

DECOMETAL®

2021 EDITION

FABRICATION GUIDE

ABOUT DECOMETAL® COLLECTION

DecoMetal® collection offers plain metals, patterns and textures in antique, classical and modern styles using real metal surfaces such as aluminum, copper, brass and stainless steel. Other polished effects have anodized aluminum surfaces and all other aluminum surfaces are coated with an epoxy lacquer to protect the aluminum foil. Copper, brass and SRM surfaces are protected with a UV lacquer.

DecoMetal® is intended for use in vertical and light duty interior applications, and DecoMetal® SRM is recommended for horizontal use. In some fluorescent lighting conditions DecoMetal® collection can display iridescent effects and panels should be viewed under actual lighting conditions prior to fixing or conditions of the final installation.

DecoMetal® collection, certain items are finished with hand made process, therefore, sheets are not identical, minor difference could occur from different production batch. Due to the high proportion of manual work, only decors of one production lot (*recognizable by the production date on the protective foil*) should be processed together.

DecoMetal® collection contain different surface material, so the fabrication details may differ from product to product, please refer to the following instructions especially the ones highlighted.



DecoMetal® collection including:
DecoMetal®, Magnetic Laminates, and SRM

HANDLING AND STORAGE

DecoMetal® collection should be kept flat during storage and transport. If this is not possible, positioning at an incline of approx. 80° with full-surface support and an abutment on the ground to prevent slipping is recommended. DecoMetal® products should not be rolled as this may induce a permanent bend in the laminate which will make subsequent fabrication more difficult. A protective coating is purely for transport protection only. Do not use adhesive tapes on the surface as they may damage the lacquer coating.

DecoMetal® collection are recommended to leave the protective foil on the surface during processing. This does not absolve you from a timely incoming inspection (prior inspection of colour, colour uniformity and other quality characteristics of the laminate). The surface protected by the removable protective foil should not be exposed to light for a long time. There is a risk that the foil will become more difficult to remove. (Use top cover!) The protective foil is not impermeable to liquids. To avoid changes to the adhesive strength of the protective foil on the panel surface, the storage temperature should not deviate from the above specified temperatures by more than $\pm 10^{\circ}\text{C}$ during longer storage periods.

DecoMetal® collection should be stored fully supported and horizontal, and the storage should be in a standard climate, i.e. approx. $18\text{--}25^{\circ}\text{C}$ and 50–60% relative humidity. Especially DecoMetal® SRM must be stored in a closed storeroom protected against moisture and UV radiation. The best conditioning is achieved in the room climate of the construction site. This conditioning is recommended because materials that are processed in an excessively moist condition will tend towards expansion over time, and materials that are too dry will tend towards shrinking. All materials should be conditioned together for at least 48 hours.

DecoMetal® should be handled and transported only by a moving or other professional with proper equipment and great care to avoid breakage and damage.

DECOMETAL® SHOULD BE STORED IN SHELTERED ROOMS



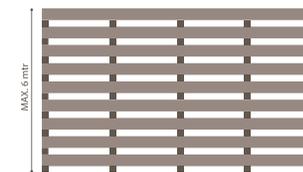
Temperature
~ 20°C



Humidity
~ 50%



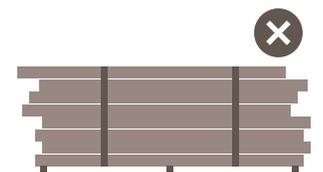
Dry, frost-free, clean
environment



DecoMetal® sheets
should always be stored
horizontally with a max.
height of 6m



Vertical storage is **NOT
RECOMMENDED** given
the risk of damaging the
edges

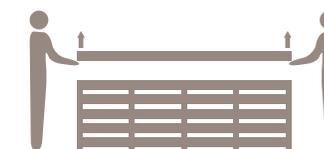


Edges and corners are
particularly exposed and
could be damaged as a
result of impacts



Fork Length
> 1.5m width

Load Capacity
> 2,500kg



Panel handling should be
carried out by two
persons



Single sheets should
be carried with the
pigmented part facing
the carrier's body

NOTE: Before removing the protective foil do not expose the laminates to light for a longer period of time (cover plate)!

PROCESSING

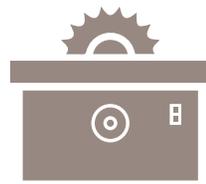
With the exception of Magnetic laminate, SRM and stainless steel items in DecoMetal®, DecoMetal® collection can be fabricated using the same techniques as for any Formica® laminate, however extra care is required to ensure good quality finished appearance.

