximal length and width.



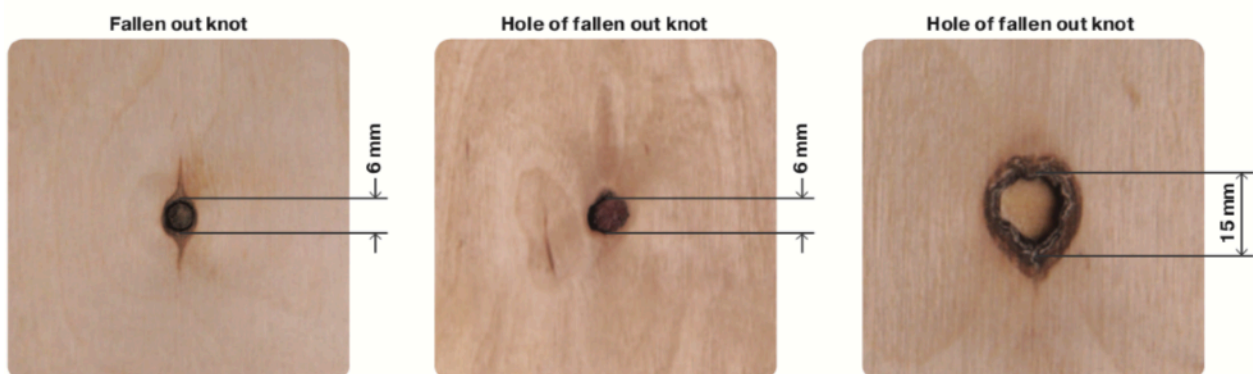
Allowable length is up to 300mm, 5 pcs/m of sheet width.

Dead knots, falling out knots, holes from fallen out knots (without bark)

Black knot is a knot without intergrowth of annual rings with surrounding wood or intergrowth along less than 1/4 of knot size perimeter.

Fallen out knot is a knot without intergrowth with surrounding wood and tightly standing in it.

Arithmetical average of minimal and maximal diameters is set as knot (hole) diameter.



Allowable among black knots with diameter up to 6mm, 3 pcs/m²

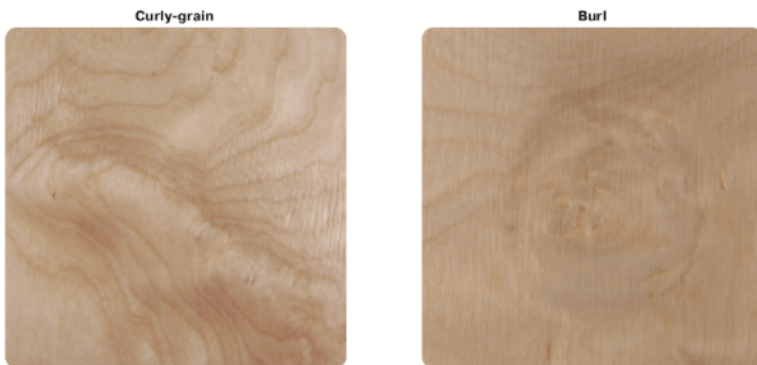
GRADE BB / ALLOWABLE DEFECTS

Deviations in wood structure (curly-grain, burl)

Curly-grain is curved or disordered arrangement of wood fibres.

Burl is local curvature of annual rings caused by knots and bark pockets.

Curly-grain, eyes and burls are not measured. Their presence is registered as assortment making feature.



Allowable with no limitation.

Deviations in wood structure (eyes)

Eyes mean traces of non-deferred shoots. Eyes diameter is not more than 5 mm.

Dark eyes mean eyes with much darker wood than surrounding wood.

Light eyes mean eyes with wood color similar to surrounding wood.

Group eyes mean eyes grouped by three or more and separated in not more than 10 mm.

Curly-grain, eyes and burls are not measured. Their presence is registered as assortment making feature.



Allowable without number limitation.

GRADE BB / ALLOWABLE DEFECTS

Double plug repair



Allowable max 1 pcs/m².

Edge defects because of grinding cuts (edging), veneer shortage

Veneer shortage means a defect characterized by lack of part of the veneer sheet in the plywood.

Edging means continuous or discontinuous area on the edge of the plywood with not completely separated wood fibres.

