

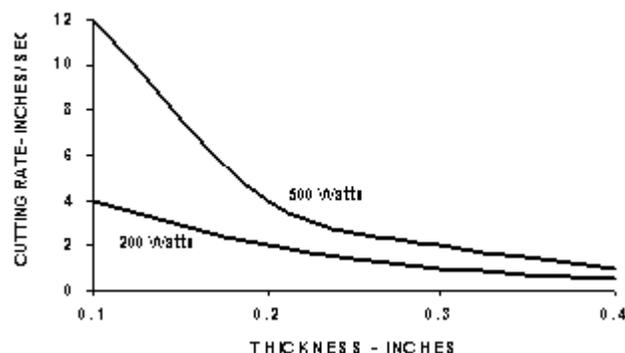
# PLEXIGLAS® SHEET: Cutting

## ACRYLIC SHEET

### PLEXIGLAS® SHEET: LASER CUTTING

- Since acrylic sheet absorbs electromagnetic energy at 10.6 micrometers, the wavelength of light emitted by a Carbon Dioxide (CO<sub>2</sub>) laser can be used to cut Plexiglas® sheet.
- During cutting it is necessary to use a coaxial assist gas and/or proper ventilation to remove vapors produced during cutting. Proper ventilation is critical to contain these vapors and to eliminate the torch effect of vapors being ignited as the plastic is cut.
- The cutting rate of the laser is dependent on the wattage of the laser. The higher the wattage, the faster the potential speed. Below is a chart of approximate acrylic/polycarbonate cutting rates.

FIGURE 1 : CUTTING RATE



- Laser cut edges may be cemented with solvent cements typically used to cement acrylic sheet. However, if the laser-cut edge is not exactly square cut, these joints can be weaker than skim-routed or saw-cut and cemented joint. The squareness of the edge can be adjusted by the laser focal length. The longer the focal length, the squarer the edge. Cutting rate is adversely affected with longer focal lengths.
- On acrylic, a laser-cut edge can approach flame polish clarity by reducing the cutting rate. However, the more flame polished, the more stress at the edge. Cementing flame polished laser cuts with solvent cements may lead to stress crazing. On polycarbonate, laser cutting produces an edge that may have an amber or brown appearance.

800 523-7500

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## TROUBLESHOOTING CIRCULAR SAW CUTTING

### **CIRCULAR SAW CUTTING - CORRECTIVE TECHNIQUES FOR CHIPPING**

Slow down feed rate.

Decrease blade penetration through sheet.

Provide hold down for material.

Check common teeth for uniformity of height.

Decrease rake angle of blade teeth.

Use blade with special tooth design to reduce chipping, such as No. 11 style from Forrest Mfg.

### **CIRCULAR SAW CUTTING - CORRECTIVE TECHNIQUES FOR MELTING**

Increase feed rate.

Increase blade penetration through sheet.

Insure that fence is parallel with blade.

Check blade flatness and bearing runout.

Clamp stacked material.

Insure blade is properly sharpened.

Insure blade tooth rake angle is positive (15 deg max/min).

Use blade with greater radial clearance, such as Forrest Mfg.'s "No-Melt" blade.

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