During fabrication and installation always ensure that the sheets are all in the same running direction (as indicated on the protective coating), as variations in appearance can occur if sheets or panels are rotated through 90° or 180° in relation to each other. Sheets with linear features may need a dressing cut to properly align and position the feature relative to the edge.

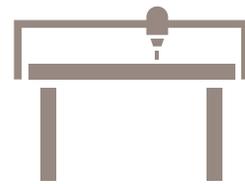
COMMON MACHINERY & TOOLS



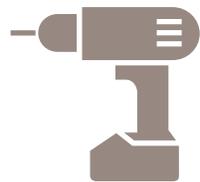
Drill Press



Panel Saw



Router Table



Electric Drill



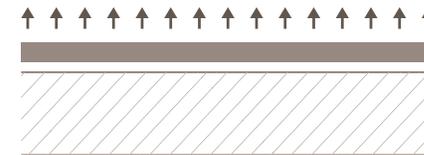
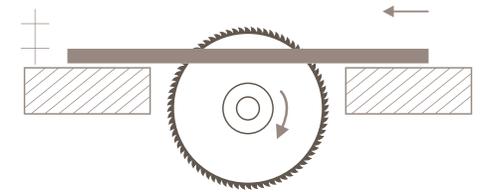
Circular Saw



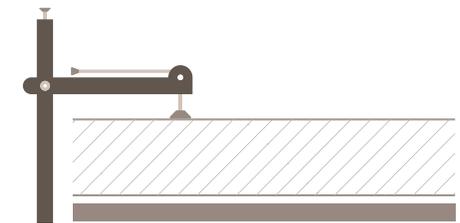
Hand-held Router

RECOMMENDED SPECIFICATION FOR CIRCULAR SAW

Tooth Pitch 10 to 15 mm	Cutting Speed 3,000 to 4,000 rpm
Tip Speed 60 to 100 m/s	Forward Speed 15 to 30 m/min



During cutting, DecoMetal® sheets should be placed with their decorative sides facing upwards



The sheet should be well supported and secured with an adjustable height pressure tool to prevent movement and vibration

PROCESSING STAINLESS STEEL ITEMS IN DECOMETAL®

Stainless steel is a very hard metal. Tungsten Carbide Tipped (TCT) saw blades with a triple chip tooth profile will produce good results. Always cut with the face-side up, allowing 20-25 mm of blade projection above the surface of the board. Reducing the throat of the saw to the kerf width by the use of a carrier board will eliminate pulling and bending of the laminate.

Reducing the cutter speed and/or increase the feed speed to achieve an acceptable finish with minimum cutter marks. Some experimentation may be required to achieve optimum results.

CAUTION: Burrs and metal edges are very sharp and can cut flesh and electric cables.

PROCESSING MAGNETIC LAMINATES

Magnetic laminate can be fabricated using similar techniques to all other Formica® laminate; however, certain recommendations should be followed to ensure a good finish. TCT circular saw blades should be used with a minimum of 60 teeth per blade with a tooth thickness of 1.8mm. The diameter of the blade should be 305mm. Saw blades with a negative hook are also recommended. Care should be taken when cutting the magnetic laminate sheets as sparks and flying chippings can occur. Eye protection must be worn even when guards are in place.

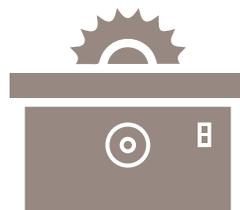
CUTTING

Machine
Circular saw bench and sizing saw bench with parallel stop and/or sliding table, CNC machining centres

Recommended RPM
n = 2,500 to 4,500 U/min

Recommended Feed Rate
vf = 6 -10 m/min (manual feed)

Recommended protrusion
ü = 15- 25 mm



NOTE: For tear free cut on both sides, the bottom side has to be pre scored. For that purpose the sawblade in the first pass is adjusted ca. 1mm over the table. In the second pass it then is splitted with the recommended adjustment.

