

## Working directions for FOREX<sup>®</sup> smart

### Cutting to size

FOREX<sup>®</sup> smart should be cut on the usual horizontal and vertical circular panel saws. Take care to set the clamping devices and draw-in claws (if available) to minimum pressure. Keen saw blades with an appropriate cutting geometry (tungsten carbide tipped alternate flat and trapezoidal tooth design) minimize crumbling at the edges and excessive burring.

Sturdy vertical sheet material cutters (e.g. Keencut) can also be employed for formatting FOREX<sup>®</sup> smart panels. The absence of dust particles is a big advantage of this type of equipment.

### Bonding

Commercially available adhesives for polystyrene (e.g. model making glue like UHU-Plast) are best for bonding the surfaces and edges of FOREX<sup>®</sup> smart cuts. In addition, FOREX<sup>®</sup> smart can be bonded to entirely different materials with high performance adhesive tapes (VHB<sup>™</sup> products).

### Fastening

Commercially available pressure-sensitive hangers are the easiest and fastest way to hang FOREX<sup>®</sup> smart prints from walls, support structures and ceilings. An alternative for smaller suspended items would be ring hooks which can be screwed into the top edge of the sign or picture.

FOREX<sup>®</sup> smart signs must be mounted to support structures allowing it free dimensional changing (e.g. with cable ties to a wire mesh fence or by using screws together with large washers). Take the thermal expansion into account! Use an awl to simply prick the fixing holes about 30 mm from the edge.

The **thermal expansion** (coefficient of linear expansion) of FOREX<sup>®</sup> smart is **0.08 mm/m/K**.

### Joining flat sheets and cuts

Individual FOREX<sup>®</sup> smart signs can be quickly assembled to free-standing information columns. Use for example double-U extrusions (W-profile) which are available from Alcan Kapa.

The edges of FOREX<sup>®</sup> smart sheets can be lined and decorated with every type of commercially available gauge 10 mm plastic (PVC) extrusions.

**Attention:** Use a PVC glue to bond PVC extrusions (polystyrene glue wouldn't do the job).

### Painting

FOREX<sup>®</sup> smart sheets (including their edges) can be painted in a choice of colours using acrylic paint from spray cans.

### Screen printing

FOREX<sup>®</sup> smart sheets can be screen printed using standard inks formulated for polystyrene. Four colour halftone prints may appear a bit darker than usual due to slightly smudged halftone dots. It may therefore become good practice to reduce the dot size in order to prevent 'overly-tanned' skin areas (e.g. faces).



### **Direct digital printing**

FOREX<sup>®</sup>smart sheets can be printed with excellent results using UV-curing inks on direct digital printing machines (flatbed machines). However, aggressive solvent based inks may attack the surfaces of FOREX<sup>®</sup>smart. Wear cotton gloves when handling unprinted sheets and wipe the sheets dry after having used liquid cleaning agents. Use ionized air to blow loose debris off FOREX<sup>®</sup>smart sheets prior to printing.

### **Application of adhesive films**

Compared to traditional sheet materials, the surfaces of FOREX<sup>®</sup>smart are slightly rougher. Prior to undertaking a commercial operation with FOREX<sup>®</sup>smart for the first time, some practical tests with familiar graphics film of known performance are highly recommended in order to verify that the envisaged film is really suitable for the intended purposes and locations.

Take care to avoid humidity, temperature differences between film and substrate and over-drawing of the film during its application.

Some fabricators insist on routinely treating the surfaces with primers or cleaning agents to assure extra good adhesion of graphic films on FOREX<sup>®</sup>smart.

On cutting plotters, prefer thin gauge lettering films with a high glue spread.

Whenever possible, use thin gauge, cast inkjet films because these cling best to the surface structure of FOREX<sup>®</sup>smart.

This effect can even be increased by wet lamination or if the film, after application, is slightly warmed up with a hot air gun and then pressed on with a hand roller.

The opposite, i.e. a poor adhesion, may result from attempting to laminate thick gauge films and particularly multi-layer film composites. The high rigidity of these films means that the adhesive, and therefore the film, is only adhering to a small part of the total surface available.

A good way to evaluate the adhesive performance of an envisaged film is to inspect the adherent face of the film after its (forced) delamination from the substrate:

- If the reverse of the film appears matt (contact with the substrate), then the overall adhesion will be satisfactory;
- If the reverse of the film appears glossy (little contact with the substrate), then the overall adhesion is likely to be poor;

### **Storage and transport**

Unprocessed sheets must be stored dry, flat and away from heat and dust. Surplus sheets are best kept in their original wrapping which should be carefully resealed for storage. General precautions must aim at preventing fire hazards. Do not store together with combustible materials.

Polystyrene is rather brittle compared to other plastics. Particularly the corners of already printed FOREX<sup>®</sup>smart sheets should be well padded for transport to prevent them from chipping and to avoid injuries from sharp corners.