Edge defects because of grinding, cuts, veneer shortage measured along the max distance from the defect to the plywood sheet edge.

Veneer shortage



Veneer shortage



Veneer shortage in the inner layers



Shatters (defect due to cutting)



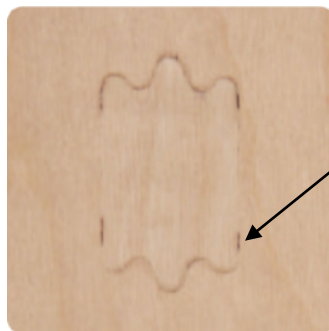
Allowable width is up to 5mm along the edge.

GRADE BB / ALLOWABLE DEFECTS

Glue seepage

Glue seepage is a defect in the form of strips and spots on plywood surface caused by glue penetration from lower glue layer.

It is determined as sum of separate spots squares on plywood surface to whole sheet area.



Seepage over plug

Allowable up to 2% of sheet area (for 3 to 21mm thickness).

Allowable up to 5% of sheet area (for thickness 24mm and above).

Mechanical damage (splits, kerfs)

Split is local damage by sharp object.

Kerf is local damage in sawing process.

Breaking out is surface cavity due to local wood removing during processing.

The largest diameter of pinhole is measured.

Split



Kerf



Breaking out of grain



It is allowable within the total number in accordance with the norms for black knots.

For BB:

GRADE BB / ALLOWABLE DEFECTS

Live sound knots (light and dark)

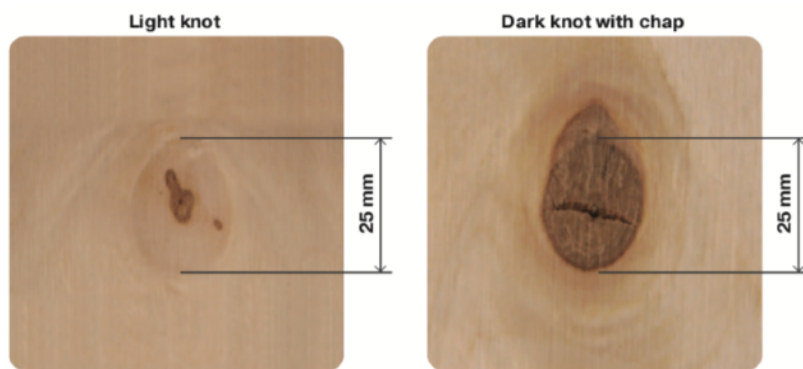
Intergrown knot is a knot with annual rings intergrown with surrounding wood along not less than 3/4 of knot section perimeter.

Sound knot is a knot with wood free of dote.

Light sound knot is a sound knot with light wood similar in color to surrounding wood.

Dark sound knot is a sound knot with wood much darker than surrounding wood, richly saturated with tar, tanning and heart materials, often with mottling.

Arithmetical average of minimal and maximal diameters is set as knot (hole) diameter.

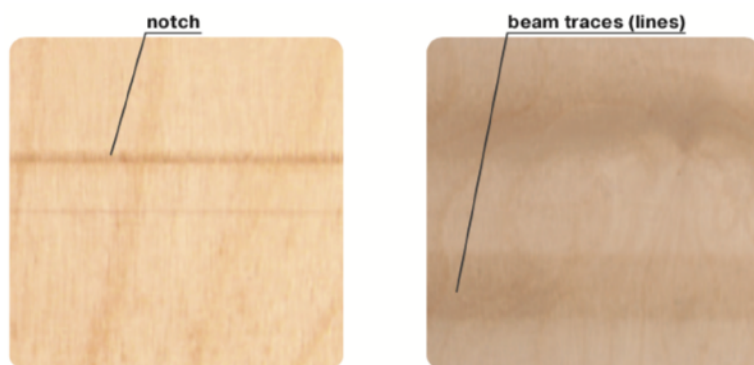


Light and dark ones with diameter up to 25 mm with chap up to 1 mm, 10 pcs/m² are allowable.

Manufacturing stains (beam traces, lines)

Notch is a trace of cutter on material surface.

Determined as assortment making feature.



Allowable not more than 10% of sheets in pack.