JOINT AND SIZING

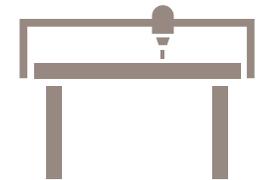
Machine
CNC-routers and machining centres

Cutting Direction
Against feed (GGL)

Tools Accessories
TC-solid spiral finishing cutter

Recommended RPM
n = 14,000 to 18,000 U/min

Recommended Feed Rate
vf = 5 - 10m/min



NOTE: In order to obtain as long performance times as possible, a continuous adjustment of the tool in the Z-axis has to be made during cutting (oscillating). The oscillating dimension should be 5-6 mm. The application of 2 tools is recommendable. 1 tool pre cuts the workpieces (oversize all around ca.2mm). Following the 2nd tool makes the contour.

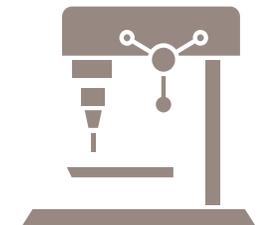
BORING

Machine
Automatic boring machine, CNC-machining centres, vertical boring machine

Recommended RPM
n = 4,500 U/min

Recommended Feed Rate
vf = 1 - 1.5m/min (drilling feed rate 0.5 m/min)

Tools Accessories
TC dowel drill Z2



NOTE: The drilling feed rate is adjusted up to ca. 2mm drilling depth. Then it can be bored with the stated drilling feed rate down to the final drilling depth. Throughholes can be produced by drilling a little bit deeper than to the middle of the board with the mentioned drills from both sides of the board.

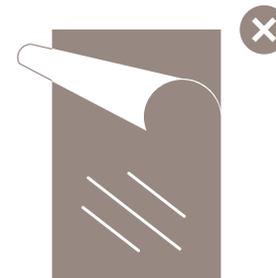
PROCESSING DECOMETAL® SRM

DecoMetal® SRM can be sawn, drilled and milled the same as all other decorative high-pressure laminates (HPL), but we recommend using carbide-tipped cutting tools. Experience shows that the best results are achieved using sharp or freshly ground saw blades / tools. For best results see our detailed processing information sheet. We recommend testing the cut quality by cutting a sample beforehand. The usual safety regulations regarding dust extraction and fire protection must be observed when processing and working with laminates. So make sure you are wearing gloves and safety glasses. We would like to point out that some of the SRM sheets have very sharp edges. Please take all necessary safety precautions. Precautions should be taken to avoid dust during processing and local regulations should be observed.

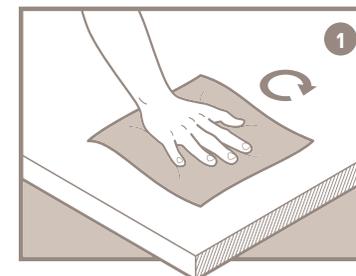
When processing the SRM sheets, always ensure you are working in the same running direction, otherwise there will be changes in appearance! When cutting to size, make sure that the decorative surface is always on top. Due to specific technical characteristics of the production process, the appearance of metal laminates may vary slightly. This is unavoidable. We always recommend only using decors from the same batch together (*recognisable by the production date on the protective foil*).

IMPORTANT INFORMATION ON DECOMETAL® SRM PROCESSING

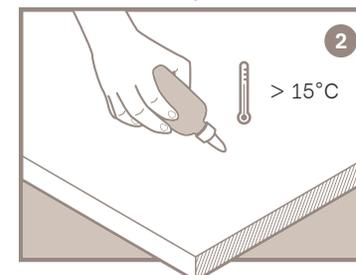
It is absolutely essential to make sure you keep everything completely clean when gluing DecoMetal® SRM onto appropriate support panels. Particularly when using a block press, it is important to ensure that no dust or chip residue adheres to the undersides and backs of the composite panels as otherwise you could end up with white markings on the lacquer surface. If, for example, the surface of the press is soiled by dried glue adhesions, we recommend using an insert (e.g., an MDF or HDF panel) to avoid marking. So far, this issue has been particularly critical when the laminates were cut to size before pressing and then not adequately cleaned. To minimise this problem, DecoMetal® SRM decors should only be processed with protective foil.



To store them properly, the protective film should never be removed from just one side.



Prior to bonding, the sheet surface and support should be thoroughly cleaned



Bonding is best carried out at room temperature but never below 15°C

SUBSTRATES AND ADHESIVES

Due to the nature of the surface finishes (especially polished finish) only substrates with a high quality surface, free from undulations and imperfections, should be used. For DecoMetal® SRM, it is to be ensured that the moisture content of the substrate is not higher (see storage and conditioning).

