

Processing Instructions

ESLON-DC-Plates can be processed with common plastic methods. The following information is intended to serve as a guideline.

1. Cutting and Machining

ESLON-DC-Plates may be cut with either a band saw or a circular saw. Generally, it is recommended to use the standard cutting speed for plastics. If possible, please use high speed machines (high cutting speed and reduced feed rate) in order to achieve clean cutting edges. The choice of a suitable saw blade should depend on the type of base material. For PMMA and Polycarbonate, uncrossed or carbide tipped saw blades are recommended, for PVC non-corrosive saw blades are mandatory. In order to avoid scratches on the surface, only remove the protective film after processing. When drilling ESLON-DC-Plates, slightly reduce drilling speed in order to avoid hairline cracks, which may appear around the perimeter of the drill hole. The use of twist or tap drills is recommended.

2. Forming and Bending

ESLON-DC-Plates are especially suitable for the forming of covers and hoods and for edge bending. However, we do not recommend fabrication methods such as vacuum forming or deep drawing. These processing methods will expand the conductive coating, which may cause the loss of the static dissipative properties of the sheet. Please find the recommended forming temperatures listed below.

Heat Bending (Heating by IR Heating Rods)					Forming (Circulating Air Oven)		
Heat Supply: to 3mm single-sided, otherwise double-sided					Recommended minimum plate thickness		
Plastic Type	Temperature	3mm	5mm	10mm	Plastic Type	Temperature	M min
PVC	120°C-130°C	1,5-3min	3-4min	3-4min	PVC	100°C-130°C	2mm
PMMA/Acrylic	130°C-160°C	1,5-3min	3-4min	3-4min	PMMA/Acrylic	130°C-160°C	3mm
Polycarbonate	150°C-160°C	3-5min	5-8min	5-8min	Polycarbonate	145°C-160°C	5mm

Generally, edge bending of ESLON-DC-Plates should be performed at a lower temperature range. Whitening around the surface edges may indicate overheating, however, the static dissipative performance of the sheet will not be affected. By all means, it is advised to perform preliminary bending tests in order to determine the optimum machine settings prior to processing.

Tempering Times for ESLON-DC PMMA		
Plate Size	Temperature	Duration
2mm - 3mm	80°C	1 - 2 hrs
4mm - 6mm	80°C	2 - 3 hrs
8mm - 10mm	80°C	3 - 4 hrs
15mm	80°C	4 - 5 hrs

When heat bending ESLON-DC, please keep in mind that generally temperatures should be lower than for standard materials in order to prevent any surface whitening around the bending edges. Generally, surface whitening indicates an overheating of the material. However, electro static conductivity only slightly decreases along the bending edges (approx. $10^8 \sim 10^9 \Omega$).

When heat bending the ESLON-DC ESD Standard version, the protective film may remain on the material on each side. ESLON-DC ESD Hard Coat may only be heat bent after the protective film has been removed.

ESLON-DC ESD Standard versions may be bent up to an angle of 90°, the ESLON-DC ESD Hard Coat version may be bent up to an angle of 70°. Solely ESLON-DC Polycarbonate PC407AS and PC427AS may be cold bent.

We strongly recommend to conduct bending tests with sample strips in order to calibrate the fabrication machines accordingly.

3. Bonding

Prior to the application of the adhesive, please make sure that the parts to be joined are prepared correctly. For the ESLON-DC ESD Standard version, the conductive coating must be removed from the surface area with an acetone-soaked cloth in order to ensure adhesion. For ESLON-DC ESD Hard Coat, the conductive coating must be removed mechanically, i.e. by milling or grinding. The remaining surface area should be covered with a tape in order to avoid any unintentional chemical damage to the conductive coating. For best adhesion, it is recommended to bevel the edges to be glued and so to increase the contact area. In order to facilitate the application of the adhesive, the surface area where the conductive coating is removed should be 2-3mm larger than the plate thickness of the counterpart.

Compatible Adhesives for ESLON-DC	
Type of Material	Adhesive
PVC	ESLON-DC Solvent Cement or solvent-based adhesives compatible with PVC, tetrahydrofuran, cyclohexanone
PMMA / Acrylic	Solvent-based methylene chloride adhesives, 2-component polymer adhesives
Polycarbonate	Solvent-based methylene chloride adhesives, subsequent baking necessary

When using ESLON-DC Solvent Cement for ESLON-DC PVC ESD Standard, the removal of the conductive coating is not required. If necessary, it is advisable to roughen up the surface for better bonding. Cyanoacrylate adhesives may be used on smaller parts. A precision spraying device or fine brush is recommended for the application of the adhesive.

4. Cleaning and Maintenance

For cleaning ESLON-DC-Plates, we advise the use of IPA (isopropyl alcohol, isopropanol), alcohol-based cleaning liquids or water. Never use cleaning liquids mainly based on organic solvents (i.e. acetone) on ESLON-DC ESD Standard. ESLON-DC ESD Hard Coat, however, may be cleaned with organic solvents on the sheet surface. Please note that abrasive or corrosive cleaning agents are generally not suitable for any plastic material. Glass and plastic cleaners as well as soap suds are suitable for cleaning ESLON-DC.