GRADE BB / ALLOWABLE DEFECTS

Mineral streaks, sap stains (bluestain, colour sap spots), colour change at wood storage

Mineral streak is wood coloration in pale shades not masking its structure.

Bluestain is sap grey coloration with faint bluish tinge greenish cast.

Color sap spots are orange, yellow, pink (to light-purple) and brown sap color.

The defects shall be measured along the length and width of the area of their location, and shall be expressed in percentage of the plywood sheet square.



Allowable up to 50% of sheet area (with false core).

Open splits, open seam on spliced veneer

Open splits are splits with width over 0.2 mm.

Open splits and open seam are measured by maximal length and width.



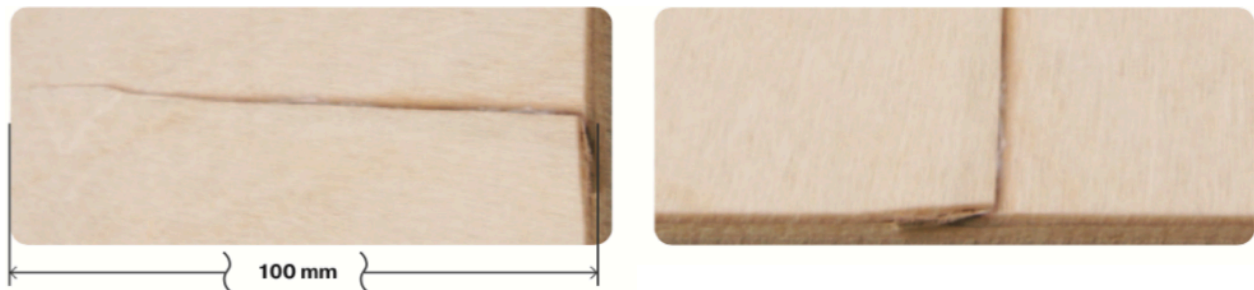
Allowable length up to 250mm, width up to 2mm, 3pcs/m of sheet width.

GRADE BB / ALLOWABLE DEFECTS

Overlapping

Overlapping is a local thickening caused by overlapping of veneer sheets in the external layer of plywood.

Overlapping is measured on maximal length and width.

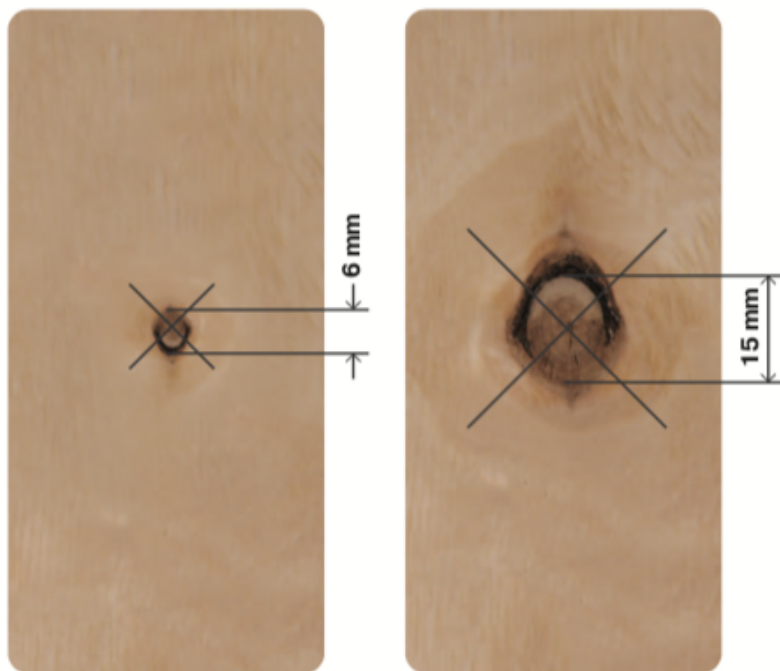


Allowable length up to 100mm, width up to 2mm, 1pcs/m of sheet width.

Partially intergrown knots

Partially intergrown knot is a knot with annual rings intergrown with surrounding wood along from 1/4 to 3/4 of knot section perimeter.

Arithmetical average of minimal and maximal diameters is set as knot (hole) diameter.



Allowable among intergrown knots with diameter up to 15mm, 10pcs/m².