Most adhesives can be used with the exception of those based on urea (i.e. UF and MUF types). Adhesives must be evenly spread and free from inclusions to avoid surface distortion. With polished finishes, best results are achieved using adhesives with low shrinkage (e.g. PVAc) to minimise telegraphing. Whilst good fabrication technique can minimise optical distortion, some surface ripple is inevitable and it is not possible to achieve a perfect mirror finish.

Commercially available adhesives and glues such as PVAc glue, two-component adhesives (epoxy) and neoprene contact adhesives are recommended.

EXCEPTION: Urea bonding adhesives are not suitable. Comply with the manufacturer processing instructions in all cases. Never use water-based adhesives when applying moisture-proof materials. The moisture in the adhesive cannot dissipate and, therefore, the adhesive bond cannot dry.

SUPPORTS	PVAC	CONTACT ADHESIVES	EPOXY
Wood Based; plywood, MDF, chipboard	★	★	★

PRESSING

DecoMetal® collection. should be press bonded to achieve optimum aesthetic appearance. Press platens and nip rollers must be clean and any creases in the protective coating should be smoothed down prior to pressing.

Any glue spillage should be removed immediately with warm water and a damp cloth. Cold or hot pressing (60°C maximum) can be used, at a pressure of 10-30 N/cm² (14-43 psi). Detailed information is necessary setting which pressure needs to be used for which product group (mirror finish = 10 N/cm²). When pressing embossed laminates suitable padding should be used to obtain uniform pressure.

BALANCING

Stresses always arise between two different materials that are joined together. Therefore, a substrate must be covered on both sides with materials that are subject to the same dimensional changes under the influence of heat and moisture (conditioning of all materials). This applies in particular if the finished composite panel is to be self-supporting and is not held by a rigid construction. The larger the areas to be covered, the more attention is to be paid to the choice of the backing type, a symmetrical construction and the density and rigidity of the substrate. Our experience shows that substrates of a thickness ≤ 13 mm are critical in terms of the flatness of the composite element.

Fundamentally, factors such as the rigidity and symmetrical construction of the substrate, uniform application of adhesive and press temperature, as well as the size and angle of attachment of the object have an over-proportional influence here. The best results are always achieved through the use of the same laminate from the same manufacturer on both the front and rear sides. Both sides must always be glued to the substrate with the same running or finish direction on both sides (never at right-angles to each other).

To keep costs low, the use of second-choice laminates of the same material, or special backing material without the finish quality of the top layer is recommended. The use of other materials as backing cannot be recommended – even if the physical characteristics are as close as possible to those of DecoMetal® collection – because the results can never be predicted with certainty.

DO NOT USE MELAMINE SURFACED DECORATIVE LAMINATES TO BALANCE DECOMETAL® COLLECTION.

For optimum flatness use the same laminate on both sides (Category A). Flatness meet BS 4965 requirements (1 mm maximum distortion over 600 mm length) can be achieved using the corresponding metallic balancer (Category B). For small panels, or where flatness is less important, a phenolic laminate backing board may be used (Category C). Pre-conditioning should be carried out as for normal laminates.

DECOMETAL® COLLECTION	CATEGORY A OPTIMUM FLATNESS	CATEGORY B FLATNESS WITHIN BS4965 LIMIT	CATEGORY C FOR SEALING PURPOSES ONLY
OTHER POLISHED FINISHES		D2017 Polished Metallic Balancer	
MATT AND BRUSHED		D2018 Matt Metallic Balancer	
EMBOSSSED ALUMINIUM	Laminate identical to that of face laminate	D2055 Aluminium Embossed Balancer	Universal backing board
EMBOSSSED COPPER		D2055 Aluminium Embossed Balancer	
COPPER		D2019 Copper Balancer	
STAINLESS STEEL		D2178	

FINISHING AND BENDING

FINISHING

Edges may be trimmed in the normal manner and any burrs can be removed with a fine file, always working towards the laminate surface. Corners of internal cut-outs must be radiused and free from chipping.

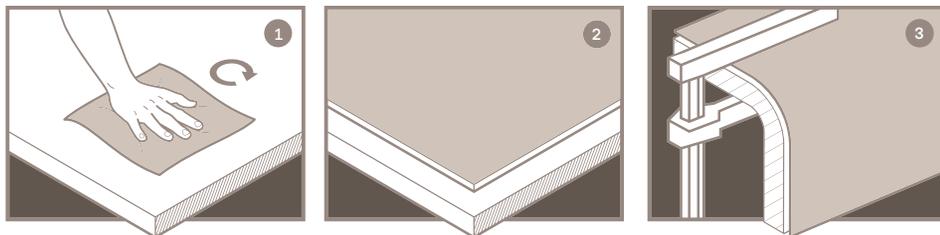
COLD BENDING

As a general rule, DecoMetal® collection strips in widths of up to 60 mm can be cold bent to a radius of 200 mm. Although it is possible to cold bend wider strips considerable force is required and, in addition to adhesive, the laminate must be fixed back with a metal section or capping strip to prevent spring-back.

