

PMMA Manipulation

Cleaning

PMMA can be cleaned with a solution of neutral detergent and water. Always clean with a soft cloth, applying very little pressure.

Cutting

IMPORTANT! Don't remove the surface protection film from the PMMA sheet before cutting; after finishing, blow or vacuum away any resulting shavings.

Manual cutting:

When sawing by hand, use a fine toothed saw. The sheet should be well secured to prevent vibration. Saw teeth must be sharp.

Knife cutting:

When knife cutting, score the sheet several times until the desired depth is reached (minimum half the thickness) applying even pressure.

The sheet should be well secured to prevent slippage. Then place it on a flat surface and apply gentle pressure until it snaps. Sandpaper may be used to remove any rough edges.

Circular saw cutting:

Saw blade diameter: 350-400 mm.

No teeth: 84-106.

Rotational speed: 2800-4500 rpm.

Cutting speed: 12-18 m/min.

Types of saw tooth:

Alternate or combined straight and trapezoidal teeth; sheets must be well secured to prevent them from cracking due to vibration during circular saw cutting. Cutting speed must be as uniform as possible. Saw blades should be sharpened regularly.

Polishing

PMMA sheet can be polished using a mechanical polisher rotating at about 1500 rpm and avoiding any surface heating. The polishing operation requires a balance between the rotating speed and the applied pressure. The final shine is achieved by using soft cloth or flannel discs at high speed (4000 rpm) with polishing paste

The edges may also be polished by means of hot air blast (200-300°C) or by use of a flame.

Drilling

Drill bits for wood and metal may be used.

Reduce the drill bit rpm for larger diameters.

Use water or air to cool the sheet.

Use a hole diameter 1.5 times larger than the screw diameter to account for sheet expansion.

The sheet should be well secured to prevent breakage.

A pointed object may be used to start the drilling.

Recommended drill speeds:

Diameter (mm)	r.p.m.
1,6	7.000
6,4	1.800
12,7	900

Bonding

PMMA sheet can be bonded to form a transparent joint. According to the type of application and the surfaces to be bonded, commercially available adhesives that are designed for use with PMMA sheet, such as those that contain dichloromethane, can be used.

IMPORTANT! To prevent air bubbles forming, leave the adhesive for a while until no bubbles can be seen before application.

Recommended procedure: The surfaces to be joined should be clean and free from grease. Leave the sheet to dry for 24 hours for maximum strength.

Thermoforming

PMMA sheet is easily thermoformed using an air circulation oven. The temperature of the sheet should exceed 140°C. When the sheet has been stored in a humid atmosphere it should first be dried for 2 to 4 hours at a temperature of approximately 80° to 85°C prior to thermoforming.

To obtain a good finish, the mould to be used can be heated to between 50° to 60°C. Excess temperature, however, may damage the sheet.

Remove the printed film before thermoforming to prevent print from the film marking the sheet.

Bending

To bend PMMA sheet, a bending jig is necessary, as well as a resistance or incandescent wire.

The area to be bent should be fully and evenly heated. We recommend that the smallest radius should be double the thickness of the sheet. It is advisable to cool the part of the sheet close to the bending line.

Decoration

PMMA sheet can be silk-screened. Acrylic based inks are recommended, as are dual component inks (epoxy or polyurethane). The sheet can also be painted using common spray methods. The surface requires no prior treatment, except cleaning).

Paints used should be those recommended by the manufacturer for use with PMMA. As a rule, those with an acrylic resin base and non-aggressive solvents are recommended. The sheet may also be vacuum metallised or hot foil stamped

Remove the printed film before printing to avoid that the film illustration picture could be fixed on the sheet.

Transport

Dirt and abrasive objects can damage the surface if rubbed.

During transport, always use flat, stable pallets, securing the sheets to prevent them sliding.

Ensure the sheets do not slide over one another when loading or unloading.

Lift by hand or using suction pads.

Storage

An incorrect position during storage may cause permanent deformation.

Store under cover in dry temperate conditions.

Stack the sheets on a flat, horizontal surface.

Cover the top sheet in each stack with a sheet of polyethylene or cardboard, etc.

Do not store PMMA in direct sunlight or in conditions of high.