GRADE BB / ALLOWABLE DEFECTS

Pin knot

Pin knot is a sound intergrown knot with diameter not more than 3 mm.
Arithmetical average of minimal and maximal diameters is set as knot (hole) diameter



Allowable with no limitation in sizes and number.

Plug repair



8pcs/m² is allowable with colour and grain flow match.

GRADE BB / ALLOWABLE DEFECTS

Pocket (without bark)

Pocket is a cavity within wood or between annual rings filled in with tar or gum.

Both length and width shall be measured for pockets.



Allowable in size of group stringers (60x40mm) 1 pcs/m².

Sander skips (non-uniform sanding)

The defects shall be measured along the length and width of the area of their location, and shall be expressed in percentage of the plywood sheet square.



Allowable 5mm from the edge.

GRADE BB / ALLOWABLE DEFECTS

Scuffleness non-smooth

Scuffleness non-smooth is a surface cavity due to local wood removing during processing.

The defects shall be measured along the length and width of the area of their location, and shall be expressed in percentage of the plywood sheet square.



Allowable up to 5% of sheet area.

Sound colour changes (false core)

False core is dark varicoloured heart the border of that usually does not match with annual rings. It is separated from sapwood with dark (less often light) border and solid as surrounding wood.

The false core shall be measured along the length and width of the area of their location, and shall be expressed in percentage of the plywood sheet square.



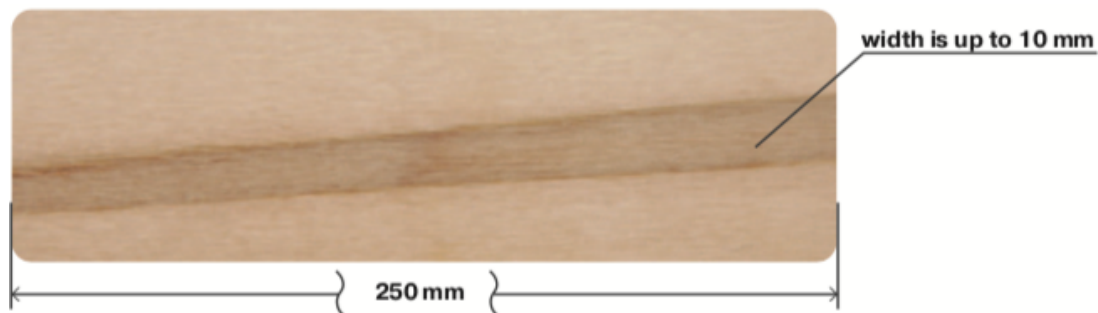
Allowable up to 25% of sheet area.

GRADE BB / ALLOWABLE DEFECTS

Sound colour changes (mottles)

Mottles mean hardwood sap colour in the form of spots and strips without reducing wood hardness occurring in growing trees and similar in color to core colour.

Mottles length, width and number shall be measured.



Allowable the length up to 250mm, width up to 10mm, 10pcs/m².

Sound colour changes (stringers, traces of stringers)

Stringers mean mottling in the form of thin yellowish and brown strips of spongy tissue located along border of annual rings.

Traces of stringers are bleached or darkish strips on veneer sheet area due to stringers under it at a depth of not more than 1 mm.

Stringers length, width and number shall be measured.



The light and dark ones are allowable the length up to 250mm, width up to 10mm, 10pcs/m².

GRADE BB / ALLOWABLE DEFECTS

Sound colour changes (veins groups)

Veins groups are stringers close spacing in the form of overlap strips.

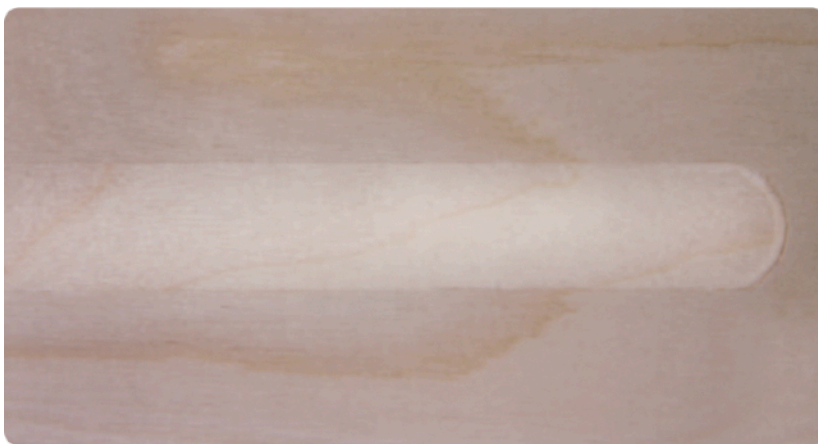
Veins length, width and number shall be measured.



