1 Storage & handling

To preserve the technical and decorative qualities of the panels, we recommend that you take the following precautions :

- Store the panels on a flat, rigid, horizontal surface in air-conditioned premises :
  - In the European region : at a temperature of 10 to 30 °C with 40 to 60 % relative humidity.
  - In tropical areas : if the European region conditions cannot be obtained, please contact the technical department at Polyrey®.
- For HPL, ensure that the last panel is placed face down, and protected by a sacrificial panel, cardboard or film. For compact, ensure that it is kept inside the original packaging (plastic cover).
- Lift the panels carefully when handling them to avoid damage.
- Do not store film-covered panels for longer than six months. After six months, there is a risk of the adhesive sticking.
- For panels covered with a protective film, do not remove the film until after they have been fixed on site (if possible) but within two months (without exceeding the total limit of six months from the beginning of storage).
- For panels that are film-covered on both decorative sides, remove the film from both sides simultaneously.
- Panoprey® melamine faced board can be film-covered on demand, preferably on both sides, or on one side only. Single-sided film covering is recommended for cuts of 50 cm or less in width, to reduce the risk of bowing.

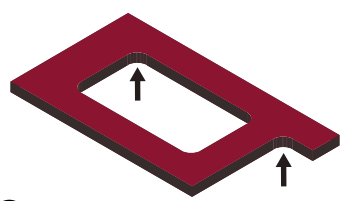
2 General application instructions

To reduce the risk of cracking and dimensional variations, the following rules must be observed :

1

The inside corners of the opening and cut-outs must be rounded up to the greatest possible radius :

- HPL, Polyprey®/Polyform®, HPL and Monochrom Black and Reysipur® : At least R = 5 mm for 250 mm
- HPL, Compacts Monochrom white and grey and Reysitop® : At least R = 8 mm for 250 mm
- This radius should be increased dependent upon the length of the notch (> 250 mm).



2

When cutting thin HPL, the longest length of the panel should be cut lengthwise according to the panels (sanding direction).

3

Ensure that all cuts are made in the same direction on the HPL, either lengthwise or crosswise (mark before cutting).

4

Before each stage of processing, the panels must be stored at temperatures and humidity levels similar to those in which they will be used :

- If there is a great difference between storage conditions and/or installation and/or usage, keep temperature and humidity shocks to a minimum :
  - With packaging : Plastic film,
  - With conditioning : At least 48 hrs.
- T° and RH in the European region : 18 to 25 °C and 25 to 60 % RH.
- T° and RH in tropical areas : 18 to 45 °C and 25 to 95 % RH.

5

Drilling holes for screws and fastening components (except wall covering) :

- Drilling a through hole : must be made 1mm larger than the diameter of the screw to allow for variations in the dimensions of the material
- Drilling a non-through hole : Drill to diameter smaller than the screw (by 0.5 to 1 mm), then screw.

3

Machining of laminates, compacts, melamine faced board and HPL bonded board

Standard wood cutting, finishing and drilling machines can be used. Preliminary tests are necessary to determine the characteristics of the tools and suitable cutting speeds, in order to avoid any overheating or a defective finish.

To obtain good cutting and finish quality, it is advisable to use : tungsten carbide or diamond cutting tools.

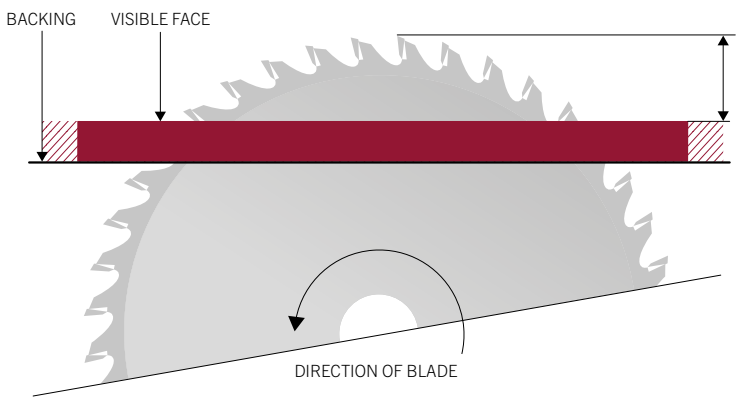
HPL and Monochrom white and grey compacts require the use of very sharp or diamond-treated tools, as well as a finishing procedure after cutting. Cutting and rotation speeds must be adapted to prevent yellowing.

Due to the nature of our resin, our melamine faced board requires a reduced cutting speed, to prevent chipping.

