

# PROCESSING INSTRUCTIONS

## ESLON®-DC ESD plastic sheets

ESLON-DC-Plates can be processed with common plastic methods.

**The following information is intended to serve as a guideline.**

### 1. MACHINING

ESLON®-DC ESD sheets can be cut with either a **band saw** or a **circular saw** at normal speed: **High-speed machines** achieve clean cutting edges. Do not remove the **protective film** during machining to avoid scratching. Use unrestricted or carbide-tipped saw blades for ESLON®-DC ESD PMMA and ESLON®-DC ESD Polycarbonate.

When drilling holes with twist drills or conical drills, work with slightly reduced speed to avoid hairline cracks.

### 2. FORMING AND BENDING

**TIP:** To find out the optimal processing, carry out **initial trials** with test strips in advance.

When **bending** ESLON®-DC ESD plastic sheets, use lower temperatures than usual to prevent the edges from turning white. Whitening may indicate overheating, however, the static dissipative performance of the sheet will not be affected. ESLON®-DC ESD Standard sheets can be bent up to a 90° angle (ESLON®-DC ESD Hard Coat up to 70°). If an edge is bent to 90°, the surface resistance usually increases to approx.  $10^8 - 10^9 \Omega$ . The antistatic effect remains.

ESLON®-DC ESD Polycarbonate can be **cold bended** in general, if the sheet is thin enough. ESLON®-DC ESD PMMA should be **annealed before processing** to reduce internal stress and to achieve better dimensional stability of the material.

Only ESLON®-DC ESD Thermoform sheets are suitable for **thermoforming** (deep-drawing) and all other **processes, which involve strong heating and stretching** of the material.



### 3. BONDING

The surfaces to be bonded should be **pre-treated**:

1. Remove the coating of ESLON®-DC ESD Standard version with an acetone-soaked cloth; at ESLON®-DC ESD Hard Coat, the conductive coating must be removed mechanically. The width of the removed coating should be about 2-3 mm thicker than the sheet thickness of the counterpart.
2. Cover parts not to be bonded with adhesive tape or similar.
3. For a better adhesion, roughen the sheet surface and bevel the edges to be glued to increase the contact area.

A precision spraying device or fine brush is recommended for the application of the adhesive.

#### Suitable adhesives:

**PVC:** ESLON® Solvent Cement for PVC, Tetrahydrofuran, Cyclohexanone

**PMMA:** Solvent based methylene chloride adhesives, 2-component polymer adhesives. Anneal PMMA before and after bonding.

**Polycarbonate:** Solvent based methylene chloride adhesives. Subsequent baking necessary.

**Smaller parts can be bonded with cyanoacrylate adhesives if necessary.**



### 4. CLEANING AND CARE

For cleaning ESLON®-DC ESD Standard plastic sheets, we recommend cleaning agents like isopropyl alcohol (IPA), alcohol-based cleaning liquids and water. Do not use cleaning agents based on organic solvents (e.g. acetone, ketone, benzene or toluene) or abrasive cleaning agents.

ESLON®-DC ESD Hard Coat plastic sheets can be cleaned on the surface with organic solvents.



### 5. SCRATCHES

After a while, in any production process, scratches may occur on ESLON®-DC ESD plastic sheets. Single scratches have no impact on the antistatic dissipation. A large number of scratches increases the surface resistance - however, the dissipative effect is lost if there are visibly more scratched areas than there are still transparent areas. If the material is heavily scratched due to polishing machines, the performance of the antistatic coating can no longer be guaranteed!



### 6. FINAL TREATMENT

If necessary, „ESLON®-DC FC“ liquid is recommended for touching up manufactured parts. This should be applied additionally if fine hairline cracks have occurred during drilling of the plate. It is also recommended to re-treat very tightly formed radii.

#### Application of „ESLON®-DC FC“ for plate thicknesses:

- a) between 1 mm and 3 mm: radius/plate thickness < 5
- b) from 4mm: radius/plate thickness < 10



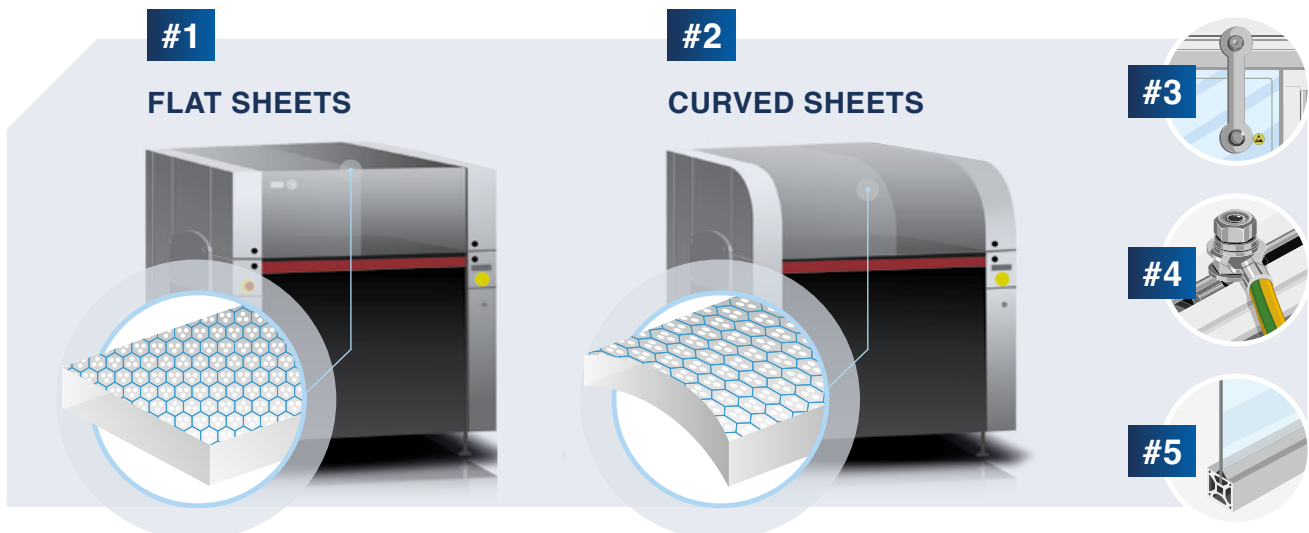
## 7. GROUNDING

In order to achieve optimum dissipation of electrostatic charges, ESLON®-DC ESD plastic sheets should be grounded on the upper side. The decay time while grounded is less than one second, the surface potential remains at a value between 0 and approx. 25 volts. Without grounding, the dissipation of static electricity may be delayed by several seconds.

A fixed contact point is sufficient for grounding.

### Exemplary connections:

- screw connection with cable or grounding tape (with washer if necessary)
- mechanical contact with electrically conductive metal (e.g. profile frame)
- use of electrically conductive sealing compound or e.g. conductive silver paint
- metal clamp connection



**1** Flat panels offer better electro-static dissipation **2** Curved panels offer less efficient electro-static dissipation **3** Potential equipotential bonding by hinge **4** Ground connection Al-profile (ESD) **5** Grounding by panel element