The light ones (60x40mm) are allowable, 1 per m2.

Split repair with patches or plug repairs

Patch or plug repair if agreed with customer.



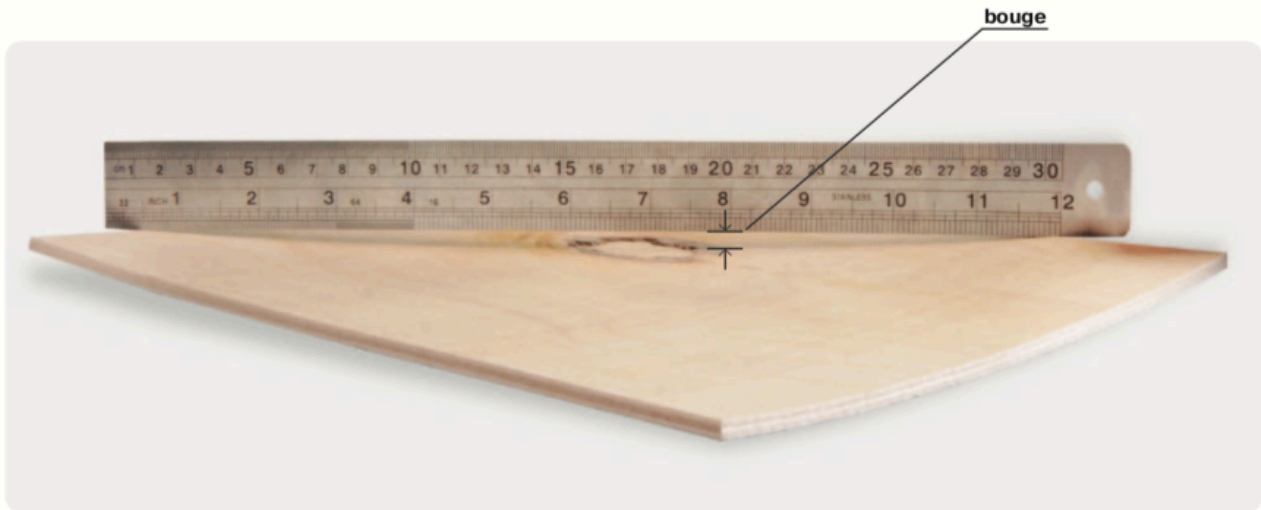
Splits over 2mm shall be filled with veneer sheet insertions with glue.

GRADE BB / ALLOWABLE DEFECTS

Warpage

Warpage is a curvature of plywood sheet flatness.

It is measured by putting ruler on the cross of a sheet placed on the flat surface and measuring maximal bouge.



Not considered in plywood with thickness of up to 6.5mm; it is allowable with thickness of over 6.5mm but not more than 15mm by 1m of sheet diagonal length.

Wood defects (open inbark)

Open inbark is healing streak with radial gap cavity generally filled in with bark waste and dead tissues.

Bark pocket length shall be measured.



It is allowable within the total number in accordance with the norms for black knots.

GRADE BB / ALLOWABLE DEFECTS

Wood structure defects (grown together light and dark bark pocket)

Bark pocket is healing streak or scab with radial gap cavity generally filled in with bark waste and dead tissues.

Grown together bark pocket is a trace of closed bark pocket in the form of elongated section (seam) of wave growth timber on veneer sheet area.

Light bark pocket is bark pocket with wood similar in color to surrounding wood without bark inclusions.

Dark bark pocket is bark pocket with wood much darker than surrounding wood or with bark inclusions.

Bark pocket length shall be measured.

Light bark pocket



Dark bark pocket



Light bark pocket is allowable, dark bark pocket is allowable in the size of intergrown knots.



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