For all film-protected panels, the film should be kept on during finishing.

1 CUTTING WITH **AN INDUSTRIAL CIRCULAR SAW**

- Use a large-diameter blade (e.g. 240 mm) with at least :
  - 72 teeths,
  - a rotation speed of between 4000 and 9000 revolutions per minute.
- Preferably use blades with flat trapezoidal or alternating bevelled teeth for a better result.
- Secure the panels firmly, because cracks may start to appear due to vibration. Multiple panels can be cut at the same time.
- Adjust the cutting speed according to the thickness and hardness of the panel : the harder and thicker the material, the more the speed should be reduced.
- Position the decorative panel correctly depending on the position of the blade and the direction in which it rotates. As a general rule, the decorative side is placed uppermost.
- Adjust the cutting speed to optimise cutting quality.



2 CUTTING WITH **PORTABLE TOOLS**

The use of a manual circular saw requires some precautions to limit flaking :

- Use a blade with the largest possible diameter and at least 44 teeth.
- Place the decor side up. For all products with two decorative sides, use a sacrificial panel.
- Adapt the cutting speed to the thickness and hardness of the material.
- For non-linear cutting, it is possible to use a jigsaw with fine teeth for laminate material or metal. With this type of material, it is essential to make an overcut and to allow for a finishing operation.

3 CUTTING ON **A CNC**

The CNC is ideal for cutting and machining rigid panels (Compact, melamine and laminates).
The recommended rotation speed is between 18,000 and 24,000 rev/min.

4 SHAPING & EDGING

Common machining tools e.g router, with carbide blades, used at high speed are perfectly suitable. If the decorative face is positioned on the table, it is advisable to protect it to minimize the risk of scratching.

5 DRILLING

Manual drilling

To avoid damaging the decorative side, it is advisable to :

- Work on a sufficiently dense sacrificial panel,
- Prevent jolts,
- Ensure that the rotation speed is at the maximum,
- Choose an appropriate drill bit :

- Diameter < 10 mm : use HSS helicoil drill bits with a 75° to 80° point angle (10° to 15° attack angle) for small runs and tungsten carbide treated bits for large runs.
- Diameter ≥ 10 mm : use tungsten carbide treated helicoil drill bits, with a centring point.

For Polyprey® and Panoprey® panels, a hole cutter can be used.

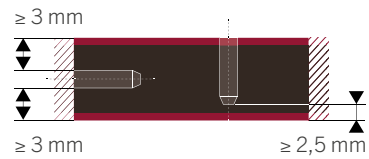
Digitally controlled drilling

- Rotation speed between 12,000 and 24,000 revolutions/min.
- The panel must be stabilised to prevent any vibration.
- Use drill bits with an attack angle of 10° to 15°.

6 MAKING RECESSED HOLES (REYSIPUR® & MONOCHROM COMPACT)

Recessed holes can be made in Compact panels with a minimum thickness of 12.5 mm by following the instructions set out below:

- Use a drill with a thrust block and a bit without a centring point.
- Leave a residual thickness of between 2.5 and 3 mm.
- If the hole is parallel with the panel, the residual thickness must be at least 3 mm on each side.



Preferably use a cutter-style flat ended drill bit.

4r Application of laminate panels

POLYREY HPL®, MONOCHROM & PUR MÉTAL®

1 GLUING (FLAT)

To glue to standard wooden cores such as particle panels, MDF or HDF, follow these recommendations:

- Store the substrates and laminate panels for at least 48 hours in the conditions described in part 2 of the general application instructions (page 110).
- Ensure the surface is clean, dry, flat and smooth.
- Work in an atmosphere similar to the final conditions for use.
- Apply the same amount and quality of glue to both sides of the substrate to alleviate the risk of bending.
- Adjust the temperature of the glue join, the pressure, and the pressing time according to the performance of the glue. On an indicative basis, depending on equipment and glues:

- **BRIHG/Soft finishes:** max. 70 °C – 1.5 kg/cm² – 30 s
- **Other finishes:** max. 70 °C – 2.5 kg/cm² – 30 to 60 s.
- **Monochrom HPL:** 60 °C max -60 s. to prevent the material drying out and cracks forming.

For bonding on any other substrate, we recommend you consult us.

As a general rule, gluing is done on a flat press with a short cycle or continuously, using dispersal glues - PVAC or polyurethane type.

Manual gluing using contact glues of the neoprene type are also possible, but is not recommended for white or grey Monochrom. The adjacent table sets out some examples per application. You are advised to conduct gluing tests and follow the glue manufacturer's instructions.