(Please take bending radii references from our technical sheet)

NOTE: DecoMetal® SRM cannot be cold bended.

HOW TO COLD BEND WITH MOULDS



1 Prior to bonding, the surface should be flat and thoroughly cleaned of any dust, grease, or other particles that could cause defects

2 Prepare DecoMetal® to appropriate size for the surface

3 Apply counter-form mould lined with a felt surface and secure with clamps

POSTFORMING

PF grade for DecoMetal® are available upon request.

DecoMetal® SRM is not available for postforming.

CARE AND MAINTENANCE

DecoMetal® collection should be cleaned with warm soapy water or mild household detergent solution and a soft cloth. Abrasive cleaners must not be used. Strongly alkaline, strongly acidic, or cleaning agents with abrasive components must not be used. Solvent cleaners must be used with care and should be tried first on a scrap off-cut to ensure that no surface damage results. Solvents must not be used on products having UV-lacquer finishes.

Magnetic laminate should be cleaned the surface with a conventional spirit (ethyl alcohol) before using the product for the first time. For MATT finish, conventional classroom chalks can be removed using a soft cloth or a felt chalkboard eraser. Some ghosting may be visible, this can be removed using a damp cloth. For GLOSS finish, good quality drywipe marker pens or water-soluble liquid chalk pens can be removed using a microfiber-based eraser. If ghosting does occur then this can be removed by using a proprietary Whiteboard Cleaner, or similar.

NOTE: Alternative cleaning agents should only be used after consultation with Formica sales representatives.



Avoid use of abrasive products such as, scotch-brite pads



Avoid use of strongly acidic or alkaline products



Avoid use of bleach or heavily-chlorinated products



DO NOT use metal scrapers and tools to remove substances and stains from the surface



DO NOT use furniture polishes or wax-based cleaners



Use of chemical treatments should be consulted against latest maintenance guidelines from Formica®

FIRE AND EXPLOSION PROTECTION

IN THE EVENT OF FIRE

DecoMetal® collection: As with any other material, in the event of incomplete combustion the smoke may contain toxic substances. The same fire-fighting techniques can be used on fires involving DecoMetal® collection that are used on wood-based building materials.

ENVIRONMENTAL AND HEALTH ASPECTS

DecoMetal® collection is a cured and therefore inert thermosetting plastic with a lacquered, closed and hygienic metal foil. DecoMetal® collection is a product and not a chemical substance, therefore the REACH Regulation does not apply.

FIRE AND EXPLOSION PROTECTION DATA

IGNITION TEMPERATURE	Approximately 400°C
FLASH POINT	None
THERMAL DECOMPOSITION	Possible above 250°C. Toxic gases (carbon monoxide, carbon dioxide) can be generated depending on the fire conditions (temperature, oxygen content, etc.).
FLAMMABILITY	DecoMetal® collection classified as being of normal flammability.
EXTINGUISHING AGENT	DecoMetal® collection has been assigned as Class A. Carbon dioxide, water jet or dry foam can be used to extinguish flames. Breathing apparatus and fire-protection clothing should be worn in the event of a fire.
EXPLOSION HAZARD	Processing, sawing, sanding, milling generates dust of class ST-1. Standard safety precautions and adequate ventilation are to be ensured.
EXPLOSION LIMIT	The dust concentration should be below 30 mg/m ³ .
PROTECTION AGAINST FIRE AND EXPLOSION	DecoMetal® collection should be treated in the same way as wood material in the event of explosions or fire.
STORAGE AND TRANSPORT	DecoMetal® collection is not classified as a hazardous substance for transport. There are no special requirements.
HEALTH ASPECTS	DecoMetal® collection is not classified as being hazardous to people or animals. There is no evidence of toxic or eco-toxic effects. The finish is physiologically harmless.
PENTACHLOROPHENOL	DecoMetal® collection does not contain PCP.
MISCELLANEOUS	DecoMetal® collection is not a hazardous substance within the meaning of the regulation on hazardous substances.

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