Type of glue	Gluing Method	Glue quantity	Procedure	Application
PVAC dispersal glue	**Manual** (spatula, roller) **Automatic** (roller)	**70 – 120 g/m²** HPL or support	Hot or cold plate press (24h advised)	Surface, edge
Contact glue with or without hardener and polychloroprene / neoprene glue	**Manual** (spatula, roller) with double gluing	**80 – 100 g/m²** HPL and support	Manual priming	Surface, edge
Reactive polyurethane glue	**Automatic** (roller)	**+/- 150 g/m²** HPL or support	Calendering	Surface
Heat fusion glue	**Automatic** (spatula, roller)	Depending if glue on HPL or substrate	Roller Press	Edge

2 BACKING

It is important to have a balanced panel backing. For optimum balance, laminate panels should be identical, with a bending tolerance of 2mm/ml, measured according to ISO 13894-1 norm on a 16 mm core bonded on both sides :

- Origin,
- Colour,
- Thickness,
- Grade,
- Direction of grain (sanding on the back),
- Film

In case of a backing panel, we recommend to make preliminary tests according to the application and use :

Laminate Panel	Balancing panel
Polyrey HPL® 0,8 - 1 mm	**ref. B999** (phenolic core decor white – FA finish)
Monochrom HPL 1,2 mm	**ref. Z092NB** for Monochrom Blanc Absolu **ref. Z092NN** for Monochrom Noir Absolu **ref. Z092NBC** for Monochrom Blanc Cristal **ref. Z092NG** for Monochrom Gris Absolu (through color core without decor - sanded finish)
Pur Métal® 0,8 - 0,9 mm	**ref. Z091** (kraft core without decor - FA finish)

3 POSTFORMING

It is best to work in a controlled environment with a high relative humidity level of 60 to 80 % and to avoid any overheating which would increase the risk of damaging the laminate panel (blistering, burning and delamination). Laminate panels can be postformed lengthwise (in the direction of the sanding on the back of the sheet).

The minimum curve radius for 0.8 mm Polyrey HPL® is 8 mm. The temperature must be between 155° to 185 °C depending on the material.

The postformability of the laminate panels declines over time depending on how it has been stored (it is at its best within 6 months of the date of manufacture).

4 COLD BENDING

Polyrey® laminate panels can be bent cold lengthwise and widthwise, both convexly and concavely. A shaped laminate panel is glued cold using a neoprene glue and needs double gluing and more glue (100 – 120 g/m^2).

Laminate Panel	Cold bending radius
Polyrey HPL® 0,8 mm Postforming	10 cm
Polyrey HPL® 0,8 - 1 mm Standard / M1	20 cm
Signature HPL 0,8 - 1 mm	20 cm
Pur Métal® 0,8 - 0,9 mm	20 cm
Monochrom HPL 1,2 mm	30 cm
Monochrom HPL 0,9 mm	25 cm

5 Application of melamine faced boards and HPL bonded boards

PANOPREY®, POLYPREY® & PANOMÉTAL®

1 TREATMENT OF EDGES

The edges of the cores must be solid. For melamine, ABS and PVC edgings, follow the recommendations of the manufacturer of the edging.

Application of HPL edging:

- For Polyrey HPL® edging, use heat fusion glue on an edge spreader, or contact glues for cold gluing. PVAC type glues can also be used.
- For White and grey Monochrom HPL edging, use white PVAC glue.

For an optimum finish, manual reworking is possible with a portable trimmer or a gentle file using fine-grain 120 emery paper.

For HPL bonded board, trimming or calibrating will be necessary, to create a reference side.

With MDF and multi-layer plywood, the edging may be left raw as long as they will not be exposed to intense humidity. Edges may also be varnished or stained.

Multi-layer plywood panels are similar to raw wood and may have knots. Light sanding is recommended after calibration. If there is a lack of material at the joints of the layers, this can be repaired with wood filler.

2 ASSEMBLY AND FIXING (GENERAL RULES)

Panels can be screwed together using wood screws, metal fittings, profiled fixings, etc.

For HPL bonded board:
HPL pre-drilled to the diameter of the screw to prevent cracking.
The support does not need to be drilled.

For melamine faced board:
No pre-drilling required.

3

VERTICAL INSTALLATION (WALL COVERING)

It is not recommended to fix panels directly to masonry. Vertical battens (600 mm between fixing points) must be used to enable air to circulate freely. Panels can be fixed to wooden battens by screwing or gluing with a 2 mm/ml expansion joint between panels.

4

HORIZONTAL INSTALLATION (WORKTOPS, ETC.)

Laminate panels are designed for covering moderately or heavily used surfaces: furniture, worktops, offices, reception desks, shop counters, etc. in accordance with the EN438 standard.

Depending on the final purpose, certain finishes can suffer premature visual deterioration. Signs of wear will be more obvious in the BRIHG, Extramat and Alliage finishes, either in their matt quality or gloss, or when the surface finish is pronounced, such as Roche. The Granit finish has greater friction resistance and is suitable for intensive horizontal use.

Resistance against scratches and chipping depends on the surface finish and colour of the laminate panel. As a general rule, marks are more obvious on smooth surfaces and darker colours. Special care should be taken when selecting the surface finish and decor for heavily used surfaces.

The direction of installation (horizontal/vertical) or changes in the direction (corner joints) have influence the way light reflects and the aesthetic properties of decorative surfaces. Some surface finishes have a more obvious grain than others, such as Touch and Alliage.

6 Use of Compact panels

REYSIPUR®, MONOCHROM

1

TREATMENT OF EDGES

Edges need no special treatment, but any sharp projections must be removed.

Depending on the final application, edges can be profiled, moulded, bevelled or chamfered using a trimmer or a finishing centre. For optimum quality, we advise using the fastest possible tool speed.

After the finishing operation, wipe the edge with a suitable oily product for a perfect finish (for example, linseed oil).

2

PROFILING

Profiling can be done using CNC and portable routers fitted with tungsten carbide cutters. To achieve a better finish to the Reysipur® Compact panel, the profiled area can be coated with linseed oil or paint, or waterproofed with an acrylic resin.

3

ASSEMBLING AND FIXING (GENERAL RULES)

It is essential to adapt the thickness of the Compact panel to the application:

- **Thickness 4 mm** dedicated to applications in which the whole surface of the panel is supported or inserted into a profile.
- **Thickness 6 mm** often used in U-shaped profiles (e.g.: wheeled furniture in hospitals and restaurants) or as a wall covering.
- **Thickness 8 mm** recommended for wall covering, to guarantee greater flatness.
- **Thicknesses 10 and 12.5 mm** suitable for use on work surfaces.

4

HORIZONTAL INSTALLATION (WORKTOPS, ETC.)

Two types of fixing are possible for assembling Compact panels:

- Screwing using thread-cutters with flat heads, inserts or pegs without flanges and wood or metal screws. Do not use screws with milled heads, or screw directly into the Compact panel with pointed screws, due to the risk of splitting.
- Glue on to dust- and grease-free surfaces with a flexible mastic polyurethane glue (refer to the manufacturer's recommendations).

The maximum distance between the fixing points of the panel will be 600 mm for 12.5 mm panels and 400 mm for 10 mm panels, with a maximum overhang of 250 mm. Installation on a pedestal or load-bearing frame reduces the risk of bending.

Two worktops can be connected by a tongue and groove system, profiled panels or edge-to-edge gluing. We recommend making a chamfer or V-profile when assembling panels to limit the effects of unevenness.

5 VERTICAL INSTALLATION (WALL COVERING)

Whichever installation method is used, it is essential to follow the instructions below so to avoid bending and stress problems:

- Ensure that the walls or partitions are completely dry, smooth and clean (especially when refurbishing).
- Allow a ventilation space of 5 to 20 mm behind the panels, a gap must be left at the top and bottom to allow for air circulation.
- Create a 2 mm/ml expansion joint between panels.

Fixing to masonry (plaster or plasterboard)

Set up wooden-battens, Compact or profiled metallic panels, fixed vertically at regular intervals (600 mm between fixing points) fractioned to enable air to circulate freely.
The overlapping panels can be fixed by gluing or screwing with screws or rivets.
For mechanical fixing, we recommend:

- 1 fixed point with a diameter equal to the diameter of the fixing, situated in the center of the panel.
- Several sliding points with a diameter 3 mm greater than the diameter of the fixing.

Fixing by gluing to a masonry support (brick, breezeblock, ceramic, roughcast, etc.)

Lay vertical strings of polyurethane mastic glue at least 5 mm thick, 10 mm away from the edge, 30 cm apart from one another and with breaks between them to ensure air circulation. To allow for the ventilation space, place wedges 5 mm thick in the strings behind the panels.

For gluing conditions, follow the glue manufacturers instructions.

6 FURNITURE AND INTERIOR FITTING

The usual assembly techniques can be used, depending on the thickness of the compact: tongue and groove, lamello, profiled fixings and hinges.

In accordance with EN438 norm, processing must be adapted in order to take into account thickness tolerances

Fixings can be screwed on, taking care to use flat screws or inserts. Sliding point and fixed points need to be made.

For glued assemblies, it is advisable to use reactive glues: epoxy or polyurethane glues without solvents or mastic glue.

For vertical items of furniture (e.g. furniture doors), it is essential to ensure ventilation behind the product through an opening in the thickness of the Compact panel. The number of hinges on the height of a door depends on its weight.

When used in a humid environment (lockers, cubicles, partitions), it is necessary to use support legs to ensure there is adequate air circulation and to protect against moisture from the floor. The Compact fixing in this type of attachment is achieved using a system of holes and head screws.

For futher information, please refer to the Compact technical guidelines document.

7 Maintenance of HPL, Compact, melamine faced boards and HPL bonded boards

1 ADVICE ON CLEANING AND USE

Daily maintenance is easy using a soapy sponge or a soft cloth.

For stubborn stains, use an appropriate organic solvent (White Spirit, acetone, etc.), rinse with warm water and wipe with an all-purpose paper towel.

Tea and coffee may stain the TOUCH surface if not wiped off immediately. These stains may be partly removed with a special cleaning sponge (see instructions for use).

HPL and Monochrom Compact White and Grey cores are more sensitive to some strongly-coloured substances such as wine, eosine, and cola drinks. Immediate cleaning is recommended. In the event of a stubborn stain, the edge may be renewed by sanding with fine emery paper and a sanding block.

If surface finishes such as Roche and Cuir become caked with dirty, we recommend cleaning with a soft-bristled brush.

Never use abrasive products (scouring powder, steel wool, black soap, Scotch-Brite), or bleaching agents, wax furniture polishes, cleaning products containing strong bases, acids or their salts (lime-scale removers, hydrochloric acid, drain cleaning products, silver cleaning products, etc.).

Spots of glue must be removed immediately. Neoprene or silicone joint blobs must be removed with the appropriate solvent and blobs of vinyl glue with hot water. Residual flakes of glue may be removed with acetone.

The longevity of laminate panels can be improved by following certain rules:

- Always use a chopping board and trivet.
- Wipe up spilled liquids immediately, avoid leaving water.
- Avoid sliding abrasive objects.

2 RESISTANCE OF LAMINATE AND COMPACT PANELS TO STAINING AND CHEMICAL PRODUCTS

The hard, non-porous surface of high-pressure laminate panels makes Polyrey's HPL and Reysipur® Compact panels highly resistant (according to standard EN438).

No surface deterioration after 16 hours of contact	Coffee, tea, fizzy and cola-based drinks, wine vinegar, fruit and vegetables, alcoholic drinks, meats and poultry, animal fats and oils, mustard, water, yeast suspended in water, salt solutions (NaCl), detergents, toothpaste, hand cream, nail varnish and nail varnish remover, lipstick, watercolour paint, laundry marking ink, ballpoint ink, soapy solutions, commercial disinfectants, acetone-based scouring solutions and other organic solvents, 10 % citric acid, basic stain removers diluted with water (< 10 %), oxygenated water (at 3 %), ammonia (concentrated at 10 %).
No deterioration if thoroughly cleaned within 10 to 15 minutes	Formic acid, < 10 % hydrochloric acid, < 10 % sulphuric acid, methylene blue, caustic soda (at 25 %) in peroxyde water (at 30 %), concentrated vinegar (30 % acetic acid), sanitary whitening and cleaning agents, bleach, cleaning agents based on hydrochloric acid (at 3 %), acid cleaning agents for metals, Mercurochrome®, wax polish, colouring and colour-lightening agents for hair, iodine dye, boric acid, varnish, lacquer and adhesives, hardening paint (except fast-drying products), lime-scale removing products based on aminodosulfonic acid (< 10 %), eosine and betadine.
Risk of surface deterioration	Acids concentrated at more than 10 %: aminosulfonic acid, arsenic acid, hydrochloric acid, nitric acid, perchloric acid, phosphoric acid, sulphuric acid. Strong acids : hydrobromic acid, chromic acid, hydrofluoric acid, sulfochromic acid, aqua regia.

For further information

The information set out above covers the general use and care of our products. For further information or special applications, please contact the technical department at Polyrey®. You may also refer to the notes available at www.polyrey.com.